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Contents

1.1 pcre 8.44

1.1.1 Available under license :

PCRE2 LICENCE

Please see the file LICENCE in the PCRE2 distribution for licensing details.

End
PCRE2 LICENCE

PCRE2 is a library of functions to support regular expressions whose syntax and semantics are as close as possible to those of the Perl 5 language.

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The basic library functions are written in C and are freestanding. Also included in the distribution is a just-in-time compiler that can be used to optimize pattern matching. This is an optional feature that can be omitted when the library is built.

THE BASIC LIBRARY FUNCTIONS

Written by: Philip Hazel
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Cambridge, England.

PCRE2 JUST-IN-TIME COMPILATION SUPPORT

Written by: Zoltan Herczeg
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STACK-LESS JUST-IN-TIME COMPILER

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1.2 websocketpp 0.8.2

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Bundled Libraries:

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base64.cpp and base64.h

****** SHA1 Library (sha1/sha1.hpp) ******
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L. Peter Deutsch
ghost@aladdin.com

****** UTF8 Validation logic (utf8_validation.hpp) ******
utf8_validation.hpp is adapted from code originally written by Bjoern Hoehrmann <bjoern@hoehrmann.de>. See http://bjoern.hoehrmann.de/utf-8/decoder/dfa/ for details.

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1.3 json-cpp 1.9.4

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1.4 gloox 1.10.0

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1.7 gsoap 2.8

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1.8 tidy 5.8.0

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1.9 sipcc 12.8.0

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1.13 libxml2 2.9.13

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1.14 util-linux 2.36.1

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NR START   END SECTORS SIZE NAME UUID
1    32  7679    7648 3.7M      8f8378c0-01
2  7680 16383    8704 4.3M      8f8378c0-02
5  7936 12799    4864 2.4M
6 12544 16127    3584 1.8M
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Version 3, 29 June 2007

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1.15 gstreamer 0.10.30.1

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END OF TERMS AND CONDITIONS

Appendix: How to Apply These Terms to Your New Libraries

If you develop a new library, and you want it to be of the greatest possible use to the public, we recommend making it free software that everyone can redistribute and change. You can do so by permitting redistribution under these terms (or, alternatively, under the terms of the ordinary General Public License).

To apply these terms, attach the following notices to the library. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the library's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This library is free software; you can redistribute it and/or modify it under the terms of the GNU Library General Public License as published by the Free Software Foundation; either version 2 of the License, or (at your option) any later version.

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You should have received a copy of the GNU Library General Public License along with this library; if not, write to the Free Software Foundation, Inc., 51 Franklin St, Fifth Floor, Boston, MA 02110-1301, USA.

Also add information on how to contact you by electronic and paper mail.

You should also get your employer (if you work as a programmer) or your
school, if any, to sign a "copyright disclaimer" for the library, if
necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the
library `Frob' (a library for tweaking knobs) written by James Random Hacker.

<signature of Ty Coon>, 1 April 1990
Ty Coon, President of Vice

That's all there is to it!

1.16 libjpeg 9d

1.16.1 Available under license :

No license file was found, but licenses were detected in source scan.

/*
* jchuff.c
*
* Copyright (C) 1991-1997, Thomas G. Lane.
* Modified 2006-2019 by Guido Vollbeding.
* This file is part of the Independent JPEG Group's software.
* For conditions of distribution and use, see the accompanying README file.
*
* This file contains Huffman entropy encoding routines.
* Both sequential and progressive modes are supported in this single module.
*
* Much of the complexity here has to do with supporting output suspension.
* If the data destination module demands suspension, we want to be able to
* back up to the start of the current MCU. To do this, we copy state
* variables into local working storage, and update them back to the
* permanent JPEG objects only upon successful completion of an MCU.
*
* We do not support output suspension for the progressive JPEG mode, since
* the library currently does not allow multiple-scan files to be written
* with output suspension.
*/

Found in path(s):
* /opt/cola/permits/1103550007_1605777850.47/0/jpegsrc-v9d-tar-gz/jpeg-9d/jchuff.c
No license file was found, but licenses were detected in source scan.

IJG JPEG LIBRARY: CODING RULES

Copyright (C) 1991-1996, Thomas G. Lane.

This file is part of the Independent JPEG Group's software.
For conditions of distribution and use, see the accompanying README file.

Since numerous people will be contributing code and bug fixes, it's important to establish a common coding style. The goal of using similar coding styles is much more important than the details of just what that style is.

In general we follow the recommendations of "Recommended C Style and Coding Standards" revision 6.1 (Cannon et al. as modified by Spencer, Keppel and Brader). This document is available in the IJG FTP archive (see jpeg/doc/cstyle.ms.tbl.Z, or cstyle.txt.Z for those without nroff/tbl).

Block comments should be laid out thusly:

```
/*
*  Block comments in this style.
*/
```

We indent statements in K&R style, e.g.,

```
 if (test) {
   then-part;
 } else {
   else-part;
 }
```

with two spaces per indentation level. (This indentation convention is handled automatically by GNU Emacs and many other text editors.)

Multi-word names should be written in lower case with underscores, e.g., multi_word_name (not multiWordName). Preprocessor symbols and enum constants are similar but upper case (MULTI_WORD_NAME). Names should be unique within the first fifteen characters. (On some older systems, global names must be unique within six characters. We accommodate this without cluttering the source code by using macros to substitute shorter names.)

We use function prototypes everywhere; we rely on automatic source code transformation to feed prototype-less C compilers. Transformation is done by the simple and portable tool 'ansi2knr.c' (courtesy of Ghostscript). ansi2knr is not very bright, so it imposes a format requirement on function declarations: the function name MUST BEGIN IN COLUMN 1. Thus all functions should be written in the following style:

```
LOCAL(int *)
function_name (int a, char *b)
{
   code...
}
```

Note that each function definition must begin with GLOBAL(type), LOCAL(type), or METHODDEF(type). These macros expand to "static type" or just "type" as appropriate. They provide a readable indication of the routine's usage and can readily be changed for special needs. (For instance, special linkage keywords can be inserted for use in Windows DLLs.)

ansi2knr does not transform method declarations (function pointers in structs). We handle these with a macro JMETHOD, defined as

```
 #ifdef HAVE_PROTOTYPES
 #define JMETHOD(type,methodname,arglist)  type (*methodname) arglist
 #else
 #define JMETHOD(type,methodname,arglist)  type (*methodname) ()
 #endif
```

which is used like this:

```
 struct function_pointers {
   JMETHOD(void, init_entropy_encoder, (int somearg, jparms *jp));
   JMETHOD(void, term_entropy_encoder, (void));
 };
```

Note the set of parentheses surrounding the parameter list.

A similar solution is used for forward and external function declarations (see the EXTERN and JPP macros).

If the code is to work on non-ANSI compilers, we cannot rely on a prototype declaration to coerce actual parameters into the right types. Therefore, use explicit casts on actual parameters whenever the actual parameter type is not identical to the formal parameter. Beware of implicit conversions to "int".

It seems there are some non-ANSI compilers in which the sizeof() operator is defined to return int, yet size_t is defined as long. Needless to say, this is brain-damaged. Always use the SIZEOF() macro in place of sizeof(), so that the result is guaranteed to be of type size_t.

The JPEG library is intended to be used within larger programs. Furthermore, we want it to be reentrant so that it can be used by applications that process multiple images concurrently. The following rules support these requirements:

1. Avoid direct use of file I/O, "malloc", error report printouts, etc; pass these through the common routines provided.

2. Minimize global namespace pollution. Functions should be declared static wherever possible. (Note that our method-based calling conventions help this a lot: in many modules only the initialization function will ever need to be called directly, so only that function need be externally visible.) All global function names should begin with "jpeg_", and should have an abbreviated name (unique in the first six characters) substituted by macro when NEED_SHORT_EXTERNAL_NAMES is set.

3. Don't use global variables; anything that must be used in another module should be in the common data structures.

4. Don't use static variables except for read-only constant tables. Variables that should be private to a module can be placed into private structures (see the system architecture document, structure.txt).

5. Source file names should begin with "j" for files that are part of the library proper; source files that are not part of the library, such as cjpeg.c and djpeg.c, do not begin with "j". Keep source file names to eight characters (plus ".c" or ".h", etc) to make life easy for MS-DOSers. Keep compression and decompression code in separate source files --- some applications may want only one half of the library.

Note: these rules (particularly #4) are not followed religiously in the modules that are used in cjpeg/djpeg but are not part of the JPEG library proper. Those modules are not really intended to be used in other applications.

Found in path(s):
* /opt/cola/permits/1103550007_1605777850.47/0/jpegsrc-v9d-tar-gz/jpeg-9d/coderules.txt
No license file was found, but licenses were detected in source scan.

/*
* jerror.h
*
* Copyright (C) 1994-1997, Thomas G. Lane.
* Modified 1997-2018 by Guido Vollbeding.
* This file is part of the Independent JPEG Group's software.
* For conditions of distribution and use, see the accompanying README file.
*
* This file defines the error and message codes for the JPEG library.
* Edit this file to add new codes, or to translate the message strings to
* some other language.
* A set of error-reporting macros are defined too. Some applications using
* the JPEG library may wish to include this file to get the error codes
* and/or the macros.
*/

Found in path(s):
* /opt/cola/permits/1103550007_1605777850.47/0/jpegsrc-v9d-tar-gz/jpeg-9d/jerror.h
No license file was found, but licenses were detected in source scan.

/*
* jfdctfst.c
*
* Copyright (C) 1994-1996, Thomas G. Lane.

* Modified 2003-2017 by Guido Vollbeding.
* This file is part of the Independent JPEG Group's software.
* For conditions of distribution and use, see the accompanying README file.
*
* This file contains a fast, not so accurate integer implementation of the
* forward DCT (Discrete Cosine Transform).
*
* A 2-D DCT can be done by 1-D DCT on each row followed by 1-D DCT
* on each column. Direct algorithms are also available, but they are
* much more complex and seem not to be any faster when reduced to code.
*
* This implementation is based on Arai, Agui, and Nakajima's algorithm for
* scaled DCT. Their original paper (Trans. IEICE E-71(11):1095) is in
* Japanese, but the algorithm is described in the Pennebaker & Mitchell
* JPEG textbook (see REFERENCES section in file README). The following code
* is based directly on figure 4-8 in P&M.
* While an 8-point DCT cannot be done in less than 11 multiplies, it is
* possible to arrange the computation so that many of the multiplies are
* simple scalings of the final outputs. These multiplies can then be
* folded into the multiplications or divisions by the JPEG quantization
* table entries. The AA&N method leaves only 5 multiplies and 29 adds
* to be done in the DCT itself.
* The primary disadvantage of this method is that with fixed-point math,
* accuracy is lost due to imprecise representation of the scaled
* quantization values. The smaller the quantization table entry, the less
* precise the scaled value, so this implementation does worse with high-
* quality-setting files than with low-quality ones.
*/

Found in path(s):
* /opt/cola/permits/1103550007_1605777850.47/0/jpegsrc-v9d-tar-gz/jpeg-9d/jfdctfst.c
No license file was found, but licenses were detected in source scan.

/*
* wrjpgcom.c
*
* Copyright (C) 1994-1997, Thomas G. Lane.
* Modified 2015-2017 by Guido Vollbeding.
* This file is part of the Independent JPEG Group's software.
* For conditions of distribution and use, see the accompanying README file.
*
* This file contains a very simple stand-alone application that inserts
* user-supplied text as a COM (comment) marker in a JFIF file.
* This may be useful as an example of the minimum logic needed to parse
* JPEG markers.
*/

Found in path(s):

* /opt/cola/permits/1103550007_1605777850.47/0/jpegsrc-v9d-tar-gz/jpeg-9d/wrjpgcom.c
No license file was found, but licenses were detected in source scan.

INSTALLATION INSTRUCTIONS for the Independent JPEG Group's JPEG software

This file explains how to configure and install the IJG software. We have tried to make this software extremely portable and flexible, so that it can be adapted to almost any environment. The downside of this decision is that the installation process is complicated. We have provided shortcuts to simplify the task on common systems. But in any case, you will need at least a little familiarity with C programming and program build procedures for your system.

If you are only using this software as part of a larger program, the larger program's installation procedure may take care of configuring the IJG code. For example, Ghostscript's installation script will configure the IJG code. You don't need to read this file if you just want to compile Ghostscript.

If you are on a Unix machine, you may not need to read this file at all.
Try doing
 ./configure
 make
 make test
If that doesn't complain, do
 make install
(better do "make -n install" first to see if the makefile will put the files where you want them). Read further if you run into snags or want to customize the code for your system.

TABLE OF CONTENTS

BEFORE YOU START
================

Before installing the software you must unpack the distributed source code.
Since you are reading this file, you have probably already succeeded in this
task. However, there is a potential for error if you needed to convert the
files to the local standard text file format (for example, if you are on
MS-DOS you may have converted LF end-of-line to CR/LF). You must apply
such conversion to all the files EXCEPT those whose names begin with "test".
The test files contain binary data; if you change them in any way then the
self-test will give bad results.

Please check the last section of this file to see if there are hints for the
specific machine or compiler you are using.

CONFIGURING THE SOFTWARE
========================

To configure the IJG code for your system, you need to create two files:
 * jconfig.h: contains values for system-dependent #define symbols.
 * Makefile: controls the compilation process.
(On a non-Unix machine, you may create "project files" or some other
substitute for a Makefile. jconfig.h is needed in any environment.)

We provide three different ways to generate these files:
 * On a Unix system, you can just run the "configure" script.
 * We provide sample jconfig files and makefiles for popular machines;
   if your machine matches one of the samples, just copy the right sample
   files to jconfig.h and Makefile.
 * If all else fails, read the instructions below and make your own files.

Configuring the software using the automatic "configure" script
----

If you are on a Unix machine, you can just type
 ./configure
and let the configure script construct appropriate configuration files.
If you're using "csh" on an old version of System V, you might need to type
 sh configure
instead to prevent csh from trying to execute configure itself.
Expect configure to run for a few minutes, particularly on slower machines;
it works by compiling a series of test programs.

Configure was created with GNU Autoconf and it follows the usual conventions

for GNU configure scripts. It makes a few assumptions that you may want to
override. You can do this by providing optional switches to configure:

* Configure will build both static and shared libraries, if possible.
If you want to build libjpeg only as a static library, say
 ./configure --disable-shared
If you want to build libjpeg only as a shared library, say
 ./configure --disable-static
Configure uses GNU libtool to take care of system-dependent shared library
building methods.

* Configure will use gcc (GNU C compiler) if it's available, otherwise cc.
To force a particular compiler to be selected, use the CC option, for example
 ./configure CC='cc'
The same method can be used to include any unusual compiler switches.
For example, on HP-UX you probably want to say
 ./configure CC='cc -Aa'
to get HP's compiler to run in ANSI mode.

* The default CFLAGS setting is "-g" for non-gcc compilers, "-g -O2" for gcc.
You can override this by saying, for example,
 ./configure CFLAGS='-O2'
if you want to compile without debugging support.

* Configure will set up the makefile so that "make install" will install files
into /usr/local/bin, /usr/local/man, etc. You can specify an installation
prefix other than "/usr/local" by giving configure the option "--prefix=PATH".

* If you don't have a lot of swap space, you may need to enable the IJG
software's internal virtual memory mechanism. To do this, give the option
"--enable-maxmem=N" where N is the default maxmemory limit in megabytes.
This is discussed in more detail under "Selecting a memory manager", below.
You probably don't need to worry about this on reasonably-sized Unix machines,
unless you plan to process very large images.

Configure has some other features that are useful if you are cross-compiling
or working in a network of multiple machine types; but if you need those
features, you probably already know how to use them.

Configuring the software using one of the supplied jconfig and makefile files
----

If you have one of these systems, you can just use the provided configuration
files:

Makefile jconfig file System and/or compiler

makefile.manx jconfig.manx Amiga, Manx Aztec C
makefile.sas jconfig.sas Amiga, SAS C
makeproj.mac jconfig.mac Apple Macintosh, Metrowerks CodeWarrior
mak*jpeg.st jconfig.st Atari ST/STE/TT, Pure C or Turbo C
makefile.bcc jconfig.bcc MS-DOS or OS/2, Borland C
makefile.dj jconfig.dj MS-DOS, DJGPP (Delorie's port of GNU C)
makefile.mc6 jconfig.mc6 MS-DOS, Microsoft C (16-bit only)
makefile.wat jconfig.wat MS-DOS, OS/2, or Windows NT, Watcom C
makefile.vc jconfig.vc Windows, MS Visual C++
makefile.vs jconfig.vc Windows, MS Visual C++ 6 Developer Studio
make*.vc6
makefile.vs jconfig.vc Windows, Visual Studio 2019 (v16)
make*.v16
makefile.b32 jconfig.vc Windows, Borland C++ 32-bit (bcc32)
makefile.mms jconfig.vms Digital VMS, with MMS software
makefile.vms jconfig.vms Digital VMS, without MMS software

Copy the proper jconfig file to jconfig.h and the makefile to Makefile (or whatever your system uses as the standard makefile name). For more info see the appropriate system-specific hints section near the end of this file.

Configuring the software by hand

First, generate a jconfig.h file. If you are moderately familiar with C, the comments in jconfig.txt should be enough information to do this; just copy jconfig.txt to jconfig.h and edit it appropriately. Otherwise, you may prefer to use the ckconfig.c program. You will need to compile and execute ckconfig.c by hand --- we hope you know at least enough to do that. ckconfig.c may not compile the first try (in fact, the whole idea is for it to fail if anything is going to). If you get compile errors, fix them by editing ckconfig.c according to the directions given in ckconfig.c. Once you get it to run, it will write a suitable jconfig.h file, and will also print out some advice about which makefile to use.

You may also want to look at the canned jconfig files, if there is one for a system similar to yours.

Second, select a makefile and copy it to Makefile (or whatever your system uses as the standard makefile name). The most generic makefiles we provide are
 makefile.ansi: if your C compiler supports function prototypes
 makefile.unix: if not.
(You have function prototypes if ckconfig.c put "#define HAVE_PROTOTYPES" in jconfig.h.) You may want to start from one of the other makefiles if there is one for a system similar to yours.

Look over the selected Makefile and adjust options as needed. In particular you may want to change the CC and CFLAGS definitions. For instance, if you are using GCC, set CC=gcc. If you had to use any compiler switches to get ckconfig.c to work, make sure the same switches are in CFLAGS.

If you are on a system that doesn't use makefiles, you'll need to set up project files (or whatever you do use) to compile all the source files and link them into executable files cjpeg, djpeg, jpegtran, rdjpgcom, and wrjpgcom. See the file lists in any of the makefiles to find out which files go into each program. Note that the provided makefiles all make a "library" file libjpeg first, but you don't have to do that if you don't want to; the file lists identify which source files are actually needed for compression, decompression, or both. As a last resort, you can make a batch script that just compiles everything and links it all together; makefile.vms is an example of this (it's for VMS systems that have no make-like utility).

Here are comments about some specific configuration decisions you'll need to make:

Command line style

These programs can use a Unix-like command line style which supports redirection and piping, like this:

```
 cjpeg inputfile >outputfile
 cjpeg <inputfile >outputfile
 source program | cjpeg >outputfile
```

The simpler "two file" command line style is just

```
 cjpeg inputfile outputfile
```

You may prefer the two-file style, particularly if you don't have pipes.

You MUST use two-file style on any system that doesn't cope well with binary data fed through stdin/stdout; this is true for some MS-DOS compilers, for example. If you're not on a Unix system, it's safest to assume you need two-file style. (But if your compiler provides either the Posix-standard fdopen() library routine or a Microsoft-compatible setmode() routine, you can safely use the Unix command line style, by defining USE_FDOPEN or USE_SETMODE respectively.)

To use the two-file style, make jconfig.h say "#define TWO_FILE_COMMANDLINE".

Selecting a memory manager

The IJG code is capable of working on images that are too big to fit in main memory; data is swapped out to temporary files as necessary. However, the code to do this is rather system-dependent. We provide five different memory managers:

* jmemansi.c This version uses the ANSI-standard library routine tmpfile(), which not all non-ANSI systems have. On some systems tmpfile() may put the temporary file in a non-optimal location; if you don't like what it does, use jmemname.c.

* jmemname.c This version creates named temporary files. For anything except a Unix machine, you'll need to configure the select_file_name() routine appropriately; see the comments near the head of jmemname.c. If you use this version, define NEED_SIGNAL_CATCHER in jconfig.h to make sure the temp files are removed if the program is aborted.

* jmemnobs.c (That stands for No Backing Store :-).) This will compile on almost any system, but it assumes you have enough main memory or virtual memory to hold the biggest images you work with.

* jmemdos.c This should be used with most 16-bit MS-DOS compilers. See the system-specific notes about MS-DOS for more info. IMPORTANT: if you use this, define USE_MSDOS_MEMMGR in jconfig.h, and include the assembly file jmemdosa.asm in the programs. The supplied makefiles and jconfig files for 16-bit MS-DOS compilers already do both.

* jmemmac.c Custom version for Apple Macintosh; see the system-specific notes for Macintosh for more info.

To use a particular memory manager, change the SYSDEPMEM variable in your makefile to equal the corresponding object file name (for example, jmemansi.o or jmemansi.obj for jmemansi.c).

If you have plenty of (real or virtual) main memory, just use jmemnobs.c. "Plenty" means about ten bytes for every pixel in the largest images you plan to process, so a lot of systems don't meet this criterion. If yours doesn't, try jmemansi.c first. If that doesn't compile, you'll have to use jmemname.c; be sure to adjust select_file_name() for local conditions. You may also need to change unlink() to remove() in close_backing_store().

Except with jmemnobs.c or jmemmac.c, you need to adjust the DEFAULT_MAX_MEM setting to a reasonable value for your system (either by adding a #define for DEFAULT_MAX_MEM to jconfig.h, or by adding a -D switch to the Makefile). This value limits the amount of data space the program will attempt to allocate. Code and static data space isn't counted, so the actual memory needs for cjpeg or djpeg are typically 100 to 150Kb more than the max-memory setting. Larger max-memory settings reduce the amount of I/O needed to process a large image, but too large a value can result in "insufficient memory" failures. On most Unix machines (and other systems with virtual memory), just set DEFAULT_MAX_MEM to several million and forget it. At the other end of the spectrum, for MS-DOS machines you probably can't go much above 300K to 400K. (On MS-DOS the value refers to conventional memory only. Extended/expanded memory is handled separately by jmemdos.c.)

BUILDING THE SOFTWARE
=====================

Now you should be able to compile the software. Just say "make" (or whatever's necessary to start the compilation). Have a cup of coffee.

Here are some things that could go wrong:

If your compiler complains about undefined structures, you should be able to shut it up by putting "#define INCOMPLETE_TYPES_BROKEN" in jconfig.h.

If you have trouble with missing system include files or inclusion of the wrong ones, read jinclude.h. This shouldn't happen if you used configure or ckconfig.c to set up jconfig.h.

There are a fair number of routines that do not use all of their parameters; some compilers will issue warnings about this, which you can ignore. There are also a few configuration checks that may give "unreachable code" warnings. Any other warning deserves investigation.

If you don't have a getenv() library routine, define NO_GETENV.

Also see the system-specific hints, below.

TESTING THE SOFTWARE
====================

As a quick test of functionality we've included a small sample image in several forms:
 testorig.jpg Starting point for the djpeg tests.
 testimg.ppm The output of djpeg testorig.jpg
 testimg.bmp The output of djpeg -bmp -colors 256 testorig.jpg
 testimg.jpg The output of cjpeg testimg.ppm
 testprog.jpg Progressive-mode equivalent of testorig.jpg.
 testimgp.jpg The output of cjpeg -progressive -optimize testimg.ppm
(The first- and second-generation .jpg files aren't identical since the default compression parameters are lossy.) If you can generate duplicates of the testimg* files then you probably have working programs.

With most of the makefiles, "make test" will perform the necessary comparisons.

If you're using a makefile that doesn't provide the test option, run djpeg and cjpeg by hand and compare the output files to testimg* with whatever binary file comparison tool you have. The files should be bit-for-bit identical.

If the programs complain "MAX_ALLOC_CHUNK is wrong, please fix", then you need to reduce MAX_ALLOC_CHUNK to a value that fits in type size_t. Try adding "#define MAX_ALLOC_CHUNK 65520L" to jconfig.h. A less likely configuration error is "ALIGN_TYPE is wrong, please fix": defining ALIGN_TYPE as long should take care of that one.

If the cjpeg test run fails with "Missing Huffman code table entry", it's a good bet that you needed to define RIGHT_SHIFT_IS_UNSIGNED. Go back to the configuration step and run ckconfig.c. (This is a good plan for any other test failure, too.)

If you are using Unix (one-file) command line style on a non-Unix system, it's a good idea to check that binary I/O through stdin/stdout actually works. You should get the same results from "djpeg <testorig.jpg >out.ppm" as from "djpeg -outfile out.ppm testorig.jpg". Note that the makefiles all use the latter style and therefore do not exercise stdin/stdout! If this check fails, try recompiling with USE_SETMODE or USE_FDOPEN defined. If it still doesn't work, better use two-file style.

If you chose a memory manager other than jmemnobs.c, you should test that temporary-file usage works. Try "djpeg -bmp -colors 256 -max 0 testorig.jpg" and make sure its output matches testimg.bmp. If you have any really large images handy, try compressing them with -optimize and/or decompressing with -colors 256 to make sure your DEFAULT_MAX_MEM setting is not too large.

NOTE: this is far from an exhaustive test of the JPEG software; some modules, such as 1-pass color quantization, are not exercised at all. It's just a quick test to give you some confidence that you haven't missed something major.

INSTALLING THE SOFTWARE
=======================

Once you're done with the above steps, you can install the software by copying the executable files (cjpeg, djpeg, jpegtran, rdjpgcom, and wrjpgcom) to wherever you normally install programs. On Unix systems, you'll also want to put the man pages (cjpeg.1, djpeg.1, jpegtran.1, rdjpgcom.1, wrjpgcom.1) in the man-page directory. The pre-fab makefiles don't support this step since there's such a wide variety of installation procedures on different systems.

If you generated a Makefile with the "configure" script, you can just say

make install
to install the programs and their man pages into the standard places.
(You'll probably need to be root to do this.) We recommend first saying
 make -n install
to see where configure thought the files should go. You may need to edit
the Makefile, particularly if your system's conventions for man page
filenames don't match what configure expects.

If you want to install the IJG library itself, for use in compiling other
programs besides ours, then you need to put the four include files
 jpeglib.h jerror.h jconfig.h jmorecfg.h
into your include-file directory, and put the library file libjpeg.a
(extension may vary depending on system) wherever library files go.
If you generated a Makefile with "configure", it will do what it thinks
is the right thing if you say
 make install-lib

OPTIONAL STUFF
==============

Progress monitor:

If you like, you can #define PROGRESS_REPORT (in jconfig.h) to enable display
of percent-done progress reports. The routine provided in cdjpeg.c merely
prints percentages to stderr, but you can customize it to do something
fancier.

Utah RLE file format support:

We distribute the software with support for RLE image files (Utah Raster
Toolkit format) disabled, because the RLE support won't compile without the
Utah library. If you have URT version 3.1 or later, you can enable RLE
support as follows:
 1. #define RLE_SUPPORTED in jconfig.h.
 2. Add a -I option to CFLAGS in the Makefile for the directory
     containing the URT .h files (typically the "include"
     subdirectory of the URT distribution).
 3. Add -L... -lrle to LDLIBS in the Makefile, where ... specifies
     the directory containing the URT "librle.a" file (typically the
     "lib" subdirectory of the URT distribution).

Support for 9-bit to 12-bit deep pixel data:

The IJG code currently allows 8, 9, 10, 11, or 12 bits sample data precision.
(For color, this means 8 to 12 bits per channel, of course.) If you need to
work with deeper than 8-bit data, you can compile the IJG code for 9-bit to
12-bit operation.

To do so:
1. In jmorecfg.h, define BITS_IN_JSAMPLE as 9, 10, 11, or 12 rather than 8.
2. In jconfig.h, undefine BMP_SUPPORTED, RLE_SUPPORTED, and TARGA_SUPPORTED, because the code for those formats doesn't handle deeper than 8-bit data and won't even compile. (The PPM code does work, as explained below. The GIF code works too; it scales 8-bit GIF data to and from 12-bit depth automatically.)
3. Compile. Don't expect "make test" to pass, since the supplied test files are for 8-bit data.

Currently, 9-bit to 12-bit support does not work on 16-bit-int machines.

Run-time selection and conversion of data precision are currently not supported and may be added later.
Exception: The transcoding part (jpegtran) supports all settings in a single instance, since it operates on the level of DCT coefficients and not sample values.

The PPM reader (rdppm.c) can read deeper than 8-bit data from either text-format or binary-format PPM and PGM files. Binary-format PPM/PGM files which have a maxval greater than 255 are assumed to use 2 bytes per sample, MSB first (big-endian order). As of early 1995, 2-byte binary format is not officially supported by the PBMPLUS library, but it is expected that a future release of PBMPLUS will support it. Note that the PPM reader will read files of any maxval regardless of the BITS_IN_JSAMPLE setting; incoming data is automatically rescaled to maxval=MAXJSAMPLE as appropriate for the cjpeg bit depth.

The PPM writer (wrppm.c) will normally write 2-byte binary PPM or PGM format, maxval=MAXJSAMPLE, when compiled with BITS_IN_JSAMPLE>8. Since this format is not yet widely supported, you can disable it by compiling wrppm.c with PPM_NORAWWORD defined; then the data is scaled down to 8 bits to make a standard 1-byte/sample PPM or PGM file. (Yes, this means still another copy of djpeg to keep around. But hopefully you won't need it for very long. Poskanzer's supposed to get that new PBMPLUS release out Real Soon Now.)

Of course, if you are working with 9-bit to 12-bit data, you probably have it stored in some other, nonstandard format. In that case you'll probably want to write your own I/O modules to read and write your format.

Note:
The standard Huffman tables are only valid for 8-bit data precision. If you selected more than 8-bit data precision, cjpeg uses arithmetic coding by default. The Huffman encoder normally uses entropy optimization to compute usable tables for higher precision. Otherwise, you'll have to supply different default Huffman tables.

Removing code:

If you need to make a smaller version of the JPEG software, some optional functions can be removed at compile time. See the xxx_SUPPORTED #defines in jconfig.h and jmorecfg.h. If at all possible, we recommend that you leave in decoder support for all valid JPEG files, to ensure that you can read anyone's output. Taking out support for image file formats that you don't use is the most painless way to make the programs smaller. Another possibility is to remove some of the DCT methods: in particular, the "IFAST" method may not be enough faster than the others to be worth keeping on your machine. (If you do remove ISLOW or IFAST, be sure to redefine JDCT_DEFAULT or JDCT_FASTEST to a supported method, by adding a #define in jconfig.h.)

OPTIMIZATION
============

Unless you own a Cray, you'll probably be interested in making the JPEG software go as fast as possible. This section covers some machine-dependent optimizations you may want to try. We suggest that before trying any of this, you first get the basic installation to pass the self-test step. Repeat the self-test after any optimization to make sure that you haven't broken anything.

The integer DCT routines perform a lot of multiplications. These multiplications must yield 32-bit results, but none of their input values are more than 16 bits wide. On many machines, notably the 680x0 and 80x86 CPUs, a 16x16=>32 bit multiply instruction is faster than a full 32x32=>32 bit multiply. Unfortunately there is no portable way to specify such a multiplication in C, but some compilers can generate one when you use the right combination of casts. See the MULTIPLYxxx macro definitions in jdct.h. If your compiler makes "int" be 32 bits and "short" be 16 bits, defining SHORTxSHORT_32 is fairly likely to work. When experimenting with alternate definitions, be sure to test not only whether the code still works (use the self-test), but also whether it is actually faster --- on some compilers, alternate definitions may compute the right answer, yet be slower than the default. Timing cjpeg on a large PGM (grayscale) input file is the best way to check this, as the DCT will be the largest fraction of the runtime in that mode. (Note: some of the distributed compiler-specific jconfig files already contain #define switches to select appropriate MULTIPLYxxx definitions.)

If your machine has sufficiently fast floating point hardware, you may find that the float DCT method is faster than the integer DCT methods, even after tweaking the integer multiply macros. In that case you may want to make the float DCT be the default method. (The only objection to this is that float DCT results may vary slightly across machines.) To do that, add "#define JDCT_DEFAULT JDCT_FLOAT" to jconfig.h. Even if you don't change the default, you should redefine JDCT_FASTEST, which is the method selected

by djpeg's -fast switch. Don't forget to update the documentation files
(usage.txt and/or cjpeg.1, djpeg.1) to agree with what you've done.

If access to "short" arrays is slow on your machine, it may be a win to define type JCOEF as int rather than short. This will cost a good deal of memory though, particularly in some multi-pass modes, so don't do it unless you have memory to burn and short is REALLY slow.

If your compiler can compile function calls in-line, make sure the INLINE macro in jmorecfg.h is defined as the keyword that marks a function inline-able. Some compilers have a switch that tells the compiler to inline any function it thinks is profitable (e.g., -finline-functions for gcc). Enabling such a switch is likely to make the compiled code bigger but faster.

In general, it's worth trying the maximum optimization level of your compiler, and experimenting with any optional optimizations such as loop unrolling. (Unfortunately, far too many compilers have optimizer bugs ... be prepared to back off if the code fails self-test.) If you do any experimentation along these lines, please report the optimal settings to jpeg-info@jpegclub.org so we can mention them in future releases. Be sure to specify your machine and compiler version.

HINTS FOR SPECIFIC SYSTEMS
==========================

We welcome reports on changes needed for systems not mentioned here. Submit 'em to jpeg-info@jpegclub.org. Also, if configure or ckconfig.c is wrong about how to configure the JPEG software for your system, please let us know.

Acorn RISC OS:

(Thanks to Simon Middleton for these hints on compiling with Desktop C.) After renaming the files according to Acorn conventions, take a copy of makefile.ansi, change all occurrences of 'libjpeg.a' to 'libjpeg.o' and change these definitions as indicated:

CFLAGS= -throwback -IC: -Wn
LDLIBS=C:o.Stubs
SYSDEPMEM=jmemansi.o
LN=Link
AR=LibFile -c -o

Also add a new line '.c.o:; $(cc) $< $(cflags) -c -o $@'. Remove the lines '$(RM) libjpeg.o' and '$(AR2) libjpeg.o' and the 'jconfig.h' dependency section.

Copy jconfig.txt to jconfig.h. Edit jconfig.h to define TWO_FILE_COMMANDLINE and CHAR_IS_UNSIGNED.

Run the makefile using !AMU not !Make. If you want to use the 'clean' and 'test' makefile entries then you will have to fiddle with the syntax a bit and rename the test files.

Amiga:

SAS C 6.50 reportedly is too buggy to compile the IJG code properly. A patch to update to 6.51 is available from SAS or AmiNet FTP sites.

The supplied config files are set up to use jmemname.c as the memory manager, with temporary files being created on the device named by "JPEGTMP:".

Atari ST/STE/TT:

Copy the project files makcjpeg.st, makdjpeg.st, maktjpeg.st, and makljpeg.st to cjpeg.prj, djpeg.prj, jpegtran.prj, and libjpeg.prj respectively. The project files should work as-is with Pure C. For Turbo C, change library filenames "pc..." to "tc..." in each project file. Note that libjpeg.prj selects jmemansi.c as the recommended memory manager. You'll probably want to adjust the DEFAULT_MAX_MEM setting --- you want it to be a couple hundred K less than your normal free memory. Put "#define DEFAULT_MAX_MEM nnnn" into jconfig.h to do this.

To use the 68881/68882 coprocessor for the floating point DCT, add the compiler option "-8" to the project files and replace pcfltlib.lib with pc881lib.lib in cjpeg.prj and djpeg.prj. Or if you don't have a coprocessor, you may prefer to remove the float DCT code by undefining DCT_FLOAT_SUPPORTED in jmorecfg.h (since without a coprocessor, the float code will be too slow to be useful). In that case, you can delete pcfltlib.lib from the project files.

Note that you must make libjpeg.lib before making cjpeg.ttp, djpeg.ttp, or jpegtran.ttp. You'll have to perform the self-test by hand.

We haven't bothered to include project files for rdjpgcom and wrjpgcom. Those source files should just be compiled by themselves; they don't depend on the JPEG library. You can use the default.prj project file of the Pure C distribution to make the programs.

There is a bug in some older versions of the Turbo C library which causes the space used by temporary files created with "tmpfile()" not to be freed after an abnormal program exit. If you check your disk afterwards, you will find

cluster chains that are allocated but not used by a file. This should not
happen in cjpeg/djpeg/jpegtran, since we enable a signal catcher to explicitly
close temp files before exiting. But if you use the JPEG library with your
own code, be sure to supply a signal catcher, or else use a different
system-dependent memory manager.

Cray:

Should you be so fortunate as to be running JPEG on a Cray YMP, there is a
compiler bug in old versions of Cray's Standard C (prior to 3.1). If you
still have an old compiler, you'll need to insert a line reading
"#pragma novector" just before the loop

```
   for (i = 1; i <= (int) htbl->bits[l]; i++)
     huffsize[p++] = (char) l;
```

in fix_huff_tbl (in V5beta1, line 204 of jchuff.c and line 176 of jdhuff.c).
[This bug may or may not still occur with the current IJG code, but it's
probably a dead issue anyway...]

HP-UX:

If you have HP-UX 7.05 or later with the "software development" C compiler,
you should run the compiler in ANSI mode. If using the configure script,
say

```
 ./configure CC='cc -Aa'
```

(or -Ae if you prefer). If configuring by hand, use makefile.ansi and add
"-Aa" to the CFLAGS line in the makefile.

If you have a pre-7.05 system, or if you are using the non-ANSI C compiler
delivered with a minimum HP-UX system, then you must use makefile.unix
(and do NOT add -Aa); or just run configure without the CC option.

On HP 9000 series 800 machines, the HP C compiler is buggy in revisions prior
to A.08.07. If you get complaints about "not a typedef name", you'll have to
use makefile.unix, or run configure without the CC option.

Macintosh, generic comments:

The supplied user-interface files (cjpeg.c, djpeg.c, etc) are set up to
provide a Unix-style command line interface. You can use this interface on
the Mac by means of the ccommand() library routine provided by Metrowerks
CodeWarrior or Think C. This is only appropriate for testing the library,
however; to make a user-friendly equivalent of cjpeg/djpeg you'd really want
to develop a Mac-style user interface. There isn't a complete example
available at the moment, but there are some helpful starting points:
1. Sam Bushell's free "To JPEG" applet provides drag-and-drop conversion to

JPEG under System 7 and later. This only illustrates how to use the
compression half of the library, but it does a very nice job of that part.
The CodeWarrior source code is available from http://www.pobox.com/~jsam.
2. Jim Brunner prepared a Mac-style user interface for both compression and
decompression. Unfortunately, it hasn't been updated since IJG v4, and
the library's API has changed considerably since then. Still it may be of
some help, particularly as a guide to compiling the IJG code under Think C.
Jim's code is available from the Info-Mac archives, at sumex-aim.stanford.edu
or mirrors thereof; see file /info-mac/dev/src/jpeg-convert-c.hqx.

jmemmac.c is the recommended memory manager back end for Macintosh. It uses
NewPtr/DisposePtr instead of malloc/free, and has a Mac-specific
implementation of jpeg_mem_available(). It also creates temporary files that
follow Mac conventions. (That part of the code relies on System-7-or-later OS
functions. See the comments in jmemmac.c if you need to run it on System 6.)
NOTE that USE_MAC_MEMMGR must be defined in jconfig.h to use jmemmac.c.

You can also use jmemnobs.c, if you don't care about handling images larger
than available memory. If you use any memory manager back end other than
jmemmac.c, we recommend replacing "malloc" and "free" by "NewPtr" and
"DisposePtr", because Mac C libraries often have peculiar implementations of
malloc/free. (For instance, free() may not return the freed space to the
Mac Memory Manager. This is undesirable for the IJG code because jmemmgr.c
already clumps space requests.)

Macintosh, Metrowerks CodeWarrior:

The Unix-command-line-style interface can be used by defining USE_CCOMMAND.
You'll also need to define TWO_FILE_COMMANDLINE to avoid stdin/stdout.
This means that when using the cjpeg/djpeg programs, you'll have to type the
input and output file names in the "Arguments" text-edit box, rather than
using the file radio buttons. (Perhaps USE_FDOPEN or USE_SETMODE would
eliminate the problem, but I haven't heard from anyone who's tried it.)

On 680x0 Macs, Metrowerks defines type "double" as a 10-byte IEEE extended
float. jmemmgr.c won't like this: it wants sizeof(ALIGN_TYPE) to be a power
of 2. Add "#define ALIGN_TYPE long" to jconfig.h to eliminate the complaint.

The supplied configuration file jconfig.mac can be used for your jconfig.h;
it includes all the recommended symbol definitions. If you have AppleScript
installed, you can run the supplied script makeproj.mac to create CodeWarrior
project files for the library and the testbed applications, then build the
library and applications. (Thanks to Dan Sears and Don Agro for this nifty
hack, which saves us from trying to maintain CodeWarrior project files as part
of the IJG distribution...)

Macintosh, Think C:

The documentation in Jim Brunner's "JPEG Convert" source code (see above) includes detailed build instructions for Think C; it's probably somewhat out of date for the current release, but may be helpful.

If you want to build the minimal command line version, proceed as follows. You'll have to prepare project files for the programs; we don't include any in the distribution since they are not text files. Use the file lists in any of the supplied makefiles as a guide. Also add the ANSI and Unix C libraries in a separate segment. You may need to divide the JPEG files into more than one segment; we recommend dividing compression and decompression modules. Define USE_CCOMMAND in jconfig.h so that the ccommand() routine is called. You must also define TWO_FILE_COMMANDLINE because stdin/stdout don't handle binary data correctly.

On 680x0 Macs, Think C defines type "double" as a 12-byte IEEE extended float. jmemmgr.c won't like this: it wants sizeof(ALIGN_TYPE) to be a power of 2. Add "#define ALIGN_TYPE long" to jconfig.h to eliminate the complaint.

jconfig.mac should work as a jconfig.h configuration file for Think C, but the makeproj.mac AppleScript script is specific to CodeWarrior. Sorry.

MIPS R3000:

MIPS's cc version 1.31 has a rather nasty optimization bug. Don't use -O if you have that compiler version. (Use "cc -V" to check the version.) Note that the R3000 chip is found in workstations from DEC and others.

MS-DOS, generic comments for 16-bit compilers:

The IJG code is designed to work well in 80x86 "small" or "medium" memory models (i.e., data pointers are 16 bits unless explicitly declared "far"; code pointers can be either size). You may be able to use small model to compile cjpeg or djpeg by itself, but you will probably have to use medium model for any larger application. This won't make much difference in performance. You *will* take a noticeable performance hit if you use a large-data memory model, and you should avoid "huge" model if at all possible. Be sure that NEED_FAR_POINTERS is defined in jconfig.h if you use a small-data memory model; be sure it is NOT defined if you use a large-data model. (The supplied makefiles and jconfig files for Borland and Microsoft C compile in medium model and define NEED_FAR_POINTERS.)

The DOS-specific memory manager, jmemdos.c, should be used if possible. It needs some assembly-code routines which are in jmemdosa.asm; make sure your makefile assembles that file and includes it in the library. If you don't have a suitable assembler, you can get pre-assembled object files for jmemdosa by FTP from ftp.uu.net:/graphics/jpeg/jdosaobj.zip. (DOS-oriented distributions of the IJG source code often include these object files.)

When using jmemdos.c, jconfig.h must define USE_MSDOS_MEMMGR and must set MAX_ALLOC_CHUNK to less than 64K (65520L is a typical value). If your C library's far-heap malloc() can't allocate blocks that large, reduce MAX_ALLOC_CHUNK to whatever it can handle.

If you can't use jmemdos.c for some reason --- for example, because you don't have an assembler to assemble jmemdosa.asm --- you'll have to fall back to jmemansi.c or jmemname.c. You'll probably still need to set MAX_ALLOC_CHUNK in jconfig.h, because most DOS C libraries won't malloc() more than 64K at a time. IMPORTANT: if you use jmemansi.c or jmemname.c, you will have to compile in a large-data memory model in order to get the right stdio library. Too bad.

wrjpgcom needs to be compiled in large model, because it malloc()s a 64KB work area to hold the comment text. If your C library's malloc can't handle that, reduce MAX_COM_LENGTH as necessary in wrjpgcom.c.

Most MS-DOS compilers treat stdin/stdout as text files, so you must use two-file command line style. But if your compiler has either fdopen() or setmode(), you can use one-file style if you like. To do this, define USE_SETMODE or USE_FDOPEN so that stdin/stdout will be set to binary mode. (USE_SETMODE seems to work with more DOS compilers than USE_FDOPEN.) You should test that I/O through stdin/stdout produces the same results as I/O to explicitly named files... the "make test" procedures in the supplied makefiles do NOT use stdin/stdout.

MS-DOS, generic comments for 32-bit compilers:

None of the above comments about memory models apply if you are using a 32-bit flat-memory-space environment, such as DJGPP or Watcom C. (And you should use one if you have it, as performance will be much better than 8086-compatible code!) For flat-memory-space compilers, do NOT define NEED_FAR_POINTERS, and do NOT use jmemdos.c. Use jmemnobs.c if the environment supplies adequate virtual memory, otherwise use jmemansi.c or jmemname.c.

You'll still need to be careful about binary I/O through stdin/stdout. See the last paragraph of the previous section.

MS-DOS, Borland C:

Be sure to convert all the source files to DOS text format (CR/LF newlines).

Although Borland C will often work OK with unmodified Unix (LF newlines)
source files, sometimes it will give bogus compile errors.
"Illegal character '#'" is the most common such error. (This is true with
Borland C 3.1, but perhaps is fixed in newer releases.)

If you want one-file command line style, just undefine TWO_FILE_COMMANDLINE.
jconfig.bcc already includes #define USE_SETMODE to make this work.
(fdopen does not work correctly.)

MS-DOS, Microsoft C:

makefile.mc6 works with Microsoft C, DOS Visual C++, etc. It should only
be used if you want to build a 16-bit (small or medium memory model) program.

If you want one-file command line style, just undefine TWO_FILE_COMMANDLINE.
jconfig.mc6 already includes #define USE_SETMODE to make this work.
(fdopen does not work correctly.)

Note that this makefile assumes that the working copy of itself is called
"makefile". If you want to call it something else, say "makefile.mak",
be sure to adjust the dependency line that reads "$(RFILE) : makefile".
Otherwise the make will fail because it doesn't know how to create "makefile".
Worse, some releases of Microsoft's make utilities give an incorrect error
message in this situation.

Old versions of MS C fail with an "out of macro expansion space" error
because they can't cope with the macro TRACEMS8 (defined in jerror.h).
If this happens to you, the easiest solution is to change TRACEMS8 to
expand to nothing. You'll lose the ability to dump out JPEG coefficient
tables with djpeg -debug -debug, but at least you can compile.

Original MS C 6.0 is very buggy; it compiles incorrect code unless you turn
off optimization entirely (remove -O from CFLAGS). 6.00A is better, but it
still generates bad code if you enable loop optimizations (-Ol or -Ox).

MS C 8.0 crashes when compiling jquant1.c with optimization switch /Oo ...
which is on by default. To work around this bug, compile that one file
with /Oo-.

Microsoft Windows (all versions), generic comments:

Some Windows system include files define typedef boolean as "unsigned char".
The IJG code also defines typedef boolean, but we make it an "enum" by default.
This doesn't affect the IJG programs because we don't import those Windows
include files. But if you use the JPEG library in your own program, and some
of your program's files import one definition of boolean while some import the

other, you can get all sorts of mysterious problems. A good preventive step is to make the IJG library use "unsigned char" for boolean. To do that, add something like this to your jconfig.h file:

```
 /* Define "boolean" as unsigned char, not enum, per Windows custom */
 #ifndef __RPCNDR_H__ /* don't conflict if rpcndr.h already read */
 typedef unsigned char boolean;
 #endif
 #ifndef FALSE  /* in case these macros already exist */
 #define FALSE 0 /* values of boolean */
 #endif
 #ifndef TRUE
 #define TRUE 1
 #endif
 #define HAVE_BOOLEAN /* prevent jmorecfg.h from redefining it */
```

(This is already in jconfig.vc, by the way.)

windef.h contains the declarations

```
 #define far
 #define FAR far
```

Since jmorecfg.h tries to define FAR as empty, you may get a compiler warning if you include both jpeglib.h and windef.h (which windows.h includes). To suppress the warning, you can put "#ifndef FAR"/"#endif" around the line "#define FAR" in jmorecfg.h.
(Something like this is already in jmorecfg.h, by the way.)

When using the library in a Windows application, you will almost certainly want to modify or replace the error handler module jerror.c, since our default error handler does a couple of inappropriate things:
 1. it tries to write error and warning messages on stderr;
 2. in event of a fatal error, it exits by calling exit().

A simple stopgap solution for problem 1 is to replace the line

```
 fprintf(stderr, "%s\n", buffer);
```

(in output_message in jerror.c) with

```
 MessageBox(GetActiveWindow(),buffer,"JPEG Error",MB_OK|MB_ICONERROR);
```

It's highly recommended that you at least do that much, since otherwise error messages will disappear into nowhere. (Beginning with IJG v6b, this code is already present in jerror.c; just define USE_WINDOWS_MESSAGEBOX in jconfig.h to enable it.)

The proper solution for problem 2 is to return control to your calling application after a library error. This can be done with the setjmp/longjmp technique discussed in libjpeg.txt and illustrated in example.c. (NOTE: some older Windows C compilers provide versions of setjmp/longjmp that don't actually work under Windows. You may need to use the Windows system functions Catch and Throw instead.)

The recommended memory manager under Windows is jmemnobs.c; in other words, let Windows do any virtual memory management needed. You should NOT use jmemdos.c nor jmemdosa.asm under Windows.

For Windows 3.1, we recommend compiling in medium or large memory model; for newer Windows versions, use a 32-bit flat memory model. (See the MS-DOS sections above for more info about memory models.) In the 16-bit memory models only, you'll need to put

 #define MAX_ALLOC_CHUNK 65520L /* Maximum request to malloc() */

into jconfig.h to limit allocation chunks to 64Kb. (Without that, you'd have to use huge memory model, which slows things down unnecessarily.) jmemnobs.c works without modification in large or flat memory models, but to use medium model, you need to modify its jpeg_get_large and jpeg_free_large routines to allocate far memory. In any case, you might like to replace its calls to malloc and free with direct calls on Windows memory allocation functions.

You may also want to modify jdatasrc.c and jdatadst.c to use Windows file operations rather than fread/fwrite. This is only necessary if your C compiler doesn't provide a competent implementation of C stdio functions.

You might want to tweak the RGB_xxx macros in jmorecfg.h so that the library will accept or deliver color pixels in BGR sample order, not RGB; BGR order is usually more convenient under Windows. Note that this change will break the sample applications cjpeg/djpeg, but the library itself works fine.

Many people want to convert the IJG library into a DLL. This is reasonably straightforward, but watch out for the following:

 1. Don't try to compile as a DLL in small or medium memory model; use large model, or even better, 32-bit flat model. Many places in the IJG code assume the address of a local variable is an ordinary (not FAR) pointer; that isn't true in a medium-model DLL.

 2. Microsoft C cannot pass file pointers between applications and DLLs. (See Microsoft Knowledge Base, PSS ID Number Q50336.) So jdatasrc.c and jdatadst.c don't work if you open a file in your application and then pass the pointer to the DLL. One workaround is to make jdatasrc.c/jdatadst.c part of your main application rather than part of the DLL.

 3. You'll probably need to modify the macros GLOBAL() and EXTERN() to attach suitable linkage keywords to the exported routine names. Similarly, you'll want to modify METHODDEF() and JMETHOD() to ensure function pointers are declared in a way that lets application routines be called back through the function pointers. These macros are in jmorecfg.h. Typical definitions for a 16-bit DLL are:

 #define GLOBAL(type) type _far _pascal _loadds _export
 #define EXTERN(type) extern type _far _pascal _loadds

```
 #define METHODDEF(type)  static type _far _pascal
 #define JMETHOD(type,methodname,arglist)  \
  type (_far _pascal *methodname) arglist
```
For a 32-bit DLL you may want something like
```
 #define GLOBAL(type)  __declspec(dllexport) type
 #define EXTERN(type)  extern __declspec(dllexport) type
```
Although not all the GLOBAL routines are actually intended to be called by the application, the performance cost of making them all DLL entry points is negligible.

The unmodified IJG library presents a very C-specific application interface, so the resulting DLL is only usable from C or C++ applications. There has been some talk of writing wrapper code that would present a simpler interface usable from other languages, such as Visual Basic. This is on our to-do list but hasn't been very high priority --- any volunteers out there?

Microsoft Windows, Borland C:

The provided jconfig.bcc should work OK in a 32-bit Windows environment, but you'll need to tweak it in a 16-bit environment (you'd need to define NEED_FAR_POINTERS and MAX_ALLOC_CHUNK). Beware that makefile.bcc will need alteration if you want to use it for Windows --- in particular, you should use jmemnobs.c not jmemdos.c under Windows.

Borland C++ 4.5 fails with an internal compiler error when trying to compile jdmerge.c in 32-bit mode. If enough people complain, perhaps Borland will fix it. In the meantime, the simplest known workaround is to add a redundant definition of the variable range_limit in h2v1_merged_upsample(), at the head of the block that handles odd image width (about line 268 in v6 jdmerge.c):
```
 /* If image width is odd, do the last output column separately */
 if (cinfo->output_width & 1) {
   register JSAMPLE * range_limit = cinfo->sample_range_limit; /* ADD THIS */
   cb = GETJSAMPLE(*inptr1);
```
Pretty bizarre, especially since the very similar routine h2v2_merged_upsample doesn't trigger the bug.
Recent reports suggest that this bug does not occur with "bcc32a" (the Pentium-optimized version of the compiler).

Another report from a user of Borland C 4.5 was that incorrect code (leading to a color shift in processed images) was produced if any of the following optimization switch combinations were used:
```
 -Ot -Og
 -Ot -Op
 -Ot -Om
```
So try backing off on optimization if you see such a problem. (Are there several different releases all numbered "4.5"??)

Microsoft Windows, Microsoft Visual C++:

jconfig.vc should work OK with any Microsoft compiler for a 32-bit memory model. makefile.vc is intended for command-line use. (If you are using the Developer Studio environment, you may prefer the DevStudio project files; see below.)

IJG JPEG 7 adds extern "C" to jpeglib.h. This avoids the need to put extern "C" { ... } around #include "jpeglib.h" in your C++ application. You can also force VC++ to treat the library as C++ code by renaming all the *.c files to *.cpp (and adjusting the makefile to match). In this case you also need to define the symbol DONT_USE_EXTERN_C in the configuration to prevent jpeglib.h from using extern "C".

Microsoft Windows, Microsoft Visual C++ 6 Developer Studio:

We include makefiles that should work as project files in Developer Studio 6.0 or later. There is a library makefile that builds the IJG library as a static Win32 library, and application makefiles that build the sample applications as Win32 console applications. (Even if you only want the library, we recommend building the applications so that you can run the self-test.)

To use:
1. Open the command prompt, change to the source directory and execute
  the command line
 NMAKE /f makefile.vs setup-vc6
  If you get an error message saying that the "NMAKE" command could
  not be found, execute the command
 "%ProgramFiles%\Microsoft Visual Studio\VC98\Bin\VCVARS32"
  to set the environment for using Microsoft Visual C++ tools,
  and repeat the NMAKE call.
  This will move jconfig.vc to jconfig.h and makefiles to project files.
  (Note that the renaming is critical!)
  Alternatively you can use
 NMAKE /f makefile.vs setupcopy-vc6
  This will create renamed copies of the files, which allows to repeat
  the setup later.
2. Open the workspace file jpeg.dsw, build the library project.
  (If you are using Developer Studio more recent than 6.0, you'll
  probably get a message saying that the project files are being updated.)
3. Open the workspace file apps.dsw, build the application projects.
4. To perform the self-test, execute the command line
 NMAKE /f makefile.vs test-build
5. Move the application .exe files from the Release folder to an
  appropriate location on your path.

Microsoft Windows, Visual Studio 2019 (v16):

We include makefiles that should work as project files in Visual Studio 2019 (v16) or later. There is a library makefile that builds the IJG library as a static Win32/x64 library, and application makefiles that build the sample applications as Win32/x64 console applications. (Even if you only want the library, we recommend building the applications so that you can run the self-test.)

To use:
1. Open the Developer Command Prompt for VS 2019, change to the source
   directory and execute the command line
   NMAKE /f makefile.vs setup-v16
   This will move jconfig.vc to jconfig.h and makefiles to project files.
   (Note that the renaming is critical!)
   Alternatively you can use
   NMAKE /f makefile.vs setupcopy-v16
   This will create renamed copies of the files, which allows to repeat
   the setup later.
2. Open the solution file jpeg.sln, build the library project.
   a) If you are using Visual Studio more recent than
   2019 (v16), you'll probably get a message saying
   that the project files are being updated.
   b) If necessary, open the project properties and
   adapt the Windows Target Platform Version in
   the Configuration Properties, General section;
   we support the latest version at the time of release.
   c) If you want to build x64 code, change the platform setting from
   Win32 to x64. You can build Win32 and x64 versions side by side.
3. Open the solution file apps.sln, build the application projects.
4. To perform the self-test, execute the command line
   NMAKE /f makefile.vs test-32
   for the Win32 build, or on a 64-bit system
   NMAKE /f makefile.vs test-64
   for the x64 build.
5. Move the application .exe files from the Release folder to an
   appropriate location on your path.

OS/2, Borland C++:

Watch out for optimization bugs in older Borland compilers; you may need to back off the optimization switch settings. See the comments in makefile.bcc.

SGI:

On some SGI systems, you may need to set "AR2= ar -ts" in the Makefile.
If you are using configure, you can do this by saying
 ./configure RANLIB='ar -ts'
This change is not needed on all SGIs. Use it only if the make fails at the
stage of linking the completed programs.

On the MIPS R4000 architecture (Indy, etc.), the compiler option "-mips2"
reportedly speeds up the float DCT method substantially, enough to make it
faster than the default int method (but still slower than the fast int
method). If you use -mips2, you may want to alter the default DCT method to
be float. To do this, put "#define JDCT_DEFAULT JDCT_FLOAT" in jconfig.h.

VMS:

On an Alpha/VMS system with MMS, be sure to use the "/Marco=Alpha=1"
qualifier with MMS when building the JPEG package.

VAX/VMS v5.5-1 may have problems with the test step of the build procedure
reporting differences when it compares the original and test images. If the
error points to the last block of the files, it is most likely bogus and may
be safely ignored. It seems to be because the files are Stream_LF and
Backup/Compare has difficulty with the (presumably) null padded files.
This problem was not observed on VAX/VMS v6.1 or AXP/VMS v6.1.

Found in path(s):
* /opt/cola/permits/1103550007_1605777850.47/0/jpegsrc-v9d-tar-gz/jpeg-9d/install.txt
No license file was found, but licenses were detected in source scan.

/*
* jconfig.txt
*
* Copyright (C) 1991-1994, Thomas G. Lane.
* Modified 2009-2013 by Guido Vollbeding.
* This file is part of the Independent JPEG Group's software.
* For conditions of distribution and use, see the accompanying README file.
*
* This file documents the configuration options that are required to
* customize the JPEG software for a particular system.
*
* The actual configuration options for a particular installation are stored
* in jconfig.h. On many machines, jconfig.h can be generated automatically
* or copied from one of the "canned" jconfig files that we supply. But if
* you need to generate a jconfig.h file by hand, this file tells you how.
*
* DO NOT EDIT THIS FILE --- IT WON'T ACCOMPLISH ANYTHING.

```
* EDIT A COPY NAMED JCONFIG.H.
*/


/*
* These symbols indicate the properties of your machine or compiler.
* #define the symbol if yes, #undef it if no.
*/

/* Does your compiler support function prototypes?
* (If not, you also need to use ansi2knr, see install.txt)
*/
#define HAVE_PROTOTYPES

/* Does your compiler support the declaration "unsigned char" ?
* How about "unsigned short" ?
*/
#define HAVE_UNSIGNED_CHAR
#define HAVE_UNSIGNED_SHORT

/* Define "void" as "char" if your compiler doesn't know about type void.
* NOTE: be sure to define void such that "void *" represents the most general
* pointer type, e.g., that returned by malloc().
*/
/* #define void char */

/* Define "const" as empty if your compiler doesn't know the "const" keyword.
*/
/* #define const */

/* Define this if an ordinary "char" type is unsigned.
* If you're not sure, leaving it undefined will work at some cost in speed.
* If you defined HAVE_UNSIGNED_CHAR then the speed difference is minimal.
*/
#undef CHAR_IS_UNSIGNED

/* Define this if your system has an ANSI-conforming <stddef.h> file.
*/
#define HAVE_STDDEF_H

/* Define this if your system has an ANSI-conforming <stdlib.h> file.
*/
#define HAVE_STDLIB_H

/* Define this if your system does not have an ANSI/SysV <string.h>,
* but does have a BSD-style <strings.h>.
*/
#undef NEED_BSD_STRINGS
```

```
/* Define this if your system does not provide typedef size_t in any of the
* ANSI-standard places (stddef.h, stdlib.h, or stdio.h), but places it in
* <sys/types.h> instead.
*/
#undef NEED_SYS_TYPES_H

/* For 80x86 machines, you need to define NEED_FAR_POINTERS,
* unless you are using a large-data memory model or 80386 flat-memory mode.
* On less brain-damaged CPUs this symbol must not be defined.
* (Defining this symbol causes large data structures to be referenced through
* "far" pointers and to be allocated with a special version of malloc.)
*/
#undef NEED_FAR_POINTERS

/* Define this if your linker needs global names to be unique in less
* than the first 15 characters.
*/
#undef NEED_SHORT_EXTERNAL_NAMES

/* Although a real ANSI C compiler can deal perfectly well with pointers to
* unspecified structures (see "incomplete types" in the spec), a few pre-ANSI
* and pseudo-ANSI compilers get confused.  To keep one of these bozos happy,
* define INCOMPLETE_TYPES_BROKEN.  This is not recommended unless you
* actually get "missing structure definition" warnings or errors while
* compiling the JPEG code.
*/
#undef INCOMPLETE_TYPES_BROKEN

/* Define "boolean" as unsigned char, not enum, on Windows systems.
*/
#ifdef _WIN32
#ifndef __RPCNDR_H__  /* don't conflict if rpcndr.h already read */
typedef unsigned char boolean;
#endif
#ifndef FALSE   /* in case these macros already exist */
#define FALSE 0  /* values of boolean */
#endif
#ifndef TRUE
#define TRUE 1
#endif
#define HAVE_BOOLEAN  /* prevent jmorecfg.h from redefining it */
#endif


/*
* The following options affect code selection within the JPEG library,
* but they don't need to be visible to applications using the library.
```

```
* To minimize application namespace pollution, the symbols won't be
* defined unless JPEG_INTERNALS has been defined.
*/

#ifdef JPEG_INTERNALS

/* Define this if your compiler implements ">>" on signed values as a logical
* (unsigned) shift; leave it undefined if ">>" is a signed (arithmetic) shift,
* which is the normal and rational definition.
*/
#undef RIGHT_SHIFT_IS_UNSIGNED


#endif /* JPEG_INTERNALS */



/*
* The remaining options do not affect the JPEG library proper,
* but only the sample applications cjpeg/djpeg (see cjpeg.c, djpeg.c).
* Other applications can ignore these.
*/

#ifdef JPEG_CJPEG_DJPEG

/* These defines indicate which image (non-JPEG) file formats are allowed. */

#define BMP_SUPPORTED  /* BMP image file format */
#define GIF_SUPPORTED  /* GIF image file format */
#define PPM_SUPPORTED  /* PBMPLUS PPM/PGM image file format */
#undef RLE_SUPPORTED  /* Utah RLE image file format */
#define TARGA_SUPPORTED  /* Targa image file format */

/* Define this if you want to name both input and output files on the command
* line, rather than using stdout and optionally stdin.  You MUST do this if
* your system can't cope with binary I/O to stdin/stdout.  See comments at
* head of cjpeg.c or djpeg.c.
*/
#undef TWO_FILE_COMMANDLINE

/* Define this if your system needs explicit cleanup of temporary files.
* This is crucial under MS-DOS, where the temporary "files" may be areas
* of extended memory; on most other systems it's not as important.
*/
#undef NEED_SIGNAL_CATCHER

/* By default, we open image files with fopen(...,"rb") or fopen(...,"wb").
* This is necessary on systems that distinguish text files from binary files,
* and is harmless on most systems that don't.  If you have one of the rare
```

* systems that complains about the "b" spec, define this symbol.
*/
#undef DONT_USE_B_MODE

/* Define this if you want percent-done progress reports from cjpeg/djpeg.
*/
#undef PROGRESS_REPORT

#endif /* JPEG_CJPEG_DJPEG */

Found in path(s):
* /opt/cola/permits/1103550007_1605777850.47/0/jpegsrc-v9d-tar-gz/jpeg-9d/jconfig.txt
No license file was found, but licenses were detected in source scan.

/*
* jdmaster.c
*
* Copyright (C) 1991-1997, Thomas G. Lane.
* Modified 2002-2019 by Guido Vollbeding.
* This file is part of the Independent JPEG Group's software.
* For conditions of distribution and use, see the accompanying README file.
*
* This file contains master control logic for the JPEG decompressor.
* These routines are concerned with selecting the modules to be executed
* and with determining the number of passes and the work to be done in each
* pass.
*/

Found in path(s):
* /opt/cola/permits/1103550007_1605777850.47/0/jpegsrc-v9d-tar-gz/jpeg-9d/jdmaster.c
No license file was found, but licenses were detected in source scan.

/*
* jdatadst.c
*
* Copyright (C) 1994-1996, Thomas G. Lane.
* Modified 2009-2019 by Guido Vollbeding.
* This file is part of the Independent JPEG Group's software.
* For conditions of distribution and use, see the accompanying README file.
*
* This file contains compression data destination routines for the case of
* emitting JPEG data to memory or to a file (or any stdio stream).
* While these routines are sufficient for most applications,
* some will want to use a different destination manager.
* IMPORTANT: we assume that fwrite() will correctly transcribe an array of
* JOCTETs into 8-bit-wide elements on external storage. If char is wider
* than 8 bits on your machine, you may need to do some tweaking.

*/

Found in path(s):
* /opt/cola/permits/1103550007_1605777850.47/0/jpegsrc-v9d-tar-gz/jpeg-9d/jdatadst.c
No license file was found, but licenses were detected in source scan.

/*
* jctrans.c
*
* Copyright (C) 1995-1998, Thomas G. Lane.
* Modified 2000-2017 by Guido Vollbeding.
* This file is part of the Independent JPEG Group's software.
* For conditions of distribution and use, see the accompanying README file.
*
* This file contains library routines for transcoding compression,
* that is, writing raw DCT coefficient arrays to an output JPEG file.
* The routines in jcapimin.c will also be needed by a transcoder.
*/

Found in path(s):
* /opt/cola/permits/1103550007_1605777850.47/0/jpegsrc-v9d-tar-gz/jpeg-9d/jctrans.c
No license file was found, but licenses were detected in source scan.

/*
* jdmainct.c
*
* Copyright (C) 1994-1996, Thomas G. Lane.
* Modified 2002-2016 by Guido Vollbeding.
* This file is part of the Independent JPEG Group's software.
* For conditions of distribution and use, see the accompanying README file.
*
* This file contains the main buffer controller for decompression.
* The main buffer lies between the JPEG decompressor proper and the
* post-processor; it holds downsampled data in the JPEG colorspace.
*
* Note that this code is bypassed in raw-data mode, since the application
* supplies the equivalent of the main buffer in that case.
*/

Found in path(s):
* /opt/cola/permits/1103550007_1605777850.47/0/jpegsrc-v9d-tar-gz/jpeg-9d/jdmainct.c
No license file was found, but licenses were detected in source scan.

; For conditions of distribution and use, see the accompanying README file.

Found in path(s):
* /opt/cola/permits/1103550007_1605777850.47/0/jpegsrc-v9d-tar-gz/jpeg-9d/jmemdosa.asm

No license file was found, but licenses were detected in source scan.

/*
* jpegint.h
*
* Copyright (C) 1991-1997, Thomas G. Lane.
* Modified 1997-2019 by Guido Vollbeding.
* This file is part of the Independent JPEG Group's software.
* For conditions of distribution and use, see the accompanying README file.
*
* This file provides common declarations for the various JPEG modules.
* These declarations are considered internal to the JPEG library; most
* applications using the library shouldn't need to include this file.
*/

Found in path(s):
* /opt/cola/permits/1103550007_1605777850.47/0/jpegsrc-v9d-tar-gz/jpeg-9d/jpegint.h
No license file was found, but licenses were detected in source scan.

/*
* jmemsys.h
*
* Copyright (C) 1992-1997, Thomas G. Lane.
* This file is part of the Independent JPEG Group's software.
* For conditions of distribution and use, see the accompanying README file.
*
* This include file defines the interface between the system-independent
* and system-dependent portions of the JPEG memory manager. No other
* modules need include it. (The system-independent portion is jmemmgr.c;
* there are several different versions of the system-dependent portion.)
*
* This file works as-is for the system-dependent memory managers supplied
* in the IJG distribution. You may need to modify it if you write a
* custom memory manager. If system-dependent changes are needed in
* this file, the best method is to #ifdef them based on a configuration
* symbol supplied in jconfig.h, as we have done with USE_MSDOS_MEMMGR
* and USE_MAC_MEMMGR.
*/

Found in path(s):
* /opt/cola/permits/1103550007_1605777850.47/0/jpegsrc-v9d-tar-gz/jpeg-9d/jmemsys.h
No license file was found, but licenses were detected in source scan.

/*
* jcomapi.c
*
* Copyright (C) 1994-1997, Thomas G. Lane.
* Modified 2019 by Guido Vollbeding.

* This file is part of the Independent JPEG Group's software.
* For conditions of distribution and use, see the accompanying README file.
*
* This file contains application interface routines that are used for both
* compression and decompression.
*/

Found in path(s):
* /opt/cola/permits/1103550007_1605777850.47/0/jpegsrc-v9d-tar-gz/jpeg-9d/jcomapi.c
No license file was found, but licenses were detected in source scan.

/*
* wrtarga.c
*
* Copyright (C) 1991-1996, Thomas G. Lane.
* Modified 2015-2019 by Guido Vollbeding.
* This file is part of the Independent JPEG Group's software.
* For conditions of distribution and use, see the accompanying README file.
*
* This file contains routines to write output images in Targa format.
*
* These routines may need modification for non-Unix environments or
* specialized applications. As they stand, they assume output to
* an ordinary stdio stream.
*
* Based on code contributed by Lee Daniel Crocker.
*/

Found in path(s):
* /opt/cola/permits/1103550007_1605777850.47/0/jpegsrc-v9d-tar-gz/jpeg-9d/wrtarga.c
No license file was found, but licenses were detected in source scan.

/*
* jdapimin.c
*
* Copyright (C) 1994-1998, Thomas G. Lane.
* Modified 2009-2013 by Guido Vollbeding.
* This file is part of the Independent JPEG Group's software.
* For conditions of distribution and use, see the accompanying README file.
*
* This file contains application interface code for the decompression half
* of the JPEG library. These are the "minimum" API routines that may be
* needed in either the normal full-decompression case or the
* transcoding-only case.
*
* Most of the routines intended to be called directly by an application
* are in this file or in jdapistd.c. But also see jcomapi.c for routines
* shared by compression and decompression, and jdtrans.c for the transcoding

* case.
*/

Found in path(s):
* /opt/cola/permits/1103550007_1605777850.47/0/jpegsrc-v9d-tar-gz/jpeg-9d/jdapimin.c
No license file was found, but licenses were detected in source scan.

/*
* jcmaster.c
*
* Copyright (C) 1991-1997, Thomas G. Lane.
* Modified 2003-2019 by Guido Vollbeding.
* This file is part of the Independent JPEG Group's software.
* For conditions of distribution and use, see the accompanying README file.
*
* This file contains master control logic for the JPEG compressor.
* These routines are concerned with parameter validation, initial setup,
* and inter-pass control (determining the number of passes and the work
* to be done in each pass).
*/

Found in path(s):
* /opt/cola/permits/1103550007_1605777850.47/0/jpegsrc-v9d-tar-gz/jpeg-9d/jcmaster.c
No license file was found, but licenses were detected in source scan.

/*
* jdcolor.c
*
* Copyright (C) 1991-1997, Thomas G. Lane.
* Modified 2011-2019 by Guido Vollbeding.
* This file is part of the Independent JPEG Group's software.
* For conditions of distribution and use, see the accompanying README file.
*
* This file contains output colorspace conversion routines.
*/

Found in path(s):
* /opt/cola/permits/1103550007_1605777850.47/0/jpegsrc-v9d-tar-gz/jpeg-9d/jdcolor.c
No license file was found, but licenses were detected in source scan.

/*
* jmorecfg.h
*
* Copyright (C) 1991-1997, Thomas G. Lane.
* Modified 1997-2013 by Guido Vollbeding.
* This file is part of the Independent JPEG Group's software.
* For conditions of distribution and use, see the accompanying README file.
*

* This file contains additional configuration options that customize the
* JPEG software for special applications or support machine-dependent
* optimizations. Most users will not need to touch this file.
*/

Found in path(s):
* /opt/cola/permits/1103550007_1605777850.47/0/jpegsrc-v9d-tar-gz/jpeg-9d/jmorecfg.h
No license file was found, but licenses were detected in source scan.

/*
* jpeglib.h
*
* Copyright (C) 1991-1998, Thomas G. Lane.
* Modified 2002-2019 by Guido Vollbeding.
* This file is part of the Independent JPEG Group's software.
* For conditions of distribution and use, see the accompanying README file.
*
* This file defines the application interface for the JPEG library.
* Most applications using the library need only include this file,
* and perhaps jerror.h if they want to know the exact error codes.
*/

Found in path(s):
* /opt/cola/permits/1103550007_1605777850.47/0/jpegsrc-v9d-tar-gz/jpeg-9d/jpeglib.h
No license file was found, but licenses were detected in source scan.

/*
* jutils.c
*
* Copyright (C) 1991-1996, Thomas G. Lane.
* Modified 2009-2019 by Guido Vollbeding.
* This file is part of the Independent JPEG Group's software.
* For conditions of distribution and use, see the accompanying README file.
*
* This file contains tables and miscellaneous utility routines needed
* for both compression and decompression.
* Note we prefix all global names with "j" to minimize conflicts with
* a surrounding application.
*/

Found in path(s):
* /opt/cola/permits/1103550007_1605777850.47/0/jpegsrc-v9d-tar-gz/jpeg-9d/jutils.c
No license file was found, but licenses were detected in source scan.

/*
* wrrle.c
*
* Copyright (C) 1991-1996, Thomas G. Lane.

* Modified 2017-2019 by Guido Vollbeding.
* This file is part of the Independent JPEG Group's software.
* For conditions of distribution and use, see the accompanying README file.
*
* This file contains routines to write output images in RLE format.
* The Utah Raster Toolkit library is required (version 3.1 or later).
*
* These routines may need modification for non-Unix environments or
* specialized applications. As they stand, they assume output to
* an ordinary stdio stream.
*
* Based on code contributed by Mike Lijewski,
* with updates from Robert Hutchinson.
*/

Found in path(s):
* /opt/cola/permits/1103550007_1605777850.47/0/jpegsrc-v9d-tar-gz/jpeg-9d/wrrle.c
No license file was found, but licenses were detected in source scan.

/*
* rdswitch.c
*
* Copyright (C) 1991-1996, Thomas G. Lane.
* Modified 2003-2019 by Guido Vollbeding.
* This file is part of the Independent JPEG Group's software.
* For conditions of distribution and use, see the accompanying README file.
*
* This file contains routines to process some of cjpeg's more complicated
* command-line switches. Switches processed here are:
* -qtables file Read quantization tables from text file
* -scans file Read scan script from text file
* -quality N[,N,...] Set quality ratings
* -qslots N[,N,...] Set component quantization table selectors
* -sample HxV[,HxV,...] Set component sampling factors
*/

Found in path(s):
* /opt/cola/permits/1103550007_1605777850.47/0/jpegsrc-v9d-tar-gz/jpeg-9d/rdswitch.c
No license file was found, but licenses were detected in source scan.

/*
* jfdctflt.c
*
* Copyright (C) 1994-1996, Thomas G. Lane.
* Modified 2003-2017 by Guido Vollbeding.
* This file is part of the Independent JPEG Group's software.
* For conditions of distribution and use, see the accompanying README file.
*

* This file contains a floating-point implementation of the
* forward DCT (Discrete Cosine Transform).
*
* This implementation should be more accurate than either of the integer
* DCT implementations. However, it may not give the same results on all
* machines because of differences in roundoff behavior. Speed will depend
* on the hardware's floating point capacity.
*
* A 2-D DCT can be done by 1-D DCT on each row followed by 1-D DCT
* on each column. Direct algorithms are also available, but they are
* much more complex and seem not to be any faster when reduced to code.
*
* This implementation is based on Arai, Agui, and Nakajima's algorithm for
* scaled DCT. Their original paper (Trans. IEICE E-71(11):1095) is in
* Japanese, but the algorithm is described in the Pennebaker & Mitchell
* JPEG textbook (see REFERENCES section in file README). The following code
* is based directly on figure 4-8 in P&M.
* While an 8-point DCT cannot be done in less than 11 multiplies, it is
* possible to arrange the computation so that many of the multiplies are
* simple scalings of the final outputs. These multiplies can then be
* folded into the multiplications or divisions by the JPEG quantization
* table entries. The AA&N method leaves only 5 multiplies and 29 adds
* to be done in the DCT itself.
* The primary disadvantage of this method is that with a fixed-point
* implementation, accuracy is lost due to imprecise representation of the
* scaled quantization values. However, that problem does not arise if
* we use floating point arithmetic.
*/

Found in path(s):
* /opt/cola/permits/1103550007_1605777850.47/0/jpegsrc-v9d-tar-gz/jpeg-9d/jfdctflt.c
No license file was found, but licenses were detected in source scan.

/*
* jdapistd.c
*
* Copyright (C) 1994-1996, Thomas G. Lane.
* Modified 2002-2013 by Guido Vollbeding.
* This file is part of the Independent JPEG Group's software.
* For conditions of distribution and use, see the accompanying README file.
*
* This file contains application interface code for the decompression half
* of the JPEG library. These are the "standard" API routines that are
* used in the normal full-decompression case. They are not used by a
* transcoding-only application. Note that if an application links in
* jpeg_start_decompress, it will end up linking in the entire decompressor.
* We thus must separate this file from jdapimin.c to avoid linking the
* whole decompression library into a transcoder.

*/

Found in path(s):
* /opt/cola/permits/1103550007_1605777850.47/0/jpegsrc-v9d-tar-gz/jpeg-9d/jdapistd.c
No license file was found, but licenses were detected in source scan.

IJG JPEG LIBRARY: SYSTEM ARCHITECTURE

This file provides an overview of the architecture of the IJG JPEG software; that is, the functions of the various modules in the system and the interfaces between modules. For more precise details about any data structure or calling convention, see the include files and comments in the source code.

We assume that the reader is already somewhat familiar with the JPEG standard. The README file includes references for learning about JPEG. The file libjpeg.txt describes the library from the viewpoint of an application programmer using the library; it's best to read that file before this one. Also, the file coderules.txt describes the coding style conventions we use.

In this document, JPEG-specific terminology follows the JPEG standard:
 A "component" means a color channel, e.g., Red or Luminance.
 A "sample" is a single component value (i.e., one number in the image data).
 A "coefficient" is a frequency coefficient (a DCT transform output number).
 A "block" is an array of samples or coefficients.
 An "MCU" (minimum coded unit) is an interleaved set of blocks of size determined by the sampling factors, or a single block in a noninterleaved scan.

We do not use the terms "pixel" and "sample" interchangeably. When we say pixel, we mean an element of the full-size image, while a sample is an element of the downsampled image. Thus the number of samples may vary across components while the number of pixels does not. (This terminology is not used rigorously throughout the code, but it is used in places where confusion would otherwise result.)

*** System features ***

The IJG distribution contains two parts:
 * A subroutine library for JPEG compression and decompression.
 * cjpeg/djpeg, two sample applications that use the library to transform JFIF JPEG files to and from several other image formats.

cjpeg/djpeg are of no great intellectual complexity: they merely add a simple command-line user interface and I/O routines for several uncompressed image formats. This document concentrates on the library itself.

We desire the library to be capable of supporting all JPEG baseline, extended sequential, and progressive DCT processes. The library does not support the hierarchical or lossless processes defined in the standard.

Within these limits, any set of compression parameters allowed by the JPEG spec should be readable for decompression. (We can be more restrictive about what formats we can generate.) Although the system design allows for all parameter values, some uncommon settings are not yet implemented and may never be; nonintegral sampling ratios are the prime example. Furthermore, we treat 8-bit vs. 12-bit data precision as a compile-time switch, not a run-time option, because most machines can store 8-bit pixels much more compactly than 12-bit.

By itself, the library handles only interchange JPEG datastreams --- in particular the widely used JFIF file format. The library can be used by surrounding code to process interchange or abbreviated JPEG datastreams that are embedded in more complex file formats. (For example, libtiff uses this library to implement JPEG compression within the TIFF file format.)

The library includes a substantial amount of code that is not covered by the JPEG standard but is necessary for typical applications of JPEG. These functions preprocess the image before JPEG compression or postprocess it after decompression. They include colorspace conversion, downsampling/upsampling, and color quantization. This code can be omitted if not needed.

A wide range of quality vs. speed tradeoffs are possible in JPEG processing, and even more so in decompression postprocessing. The decompression library provides multiple implementations that cover most of the useful tradeoffs, ranging from very-high-quality down to fast-preview operation. On the compression side we have generally not provided low-quality choices, since compression is normally less time-critical. It should be understood that the low-quality modes may not meet the JPEG standard's accuracy requirements; nonetheless, they are useful for viewers.

*** Portability issues ***

Portability is an essential requirement for the library. The key portability issues that show up at the level of system architecture are:

1. Memory usage. We want the code to be able to run on PC-class machines with limited memory. Images should therefore be processed sequentially (in strips), to avoid holding the whole image in memory at once. Where a full-image buffer is necessary, we should be able to use either virtual memory or temporary files.

2. Near/far pointer distinction. To run efficiently on 80x86 machines, the code should distinguish "small" objects (kept in near data space) from "large" ones (kept in far data space). This is an annoying restriction, but fortunately it does not impact code quality for less brain-damaged machines, and the source code clutter turns out to be minimal with sufficient use of pointer typedefs.

3. Data precision. We assume that "char" is at least 8 bits, "short" and "int" at least 16, "long" at least 32. The code will work fine with larger data sizes, although memory may be used inefficiently in some cases. However, the JPEG compressed datastream must ultimately appear on external storage as a sequence of 8-bit bytes if it is to conform to the standard. This may pose a problem on machines where char is wider than 8 bits. The library represents compressed data as an array of values of typedef JOCTET. If no data type exactly 8 bits wide is available, custom data source and data destination modules must be written to unpack and pack the chosen JOCTET datatype into 8-bit external representation.

*** System overview ***

The compressor and decompressor are each divided into two main sections: the JPEG compressor or decompressor proper, and the preprocessing or postprocessing functions. The interface between these two sections is the image data that the official JPEG spec regards as its input or output: this data is in the colorspace to be used for compression, and it is downsampled to the sampling factors to be used. The preprocessing and postprocessing steps are responsible for converting a normal image representation to or from this form. (Those few applications that want to deal with YCbCr downsampled data can skip the preprocessing or postprocessing step.)

Looking more closely, the compressor library contains the following main elements:

Preprocessing:
- Color space conversion (e.g., RGB to YCbCr).
- Edge expansion and downsampling. Optionally, this step can do simple smoothing --- this is often helpful for low-quality source data.

JPEG proper:
- MCU assembly, DCT, quantization.
- Entropy coding (sequential or progressive, Huffman or arithmetic).

In addition to these modules we need overall control, marker generation, and support code (memory management & error handling). There is also a module responsible for physically writing the output data --- typically this is just an interface to fwrite(), but some applications may need to do something else with the data.

The decompressor library contains the following main elements:

JPEG proper:
  * Entropy decoding (sequential or progressive, Huffman or arithmetic).
  * Dequantization, inverse DCT, MCU disassembly.

Postprocessing:
  * Upsampling. Optionally, this step may be able to do more general rescaling of the image.
  * Color space conversion (e.g., YCbCr to RGB). This step may also provide gamma adjustment [currently it does not].
  * Optional color quantization (e.g., reduction to 256 colors).
  * Optional color precision reduction (e.g., 24-bit to 15-bit color). [This feature is not currently implemented.]

We also need overall control, marker parsing, and a data source module. The support code (memory management & error handling) can be shared with the compression half of the library.

There may be several implementations of each of these elements, particularly in the decompressor, where a wide range of speed/quality tradeoffs is very useful. It must be understood that some of the best speedups involve merging adjacent steps in the pipeline. For example, upsampling, color space conversion, and color quantization might all be done at once when using a low-quality ordered-dither technique. The system architecture is designed to allow such merging where appropriate.

Note: it is convenient to regard edge expansion (padding to block boundaries) as a preprocessing/postprocessing function, even though the JPEG spec includes it in compression/decompression. We do this because downsampling/upsampling can be simplified a little if they work on padded data: it's not necessary to have special cases at the right and bottom edges. Therefore the interface buffer is always an integral number of blocks wide and high, and we expect compression preprocessing to pad the source data properly. Padding will occur only to the next block (block_size-sample) boundary. In an interleaved-scan situation, additional dummy blocks may be used to fill out MCUs, but the MCU assembly and disassembly logic will create or discard these blocks internally. (This is advantageous for speed reasons, since we avoid DCTing the dummy blocks. It also permits a small reduction in file size, because the compressor can choose dummy block contents so as to minimize their size in compressed form. Finally, it makes the interface buffer specification independent of whether the file is actually interleaved or not.) Applications that wish to deal directly with the downsampled data must provide similar buffering and padding for odd-sized images.

*** Poor man's object-oriented programming ***

It should be clear by now that we have a lot of quasi-independent processing steps, many of which have several possible behaviors. To avoid cluttering the code with lots of switch statements, we use a simple form of object-style programming to separate out the different possibilities.

For example, two different color quantization algorithms could be implemented as two separate modules that present the same external interface; at runtime, the calling code will access the proper module indirectly through an "object".

We can get the limited features we need while staying within portable C. The basic tool is a function pointer. An "object" is just a struct containing one or more function pointer fields, each of which corresponds to a method name in real object-oriented languages. During initialization we fill in the function pointers with references to whichever module we have determined we need to use in this run. Then invocation of the module is done by indirecting through a function pointer; on most machines this is no more expensive than a switch statement, which would be the only other way of making the required run-time choice. The really significant benefit, of course, is keeping the source code clean and well structured.

We can also arrange to have private storage that varies between different implementations of the same kind of object. We do this by making all the module-specific object structs be separately allocated entities, which will be accessed via pointers in the master compression or decompression struct. The "public" fields or methods for a given kind of object are specified by a commonly known struct. But a module's initialization code can allocate a larger struct that contains the common struct as its first member, plus additional private fields. With appropriate pointer casting, the module's internal functions can access these private fields. (For a simple example, see jdatadst.c, which implements the external interface specified by struct jpeg_destination_mgr, but adds extra fields.)

(Of course this would all be a lot easier if we were using C++, but we are not yet prepared to assume that everyone has a C++ compiler.)

An important benefit of this scheme is that it is easy to provide multiple versions of any method, each tuned to a particular case. While a lot of precalculation might be done to select an optimal implementation of a method, the cost per invocation is constant. For example, the upsampling step might have a "generic" method, plus one or more "hardwired" methods for the most popular sampling factors; the hardwired methods would be faster because they'd use straight-line code instead of for-loops. The cost to determine which method to use is paid only once, at startup, and the selection criteria are hidden from the callers of the method.

This plan differs a little bit from usual object-oriented structures, in that only one instance of each object class will exist during execution. The reason for having the class structure is that on different runs we may create different instances (choose to execute different modules). You can think of the term "method" as denoting the common interface presented by a particular set of interchangeable functions, and "object" as denoting a group of related methods, or the total shared interface behavior of a group of modules.

*** Overall control structure ***

We previously mentioned the need for overall control logic in the compression and decompression libraries. In IJG implementations prior to v5, overall control was mostly provided by "pipeline control" modules, which proved to be large, unwieldy, and hard to understand. To improve the situation, the control logic has been subdivided into multiple modules. The control modules consist of:

1. Master control for module selection and initialization. This has two responsibilities:

  1A. Startup initialization at the beginning of image processing.
      The individual processing modules to be used in this run are selected
      and given initialization calls.

  1B. Per-pass control. This determines how many passes will be performed
      and calls each active processing module to configure itself
      appropriately at the beginning of each pass. End-of-pass processing,
 where necessary, is also invoked from the master control module.

  Method selection is partially distributed, in that a particular processing module may contain several possible implementations of a particular method, which it will select among when given its initialization call. The master control code need only be concerned with decisions that affect more than one module.

2. Data buffering control. A separate control module exists for each inter-processing-step data buffer. This module is responsible for invoking the processing steps that write or read that data buffer.

Each buffer controller sees the world as follows:

```
input data => processing step A => buffer => processing step B => output data
                      |                |                 |
              ------------------ controller ------------------
```

The controller knows the dataflow requirements of steps A and B: how much data they want to accept in one chunk and how much they output in one chunk. Its function is to manage its buffer and call A and B at the proper times.

A data buffer control module may itself be viewed as a processing step by a higher-level control module; thus the control modules form a binary tree with elementary processing steps at the leaves of the tree.

The control modules are objects. A considerable amount of flexibility can be had by replacing implementations of a control module. For example:
* Merging of adjacent steps in the pipeline is done by replacing a control module and its pair of processing-step modules with a single processing-step module. (Hence the possible merges are determined by the tree of control modules.)
* In some processing modes, a given interstep buffer need only be a "strip" buffer large enough to accommodate the desired data chunk sizes. In other modes, a full-image buffer is needed and several passes are required. The control module determines which kind of buffer is used and manipulates virtual array buffers as needed. One or both processing steps may be unaware of the multi-pass behavior.

In theory, we might be able to make all of the data buffer controllers interchangeable and provide just one set of implementations for all. In practice, each one contains considerable special-case processing for its particular job. The buffer controller concept should be regarded as an overall system structuring principle, not as a complete description of the task performed by any one controller.

*** Compression object structure ***

Here is a sketch of the logical structure of the JPEG compression library:

```
                                                 |-- Colorspace conversion
                  |-- Preprocessing controller --|
                  |                              |-- Downsampling
Main controller --|
                  |                            |-- Forward DCT, quantize
                  |-- Coefficient controller --|
                                               |-- Entropy encoding
```

This sketch also describes the flow of control (subroutine calls) during typical image data processing. Each of the components shown in the diagram is an "object" which may have several different implementations available. One or more source code files contain the actual implementation(s) of each object.

The objects shown above are:

* Main controller: buffer controller for the subsampled-data buffer, which holds the preprocessed input data. This controller invokes preprocessing to fill the subsampled-data buffer, and JPEG compression to empty it. There is usually no need for a full-image buffer here; a strip buffer is adequate.

* Preprocessing controller: buffer controller for the downsampling input data buffer, which lies between colorspace conversion and downsampling. Note that a unified conversion/downsampling module would probably replace this controller entirely.

* Colorspace conversion: converts application image data into the desired JPEG color space; also changes the data from pixel-interleaved layout to separate component planes. Processes one pixel row at a time.

* Downsampling: performs reduction of chroma components as required. Optionally may perform pixel-level smoothing as well. Processes a "row group" at a time, where a row group is defined as Vmax pixel rows of each component before downsampling, and Vk sample rows afterwards (remember Vk differs across components). Some downsampling or smoothing algorithms may require context rows above and below the current row group; the preprocessing controller is responsible for supplying these rows via proper buffering. The downsampler is responsible for edge expansion at the right edge (i.e., extending each sample row to a multiple of block_size samples); but the preprocessing controller is responsible for vertical edge expansion (i.e., duplicating the bottom sample row as needed to make a multiple of block_size rows).

* Coefficient controller: buffer controller for the DCT-coefficient data. This controller handles MCU assembly, including insertion of dummy DCT blocks when needed at the right or bottom edge. When performing Huffman-code optimization or emitting a multiscan JPEG file, this controller is responsible for buffering the full image. The equivalent of one fully interleaved MCU row of subsampled data is processed per call, even when the JPEG file is noninterleaved.

* Forward DCT and quantization: Perform DCT, quantize, and emit coefficients. Works on one or more DCT blocks at a time. (Note: the coefficients are now emitted in normal array order, which the entropy encoder is expected to convert to zigzag order as necessary. Prior versions of the IJG code did the conversion to zigzag order within the quantization step.)

* Entropy encoding: Perform Huffman or arithmetic entropy coding and emit the coded data to the data destination module. Works on one MCU per call. For progressive JPEG, the same DCT blocks are fed to the entropy coder during each pass, and the coder must emit the appropriate subset of coefficients.

In addition to the above objects, the compression library includes these objects:

* Master control: determines the number of passes required, controls overall and per-pass initialization of the other modules.

* Marker writing: generates JPEG markers (except for RSTn, which is emitted
 by the entropy encoder when needed).

* Data destination manager: writes the output JPEG datastream to its final
 destination (e.g., a file). The destination manager supplied with the
 library knows how to write to a stdio stream or to a memory buffer;
 for other behaviors, the surrounding application may provide its own
 destination manager.

* Memory manager: allocates and releases memory, controls virtual arrays
 (with backing store management, where required).

* Error handler: performs formatting and output of error and trace messages;
 determines handling of nonfatal errors. The surrounding application may
 override some or all of this object's methods to change error handling.

* Progress monitor: supports output of "percent-done" progress reports.
 This object represents an optional callback to the surrounding application:
 if wanted, it must be supplied by the application.

The error handler, destination manager, and progress monitor objects are defined as separate objects in order to simplify application-specific customization of the JPEG library. A surrounding application may override individual methods or supply its own all-new implementation of one of these objects. The object interfaces for these objects are therefore treated as part of the application interface of the library, whereas the other objects are internal to the library.

The error handler and memory manager are shared by JPEG compression and decompression; the progress monitor, if used, may be shared as well.

*** Decompression object structure ***

Here is a sketch of the logical structure of the JPEG decompression library:

```
                                 |-- Entropy decoding
            |-- Coefficient controller --|
            |                    |-- Dequantize, Inverse DCT
Main controller --|
            |                      |-- Upsampling
            |-- Postprocessing controller --|   |-- Colorspace conversion
                                   |-- Color quantization
                                   |-- Color precision reduction
```

As before, this diagram also represents typical control flow. The objects shown are:

* Main controller: buffer controller for the subsampled-data buffer, which holds the output of JPEG decompression proper. This controller's primary task is to feed the postprocessing procedure. Some upsampling algorithms may require context rows above and below the current row group; when this is true, the main controller is responsible for managing its buffer so as to make context rows available. In the current design, the main buffer is always a strip buffer; a full-image buffer is never required.

* Coefficient controller: buffer controller for the DCT-coefficient data. This controller handles MCU disassembly, including deletion of any dummy DCT blocks at the right or bottom edge. When reading a multiscan JPEG file, this controller is responsible for buffering the full image. (Buffering DCT coefficients, rather than samples, is necessary to support progressive JPEG.) The equivalent of one fully interleaved MCU row of subsampled data is processed per call, even when the source JPEG file is noninterleaved.

* Entropy decoding: Read coded data from the data source module and perform Huffman or arithmetic entropy decoding. Works on one MCU per call. For progressive JPEG decoding, the coefficient controller supplies the prior coefficients of each MCU (initially all zeroes), which the entropy decoder modifies in each scan.

* Dequantization and inverse DCT: like it says. Note that the coefficients buffered by the coefficient controller have NOT been dequantized; we merge dequantization and inverse DCT into a single step for speed reasons. When scaled-down output is asked for, simplified DCT algorithms may be used that need fewer coefficients and emit fewer samples per DCT block, not the full 8x8. Works on one DCT block at a time.

* Postprocessing controller: buffer controller for the color quantization input buffer, when quantization is in use. (Without quantization, this controller just calls the upsampler.) For two-pass quantization, this controller is responsible for buffering the full-image data.

* Upsampling: restores chroma components to full size. (May support more general output rescaling, too. Note that if undersized DCT outputs have been emitted by the DCT module, this module must adjust so that properly sized outputs are created.) Works on one row group at a time. This module also calls the color conversion module, so its top level is effectively a buffer controller for the upsampling->color conversion buffer. However, in all but the highest-quality operating modes, upsampling and color conversion are likely to be merged into a single step.

* Colorspace conversion: convert from JPEG color space to output color space, and change data layout from separate component planes to pixel-interleaved. Works on one pixel row at a time.

* Color quantization: reduce the data to colormapped form, using either an externally specified colormap or an internally generated one. This module is not used for full-color output. Works on one pixel row at a time; may require two passes to generate a color map. Note that the output will always be a single component representing colormap indexes. In the current design, the output values are JSAMPLEs, so an 8-bit compilation cannot quantize to more than 256 colors. This is unlikely to be a problem in practice.

* Color reduction: this module handles color precision reduction, e.g., generating 15-bit color (5 bits/primary) from JPEG's 24-bit output. Not quite clear yet how this should be handled... should we merge it with colorspace conversion???

Note that some high-speed operating modes might condense the entire postprocessing sequence to a single module (upsample, color convert, and quantize in one step).

In addition to the above objects, the decompression library includes these objects:

* Master control: determines the number of passes required, controls overall and per-pass initialization of the other modules. This is subdivided into input and output control: jdinput.c controls only input-side processing, while jdmaster.c handles overall initialization and output-side control.

* Marker reading: decodes JPEG markers (except for RSTn).

* Data source manager: supplies the input JPEG datastream. The source manager supplied with the library knows how to read from a stdio stream or from a memory buffer; for other behaviors, the surrounding application may provide its own source manager.

* Memory manager: same as for compression library.

* Error handler: same as for compression library.

* Progress monitor: same as for compression library.

As with compression, the data source manager, error handler, and progress monitor are candidates for replacement by a surrounding application.

*** Decompression input and output separation ***

To support efficient incremental display of progressive JPEG files, the decompressor is divided into two sections that can run independently:

1. Data input includes marker parsing, entropy decoding, and input into the coefficient controller's DCT coefficient buffer. Note that this processing is relatively cheap and fast.

2. Data output reads from the DCT coefficient buffer and performs the IDCT and all postprocessing steps.

For a progressive JPEG file, the data input processing is allowed to get arbitrarily far ahead of the data output processing. (This occurs only if the application calls jpeg_consume_input(); otherwise input and output run in lockstep, since the input section is called only when the output section needs more data.) In this way the application can avoid making extra display passes when data is arriving faster than the display pass can run. Furthermore, it is possible to abort an output pass without losing anything, since the coefficient buffer is read-only as far as the output section is concerned. See libjpeg.txt for more detail.

A full-image coefficient array is only created if the JPEG file has multiple scans (or if the application specifies buffered-image mode anyway). When reading a single-scan file, the coefficient controller normally creates only a one-MCU buffer, so input and output processing must run in lockstep in this case. jpeg_consume_input() is effectively a no-op in this situation.

The main impact of dividing the decompressor in this fashion is that we must be very careful with shared variables in the cinfo data structure. Each variable that can change during the course of decompression must be classified as belonging to data input or data output, and each section must look only at its own variables. For example, the data output section may not depend on any of the variables that describe the current scan in the JPEG file, because these may change as the data input section advances into a new scan.

The progress monitor is (somewhat arbitrarily) defined to treat input of the file as one pass when buffered-image mode is not used, and to ignore data input work completely when buffered-image mode is used. Note that the library has no reliable way to predict the number of passes when dealing with a progressive JPEG file, nor can it predict the number of output passes in buffered-image mode. So the work estimate is inherently bogus anyway.

No comparable division is currently made in the compression library, because there isn't any real need for it.

*** Data formats ***

Arrays of pixel sample values use the following data structure:

```
typedef something JSAMPLE;  a pixel component value, 0..MAXJSAMPLE
```

```
  typedef JSAMPLE *JSAMPROW;  ptr to a row of samples
  typedef JSAMPROW *JSAMPARRAY; ptr to a list of rows
  typedef JSAMPARRAY *JSAMPIMAGE; ptr to a list of color-component arrays
```

The basic element type JSAMPLE will typically be one of unsigned char, (signed) char, or short. Short will be used if samples wider than 8 bits are to be supported (this is a compile-time option). Otherwise, unsigned char is used if possible. If the compiler only supports signed chars, then it is necessary to mask off the value when reading. Thus, all reads of JSAMPLE values must be coded as "GETJSAMPLE(value)", where the macro will be defined as "((value) & 0xFF)" on signed-char machines and "((int) (value))" elsewhere.

With these conventions, JSAMPLE values can be assumed to be >= 0. This helps simplify correct rounding during downsampling, etc. The JPEG standard's specification that sample values run from -128..127 is accommodated by subtracting 128 from the sample value in the DCT step. Similarly, during decompression the output of the IDCT step will be immediately shifted back to 0..255. (NB: different values are required when 12-bit samples are in use. The code is written in terms of MAXJSAMPLE and CENTERJSAMPLE, which will be defined as 255 and 128 respectively in an 8-bit implementation, and as 4095 and 2048 in a 12-bit implementation.)

We use a pointer per row, rather than a two-dimensional JSAMPLE array. This choice costs only a small amount of memory and has several benefits:

* Code using the data structure doesn't need to know the allocated width of the rows. This simplifies edge expansion/compression, since we can work in an array that's wider than the logical picture width.
* Indexing doesn't require multiplication; this is a performance win on many machines.
* Arrays with more than 64K total elements can be supported even on machines where malloc() cannot allocate chunks larger than 64K.
* The rows forming a component array may be allocated at different times without extra copying. This trick allows some speedups in smoothing steps that need access to the previous and next rows.

Note that each color component is stored in a separate array; we don't use the traditional layout in which the components of a pixel are stored together. This simplifies coding of modules that work on each component independently, because they don't need to know how many components there are. Furthermore, we can read or write each component to a temporary file independently, which is helpful when dealing with noninterleaved JPEG files.

In general, a specific sample value is accessed by code such as

```
 GETJSAMPLE(image[colorcomponent][row][col])
```

where col is measured from the image left edge, but row is measured from the first sample row currently in memory. Either of the first two indexings can be precomputed by copying the relevant pointer.

Since most image-processing applications prefer to work on images in which the components of a pixel are stored together, the data passed to or from the surrounding application uses the traditional convention: a single pixel is represented by N consecutive JSAMPLE values, and an image row is an array of (# of color components)*(image width) JSAMPLEs. One or more rows of data can be represented by a pointer of type JSAMPARRAY in this scheme. This scheme is converted to component-wise storage inside the JPEG library. (Applications that want to skip JPEG preprocessing or postprocessing will have to contend with component-wise storage.)

Arrays of DCT-coefficient values use the following data structure:

```
typedef short JCOEF;  a 16-bit signed integer
typedef JCOEF JBLOCK[DCTSIZE2]; an 8x8 block of coefficients
typedef JBLOCK *JBLOCKROW;  ptr to one horizontal row of 8x8 blocks
typedef JBLOCKROW *JBLOCKARRAY; ptr to a list of such rows
typedef JBLOCKARRAY *JBLOCKIMAGE; ptr to a list of color component arrays
```

The underlying type is at least a 16-bit signed integer; while "short" is big enough on all machines of interest, on some machines it is preferable to use "int" for speed reasons, despite the storage cost. Coefficients are grouped into 8x8 blocks (but we always use #defines DCTSIZE and DCTSIZE2 rather than "8" and "64").

The contents of a coefficient block may be in either "natural" or zigzagged order, and may be true values or divided by the quantization coefficients, depending on where the block is in the processing pipeline. In the current library, coefficient blocks are kept in natural order everywhere; the entropy codecs zigzag or dezigzag the data as it is written or read. The blocks contain quantized coefficients everywhere outside the DCT/IDCT subsystems. (This latter decision may need to be revisited to support variable quantization a la JPEG Part 3.)

Notice that the allocation unit is now a row of 8x8 coefficient blocks, corresponding to block_size rows of samples. Otherwise the structure is much the same as for samples, and for the same reasons.

On machines where malloc() can't handle a request bigger than 64Kb, this data structure limits us to rows of less than 512 JBLOCKs, or a picture width of 4000+ pixels. This seems an acceptable restriction.

On 80x86 machines, the bottom-level pointer types (JSAMPROW and JBLOCKROW) must be declared as "far" pointers, but the upper levels can be "near" (implying that the pointer lists are allocated in the DS segment). We use a #define symbol FAR, which expands to the "far" keyword when compiling on 80x86 machines and to nothing elsewhere.

*** Suspendable processing ***

In some applications it is desirable to use the JPEG library as an incremental, memory-to-memory filter. In this situation the data source or destination may be a limited-size buffer, and we can't rely on being able to empty or refill the buffer at arbitrary times. Instead the application would like to have control return from the library at buffer overflow/underrun, and then resume compression or decompression at a later time.

This scenario is supported for simple cases. (For anything more complex, we recommend that the application "bite the bullet" and develop real multitasking capability.) The libjpeg.txt file goes into more detail about the usage and limitations of this capability; here we address the implications for library structure.

The essence of the problem is that the entropy codec (coder or decoder) must be prepared to stop at arbitrary times. In turn, the controllers that call the entropy codec must be able to stop before having produced or consumed all the data that they normally would handle in one call. That part is reasonably straightforward: we make the controller call interfaces include "progress counters" which indicate the number of data chunks successfully processed, and we require callers to test the counter rather than just assume all of the data was processed.

Rather than trying to restart at an arbitrary point, the current Huffman codecs are designed to restart at the beginning of the current MCU after a suspension due to buffer overflow/underrun. At the start of each call, the codec's internal state is loaded from permanent storage (in the JPEG object structures) into local variables. On successful completion of the MCU, the permanent state is updated. (This copying is not very expensive, and may even lead to *improved* performance if the local variables can be registerized.) If a suspension occurs, the codec simply returns without updating the state, thus effectively reverting to the start of the MCU. Note that this implies leaving some data unprocessed in the source/destination buffer (ie, the compressed partial MCU). The data source/destination module interfaces are specified so as to make this possible. This also implies that the data buffer must be large enough to hold a worst-case compressed MCU; a couple thousand bytes should be enough.

In a successive-approximation AC refinement scan, the progressive Huffman decoder has to be able to undo assignments of newly nonzero coefficients if it suspends before the MCU is complete, since decoding requires distinguishing previously-zero and previously-nonzero coefficients. This is a bit tedious but probably won't have much effect on performance. Other variants of Huffman decoding need not worry about this, since they will just store the same values again if forced to repeat the MCU.

This approach would probably not work for an arithmetic codec, since its modifiable state is quite large and couldn't be copied cheaply. Instead it would have to suspend and resume exactly at the point of the buffer end.

The JPEG marker reader is designed to cope with suspension at an arbitrary point. It does so by backing up to the start of the marker parameter segment, so the data buffer must be big enough to hold the largest marker of interest. Again, a couple KB should be adequate. (A special "skip" convention is used to bypass COM and APPn markers, so these can be larger than the buffer size without causing problems; otherwise a 64K buffer would be needed in the worst case.)

The JPEG marker writer currently does *not* cope with suspension. We feel that this is not necessary; it is much easier simply to require the application to ensure there is enough buffer space before starting. (An empty 2K buffer is more than sufficient for the header markers; and ensuring there are a dozen or two bytes available before calling jpeg_finish_compress() will suffice for the trailer.) This would not work for writing multi-scan JPEG files, but we simply do not intend to support that capability with suspension.

*** Memory manager services ***

The JPEG library's memory manager controls allocation and deallocation of memory, and it manages large "virtual" data arrays on machines where the operating system does not provide virtual memory. Note that the same memory manager serves both compression and decompression operations.

In all cases, allocated objects are tied to a particular compression or decompression master record, and they will be released when that master record is destroyed.

The memory manager does not provide explicit deallocation of objects. Instead, objects are created in "pools" of free storage, and a whole pool can be freed at once. This approach helps prevent storage-leak bugs, and it speeds up operations whenever malloc/free are slow (as they often are). The pools can be regarded as lifetime identifiers for objects. Two pools/lifetimes are defined:
 * JPOOL_PERMANENT lasts until master record is destroyed
 * JPOOL_IMAGE lasts until done with image (JPEG datastream)
Permanent lifetime is used for parameters and tables that should be carried across from one datastream to another; this includes all application-visible parameters. Image lifetime is used for everything else. (A third lifetime, JPOOL_PASS = one processing pass, was originally planned. However it was dropped as not being worthwhile. The actual usage patterns are such that the

peak memory usage would be about the same anyway; and having per-pass storage substantially complicates the virtual memory allocation rules --- see below.)

The memory manager deals with three kinds of object:
1. "Small" objects. Typically these require no more than 10K-20K total.
2. "Large" objects. These may require tens to hundreds of K depending on image size. Semantically they behave the same as small objects, but we distinguish them for two reasons:
   * On MS-DOS machines, large objects are referenced by FAR pointers, small objects by NEAR pointers.
   * Pool allocation heuristics may differ for large and small objects.

   Note that individual "large" objects cannot exceed the size allowed by type size_t, which may be 64K or less on some machines.
3. "Virtual" objects. These are large 2-D arrays of JSAMPLEs or JBLOCKs (typically large enough for the entire image being processed). The memory manager provides stripwise access to these arrays. On machines without virtual memory, the rest of the array may be swapped out to a temporary file.

(Note: JSAMPARRAY and JBLOCKARRAY data structures are a combination of large objects for the data proper and small objects for the row pointers. For convenience and speed, the memory manager provides single routines to create these structures. Similarly, virtual arrays include a small control block and a JSAMPARRAY or JBLOCKARRAY working buffer, all created with one call.)

In the present implementation, virtual arrays are only permitted to have image lifespan. (Permanent lifespan would not be reasonable, and pass lifespan is not very useful since a virtual array's raison d'etre is to store data for multiple passes through the image.) We also expect that only "small" objects will be given permanent lifespan, though this restriction is not required by the memory manager.

In a non-virtual-memory machine, some performance benefit can be gained by making the in-memory buffers for virtual arrays be as large as possible. (For small images, the buffers might fit entirely in memory, so blind swapping would be very wasteful.) The memory manager will adjust the height of the buffers to fit within a prespecified maximum memory usage. In order to do this in a reasonably optimal fashion, the manager needs to allocate all of the virtual arrays at once. Therefore, there isn't a one-step allocation routine for virtual arrays; instead, there is a "request" routine that simply allocates the control block, and a "realize" routine (called just once) that determines space allocation and creates all of the actual buffers. The realize routine must allow for space occupied by non-virtual large objects. (We don't bother to factor in the space needed for small objects, on the grounds that it isn't worth the trouble.)

To support all this, we establish the following protocol for doing business with the memory manager:

1. Modules must request virtual arrays (which may have only image lifespan)
   during the initial setup phase, i.e., in their jinit_xxx routines.
2. All "large" objects (including JSAMPARRAYs and JBLOCKARRAYs) must also be
   allocated during initial setup.
3. realize_virt_arrays will be called at the completion of initial setup.
   The above conventions ensure that sufficient information is available
   for it to choose a good size for virtual array buffers.

Small objects of any lifespan may be allocated at any time. We expect that the total space used for small objects will be small enough to be negligible in the realize_virt_arrays computation.

In a virtual-memory machine, we simply pretend that the available space is infinite, thus causing realize_virt_arrays to decide that it can allocate all the virtual arrays as full-size in-memory buffers. The overhead of the virtual-array access protocol is very small when no swapping occurs.

A virtual array can be specified to be "pre-zeroed"; when this flag is set, never-yet-written sections of the array are set to zero before being made available to the caller. If this flag is not set, never-written sections of the array contain garbage. (This feature exists primarily because the equivalent logic would otherwise be needed in jdcoefct.c for progressive JPEG mode; we may as well make it available for possible other uses.)

The first write pass on a virtual array is required to occur in top-to-bottom order; read passes, as well as any write passes after the first one, may access the array in any order. This restriction exists partly to simplify the virtual array control logic, and partly because some file systems may not support seeking beyond the current end-of-file in a temporary file. The main implication of this restriction is that rearrangement of rows (such as converting top-to-bottom data order to bottom-to-top) must be handled while reading data out of the virtual array, not while putting it in.

*** Memory manager internal structure ***

To isolate system dependencies as much as possible, we have broken the memory manager into two parts. There is a reasonably system-independent "front end" (jmemmgr.c) and a "back end" that contains only the code likely to change across systems. All of the memory management methods outlined above are implemented by the front end. The back end provides the following routines for use by the front end (none of these routines are known to the rest of the JPEG code):

jpeg_mem_init, jpeg_mem_term system-dependent initialization/shutdown

jpeg_get_small, jpeg_free_small interface to malloc and free library routines
   (or their equivalents)

jpeg_get_large, jpeg_free_large interface to FAR malloc/free in MSDOS machines;
  else usually the same as
  jpeg_get_small/jpeg_free_small

jpeg_mem_available estimate available memory

jpeg_open_backing_store create a backing-store object

read_backing_store, manipulate a backing-store object
write_backing_store,
close_backing_store

On some systems there will be more than one type of backing-store object (specifically, in MS-DOS a backing store file might be an area of extended memory as well as a disk file). jpeg_open_backing_store is responsible for choosing how to implement a given object. The read/write/close routines are method pointers in the structure that describes a given object; this lets them be different for different object types.

It may be necessary to ensure that backing store objects are explicitly released upon abnormal program termination. For example, MS-DOS won't free extended memory by itself. To support this, we will expect the main program or surrounding application to arrange to call self_destruct (typically via jpeg_destroy) upon abnormal termination. This may require a SIGINT signal handler or equivalent. We don't want to have the back end module install its own signal handler, because that would pre-empt the surrounding application's ability to control signal handling.

The IJG distribution includes several memory manager back end implementations. Usually the same back end should be suitable for all applications on a given system, but it is possible for an application to supply its own back end at need.

*** Implications of DNL marker ***

Some JPEG files may use a DNL marker to postpone definition of the image height (this would be useful for a fax-like scanner's output, for instance). In these files the SOF marker claims the image height is 0, and you only find out the true image height at the end of the first scan.

We could read these files as follows:
1. Upon seeing zero image height, replace it by 65535 (the maximum allowed).
2. When the DNL is found, update the image height in the global image
  descriptor.
This implies that control modules must avoid making copies of the image height, and must re-test for termination after each MCU row. This would be easy enough to do.

In cases where image-size data structures are allocated, this approach will result in very inefficient use of virtual memory or much-larger-than-necessary temporary files. This seems acceptable for something that probably won't be a mainstream usage. People might have to forgo use of memory-hogging options (such as two-pass color quantization or noninterleaved JPEG files) if they want efficient conversion of such files. (One could improve efficiency by demanding a user-supplied upper bound for the height, less than 65536; in most cases it could be much less.)

The standard also permits the SOF marker to overestimate the image height, with a DNL to give the true, smaller height at the end of the first scan. This would solve the space problems if the overestimate wasn't too great. However, it implies that you don't even know whether DNL will be used.

This leads to a couple of very serious objections:
1. Testing for a DNL marker must occur in the inner loop of the decompressor's Huffman decoder; this implies a speed penalty whether the feature is used or not.
2. There is no way to hide the last-minute change in image height from an application using the decoder. Thus *every* application using the IJG library would suffer a complexity penalty whether it cared about DNL or not.

We currently do not support DNL because of these problems.

A different approach is to insist that DNL-using files be preprocessed by a separate program that reads ahead to the DNL, then goes back and fixes the SOF marker. This is a much simpler solution and is probably far more efficient. Even if one wants piped input, buffering the first scan of the JPEG file needs a lot smaller temp file than is implied by the maximum-height method. For this approach we'd simply treat DNL as a no-op in the decompressor (at most, check that it matches the SOF image height).

We will not worry about making the compressor capable of outputting DNL. Something similar to the first scheme above could be applied if anyone ever wants to make that work.

Found in path(s):
* /opt/cola/permits/1103550007_1605777850.47/0/jpegsrc-v9d-tar-gz/jpeg-9d/structure.txt
No license file was found, but licenses were detected in source scan.

/*
* jaricom.c
*
* Developed 1997-2011 by Guido Vollbeding.
* This file is part of the Independent JPEG Group's software.
* For conditions of distribution and use, see the accompanying README file.
*

* This file contains probability estimation tables for common use in
* arithmetic entropy encoding and decoding routines.
*
* This data represents Table D.3 in the JPEG spec (D.2 in the draft),
* ISO/IEC IS 10918-1 and CCITT Recommendation ITU-T T.81, and Table 24
* in the JBIG spec, ISO/IEC IS 11544 and CCITT Recommendation ITU-T T.82.
*/

Found in path(s):
* /opt/cola/permits/1103550007_1605777850.47/0/jpegsrc-v9d-tar-gz/jpeg-9d/jaricom.c
No license file was found, but licenses were detected in source scan.

/*
* jcapimin.c
*
* Copyright (C) 1994-1998, Thomas G. Lane.
* Modified 2003-2010 by Guido Vollbeding.
* This file is part of the Independent JPEG Group's software.
* For conditions of distribution and use, see the accompanying README file.
*
* This file contains application interface code for the compression half
* of the JPEG library. These are the "minimum" API routines that may be
* needed in either the normal full-compression case or the transcoding-only
* case.
*
* Most of the routines intended to be called directly by an application
* are in this file or in jcapistd.c. But also see jcparam.c for
* parameter-setup helper routines, jcomapi.c for routines shared by
* compression and decompression, and jctrans.c for the transcoding case.
*/

Found in path(s):
* /opt/cola/permits/1103550007_1605777850.47/0/jpegsrc-v9d-tar-gz/jpeg-9d/jcapimin.c
No license file was found, but licenses were detected in source scan.

/*
* jquant2.c
*
* Copyright (C) 1991-1996, Thomas G. Lane.
* Modified 2011 by Guido Vollbeding.
* This file is part of the Independent JPEG Group's software.
* For conditions of distribution and use, see the accompanying README file.
*
* This file contains 2-pass color quantization (color mapping) routines.
* These routines provide selection of a custom color map for an image,
* followed by mapping of the image to that color map, with optional
* Floyd-Steinberg dithering.
* It is also possible to use just the second pass to map to an arbitrary

* externally-given color map.
*
* Note: ordered dithering is not supported, since there isn't any fast
* way to compute intercolor distances; it's unclear that ordered dither's
* fundamental assumptions even hold with an irregularly spaced color map.
*/

Found in path(s):
* /opt/cola/permits/1103550007_1605777850.47/0/jpegsrc-v9d-tar-gz/jpeg-9d/jquant2.c
No license file was found, but licenses were detected in source scan.

/*
* jidctflt.c
*
* Copyright (C) 1994-1998, Thomas G. Lane.
* Modified 2010-2017 by Guido Vollbeding.
* This file is part of the Independent JPEG Group's software.
* For conditions of distribution and use, see the accompanying README file.
*
* This file contains a floating-point implementation of the
* inverse DCT (Discrete Cosine Transform). In the IJG code, this routine
* must also perform dequantization of the input coefficients.
*
* This implementation should be more accurate than either of the integer
* IDCT implementations. However, it may not give the same results on all
* machines because of differences in roundoff behavior. Speed will depend
* on the hardware's floating point capacity.
*
* A 2-D IDCT can be done by 1-D IDCT on each column followed by 1-D IDCT
* on each row (or vice versa, but it's more convenient to emit a row at
* a time). Direct algorithms are also available, but they are much more
* complex and seem not to be any faster when reduced to code.
*
* This implementation is based on Arai, Agui, and Nakajima's algorithm for
* scaled DCT. Their original paper (Trans. IEICE E-71(11):1095) is in
* Japanese, but the algorithm is described in the Pennebaker & Mitchell
* JPEG textbook (see REFERENCES section in file README). The following code
* is based directly on figure 4-8 in P&M.
* While an 8-point DCT cannot be done in less than 11 multiplies, it is
* possible to arrange the computation so that many of the multiplies are
* simple scalings of the final outputs. These multiplies can then be
* folded into the multiplications or divisions by the JPEG quantization
* table entries. The AA&N method leaves only 5 multiplies and 29 adds
* to be done in the DCT itself.
* The primary disadvantage of this method is that with a fixed-point
* implementation, accuracy is lost due to imprecise representation of the
* scaled quantization values. However, that problem does not arise if
* we use floating point arithmetic.

*/

Found in path(s):
* /opt/cola/permits/1103550007_1605777850.47/0/jpegsrc-v9d-tar-gz/jpeg-9d/jidctflt.c
No license file was found, but licenses were detected in source scan.

/*
* jdsample.c
*
* Copyright (C) 1991-1996, Thomas G. Lane.
* Modified 2002-2015 by Guido Vollbeding.
* This file is part of the Independent JPEG Group's software.
* For conditions of distribution and use, see the accompanying README file.
*
* This file contains upsampling routines.
*
* Upsampling input data is counted in "row groups". A row group
* is defined to be (v_samp_factor * DCT_v_scaled_size / min_DCT_v_scaled_size)
* sample rows of each component. Upsampling will normally produce
* max_v_samp_factor pixel rows from each row group (but this could vary
* if the upsampler is applying a scale factor of its own).
*
* An excellent reference for image resampling is
*   Digital Image Warping, George Wolberg, 1990.
*   Pub. by IEEE Computer Society Press, Los Alamitos, CA. ISBN 0-8186-8944-7.
*/

Found in path(s):
* /opt/cola/permits/1103550007_1605777850.47/0/jpegsrc-v9d-tar-gz/jpeg-9d/jdsample.c
No license file was found, but licenses were detected in source scan.

/*
* jcsample.c
*
* Copyright (C) 1991-1996, Thomas G. Lane.
* This file is part of the Independent JPEG Group's software.
* For conditions of distribution and use, see the accompanying README file.
*
* This file contains downsampling routines.
*
* Downsampling input data is counted in "row groups". A row group
* is defined to be max_v_samp_factor pixel rows of each component,
* from which the downsampler produces v_samp_factor sample rows.
* A single row group is processed in each call to the downsampler module.
*
* The downsampler is responsible for edge-expansion of its output data
* to fill an integral number of DCT blocks horizontally. The source buffer
* may be modified if it is helpful for this purpose (the source buffer is

* allocated wide enough to correspond to the desired output width).
* The caller (the prep controller) is responsible for vertical padding.
*
* The downsampler may request "context rows" by setting need_context_rows
* during startup. In this case, the input arrays will contain at least
* one row group's worth of pixels above and below the passed-in data;
* the caller will create dummy rows at image top and bottom by replicating
* the first or last real pixel row.
*
* An excellent reference for image resampling is
*   Digital Image Warping, George Wolberg, 1990.
*   Pub. by IEEE Computer Society Press, Los Alamitos, CA. ISBN 0-8186-8944-7.
*
* The downsampling algorithm used here is a simple average of the source
* pixels covered by the output pixel. The hi-falutin sampling literature
* refers to this as a "box filter". In general the characteristics of a box
* filter are not very good, but for the specific cases we normally use (1:1
* and 2:1 ratios) the box is equivalent to a "triangle filter" which is not
* nearly so bad. If you intend to use other sampling ratios, you'd be well
* advised to improve this code.
*
* A simple input-smoothing capability is provided. This is mainly intended
* for cleaning up color-dithered GIF input files (if you find it inadequate,
* we suggest using an external filtering program such as pnmconvol). When
* enabled, each input pixel P is replaced by a weighted sum of itself and its
* eight neighbors. P's weight is 1-8*SF and each neighbor's weight is SF,
* where SF = (smoothing_factor / 1024).
* Currently, smoothing is only supported for 2h2v sampling factors.
*/

Found in path(s):
* /opt/cola/permits/1103550007_1605777850.47/0/jpegsrc-v9d-tar-gz/jpeg-9d/jcsample.c
No license file was found, but licenses were detected in source scan.

/*
* jcmarker.c
*
* Copyright (C) 1991-1998, Thomas G. Lane.
* Modified 2003-2019 by Guido Vollbeding.
* This file is part of the Independent JPEG Group's software.
* For conditions of distribution and use, see the accompanying README file.
*
* This file contains routines to write JPEG datastream markers.
*/

Found in path(s):
* /opt/cola/permits/1103550007_1605777850.47/0/jpegsrc-v9d-tar-gz/jpeg-9d/jcmarker.c

No license file was found, but licenses were detected in source scan.

/*
* jdatasrc.c
*
* Copyright (C) 1994-1996, Thomas G. Lane.
* Modified 2009-2019 by Guido Vollbeding.
* This file is part of the Independent JPEG Group's software.
* For conditions of distribution and use, see the accompanying README file.
*
* This file contains decompression data source routines for the case of
* reading JPEG data from memory or from a file (or any stdio stream).
* While these routines are sufficient for most applications,
* some will want to use a different source manager.
* IMPORTANT: we assume that fread() will correctly transcribe an array of
* JOCTETs from 8-bit-wide elements on external storage. If char is wider
* than 8 bits on your machine, you may need to do some tweaking.
*/

Found in path(s):
* /opt/cola/permits/1103550007_1605777850.47/0/jpegsrc-v9d-tar-gz/jpeg-9d/jdatasrc.c
No license file was found, but licenses were detected in source scan.

/*
* jdhuff.c
*
* Copyright (C) 1991-1997, Thomas G. Lane.
* Modified 2006-2019 by Guido Vollbeding.
* This file is part of the Independent JPEG Group's software.
* For conditions of distribution and use, see the accompanying README file.
*
* This file contains Huffman entropy decoding routines.
* Both sequential and progressive modes are supported in this single module.
*
* Much of the complexity here has to do with supporting input suspension.
* If the data source module demands suspension, we want to be able to back
* up to the start of the current MCU. To do this, we copy state variables
* into local working storage, and update them back to the permanent
* storage only upon successful completion of an MCU.
*/

Found in path(s):
* /opt/cola/permits/1103550007_1605777850.47/0/jpegsrc-v9d-tar-gz/jpeg-9d/jdhuff.c
No license file was found, but licenses were detected in source scan.

/*
* rdppm.c
*

* Copyright (C) 1991-1997, Thomas G. Lane.
* Modified 2009-2019 by Bill Allombert, Guido Vollbeding.
* This file is part of the Independent JPEG Group's software.
* For conditions of distribution and use, see the accompanying README file.
*
* This file contains routines to read input images in PPM/PGM format.
* The extended 2-byte-per-sample raw PPM/PGM formats are supported.
* The PBMPLUS library is NOT required to compile this software
* (but it is highly useful as a set of PPM image manipulation programs).
*
* These routines may need modification for non-Unix environments or
* specialized applications. As they stand, they assume input from
* an ordinary stdio stream. They further assume that reading begins
* at the start of the file; start_input may need work if the
* user interface has already read some data (e.g., to determine that
* the file is indeed PPM format).
*/
/* Portions of this code are based on the PBMPLUS library, which is:
**
** Copyright (C) 1988 by Jef Poskanzer.
**
** Permission to use, copy, modify, and distribute this software and its
** documentation for any purpose and without fee is hereby granted, provided
** that the above copyright notice appear in all copies and that both that
** copyright notice and this permission notice appear in supporting
** documentation. This software is provided "as is" without express or
** implied warranty.
*/

Found in path(s):
* /opt/cola/permits/1103550007_1605777850.47/0/jpegsrc-v9d-tar-gz/jpeg-9d/rdppm.c
No license file was found, but licenses were detected in source scan.

/*
* jccolor.c
*
* Copyright (C) 1991-1996, Thomas G. Lane.
* Modified 2011-2019 by Guido Vollbeding.
* This file is part of the Independent JPEG Group's software.
* For conditions of distribution and use, see the accompanying README file.
*
* This file contains input colorspace conversion routines.
*/

Found in path(s):
* /opt/cola/permits/1103550007_1605777850.47/0/jpegsrc-v9d-tar-gz/jpeg-9d/jccolor.c
No license file was found, but licenses were detected in source scan.

/*
* jinclude.h
*
* Copyright (C) 1991-1994, Thomas G. Lane.
* Modified 2017 by Guido Vollbeding.
* This file is part of the Independent JPEG Group's software.
* For conditions of distribution and use, see the accompanying README file.
*
* This file exists to provide a single place to fix any problems with
* including the wrong system include files. (Common problems are taken
* care of by the standard jconfig symbols, but on really weird systems
* you may have to edit this file.)
*
* NOTE: this file is NOT intended to be included by applications using the
* JPEG library. Most applications need only include jpeglib.h.
*/

Found in path(s):
* /opt/cola/permits/1103550007_1605777850.47/0/jpegsrc-v9d-tar-gz/jpeg-9d/jinclude.h
No license file was found, but licenses were detected in source scan.

/*
* rdgif.c
*
* Copyright (C) 1991-1996, Thomas G. Lane.
* Modified 2019 by Guido Vollbeding.
* This file is part of the Independent JPEG Group's software.
* For conditions of distribution and use, see the accompanying README file.
*
* This file contains routines to read input images in GIF format.
*
* These routines may need modification for non-Unix environments or
* specialized applications. As they stand, they assume input from
* an ordinary stdio stream. They further assume that reading begins
* at the start of the file; start_input may need work if the
* user interface has already read some data (e.g., to determine that
* the file is indeed GIF format).
*/
/*
* This code is loosely based on giftoppm from the PBMPLUS distribution
* of Feb. 1991. That file contains the following copyright notice:
* +---+
* | Copyright 1990, David Koblas. |
* | Permission to use, copy, modify, and distribute this software |
* | and its documentation for any purpose and without fee is hereby |
* | granted, provided that the above copyright notice appear in all |
* | copies and that both that copyright notice and this permission |
* | notice appear in supporting documentation. This software is |

* | provided "as is" without express or implied warranty. |
* +--+
*/

Found in path(s):
* /opt/cola/permits/1103550007_1605777850.47/0/jpegsrc-v9d-tar-gz/jpeg-9d/rdgif.c
No license file was found, but licenses were detected in source scan.

/*
* jdct.h
*
* Copyright (C) 1994-1996, Thomas G. Lane.
* Modified 2002-2019 by Guido Vollbeding.
* This file is part of the Independent JPEG Group's software.
* For conditions of distribution and use, see the accompanying README file.
*
* This include file contains common declarations for the forward and
* inverse DCT modules. These declarations are private to the DCT managers
* (jcdctmgr.c, jddctmgr.c) and the individual DCT algorithms.
* The individual DCT algorithms are kept in separate files to ease
* machine-dependent tuning (e.g., assembly coding).
*/

Found in path(s):
* /opt/cola/permits/1103550007_1605777850.47/0/jpegsrc-v9d-tar-gz/jpeg-9d/jdct.h
No license file was found, but licenses were detected in source scan.

/*
* ckconfig.c
*
* Copyright (C) 1991-1994, Thomas G. Lane.
* This file is part of the Independent JPEG Group's software.
* For conditions of distribution and use, see the accompanying README file.
*/

Found in path(s):
* /opt/cola/permits/1103550007_1605777850.47/0/jpegsrc-v9d-tar-gz/jpeg-9d/ckconfig.c
No license file was found, but licenses were detected in source scan.

/*
* rdjpgcom.c
*
* Copyright (C) 1994-1997, Thomas G. Lane.
* Modified 2009 by Bill Allombert, Guido Vollbeding.
* This file is part of the Independent JPEG Group's software.
* For conditions of distribution and use, see the accompanying README file.
*
* This file contains a very simple stand-alone application that displays

* the text in COM (comment) markers in a JFIF file.
* This may be useful as an example of the minimum logic needed to parse
* JPEG markers.
*/

Found in path(s):
* /opt/cola/permits/1103550007_1605777850.47/0/jpegsrc-v9d-tar-gz/jpeg-9d/rdjpgcom.c
No license file was found, but licenses were detected in source scan.

```
/*
 * jidctfst.c
 *
 * Copyright (C) 1994-1998, Thomas G. Lane.
 * Modified 2015-2017 by Guido Vollbeding.
 * This file is part of the Independent JPEG Group's software.
 * For conditions of distribution and use, see the accompanying README file.
 *
 * This file contains a fast, not so accurate integer implementation of the
 * inverse DCT (Discrete Cosine Transform).  In the IJG code, this routine
 * must also perform dequantization of the input coefficients.
 *
 * A 2-D IDCT can be done by 1-D IDCT on each column followed by 1-D IDCT
 * on each row (or vice versa, but it's more convenient to emit a row at
 * a time).  Direct algorithms are also available, but they are much more
 * complex and seem not to be any faster when reduced to code.
 *
 * This implementation is based on Arai, Agui, and Nakajima's algorithm for
 * scaled DCT.  Their original paper (Trans. IEICE E-71(11):1095) is in
 * Japanese, but the algorithm is described in the Pennebaker & Mitchell
 * JPEG textbook (see REFERENCES section in file README).  The following code
 * is based directly on figure 4-8 in P&M.
 * While an 8-point DCT cannot be done in less than 11 multiplies, it is
 * possible to arrange the computation so that many of the multiplies are
 * simple scalings of the final outputs.  These multiplies can then be
 * folded into the multiplications or divisions by the JPEG quantization
 * table entries.  The AA&N method leaves only 5 multiplies and 29 adds
 * to be done in the DCT itself.
 * The primary disadvantage of this method is that with fixed-point math,
 * accuracy is lost due to imprecise representation of the scaled
 * quantization values.  The smaller the quantization table entry, the less
 * precise the scaled value, so this implementation does worse with high-
 * quality-setting files than with low-quality ones.
 */
```

Found in path(s):
* /opt/cola/permits/1103550007_1605777850.47/0/jpegsrc-v9d-tar-gz/jpeg-9d/jidctfst.c
No license file was found, but licenses were detected in source scan.

/*
* jcapistd.c
*
* Copyright (C) 1994-1996, Thomas G. Lane.
* Modified 2013 by Guido Vollbeding.
* This file is part of the Independent JPEG Group's software.
* For conditions of distribution and use, see the accompanying README file.
*
* This file contains application interface code for the compression half
* of the JPEG library. These are the "standard" API routines that are
* used in the normal full-compression case. They are not used by a
* transcoding-only application. Note that if an application links in
* jpeg_start_compress, it will end up linking in the entire compressor.
* We thus must separate this file from jcapimin.c to avoid linking the
* whole compression library into a transcoder.
*/

Found in path(s):
* /opt/cola/permits/1103550007_1605777850.47/0/jpegsrc-v9d-tar-gz/jpeg-9d/jcapistd.c
No license file was found, but licenses were detected in source scan.

/*
* jfdctint.c
*
* Copyright (C) 1991-1996, Thomas G. Lane.
* Modification developed 2003-2018 by Guido Vollbeding.
* This file is part of the Independent JPEG Group's software.
* For conditions of distribution and use, see the accompanying README file.
*
* This file contains a slow-but-accurate integer implementation of the
* forward DCT (Discrete Cosine Transform).
*
* A 2-D DCT can be done by 1-D DCT on each row followed by 1-D DCT
* on each column. Direct algorithms are also available, but they are
* much more complex and seem not to be any faster when reduced to code.
*
* This implementation is based on an algorithm described in
*   C. Loeffler, A. Ligtenberg and G. Moschytz, "Practical Fast 1-D DCT
*   Algorithms with 11 Multiplications", Proc. Int'l. Conf. on Acoustics,
*   Speech, and Signal Processing 1989 (ICASSP '89), pp. 988-991.
* The primary algorithm described there uses 11 multiplies and 29 adds.
* We use their alternate method with 12 multiplies and 32 adds.
* The advantage of this method is that no data path contains more than one
* multiplication; this allows a very simple and accurate implementation in
* scaled fixed-point arithmetic, with a minimal number of shifts.
*
* We also provide FDCT routines with various input sample block sizes for
* direct resolution reduction or enlargement and for direct resolving the

* common 2x1 and 1x2 subsampling cases without additional resampling: NxN
* (N=1...16), 2NxN, and Nx2N (N=1...8) pixels for one 8x8 output DCT block.
*
* For N<8 we fill the remaining block coefficients with zero.
* For N>8 we apply a partial N-point FDCT on the input samples, computing
* just the lower 8 frequency coefficients and discarding the rest.
*
* We must scale the output coefficients of the N-point FDCT appropriately
* to the standard 8-point FDCT level by 8/N per 1-D pass. This scaling
* is folded into the constant multipliers (pass 2) and/or final/initial
* shifting.
*
* CAUTION: We rely on the FIX() macro except for the N=1,2,4,8 cases
* since there would be too many additional constants to pre-calculate.
*/

Found in path(s):
* /opt/cola/permits/1103550007_1605777850.47/0/jpegsrc-v9d-tar-gz/jpeg-9d/jfdctint.c
No license file was found, but licenses were detected in source scan.

/*
* jmemdos.c
*
* Copyright (C) 1992-1997, Thomas G. Lane.
* This file is part of the Independent JPEG Group's software.
* For conditions of distribution and use, see the accompanying README file.
*
* This file provides an MS-DOS-compatible implementation of the system-
* dependent portion of the JPEG memory manager. Temporary data can be
* stored in extended or expanded memory as well as in regular DOS files.
*
* If you use this file, you must be sure that NEED_FAR_POINTERS is defined
* if you compile in a small-data memory model; it should NOT be defined if
* you use a large-data memory model. This file is not recommended if you
* are using a flat-memory-space 386 environment such as DJGCC or Watcom C.
* Also, this code will NOT work if struct fields are aligned on greater than
* 2-byte boundaries.
*
* Based on code contributed by Ge' Weijers.
*/

Found in path(s):
* /opt/cola/permits/1103550007_1605777850.47/0/jpegsrc-v9d-tar-gz/jpeg-9d/jmemdos.c
No license file was found, but licenses were detected in source scan.

/*
* jidctint.c
*

* Copyright (C) 1991-1998, Thomas G. Lane.
* Modification developed 2002-2018 by Guido Vollbeding.
* This file is part of the Independent JPEG Group's software.
* For conditions of distribution and use, see the accompanying README file.
*
* This file contains a slow-but-accurate integer implementation of the
* inverse DCT (Discrete Cosine Transform). In the IJG code, this routine
* must also perform dequantization of the input coefficients.
*
* A 2-D IDCT can be done by 1-D IDCT on each column followed by 1-D IDCT
* on each row (or vice versa, but it's more convenient to emit a row at
* a time). Direct algorithms are also available, but they are much more
* complex and seem not to be any faster when reduced to code.
*
* This implementation is based on an algorithm described in
*   C. Loeffler, A. Ligtenberg and G. Moschytz, "Practical Fast 1-D DCT
*   Algorithms with 11 Multiplications", Proc. Int'l. Conf. on Acoustics,
*   Speech, and Signal Processing 1989 (ICASSP '89), pp. 988-991.
* The primary algorithm described there uses 11 multiplies and 29 adds.
* We use their alternate method with 12 multiplies and 32 adds.
* The advantage of this method is that no data path contains more than one
* multiplication; this allows a very simple and accurate implementation in
* scaled fixed-point arithmetic, with a minimal number of shifts.
*
* We also provide IDCT routines with various output sample block sizes for
* direct resolution reduction or enlargement and for direct resolving the
* common 2x1 and 1x2 subsampling cases without additional resampling: NxN
* (N=1...16), 2NxN, and Nx2N (N=1...8) pixels for one 8x8 input DCT block.
*
* For N<8 we simply take the corresponding low-frequency coefficients of
* the 8x8 input DCT block and apply an NxN point IDCT on the sub-block
* to yield the downscaled outputs.
* This can be seen as direct low-pass downsampling from the DCT domain
* point of view rather than the usual spatial domain point of view,
* yielding significant computational savings and results at least
* as good as common bilinear (averaging) spatial downsampling.
*
* For N>8 we apply a partial NxN IDCT on the 8 input coefficients as
* lower frequencies and higher frequencies assumed to be zero.
* It turns out that the computational effort is similar to the 8x8 IDCT
* regarding the output size.
* Furthermore, the scaling and descaling is the same for all IDCT sizes.
*
* CAUTION: We rely on the FIX() macro except for the N=1,2,4,8 cases
* since there would be too many additional constants to pre-calculate.
*/

Found in path(s):

* /opt/cola/permits/1103550007_1605777850.47/0/jpegsrc-v9d-tar-gz/jpeg-9d/jidctint.c
No license file was found, but licenses were detected in source scan.

/*
* rdbmp.c
*
* Copyright (C) 1994-1996, Thomas G. Lane.
* Modified 2009-2019 by Guido Vollbeding.
* This file is part of the Independent JPEG Group's software.
* For conditions of distribution and use, see the accompanying README file.
*
* This file contains routines to read input images in Microsoft "BMP"
* format (MS Windows 3.x, OS/2 1.x, and OS/2 2.x flavors).
* Currently, only 8-, 24-, and 32-bit images are supported, not 1-bit or
* 4-bit (feeding such low-depth images into JPEG would be silly anyway).
* Also, we don't support RLE-compressed files.
*
* These routines may need modification for non-Unix environments or
* specialized applications. As they stand, they assume input from
* an ordinary stdio stream. They further assume that reading begins
* at the start of the file; start_input may need work if the
* user interface has already read some data (e.g., to determine that
* the file is indeed BMP format).
*
* This code contributed by James Arthur Boucher.
*/

Found in path(s):
* /opt/cola/permits/1103550007_1605777850.47/0/jpegsrc-v9d-tar-gz/jpeg-9d/rdbmp.c
No license file was found, but licenses were detected in source scan.

/*
* jmemmgr.c
*
* Copyright (C) 1991-1997, Thomas G. Lane.
* Modified 2011-2019 by Guido Vollbeding.
* This file is part of the Independent JPEG Group's software.
* For conditions of distribution and use, see the accompanying README file.
*
* This file contains the JPEG system-independent memory management
* routines. This code is usable across a wide variety of machines; most
* of the system dependencies have been isolated in a separate file.
* The major functions provided here are:
*   * pool-based allocation and freeing of memory;
*   * policy decisions about how to divide available memory among the
*   virtual arrays;
*   * control logic for swapping virtual arrays between main memory and
*   backing storage.

* The separate system-dependent file provides the actual backing-storage
* access code, and it contains the policy decision about how much total
* main memory to use.
* This file is system-dependent in the sense that some of its functions
* are unnecessary in some systems. For example, if there is enough virtual
* memory so that backing storage will never be used, much of the virtual
* array control logic could be removed. (Of course, if you have that much
* memory then you shouldn't care about a little bit of unused code...)
*/

Found in path(s):
* /opt/cola/permits/1103550007_1605777850.47/0/jpegsrc-v9d-tar-gz/jpeg-9d/jmemmgr.c
No license file was found, but licenses were detected in source scan.

/*
* djpeg.c
*
* Copyright (C) 1991-1997, Thomas G. Lane.
* Modified 2009-2019 by Guido Vollbeding.
* This file is part of the Independent JPEG Group's software.
* For conditions of distribution and use, see the accompanying README file.
*
* This file contains a command-line user interface for the JPEG decompressor.
* It should work on any system with Unix- or MS-DOS-style command lines.
*
* Two different command line styles are permitted, depending on the
* compile-time switch TWO_FILE_COMMANDLINE:
* djpeg [options] inputfile outputfile
* djpeg [options] [inputfile]
* In the second style, output is always to standard output, which you'd
* normally redirect to a file or pipe to some other program. Input is
* either from a named file or from standard input (typically redirected).
* The second style is convenient on Unix but is unhelpful on systems that
* don't support pipes. Also, you MUST use the first style if your system
* doesn't do binary I/O to stdin/stdout.
* To simplify script writing, the "-outfile" switch is provided. The syntax
* djpeg [options] -outfile outputfile inputfile
* works regardless of which command line style is used.
*/

Found in path(s):
* /opt/cola/permits/1103550007_1605777850.47/0/jpegsrc-v9d-tar-gz/jpeg-9d/djpeg.c
No license file was found, but licenses were detected in source scan.

/*
* cdjpeg.c
*
* Copyright (C) 1991-1997, Thomas G. Lane.

* This file is part of the Independent JPEG Group's software.
* For conditions of distribution and use, see the accompanying README file.
*
* This file contains common support routines used by the IJG application
* programs (cjpeg, djpeg, jpegtran).
*/

Found in path(s):
* /opt/cola/permits/1103550007_1605777850.47/0/jpegsrc-v9d-tar-gz/jpeg-9d/cdjpeg.c
No license file was found, but licenses were detected in source scan.

/*
* jcprepct.c
*
* Copyright (C) 1994-1996, Thomas G. Lane.
* This file is part of the Independent JPEG Group's software.
* For conditions of distribution and use, see the accompanying README file.
*
* This file contains the compression preprocessing controller.
* This controller manages the color conversion, downsampling,
* and edge expansion steps.
*
* Most of the complexity here is associated with buffering input rows
* as required by the downsampler. See the comments at the head of
* jcsample.c for the downsampler's needs.
*/

Found in path(s):
* /opt/cola/permits/1103550007_1605777850.47/0/jpegsrc-v9d-tar-gz/jpeg-9d/jcprepct.c
No license file was found, but licenses were detected in source scan.

/*
* rdrle.c
*
* Copyright (C) 1991-1996, Thomas G. Lane.
* Modified 2019 by Guido Vollbeding.
* This file is part of the Independent JPEG Group's software.
* For conditions of distribution and use, see the accompanying README file.
*
* This file contains routines to read input images in Utah RLE format.
* The Utah Raster Toolkit library is required (version 3.1 or later).
*
* These routines may need modification for non-Unix environments or
* specialized applications. As they stand, they assume input from
* an ordinary stdio stream. They further assume that reading begins
* at the start of the file; start_input may need work if the
* user interface has already read some data (e.g., to determine that
* the file is indeed RLE format).

*
* Based on code contributed by Mike Lijewski,
* with updates from Robert Hutchinson.
*/

Found in path(s):
* /opt/cola/permits/1103550007_1605777850.47/0/jpegsrc-v9d-tar-gz/jpeg-9d/rdrle.c
No license file was found, but licenses were detected in source scan.

/*
* jdarith.c
*
* Developed 1997-2019 by Guido Vollbeding.
* This file is part of the Independent JPEG Group's software.
* For conditions of distribution and use, see the accompanying README file.
*
* This file contains portable arithmetic entropy decoding routines for JPEG
* (implementing the ISO/IEC IS 10918-1 and CCITT Recommendation ITU-T T.81).
*
* Both sequential and progressive modes are supported in this single module.
*
* Suspension is not currently supported in this module.
*/

Found in path(s):
* /opt/cola/permits/1103550007_1605777850.47/0/jpegsrc-v9d-tar-gz/jpeg-9d/jdarith.c
No license file was found, but licenses were detected in source scan.

/*
* jversion.h
*
* Copyright (C) 1991-2020, Thomas G. Lane, Guido Vollbeding.
* This file is part of the Independent JPEG Group's software.
* For conditions of distribution and use, see the accompanying README file.
*
* This file contains software version identification.
*/

Found in path(s):
* /opt/cola/permits/1103550007_1605777850.47/0/jpegsrc-v9d-tar-gz/jpeg-9d/jversion.h
No license file was found, but licenses were detected in source scan.

/*
* jcmainct.c
*
* Copyright (C) 1994-1996, Thomas G. Lane.
* Modified 2003-2012 by Guido Vollbeding.
* This file is part of the Independent JPEG Group's software.

* For conditions of distribution and use, see the accompanying README file.
*
* This file contains the main buffer controller for compression.
* The main buffer lies between the pre-processor and the JPEG
* compressor proper; it holds downsampled data in the JPEG colorspace.
*/

Found in path(s):
* /opt/cola/permits/1103550007_1605777850.47/0/jpegsrc-v9d-tar-gz/jpeg-9d/jcmainct.c
No license file was found, but licenses were detected in source scan.

/*
* jdmerge.c
*
* Copyright (C) 1994-1996, Thomas G. Lane.
* Modified 2013-2019 by Guido Vollbeding.
* This file is part of the Independent JPEG Group's software.
* For conditions of distribution and use, see the accompanying README file.
*
* This file contains code for merged upsampling/color conversion.
*
* This file combines functions from jdsample.c and jdcolor.c;
* read those files first to understand what's going on.
*
* When the chroma components are to be upsampled by simple replication
* (ie, box filtering), we can save some work in color conversion by
* calculating all the output pixels corresponding to a pair of chroma
* samples at one time. In the conversion equations
* R = Y   + K1 * Cr
* G = Y + K2 * Cb + K3 * Cr
* B = Y + K4 * Cb
* only the Y term varies among the group of pixels corresponding to a pair
* of chroma samples, so the rest of the terms can be calculated just once.
* At typical sampling ratios, this eliminates half or three-quarters of the
* multiplications needed for color conversion.
*
* This file currently provides implementations for the following cases:
* YCC => RGB color conversion only (YCbCr or BG_YCC).
* Sampling ratios of 2h1v or 2h2v.
* No scaling needed at upsample time.
* Corner-aligned (non-CCIR601) sampling alignment.
* Other special cases could be added, but in most applications these are
* the only common cases. (For uncommon cases we fall back on the more
* general code in jdsample.c and jdcolor.c.)
*/

Found in path(s):
* /opt/cola/permits/1103550007_1605777850.47/0/jpegsrc-v9d-tar-gz/jpeg-9d/jdmerge.c

No license file was found, but licenses were detected in source scan.

/*
* rdcolmap.c
*
* Copyright (C) 1994-1996, Thomas G. Lane.
* This file is part of the Independent JPEG Group's software.
* For conditions of distribution and use, see the accompanying README file.
*
* This file implements djpeg's "-map file" switch. It reads a source image
* and constructs a colormap to be supplied to the JPEG decompressor.
*
* Currently, these file formats are supported for the map file:
*   GIF: the contents of the GIF's global colormap are used.
*   PPM (either text or raw flavor): the entire file is read and
*   each unique pixel value is entered in the map.
* Note that reading a large PPM file will be horrendously slow.
* Typically, a PPM-format map file should contain just one pixel
* of each desired color. Such a file can be extracted from an
* ordinary image PPM file with ppmtomap(1).
*
* Rescaling a PPM that has a maxval unequal to MAXJSAMPLE is not
* currently implemented.
*/
/* Portions of this code are based on the PBMPLUS library, which is:
**
** Copyright (C) 1988 by Jef Poskanzer.
**
** Permission to use, copy, modify, and distribute this software and its
** documentation for any purpose and without fee is hereby granted, provided
** that the above copyright notice appear in all copies and that both that
** copyright notice and this permission notice appear in supporting
** documentation. This software is provided "as is" without express or
** implied warranty.
*/

Found in path(s):
* /opt/cola/permits/1103550007_1605777850.47/0/jpegsrc-v9d-tar-gz/jpeg-9d/rdcolmap.c
No license file was found, but licenses were detected in source scan.

/*
* transupp.c
*
* Copyright (C) 1997-2019, Thomas G. Lane, Guido Vollbeding.
* This file is part of the Independent JPEG Group's software.
* For conditions of distribution and use, see the accompanying README file.
*
* This file contains image transformation routines and other utility code

* used by the jpegtran sample application. These are NOT part of the core
* JPEG library. But we keep these routines separate from jpegtran.c to
* ease the task of maintaining jpegtran-like programs that have other user
* interfaces.
*/

Found in path(s):
* /opt/cola/permits/1103550007_1605777850.47/0/jpegsrc-v9d-tar-gz/jpeg-9d/transupp.c
No license file was found, but licenses were detected in source scan.

IJG JPEG LIBRARY: FILE LIST

Here is a road map to the files in the IJG JPEG distribution. The
distribution includes the JPEG library proper, plus two application
programs ("cjpeg" and "djpeg") which use the library to convert JPEG
files to and from some other popular image formats. A third application
"jpegtran" uses the library to do lossless conversion between different
variants of JPEG. There are also two stand-alone applications,
"rdjpgcom" and "wrjpgcom".

THE JPEG LIBRARY
================

Include files:

jpeglib.h JPEG library's exported data and function declarations.
jconfig.h Configuration declarations. Note: this file is not present
  in the distribution; it is generated during installation.
jmorecfg.h Additional configuration declarations; need not be changed
  for a standard installation.
jerror.h Declares JPEG library's error and trace message codes.
jinclude.h Central include file used by all IJG .c files to reference
  system include files.
jpegint.h JPEG library's internal data structures.
jdct.h Private declarations for forward & reverse DCT subsystems.
jmemsys.h Private declarations for memory management subsystem.
jversion.h Version information.

Applications using the library should include jpeglib.h (which in turn
includes jconfig.h and jmorecfg.h). Optionally, jerror.h may be included
if the application needs to reference individual JPEG error codes. The
other include files are intended for internal use and would not normally

be included by an application program. (cjpeg/djpeg/etc do use jinclude.h, since its function is to improve portability of the whole IJG distribution. Most other applications will directly include the system include files they want, and hence won't need jinclude.h.)

C source code files:

These files contain most of the functions intended to be called directly by an application program:

jcapimin.c Application program interface: core routines for compression.
jcapistd.c Application program interface: standard compression.
jdapimin.c Application program interface: core routines for decompression.
jdapistd.c Application program interface: standard decompression.
jcomapi.c Application program interface routines common to compression
  and decompression.
jcparam.c Compression parameter setting helper routines.
jctrans.c API and library routines for transcoding compression.
jdtrans.c API and library routines for transcoding decompression.

Compression side of the library:

jcinit.c Initialization: determines which other modules to use.
jcmaster.c Master control: setup and inter-pass sequencing logic.
jcmainct.c Main buffer controller (preprocessor => JPEG compressor).
jcprepct.c Preprocessor buffer controller.
jccoefct.c Buffer controller for DCT coefficient buffer.
jccolor.c Color space conversion.
jcsample.c Downsampling.
jcdctmgr.c DCT manager (DCT implementation selection & control).
jfdctint.c Forward DCT using slow-but-accurate integer method.
jfdctfst.c Forward DCT using faster, less accurate integer method.
jfdctflt.c Forward DCT using floating-point arithmetic.
jchuff.c Huffman entropy coding.
jcarith.c Arithmetic entropy coding.
jcmarker.c JPEG marker writing.
jdatadst.c Data destination managers for memory and stdio output.

Decompression side of the library:

jdmaster.c Master control: determines which other modules to use.
jdinput.c Input controller: controls input processing modules.
jdmainct.c Main buffer controller (JPEG decompressor => postprocessor).
jdcoefct.c Buffer controller for DCT coefficient buffer.
jdpostct.c Postprocessor buffer controller.
jdmarker.c JPEG marker reading.
jdhuff.c Huffman entropy decoding.

jdarith.c Arithmetic entropy decoding.
jddctmgr.c IDCT manager (IDCT implementation selection & control).
jidctint.c Inverse DCT using slow-but-accurate integer method.
jidctfst.c Inverse DCT using faster, less accurate integer method.
jidctflt.c Inverse DCT using floating-point arithmetic.
jdsample.c Upsampling.
jdcolor.c Color space conversion.
jdmerge.c Merged upsampling/color conversion (faster, lower quality).
jquant1.c One-pass color quantization using a fixed-spacing colormap.
jquant2.c Two-pass color quantization using a custom-generated colormap.
Also handles one-pass quantization to an externally given map.
jdatasrc.c Data source managers for memory and stdio input.

Support files for both compression and decompression:

jaricom.c Tables for common use in arithmetic entropy encoding and
decoding routines.
jerror.c Standard error handling routines (application replaceable).
jmemmgr.c System-independent (more or less) memory management code.
jutils.c Miscellaneous utility routines.

jmemmgr.c relies on a system-dependent memory management module. The IJG distribution includes the following implementations of the system-dependent module:

jmemnobs.c "No backing store": assumes adequate virtual memory exists.
jmemansi.c Makes temporary files with ANSI-standard routine tmpfile().
jmemname.c Makes temporary files with program-generated file names.
jmemdos.c Custom implementation for MS-DOS (16-bit environment only):
can use extended and expanded memory as well as temp files.
jmemmac.c Custom implementation for Apple Macintosh.

Exactly one of the system-dependent modules should be configured into an installed JPEG library (see install.txt for hints about which one to use). On unusual systems you may find it worthwhile to make a special system-dependent memory manager.

Non-C source code files:

jmemdosa.asm 80x86 assembly code support for jmemdos.c; used only in
MS-DOS-specific configurations of the JPEG library.

CJPEG/DJPEG/JPEGTRAN
===================

Include files:

cdjpeg.h Declarations shared by cjpeg/djpeg/jpegtran modules.
cderror.h Additional error and trace message codes for cjpeg et al.
transupp.h Declarations for jpegtran support routines in transupp.c.

C source code files:

cjpeg.c Main program for cjpeg.
djpeg.c Main program for djpeg.
jpegtran.c Main program for jpegtran.
cdjpeg.c Utility routines used by all three programs.
rdcolmap.c Code to read a colormap file for djpeg's "-map" switch.
rdswitch.c Code to process some of cjpeg's more complex switches.
  Also used by jpegtran.
transupp.c Support code for jpegtran: lossless image manipulations.

Image file reader modules for cjpeg:

rdbmp.c BMP file input.
rdgif.c GIF file input.
rdppm.c PPM/PGM file input.
rdrle.c Utah RLE file input.
rdtarga.c Targa file input.

Image file writer modules for djpeg:

wrbmp.c BMP file output.
wrgif.c GIF file output.
wrppm.c PPM/PGM file output.
wrrle.c Utah RLE file output.
wrtarga.c Targa file output.

RDJPGCOM/WRJPGCOM
=================

C source code files:

rdjpgcom.c Stand-alone rdjpgcom application.
wrjpgcom.c Stand-alone wrjpgcom application.

These programs do not depend on the IJG library. They do use
jconfig.h and jinclude.h, only to improve portability.

ADDITIONAL FILES
================

Documentation (see README for a guide to the documentation files):

README Master documentation file.
*.txt Other documentation files.
*.1 Documentation in Unix man page format.
change.log Version-to-version change highlights.
example.c Sample code for calling JPEG library.

Configuration/installation files and programs (see install.txt for more info):

configure Unix shell script to perform automatic configuration.
configure.ac Source file for use with Autoconf to generate configure.
ltmain.sh Support scripts for configure (from GNU libtool).
config.guess
config.sub
depcomp
missing
ar-lib
compile
install-sh Install shell script for those Unix systems lacking one.
Makefile.in Makefile input for configure.
Makefile.am Source file for use with Automake to generate Makefile.in.
ckconfig.c Program to generate jconfig.h on non-Unix systems.
jconfig.txt Template for making jconfig.h by hand.
mak*.* Sample makefiles for particular systems.
jconfig.* Sample jconfig.h for particular systems.
libjpeg.map Script to generate shared library with versioned symbols.
libjpeg.pc.in libjpeg.pc pkg-config file input for configure.
aclocal.m4 M4 macro definitions for use with Autoconf.

Test files (see install.txt for test procedure):

test*.* Source and comparison files for confidence test.
  These are binary image files, NOT text files.

Found in path(s):
* /opt/cola/permits/1103550007_1605777850.47/0/jpegsrc-v9d-tar-gz/jpeg-9d/filelist.txt
No license file was found, but licenses were detected in source scan.

/*
* jccoefct.c
*
* Copyright (C) 1994-1997, Thomas G. Lane.
* Modified 2003-2011 by Guido Vollbeding.
* This file is part of the Independent JPEG Group's software.
* For conditions of distribution and use, see the accompanying README file.
*
* This file contains the coefficient buffer controller for compression.

* This controller is the top level of the JPEG compressor proper.
* The coefficient buffer lies between forward-DCT and entropy encoding steps.
*/

Found in path(s):
* /opt/cola/permits/1103550007_1605777850.47/0/jpegsrc-v9d-tar-gz/jpeg-9d/jccoefct.c
No license file was found, but licenses were detected in source scan.

/*
* jmemnobs.c
*
* Copyright (C) 1992-1996, Thomas G. Lane.
* Modified 2019 by Guido Vollbeding.
* This file is part of the Independent JPEG Group's software.
* For conditions of distribution and use, see the accompanying README file.
*
* This file provides a really simple implementation of the system-
* dependent portion of the JPEG memory manager. This implementation
* assumes that no backing-store files are needed: all required space
* can be obtained from malloc().
* This is very portable in the sense that it'll compile on almost anything,
* but you'd better have lots of main memory (or virtual memory) if you want
* to process big images.
* Note that the max_memory_to_use option is respected by this implementation.
*/

Found in path(s):
* /opt/cola/permits/1103550007_1605777850.47/0/jpegsrc-v9d-tar-gz/jpeg-9d/jmemnobs.c
No license file was found, but licenses were detected in source scan.

/*
* jdtrans.c
*
* Copyright (C) 1995-1997, Thomas G. Lane.
* Modified 2000-2009 by Guido Vollbeding.
* This file is part of the Independent JPEG Group's software.
* For conditions of distribution and use, see the accompanying README file.
*
* This file contains library routines for transcoding decompression,
* that is, reading raw DCT coefficient arrays from an input JPEG file.
* The routines in jdapimin.c will also be needed by a transcoder.
*/

Found in path(s):
* /opt/cola/permits/1103550007_1605777850.47/0/jpegsrc-v9d-tar-gz/jpeg-9d/jdtrans.c
No license file was found, but licenses were detected in source scan.

/*

* jdcoefct.c
*
* Copyright (C) 1994-1997, Thomas G. Lane.
* Modified 2002-2011 by Guido Vollbeding.
* This file is part of the Independent JPEG Group's software.
* For conditions of distribution and use, see the accompanying README file.
*
* This file contains the coefficient buffer controller for decompression.
* This controller is the top level of the JPEG decompressor proper.
* The coefficient buffer lies between entropy decoding and inverse-DCT steps.
*
* In buffered-image mode, this controller is the interface between
* input-oriented processing and output-oriented processing.
* Also, the input side (only) is used when reading a file for transcoding.
*/

Found in path(s):
* /opt/cola/permits/1103550007_1605777850.47/0/jpegsrc-v9d-tar-gz/jpeg-9d/jdcoefct.c
No license file was found, but licenses were detected in source scan.

/*
* jcparam.c
*
* Copyright (C) 1991-1998, Thomas G. Lane.
* Modified 2003-2019 by Guido Vollbeding.
* This file is part of the Independent JPEG Group's software.
* For conditions of distribution and use, see the accompanying README file.
*
* This file contains optional default-setting code for the JPEG compressor.
* Applications do not have to use this file, but those that don't use it
* must know a lot more about the innards of the JPEG code.
*/

Found in path(s):
* /opt/cola/permits/1103550007_1605777850.47/0/jpegsrc-v9d-tar-gz/jpeg-9d/jcparam.c
No license file was found, but licenses were detected in source scan.

/*
* wrgif.c
*
* Copyright (C) 1991-1996, Thomas G. Lane.
* Modified 2015-2019 by Guido Vollbeding.
* This file is part of the Independent JPEG Group's software.
* For conditions of distribution and use, see the accompanying README file.
*
* This file contains routines to write output images in GIF format.
*
* These routines may need modification for non-Unix environments or

* specialized applications. As they stand, they assume output to
* an ordinary stdio stream.
*/
/*
* This code is loosely based on ppmtogif from the PBMPLUS distribution
* of Feb. 1991. That file contains the following copyright notice:
*   Based on GIFENCODE by David Rowley <mgardi@watdscu.waterloo.edu>.
*   Lempel-Ziv compression based on "compress" by Spencer W. Thomas et al.
*   Copyright (C) 1989 by Jef Poskanzer.
*   Permission to use, copy, modify, and distribute this software and its
*   documentation for any purpose and without fee is hereby granted, provided
*   that the above copyright notice appear in all copies and that both that
*   copyright notice and this permission notice appear in supporting
*   documentation. This software is provided "as is" without express or
*   implied warranty.
*/

Found in path(s):
* /opt/cola/permits/1103550007_1605777850.47/0/jpegsrc-v9d-tar-gz/jpeg-9d/wrgif.c
No license file was found, but licenses were detected in source scan.

/*
* jdinput.c
*
* Copyright (C) 1991-1997, Thomas G. Lane.
* Modified 2002-2013 by Guido Vollbeding.
* This file is part of the Independent JPEG Group's software.
* For conditions of distribution and use, see the accompanying README file.
*
* This file contains input control logic for the JPEG decompressor.
* These routines are concerned with controlling the decompressor's input
* processing (marker reading and coefficient decoding). The actual input
* reading is done in jdmarker.c, jdhuff.c, and jdarith.c.
*/

Found in path(s):
* /opt/cola/permits/1103550007_1605777850.47/0/jpegsrc-v9d-tar-gz/jpeg-9d/jdinput.c
No license file was found, but licenses were detected in source scan.

/*
* rdtarga.c
*
* Copyright (C) 1991-1996, Thomas G. Lane.
* Modified 2017-2019 by Guido Vollbeding.
* This file is part of the Independent JPEG Group's software.
* For conditions of distribution and use, see the accompanying README file.
*
* This file contains routines to read input images in Targa format.

*
* These routines may need modification for non-Unix environments or
* specialized applications. As they stand, they assume input from
* an ordinary stdio stream. They further assume that reading begins
* at the start of the file; start_input may need work if the
* user interface has already read some data (e.g., to determine that
* the file is indeed Targa format).
*
* Based on code contributed by Lee Daniel Crocker.
*/

Found in path(s):
* /opt/cola/permits/1103550007_1605777850.47/0/jpegsrc-v9d-tar-gz/jpeg-9d/rdtarga.c
No license file was found, but licenses were detected in source scan.

/*
* jcdctmgr.c
*
* Copyright (C) 1994-1996, Thomas G. Lane.
* Modified 2003-2013 by Guido Vollbeding.
* This file is part of the Independent JPEG Group's software.
* For conditions of distribution and use, see the accompanying README file.
*
* This file contains the forward-DCT management logic.
* This code selects a particular DCT implementation to be used,
* and it performs related housekeeping chores including coefficient
* quantization.
*/

Found in path(s):
* /opt/cola/permits/1103550007_1605777850.47/0/jpegsrc-v9d-tar-gz/jpeg-9d/jcdctmgr.c
No license file was found, but licenses were detected in source scan.

/*
* jmemansi.c
*
* Copyright (C) 1992-1996, Thomas G. Lane.
* This file is part of the Independent JPEG Group's software.
* For conditions of distribution and use, see the accompanying README file.
*
* This file provides a simple generic implementation of the system-
* dependent portion of the JPEG memory manager. This implementation
* assumes that you have the ANSI-standard library routine tmpfile().
* Also, the problem of determining the amount of memory available
* is shoved onto the user.
*/

Found in path(s):

* /opt/cola/permits/1103550007_1605777850.47/0/jpegsrc-v9d-tar-gz/jpeg-9d/jmemansi.c
No license file was found, but licenses were detected in source scan.

/*
* jerror.c
*
* Copyright (C) 1991-1998, Thomas G. Lane.
* Modified 2012-2015 by Guido Vollbeding.
* This file is part of the Independent JPEG Group's software.
* For conditions of distribution and use, see the accompanying README file.
*
* This file contains simple error-reporting and trace-message routines.
* These are suitable for Unix-like systems and others where writing to
* stderr is the right thing to do. Many applications will want to replace
* some or all of these routines.
*
* If you define USE_WINDOWS_MESSAGEBOX in jconfig.h or in the makefile,
* you get a Windows-specific hack to display error messages in a dialog box.
* It ain't much, but it beats dropping error messages into the bit bucket,
* which is what happens to output to stderr under most Windows C compilers.
*
* These routines are used by both the compression and decompression code.
*/

Found in path(s):
* /opt/cola/permits/1103550007_1605777850.47/0/jpegsrc-v9d-tar-gz/jpeg-9d/jerror.c
No license file was found, but licenses were detected in source scan.

/*
* cdjpeg.h
*
* Copyright (C) 1994-1997, Thomas G. Lane.
* Modified 2019 by Guido Vollbeding.
* This file is part of the Independent JPEG Group's software.
* For conditions of distribution and use, see the accompanying README file.
*
* This file contains common declarations for the sample applications
* cjpeg and djpeg. It is NOT used by the core JPEG library.
*/

Found in path(s):
* /opt/cola/permits/1103550007_1605777850.47/0/jpegsrc-v9d-tar-gz/jpeg-9d/cdjpeg.h
No license file was found, but licenses were detected in source scan.

/*
* jdpostct.c
*
* Copyright (C) 1994-1996, Thomas G. Lane.

* This file is part of the Independent JPEG Group's software.
* For conditions of distribution and use, see the accompanying README file.
*
* This file contains the decompression postprocessing controller.
* This controller manages the upsampling, color conversion, and color
* quantization/reduction steps; specifically, it controls the buffering
* between upsample/color conversion and color quantization/reduction.
*
* If no color quantization/reduction is required, then this module has no
* work to do, and it just hands off to the upsample/color conversion code.
* An integrated upsample/convert/quantize process would replace this module
* entirely.
*/

Found in path(s):
* /opt/cola/permits/1103550007_1605777850.47/0/jpegsrc-v9d-tar-gz/jpeg-9d/jdpostct.c
No license file was found, but licenses were detected in source scan.

/*
* jdmarker.c
*
* Copyright (C) 1991-1998, Thomas G. Lane.
* Modified 2009-2019 by Guido Vollbeding.
* This file is part of the Independent JPEG Group's software.
* For conditions of distribution and use, see the accompanying README file.
*
* This file contains routines to decode JPEG datastream markers.
* Most of the complexity arises from our desire to support input
* suspension: if not all of the data for a marker is available,
* we must exit back to the application. On resumption, we reprocess
* the marker.
*/

Found in path(s):
* /opt/cola/permits/1103550007_1605777850.47/0/jpegsrc-v9d-tar-gz/jpeg-9d/jdmarker.c
No license file was found, but licenses were detected in source scan.

/*
* jmemmac.c
*
* Copyright (C) 1992-1997, Thomas G. Lane.
* This file is part of the Independent JPEG Group's software.
* For conditions of distribution and use, see the accompanying README file.
*
* jmemmac.c provides an Apple Macintosh implementation of the system-
* dependent portion of the JPEG memory manager.
*
* If you use jmemmac.c, then you must define USE_MAC_MEMMGR in the

* JPEG_INTERNALS part of jconfig.h.
*
* jmemmac.c uses the Macintosh toolbox routines NewPtr and DisposePtr
* instead of malloc and free. It accurately determines the amount of
* memory available by using CompactMem. Notice that if left to its
* own devices, this code can chew up all available space in the
* application's zone, with the exception of the rather small "slop"
* factor computed in jpeg_mem_available(). The application can ensure
* that more space is left over by reducing max_memory_to_use.
*
* Large images are swapped to disk using temporary files and System 7.0+'s
* temporary folder functionality.
*
* Note that jmemmac.c depends on two features of MacOS that were first
* introduced in System 7: FindFolder and the FSSpec-based calls.
* If your application uses jmemmac.c and is run under System 6 or earlier,
* and the jpeg library decides it needs a temporary file, it will abort,
* printing error messages about requiring System 7. (If no temporary files
* are created, it will run fine.)
*
* If you want to use jmemmac.c in an application that might be used with
* System 6 or earlier, then you should remove dependencies on FindFolder
* and the FSSpec calls. You will need to replace FindFolder with some
* other mechanism for finding a place to put temporary files, and you
* should replace the FSSpec calls with their HFS equivalents:
*
*   FSpDelete   -> HDelete
*   FSpGetFInfo   -> HGetFInfo
*   FSpCreate   -> HCreate
*   FSpOpenDF   -> HOpen   *** Note: not HOpenDF ***
*   FSMakeFSSpec -> (fill in spec by hand.)
*
* (Use HOpen instead of HOpenDF. HOpen is just a glue-interface to PBHOpen,
* which is on all HFS macs. HOpenDF is a System 7 addition which avoids the
* ages-old problem of names starting with a period.)
*
* Contributed by Sam Bushell (jsam@iagu.on.net) and
* Dan Gildor (gyld@in-touch.com).
*/

Found in path(s):
* /opt/cola/permits/1103550007_1605777850.47/0/jpegsrc-v9d-tar-gz/jpeg-9d/jmemmac.c
No license file was found, but licenses were detected in source scan.

The Independent JPEG Group's JPEG software
==

README for release 9d of 12-Jan-2020

====================================

This distribution contains the ninth public release of the Independent JPEG Group's free JPEG software. You are welcome to redistribute this software and to use it for any purpose, subject to the conditions under LEGAL ISSUES, below.

This software is the work of Tom Lane, Guido Vollbeding, Philip Gladstone, Bill Allombert, Jim Boucher, Lee Crocker, Bob Friesenhahn, Ben Jackson, John Korejwa, Julian Minguillon, Luis Ortiz, George Phillips, Davide Rossi, Ge' Weijers, and other members of the Independent JPEG Group.

IJG is not affiliated with the ISO/IEC JTC1/SC29/WG1 standards committee (previously known as JPEG, together with ITU-T SG16).

DOCUMENTATION ROADMAP
====================

This file contains the following sections:

OVERVIEW   General description of JPEG and the IJG software.
LEGAL ISSUES   Copyright, lack of warranty, terms of distribution.
REFERENCES   Where to learn more about JPEG.
ARCHIVE LOCATIONS   Where to find newer versions of this software.
ACKNOWLEDGMENTS   Special thanks.
FILE FORMAT WARS   Software *not* to get.
TO DO   Plans for future IJG releases.

Other documentation files in the distribution are:

User documentation:
 install.txt   How to configure and install the IJG software.
 usage.txt   Usage instructions for cjpeg, djpeg, jpegtran,
                   rdjpgcom, and wrjpgcom.
 *.1   Unix-style man pages for programs (same info as usage.txt).
 wizard.txt   Advanced usage instructions for JPEG wizards only.
 change.log   Version-to-version change highlights.
Programmer and internal documentation:
 libjpeg.txt   How to use the JPEG library in your own programs.
 example.c   Sample code for calling the JPEG library.
 structure.txt   Overview of the JPEG library's internal structure.
 filelist.txt   Road map of IJG files.
 coderules.txt   Coding style rules --- please read if you contribute code.

Please read at least the files install.txt and usage.txt. Some information can also be found in the JPEG FAQ (Frequently Asked Questions) article. See ARCHIVE LOCATIONS below to find out where to obtain the FAQ article.

If you want to understand how the JPEG code works, we suggest reading one or more of the REFERENCES, then looking at the documentation files (in roughly the order listed) before diving into the code.

OVERVIEW
========

This package contains C software to implement JPEG image encoding, decoding, and transcoding. JPEG (pronounced "jay-peg") is a standardized compression method for full-color and grayscale images.

This software implements JPEG baseline, extended-sequential, and progressive compression processes. Provision is made for supporting all variants of these processes, although some uncommon parameter settings aren't implemented yet. We have made no provision for supporting the hierarchical or lossless processes defined in the standard.

We provide a set of library routines for reading and writing JPEG image files, plus two sample applications "cjpeg" and "djpeg", which use the library to perform conversion between JPEG and some other popular image file formats. The library is intended to be reused in other applications.

In order to support file conversion and viewing software, we have included considerable functionality beyond the bare JPEG coding/decoding capability; for example, the color quantization modules are not strictly part of JPEG decoding, but they are essential for output to colormapped file formats or colormapped displays. These extra functions can be compiled out of the library if not required for a particular application.

We have also included "jpegtran", a utility for lossless transcoding between different JPEG processes, and "rdjpgcom" and "wrjpgcom", two simple applications for inserting and extracting textual comments in JFIF files.

The emphasis in designing this software has been on achieving portability and flexibility, while also making it fast enough to be useful. In particular, the software is not intended to be read as a tutorial on JPEG. (See the REFERENCES section for introductory material.) Rather, it is intended to be reliable, portable, industrial-strength code. We do not claim to have achieved that goal in every aspect of the software, but we strive for it.

We welcome the use of this software as a component of commercial products. No royalty is required, but we do ask for an acknowledgement in product documentation, as described under LEGAL ISSUES.

LEGAL ISSUES
============

In plain English:

1. We don't promise that this software works. (But if you find any bugs,
   please let us know!)
2. You can use this software for whatever you want. You don't have to pay us.
3. You may not pretend that you wrote this software. If you use it in a
   program, you must acknowledge somewhere in your documentation that
   you've used the IJG code.

In legalese:

The authors make NO WARRANTY or representation, either express or implied, with respect to this software, its quality, accuracy, merchantability, or fitness for a particular purpose. This software is provided "AS IS", and you, its user, assume the entire risk as to its quality and accuracy.

Permission is hereby granted to use, copy, modify, and distribute this software (or portions thereof) for any purpose, without fee, subject to these conditions:
(1) If any part of the source code for this software is distributed, then this README file must be included, with this copyright and no-warranty notice unaltered; and any additions, deletions, or changes to the original files must be clearly indicated in accompanying documentation.
(2) If only executable code is distributed, then the accompanying documentation must state that "this software is based in part on the work of the Independent JPEG Group".
(3) Permission for use of this software is granted only if the user accepts full responsibility for any undesirable consequences; the authors accept NO LIABILITY for damages of any kind.

These conditions apply to any software derived from or based on the IJG code, not just to the unmodified library. If you use our work, you ought to acknowledge us.

Permission is NOT granted for the use of any IJG author's name or company name in advertising or publicity relating to this software or products derived from it. This software may be referred to only as "the Independent JPEG Group's software".

We specifically permit and encourage the use of this software as the basis of commercial products, provided that all warranty or liability claims are assumed by the product vendor.

The Unix configuration script "configure" was produced with GNU Autoconf.
It is copyright by the Free Software Foundation but is freely distributable.
The same holds for its supporting scripts (config.guess, config.sub,
ltmain.sh). Another support script, install-sh, is copyright by X Consortium
but is also freely distributable.

REFERENCES
==========

We recommend reading one or more of these references before trying to
understand the innards of the JPEG software.

The best short technical introduction to the JPEG compression algorithm is
 Wallace, Gregory K. "The JPEG Still Picture Compression Standard",
 Communications of the ACM, April 1991 (vol. 34 no. 4), pp. 30-44.
(Adjacent articles in that issue discuss MPEG motion picture compression,
applications of JPEG, and related topics.) If you don't have the CACM issue
handy, a PDF file containing a revised version of Wallace's article is
available at http://www.ijg.org/files/Wallace.JPEG.pdf. The file (actually
a preprint for an article that appeared in IEEE Trans. Consumer Electronics)
omits the sample images that appeared in CACM, but it includes corrections
and some added material. Note: the Wallace article is copyright ACM and IEEE,
and it may not be used for commercial purposes.

A somewhat less technical, more leisurely introduction to JPEG can be found in
"The Data Compression Book" by Mark Nelson and Jean-loup Gailly, published by
M&T Books (New York), 2nd ed. 1996, ISBN 1-55851-434-1. This book provides
good explanations and example C code for a multitude of compression methods
including JPEG. It is an excellent source if you are comfortable reading C
code but don't know much about data compression in general. The book's JPEG
sample code is far from industrial-strength, but when you are ready to look
at a full implementation, you've got one here...

The best currently available description of JPEG is the textbook "JPEG Still
Image Data Compression Standard" by William B. Pennebaker and Joan L.
Mitchell, published by Van Nostrand Reinhold, 1993, ISBN 0-442-01272-1.
Price US$59.95, 638 pp. The book includes the complete text of the ISO JPEG
standards (DIS 10918-1 and draft DIS 10918-2).
Although this is by far the most detailed and comprehensive exposition of
JPEG publicly available, we point out that it is still missing an explanation
of the most essential properties and algorithms of the underlying DCT
technology.
If you think that you know about DCT-based JPEG after reading this book,
then you are in delusion. The real fundamentals and corresponding potential
of DCT-based JPEG are not publicly known so far, and that is the reason for
all the mistaken developments taking place in the image coding domain.

The original JPEG standard is divided into two parts, Part 1 being the actual specification, while Part 2 covers compliance testing methods. Part 1 is titled "Digital Compression and Coding of Continuous-tone Still Images, Part 1: Requirements and guidelines" and has document numbers ISO/IEC IS 10918-1, ITU-T T.81. Part 2 is titled "Digital Compression and Coding of Continuous-tone Still Images, Part 2: Compliance testing" and has document numbers ISO/IEC IS 10918-2, ITU-T T.83.
IJG JPEG 8 introduced an implementation of the JPEG SmartScale extension which is specified in two documents: A contributed document at ITU and ISO with title "ITU-T JPEG-Plus Proposal for Extending ITU-T T.81 for Advanced Image Coding", April 2006, Geneva, Switzerland. The latest version of this document is Revision 3. And a contributed document ISO/IEC JTC1/SC29/WG1 N 5799 with title "Evolution of JPEG", June/July 2011, Berlin, Germany.
IJG JPEG 9 introduces a reversible color transform for improved lossless compression which is described in a contributed document ISO/IEC JTC1/SC29/WG1 N 6080 with title "JPEG 9 Lossless Coding", June/July 2012, Paris, France.

The JPEG standard does not specify all details of an interchangeable file format. For the omitted details we follow the "JFIF" conventions, version 2. JFIF version 1 has been adopted as Recommendation ITU-T T.871 (05/2011) : Information technology - Digital compression and coding of continuous-tone still images: JPEG File Interchange Format (JFIF). It is available as a free download in PDF file format from http://www.itu.int/rec/T-REC-T.871. A PDF file of the older JFIF document is available at http://www.w3.org/Graphics/JPEG/jfif3.pdf.

The TIFF 6.0 file format specification can be obtained by FTP from ftp://ftp.sgi.com/graphics/tiff/TIFF6.ps.gz. The JPEG incorporation scheme found in the TIFF 6.0 spec of 3-June-92 has a number of serious problems. IJG does not recommend use of the TIFF 6.0 design (TIFF Compression tag 6). Instead, we recommend the JPEG design proposed by TIFF Technical Note #2 (Compression tag 7). Copies of this Note can be obtained from http://www.ijg.org/files/. It is expected that the next revision of the TIFF spec will replace the 6.0 JPEG design with the Note's design. Although IJG's own code does not support TIFF/JPEG, the free libtiff library uses our library to implement TIFF/JPEG per the Note.

ARCHIVE LOCATIONS
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The "official" archive site for this software is www.ijg.org. The most recent released version can always be found there in directory "files". This particular version will be archived as http://www.ijg.org/files/jpegsrc.v9d.tar.gz, and in Windows-compatible "zip" archive format as http://www.ijg.org/files/jpegsr9d.zip.

The JPEG FAQ (Frequently Asked Questions) article is a source of some general information about JPEG.
It is available on the World Wide Web at http://www.faqs.org/faqs/jpeg-faq/ and other news.answers archive sites, including the official news.answers archive at rtfm.mit.edu: ftp://rtfm.mit.edu/pub/usenet/news.answers/jpeg-faq/.
If you don't have Web or FTP access, send e-mail to mail-server@rtfm.mit.edu with body

send usenet/news.answers/jpeg-faq/part1
send usenet/news.answers/jpeg-faq/part2

ACKNOWLEDGMENTS
===============

Thank to Juergen Bruder for providing me with a copy of the common DCT algorithm article, only to find out that I had come to the same result in a more direct and comprehensible way with a more generative approach.

Thank to Istvan Sebestyen and Joan L. Mitchell for inviting me to the ITU JPEG (Study Group 16) meeting in Geneva, Switzerland.

Thank to Thomas Wiegand and Gary Sullivan for inviting me to the Joint Video Team (MPEG & ITU) meeting in Geneva, Switzerland.

Thank to Thomas Richter and Daniel Lee for inviting me to the ISO/IEC JTC1/SC29/WG1 (previously known as JPEG, together with ITU-T SG16) meeting in Berlin, Germany.

Thank to John Korejwa and Massimo Ballerini for inviting me to fruitful consultations in Boston, MA and Milan, Italy.

Thank to Hendrik Elstner, Roland Fassauer, Simone Zuck, Guenther Maier-Gerber, Walter Stoeber, Fred Schmitz, and Norbert Braunagel for corresponding business development.

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Andrej Werner, and Ulf-Dietrich Braumann for support and public relations.

FILE FORMAT WARS
================

The ISO/IEC JTC1/SC29/WG1 standards committee (previously known as JPEG, together with ITU-T SG16) currently promotes different formats containing the name "JPEG" which is misleading because these formats are incompatible with original DCT-based JPEG and are based on faulty technologies.
IJG therefore does not and will not support such momentary mistakes (see REFERENCES).
There exist also distributions under the name "OpenJPEG" promoting such kind of formats which is misleading because they don't support original JPEG images.
We have no sympathy for the promotion of inferior formats. Indeed, one of the original reasons for developing this free software was to help force convergence on common, interoperable format standards for JPEG files.
Don't use an incompatible file format!
(In any case, our decoder will remain capable of reading existing JPEG image files indefinitely.)

The ISO committee pretends to be "responsible for the popular JPEG" in their public reports which is not true because they don't respond to actual requirements for the maintenance of the original JPEG specification.
Furthermore, the ISO committee pretends to "ensure interoperability" with their standards which is not true because their "standards" support only application-specific and proprietary use cases and contain mathematically incorrect code.

There are currently different distributions in circulation containing the name "libjpeg" which is misleading because they don't have the features and are incompatible with formats supported by actual IJG libjpeg distributions.
One of those fakes is released by members of the ISO committee and just uses the name of libjpeg for misdirection of people, similar to the abuse of the name JPEG as described above, while having nothing in common with actual IJG libjpeg distributions and containing mathematically incorrect code.
The other one claims to be a "derivative" or "fork" of the original libjpeg, but violates the license conditions as described under LEGAL ISSUES above and violates basic C programming properties.
We have no sympathy for the release of misleading, incorrect and illegal distributions derived from obsolete code bases.
Don't use an obsolete code base!

According to the UCC (Uniform Commercial Code) law, IJG has the lawful and legal right to foreclose on certain standardization bodies and other institutions or corporations that knowingly perform substantial and systematic deceptive acts and practices, fraud, theft, and damaging of the

value of the people of this planet without their knowing, willing and
intentional consent.
The titles, ownership, and rights of these institutions and all their assets
are now duly secured and held in trust for the free people of this planet.
People of the planet, on every country, may have a financial interest in
the assets of these former principals, agents, and beneficiaries of the
foreclosed institutions and corporations.
IJG asserts what is: that each man, woman, and child has unalienable value
and rights granted and deposited in them by the Creator and not any one of
the people is subordinate to any artificial principality, corporate fiction
or the special interest of another without their appropriate knowing,
willing and intentional consent made by contract or accommodation agreement.
IJG expresses that which already was.
The people have already determined and demanded that public administration
entities, national governments, and their supporting judicial systems must
be fully transparent, accountable, and liable.
IJG has secured the value for all concerned free people of the planet.

A partial list of foreclosed institutions and corporations ("Hall of Shame")
is currently prepared and will be published later.

TO DO
=====

Version 9 is the second release of a new generation JPEG standard
to overcome the limitations of the original JPEG specification,
and is the first true source reference JPEG codec.
More features are being prepared for coming releases...

Please send bug reports, offers of help, etc. to jpeg-info@jpegclub.org.

Found in path(s):
* /opt/cola/permits/1103550007_1605777850.47/0/jpegsrc-v9d-tar-gz/jpeg-9d/README
No license file was found, but licenses were detected in source scan.

/*
* cjpeg.c
*
* Copyright (C) 1991-1998, Thomas G. Lane.
* Modified 2003-2013 by Guido Vollbeding.
* This file is part of the Independent JPEG Group's software.
* For conditions of distribution and use, see the accompanying README file.
*
* This file contains a command-line user interface for the JPEG compressor.
* It should work on any system with Unix- or MS-DOS-style command lines.
*
* Two different command line styles are permitted, depending on the

* compile-time switch TWO_FILE_COMMANDLINE:
* cjpeg [options] inputfile outputfile
* cjpeg [options] [inputfile]
* In the second style, output is always to standard output, which you'd
* normally redirect to a file or pipe to some other program. Input is
* either from a named file or from standard input (typically redirected).
* The second style is convenient on Unix but is unhelpful on systems that
* don't support pipes. Also, you MUST use the first style if your system
* doesn't do binary I/O to stdin/stdout.
* To simplify script writing, the "-outfile" switch is provided. The syntax
* cjpeg [options] -outfile outputfile inputfile
* works regardless of which command line style is used.
*/

Found in path(s):
* /opt/cola/permits/1103550007_1605777850.47/0/jpegsrc-v9d-tar-gz/jpeg-9d/cjpeg.c
No license file was found, but licenses were detected in source scan.

/*
* transupp.h
*
* Copyright (C) 1997-2019, Thomas G. Lane, Guido Vollbeding.
* This file is part of the Independent JPEG Group's software.
* For conditions of distribution and use, see the accompanying README file.
*
* This file contains declarations for image transformation routines and
* other utility code used by the jpegtran sample application. These are
* NOT part of the core JPEG library. But we keep these routines separate
* from jpegtran.c to ease the task of maintaining jpegtran-like programs
* that have other user interfaces.
*
* NOTE: all the routines declared here have very specific requirements
* about when they are to be executed during the reading and writing of the
* source and destination files. See the comments in transupp.c, or see
* jpegtran.c for an example of correct usage.
*/

Found in path(s):
* /opt/cola/permits/1103550007_1605777850.47/0/jpegsrc-v9d-tar-gz/jpeg-9d/transupp.h
No license file was found, but licenses were detected in source scan.

/*
* cderror.h
*
* Copyright (C) 1994-1997, Thomas G. Lane.
* Modified 2009-2017 by Guido Vollbeding.
* This file is part of the Independent JPEG Group's software.
* For conditions of distribution and use, see the accompanying README file.

*
* This file defines the error and message codes for the cjpeg/djpeg
* applications. These strings are not needed as part of the JPEG library
* proper.
* Edit this file to add new codes, or to translate the message strings to
* some other language.
*/

Found in path(s):
* /opt/cola/permits/1103550007_1605777850.47/0/jpegsrc-v9d-tar-gz/jpeg-9d/cderror.h
No license file was found, but licenses were detected in source scan.

/*
* jquant1.c
*
* Copyright (C) 1991-1996, Thomas G. Lane.
* Modified 2011 by Guido Vollbeding.
* This file is part of the Independent JPEG Group's software.
* For conditions of distribution and use, see the accompanying README file.
*
* This file contains 1-pass color quantization (color mapping) routines.
* These routines provide mapping to a fixed color map using equally spaced
* color values. Optional Floyd-Steinberg or ordered dithering is available.
*/

Found in path(s):
* /opt/cola/permits/1103550007_1605777850.47/0/jpegsrc-v9d-tar-gz/jpeg-9d/jquant1.c
No license file was found, but licenses were detected in source scan.

/*
* wrbmp.c
*
* Copyright (C) 1994-1996, Thomas G. Lane.
* Modified 2017-2019 by Guido Vollbeding.
* This file is part of the Independent JPEG Group's software.
* For conditions of distribution and use, see the accompanying README file.
*
* This file contains routines to write output images in Microsoft "BMP"
* format (MS Windows 3.x and OS/2 1.x flavors).
* Either 8-bit colormapped or 24-bit full-color format can be written.
* No compression is supported.
*
* These routines may need modification for non-Unix environments or
* specialized applications. As they stand, they assume output to
* an ordinary stdio stream.
*
* This code contributed by James Arthur Boucher.
*/

Found in path(s):
* /opt/cola/permits/1103550007_1605777850.47/0/jpegsrc-v9d-tar-gz/jpeg-9d/wrbmp.c
No license file was found, but licenses were detected in source scan.

/*
* jddctmgr.c
*
* Copyright (C) 1994-1996, Thomas G. Lane.
* Modified 2002-2013 by Guido Vollbeding.
* This file is part of the Independent JPEG Group's software.
* For conditions of distribution and use, see the accompanying README file.
*
* This file contains the inverse-DCT management logic.
* This code selects a particular IDCT implementation to be used,
* and it performs related housekeeping chores. No code in this file
* is executed per IDCT step, only during output pass setup.
*
* Note that the IDCT routines are responsible for performing coefficient
* dequantization as well as the IDCT proper. This module sets up the
* dequantization multiplier table needed by the IDCT routine.
*/

Found in path(s):
* /opt/cola/permits/1103550007_1605777850.47/0/jpegsrc-v9d-tar-gz/jpeg-9d/jddctmgr.c
No license file was found, but licenses were detected in source scan.

/*
* jmemname.c
*
* Copyright (C) 1992-1997, Thomas G. Lane.
* This file is part of the Independent JPEG Group's software.
* For conditions of distribution and use, see the accompanying README file.
*
* This file provides a generic implementation of the system-dependent
* portion of the JPEG memory manager. This implementation assumes that
* you must explicitly construct a name for each temp file.
* Also, the problem of determining the amount of memory available
* is shoved onto the user.
*/

Found in path(s):
* /opt/cola/permits/1103550007_1605777850.47/0/jpegsrc-v9d-tar-gz/jpeg-9d/jmemname.c
No license file was found, but licenses were detected in source scan.

/*
* jpegtran.c
*

* Copyright (C) 1995-2019, Thomas G. Lane, Guido Vollbeding.
* This file is part of the Independent JPEG Group's software.
* For conditions of distribution and use, see the accompanying README file.
*
* This file contains a command-line user interface for JPEG transcoding.
* It is very similar to cjpeg.c, and partly to djpeg.c, but provides
* lossless transcoding between different JPEG file formats. It also
* provides some lossless and sort-of-lossless transformations of JPEG data.
*/

Found in path(s):
* /opt/cola/permits/1103550007_1605777850.47/0/jpegsrc-v9d-tar-gz/jpeg-9d/jpegtran.c
No license file was found, but licenses were detected in source scan.

/*
* wrppm.c
*
* Copyright (C) 1991-1996, Thomas G. Lane.
* Modified 2009-2019 by Guido Vollbeding.
* This file is part of the Independent JPEG Group's software.
* For conditions of distribution and use, see the accompanying README file.
*
* This file contains routines to write output images in PPM/PGM format.
* The extended 2-byte-per-sample raw PPM/PGM formats are supported.
* The PBMPLUS library is NOT required to compile this software
* (but it is highly useful as a set of PPM image manipulation programs).
*
* These routines may need modification for non-Unix environments or
* specialized applications. As they stand, they assume output to
* an ordinary stdio stream.
*/

Found in path(s):
* /opt/cola/permits/1103550007_1605777850.47/0/jpegsrc-v9d-tar-gz/jpeg-9d/wrppm.c
No license file was found, but licenses were detected in source scan.

USING THE IJG JPEG LIBRARY

Copyright (C) 1994-2019, Thomas G. Lane, Guido Vollbeding.
This file is part of the Independent JPEG Group's software.
For conditions of distribution and use, see the accompanying README file.

This file describes how to use the IJG JPEG library within an application
program. Read it if you want to write a program that uses the library.

The file example.c provides heavily commented skeleton code for calling the
JPEG library. Also see jpeglib.h (the include file to be used by application

programs) for full details about data structures and function parameter lists.
The library source code, of course, is the ultimate reference.

Note that there have been *major* changes from the application interface presented by IJG version 4 and earlier versions. The old design had several inherent limitations, and it had accumulated a lot of cruft as we added features while trying to minimize application-interface changes. We have sacrificed backward compatibility in the version 5 rewrite, but we think the improvements justify this.

TABLE OF CONTENTS

You should read at least the overview and basic usage sections before trying to program with the library. The sections on advanced features can be read if and when you need them.

OVERVIEW

========

Functions provided by the library

The IJG JPEG library provides C code to read and write JPEG-compressed image files. The surrounding application program receives or supplies image data a scanline at a time, using a straightforward uncompressed image format. All details of color conversion and other preprocessing/postprocessing can be handled by the library.

The library includes a substantial amount of code that is not covered by the JPEG standard but is necessary for typical applications of JPEG. These functions preprocess the image before JPEG compression or postprocess it after decompression. They include colorspace conversion, downsampling/upsampling, and color quantization. The application indirectly selects use of this code by specifying the format in which it wishes to supply or receive image data. For example, if colormapped output is requested, then the decompression library automatically invokes color quantization.

A wide range of quality vs. speed tradeoffs are possible in JPEG processing, and even more so in decompression postprocessing. The decompression library provides multiple implementations that cover most of the useful tradeoffs, ranging from very-high-quality down to fast-preview operation. On the compression side we have generally not provided low-quality choices, since compression is normally less time-critical. It should be understood that the low-quality modes may not meet the JPEG standard's accuracy requirements; nonetheless, they are useful for viewers.

A word about functions *not* provided by the library. We handle a subset of the ISO JPEG standard; most baseline, extended-sequential, and progressive JPEG processes are supported. (Our subset includes all features now in common use.) Unsupported ISO options include:

 * Hierarchical storage
 * Lossless JPEG
 * DNL marker
 * Nonintegral subsampling ratios

We support 8-bit to 12-bit data precision, but this is a compile-time choice rather than a run-time choice; hence it is difficult to use different precisions in a single application.

By itself, the library handles only interchange JPEG datastreams --- in particular the widely used JFIF file format. The library can be used by surrounding code to process interchange or abbreviated JPEG datastreams that are embedded in more complex file formats. (For example, this library is used by the free LIBTIFF library to support JPEG compression in TIFF.)

Outline of typical usage

The rough outline of a JPEG compression operation is:

```
 Allocate and initialize a JPEG compression object
 Specify the destination for the compressed data (eg, a file)
 Set parameters for compression, including image size & colorspace
 jpeg_start_compress(...);
 while (scan lines remain to be written)
  jpeg_write_scanlines(...);
 jpeg_finish_compress(...);
 Release the JPEG compression object
```

A JPEG compression object holds parameters and working state for the JPEG library. We make creation/destruction of the object separate from starting or finishing compression of an image; the same object can be re-used for a series of image compression operations. This makes it easy to re-use the same parameter settings for a sequence of images. Re-use of a JPEG object also has important implications for processing abbreviated JPEG datastreams, as discussed later.

The image data to be compressed is supplied to jpeg_write_scanlines() from in-memory buffers. If the application is doing file-to-file compression, reading image data from the source file is the application's responsibility. The library emits compressed data by calling a "data destination manager", which typically will write the data into a file; but the application can provide its own destination manager to do something else.

Similarly, the rough outline of a JPEG decompression operation is:

```
 Allocate and initialize a JPEG decompression object
 Specify the source of the compressed data (eg, a file)
 Call jpeg_read_header() to obtain image info
 Set parameters for decompression
 jpeg_start_decompress(...);
 while (scan lines remain to be read)
  jpeg_read_scanlines(...);
 jpeg_finish_decompress(...);
 Release the JPEG decompression object
```

This is comparable to the compression outline except that reading the datastream header is a separate step. This is helpful because information about the image's size, colorspace, etc is available when the application selects decompression parameters. For example, the application can choose an output scaling ratio that will fit the image into the available screen size.

The decompression library obtains compressed data by calling a data source manager, which typically will read the data from a file; but other behaviors can be obtained with a custom source manager. Decompressed data is delivered into in-memory buffers passed to jpeg_read_scanlines().

It is possible to abort an incomplete compression or decompression operation by calling jpeg_abort(); or, if you do not need to retain the JPEG object, simply release it by calling jpeg_destroy().

JPEG compression and decompression objects are two separate struct types. However, they share some common fields, and certain routines such as jpeg_destroy() can work on either type of object.

The JPEG library has no static variables: all state is in the compression or decompression object. Therefore it is possible to process multiple compression and decompression operations concurrently, using multiple JPEG objects.

Both compression and decompression can be done in an incremental memory-to-memory fashion, if suitable source/destination managers are used. See the section on "I/O suspension" for more details.

BASIC LIBRARY USAGE
===================

Data formats

Before diving into procedural details, it is helpful to understand the image data format that the JPEG library expects or returns.

The standard input image format is a rectangular array of pixels, with each pixel having the same number of "component" or "sample" values (color channels). You must specify how many components there are and the colorspace interpretation of the components. Most applications will use RGB data (three components per pixel) or grayscale data (one component per pixel).
PLEASE NOTE THAT RGB DATA IS THREE SAMPLES PER PIXEL, GRAYSCALE ONLY ONE.
A remarkable number of people manage to miss this, only to find that their programs don't work with grayscale JPEG files.

There is no provision for colormapped input. JPEG files are always full-color or full grayscale (or sometimes another colorspace such as CMYK). You can feed in a colormapped image by expanding it to full-color format. However JPEG often doesn't work very well with source data that has been colormapped, because of dithering noise. This is discussed in more detail in the JPEG FAQ and the other references mentioned in the README file.

Pixels are stored by scanlines, with each scanline running from left to right. The component values for each pixel are adjacent in the row; for example, R,G,B,R,G,B,R,G,B,... for 24-bit RGB color. Each scanline is an array of data type JSAMPLE --- which is typically "unsigned char", unless you've changed jmorecfg.h. (You can also change the RGB pixel layout, say to B,G,R order, by modifying jmorecfg.h. But see the restrictions listed in that file before doing so.)

A 2-D array of pixels is formed by making a list of pointers to the starts of scanlines; so the scanlines need not be physically adjacent in memory. Even if you process just one scanline at a time, you must make a one-element pointer array to conform to this structure. Pointers to JSAMPLE rows are of type JSAMPROW, and the pointer to the pointer array is of type JSAMPARRAY.

The library accepts or supplies one or more complete scanlines per call. It is not possible to process part of a row at a time. Scanlines are always processed top-to-bottom. You can process an entire image in one call if you have it all in memory, but usually it's simplest to process one scanline at a time.

For best results, source data values should have the precision specified by BITS_IN_JSAMPLE (normally 8 bits). For instance, if you choose to compress data that's only 6 bits/channel, you should left-justify each value in a byte before passing it to the compressor. If you need to compress data that has more than 8 bits/channel, compile with BITS_IN_JSAMPLE = 9 to 12. (See "Library compile-time options", later.)

The data format returned by the decompressor is the same in all details, except that colormapped output is supported. (Again, a JPEG file is never colormapped. But you can ask the decompressor to perform on-the-fly color quantization to deliver colormapped output.) If you request colormapped output then the returned data array contains a single JSAMPLE per pixel; its value is an index into a color map. The color map is represented as a 2-D JSAMPARRAY in which each row holds the values of one color component, that is, colormap[i][j] is the value of the i'th color component for pixel value (map index) j. Note that since the colormap indexes are stored in JSAMPLEs, the maximum number of colors is limited by the size of JSAMPLE (ie, at most 256 colors for an 8-bit JPEG library).

Compression details

Here we revisit the JPEG compression outline given in the overview.

1. Allocate and initialize a JPEG compression object.

A JPEG compression object is a "struct jpeg_compress_struct". (It also has a bunch of subsidiary structures which are allocated via malloc(), but the application doesn't control those directly.) This struct can be just a local variable in the calling routine, if a single routine is going to execute the whole JPEG compression sequence. Otherwise it can be static or allocated from malloc().

You will also need a structure representing a JPEG error handler. The part of this that the library cares about is a "struct jpeg_error_mgr". If you are providing your own error handler, you'll typically want to embed the jpeg_error_mgr struct in a larger structure; this is discussed later under "Error handling". For now we'll assume you are just using the default error handler. The default error handler will print JPEG error/warning messages on stderr, and it will call exit() if a fatal error occurs.

You must initialize the error handler structure, store a pointer to it into the JPEG object's "err" field, and then call jpeg_create_compress() to initialize the rest of the JPEG object.

Typical code for this step, if you are using the default error handler, is

```
struct jpeg_compress_struct cinfo;
struct jpeg_error_mgr jerr;
...
cinfo.err = jpeg_std_error(&jerr);
jpeg_create_compress(&cinfo);
```

jpeg_create_compress allocates a small amount of memory, so it could fail if you are out of memory. In that case it will exit via the error handler; that's why the error handler must be initialized first.

2. Specify the destination for the compressed data (eg, a file).

As previously mentioned, the JPEG library delivers compressed data to a "data destination" module. The library includes one data destination module which knows how to write to a stdio stream. You can use your own destination module if you want to do something else, as discussed later.

If you use the standard destination module, you must open the target stdio stream beforehand. Typical code for this step looks like:

```
FILE * outfile;
...
if ((outfile = fopen(filename, "wb")) == NULL) {
    fprintf(stderr, "can't open %s\n", filename);
    exit(1);
}
jpeg_stdio_dest(&cinfo, outfile);
```

where the last line invokes the standard destination module.

WARNING: it is critical that the binary compressed data be delivered to the output file unchanged. On non-Unix systems the stdio library may perform newline translation or otherwise corrupt binary data. To suppress this behavior, you may need to use a "b" option to fopen (as shown above), or use setmode() or another routine to put the stdio stream in binary mode. See cjpeg.c and djpeg.c for code that has been found to work on many systems.

You can select the data destination after setting other parameters (step 3), if that's more convenient. You may not change the destination between calling jpeg_start_compress() and jpeg_finish_compress().

3. Set parameters for compression, including image size & colorspace.

You must supply information about the source image by setting the following fields in the JPEG object (cinfo structure):

```
 image_width  Width of image, in pixels
 image_height  Height of image, in pixels
 input_components Number of color channels (samples per pixel)
 in_color_space  Color space of source image
```

The image dimensions are, hopefully, obvious. JPEG supports image dimensions of 1 to 64K pixels in either direction. The input color space is typically RGB or grayscale, and input_components is 3 or 1 accordingly. (See "Special color spaces", later, for more info.) The in_color_space field must be assigned one of the J_COLOR_SPACE enum constants, typically JCS_RGB or JCS_GRAYSCALE.

JPEG has a large number of compression parameters that determine how the image is encoded. Most applications don't need or want to know about all these parameters. You can set all the parameters to reasonable defaults by calling jpeg_set_defaults(); then, if there are particular values you want to change, you can do so after that. The "Compression parameter selection" section tells about all the parameters.

You must set in_color_space correctly before calling jpeg_set_defaults(), because the defaults depend on the source image colorspace. However the other three source image parameters need not be valid until you call jpeg_start_compress(). There's no harm in calling jpeg_set_defaults() more than once, if that happens to be convenient.

Typical code for a 24-bit RGB source image is

```
 cinfo.image_width = Width;  /* image width and height, in pixels */
```

```
 cinfo.image_height = Height;
 cinfo.input_components = 3; /* # of color components per pixel */
 cinfo.in_color_space = JCS_RGB; /* colorspace of input image */

 jpeg_set_defaults(&cinfo);
 /* Make optional parameter settings here */
```

4. jpeg_start_compress(...);

After you have established the data destination and set all the necessary source image info and other parameters, call jpeg_start_compress() to begin a compression cycle. This will initialize internal state, allocate working storage, and emit the first few bytes of the JPEG datastream header.

Typical code:

```
 jpeg_start_compress(&cinfo, TRUE);
```

The "TRUE" parameter ensures that a complete JPEG interchange datastream will be written. This is appropriate in most cases. If you think you might want to use an abbreviated datastream, read the section on abbreviated datastreams, below.

Once you have called jpeg_start_compress(), you may not alter any JPEG parameters or other fields of the JPEG object until you have completed the compression cycle.

5. while (scan lines remain to be written)
 jpeg_write_scanlines(...);

Now write all the required image data by calling jpeg_write_scanlines() one or more times. You can pass one or more scanlines in each call, up to the total image height. In most applications it is convenient to pass just one or a few scanlines at a time. The expected format for the passed data is discussed under "Data formats", above.

Image data should be written in top-to-bottom scanline order. The JPEG spec contains some weasel wording about how top and bottom are application-defined terms (a curious interpretation of the English language...) but if you want your files to be compatible with everyone else's, you WILL use top-to-bottom order. If the source data must be read in bottom-to-top order, you can use the JPEG library's virtual array mechanism to invert the data efficiently. Examples of this can be found in the sample application cjpeg.

The library maintains a count of the number of scanlines written so far in the next_scanline field of the JPEG object. Usually you can just use

this variable as the loop counter, so that the loop test looks like
"while (cinfo.next_scanline < cinfo.image_height)".

Code for this step depends heavily on the way that you store the source data.
example.c shows the following code for the case of a full-size 2-D source
array containing 3-byte RGB pixels:

```
JSAMPROW row_pointer[1]; /* pointer to a single row */
int row_stride;   /* physical row width in buffer */

row_stride = image_width * 3; /* JSAMPLEs per row in image_buffer */

while (cinfo.next_scanline < cinfo.image_height) {
    row_pointer[0] = & image_buffer[cinfo.next_scanline * row_stride];
    jpeg_write_scanlines(&cinfo, row_pointer, 1);
}
```

jpeg_write_scanlines() returns the number of scanlines actually written.
This will normally be equal to the number passed in, so you can usually
ignore the return value. It is different in just two cases:
* If you try to write more scanlines than the declared image height,
  the additional scanlines are ignored.
* If you use a suspending data destination manager, output buffer overrun
  will cause the compressor to return before accepting all the passed lines.
  This feature is discussed under "I/O suspension", below. The normal
  stdio destination manager will NOT cause this to happen.
In any case, the return value is the same as the change in the value of
next_scanline.

6. jpeg_finish_compress(...);

After all the image data has been written, call jpeg_finish_compress() to
complete the compression cycle. This step is ESSENTIAL to ensure that the
last bufferload of data is written to the data destination.
jpeg_finish_compress() also releases working memory associated with the JPEG
object.

Typical code:

```
jpeg_finish_compress(&cinfo);
```

If using the stdio destination manager, don't forget to close the output
stdio stream (if necessary) afterwards.

If you have requested a multi-pass operating mode, such as Huffman code
optimization, jpeg_finish_compress() will perform the additional passes using
data buffered by the first pass. In this case jpeg_finish_compress() may take

quite a while to complete. With the default compression parameters, this will not happen.

It is an error to call jpeg_finish_compress() before writing the necessary total number of scanlines. If you wish to abort compression, call jpeg_abort() as discussed below.

After completing a compression cycle, you may dispose of the JPEG object as discussed next, or you may use it to compress another image. In that case return to step 2, 3, or 4 as appropriate. If you do not change the destination manager, the new datastream will be written to the same target. If you do not change any JPEG parameters, the new datastream will be written with the same parameters as before. Note that you can change the input image dimensions freely between cycles, but if you change the input colorspace, you should call jpeg_set_defaults() to adjust for the new colorspace; and then you'll need to repeat all of step 3.

7. Release the JPEG compression object.

When you are done with a JPEG compression object, destroy it by calling jpeg_destroy_compress(). This will free all subsidiary memory (regardless of the previous state of the object). Or you can call jpeg_destroy(), which works for either compression or decompression objects --- this may be more convenient if you are sharing code between compression and decompression cases. (Actually, these routines are equivalent except for the declared type of the passed pointer. To avoid gripes from ANSI C compilers, jpeg_destroy() should be passed a j_common_ptr.)

If you allocated the jpeg_compress_struct structure from malloc(), freeing it is your responsibility --- jpeg_destroy() won't. Ditto for the error handler structure.

Typical code:

```
jpeg_destroy_compress(&cinfo);
```

8. Aborting.

If you decide to abort a compression cycle before finishing, you can clean up in either of two ways:

* If you don't need the JPEG object any more, just call jpeg_destroy_compress() or jpeg_destroy() to release memory. This is legitimate at any point after calling jpeg_create_compress() --- in fact, it's safe even if jpeg_create_compress() fails.

* If you want to re-use the JPEG object, call jpeg_abort_compress(), or call jpeg_abort() which works on both compression and decompression objects. This will return the object to an idle state, releasing any working memory. jpeg_abort() is allowed at any time after successful object creation.

Note that cleaning up the data destination, if required, is your responsibility; neither of these routines will call term_destination(). (See "Compressed data handling", below, for more about that.)

jpeg_destroy() and jpeg_abort() are the only safe calls to make on a JPEG object that has reported an error by calling error_exit (see "Error handling" for more info). The internal state of such an object is likely to be out of whack. Either of these two routines will return the object to a known state.

Decompression details

Here we revisit the JPEG decompression outline given in the overview.

1. Allocate and initialize a JPEG decompression object.

This is just like initialization for compression, as discussed above, except that the object is a "struct jpeg_decompress_struct" and you call jpeg_create_decompress(). Error handling is exactly the same.

Typical code:

```
struct jpeg_decompress_struct cinfo;
struct jpeg_error_mgr jerr;
...
cinfo.err = jpeg_std_error(&jerr);
jpeg_create_decompress(&cinfo);
```

(Both here and in the IJG code, we usually use variable name "cinfo" for both compression and decompression objects.)

2. Specify the source of the compressed data (eg, a file).

As previously mentioned, the JPEG library reads compressed data from a "data source" module. The library includes one data source module which knows how to read from a stdio stream. You can use your own source module if you want to do something else, as discussed later.

If you use the standard source module, you must open the source stdio stream beforehand. Typical code for this step looks like:

```
 FILE * infile;
 ...
 if ((infile = fopen(filename, "rb")) == NULL) {
     fprintf(stderr, "can't open %s\n", filename);
     exit(1);
 }
 jpeg_stdio_src(&cinfo, infile);
```

where the last line invokes the standard source module.

WARNING: it is critical that the binary compressed data be read unchanged. On non-Unix systems the stdio library may perform newline translation or otherwise corrupt binary data. To suppress this behavior, you may need to use a "b" option to fopen (as shown above), or use setmode() or another routine to put the stdio stream in binary mode. See cjpeg.c and djpeg.c for code that has been found to work on many systems.

You may not change the data source between calling jpeg_read_header() and jpeg_finish_decompress(). If you wish to read a series of JPEG images from a single source file, you should repeat the jpeg_read_header() to jpeg_finish_decompress() sequence without reinitializing either the JPEG object or the data source module; this prevents buffered input data from being discarded.

3. Call jpeg_read_header() to obtain image info.

Typical code for this step is just

```
 jpeg_read_header(&cinfo, TRUE);
```

This will read the source datastream header markers, up to the beginning of the compressed data proper. On return, the image dimensions and other info have been stored in the JPEG object. The application may wish to consult this information before selecting decompression parameters.

More complex code is necessary if
 * A suspending data source is used --- in that case jpeg_read_header()
   may return before it has read all the header data. See "I/O suspension",
   below. The normal stdio source manager will NOT cause this to happen.
 * Abbreviated JPEG files are to be processed --- see the section on
   abbreviated datastreams. Standard applications that deal only in
   interchange JPEG files need not be concerned with this case either.

It is permissible to stop at this point if you just wanted to find out the image dimensions and other header info for a JPEG file. In that case, call jpeg_destroy() when you are done with the JPEG object, or call jpeg_abort() to return it to an idle state before selecting a new data source and reading another header.

4. Set parameters for decompression.

jpeg_read_header() sets appropriate default decompression parameters based on the properties of the image (in particular, its colorspace). However, you may well want to alter these defaults before beginning the decompression. For example, the default is to produce full color output from a color file. If you want colormapped output you must ask for it. Other options allow the returned image to be scaled and allow various speed/quality tradeoffs to be selected. "Decompression parameter selection", below, gives details.

If the defaults are appropriate, nothing need be done at this step.

Note that all default values are set by each call to jpeg_read_header(). If you reuse a decompression object, you cannot expect your parameter settings to be preserved across cycles, as you can for compression. You must set desired parameter values each time.

5. jpeg_start_decompress(...);

Once the parameter values are satisfactory, call jpeg_start_decompress() to begin decompression. This will initialize internal state, allocate working memory, and prepare for returning data.

Typical code is just

```
jpeg_start_decompress(&cinfo);
```

If you have requested a multi-pass operating mode, such as 2-pass color quantization, jpeg_start_decompress() will do everything needed before data output can begin. In this case jpeg_start_decompress() may take quite a while to complete. With a single-scan (non progressive) JPEG file and default decompression parameters, this will not happen; jpeg_start_decompress() will return quickly.

After this call, the final output image dimensions, including any requested scaling, are available in the JPEG object; so is the selected colormap, if colormapped output has been requested. Useful fields include

```
output_width  image width and height, as scaled
output_height
out_color_components # of color components in out_color_space
output_components # of color components returned per pixel
colormap  the selected colormap, if any
actual_number_of_colors  number of entries in colormap
```

output_components is 1 (a colormap index) when quantizing colors; otherwise it equals out_color_components. It is the number of JSAMPLE values that will be emitted per pixel in the output arrays.

Typically you will need to allocate data buffers to hold the incoming image. You will need output_width * output_components JSAMPLEs per scanline in your output buffer, and a total of output_height scanlines will be returned.

Note: if you are using the JPEG library's internal memory manager to allocate data buffers (as djpeg does), then the manager's protocol requires that you request large buffers *before* calling jpeg_start_decompress(). This is a little tricky since the output_XXX fields are not normally valid then. You can make them valid by calling jpeg_calc_output_dimensions() after setting the relevant parameters (scaling, output color space, and quantization flag).

6. while (scan lines remain to be read)
 jpeg_read_scanlines(...);

Now you can read the decompressed image data by calling jpeg_read_scanlines() one or more times. At each call, you pass in the maximum number of scanlines to be read (ie, the height of your working buffer); jpeg_read_scanlines() will return up to that many lines. The return value is the number of lines actually read. The format of the returned data is discussed under "Data formats", above. Don't forget that grayscale and color JPEGs will return different data formats!

Image data is returned in top-to-bottom scanline order. If you must write out the image in bottom-to-top order, you can use the JPEG library's virtual array mechanism to invert the data efficiently. Examples of this can be found in the sample application djpeg.

The library maintains a count of the number of scanlines returned so far in the output_scanline field of the JPEG object. Usually you can just use this variable as the loop counter, so that the loop test looks like "while (cinfo.output_scanline < cinfo.output_height)". (Note that the test should NOT be against image_height, unless you never use scaling. The image_height field is the height of the original unscaled image.) The return value always equals the change in the value of output_scanline.

If you don't use a suspending data source, it is safe to assume that jpeg_read_scanlines() reads at least one scanline per call, until the bottom of the image has been reached.

If you use a buffer larger than one scanline, it is NOT safe to assume that jpeg_read_scanlines() fills it. (The current implementation returns only a few scanlines per call, no matter how large a buffer you pass.) So you must always provide a loop that calls jpeg_read_scanlines() repeatedly until the whole image has been read.

7. jpeg_finish_decompress(...);

After all the image data has been read, call jpeg_finish_decompress() to complete the decompression cycle. This causes working memory associated with the JPEG object to be released.

Typical code:

```
jpeg_finish_decompress(&cinfo);
```

If using the stdio source manager, don't forget to close the source stdio stream if necessary.

It is an error to call jpeg_finish_decompress() before reading the correct total number of scanlines. If you wish to abort decompression, call jpeg_abort() as discussed below.

After completing a decompression cycle, you may dispose of the JPEG object as discussed next, or you may use it to decompress another image. In that case return to step 2 or 3 as appropriate. If you do not change the source manager, the next image will be read from the same source.

8. Release the JPEG decompression object.

When you are done with a JPEG decompression object, destroy it by calling jpeg_destroy_decompress() or jpeg_destroy(). The previous discussion of destroying compression objects applies here too.

Typical code:

```
jpeg_destroy_decompress(&cinfo);
```

9. Aborting.

You can abort a decompression cycle by calling jpeg_destroy_decompress() or jpeg_destroy() if you don't need the JPEG object any more, or jpeg_abort_decompress() or jpeg_abort() if you want to reuse the object. The previous discussion of aborting compression cycles applies here too.

Mechanics of usage: include files, linking, etc

Applications using the JPEG library should include the header file jpeglib.h to obtain declarations of data types and routines. Before including jpeglib.h, include system headers that define at least the typedefs FILE and size_t. On ANSI-conforming systems, including <stdio.h> is sufficient; on older Unix systems, you may need <sys/types.h> to define size_t.

If the application needs to refer to individual JPEG library error codes, also include jerror.h to define those symbols.

jpeglib.h indirectly includes the files jconfig.h and jmorecfg.h. If you are installing the JPEG header files in a system directory, you will want to install all four files: jpeglib.h, jerror.h, jconfig.h, jmorecfg.h.

The most convenient way to include the JPEG code into your executable program is to prepare a library file ("libjpeg.a", or a corresponding name on non-Unix machines) and reference it at your link step. If you use only half of the library (only compression or only decompression), only that much code will be included from the library, unless your linker is hopelessly brain-damaged. The supplied makefiles build libjpeg.a automatically (see install.txt).

While you can build the JPEG library as a shared library if the whim strikes you, we don't really recommend it. The trouble with shared libraries is that at some point you'll probably try to substitute a new version of the library without recompiling the calling applications. That generally doesn't work because the parameter struct declarations usually change with each new version. In other words, the library's API is *not* guaranteed binary compatible across versions; we only try to ensure source-code compatibility. (In hindsight, it might have been smarter to hide the parameter structs from applications and introduce a ton of access functions instead. Too late now, however.)

On some systems your application may need to set up a signal handler to ensure that temporary files are deleted if the program is interrupted. This is most critical if you are on MS-DOS and use the jmemdos.c memory manager back end; it will try to grab extended memory for temp files, and that space will NOT be freed automatically. See cjpeg.c or djpeg.c for an example signal handler.

It may be worth pointing out that the core JPEG library does not actually require the stdio library: only the default source/destination managers and error handler need it. You can use the library in a stdio-less environment if you replace those modules and use jmemnobs.c (or another memory manager of your own devising). More info about the minimum system library requirements may be found in jinclude.h.

ADVANCED FEATURES
================

Compression parameter selection

This section describes all the optional parameters you can set for JPEG compression, as well as the "helper" routines provided to assist in this task. Proper setting of some parameters requires detailed understanding of the JPEG standard; if you don't know what a parameter is for, it's best not to mess with it! See REFERENCES in the README file for pointers to more info about JPEG.

It's a good idea to call jpeg_set_defaults() first, even if you plan to set all the parameters; that way your code is more likely to work with future JPEG libraries that have additional parameters. For the same reason, we recommend you use a helper routine where one is provided, in preference to twiddling cinfo fields directly.

The helper routines are:

jpeg_set_defaults (j_compress_ptr cinfo)
 This routine sets all JPEG parameters to reasonable defaults, using only the input image's color space (field in_color_space, which must already be set in cinfo). Many applications will only need to use this routine and perhaps jpeg_set_quality().

jpeg_set_colorspace (j_compress_ptr cinfo, J_COLOR_SPACE colorspace)
 Sets the JPEG file's colorspace (field jpeg_color_space) as specified, and sets other color-space-dependent parameters appropriately. See "Special color spaces", below, before using this. A large number of parameters, including all per-component parameters, are set by this routine; if you want to twiddle individual parameters you should call jpeg_set_colorspace() before rather than after.

jpeg_default_colorspace (j_compress_ptr cinfo)
 Selects an appropriate JPEG colorspace based on cinfo->in_color_space, and calls jpeg_set_colorspace(). This is actually a subroutine of jpeg_set_defaults(). It's broken out in case you want to change just the colorspace-dependent JPEG parameters.

jpeg_set_quality (j_compress_ptr cinfo, int quality, boolean force_baseline)
 Constructs JPEG quantization tables appropriate for the indicated quality setting. The quality value is expressed on the 0..100 scale recommended by IJG (cjpeg's "-quality" switch uses this routine). Note that the exact mapping from quality values to tables may change in future IJG releases as more is learned about DCT quantization. If the force_baseline parameter is TRUE, then the quantization table entries are constrained to the range 1..255 for full JPEG baseline compatibility. In the current implementation, this only makes a

difference for quality settings below 25, and it effectively prevents very small/low quality files from being generated. The IJG decoder is capable of reading the non-baseline files generated at low quality settings when force_baseline is FALSE, but other decoders may not be.

jpeg_set_linear_quality (j_compress_ptr cinfo, int scale_factor,
    boolean force_baseline)

Same as jpeg_set_quality() except that the generated tables are the sample tables given in the JPEC spec section K.1, multiplied by the specified scale factor (which is expressed as a percentage; thus scale_factor = 100 reproduces the spec's tables). Note that larger scale factors give lower quality. This entry point is useful for conforming to the Adobe PostScript DCT conventions, but we do not recommend linear scaling as a user-visible quality scale otherwise. force_baseline again constrains the computed table entries to 1..255.

int jpeg_quality_scaling (int quality)

Converts a value on the IJG-recommended quality scale to a linear scaling percentage. Note that this routine may change or go away in future releases --- IJG may choose to adopt a scaling method that can't be expressed as a simple scalar multiplier, in which case the premise of this routine collapses. Caveat user.

jpeg_default_qtables (j_compress_ptr cinfo, boolean force_baseline)

Set default quantization tables with linear q_scale_factor[] values (see below).

jpeg_add_quant_table (j_compress_ptr cinfo, int which_tbl,
        const unsigned int *basic_table,
        int scale_factor, boolean force_baseline)

Allows an arbitrary quantization table to be created. which_tbl indicates which table slot to fill. basic_table points to an array of 64 unsigned ints given in normal array order. These values are multiplied by scale_factor/100 and then clamped to the range 1..65535 (or to 1..255 if force_baseline is TRUE).
CAUTION: prior to library version 6a, jpeg_add_quant_table expected the basic table to be given in JPEG zigzag order. If you need to write code that works with either older or newer versions of this routine, you must check the library version number. Something like "#if JPEG_LIB_VERSION >= 61" is the right test.

jpeg_simple_progression (j_compress_ptr cinfo)

Generates a default scan script for writing a progressive-JPEG file. This is the recommended method of creating a progressive file, unless you want to make a custom scan sequence. You must ensure that the JPEG color space is set correctly before calling this routine.

Compression parameters (cinfo fields) include:

boolean arith_code
If TRUE, use arithmetic coding.
If FALSE, use Huffman coding.

int block_size
Set DCT block size. All N from 1 to 16 are possible.
Default is 8 (baseline format).
Larger values produce higher compression,
smaller values produce higher quality.
An exact DCT stage is possible with 1 or 2.
With the default quality of 75 and default Luminance qtable
the DCT+Quantization stage is lossless for value 1.
Note that values other than 8 require a SmartScale capable decoder,
introduced with IJG JPEG 8. Setting the block_size parameter for
compression works with version 8c and later.

J_DCT_METHOD dct_method
Selects the algorithm used for the DCT step. Choices are:
JDCT_ISLOW: slow but accurate integer algorithm
JDCT_IFAST: faster, less accurate integer method
JDCT_FLOAT: floating-point method
JDCT_DEFAULT: default method (normally JDCT_ISLOW)
JDCT_FASTEST: fastest method (normally JDCT_IFAST)
The FLOAT method is very slightly more accurate than the ISLOW method,
but may give different results on different machines due to varying
roundoff behavior. The integer methods should give the same results
on all machines. On machines with sufficiently fast FP hardware, the
floating-point method may also be the fastest. The IFAST method is
considerably less accurate than the other two; its use is not
recommended if high quality is a concern. JDCT_DEFAULT and
JDCT_FASTEST are macros configurable by each installation.

unsigned int scale_num, scale_denom
Scale the image by the fraction scale_num/scale_denom. Default is
1/1, or no scaling. Currently, the supported scaling ratios are
M/N with all N from 1 to 16, where M is the destination DCT size,
which is 8 by default (see block_size parameter above).
(The library design allows for arbitrary scaling ratios but this
is not likely to be implemented any time soon.)

J_COLOR_SPACE jpeg_color_space
int num_components
The JPEG color space and corresponding number of components; see
"Special color spaces", below, for more info. We recommend using
jpeg_set_colorspace() if you want to change these.

J_COLOR_TRANSFORM color_transform
Internal color transform identifier, writes LSE marker if nonzero (requires decoder with inverse color transform support, introduced with IJG JPEG 9).
Two values are currently possible: JCT_NONE and JCT_SUBTRACT_GREEN.
Set this value for lossless RGB application *before* calling jpeg_set_colorspace(), because entropy table assignment in jpeg_set_colorspace() depends on color_transform.

boolean optimize_coding
TRUE causes the compressor to compute optimal Huffman coding tables for the image. This requires an extra pass over the data and therefore costs a good deal of space and time. The default is FALSE, which tells the compressor to use the supplied or default Huffman tables. In most cases optimal tables save only a few percent of file size compared to the default tables. Note that when this is TRUE, you need not supply Huffman tables at all, and any you do supply will be overwritten.

unsigned int restart_interval
int restart_in_rows
To emit restart markers in the JPEG file, set one of these nonzero. Set restart_interval to specify the exact interval in MCU blocks. Set restart_in_rows to specify the interval in MCU rows. (If restart_in_rows is not 0, then restart_interval is set after the image width in MCUs is computed.) Defaults are zero (no restarts). One restart marker per MCU row is often a good choice.
NOTE: the overhead of restart markers is higher in grayscale JPEG files than in color files, and MUCH higher in progressive JPEGs. If you use restarts, you may want to use larger intervals in those cases.

const jpeg_scan_info * scan_info
int num_scans
By default, scan_info is NULL; this causes the compressor to write a single-scan sequential JPEG file. If not NULL, scan_info points to an array of scan definition records of length num_scans. The compressor will then write a JPEG file having one scan for each scan definition record. This is used to generate noninterleaved or progressive JPEG files. The library checks that the scan array defines a valid JPEG scan sequence. (jpeg_simple_progression creates a suitable scan definition array for progressive JPEG.) This is discussed further under "Progressive JPEG support".

boolean do_fancy_downsampling
If TRUE, use direct DCT scaling with DCT size > 8 for downsampling of chroma components.
If FALSE, use only DCT size <= 8 and simple separate downsampling.

Default is TRUE.
For better image stability in multiple generation compression cycles
it is preferable that this value matches the corresponding
do_fancy_upsampling value in decompression.

int smoothing_factor
If non-zero, the input image is smoothed; the value should be 1 for
minimal smoothing to 100 for maximum smoothing. Consult jcsample.c
for details of the smoothing algorithm. The default is zero.

boolean write_JFIF_header
If TRUE, a JFIF APP0 marker is emitted. jpeg_set_defaults() and
jpeg_set_colorspace() set this TRUE if a JFIF-legal JPEG color space
(ie, YCbCr or grayscale) is selected, otherwise FALSE.

UINT8 JFIF_major_version
UINT8 JFIF_minor_version
The version number to be written into the JFIF marker.
jpeg_set_defaults() initializes the version to 1.01 (major=minor=1).
You should set it to 1.02 (major=1, minor=2) if you plan to write
any JFIF 1.02 extension markers.

UINT8 density_unit
UINT16 X_density
UINT16 Y_density
The resolution information to be written into the JFIF marker;
not used otherwise. density_unit may be 0 for unknown,
1 for dots/inch, or 2 for dots/cm. The default values are 0,1,1
indicating square pixels of unknown size.

boolean write_Adobe_marker
If TRUE, an Adobe APP14 marker is emitted. jpeg_set_defaults() and
jpeg_set_colorspace() set this TRUE if JPEG color space RGB, CMYK,
or YCCK is selected, otherwise FALSE. It is generally a bad idea
to set both write_JFIF_header and write_Adobe_marker. In fact,
you probably shouldn't change the default settings at all --- the
default behavior ensures that the JPEG file's color space can be
recognized by the decoder.

JQUANT_TBL * quant_tbl_ptrs[NUM_QUANT_TBLS]
Pointers to coefficient quantization tables, one per table slot,
or NULL if no table is defined for a slot. Usually these should
be set via one of the above helper routines; jpeg_add_quant_table()
is general enough to define any quantization table. The other
routines will set up table slot 0 for luminance quality and table
slot 1 for chrominance.

int q_scale_factor[NUM_QUANT_TBLS]

Linear quantization scaling factors (percentage, initialized 100)
for use with jpeg_default_qtables().
See rdswitch.c and cjpeg.c for an example of usage.
Note that the q_scale_factor[] fields are the "linear" scales, so you
have to convert from user-defined ratings via jpeg_quality_scaling().
Here is an example code which corresponds to cjpeg -quality 90,70:

```
jpeg_set_defaults(cinfo);

/* Set luminance quality 90. */
cinfo->q_scale_factor[0] = jpeg_quality_scaling(90);
/* Set chrominance quality 70. */
cinfo->q_scale_factor[1] = jpeg_quality_scaling(70);

jpeg_default_qtables(cinfo, force_baseline);
```

CAUTION: You must also set 1x1 subsampling for efficient separate
color quality selection, since the default value used by library
is 2x2:

```
cinfo->comp_info[0].v_samp_factor = 1;
cinfo->comp_info[0].h_samp_factor = 1;
```

JHUFF_TBL * dc_huff_tbl_ptrs[NUM_HUFF_TBLS]
JHUFF_TBL * ac_huff_tbl_ptrs[NUM_HUFF_TBLS]
Pointers to Huffman coding tables, one per table slot, or NULL if
no table is defined for a slot. Slots 0 and 1 are filled with the
JPEG sample tables by jpeg_set_defaults(). If you need to allocate
more table structures, jpeg_alloc_huff_table() may be used.
Note that optimal Huffman tables can be computed for an image
by setting optimize_coding, as discussed above; there's seldom
any need to mess with providing your own Huffman tables.

The actual dimensions of the JPEG image that will be written to the file are
given by the following fields. These are computed from the input image
dimensions and the compression parameters by jpeg_start_compress(). You can
also call jpeg_calc_jpeg_dimensions() to obtain the values that will result
from the current parameter settings. This can be useful if you are trying
to pick a scaling ratio that will get close to a desired target size.

JDIMENSION jpeg_width Actual dimensions of output image.
JDIMENSION jpeg_height

Per-component parameters are stored in the struct cinfo.comp_info[i] for
component number i. Note that components here refer to components of the
JPEG color space, *not* the source image color space. A suitably large

comp_info[] array is allocated by jpeg_set_defaults(); if you choose not to use that routine, it's up to you to allocate the array.

int component_id
 The one-byte identifier code to be recorded in the JPEG file for this component. For the standard color spaces, we recommend you leave the default values alone.

int h_samp_factor
int v_samp_factor
 Horizontal and vertical sampling factors for the component; must be 1..4 according to the JPEG standard. Note that larger sampling factors indicate a higher-resolution component; many people find this behavior quite unintuitive. The default values are 2,2 for luminance components and 1,1 for chrominance components, except for grayscale where 1,1 is used.

int quant_tbl_no
 Quantization table number for component. The default value is 0 for luminance components and 1 for chrominance components.

int dc_tbl_no
int ac_tbl_no
 DC and AC entropy coding table numbers. The default values are 0 for luminance components and 1 for chrominance components.

int component_index
 Must equal the component's index in comp_info[]. (Beginning in release v6, the compressor library will fill this in automatically; you don't have to.)

Decompression parameter selection

Decompression parameter selection is somewhat simpler than compression parameter selection, since all of the JPEG internal parameters are recorded in the source file and need not be supplied by the application. (Unless you are working with abbreviated files, in which case see "Abbreviated datastreams", below.) Decompression parameters control the postprocessing done on the image to deliver it in a format suitable for the application's use. Many of the parameters control speed/quality tradeoffs, in which faster decompression may be obtained at the price of a poorer-quality image. The defaults select the highest quality (slowest) processing.

The following fields in the JPEG object are set by jpeg_read_header() and may be useful to the application in choosing decompression parameters:

JDIMENSION image_width   Width and height of image
JDIMENSION image_height
int num_components   Number of color components
J_COLOR_SPACE jpeg_color_space Colorspace of image
boolean saw_JFIF_marker   TRUE if a JFIF APP0 marker was seen
 UINT8 JFIF_major_version Version information from JFIF marker
 UINT8 JFIF_minor_version
 UINT8 density_unit   Resolution data from JFIF marker
 UINT16 X_density
 UINT16 Y_density
boolean saw_Adobe_marker TRUE if an Adobe APP14 marker was seen
 UINT8 Adobe_transform   Color transform code from Adobe marker

The JPEG color space, unfortunately, is something of a guess since the JPEG standard proper does not provide a way to record it. In practice most files adhere to the JFIF or Adobe conventions, and the decoder will recognize these correctly. See "Special color spaces", below, for more info.

The decompression parameters that determine the basic properties of the returned image are:

J_COLOR_SPACE out_color_space
 Output color space. jpeg_read_header() sets an appropriate default based on jpeg_color_space; typically it will be RGB or grayscale. The application can change this field to request output in a different colorspace. For example, set it to JCS_GRAYSCALE to get grayscale output from a color file. (This is useful for previewing: grayscale output is faster than full color since the color components need not be processed.) Note that not all possible color space transforms are currently implemented; you may need to extend jdcolor.c if you want an unusual conversion.

unsigned int scale_num, scale_denom
 Scale the image by the fraction scale_num/scale_denom. Currently, the supported scaling ratios are M/N with all M from 1 to 16, where N is the source DCT size, which is 8 for baseline JPEG. (The library design allows for arbitrary scaling ratios but this is not likely to be implemented any time soon.) The values are initialized by jpeg_read_header() with the source DCT size. For baseline JPEG this is 8/8. If you change only the scale_num value while leaving the other unchanged, then this specifies the DCT scaled size to be applied on the given input. For baseline JPEG this is equivalent to M/8 scaling, since the source DCT size for baseline JPEG is 8. Smaller scaling ratios permit significantly faster decoding since fewer pixels need be processed and a simpler IDCT method can be used.

boolean quantize_colors
If set TRUE, colormapped output will be delivered. Default is FALSE, meaning that full-color output will be delivered.

The next three parameters are relevant only if quantize_colors is TRUE.

int desired_number_of_colors
Maximum number of colors to use in generating a library-supplied color map (the actual number of colors is returned in a different field). Default 256. Ignored when the application supplies its own color map.

boolean two_pass_quantize
If TRUE, an extra pass over the image is made to select a custom color map for the image. This usually looks a lot better than the one-size-fits-all colormap that is used otherwise. Default is TRUE. Ignored when the application supplies its own color map.

J_DITHER_MODE dither_mode
Selects color dithering method. Supported values are:
JDITHER_NONE no dithering: fast, very low quality
JDITHER_ORDERED ordered dither: moderate speed and quality
JDITHER_FS Floyd-Steinberg dither: slow, high quality
Default is JDITHER_FS. (At present, ordered dither is implemented only in the single-pass, standard-colormap case. If you ask for ordered dither when two_pass_quantize is TRUE or when you supply an external color map, you'll get F-S dithering.)

When quantize_colors is TRUE, the target color map is described by the next two fields. colormap is set to NULL by jpeg_read_header(). The application can supply a color map by setting colormap non-NULL and setting actual_number_of_colors to the map size. Otherwise, jpeg_start_decompress() selects a suitable color map and sets these two fields itself.
[Implementation restriction: at present, an externally supplied colormap is only accepted for 3-component output color spaces.]

JSAMPARRAY colormap
The color map, represented as a 2-D pixel array of out_color_components rows and actual_number_of_colors columns. Ignored if not quantizing.
CAUTION: if the JPEG library creates its own colormap, the storage pointed to by this field is released by jpeg_finish_decompress().
Copy the colormap somewhere else first, if you want to save it.

int actual_number_of_colors
The number of colors in the color map.

Additional decompression parameters that the application may set include:

J_DCT_METHOD dct_method

Selects the algorithm used for the DCT step. Choices are the same
as described above for compression.

boolean do_fancy_upsampling
If TRUE, use direct DCT scaling with DCT size > 8 for upsampling
of chroma components.
If FALSE, use only DCT size <= 8 and simple separate upsampling.
Default is TRUE.
For better image stability in multiple generation compression cycles
it is preferable that this value matches the corresponding
do_fancy_downsampling value in compression.

boolean do_block_smoothing
If TRUE, interblock smoothing is applied in early stages of decoding
progressive JPEG files; if FALSE, not. Default is TRUE. Early
progression stages look "fuzzy" with smoothing, "blocky" without.
In any case, block smoothing ceases to be applied after the first few
AC coefficients are known to full accuracy, so it is relevant only
when using buffered-image mode for progressive images.

boolean enable_1pass_quant
boolean enable_external_quant
boolean enable_2pass_quant
These are significant only in buffered-image mode, which is
described in its own section below.

The output image dimensions are given by the following fields. These are computed from the source image dimensions and the decompression parameters by jpeg_start_decompress(). You can also call jpeg_calc_output_dimensions() to obtain the values that will result from the current parameter settings. This can be useful if you are trying to pick a scaling ratio that will get close to a desired target size. It's also important if you are using the JPEG library's memory manager to allocate output buffer space, because you are supposed to request such buffers *before* jpeg_start_decompress().

JDIMENSION output_width Actual dimensions of output image.
JDIMENSION output_height
int out_color_components Number of color components in out_color_space.
int output_components Number of color components returned.
int rec_outbuf_height Recommended height of scanline buffer.

When quantizing colors, output_components is 1, indicating a single color map index per pixel. Otherwise it equals out_color_components. The output arrays are required to be output_width * output_components JSAMPLEs wide.

rec_outbuf_height is the recommended minimum height (in scanlines) of the buffer passed to jpeg_read_scanlines(). If the buffer is smaller, the

library will still work, but time will be wasted due to unnecessary data
copying. In high-quality modes, rec_outbuf_height is always 1, but some
faster, lower-quality modes set it to larger values (typically 2 to 4).
If you are going to ask for a high-speed processing mode, you may as well
go to the trouble of honoring rec_outbuf_height so as to avoid data copying.
(An output buffer larger than rec_outbuf_height lines is OK, but won't
provide any material speed improvement over that height.)

Special color spaces

The JPEG standard itself is "color blind" and doesn't specify any particular
color space. It is customary to convert color data to a luminance/chrominance
color space before compressing, since this permits greater compression. The
existing JPEG file interchange format standards specify YCbCr or GRAYSCALE
data (JFIF version 1), GRAYSCALE, RGB, YCbCr, CMYK, or YCCK (Adobe), or BG_RGB
or BG_YCC (big gamut color spaces, JFIF version 2). For special applications
such as multispectral images, other color spaces can be used,
but it must be understood that such files will be unportable.

The JPEG library can handle the most common colorspace conversions (namely
RGB <=> YCbCr and CMYK <=> YCCK). It can also deal with data of an unknown
color space, passing it through without conversion. If you deal extensively
with an unusual color space, you can easily extend the library to understand
additional color spaces and perform appropriate conversions.

For compression, the source data's color space is specified by field
in_color_space. This is transformed to the JPEG file's color space given
by jpeg_color_space. jpeg_set_defaults() chooses a reasonable JPEG color
space depending on in_color_space, but you can override this by calling
jpeg_set_colorspace(). Of course you must select a supported transformation.
jccolor.c currently supports the following transformations:
 RGB => YCbCr
 RGB => GRAYSCALE
 RGB => BG_YCC
 YCbCr => GRAYSCALE
 YCbCr => BG_YCC
 CMYK => YCCK
plus the null transforms: GRAYSCALE => GRAYSCALE, RGB => RGB,
BG_RGB => BG_RGB, YCbCr => YCbCr, BG_YCC => BG_YCC, CMYK => CMYK,
YCCK => YCCK, and UNKNOWN => UNKNOWN.

The file interchange format standards (JFIF and Adobe) specify APPn markers
that indicate the color space of the JPEG file. It is important to ensure
that these are written correctly, or omitted if the JPEG file's color space
is not one of the ones supported by the interchange standards.
jpeg_set_colorspace() will set the compression parameters to include or omit

the APPn markers properly, so long as it is told the truth about the JPEG color space. For example, if you are writing some random 3-component color space without conversion, don't try to fake out the library by setting in_color_space and jpeg_color_space to JCS_YCbCr; use JCS_UNKNOWN. You may want to write an APPn marker of your own devising to identify the colorspace --- see "Special markers", below.

When told that the color space is UNKNOWN, the library will default to using luminance-quality compression parameters for all color components. You may well want to change these parameters. See the source code for jpeg_set_colorspace(), in jcparam.c, for details.

For decompression, the JPEG file's color space is given in jpeg_color_space, and this is transformed to the output color space out_color_space. jpeg_read_header's setting of jpeg_color_space can be relied on if the file conforms to JFIF or Adobe conventions, but otherwise it is no better than a guess. If you know the JPEG file's color space for certain, you can override jpeg_read_header's guess by setting jpeg_color_space. jpeg_read_header also selects a default output color space based on (its guess of) jpeg_color_space; set out_color_space to override this. Again, you must select a supported transformation. jdcolor.c currently supports

YCbCr => RGB
YCbCr => GRAYSCALE
BG_YCC => RGB
BG_YCC => GRAYSCALE
RGB => GRAYSCALE
GRAYSCALE => RGB
YCCK => CMYK

as well as the null transforms. (Since GRAYSCALE=>RGB is provided, an application can force grayscale JPEGs to look like color JPEGs if it only wants to handle one case.)

The two-pass color quantizer, jquant2.c, is specialized to handle RGB data (it weights distances appropriately for RGB colors). You'll need to modify the code if you want to use it for non-RGB output color spaces. Note that jquant2.c is used to map to an application-supplied colormap as well as for the normal two-pass colormap selection process.

CAUTION: it appears that Adobe Photoshop writes inverted data in CMYK JPEG files: 0 represents 100% ink coverage, rather than 0% ink as you'd expect. This is arguably a bug in Photoshop, but if you need to work with Photoshop CMYK files, you will have to deal with it in your application. We cannot "fix" this in the library by inverting the data during the CMYK<=>YCCK transform, because that would break other applications, notably Ghostscript. Photoshop versions prior to 3.0 write EPS files containing JPEG-encoded CMYK data in the same inverted-YCCK representation used in bare JPEG files, but the surrounding PostScript code performs an inversion using the PS image operator. I am told that Photoshop 3.0 will write uninverted YCCK in

EPS/JPEG files, and will omit the PS-level inversion. (But the data polarity used in bare JPEG files will not change in 3.0.) In either case, the JPEG library must not invert the data itself, or else Ghostscript would read these EPS files incorrectly.

Error handling

When the default error handler is used, any error detected inside the JPEG routines will cause a message to be printed on stderr, followed by exit(). You can supply your own error handling routines to override this behavior and to control the treatment of nonfatal warnings and trace/debug messages. The file example.c illustrates the most common case, which is to have the application regain control after an error rather than exiting.

The JPEG library never writes any message directly; it always goes through the error handling routines. Three classes of messages are recognized:

* Fatal errors: the library cannot continue.
* Warnings: the library can continue, but the data is corrupt, and a damaged output image is likely to result.
* Trace/informational messages. These come with a trace level indicating the importance of the message; you can control the verbosity of the program by adjusting the maximum trace level that will be displayed.

You may, if you wish, simply replace the entire JPEG error handling module (jerror.c) with your own code. However, you can avoid code duplication by only replacing some of the routines depending on the behavior you need. This is accomplished by calling jpeg_std_error() as usual, but then overriding some of the method pointers in the jpeg_error_mgr struct, as illustrated by example.c.

All of the error handling routines will receive a pointer to the JPEG object (a j_common_ptr which points to either a jpeg_compress_struct or a jpeg_decompress_struct; if you need to tell which, test the is_decompressor field). This struct includes a pointer to the error manager struct in its "err" field. Frequently, custom error handler routines will need to access additional data which is not known to the JPEG library or the standard error handler. The most convenient way to do this is to embed either the JPEG object or the jpeg_error_mgr struct in a larger structure that contains additional fields; then casting the passed pointer provides access to the additional fields. Again, see example.c for one way to do it. (Beginning with IJG version 6b, there is also a void pointer "client_data" in each JPEG object, which the application can also use to find related data. The library does not touch client_data at all.)

The individual methods that you might wish to override are:

error_exit (j_common_ptr cinfo)
Receives control for a fatal error. Information sufficient to generate the error message has been stored in cinfo->err; call output_message to display it. Control must NOT return to the caller; generally this routine will exit() or longjmp() somewhere. Typically you would override this routine to get rid of the exit() default behavior. Note that if you continue processing, you should clean up the JPEG object with jpeg_abort() or jpeg_destroy().

output_message (j_common_ptr cinfo)
Actual output of any JPEG message. Override this to send messages somewhere other than stderr. Note that this method does not know how to generate a message, only where to send it.

format_message (j_common_ptr cinfo, char * buffer)
Constructs a readable error message string based on the error info stored in cinfo->err. This method is called by output_message. Few applications should need to override this method. One possible reason for doing so is to implement dynamic switching of error message language.

emit_message (j_common_ptr cinfo, int msg_level)
Decide whether or not to emit a warning or trace message; if so, calls output_message. The main reason for overriding this method would be to abort on warnings. msg_level is -1 for warnings, 0 and up for trace messages.

Only error_exit() and emit_message() are called from the rest of the JPEG library; the other two are internal to the error handler.

The actual message texts are stored in an array of strings which is pointed to by the field err->jpeg_message_table. The messages are numbered from 0 to err->last_jpeg_message, and it is these code numbers that are used in the JPEG library code. You could replace the message texts (for instance, with messages in French or German) by changing the message table pointer. See jerror.h for the default texts. CAUTION: this table will almost certainly change or grow from one library version to the next.

It may be useful for an application to add its own message texts that are handled by the same mechanism. The error handler supports a second "add-on" message table for this purpose. To define an addon table, set the pointer err->addon_message_table and the message numbers err->first_addon_message and err->last_addon_message. If you number the addon messages beginning at 1000 or so, you won't have to worry about conflicts with the library's built-in messages. See the sample applications cjpeg/djpeg for an example of using addon messages (the addon messages are defined in cderror.h).

Actual invocation of the error handler is done via macros defined in jerror.h:

ERREXITn(...) for fatal errors
WARNMSn(...) for corrupt-data warnings
TRACEMSn(...) for trace and informational messages.

These macros store the message code and any additional parameters into the error handler struct, then invoke the error_exit() or emit_message() method. The variants of each macro are for varying numbers of additional parameters. The additional parameters are inserted into the generated message using standard printf() format codes.

See jerror.h and jerror.c for further details.

Compressed data handling (source and destination managers)

The JPEG compression library sends its compressed data to a "destination manager" module. The default destination manager just writes the data to a memory buffer or to a stdio stream, but you can provide your own manager to do something else. Similarly, the decompression library calls a "source manager" to obtain the compressed data; you can provide your own source manager if you want the data to come from somewhere other than a memory buffer or a stdio stream.

In both cases, compressed data is processed a bufferload at a time: the destination or source manager provides a work buffer, and the library invokes the manager only when the buffer is filled or emptied. (You could define a one-character buffer to force the manager to be invoked for each byte, but that would be rather inefficient.) The buffer's size and location are controlled by the manager, not by the library. For example, the memory source manager just makes the buffer pointer and length point to the original data in memory. In this case the buffer-reload procedure will be invoked only if the decompressor ran off the end of the datastream, which would indicate an erroneous datastream.

The work buffer is defined as an array of datatype JOCTET, which is generally "char" or "unsigned char". On a machine where char is not exactly 8 bits wide, you must define JOCTET as a wider data type and then modify the data source and destination modules to transcribe the work arrays into 8-bit units on external storage.

A data destination manager struct contains a pointer and count defining the next byte to write in the work buffer and the remaining free space:

```
JOCTET * next_output_byte;  /* => next byte to write in buffer */
size_t free_in_buffer;      /* # of byte spaces remaining in buffer */
```

The library increments the pointer and decrements the count until the buffer is filled. The manager's empty_output_buffer method must reset the pointer

and count. The manager is expected to remember the buffer's starting address
and total size in private fields not visible to the library.

A data destination manager provides three methods:

init_destination (j_compress_ptr cinfo)
 Initialize destination. This is called by jpeg_start_compress()
 before any data is actually written. It must initialize
 next_output_byte and free_in_buffer. free_in_buffer must be
 initialized to a positive value.

empty_output_buffer (j_compress_ptr cinfo)
 This is called whenever the buffer has filled (free_in_buffer
 reaches zero). In typical applications, it should write out the
 entire buffer (use the saved start address and buffer length;
 ignore the current state of next_output_byte and free_in_buffer).
 Then reset the pointer & count to the start of the buffer, and
 return TRUE indicating that the buffer has been dumped.
 free_in_buffer must be set to a positive value when TRUE is
 returned. A FALSE return should only be used when I/O suspension is
 desired (this operating mode is discussed in the next section).

term_destination (j_compress_ptr cinfo)
 Terminate destination --- called by jpeg_finish_compress() after all
 data has been written. In most applications, this must flush any
 data remaining in the buffer. Use either next_output_byte or
 free_in_buffer to determine how much data is in the buffer.

term_destination() is NOT called by jpeg_abort() or jpeg_destroy(). If you
want the destination manager to be cleaned up during an abort, you must do it
yourself.

You will also need code to create a jpeg_destination_mgr struct, fill in its
method pointers, and insert a pointer to the struct into the "dest" field of
the JPEG compression object. This can be done in-line in your setup code if
you like, but it's probably cleaner to provide a separate routine similar to
the jpeg_stdio_dest() or jpeg_mem_dest() routines of the supplied destination
managers.

Decompression source managers follow a parallel design, but with some
additional frammishes. The source manager struct contains a pointer and count
defining the next byte to read from the work buffer and the number of bytes
remaining:

```
const JOCTET * next_input_byte; /* => next byte to read from buffer */
size_t bytes_in_buffer;         /* # of bytes remaining in buffer */
```

The library increments the pointer and decrements the count until the buffer is emptied. The manager's fill_input_buffer method must reset the pointer and count. In most applications, the manager must remember the buffer's starting address and total size in private fields not visible to the library.

A data source manager provides five methods:

init_source (j_decompress_ptr cinfo)
 Initialize source. This is called by jpeg_read_header() before any data is actually read. Unlike init_destination(), it may leave bytes_in_buffer set to 0 (in which case a fill_input_buffer() call will occur immediately).

fill_input_buffer (j_decompress_ptr cinfo)
 This is called whenever bytes_in_buffer has reached zero and more data is wanted. In typical applications, it should read fresh data into the buffer (ignoring the current state of next_input_byte and bytes_in_buffer), reset the pointer & count to the start of the buffer, and return TRUE indicating that the buffer has been reloaded. It is not necessary to fill the buffer entirely, only to obtain at least one more byte. bytes_in_buffer MUST be set to a positive value if TRUE is returned. A FALSE return should only be used when I/O suspension is desired (this mode is discussed in the next section).

skip_input_data (j_decompress_ptr cinfo, long num_bytes)
 Skip num_bytes worth of data. The buffer pointer and count should be advanced over num_bytes input bytes, refilling the buffer as needed. This is used to skip over a potentially large amount of uninteresting data (such as an APPn marker). In some applications it may be possible to optimize away the reading of the skipped data, but it's not clear that being smart is worth much trouble; large skips are uncommon. bytes_in_buffer may be zero on return. A zero or negative skip count should be treated as a no-op.

resync_to_restart (j_decompress_ptr cinfo, int desired)
 This routine is called only when the decompressor has failed to find a restart (RSTn) marker where one is expected. Its mission is to find a suitable point for resuming decompression. For most applications, we recommend that you just use the default resync procedure, jpeg_resync_to_restart(). However, if you are able to back up in the input data stream, or if you have a-priori knowledge about the likely location of restart markers, you may be able to do better. Read the read_restart_marker() and jpeg_resync_to_restart() routines in jdmarker.c if you think you'd like to implement your own resync procedure.

term_source (j_decompress_ptr cinfo)
 Terminate source --- called by jpeg_finish_decompress() after all data has been read. Often a no-op.

For both fill_input_buffer() and skip_input_data(), there is no such thing as an EOF return. If the end of the file has been reached, the routine has a choice of exiting via ERREXIT() or inserting fake data into the buffer. In most cases, generating a warning message and inserting a fake EOI marker is the best course of action --- this will allow the decompressor to output however much of the image is there. In pathological cases, the decompressor may swallow the EOI and again demand data ... just keep feeding it fake EOIs. jdatasrc.c illustrates the recommended error recovery behavior.

term_source() is NOT called by jpeg_abort() or jpeg_destroy(). If you want the source manager to be cleaned up during an abort, you must do it yourself.

You will also need code to create a jpeg_source_mgr struct, fill in its method pointers, and insert a pointer to the struct into the "src" field of the JPEG decompression object. This can be done in-line in your setup code if you like, but it's probably cleaner to provide a separate routine similar to the jpeg_stdio_src() or jpeg_mem_src() routines of the supplied source managers.

For more information, consult the memory and stdio source and destination managers in jdatasrc.c and jdatadst.c.

I/O suspension

Some applications need to use the JPEG library as an incremental memory-to-memory filter: when the compressed data buffer is filled or emptied, they want control to return to the outer loop, rather than expecting that the buffer can be emptied or reloaded within the data source/destination manager subroutine. The library supports this need by providing an "I/O suspension" mode, which we describe in this section.

The I/O suspension mode is not a panacea: nothing is guaranteed about the maximum amount of time spent in any one call to the library, so it will not eliminate response-time problems in single-threaded applications. If you need guaranteed response time, we suggest you "bite the bullet" and implement a real multi-tasking capability.

To use I/O suspension, cooperation is needed between the calling application and the data source or destination manager; you will always need a custom source/destination manager. (Please read the previous section if you haven't already.) The basic idea is that the empty_output_buffer() or fill_input_buffer() routine is a no-op, merely returning FALSE to indicate that it has done nothing. Upon seeing this, the JPEG library suspends operation and returns to its caller. The surrounding application is responsible for emptying or refilling the work buffer before calling the JPEG library again.

Compression suspension:

For compression suspension, use an empty_output_buffer() routine that returns FALSE; typically it will not do anything else. This will cause the compressor to return to the caller of jpeg_write_scanlines(), with the return value indicating that not all the supplied scanlines have been accepted. The application must make more room in the output buffer, adjust the output buffer pointer/count appropriately, and then call jpeg_write_scanlines() again, pointing to the first unconsumed scanline.

When forced to suspend, the compressor will backtrack to a convenient stopping point (usually the start of the current MCU); it will regenerate some output data when restarted. Therefore, although empty_output_buffer() is only called when the buffer is filled, you should NOT write out the entire buffer after a suspension. Write only the data up to the current position of next_output_byte/free_in_buffer. The data beyond that point will be regenerated after resumption.

Because of the backtracking behavior, a good-size output buffer is essential for efficiency; you don't want the compressor to suspend often. (In fact, an overly small buffer could lead to infinite looping, if a single MCU required more data than would fit in the buffer.) We recommend a buffer of at least several Kbytes. You may want to insert explicit code to ensure that you don't call jpeg_write_scanlines() unless there is a reasonable amount of space in the output buffer; in other words, flush the buffer before trying to compress more data.

The compressor does not allow suspension while it is trying to write JPEG markers at the beginning and end of the file. This means that:

* At the beginning of a compression operation, there must be enough free space in the output buffer to hold the header markers (typically 600 or so bytes). The recommended buffer size is bigger than this anyway, so this is not a problem as long as you start with an empty buffer. However, this restriction might catch you if you insert large special markers, such as a JFIF thumbnail image, without flushing the buffer afterwards.
* When you call jpeg_finish_compress(), there must be enough space in the output buffer to emit any buffered data and the final EOI marker. In the current implementation, half a dozen bytes should suffice for this, but for safety's sake we recommend ensuring that at least 100 bytes are free before calling jpeg_finish_compress().

A more significant restriction is that jpeg_finish_compress() cannot suspend. This means you cannot use suspension with multi-pass operating modes, namely Huffman code optimization and multiple-scan output. Those modes write the whole file during jpeg_finish_compress(), which will certainly result in buffer overrun. (Note that this restriction applies only to compression, not decompression. The decompressor supports input suspension in all of its operating modes.)

Decompression suspension:

For decompression suspension, use a fill_input_buffer() routine that simply returns FALSE (except perhaps during error recovery, as discussed below). This will cause the decompressor to return to its caller with an indication that suspension has occurred. This can happen at four places:

* jpeg_read_header(): will return JPEG_SUSPENDED.
* jpeg_start_decompress(): will return FALSE, rather than its usual TRUE.
* jpeg_read_scanlines(): will return the number of scanlines already completed (possibly 0).
* jpeg_finish_decompress(): will return FALSE, rather than its usual TRUE.

The surrounding application must recognize these cases, load more data into the input buffer, and repeat the call. In the case of jpeg_read_scanlines(), increment the passed pointers past any scanlines successfully read.

Just as with compression, the decompressor will typically backtrack to a convenient restart point before suspending. When fill_input_buffer() is called, next_input_byte/bytes_in_buffer point to the current restart point, which is where the decompressor will backtrack to if FALSE is returned. The data beyond that position must NOT be discarded if you suspend; it needs to be re-read upon resumption. In most implementations, you'll need to shift this data down to the start of your work buffer and then load more data after it. Again, this behavior means that a several-Kbyte work buffer is essential for decent performance; furthermore, you should load a reasonable amount of new data before resuming decompression. (If you loaded, say, only one new byte each time around, you could waste a LOT of cycles.)

The skip_input_data() source manager routine requires special care in a suspension scenario. This routine is NOT granted the ability to suspend the decompressor; it can decrement bytes_in_buffer to zero, but no more. If the requested skip distance exceeds the amount of data currently in the input buffer, then skip_input_data() must set bytes_in_buffer to zero and record the additional skip distance somewhere else. The decompressor will immediately call fill_input_buffer(), which should return FALSE, which will cause a suspension return. The surrounding application must then arrange to discard the recorded number of bytes before it resumes loading the input buffer. (Yes, this design is rather baroque, but it avoids complexity in the far more common case where a non-suspending source manager is used.)

If the input data has been exhausted, we recommend that you emit a warning and insert dummy EOI markers just as a non-suspending data source manager would do. This can be handled either in the surrounding application logic or within fill_input_buffer(); the latter is probably more efficient. If fill_input_buffer() knows that no more data is available, it can set the pointer/count to point to a dummy EOI marker and then return TRUE just as though it had read more data in a non-suspending situation.

The decompressor does not attempt to suspend within standard JPEG markers; instead it will backtrack to the start of the marker and reprocess the whole marker next time. Hence the input buffer must be large enough to hold the longest standard marker in the file. Standard JPEG markers should normally not exceed a few hundred bytes each (DHT tables are typically the longest). We recommend at least a 2K buffer for performance reasons, which is much larger than any correct marker is likely to be. For robustness against damaged marker length counts, you may wish to insert a test in your application for the case that the input buffer is completely full and yet the decoder has suspended without consuming any data --- otherwise, if this situation did occur, it would lead to an endless loop. (The library can't provide this test since it has no idea whether "the buffer is full", or even whether there is a fixed-size input buffer.)

The input buffer would need to be 64K to allow for arbitrary COM or APPn markers, but these are handled specially: they are either saved into allocated memory, or skipped over by calling skip_input_data(). In the former case, suspension is handled correctly, and in the latter case, the problem of buffer overrun is placed on skip_input_data's shoulders, as explained above. Note that if you provide your own marker handling routine for large markers, you should consider how to deal with buffer overflow.

Multiple-buffer management:

In some applications it is desirable to store the compressed data in a linked list of buffer areas, so as to avoid data copying. This can be handled by having empty_output_buffer() or fill_input_buffer() set the pointer and count to reference the next available buffer; FALSE is returned only if no more buffers are available. Although seemingly straightforward, there is a pitfall in this approach: the backtrack that occurs when FALSE is returned could back up into an earlier buffer. For example, when fill_input_buffer() is called, the current pointer & count indicate the backtrack restart point. Since fill_input_buffer() will set the pointer and count to refer to a new buffer, the restart position must be saved somewhere else. Suppose a second call to fill_input_buffer() occurs in the same library call, and no additional input data is available, so fill_input_buffer must return FALSE. If the JPEG library has not moved the pointer/count forward in the current buffer, then *the correct restart point is the saved position in the prior buffer*. Prior buffers may be discarded only after the library establishes a restart point within a later buffer. Similar remarks apply for output into a chain of buffers.

The library will never attempt to backtrack over a skip_input_data() call, so any skipped data can be permanently discarded. You still have to deal with the case of skipping not-yet-received data, however.

It's much simpler to use only a single buffer; when fill_input_buffer() is called, move any unconsumed data (beyond the current pointer/count) down to the beginning of this buffer and then load new data into the remaining buffer space. This approach requires a little more data copying but is far easier to get right.

Progressive JPEG support

Progressive JPEG rearranges the stored data into a series of scans of increasing quality. In situations where a JPEG file is transmitted across a slow communications link, a decoder can generate a low-quality image very quickly from the first scan, then gradually improve the displayed quality as more scans are received. The final image after all scans are complete is identical to that of a regular (sequential) JPEG file of the same quality setting. Progressive JPEG files are often slightly smaller than equivalent sequential JPEG files, but the possibility of incremental display is the main reason for using progressive JPEG.

The IJG encoder library generates progressive JPEG files when given a suitable "scan script" defining how to divide the data into scans. Creation of progressive JPEG files is otherwise transparent to the encoder. Progressive JPEG files can also be read transparently by the decoder library. If the decoding application simply uses the library as defined above, it will receive a final decoded image without any indication that the file was progressive. Of course, this approach does not allow incremental display. To perform incremental display, an application needs to use the decoder library's "buffered-image" mode, in which it receives a decoded image multiple times.

Each displayed scan requires about as much work to decode as a full JPEG image of the same size, so the decoder must be fairly fast in relation to the data transmission rate in order to make incremental display useful. However, it is possible to skip displaying the image and simply add the incoming bits to the decoder's coefficient buffer. This is fast because only Huffman decoding need be done, not IDCT, upsampling, colorspace conversion, etc. The IJG decoder library allows the application to switch dynamically between displaying the image and simply absorbing the incoming bits. A properly coded application can automatically adapt the number of display passes to suit the time available as the image is received. Also, a final higher-quality display cycle can be performed from the buffered data after the end of the file is reached.

Progressive compression:

To create a progressive JPEG file (or a multiple-scan sequential JPEG file), set the scan_info cinfo field to point to an array of scan descriptors, and perform compression as usual. Instead of constructing your own scan list, you can call the jpeg_simple_progression() helper routine to create a recommended progression sequence; this method should be used by all applications that don't want to get involved in the nitty-gritty of progressive scan sequence design. (If you want to provide user control of scan sequences, you may wish to borrow the scan script reading code found in rdswitch.c, so that you can read scan script files just like cjpeg's.) When scan_info is not NULL, the compression library will store DCT'd data into a buffer array as jpeg_write_scanlines() is called, and will emit all the requested scans during jpeg_finish_compress(). This implies that multiple-scan output cannot be created with a suspending data destination manager, since jpeg_finish_compress() does not support suspension. We should also note that the compressor currently forces Huffman optimization mode when creating a progressive JPEG file, because the default Huffman tables are unsuitable for progressive files.

Progressive decompression:

When buffered-image mode is not used, the decoder library will read all of a multi-scan file during jpeg_start_decompress(), so that it can provide a final decoded image. (Here "multi-scan" means either progressive or multi-scan sequential.) This makes multi-scan files transparent to the decoding application. However, existing applications that used suspending input with version 5 of the IJG library will need to be modified to check for a suspension return from jpeg_start_decompress().

To perform incremental display, an application must use the library's buffered-image mode. This is described in the next section.

Buffered-image mode

In buffered-image mode, the library stores the partially decoded image in a coefficient buffer, from which it can be read out as many times as desired. This mode is typically used for incremental display of progressive JPEG files, but it can be used with any JPEG file. Each scan of a progressive JPEG file adds more data (more detail) to the buffered image. The application can display in lockstep with the source file (one display pass per input scan), or it can allow input processing to outrun display processing. By making input and display processing run independently, it is possible for the application to adapt progressive display to a wide range of data transmission rates.

The basic control flow for buffered-image decoding is

```
 jpeg_create_decompress()
 set data source
 jpeg_read_header()
```

```
 set overall decompression parameters
 cinfo.buffered_image = TRUE; /* select buffered-image mode */
 jpeg_start_decompress()
 for (each output pass) {
     adjust output decompression parameters if required
     jpeg_start_output()  /* start a new output pass */
     for (all scanlines in image) {
         jpeg_read_scanlines()
         display scanlines
     }
     jpeg_finish_output() /* terminate output pass */
 }
 jpeg_finish_decompress()
 jpeg_destroy_decompress()
```

This differs from ordinary unbuffered decoding in that there is an additional level of looping. The application can choose how many output passes to make and how to display each pass.

The simplest approach to displaying progressive images is to do one display pass for each scan appearing in the input file. In this case the outer loop condition is typically

```
 while (! jpeg_input_complete(&cinfo))
```

and the start-output call should read

```
 jpeg_start_output(&cinfo, cinfo.input_scan_number);
```

The second parameter to jpeg_start_output() indicates which scan of the input file is to be displayed; the scans are numbered starting at 1 for this purpose. (You can use a loop counter starting at 1 if you like, but using the library's input scan counter is easier.) The library automatically reads data as necessary to complete each requested scan, and jpeg_finish_output() advances to the next scan or end-of-image marker (hence input_scan_number will be incremented by the time control arrives back at jpeg_start_output()). With this technique, data is read from the input file only as needed, and input and output processing run in lockstep.

After reading the final scan and reaching the end of the input file, the buffered image remains available; it can be read additional times by repeating the jpeg_start_output()/jpeg_read_scanlines()/jpeg_finish_output() sequence. For example, a useful technique is to use fast one-pass color quantization for display passes made while the image is arriving, followed by a final display pass using two-pass quantization for highest quality. This is done by changing the library parameters before the final output pass. Changing parameters between passes is discussed in detail below.

In general the last scan of a progressive file cannot be recognized as such until after it is read, so a post-input display pass is the best approach if you want special processing in the final pass.

When done with the image, be sure to call jpeg_finish_decompress() to release
the buffered image (or just use jpeg_destroy_decompress()).

If input data arrives faster than it can be displayed, the application can
cause the library to decode input data in advance of what's needed to produce
output. This is done by calling the routine jpeg_consume_input().
The return value is one of the following:

```
 JPEG_REACHED_SOS:    reached an SOS marker (the start of a new scan)
 JPEG_REACHED_EOI:    reached the EOI marker (end of image)
 JPEG_ROW_COMPLETED:  completed reading one MCU row of compressed data
 JPEG_SCAN_COMPLETED: completed reading last MCU row of current scan
 JPEG_SUSPENDED:      suspended before completing any of the above
```

(JPEG_SUSPENDED can occur only if a suspending data source is used.) This
routine can be called at any time after initializing the JPEG object. It
reads some additional data and returns when one of the indicated significant
events occurs. (If called after the EOI marker is reached, it will
immediately return JPEG_REACHED_EOI without attempting to read more data.)

The library's output processing will automatically call jpeg_consume_input()
whenever the output processing overtakes the input; thus, simple lockstep
display requires no direct calls to jpeg_consume_input(). But by adding
calls to jpeg_consume_input(), you can absorb data in advance of what is
being displayed. This has two benefits:

* You can limit buildup of unprocessed data in your input buffer.
* You can eliminate extra display passes by paying attention to the
  state of the library's input processing.

The first of these benefits only requires interspersing calls to
jpeg_consume_input() with your display operations and any other processing
you may be doing. To avoid wasting cycles due to backtracking, it's best to
call jpeg_consume_input() only after a hundred or so new bytes have arrived.
This is discussed further under "I/O suspension", above. (Note: the JPEG
library currently is not thread-safe. You must not call jpeg_consume_input()
from one thread of control if a different library routine is working on the
same JPEG object in another thread.)

When input arrives fast enough that more than one new scan is available
before you start a new output pass, you may as well skip the output pass
corresponding to the completed scan. This occurs for free if you pass
cinfo.input_scan_number as the target scan number to jpeg_start_output().
The input_scan_number field is simply the index of the scan currently being
consumed by the input processor. You can ensure that this is up-to-date by
emptying the input buffer just before calling jpeg_start_output(): call
jpeg_consume_input() repeatedly until it returns JPEG_SUSPENDED or
JPEG_REACHED_EOI.

The target scan number passed to jpeg_start_output() is saved in the
cinfo.output_scan_number field. The library's output processing calls

jpeg_consume_input() whenever the current input scan number and row within that scan is less than or equal to the current output scan number and row. Thus, input processing can "get ahead" of the output processing but is not allowed to "fall behind". You can achieve several different effects by manipulating this interlock rule. For example, if you pass a target scan number greater than the current input scan number, the output processor will wait until that scan starts to arrive before producing any output. (To avoid an infinite loop, the target scan number is automatically reset to the last scan number when the end of image is reached. Thus, if you specify a large target scan number, the library will just absorb the entire input file and then perform an output pass. This is effectively the same as what jpeg_start_decompress() does when you don't select buffered-image mode.) When you pass a target scan number equal to the current input scan number, the image is displayed no faster than the current input scan arrives. The final possibility is to pass a target scan number less than the current input scan number; this disables the input/output interlock and causes the output processor to simply display whatever it finds in the image buffer, without waiting for input. (However, the library will not accept a target scan number less than one, so you can't avoid waiting for the first scan.)

When data is arriving faster than the output display processing can advance through the image, jpeg_consume_input() will store data into the buffered image beyond the point at which the output processing is reading data out again. If the input arrives fast enough, it may "wrap around" the buffer to the point where the input is more than one whole scan ahead of the output. If the output processing simply proceeds through its display pass without paying attention to the input, the effect seen on-screen is that the lower part of the image is one or more scans better in quality than the upper part. Then, when the next output scan is started, you have a choice of what target scan number to use. The recommended choice is to use the current input scan number at that time, which implies that you've skipped the output scans corresponding to the input scans that were completed while you processed the previous output scan. In this way, the decoder automatically adapts its speed to the arriving data, by skipping output scans as necessary to keep up with the arriving data.

When using this strategy, you'll want to be sure that you perform a final output pass after receiving all the data; otherwise your last display may not be full quality across the whole screen. So the right outer loop logic is something like this:

```
 do {
     absorb any waiting input by calling jpeg_consume_input()
     final_pass = jpeg_input_complete(&cinfo);
     adjust output decompression parameters if required
     jpeg_start_output(&cinfo, cinfo.input_scan_number);
     ...
     jpeg_finish_output()
 } while (! final_pass);
```

rather than quitting as soon as jpeg_input_complete() returns TRUE. This arrangement makes it simple to use higher-quality decoding parameters for the final pass. But if you don't want to use special parameters for the final pass, the right loop logic is like this:

```
 for (;;) {
     absorb any waiting input by calling jpeg_consume_input()
     jpeg_start_output(&cinfo, cinfo.input_scan_number);
     ...
     jpeg_finish_output()
     if (jpeg_input_complete(&cinfo) &&
         cinfo.input_scan_number == cinfo.output_scan_number)
       break;
 }
```

In this case you don't need to know in advance whether an output pass is to be the last one, so it's not necessary to have reached EOF before starting the final output pass; rather, what you want to test is whether the output pass was performed in sync with the final input scan. This form of the loop will avoid an extra output pass whenever the decoder is able (or nearly able) to keep up with the incoming data.

When the data transmission speed is high, you might begin a display pass, then find that much or all of the file has arrived before you can complete the pass. (You can detect this by noting the JPEG_REACHED_EOI return code from jpeg_consume_input(), or equivalently by testing jpeg_input_complete().) In this situation you may wish to abort the current display pass and start a new one using the newly arrived information. To do so, just call jpeg_finish_output() and then start a new pass with jpeg_start_output().

A variant strategy is to abort and restart display if more than one complete scan arrives during an output pass; this can be detected by noting JPEG_REACHED_SOS returns and/or examining cinfo.input_scan_number. This idea should be employed with caution, however, since the display process might never get to the bottom of the image before being aborted, resulting in the lower part of the screen being several passes worse than the upper. In most cases it's probably best to abort an output pass only if the whole file has arrived and you want to begin the final output pass immediately.

When receiving data across a communication link, we recommend always using the current input scan number for the output target scan number; if a higher-quality final pass is to be done, it should be started (aborting any incomplete output pass) as soon as the end of file is received. However, many other strategies are possible. For example, the application can examine the parameters of the current input scan and decide whether to display it or not. If the scan contains only chroma data, one might choose not to use it as the target scan, expecting that the scan will be small and will arrive quickly. To skip to the next scan, call jpeg_consume_input() until it returns JPEG_REACHED_SOS or JPEG_REACHED_EOI. Or just use the next higher number as the target scan for jpeg_start_output(); but that method doesn't let you inspect the next scan's parameters before deciding to display it.

In buffered-image mode, jpeg_start_decompress() never performs input and thus never suspends. An application that uses input suspension with buffered-image mode must be prepared for suspension returns from these routines:

* jpeg_start_output() performs input only if you request 2-pass quantization and the target scan isn't fully read yet. (This is discussed below.)
* jpeg_read_scanlines(), as always, returns the number of scanlines that it was able to produce before suspending.
* jpeg_finish_output() will read any markers following the target scan, up to the end of the file or the SOS marker that begins another scan. (But it reads no input if jpeg_consume_input() has already reached the end of the file or a SOS marker beyond the target output scan.)
* jpeg_finish_decompress() will read until the end of file, and thus can suspend if the end hasn't already been reached (as can be tested by calling jpeg_input_complete()).

jpeg_start_output(), jpeg_finish_output(), and jpeg_finish_decompress() all return TRUE if they completed their tasks, FALSE if they had to suspend. In the event of a FALSE return, the application must load more input data and repeat the call. Applications that use non-suspending data sources need not check the return values of these three routines.

It is possible to change decoding parameters between output passes in the buffered-image mode. The decoder library currently supports only very limited changes of parameters. ONLY THE FOLLOWING parameter changes are allowed after jpeg_start_decompress() is called:

* dct_method can be changed before each call to jpeg_start_output(). For example, one could use a fast DCT method for early scans, changing to a higher quality method for the final scan.
* dither_mode can be changed before each call to jpeg_start_output(); of course this has no impact if not using color quantization. Typically one would use ordered dither for initial passes, then switch to Floyd-Steinberg dither for the final pass. Caution: changing dither mode can cause more memory to be allocated by the library. Although the amount of memory involved is not large (a scanline or so), it may cause the initial max_memory_to_use specification to be exceeded, which in the worst case would result in an out-of-memory failure.
* do_block_smoothing can be changed before each call to jpeg_start_output(). This setting is relevant only when decoding a progressive JPEG image. During the first DC-only scan, block smoothing provides a very "fuzzy" look instead of the very "blocky" look seen without it; which is better seems a matter of personal taste. But block smoothing is nearly always a win during later stages, especially when decoding a successive-approximation image: smoothing helps to hide the slight blockiness that otherwise shows up on smooth gradients until the lowest coefficient bits are sent.

* Color quantization mode can be changed under the rules described below.
 You *cannot* change between full-color and quantized output (because that
 would alter the required I/O buffer sizes), but you can change which
 quantization method is used.

When generating color-quantized output, changing quantization method is a
very useful way of switching between high-speed and high-quality display.
The library allows you to change among its three quantization methods:
1. Single-pass quantization to a fixed color cube.
  Selected by cinfo.two_pass_quantize = FALSE and cinfo.colormap = NULL.
2. Single-pass quantization to an application-supplied colormap.
  Selected by setting cinfo.colormap to point to the colormap (the value of
  two_pass_quantize is ignored); also set cinfo.actual_number_of_colors.
3. Two-pass quantization to a colormap chosen specifically for the image.
  Selected by cinfo.two_pass_quantize = TRUE and cinfo.colormap = NULL.
  (This is the default setting selected by jpeg_read_header, but it is
  probably NOT what you want for the first pass of progressive display!)
These methods offer successively better quality and lesser speed. However,
only the first method is available for quantizing in non-RGB color spaces.

IMPORTANT: because the different quantizer methods have very different
working-storage requirements, the library requires you to indicate which
one(s) you intend to use before you call jpeg_start_decompress(). (If we did
not require this, the max_memory_to_use setting would be a complete fiction.)
You do this by setting one or more of these three cinfo fields to TRUE:
 enable_1pass_quant Fixed color cube colormap
 enable_external_quant Externally-supplied colormap
 enable_2pass_quant Two-pass custom colormap
All three are initialized FALSE by jpeg_read_header(). But
jpeg_start_decompress() automatically sets TRUE the one selected by the
current two_pass_quantize and colormap settings, so you only need to set the
enable flags for any other quantization methods you plan to change to later.

After setting the enable flags correctly at jpeg_start_decompress() time, you
can change to any enabled quantization method by setting two_pass_quantize
and colormap properly just before calling jpeg_start_output(). The following
special rules apply:
1. You must explicitly set cinfo.colormap to NULL when switching to 1-pass
  or 2-pass mode from a different mode, or when you want the 2-pass
  quantizer to be re-run to generate a new colormap.
2. To switch to an external colormap, or to change to a different external
  colormap than was used on the prior pass, you must call
  jpeg_new_colormap() after setting cinfo.colormap.
NOTE: if you want to use the same colormap as was used in the prior pass,
you should not do either of these things. This will save some nontrivial
switchover costs.
(These requirements exist because cinfo.colormap will always be non-NULL
after completing a prior output pass, since both the 1-pass and 2-pass

quantizers set it to point to their output colormaps. Thus you have to do one of these two things to notify the library that something has changed. Yup, it's a bit klugy, but it's necessary to do it this way for backwards compatibility.)

Note that in buffered-image mode, the library generates any requested colormap during jpeg_start_output(), not during jpeg_start_decompress().

When using two-pass quantization, jpeg_start_output() makes a pass over the buffered image to determine the optimum color map; it therefore may take a significant amount of time, whereas ordinarily it does little work. The progress monitor hook is called during this pass, if defined. It is also important to realize that if the specified target scan number is greater than or equal to the current input scan number, jpeg_start_output() will attempt to consume input as it makes this pass. If you use a suspending data source, you need to check for a FALSE return from jpeg_start_output() under these conditions. The combination of 2-pass quantization and a not-yet-fully-read target scan is the only case in which jpeg_start_output() will consume input.

Application authors who support buffered-image mode may be tempted to use it for all JPEG images, even single-scan ones. This will work, but it is inefficient: there is no need to create an image-sized coefficient buffer for single-scan images. Requesting buffered-image mode for such an image wastes memory. Worse, it can cost time on large images, since the buffered data has to be swapped out or written to a temporary file. If you are concerned about maximum performance on baseline JPEG files, you should use buffered-image mode only when the incoming file actually has multiple scans. This can be tested by calling jpeg_has_multiple_scans(), which will return a correct result at any time after jpeg_read_header() completes.

It is also worth noting that when you use jpeg_consume_input() to let input processing get ahead of output processing, the resulting pattern of access to the coefficient buffer is quite nonsequential. It's best to use the memory manager jmemnobs.c if you can (ie, if you have enough real or virtual main memory). If not, at least make sure that max_memory_to_use is set as high as possible. If the JPEG memory manager has to use a temporary file, you will probably see a lot of disk traffic and poor performance. (This could be improved with additional work on the memory manager, but we haven't gotten around to it yet.)

In some applications it may be convenient to use jpeg_consume_input() for all input processing, including reading the initial markers; that is, you may wish to call jpeg_consume_input() instead of jpeg_read_header() during startup. This works, but note that you must check for JPEG_REACHED_SOS and JPEG_REACHED_EOI return codes as the equivalent of jpeg_read_header's codes. Once the first SOS marker has been reached, you must call jpeg_start_decompress() before jpeg_consume_input() will consume more input;

it'll just keep returning JPEG_REACHED_SOS until you do. If you read a tables-only file this way, jpeg_consume_input() will return JPEG_REACHED_EOI without ever returning JPEG_REACHED_SOS; be sure to check for this case. If this happens, the decompressor will not read any more input until you call jpeg_abort() to reset it. It is OK to call jpeg_consume_input() even when not using buffered-image mode, but in that case it's basically a no-op after the initial markers have been read: it will just return JPEG_SUSPENDED.

Abbreviated datastreams and multiple images

A JPEG compression or decompression object can be reused to process multiple images. This saves a small amount of time per image by eliminating the "create" and "destroy" operations, but that isn't the real purpose of the feature. Rather, reuse of an object provides support for abbreviated JPEG datastreams. Object reuse can also simplify processing a series of images in a single input or output file. This section explains these features.

A JPEG file normally contains several hundred bytes worth of quantization and Huffman tables. In a situation where many images will be stored or transmitted with identical tables, this may represent an annoying overhead. The JPEG standard therefore permits tables to be omitted. The standard defines three classes of JPEG datastreams:

* "Interchange" datastreams contain an image and all tables needed to decode the image. These are the usual kind of JPEG file.
* "Abbreviated image" datastreams contain an image, but are missing some or all of the tables needed to decode that image.
* "Abbreviated table specification" (henceforth "tables-only") datastreams contain only table specifications.

To decode an abbreviated image, it is necessary to load the missing table(s) into the decoder beforehand. This can be accomplished by reading a separate tables-only file. A variant scheme uses a series of images in which the first image is an interchange (complete) datastream, while subsequent ones are abbreviated and rely on the tables loaded by the first image. It is assumed that once the decoder has read a table, it will remember that table until a new definition for the same table number is encountered.

It is the application designer's responsibility to figure out how to associate the correct tables with an abbreviated image. While abbreviated datastreams can be useful in a closed environment, their use is strongly discouraged in any situation where data exchange with other applications might be needed. Caveat designer.

The JPEG library provides support for reading and writing any combination of tables-only datastreams and abbreviated images. In both compression and decompression objects, a quantization or Huffman table will be retained for the lifetime of the object, unless it is overwritten by a new table definition.

To create abbreviated image datastreams, it is only necessary to tell the compressor not to emit some or all of the tables it is using. Each quantization and Huffman table struct contains a boolean field "sent_table", which normally is initialized to FALSE. For each table used by the image, the header-writing process emits the table and sets sent_table = TRUE unless it is already TRUE. (In normal usage, this prevents outputting the same table definition multiple times, as would otherwise occur because the chroma components typically share tables.) Thus, setting this field to TRUE before calling jpeg_start_compress() will prevent the table from being written at all.

If you want to create a "pure" abbreviated image file containing no tables, just call "jpeg_suppress_tables(&cinfo, TRUE)" after constructing all the tables. If you want to emit some but not all tables, you'll need to set the individual sent_table fields directly.

To create an abbreviated image, you must also call jpeg_start_compress() with a second parameter of FALSE, not TRUE. Otherwise jpeg_start_compress() will force all the sent_table fields to FALSE. (This is a safety feature to prevent abbreviated images from being created accidentally.)

To create a tables-only file, perform the same parameter setup that you normally would, but instead of calling jpeg_start_compress() and so on, call jpeg_write_tables(&cinfo). This will write an abbreviated datastream containing only SOI, DQT and/or DHT markers, and EOI. All the quantization and Huffman tables that are currently defined in the compression object will be emitted unless their sent_tables flag is already TRUE, and then all the sent_tables flags will be set TRUE.

A sure-fire way to create matching tables-only and abbreviated image files is to proceed as follows:

```
create JPEG compression object
set JPEG parameters
set destination to tables-only file
jpeg_write_tables(&cinfo);
set destination to image file
jpeg_start_compress(&cinfo, FALSE);
write data...
jpeg_finish_compress(&cinfo);
```

Since the JPEG parameters are not altered between writing the table file and the abbreviated image file, the same tables are sure to be used. Of course, you can repeat the jpeg_start_compress() ... jpeg_finish_compress() sequence many times to produce many abbreviated image files matching the table file.

You cannot suppress output of the computed Huffman tables when Huffman optimization is selected. (If you could, there'd be no way to decode the image...) Generally, you don't want to set optimize_coding = TRUE when you are trying to produce abbreviated files.

In some cases you might want to compress an image using tables which are not stored in the application, but are defined in an interchange or tables-only file readable by the application. This can be done by setting up a JPEG decompression object to read the specification file, then copying the tables into your compression object. See jpeg_copy_critical_parameters() for an example of copying quantization tables.

To read abbreviated image files, you simply need to load the proper tables into the decompression object before trying to read the abbreviated image. If the proper tables are stored in the application program, you can just allocate the table structs and fill in their contents directly. For example, to load a fixed quantization table into table slot "n":

```
if (cinfo.quant_tbl_ptrs[n] == NULL)
  cinfo.quant_tbl_ptrs[n] = jpeg_alloc_quant_table((j_common_ptr) &cinfo);
quant_ptr = cinfo.quant_tbl_ptrs[n]; /* quant_ptr is JQUANT_TBL* */
for (i = 0; i < 64; i++) {
  /* Qtable[] is desired quantization table, in natural array order */
  quant_ptr->quantval[i] = Qtable[i];
}
```

Code to load a fixed Huffman table is typically (for AC table "n"):

```
if (cinfo.ac_huff_tbl_ptrs[n] == NULL)
  cinfo.ac_huff_tbl_ptrs[n] = jpeg_alloc_huff_table((j_common_ptr) &cinfo);
huff_ptr = cinfo.ac_huff_tbl_ptrs[n]; /* huff_ptr is JHUFF_TBL* */
for (i = 1; i <= 16; i++) {
  /* counts[i] is number of Huffman codes of length i bits, i=1..16 */
  huff_ptr->bits[i] = counts[i];
}
for (i = 0; i < 256; i++) {
  /* symbols[] is the list of Huffman symbols, in code-length order */
  huff_ptr->huffval[i] = symbols[i];
}
```

(Note that trying to set cinfo.quant_tbl_ptrs[n] to point directly at a constant JQUANT_TBL object is not safe. If the incoming file happened to contain a quantization table definition, your master table would get overwritten! Instead allocate a working table copy and copy the master table into it, as illustrated above. Ditto for Huffman tables, of course.)

You might want to read the tables from a tables-only file, rather than hard-wiring them into your application. The jpeg_read_header() call is sufficient to read a tables-only file. You must pass a second parameter of FALSE to indicate that you do not require an image to be present. Thus, the typical scenario is

```
create JPEG decompression object
set source to tables-only file
jpeg_read_header(&cinfo, FALSE);
set source to abbreviated image file
jpeg_read_header(&cinfo, TRUE);
set decompression parameters
jpeg_start_decompress(&cinfo);
read data...
jpeg_finish_decompress(&cinfo);
```

In some cases, you may want to read a file without knowing whether it contains an image or just tables. In that case, pass FALSE and check the return value from jpeg_read_header(): it will be JPEG_HEADER_OK if an image was found, JPEG_HEADER_TABLES_ONLY if only tables were found. (A third return value, JPEG_SUSPENDED, is possible when using a suspending data source manager.) Note that jpeg_read_header() will not complain if you read an abbreviated image for which you haven't loaded the missing tables; the missing-table check occurs later, in jpeg_start_decompress().

It is possible to read a series of images from a single source file by repeating the jpeg_read_header() ... jpeg_finish_decompress() sequence, without releasing/recreating the JPEG object or the data source module. (If you did reinitialize, any partial bufferload left in the data source buffer at the end of one image would be discarded, causing you to lose the start of the next image.) When you use this method, stored tables are automatically carried forward, so some of the images can be abbreviated images that depend on tables from earlier images.

If you intend to write a series of images into a single destination file, you might want to make a specialized data destination module that doesn't flush the output buffer at term_destination() time. This would speed things up by some trifling amount. Of course, you'd need to remember to flush the buffer after the last image. You can make the later images be abbreviated ones by passing FALSE to jpeg_start_compress().

Special markers

Some applications may need to insert or extract special data in the JPEG datastream. The JPEG standard provides marker types "COM" (comment) and "APP0" through "APP15" (application) to hold application-specific data.

Unfortunately, the use of these markers is not specified by the standard. COM markers are fairly widely used to hold user-supplied text. The JFIF file format spec uses APP0 markers with specified initial strings to hold certain data. Adobe applications use APP14 markers beginning with the string "Adobe" for miscellaneous data. Other APPn markers are rarely seen, but might contain almost anything.

If you wish to store user-supplied text, we recommend you use COM markers and place readable 7-bit ASCII text in them. Newline conventions are not standardized --- expect to find LF (Unix style), CR/LF (DOS style), or CR (Mac style). A robust COM reader should be able to cope with random binary garbage, including nulls, since some applications generate COM markers containing non-ASCII junk. (But yours should not be one of them.)

For program-supplied data, use an APPn marker, and be sure to begin it with an identifying string so that you can tell whether the marker is actually yours. It's probably best to avoid using APP0 or APP14 for any private markers. (NOTE: the upcoming SPIFF standard will use APP8 markers; we recommend you not use APP8 markers for any private purposes, either.)

Keep in mind that at most 65533 bytes can be put into one marker, but you can have as many markers as you like.

By default, the IJG compression library will write a JFIF APP0 marker if the selected JPEG colorspace is grayscale or YCbCr, or an Adobe APP14 marker if the selected colorspace is RGB, CMYK, or YCCK. You can disable this, but we don't recommend it. The decompression library will recognize JFIF and Adobe markers and will set the JPEG colorspace properly when one is found.

You can write special markers immediately following the datastream header by calling jpeg_write_marker() after jpeg_start_compress() and before the first call to jpeg_write_scanlines(). When you do this, the markers appear after the SOI and the JFIF APP0 and Adobe APP14 markers (if written), but before all else. Specify the marker type parameter as "JPEG_COM" for COM or "JPEG_APP0 + n" for APPn. (Actually, jpeg_write_marker will let you write any marker type, but we don't recommend writing any other kinds of marker.) For example, to write a user comment string pointed to by comment_text:

```
jpeg_write_marker(cinfo, JPEG_COM, comment_text, strlen(comment_text));
```

If it's not convenient to store all the marker data in memory at once, you can instead call jpeg_write_m_header() followed by multiple calls to jpeg_write_m_byte(). If you do it this way, it's your responsibility to call jpeg_write_m_byte() exactly the number of times given in the length parameter to jpeg_write_m_header(). (This method lets you empty the output buffer partway through a marker, which might be important when using a suspending data destination module. In any case, if you are using a suspending destination, you should flush its buffer after inserting any special markers. See "I/O suspension".)

Or, if you prefer to synthesize the marker byte sequence yourself,
you can just cram it straight into the data destination module.

If you are writing JFIF 1.02 extension markers (thumbnail images), don't forget to set cinfo.JFIF_minor_version = 2 so that the encoder will write the correct JFIF version number in the JFIF header marker. The library's default is to write version 1.01, but that's wrong if you insert any 1.02 extension markers. (We could probably get away with just defaulting to 1.02, but there used to be broken decoders that would complain about unknown minor version numbers. To reduce compatibility risks it's safest not to write 1.02 unless you are actually using 1.02 extensions.)

When reading, two methods of handling special markers are available:
1. You can ask the library to save the contents of COM and/or APPn markers into memory, and then examine them at your leisure afterwards.
2. You can supply your own routine to process COM and/or APPn markers on-the-fly as they are read.
The first method is simpler to use, especially if you are using a suspending data source; writing a marker processor that copes with input suspension is not easy (consider what happens if the marker is longer than your available input buffer). However, the second method conserves memory since the marker data need not be kept around after it's been processed.

For either method, you'd normally set up marker handling after creating a decompression object and before calling jpeg_read_header(), because the markers of interest will typically be near the head of the file and so will be scanned by jpeg_read_header. Once you've established a marker handling method, it will be used for the life of that decompression object (potentially many datastreams), unless you change it. Marker handling is determined separately for COM markers and for each APPn marker code.

To save the contents of special markers in memory, call
 jpeg_save_markers(cinfo, marker_code, length_limit)
where marker_code is the marker type to save, JPEG_COM or JPEG_APP0+n. (To arrange to save all the special marker types, you need to call this routine 17 times, for COM and APP0-APP15.) If the incoming marker is longer than length_limit data bytes, only length_limit bytes will be saved; this parameter allows you to avoid chewing up memory when you only need to see the first few bytes of a potentially large marker. If you want to save all the data, set length_limit to 0xFFFF; that is enough since marker lengths are only 16 bits. As a special case, setting length_limit to 0 prevents that marker type from being saved at all. (That is the default behavior, in fact.)

After jpeg_read_header() completes, you can examine the special markers by following the cinfo->marker_list pointer chain. All the special markers in the file appear in this list, in order of their occurrence in the file (but omitting any markers of types you didn't ask for). Both the original data length and the saved data length are recorded for each list entry; the latter will not exceed length_limit for the particular marker type. Note that these lengths exclude the marker length word, whereas the stored representation within the JPEG file includes it. (Hence the maximum data length is really only 65533.)

It is possible that additional special markers appear in the file beyond the SOS marker at which jpeg_read_header stops; if so, the marker list will be extended during reading of the rest of the file. This is not expected to be common, however. If you are short on memory you may want to reset the length limit to zero for all marker types after finishing jpeg_read_header, to ensure that the max_memory_to_use setting cannot be exceeded due to addition of later markers.

The marker list remains stored until you call jpeg_finish_decompress or jpeg_abort, at which point the memory is freed and the list is set to empty. (jpeg_destroy also releases the storage, of course.)

Note that the library is internally interested in APP0 and APP14 markers; if you try to set a small nonzero length limit on these types, the library will silently force the length up to the minimum it wants. (But you can set a zero length limit to prevent them from being saved at all.) Also, in a 16-bit environment, the maximum length limit may be constrained to less than 65533 by malloc() limitations. It is therefore best not to assume that the effective length limit is exactly what you set it to be.

If you want to supply your own marker-reading routine, you do it by calling jpeg_set_marker_processor(). A marker processor routine must have the signature

```
 boolean jpeg_marker_parser_method (j_decompress_ptr cinfo)
```

Although the marker code is not explicitly passed, the routine can find it in cinfo->unread_marker. At the time of call, the marker proper has been read from the data source module. The processor routine is responsible for reading the marker length word and the remaining parameter bytes, if any. Return TRUE to indicate success. (FALSE should be returned only if you are using a suspending data source and it tells you to suspend. See the standard marker processors in jdmarker.c for appropriate coding methods if you need to use a suspending data source.)

If you override the default APP0 or APP14 processors, it is up to you to recognize JFIF and Adobe markers if you want colorspace recognition to occur properly. We recommend copying and extending the default processors if you want to do that. (A better idea is to save these marker types for later examination by calling jpeg_save_markers(); that method doesn't interfere with the library's own processing of these markers.)

jpeg_set_marker_processor() and jpeg_save_markers() are mutually exclusive --- if you call one it overrides any previous call to the other, for the particular marker type specified.

A simple example of an external COM processor can be found in djpeg.c. Also, see jpegtran.c for an example of using jpeg_save_markers.

Raw (downsampled) image data

Some applications need to supply already-downsampled image data to the JPEG compressor, or to receive raw downsampled data from the decompressor. The library supports this requirement by allowing the application to write or read raw data, bypassing the normal preprocessing or postprocessing steps. The interface is different from the standard one and is somewhat harder to use. If your interest is merely in bypassing color conversion, we recommend that you use the standard interface and simply set jpeg_color_space = in_color_space (or jpeg_color_space = out_color_space for decompression). The mechanism described in this section is necessary only to supply or receive downsampled image data, in which not all components have the same dimensions.

To compress raw data, you must supply the data in the colorspace to be used in the JPEG file (please read the earlier section on Special color spaces) and downsampled to the sampling factors specified in the JPEG parameters. You must supply the data in the format used internally by the JPEG library, namely a JSAMPIMAGE array. This is an array of pointers to two-dimensional arrays, each of type JSAMPARRAY. Each 2-D array holds the values for one color component. This structure is necessary since the components are of different sizes. If the image dimensions are not a multiple of the MCU size, you must also pad the data correctly (usually, this is done by replicating the last column and/or row). The data must be padded to a multiple of a DCT block in each component: that is, each downsampled row must contain a multiple of DCT_h_scaled_size valid samples, and there must be a multiple of DCT_v_scaled_size sample rows for each component. (For applications such as conversion of digital TV images, the standard image size is usually a multiple of the DCT block size, so that no padding need actually be done.)

The procedure for compression of raw data is basically the same as normal compression, except that you call jpeg_write_raw_data() in place of jpeg_write_scanlines(). Before calling jpeg_start_compress(), you must do the following:

* Set cinfo->raw_data_in to TRUE. (It is set FALSE by jpeg_set_defaults().) This notifies the library that you will be supplying raw data.

* Ensure jpeg_color_space is correct --- an explicit jpeg_set_colorspace() call is a good idea. Note that since color conversion is bypassed, in_color_space is ignored, except that jpeg_set_defaults() uses it to choose the default jpeg_color_space setting.
* Ensure the sampling factors, cinfo->comp_info[i].h_samp_factor and cinfo->comp_info[i].v_samp_factor, are correct. Since these indicate the dimensions of the data you are supplying, it's wise to set them explicitly, rather than assuming the library's defaults are what you want.

To pass raw data to the library, call jpeg_write_raw_data() in place of jpeg_write_scanlines(). The two routines work similarly except that jpeg_write_raw_data takes a JSAMPIMAGE data array rather than JSAMPARRAY. The scanlines count passed to and returned from jpeg_write_raw_data is measured in terms of the component with the largest v_samp_factor.

jpeg_write_raw_data() processes one MCU row per call, which is to say v_samp_factor*min_DCT_v_scaled_size sample rows of each component. The passed num_lines value must be at least max_v_samp_factor*min_DCT_v_scaled_size, and the return value will be exactly that amount (or possibly some multiple of that amount, in future library versions). This is true even on the last call at the bottom of the image; don't forget to pad your data as necessary.

The required dimensions of the supplied data can be computed for each component as
 cinfo->comp_info[i].width_in_blocks *
 cinfo->comp_info[i].DCT_h_scaled_size samples per row
 cinfo->comp_info[i].height_in_blocks *
 cinfo->comp_info[i].DCT_v_scaled_size rows in image
after jpeg_start_compress() has initialized those fields. If the valid data is smaller than this, it must be padded appropriately. For some sampling factors and image sizes, additional dummy DCT blocks are inserted to make the image a multiple of the MCU dimensions. The library creates such dummy blocks itself; it does not read them from your supplied data. Therefore you need never pad by more than DCT_scaled_size samples.
An example may help here. Assume 2h2v downsampling of YCbCr data, that is
 cinfo->comp_info[0].h_samp_factor = 2 for Y
 cinfo->comp_info[0].v_samp_factor = 2
 cinfo->comp_info[1].h_samp_factor = 1 for Cb
 cinfo->comp_info[1].v_samp_factor = 1
 cinfo->comp_info[2].h_samp_factor = 1 for Cr
 cinfo->comp_info[2].v_samp_factor = 1
and suppose that the nominal image dimensions (cinfo->image_width and cinfo->image_height) are 101x101 pixels. Then jpeg_start_compress() will compute downsampled_width = 101 and width_in_blocks = 13 for Y, downsampled_width = 51 and width_in_blocks = 7 for Cb and Cr (and the same for the height fields). You must pad the Y data to at least 13*8 = 104 columns and rows, the Cb/Cr data to at least 7*8 = 56 columns and rows. The MCU height is max_v_samp_factor = 2 DCT rows so you must pass at least 16

scanlines on each call to jpeg_write_raw_data(), which is to say 16 actual sample rows of Y and 8 each of Cb and Cr. A total of 7 MCU rows are needed, so you must pass a total of 7*16 = 112 "scanlines". The last DCT block row of Y data is dummy, so it doesn't matter what you pass for it in the data arrays, but the scanlines count must total up to 112 so that all of the Cb and Cr data gets passed.

Output suspension is supported with raw-data compression: if the data destination module suspends, jpeg_write_raw_data() will return 0. In this case the same data rows must be passed again on the next call.

Decompression with raw data output implies bypassing all postprocessing: you cannot ask for color quantization, for instance. More seriously, you must deal with the color space and sampling factors present in the incoming file. If your application only handles, say, 2h1v YCbCr data, you must check for and fail on other color spaces or other sampling factors. The library will not convert to a different color space for you.

To obtain raw data output, set cinfo->raw_data_out = TRUE before jpeg_start_decompress() (it is set FALSE by jpeg_read_header()). Be sure to verify that the color space and sampling factors are ones you can handle. Then call jpeg_read_raw_data() in place of jpeg_read_scanlines(). The decompression process is otherwise the same as usual.

jpeg_read_raw_data() returns one MCU row per call, and thus you must pass a buffer of at least max_v_samp_factor*min_DCT_v_scaled_size scanlines (scanline counting is the same as for raw-data compression). The buffer you pass must be large enough to hold the actual data plus padding to DCT-block boundaries. As with compression, any entirely dummy DCT blocks are not processed so you need not allocate space for them, but the total scanline count includes them. The above example of computing buffer dimensions for raw-data compression is equally valid for decompression.

Input suspension is supported with raw-data decompression: if the data source module suspends, jpeg_read_raw_data() will return 0. You can also use buffered-image mode to read raw data in multiple passes.

Really raw data: DCT coefficients

It is possible to read or write the contents of a JPEG file as raw DCT coefficients. This facility is mainly intended for use in lossless transcoding between different JPEG file formats. Other possible applications include lossless cropping of a JPEG image, lossless reassembly of a multi-strip or multi-tile TIFF/JPEG file into a single JPEG datastream, etc.

To read the contents of a JPEG file as DCT coefficients, open the file and do jpeg_read_header() as usual. But instead of calling jpeg_start_decompress() and jpeg_read_scanlines(), call jpeg_read_coefficients(). This will read the entire image into a set of virtual coefficient-block arrays, one array per component. The return value is a pointer to an array of virtual-array descriptors. Each virtual array can be accessed directly using the JPEG memory manager's access_virt_barray method (see Memory management, below, and also read structure.txt's discussion of virtual array handling). Or, for simple transcoding to a different JPEG file format, the array list can just be handed directly to jpeg_write_coefficients().

Each block in the block arrays contains quantized coefficient values in normal array order (not JPEG zigzag order). The block arrays contain only DCT blocks containing real data; any entirely-dummy blocks added to fill out interleaved MCUs at the right or bottom edges of the image are discarded during reading and are not stored in the block arrays. (The size of each block array can be determined from the width_in_blocks and height_in_blocks fields of the component's comp_info entry.) This is also the data format expected by jpeg_write_coefficients().

When you are done using the virtual arrays, call jpeg_finish_decompress() to release the array storage and return the decompression object to an idle state; or just call jpeg_destroy() if you don't need to reuse the object.

If you use a suspending data source, jpeg_read_coefficients() will return NULL if it is forced to suspend; a non-NULL return value indicates successful completion. You need not test for a NULL return value when using a non-suspending data source.

It is also possible to call jpeg_read_coefficients() to obtain access to the decoder's coefficient arrays during a normal decode cycle in buffered-image mode. This frammish might be useful for progressively displaying an incoming image and then re-encoding it without loss. To do this, decode in buffered-image mode as discussed previously, then call jpeg_read_coefficients() after the last jpeg_finish_output() call. The arrays will be available for your use until you call jpeg_finish_decompress().

To write the contents of a JPEG file as DCT coefficients, you must provide the DCT coefficients stored in virtual block arrays. You can either pass block arrays read from an input JPEG file by jpeg_read_coefficients(), or allocate virtual arrays from the JPEG compression object and fill them yourself. In either case, jpeg_write_coefficients() is substituted for jpeg_start_compress() and jpeg_write_scanlines(). Thus the sequence is

* Create compression object
* Set all compression parameters as necessary
* Request virtual arrays if needed
* jpeg_write_coefficients()

 * jpeg_finish_compress()
 * Destroy or re-use compression object
jpeg_write_coefficients() is passed a pointer to an array of virtual block array descriptors; the number of arrays is equal to cinfo.num_components.

The virtual arrays need only have been requested, not realized, before jpeg_write_coefficients() is called. A side-effect of jpeg_write_coefficients() is to realize any virtual arrays that have been requested from the compression object's memory manager. Thus, when obtaining the virtual arrays from the compression object, you should fill the arrays after calling jpeg_write_coefficients(). The data is actually written out when you call jpeg_finish_compress(); jpeg_write_coefficients() only writes the file header.

When writing raw DCT coefficients, it is crucial that the JPEG quantization tables and sampling factors match the way the data was encoded, or the resulting file will be invalid. For transcoding from an existing JPEG file, we recommend using jpeg_copy_critical_parameters(). This routine initializes all the compression parameters to default values (like jpeg_set_defaults()), then copies the critical information from a source decompression object. The decompression object should have just been used to read the entire JPEG input file --- that is, it should be awaiting jpeg_finish_decompress().

jpeg_write_coefficients() marks all tables stored in the compression object as needing to be written to the output file (thus, it acts like jpeg_start_compress(cinfo, TRUE)). This is for safety's sake, to avoid emitting abbreviated JPEG files by accident. If you really want to emit an abbreviated JPEG file, call jpeg_suppress_tables(), or set the tables' individual sent_table flags, between calling jpeg_write_coefficients() and jpeg_finish_compress().

Progress monitoring

Some applications may need to regain control from the JPEG library every so often. The typical use of this feature is to produce a percent-done bar or other progress display. (For a simple example, see cjpeg.c or djpeg.c.) Although you do get control back frequently during the data-transferring pass (the jpeg_read_scanlines or jpeg_write_scanlines loop), any additional passes will occur inside jpeg_finish_compress or jpeg_start_decompress; those routines may take a long time to execute, and you don't get control back until they are done.

You can define a progress-monitor routine which will be called periodically by the library. No guarantees are made about how often this call will occur, so we don't recommend you use it for mouse tracking or anything like that. At present, a call will occur once per MCU row, scanline, or sample row group, whichever unit is convenient for the current processing mode; so the wider the image, the longer the time between calls. During the data transferring pass, only one call occurs per call of jpeg_read_scanlines or jpeg_write_scanlines, so don't pass a large number of scanlines at once if you want fine resolution in the progress count. (If you really need to use the callback mechanism for time-critical tasks like mouse tracking, you could insert additional calls inside some of the library's inner loops.)

To establish a progress-monitor callback, create a struct jpeg_progress_mgr, fill in its progress_monitor field with a pointer to your callback routine, and set cinfo->progress to point to the struct. The callback will be called whenever cinfo->progress is non-NULL. (This pointer is set to NULL by jpeg_create_compress or jpeg_create_decompress; the library will not change it thereafter. So if you allocate dynamic storage for the progress struct, make sure it will live as long as the JPEG object does. Allocating from the JPEG memory manager with lifetime JPOOL_PERMANENT will work nicely.) You can use the same callback routine for both compression and decompression.

The jpeg_progress_mgr struct contains four fields which are set by the library:

```
 long pass_counter; /* work units completed in this pass */
 long pass_limit; /* total number of work units in this pass */
 int completed_passes; /* passes completed so far */
 int total_passes; /* total number of passes expected */
```

During any one pass, pass_counter increases from 0 up to (not including) pass_limit; the step size is usually but not necessarily 1. The pass_limit value may change from one pass to another. The expected total number of passes is in total_passes, and the number of passes already completed is in completed_passes. Thus the fraction of work completed may be estimated as

```
  completed_passes + (pass_counter/pass_limit)
  --------------------------------------------
    total_passes
```

ignoring the fact that the passes may not be equal amounts of work.

When decompressing, pass_limit can even change within a pass, because it depends on the number of scans in the JPEG file, which isn't always known in advance. The computed fraction-of-work-done may jump suddenly (if the library discovers it has overestimated the number of scans) or even decrease (in the opposite case). It is not wise to put great faith in the work estimate.

When using the decompressor's buffered-image mode, the progress monitor work estimate is likely to be completely unhelpful, because the library has no way to know how many output passes will be demanded of it. Currently, the library sets total_passes based on the assumption that there will be one more output pass if the input file end hasn't yet been read (jpeg_input_complete() isn't TRUE), but no more output passes if the file end has been reached when the output pass is started. This means that total_passes will rise as additional output passes are requested. If you have a way of determining the input file size, estimating progress based on the fraction of the file that's been read will probably be more useful than using the library's value.

Memory management

This section covers some key facts about the JPEG library's built-in memory manager. For more info, please read structure.txt's section about the memory manager, and consult the source code if necessary.

All memory and temporary file allocation within the library is done via the memory manager. If necessary, you can replace the "back end" of the memory manager to control allocation yourself (for example, if you don't want the library to use malloc() and free() for some reason).

Some data is allocated "permanently" and will not be freed until the JPEG object is destroyed. Most data is allocated "per image" and is freed by jpeg_finish_compress, jpeg_finish_decompress, or jpeg_abort. You can call the memory manager yourself to allocate structures that will automatically be freed at these times. Typical code for this is

```
 ptr = (*cinfo->mem->alloc_small) ((j_common_ptr) cinfo, JPOOL_IMAGE, size);
```

Use JPOOL_PERMANENT to get storage that lasts as long as the JPEG object. Use alloc_large instead of alloc_small for anything bigger than a few Kbytes. There are also alloc_sarray and alloc_barray routines that automatically build 2-D sample or block arrays.

The library's minimum space requirements to process an image depend on the image's width, but not on its height, because the library ordinarily works with "strip" buffers that are as wide as the image but just a few rows high. Some operating modes (eg, two-pass color quantization) require full-image buffers. Such buffers are treated as "virtual arrays": only the current strip need be in memory, and the rest can be swapped out to a temporary file.

If you use the simplest memory manager back end (jmemnobs.c), then no temporary files are used; virtual arrays are simply malloc()'d. Images bigger than memory can be processed only if your system supports virtual memory. The other memory manager back ends support temporary files of various flavors and thus work in machines without virtual memory. They may also be useful on Unix machines if you need to process images that exceed available swap space.

When using temporary files, the library will make the in-memory buffers for its virtual arrays just big enough to stay within a "maximum memory" setting. Your application can set this limit by setting cinfo->mem->max_memory_to_use after creating the JPEG object. (Of course, there is still a minimum size for the buffers, so the max-memory setting is effective only if it is bigger than the minimum space needed.) If you allocate any large structures yourself, you must allocate them before jpeg_start_compress() or jpeg_start_decompress() in order to have them counted against the max memory limit. Also keep in mind that space allocated with alloc_small() is ignored, on the assumption that it's too small to be worth worrying about; so a reasonable safety margin should be left when setting max_memory_to_use.

If you use the jmemname.c or jmemdos.c memory manager back end, it is important to clean up the JPEG object properly to ensure that the temporary files get deleted. (This is especially crucial with jmemdos.c, where the "temporary files" may be extended-memory segments; if they are not freed, DOS will require a reboot to recover the memory.) Thus, with these memory managers, it's a good idea to provide a signal handler that will trap any early exit from your program. The handler should call either jpeg_abort() or jpeg_destroy() for any active JPEG objects. A handler is not needed with jmemnobs.c, and shouldn't be necessary with jmemansi.c or jmemmac.c either, since the C library is supposed to take care of deleting files made with tmpfile().

Memory usage

Working memory requirements while performing compression or decompression depend on image dimensions, image characteristics (such as colorspace and JPEG process), and operating mode (application-selected options).

As of v6b, the decompressor requires:
1. About 24K in more-or-less-fixed-size data. This varies a bit depending on operating mode and image characteristics (particularly color vs. grayscale), but it doesn't depend on image dimensions.
2. Strip buffers (of size proportional to the image width) for IDCT and upsampling results. The worst case for commonly used sampling factors is about 34 bytes * width in pixels for a color image. A grayscale image only needs about 8 bytes per pixel column.
3. A full-image DCT coefficient buffer is needed to decode a multi-scan JPEG file (including progressive JPEGs), or whenever you select buffered-image mode. This takes 2 bytes/coefficient. At typical 2x2 sampling, that's 3 bytes per pixel for a color image. Worst case (1x1 sampling) requires 6 bytes/pixel. For grayscale, figure 2 bytes/pixel.
4. To perform 2-pass color quantization, the decompressor also needs a 128K color lookup table and a full-image pixel buffer (3 bytes/pixel).

This does not count any memory allocated by the application, such as a buffer to hold the final output image.

The above figures are valid for 8-bit JPEG data precision and a machine with 32-bit ints. For 9-bit to 12-bit JPEG data, double the size of the strip buffers and quantization pixel buffer. The "fixed-size" data will be somewhat smaller with 16-bit ints, larger with 64-bit ints. Also, CMYK or other unusual color spaces will require different amounts of space.

The full-image coefficient and pixel buffers, if needed at all, do not have to be fully RAM resident; you can have the library use temporary files instead when the total memory usage would exceed a limit you set. (But if your OS supports virtual memory, it's probably better to just use jmemnobs and let the OS do the swapping.)

The compressor's memory requirements are similar, except that it has no need for color quantization. Also, it needs a full-image DCT coefficient buffer if Huffman-table optimization is asked for, even if progressive mode is not requested.

If you need more detailed information about memory usage in a particular situation, you can enable the MEM_STATS code in jmemmgr.c.

Library compile-time options

A number of compile-time options are available by modifying jmorecfg.h.

The IJG code currently supports 8-bit to 12-bit sample data precision by defining BITS_IN_JSAMPLE as 8, 9, 10, 11, or 12.
Note that a value larger than 8 causes JSAMPLE to be larger than a char, so it affects the surrounding application's image data.
The sample applications cjpeg and djpeg can support deeper than 8-bit data only for PPM and GIF file formats; you must disable the other file formats to compile a 9-bit to 12-bit cjpeg or djpeg. (install.txt has more information about that.)
Run-time selection and conversion of data precision are currently not supported and may be added later.
Exception: The transcoding part (jpegtran) supports all settings in a single instance, since it operates on the level of DCT coefficients and not sample values.
(If you need to include an 8-bit library and a 9-bit to 12-bit library for compression or decompression in a single application, you could probably do it by defining NEED_SHORT_EXTERNAL_NAMES for just one of the copies. You'd have to access the 8-bit and the 9-bit to 12-bit copies from separate application source files. This is untested ... if you try it, we'd like to hear whether it works!)

Note that the standard Huffman tables are only valid for 8-bit data precision. If you selected more than 8-bit data precision, cjpeg uses arithmetic coding by default. The Huffman encoder normally uses entropy optimization to compute usable tables for higher precision. Otherwise, you'll have to supply different default Huffman tables. You may also want to supply your own DCT quantization tables; the existing quality-scaling code has been developed for 8-bit use, and probably doesn't generate especially good tables for 9-bit to 12-bit.

The maximum number of components (color channels) in the image is determined by MAX_COMPONENTS. The JPEG standard allows up to 255 components, but we expect that few applications will need more than four or so.

On machines with unusual data type sizes, you may be able to improve performance or reduce memory space by tweaking the various typedefs in jmorecfg.h. In particular, on some RISC CPUs, access to arrays of "short"s is quite slow; consider trading memory for speed by making JCOEF, INT16, and UINT16 be "int" or "unsigned int". UINT8 is also a candidate to become int. You probably don't want to make JSAMPLE be int unless you have lots of memory to burn.

You can reduce the size of the library by compiling out various optional functions. To do this, undefine xxx_SUPPORTED symbols as necessary.

You can also save a few K by not having text error messages in the library; the standard error message table occupies about 5Kb. This is particularly reasonable for embedded applications where there's no good way to display a message anyway. To do this, remove the creation of the message table (jpeg_std_message_table[]) from jerror.c, and alter format_message to do something reasonable without it. You could output the numeric value of the message code number, for example. If you do this, you can also save a couple more K by modifying the TRACEMSn() macros in jerror.h to expand to nothing; you don't need trace capability anyway, right?

Portability considerations

The JPEG library has been written to be extremely portable; the sample applications cjpeg and djpeg are slightly less so. This section summarizes the design goals in this area. (If you encounter any bugs that cause the library to be less portable than is claimed here, we'd appreciate hearing about them.)

The code works fine on ANSI C, C++, and pre-ANSI C compilers, using any of the popular system include file setups, and some not-so-popular ones too. See install.txt for configuration procedures.

The code is not dependent on the exact sizes of the C data types. As distributed, we make the assumptions that
 char is at least 8 bits wide
 short is at least 16 bits wide
 int is at least 16 bits wide
 long is at least 32 bits wide
(These are the minimum requirements of the ANSI C standard.) Wider types will work fine, although memory may be used inefficiently if char is much larger

than 8 bits or short is much bigger than 16 bits. The code should work equally well with 16- or 32-bit ints.

In a system where these assumptions are not met, you may be able to make the code work by modifying the typedefs in jmorecfg.h. However, you will probably have difficulty if int is less than 16 bits wide, since references to plain int abound in the code.

char can be either signed or unsigned, although the code runs faster if an unsigned char type is available. If char is wider than 8 bits, you will need to redefine JOCTET and/or provide custom data source/destination managers so that JOCTET represents exactly 8 bits of data on external storage.

The JPEG library proper does not assume ASCII representation of characters. But some of the image file I/O modules in cjpeg/djpeg do have ASCII dependencies in file-header manipulation; so does cjpeg's select_file_type() routine.

The JPEG library does not rely heavily on the C library. In particular, C stdio is used only by the data source/destination modules and the error handler, all of which are application-replaceable. (cjpeg/djpeg are more heavily dependent on stdio.) malloc and free are called only from the memory manager "back end" module, so you can use a different memory allocator by replacing that one file.

The code generally assumes that C names must be unique in the first 15 characters. However, global function names can be made unique in the first 6 characters by defining NEED_SHORT_EXTERNAL_NAMES.

More info about porting the code may be gleaned by reading jconfig.txt, jmorecfg.h, and jinclude.h.

Notes for MS-DOS implementors

The IJG code is designed to work efficiently in 80x86 "small" or "medium" memory models (i.e., data pointers are 16 bits unless explicitly declared "far"; code pointers can be either size). You may be able to use small model to compile cjpeg or djpeg by itself, but you will probably have to use medium model for any larger application. This won't make much difference in performance. You *will* take a noticeable performance hit if you use a large-data memory model (perhaps 10%-25%), and you should avoid "huge" model if at all possible.

The JPEG library typically needs 2Kb-3Kb of stack space. It will also malloc about 20K-30K of near heap space while executing (and lots of far heap, but that doesn't count in this calculation). This figure will vary

depending on selected operating mode, and to a lesser extent on image size.
There is also about 5Kb-6Kb of constant data which will be allocated in the
near data segment (about 4Kb of this is the error message table).
Thus you have perhaps 20K available for other modules' static data and near
heap space before you need to go to a larger memory model. The C library's
static data will account for several K of this, but that still leaves a good
deal for your needs. (If you are tight on space, you could reduce the sizes
of the I/O buffers allocated by jdatasrc.c and jdatadst.c, say from 4K to
1K. Another possibility is to move the error message table to far memory;
this should be doable with only localized hacking on jerror.c.)

About 2K of the near heap space is "permanent" memory that will not be
released until you destroy the JPEG object. This is only an issue if you
save a JPEG object between compression or decompression operations.

Far data space may also be a tight resource when you are dealing with large
images. The most memory-intensive case is decompression with two-pass color
quantization, or single-pass quantization to an externally supplied color
map. This requires a 128Kb color lookup table plus strip buffers amounting
to about 40 bytes per column for typical sampling ratios (eg, about 25600
bytes for a 640-pixel-wide image). You may not be able to process wide
images if you have large data structures of your own.

Of course, all of these concerns vanish if you use a 32-bit flat-memory-model
compiler, such as DJGPP or Watcom C. We highly recommend flat model if you
can use it; the JPEG library is significantly faster in flat model.

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/*
* jcinit.c
*
* Copyright (C) 1991-1997, Thomas G. Lane.
* Modified 2003-2017 by Guido Vollbeding.
* This file is part of the Independent JPEG Group's software.
* For conditions of distribution and use, see the accompanying README file.
*
* This file contains initialization logic for the JPEG compressor.
* This routine is in charge of selecting the modules to be executed and
* making an initialization call to each one.
*
* Logically, this code belongs in jcmaster.c. It's split out because
* linking this routine implies linking the entire compression library.
* For a transcoding-only application, we want to be able to use jcmaster.c
* without linking in the whole library.
*/

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/*
* jcarith.c
*
* Developed 1997-2019 by Guido Vollbeding.
* This file is part of the Independent JPEG Group's software.
* For conditions of distribution and use, see the accompanying README file.
*
* This file contains portable arithmetic entropy encoding routines for JPEG
* (implementing the ISO/IEC IS 10918-1 and CCITT Recommendation ITU-T T.81).
*
* Both sequential and progressive modes are supported in this single module.
*
* Suspension is not currently supported in this module.
*/

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* /opt/cola/permits/1103550007_1605777850.47/0/jpegsrc-v9d-tar-gz/jpeg-9d/jcarith.c

1.17 jsoup 1.13.1

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1.18 zlib 1.2.11

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1.19 constraintlayout 1.1.3

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{"version":3,"file":"kotlin.js","sources":["wrapper.js","js/arrayUtils.js","js/callableReferenceUtils.js","js/conversions.js","js/core.js","js/long.js","js/markerFunctions.js","js/misc.js","js/polyfills.js","js/rtti.js","runtime/arrayUtils.kt","runtime/Enum.kt","primitiveCompanionObjects.kt","common/src/generated/_Arrays.kt","common/src/generated/_Ranges.kt","unsigned/src/kotlin/UByte.kt","unsigned/src/kotlin/UInt.kt","unsigned/src/kotlin/UShort.kt","src/kotlin/collections/Collections.kt","src/kotlin/collections/Maps.kt","src/kotlin/collections/Sets.kt","src/kotlin/ranges/PrimitiveRanges.kt","src/kotlin/text/StringNumberConversions.kt","src/kotlin/time/Duration.kt","unsigned/src/kotlin/UnsignedUtils.kt","../../core/builtins/src/kotlin/internal/InternalAnnotations.kt","src/kotlin/collections/Iterables.kt","src/kotlin/collections/Sequences.kt","src/kotlin/util/Preconditions.kt","js/src/generated/_ArraysJs.kt","src/kotlin/comparisons/Comparisons.kt","src/kotlin/util/Standard.kt","js/src/generated/_ComparisonsJs.kt","unsigned/src/kotlin/ULong.kt","common/src/generated/_Collections.kt","js/src/kotlin/collections.kt","src/kotlin/collections/Iterators.kt","common/src/generated/_Comparisons.kt","common/src/generated/_Maps.kt","common/src/generated/_OneToManyTitlecaseMappings.kt","js/src/kotlin/text/char.kt","js/src/kotlin/text/string.kt","src/kotlin/text/Char.kt","src/kotlin/CharCode.kt","common/src/generated/_Sequences.kt","common/src/generated/_Sets.kt","common/src/generated/_Strings.kt","src/kotlin/text/Strings.kt","unsigned/src/kotlin/UByteArray.kt","unsigned/src/kotlin/UIntArray.kt","unsigned/src/kotlin/ULongArray.kt","unsigned/src/kotlin/UShortArray.kt","common/src/generated/_UArrays.kt","common/src/generated/_UCollections.kt","common/src/generated/_UComparisons.kt","common/src/generated/_URanges.kt","common/src/generated/_USequences.kt","common/src/kotlin/ExceptionsH.kt","common/src/kotlin/JsAnnotationsH.kt","common/src/kotlin/ioH.kt","builtin-sources/Collections.kt","builtin-sources/Unit.kt","builtin-sources/annotation/Annotations.kt","src/kotlin/builtins.kt","src/kotlin/jsTypeOf.kt","src/kotlin/kotlin.kt","src/kotlin/charCode_js-v1.kt","src/kotlin/coroutines/CoroutineImpl.kt","src/kotlin/util/Result.kt","src/kotlin/coroutines/Continuation.kt","src/kotlin/coroutines/intrinsics/IntrinsicsJs.kt","src/kotlin/currentBeMisc.kt","src/kotlin/exceptions.kt","src/kotlin/jsOperators.kt","src/kotlin/math_js-v1.kt","src/kotlin/numbers_js-v1.kt","src/kotlin/reflection_js-v1.kt","src/kotlin/text/numberConversions_js-v1.kt","js/src/kotlin/js.arrays/fill.kt","js/src/kotlin/js.arrays/sort.kt","js/src/generated/_CharCategories.kt","js/src/generated/_CollectionsJs.kt","js/src/generated/_DigitChars.kt","js/src/generated/_LetterChars.kt","js/src/generated/_OtherLowercaseChars.kt","js/src/generated/_OtherUppercaseChars.kt","js/src/generated/_StringsJs.kt","js/src/generated/_TitlecaseMappings.kt","js/src/generated/_UArraysJs.kt","js/src/generated/_WhitespaceChars.kt","js/src/kotlin/Comparator.kt","js/src/kotlin/annotations.kt","js/src/kotlin/annotationsJVM.kt","js/src/kotlin/collections/AbstractMutableCollection.kt","js/src/kotlin/collections/AbstractMutableList.kt","js/src/kotlin/collections/AbstractMutableMap.kt","js/src/kotlin/collections/AbstractMutableSet.kt","js/src/kotlin/collections/ArrayList.kt","js/src/kotlin/collections/ArraySorting.kt","js/src/kotlin/collections/ArraysJs.kt","js/src/kotlin/collections/EqualityComparator.kt","js/src/kotlin/

collections/HashMap.kt","js/src/kotlin/collections/HashSet.kt","js/src/kotlin/collections/InternalHashCodeMap.kt","js/src/kotlin/collections/InternalMap.kt","js/src/kotlin/collections/InternalStringMap.kt","js/src/kotlin/collections/LinkedHashMap.kt","js/src/kotlin/collections/LinkedHashSet.kt","js/src/kotlin/concurrent.kt","js/src/kotlin/console.kt","js/src/kotlin/coroutines/SafeContinuationJs.kt","js/src/kotlin/coroutines/cancellation/CancellationException.kt","js/src/kotlin/coroutines/js/internal/EmptyContinuation.kt","js/src/kotlin/date.kt","js/src/kotlin/dom/Builders.kt","js/src/kotlin/dom/Classes.kt","js/src/kotlin/dom/Dom.kt","js/src/kotlin/dom/EventListener.kt","js/src/kotlin/dom/ItemArrayLike.kt","js/src/kotlin/dom/Mutations.kt","js/src/kotlin/dynamic.kt","js/src/kotlin/exceptionUtils.kt","js/src/kotlin/grouping.kt","src/kotlin/collections/Grouping.kt","js/src/kotlin/internalAnnotations.kt","js/src/kotlin/json.kt","js/src/kotlin/math.kt","js/src/kotlin/numbers.kt","js/src/kotlin/promise.kt","js/src/kotlin/random/PlatformRandom.kt","js/src/kotlin/reflect/AssociatedObjects.kt","js/src/kotlin/reflect/JsClass.kt","js/src/kotlin/reflect/KClassImpl.kt","js/src/kotlin/reflect/KClassesImpl.kt","js/src/kotlin/reflect/KTypeHelpers.kt","js/src/kotlin/reflect/KTypeImpl.kt","js/src/kotlin/reflect/KTypeParameterImpl.kt","js/src/kotlin/reflect/primitives.kt","js/src/kotlin/reflect/reflection.kt","js/src/kotlin/regexp.kt","js/src/kotlin/sequence.kt","js/src/kotlin/text/CharCategoryJS.kt","js/src/kotlin/text/CharacterCodingExceptionJs.kt","js/src/kotlin/text/StringBuilderJs.kt","js/src/kotlin/text/numberConversions.kt","js/src/kotlin/text/regex.kt","src/kotlin/text/StringBuilder.kt","js/src/kotlin/text/stringsCode.kt","js/src/kotlin/text/utf8Encoding.kt","js/src/kotlin/throwableExtensions.kt","js/src/kotlin/time/DurationJs.kt","js/src/kotlin/time/DurationUnit.kt","js/src/kotlin/time/MonoTimeSource.kt","js/src/kotlinx/dom/Builders.kt","js/src/kotlinx/dom/Classes.kt","src/kotlin/text/regex/RegexExtensions.kt","js/src/kotlinx/dom/Dom.kt","js/src/kotlinx/dom/Mutations.kt","js/src/org.w3c/deprecated.kt","js/src/org.w3c/org.khronos.webgl.kt","js/src/org.w3c/org.w3c.dom.clipboard.kt","js/src/org.w3c/org.w3c.dom.css.kt","js/src/org.w3c/org.w3c.dom.encryptedmedia.kt","js/src/org.w3c/org.w3c.dom.events.kt","js/src/org.w3c/org.w3c.dom.kt","js/src/org.w3c/org.w3c.fetch.kt","js/src/org.w3c/org.w3c.dom.mediacapture.kt","js/src/org.w3c/org.w3c.dom.mediasource.kt","js/src/org.w3c/org.w3c.dom.pointerevents.kt","js/src/org.w3c/org.w3c.dom.svg.kt","js/src/org.w3c/org.w3c.files.kt","js/src/org.w3c/org.w3c.notifications.kt","js/src/org.w3c/org.w3c.workers.kt","js/src/org.w3c/org.w3c.xhr.kt","src/kotlin/annotations/Experimental.kt","src/kotlin/annotations/ExperimentalStdlibApi.kt","src/kotlin/annotations/Inference.kt","src/kotlin/annotations/Multiplatform.kt","src/kotlin/annotations/OptIn.kt","src/kotlin/collections/AbstractCollection.kt","src/kotlin/collections/AbstractIterator.kt","src/kotlin/collections/AbstractList.kt","src/kotlin/collections/AbstractMap.kt","src/kotlin/collections/AbstractSet.kt","src/kotlin/collections/ArrayDeque.kt","src/kotlin/collections/Arrays.kt","src/kotlin/collections/BrittleContainsOptimization.kt","src/kotlin/collections/IndexedValue.kt","src/kotlin/collections/MapAccessors.kt","src/kotlin/collections/MapWithDefault.kt","src/kotlin/collections/MutableCollections.kt","src/kotlin/collections/PrimitiveIterators.kt","src/kotlin/collections/ReversedViews.kt","src/kotlin/collections/SequenceBuilder.kt","src/kotlin/collections/SlidingWindow.kt","src/kotlin/collections/UArraySorting.kt","src/kotlin/comparisons/compareTo.kt","src/kotlin/contracts/ContractBuilder.kt","src/kotlin/coroutines/ContinuationInterceptor.kt","src/kotlin/coroutines/CoroutineContext.kt","src/kotlin/coroutines/CoroutineContextImpl.kt","src/kotlin/coroutines/intrinsics/Intrinsics.kt","src/kotlin/experimental/bitwiseOperations.kt","src/kotlin/experimental/inferenceMarker.kt","src/kotlin/internal/Annotations.kt","src/kotlin/internal/progressionUtil.kt","src/kotlin/properties/Delegates.kt","src/kotlin/properties/Interfaces.kt","src/kotlin/properties/ObservableProperty.kt","src/kotlin/properties/PropertyReferenceDelegates.kt","src/kotlin/random/Random.kt","src/kotlin/random/URandom.kt","src/kotlin/random/XorWowRandom.kt","src/kotlin/ranges/ProgressionIterators.kt","src/kotlin/ranges/Progressions.kt","src/kotlin/ranges/Range.kt","src/kotlin/ranges/Ranges.kt","src/kotlin/reflect/KClasses.kt","src/kotlin/reflect/KTypeProjection.kt","src/kotlin/reflect/KVariance.kt","src/kotlin/reflect/typeOf.kt","src/kotlin/text/Appendable.kt","src/kotlin/text/Indent.kt","src/kotlin/text/Typography.kt","src/kotlin/text/regex/MatchResult.kt","src/kotlin/time/DurationUnit.kt","src/kotlin/time/ExperimentalTime.kt","src/kotlin/time/TimeSource.kt","src/kotlin/time/TimeSources.kt","src/kotlin/time/longSaturatedMath.kt","src/kotlin/time/measureTime.kt","src/kotlin/util/Deep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(root, factory) {\n if (typeof define === 'function' && define.amd) {\n define('kotlin', ['exports'], factory);\n }\n else if (typeof exports === 'object') {\n factory(module.exports);\n }\n else {\n root.kotlin = {};\n factory(root.kotlin);\n }\n}(this, function (Kotlin) {\n var _ = Kotlin;\n\n insertContent();\n}));\n","/*\n * Copyright 2010-2018 JetBrains s.r.o. and Kotlin Programming Language contributors. \n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\nKotlin.isBooleanArray = function (a) {\n return (Array.isArray(a) || a instanceof Int8Array) && a.$type$ === \"BooleanArray\"\n};\n\nKotlin.isByteArray = function (a) {\n return a instanceof Int8Array && a.$type$!== \"BooleanArray\"\n};\n\nKotlin.isShortArray = function (a) {\n return a instanceof Int16Array\n};\n\nKotlin.isCharArray = function (a) {\n return a instanceof Uint16Array && a.$type$ === \"CharArray\"\n};\n\nKotlin.isIntArray = function (a) {\n return a instanceof Int32Array\n};\n\nKotlin.isFloatArray = function (a) {\n return a instanceof Float32Array\n};\n\nKotlin.isDoubleArray = function (a) {\n return a instanceof Float64Array\n};\n\nKotlin.isLongArray = function (a) {\n return Array.isArray(a) && a.$type$ === \"LongArray\"\n};\n\nKotlin.isArray = function (a) {\n return Array.isArray(a) && !a.$type$;\n};\n\nKotlin.isArrayish = function (a) {\n return Array.isArray(a) || ArrayBuffer.isView(a)\n};\n\nKotlin.arrayToString = function (a) {\n if (a === null) return \"null\"\n var toString = Kotlin.isCharArray(a) ? String.fromCharCode : Kotlin.toString;\n return \"[\" + Array.prototype.map.call(a, function(e) { return toString(e); }).join(\", \") + \"]\";\n};\n\nKotlin.arrayDeepToString = function (arr) {\n return Kotlin.kotlin.collections.contentDeepToStringImpl(arr);\n};\n\nKotlin.arrayEquals = function (a, b) {\n if (a === b) {\n return true;\n }\n if (a === null || b === null || !Kotlin.isArrayish(b) || a.length !== b.length) {\n return false;\n }\n\n for (var i = 0, n = a.length; i < n; i++) {\n if (!Kotlin.equals(a[i], b[i])) {\n return false;\n }\n }\n return true;\n};\n\nKotlin.arrayDeepEquals = function (a, b) {\n return Kotlin.kotlin.collections.contentDeepEqualsImpl(a, b);\n};\n\nKotlin.arrayHashCode = function (arr) {\n if (arr === null) return 0\n var result = 1;\n for (var i = 0, n = arr.length; i < n; i++) {\n result = ((31 * result | 0) + Kotlin.hashCode(arr[i])) | 0;\n }\n return result;\n};\n\nKotlin.arrayDeepHashCode = function (arr) {\n return Kotlin.kotlin.collections.contentDeepHashCodeImpl(arr);\n};\n\nKotlin.primitiveArraySort = function (array) {\n array.sort(Kotlin.doubleCompareTo)\n};\n","/*\n * Copyright 2010-2018 JetBrains s.r.o. and Kotlin Programming Language contributors. \n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\nKotlin.getCallableRef = function(name, f) {\n f.callableName = name;\n return f;\n};\n\nKotlin.getPropertyCallableRef = function(name, paramCount, getter, setter) {\n getter.get = getter;\n getter.set = setter;\n getter.callableName = name;\n return getPropertyRefClass(getter, setter, propertyRefClassMetadataCache[paramCount]);\n};\n\nfunction getPropertyRefClass(obj, setter, cache) {\n obj.$metadata$ = getPropertyRefMetadata(typeof setter === \"function\" ? cache.mutable : cache.immutable);\n obj.constructor = obj;\n return obj;\n}\n\nvar propertyRefClassMetadataCache = [\n {\n mutable: { value: null, implementedInterface: function () {\n return Kotlin.kotlin.reflect.KMutableProperty0 }\n },\n immutable: { value: null, implementedInterface: function () {\n return Kotlin.kotlin.reflect.KProperty0 }\n }\n },\n {\n mutable: { value: null, implementedInterface: function () {\n return Kotlin.kotlin.reflect.KMutableProperty1 }\n },\n immutable: { value: null, implementedInterface: function () {\n return Kotlin.kotlin.reflect.KProperty1 }\n }\n }\n];\n\nfunction getPropertyRefMetadata(cache) {\n if (cache.value === null) {\n cache.value = {\n interfaces: [cache.implementedInterface()],\n baseClass: null,\n functions: {},\n properties: {},\n types: {},\n staticMembers: {}\n };\n }\n return cache.value;\n}\n","/*\n * Copyright 2010-2018 JetBrains s.r.o. and Kotlin Programming Language contributors. \n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\nKotlin.toShort = function (a) {\n return (a & 0xFFFF) << 16 >> 16;\n};\n\nKotlin.toByte = function (a) {\n return (a & 0xFF) << 24 >> 24;\n};\n\nKotlin.toChar = function (a) {\n return a & 0xFFFF;\n};\n\nKotlin.numberToLong = function (a) {\n return a instanceof Kotlin.Long ? a : Kotlin.Long.fromNumber(a);\n};\n\nKotlin.numberToInt = function (a) {\n return a instanceof Kotlin.Long ?

a.toInt() : Kotlin.doubleToInt(a);\n};\n\nKotlin.numberToShort = function (a) {\n   return Kotlin.toShort(Kotlin.numberToInt(a));\n};\n\nKotlin.numberToByte = function (a) {\n   return Kotlin.toByte(Kotlin.numberToInt(a));\n};\n\nKotlin.numberToDouble = function (a) {\n   return +a;\n};\n\nKotlin.numberToChar = function (a) {\n   return Kotlin.toChar(Kotlin.numberToInt(a));\n};\n\nKotlin.doubleToInt = function(a) {\n   if (a > 2147483647) return 2147483647;\n   if (a < -2147483648) return -2147483648;\n   return a | 0;\n};\n\nKotlin.toBoxedChar = function (a) {\n   if (a == null) return a;\n   if (a instanceof Kotlin.BoxedChar) return a;\n   return new Kotlin.BoxedChar(a);\n};\n\nKotlin.unboxChar = function(a) {\n   if (a == null) return a;\n   return Kotlin.toChar(a);\n};\n","/*\n * Copyright 2010-2018 JetBrains s.r.o. and Kotlin Programming Language contributors. \n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\nKotlin.equals = function (obj1, obj2) {\n   if (obj1 == null) {\n   return obj2 == null;\n   }\n\n   if (obj2 == null) {\n   return false;\n   }\n\n   if (obj1 !== obj1) {\n   return obj2 !== obj2;\n   }\n\n   if (typeof obj1 === \"object\" && typeof obj1.equals === \"function\") {\n   return obj1.equals(obj2);\n   }\n\n   if (typeof obj1 === \"number\" && typeof obj2 === \"number\") {\n   return obj1 === obj2 && (obj1 !== 0 || 1 / obj1 === 1 / obj2)\n   }\n\n   return obj1 === obj2;\n};\n\nKotlin.hashCode = function (obj) {\n   if (obj == null) {\n   return 0;\n   }\n   var objType = typeof obj;\n   if (\"object\" === objType) {\n   return \"function\" === typeof obj.hashCode ? obj.hashCode() : getObjectHashCode(obj);\n   }\n   if (\"function\" === objType) {\n   return getObjectHashCode(obj);\n   }\n   if (\"number\" === objType) {\n   return Kotlin.numberHashCode(obj);\n   }\n   if (\"boolean\" === objType) {\n   return Number(obj)\n   }\n\n   var str = String(obj);\n   return getStringHashCode(str);\n};\n\n\nKotlin.toString = function (o) {\n   if (o == null) {\n   return \"null\";\n   }\n   else if (Kotlin.isArrayish(o)) {\n   return \"[...]\";\n   }\n   else {\n   return o.toString();\n   }\n};\n\n/** @const */\nvar POW_2_32 = 4294967296;\n// TODO: consider switching to Symbol type once we are on ES6.\n/** @const */\nvar OBJECT_HASH_CODE_PROPERTY_NAME = \"kotlinHashCodeValue$\";\n\nfunction getObjectHashCode(obj) {\n   if (!(OBJECT_HASH_CODE_PROPERTY_NAME in obj)) {\n   var hash = (Math.random() * POW_2_32) | 0; // Make 32-bit singed integer.\n   Object.defineProperty(obj, OBJECT_HASH_CODE_PROPERTY_NAME, { value: hash, enumerable: false });\n   }\n   return obj[OBJECT_HASH_CODE_PROPERTY_NAME];\n}\n\nfunction getStringHashCode(str) {\n   var hash = 0;\n   for (var i = 0; i < str.length; i++) {\n   var code = str.charCodeAt(i);\n   hash = (hash * 31 + code) | 0; // Keep it 32-bit.\n   }\n   return hash;\n}\n\nKotlin.identityHashCode = getObjectHashCode;\n","/*\n * Copyright 2010-2018 JetBrains s.r.o. and Kotlin Programming Language contributors. \n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\n// Copyright 2009 The Closure Library Authors. All Rights Reserved.\n//\n// Licensed under the Apache License, Version 2.0 (the \"License\");\n// you may not use this file except in compliance with the License.\n// You may obtain a copy of the License at\n//\n//   http://www.apache.org/licenses/LICENSE-2.0\n//\n// Unless required by applicable law or agreed to in writing, software\n// distributed under the License is distributed on an \"AS-IS\" BASIS,\n// WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n\n/**\n * Constructs a 64-bit two's-complement integer, given its low and high 32-bit\n * values as *signed* integers. See the from* functions below for more\n * convenient ways of constructing Longs.\n *\n * The internal representation of a long is the two given signed, 32-bit values.\n * We use 32-bit pieces because these are the size of integers on which\n * Javascript performs bit-operations. For operations like addition and\n * multiplication, we split each number into 16-bit pieces, which can easily be\n * multiplied within Javascript's floating-point representation without overflow\n * or change in sign.\n *\n * In the algorithms below, we frequently reduce the negative case to the\n * positive case by negating the input(s) and then post-processing the result.\n * Note that we must ALWAYS check specially whether those values are MIN_VALUE\n * (-2^63) because -MIN_VALUE == MIN_VALUE (since 2^63 cannot be represented as\n * a positive number, it overflows back into a negative). Not handling this\n * case would often result in infinite recursion.\n *\n * @param {number} low The low (signed) 32 bits of the long.\n * @param {number} high The high (signed) 32 bits of the long.\n * @constructor\n * @final\n */\nKotlin.Long = function(low, high) {\n /**\n   *

@type {number}\n   * @private\n   */\n this.low_ = low | 0; // force into 32 signed bits.\n\n /**\n   * @type {number}\n   * @private\n   */\n this.high_ = high | 0; // force into 32 signed bits.\n};\n\nKotlin.Long.$metadata$ = {\n   kind: \"class\",\n   simpleName: \"Long\",\n   interfaces:[]\n};\n\n\n// NOTE: Common constant values ZERO, ONE, NEG_ONE, etc. are defined below the\n// from* methods on which they depend.\n\n\n/**\n * A cache of the Long representations of small integer values.\n * @type {!Object}\n * @private\n */\nKotlin.Long.IntCache_ = {};\n\n\n/**\n * Returns a Long representing the given (32-bit) integer value.\n * @param {number} value The 32-bit integer in question.\n * @return {!Kotlin.Long} The corresponding Long value.\n */\nKotlin.Long.fromInt = function(value) {\n if (-128 <= value && value < 128) {\n   var cachedObj = Kotlin.Long.IntCache_[value];\n   if (cachedObj) {\n   return cachedObj;\n   }\n }\n\n var obj = new Kotlin.Long(value | 0, value < 0 ? -1 : 0);\n if (-128 <= value && value < 128) {\n   Kotlin.Long.IntCache_[value] = obj;\n }\n return obj;\n};\n\n\n/**\n * Converts this number value to `Long`.\n * The fractional part, if any, is rounded down towards zero.\n * Returns zero if this `Double` value is `NaN`, `Long.MIN_VALUE` if it's less than `Long.MIN_VALUE`,\n * `Long.MAX_VALUE` if it's bigger than `Long.MAX_VALUE`.\n * @param {number} value The number in question.\n * @return {!Kotlin.Long} The corresponding Long value.\n */\nKotlin.Long.fromNumber = function(value) {\n if (isNaN(value)) {\n   return Kotlin.Long.ZERO;\n } else if (value <= -Kotlin.Long.TWO_PWR_63_DBL_) {\n   return Kotlin.Long.MIN_VALUE;\n } else if (value + 1 >= Kotlin.Long.TWO_PWR_63_DBL_) {\n   return Kotlin.Long.MAX_VALUE;\n } else if (value < 0) {\n   return Kotlin.Long.fromNumber(-value).negate();\n } else {\n   return new Kotlin.Long(\n   (value % Kotlin.Long.TWO_PWR_32_DBL_) | 0,\n   (value / Kotlin.Long.TWO_PWR_32_DBL_) | 0);\n }\n};\n\n\n/**\n * Returns a Long representing the 64-bit integer that comes by concatenating\n * the given high and low bits. Each is assumed to use 32 bits.\n * @param {number} lowBits The low 32-bits.\n * @param {number} highBits The high 32-bits.\n * @return {!Kotlin.Long} The corresponding Long value.\n */\nKotlin.Long.fromBits = function(lowBits, highBits) {\n return new Kotlin.Long(lowBits, highBits);\n};\n\n\n/**\n * Returns a Long representation of the given string, written using the given\n * radix.\n * @param {string} str The textual representation of the Long.\n * @param {number=} opt_radix The radix in which the text is written.\n * @return {!Kotlin.Long} The corresponding Long value.\n */\nKotlin.Long.fromString = function(str, opt_radix) {\n if (str.length == 0) {\n   throw Error('number format error: empty string');\n }\n\n var radix = opt_radix || 10;\n if (radix < 2 || 36 < radix) {\n   throw Error('radix out of range: ' + radix);\n }\n\n if (str.charAt(0) == '-') {\n   return Kotlin.Long.fromString(str.substring(1), radix).negate();\n } else if (str.indexOf('-') >= 0) {\n   throw Error('number format error: interior \"-\" character: ' + str);\n }\n\n // Do several (8) digits each time through the loop, so as to\n // minimize the calls to the very expensive emulated div.\n var radixToPower = Kotlin.Long.fromNumber(Math.pow(radix, 8));\n\n var result = Kotlin.Long.ZERO;\n for (var i = 0; i < str.length; i += 8) {\n   var size = Math.min(8, str.length - i);\n   var value = parseInt(str.substring(i, i + size), radix);\n   if (size < 8) {\n   var power = Kotlin.Long.fromNumber(Math.pow(radix, size));\n   result = result.multiply(power).add(Kotlin.Long.fromNumber(value));\n   } else {\n   result = result.multiply(radixToPower);\n   result = result.add(Kotlin.Long.fromNumber(value));\n   }\n }\n return result;\n};\n\n\n// NOTE: the compiler should inline these constant values below and then remove\n// these variables, so there should be no runtime penalty for these.\n\n\n/**\n * Number used repeated below in calculations. This must appear before the\n * first call to any from* function below.\n * @type {number}\n * @private\n */\nKotlin.Long.TWO_PWR_16_DBL_ = 1 << 16;\n\n\n/**\n * @type {number}\n * @private\n */\nKotlin.Long.TWO_PWR_24_DBL_ = 1 << 24;\n\n\n/**\n * @type {number}\n * @private\n */\nKotlin.Long.TWO_PWR_32_DBL_ =\n   Kotlin.Long.TWO_PWR_16_DBL_ * Kotlin.Long.TWO_PWR_16_DBL_;\n\n\n/**\n * @type {number}\n * @private\n */\nKotlin.Long.TWO_PWR_31_DBL_ =\n   Kotlin.Long.TWO_PWR_32_DBL_ / 2;\n\n\n/**\n * @type {number}\n * @private\n */\nKotlin.Long.TWO_PWR_48_DBL_ =\n   Kotlin.Long.TWO_PWR_32_DBL_ * Kotlin.Long.TWO_PWR_16_DBL_;\n\n\n/**\n * @type {number}\n * @private\n */\nKotlin.Long.TWO_PWR_64_DBL_ =\n   Kotlin.Long.TWO_PWR_32_DBL_ * Kotlin.Long.TWO_PWR_32_DBL_;\n\n\n/**\n * @type {number}\n * @private\n

*/\nKotlin.Long.TWO_PWR_63_DBL_ =\n   Kotlin.Long.TWO_PWR_64_DBL_ / 2;\n\n\n/** @type {!Kotlin.Long} */\nKotlin.Long.ZERO = Kotlin.Long.fromInt(0);\n\n\n/** @type {!Kotlin.Long} */\nKotlin.Long.ONE = Kotlin.Long.fromInt(1);\n\n\n/** @type {!Kotlin.Long} */\nKotlin.Long.NEG_ONE = Kotlin.Long.fromInt(-1);\n\n\n/** @type {!Kotlin.Long} */\nKotlin.Long.MAX_VALUE =\n Kotlin.Long.fromBits(0xFFFFFFFF | 0, 0x7FFFFFFF | 0);\n\n\n/** @type {!Kotlin.Long} */\nKotlin.Long.MIN_VALUE = Kotlin.Long.fromBits(0, 0x80000000 | 0);\n\n\n/**\n * @type {!Kotlin.Long}\n * @private\n */\nKotlin.Long.TWO_PWR_24_ = Kotlin.Long.fromInt(1 << 24);\n\n\n/** @return {number} The value, assuming it is a 32-bit integer. */\nKotlin.Long.prototype.toInt = function() {\n return this.low_;\n};\n\n\n/** @return {number} The closest floating-point representation to this value. */\nKotlin.Long.prototype.toNumber = function() {\n return this.high_ * Kotlin.Long.TWO_PWR_32_DBL_ +\n this.getLowBitsUnsigned();\n};\n\n/** @return {number} The 32-bit hashCode of this value. */\nKotlin.Long.prototype.hashCode = function() {\n return this.high_ ^ this.low_;\n};\n\n/**\n * @param {number=} opt_radix The radix in which the text should be written.\n * @return {string} The textual representation of this value.\n * @override\n */\nKotlin.Long.prototype.toString = function(opt_radix) {\n var radix = opt_radix || 10;\n if (radix < 2 || 36 < radix) {\n   throw Error('radix out of range: ' + radix);\n }\n\n if (this.isZero()) {\n return '0';\n }\n\n if (this.isNegative()) {\n   if (this.equalsLong(Kotlin.Long.MIN_VALUE)) {\n   // We need to change the Long value before it can be negated, so we remove\n   // the bottom-most digit in this base and then recurse to do the rest.\n   var radixLong = Kotlin.Long.fromNumber(radix);\n   var div = this.div(radixLong);\n var rem = div.multiply(radixLong).subtract(this);\n   return div.toString(radix) + rem.toInt().toString(radix);\n   } else {\n   return '-' + this.negate().toString(radix);\n   }\n }\n\n // Do several (5) digits each time through the loop, so as to\n // minimize the calls to the very expensive emulated div.\n var radixToPower = Kotlin.Long.fromNumber(Math.pow(radix, 5));\n\n var rem = this;\n var result = '';\n while (true) {\n   var remDiv = rem.div(radixToPower);\n   var intval = rem.subtract(remDiv.multiply(radixToPower)).toInt();\n   var digits = intval.toString(radix);\n\n   rem = remDiv;\n   if (rem.isZero()) {\n   return digits + result;\n   } else {\n while (digits.length < 5) {\n   digits = '0' + digits;\n   }\n   result = '' + digits + result;\n   }\n }\n};\n\n\n/** @return {number} The high 32-bits as a signed value. */\nKotlin.Long.prototype.getHighBits = function() {\n return this.high_;\n};\n\n\n/** @return {number} The low 32-bits as a signed value. */\nKotlin.Long.prototype.getLowBits = function() {\n return this.low_;\n};\n\n\n/** @return {number} The low 32-bits as an unsigned value. */\nKotlin.Long.prototype.getLowBitsUnsigned = function() {\n return (this.low_ >= 0) ?\n   this.low_ : Kotlin.Long.TWO_PWR_32_DBL_ + this.low_;\n};\n\n\n/**\n * @return {number} Returns the number of bits needed to represent the absolute\n *   value of this Long.\n */\nKotlin.Long.prototype.getNumBitsAbs = function() {\n if (this.isNegative()) {\n   if (this.equalsLong(Kotlin.Long.MIN_VALUE)) {\n   return 64;\n   } else {\n   return this.negate().getNumBitsAbs();\n   }\n } else {\n   var val = this.high_ != 0 ? this.high_ : this.low_;\n   for (var bit = 31; bit > 0; bit--) {\n   if ((val & (1 << bit)) != 0) {\n   break;\n   }\n   }\n   return this.high_ != 0 ? bit + 33 : bit + 1;\n }\n};\n\n\n/** @return {boolean} Whether this value is zero. */\nKotlin.Long.prototype.isZero = function() {\n return this.high_ == 0 && this.low_ == 0;\n};\n\n\n/** @return {boolean} Whether this value is negative. */\nKotlin.Long.prototype.isNegative = function() {\n return this.high_ < 0;\n};\n\n\n/** @return {boolean} Whether this value is odd. */\nKotlin.Long.prototype.isOdd = function() {\n return (this.low_ & 1) == 1;\n};\n\n\n/**\n * @param {Kotlin.Long} other Long to compare against.\n * @return {boolean} Whether this Long equals the other.\n */\nKotlin.Long.prototype.equalsLong = function(other) {\n return (this.high_ == other.high_) && (this.low_ == other.low_);\n};\n\n\n/**\n * @param {Kotlin.Long} other Long to compare against.\n * @return {boolean} Whether this Long does not equal the other.\n */\nKotlin.Long.prototype.notEqualsLong = function(other) {\n return (this.high_ != other.high_) || (this.low_ != other.low_);\n};\n\n\n/**\n * @param {Kotlin.Long} other Long to compare against.\n * @return {boolean} Whether this Long is less than the other.\n */\nKotlin.Long.prototype.lessThan = function(other) {\n return this.compare(other) < 0;\n};\n\n\n/**\n * @param {Kotlin.Long} other Long to compare against.\n * @return {boolean} Whether this Long is less than or equal to the other.\n */\nKotlin.Long.prototype.lessThanOrEqual =

function(other) {\n return this.compare(other) <= 0;\n};\n\n\n/**\n * @param {Kotlin.Long} other Long to compare against.\n * @return {boolean} Whether this Long is greater than the other.\n */\nKotlin.Long.prototype.greaterThan = function(other) {\n return this.compare(other) > 0;\n};\n\n\n/**\n * @param {Kotlin.Long} other Long to compare against.\n * @return {boolean} Whether this Long is greater than or equal to the other.\n */\nKotlin.Long.prototype.greaterThanOrEqual = function(other) {\n return this.compare(other) >= 0;\n};\n\n\n/**\n * Compares this Long with the given one.\n * @param {Kotlin.Long} other Long to compare against.\n * @return {number} 0 if they are the same, 1 if the this is greater, and -1\n *   if the given one is greater.\n */\nKotlin.Long.prototype.compare = function(other) {\n if (this.equalsLong(other)) {\n   return 0;\n }\n\n var thisNeg = this.isNegative();\n var otherNeg = other.isNegative();\n if (thisNeg && !otherNeg) {\n   return -1;\n }\n if (!thisNeg && otherNeg) {\n   return 1;\n }\n\n // at this point, the signs are the same, so subtraction will not overflow\n if (this.subtract(other).isNegative()) {\n   return -1;\n } else {\n   return 1;\n }\n};\n\n\n/** @return {!Kotlin.Long} The negation of this value. */\nKotlin.Long.prototype.negate = function() {\n if (this.equalsLong(Kotlin.Long.MIN_VALUE)) {\n   return Kotlin.Long.MIN_VALUE;\n } else {\n   return this.not().add(Kotlin.Long.ONE);\n }\n};\n\n\n/**\n * Returns the sum of this and the given Long.\n * @param {Kotlin.Long} other Long to add to this one.\n * @return {!Kotlin.Long} The sum of this and the given Long.\n */\nKotlin.Long.prototype.add = function(other) {\n // Divide each number into 4 chunks of 16 bits, and then sum the chunks.\n\n var a48 = this.high_ >>> 16;\n var a32 = this.high_ & 0xFFFF;\n var a16 = this.low_ >>> 16;\n var a00 = this.low_ & 0xFFFF;\n\n var b48 = other.high_ >>> 16;\n var b32 = other.high_ & 0xFFFF;\n var b16 = other.low_ >>> 16;\n var b00 = other.low_ & 0xFFFF;\n\n var c48 = 0, c32 = 0, c16 = 0, c00 = 0;\n c00 += a00 + b00;\n c16 += c00 >>> 16;\n c00 &= 0xFFFF;\n c16 += a16 + b16;\n c32 += c16 >>> 16;\n c16 &= 0xFFFF;\n c32 += a32 + b32;\n c48 += c32 >>> 16;\n c32 &= 0xFFFF;\n c48 += a48 + b48;\n c48 &= 0xFFFF;\n return Kotlin.Long.fromBits((c16 << 16) | c00, (c48 << 16) | c32);\n};\n\n\n/**\n * Returns the difference of this and the given Long.\n * @param {Kotlin.Long} other Long to subtract from this.\n * @return {!Kotlin.Long} The difference of this and the given Long.\n */\nKotlin.Long.prototype.subtract = function(other) {\n return this.add(other.negate());\n};\n\n\n/**\n * Returns the product of this and the given long.\n * @param {Kotlin.Long} other Long to multiply with this.\n * @return {!Kotlin.Long} The product of this and the other.\n */\nKotlin.Long.prototype.multiply = function(other) {\n if (this.isZero()) {\n   return Kotlin.Long.ZERO;\n } else if (other.isZero()) {\n   return Kotlin.Long.ZERO;\n }\n\n if (this.equalsLong(Kotlin.Long.MIN_VALUE)) {\n   return other.isOdd() ? Kotlin.Long.MIN_VALUE : Kotlin.Long.ZERO;\n } else if (other.equalsLong(Kotlin.Long.MIN_VALUE)) {\n   return this.isOdd() ? Kotlin.Long.MIN_VALUE : Kotlin.Long.ZERO;\n }\n\n if (this.isNegative()) {\n   if (other.isNegative()) {\n   return this.negate().multiply(other.negate());\n   } else {\n   return this.negate().multiply(other).negate();\n   }\n } else if (other.isNegative()) {\n   return this.multiply(other.negate()).negate();\n }\n\n // If both longs are small, use float multiplication\n if (this.lessThan(Kotlin.Long.TWO_PWR_24_) &&\n   other.lessThan(Kotlin.Long.TWO_PWR_24_)) {\n   return Kotlin.Long.fromNumber(this.toNumber() * other.toNumber());\n }\n\n // Divide each long into 4 chunks of 16 bits, and then add up 4x4 products.\n // We can skip products that would overflow.\n\n var a48 = this.high_ >>> 16;\n var a32 = this.high_ & 0xFFFF;\n var a16 = this.low_ >>> 16;\n var a00 = this.low_ & 0xFFFF;\n\n var b48 = other.high_ >>> 16;\n var b32 = other.high_ & 0xFFFF;\n var b16 = other.low_ >>> 16;\n var b00 = other.low_ & 0xFFFF;\n\n var c48 = 0, c32 = 0, c16 = 0, c00 = 0;\n c00 += a00 * b00;\n c16 += c00 >>> 16;\n c00 &= 0xFFFF;\n c16 += a16 * b00;\n c32 += c16 >>> 16;\n c16 &= 0xFFFF;\n c16 += a00 * b16;\n c32 += c16 >>> 16;\n c16 &= 0xFFFF;\n c32 += a32 * b00;\n c48 += c32 >>> 16;\n c32 &= 0xFFFF;\n c32 += a16 * b16;\n c48 += c32 >>> 16;\n c32 &= 0xFFFF;\n c32 += a00 * b32;\n c48 += c32 >>> 16;\n c32 &= 0xFFFF;\n c48 += a48 * b00 + a32 * b16 + a16 * b32 + a00 * b48;\n c48 &= 0xFFFF;\n return Kotlin.Long.fromBits((c16 << 16) | c00, (c48 << 16) | c32);\n};\n\n\n/**\n * Returns this Long divided by the given one.\n * @param {Kotlin.Long} other Long by which to divide.\n * @return {!Kotlin.Long} This Long divided by the given one.\n */\nKotlin.Long.prototype.div = function(other) {\n if (other.isZero()) {\n   throw Error('division by zero');\n } else if (this.isZero()) {\n   return Kotlin.Long.ZERO;\n }\n\n if (this.equalsLong(Kotlin.Long.MIN_VALUE)) {\n   if (other.equalsLong(Kotlin.Long.ONE) ||\n

other.equalsLong(Kotlin.Long.NEG_ONE)) {\n   return Kotlin.Long.MIN_VALUE; // recall that -MIN_VALUE == MIN_VALUE\n   } else if (other.equalsLong(Kotlin.Long.MIN_VALUE)) {\n   return Kotlin.Long.ONE;\n   } else {\n   // At this point, we have |other| >= 2, so |this/other| < |MIN_VALUE|.\n   var halfThis = this.shiftRight(1);\n   var approx = halfThis.div(other).shiftLeft(1);\n   if (approx.equalsLong(Kotlin.Long.ZERO)) {\n   return other.isNegative() ? Kotlin.Long.ONE : Kotlin.Long.NEG_ONE;\n   } else {\n   var rem = this.subtract(other.multiply(approx));\n   var result = approx.add(rem.div(other));\n   return result;\n   }\n   }\n } else if (other.equalsLong(Kotlin.Long.MIN_VALUE)) {\n   return Kotlin.Long.ZERO;\n }\n\n if (this.isNegative()) {\n   if (other.isNegative()) {\n   return this.negate().div(other.negate());\n   } else {\n   return this.negate().div(other).negate();\n   }\n } else if (other.isNegative()) {\n   return this.div(other.negate()).negate();\n }\n\n // Repeat the following until the remainder is less than other: find a\n // floating-point that approximates remainder / other *from below*, add this\n // into the result, and subtract it from the remainder. It is critical that\n // the approximate value is less than or equal to the real value so that the\n // remainder never becomes negative.\n var res = Kotlin.Long.ZERO;\n var rem = this;\n while (rem.greaterThanOrEqual(other)) {\n   // Approximate the result of division. This may be a little greater or\n   // smaller than the actual value.\n   var approx = Math.max(1, Math.floor(rem.toNumber() / other.toNumber()));\n\n   // We will tweak the approximate result by changing it in the 48-th digit or\n   // the smallest non-fractional digit, whichever is larger.\n   var log2 = Math.ceil(Math.log(approx) / Math.LN2);\n   var delta = (log2 <= 48) ? 1 : Math.pow(2, log2 - 48);\n\n   // Decrease the approximation until it is smaller than the remainder. Note\n   // that if it is too large, the product overflows and is negative.\n   var approxRes = Kotlin.Long.fromNumber(approx);\n   var approxRem = approxRes.multiply(other);\n   while (approxRem.isNegative() || approxRem.greaterThan(rem)) {\n   approx -= delta;\n   approxRes = Kotlin.Long.fromNumber(approx);\n   approxRem = approxRes.multiply(other);\n   }\n\n   // We know the answer can't be zero... and actually, zero would cause\n   // infinite recursion since we would make no progress.\n   if (approxRes.isZero()) {\n   approxRes = Kotlin.Long.ONE;\n   }\n\n   res = res.add(approxRes);\n   rem = rem.subtract(approxRem);\n }\n return res;\n};\n\n\n/**\n * Returns this Long modulo the given one.\n * @param {Kotlin.Long} other Long by which to mod.\n * @return {!Kotlin.Long} This Long modulo the given one.\n */\nKotlin.Long.prototype.modulo = function(other) {\n return this.subtract(this.div(other).multiply(other));\n};\n\n\n/** @return {!Kotlin.Long} The bitwise-NOT of this value. */\nKotlin.Long.prototype.not = function() {\n return Kotlin.Long.fromBits(~this.low_, ~this.high_);\n};\n\n\n/**\n * Returns the bitwise-AND of this Long and the given one.\n * @param {Kotlin.Long} other The Long with which to AND.\n * @return {!Kotlin.Long} The bitwise-AND of this and the other.\n */\nKotlin.Long.prototype.and = function(other) {\n return Kotlin.Long.fromBits(this.low_ & other.low_,\n   this.high_ & other.high_);\n};\n\n\n/**\n * Returns the bitwise-OR of this Long and the given one.\n * @param {Kotlin.Long} other The Long with which to OR.\n * @return {!Kotlin.Long} The bitwise-OR of this and the other.\n */\nKotlin.Long.prototype.or = function(other) {\n return Kotlin.Long.fromBits(this.low_ | other.low_,\n   this.high_ | other.high_);\n};\n\n\n/**\n * Returns the bitwise-XOR of this Long and the given one.\n * @param {Kotlin.Long} other The Long with which to XOR.\n * @return {!Kotlin.Long} The bitwise-XOR of this and the other.\n */\nKotlin.Long.prototype.xor = function(other) {\n return Kotlin.Long.fromBits(this.low_ ^ other.low_,\n   this.high_ ^ other.high_);\n};\n\n\n/**\n * Returns this Long with bits shifted to the left by the given amount.\n * @param {number} numBits The number of bits by which to shift.\n * @return {!Kotlin.Long} This shifted to the left by the given amount.\n */\nKotlin.Long.prototype.shiftLeft = function(numBits) {\n numBits &= 63;\n if (numBits == 0) {\n   return this;\n } else {\n   var low = this.low_;\n   if (numBits < 32) {\n   var high = this.high_;\n   return Kotlin.Long.fromBits(\n   low << numBits,\n   (high << numBits) | (low >>> (32 - numBits)));\n   } else {\n   return Kotlin.Long.fromBits(0, low << (numBits - 32));\n   }\n }\n};\n\n\n/**\n * Returns this Long with bits shifted to the right by the given amount.\n * @param {number} numBits The number of bits by which to shift.\n * @return {!Kotlin.Long} This shifted to the right by the given amount.\n */\nKotlin.Long.prototype.shiftRight = function(numBits) {\n numBits &= 63;\n if (numBits == 0) {\n   return this;\n } else {\n   var high = this.high_;\n

if (numBits < 32) {\n var low = this.low_;\n return Kotlin.Long.fromBits(\n (low >>> numBits) | (high << (32 - numBits)),\n high >> numBits);\n } else {\n return Kotlin.Long.fromBits(\n high >> (numBits - 32),\n high >= 0 ? 0 : -1);\n }\n }\n};\n\n\n/**\n * Returns this Long with bits shifted to the right by the given amount, with\n * zeros placed into the new leading bits.\n * @param {number} numBits The number of bits by which to shift.\n * @return {!Kotlin.Long} This shifted to the right by the given amount, with\n * zeros placed into the new leading bits.\n */\nKotlin.Long.prototype.shiftRightUnsigned = function(numBits) {\n numBits &= 63;\n if (numBits == 0) {\n return this;\n } else {\n var high = this.high_;\n if (numBits < 32) {\n var low = this.low_;\n return Kotlin.Long.fromBits(\n (low >>> numBits) | (high << (32 - numBits)),\n high >>> numBits);\n } else if (numBits == 32) {\n return Kotlin.Long.fromBits(high, 0);\n } else {\n return Kotlin.Long.fromBits(high >>> (numBits - 32), 0);\n }\n }\n};\n\n// Support for Kotlin\nKotlin.Long.prototype.equals = function (other) {\n return other instanceof Kotlin.Long && this.equalsLong(other);\n};\n\nKotlin.Long.prototype.compareTo_11rb$ = Kotlin.Long.prototype.compare;\n\nKotlin.Long.prototype.inc = function() {\n return this.add(Kotlin.Long.ONE);\n};\n\nKotlin.Long.prototype.dec = function() {\n return this.add(Kotlin.Long.NEG_ONE);\n};\n\nKotlin.Long.prototype.valueOf = function() {\n return this.toNumber();\n};\n\nKotlin.Long.prototype.unaryPlus = function() {\n return this;\n};\n\nKotlin.Long.prototype.unaryMinus = Kotlin.Long.prototype.negate;\nKotlin.Long.prototype.inv = Kotlin.Long.prototype.not;\n\nKotlin.Long.prototype.rangeTo = function (other) {\n return new Kotlin.kotlin.ranges.LongRange(this, other);\n};","/*\n * Copyright 2010-2018 JetBrains s.r.o. and Kotlin Programming Language contributors. \n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\n/**\n * @param {string} id\n * @param {Object} declaration\n */\nKotlin.defineModule = function (id, declaration) {\n};\n\nKotlin.defineInlineFunction = function(tag, fun) {\n return fun;\n};\n\nKotlin.wrapFunction = function(fun) {\n var f = function() {\n f = fun();\n return f.apply(this, arguments);\n };\n return function() {\n return f.apply(this, arguments);\n };\n};\n\nKotlin.isTypeOf = function(type) {\n return function (object) {\n return typeof object === type;\n }\n};\n\nKotlin.isInstanceOf = function (klass) {\n return function (object) {\n return Kotlin.isType(object, klass);\n }\n};\n\nKotlin.orNull = function (fn) {\n return function (object) {\n return object == null || fn(object);\n }\n};\n\nKotlin.andPredicate = function (a, b) {\n return function (object) {\n return a(object) && b(object);\n }\n};\n\nKotlin.kotlinModuleMetadata = function (abiVersion, moduleName, data) {\n};\n\nKotlin.suspendCall = function(value) {\n return value;\n};\n\nKotlin.coroutineResult = function(qualifier) {\n throwMarkerError();\n};\n\nKotlin.coroutineController = function(qualifier) {\n throwMarkerError();\n};\n\nKotlin.coroutineReceiver = function(qualifier) {\n throwMarkerError();\n};\n\nKotlin.setCoroutineResult = function(value, qualifier) {\n throwMarkerError();\n};\n\nKotlin.getReifiedTypeParameterKType = function(typeParameter) {\n throwMarkerError();\n};\n\nfunction throwMarkerError() {\n throw new Error(\n \"This marker function should never been called. \" +\n \"Looks like compiler did not eliminate it properly. \" +\n \"Please, report an issue if you caught this exception.\");\n}\n\nKotlin.getFunctionById = function(id, defaultValue) {\n return function() {\n return defaultValue;\n }\n};","/*\n * Copyright 2010-2018 JetBrains s.r.o. and Kotlin Programming Language contributors. \n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\nKotlin.compareTo = function (a, b) {\n var typeA = typeof a;\n if (typeA === \"number\") {\n if (typeof b === \"number\") {\n return Kotlin.doubleCompareTo(a, b);\n }\n return Kotlin.primitiveCompareTo(a, b);\n }\n if (typeA === \"string\" || typeA === \"boolean\") {\n return Kotlin.primitiveCompareTo(a, b);\n }\n return a.compareTo_11rb$(b);\n};\n\nKotlin.primitiveCompareTo = function (a, b) {\n return a < b ? -1 : a > b ? 1 : 0;\n};\n\nKotlin.doubleCompareTo = function (a, b) {\n if (a < b) return -1;\n if (a > b) return 1;\n\n if (a === b) {\n if (a !== 0) return 0;\n\n var ia = 1 / a;\n return ia === 1 / b ? 0 : (ia < 0 ? -1 : 1);\n }\n\n return a !== a ? (b !== b ? 0 : 1) : -1\n};\n\nKotlin.charInc = function (value) {\n return Kotlin.toChar(value+1);\n};\n\nKotlin.charDec = function (value) {\n return Kotlin.toChar(value-

1);\n};\n\nKotlin.imul = Math.imul || imul;\n\nKotlin.imulEmulated = imul;\n\nfunction imul(a, b) {\n   return ((a & 0xffff0000) * (b & 0xffff) + (a & 0xffff) * (b | 0)) | 0;\n}\n\n(function() {\n   var buf = new ArrayBuffer(8);\n   var bufFloat64 = new Float64Array(buf);\n   var bufFloat32 = new Float32Array(buf);\n   var bufInt32 = new Int32Array(buf);\n   var lowIndex = 0;\n   var highIndex = 1;\n\n   bufFloat64[0] = -1; // bff00000_00000000\n   if (bufInt32[lowIndex] !== 0) {\n   lowIndex = 1;\n   highIndex = 0;\n   }\n\n   Kotlin.doubleToBits = function(value) {\n   return Kotlin.doubleToRawBits(isNaN(value) ? NaN : value);\n   };\n\n   Kotlin.doubleToRawBits = function(value) {\n   bufFloat64[0] = value;\n   return Kotlin.Long.fromBits(bufInt32[lowIndex], bufInt32[highIndex]);\n   };\n\n   Kotlin.doubleFromBits = function(value) {\n   bufInt32[lowIndex] = value.low_;\n   bufInt32[highIndex] = value.high_;\n   return bufFloat64[0];\n   };\n\n   Kotlin.floatToBits = function(value) {\n   return Kotlin.floatToRawBits(isNaN(value) ? NaN : value);\n   };\n\n   Kotlin.floatToRawBits = function(value) {\n   bufFloat32[0] = value;\n   return bufInt32[0];\n   };\n\n   Kotlin.floatFromBits = function(value) {\n   bufInt32[0] = value;\n   return bufFloat32[0];\n   };\n\n   // returns zero value for number with positive sign bit and non-zero value for number with negative sign bit.\n   Kotlin.doubleSignBit = function(value) {\n   bufFloat64[0] = value;\n   return bufInt32[highIndex] & 0x80000000;\n   };\n\n   Kotlin.numberHashCode = function(obj) {\n   if ((obj | 0) === obj) {\n   return obj | 0;\n   }\n   else {\n   bufFloat64[0] = obj;\n   return (bufInt32[highIndex] * 31 | 0) + bufInt32[lowIndex] | 0;\n   }\n   }\n})();\n\nKotlin.ensureNotNull = function(x) {\n   return x != null ? x : Kotlin.throwNPE();\n};\n","/*\n * Copyright 2010-2020 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\nif (typeof String.prototype.startsWith === \"undefined\") {\n   Object.defineProperty(String.prototype, \"startsWith\", {\n   value: function (searchString, position) {\n   position = position || 0;\n   return this.lastIndexOf(searchString, position) === position;\n   }\n   });\n}\nif (typeof String.prototype.endsWith === \"undefined\") {\n   Object.defineProperty(String.prototype, \"endsWith\", {\n   value: function (searchString, position) {\n   var subjectString = this.toString();\n   if (position === undefined || position > subjectString.length) {\n   position = subjectString.length;\n   }\n   position -= searchString.length;\n   var lastIndex = subjectString.indexOf(searchString, position);\n   return lastIndex !== -1 && lastIndex === position;\n   }\n   });\n}\n// ES6 Math polyfills\nif (typeof Math.sign === \"undefined\") {\n   Math.sign = function(x) {\n   x = +x; // convert to a number\n   if (x === 0 || isNaN(x)) {\n   return Number(x);\n   }\n   return x > 0 ? 1 : -1;\n   };\n}\nif (typeof Math.trunc === \"undefined\") {\n   Math.trunc = function(x) {\n   if (isNaN(x)) {\n   return NaN;\n   }\n   if (x > 0) {\n   return Math.floor(x);\n   }\n   return Math.ceil(x);\n   };\n}\n\n(function() {\n   var epsilon = 2.220446049250313E-16;\n   var taylor_2_bound = Math.sqrt(epsilon);\n   var taylor_n_bound = Math.sqrt(taylor_2_bound);\n   var upper_taylor_2_bound = 1/taylor_2_bound;\n   var upper_taylor_n_bound = 1/taylor_n_bound;\n\n   if (typeof Math.sinh === \"undefined\") {\n   Math.sinh = function(x) {\n   if (Math.abs(x) < taylor_n_bound) {\n   var result = x;\n   if (Math.abs(x) > taylor_2_bound) {\n   result += (x * x * x) / 6;\n   }\n   return result;\n   } else {\n   var y = Math.exp(x);\n   var y1 = 1 / y;\n   if (!isFinite(y)) return Math.exp(x - Math.LN2);\n   if (!isFinite(y1)) return -Math.exp(-x - Math.LN2);\n   return (y - y1) / 2;\n   }\n   };\n   }\n   if (typeof Math.cosh === \"undefined\") {\n   Math.cosh = function(x) {\n   var y = Math.exp(x);\n   var y1 = 1 / y;\n   if (!isFinite(y) || !isFinite(y1)) return Math.exp(Math.abs(x) - Math.LN2);\n   return (y + y1) / 2;\n   };\n   }\n\n   if (typeof Math.tanh === \"undefined\") {\n   Math.tanh = function(x){\n   if (Math.abs(x) < taylor_n_bound) {\n   var result = x;\n   if (Math.abs(x) > taylor_2_bound) {\n   result -= (x * x * x) / 3;\n   }\n   return result;\n   }\n   else {\n   var a = Math.exp(+x), b = Math.exp(-x);\n   return a === Infinity ? 1 : b === Infinity ? -1 : (a - b) / (a + b);\n   }\n   };\n   }\n\n   // Inverse hyperbolic function implementations derived from boost special math functions,\n   // Copyright Eric Ford & Hubert Holin 2001.\n\n   if (typeof Math.asinh === \"undefined\") {\n   var asinh = function(x) {\n   if (x >= +taylor_n_bound)\n   {\n   if (x > upper_taylor_n_bound)\n   {\n   if (x > upper_taylor_2_bound)\n   {\n   // approximation by laurent series in

1/x at 0+ order from -1 to 0\n return Math.log(x) + Math.LN2;\n }\n else\n {\n // approximation by laurent series in 1/x at 0+ order from -1 to 1\n return Math.log(x * 2 + (1 / (x * 2)));\n }\n }\n else\n {\n return Math.log(x + Math.sqrt(x * x + 1));\n }\n }\n else if (x <= -taylor_n_bound)\n {\n return -asinh(-x);\n }\n else\n {\n // approximation by taylor series in x at 0 up to order 2\n var result = x;\n if (Math.abs(x) >= taylor_2_bound)\n {\n var x3 = x * x * x;\n // approximation by taylor series in x at 0 up to order 4\n result -= x3 / 6;\n }\n return result;\n }\n };\n Math.asinh = asinh;\n }\n if (typeof Math.acosh === \"undefined\") {\n Math.acosh = function(x) {\n if (x < 1)\n {\n return NaN;\n }\n else if (x - 1 >= taylor_n_bound)\n {\n if (x > upper_taylor_2_bound)\n {\n // approximation by laurent series in 1/x at 0+ order from -1 to 0\n return Math.log(x) + Math.LN2;\n }\n else\n {\n return Math.log(x + Math.sqrt(x * x - 1));\n }\n }\n else\n {\n var y = Math.sqrt(x - 1);\n // approximation by taylor series in y at 0 up to order 2\n var result = y;\n if (y >= taylor_2_bound)\n {\n var y3 = y * y * y;\n // approximation by taylor series in y at 0 up to order 4\n result -= y3 / 12;\n }\n\n return Math.sqrt(2) * result;\n }\n };\n }\n if (typeof Math.atanh === \"undefined\") {\n Math.atanh = function(x) {\n if (Math.abs(x) < taylor_n_bound) {\n var result = x;\n if (Math.abs(x) > taylor_2_bound) {\n result += (x * x * x) / 3;\n }\n return result;\n }\n return Math.log((1 + x) / (1 - x)) / 2;\n };\n }\n if (typeof Math.log1p === \"undefined\") {\n Math.log1p = function(x) {\n if (Math.abs(x) < taylor_n_bound) {\n var x2 = x * x;\n var x3 = x2 * x;\n var x4 = x3 * x;\n // approximation by taylor series in x at 0 up to order 4\n return (-x4 / 4 + x3 / 3 - x2 / 2 + x);\n }\n return Math.log(x + 1);\n };\n }\n if (typeof Math.expm1 === \"undefined\") {\n Math.expm1 = function(x) {\n if (Math.abs(x) < taylor_n_bound) {\n var x2 = x * x;\n var x3 = x2 * x;\n var x4 = x3 * x;\n // approximation by taylor series in x at 0 up to order 4\n return (x4 / 24 + x3 / 6 + x2 / 2 + x);\n }\n return Math.exp(x) - 1;\n };\n }\n})();\nif (typeof Math.hypot === \"undefined\") {\n Math.hypot = function() {\n var y = 0;\n var length = arguments.length;\n\n for (var i = 0; i < length; i++) {\n if (arguments[i] === Infinity || arguments[i] === -Infinity) {\n return Infinity;\n }\n y += arguments[i] * arguments[i];\n }\n return Math.sqrt(y);\n };\n}\nif (typeof Math.log10 === \"undefined\") {\n Math.log10 = function(x) {\n return Math.log(x) * Math.LOG10E;\n };\n}\nif (typeof Math.log2 === \"undefined\") {\n Math.log2 = function(x) {\n return Math.log(x) * Math.LOG2E;\n };\n}\nif (typeof Math.clz32 === \"undefined\") {\n Math.clz32 = (function(log, LN2) {\n return function(x) {\n var asUint = x >>> 0;\n if (asUint === 0) {\n return 32;\n }\n return 31 - (log(asUint) / LN2 | 0) | 0; // the \"| 0\" acts like math.floor\n };\n })(Math.log, Math.LN2);\n}\n\n// For HtmlUnit and PhantomJs\nif (typeof ArrayBuffer.isView === \"undefined\") {\n ArrayBuffer.isView = function(a) {\n return a != null && a.__proto__ != null && a.__proto__.__proto__ === Int8Array.prototype.__proto__;\n };\n}\n\nif (typeof Array.prototype.fill === \"undefined\") {\n // Polyfill from https://developer.mozilla.org/en-US/docs/Web/JavaScript/Reference/Global_Objects/Array/fill#Polyfill\n Object.defineProperty(Array.prototype, 'fill', {\n value: function (value) {\n\n // Steps 1-2.\n if (this == null) {\n throw new TypeError('this is null or not defined');\n }\n\n var O = Object(this);\n\n // Steps 3-5.\n var len = O.length >>> 0;\n\n // Steps 6-7.\n var start = arguments[1];\n var relativeStart = start >> 0;\n\n // Step 8.\n var k = relativeStart < 0 ?\n Math.max(len + relativeStart, 0) :\n Math.min(relativeStart, len);\n\n // Steps 9-10.\n var end = arguments[2];\n var relativeEnd = end === undefined ?\n len : end >> 0;\n\n // Step 11.\n var finalValue = relativeEnd < 0 ?\n Math.max(len + relativeEnd, 0) :\n Math.min(relativeEnd, len);\n\n // Step 12.\n while (k < finalValue) {\n O[k] = value;\n k++;\n }\n\n // Step 13.\n return O;\n }\n });\n}\n\n(function() {\n function normalizeOffset(offset, length) {\n if (offset < 0) return Math.max(0, offset + length);\n return Math.min(offset, length);\n }\n function

typedArraySlice(begin, end) {\n if (typeof end === \"undefined\") {\n end = this.length;\n }\n begin = normalizeOffset(begin || 0, this.length);\n end = Math.max(begin, normalizeOffset(end, this.length));\n return new this.constructor(this.subarray(begin, end));\n }\n\n var arrays = [Int8Array, Int16Array, Uint16Array, Int32Array, Float32Array, Float64Array];\n for (var i = 0; i < arrays.length; ++i) {\n var TypedArray = arrays[i];\n if (typeof TypedArray.prototype.fill === \"undefined\") {\n Object.defineProperty(TypedArray.prototype, 'fill', {\n value: Array.prototype.fill\n });\n }\n if (typeof TypedArray.prototype.slice === \"undefined\") {\n Object.defineProperty(TypedArray.prototype, 'slice', {\n value: typedArraySlice\n });\n }\n }\n\n // Patch apply to work with TypedArrays if needed.\n try {\n (function() {}).apply(null, new Int32Array(0))\n } catch (e) {\n var apply = Function.prototype.apply;\n Object.defineProperty(Function.prototype, 'apply', {\n value: function(self, array) {\n return apply.call(this, self, [].slice.call(array));\n }\n });\n }\n\n\n // Patch map to work with TypedArrays if needed.\n for (var i = 0; i < arrays.length; ++i) {\n var TypedArray = arrays[i];\n if (typeof TypedArray.prototype.map === \"undefined\") {\n Object.defineProperty(TypedArray.prototype, 'map', {\n value: function(callback, self) {\n return [].slice.call(this).map(callback, self);\n }\n });\n }\n }\n\n // Patch sort to work with TypedArrays if needed.\n // TODO: consider to remove following function and replace it with `Kotlin.doubleCompareTo` (see misc.js)\n var totalOrderComparator = function (a, b) {\n if (a < b) return -1;\n if (a > b) return 1;\n\n if (a === b) {\n if (a !== 0) return 0;\n\n var ia = 1 / a;\n return ia === 1 / b ? 0 : (ia < 0 ? -1 : 1);\n }\n\n return a !== a ? (b !== b ? 0 : 1) : -1\n };\n\n for (var i = 0; i < arrays.length; ++i) {\n var TypedArray = arrays[i];\n if (typeof TypedArray.prototype.sort === \"undefined\") {\n Object.defineProperty(TypedArray.prototype, 'sort', {\n value: function(compareFunction) {\n return Array.prototype.sort.call(this, compareFunction || totalOrderComparator);\n }\n });\n }\n }\n})();\n","/*\n * Copyright 2010-2018 JetBrains s.r.o. and Kotlin Programming Language contributors. \n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\nKotlin.Kind = {\n CLASS: \"class\",\n INTERFACE: \"interface\",\n OBJECT: \"object\"\n};\n\nKotlin.callGetter = function (thisObject, klass, propertyName) {\n var propertyDescriptor = Object.getOwnPropertyDescriptor(klass, propertyName);\n if (propertyDescriptor != null && propertyDescriptor.get != null) {\n return propertyDescriptor.get.call(thisObject);\n }\n\n propertyDescriptor = Object.getOwnPropertyDescriptor(thisObject, propertyName);\n if (propertyDescriptor != null && \"value\" in propertyDescriptor) {\n return thisObject[propertyName];\n }\n\n return Kotlin.callGetter(thisObject, Object.getPrototypeOf(klass), propertyName);\n};\n\nKotlin.callSetter = function (thisObject, klass, propertyName, value) {\n var propertyDescriptor = Object.getOwnPropertyDescriptor(klass, propertyName);\n if (propertyDescriptor != null && propertyDescriptor.set != null) {\n propertyDescriptor.set.call(thisObject, value);\n return;\n }\n\n propertyDescriptor = Object.getOwnPropertyDescriptor(thisObject, propertyName);\n if (propertyDescriptor != null && \"value\" in propertyDescriptor) {\n thisObject[propertyName] = value;\n return\n }\n\n Kotlin.callSetter(thisObject, Object.getPrototypeOf(klass), propertyName, value);\n};\n\nfunction isInheritanceFromInterface(ctor, iface) {\n if (ctor === iface) return true;\n\n var metadata = ctor.$metadata$;\n if (metadata != null) {\n var interfaces = metadata.interfaces;\n for (var i = 0; i < interfaces.length; i++) {\n if (isInheritanceFromInterface(interfaces[i], iface)) {\n return true;\n }\n }\n }\n\n var superPrototype = ctor.prototype != null ? Object.getPrototypeOf(ctor.prototype) : null;\n var superConstructor = superPrototype != null ? superPrototype.constructor : null;\n return superConstructor != null && isInheritanceFromInterface(superConstructor, iface);\n}\n\n/**\n *\n * @param {*} object\n * @param {Function|Object} klass\n * @returns {Boolean}\n */\nKotlin.isType = function (object, klass) {\n if (klass === Object) {\n switch (typeof object) {\n case \"string\":\n case \"number\":\n case \"boolean\":\n case \"function\":\n return true;\n default:\n return object instanceof Object;\n }\n }\n\n if (object == null || klass == null || (typeof object !== 'object' && typeof object !== 'function')) {\n return false;\n }\n\n if (typeof klass === \"function\" && object instanceof klass) {\n return true;\n }\n\n var proto = Object.getPrototypeOf(klass);\n var constructor = proto != null ? proto.constructor : null;\n if (constructor != null && \"$metadata$\" in constructor) {\n var metadata = constructor.$metadata$;\n if (metadata.kind === Kotlin.Kind.OBJECT) {\n return object === klass;\n }\n }\n\n var klassMetadata = klass.$metadata$;\n\n // In WebKit (JavaScriptCore) for some interfaces from DOM typeof returns \"object\", nevertheless they can be used in RHS of instanceof\n if (klassMetadata == null) {\n return object instanceof klass;\n }\n\n if (klassMetadata.kind === Kotlin.Kind.INTERFACE && object.constructor != null) {\n return isInheritanceFromInterface(object.constructor, klass);\n }\n\n return false;\n};\n\nKotlin.isNumber = function (a) {\n return typeof a == \"number\" || a instanceof Kotlin.Long;\n};\n\nKotlin.isChar = function (value) {\n return value instanceof Kotlin.BoxedChar\n};\n\nKotlin.isComparable = function (value) {\n var type = typeof value;\n\n return type === \"string\" ||\n type === \"boolean\" ||\n Kotlin.isNumber(value) ||\n Kotlin.isType(value, Kotlin.kotlin.Comparable);\n};\n\nKotlin.isCharSequence = function (value) {\n return typeof value === \"string\" || Kotlin.isType(value, Kotlin.kotlin.CharSequence);\n};","/*\n * Copyright 2010-2020 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\n// a package is omitted to get declarations directly under the module\n\n@PublishedApi\nexternal internal fun <T> Array(size: Int): Array<T>\n\n@JsName(\"newArray\")\nfun <T> newArray(size: Int, initValue: T) = fillArrayVal(Array<T>(size), initValue)\n\n@JsName(\"newArrayF\")\ninline fun <T> arrayWithFun(size: Int, init: (Int) -> T) = fillArrayFun(Array<T>(size), init)\n\n@JsName(\"fillArray\")\ninline fun <T> fillArrayFun(array: Array<T>, init: (Int) -> T): Array<T> {\n for (i in 0..array.size - 1) {\n array[i] = init(i)\n }\n return array\n}\n\n@JsName(\"booleanArray\")\nfun booleanArray(size: Int, init: dynamic): Array<Boolean> {\n val result: dynamic = Array<Boolean>(size)\n result.`$type$` = \"BooleanArray\"\n return when (init) {\n null, true -> fillArrayVal(result, false)\n false -> result\n else -> fillArrayFun<Boolean>(result, init)\n }\n}\n\n@JsName(\"booleanArrayF\")\ninline fun booleanArrayWithFun(size: Int, init: (Int) -> Boolean): Array<Boolean> = fillArrayFun(booleanArray(size, false), init)\n\n@JsName(\"charArray\")\n@Suppress(\"UNUSED_PARAMETER\")\nfun charArray(size: Int, init: dynamic): Array<Char> {\n val result = js(\"new Uint16Array(size)\")\n result.`$type$` = \"CharArray\"\n return when (init) {\n null, true, false -> result // For consistency\n else -> fillArrayFun<Char>(result, init)\n }\n}\n\n@JsName(\"charArrayF\")\ninline fun charArrayWithFun(size: Int, init: (Int) -> Char): Array<Char> {\n val array = charArray(size, null)\n for (i in 0..array.size - 1) {\n @Suppress(\"UNUSED_VARIABLE\") // used in js block\n val value = init(i)\n js(\"array[i] = value;\")\n }\n return array\n}\n\n@JsName(\"untypedCharArrayF\")\ninline fun untypedCharArrayWithFun(size: Int, init: (Int) -> Char): Array<Char> {\n val array = Array<Char>(size)\n for (i in 0..array.size - 1) {\n @Suppress(\"UNUSED_VARIABLE\") // used in js block\n val value = init(i)\n js(\"array[i] = value;\")\n }\n return array\n}\n\n@JsName(\"longArray\")\nfun longArray(size: Int, init: dynamic): Array<Long> {\n val result: dynamic = Array<Long>(size)\n result.`$type$` = \"LongArray\"\n return when (init) {\n null, true -> fillArrayVal(result, 0L)\n false -> result\n else -> fillArrayFun<Long>(result, init)\n }\n}\n\n@JsName(\"longArrayF\")\ninline fun longArrayWithFun(size: Int, init: (Int) -> Long): Array<Long> = fillArrayFun(longArray(size, false), init)\n\nprivate fun <T> fillArrayVal(array: Array<T>, initValue: T): Array<T> {\n for (i in 0..array.size - 1) {\n array[i] = initValue\n }\n return array\n}","/*\n * Copyright 2010-2018 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin\n\npublic class Enum<T : Enum<T>> : Comparable<Enum<T>> {\n @JsName(\"name$\") private var _name: String = \"\"\n @JsName(\"ordinal$\") private var _ordinal: Int = 0\n\n val name: String\n get() = _name\n\n val ordinal: Int\n get() = _ordinal\n\n override fun compareTo(other: Enum<T>) = ordinal.compareTo(other.ordinal)\n\n override fun equals(other: Any?) = this === other\n\n override fun hashCode(): Int = js(\"Kotlin.identityHashCode\")(this)\n\n override fun toString() = name\n\n companion object\n}","/*\n * Copyright 2010-2018 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is

governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin.js.internal\n\n@JsName(\"DoubleCompanionObject\")\ninternal object DoubleCompanionObject {\n @JsName(\"MIN_VALUE\")\n   const val MIN_VALUE: Double = 4.9E-324\n\n @JsName(\"MAX_VALUE\")\n   const val MAX_VALUE: Double = 1.7976931348623157E308\n\n @JsName(\"POSITIVE_INFINITY\")\n   @Suppress(\"DIVISION_BY_ZERO\")\n   const val POSITIVE_INFINITY: Double = 1.0 / 0.0\n\n   @JsName(\"NEGATIVE_INFINITY\")\n @Suppress(\"DIVISION_BY_ZERO\")\n   const val NEGATIVE_INFINITY: Double = -1.0 / 0.0\n\n @JsName(\"NaN\")\n   @Suppress(\"DIVISION_BY_ZERO\")\n   const val NaN: Double = -(0.0 / 0.0)\n\n @JsName(\"SIZE_BYTES\")\n   const val SIZE_BYTES = 8\n\n   @JsName(\"SIZE_BITS\")\n   const val SIZE_BITS = 64\n}\n\n@JsName(\"FloatCompanionObject\")\ninternal object FloatCompanionObject {\n @JsName(\"MIN_VALUE\")\n   const val MIN_VALUE: Float = 1.4E-45F\n\n   @JsName(\"MAX_VALUE\")\n const val MAX_VALUE: Float = 3.4028235E38F\n\n   @JsName(\"POSITIVE_INFINITY\")\n @Suppress(\"DIVISION_BY_ZERO\")\n   const val POSITIVE_INFINITY: Float = 1.0F / 0.0F\n\n @JsName(\"NEGATIVE_INFINITY\")\n   @Suppress(\"DIVISION_BY_ZERO\")\n   const val NEGATIVE_INFINITY: Float = -1.0F / 0.0F\n\n   @JsName(\"NaN\")\n @Suppress(\"DIVISION_BY_ZERO\")\n   const val NaN: Float = -(0.0F / 0.0F)\n\n @JsName(\"SIZE_BYTES\")\n   const val SIZE_BYTES = 4\n\n   @JsName(\"SIZE_BITS\")\n   const val SIZE_BITS = 32\n}\n\n@JsName(\"IntCompanionObject\")\ninternal object IntCompanionObject {\n @JsName(\"MIN_VALUE\")\n   val MIN_VALUE: Int = -2147483647 - 1\n\n   @JsName(\"MAX_VALUE\")\n val MAX_VALUE: Int = 2147483647\n\n   @JsName(\"SIZE_BYTES\")\n   const val SIZE_BYTES = 4\n\n @JsName(\"SIZE_BITS\")\n   const val SIZE_BITS = 32\n}\n\n@JsName(\"LongCompanionObject\")\ninternal object LongCompanionObject {\n   @JsName(\"MIN_VALUE\")\n   val MIN_VALUE: Long = js(\"Kotlin.Long.MIN_VALUE\")\n\n   @JsName(\"MAX_VALUE\")\n   val MAX_VALUE: Long = js(\"Kotlin.Long.MAX_VALUE\")\n\n   @JsName(\"SIZE_BYTES\")\n   const val SIZE_BYTES = 8\n\n @JsName(\"SIZE_BITS\")\n   const val SIZE_BITS = 64\n}\n\n@JsName(\"ShortCompanionObject\")\ninternal object ShortCompanionObject {\n   @JsName(\"MIN_VALUE\")\n   val MIN_VALUE: Short = -32768\n\n @JsName(\"MAX_VALUE\")\n   val MAX_VALUE: Short = 32767\n\n   @JsName(\"SIZE_BYTES\")\n   const val SIZE_BYTES = 2\n\n   @JsName(\"SIZE_BITS\")\n   const val SIZE_BITS = 16\n}\n\n@JsName(\"ByteCompanionObject\")\ninternal object ByteCompanionObject {\n @JsName(\"MIN_VALUE\")\n   val MIN_VALUE: Byte = -128\n\n   @JsName(\"MAX_VALUE\")\n   val MAX_VALUE: Byte = 127\n\n   @JsName(\"SIZE_BYTES\")\n   const val SIZE_BYTES = 1\n\n @JsName(\"SIZE_BITS\")\n   const val SIZE_BITS = 8\n}\n\n@JsName(\"CharCompanionObject\")\ninternal object CharCompanionObject {\n   @JsName(\"MIN_VALUE\")\n   public const val MIN_VALUE: Char = '\\u0000'\n\n   @JsName(\"MAX_VALUE\")\n   public const val MAX_VALUE: Char = '\\uFFFF'\n\n @JsName(\"MIN_HIGH_SURROGATE\")\n   public const val MIN_HIGH_SURROGATE: Char = '\\uD800'\n\n @JsName(\"MAX_HIGH_SURROGATE\")\n   public const val MAX_HIGH_SURROGATE: Char = '\\uDBFF'\n\n   @JsName(\"MIN_LOW_SURROGATE\")\n   public const val MIN_LOW_SURROGATE: Char = '\\uDC00'\n\n   @JsName(\"MAX_LOW_SURROGATE\")\n   public const val MAX_LOW_SURROGATE: Char = '\\uDFFF'\n\n   @JsName(\"MIN_SURROGATE\")\n   public const val MIN_SURROGATE: Char = MIN_HIGH_SURROGATE\n\n   @JsName(\"MAX_SURROGATE\")\n   public const val MAX_SURROGATE: Char = MAX_LOW_SURROGATE\n\n   @JsName(\"SIZE_BYTES\")\n   const val SIZE_BYTES = 2\n\n @JsName(\"SIZE_BITS\")\n   const val SIZE_BITS = 16\n}\n\ninternal object StringCompanionObject {}\n\ninternal object BooleanCompanionObject {}\n\n","/*\n * Copyright 2010-2022 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\n@file:kotlin.jvm.JvmMultifileClass\n@file:kotlin.jvm.JvmName(\"ArraysKt\")\n\npackage kotlin.collections\n\n//\n// NOTE: THIS FILE IS AUTO-GENERATED by the GenerateStandardLib.kt\n// See: https://github.com/JetBrains/kotlin/tree/master/libraries/stdlib\n//\n\nimport kotlin.random.*\nimport kotlin.ranges.contains\nimport kotlin.ranges.reversed\n\n/**\n * Returns 1st *element* from the array.\n * \n * If the size of this array is less than 1, throws an [IndexOutOfBoundsException] except in Kotlin/JS\n * where the behavior is unspecified.\n */\n@kotlin.internal.InlineOnly\npublic inline operator fun <T> Array<out T>.component1(): T {\n   return get(0)\n}\n\n/**\n * Returns 1st *element* from the array.\n * \n * If the size of this array is less than 1, throws an [IndexOutOfBoundsException] except in Kotlin/JS\n * where the behavior is unspecified.\n */\n@kotlin.internal.InlineOnly\npublic inline operator fun ByteArray.component1(): Byte {\n   return get(0)\n}\n\n/**\n * Returns 1st *element* from the array.\n * \n * If the size of this array is less than 1, throws an [IndexOutOfBoundsException] except in Kotlin/JS\n * where the behavior is unspecified.\n */\n@kotlin.internal.InlineOnly\npublic inline operator fun ShortArray.component1(): Short {\n   return get(0)\n}\n\n/**\n * Returns 1st *element* from the array.\n * \n * If the size of this array is less than 1, throws an [IndexOutOfBoundsException] except in Kotlin/JS\n * where the behavior is unspecified.\n */\n@kotlin.internal.InlineOnly\npublic inline operator fun IntArray.component1(): Int {\n   return get(0)\n}\n\n/**\n * Returns 1st *element* from the array.\n * \n * If the size of this array is less than 1, throws an [IndexOutOfBoundsException] except in Kotlin/JS\n * where the behavior is unspecified.\n */\n@kotlin.internal.InlineOnly\npublic inline operator fun LongArray.component1(): Long {\n   return get(0)\n}\n\n/**\n * Returns 1st *element* from the array.\n * \n * If the size of this array is less than 1, throws an [IndexOutOfBoundsException] except in Kotlin/JS\n * where the behavior is unspecified.\n */\n@kotlin.internal.InlineOnly\npublic inline operator fun FloatArray.component1(): Float {\n   return get(0)\n}\n\n/**\n * Returns 1st *element* from the array.\n * \n * If the size of this array is less than 1, throws an [IndexOutOfBoundsException] except in Kotlin/JS\n * where the behavior is unspecified.\n */\n@kotlin.internal.InlineOnly\npublic inline operator fun DoubleArray.component1(): Double {\n   return get(0)\n}\n\n/**\n * Returns 1st *element* from the array.\n * \n * If the size of this array is less than 1, throws an [IndexOutOfBoundsException] except in Kotlin/JS\n * where the behavior is unspecified.\n */\n@kotlin.internal.InlineOnly\npublic inline operator fun BooleanArray.component1(): Boolean {\n   return get(0)\n}\n\n/**\n * Returns 1st *element* from the array.\n * \n * If the size of this array is less than 1, throws an [IndexOutOfBoundsException] except in Kotlin/JS\n * where the behavior is unspecified.\n */\n@kotlin.internal.InlineOnly\npublic inline operator fun CharArray.component1(): Char {\n   return get(0)\n}\n\n/**\n * Returns 2nd *element* from the array.\n * \n * If the size of this array is less than 2, throws an [IndexOutOfBoundsException] except in Kotlin/JS\n * where the behavior is unspecified.\n */\n@kotlin.internal.InlineOnly\npublic inline operator fun <T> Array<out T>.component2(): T {\n   return get(1)\n}\n\n/**\n * Returns 2nd *element* from the array.\n * \n * If the size of this array is less than 2, throws an [IndexOutOfBoundsException] except in Kotlin/JS\n * where the behavior is unspecified.\n */\n@kotlin.internal.InlineOnly\npublic inline operator fun ByteArray.component2(): Byte {\n   return get(1)\n}\n\n/**\n * Returns 2nd *element* from the array.\n * \n * If the size of this array is less than 2, throws an [IndexOutOfBoundsException] except in Kotlin/JS\n * where the behavior is unspecified.\n */\n@kotlin.internal.InlineOnly\npublic inline operator fun ShortArray.component2(): Short {\n   return get(1)\n}\n\n/**\n * Returns 2nd *element* from the array.\n * \n * If the size of this array is less than 2, throws an [IndexOutOfBoundsException] except in Kotlin/JS\n * where the behavior is unspecified.\n */\n@kotlin.internal.InlineOnly\npublic inline operator fun IntArray.component2(): Int {\n   return get(1)\n}\n\n/**\n * Returns 2nd *element* from the array.\n * \n * If the size of this array is less than 2, throws an [IndexOutOfBoundsException] except in Kotlin/JS\n * where the behavior is unspecified.\n */\n@kotlin.internal.InlineOnly\npublic inline operator fun LongArray.component2(): Long {\n   return get(1)\n}\n\n/**\n * Returns 2nd *element* from the array.\n * \n * If the size of this array is less than 2, throws an [IndexOutOfBoundsException] except in Kotlin/JS\n * where the behavior is unspecified.\n */\n@kotlin.internal.InlineOnly\npublic inline operator fun FloatArray.component2(): Float {\n   return get(1)\n}\n\n/**\n * Returns 2nd *element* from the array.\n * \n * If the size of this array is less than 2, throws an [IndexOutOfBoundsException] except in Kotlin/JS\n * where the behavior is unspecified.\n */\n@kotlin.internal.InlineOnly\npublic inline operator fun DoubleArray.component2(): Double {\n   return get(1)\n}\n\n/**\n * Returns 2nd *element* from the array.\n * \n * If the size of this array is less than 2, throws an [IndexOutOfBoundsException] except in Kotlin/JS\n * where the behavior is unspecified.\n */\n@kotlin.internal.InlineOnly\npublic inline operator fun BooleanArray.component2(): Boolean {\n   return get(1)\n}\n\n/**\n * Returns 2nd *element* from the array.\n * \n * If the size of this array is less than 2, throws an [IndexOutOfBoundsException] except in Kotlin/JS\n * where the behavior is unspecified.\n */\n@kotlin.internal.InlineOnly\npublic inline operator fun CharArray.component2(): Char {\n   return get(1)\n}\n\n/**\n * Returns 3rd *element* from the array.\n * \n * If the size of this array is less than 3, throws an [IndexOutOfBoundsException] except in Kotlin/JS\n * where the behavior is unspecified.\n */\n@kotlin.internal.InlineOnly\npublic inline operator fun <T> Array<out T>.component3(): T {\n   return get(2)\n}\n\n/**\n * Returns 3rd *element* from the array.\n * \n * If the size of this array is less than 3, throws an [IndexOutOfBoundsException] except in Kotlin/JS\n * where the behavior is unspecified.\n */\n@kotlin.internal.InlineOnly\npublic inline operator fun ByteArray.component3(): Byte {\n   return get(2)\n}\n\n/**\n * Returns 3rd *element* from the array.\n * \n * If the size of this array is less than 3, throws an [IndexOutOfBoundsException] except in Kotlin/JS\n * where the behavior is unspecified.\n */\n@kotlin.internal.InlineOnly\npublic inline operator fun ShortArray.component3(): Short {\n   return get(2)\n}\n\n/**\n * Returns 3rd *element* from the array.\n * \n * If the size of this array is less than 3, throws an [IndexOutOfBoundsException] except in Kotlin/JS\n * where the behavior is unspecified.\n */\n@kotlin.internal.InlineOnly\npublic inline operator fun IntArray.component3(): Int {\n   return get(2)\n}\n\n/**\n * Returns 3rd *element* from the array.\n * \n * If the size of this array is less than 3, throws an [IndexOutOfBoundsException] except in Kotlin/JS\n * where the behavior is unspecified.\n */\n@kotlin.internal.InlineOnly\npublic inline operator fun LongArray.component3(): Long {\n   return get(2)\n}\n\n/**\n * Returns 3rd *element* from the array.\n * \n * If the size of this array is less than 3, throws an [IndexOutOfBoundsException] except in Kotlin/JS\n * where the behavior is unspecified.\n */\n@kotlin.internal.InlineOnly\npublic inline operator fun FloatArray.component3(): Float {\n   return get(2)\n}\n\n/**\n * Returns 3rd *element* from the array.\n * \n * If the size of this array is less than 3, throws an [IndexOutOfBoundsException] except in Kotlin/JS\n * where the behavior is unspecified.\n */\n@kotlin.internal.InlineOnly\npublic inline operator fun DoubleArray.component3(): Double {\n   return get(2)\n}\n\n/**\n * Returns 3rd *element* from the array.\n * \n * If the size of this array is less than 3, throws an [IndexOutOfBoundsException] except in Kotlin/JS\n * where the behavior is unspecified.\n */\n@kotlin.internal.InlineOnly\npublic inline operator fun BooleanArray.component3(): Boolean {\n   return get(2)\n}\n\n/**\n * Returns 3rd *element* from the array.\n * \n * If the size of this array is less than 3, throws an [IndexOutOfBoundsException] except in Kotlin/JS\n * where the behavior is unspecified.\n */\n@kotlin.internal.InlineOnly\npublic inline operator fun CharArray.component3(): Char {\n   return get(2)\n}\n\n/**\n * Returns 4th *element* from the array.\n * \n * If the size of this array is less than 4, throws an [IndexOutOfBoundsException] except in Kotlin/JS\n * where the behavior is unspecified.\n */\n@kotlin.internal.InlineOnly\npublic inline operator fun <T> Array<out T>.component4(): T {\n   return get(3)\n}\n\n/**\n * Returns 4th *element* from the array.\n * \n * If the size of this array is less than 4, throws an [IndexOutOfBoundsException] except in Kotlin/JS\n * where the behavior is unspecified.\n */\n@kotlin.internal.InlineOnly\npublic inline operator fun ByteArray.component4(): Byte {\n   return get(3)\n}\n\n/**\n * Returns 4th *element* from the array.\n * \n * If the size of this array is less than 4, throws an [IndexOutOfBoundsException] except in Kotlin/JS\n * where the behavior is unspecified.\n */\n@kotlin.internal.InlineOnly\npublic inline operator fun ShortArray.component4(): Short {\n   return get(3)\n}\n\n/**\n * Returns 4th *element* from the array.\n * \n * If the size of this array is less than 4, throws an [IndexOutOfBoundsException] except in Kotlin/JS\n * where the behavior is unspecified.\n */\n@kotlin.internal.InlineOnly\npublic inline operator fun IntArray.component4(): Int {\n   return get(3)\n}\n\n/**\n * Returns 4th *element* from the array.\n * \n * If the size of this array is less than 4, throws an [IndexOutOfBoundsException] except in Kotlin/JS\n * where the behavior is unspecified.\n */\n@kotlin.internal.InlineOnly\npublic inline operator fun LongArray.component4(): Long {\n   return get(3)\n}\n\n/**\n * Returns 4th *element* from the array.\n * \n * If the size of this array is less than 4, throws an [IndexOutOfBoundsException] except in Kotlin/JS\n * where the behavior is unspecified.\n */\n@kotlin.internal.InlineOnly\npublic inline operator fun FloatArray.component4(): Float {\n   return get(3)\n}\n\n/**\n * Returns 4th *element* from the array.\n * \n * If the size of this array is less than 4, throws an [IndexOutOfBoundsException] except in Kotlin/JS\n * where the behavior is unspecified.\n */\n@kotlin.internal.InlineOnly\npublic inline operator fun DoubleArray.component4(): Double {\n   return get(3)\n}\n\n/**\n * Returns 4th *element* from the array.\n * \n * If the size of this array is less than 4, throws an [IndexOutOfBoundsException] except in Kotlin/JS\n * where the behavior is unspecified.\n */\n@kotlin.internal.InlineOnly\npublic inline operator fun BooleanArray.component4(): Boolean {\n   return get(3)\n}\n\n/**\n * Returns 4th *element* from the array.\n * \n * If the size of this array is less than 4, throws an [IndexOutOfBoundsException] except in Kotlin/JS\n * where the behavior is unspecified.\n */\n@kotlin.internal.InlineOnly\npublic inline operator fun CharArray.component4(): Char {\n   return get(3)\n}\n\n/**\n * Returns 5th *element* from the array.\n * \n * If the size of this array is less than 5, throws an [IndexOutOfBoundsException] except in Kotlin/JS\n * where the behavior is unspecified.\n */\n@kotlin.internal.InlineOnly\npublic inline operator fun <T> Array<out T>.component5(): T {\n   return get(4)\n}\n\n/**\n * Returns 5th *element* from the array.\n * \n * If the size of this array is less than 5, throws an [IndexOutOfBoundsException] except in Kotlin/JS\n * where the behavior is unspecified.\n */\n@kotlin.internal.InlineOnly\npublic inline operator fun ByteArray.component5(): Byte {\n   return get(4)\n}\n\n/**\n * Returns 5th *element* from the array.\n * \n * If the size of this array is less than 5, throws an [IndexOutOfBoundsException] except in Kotlin/JS\n * where the behavior is unspecified.\n */\n@kotlin.internal.InlineOnly\npublic inline operator fun ShortArray.component5(): Short {\n   return get(4)\n}\n\n/**\n * Returns 5th *element* from the array.\n * \n * If the size of this array is less than 5, throws an [IndexOutOfBoundsException] except in Kotlin/JS\n * where the behavior is unspecified.\n */\n@kotlin.internal.InlineOnly\npublic inline operator fun IntArray.component5(): Int {\n   return get(4)\n}\n\n/**\n * Returns 5th *element* from the array.\n * \n * If the size of this array is less than 5, throws an [IndexOutOfBoundsException] except in Kotlin/JS\n * where the behavior is unspecified.\n */\n@kotlin.internal.InlineOnly\npublic inline operator fun LongArray.component5(): Long {\n   return get(4)\n}\n\n/**\n * Returns 5th *element* from the array.\n * \n * If the size of this array is less than 5, throws an [IndexOutOfBoundsException] except in Kotlin/JS\n * where the behavior is unspecified.\n */\n@kotlin.internal.InlineOnly\npublic inline operator fun FloatArray.component5(): Float {\n   return get(4)\n}\n\n/**\n * Returns 5th *element* from the array.\n * \n * If the size of this array is less than 5, throws an [IndexOutOfBoundsException] except in Kotlin/JS\n * where the behavior is unspecified.\n */\n@kotlin.internal.InlineOnly\npublic inline operator fun DoubleArray.component5(): Double {\n   return get(4)\n}\n\n/**\n * Returns 5th *element* from the array.\n * \n * If the size of this array is less than 5, throws an [IndexOutOfBoundsException] except in Kotlin/JS\n * where the behavior is unspecified.\n */\n@kotlin.internal.InlineOnly\npublic inline operator fun BooleanArray.component5(): Boolean {\n   return get(4)\n}\n\n/**\n * Returns 5th *element* from the array.\n * \n * If the size of this array is less than 5, throws an [IndexOutOfBoundsException] except in Kotlin/JS\n * where the behavior is unspecified.\n */\n@kotlin.internal.InlineOnly\npublic inline operator fun CharArray.component5(): Char {\n   return get(4)\n}\n\n/**\n * Returns `true` if [element] is found in the array.\n */\npublic operator fun <@kotlin.internal.OnlyInputTypes T> Array<out T>.contains(element: T): Boolean {\n   return indexOf(element) >= 0\n}\n\n/**\n * Returns `true` if [element] is found in the array.\n */\npublic operator fun ByteArray.contains(element: Byte): Boolean {\n   return indexOf(element) >= 0\n}\n\n/**\n * Returns `true` if [element] is found in the array.\n */\npublic operator fun ShortArray.contains(element: Short): Boolean {\n   return indexOf(element) >= 0\n}\n\n/**\n * Returns `true` if [element] is found in the array.\n */\npublic operator fun IntArray.contains(element: Int): Boolean {\n   return indexOf(element) >= 0\n}\n\n/**\n * Returns `true` if [element] is found in the array.\n */\npublic operator fun LongArray.contains(element: Long): Boolean {\n   return indexOf(element) >= 0\n}\n\n/**\n * Returns `true` if [element] is found in the array.\n */\n@Deprecated(\"The function has unclear behavior when searching for NaN or zero values and will be removed soon. Use 'any { it == element }' instead to continue using this behavior, or '.asList().contains(element: T)' to get the same search behavior as in a list.\", ReplaceWith(\"any { it == element }\"))\n@DeprecatedSinceKotlin(warningSince = \"1.4\", errorSince = \"1.6\", hiddenSince = \"1.7\")\npublic operator fun FloatArray.contains(element: Float): Boolean {\n   return any { it == element }\n}\n\n/**\n * Returns `true` if [element] is found in the array.\n */\n@Deprecated(\"The function has unclear behavior when searching for NaN or zero values and will be removed soon. Use 'any { it == element }' instead to continue using this behavior, or '.asList().contains(element: T)' to get the same search behavior as in a list.\", ReplaceWith(\"any { it == element }\"))\n@DeprecatedSinceKotlin(warningSince = \"1.4\", errorSince = \"1.6\", hiddenSince = \"1.7\")\npublic operator fun DoubleArray.contains(element: Double): Boolean {\n   return any { it == element }\n}\n\n/**\n * Returns `true` if [element] is found in the array.\n */\npublic operator fun BooleanArray.contains(element: Boolean): Boolean {\n   return indexOf(element) >= 0\n}\n\n/**\n * Returns `true` if [element] is found in the array.\n */\npublic operator fun CharArray.contains(element: Char): Boolean {\n   return indexOf(element) >= 0\n}\n\n/**\n * Returns an element at the given [index] or throws an [IndexOutOfBoundsException] if the [index] is out of bounds of this array.\n * \n * @sample samples.collections.Collections.Elements.elementAt\n */\npublic expect fun <T> Array<out T>.elementAt(index: Int): T\n\n/**\n * Returns an element at the given [index] or throws an [IndexOutOfBoundsException] if the [index] is out of bounds of this array.\n * \n * @sample samples.collections.Collections.Elements.elementAt\n */\npublic expect fun ByteArray.elementAt(index: Int): Byte\n\n/**\n * Returns an element at the given [index] or throws an [IndexOutOfBoundsException] if the [index] is out of bounds of this array.\n * \n * @sample samples.collections.Collections.Elements.elementAt\n */\npublic expect fun ShortArray.elementAt(index: Int): Short\n\n/**\n * Returns an element at the given [index] or throws an [IndexOutOfBoundsException] if the [index] is out of bounds of this array.\n * \n * @sample samples.collections.Collections.Elements.elementAt\n */\npublic expect fun IntArray.elementAt(index: Int): Int\n\n/**\n * Returns an element at the given [index] or throws an [IndexOutOfBoundsException] if the [index] is out of bounds of this array.\n * \n * @sample samples.collections.Collections.Elements.elementAt\n */\npublic expect fun LongArray.elementAt(index: Int): Long\n\n/**\n * Returns an element at the given [index] or throws an [IndexOutOfBoundsException] if the [index] is out of bounds of this array.\n * \n * @sample samples.collections.Collections.Elements.elementAt\n */\npublic expect fun FloatArray.elementAt(index: Int): Float\n\n/**\n * Returns an element at the given [index] or throws an [IndexOutOfBoundsException] if the [index] is out of bounds of this array.\n * \n * @sample samples.collections.Collections.Elements.elementAt\n */\npublic expect fun DoubleArray.elementAt(index: Int): Double\n\n/**\n * Returns an element at the given [index] or throws an [IndexOutOfBoundsException] if the [index] is out of bounds of this array.\n * \n * @sample samples.collections.Collections.Elements.elementAt\n */\npublic expect fun BooleanArray.elementAt(index: Int): Boolean\n\n/**\n * Returns an element at the given [index] or throws an [IndexOutOfBoundsException] if the [index] is out of bounds of this array.\n * \n * @sample samples.collections.Collections.Elements.elementAt\n */\npublic expect fun CharArray.elementAt(index: Int): Char\n\n/**\n * Returns an element at the given [index] or the result of calling the [defaultValue] function if the [index] is out of bounds of this array.\n * \n * @sample samples.collections.Collections.Elements.elementAtOrElse\n */\n@kotlin.internal.InlineOnly\npublic inline fun <T> Array<out T>.elementAtOrElse(index: Int, defaultValue: (Int) -> T): T {\n   return if (index >= 0 && index <= lastIndex) get(index) else defaultValue(index)\n}\n\n/**\n * Returns an element at the given [index] or the result of calling the [defaultValue] function if the [index] is out of bounds of this array.\n * \n * @sample samples.collections.Collections.Elements.elementAtOrElse\n */\n@kotlin.internal.InlineOnly\npublic inline fun ByteArray.elementAtOrElse(index: Int, defaultValue: (Int) -> Byte): Byte {\n   return if (index >= 0 && index <= lastIndex) get(index) else defaultValue(index)\n}\n\n/**\n * Returns an element at the given [index] or the result of calling the [defaultValue] function if the [index] is out of bounds of this array.\n * \n * @sample samples.collections.Collections.Elements.elementAtOrElse\n */\n@kotlin.internal.InlineOnly\npublic inline fun ShortArray.elementAtOrElse(index: Int, defaultValue: (Int) -> Short): Short {\n   return if (index >= 0 && index <= lastIndex) get(index) else defaultValue(index)\n}\n\n/**\n * Returns an element at the given [index] or the result of calling the [defaultValue] function if the [index] is out of bounds of this array.\n * \n * @sample samples.collections.Collections.Elements.elementAtOrElse\n */\n@kotlin.internal.InlineOnly\npublic inline fun IntArray.elementAtOrElse(index: Int, defaultValue: (Int) -> Int): Int {\n   return if (index >= 0 && index <= lastIndex) get(index) else defaultValue(index)\n}\n\n/**\n * Returns an element at the given [index] or the result of calling the [defaultValue] function if the [index] is out of bounds of this array.\n * \n * @sample samples.collections.Collections.Elements.elementAtOrElse\n */\n@kotlin.internal.InlineOnly\npublic inline fun LongArray.elementAtOrElse(index: Int, defaultValue: (Int) -> Long): Long {\n   return if (index >= 0 && index <= lastIndex) get(index) else defaultValue(index)\n}\n\n/**\n * Returns an element at the given [index] or the result of calling the [defaultValue] function if the [index] is out of bounds of this array.\n * \n * @sample samples.collections.Collections.Elements.elementAtOrElse\n */\n@kotlin.internal.InlineOnly\npublic inline fun FloatArray.elementAtOrElse(index: Int, defaultValue: (Int) -> Float): Float {\n   return if (index >= 0 && index <= lastIndex) get(index) else defaultValue(index)\n}\n\n/**\n * Returns an element at the given [index] or the result of calling the [defaultValue] function if the [index] is out of bounds of this array.\n * \n * @sample samples.collections.Collections.Elements.elementAtOrElse\n */\n@kotlin.internal.InlineOnly\npublic inline fun DoubleArray.elementAtOrElse(index: Int, defaultValue: (Int) -> Double): Double {\n   return if (index >= 0 && index <= lastIndex) get(index) else defaultValue(index)\n}\n\n/**\n * Returns an element at the given [index] or the result of calling the [defaultValue] function if the [index] is out of bounds of this array.\n * \n * @sample samples.collections.Collections.Elements.elementAtOrElse\n */\n@kotlin.internal.InlineOnly\npublic inline fun BooleanArray.elementAtOrElse(index: Int, defaultValue: (Int) -> Boolean): Boolean {\n   return if (index >= 0 && index <= lastIndex) get(index) else defaultValue(index)\n}\n\n/**\n * Returns an element at the given [index] or the result of calling the [defaultValue] function if the [index] is out of bounds of this array.\n * \n * @sample samples.collections.Collections.Elements.elementAtOrElse\n */\n@kotlin.internal.InlineOnly\npublic inline fun CharArray.elementAtOrElse(index: Int, defaultValue: (Int) -> Char): Char {\n   return if (index >= 0 && index <= lastIndex) get(index) else defaultValue(index)\n}\n\n/**\n * Returns an element at the given [index] or `null` if the [index] is out of bounds of this array.\n * \n * @sample samples.collections.Collections.Elements.elementAtOrNull\n */\n@kotlin.internal.InlineOnly\npublic inline fun <T> Array<out T>.elementAtOrNull(index: Int): T? {\n   return this.getOrNull(index)\n}\n\n/**\n * Returns an element at the given [index] or `null` if the [index] is out of bounds of this array.\n * \n * @sample samples.collections.Collections.Elements.elementAtOrNull\n */\n@kotlin.internal.InlineOnly\npublic inline fun ByteArray.elementAtOrNull(index: Int): Byte? {\n   return this.getOrNull(index)\n}\n\n/**\n * Returns an element at the given [index] or `null` if the [index] is out of bounds of this array.\n * \n * @sample samples.collections.Collections.Elements.elementAtOrNull\n */\n@kotlin.internal.InlineOnly\npublic inline fun ShortArray.elementAtOrNull(index: Int): Short? {\n   return this.getOrNull(index)\n}\n\n/**\n * Returns an element at the given [index] or `null` if the [index] is out of bounds of this array.\n * \n * @sample samples.collections.Collections.Elements.elementAtOrNull\n */\n@kotlin.internal.InlineOnly\npublic inline fun IntArray.elementAtOrNull(index: Int): Int? {\n   return this.getOrNull(index)\n}\n\n/**\n * Returns an element at the given [index] or `null` if the [index] is out of bounds of this array.\n * \n * @sample samples.collections.Collections.Elements.elementAtOrNull\n */\n@kotlin.internal.InlineOnly\npublic inline fun LongArray.elementAtOrNull(index: Int): Long? {\n   return this.getOrNull(index)\n}\n\n/**\n * Returns an element at the given [index] or `null` if the [index] is out of bounds of this array.\n * \n * @sample samples.collections.Collections.Elements.elementAtOrNull\n */\n@kotlin.internal.InlineOnly\npublic inline fun FloatArray.elementAtOrNull(index: Int): Float? {\n   return this.getOrNull(index)\n}\n\n/**\n * Returns an element at the given [index] or `null` if the [index] is out of bounds of this array.\n * \n * @sample samples.collections.Collections.Elements.elementAtOrNull\n */\n@kotlin.internal.InlineOnly\npublic inline fun DoubleArray.elementAtOrNull(index: Int): Double? {\n   return this.getOrNull(index)\n}\n\n/**\n * Returns an element at the given [index] or `null` if the [index] is out of bounds of this array.\n * \n * @sample samples.collections.Collections.Elements.elementAtOrNull\n */\n@kotlin.internal.InlineOnly\npublic inline fun BooleanArray.elementAtOrNull(index: Int): Boolean? {\n   return this.getOrNull(index)\n}\n\n/**\n * Returns an element at the given [index] or `null` if the [index] is out of bounds of this array.\n * \n * @sample samples.collections.Collections.Elements.elementAtOrNull\n */\n@kotlin.internal.InlineOnly\npublic inline fun CharArray.elementAtOrNull(index: Int): Char? {\n   return this.getOrNull(index)\n}\n\n/**\n * Returns the first element matching the given [predicate], or `null` if no such element was found.\n * \n * @sample samples.collections.Collections.Elements.find\n */\n@kotlin.internal.InlineOnly\npublic inline fun <T> Array<out T>.find(predicate: (T) -> Boolean): T? {\n   return firstOrNull(predicate)\n}\n\n/**\n * Returns the first element matching the given [predicate], or `null` if no such element was found.\n * \n * @sample samples.collections.Collections.Elements.find\n */\n@kotlin.internal.InlineOnly\npublic inline fun ByteArray.find(predicate: (Byte) -> Boolean): Byte? {\n   return firstOrNull(predicate)\n}\n\n/**\n * Returns the first element matching the given [predicate], or `null` if no such element was found.\n * \n * @sample samples.collections.Collections.Elements.find\n */\n@kotlin.internal.InlineOnly\npublic inline fun ShortArray.find(predicate: (Short) -> Boolean): Short? {\n   return firstOrNull(predicate)\n}\n\n/**\n * Returns the first element matching the given [predicate], or `null` if no such element was found.\n * \n * @sample samples.collections.Collections.Elements.find\n */\n@kotlin.internal.InlineOnly\npublic inline fun IntArray.find(predicate: (Int) -> Boolean): Int? {\n   return firstOrNull(predicate)\n}\n\n/**\n * Returns the first element matching the given [predicate], or `null` if no such element was found.\n * \n * @sample samples.collections.Collections.Elements.find\n */\n@kotlin.internal.InlineOnly\npublic inline fun LongArray.find(predicate: (Long) -> Boolean): Long? {\n   return firstOrNull(predicate)\n}\n\n/**\n * Returns the first element matching the given [predicate], or `null` if no such element was found.\n * \n * @sample samples.collections.Collections.Elements.find\n */\n@kotlin.internal.InlineOnly\npublic inline fun FloatArray.find(predicate: (Float) -> Boolean): Float? {\n   return firstOrNull(predicate)\n}\n\n/**\n * Returns the first element matching the given [predicate], or `null` if no such element was found.\n * \n * @sample samples.collections.Collections.Elements.find\n */\n@kotlin.internal.InlineOnly\npublic inline fun DoubleArray.find(predicate: (Double) -> Boolean): Double? {\n   return firstOrNull(predicate)\n}\n\n/**\n * Returns the first element matching the given [predicate], or `null` if no such element was found.\n * \n * @sample samples.collections.Collections.Elements.find\n */\n@kotlin.internal.InlineOnly\npublic inline fun BooleanArray.find(predicate: (Boolean) -> Boolean): Boolean? {\n   return firstOrNull(predicate)\n}\n\n/**\n * Returns the first element matching the given [predicate], or `null` if no such element was found.\n * \n * @sample samples.collections.Collections.Elements.find\n */\n@kotlin.internal.InlineOnly\npublic inline fun CharArray.find(predicate: (Char) -> Boolean): Char? {\n   return firstOrNull(predicate)\n}\n\n/**\n * Returns the last element matching the given [predicate], or `null` if no such element was found.\n * \n * @sample samples.collections.Collections.Elements.find\n */\n@kotlin.internal.InlineOnly\npublic inline fun <T> Array<out T>.findLast(predicate: (T) -> Boolean): T? {\n   return lastOrNull(predicate)\n}\n\n/**\n * Returns the last element matching the given [predicate], or `null` if no such element was found.\n * \n * @sample samples.collections.Collections.Elements.find\n */\n@kotlin.internal.InlineOnly\npublic inline fun ByteArray.findLast(predicate: (Byte) -> Boolean): Byte? {\n   return lastOrNull(predicate)\n}\n\n/**\n * Returns the last element matching the given [predicate], or `null` if no such element was found.\n * \n * @sample samples.collections.Collections.Elements.find\n */\n@kotlin.internal.InlineOnly\npublic inline fun ShortArray.findLast(predicate: (Short) -> Boolean): Short? {\n   return lastOrNull(predicate)\n}\n\n/**\n * Returns the last element matching the given [predicate], or `null` if no such element was found.\n * \n * @sample samples.collections.Collections.Elements.find\n */\n@kotlin.internal.InlineOnly\npublic inline fun IntArray.findLast(predicate: (Int) -> Boolean): Int? {\n   return lastOrNull(predicate)\n}\n\n/**\n * Returns the last element matching the given [predicate], or `null` if no such element was found.\n * \n * @sample samples.collections.Collections.Elements.find\n */\n@kotlin.internal.InlineOnly\npublic inline fun LongArray.findLast(predicate: (Long) -> Boolean): Long? {\n   return lastOrNull(predicate)\n}\n\n/**\n * Returns the last element matching the given [predicate], or `null` if no such element was found.\n * \n * @sample samples.collections.Collections.Elements.find\n */\n@kotlin.internal.InlineOnly\npublic inline fun FloatArray.findLast(predicate: (Float) -> Boolean): Float? {\n   return lastOrNull(predicate)\n}\n\n/**\n * Returns the last element matching the given [predicate], or `null` if no such element was found.\n * \n * @sample samples.collections.Collections.Elements.find\n */\n@kotlin.internal.InlineOnly\npublic inline fun DoubleArray.findLast(predicate: (Double) -> Boolean): Double? {\n   return lastOrNull(predicate)\n}\n\n/**\n * Returns the last element matching the given [predicate], or `null` if no such element was found.\n * \n * @sample samples.collections.Collections.Elements.find\n */\n@kotlin.internal.InlineOnly\npublic inline fun BooleanArray.findLast(predicate: (Boolean) -> Boolean): Boolean? {\n   return lastOrNull(predicate)\n}\n\n/**\n * Returns the last element matching the given [predicate], or `null` if no such element was found.\n * \n * @sample samples.collections.Collections.Elements.find\n */\n@kotlin.internal.InlineOnly\npublic inline fun CharArray.findLast(predicate: (Char) -> Boolean): Char? {\n   return lastOrNull(predicate)\n}\n\n/**\n * Returns the first element.\n * \n * @throws NoSuchElementException if the array is empty.\n */\npublic fun <T> Array<out T>.first(): T {\n   if (isEmpty())\n   throw NoSuchElementException(\"Array is empty.\")\n   return this[0]\n}\n\n/**\n * Returns the first element.\n * \n * @throws NoSuchElementException if the array is empty.\n */\npublic fun ByteArray.first(): Byte {\n   if (isEmpty())\n   throw NoSuchElementException(\"Array is empty.\")\n   return this[0]\n}\n\n/**\n * Returns the first element.\n * \n * @throws NoSuchElementException if the array is empty.\n */\npublic fun ShortArray.first(): Short {\n   if (isEmpty())\n   throw NoSuchElementException(\"Array is empty.\")\n   return this[0]\n}\n\n/**\n * Returns the first element.\n * \n * @throws NoSuchElementException if the array is empty.\n */\npublic fun IntArray.first(): Int {\n   if (isEmpty())\n   throw NoSuchElementException(\"Array is empty.\")\n   return this[0]\n}\n\n/**\n * Returns the first element.\n * \n * @throws NoSuchElementException if the array is empty.\n */\npublic fun LongArray.first(): Long {\n   if (isEmpty())\n   throw NoSuchElementException(\"Array is empty.\")\n   return this[0]\n}\n\n/**\n * Returns the first element.\n * \n * @throws NoSuchElementException if the array is empty.\n */\npublic fun FloatArray.first(): Float {\n   if (isEmpty())\n   throw NoSuchElementException(\"Array is empty.\")\n   return this[0]\n}\n\n/**\n * Returns the first element.\n * \n * @throws NoSuchElementException if the array is empty.\n */\npublic fun DoubleArray.first(): Double {\n   if (isEmpty())\n   throw NoSuchElementException(\"Array is empty.\")\n   return this[0]\n}\n\n/**\n * Returns the first element.\n * \n * @throws NoSuchElementException if the array is empty.\n */\npublic fun BooleanArray.first(): Boolean {\n   if (isEmpty())\n   throw NoSuchElementException(\"Array is empty.\")\n   return this[0]\n}\n\n/**\n * Returns the first element.\n * \n * @throws NoSuchElementException if the array is empty.\n */\npublic fun CharArray.first(): Char {\n   if (isEmpty())\n   throw NoSuchElementException(\"Array is empty.\")\n   return this[0]\n}\n\n/**\n * Returns the first element matching the given [predicate].\n * @throws [NoSuchElementException] if no such element is found.\n */\npublic inline fun <T> Array<out T>.first(predicate: (T) -> Boolean): T {\n   for (element in this) if (predicate(element)) return element\n   throw NoSuchElementException(\"Array contains no element matching the predicate.\")\n}\n\n/**\n * Returns the first element matching the given [predicate].\n * @throws [NoSuchElementException] if no such element is found.\n */\npublic inline fun ByteArray.first(predicate: (Byte) -> Boolean): Byte {\n   for (element in this) if (predicate(element)) return element\n   throw NoSuchElementException(\"Array contains no element matching the predicate.\")\n}\n\n/**\n * Returns the first element matching the given [predicate].\n * @throws [NoSuchElementException] if no such element is found.\n */\npublic inline fun ShortArray.first(predicate: (Short) -> Boolean): Short {\n   for (element in this) if (predicate(element)) return element\n   throw NoSuchElementException(\"Array contains no element matching the predicate.\")\n}\n\n/**\n * Returns the first element matching the given [predicate].\n * @throws [NoSuchElementException] if no such element is found.\n */\npublic inline fun IntArray.first(predicate: (Int) -> Boolean): Int {\n   for (element in this) if (predicate(element)) return element\n   throw NoSuchElementException(\"Array contains no element matching the predicate.\")\n}\n\n/**\n * Returns the first element matching the given [predicate].\n * @throws [NoSuchElementException] if no such element is found.\n */\npublic inline fun LongArray.first(predicate: (Long) -> Boolean): Long {\n   for (element in this) if (predicate(element)) return element\n   throw NoSuchElementException(\"Array contains no element matching the predicate.\")\n}\n\n/**\n * Returns the first element matching the given [predicate].\n * @throws [NoSuchElementException] if no such element is found.\n */\npublic inline fun FloatArray.first(predicate: (Float) ->

Boolean): Float {\n   for (element in this) if (predicate(element)) return element\n   throw NoSuchElementException(\"Array contains no element matching the predicate.\")\n}\n\n/**\n * Returns the first element matching the given [predicate].\n * @throws [NoSuchElementException] if no such element is found.\n */\npublic inline fun DoubleArray.first(predicate: (Double) -> Boolean): Double {\n   for (element in this) if (predicate(element)) return element\n   throw NoSuchElementException(\"Array contains no element matching the predicate.\")\n}\n\n/**\n * Returns the first element matching the given [predicate].\n * @throws [NoSuchElementException] if no such element is found.\n */\npublic inline fun BooleanArray.first(predicate: (Boolean) -> Boolean): Boolean {\n   for (element in this) if (predicate(element)) return element\n   throw NoSuchElementException(\"Array contains no element matching the predicate.\")\n}\n\n/**\n * Returns the first element matching the given [predicate].\n * @throws [NoSuchElementException] if no such element is found.\n */\npublic inline fun CharArray.first(predicate: (Char) -> Boolean): Char {\n   for (element in this) if (predicate(element)) return element\n   throw NoSuchElementException(\"Array contains no element matching the predicate.\")\n}\n\n/**\n * Returns the first non-null value produced by [transform] function being applied to elements of this array in iteration order,\n * or throws [NoSuchElementException] if no non-null value was produced.\n * \n * @sample samples.collections.Collections.Transformations.firstNotNullOf\n */\n@SinceKotlin(\"1.5\")\n@kotlin.internal.InlineOnly\npublic inline fun <T, R : Any> Array<out T>.firstNotNullOf(transform: (T) -> R?): R {\n   return firstNotNullOfOrNull(transform) ?: throw NoSuchElementException(\"No element of the array was transformed to a non-null value.\")\n}\n\n/**\n * Returns the first non-null value produced by [transform] function being applied to elements of this array in iteration order,\n * or `null` if no non-null value was produced.\n * \n * @sample samples.collections.Collections.Transformations.firstNotNullOf\n */\n@SinceKotlin(\"1.5\")\n@kotlin.internal.InlineOnly\npublic inline fun <T, R : Any> Array<out T>.firstNotNullOfOrNull(transform: (T) -> R?): R? {\n   for (element in this) {\n   val result = transform(element)\n   if (result != null) {\n   return result\n   }\n   }\n   return null\n}\n\n/**\n * Returns the first element, or `null` if the array is empty.\n */\npublic fun <T> Array<out T>.firstOrNull(): T? {\n   return if (isEmpty()) null else this[0]\n}\n\n/**\n * Returns the first element, or `null` if the array is empty.\n */\npublic fun ByteArray.firstOrNull(): Byte? {\n   return if (isEmpty()) null else this[0]\n}\n\n/**\n * Returns the first element, or `null` if the array is empty.\n */\npublic fun ShortArray.firstOrNull(): Short? {\n   return if (isEmpty()) null else this[0]\n}\n\n/**\n * Returns the first element, or `null` if the array is empty.\n */\npublic fun IntArray.firstOrNull(): Int? {\n   return if (isEmpty()) null else this[0]\n}\n\n/**\n * Returns the first element, or `null` if the array is empty.\n */\npublic fun LongArray.firstOrNull(): Long? {\n   return if (isEmpty()) null else this[0]\n}\n\n/**\n * Returns the first element, or `null` if the array is empty.\n */\npublic fun FloatArray.firstOrNull(): Float? {\n   return if (isEmpty()) null else this[0]\n}\n\n/**\n * Returns the first element, or `null` if the array is empty.\n */\npublic fun DoubleArray.firstOrNull(): Double? {\n   return if (isEmpty()) null else this[0]\n}\n\n/**\n * Returns the first element, or `null` if the array is empty.\n */\npublic fun BooleanArray.firstOrNull(): Boolean? {\n   return if (isEmpty()) null else this[0]\n}\n\n/**\n * Returns the first element, or `null` if the array is empty.\n */\npublic fun CharArray.firstOrNull(): Char? {\n   return if (isEmpty()) null else this[0]\n}\n\n/**\n * Returns the first element matching the given [predicate], or `null` if element was not found.\n */\npublic inline fun <T> Array<out T>.firstOrNull(predicate: (T) -> Boolean): T? {\n   for (element in this) if (predicate(element)) return element\n   return null\n}\n\n/**\n * Returns the first element matching the given [predicate], or `null` if element was not found.\n */\npublic inline fun ByteArray.firstOrNull(predicate: (Byte) -> Boolean): Byte? {\n   for (element in this) if (predicate(element)) return element\n   return null\n}\n\n/**\n * Returns the first element matching the given [predicate], or `null` if element was not found.\n */\npublic inline fun ShortArray.firstOrNull(predicate: (Short) -> Boolean): Short? {\n   for (element in this) if (predicate(element)) return element\n   return null\n}\n\n/**\n * Returns the first element matching the given [predicate], or `null` if element was not found.\n */\npublic inline fun IntArray.firstOrNull(predicate: (Int) -> Boolean): Int? {\n   for (element in this) if (predicate(element)) return element\n   return null\n}\n\n/**\n * Returns the first element matching the given [predicate], or `null` if element was not found.\n */\npublic inline fun

LongArray.firstOrNull(predicate: (Long) -> Boolean): Long? {\n   for (element in this) if (predicate(element)) return element\n   return null\n}\n\n/**\n * Returns the first element matching the given [predicate], or `null` if element was not found.\n */\npublic inline fun FloatArray.firstOrNull(predicate: (Float) -> Boolean): Float? {\n   for (element in this) if (predicate(element)) return element\n   return null\n}\n\n/**\n * Returns the first element matching the given [predicate], or `null` if element was not found.\n */\npublic inline fun DoubleArray.firstOrNull(predicate: (Double) -> Boolean): Double? {\n   for (element in this) if (predicate(element)) return element\n   return null\n}\n\n/**\n * Returns the first element matching the given [predicate], or `null` if element was not found.\n */\npublic inline fun BooleanArray.firstOrNull(predicate: (Boolean) -> Boolean): Boolean? {\n   for (element in this) if (predicate(element)) return element\n   return null\n}\n\n/**\n * Returns the first element matching the given [predicate], or `null` if element was not found.\n */\npublic inline fun CharArray.firstOrNull(predicate: (Char) -> Boolean): Char? {\n   for (element in this) if (predicate(element)) return element\n   return null\n}\n\n/**\n * Returns an element at the given [index] or the result of calling the [defaultValue] function if the [index] is out of bounds of this array.\n */\n@kotlin.internal.InlineOnly\npublic inline fun <T> Array<out T>.getOrElse(index: Int, defaultValue: (Int) -> T): T {\n   return if (index >= 0 && index <= lastIndex) get(index) else defaultValue(index)\n}\n\n/**\n * Returns an element at the given [index] or the result of calling the [defaultValue] function if the [index] is out of bounds of this array.\n */\n@kotlin.internal.InlineOnly\npublic inline fun ByteArray.getOrElse(index: Int, defaultValue: (Int) -> Byte): Byte {\n   return if (index >= 0 && index <= lastIndex) get(index) else defaultValue(index)\n}\n\n/**\n * Returns an element at the given [index] or the result of calling the [defaultValue] function if the [index] is out of bounds of this array.\n */\n@kotlin.internal.InlineOnly\npublic inline fun ShortArray.getOrElse(index: Int, defaultValue: (Int) -> Short): Short {\n   return if (index >= 0 && index <= lastIndex) get(index) else defaultValue(index)\n}\n\n/**\n * Returns an element at the given [index] or the result of calling the [defaultValue] function if the [index] is out of bounds of this array.\n */\n@kotlin.internal.InlineOnly\npublic inline fun IntArray.getOrElse(index: Int, defaultValue: (Int) -> Int): Int {\n   return if (index >= 0 && index <= lastIndex) get(index) else defaultValue(index)\n}\n\n/**\n * Returns an element at the given [index] or the result of calling the [defaultValue] function if the [index] is out of bounds of this array.\n */\n@kotlin.internal.InlineOnly\npublic inline fun LongArray.getOrElse(index: Int, defaultValue: (Int) -> Long): Long {\n   return if (index >= 0 && index <= lastIndex) get(index) else defaultValue(index)\n}\n\n/**\n * Returns an element at the given [index] or the result of calling the [defaultValue] function if the [index] is out of bounds of this array.\n */\n@kotlin.internal.InlineOnly\npublic inline fun FloatArray.getOrElse(index: Int, defaultValue: (Int) -> Float): Float {\n   return if (index >= 0 && index <= lastIndex) get(index) else defaultValue(index)\n}\n\n/**\n * Returns an element at the given [index] or the result of calling the [defaultValue] function if the [index] is out of bounds of this array.\n */\n@kotlin.internal.InlineOnly\npublic inline fun DoubleArray.getOrElse(index: Int, defaultValue: (Int) -> Double): Double {\n   return if (index >= 0 && index <= lastIndex) get(index) else defaultValue(index)\n}\n\n/**\n * Returns an element at the given [index] or the result of calling the [defaultValue] function if the [index] is out of bounds of this array.\n */\n@kotlin.internal.InlineOnly\npublic inline fun BooleanArray.getOrElse(index: Int, defaultValue: (Int) -> Boolean): Boolean {\n   return if (index >= 0 && index <= lastIndex) get(index) else defaultValue(index)\n}\n\n/**\n * Returns an element at the given [index] or the result of calling the [defaultValue] function if the [index] is out of bounds of this array.\n */\n@kotlin.internal.InlineOnly\npublic inline fun CharArray.getOrElse(index: Int, defaultValue: (Int) -> Char): Char {\n   return if (index >= 0 && index <= lastIndex) get(index) else defaultValue(index)\n}\n\n/**\n * Returns an element at the given [index] or `null` if the [index] is out of bounds of this array.\n * \n * @sample samples.collections.Collections.Elements.getOrNull\n */\npublic fun <T> Array<out T>.getOrNull(index: Int): T? {\n   return if (index >= 0 && index <= lastIndex) get(index) else null\n}\n\n/**\n * Returns an element at the given [index] or `null` if the [index] is out of bounds of this array.\n * \n * @sample samples.collections.Collections.Elements.getOrNull\n */\npublic fun ByteArray.getOrNull(index: Int): Byte? {\n   return if (index >= 0 && index <= lastIndex) get(index) else null\n}\n\n/**\n * Returns an element at the given [index] or `null` if the [index] is out of bounds of this array.\n * \n * @sample samples.collections.Collections.Elements.getOrNull\n */\npublic fun ShortArray.getOrNull(index: Int): Short? {\n return if (index >= 0 && index <= lastIndex) get(index) else null\n}\n\n/**\n * Returns an element at the given [index] or `null` if the [index] is out of bounds of this array.\n * \n * @sample samples.collections.Collections.Elements.getOrNull\n */\npublic fun IntArray.getOrNull(index: Int): Int? {\n return if (index >= 0 && index <= lastIndex) get(index) else null\n}\n\n/**\n * Returns an element at the given [index] or `null` if the [index] is out of bounds of this array.\n * \n * @sample samples.collections.Collections.Elements.getOrNull\n */\npublic fun LongArray.getOrNull(index: Int): Long? {\n return if (index >= 0 && index <= lastIndex) get(index) else null\n}\n\n/**\n * Returns an element at the given [index] or `null` if the [index] is out of bounds of this array.\n * \n * @sample samples.collections.Collections.Elements.getOrNull\n */\npublic fun FloatArray.getOrNull(index: Int): Float? {\n return if (index >= 0 && index <= lastIndex) get(index) else null\n}\n\n/**\n * Returns an element at the given [index] or `null` if the [index] is out of bounds of this array.\n * \n * @sample samples.collections.Collections.Elements.getOrNull\n */\npublic fun DoubleArray.getOrNull(index: Int): Double? {\n return if (index >= 0 && index <= lastIndex) get(index) else null\n}\n\n/**\n * Returns an element at the given [index] or `null` if the [index] is out of bounds of this array.\n * \n * @sample samples.collections.Collections.Elements.getOrNull\n */\npublic fun BooleanArray.getOrNull(index: Int): Boolean? {\n return if (index >= 0 && index <= lastIndex) get(index) else null\n}\n\n/**\n * Returns an element at the given [index] or `null` if the [index] is out of bounds of this array.\n * \n * @sample samples.collections.Collections.Elements.getOrNull\n */\npublic fun CharArray.getOrNull(index: Int): Char? {\n return if (index >= 0 && index <= lastIndex) get(index) else null\n}\n\n/**\n * Returns first index of [element], or -1 if the array does not contain element.\n */\npublic fun <@kotlin.internal.OnlyInputTypes T> Array<out T>.indexOf(element: T): Int {\n if (element == null) {\n for (index in indices) {\n if (this[index] == null) {\n return index\n }\n }\n } else {\n for (index in indices) {\n if (element == this[index]) {\n return index\n }\n }\n }\n return -1\n}\n\n/**\n * Returns first index of [element], or -1 if the array does not contain element.\n */\npublic fun ByteArray.indexOf(element: Byte): Int {\n for (index in indices) {\n if (element == this[index]) {\n return index\n }\n }\n return -1\n}\n\n/**\n * Returns first index of [element], or -1 if the array does not contain element.\n */\npublic fun ShortArray.indexOf(element: Short): Int {\n for (index in indices) {\n if (element == this[index]) {\n return index\n }\n }\n return -1\n}\n\n/**\n * Returns first index of [element], or -1 if the array does not contain element.\n */\npublic fun IntArray.indexOf(element: Int): Int {\n for (index in indices) {\n if (element == this[index]) {\n return index\n }\n }\n return -1\n}\n\n/**\n * Returns first index of [element], or -1 if the array does not contain element.\n */\npublic fun LongArray.indexOf(element: Long): Int {\n for (index in indices) {\n if (element == this[index]) {\n return index\n }\n }\n return -1\n}\n\n/**\n * Returns first index of [element], or -1 if the array does not contain element.\n */\n@Deprecated(\"The function has unclear behavior when searching for NaN or zero values and will be removed soon. Use 'indexOfFirst { it == element }' instead to continue using this behavior, or '.asList().indexOf(element: T)' to get the same search behavior as in a list.\", ReplaceWith(\"indexOfFirst { it == element }\"))\n@DeprecatedSinceKotlin(warningSince = \"1.4\", errorSince = \"1.6\", hiddenSince = \"1.7\")\npublic fun FloatArray.indexOf(element: Float): Int {\n for (index in indices) {\n if (element == this[index]) {\n return index\n }\n }\n return -1\n}\n\n/**\n * Returns first index of [element], or -1 if the array does not contain element.\n */\n@Deprecated(\"The function has unclear behavior when searching for NaN or zero values and will be removed soon. Use 'indexOfFirst { it == element }' instead to continue using this behavior, or '.asList().indexOf(element: T)' to get the same search behavior as in a list.\", ReplaceWith(\"indexOfFirst { it == element }\"))\n@DeprecatedSinceKotlin(warningSince = \"1.4\", errorSince = \"1.6\", hiddenSince = \"1.7\")\npublic fun DoubleArray.indexOf(element: Double): Int {\n for (index in indices) {\n if (element == this[index]) {\n return index\n }\n }\n return -1\n}\n\n/**\n * Returns first index of [element], or -1 if the array does not contain element.\n */\npublic fun BooleanArray.indexOf(element: Boolean): Int {\n for (index in indices) {\n if (element == this[index]) {\n return index\n }\n }\n return -1\n}\n\n/**\n * Returns first index of [element], or -1 if the array does not contain element.\n */\npublic fun CharArray.indexOf(element: Char): Int {\n   for (index in indices) {\n   if (element == this[index]) {\n   return index\n   }\n   }\n   return -1\n}\n\n/**\n * Returns index of the first element matching the given [predicate], or -1 if the array does not contain such element.\n */\npublic inline fun <T> Array<out T>.indexOfFirst(predicate: (T) -> Boolean): Int {\n   for (index in indices) {\n   if (predicate(this[index])) {\n   return index\n   }\n   }\n   return -1\n}\n\n/**\n * Returns index of the first element matching the given [predicate], or -1 if the array does not contain such element.\n */\npublic inline fun ByteArray.indexOfFirst(predicate: (Byte) -> Boolean): Int {\n   for (index in indices) {\n   if (predicate(this[index])) {\n   return index\n   }\n   }\n   return -1\n}\n\n/**\n * Returns index of the first element matching the given [predicate], or -1 if the array does not contain such element.\n */\npublic inline fun ShortArray.indexOfFirst(predicate: (Short) -> Boolean): Int {\n   for (index in indices) {\n   if (predicate(this[index])) {\n   return index\n   }\n   }\n   return -1\n}\n\n/**\n * Returns index of the first element matching the given [predicate], or -1 if the array does not contain such element.\n */\npublic inline fun IntArray.indexOfFirst(predicate: (Int) -> Boolean): Int {\n   for (index in indices) {\n   if (predicate(this[index])) {\n   return index\n   }\n   }\n   return -1\n}\n\n/**\n * Returns index of the first element matching the given [predicate], or -1 if the array does not contain such element.\n */\npublic inline fun LongArray.indexOfFirst(predicate: (Long) -> Boolean): Int {\n   for (index in indices) {\n   if (predicate(this[index])) {\n   return index\n   }\n   }\n   return -1\n}\n\n/**\n * Returns index of the first element matching the given [predicate], or -1 if the array does not contain such element.\n */\npublic inline fun FloatArray.indexOfFirst(predicate: (Float) -> Boolean): Int {\n   for (index in indices) {\n   if (predicate(this[index])) {\n   return index\n   }\n   }\n   return -1\n}\n\n/**\n * Returns index of the first element matching the given [predicate], or -1 if the array does not contain such element.\n */\npublic inline fun DoubleArray.indexOfFirst(predicate: (Double) -> Boolean): Int {\n   for (index in indices) {\n   if (predicate(this[index])) {\n   return index\n   }\n   }\n   return -1\n}\n\n/**\n * Returns index of the first element matching the given [predicate], or -1 if the array does not contain such element.\n */\npublic inline fun BooleanArray.indexOfFirst(predicate: (Boolean) -> Boolean): Int {\n   for (index in indices) {\n   if (predicate(this[index])) {\n   return index\n   }\n   }\n   return -1\n}\n\n/**\n * Returns index of the first element matching the given [predicate], or -1 if the array does not contain such element.\n */\npublic inline fun CharArray.indexOfFirst(predicate: (Char) -> Boolean): Int {\n   for (index in indices) {\n   if (predicate(this[index])) {\n   return index\n   }\n   }\n   return -1\n}\n\n/**\n * Returns index of the last element matching the given [predicate], or -1 if the array does not contain such element.\n */\npublic inline fun <T> Array<out T>.indexOfLast(predicate: (T) -> Boolean): Int {\n   for (index in indices.reversed()) {\n   if (predicate(this[index])) {\n   return index\n   }\n   }\n   return -1\n}\n\n/**\n * Returns index of the last element matching the given [predicate], or -1 if the array does not contain such element.\n */\npublic inline fun ByteArray.indexOfLast(predicate: (Byte) -> Boolean): Int {\n   for (index in indices.reversed()) {\n   if (predicate(this[index])) {\n   return index\n   }\n   }\n   return -1\n}\n\n/**\n * Returns index of the last element matching the given [predicate], or -1 if the array does not contain such element.\n */\npublic inline fun ShortArray.indexOfLast(predicate: (Short) -> Boolean): Int {\n   for (index in indices.reversed()) {\n   if (predicate(this[index])) {\n   return index\n   }\n   }\n   return -1\n}\n\n/**\n * Returns index of the last element matching the given [predicate], or -1 if the array does not contain such element.\n */\npublic inline fun IntArray.indexOfLast(predicate: (Int) -> Boolean): Int {\n   for (index in indices.reversed()) {\n   if (predicate(this[index])) {\n   return index\n   }\n   }\n   return -1\n}\n\n/**\n * Returns index of the last element matching the given [predicate], or -1 if the array does not contain such element.\n */\npublic inline fun LongArray.indexOfLast(predicate: (Long) -> Boolean): Int {\n   for (index in indices.reversed()) {\n   if (predicate(this[index])) {\n   return index\n   }\n   }\n   return -1\n}\n\n/**\n * Returns index of the last element matching the given [predicate], or -1 if the array does not contain such element.\n */\npublic inline fun FloatArray.indexOfLast(predicate: (Float) -> Boolean): Int {\n   for (index in indices.reversed()) {\n   if (predicate(this[index])) {\n   return index\n   }\n   }\n   return -1\n}\n\n/**\n * Returns index of the last element matching the given [predicate], or -1 if the array does not contain such element.\n */\npublic inline fun

DoubleArray.indexOfLast(predicate: (Double) -> Boolean): Int {\n   for (index in indices.reversed()) {\n   if (predicate(this[index])) {\n   return index\n   }\n   }\n   return -1\n}\n\n/**\n * Returns index of the last element matching the given [predicate], or -1 if the array does not contain such element.\n */\npublic inline fun BooleanArray.indexOfLast(predicate: (Boolean) -> Boolean): Int {\n   for (index in indices.reversed()) {\n   if (predicate(this[index])) {\n   return index\n   }\n   }\n   return -1\n}\n\n/**\n * Returns index of the last element matching the given [predicate], or -1 if the array does not contain such element.\n */\npublic inline fun CharArray.indexOfLast(predicate: (Char) -> Boolean): Int {\n   for (index in indices.reversed()) {\n   if (predicate(this[index])) {\n   return index\n   }\n   }\n   return -1\n}\n\n/**\n * Returns the last element.\n * \n * @throws NoSuchElementException if the array is empty.\n * \n * @sample samples.collections.Collections.Elements.last\n */\npublic fun <T> Array<out T>.last(): T {\n   if (isEmpty())\n   throw NoSuchElementException(\"Array is empty.\")\n   return this[lastIndex]\n}\n\n/**\n * Returns the last element.\n * \n * @throws NoSuchElementException if the array is empty.\n * \n * @sample samples.collections.Collections.Elements.last\n */\npublic fun ByteArray.last(): Byte {\n   if (isEmpty())\n   throw NoSuchElementException(\"Array is empty.\")\n   return this[lastIndex]\n}\n\n/**\n * Returns the last element.\n * \n * @throws NoSuchElementException if the array is empty.\n * \n * @sample samples.collections.Collections.Elements.last\n */\npublic fun ShortArray.last(): Short {\n   if (isEmpty())\n   throw NoSuchElementException(\"Array is empty.\")\n   return this[lastIndex]\n}\n\n/**\n * Returns the last element.\n * \n * @throws NoSuchElementException if the array is empty.\n * \n * @sample samples.collections.Collections.Elements.last\n */\npublic fun IntArray.last(): Int {\n   if (isEmpty())\n   throw NoSuchElementException(\"Array is empty.\")\n   return this[lastIndex]\n}\n\n/**\n * Returns the last element.\n * \n * @throws NoSuchElementException if the array is empty.\n * \n * @sample samples.collections.Collections.Elements.last\n */\npublic fun LongArray.last(): Long {\n   if (isEmpty())\n   throw NoSuchElementException(\"Array is empty.\")\n   return this[lastIndex]\n}\n\n/**\n * Returns the last element.\n * \n * @throws NoSuchElementException if the array is empty.\n * \n * @sample samples.collections.Collections.Elements.last\n */\npublic fun FloatArray.last(): Float {\n   if (isEmpty())\n   throw NoSuchElementException(\"Array is empty.\")\n   return this[lastIndex]\n}\n\n/**\n * Returns the last element.\n * \n * @throws NoSuchElementException if the array is empty.\n * \n * @sample samples.collections.Collections.Elements.last\n */\npublic fun DoubleArray.last(): Double {\n   if (isEmpty())\n   throw NoSuchElementException(\"Array is empty.\")\n   return this[lastIndex]\n}\n\n/**\n * Returns the last element.\n * \n * @throws NoSuchElementException if the array is empty.\n * \n * @sample samples.collections.Collections.Elements.last\n */\npublic fun BooleanArray.last(): Boolean {\n   if (isEmpty())\n   throw NoSuchElementException(\"Array is empty.\")\n   return this[lastIndex]\n}\n\n/**\n * Returns the last element.\n * \n * @throws NoSuchElementException if the array is empty.\n * \n * @sample samples.collections.Collections.Elements.last\n */\npublic fun CharArray.last(): Char {\n   if (isEmpty())\n   throw NoSuchElementException(\"Array is empty.\")\n   return this[lastIndex]\n}\n\n/**\n * Returns the last element matching the given [predicate].\n * \n * @throws NoSuchElementException if no such element is found.\n * \n * @sample samples.collections.Collections.Elements.last\n */\npublic inline fun <T> Array<out T>.last(predicate: (T) -> Boolean): T {\n   for (index in this.indices.reversed()) {\n   val element = this[index]\n   if (predicate(element)) return element\n   }\n   throw NoSuchElementException(\"Array contains no element matching the predicate.\")\n}\n\n/**\n * Returns the last element matching the given [predicate].\n * \n * @throws NoSuchElementException if no such element is found.\n * \n * @sample samples.collections.Collections.Elements.last\n */\npublic inline fun ByteArray.last(predicate: (Byte) -> Boolean): Byte {\n   for (index in this.indices.reversed()) {\n   val element = this[index]\n   if (predicate(element)) return element\n   }\n   throw NoSuchElementException(\"Array contains no element matching the predicate.\")\n}\n\n/**\n * Returns the last element matching the given [predicate].\n * \n * @throws NoSuchElementException if no such element is found.\n * \n * @sample samples.collections.Collections.Elements.last\n */\npublic inline fun ShortArray.last(predicate: (Short) -> Boolean): Short {\n   for (index in this.indices.reversed()) {\n   val element = this[index]\n   if (predicate(element)) return element\n }\n throw NoSuchElementException(\"Array contains no element matching the predicate.\")\n}\n\n/**\n * Returns the last element matching the given [predicate].\n * \n * @throws NoSuchElementException if no such element is found.\n * \n * @sample samples.collections.Collections.Elements.last\n */\npublic inline fun IntArray.last(predicate: (Int) -> Boolean): Int {\n for (index in this.indices.reversed()) {\n val element = this[index]\n if (predicate(element)) return element\n }\n throw NoSuchElementException(\"Array contains no element matching the predicate.\")\n}\n\n/**\n * Returns the last element matching the given [predicate].\n * \n * @throws NoSuchElementException if no such element is found.\n * \n * @sample samples.collections.Collections.Elements.last\n */\npublic inline fun LongArray.last(predicate: (Long) -> Boolean): Long {\n for (index in this.indices.reversed()) {\n val element = this[index]\n if (predicate(element)) return element\n }\n throw NoSuchElementException(\"Array contains no element matching the predicate.\")\n}\n\n/**\n * Returns the last element matching the given [predicate].\n * \n * @throws NoSuchElementException if no such element is found.\n * \n * @sample samples.collections.Collections.Elements.last\n */\npublic inline fun FloatArray.last(predicate: (Float) -> Boolean): Float {\n for (index in this.indices.reversed()) {\n val element = this[index]\n if (predicate(element)) return element\n }\n throw NoSuchElementException(\"Array contains no element matching the predicate.\")\n}\n\n/**\n * Returns the last element matching the given [predicate].\n * \n * @throws NoSuchElementException if no such element is found.\n * \n * @sample samples.collections.Collections.Elements.last\n */\npublic inline fun DoubleArray.last(predicate: (Double) -> Boolean): Double {\n for (index in this.indices.reversed()) {\n val element = this[index]\n if (predicate(element)) return element\n }\n throw NoSuchElementException(\"Array contains no element matching the predicate.\")\n}\n\n/**\n * Returns the last element matching the given [predicate].\n * \n * @throws NoSuchElementException if no such element is found.\n * \n * @sample samples.collections.Collections.Elements.last\n */\npublic inline fun BooleanArray.last(predicate: (Boolean) -> Boolean): Boolean {\n for (index in this.indices.reversed()) {\n val element = this[index]\n if (predicate(element)) return element\n }\n throw NoSuchElementException(\"Array contains no element matching the predicate.\")\n}\n\n/**\n * Returns the last element matching the given [predicate].\n * \n * @throws NoSuchElementException if no such element is found.\n * \n * @sample samples.collections.Collections.Elements.last\n */\npublic inline fun CharArray.last(predicate: (Char) -> Boolean): Char {\n for (index in this.indices.reversed()) {\n val element = this[index]\n if (predicate(element)) return element\n }\n throw NoSuchElementException(\"Array contains no element matching the predicate.\")\n}\n\n/**\n * Returns last index of [element], or -1 if the array does not contain element.\n */\npublic fun <@kotlin.internal.OnlyInputTypes T> Array<out T>.lastIndexOf(element: T): Int {\n if (element == null) {\n for (index in indices.reversed()) {\n if (this[index] == null) {\n return index\n }\n }\n } else {\n for (index in indices.reversed()) {\n if (element == this[index]) {\n return index\n }\n }\n }\n return -1\n}\n\n/**\n * Returns last index of [element], or -1 if the array does not contain element.\n */\npublic fun ByteArray.lastIndexOf(element: Byte): Int {\n for (index in indices.reversed()) {\n if (element == this[index]) {\n return index\n }\n }\n return -1\n}\n\n/**\n * Returns last index of [element], or -1 if the array does not contain element.\n */\npublic fun ShortArray.lastIndexOf(element: Short): Int {\n for (index in indices.reversed()) {\n if (element == this[index]) {\n return index\n }\n }\n return -1\n}\n\n/**\n * Returns last index of [element], or -1 if the array does not contain element.\n */\npublic fun IntArray.lastIndexOf(element: Int): Int {\n for (index in indices.reversed()) {\n if (element == this[index]) {\n return index\n }\n }\n return -1\n}\n\n/**\n * Returns last index of [element], or -1 if the array does not contain element.\n */\npublic fun LongArray.lastIndexOf(element: Long): Int {\n for (index in indices.reversed()) {\n if (element == this[index]) {\n return index\n }\n }\n return -1\n}\n\n/**\n * Returns last index of [element], or -1 if the array does not contain element.\n */\n@Deprecated(\"The function has unclear behavior when searching for NaN or zero values and will be removed soon. Use 'indexOfLast { it == element }' instead to continue using this behavior, or '.asList().lastIndexOf(element: T)' to get the same search behavior as in a list.\", ReplaceWith(\"indexOfLast { it == element }\"))\n@DeprecatedSinceKotlin(warningSince = \"1.4\", errorSince = \"1.6\", hiddenSince = \"1.7\")\npublic fun FloatArray.lastIndexOf(element: Float): Int {\n   for (index in indices.reversed()) {\n   if (element == this[index]) {\n   return index\n   }\n   }\n   return -1\n}\n\n/**\n * Returns last index of [element], or -1 if the array does not contain element.\n */\n@Deprecated(\"The function has unclear behavior when searching for NaN or zero values and will be removed soon. Use 'indexOfLast { it == element }' instead to continue using this behavior, or '.asList().lastIndexOf(element: T)' to get the same search behavior as in a list.\", ReplaceWith(\"indexOfLast { it == element }\"))\n@DeprecatedSinceKotlin(warningSince = \"1.4\", errorSince = \"1.6\", hiddenSince = \"1.7\")\npublic fun DoubleArray.lastIndexOf(element: Double): Int {\n   for (index in indices.reversed()) {\n   if (element == this[index]) {\n   return index\n   }\n   }\n   return -1\n}\n\n/**\n * Returns last index of [element], or -1 if the array does not contain element.\n */\npublic fun BooleanArray.lastIndexOf(element: Boolean): Int {\n   for (index in indices.reversed()) {\n   if (element == this[index]) {\n   return index\n   }\n   }\n   return -1\n}\n\n/**\n * Returns last index of [element], or -1 if the array does not contain element.\n */\npublic fun CharArray.lastIndexOf(element: Char): Int {\n   for (index in indices.reversed()) {\n   if (element == this[index]) {\n   return index\n   }\n   }\n   return -1\n}\n\n/**\n * Returns the last element, or `null` if the array is empty.\n * \n * @sample samples.collections.Collections.Elements.last\n */\npublic fun <T> Array<out T>.lastOrNull(): T? {\n   return if (isEmpty()) null else this[size - 1]\n}\n\n/**\n * Returns the last element, or `null` if the array is empty.\n * \n * @sample samples.collections.Collections.Elements.last\n */\npublic fun ByteArray.lastOrNull(): Byte? {\n   return if (isEmpty()) null else this[size - 1]\n}\n\n/**\n * Returns the last element, or `null` if the array is empty.\n * \n * @sample samples.collections.Collections.Elements.last\n */\npublic fun ShortArray.lastOrNull(): Short? {\n   return if (isEmpty()) null else this[size - 1]\n}\n\n/**\n * Returns the last element, or `null` if the array is empty.\n * \n * @sample samples.collections.Collections.Elements.last\n */\npublic fun IntArray.lastOrNull(): Int? {\n   return if (isEmpty()) null else this[size - 1]\n}\n\n/**\n * Returns the last element, or `null` if the array is empty.\n * \n * @sample samples.collections.Collections.Elements.last\n */\npublic fun LongArray.lastOrNull(): Long? {\n   return if (isEmpty()) null else this[size - 1]\n}\n\n/**\n * Returns the last element, or `null` if the array is empty.\n * \n * @sample samples.collections.Collections.Elements.last\n */\npublic fun FloatArray.lastOrNull(): Float? {\n   return if (isEmpty()) null else this[size - 1]\n}\n\n/**\n * Returns the last element, or `null` if the array is empty.\n * \n * @sample samples.collections.Collections.Elements.last\n */\npublic fun DoubleArray.lastOrNull(): Double? {\n   return if (isEmpty()) null else this[size - 1]\n}\n\n/**\n * Returns the last element, or `null` if the array is empty.\n * \n * @sample samples.collections.Collections.Elements.last\n */\npublic fun BooleanArray.lastOrNull(): Boolean? {\n   return if (isEmpty()) null else this[size - 1]\n}\n\n/**\n * Returns the last element, or `null` if the array is empty.\n * \n * @sample samples.collections.Collections.Elements.last\n */\npublic fun CharArray.lastOrNull(): Char? {\n   return if (isEmpty()) null else this[size - 1]\n}\n\n/**\n * Returns the last element matching the given [predicate], or `null` if no such element was found.\n * \n * @sample samples.collections.Collections.Elements.last\n */\npublic inline fun <T> Array<out T>.lastOrNull(predicate: (T) -> Boolean): T? {\n   for (index in this.indices.reversed()) {\n   val element = this[index]\n   if (predicate(element)) return element\n   }\n   return null\n}\n\n/**\n * Returns the last element matching the given [predicate], or `null` if no such element was found.\n * \n * @sample samples.collections.Collections.Elements.last\n */\npublic inline fun ByteArray.lastOrNull(predicate: (Byte) -> Boolean): Byte? {\n   for (index in this.indices.reversed()) {\n   val element = this[index]\n   if (predicate(element)) return element\n   }\n   return null\n}\n\n/**\n * Returns the last element matching the given [predicate], or `null` if no such element was found.\n * \n * @sample samples.collections.Collections.Elements.last\n */\npublic inline fun ShortArray.lastOrNull(predicate: (Short) -> Boolean): Short? {\n   for (index in this.indices.reversed()) {\n   val element = this[index]\n   if (predicate(element)) return element\n   }\n   return null\n}\n\n/**\n * Returns the last element matching the given [predicate], or `null` if no such element was found.\n * \n * @sample samples.collections.Collections.Elements.last\n */\npublic inline fun IntArray.lastOrNull(predicate: (Int) -> Boolean): Int? {\n   for (index in this.indices.reversed()) {\n   val element = this[index]\n   if

(predicate(element)) return element\n }\n return null\n}\n\n/**\n * Returns the last element matching the given [predicate], or `null` if no such element was found.\n * \n * @sample samples.collections.Collections.Elements.last\n */\npublic inline fun LongArray.lastOrNull(predicate: (Long) -> Boolean): Long? {\n for (index in this.indices.reversed()) {\n val element = this[index]\n if (predicate(element)) return element\n }\n return null\n}\n\n/**\n * Returns the last element matching the given [predicate], or `null` if no such element was found.\n * \n * @sample samples.collections.Collections.Elements.last\n */\npublic inline fun FloatArray.lastOrNull(predicate: (Float) -> Boolean): Float? {\n for (index in this.indices.reversed()) {\n val element = this[index]\n if (predicate(element)) return element\n }\n return null\n}\n\n/**\n * Returns the last element matching the given [predicate], or `null` if no such element was found.\n * \n * @sample samples.collections.Collections.Elements.last\n */\npublic inline fun DoubleArray.lastOrNull(predicate: (Double) -> Boolean): Double? {\n for (index in this.indices.reversed()) {\n val element = this[index]\n if (predicate(element)) return element\n }\n return null\n}\n\n/**\n * Returns the last element matching the given [predicate], or `null` if no such element was found.\n * \n * @sample samples.collections.Collections.Elements.last\n */\npublic inline fun BooleanArray.lastOrNull(predicate: (Boolean) -> Boolean): Boolean? {\n for (index in this.indices.reversed()) {\n val element = this[index]\n if (predicate(element)) return element\n }\n return null\n}\n\n/**\n * Returns the last element matching the given [predicate], or `null` if no such element was found.\n * \n * @sample samples.collections.Collections.Elements.last\n */\npublic inline fun CharArray.lastOrNull(predicate: (Char) -> Boolean): Char? {\n for (index in this.indices.reversed()) {\n val element = this[index]\n if (predicate(element)) return element\n }\n return null\n}\n\n/**\n * Returns a random element from this array.\n * \n * @throws NoSuchElementException if this array is empty.\n */\n@SinceKotlin(\"1.3\")\n@kotlin.internal.InlineOnly\npublic inline fun <T> Array<out T>.random(): T {\n return random(Random)\n}\n\n/**\n * Returns a random element from this array.\n * \n * @throws NoSuchElementException if this array is empty.\n */\n@SinceKotlin(\"1.3\")\n@kotlin.internal.InlineOnly\npublic inline fun ByteArray.random(): Byte {\n return random(Random)\n}\n\n/**\n * Returns a random element from this array.\n * \n * @throws NoSuchElementException if this array is empty.\n */\n@SinceKotlin(\"1.3\")\n@kotlin.internal.InlineOnly\npublic inline fun ShortArray.random(): Short {\n return random(Random)\n}\n\n/**\n * Returns a random element from this array.\n * \n * @throws NoSuchElementException if this array is empty.\n */\n@SinceKotlin(\"1.3\")\n@kotlin.internal.InlineOnly\npublic inline fun IntArray.random(): Int {\n return random(Random)\n}\n\n/**\n * Returns a random element from this array.\n * \n * @throws NoSuchElementException if this array is empty.\n */\n@SinceKotlin(\"1.3\")\n@kotlin.internal.InlineOnly\npublic inline fun LongArray.random(): Long {\n return random(Random)\n}\n\n/**\n * Returns a random element from this array.\n * \n * @throws NoSuchElementException if this array is empty.\n */\n@SinceKotlin(\"1.3\")\n@kotlin.internal.InlineOnly\npublic inline fun FloatArray.random(): Float {\n return random(Random)\n}\n\n/**\n * Returns a random element from this array.\n * \n * @throws NoSuchElementException if this array is empty.\n */\n@SinceKotlin(\"1.3\")\n@kotlin.internal.InlineOnly\npublic inline fun DoubleArray.random(): Double {\n return random(Random)\n}\n\n/**\n * Returns a random element from this array.\n * \n * @throws NoSuchElementException if this array is empty.\n */\n@SinceKotlin(\"1.3\")\n@kotlin.internal.InlineOnly\npublic inline fun BooleanArray.random(): Boolean {\n return random(Random)\n}\n\n/**\n * Returns a random element from this array.\n * \n * @throws NoSuchElementException if this array is empty.\n */\n@SinceKotlin(\"1.3\")\n@kotlin.internal.InlineOnly\npublic inline fun CharArray.random(): Char {\n return random(Random)\n}\n\n/**\n * Returns a random element from this array using the specified source of randomness.\n * \n * @throws NoSuchElementException if this array is empty.\n */\n@SinceKotlin(\"1.3\")\npublic fun <T> Array<out T>.random(random: Random): T {\n if (isEmpty())\n throw NoSuchElementException(\"Array is empty.\")\n return get(random.nextInt(size))\n}\n\n/**\n * Returns a random element from this array using the specified source of randomness.\n * \n * @throws NoSuchElementException if

this array is empty.\n */\n@SinceKotlin(\"1.3\")\npublic fun ByteArray.random(random: Random): Byte {\n   if (isEmpty())\n   throw NoSuchElementException(\"Array is empty.\")\n   return get(random.nextInt(size))\n}\n\n/**\n * Returns a random element from this array using the specified source of randomness.\n * \n * @throws NoSuchElementException if this array is empty.\n */\n@SinceKotlin(\"1.3\")\npublic fun ShortArray.random(random: Random): Short {\n   if (isEmpty())\n   throw NoSuchElementException(\"Array is empty.\")\n   return get(random.nextInt(size))\n}\n\n/**\n * Returns a random element from this array using the specified source of randomness.\n * \n * @throws NoSuchElementException if this array is empty.\n */\n@SinceKotlin(\"1.3\")\npublic fun IntArray.random(random: Random): Int {\n   if (isEmpty())\n   throw NoSuchElementException(\"Array is empty.\")\n   return get(random.nextInt(size))\n}\n\n/**\n * Returns a random element from this array using the specified source of randomness.\n * \n * @throws NoSuchElementException if this array is empty.\n */\n@SinceKotlin(\"1.3\")\npublic fun LongArray.random(random: Random): Long {\n   if (isEmpty())\n   throw NoSuchElementException(\"Array is empty.\")\n   return get(random.nextInt(size))\n}\n\n/**\n * Returns a random element from this array using the specified source of randomness.\n * \n * @throws NoSuchElementException if this array is empty.\n */\n@SinceKotlin(\"1.3\")\npublic fun FloatArray.random(random: Random): Float {\n   if (isEmpty())\n   throw NoSuchElementException(\"Array is empty.\")\n   return get(random.nextInt(size))\n}\n\n/**\n * Returns a random element from this array using the specified source of randomness.\n * \n * @throws NoSuchElementException if this array is empty.\n */\n@SinceKotlin(\"1.3\")\npublic fun DoubleArray.random(random: Random): Double {\n   if (isEmpty())\n   throw NoSuchElementException(\"Array is empty.\")\n   return get(random.nextInt(size))\n}\n\n/**\n * Returns a random element from this array using the specified source of randomness.\n * \n * @throws NoSuchElementException if this array is empty.\n */\n@SinceKotlin(\"1.3\")\npublic fun BooleanArray.random(random: Random): Boolean {\n   if (isEmpty())\n   throw NoSuchElementException(\"Array is empty.\")\n   return get(random.nextInt(size))\n}\n\n/**\n * Returns a random element from this array using the specified source of randomness.\n * \n * @throws NoSuchElementException if this array is empty.\n */\n@SinceKotlin(\"1.3\")\npublic fun CharArray.random(random: Random): Char {\n   if (isEmpty())\n   throw NoSuchElementException(\"Array is empty.\")\n   return get(random.nextInt(size))\n}\n\n/**\n * Returns a random element from this array, or `null` if this array is empty.\n */\n@SinceKotlin(\"1.4\")\n@WasExperimental(ExperimentalStdlibApi::class)\n@kotlin.internal.InlineOnly\npublic inline fun <T> Array<out T>.randomOrNull(): T? {\n   return randomOrNull(Random)\n}\n\n/**\n * Returns a random element from this array, or `null` if this array is empty.\n */\n@SinceKotlin(\"1.4\")\n@WasExperimental(ExperimentalStdlibApi::class)\n@kotlin.internal.InlineOnly\npublic inline fun ByteArray.randomOrNull(): Byte? {\n   return randomOrNull(Random)\n}\n\n/**\n * Returns a random element from this array, or `null` if this array is empty.\n */\n@SinceKotlin(\"1.4\")\n@WasExperimental(ExperimentalStdlibApi::class)\n@kotlin.internal.InlineOnly\npublic inline fun ShortArray.randomOrNull(): Short? {\n   return randomOrNull(Random)\n}\n\n/**\n * Returns a random element from this array, or `null` if this array is empty.\n */\n@SinceKotlin(\"1.4\")\n@WasExperimental(ExperimentalStdlibApi::class)\n@kotlin.internal.InlineOnly\npublic inline fun IntArray.randomOrNull(): Int? {\n   return randomOrNull(Random)\n}\n\n/**\n * Returns a random element from this array, or `null` if this array is empty.\n */\n@SinceKotlin(\"1.4\")\n@WasExperimental(ExperimentalStdlibApi::class)\n@kotlin.internal.InlineOnly\npublic inline fun LongArray.randomOrNull(): Long? {\n   return randomOrNull(Random)\n}\n\n/**\n * Returns a random element from this array, or `null` if this array is empty.\n */\n@SinceKotlin(\"1.4\")\n@WasExperimental(ExperimentalStdlibApi::class)\n@kotlin.internal.InlineOnly\npublic inline fun FloatArray.randomOrNull(): Float? {\n   return randomOrNull(Random)\n}\n\n/**\n * Returns a random element from this array, or `null` if this array is empty.\n */\n@SinceKotlin(\"1.4\")\n@WasExperimental(ExperimentalStdlibApi::class)\n@kotlin.internal.InlineOnly\npublic inline fun DoubleArray.randomOrNull(): Double? {\n   return randomOrNull(Random)\n}\n\n/**\n * Returns a random element from this array, or `null` if this array is empty.\n */\n@SinceKotlin(\"1.4\")\n@WasExperimental(ExperimentalStdlibApi::class)\n@kotlin.internal.InlineOnly\npublic inline fun BooleanArray.randomOrNull(): Boolean? {\n   return randomOrNull(Random)\n}\n\n/**\n * Returns a random element from this array, or `null` if this array is empty.\n */\n@SinceKotlin(\"1.4\")\n@WasExperimental(ExperimentalStdlibApi::class)\n@kotlin.internal.InlineOnly\npublic inline fun CharArray.randomOrNull(): Char? {\n   return randomOrNull(Random)\n}\n\n/**\n * Returns a random element from this array using the specified source of randomness, or `null` if this array is empty.\n */\n@SinceKotlin(\"1.4\")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic fun <T> Array<out T>.randomOrNull(random: Random): T? {\n   if (isEmpty())\n   return null\n   return get(random.nextInt(size))\n}\n\n/**\n * Returns a random element from this array using the specified source of randomness, or `null` if this array is empty.\n */\n@SinceKotlin(\"1.4\")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic fun ByteArray.randomOrNull(random: Random): Byte? {\n   if (isEmpty())\n   return null\n   return get(random.nextInt(size))\n}\n\n/**\n * Returns a random element from this array using the specified source of randomness, or `null` if this array is empty.\n */\n@SinceKotlin(\"1.4\")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic fun ShortArray.randomOrNull(random: Random): Short? {\n   if (isEmpty())\n   return null\n   return get(random.nextInt(size))\n}\n\n/**\n * Returns a random element from this array using the specified source of randomness, or `null` if this array is empty.\n */\n@SinceKotlin(\"1.4\")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic fun IntArray.randomOrNull(random: Random): Int? {\n   if (isEmpty())\n   return null\n   return get(random.nextInt(size))\n}\n\n/**\n * Returns a random element from this array using the specified source of randomness, or `null` if this array is empty.\n */\n@SinceKotlin(\"1.4\")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic fun LongArray.randomOrNull(random: Random): Long? {\n   if (isEmpty())\n   return null\n   return get(random.nextInt(size))\n}\n\n/**\n * Returns a random element from this array using the specified source of randomness, or `null` if this array is empty.\n */\n@SinceKotlin(\"1.4\")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic fun FloatArray.randomOrNull(random: Random): Float? {\n   if (isEmpty())\n   return null\n   return get(random.nextInt(size))\n}\n\n/**\n * Returns a random element from this array using the specified source of randomness, or `null` if this array is empty.\n */\n@SinceKotlin(\"1.4\")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic fun DoubleArray.randomOrNull(random: Random): Double? {\n   if (isEmpty())\n   return null\n   return get(random.nextInt(size))\n}\n\n/**\n * Returns a random element from this array using the specified source of randomness, or `null` if this array is empty.\n */\n@SinceKotlin(\"1.4\")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic fun BooleanArray.randomOrNull(random: Random): Boolean? {\n   if (isEmpty())\n   return null\n   return get(random.nextInt(size))\n}\n\n/**\n * Returns a random element from this array using the specified source of randomness, or `null` if this array is empty.\n */\n@SinceKotlin(\"1.4\")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic fun CharArray.randomOrNull(random: Random): Char? {\n   if (isEmpty())\n   return null\n   return get(random.nextInt(size))\n}\n\n/**\n * Returns the single element, or throws an exception if the array is empty or has more than one element.\n */\npublic fun <T> Array<out T>.single(): T {\n   return when (size) {\n   0 -> throw NoSuchElementException(\"Array is empty.\")\n   1 -> this[0]\n   else -> throw IllegalArgumentException(\"Array has more than one element.\")\n   }\n}\n\n/**\n * Returns the single element, or throws an exception if the array is empty or has more than one element.\n */\npublic fun ByteArray.single(): Byte {\n   return when (size) {\n   0 -> throw NoSuchElementException(\"Array is empty.\")\n   1 -> this[0]\n   else -> throw IllegalArgumentException(\"Array has more than one element.\")\n   }\n}\n\n/**\n * Returns the single element, or throws an exception if the array is empty or has more than one element.\n */\npublic fun ShortArray.single(): Short {\n   return when (size) {\n   0 -> throw NoSuchElementException(\"Array is empty.\")\n   1 -> this[0]\n   else -> throw IllegalArgumentException(\"Array has more than one element.\")\n   }\n}\n\n/**\n * Returns the single element, or throws an exception if the array is empty or has more than one element.\n */\npublic fun IntArray.single(): Int {\n   return when (size) {\n   0 -> throw NoSuchElementException(\"Array is empty.\")\n   1 -> this[0]\n   else -> throw IllegalArgumentException(\"Array has more than one element.\")\n   }\n}\n\n/**\n * Returns the single element, or throws an exception if the array is empty or has more than one element.\n */\npublic fun LongArray.single(): Long {\n   return when (size) {\n   0 -> throw NoSuchElementException(\"Array is empty.\")\n   1 -> this[0]\n   else -> throw IllegalArgumentException(\"Array has more than one element.\")\n   }\n}\n\n/**\n * Returns the single element, or throws an exception if the array is empty or has more than one element.\n */\npublic fun FloatArray.single(): Float {\n   return when (size) {\n   0 -> throw NoSuchElementException(\"Array is empty.\")\n   1 -> this[0]\n   else -> throw IllegalArgumentException(\"Array has more than one element.\")\n   }\n}\n\n/**\n * Returns the single element, or throws an exception if the array is empty or has more than one element.\n */\npublic fun DoubleArray.single(): Double {\n   return when (size) {\n   0 -> throw NoSuchElementException(\"Array is empty.\")\n   1 -> this[0]\n   else -> throw IllegalArgumentException(\"Array has more than one element.\")\n   }\n}\n\n/**\n * Returns the single element, or throws an exception if the array is empty or has more than one element.\n */\npublic fun BooleanArray.single(): Boolean {\n   return when (size) {\n   0 -> throw NoSuchElementException(\"Array is empty.\")\n   1 -> this[0]\n   else -> throw IllegalArgumentException(\"Array has more than one element.\")\n   }\n}\n\n/**\n * Returns the single element, or throws an exception if the array is empty or has more than one element.\n */\npublic fun CharArray.single(): Char {\n   return when (size) {\n   0 -> throw NoSuchElementException(\"Array is empty.\")\n   1 -> this[0]\n   else -> throw IllegalArgumentException(\"Array has more than one element.\")\n   }\n}\n\n/**\n * Returns the single element matching the given [predicate], or throws exception if there is no or more than one matching element.\n */\npublic inline fun <T> Array<out T>.single(predicate: (T) -> Boolean): T {\n   var single: T? = null\n   var found = false\n   for (element in this) {\n   if (predicate(element)) {\n   if (found) throw IllegalArgumentException(\"Array contains more than one matching element.\")\n   single = element\n   found = true\n   }\n   }\n   if (!found) throw NoSuchElementException(\"Array contains no element matching the predicate.\")\n   @Suppress(\"UNCHECKED_CAST\")\n   return single as T\n}\n\n/**\n * Returns the single element matching the given [predicate], or throws exception if there is no or more than one matching element.\n */\npublic inline fun ByteArray.single(predicate: (Byte) -> Boolean): Byte {\n   var single: Byte? = null\n   var found = false\n   for (element in this) {\n   if (predicate(element)) {\n   if (found) throw IllegalArgumentException(\"Array contains more than one matching element.\")\n   single = element\n   found = true\n   }\n   }\n   if (!found) throw NoSuchElementException(\"Array contains no element matching the predicate.\")\n   @Suppress(\"UNCHECKED_CAST\")\n   return single as Byte\n}\n\n/**\n * Returns the single element matching the given [predicate], or throws exception if there is no or more than one matching element.\n */\npublic inline fun ShortArray.single(predicate: (Short) -> Boolean): Short {\n   var single: Short? = null\n   var found = false\n   for (element in this) {\n   if (predicate(element)) {\n   if (found) throw IllegalArgumentException(\"Array contains more than one matching element.\")\n   single = element\n   found = true\n   }\n   }\n   if (!found) throw NoSuchElementException(\"Array contains no element matching the predicate.\")\n   @Suppress(\"UNCHECKED_CAST\")\n   return single as Short\n}\n\n/**\n * Returns the single element matching the given [predicate], or throws exception if there is no or more than one matching element.\n */\npublic inline fun IntArray.single(predicate: (Int) -> Boolean): Int {\n   var single: Int? = null\n   var found = false\n   for (element in this) {\n   if (predicate(element)) {\n   if (found) throw IllegalArgumentException(\"Array contains more than one matching element.\")\n   single = element\n   found = true\n   }\n   }\n   if (!found) throw NoSuchElementException(\"Array contains no element matching the predicate.\")\n   @Suppress(\"UNCHECKED_CAST\")\n   return single as Int\n}\n\n/**\n * Returns the single element matching the given [predicate], or throws exception if there is no or more than one matching element.\n

*/\npublic inline fun LongArray.single(predicate: (Long) -> Boolean): Long {\n   var single: Long? = null\n   var found = false\n   for (element in this) {\n   if (predicate(element)) {\n   if (found) throw IllegalArgumentException(\"Array contains more than one matching element.\")\n   single = element\n   found = true\n   }\n   }\n   if (!found) throw NoSuchElementException(\"Array contains no element matching the predicate.\")\n   @Suppress(\"UNCHECKED_CAST\")\n   return single as Long\n}\n\n/**\n * Returns the single element matching the given [predicate], or throws exception if there is no or more than one matching element.\n */\npublic inline fun FloatArray.single(predicate: (Float) -> Boolean): Float {\n   var single: Float? = null\n   var found = false\n   for (element in this) {\n   if (predicate(element)) {\n   if (found) throw IllegalArgumentException(\"Array contains more than one matching element.\")\n   single = element\n   found = true\n   }\n   }\n   if (!found) throw NoSuchElementException(\"Array contains no element matching the predicate.\")\n   @Suppress(\"UNCHECKED_CAST\")\n   return single as Float\n}\n\n/**\n * Returns the single element matching the given [predicate], or throws exception if there is no or more than one matching element.\n */\npublic inline fun DoubleArray.single(predicate: (Double) -> Boolean): Double {\n   var single: Double? = null\n   var found = false\n   for (element in this) {\n   if (predicate(element)) {\n   if (found) throw IllegalArgumentException(\"Array contains more than one matching element.\")\n   single = element\n   found = true\n   }\n   }\n   if (!found) throw NoSuchElementException(\"Array contains no element matching the predicate.\")\n   @Suppress(\"UNCHECKED_CAST\")\n   return single as Double\n}\n\n/**\n * Returns the single element matching the given [predicate], or throws exception if there is no or more than one matching element.\n */\npublic inline fun BooleanArray.single(predicate: (Boolean) -> Boolean): Boolean {\n   var single: Boolean? = null\n   var found = false\n   for (element in this) {\n   if (predicate(element)) {\n   if (found) throw IllegalArgumentException(\"Array contains more than one matching element.\")\n   single = element\n   found = true\n   }\n   }\n   if (!found) throw NoSuchElementException(\"Array contains no element matching the predicate.\")\n   @Suppress(\"UNCHECKED_CAST\")\n   return single as Boolean\n}\n\n/**\n * Returns the single element matching the given [predicate], or throws exception if there is no or more than one matching element.\n */\npublic inline fun CharArray.single(predicate: (Char) -> Boolean): Char {\n   var single: Char? = null\n   var found = false\n   for (element in this) {\n   if (predicate(element)) {\n   if (found) throw IllegalArgumentException(\"Array contains more than one matching element.\")\n   single = element\n   found = true\n   }\n   }\n   if (!found) throw NoSuchElementException(\"Array contains no element matching the predicate.\")\n   @Suppress(\"UNCHECKED_CAST\")\n   return single as Char\n}\n\n/**\n * Returns single element, or `null` if the array is empty or has more than one element.\n */\npublic fun <T> Array<out T>.singleOrNull(): T? {\n   return if (size == 1) this[0] else null\n}\n\n/**\n * Returns single element, or `null` if the array is empty or has more than one element.\n */\npublic fun ByteArray.singleOrNull(): Byte? {\n   return if (size == 1) this[0] else null\n}\n\n/**\n * Returns single element, or `null` if the array is empty or has more than one element.\n */\npublic fun ShortArray.singleOrNull(): Short? {\n   return if (size == 1) this[0] else null\n}\n\n/**\n * Returns single element, or `null` if the array is empty or has more than one element.\n */\npublic fun IntArray.singleOrNull(): Int? {\n   return if (size == 1) this[0] else null\n}\n\n/**\n * Returns single element, or `null` if the array is empty or has more than one element.\n */\npublic fun LongArray.singleOrNull(): Long? {\n   return if (size == 1) this[0] else null\n}\n\n/**\n * Returns single element, or `null` if the array is empty or has more than one element.\n */\npublic fun FloatArray.singleOrNull(): Float? {\n   return if (size == 1) this[0] else null\n}\n\n/**\n * Returns single element, or `null` if the array is empty or has more than one element.\n */\npublic fun DoubleArray.singleOrNull(): Double? {\n   return if (size == 1) this[0] else null\n}\n\n/**\n * Returns single element, or `null` if the array is empty or has more than one element.\n */\npublic fun BooleanArray.singleOrNull(): Boolean? {\n   return if (size == 1) this[0] else null\n}\n\n/**\n * Returns single element, or `null` if the array is empty or has more than one element.\n */\npublic fun CharArray.singleOrNull(): Char? {\n   return if (size == 1) this[0] else null\n}\n\n/**\n * Returns the single element matching the given [predicate], or `null` if element was not found or more than one element was found.\n */\npublic inline fun <T> Array<out T>.singleOrNull(predicate: (T) -> Boolean): T? {\n   var single: T? = null\n   var found = false\n   for (element in this) {\n   if (predicate(element)) {\n   if (found) return null\n   single = element\n   found = true\n   }\n   }\n

if (!found) return null\n   return single\n}\n\n/**\n * Returns the single element matching the given [predicate], or `null` if element was not found or more than one element was found.\n */\npublic inline fun ByteArray.singleOrNull(predicate: (Byte) -> Boolean): Byte? {\n   var single: Byte? = null\n   var found = false\n   for (element in this) {\n   if (predicate(element)) {\n   if (found) return null\n   single = element\n   found = true\n   }\n   }\n   if (!found) return null\n   return single\n}\n\n/**\n * Returns the single element matching the given [predicate], or `null` if element was not found or more than one element was found.\n */\npublic inline fun ShortArray.singleOrNull(predicate: (Short) -> Boolean): Short? {\n   var single: Short? = null\n   var found = false\n   for (element in this) {\n   if (predicate(element)) {\n   if (found) return null\n   single = element\n   found = true\n   }\n   }\n   if (!found) return null\n   return single\n}\n\n/**\n * Returns the single element matching the given [predicate], or `null` if element was not found or more than one element was found.\n */\npublic inline fun IntArray.singleOrNull(predicate: (Int) -> Boolean): Int? {\n   var single: Int? = null\n   var found = false\n   for (element in this) {\n   if (predicate(element)) {\n   if (found) return null\n   single = element\n   found = true\n   }\n   }\n   if (!found) return null\n   return single\n}\n\n/**\n * Returns the single element matching the given [predicate], or `null` if element was not found or more than one element was found.\n */\npublic inline fun LongArray.singleOrNull(predicate: (Long) -> Boolean): Long? {\n   var single: Long? = null\n   var found = false\n   for (element in this) {\n   if (predicate(element)) {\n   if (found) return null\n   single = element\n   found = true\n   }\n   }\n   if (!found) return null\n   return single\n}\n\n/**\n * Returns the single element matching the given [predicate], or `null` if element was not found or more than one element was found.\n */\npublic inline fun FloatArray.singleOrNull(predicate: (Float) -> Boolean): Float? {\n   var single: Float? = null\n   var found = false\n   for (element in this) {\n   if (predicate(element)) {\n   if (found) return null\n   single = element\n   found = true\n   }\n   }\n   if (!found) return null\n   return single\n}\n\n/**\n * Returns the single element matching the given [predicate], or `null` if element was not found or more than one element was found.\n */\npublic inline fun DoubleArray.singleOrNull(predicate: (Double) -> Boolean): Double? {\n   var single: Double? = null\n   var found = false\n   for (element in this) {\n   if (predicate(element)) {\n   if (found) return null\n   single = element\n   found = true\n   }\n   }\n   if (!found) return null\n   return single\n}\n\n/**\n * Returns the single element matching the given [predicate], or `null` if element was not found or more than one element was found.\n */\npublic inline fun BooleanArray.singleOrNull(predicate: (Boolean) -> Boolean): Boolean? {\n   var single: Boolean? = null\n   var found = false\n   for (element in this) {\n   if (predicate(element)) {\n   if (found) return null\n   single = element\n   found = true\n   }\n   }\n   if (!found) return null\n   return single\n}\n\n/**\n * Returns the single element matching the given [predicate], or `null` if element was not found or more than one element was found.\n */\npublic inline fun CharArray.singleOrNull(predicate: (Char) -> Boolean): Char? {\n   var single: Char? = null\n   var found = false\n   for (element in this) {\n   if (predicate(element)) {\n   if (found) return null\n   single = element\n   found = true\n   }\n   }\n   if (!found) return null\n   return single\n}\n\n/**\n * Returns a list containing all elements except first [n] elements.\n * \n * @throws IllegalArgumentException if [n] is negative.\n * \n * @sample samples.collections.Collections.Transformations.drop\n */\npublic fun <T> Array<out T>.drop(n: Int): List<T> {\n   require(n >= 0) { \"Requested element count $n is less than zero.\" }\n   return takeLast((size - n).coerceAtLeast(0))\n}\n\n/**\n * Returns a list containing all elements except first [n] elements.\n * \n * @throws IllegalArgumentException if [n] is negative.\n * \n * @sample samples.collections.Collections.Transformations.drop\n */\npublic fun ByteArray.drop(n: Int): List<Byte> {\n   require(n >= 0) { \"Requested element count $n is less than zero.\" }\n   return takeLast((size - n).coerceAtLeast(0))\n}\n\n/**\n * Returns a list containing all elements except first [n] elements.\n * \n * @throws IllegalArgumentException if [n] is negative.\n * \n * @sample samples.collections.Collections.Transformations.drop\n */\npublic fun ShortArray.drop(n: Int): List<Short> {\n   require(n >= 0) { \"Requested element count $n is less than zero.\" }\n   return takeLast((size - n).coerceAtLeast(0))\n}\n\n/**\n * Returns a list containing all elements except first [n] elements.\n * \n * @throws IllegalArgumentException if [n] is negative.\n * \n * @sample samples.collections.Collections.Transformations.drop\n */\npublic fun IntArray.drop(n: Int): List<Int> {\n require(n >= 0) { \"Requested element count $n is less than zero.\" }\n return takeLast((size - n).coerceAtLeast(0))\n}\n\n/**\n * Returns a list containing all elements except first [n] elements.\n * \n * @throws IllegalArgumentException if [n] is negative.\n * \n * @sample samples.collections.Collections.Transformations.drop\n */\npublic fun LongArray.drop(n: Int): List<Long> {\n require(n >= 0) { \"Requested element count $n is less than zero.\" }\n return takeLast((size - n).coerceAtLeast(0))\n}\n\n/**\n * Returns a list containing all elements except first [n] elements.\n * \n * @throws IllegalArgumentException if [n] is negative.\n * \n * @sample samples.collections.Collections.Transformations.drop\n */\npublic fun FloatArray.drop(n: Int): List<Float> {\n require(n >= 0) { \"Requested element count $n is less than zero.\" }\n return takeLast((size - n).coerceAtLeast(0))\n}\n\n/**\n * Returns a list containing all elements except first [n] elements.\n * \n * @throws IllegalArgumentException if [n] is negative.\n * \n * @sample samples.collections.Collections.Transformations.drop\n */\npublic fun DoubleArray.drop(n: Int): List<Double> {\n require(n >= 0) { \"Requested element count $n is less than zero.\" }\n return takeLast((size - n).coerceAtLeast(0))\n}\n\n/**\n * Returns a list containing all elements except first [n] elements.\n * \n * @throws IllegalArgumentException if [n] is negative.\n * \n * @sample samples.collections.Collections.Transformations.drop\n */\npublic fun BooleanArray.drop(n: Int): List<Boolean> {\n require(n >= 0) { \"Requested element count $n is less than zero.\" }\n return takeLast((size - n).coerceAtLeast(0))\n}\n\n/**\n * Returns a list containing all elements except first [n] elements.\n * \n * @throws IllegalArgumentException if [n] is negative.\n * \n * @sample samples.collections.Collections.Transformations.drop\n */\npublic fun CharArray.drop(n: Int): List<Char> {\n require(n >= 0) { \"Requested element count $n is less than zero.\" }\n return takeLast((size - n).coerceAtLeast(0))\n}\n\n/**\n * Returns a list containing all elements except last [n] elements.\n * \n * @throws IllegalArgumentException if [n] is negative.\n * \n * @sample samples.collections.Collections.Transformations.drop\n */\npublic fun <T> Array<out T>.dropLast(n: Int): List<T> {\n require(n >= 0) { \"Requested element count $n is less than zero.\" }\n return take((size - n).coerceAtLeast(0))\n}\n\n/**\n * Returns a list containing all elements except last [n] elements.\n * \n * @throws IllegalArgumentException if [n] is negative.\n * \n * @sample samples.collections.Collections.Transformations.drop\n */\npublic fun ByteArray.dropLast(n: Int): List<Byte> {\n require(n >= 0) { \"Requested element count $n is less than zero.\" }\n return take((size - n).coerceAtLeast(0))\n}\n\n/**\n * Returns a list containing all elements except last [n] elements.\n * \n * @throws IllegalArgumentException if [n] is negative.\n * \n * @sample samples.collections.Collections.Transformations.drop\n */\npublic fun ShortArray.dropLast(n: Int): List<Short> {\n require(n >= 0) { \"Requested element count $n is less than zero.\" }\n return take((size - n).coerceAtLeast(0))\n}\n\n/**\n * Returns a list containing all elements except last [n] elements.\n * \n * @throws IllegalArgumentException if [n] is negative.\n * \n * @sample samples.collections.Collections.Transformations.drop\n */\npublic fun IntArray.dropLast(n: Int): List<Int> {\n require(n >= 0) { \"Requested element count $n is less than zero.\" }\n return take((size - n).coerceAtLeast(0))\n}\n\n/**\n * Returns a list containing all elements except last [n] elements.\n * \n * @throws IllegalArgumentException if [n] is negative.\n * \n * @sample samples.collections.Collections.Transformations.drop\n */\npublic fun LongArray.dropLast(n: Int): List<Long> {\n require(n >= 0) { \"Requested element count $n is less than zero.\" }\n return take((size - n).coerceAtLeast(0))\n}\n\n/**\n * Returns a list containing all elements except last [n] elements.\n * \n * @throws IllegalArgumentException if [n] is negative.\n * \n * @sample samples.collections.Collections.Transformations.drop\n */\npublic fun FloatArray.dropLast(n: Int): List<Float> {\n require(n >= 0) { \"Requested element count $n is less than zero.\" }\n return take((size - n).coerceAtLeast(0))\n}\n\n/**\n * Returns a list containing all elements except last [n] elements.\n * \n * @throws IllegalArgumentException if [n] is negative.\n * \n * @sample samples.collections.Collections.Transformations.drop\n */\npublic fun DoubleArray.dropLast(n: Int): List<Double> {\n   require(n >= 0) { \"Requested element count $n is less than zero.\" }\n   return take((size - n).coerceAtLeast(0))\n}\n\n/**\n * Returns a list containing all elements except last [n] elements.\n * \n * @throws IllegalArgumentException if [n] is negative.\n * \n * @sample samples.collections.Collections.Transformations.drop\n */\npublic fun BooleanArray.dropLast(n: Int): List<Boolean> {\n   require(n >= 0) { \"Requested element count $n is less than zero.\" }\n   return take((size - n).coerceAtLeast(0))\n}\n\n/**\n * Returns a list containing all elements except last [n] elements.\n * \n * @throws IllegalArgumentException if [n] is negative.\n * \n * @sample samples.collections.Collections.Transformations.drop\n */\npublic fun CharArray.dropLast(n: Int): List<Char> {\n   require(n >= 0) { \"Requested element count $n is less than zero.\" }\n   return take((size - n).coerceAtLeast(0))\n}\n\n/**\n * Returns a list containing all elements except last elements that satisfy the given [predicate].\n * \n * @sample samples.collections.Collections.Transformations.drop\n */\npublic inline fun <T> Array<out T>.dropLastWhile(predicate: (T) -> Boolean): List<T> {\n   for (index in lastIndex downTo 0) {\n   if (!predicate(this[index])) {\n   return take(index + 1)\n   }\n   }\n   return emptyList()\n}\n\n/**\n * Returns a list containing all elements except last elements that satisfy the given [predicate].\n * \n * @sample samples.collections.Collections.Transformations.drop\n */\npublic inline fun ByteArray.dropLastWhile(predicate: (Byte) -> Boolean): List<Byte> {\n   for (index in lastIndex downTo 0) {\n   if (!predicate(this[index])) {\n   return take(index + 1)\n   }\n   }\n   return emptyList()\n}\n\n/**\n * Returns a list containing all elements except last elements that satisfy the given [predicate].\n * \n * @sample samples.collections.Collections.Transformations.drop\n */\npublic inline fun ShortArray.dropLastWhile(predicate: (Short) -> Boolean): List<Short> {\n   for (index in lastIndex downTo 0) {\n   if (!predicate(this[index])) {\n   return take(index + 1)\n   }\n   }\n   return emptyList()\n}\n\n/**\n * Returns a list containing all elements except last elements that satisfy the given [predicate].\n * \n * @sample samples.collections.Collections.Transformations.drop\n */\npublic inline fun IntArray.dropLastWhile(predicate: (Int) -> Boolean): List<Int> {\n   for (index in lastIndex downTo 0) {\n   if (!predicate(this[index])) {\n   return take(index + 1)\n   }\n   }\n   return emptyList()\n}\n\n/**\n * Returns a list containing all elements except last elements that satisfy the given [predicate].\n * \n * @sample samples.collections.Collections.Transformations.drop\n */\npublic inline fun LongArray.dropLastWhile(predicate: (Long) -> Boolean): List<Long> {\n   for (index in lastIndex downTo 0) {\n   if (!predicate(this[index])) {\n   return take(index + 1)\n   }\n   }\n   return emptyList()\n}\n\n/**\n * Returns a list containing all elements except last elements that satisfy the given [predicate].\n * \n * @sample samples.collections.Collections.Transformations.drop\n */\npublic inline fun FloatArray.dropLastWhile(predicate: (Float) -> Boolean): List<Float> {\n   for (index in lastIndex downTo 0) {\n   if (!predicate(this[index])) {\n   return take(index + 1)\n   }\n   }\n   return emptyList()\n}\n\n/**\n * Returns a list containing all elements except last elements that satisfy the given [predicate].\n * \n * @sample samples.collections.Collections.Transformations.drop\n */\npublic inline fun DoubleArray.dropLastWhile(predicate: (Double) -> Boolean): List<Double> {\n   for (index in lastIndex downTo 0) {\n   if (!predicate(this[index])) {\n   return take(index + 1)\n   }\n   }\n   return emptyList()\n}\n\n/**\n * Returns a list containing all elements except last elements that satisfy the given [predicate].\n * \n * @sample samples.collections.Collections.Transformations.drop\n */\npublic inline fun BooleanArray.dropLastWhile(predicate: (Boolean) -> Boolean): List<Boolean> {\n   for (index in lastIndex downTo 0) {\n   if (!predicate(this[index])) {\n   return take(index + 1)\n   }\n   }\n   return emptyList()\n}\n\n/**\n * Returns a list containing all elements except last elements that satisfy the given [predicate].\n * \n * @sample samples.collections.Collections.Transformations.drop\n */\npublic inline fun CharArray.dropLastWhile(predicate: (Char) -> Boolean): List<Char> {\n   for (index in lastIndex downTo 0) {\n   if (!predicate(this[index])) {\n   return take(index + 1)\n   }\n   }\n   return emptyList()\n}\n\n/**\n * Returns a list containing all elements except first elements that satisfy the given [predicate].\n * \n * @sample samples.collections.Collections.Transformations.drop\n */\npublic inline fun <T> Array<out

T>.dropWhile(predicate: (T) -> Boolean): List<T> {\n   var yielding = false\n   val list = ArrayList<T>()\n   for (item in this)\n   if (yielding)\n   list.add(item)\n   else if (!predicate(item)) {\n   list.add(item)\n   yielding = true\n   }\n   return list\n}\n\n/**\n * Returns a list containing all elements except first elements that satisfy the given [predicate].\n * \n * @sample samples.collections.Collections.Transformations.drop\n */\npublic inline fun ByteArray.dropWhile(predicate: (Byte) -> Boolean): List<Byte> {\n   var yielding = false\n   val list = ArrayList<Byte>()\n   for (item in this)\n   if (yielding)\n   list.add(item)\n   else if (!predicate(item)) {\n   list.add(item)\n   yielding = true\n   }\n   return list\n}\n\n/**\n * Returns a list containing all elements except first elements that satisfy the given [predicate].\n * \n * @sample samples.collections.Collections.Transformations.drop\n */\npublic inline fun ShortArray.dropWhile(predicate: (Short) -> Boolean): List<Short> {\n   var yielding = false\n   val list = ArrayList<Short>()\n   for (item in this)\n   if (yielding)\n   list.add(item)\n   else if (!predicate(item)) {\n   list.add(item)\n   yielding = true\n   }\n   return list\n}\n\n/**\n * Returns a list containing all elements except first elements that satisfy the given [predicate].\n * \n * @sample samples.collections.Collections.Transformations.drop\n */\npublic inline fun IntArray.dropWhile(predicate: (Int) -> Boolean): List<Int> {\n   var yielding = false\n   val list = ArrayList<Int>()\n   for (item in this)\n   if (yielding)\n   list.add(item)\n   else if (!predicate(item)) {\n   list.add(item)\n   yielding = true\n   }\n   return list\n}\n\n/**\n * Returns a list containing all elements except first elements that satisfy the given [predicate].\n * \n * @sample samples.collections.Collections.Transformations.drop\n */\npublic inline fun LongArray.dropWhile(predicate: (Long) -> Boolean): List<Long> {\n   var yielding = false\n   val list = ArrayList<Long>()\n   for (item in this)\n   if (yielding)\n   list.add(item)\n   else if (!predicate(item)) {\n   list.add(item)\n   yielding = true\n   }\n   return list\n}\n\n/**\n * Returns a list containing all elements except first elements that satisfy the given [predicate].\n * \n * @sample samples.collections.Collections.Transformations.drop\n */\npublic inline fun FloatArray.dropWhile(predicate: (Float) -> Boolean): List<Float> {\n   var yielding = false\n   val list = ArrayList<Float>()\n   for (item in this)\n   if (yielding)\n   list.add(item)\n   else if (!predicate(item)) {\n   list.add(item)\n   yielding = true\n   }\n   return list\n}\n\n/**\n * Returns a list containing all elements except first elements that satisfy the given [predicate].\n * \n * @sample samples.collections.Collections.Transformations.drop\n */\npublic inline fun DoubleArray.dropWhile(predicate: (Double) -> Boolean): List<Double> {\n   var yielding = false\n   val list = ArrayList<Double>()\n   for (item in this)\n   if (yielding)\n   list.add(item)\n   else if (!predicate(item)) {\n   list.add(item)\n   yielding = true\n   }\n   return list\n}\n\n/**\n * Returns a list containing all elements except first elements that satisfy the given [predicate].\n * \n * @sample samples.collections.Collections.Transformations.drop\n */\npublic inline fun BooleanArray.dropWhile(predicate: (Boolean) -> Boolean): List<Boolean> {\n   var yielding = false\n   val list = ArrayList<Boolean>()\n   for (item in this)\n   if (yielding)\n   list.add(item)\n   else if (!predicate(item)) {\n   list.add(item)\n   yielding = true\n   }\n   return list\n}\n\n/**\n * Returns a list containing all elements except first elements that satisfy the given [predicate].\n * \n * @sample samples.collections.Collections.Transformations.drop\n */\npublic inline fun CharArray.dropWhile(predicate: (Char) -> Boolean): List<Char> {\n   var yielding = false\n   val list = ArrayList<Char>()\n   for (item in this)\n   if (yielding)\n   list.add(item)\n   else if (!predicate(item)) {\n   list.add(item)\n   yielding = true\n   }\n   return list\n}\n\n/**\n * Returns a list containing only elements matching the given [predicate].\n * \n * @sample samples.collections.Collections.Filtering.filter\n */\npublic inline fun <T> Array<out T>.filter(predicate: (T) -> Boolean): List<T> {\n   return filterTo(ArrayList<T>(), predicate)\n}\n\n/**\n * Returns a list containing only elements matching the given [predicate].\n * \n * @sample samples.collections.Collections.Filtering.filter\n */\npublic inline fun ByteArray.filter(predicate: (Byte) -> Boolean): List<Byte> {\n   return filterTo(ArrayList<Byte>(), predicate)\n}\n\n/**\n * Returns a list containing only elements matching the given [predicate].\n * \n * @sample samples.collections.Collections.Filtering.filter\n */\npublic inline fun ShortArray.filter(predicate: (Short) -> Boolean): List<Short> {\n   return filterTo(ArrayList<Short>(), predicate)\n}\n\n/**\n * Returns a list containing only elements matching the given [predicate].\n * \n * @sample samples.collections.Collections.Filtering.filter\n */\npublic inline fun IntArray.filter(predicate: (Int) -> Boolean):

List<Int> {\n   return filterTo(ArrayList<Int>(), predicate)\n}\n\n/**\n * Returns a list containing only elements matching the given [predicate].\n * \n * @sample samples.collections.Collections.Filtering.filter\n */\npublic inline fun LongArray.filter(predicate: (Long) -> Boolean): List<Long> {\n   return filterTo(ArrayList<Long>(), predicate)\n}\n\n/**\n * Returns a list containing only elements matching the given [predicate].\n * \n * @sample samples.collections.Collections.Filtering.filter\n */\npublic inline fun FloatArray.filter(predicate: (Float) -> Boolean): List<Float> {\n   return filterTo(ArrayList<Float>(), predicate)\n}\n\n/**\n * Returns a list containing only elements matching the given [predicate].\n * \n * @sample samples.collections.Collections.Filtering.filter\n */\npublic inline fun DoubleArray.filter(predicate: (Double) -> Boolean): List<Double> {\n   return filterTo(ArrayList<Double>(), predicate)\n}\n\n/**\n * Returns a list containing only elements matching the given [predicate].\n * \n * @sample samples.collections.Collections.Filtering.filter\n */\npublic inline fun BooleanArray.filter(predicate: (Boolean) -> Boolean): List<Boolean> {\n   return filterTo(ArrayList<Boolean>(), predicate)\n}\n\n/**\n * Returns a list containing only elements matching the given [predicate].\n * \n * @sample samples.collections.Collections.Filtering.filter\n */\npublic inline fun CharArray.filter(predicate: (Char) -> Boolean): List<Char> {\n   return filterTo(ArrayList<Char>(), predicate)\n}\n\n/**\n * Returns a list containing only elements matching the given [predicate].\n * @param [predicate] function that takes the index of an element and the element itself\n * and returns the result of predicate evaluation on the element.\n * \n * @sample samples.collections.Collections.Filtering.filterIndexed\n */\npublic inline fun <T> Array<out T>.filterIndexed(predicate: (index: Int, T) -> Boolean): List<T> {\n   return filterIndexedTo(ArrayList<T>(), predicate)\n}\n\n/**\n * Returns a list containing only elements matching the given [predicate].\n * @param [predicate] function that takes the index of an element and the element itself\n * and returns the result of predicate evaluation on the element.\n * \n * @sample samples.collections.Collections.Filtering.filterIndexed\n */\npublic inline fun ByteArray.filterIndexed(predicate: (index: Int, Byte) -> Boolean): List<Byte> {\n   return filterIndexedTo(ArrayList<Byte>(), predicate)\n}\n\n/**\n * Returns a list containing only elements matching the given [predicate].\n * @param [predicate] function that takes the index of an element and the element itself\n * and returns the result of predicate evaluation on the element.\n * \n * @sample samples.collections.Collections.Filtering.filterIndexed\n */\npublic inline fun ShortArray.filterIndexed(predicate: (index: Int, Short) -> Boolean): List<Short> {\n   return filterIndexedTo(ArrayList<Short>(), predicate)\n}\n\n/**\n * Returns a list containing only elements matching the given [predicate].\n * @param [predicate] function that takes the index of an element and the element itself\n * and returns the result of predicate evaluation on the element.\n * \n * @sample samples.collections.Collections.Filtering.filterIndexed\n */\npublic inline fun IntArray.filterIndexed(predicate: (index: Int, Int) -> Boolean): List<Int> {\n   return filterIndexedTo(ArrayList<Int>(), predicate)\n}\n\n/**\n * Returns a list containing only elements matching the given [predicate].\n * @param [predicate] function that takes the index of an element and the element itself\n * and returns the result of predicate evaluation on the element.\n * \n * @sample samples.collections.Collections.Filtering.filterIndexed\n */\npublic inline fun LongArray.filterIndexed(predicate: (index: Int, Long) -> Boolean): List<Long> {\n   return filterIndexedTo(ArrayList<Long>(), predicate)\n}\n\n/**\n * Returns a list containing only elements matching the given [predicate].\n * @param [predicate] function that takes the index of an element and the element itself\n * and returns the result of predicate evaluation on the element.\n * \n * @sample samples.collections.Collections.Filtering.filterIndexed\n */\npublic inline fun FloatArray.filterIndexed(predicate: (index: Int, Float) -> Boolean): List<Float> {\n   return filterIndexedTo(ArrayList<Float>(), predicate)\n}\n\n/**\n * Returns a list containing only elements matching the given [predicate].\n * @param [predicate] function that takes the index of an element and the element itself\n * and returns the result of predicate evaluation on the element.\n * \n * @sample samples.collections.Collections.Filtering.filterIndexed\n */\npublic inline fun DoubleArray.filterIndexed(predicate: (index: Int, Double) -> Boolean): List<Double> {\n   return filterIndexedTo(ArrayList<Double>(), predicate)\n}\n\n/**\n * Returns a list containing only elements matching the given [predicate].\n * @param [predicate] function that takes the index of an element and the element itself\n * and returns the result of predicate evaluation on the element.\n * \n * @sample samples.collections.Collections.Filtering.filterIndexed\n */\npublic inline fun BooleanArray.filterIndexed(predicate: (index: Int, Boolean) -> Boolean): List<Boolean> {\n   return filterIndexedTo(ArrayList<Boolean>(), predicate)\n}\n\n/**\n * Returns a list containing only elements matching the given [predicate].\n * @param [predicate] function that takes the index of an element and the element itself\n * and returns the result of predicate evaluation on the element.\n * \n * @sample samples.collections.Collections.Filtering.filterIndexed\n */\npublic inline fun CharArray.filterIndexed(predicate: (index: Int, Char) -> Boolean): List<Char> {\n   return filterIndexedTo(ArrayList<Char>(), predicate)\n}\n\n/**\n * Appends all elements matching the given [predicate] to the given [destination].\n * @param [predicate] function that takes the index of an element and the element itself\n * and returns the result of predicate evaluation on the element.\n * \n * @sample samples.collections.Collections.Filtering.filterIndexedTo\n */\npublic inline fun <T, C : MutableCollection<in T>> Array<out T>.filterIndexedTo(destination: C, predicate: (index: Int, T) -> Boolean): C {\n   forEachIndexed { index, element ->\n   if (predicate(index, element)) destination.add(element)\n   }\n   return destination\n}\n\n/**\n * Appends all elements matching the given [predicate] to the given [destination].\n * @param [predicate] function that takes the index of an element and the element itself\n * and returns the result of predicate evaluation on the element.\n * \n * @sample samples.collections.Collections.Filtering.filterIndexedTo\n */\npublic inline fun <C : MutableCollection<in Byte>> ByteArray.filterIndexedTo(destination: C, predicate: (index: Int, Byte) -> Boolean): C {\n   forEachIndexed { index, element ->\n   if (predicate(index, element)) destination.add(element)\n   }\n   return destination\n}\n\n/**\n * Appends all elements matching the given [predicate] to the given [destination].\n * @param [predicate] function that takes the index of an element and the element itself\n * and returns the result of predicate evaluation on the element.\n * \n * @sample samples.collections.Collections.Filtering.filterIndexedTo\n */\npublic inline fun <C : MutableCollection<in Short>> ShortArray.filterIndexedTo(destination: C, predicate: (index: Int, Short) -> Boolean): C {\n   forEachIndexed { index, element ->\n   if (predicate(index, element)) destination.add(element)\n   }\n   return destination\n}\n\n/**\n * Appends all elements matching the given [predicate] to the given [destination].\n * @param [predicate] function that takes the index of an element and the element itself\n * and returns the result of predicate evaluation on the element.\n * \n * @sample samples.collections.Collections.Filtering.filterIndexedTo\n */\npublic inline fun <C : MutableCollection<in Int>> IntArray.filterIndexedTo(destination: C, predicate: (index: Int, Int) -> Boolean): C {\n   forEachIndexed { index, element ->\n   if (predicate(index, element)) destination.add(element)\n   }\n   return destination\n}\n\n/**\n * Appends all elements matching the given [predicate] to the given [destination].\n * @param [predicate] function that takes the index of an element and the element itself\n * and returns the result of predicate evaluation on the element.\n * \n * @sample samples.collections.Collections.Filtering.filterIndexedTo\n */\npublic inline fun <C : MutableCollection<in Long>> LongArray.filterIndexedTo(destination: C, predicate: (index: Int, Long) -> Boolean): C {\n   forEachIndexed { index, element ->\n   if (predicate(index, element)) destination.add(element)\n   }\n   return destination\n}\n\n/**\n * Appends all elements matching the given [predicate] to the given [destination].\n * @param [predicate] function that takes the index of an element and the element itself\n * and returns the result of predicate evaluation on the element.\n * \n * @sample samples.collections.Collections.Filtering.filterIndexedTo\n */\npublic inline fun <C : MutableCollection<in Float>> FloatArray.filterIndexedTo(destination: C, predicate: (index: Int, Float) -> Boolean): C {\n   forEachIndexed { index, element ->\n   if (predicate(index, element)) destination.add(element)\n   }\n   return destination\n}\n\n/**\n * Appends all elements matching the given [predicate] to the given [destination].\n * @param [predicate] function that takes the index of an element and the element itself\n * and returns the result of predicate evaluation on the element.\n * \n * @sample samples.collections.Collections.Filtering.filterIndexedTo\n */\npublic inline fun <C : MutableCollection<in Double>> DoubleArray.filterIndexedTo(destination: C, predicate: (index: Int, Double) -> Boolean): C {\n   forEachIndexed { index, element ->\n   if (predicate(index, element)) destination.add(element)\n   }\n   return destination\n}\n\n/**\n * Appends all elements matching the given [predicate] to the given [destination].\n * @param [predicate] function that takes the index of an element and the element itself\n * and returns the result of predicate evaluation on the element.\n * \n * @sample samples.collections.Collections.Filtering.filterIndexedTo\n */\npublic inline fun <C : MutableCollection<in Boolean>> BooleanArray.filterIndexedTo(destination: C, predicate:

(index: Int, Boolean) -> Boolean): C {\n   forEachIndexed { index, element ->\n   if (predicate(index, element)) destination.add(element)\n   }\n   return destination\n}\n\n/**\n * Appends all elements matching the given [predicate] to the given [destination].\n * @param [predicate] function that takes the index of an element and the element itself\n * and returns the result of predicate evaluation on the element.\n * \n * @sample samples.collections.Collections.Filtering.filterIndexedTo\n */\npublic inline fun <C : MutableCollection<in Char>> CharArray.filterIndexedTo(destination: C, predicate: (index: Int, Char) -> Boolean): C {\n   forEachIndexed { index, element ->\n   if (predicate(index, element)) destination.add(element)\n   }\n   return destination\n}\n\n/**\n * Returns a list containing all elements that are instances of specified type parameter R.\n * \n * @sample samples.collections.Collections.Filtering.filterIsInstance\n */\npublic inline fun <reified R> Array<*>.filterIsInstance(): List<@kotlin.internal.NoInfer R> {\n   return filterIsInstanceTo(ArrayList<R>())\n}\n\n/**\n * Appends all elements that are instances of specified type parameter R to the given [destination].\n * \n * @sample samples.collections.Collections.Filtering.filterIsInstanceTo\n */\npublic inline fun <reified R, C : MutableCollection<in R>> Array<*>.filterIsInstanceTo(destination: C): C {\n   for (element in this) if (element is R) destination.add(element)\n   return destination\n}\n\n/**\n * Returns a list containing all elements not matching the given [predicate].\n * \n * @sample samples.collections.Collections.Filtering.filter\n */\npublic inline fun <T> Array<out T>.filterNot(predicate: (T) -> Boolean): List<T> {\n   return filterNotTo(ArrayList<T>(), predicate)\n}\n\n/**\n * Returns a list containing all elements not matching the given [predicate].\n * \n * @sample samples.collections.Collections.Filtering.filter\n */\npublic inline fun ByteArray.filterNot(predicate: (Byte) -> Boolean): List<Byte> {\n   return filterNotTo(ArrayList<Byte>(), predicate)\n}\n\n/**\n * Returns a list containing all elements not matching the given [predicate].\n * \n * @sample samples.collections.Collections.Filtering.filter\n */\npublic inline fun ShortArray.filterNot(predicate: (Short) -> Boolean): List<Short> {\n   return filterNotTo(ArrayList<Short>(), predicate)\n}\n\n/**\n * Returns a list containing all elements not matching the given [predicate].\n * \n * @sample samples.collections.Collections.Filtering.filter\n */\npublic inline fun IntArray.filterNot(predicate: (Int) -> Boolean): List<Int> {\n   return filterNotTo(ArrayList<Int>(), predicate)\n}\n\n/**\n * Returns a list containing all elements not matching the given [predicate].\n * \n * @sample samples.collections.Collections.Filtering.filter\n */\npublic inline fun LongArray.filterNot(predicate: (Long) -> Boolean): List<Long> {\n   return filterNotTo(ArrayList<Long>(), predicate)\n}\n\n/**\n * Returns a list containing all elements not matching the given [predicate].\n * \n * @sample samples.collections.Collections.Filtering.filter\n */\npublic inline fun FloatArray.filterNot(predicate: (Float) -> Boolean): List<Float> {\n   return filterNotTo(ArrayList<Float>(), predicate)\n}\n\n/**\n * Returns a list containing all elements not matching the given [predicate].\n * \n * @sample samples.collections.Collections.Filtering.filter\n */\npublic inline fun DoubleArray.filterNot(predicate: (Double) -> Boolean): List<Double> {\n   return filterNotTo(ArrayList<Double>(), predicate)\n}\n\n/**\n * Returns a list containing all elements not matching the given [predicate].\n * \n * @sample samples.collections.Collections.Filtering.filter\n */\npublic inline fun BooleanArray.filterNot(predicate: (Boolean) -> Boolean): List<Boolean> {\n   return filterNotTo(ArrayList<Boolean>(), predicate)\n}\n\n/**\n * Returns a list containing all elements not matching the given [predicate].\n * \n * @sample samples.collections.Collections.Filtering.filter\n */\npublic inline fun CharArray.filterNot(predicate: (Char) -> Boolean): List<Char> {\n   return filterNotTo(ArrayList<Char>(), predicate)\n}\n\n/**\n * Returns a list containing all elements that are not `null`.\n * \n * @sample samples.collections.Collections.Filtering.filterNotNull\n */\npublic fun <T : Any> Array<out T?>.filterNotNull(): List<T> {\n   return filterNotNullTo(ArrayList<T>())\n}\n\n/**\n * Appends all elements that are not `null` to the given [destination].\n * \n * @sample samples.collections.Collections.Filtering.filterNotNullTo\n */\npublic fun <C : MutableCollection<in T>, T : Any> Array<out T?>.filterNotNullTo(destination: C): C {\n   for (element in this) if (element != null) destination.add(element)\n   return destination\n}\n\n/**\n * Appends all elements not matching the given [predicate] to the given [destination].\n * \n * @sample samples.collections.Collections.Filtering.filterTo\n */\npublic inline fun <T, C : MutableCollection<in T>> Array<out T>.filterNotTo(destination: C, predicate: (T) ->

Boolean): C {\n   for (element in this) if (!predicate(element)) destination.add(element)\n   return destination\n}\n\n/**\n * Appends all elements not matching the given [predicate] to the given [destination].\n * \n * @sample samples.collections.Collections.Filtering.filterTo\n */\npublic inline fun <C : MutableCollection<in Byte>> ByteArray.filterNotTo(destination: C, predicate: (Byte) -> Boolean): C {\n   for (element in this) if (!predicate(element)) destination.add(element)\n   return destination\n}\n\n/**\n * Appends all elements not matching the given [predicate] to the given [destination].\n * \n * @sample samples.collections.Collections.Filtering.filterTo\n */\npublic inline fun <C : MutableCollection<in Short>> ShortArray.filterNotTo(destination: C, predicate: (Short) -> Boolean): C {\n   for (element in this) if (!predicate(element)) destination.add(element)\n   return destination\n}\n\n/**\n * Appends all elements not matching the given [predicate] to the given [destination].\n * \n * @sample samples.collections.Collections.Filtering.filterTo\n */\npublic inline fun <C : MutableCollection<in Int>> IntArray.filterNotTo(destination: C, predicate: (Int) -> Boolean): C {\n   for (element in this) if (!predicate(element)) destination.add(element)\n   return destination\n}\n\n/**\n * Appends all elements not matching the given [predicate] to the given [destination].\n * \n * @sample samples.collections.Collections.Filtering.filterTo\n */\npublic inline fun <C : MutableCollection<in Long>> LongArray.filterNotTo(destination: C, predicate: (Long) -> Boolean): C {\n   for (element in this) if (!predicate(element)) destination.add(element)\n   return destination\n}\n\n/**\n * Appends all elements not matching the given [predicate] to the given [destination].\n * \n * @sample samples.collections.Collections.Filtering.filterTo\n */\npublic inline fun <C : MutableCollection<in Float>> FloatArray.filterNotTo(destination: C, predicate: (Float) -> Boolean): C {\n   for (element in this) if (!predicate(element)) destination.add(element)\n   return destination\n}\n\n/**\n * Appends all elements not matching the given [predicate] to the given [destination].\n * \n * @sample samples.collections.Collections.Filtering.filterTo\n */\npublic inline fun <C : MutableCollection<in Double>> DoubleArray.filterNotTo(destination: C, predicate: (Double) -> Boolean): C {\n   for (element in this) if (!predicate(element)) destination.add(element)\n   return destination\n}\n\n/**\n * Appends all elements not matching the given [predicate] to the given [destination].\n * \n * @sample samples.collections.Collections.Filtering.filterTo\n */\npublic inline fun <C : MutableCollection<in Boolean>> BooleanArray.filterNotTo(destination: C, predicate: (Boolean) -> Boolean): C {\n   for (element in this) if (!predicate(element)) destination.add(element)\n   return destination\n}\n\n/**\n * Appends all elements not matching the given [predicate] to the given [destination].\n * \n * @sample samples.collections.Collections.Filtering.filterTo\n */\npublic inline fun <C : MutableCollection<in Char>> CharArray.filterNotTo(destination: C, predicate: (Char) -> Boolean): C {\n   for (element in this) if (!predicate(element)) destination.add(element)\n   return destination\n}\n\n/**\n * Appends all elements matching the given [predicate] to the given [destination].\n * \n * @sample samples.collections.Collections.Filtering.filterTo\n */\npublic inline fun <T, C : MutableCollection<in T>> Array<out T>.filterTo(destination: C, predicate: (T) -> Boolean): C {\n   for (element in this) if (predicate(element)) destination.add(element)\n   return destination\n}\n\n/**\n * Appends all elements matching the given [predicate] to the given [destination].\n * \n * @sample samples.collections.Collections.Filtering.filterTo\n */\npublic inline fun <C : MutableCollection<in Byte>> ByteArray.filterTo(destination: C, predicate: (Byte) -> Boolean): C {\n   for (element in this) if (predicate(element)) destination.add(element)\n   return destination\n}\n\n/**\n * Appends all elements matching the given [predicate] to the given [destination].\n * \n * @sample samples.collections.Collections.Filtering.filterTo\n */\npublic inline fun <C : MutableCollection<in Short>> ShortArray.filterTo(destination: C, predicate: (Short) -> Boolean): C {\n   for (element in this) if (predicate(element)) destination.add(element)\n   return destination\n}\n\n/**\n * Appends all elements matching the given [predicate] to the given [destination].\n * \n * @sample samples.collections.Collections.Filtering.filterTo\n */\npublic inline fun <C : MutableCollection<in Int>> IntArray.filterTo(destination: C, predicate: (Int) -> Boolean): C {\n   for (element in this) if (predicate(element)) destination.add(element)\n   return destination\n}\n\n/**\n * Appends all elements matching the given [predicate] to the given [destination].\n * \n * @sample samples.collections.Collections.Filtering.filterTo\n */\npublic inline fun

<C : MutableCollection<in Long>> LongArray.filterTo(destination: C, predicate: (Long) -> Boolean): C {\n   for (element in this) if (predicate(element)) destination.add(element)\n   return destination\n}\n\n/**\n * Appends all elements matching the given [predicate] to the given [destination].\n * \n * @sample samples.collections.Collections.Filtering.filterTo\n */\npublic inline fun <C : MutableCollection<in Float>> FloatArray.filterTo(destination: C, predicate: (Float) -> Boolean): C {\n   for (element in this) if (predicate(element)) destination.add(element)\n   return destination\n}\n\n/**\n * Appends all elements matching the given [predicate] to the given [destination].\n * \n * @sample samples.collections.Collections.Filtering.filterTo\n */\npublic inline fun <C : MutableCollection<in Double>> DoubleArray.filterTo(destination: C, predicate: (Double) -> Boolean): C {\n   for (element in this) if (predicate(element)) destination.add(element)\n   return destination\n}\n\n/**\n * Appends all elements matching the given [predicate] to the given [destination].\n * \n * @sample samples.collections.Collections.Filtering.filterTo\n */\npublic inline fun <C : MutableCollection<in Boolean>> BooleanArray.filterTo(destination: C, predicate: (Boolean) -> Boolean): C {\n   for (element in this) if (predicate(element)) destination.add(element)\n   return destination\n}\n\n/**\n * Appends all elements matching the given [predicate] to the given [destination].\n * \n * @sample samples.collections.Collections.Filtering.filterTo\n */\npublic inline fun <C : MutableCollection<in Char>> CharArray.filterTo(destination: C, predicate: (Char) -> Boolean): C {\n   for (element in this) if (predicate(element)) destination.add(element)\n   return destination\n}\n\n/**\n * Returns a list containing elements at indices in the specified [indices] range.\n */\npublic fun <T> Array<out T>.slice(indices: IntRange): List<T> {\n   if (indices.isEmpty()) return listOf()\n   return copyOfRange(indices.start, indices.endInclusive + 1).asList()\n}\n\n/**\n * Returns a list containing elements at indices in the specified [indices] range.\n */\npublic fun ByteArray.slice(indices: IntRange): List<Byte> {\n   if (indices.isEmpty()) return listOf()\n   return copyOfRange(indices.start, indices.endInclusive + 1).asList()\n}\n\n/**\n * Returns a list containing elements at indices in the specified [indices] range.\n */\npublic fun ShortArray.slice(indices: IntRange): List<Short> {\n   if (indices.isEmpty()) return listOf()\n   return copyOfRange(indices.start, indices.endInclusive + 1).asList()\n}\n\n/**\n * Returns a list containing elements at indices in the specified [indices] range.\n */\npublic fun IntArray.slice(indices: IntRange): List<Int> {\n   if (indices.isEmpty()) return listOf()\n   return copyOfRange(indices.start, indices.endInclusive + 1).asList()\n}\n\n/**\n * Returns a list containing elements at indices in the specified [indices] range.\n */\npublic fun LongArray.slice(indices: IntRange): List<Long> {\n   if (indices.isEmpty()) return listOf()\n   return copyOfRange(indices.start, indices.endInclusive + 1).asList()\n}\n\n/**\n * Returns a list containing elements at indices in the specified [indices] range.\n */\npublic fun FloatArray.slice(indices: IntRange): List<Float> {\n   if (indices.isEmpty()) return listOf()\n   return copyOfRange(indices.start, indices.endInclusive + 1).asList()\n}\n\n/**\n * Returns a list containing elements at indices in the specified [indices] range.\n */\npublic fun DoubleArray.slice(indices: IntRange): List<Double> {\n   if (indices.isEmpty()) return listOf()\n   return copyOfRange(indices.start, indices.endInclusive + 1).asList()\n}\n\n/**\n * Returns a list containing elements at indices in the specified [indices] range.\n */\npublic fun BooleanArray.slice(indices: IntRange): List<Boolean> {\n   if (indices.isEmpty()) return listOf()\n   return copyOfRange(indices.start, indices.endInclusive + 1).asList()\n}\n\n/**\n * Returns a list containing elements at indices in the specified [indices] range.\n */\npublic fun CharArray.slice(indices: IntRange): List<Char> {\n   if (indices.isEmpty()) return listOf()\n   return copyOfRange(indices.start, indices.endInclusive + 1).asList()\n}\n\n/**\n * Returns a list containing elements at specified [indices].\n */\npublic fun <T> Array<out T>.slice(indices: Iterable<Int>): List<T> {\n   val size = indices.collectionSizeOrDefault(10)\n   if (size == 0) return emptyList()\n   val list = ArrayList<T>(size)\n   for (index in indices) {\n   list.add(get(index))\n   }\n   return list\n}\n\n/**\n * Returns a list containing elements at specified [indices].\n */\npublic fun ByteArray.slice(indices: Iterable<Int>): List<Byte> {\n   val size = indices.collectionSizeOrDefault(10)\n   if (size == 0) return emptyList()\n   val list = ArrayList<Byte>(size)\n   for (index in indices) {\n   list.add(get(index))\n   }\n   return list\n}\n\n/**\n * Returns a list containing elements at specified [indices].\n */\npublic fun ShortArray.slice(indices: Iterable<Int>): List<Short> {\n   val size = indices.collectionSizeOrDefault(10)\n   if (size == 0) return emptyList()\n   val list = ArrayList<Short>(size)\n   for (index in indices) {\n   list.add(get(index))\n   }\n   return list\n}\n\n/**\n * Returns a list containing

elements at specified [indices].\n */\npublic fun IntArray.slice(indices: Iterable<Int>): List<Int> {\n   val size = indices.collectionSizeOrDefault(10)\n   if (size == 0) return emptyList()\n   val list = ArrayList<Int>(size)\n   for (index in indices) {\n   list.add(get(index))\n   }\n   return list\n}\n\n/**\n * Returns a list containing elements at specified [indices].\n */\npublic fun LongArray.slice(indices: Iterable<Int>): List<Long> {\n   val size = indices.collectionSizeOrDefault(10)\n   if (size == 0) return emptyList()\n   val list = ArrayList<Long>(size)\n   for (index in indices) {\n   list.add(get(index))\n   }\n   return list\n}\n\n/**\n * Returns a list containing elements at specified [indices].\n */\npublic fun FloatArray.slice(indices: Iterable<Int>): List<Float> {\n   val size = indices.collectionSizeOrDefault(10)\n   if (size == 0) return emptyList()\n   val list = ArrayList<Float>(size)\n   for (index in indices) {\n   list.add(get(index))\n   }\n   return list\n}\n\n/**\n * Returns a list containing elements at specified [indices].\n */\npublic fun DoubleArray.slice(indices: Iterable<Int>): List<Double> {\n   val size = indices.collectionSizeOrDefault(10)\n   if (size == 0) return emptyList()\n   val list = ArrayList<Double>(size)\n   for (index in indices) {\n   list.add(get(index))\n   }\n   return list\n}\n\n/**\n * Returns a list containing elements at specified [indices].\n */\npublic fun BooleanArray.slice(indices: Iterable<Int>): List<Boolean> {\n   val size = indices.collectionSizeOrDefault(10)\n   if (size == 0) return emptyList()\n   val list = ArrayList<Boolean>(size)\n   for (index in indices) {\n   list.add(get(index))\n   }\n   return list\n}\n\n/**\n * Returns a list containing elements at specified [indices].\n */\npublic fun CharArray.slice(indices: Iterable<Int>): List<Char> {\n   val size = indices.collectionSizeOrDefault(10)\n   if (size == 0) return emptyList()\n   val list = ArrayList<Char>(size)\n   for (index in indices) {\n   list.add(get(index))\n   }\n   return list\n}\n\n/**\n * Returns an array containing elements of this array at specified [indices].\n */\npublic fun <T> Array<T>.sliceArray(indices: Collection<Int>): Array<T> {\n   val result = arrayOfNulls(this, indices.size)\n   var targetIndex = 0\n   for (sourceIndex in indices) {\n   result[targetIndex++] = this[sourceIndex]\n   }\n   return result\n}\n\n/**\n * Returns an array containing elements of this array at specified [indices].\n */\npublic fun ByteArray.sliceArray(indices: Collection<Int>): ByteArray {\n   val result = ByteArray(indices.size)\n   var targetIndex = 0\n   for (sourceIndex in indices) {\n   result[targetIndex++] = this[sourceIndex]\n   }\n   return result\n}\n\n/**\n * Returns an array containing elements of this array at specified [indices].\n */\npublic fun ShortArray.sliceArray(indices: Collection<Int>): ShortArray {\n   val result = ShortArray(indices.size)\n   var targetIndex = 0\n   for (sourceIndex in indices) {\n   result[targetIndex++] = this[sourceIndex]\n   }\n   return result\n}\n\n/**\n * Returns an array containing elements of this array at specified [indices].\n */\npublic fun IntArray.sliceArray(indices: Collection<Int>): IntArray {\n   val result = IntArray(indices.size)\n   var targetIndex = 0\n   for (sourceIndex in indices) {\n   result[targetIndex++] = this[sourceIndex]\n   }\n   return result\n}\n\n/**\n * Returns an array containing elements of this array at specified [indices].\n */\npublic fun LongArray.sliceArray(indices: Collection<Int>): LongArray {\n   val result = LongArray(indices.size)\n   var targetIndex = 0\n   for (sourceIndex in indices) {\n   result[targetIndex++] = this[sourceIndex]\n   }\n   return result\n}\n\n/**\n * Returns an array containing elements of this array at specified [indices].\n */\npublic fun FloatArray.sliceArray(indices: Collection<Int>): FloatArray {\n   val result = FloatArray(indices.size)\n   var targetIndex = 0\n   for (sourceIndex in indices) {\n   result[targetIndex++] = this[sourceIndex]\n   }\n   return result\n}\n\n/**\n * Returns an array containing elements of this array at specified [indices].\n */\npublic fun DoubleArray.sliceArray(indices: Collection<Int>): DoubleArray {\n   val result = DoubleArray(indices.size)\n   var targetIndex = 0\n   for (sourceIndex in indices) {\n   result[targetIndex++] = this[sourceIndex]\n   }\n   return result\n}\n\n/**\n * Returns an array containing elements of this array at specified [indices].\n */\npublic fun BooleanArray.sliceArray(indices: Collection<Int>): BooleanArray {\n   val result = BooleanArray(indices.size)\n   var targetIndex = 0\n   for (sourceIndex in indices) {\n   result[targetIndex++] = this[sourceIndex]\n   }\n   return result\n}\n\n/**\n * Returns an array containing elements of this array at specified [indices].\n */\npublic fun CharArray.sliceArray(indices: Collection<Int>): CharArray {\n   val result = CharArray(indices.size)\n   var targetIndex = 0\n   for (sourceIndex in indices) {\n   result[targetIndex++] = this[sourceIndex]\n   }\n   return result\n}\n\n/**\n * Returns an array containing elements at indices in the specified [indices] range.\n */\npublic fun <T> Array<T>.sliceArray(indices: IntRange): Array<T> {\n   if (indices.isEmpty()) return copyOfRange(0, 0)\n   return copyOfRange(indices.start, indices.endInclusive + 1)\n}\n\n/**\n * Returns an array containing elements at indices in the specified [indices] range.\n */\npublic fun ByteArray.sliceArray(indices: IntRange): ByteArray {\n   if (indices.isEmpty()) return ByteArray(0)\n   return copyOfRange(indices.start, indices.endInclusive + 1)\n}\n\n/**\n * Returns an array containing elements at indices in the specified [indices] range.\n */\npublic fun ShortArray.sliceArray(indices: IntRange): ShortArray {\n   if (indices.isEmpty()) return ShortArray(0)\n   return copyOfRange(indices.start, indices.endInclusive + 1)\n}\n\n/**\n * Returns an array containing elements at indices in the specified [indices] range.\n */\npublic fun IntArray.sliceArray(indices: IntRange): IntArray {\n   if (indices.isEmpty()) return IntArray(0)\n   return copyOfRange(indices.start, indices.endInclusive + 1)\n}\n\n/**\n * Returns an array containing elements at indices in the specified [indices] range.\n */\npublic fun LongArray.sliceArray(indices: IntRange): LongArray {\n   if (indices.isEmpty()) return LongArray(0)\n   return copyOfRange(indices.start, indices.endInclusive + 1)\n}\n\n/**\n * Returns an array containing elements at indices in the specified [indices] range.\n */\npublic fun FloatArray.sliceArray(indices: IntRange): FloatArray {\n   if (indices.isEmpty()) return FloatArray(0)\n   return copyOfRange(indices.start, indices.endInclusive + 1)\n}\n\n/**\n * Returns an array containing elements at indices in the specified [indices] range.\n */\npublic fun DoubleArray.sliceArray(indices: IntRange): DoubleArray {\n   if (indices.isEmpty()) return DoubleArray(0)\n   return copyOfRange(indices.start, indices.endInclusive + 1)\n}\n\n/**\n * Returns an array containing elements at indices in the specified [indices] range.\n */\npublic fun BooleanArray.sliceArray(indices: IntRange): BooleanArray {\n   if (indices.isEmpty()) return BooleanArray(0)\n   return copyOfRange(indices.start, indices.endInclusive + 1)\n}\n\n/**\n * Returns an array containing elements at indices in the specified [indices] range.\n */\npublic fun CharArray.sliceArray(indices: IntRange): CharArray {\n   if (indices.isEmpty()) return CharArray(0)\n   return copyOfRange(indices.start, indices.endInclusive + 1)\n}\n\n/**\n * Returns a list containing first [n] elements.\n * \n * @throws IllegalArgumentException if [n] is negative.\n * \n * @sample samples.collections.Collections.Transformations.take\n */\npublic fun <T> Array<out T>.take(n: Int): List<T> {\n   require(n >= 0) { \"Requested element count $n is less than zero.\" }\n   if (n == 0) return emptyList()\n   if (n >= size) return toList()\n   if (n == 1) return listOf(this[0])\n   var count = 0\n   val list = ArrayList<T>(n)\n   for (item in this) {\n   list.add(item)\n   if (++count == n)\n   break\n   }\n   return list\n}\n\n/**\n * Returns a list containing first [n] elements.\n * \n * @throws IllegalArgumentException if [n] is negative.\n * \n * @sample samples.collections.Collections.Transformations.take\n */\npublic fun ByteArray.take(n: Int): List<Byte> {\n   require(n >= 0) { \"Requested element count $n is less than zero.\" }\n   if (n == 0) return emptyList()\n   if (n >= size) return toList()\n   if (n == 1) return listOf(this[0])\n   var count = 0\n   val list = ArrayList<Byte>(n)\n   for (item in this) {\n   list.add(item)\n   if (++count == n)\n   break\n   }\n   return list\n}\n\n/**\n * Returns a list containing first [n] elements.\n * \n * @throws IllegalArgumentException if [n] is negative.\n * \n * @sample samples.collections.Collections.Transformations.take\n */\npublic fun ShortArray.take(n: Int): List<Short> {\n   require(n >= 0) { \"Requested element count $n is less than zero.\" }\n   if (n == 0) return emptyList()\n   if (n >= size) return toList()\n   if (n == 1) return listOf(this[0])\n   var count = 0\n   val list = ArrayList<Short>(n)\n   for (item in this) {\n   list.add(item)\n   if (++count == n)\n   break\n   }\n   return list\n}\n\n/**\n * Returns a list containing first [n] elements.\n * \n * @throws IllegalArgumentException if [n] is negative.\n * \n * @sample samples.collections.Collections.Transformations.take\n */\npublic fun IntArray.take(n: Int): List<Int> {\n   require(n >= 0) { \"Requested element count $n is less than zero.\" }\n   if (n == 0) return emptyList()\n   if (n >= size) return toList()\n   if (n == 1) return listOf(this[0])\n   var count = 0\n   val list = ArrayList<Int>(n)\n   for (item in this) {\n   list.add(item)\n   if (++count == n)\n   break\n   }\n   return list\n}\n\n/**\n * Returns a list containing first [n] elements.\n * \n * @throws IllegalArgumentException if [n] is negative.\n * \n * @sample samples.collections.Collections.Transformations.take\n */\npublic fun LongArray.take(n: Int): List<Long> {\n   require(n >= 0) { \"Requested element count $n is less than zero.\" }\n   if (n == 0) return emptyList()\n   if (n >= size) return toList()\n   if (n == 1) return listOf(this[0])\n   var count = 0\n   val list = ArrayList<Long>(n)\n   for (item in this) {\n   list.add(item)\n   if (++count == n)\n   break\n   }\n   return list\n}\n\n/**\n * Returns a list containing first [n] elements.\n * \n * @throws IllegalArgumentException if [n] is negative.\n * \n * @sample samples.collections.Collections.Transformations.take\n */\npublic fun FloatArray.take(n: Int): List<Float> {\n   require(n >= 0) { \"Requested element count $n is less than zero.\" }\n   if (n == 0) return emptyList()\n   if (n >=

size) return toList()\n if (n == 1) return listOf(this[0])\n var count = 0\n val list = ArrayList<Float>(n)\n for (item in this) {\n list.add(item)\n if (++count == n)\n break\n }\n return list\n}\n\n/**\n * Returns a list containing first [n] elements.\n * \n * @throws IllegalArgumentException if [n] is negative.\n * \n * @sample samples.collections.Collections.Transformations.take\n */\npublic fun DoubleArray.take(n: Int): List<Double> {\n require(n >= 0) { \"Requested element count $n is less than zero.\" }\n if (n == 0) return emptyList()\n if (n >= size) return toList()\n if (n == 1) return listOf(this[0])\n var count = 0\n val list = ArrayList<Double>(n)\n for (item in this) {\n list.add(item)\n if (++count == n)\n break\n }\n return list\n}\n\n/**\n * Returns a list containing first [n] elements.\n * \n * @throws IllegalArgumentException if [n] is negative.\n * \n * @sample samples.collections.Collections.Transformations.take\n */\npublic fun BooleanArray.take(n: Int): List<Boolean> {\n require(n >= 0) { \"Requested element count $n is less than zero.\" }\n if (n == 0) return emptyList()\n if (n >= size) return toList()\n if (n == 1) return listOf(this[0])\n var count = 0\n val list = ArrayList<Boolean>(n)\n for (item in this) {\n list.add(item)\n if (++count == n)\n break\n }\n return list\n}\n\n/**\n * Returns a list containing first [n] elements.\n * \n * @throws IllegalArgumentException if [n] is negative.\n * \n * @sample samples.collections.Collections.Transformations.take\n */\npublic fun CharArray.take(n: Int): List<Char> {\n require(n >= 0) { \"Requested element count $n is less than zero.\" }\n if (n == 0) return emptyList()\n if (n >= size) return toList()\n if (n == 1) return listOf(this[0])\n var count = 0\n val list = ArrayList<Char>(n)\n for (item in this) {\n list.add(item)\n if (++count == n)\n break\n }\n return list\n}\n\n/**\n * Returns a list containing last [n] elements.\n * \n * @throws IllegalArgumentException if [n] is negative.\n * \n * @sample samples.collections.Collections.Transformations.take\n */\npublic fun <T> Array<out T>.takeLast(n: Int): List<T> {\n require(n >= 0) { \"Requested element count $n is less than zero.\" }\n if (n == 0) return emptyList()\n val size = size\n if (n >= size) return toList()\n if (n == 1) return listOf(this[size - 1])\n val list = ArrayList<T>(n)\n for (index in size - n until size)\n list.add(this[index])\n return list\n}\n\n/**\n * Returns a list containing last [n] elements.\n * \n * @throws IllegalArgumentException if [n] is negative.\n * \n * @sample samples.collections.Collections.Transformations.take\n */\npublic fun ByteArray.takeLast(n: Int): List<Byte> {\n require(n >= 0) { \"Requested element count $n is less than zero.\" }\n if (n == 0) return emptyList()\n val size = size\n if (n >= size) return toList()\n if (n == 1) return listOf(this[size - 1])\n val list = ArrayList<Byte>(n)\n for (index in size - n until size)\n list.add(this[index])\n return list\n}\n\n/**\n * Returns a list containing last [n] elements.\n * \n * @throws IllegalArgumentException if [n] is negative.\n * \n * @sample samples.collections.Collections.Transformations.take\n */\npublic fun ShortArray.takeLast(n: Int): List<Short> {\n require(n >= 0) { \"Requested element count $n is less than zero.\" }\n if (n == 0) return emptyList()\n val size = size\n if (n >= size) return toList()\n if (n == 1) return listOf(this[size - 1])\n val list = ArrayList<Short>(n)\n for (index in size - n until size)\n list.add(this[index])\n return list\n}\n\n/**\n * Returns a list containing last [n] elements.\n * \n * @throws IllegalArgumentException if [n] is negative.\n * \n * @sample samples.collections.Collections.Transformations.take\n */\npublic fun IntArray.takeLast(n: Int): List<Int> {\n require(n >= 0) { \"Requested element count $n is less than zero.\" }\n if (n == 0) return emptyList()\n val size = size\n if (n >= size) return toList()\n if (n == 1) return listOf(this[size - 1])\n val list = ArrayList<Int>(n)\n for (index in size - n until size)\n list.add(this[index])\n return list\n}\n\n/**\n * Returns a list containing last [n] elements.\n * \n * @throws IllegalArgumentException if [n] is negative.\n * \n * @sample samples.collections.Collections.Transformations.take\n */\npublic fun LongArray.takeLast(n: Int): List<Long> {\n require(n >= 0) { \"Requested element count $n is less than zero.\" }\n if (n == 0) return emptyList()\n val size = size\n if (n >= size) return toList()\n if (n == 1) return listOf(this[size - 1])\n val list = ArrayList<Long>(n)\n for (index in size - n until size)\n list.add(this[index])\n return list\n}\n\n/**\n * Returns a list containing last [n] elements.\n * \n * @throws IllegalArgumentException if [n] is negative.\n * \n * @sample samples.collections.Collections.Transformations.take\n */\npublic fun FloatArray.takeLast(n: Int): List<Float> {\n require(n >= 0) { \"Requested element count $n is less than zero.\" }\n if (n == 0) return emptyList()\n val size = size\n if (n >= size) return toList()\n if (n == 1) return listOf(this[size - 1])\n val list = ArrayList<Float>(n)\n for (index in size - n until size)\n list.add(this[index])\n return list\n}\n\n/**\n * Returns a list containing last

[n] elements.\n * \n * @throws IllegalArgumentException if [n] is negative.\n * \n * @sample samples.collections.Collections.Transformations.take\n */\npublic fun DoubleArray.takeLast(n: Int): List<Double> {\n   require(n >= 0) { \"Requested element count $n is less than zero.\" }\n   if (n == 0) return emptyList()\n   val size = size\n   if (n >= size) return toList()\n   if (n == 1) return listOf(this[size - 1])\n   val list = ArrayList<Double>(n)\n   for (index in size - n until size)\n   list.add(this[index])\n   return list\n}\n\n/**\n * Returns a list containing last [n] elements.\n * \n * @throws IllegalArgumentException if [n] is negative.\n * \n * @sample samples.collections.Collections.Transformations.take\n */\npublic fun BooleanArray.takeLast(n: Int): List<Boolean> {\n   require(n >= 0) { \"Requested element count $n is less than zero.\" }\n   if (n == 0) return emptyList()\n   val size = size\n   if (n >= size) return toList()\n   if (n == 1) return listOf(this[size - 1])\n   val list = ArrayList<Boolean>(n)\n   for (index in size - n until size)\n   list.add(this[index])\n   return list\n}\n\n/**\n * Returns a list containing last [n] elements.\n * \n * @throws IllegalArgumentException if [n] is negative.\n * \n * @sample samples.collections.Collections.Transformations.take\n */\npublic fun CharArray.takeLast(n: Int): List<Char> {\n   require(n >= 0) { \"Requested element count $n is less than zero.\" }\n   if (n == 0) return emptyList()\n   val size = size\n   if (n >= size) return toList()\n   if (n == 1) return listOf(this[size - 1])\n   val list = ArrayList<Char>(n)\n   for (index in size - n until size)\n   list.add(this[index])\n   return list\n}\n\n/**\n * Returns a list containing last elements satisfying the given [predicate].\n * \n * @sample samples.collections.Collections.Transformations.take\n */\npublic inline fun <T> Array<out T>.takeLastWhile(predicate: (T) -> Boolean): List<T> {\n   for (index in lastIndex downTo 0) {\n   if (!predicate(this[index])) {\n   return drop(index + 1)\n   }\n   }\n   return toList()\n}\n\n/**\n * Returns a list containing last elements satisfying the given [predicate].\n * \n * @sample samples.collections.Collections.Transformations.take\n */\npublic inline fun ByteArray.takeLastWhile(predicate: (Byte) -> Boolean): List<Byte> {\n   for (index in lastIndex downTo 0) {\n   if (!predicate(this[index])) {\n   return drop(index + 1)\n   }\n   }\n   return toList()\n}\n\n/**\n * Returns a list containing last elements satisfying the given [predicate].\n * \n * @sample samples.collections.Collections.Transformations.take\n */\npublic inline fun ShortArray.takeLastWhile(predicate: (Short) -> Boolean): List<Short> {\n   for (index in lastIndex downTo 0) {\n   if (!predicate(this[index])) {\n   return drop(index + 1)\n   }\n   }\n   return toList()\n}\n\n/**\n * Returns a list containing last elements satisfying the given [predicate].\n * \n * @sample samples.collections.Collections.Transformations.take\n */\npublic inline fun IntArray.takeLastWhile(predicate: (Int) -> Boolean): List<Int> {\n   for (index in lastIndex downTo 0) {\n   if (!predicate(this[index])) {\n   return drop(index + 1)\n   }\n   }\n   return toList()\n}\n\n/**\n * Returns a list containing last elements satisfying the given [predicate].\n * \n * @sample samples.collections.Collections.Transformations.take\n */\npublic inline fun LongArray.takeLastWhile(predicate: (Long) -> Boolean): List<Long> {\n   for (index in lastIndex downTo 0) {\n   if (!predicate(this[index])) {\n   return drop(index + 1)\n   }\n   }\n   return toList()\n}\n\n/**\n * Returns a list containing last elements satisfying the given [predicate].\n * \n * @sample samples.collections.Collections.Transformations.take\n */\npublic inline fun FloatArray.takeLastWhile(predicate: (Float) -> Boolean): List<Float> {\n   for (index in lastIndex downTo 0) {\n   if (!predicate(this[index])) {\n   return drop(index + 1)\n   }\n   }\n   return toList()\n}\n\n/**\n * Returns a list containing last elements satisfying the given [predicate].\n * \n * @sample samples.collections.Collections.Transformations.take\n */\npublic inline fun DoubleArray.takeLastWhile(predicate: (Double) -> Boolean): List<Double> {\n   for (index in lastIndex downTo 0) {\n   if (!predicate(this[index])) {\n   return drop(index + 1)\n   }\n   }\n   return toList()\n}\n\n/**\n * Returns a list containing last elements satisfying the given [predicate].\n * \n * @sample samples.collections.Collections.Transformations.take\n */\npublic inline fun BooleanArray.takeLastWhile(predicate: (Boolean) -> Boolean): List<Boolean> {\n   for (index in lastIndex downTo 0) {\n   if (!predicate(this[index])) {\n   return drop(index + 1)\n   }\n   }\n   return toList()\n}\n\n/**\n * Returns a list containing last elements satisfying the given [predicate].\n * \n * @sample samples.collections.Collections.Transformations.take\n */\npublic inline fun CharArray.takeLastWhile(predicate: (Char) -> Boolean): List<Char> {\n   for (index in lastIndex downTo 0) {\n   if (!predicate(this[index])) {\n   return drop(index + 1)\n   }\n   }\n   return toList()\n}\n\n/**\n * Returns a list containing first elements

satisfying the given [predicate].\n * \n * @sample samples.collections.Collections.Transformations.take\n */\npublic inline fun <T> Array<out T>.takeWhile(predicate: (T) -> Boolean): List<T> {\n   val list = ArrayList<T>()\n   for (item in this) {\n   if (!predicate(item))\n   break\n   list.add(item)\n   }\n   return list\n}\n\n/**\n * Returns a list containing first elements satisfying the given [predicate].\n * \n * @sample samples.collections.Collections.Transformations.take\n */\npublic inline fun ByteArray.takeWhile(predicate: (Byte) -> Boolean): List<Byte> {\n   val list = ArrayList<Byte>()\n   for (item in this) {\n   if (!predicate(item))\n   break\n   list.add(item)\n   }\n   return list\n}\n\n/**\n * Returns a list containing first elements satisfying the given [predicate].\n * \n * @sample samples.collections.Collections.Transformations.take\n */\npublic inline fun ShortArray.takeWhile(predicate: (Short) -> Boolean): List<Short> {\n   val list = ArrayList<Short>()\n   for (item in this) {\n   if (!predicate(item))\n   break\n   list.add(item)\n   }\n   return list\n}\n\n/**\n * Returns a list containing first elements satisfying the given [predicate].\n * \n * @sample samples.collections.Collections.Transformations.take\n */\npublic inline fun IntArray.takeWhile(predicate: (Int) -> Boolean): List<Int> {\n   val list = ArrayList<Int>()\n   for (item in this) {\n   if (!predicate(item))\n   break\n   list.add(item)\n   }\n   return list\n}\n\n/**\n * Returns a list containing first elements satisfying the given [predicate].\n * \n * @sample samples.collections.Collections.Transformations.take\n */\npublic inline fun LongArray.takeWhile(predicate: (Long) -> Boolean): List<Long> {\n   val list = ArrayList<Long>()\n   for (item in this) {\n   if (!predicate(item))\n   break\n   list.add(item)\n   }\n   return list\n}\n\n/**\n * Returns a list containing first elements satisfying the given [predicate].\n * \n * @sample samples.collections.Collections.Transformations.take\n */\npublic inline fun FloatArray.takeWhile(predicate: (Float) -> Boolean): List<Float> {\n   val list = ArrayList<Float>()\n   for (item in this) {\n   if (!predicate(item))\n   break\n   list.add(item)\n   }\n   return list\n}\n\n/**\n * Returns a list containing first elements satisfying the given [predicate].\n * \n * @sample samples.collections.Collections.Transformations.take\n */\npublic inline fun DoubleArray.takeWhile(predicate: (Double) -> Boolean): List<Double> {\n   val list = ArrayList<Double>()\n   for (item in this) {\n   if (!predicate(item))\n   break\n   list.add(item)\n   }\n   return list\n}\n\n/**\n * Returns a list containing first elements satisfying the given [predicate].\n * \n * @sample samples.collections.Collections.Transformations.take\n */\npublic inline fun BooleanArray.takeWhile(predicate: (Boolean) -> Boolean): List<Boolean> {\n   val list = ArrayList<Boolean>()\n   for (item in this) {\n   if (!predicate(item))\n   break\n   list.add(item)\n   }\n   return list\n}\n\n/**\n * Returns a list containing first elements satisfying the given [predicate].\n * \n * @sample samples.collections.Collections.Transformations.take\n */\npublic inline fun CharArray.takeWhile(predicate: (Char) -> Boolean): List<Char> {\n   val list = ArrayList<Char>()\n   for (item in this) {\n   if (!predicate(item))\n   break\n   list.add(item)\n   }\n   return list\n}\n\n/**\n * Reverses elements in the array in-place.\n */\npublic fun <T> Array<T>.reverse(): Unit {\n   val midPoint = (size / 2) - 1\n   if (midPoint < 0) return\n   var reverseIndex = lastIndex\n   for (index in 0..midPoint) {\n   val tmp = this[index]\n   this[index] = this[reverseIndex]\n   this[reverseIndex] = tmp\n   reverseIndex--\n   }\n}\n\n/**\n * Reverses elements in the array in-place.\n */\npublic fun ByteArray.reverse(): Unit {\n   val midPoint = (size / 2) - 1\n   if (midPoint < 0) return\n   var reverseIndex = lastIndex\n   for (index in 0..midPoint) {\n   val tmp = this[index]\n   this[index] = this[reverseIndex]\n   this[reverseIndex] = tmp\n   reverseIndex--\n   }\n}\n\n/**\n * Reverses elements in the array in-place.\n */\npublic fun ShortArray.reverse(): Unit {\n   val midPoint = (size / 2) - 1\n   if (midPoint < 0) return\n   var reverseIndex = lastIndex\n   for (index in 0..midPoint) {\n   val tmp = this[index]\n   this[index] = this[reverseIndex]\n   this[reverseIndex] = tmp\n   reverseIndex--\n   }\n}\n\n/**\n * Reverses elements in the array in-place.\n */\npublic fun IntArray.reverse(): Unit {\n   val midPoint = (size / 2) - 1\n   if (midPoint < 0) return\n   var reverseIndex = lastIndex\n   for (index in 0..midPoint) {\n   val tmp = this[index]\n   this[index] = this[reverseIndex]\n   this[reverseIndex] = tmp\n   reverseIndex--\n   }\n}\n\n/**\n * Reverses elements in the array in-place.\n */\npublic fun LongArray.reverse(): Unit {\n   val midPoint = (size / 2) - 1\n   if (midPoint < 0) return\n   var reverseIndex = lastIndex\n   for (index in 0..midPoint) {\n   val tmp = this[index]\n   this[index] = this[reverseIndex]\n   this[reverseIndex] = tmp\n   reverseIndex--\n   }\n}\n\n/**\n * Reverses elements in the array in-place.\n */\npublic fun FloatArray.reverse(): Unit {\n   val midPoint = (size / 2) - 1\n   if (midPoint < 0) return\n   var reverseIndex = lastIndex\n   for (index in

0..midPoint) {\n   val tmp = this[index]\n   this[index] = this[reverseIndex]\n   this[reverseIndex] = tmp\n   reverseIndex--\n   }\n}\n\n/**\n * Reverses elements in the array in-place.\n */\npublic fun DoubleArray.reverse(): Unit {\n   val midPoint = (size / 2) - 1\n   if (midPoint < 0) return\n   var reverseIndex = lastIndex\n   for (index in 0..midPoint) {\n   val tmp = this[index]\n   this[index] = this[reverseIndex]\n   this[reverseIndex] = tmp\n   reverseIndex--\n   }\n}\n\n/**\n * Reverses elements in the array in-place.\n */\npublic fun BooleanArray.reverse(): Unit {\n   val midPoint = (size / 2) - 1\n   if (midPoint < 0) return\n   var reverseIndex = lastIndex\n   for (index in 0..midPoint) {\n   val tmp = this[index]\n   this[index] = this[reverseIndex]\n   this[reverseIndex] = tmp\n   reverseIndex--\n   }\n}\n\n/**\n * Reverses elements in the array in-place.\n */\npublic fun CharArray.reverse(): Unit {\n   val midPoint = (size / 2) - 1\n   if (midPoint < 0) return\n   var reverseIndex = lastIndex\n   for (index in 0..midPoint) {\n   val tmp = this[index]\n   this[index] = this[reverseIndex]\n   this[reverseIndex] = tmp\n   reverseIndex--\n   }\n}\n\n/**\n * Reverses elements of the array in the specified range in-place.\n * \n * @param fromIndex the start of the range (inclusive) to reverse.\n * @param toIndex the end of the range (exclusive) to reverse.\n * \n * @throws IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n * @throws IllegalArgumentException if [fromIndex] is greater than [toIndex].\n */\n@SinceKotlin(\"1.4\")\npublic fun <T> Array<T>.reverse(fromIndex: Int, toIndex: Int): Unit {\n   AbstractList.checkRangeIndexes(fromIndex, toIndex, size)\n   val midPoint = (fromIndex + toIndex) / 2\n   if (fromIndex == midPoint) return\n   var reverseIndex = toIndex - 1\n   for (index in fromIndex until midPoint) {\n   val tmp = this[index]\n   this[index] = this[reverseIndex]\n   this[reverseIndex] = tmp\n   reverseIndex--\n   }\n}\n\n/**\n * Reverses elements of the array in the specified range in-place.\n * \n * @param fromIndex the start of the range (inclusive) to reverse.\n * @param toIndex the end of the range (exclusive) to reverse.\n * \n * @throws IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n * @throws IllegalArgumentException if [fromIndex] is greater than [toIndex].\n */\n@SinceKotlin(\"1.4\")\npublic fun ByteArray.reverse(fromIndex: Int, toIndex: Int): Unit {\n   AbstractList.checkRangeIndexes(fromIndex, toIndex, size)\n   val midPoint = (fromIndex + toIndex) / 2\n   if (fromIndex == midPoint) return\n   var reverseIndex = toIndex - 1\n   for (index in fromIndex until midPoint) {\n   val tmp = this[index]\n   this[index] = this[reverseIndex]\n   this[reverseIndex] = tmp\n   reverseIndex--\n   }\n}\n\n/**\n * Reverses elements of the array in the specified range in-place.\n * \n * @param fromIndex the start of the range (inclusive) to reverse.\n * @param toIndex the end of the range (exclusive) to reverse.\n * \n * @throws IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n * @throws IllegalArgumentException if [fromIndex] is greater than [toIndex].\n */\n@SinceKotlin(\"1.4\")\npublic fun ShortArray.reverse(fromIndex: Int, toIndex: Int): Unit {\n   AbstractList.checkRangeIndexes(fromIndex, toIndex, size)\n   val midPoint = (fromIndex + toIndex) / 2\n   if (fromIndex == midPoint) return\n   var reverseIndex = toIndex - 1\n   for (index in fromIndex until midPoint) {\n   val tmp = this[index]\n   this[index] = this[reverseIndex]\n   this[reverseIndex] = tmp\n   reverseIndex--\n   }\n}\n\n/**\n * Reverses elements of the array in the specified range in-place.\n * \n * @param fromIndex the start of the range (inclusive) to reverse.\n * @param toIndex the end of the range (exclusive) to reverse.\n * \n * @throws IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n * @throws IllegalArgumentException if [fromIndex] is greater than [toIndex].\n */\n@SinceKotlin(\"1.4\")\npublic fun IntArray.reverse(fromIndex: Int, toIndex: Int): Unit {\n   AbstractList.checkRangeIndexes(fromIndex, toIndex, size)\n   val midPoint = (fromIndex + toIndex) / 2\n   if (fromIndex == midPoint) return\n   var reverseIndex = toIndex - 1\n   for (index in fromIndex until midPoint) {\n   val tmp = this[index]\n   this[index] = this[reverseIndex]\n   this[reverseIndex] = tmp\n   reverseIndex--\n   }\n}\n\n/**\n * Reverses elements of the array in the specified range in-place.\n * \n * @param fromIndex the start of the range (inclusive) to reverse.\n * @param toIndex the end of the range (exclusive) to reverse.\n * \n * @throws IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n * @throws IllegalArgumentException if [fromIndex] is greater than [toIndex].\n */\n@SinceKotlin(\"1.4\")\npublic fun LongArray.reverse(fromIndex: Int, toIndex: Int): Unit {\n   AbstractList.checkRangeIndexes(fromIndex, toIndex, size)\n   val midPoint = (fromIndex + toIndex) / 2\n   if (fromIndex == midPoint) return\n   var reverseIndex = toIndex - 1\n   for (index in fromIndex until midPoint) {\n   val tmp = this[index]\n   this[index] = this[reverseIndex]\n   this[reverseIndex] = tmp\n   reverseIndex--\n   }\n}\n\n/**\n * Reverses elements of the array in the specified range in-place.\n * \n * @param fromIndex the start of the range (inclusive) to reverse.\n * @param toIndex the end of the range (exclusive) to reverse.\n * \n * @throws IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n * @throws IllegalArgumentException if [fromIndex] is greater than [toIndex].\n */\n@SinceKotlin(\"1.4\")\npublic fun FloatArray.reverse(fromIndex: Int, toIndex: Int): Unit {\n   AbstractList.checkRangeIndexes(fromIndex, toIndex, size)\n   val midPoint = (fromIndex + toIndex) / 2\n   if (fromIndex == midPoint) return\n   var reverseIndex = toIndex - 1\n   for (index in fromIndex until midPoint) {\n   val tmp = this[index]\n   this[index] = this[reverseIndex]\n   this[reverseIndex] = tmp\n   reverseIndex--\n   }\n}\n\n/**\n * Reverses elements of the array in the specified range in-place.\n * \n * @param fromIndex the start of the range (inclusive) to reverse.\n * @param toIndex the end of the range (exclusive) to reverse.\n * \n * @throws IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n * @throws IllegalArgumentException if [fromIndex] is greater than [toIndex].\n */\n@SinceKotlin(\"1.4\")\npublic fun DoubleArray.reverse(fromIndex: Int, toIndex: Int): Unit {\n   AbstractList.checkRangeIndexes(fromIndex, toIndex, size)\n   val midPoint = (fromIndex + toIndex) / 2\n   if (fromIndex == midPoint) return\n   var reverseIndex = toIndex - 1\n   for (index in fromIndex until midPoint) {\n   val tmp = this[index]\n   this[index] = this[reverseIndex]\n   this[reverseIndex] = tmp\n   reverseIndex--\n   }\n}\n\n/**\n * Reverses elements of the array in the specified range in-place.\n * \n * @param fromIndex the start of the range (inclusive) to reverse.\n * @param toIndex the end of the range (exclusive) to reverse.\n * \n * @throws IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n * @throws IllegalArgumentException if [fromIndex] is greater than [toIndex].\n */\n@SinceKotlin(\"1.4\")\npublic fun BooleanArray.reverse(fromIndex: Int, toIndex: Int): Unit {\n   AbstractList.checkRangeIndexes(fromIndex, toIndex, size)\n   val midPoint = (fromIndex + toIndex) / 2\n   if (fromIndex == midPoint) return\n   var reverseIndex = toIndex - 1\n   for (index in fromIndex until midPoint) {\n   val tmp = this[index]\n   this[index] = this[reverseIndex]\n   this[reverseIndex] = tmp\n   reverseIndex--\n   }\n}\n\n/**\n * Reverses elements of the array in the specified range in-place.\n * \n * @param fromIndex the start of the range (inclusive) to reverse.\n * @param toIndex the end of the range (exclusive) to reverse.\n * \n * @throws IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n * @throws IllegalArgumentException if [fromIndex] is greater than [toIndex].\n */\n@SinceKotlin(\"1.4\")\npublic fun CharArray.reverse(fromIndex: Int, toIndex: Int): Unit {\n   AbstractList.checkRangeIndexes(fromIndex, toIndex, size)\n   val midPoint = (fromIndex + toIndex) / 2\n   if (fromIndex == midPoint) return\n   var reverseIndex = toIndex - 1\n   for (index in fromIndex until midPoint) {\n   val tmp = this[index]\n   this[index] = this[reverseIndex]\n   this[reverseIndex] = tmp\n   reverseIndex--\n   }\n}\n\n/**\n * Returns a list with elements in reversed order.\n */\npublic fun <T> Array<out T>.reversed(): List<T> {\n   if (isEmpty()) return emptyList()\n   val list = toMutableList()\n   list.reverse()\n   return list\n}\n\n/**\n * Returns a list with elements in reversed order.\n */\npublic fun ByteArray.reversed(): List<Byte> {\n   if (isEmpty()) return emptyList()\n   val list = toMutableList()\n   list.reverse()\n   return list\n}\n\n/**\n * Returns a list with elements in reversed order.\n */\npublic fun ShortArray.reversed(): List<Short> {\n   if (isEmpty()) return emptyList()\n   val list = toMutableList()\n   list.reverse()\n   return list\n}\n\n/**\n * Returns a list with elements in reversed order.\n */\npublic fun IntArray.reversed(): List<Int> {\n   if (isEmpty()) return emptyList()\n   val list = toMutableList()\n   list.reverse()\n   return list\n}\n\n/**\n * Returns a list with elements in reversed order.\n */\npublic fun LongArray.reversed(): List<Long> {\n   if (isEmpty()) return emptyList()\n   val list = toMutableList()\n   list.reverse()\n   return list\n}\n\n/**\n * Returns a list with elements in reversed order.\n */\npublic fun FloatArray.reversed(): List<Float> {\n   if (isEmpty()) return emptyList()\n   val list = toMutableList()\n   list.reverse()\n   return list\n}\n\n/**\n * Returns a list with elements in reversed order.\n */\npublic fun DoubleArray.reversed(): List<Double> {\n   if (isEmpty()) return emptyList()\n   val list = toMutableList()\n list.reverse()\n   return list\n}\n\n/**\n * Returns a list with elements in reversed order.\n */\npublic fun BooleanArray.reversed(): List<Boolean> {\n   if (isEmpty()) return emptyList()\n   val list = toMutableList()\n list.reverse()\n   return list\n}\n\n/**\n * Returns a list with elements in reversed order.\n */\npublic fun CharArray.reversed(): List<Char> {\n   if (isEmpty()) return emptyList()\n   val list = toMutableList()\n list.reverse()\n   return list\n}\n\n/**\n * Returns an array with elements of this array in reversed order.\n */\npublic fun <T> Array<T>.reversedArray(): Array<T> {\n   if (isEmpty()) return this\n   val result = arrayOfNulls(this, size)\n   val lastIndex = lastIndex\n   for (i in 0..lastIndex)\n   result[lastIndex - i] = this[i]\n   return result\n}\n\n/**\n * Returns an array with elements of this array in reversed order.\n */\npublic fun ByteArray.reversedArray(): ByteArray {\n   if (isEmpty()) return this\n   val result = ByteArray(size)\n   val lastIndex = lastIndex\n   for (i in 0..lastIndex)\n   result[lastIndex - i] = this[i]\n   return result\n}\n\n/**\n * Returns an array with elements of this array in reversed order.\n */\npublic fun ShortArray.reversedArray(): ShortArray {\n   if (isEmpty()) return this\n   val result = ShortArray(size)\n   val lastIndex = lastIndex\n   for (i in 0..lastIndex)\n   result[lastIndex - i] = this[i]\n   return result\n}\n\n/**\n * Returns an array with elements of this array in reversed order.\n */\npublic fun IntArray.reversedArray(): IntArray {\n   if (isEmpty()) return this\n   val result = IntArray(size)\n   val lastIndex = lastIndex\n   for (i in 0..lastIndex)\n   result[lastIndex - i] = this[i]\n return result\n}\n\n/**\n * Returns an array with elements of this array in reversed order.\n */\npublic fun LongArray.reversedArray(): LongArray {\n   if (isEmpty()) return this\n   val result = LongArray(size)\n   val lastIndex = lastIndex\n   for (i in 0..lastIndex)\n   result[lastIndex - i] = this[i]\n   return result\n}\n\n/**\n * Returns an array with elements of this array in reversed order.\n */\npublic fun FloatArray.reversedArray(): FloatArray {\n   if (isEmpty()) return this\n   val result = FloatArray(size)\n   val lastIndex = lastIndex\n   for (i in 0..lastIndex)\n   result[lastIndex - i] = this[i]\n   return result\n}\n\n/**\n * Returns an array with elements of this array in reversed order.\n */\npublic fun DoubleArray.reversedArray(): DoubleArray {\n   if (isEmpty()) return this\n   val result = DoubleArray(size)\n   val lastIndex = lastIndex\n   for (i in 0..lastIndex)\n   result[lastIndex - i] = this[i]\n   return result\n}\n\n/**\n * Returns an array with elements of this array in reversed order.\n */\npublic fun BooleanArray.reversedArray(): BooleanArray {\n   if (isEmpty()) return this\n   val result = BooleanArray(size)\n   val lastIndex = lastIndex\n   for (i in 0..lastIndex)\n   result[lastIndex - i] = this[i]\n return result\n}\n\n/**\n * Returns an array with elements of this array in reversed order.\n */\npublic fun CharArray.reversedArray(): CharArray {\n   if (isEmpty()) return this\n   val result = CharArray(size)\n   val lastIndex = lastIndex\n   for (i in 0..lastIndex)\n   result[lastIndex - i] = this[i]\n   return result\n}\n\n/**\n * Randomly shuffles elements in this array in-place.\n */\n@SinceKotlin(\"1.4\")\npublic fun <T> Array<T>.shuffle(): Unit {\n   shuffle(Random)\n}\n\n/**\n * Randomly shuffles elements in this array in-place.\n */\n@SinceKotlin(\"1.4\")\npublic fun ByteArray.shuffle(): Unit {\n   shuffle(Random)\n}\n\n/**\n * Randomly shuffles elements in this array in-place.\n */\n@SinceKotlin(\"1.4\")\npublic fun ShortArray.shuffle(): Unit {\n shuffle(Random)\n}\n\n/**\n * Randomly shuffles elements in this array in-place.\n */\n@SinceKotlin(\"1.4\")\npublic fun IntArray.shuffle(): Unit {\n   shuffle(Random)\n}\n\n/**\n * Randomly shuffles elements in this array in-place.\n */\n@SinceKotlin(\"1.4\")\npublic fun LongArray.shuffle(): Unit {\n shuffle(Random)\n}\n\n/**\n * Randomly shuffles elements in this array in-place.\n */\n@SinceKotlin(\"1.4\")\npublic fun FloatArray.shuffle(): Unit {\n   shuffle(Random)\n}\n\n/**\n * Randomly shuffles elements in this array in-place.\n */\n@SinceKotlin(\"1.4\")\npublic fun DoubleArray.shuffle(): Unit {\n shuffle(Random)\n}\n\n/**\n * Randomly shuffles elements in this array in-place.\n */\n@SinceKotlin(\"1.4\")\npublic fun BooleanArray.shuffle(): Unit {\n   shuffle(Random)\n}\n\n/**\n * Randomly shuffles elements in this array in-place.\n */\n@SinceKotlin(\"1.4\")\npublic fun CharArray.shuffle(): Unit {\n shuffle(Random)\n}\n\n/**\n * Randomly shuffles elements in this array in-place using the specified [random] instance as the source of randomness.\n * \n * See: https://en.wikipedia.org/wiki/Fisher%E2%80%93Yates_shuffle#The_modern_algorithm\n */\n@SinceKotlin(\"1.4\")\npublic fun <T> Array<T>.shuffle(random: Random): Unit {\n   for (i in lastIndex downTo 1) {\n   val j = random.nextInt(i + 1)\n   val copy = this[i]\n   this[i] = this[j]\n   this[j] = copy\n   }\n}\n\n/**\n * Randomly shuffles elements in this array in-place using the specified [random] instance as the

source of randomness.\n * \n * See:
https://en.wikipedia.org/wiki/Fisher%E2%80%93Yates_shuffle#The_modern_algorithm\n
*/\n@SinceKotlin(\"1.4\")\npublic fun ByteArray.shuffle(random: Random): Unit {\n   for (i in lastIndex downTo 1) {\n   val j = random.nextInt(i + 1)\n   val copy = this[i]\n   this[i] = this[j]\n   this[j] = copy\n   }\n}\n\n/**\n * Randomly shuffles elements in this array in-place using the specified [random] instance as the source of randomness.\n * \n * See:
https://en.wikipedia.org/wiki/Fisher%E2%80%93Yates_shuffle#The_modern_algorithm\n
*/\n@SinceKotlin(\"1.4\")\npublic fun ShortArray.shuffle(random: Random): Unit {\n   for (i in lastIndex downTo 1) {\n   val j = random.nextInt(i + 1)\n   val copy = this[i]\n   this[i] = this[j]\n   this[j] = copy\n   }\n}\n\n/**\n * Randomly shuffles elements in this array in-place using the specified [random] instance as the source of randomness.\n * \n * See:
https://en.wikipedia.org/wiki/Fisher%E2%80%93Yates_shuffle#The_modern_algorithm\n
*/\n@SinceKotlin(\"1.4\")\npublic fun IntArray.shuffle(random: Random): Unit {\n   for (i in lastIndex downTo 1) {\n   val j = random.nextInt(i + 1)\n   val copy = this[i]\n   this[i] = this[j]\n   this[j] = copy\n   }\n}\n\n/**\n * Randomly shuffles elements in this array in-place using the specified [random] instance as the source of randomness.\n * \n * See:
https://en.wikipedia.org/wiki/Fisher%E2%80%93Yates_shuffle#The_modern_algorithm\n
*/\n@SinceKotlin(\"1.4\")\npublic fun LongArray.shuffle(random: Random): Unit {\n   for (i in lastIndex downTo 1) {\n   val j = random.nextInt(i + 1)\n   val copy = this[i]\n   this[i] = this[j]\n   this[j] = copy\n   }\n}\n\n/**\n * Randomly shuffles elements in this array in-place using the specified [random] instance as the source of randomness.\n * \n * See:
https://en.wikipedia.org/wiki/Fisher%E2%80%93Yates_shuffle#The_modern_algorithm\n
*/\n@SinceKotlin(\"1.4\")\npublic fun FloatArray.shuffle(random: Random): Unit {\n   for (i in lastIndex downTo 1) {\n   val j = random.nextInt(i + 1)\n   val copy = this[i]\n   this[i] = this[j]\n   this[j] = copy\n   }\n}\n\n/**\n * Randomly shuffles elements in this array in-place using the specified [random] instance as the source of randomness.\n * \n * See:
https://en.wikipedia.org/wiki/Fisher%E2%80%93Yates_shuffle#The_modern_algorithm\n
*/\n@SinceKotlin(\"1.4\")\npublic fun DoubleArray.shuffle(random: Random): Unit {\n   for (i in lastIndex downTo 1) {\n   val j = random.nextInt(i + 1)\n   val copy = this[i]\n   this[i] = this[j]\n   this[j] = copy\n   }\n}\n\n/**\n * Randomly shuffles elements in this array in-place using the specified [random] instance as the source of randomness.\n * \n * See:
https://en.wikipedia.org/wiki/Fisher%E2%80%93Yates_shuffle#The_modern_algorithm\n
*/\n@SinceKotlin(\"1.4\")\npublic fun BooleanArray.shuffle(random: Random): Unit {\n   for (i in lastIndex downTo 1) {\n   val j = random.nextInt(i + 1)\n   val copy = this[i]\n   this[i] = this[j]\n   this[j] = copy\n   }\n}\n\n/**\n * Randomly shuffles elements in this array in-place using the specified [random] instance as the source of randomness.\n * \n * See:
https://en.wikipedia.org/wiki/Fisher%E2%80%93Yates_shuffle#The_modern_algorithm\n
*/\n@SinceKotlin(\"1.4\")\npublic fun CharArray.shuffle(random: Random): Unit {\n   for (i in lastIndex downTo 1) {\n   val j = random.nextInt(i + 1)\n   val copy = this[i]\n   this[i] = this[j]\n   this[j] = copy\n   }\n}\n\n/**\n * Sorts elements in the array in-place according to natural sort order of the value returned by specified [selector] function.\n * \n * The sort is _stable_. It means that equal elements preserve their order relative to each other after sorting.\n */\npublic inline fun <T, R : Comparable<R>> Array<out T>.sortBy(crossinline selector: (T) -> R?): Unit {\n   if (size > 1) sortWith(compareBy(selector))\n}\n\n/**\n * Sorts elements in the array in-place descending according to natural sort order of the value returned by specified [selector] function.\n * \n * The sort is _stable_. It means that equal elements preserve their order relative to each other after sorting.\n */\npublic inline fun <T, R : Comparable<R>> Array<out T>.sortByDescending(crossinline selector: (T) -> R?): Unit {\n   if (size > 1) sortWith(compareByDescending(selector))\n}\n\n/**\n * Sorts elements in the array in-place descending according to their natural sort order.\n * \n * The sort is _stable_. It means that equal elements preserve their order relative to

each other after sorting.\n */\npublic fun <T : Comparable<T>> Array<out T>.sortDescending(): Unit {\n sortWith(reverseOrder())\n}\n\n/**\n * Sorts elements in the array in-place descending according to their natural sort order.\n */\npublic fun ByteArray.sortDescending(): Unit {\n   if (size > 1) {\n   sort()\n   reverse()\n }\n}\n\n/**\n * Sorts elements in the array in-place descending according to their natural sort order.\n */\npublic fun ShortArray.sortDescending(): Unit {\n   if (size > 1) {\n   sort()\n   reverse()\n   }\n}\n\n/**\n * Sorts elements in the array in-place descending according to their natural sort order.\n */\npublic fun IntArray.sortDescending(): Unit {\n   if (size > 1) {\n   sort()\n   reverse()\n   }\n}\n\n/**\n * Sorts elements in the array in-place descending according to their natural sort order.\n */\npublic fun LongArray.sortDescending(): Unit {\n   if (size > 1) {\n   sort()\n   reverse()\n   }\n}\n\n/**\n * Sorts elements in the array in-place descending according to their natural sort order.\n */\npublic fun FloatArray.sortDescending(): Unit {\n   if (size > 1) {\n   sort()\n   reverse()\n   }\n}\n\n/**\n * Sorts elements in the array in-place descending according to their natural sort order.\n */\npublic fun DoubleArray.sortDescending(): Unit {\n   if (size > 1) {\n   sort()\n reverse()\n   }\n}\n\n/**\n * Sorts elements in the array in-place descending according to their natural sort order.\n */\npublic fun CharArray.sortDescending(): Unit {\n   if (size > 1) {\n   sort()\n   reverse()\n   }\n}\n\n/**\n * Returns a list of all elements sorted according to their natural sort order.\n * \n * The sort is _stable_. It means that equal elements preserve their order relative to each other after sorting.\n */\npublic fun <T : Comparable<T>> Array<out T>.sorted(): List<T> {\n   return sortedArray().asList()\n}\n\n/**\n * Returns a list of all elements sorted according to their natural sort order.\n */\npublic fun ByteArray.sorted(): List<Byte> {\n   return toTypedArray().apply { sort() }.asList()\n}\n\n/**\n * Returns a list of all elements sorted according to their natural sort order.\n */\npublic fun ShortArray.sorted(): List<Short> {\n   return toTypedArray().apply { sort() }.asList()\n}\n\n/**\n * Returns a list of all elements sorted according to their natural sort order.\n */\npublic fun IntArray.sorted(): List<Int> {\n   return toTypedArray().apply { sort() }.asList()\n}\n\n/**\n * Returns a list of all elements sorted according to their natural sort order.\n */\npublic fun LongArray.sorted(): List<Long> {\n   return toTypedArray().apply { sort() }.asList()\n}\n\n/**\n * Returns a list of all elements sorted according to their natural sort order.\n */\npublic fun FloatArray.sorted(): List<Float> {\n   return toTypedArray().apply { sort() }.asList()\n}\n\n/**\n * Returns a list of all elements sorted according to their natural sort order.\n */\npublic fun DoubleArray.sorted(): List<Double> {\n   return toTypedArray().apply { sort() }.asList()\n}\n\n/**\n * Returns a list of all elements sorted according to their natural sort order.\n */\npublic fun CharArray.sorted(): List<Char> {\n return toTypedArray().apply { sort() }.asList()\n}\n\n/**\n * Returns an array with all elements of this array sorted according to their natural sort order.\n * \n * The sort is _stable_. It means that equal elements preserve their order relative to each other after sorting.\n */\npublic fun <T : Comparable<T>> Array<T>.sortedArray(): Array<T> {\n if (isEmpty()) return this\n   return this.copyOf().apply { sort() }\n}\n\n/**\n * Returns an array with all elements of this array sorted according to their natural sort order.\n */\npublic fun ByteArray.sortedArray(): ByteArray {\n   if (isEmpty()) return this\n   return this.copyOf().apply { sort() }\n}\n\n/**\n * Returns an array with all elements of this array sorted according to their natural sort order.\n */\npublic fun ShortArray.sortedArray(): ShortArray {\n   if (isEmpty()) return this\n   return this.copyOf().apply { sort() }\n}\n\n/**\n * Returns an array with all elements of this array sorted according to their natural sort order.\n */\npublic fun IntArray.sortedArray(): IntArray {\n   if (isEmpty()) return this\n   return this.copyOf().apply { sort() }\n}\n\n/**\n * Returns an array with all elements of this array sorted according to their natural sort order.\n */\npublic fun LongArray.sortedArray(): LongArray {\n   if (isEmpty()) return this\n   return this.copyOf().apply { sort() }\n}\n\n/**\n * Returns an array with all elements of this array sorted according to their natural sort order.\n */\npublic fun FloatArray.sortedArray(): FloatArray {\n   if (isEmpty()) return this\n   return this.copyOf().apply { sort() }\n}\n\n/**\n * Returns an array with all elements of this array sorted according to their natural sort order.\n */\npublic fun DoubleArray.sortedArray(): DoubleArray {\n   if (isEmpty()) return this\n   return this.copyOf().apply { sort() }\n}\n\n/**\n * Returns an array with all elements of this array sorted according to their natural sort order.\n */\npublic fun CharArray.sortedArray(): CharArray {\n if (isEmpty()) return this\n   return this.copyOf().apply { sort() }\n}\n\n/**\n * Returns an array with all elements of this array sorted descending according to their natural sort order.\n * \n * The sort is _stable_. It means that equal elements preserve their order relative to each other after sorting.\n */\npublic fun <T : Comparable<T>>

Array<T>.sortedArrayDescending(): Array<T> {\n   if (isEmpty()) return this\n   return this.copyOf().apply { sortWith(reverseOrder()) }\n}\n\n/**\n * Returns an array with all elements of this array sorted descending according to their natural sort order.\n */\npublic fun ByteArray.sortedArrayDescending(): ByteArray {\n   if (isEmpty()) return this\n   return this.copyOf().apply { sortDescending() }\n}\n\n/**\n * Returns an array with all elements of this array sorted descending according to their natural sort order.\n */\npublic fun ShortArray.sortedArrayDescending(): ShortArray {\n   if (isEmpty()) return this\n   return this.copyOf().apply { sortDescending() }\n}\n\n/**\n * Returns an array with all elements of this array sorted descending according to their natural sort order.\n */\npublic fun IntArray.sortedArrayDescending(): IntArray {\n   if (isEmpty()) return this\n   return this.copyOf().apply { sortDescending() }\n}\n\n/**\n * Returns an array with all elements of this array sorted descending according to their natural sort order.\n */\npublic fun LongArray.sortedArrayDescending(): LongArray {\n   if (isEmpty()) return this\n   return this.copyOf().apply { sortDescending() }\n}\n\n/**\n * Returns an array with all elements of this array sorted descending according to their natural sort order.\n */\npublic fun FloatArray.sortedArrayDescending(): FloatArray {\n   if (isEmpty()) return this\n   return this.copyOf().apply { sortDescending() }\n}\n\n/**\n * Returns an array with all elements of this array sorted descending according to their natural sort order.\n */\npublic fun DoubleArray.sortedArrayDescending(): DoubleArray {\n   if (isEmpty()) return this\n   return this.copyOf().apply { sortDescending() }\n}\n\n/**\n * Returns an array with all elements of this array sorted descending according to their natural sort order.\n */\npublic fun CharArray.sortedArrayDescending(): CharArray {\n   if (isEmpty()) return this\n   return this.copyOf().apply { sortDescending() }\n}\n\n/**\n * Returns an array with all elements of this array sorted according the specified [comparator].\n * \n * The sort is _stable_. It means that equal elements preserve their order relative to each other after sorting.\n */\npublic fun <T> Array<out T>.sortedArrayWith(comparator: Comparator<in T>): Array<out T> {\n   if (isEmpty()) return this\n   return this.copyOf().apply { sortWith(comparator) }\n}\n\n/**\n * Returns a list of all elements sorted according to natural sort order of the value returned by specified [selector] function.\n * \n * The sort is _stable_. It means that equal elements preserve their order relative to each other after sorting.\n * \n * @sample samples.collections.Collections.Sorting.sortedBy\n */\npublic inline fun <T, R : Comparable<R>> Array<out T>.sortedBy(crossinline selector: (T) -> R?): List<T> {\n   return sortedWith(compareBy(selector))\n}\n\n/**\n * Returns a list of all elements sorted according to natural sort order of the value returned by specified [selector] function.\n * \n * @sample samples.collections.Collections.Sorting.sortedBy\n */\npublic inline fun <R : Comparable<R>> ByteArray.sortedBy(crossinline selector: (Byte) -> R?): List<Byte> {\n   return sortedWith(compareBy(selector))\n}\n\n/**\n * Returns a list of all elements sorted according to natural sort order of the value returned by specified [selector] function.\n * \n * @sample samples.collections.Collections.Sorting.sortedBy\n */\npublic inline fun <R : Comparable<R>> ShortArray.sortedBy(crossinline selector: (Short) -> R?): List<Short> {\n   return sortedWith(compareBy(selector))\n}\n\n/**\n * Returns a list of all elements sorted according to natural sort order of the value returned by specified [selector] function.\n * \n * @sample samples.collections.Collections.Sorting.sortedBy\n */\npublic inline fun <R : Comparable<R>> IntArray.sortedBy(crossinline selector: (Int) -> R?): List<Int> {\n   return sortedWith(compareBy(selector))\n}\n\n/**\n * Returns a list of all elements sorted according to natural sort order of the value returned by specified [selector] function.\n * \n * @sample samples.collections.Collections.Sorting.sortedBy\n */\npublic inline fun <R : Comparable<R>> LongArray.sortedBy(crossinline selector: (Long) -> R?): List<Long> {\n   return sortedWith(compareBy(selector))\n}\n\n/**\n * Returns a list of all elements sorted according to natural sort order of the value returned by specified [selector] function.\n * \n * @sample samples.collections.Collections.Sorting.sortedBy\n */\npublic inline fun <R : Comparable<R>> FloatArray.sortedBy(crossinline selector: (Float) -> R?): List<Float> {\n   return sortedWith(compareBy(selector))\n}\n\n/**\n * Returns a list of all elements sorted according to natural sort order of the value returned by specified [selector] function.\n * \n * @sample

samples.collections.Collections.Sorting.sortedBy\n */\npublic inline fun <R : Comparable<R>>
DoubleArray.sortedBy(crossinline selector: (Double) -> R?): List<Double> {\n   return
sortedWith(compareBy(selector))\n}\n\n/**\n * Returns a list of all elements sorted according to natural sort order
of the value returned by specified [selector] function.\n * \n * @sample
samples.collections.Collections.Sorting.sortedBy\n */\npublic inline fun <R : Comparable<R>>
BooleanArray.sortedBy(crossinline selector: (Boolean) -> R?): List<Boolean> {\n   return
sortedWith(compareBy(selector))\n}\n\n/**\n * Returns a list of all elements sorted according to natural sort order
of the value returned by specified [selector] function.\n * \n * @sample
samples.collections.Collections.Sorting.sortedBy\n */\npublic inline fun <R : Comparable<R>>
CharArray.sortedBy(crossinline selector: (Char) -> R?): List<Char> {\n   return
sortedWith(compareBy(selector))\n}\n\n/**\n * Returns a list of all elements sorted descending according to natural
sort order of the value returned by specified [selector] function.\n * \n * The sort is _stable_. It means that equal
elements preserve their order relative to each other after sorting.\n */\npublic inline fun <T, R : Comparable<R>>
Array<out T>.sortedByDescending(crossinline selector: (T) -> R?): List<T> {\n   return
sortedWith(compareByDescending(selector))\n}\n\n/**\n * Returns a list of all elements sorted descending
according to natural sort order of the value returned by specified [selector] function.\n */\npublic inline fun <R :
Comparable<R>> ByteArray.sortedByDescending(crossinline selector: (Byte) -> R?): List<Byte> {\n   return
sortedWith(compareByDescending(selector))\n}\n\n/**\n * Returns a list of all elements sorted descending
according to natural sort order of the value returned by specified [selector] function.\n */\npublic inline fun <R :
Comparable<R>> ShortArray.sortedByDescending(crossinline selector: (Short) -> R?): List<Short> {\n   return
sortedWith(compareByDescending(selector))\n}\n\n/**\n * Returns a list of all elements sorted descending
according to natural sort order of the value returned by specified [selector] function.\n */\npublic inline fun <R :
Comparable<R>> IntArray.sortedByDescending(crossinline selector: (Int) -> R?): List<Int> {\n   return
sortedWith(compareByDescending(selector))\n}\n\n/**\n * Returns a list of all elements sorted descending
according to natural sort order of the value returned by specified [selector] function.\n */\npublic inline fun <R :
Comparable<R>> LongArray.sortedByDescending(crossinline selector: (Long) -> R?): List<Long> {\n   return
sortedWith(compareByDescending(selector))\n}\n\n/**\n * Returns a list of all elements sorted descending
according to natural sort order of the value returned by specified [selector] function.\n */\npublic inline fun <R :
Comparable<R>> FloatArray.sortedByDescending(crossinline selector: (Float) -> R?): List<Float> {\n   return
sortedWith(compareByDescending(selector))\n}\n\n/**\n * Returns a list of all elements sorted descending
according to natural sort order of the value returned by specified [selector] function.\n */\npublic inline fun <R :
Comparable<R>> DoubleArray.sortedByDescending(crossinline selector: (Double) -> R?): List<Double> {\n
return sortedWith(compareByDescending(selector))\n}\n\n/**\n * Returns a list of all elements sorted descending
according to natural sort order of the value returned by specified [selector] function.\n */\npublic inline fun <R :
Comparable<R>> BooleanArray.sortedByDescending(crossinline selector: (Boolean) -> R?): List<Boolean> {\n
return sortedWith(compareByDescending(selector))\n}\n\n/**\n * Returns a list of all elements sorted descending
according to natural sort order of the value returned by specified [selector] function.\n */\npublic inline fun <R :
Comparable<R>> CharArray.sortedByDescending(crossinline selector: (Char) -> R?): List<Char> {\n   return
sortedWith(compareByDescending(selector))\n}\n\n/**\n * Returns a list of all elements sorted descending
according to their natural sort order.\n * \n * The sort is _stable_. It means that equal elements preserve their order
relative to each other after sorting.\n */\npublic fun <T : Comparable<T>> Array<out T>.sortedDescending():
List<T> {\n   return sortedWith(reverseOrder())\n}\n\n/**\n * Returns a list of all elements sorted descending
according to their natural sort order.\n */\npublic fun ByteArray.sortedDescending(): List<Byte> {\n   return
copyOf().apply { sort() }.reversed()\n}\n\n/**\n * Returns a list of all elements sorted descending according to their
natural sort order.\n */\npublic fun ShortArray.sortedDescending(): List<Short> {\n   return copyOf().apply { sort()
}.reversed()\n}\n\n/**\n * Returns a list of all elements sorted descending according to their natural sort order.\n
*/\npublic fun IntArray.sortedDescending(): List<Int> {\n   return copyOf().apply { sort() }.reversed()\n}\n\n/**\n
* Returns a list of all elements sorted descending according to their natural sort order.\n */\npublic fun

LongArray.sortedDescending(): List<Long> {\n   return copyOf().apply { sort() }.reversed()\n}\n\n/**\n * Returns a list of all elements sorted descending according to their natural sort order.\n */\npublic fun FloatArray.sortedDescending(): List<Float> {\n   return copyOf().apply { sort() }.reversed()\n}\n\n/**\n * Returns a list of all elements sorted descending according to their natural sort order.\n */\npublic fun DoubleArray.sortedDescending(): List<Double> {\n   return copyOf().apply { sort() }.reversed()\n}\n\n/**\n * Returns a list of all elements sorted descending according to their natural sort order.\n */\npublic fun CharArray.sortedDescending(): List<Char> {\n   return copyOf().apply { sort() }.reversed()\n}\n\n/**\n * Returns a list of all elements sorted according to the specified [comparator].\n * \n * The sort is _stable_. It means that equal elements preserve their order relative to each other after sorting.\n */\npublic fun <T> Array<out T>.sortedWith(comparator: Comparator<in T>): List<T> {\n   return sortedArrayWith(comparator).asList()\n}\n\n/**\n * Returns a list of all elements sorted according to the specified [comparator].\n */\npublic fun ByteArray.sortedWith(comparator: Comparator<in Byte>): List<Byte> {\n   return toTypedArray().apply { sortWith(comparator) }.asList()\n}\n\n/**\n * Returns a list of all elements sorted according to the specified [comparator].\n */\npublic fun ShortArray.sortedWith(comparator: Comparator<in Short>): List<Short> {\n   return toTypedArray().apply { sortWith(comparator) }.asList()\n}\n\n/**\n * Returns a list of all elements sorted according to the specified [comparator].\n */\npublic fun IntArray.sortedWith(comparator: Comparator<in Int>): List<Int> {\n   return toTypedArray().apply { sortWith(comparator) }.asList()\n}\n\n/**\n * Returns a list of all elements sorted according to the specified [comparator].\n */\npublic fun LongArray.sortedWith(comparator: Comparator<in Long>): List<Long> {\n   return toTypedArray().apply { sortWith(comparator) }.asList()\n}\n\n/**\n * Returns a list of all elements sorted according to the specified [comparator].\n */\npublic fun FloatArray.sortedWith(comparator: Comparator<in Float>): List<Float> {\n   return toTypedArray().apply { sortWith(comparator) }.asList()\n}\n\n/**\n * Returns a list of all elements sorted according to the specified [comparator].\n */\npublic fun DoubleArray.sortedWith(comparator: Comparator<in Double>): List<Double> {\n   return toTypedArray().apply { sortWith(comparator) }.asList()\n}\n\n/**\n * Returns a list of all elements sorted according to the specified [comparator].\n */\npublic fun BooleanArray.sortedWith(comparator: Comparator<in Boolean>): List<Boolean> {\n   return toTypedArray().apply { sortWith(comparator) }.asList()\n}\n\n/**\n * Returns a list of all elements sorted according to the specified [comparator].\n */\npublic fun CharArray.sortedWith(comparator: Comparator<in Char>): List<Char> {\n   return toTypedArray().apply { sortWith(comparator) }.asList()\n}\n\n/**\n * Returns a [List] that wraps the original array.\n */\npublic expect fun <T> Array<out T>.asList(): List<T>\n\n/**\n * Returns a [List] that wraps the original array.\n */\npublic expect fun ByteArray.asList(): List<Byte>\n\n/**\n * Returns a [List] that wraps the original array.\n */\npublic expect fun ShortArray.asList(): List<Short>\n\n/**\n * Returns a [List] that wraps the original array.\n */\npublic expect fun IntArray.asList(): List<Int>\n\n/**\n * Returns a [List] that wraps the original array.\n */\npublic expect fun LongArray.asList(): List<Long>\n\n/**\n * Returns a [List] that wraps the original array.\n */\npublic expect fun FloatArray.asList(): List<Float>\n\n/**\n * Returns a [List] that wraps the original array.\n */\npublic expect fun DoubleArray.asList(): List<Double>\n\n/**\n * Returns a [List] that wraps the original array.\n */\npublic expect fun BooleanArray.asList(): List<Boolean>\n\n/**\n * Returns a [List] that wraps the original array.\n */\npublic expect fun CharArray.asList(): List<Char>\n\n/**\n * Returns `true` if the two specified arrays are *deeply* equal to one another,\n * i.e. contain the same number of the same elements in the same order.\n * \n * If two corresponding elements are nested arrays, they are also compared deeply.\n * If any of arrays contains itself on any nesting level the behavior is undefined.\n * \n * The elements of other types are compared for equality with the [equals][Any.equals] function.\n * For floating point numbers it means that `NaN` is equal to itself and `-0.0` is not equal to `0.0`.\n */\n@SinceKotlin(\"1.1\")\n@kotlin.internal.LowPriorityInOverloadResolution\npublic expect infix fun <T> Array<out T>.contentDeepEquals(other: Array<out T>): Boolean\n\n/**\n * Returns `true` if the two specified arrays are *deeply* equal to one another,\n * i.e. contain the same number of the same elements in the same order.\n * \n * The specified arrays are also considered deeply equal if both are `null`.\n * \n * If two corresponding elements are nested arrays, they are also compared deeply.\n * If any of arrays contains itself on any nesting level the behavior is undefined.\n * \n * The elements of other types are compared for equality with the [equals][Any.equals] function.\n * For floating point numbers it means that `NaN` is equal to itself and `-0.0` is not equal to `0.0`.\n */\n@SinceKotlin(\"1.4\")\npublic expect infix fun <T> Array<out T>?.contentDeepEquals(other: Array<out T>?): Boolean\n\n/**\n * Returns a hash code based on the contents of this array as if it is [List].\n * Nested arrays are treated as lists too.\n * \n * If any of arrays contains itself on any nesting level the behavior is undefined.\n */\n@SinceKotlin(\"1.1\")\n@kotlin.internal.LowPriorityInOverloadResolution\npublic expect fun <T> Array<out T>.contentDeepHashCode(): Int\n\n/**\n * Returns a hash code based on the contents of this array as if it is [List].\n * Nested arrays are treated as lists too.\n * \n * If any of arrays contains itself on any nesting level the behavior is undefined.\n */\n@SinceKotlin(\"1.4\")\npublic expect fun <T> Array<out T>?.contentDeepHashCode(): Int\n\n/**\n * Returns a string representation of the contents of this array as if it is a [List].\n * Nested arrays are treated as lists too.\n * \n * If any of arrays contains itself on any nesting level that reference\n * is rendered as `\"[...]\"` to prevent recursion.\n * \n * @sample samples.collections.Arrays.ContentOperations.contentDeepToString\n */\n@SinceKotlin(\"1.1\")\n@kotlin.internal.LowPriorityInOverloadResolution\npublic expect fun <T> Array<out T>.contentDeepToString(): String\n\n/**\n * Returns a string representation of the contents of this array as if it is a [List].\n * Nested arrays are treated as lists too.\n * \n * If any of arrays contains itself on any nesting level that reference\n * is rendered as `\"[...]\"` to prevent recursion.\n * \n * @sample samples.collections.Arrays.ContentOperations.contentDeepToString\n */\n@SinceKotlin(\"1.4\")\npublic expect fun <T> Array<out T>?.contentDeepToString(): String\n\n/**\n * Returns `true` if the two specified arrays are *structurally* equal to one another,\n * i.e. contain the same number of the same elements in the same order.\n * \n * The elements are compared for equality with the [equals][Any.equals] function.\n * For floating point numbers it means that `NaN` is equal to itself and `-0.0` is not equal to `0.0`.\n */\n@Deprecated(\"Use Kotlin compiler 1.4 to avoid deprecation warning.\")\n@SinceKotlin(\"1.1\")\n@DeprecatedSinceKotlin(hiddenSince = \"1.4\")\npublic expect infix fun <T> Array<out T>.contentEquals(other: Array<out T>): Boolean\n\n/**\n * Returns `true` if the two specified arrays are *structurally* equal to one another,\n * i.e. contain the same number of the same elements in the same order.\n * \n * The elements are compared for equality with the [equals][Any.equals] function.\n * For floating point numbers it means that `NaN` is equal to itself and `-0.0` is not equal to `0.0`.\n */\n@Deprecated(\"Use Kotlin compiler 1.4 to avoid deprecation warning.\")\n@SinceKotlin(\"1.1\")\n@DeprecatedSinceKotlin(hiddenSince = \"1.4\")\npublic expect infix fun ByteArray.contentEquals(other: ByteArray): Boolean\n\n/**\n * Returns `true` if the two specified arrays are *structurally* equal to one another,\n * i.e. contain the same number of the same elements in the same order.\n * \n * The elements are compared for equality with the [equals][Any.equals] function.\n * For floating point numbers it means that `NaN` is equal to itself and `-0.0` is not equal to `0.0`.\n */\n@Deprecated(\"Use Kotlin compiler 1.4 to avoid deprecation warning.\")\n@SinceKotlin(\"1.1\")\n@DeprecatedSinceKotlin(hiddenSince = \"1.4\")\npublic expect infix fun ShortArray.contentEquals(other: ShortArray): Boolean\n\n/**\n * Returns `true` if the two specified arrays are *structurally* equal to one another,\n * i.e. contain the same number of the same elements in the same order.\n * \n * The elements are compared for equality with the [equals][Any.equals] function.\n * For floating point numbers it means that `NaN` is equal to itself and `-0.0` is not equal to `0.0`.\n */\n@Deprecated(\"Use Kotlin compiler 1.4 to avoid deprecation warning.\")\n@SinceKotlin(\"1.1\")\n@DeprecatedSinceKotlin(hiddenSince = \"1.4\")\npublic expect infix fun IntArray.contentEquals(other: IntArray): Boolean\n\n/**\n * Returns `true` if the two specified arrays are *structurally* equal to one another,\n * i.e. contain the same number of the same elements in the same order.\n * \n * The elements are compared for equality with the [equals][Any.equals] function.\n * For floating point numbers it means that `NaN` is equal to itself and `-0.0` is not equal to `0.0`.\n */\n@Deprecated(\"Use Kotlin compiler 1.4 to avoid deprecation warning.\")\n@SinceKotlin(\"1.1\")\n@DeprecatedSinceKotlin(hiddenSince = \"1.4\")\npublic expect infix fun LongArray.contentEquals(other: LongArray): Boolean\n\n/**\n * Returns `true` if the two specified arrays are *structurally* equal to one another,\n * i.e. contain the same number of the same elements in the same order.\n * \n * The elements are compared for equality with the [equals][Any.equals] function.\n * For floating point numbers it means that `NaN` is equal to itself and `-0.0` is not equal to `0.0`.\n */\n@Deprecated(\"Use Kotlin compiler 1.4 to

avoid deprecation warning.\")\n@SinceKotlin(\"1.1\")\n@DeprecatedSinceKotlin(hiddenSince = \"1.4\")\npublic expect infix fun FloatArray.contentEquals(other: FloatArray): Boolean\n\n/**\n * Returns `true` if the two specified arrays are *structurally* equal to one another,\n * i.e. contain the same number of the same elements in the same order.\n * \n * The elements are compared for equality with the [equals][Any.equals] function.\n * For floating point numbers it means that `NaN` is equal to itself and `-0.0` is not equal to `0.0`.\n */\n@Deprecated(\"Use Kotlin compiler 1.4 to avoid deprecation warning.\")\n@SinceKotlin(\"1.1\")\n@DeprecatedSinceKotlin(hiddenSince = \"1.4\")\npublic expect infix fun DoubleArray.contentEquals(other: DoubleArray): Boolean\n\n/**\n * Returns `true` if the two specified arrays are *structurally* equal to one another,\n * i.e. contain the same number of the same elements in the same order.\n * \n * The elements are compared for equality with the [equals][Any.equals] function.\n * For floating point numbers it means that `NaN` is equal to itself and `-0.0` is not equal to `0.0`.\n */\n@Deprecated(\"Use Kotlin compiler 1.4 to avoid deprecation warning.\")\n@SinceKotlin(\"1.1\")\n@DeprecatedSinceKotlin(hiddenSince = \"1.4\")\npublic expect infix fun BooleanArray.contentEquals(other: BooleanArray): Boolean\n\n/**\n * Returns `true` if the two specified arrays are *structurally* equal to one another,\n * i.e. contain the same number of the same elements in the same order.\n * \n * The elements are compared for equality with the [equals][Any.equals] function.\n * For floating point numbers it means that `NaN` is equal to itself and `-0.0` is not equal to `0.0`.\n */\n@Deprecated(\"Use Kotlin compiler 1.4 to avoid deprecation warning.\")\n@SinceKotlin(\"1.1\")\n@DeprecatedSinceKotlin(hiddenSince = \"1.4\")\npublic expect infix fun CharArray.contentEquals(other: CharArray): Boolean\n\n/**\n * Returns `true` if the two specified arrays are *structurally* equal to one another,\n * i.e. contain the same number of the same elements in the same order.\n * \n * The elements are compared for equality with the [equals][Any.equals] function.\n * For floating point numbers it means that `NaN` is equal to itself and `-0.0` is not equal to `0.0`.\n */\n@SinceKotlin(\"1.4\")\npublic expect infix fun <T> Array<out T>?.contentEquals(other: Array<out T>?): Boolean\n\n/**\n * Returns `true` if the two specified arrays are *structurally* equal to one another,\n * i.e. contain the same number of the same elements in the same order.\n * \n * The elements are compared for equality with the [equals][Any.equals] function.\n * For floating point numbers it means that `NaN` is equal to itself and `-0.0` is not equal to `0.0`.\n */\n@SinceKotlin(\"1.4\")\npublic expect infix fun ByteArray?.contentEquals(other: ByteArray?): Boolean\n\n/**\n * Returns `true` if the two specified arrays are *structurally* equal to one another,\n * i.e. contain the same number of the same elements in the same order.\n * \n * The elements are compared for equality with the [equals][Any.equals] function.\n * For floating point numbers it means that `NaN` is equal to itself and `-0.0` is not equal to `0.0`.\n */\n@SinceKotlin(\"1.4\")\npublic expect infix fun ShortArray?.contentEquals(other: ShortArray?): Boolean\n\n/**\n * Returns `true` if the two specified arrays are *structurally* equal to one another,\n * i.e. contain the same number of the same elements in the same order.\n * \n * The elements are compared for equality with the [equals][Any.equals] function.\n * For floating point numbers it means that `NaN` is equal to itself and `-0.0` is not equal to `0.0`.\n */\n@SinceKotlin(\"1.4\")\npublic expect infix fun IntArray?.contentEquals(other: IntArray?): Boolean\n\n/**\n * Returns `true` if the two specified arrays are *structurally* equal to one another,\n * i.e. contain the same number of the same elements in the same order.\n * \n * The elements are compared for equality with the [equals][Any.equals] function.\n * For floating point numbers it means that `NaN` is equal to itself and `-0.0` is not equal to `0.0`.\n */\n@SinceKotlin(\"1.4\")\npublic expect infix fun LongArray?.contentEquals(other: LongArray?): Boolean\n\n/**\n * Returns `true` if the two specified arrays are *structurally* equal to one another,\n * i.e. contain the same number of the same elements in the same order.\n * \n * The elements are compared for equality with the [equals][Any.equals] function.\n * For floating point numbers it means that `NaN` is equal to itself and `-0.0` is not equal to `0.0`.\n */\n@SinceKotlin(\"1.4\")\npublic expect infix fun FloatArray?.contentEquals(other: FloatArray?): Boolean\n\n/**\n * Returns `true` if the two specified arrays are *structurally* equal to one another,\n * i.e. contain the same number of the same elements in the same order.\n * \n * The elements are compared for equality with the [equals][Any.equals] function.\n * For floating point numbers it means that `NaN` is equal to itself and `-0.0` is not equal to `0.0`.\n */\n@SinceKotlin(\"1.4\")\npublic expect infix fun DoubleArray?.contentEquals(other: DoubleArray?): Boolean\n\n/**\n * Returns `true` if the two specified arrays are *structurally* equal to one another,\n * i.e. contain the same number of the same elements in the same order.\n * \n * The elements are compared for equality with the [equals][Any.equals] function.\n * For floating point numbers it means that `NaN` is equal to itself and `-0.0` is not equal to `0.0`.\n */\n@SinceKotlin(\"1.4\")\npublic expect infix fun BooleanArray?.contentEquals(other: BooleanArray?): Boolean\n\n/**\n * Returns `true` if the two specified arrays are *structurally* equal to one another,\n * i.e. contain the same number of the same elements in the same order.\n * \n * The elements are compared for equality with the [equals][Any.equals] function.\n * For floating point numbers it means that `NaN` is equal to itself and `-0.0` is not equal to `0.0`.\n */\n@SinceKotlin(\"1.4\")\npublic expect infix fun CharArray?.contentEquals(other: CharArray?): Boolean\n\n/**\n * Returns a hash code based on the contents of this array as if it is [List].\n */\n@Deprecated(\"Use Kotlin compiler 1.4 to avoid deprecation warning.\")\n@SinceKotlin(\"1.1\")\n@DeprecatedSinceKotlin(hiddenSince = \"1.4\")\npublic expect fun <T> Array<out T>.contentHashCode(): Int\n\n/**\n * Returns a hash code based on the contents of this array as if it is [List].\n */\n@Deprecated(\"Use Kotlin compiler 1.4 to avoid deprecation warning.\")\n@SinceKotlin(\"1.1\")\n@DeprecatedSinceKotlin(hiddenSince = \"1.4\")\npublic expect fun ByteArray.contentHashCode(): Int\n\n/**\n * Returns a hash code based on the contents of this array as if it is [List].\n */\n@Deprecated(\"Use Kotlin compiler 1.4 to avoid deprecation warning.\")\n@SinceKotlin(\"1.1\")\n@DeprecatedSinceKotlin(hiddenSince = \"1.4\")\npublic expect fun ShortArray.contentHashCode(): Int\n\n/**\n * Returns a hash code based on the contents of this array as if it is [List].\n */\n@Deprecated(\"Use Kotlin compiler 1.4 to avoid deprecation warning.\")\n@SinceKotlin(\"1.1\")\n@DeprecatedSinceKotlin(hiddenSince = \"1.4\")\npublic expect fun IntArray.contentHashCode(): Int\n\n/**\n * Returns a hash code based on the contents of this array as if it is [List].\n */\n@Deprecated(\"Use Kotlin compiler 1.4 to avoid deprecation warning.\")\n@SinceKotlin(\"1.1\")\n@DeprecatedSinceKotlin(hiddenSince = \"1.4\")\npublic expect fun LongArray.contentHashCode(): Int\n\n/**\n * Returns a hash code based on the contents of this array as if it is [List].\n */\n@Deprecated(\"Use Kotlin compiler 1.4 to avoid deprecation warning.\")\n@SinceKotlin(\"1.1\")\n@DeprecatedSinceKotlin(hiddenSince = \"1.4\")\npublic expect fun FloatArray.contentHashCode(): Int\n\n/**\n * Returns a hash code based on the contents of this array as if it is [List].\n */\n@Deprecated(\"Use Kotlin compiler 1.4 to avoid deprecation warning.\")\n@SinceKotlin(\"1.1\")\n@DeprecatedSinceKotlin(hiddenSince = \"1.4\")\npublic expect fun DoubleArray.contentHashCode(): Int\n\n/**\n * Returns a hash code based on the contents of this array as if it is [List].\n */\n@Deprecated(\"Use Kotlin compiler 1.4 to avoid deprecation warning.\")\n@SinceKotlin(\"1.1\")\n@DeprecatedSinceKotlin(hiddenSince = \"1.4\")\npublic expect fun BooleanArray.contentHashCode(): Int\n\n/**\n * Returns a hash code based on the contents of this array as if it is [List].\n */\n@Deprecated(\"Use Kotlin compiler 1.4 to avoid deprecation warning.\")\n@SinceKotlin(\"1.1\")\n@DeprecatedSinceKotlin(hiddenSince = \"1.4\")\npublic expect fun CharArray.contentHashCode(): Int\n\n/**\n * Returns a hash code based on the contents of this array as if it is [List].\n */\n@SinceKotlin(\"1.4\")\npublic expect fun <T> Array<out T>?.contentHashCode(): Int\n\n/**\n * Returns a hash code based on the contents of this array as if it is [List].\n */\n@SinceKotlin(\"1.4\")\npublic expect fun ByteArray?.contentHashCode(): Int\n\n/**\n * Returns a hash code based on the contents of this array as if it is [List].\n */\n@SinceKotlin(\"1.4\")\npublic expect fun ShortArray?.contentHashCode(): Int\n\n/**\n * Returns a hash code based on the contents of this array as if it is [List].\n */\n@SinceKotlin(\"1.4\")\npublic expect fun IntArray?.contentHashCode(): Int\n\n/**\n * Returns a hash code based on the contents of this array as if it is [List].\n */\n@SinceKotlin(\"1.4\")\npublic expect fun LongArray?.contentHashCode(): Int\n\n/**\n * Returns a hash code based on the contents of this array as if it is [List].\n */\n@SinceKotlin(\"1.4\")\npublic expect fun FloatArray?.contentHashCode(): Int\n\n/**\n * Returns a hash code based on the contents of this array as if it is [List].\n */\n@SinceKotlin(\"1.4\")\npublic expect fun DoubleArray?.contentHashCode(): Int\n\n/**\n * Returns a hash code based on the contents of this array as if it is [List].\n */\n@SinceKotlin(\"1.4\")\npublic expect fun BooleanArray?.contentHashCode(): Int\n\n/**\n * Returns a hash code based on the contents of this array as if it is [List].\n */\n@SinceKotlin(\"1.4\")\npublic expect fun CharArray?.contentHashCode(): Int\n\n/**\n * Returns a string representation of the contents of the specified array as if it is [List].\n * \n * @sample samples.collections.Arrays.ContentOperations.contentToString\n */\n@Deprecated(\"Use Kotlin compiler 1.4 to avoid deprecation warning.\")\n@SinceKotlin(\"1.1\")\n@DeprecatedSinceKotlin(hiddenSince = \"1.4\")\npublic expect fun <T> Array<out T>.contentToString(): String\n\n/**\n * Returns a string representation of the contents of the specified array as if it is [List].\n * \n * @sample samples.collections.Arrays.ContentOperations.contentToString\n */\n@Deprecated(\"Use Kotlin compiler 1.4 to avoid deprecation warning.\")\n@SinceKotlin(\"1.1\")\n@DeprecatedSinceKotlin(hiddenSince = \"1.4\")\npublic expect fun ByteArray.contentToString(): String\n\n/**\n * Returns a string representation of the contents of the specified array as if it is [List].\n * \n * @sample samples.collections.Arrays.ContentOperations.contentToString\n */\n@Deprecated(\"Use Kotlin compiler 1.4 to avoid deprecation warning.\")\n@SinceKotlin(\"1.1\")\n@DeprecatedSinceKotlin(hiddenSince = \"1.4\")\npublic expect fun ShortArray.contentToString(): String\n\n/**\n * Returns a string representation of the contents of the specified array as if it is [List].\n * \n * @sample samples.collections.Arrays.ContentOperations.contentToString\n */\n@Deprecated(\"Use Kotlin compiler 1.4 to avoid deprecation warning.\")\n@SinceKotlin(\"1.1\")\n@DeprecatedSinceKotlin(hiddenSince = \"1.4\")\npublic expect fun IntArray.contentToString(): String\n\n/**\n * Returns a string representation of the contents of the specified array as if it is [List].\n * \n * @sample samples.collections.Arrays.ContentOperations.contentToString\n */\n@Deprecated(\"Use Kotlin compiler 1.4 to avoid deprecation warning.\")\n@SinceKotlin(\"1.1\")\n@DeprecatedSinceKotlin(hiddenSince = \"1.4\")\npublic expect fun LongArray.contentToString(): String\n\n/**\n * Returns a string representation of the contents of the specified array as if it is [List].\n * \n * @sample samples.collections.Arrays.ContentOperations.contentToString\n */\n@Deprecated(\"Use Kotlin compiler 1.4 to avoid deprecation warning.\")\n@SinceKotlin(\"1.1\")\n@DeprecatedSinceKotlin(hiddenSince = \"1.4\")\npublic expect fun FloatArray.contentToString(): String\n\n/**\n * Returns a string representation of the contents of the specified array as if it is [List].\n * \n * @sample samples.collections.Arrays.ContentOperations.contentToString\n */\n@Deprecated(\"Use Kotlin compiler 1.4 to avoid deprecation warning.\")\n@SinceKotlin(\"1.1\")\n@DeprecatedSinceKotlin(hiddenSince = \"1.4\")\npublic expect fun DoubleArray.contentToString(): String\n\n/**\n * Returns a string representation of the contents of the specified array as if it is [List].\n * \n * @sample samples.collections.Arrays.ContentOperations.contentToString\n */\n@Deprecated(\"Use Kotlin compiler 1.4 to avoid deprecation warning.\")\n@SinceKotlin(\"1.1\")\n@DeprecatedSinceKotlin(hiddenSince = \"1.4\")\npublic expect fun BooleanArray.contentToString(): String\n\n/**\n * Returns a string representation of the contents of the specified array as if it is [List].\n * \n * @sample samples.collections.Arrays.ContentOperations.contentToString\n */\n@Deprecated(\"Use Kotlin compiler 1.4 to avoid deprecation warning.\")\n@SinceKotlin(\"1.1\")\n@DeprecatedSinceKotlin(hiddenSince = \"1.4\")\npublic expect fun CharArray.contentToString(): String\n\n/**\n * Returns a string representation of the contents of the specified array as if it is [List].\n * \n * @sample samples.collections.Arrays.ContentOperations.contentToString\n */\n@SinceKotlin(\"1.4\")\npublic expect fun <T> Array<out T>?.contentToString(): String\n\n/**\n * Returns a string representation of the contents of the specified array as if it is [List].\n * \n * @sample samples.collections.Arrays.ContentOperations.contentToString\n */\n@SinceKotlin(\"1.4\")\npublic expect fun ByteArray?.contentToString(): String\n\n/**\n * Returns a string representation of the contents of the specified array as if it is [List].\n * \n * @sample samples.collections.Arrays.ContentOperations.contentToString\n */\n@SinceKotlin(\"1.4\")\npublic expect fun ShortArray?.contentToString(): String\n\n/**\n * Returns a string representation of the contents of the specified array as if it is [List].\n * \n * @sample samples.collections.Arrays.ContentOperations.contentToString\n */\n@SinceKotlin(\"1.4\")\npublic expect fun IntArray?.contentToString(): String\n\n/**\n * Returns a string representation of the contents of the specified array as if it is [List].\n * \n * @sample samples.collections.Arrays.ContentOperations.contentToString\n */\n@SinceKotlin(\"1.4\")\npublic expect fun LongArray?.contentToString(): String\n\n/**\n * Returns a string representation of the contents of the specified array as if it is [List].\n * \n * @sample samples.collections.Arrays.ContentOperations.contentToString\n */\n@SinceKotlin(\"1.4\")\npublic expect fun FloatArray?.contentToString(): String\n\n/**\n * Returns a string representation of the contents of the specified array as if it is [List].\n * \n * @sample samples.collections.Arrays.ContentOperations.contentToString\n */\n@SinceKotlin(\"1.4\")\npublic expect fun DoubleArray?.contentToString(): String\n\n/**\n * Returns a string representation of the contents of the specified array as if it is [List].\n * \n * @sample samples.collections.Arrays.ContentOperations.contentToString\n */\n@SinceKotlin(\"1.4\")\npublic expect fun BooleanArray?.contentToString(): String\n\n/**\n * Returns a string representation of the contents of the specified array as if it is [List].\n * \n * @sample samples.collections.Arrays.ContentOperations.contentToString\n */\n@SinceKotlin(\"1.4\")\npublic expect fun CharArray?.contentToString(): String\n\n/**\n * Copies this array or its subrange into the [destination] array and returns that array.\n * \n * It's allowed to pass the same array in the [destination] and even specify the subrange so that it overlaps with the destination range.\n * \n * @param destination the array to copy to.\n * @param destinationOffset the position in the [destination] array to copy to, 0 by default.\n * @param startIndex the beginning (inclusive) of the subrange to copy, 0 by default.\n * @param endIndex the end (exclusive) of the subrange to copy, size of this array by default.\n * \n * @throws IndexOutOfBoundsException or [IllegalArgumentException] when [startIndex] or [endIndex] is out of range of this array indices or when `startIndex > endIndex`.\n * @throws IndexOutOfBoundsException when the subrange doesn't fit into the [destination] array starting at the specified [destinationOffset],\n * or when that index is out of the [destination] array indices range.\n * \n * @return the [destination] array.\n */\n@SinceKotlin(\"1.3\")\npublic expect fun <T> Array<out T>.copyInto(destination: Array<T>, destinationOffset: Int = 0, startIndex: Int = 0, endIndex: Int = size): Array<T>\n\n/**\n * Copies this array or its subrange into the [destination] array and returns that array.\n * \n * It's allowed to pass the same array in the [destination] and even specify the subrange so that it overlaps with the destination range.\n * \n * @param destination the array to copy to.\n * @param destinationOffset the position in the [destination] array to copy to, 0 by default.\n * @param startIndex the beginning (inclusive) of the subrange to copy, 0 by default.\n * @param endIndex the end (exclusive) of the subrange to copy, size of this array by default.\n * \n * @throws IndexOutOfBoundsException or [IllegalArgumentException] when [startIndex] or [endIndex] is out of range of this array indices or when `startIndex > endIndex`.\n * @throws IndexOutOfBoundsException when the subrange doesn't fit into the [destination] array starting at the specified [destinationOffset],\n * or when that index is out of the [destination] array indices range.\n * \n * @return the [destination] array.\n */\n@SinceKotlin(\"1.3\")\npublic expect fun ByteArray.copyInto(destination: ByteArray, destinationOffset: Int = 0, startIndex: Int = 0, endIndex: Int = size): ByteArray\n\n/**\n * Copies this array or its subrange into the [destination] array and returns that array.\n * \n * It's allowed to pass the same array in the [destination] and even specify the subrange so that it overlaps with the destination range.\n * \n * @param destination the array to copy to.\n * @param destinationOffset the position in the [destination] array to copy to, 0 by default.\n * @param startIndex the beginning (inclusive) of the subrange to copy, 0 by default.\n * @param endIndex the end (exclusive) of the subrange to copy, size of this array by default.\n * \n * @throws IndexOutOfBoundsException or [IllegalArgumentException] when [startIndex] or [endIndex] is out of range of this array indices or when `startIndex > endIndex`.\n * @throws IndexOutOfBoundsException when the subrange doesn't fit into the [destination] array starting at the specified [destinationOffset],\n * or when that index is out of the [destination] array indices range.\n * \n * @return the [destination] array.\n */\n@SinceKotlin(\"1.3\")\npublic expect fun ShortArray.copyInto(destination: ShortArray, destinationOffset: Int = 0, startIndex: Int = 0, endIndex: Int = size): ShortArray\n\n/**\n * Copies this array or its subrange into the [destination] array and returns that array.\n * \n * It's allowed to pass the same array in the [destination] and even specify the subrange so that it overlaps with the destination range.\n * \n * @param destination the array to copy to.\n * @param destinationOffset the position in the [destination] array to copy to, 0 by default.\n * @param startIndex the beginning (inclusive) of the subrange to copy, 0 by default.\n * @param endIndex the end (exclusive) of the subrange to copy, size of this array by default.\n * \n * @throws IndexOutOfBoundsException or [IllegalArgumentException] when [startIndex] or [endIndex] is out of range of this array indices or when `startIndex > endIndex`.\n * @throws IndexOutOfBoundsException when the subrange doesn't fit into the [destination] array starting at the specified [destinationOffset],\n * or when that index is out of the [destination] array indices range.\n * \n * @return the [destination] array.\n */\n@SinceKotlin(\"1.3\")\npublic expect fun IntArray.copyInto(destination: IntArray, destinationOffset: Int = 0, startIndex: Int = 0, endIndex: Int = size): IntArray\n\n/**\n * Copies this array or its subrange into the [destination] array and returns that array.\n * \n * It's allowed to pass the same array in the [destination] and even specify the subrange so that it overlaps with the destination range.\n * \n * @param destination the array to copy to.\n * @param destinationOffset the position in the [destination] array to copy to, 0 by default.\n * @param startIndex the beginning (inclusive) of the subrange to copy, 0 by default.\n * @param endIndex the end (exclusive) of the subrange to copy, size of this array by default.\n * \n * @throws IndexOutOfBoundsException or [IllegalArgumentException] when [startIndex] or [endIndex] is out of range of this array indices or when `startIndex > endIndex`.\n * @throws IndexOutOfBoundsException when the subrange doesn't fit into the [destination] array starting at the specified [destinationOffset],\n * or when that index is out of the [destination] array indices range.\n * \n * @return the [destination] array.\n */\n@SinceKotlin(\"1.3\")\npublic expect fun LongArray.copyInto(destination: LongArray, destinationOffset: Int = 0, startIndex: Int = 0, endIndex: Int = size): LongArray\n\n/**\n * Copies this array or its subrange into the [destination] array and returns that array.\n * \n * It's allowed to pass the same array in the [destination] and even specify the subrange so that it overlaps with the destination range.\n * \n * @param destination the array to copy to.\n * @param destinationOffset the position in the [destination] array to copy to, 0 by default.\n * @param startIndex the beginning (inclusive) of the subrange to copy, 0 by default.\n * @param endIndex the end (exclusive) of the subrange to copy, size of this array by default.\n * \n * @throws IndexOutOfBoundsException or [IllegalArgumentException] when [startIndex] or [endIndex] is out of range of this array indices or when `startIndex > endIndex`.\n * @throws IndexOutOfBoundsException when the subrange doesn't fit into the [destination] array starting at the specified [destinationOffset],\n * or when that index is out of the [destination] array indices range.\n * \n * @return the [destination] array.\n */\n@SinceKotlin(\"1.3\")\npublic expect fun FloatArray.copyInto(destination: FloatArray, destinationOffset: Int = 0, startIndex: Int = 0, endIndex: Int = size): FloatArray\n\n/**\n * Copies this array or its subrange into the [destination] array and returns that array.\n * \n * It's allowed to pass the same array in the [destination] and even specify the subrange so that it overlaps with the destination range.\n * \n * @param destination the array to copy to.\n * @param destinationOffset the position in the [destination] array to copy to, 0 by default.\n * @param startIndex the beginning (inclusive) of the subrange to copy, 0 by default.\n * @param endIndex the end (exclusive) of the subrange to copy, size of this array by default.\n * \n * @throws IndexOutOfBoundsException or [IllegalArgumentException] when [startIndex] or [endIndex] is out of range of this array indices or when `startIndex > endIndex`.\n * @throws IndexOutOfBoundsException when the subrange doesn't fit into the [destination] array starting at the specified [destinationOffset],\n * or when that index is out of the [destination] array indices range.\n * \n * @return the [destination] array.\n */\n@SinceKotlin(\"1.3\")\npublic expect fun DoubleArray.copyInto(destination: DoubleArray, destinationOffset: Int = 0, startIndex: Int = 0, endIndex: Int = size): DoubleArray\n\n/**\n * Copies this array or its subrange into the [destination] array and returns that array.\n * \n * It's allowed to pass the same array in the [destination] and even specify the subrange so that it overlaps with the destination range.\n * \n * @param destination the array to copy to.\n * @param destinationOffset the position in the [destination] array to copy to, 0 by default.\n * @param startIndex the beginning (inclusive) of the subrange to copy, 0 by default.\n * @param endIndex the end (exclusive) of the subrange to copy, size of this array by default.\n * \n * @throws IndexOutOfBoundsException or [IllegalArgumentException] when [startIndex] or [endIndex] is out of range of this array indices or when `startIndex > endIndex`.\n * @throws IndexOutOfBoundsException when the subrange doesn't fit into the [destination] array starting at the specified [destinationOffset],\n * or when that index is out of the [destination] array indices range.\n * \n * @return the [destination] array.\n */\n@SinceKotlin(\"1.3\")\npublic expect fun BooleanArray.copyInto(destination: BooleanArray, destinationOffset: Int = 0, startIndex: Int = 0, endIndex: Int = size): BooleanArray\n\n/**\n * Copies this array or its subrange into the [destination] array and returns that array.\n * \n * It's allowed to pass the same array in the [destination] and even specify the subrange so that it overlaps with the destination range.\n * \n * @param destination the array to copy to.\n * @param destinationOffset the position in the [destination] array to copy to, 0 by default.\n * @param startIndex the beginning (inclusive) of the subrange to copy, 0 by default.\n * @param endIndex the end (exclusive) of the subrange to copy, size of this array by default.\n * \n * @throws IndexOutOfBoundsException or [IllegalArgumentException] when [startIndex] or [endIndex] is out of range of this array indices or when `startIndex > endIndex`.\n * @throws IndexOutOfBoundsException when the subrange doesn't fit into the [destination] array starting at the specified [destinationOffset],\n * or when that index is out of the [destination] array indices range.\n * \n * @return the [destination] array.\n */\n@SinceKotlin(\"1.3\")\npublic expect fun CharArray.copyInto(destination: CharArray, destinationOffset: Int = 0, startIndex: Int = 0, endIndex: Int = size): CharArray\n\n/**\n * Returns new array which is a copy of the original array.\n * \n * @sample samples.collections.Arrays.CopyOfOperations.copyOf\n */\n@Suppress(\"NO_ACTUAL_FOR_EXPECT\")\npublic expect fun <T> Array<T>.copyOf(): Array<T>\n\n/**\n * Returns new array which is a copy of the original array.\n * \n * @sample samples.collections.Arrays.CopyOfOperations.copyOf\n */\npublic expect fun ByteArray.copyOf(): ByteArray\n\n/**\n * Returns new array which is a copy of the original array.\n * \n * @sample samples.collections.Arrays.CopyOfOperations.copyOf\n */\npublic expect fun ShortArray.copyOf(): ShortArray\n\n/**\n * Returns new array which is a copy of the original array.\n * \n * @sample samples.collections.Arrays.CopyOfOperations.copyOf\n */\npublic expect fun IntArray.copyOf(): IntArray\n\n/**\n * Returns new array which is a copy of the original array.\n * \n * @sample samples.collections.Arrays.CopyOfOperations.copyOf\n */\npublic expect fun LongArray.copyOf(): LongArray\n\n/**\n * Returns new array which is a copy of the original array.\n * \n * @sample samples.collections.Arrays.CopyOfOperations.copyOf\n */\npublic expect fun FloatArray.copyOf(): FloatArray\n\n/**\n * Returns new array which is a copy of the original array.\n * \n * @sample samples.collections.Arrays.CopyOfOperations.copyOf\n */\npublic expect fun DoubleArray.copyOf(): DoubleArray\n\n/**\n * Returns new array which is a copy of the original array.\n * \n * @sample samples.collections.Arrays.CopyOfOperations.copyOf\n */\npublic expect fun BooleanArray.copyOf(): BooleanArray\n\n/**\n * Returns new array which is a copy of the original array.\n * \n * @sample samples.collections.Arrays.CopyOfOperations.copyOf\n */\npublic expect fun CharArray.copyOf(): CharArray\n\n/**\n * Returns new array which is a copy of the original array, resized to the given [newSize].\n * The copy is either truncated or padded at the end with zero values if necessary.\n * \n * - If [newSize] is less than the size of the original array, the copy array is truncated to the [newSize].\n * - If [newSize] is greater than the size of the original array, the extra elements in the copy array are filled with zero values.\n * \n * @sample samples.collections.Arrays.CopyOfOperations.resizedPrimitiveCopyOf\n */\npublic expect fun ByteArray.copyOf(newSize: Int): ByteArray\n\n/**\n * Returns new array which is a copy of the original array, resized to the given [newSize].\n * The copy is either truncated or padded at the end with zero values if necessary.\n * \n * - If [newSize] is less than the size of the original array, the copy array is truncated to the [newSize].\n * - If [newSize] is greater than the size of the original array, the extra elements in the copy array are filled with zero values.\n * \n * @sample samples.collections.Arrays.CopyOfOperations.resizedPrimitiveCopyOf\n */\npublic expect fun ShortArray.copyOf(newSize: Int): ShortArray\n\n/**\n * Returns new array which is a copy of the original array, resized to the given [newSize].\n * The copy is either truncated or padded at the end with zero values if necessary.\n * \n * - If [newSize] is less than the size of the original array, the copy array is truncated to the [newSize].\n * - If [newSize] is greater than the size of the original array, the extra elements in the copy array are filled with zero values.\n * \n * @sample samples.collections.Arrays.CopyOfOperations.resizedPrimitiveCopyOf\n */\npublic expect fun IntArray.copyOf(newSize: Int): IntArray\n\n/**\n * Returns new array which is a copy of the original array, resized to the given [newSize].\n * The copy is either truncated or padded at the end with zero values if necessary.\n * \n * - If [newSize] is less than the size of the original array, the copy array is truncated to the [newSize].\n * - If [newSize] is greater than the size of the original array, the extra elements in the copy array are filled with zero values.\n * \n * @sample samples.collections.Arrays.CopyOfOperations.resizedPrimitiveCopyOf\n */\npublic expect fun LongArray.copyOf(newSize: Int): LongArray\n\n/**\n * Returns new array which is a copy of the original array, resized to the given [newSize].\n * The copy is either truncated or padded at the end with zero values if necessary.\n * \n * - If [newSize] is less than the size of the original array, the copy array is truncated to the [newSize].\n * - If [newSize] is greater than the size of the original array, the extra elements in the copy array are filled with zero values.\n * \n * @sample samples.collections.Arrays.CopyOfOperations.resizedPrimitiveCopyOf\n */\npublic expect fun FloatArray.copyOf(newSize: Int): FloatArray\n\n/**\n * Returns new array which is a copy of the original array, resized to the given [newSize].\n * The copy is either truncated or padded at the end with zero values if necessary.\n * \n * - If [newSize] is less than the size of the original array, the copy array is truncated to the [newSize].\n * - If [newSize] is greater than the size of the original array, the extra elements in the copy array are filled with zero values.\n * \n * @sample samples.collections.Arrays.CopyOfOperations.resizedPrimitiveCopyOf\n */\npublic expect fun DoubleArray.copyOf(newSize: Int): DoubleArray\n\n/**\n * Returns new array which is a copy of the original array, resized to the given [newSize].\n * The copy is either truncated or padded at the end with `false` values if necessary.\n * \n * - If [newSize] is less than the size of the original array, the copy array is truncated to the [newSize].\n * - If [newSize] is greater than the size of the original array, the extra elements in the copy array are filled with `false` values.\n * \n * @sample samples.collections.Arrays.CopyOfOperations.resizedPrimitiveCopyOf\n */\npublic expect fun BooleanArray.copyOf(newSize: Int): BooleanArray\n\n/**\n * Returns new array which is a copy of the original array, resized to the given [newSize].\n * The copy is either truncated or padded at the end with null char (`\\u0000`) values if necessary.\n * \n * - If [newSize] is less than the size of the original array, the copy array is truncated to the [newSize].\n * - If [newSize] is greater than the size of the original array, the extra elements in the copy array are filled with null char (`\\u0000`) values.\n * \n * @sample samples.collections.Arrays.CopyOfOperations.resizedPrimitiveCopyOf\n */\npublic expect fun CharArray.copyOf(newSize: Int): CharArray\n\n/**\n * Returns new array which is a copy of the original array, resized to the given [newSize].\n * The copy is either truncated or padded at the end with `null` values if necessary.\n * \n * - If [newSize] is less than the size of the original array, the copy array is truncated to the [newSize].\n * - If [newSize] is greater than the size of the original array, the extra elements in the copy array are filled with `null` values.\n * \n * @sample samples.collections.Arrays.CopyOfOperations.resizingCopyOf\n */\n@Suppress(\"NO_ACTUAL_FOR_EXPECT\")\npublic expect fun <T> Array<T>.copyOf(newSize: Int): Array<T?>\n\n/**\n * Returns a new array which is a copy of the specified range of the original array.\n * \n * @param fromIndex the start of the range (inclusive) to copy.\n * @param toIndex the end of the range (exclusive) to copy.\n * \n * @throws IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n * @throws IllegalArgumentException if [fromIndex] is greater than [toIndex].\n */\n@Suppress(\"NO_ACTUAL_FOR_EXPECT\")\npublic expect fun <T> Array<T>.copyOfRange(fromIndex: Int, toIndex: Int): Array<T>\n\n/**\n * Returns a new array which is a copy of the specified range of the original array.\n * \n * @param fromIndex the start of the range (inclusive) to copy.\n * @param toIndex the end of the range (exclusive) to copy.\n * \n * @throws IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n * @throws IllegalArgumentException if [fromIndex] is greater than [toIndex].\n */\npublic expect fun ByteArray.copyOfRange(fromIndex: Int, toIndex: Int): ByteArray\n\n/**\n * Returns a new array which is a copy of the specified range of the original array.\n * \n * @param fromIndex the start of the range (inclusive) to copy.\n * @param toIndex the end of the range (exclusive) to copy.\n * \n * @throws IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n * @throws IllegalArgumentException if [fromIndex] is greater than [toIndex].\n */\npublic expect fun ShortArray.copyOfRange(fromIndex: Int, toIndex: Int): ShortArray\n\n/**\n * Returns a new array which is a copy of the specified range of the original array.\n * \n * @param fromIndex the start of the range (inclusive) to copy.\n * @param toIndex the end of the range (exclusive) to copy.\n * \n * @throws IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n * @throws IllegalArgumentException if [fromIndex] is greater than [toIndex].\n */\npublic expect fun IntArray.copyOfRange(fromIndex: Int, toIndex: Int): IntArray\n\n/**\n * Returns a new array which is a copy of the specified range of the original array.\n * \n * @param fromIndex the start of the range (inclusive) to copy.\n * @param toIndex the end of the range (exclusive) to copy.\n * \n * @throws IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n * @throws IllegalArgumentException if [fromIndex] is greater than [toIndex].\n */\npublic expect fun LongArray.copyOfRange(fromIndex: Int, toIndex: Int): LongArray\n\n/**\n * Returns a new array which is a copy of the specified range of the original array.\n * \n * @param fromIndex the start of the range (inclusive) to copy.\n * @param toIndex the end of the range (exclusive) to copy.\n * \n * @throws IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n * @throws IllegalArgumentException if [fromIndex] is greater than [toIndex].\n */\npublic expect fun FloatArray.copyOfRange(fromIndex: Int, toIndex: Int): FloatArray\n\n/**\n * Returns a new array which is a copy of the specified range of the original array.\n * \n * @param fromIndex the start of the range (inclusive) to copy.\n * @param toIndex the end of the range (exclusive) to copy.\n * \n * @throws IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n * @throws IllegalArgumentException if [fromIndex] is greater than [toIndex].\n */\npublic expect fun DoubleArray.copyOfRange(fromIndex: Int, toIndex: Int): DoubleArray\n\n/**\n * Returns a new array which is a copy of the specified range of the original array.\n * \n * @param fromIndex the start of the range (inclusive) to copy.\n * @param toIndex the end of the range (exclusive) to copy.\n * \n * @throws IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n * @throws IllegalArgumentException if [fromIndex] is greater than [toIndex].\n */\npublic expect fun BooleanArray.copyOfRange(fromIndex: Int, toIndex: Int): BooleanArray\n\n/**\n * Returns a new array which is a copy of the specified range of the original array.\n * \n * @param fromIndex the start of the range (inclusive) to copy.\n * @param toIndex the end of the range (exclusive) to copy.\n * \n * @throws IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n * @throws IllegalArgumentException if [fromIndex] is greater than [toIndex].\n */\npublic expect fun CharArray.copyOfRange(fromIndex: Int, toIndex: Int): CharArray\n\n/**\n * Fills this array or its subrange with the specified [element] value.\n * \n * @param fromIndex the start of the range (inclusive) to fill, 0 by default.\n * @param toIndex the end of the range (exclusive) to fill, size of this array by default.\n * \n * @throws IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n * @throws IllegalArgumentException if [fromIndex] is greater than [toIndex].\n */\n@SinceKotlin(\"1.3\")\npublic expect fun <T> Array<T>.fill(element: T, fromIndex: Int = 0, toIndex: Int = size): Unit\n\n/**\n * Fills this array or its subrange with the specified [element] value.\n * \n * @param fromIndex the start of the range (inclusive) to fill, 0 by default.\n * @param toIndex the end of the range (exclusive) to fill, size of this array by default.\n * \n * @throws IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n * @throws IllegalArgumentException if [fromIndex] is greater than [toIndex].\n */\n@SinceKotlin(\"1.3\")\npublic expect fun ByteArray.fill(element: Byte, fromIndex: Int = 0, toIndex: Int = size): Unit\n\n/**\n * Fills this array or its subrange with the specified [element] value.\n * \n * @param fromIndex the start of the range (inclusive) to fill, 0 by default.\n * @param toIndex the end of the range (exclusive) to fill, size of this array by default.\n * \n * @throws IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n * @throws IllegalArgumentException if [fromIndex] is greater than [toIndex].\n */\n@SinceKotlin(\"1.3\")\npublic expect fun ShortArray.fill(element: Short, fromIndex: Int = 0, toIndex: Int = size): Unit\n\n/**\n * Fills this array or its subrange with the specified [element] value.\n * \n * @param fromIndex the start of the range (inclusive) to fill, 0 by default.\n * @param toIndex the end of the range (exclusive) to fill, size of this array by default.\n * \n * @throws IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n * @throws IllegalArgumentException if [fromIndex] is greater than [toIndex].\n */\n@SinceKotlin(\"1.3\")\npublic expect fun IntArray.fill(element: Int, fromIndex: Int = 0, toIndex: Int = size): Unit\n\n/**\n * Fills this array or its subrange with the specified [element] value.\n * \n * @param fromIndex the start of the range (inclusive) to fill, 0 by default.\n * @param toIndex the end of the range (exclusive) to fill, size of this array by default.\n * \n * @throws IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n * @throws IllegalArgumentException if [fromIndex] is greater than [toIndex].\n */\n@SinceKotlin(\"1.3\")\npublic expect fun LongArray.fill(element: Long, fromIndex: Int = 0, toIndex: Int = size): Unit\n\n/**\n * Fills this array or its subrange with the specified [element] value.\n * \n * @param fromIndex the start of the range (inclusive) to fill, 0 by default.\n * @param toIndex the end of the range (exclusive) to fill, size of this array by default.\n * \n * @throws IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n * @throws IllegalArgumentException if [fromIndex] is greater than [toIndex].\n */\n@SinceKotlin(\"1.3\")\npublic expect fun FloatArray.fill(element: Float, fromIndex: Int = 0, toIndex: Int = size): Unit\n\n/**\n * Fills this array or its subrange with the specified [element] value.\n * \n * @param fromIndex the start of the range (inclusive) to fill, 0 by default.\n * @param toIndex the end of the range (exclusive) to fill, size of this array by default.\n * \n * @throws IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n * @throws IllegalArgumentException if [fromIndex] is greater than [toIndex].\n */\n@SinceKotlin(\"1.3\")\npublic expect fun DoubleArray.fill(element: Double, fromIndex: Int = 0, toIndex: Int = size): Unit\n\n/**\n * Fills this array or its subrange with the specified [element] value.\n * \n * @param fromIndex the start of the range (inclusive) to fill, 0 by default.\n * @param toIndex the end of the range (exclusive) to fill, size of this array by default.\n * \n * @throws IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n * @throws IllegalArgumentException if [fromIndex] is greater than [toIndex].\n */\n@SinceKotlin(\"1.3\")\npublic expect fun BooleanArray.fill(element: Boolean, fromIndex: Int = 0, toIndex: Int = size): Unit\n\n/**\n * Fills this array or its subrange with the specified [element] value.\n * \n * @param fromIndex the start of the range (inclusive) to fill, 0 by default.\n * @param toIndex the end of the range (exclusive) to fill, size of this array by default.\n * \n * @throws IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n * @throws IllegalArgumentException if [fromIndex] is greater than [toIndex].\n */\n@SinceKotlin(\"1.3\")\npublic expect fun CharArray.fill(element: Char, fromIndex: Int = 0, toIndex: Int = size): Unit\n\n/**\n * Returns the range of valid indices for the array.\n */\npublic val <T> Array<out T>.indices: IntRange\n   get() = IntRange(0, lastIndex)\n\n/**\n * Returns the range of valid indices for the array.\n */\npublic val ByteArray.indices: IntRange\n   get() = IntRange(0, lastIndex)\n\n/**\n * Returns the range of valid indices for the array.\n */\npublic val ShortArray.indices: IntRange\n   get() = IntRange(0, lastIndex)\n\n/**\n * Returns the range of valid indices for the array.\n */\npublic val IntArray.indices: IntRange\n   get() = IntRange(0, lastIndex)\n\n/**\n * Returns the range of valid indices for the array.\n */\npublic val LongArray.indices: IntRange\n   get() = IntRange(0, lastIndex)\n\n/**\n * Returns the range of valid indices for the array.\n */\npublic val FloatArray.indices: IntRange\n   get() = IntRange(0, lastIndex)\n\n/**\n * Returns the range of valid indices for the array.\n */\npublic val DoubleArray.indices: IntRange\n   get() = IntRange(0, lastIndex)\n\n/**\n * Returns the range of valid indices for the array.\n */\npublic val BooleanArray.indices: IntRange\n   get() = IntRange(0, lastIndex)\n\n/**\n * Returns the range of valid indices for the array.\n */\npublic val CharArray.indices: IntRange\n   get() = IntRange(0, lastIndex)\n\n/**\n * Returns `true` if the array is empty.\n */\n@kotlin.internal.InlineOnly\npublic inline fun <T> Array<out T>.isEmpty(): Boolean {\n   return size == 0\n}\n\n/**\n * Returns `true` if the array is empty.\n */\n@kotlin.internal.InlineOnly\npublic inline fun ByteArray.isEmpty(): Boolean {\n   return size == 0\n}\n\n/**\n * Returns `true` if the array is empty.\n */\n@kotlin.internal.InlineOnly\npublic inline fun ShortArray.isEmpty(): Boolean {\n   return size == 0\n}\n\n/**\n * Returns `true` if the array is empty.\n */\n@kotlin.internal.InlineOnly\npublic inline fun IntArray.isEmpty(): Boolean {\n   return size == 0\n}\n\n/**\n * Returns `true` if the array is empty.\n */\n@kotlin.internal.InlineOnly\npublic inline fun LongArray.isEmpty(): Boolean {\n   return size == 0\n}\n\n/**\n * Returns `true` if the array is empty.\n */\n@kotlin.internal.InlineOnly\npublic inline fun FloatArray.isEmpty(): Boolean {\n   return size == 0\n}\n\n/**\n * Returns `true` if the array is empty.\n */\n@kotlin.internal.InlineOnly\npublic inline fun DoubleArray.isEmpty(): Boolean {\n   return size == 0\n}\n\n/**\n * Returns `true` if the array is empty.\n */\n@kotlin.internal.InlineOnly\npublic inline fun BooleanArray.isEmpty(): Boolean {\n   return size == 0\n}\n\n/**\n * Returns `true` if the array is empty.\n */\n@kotlin.internal.InlineOnly\npublic inline fun CharArray.isEmpty(): Boolean {\n   return size == 0\n}\n\n/**\n * Returns `true` if the array is not empty.\n */\n@kotlin.internal.InlineOnly\npublic inline fun <T> Array<out T>.isNotEmpty(): Boolean {\n   return !isEmpty()\n}\n\n/**\n * Returns `true` if the array is not empty.\n

*/\n@kotlin.internal.InlineOnly\npublic inline fun ByteArray.isNotEmpty(): Boolean {\n   return !isEmpty()\n}\n\n/**\n * Returns `true` if the array is not empty.\n */\n@kotlin.internal.InlineOnly\npublic inline fun ShortArray.isNotEmpty(): Boolean {\n   return !isEmpty()\n}\n\n/**\n * Returns `true` if the array is not empty.\n */\n@kotlin.internal.InlineOnly\npublic inline fun IntArray.isNotEmpty(): Boolean {\n   return !isEmpty()\n}\n\n/**\n * Returns `true` if the array is not empty.\n */\n@kotlin.internal.InlineOnly\npublic inline fun LongArray.isNotEmpty(): Boolean {\n   return !isEmpty()\n}\n\n/**\n * Returns `true` if the array is not empty.\n */\n@kotlin.internal.InlineOnly\npublic inline fun FloatArray.isNotEmpty(): Boolean {\n   return !isEmpty()\n}\n\n/**\n * Returns `true` if the array is not empty.\n */\n@kotlin.internal.InlineOnly\npublic inline fun DoubleArray.isNotEmpty(): Boolean {\n   return !isEmpty()\n}\n\n/**\n * Returns `true` if the array is not empty.\n */\n@kotlin.internal.InlineOnly\npublic inline fun BooleanArray.isNotEmpty(): Boolean {\n   return !isEmpty()\n}\n\n/**\n * Returns `true` if the array is not empty.\n */\n@kotlin.internal.InlineOnly\npublic inline fun CharArray.isNotEmpty(): Boolean {\n   return !isEmpty()\n}\n\n/**\n * Returns the last valid index for the array.\n */\npublic val <T> Array<out T>.lastIndex: Int\n   get() = size - 1\n\n/**\n * Returns the last valid index for the array.\n */\npublic val ByteArray.lastIndex: Int\n   get() = size - 1\n\n/**\n * Returns the last valid index for the array.\n */\npublic val ShortArray.lastIndex: Int\n   get() = size - 1\n\n/**\n * Returns the last valid index for the array.\n */\npublic val IntArray.lastIndex: Int\n   get() = size - 1\n\n/**\n * Returns the last valid index for the array.\n */\npublic val LongArray.lastIndex: Int\n   get() = size - 1\n\n/**\n * Returns the last valid index for the array.\n */\npublic val FloatArray.lastIndex: Int\n   get() = size - 1\n\n/**\n * Returns the last valid index for the array.\n */\npublic val DoubleArray.lastIndex: Int\n   get() = size - 1\n\n/**\n * Returns the last valid index for the array.\n */\npublic val BooleanArray.lastIndex: Int\n   get() = size - 1\n\n/**\n * Returns the last valid index for the array.\n */\npublic val CharArray.lastIndex: Int\n   get() = size - 1\n\n/**\n * Returns an array containing all elements of the original array and then the given [element].\n */\n@Suppress(\"NO_ACTUAL_FOR_EXPECT\")\npublic expect operator fun <T> Array<T>.plus(element: T): Array<T>\n\n/**\n * Returns an array containing all elements of the original array and then the given [element].\n */\npublic expect operator fun ByteArray.plus(element: Byte): ByteArray\n\n/**\n * Returns an array containing all elements of the original array and then the given [element].\n */\npublic expect operator fun ShortArray.plus(element: Short): ShortArray\n\n/**\n * Returns an array containing all elements of the original array and then the given [element].\n */\npublic expect operator fun IntArray.plus(element: Int): IntArray\n\n/**\n * Returns an array containing all elements of the original array and then the given [element].\n */\npublic expect operator fun LongArray.plus(element: Long): LongArray\n\n/**\n * Returns an array containing all elements of the original array and then the given [element].\n */\npublic expect operator fun FloatArray.plus(element: Float): FloatArray\n\n/**\n * Returns an array containing all elements of the original array and then the given [element].\n */\npublic expect operator fun DoubleArray.plus(element: Double): DoubleArray\n\n/**\n * Returns an array containing all elements of the original array and then the given [element].\n */\npublic expect operator fun BooleanArray.plus(element: Boolean): BooleanArray\n\n/**\n * Returns an array containing all elements of the original array and then the given [element].\n */\npublic expect operator fun CharArray.plus(element: Char): CharArray\n\n/**\n * Returns an array containing all elements of the original array and then all elements of the given [elements] collection.\n */\n@Suppress(\"NO_ACTUAL_FOR_EXPECT\")\npublic expect operator fun <T> Array<T>.plus(elements: Collection<T>): Array<T>\n\n/**\n * Returns an array containing all elements of the original array and then all elements of the given [elements] collection.\n */\npublic expect operator fun ByteArray.plus(elements: Collection<Byte>): ByteArray\n\n/**\n * Returns an array containing all elements of the original array and then all elements of the given [elements] collection.\n */\npublic expect operator fun ShortArray.plus(elements: Collection<Short>): ShortArray\n\n/**\n * Returns an array containing all elements of the original array and then all elements of the given [elements] collection.\n */\npublic expect operator fun IntArray.plus(elements: Collection<Int>): IntArray\n\n/**\n * Returns an array containing all elements of the original array and then all elements of the given [elements] collection.\n */\npublic expect operator fun LongArray.plus(elements: Collection<Long>): LongArray\n\n/**\n * Returns an array containing all elements of the original array and then all elements of the given [elements] collection.\n */\npublic expect operator fun

FloatArray.plus(elements: Collection<Float>): FloatArray\n\n/**\n * Returns an array containing all elements of the original array and then all elements of the given [elements] collection.\n */\npublic expect operator fun DoubleArray.plus(elements: Collection<Double>): DoubleArray\n\n/**\n * Returns an array containing all elements of the original array and then all elements of the given [elements] collection.\n */\npublic expect operator fun BooleanArray.plus(elements: Collection<Boolean>): BooleanArray\n\n/**\n * Returns an array containing all elements of the original array and then all elements of the given [elements] collection.\n */\npublic expect operator fun CharArray.plus(elements: Collection<Char>): CharArray\n\n/**\n * Returns an array containing all elements of the original array and then all elements of the given [elements] array.\n */\n@Suppress(\"NO_ACTUAL_FOR_EXPECT\")\npublic expect operator fun <T> Array<T>.plus(elements: Array<out T>): Array<T>\n\n/**\n * Returns an array containing all elements of the original array and then all elements of the given [elements] array.\n */\npublic expect operator fun ByteArray.plus(elements: ByteArray): ByteArray\n\n/**\n * Returns an array containing all elements of the original array and then all elements of the given [elements] array.\n */\npublic expect operator fun ShortArray.plus(elements: ShortArray): ShortArray\n\n/**\n * Returns an array containing all elements of the original array and then all elements of the given [elements] array.\n */\npublic expect operator fun IntArray.plus(elements: IntArray): IntArray\n\n/**\n * Returns an array containing all elements of the original array and then all elements of the given [elements] array.\n */\npublic expect operator fun LongArray.plus(elements: LongArray): LongArray\n\n/**\n * Returns an array containing all elements of the original array and then all elements of the given [elements] array.\n */\npublic expect operator fun FloatArray.plus(elements: FloatArray): FloatArray\n\n/**\n * Returns an array containing all elements of the original array and then all elements of the given [elements] array.\n */\npublic expect operator fun DoubleArray.plus(elements: DoubleArray): DoubleArray\n\n/**\n * Returns an array containing all elements of the original array and then all elements of the given [elements] array.\n */\npublic expect operator fun BooleanArray.plus(elements: BooleanArray): BooleanArray\n\n/**\n * Returns an array containing all elements of the original array and then all elements of the given [elements] array.\n */\npublic expect operator fun CharArray.plus(elements: CharArray): CharArray\n\n/**\n * Returns an array containing all elements of the original array and then the given [element].\n */\n@Suppress(\"NO_ACTUAL_FOR_EXPECT\")\npublic expect fun <T> Array<T>.plusElement(element: T): Array<T>\n\n/**\n * Sorts the array in-place.\n * \n * @sample samples.collections.Arrays.Sorting.sortArray\n */\npublic expect fun IntArray.sort(): Unit\n\n/**\n * Sorts the array in-place.\n * \n * @sample samples.collections.Arrays.Sorting.sortArray\n */\npublic expect fun LongArray.sort(): Unit\n\n/**\n * Sorts the array in-place.\n * \n * @sample samples.collections.Arrays.Sorting.sortArray\n */\npublic expect fun ByteArray.sort(): Unit\n\n/**\n * Sorts the array in-place.\n * \n * @sample samples.collections.Arrays.Sorting.sortArray\n */\npublic expect fun ShortArray.sort(): Unit\n\n/**\n * Sorts the array in-place.\n * \n * @sample samples.collections.Arrays.Sorting.sortArray\n */\npublic expect fun DoubleArray.sort(): Unit\n\n/**\n * Sorts the array in-place.\n * \n * @sample samples.collections.Arrays.Sorting.sortArray\n */\npublic expect fun FloatArray.sort(): Unit\n\n/**\n * Sorts the array in-place.\n * \n * @sample samples.collections.Arrays.Sorting.sortArray\n */\npublic expect fun CharArray.sort(): Unit\n\n/**\n * Sorts the array in-place according to the natural order of its elements.\n * \n * The sort is _stable_. It means that equal elements preserve their order relative to each other after sorting.\n * \n * @sample samples.collections.Arrays.Sorting.sortArrayOfComparable\n */\npublic expect fun <T : Comparable<T>> Array<out T>.sort(): Unit\n\n/**\n * Sorts a range in the array in-place.\n * \n * The sort is _stable_. It means that equal elements preserve their order relative to each other after sorting.\n * \n * @param fromIndex the start of the range (inclusive) to sort, 0 by default.\n * @param toIndex the end of the range (exclusive) to sort, size of this array by default.\n * \n * @throws IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n * @throws IllegalArgumentException if [fromIndex] is greater than [toIndex].\n * \n * @sample samples.collections.Arrays.Sorting.sortRangeOfArrayOfComparable\n */\n@SinceKotlin(\"1.4\")\npublic expect fun <T : Comparable<T>> Array<out T>.sort(fromIndex: Int = 0, toIndex: Int = size): Unit\n\n/**\n * Sorts a range in the array in-place.\n * \n * @param fromIndex the start of the range (inclusive) to sort, 0 by default.\n * @param toIndex the end of the range (exclusive) to sort, size of this array by default.\n * \n * @throws IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n * @throws IllegalArgumentException if [fromIndex] is greater than [toIndex].\n * \n * @sample samples.collections.Arrays.Sorting.sortRangeOfArray\n */\n@SinceKotlin(\"1.4\")\npublic expect fun ByteArray.sort(fromIndex: Int = 0, toIndex: Int = size): Unit\n\n/**\n * Sorts a range in the array in-place.\n * \n * @param fromIndex the start of the range (inclusive) to sort, 0 by default.\n * @param toIndex the end of the range (exclusive) to sort, size of this array by default.\n * \n * @throws IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n * @throws IllegalArgumentException if [fromIndex] is greater than [toIndex].\n * \n * @sample samples.collections.Arrays.Sorting.sortRangeOfArray\n */\n@SinceKotlin(\"1.4\")\npublic expect fun ShortArray.sort(fromIndex: Int = 0, toIndex: Int = size): Unit\n\n/**\n * Sorts a range in the array in-place.\n * \n * @param fromIndex the start of the range (inclusive) to sort, 0 by default.\n * @param toIndex the end of the range (exclusive) to sort, size of this array by default.\n * \n * @throws IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n * @throws IllegalArgumentException if [fromIndex] is greater than [toIndex].\n * \n * @sample samples.collections.Arrays.Sorting.sortRangeOfArray\n */\n@SinceKotlin(\"1.4\")\npublic expect fun IntArray.sort(fromIndex: Int = 0, toIndex: Int = size): Unit\n\n/**\n * Sorts a range in the array in-place.\n * \n * @param fromIndex the start of the range (inclusive) to sort, 0 by default.\n * @param toIndex the end of the range (exclusive) to sort, size of this array by default.\n * \n * @throws IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n * @throws IllegalArgumentException if [fromIndex] is greater than [toIndex].\n * \n * @sample samples.collections.Arrays.Sorting.sortRangeOfArray\n */\n@SinceKotlin(\"1.4\")\npublic expect fun LongArray.sort(fromIndex: Int = 0, toIndex: Int = size): Unit\n\n/**\n * Sorts a range in the array in-place.\n * \n * @param fromIndex the start of the range (inclusive) to sort, 0 by default.\n * @param toIndex the end of the range (exclusive) to sort, size of this array by default.\n * \n * @throws IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n * @throws IllegalArgumentException if [fromIndex] is greater than [toIndex].\n * \n * @sample samples.collections.Arrays.Sorting.sortRangeOfArray\n */\n@SinceKotlin(\"1.4\")\npublic expect fun FloatArray.sort(fromIndex: Int = 0, toIndex: Int = size): Unit\n\n/**\n * Sorts a range in the array in-place.\n * \n * @param fromIndex the start of the range (inclusive) to sort, 0 by default.\n * @param toIndex the end of the range (exclusive) to sort, size of this array by default.\n * \n * @throws IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n * @throws IllegalArgumentException if [fromIndex] is greater than [toIndex].\n * \n * @sample samples.collections.Arrays.Sorting.sortRangeOfArray\n */\n@SinceKotlin(\"1.4\")\npublic expect fun DoubleArray.sort(fromIndex: Int = 0, toIndex: Int = size): Unit\n\n/**\n * Sorts a range in the array in-place.\n * \n * @param fromIndex the start of the range (inclusive) to sort, 0 by default.\n * @param toIndex the end of the range (exclusive) to sort, size of this array by default.\n * \n * @throws IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n * @throws IllegalArgumentException if [fromIndex] is greater than [toIndex].\n * \n * @sample samples.collections.Arrays.Sorting.sortRangeOfArray\n */\n@SinceKotlin(\"1.4\")\npublic expect fun CharArray.sort(fromIndex: Int = 0, toIndex: Int = size): Unit\n\n/**\n * Sorts elements of the array in the specified range in-place.\n * The elements are sorted descending according to their natural sort order.\n * \n * The sort is _stable_. It means that equal elements preserve their order relative to each other after sorting.\n * \n * @param fromIndex the start of the range (inclusive) to sort.\n * @param toIndex the end of the range (exclusive) to sort.\n * \n * @throws IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n * @throws IllegalArgumentException if [fromIndex] is greater than [toIndex].\n */\n@SinceKotlin(\"1.4\")\npublic fun <T : Comparable<T>> Array<out T>.sortDescending(fromIndex: Int, toIndex: Int): Unit {\n   sortWith(reverseOrder(), fromIndex, toIndex)\n}\n\n/**\n * Sorts elements of the array in the specified range in-place.\n * The elements are sorted descending according to their natural sort order.\n * \n * @param fromIndex the start of the range (inclusive) to sort.\n * @param toIndex the end of the range (exclusive) to sort.\n * \n * @throws IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n * @throws IllegalArgumentException if [fromIndex] is greater than [toIndex].\n */\n@SinceKotlin(\"1.4\")\npublic fun ByteArray.sortDescending(fromIndex: Int, toIndex: Int): Unit {\n sort(fromIndex, toIndex)\n reverse(fromIndex, toIndex)\n}\n\n/**\n * Sorts elements of the array in the specified range in-place.\n * The elements are sorted descending according to their natural sort order.\n * \n * @param fromIndex the start of the range (inclusive) to sort.\n * @param toIndex the end of the range (exclusive) to sort.\n * \n * @throws IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n * @throws IllegalArgumentException if [fromIndex] is greater than [toIndex].\n */\n@SinceKotlin(\"1.4\")\npublic fun ShortArray.sortDescending(fromIndex: Int, toIndex: Int): Unit {\n sort(fromIndex, toIndex)\n reverse(fromIndex, toIndex)\n}\n\n/**\n * Sorts elements of the array in the specified range in-place.\n * The elements are sorted descending according to their natural sort order.\n * \n * @param fromIndex the start of the range (inclusive) to sort.\n * @param toIndex the end of the range (exclusive) to sort.\n * \n * @throws IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n * @throws IllegalArgumentException if [fromIndex] is greater than [toIndex].\n */\n@SinceKotlin(\"1.4\")\npublic fun IntArray.sortDescending(fromIndex: Int, toIndex: Int): Unit {\n sort(fromIndex, toIndex)\n reverse(fromIndex, toIndex)\n}\n\n/**\n * Sorts elements of the array in the specified range in-place.\n * The elements are sorted descending according to their natural sort order.\n * \n * @param fromIndex the start of the range (inclusive) to sort.\n * @param toIndex the end of the range (exclusive) to sort.\n * \n * @throws IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n * @throws IllegalArgumentException if [fromIndex] is greater than [toIndex].\n */\n@SinceKotlin(\"1.4\")\npublic fun LongArray.sortDescending(fromIndex: Int, toIndex: Int): Unit {\n sort(fromIndex, toIndex)\n reverse(fromIndex, toIndex)\n}\n\n/**\n * Sorts elements of the array in the specified range in-place.\n * The elements are sorted descending according to their natural sort order.\n * \n * @param fromIndex the start of the range (inclusive) to sort.\n * @param toIndex the end of the range (exclusive) to sort.\n * \n * @throws IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n * @throws IllegalArgumentException if [fromIndex] is greater than [toIndex].\n */\n@SinceKotlin(\"1.4\")\npublic fun FloatArray.sortDescending(fromIndex: Int, toIndex: Int): Unit {\n sort(fromIndex, toIndex)\n reverse(fromIndex, toIndex)\n}\n\n/**\n * Sorts elements of the array in the specified range in-place.\n * The elements are sorted descending according to their natural sort order.\n * \n * @param fromIndex the start of the range (inclusive) to sort.\n * @param toIndex the end of the range (exclusive) to sort.\n * \n * @throws IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n * @throws IllegalArgumentException if [fromIndex] is greater than [toIndex].\n */\n@SinceKotlin(\"1.4\")\npublic fun DoubleArray.sortDescending(fromIndex: Int, toIndex: Int): Unit {\n sort(fromIndex, toIndex)\n reverse(fromIndex, toIndex)\n}\n\n/**\n * Sorts elements of the array in the specified range in-place.\n * The elements are sorted descending according to their natural sort order.\n * \n * @param fromIndex the start of the range (inclusive) to sort.\n * @param toIndex the end of the range (exclusive) to sort.\n * \n * @throws IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n * @throws IllegalArgumentException if [fromIndex] is greater than [toIndex].\n */\n@SinceKotlin(\"1.4\")\npublic fun CharArray.sortDescending(fromIndex: Int, toIndex: Int): Unit {\n sort(fromIndex, toIndex)\n reverse(fromIndex, toIndex)\n}\n\n/**\n * Sorts the array in-place according to the order specified by the given [comparator].\n * \n * The sort is _stable_. It means that equal elements preserve their order relative to each other after sorting.\n */\npublic expect fun <T> Array<out T>.sortWith(comparator: Comparator<in T>): Unit\n\n/**\n * Sorts a range in the array in-place with the given [comparator].\n * \n * The sort is _stable_. It means that equal elements preserve their order relative to each other after sorting.\n * \n * @param fromIndex the start of the range (inclusive) to sort, 0 by default.\n * @param toIndex the end of the range (exclusive) to sort, size of this array by default.\n * \n * @throws IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n * @throws IllegalArgumentException if [fromIndex] is greater than [toIndex].\n */\npublic expect fun <T> Array<out T>.sortWith(comparator: Comparator<in T>, fromIndex: Int = 0, toIndex: Int = size): Unit\n\n/**\n * Returns an array of Boolean containing all of the elements of this generic array.\n */\npublic fun Array<out Boolean>.toBooleanArray(): BooleanArray {\n return BooleanArray(size) { index -> this[index] }\n}\n\n/**\n * Returns an array of Byte containing all of the elements of this generic array.\n */\npublic fun Array<out Byte>.toByteArray(): ByteArray {\n return ByteArray(size) { index -> this[index] }\n}\n\n/**\n * Returns an array of Char containing all of the elements of this generic array.\n */\npublic fun Array<out Char>.toCharArray(): CharArray {\n return CharArray(size) { index -> this[index] }\n}\n\n/**\n * Returns an array of Double containing all of the elements of this generic array.\n */\npublic fun Array<out Double>.toDoubleArray(): DoubleArray {\n return DoubleArray(size) { index -> this[index] }\n}\n\n/**\n * Returns an array of Float containing all of the elements of this generic array.\n */\npublic fun Array<out Float>.toFloatArray(): FloatArray {\n return FloatArray(size) { index -> this[index] }\n}\n\n/**\n * Returns an array of Int containing all of the elements of this generic array.\n */\npublic fun Array<out Int>.toIntArray(): IntArray {\n return IntArray(size) { index -> this[index] }\n}\n\n/**\n * Returns an array of Long containing all of the elements of this generic array.\n */\npublic fun Array<out Long>.toLongArray(): LongArray {\n return LongArray(size) { index -> this[index] }\n}\n\n/**\n * Returns an array of Short containing all of the elements of this generic array.\n */\npublic fun Array<out Short>.toShortArray(): ShortArray {\n return ShortArray(size) { index -> this[index] }\n}\n\n/**\n * Returns a *typed* object array containing all of the elements of this primitive array.\n */\npublic expect fun ByteArray.toTypedArray(): Array<Byte>\n\n/**\n * Returns a *typed* object array containing all of the elements of this primitive array.\n */\npublic expect fun ShortArray.toTypedArray(): Array<Short>\n\n/**\n * Returns a *typed* object array containing all of the elements of this primitive array.\n */\npublic expect fun IntArray.toTypedArray(): Array<Int>\n\n/**\n * Returns a *typed* object array containing all of the elements of this primitive array.\n */\npublic expect fun LongArray.toTypedArray(): Array<Long>\n\n/**\n * Returns a *typed* object array containing all of the elements of this primitive array.\n */\npublic expect fun FloatArray.toTypedArray(): Array<Float>\n\n/**\n * Returns a *typed* object array containing all of the elements of this primitive array.\n */\npublic expect fun DoubleArray.toTypedArray(): Array<Double>\n\n/**\n * Returns a *typed* object array containing all of the elements of this primitive array.\n */\npublic expect fun BooleanArray.toTypedArray(): Array<Boolean>\n\n/**\n * Returns a *typed* object array containing all of the elements of this primitive array.\n */\npublic expect fun CharArray.toTypedArray(): Array<Char>\n\n/**\n * Returns a [Map] containing key-value pairs provided by [transform] function\n * applied to elements of the given array.\n * \n * If any of two pairs would have the same key the last one gets added to the map.\n * \n * The returned map preserves the entry iteration order of the original array.\n * \n * @sample samples.collections.Arrays.Transformations.associateArrayOfPrimitives\n */\npublic inline fun <T, K, V> Array<out T>.associate(transform: (T) -> Pair<K, V>): Map<K, V> {\n val capacity = mapCapacity(size).coerceAtLeast(16)\n return associateTo(LinkedHashMap<K, V>(capacity), transform)\n}\n\n/**\n * Returns a [Map] containing key-value pairs provided by [transform] function\n * applied to elements of the given array.\n * \n * If any of two pairs would have the same key the last one gets added to the map.\n * \n * The returned map preserves the entry iteration order of the original array.\n * \n * @sample samples.collections.Arrays.Transformations.associateArrayOfPrimitives\n */\npublic inline fun <K, V> ByteArray.associate(transform: (Byte) -> Pair<K, V>): Map<K, V> {\n val capacity = mapCapacity(size).coerceAtLeast(16)\n return associateTo(LinkedHashMap<K, V>(capacity), transform)\n}\n\n/**\n * Returns a [Map] containing key-value pairs provided by [transform] function\n * applied to elements of the given array.\n * \n * If any of two pairs would have the same key the last one gets added to the map.\n * \n * The returned map preserves the entry iteration order of the original array.\n * \n * @sample samples.collections.Arrays.Transformations.associateArrayOfPrimitives\n */\npublic inline fun <K, V> ShortArray.associate(transform: (Short) -> Pair<K, V>): Map<K, V> {\n val capacity = mapCapacity(size).coerceAtLeast(16)\n return associateTo(LinkedHashMap<K, V>(capacity), transform)\n}\n\n/**\n * Returns a [Map] containing key-value pairs provided by [transform] function\n * applied to elements of the given array.\n * \n * If any of two pairs would have the same key the last one gets added to the map.\n * \n * The returned map preserves the entry iteration order of the original array.\n * \n * @sample samples.collections.Arrays.Transformations.associateArrayOfPrimitives\n */\npublic inline fun <K, V>

IntArray.associate(transform: (Int) -> Pair<K, V>): Map<K, V> {\n   val capacity = mapCapacity(size).coerceAtLeast(16)\n   return associateTo(LinkedHashMap<K, V>(capacity), transform)\n}\n\n/**\n * Returns a [Map] containing key-value pairs provided by [transform] function\n * applied to elements of the given array.\n * \n * If any of two pairs would have the same key the last one gets added to the map.\n * \n * The returned map preserves the entry iteration order of the original array.\n * \n * @sample samples.collections.Arrays.Transformations.associateArrayOfPrimitives\n */\npublic inline fun <K, V> LongArray.associate(transform: (Long) -> Pair<K, V>): Map<K, V> {\n   val capacity = mapCapacity(size).coerceAtLeast(16)\n   return associateTo(LinkedHashMap<K, V>(capacity), transform)\n}\n\n/**\n * Returns a [Map] containing key-value pairs provided by [transform] function\n * applied to elements of the given array.\n * \n * If any of two pairs would have the same key the last one gets added to the map.\n * \n * The returned map preserves the entry iteration order of the original array.\n * \n * @sample samples.collections.Arrays.Transformations.associateArrayOfPrimitives\n */\npublic inline fun <K, V> FloatArray.associate(transform: (Float) -> Pair<K, V>): Map<K, V> {\n   val capacity = mapCapacity(size).coerceAtLeast(16)\n   return associateTo(LinkedHashMap<K, V>(capacity), transform)\n}\n\n/**\n * Returns a [Map] containing key-value pairs provided by [transform] function\n * applied to elements of the given array.\n * \n * If any of two pairs would have the same key the last one gets added to the map.\n * \n * The returned map preserves the entry iteration order of the original array.\n * \n * @sample samples.collections.Arrays.Transformations.associateArrayOfPrimitives\n */\npublic inline fun <K, V> DoubleArray.associate(transform: (Double) -> Pair<K, V>): Map<K, V> {\n   val capacity = mapCapacity(size).coerceAtLeast(16)\n   return associateTo(LinkedHashMap<K, V>(capacity), transform)\n}\n\n/**\n * Returns a [Map] containing key-value pairs provided by [transform] function\n * applied to elements of the given array.\n * \n * If any of two pairs would have the same key the last one gets added to the map.\n * \n * The returned map preserves the entry iteration order of the original array.\n * \n * @sample samples.collections.Arrays.Transformations.associateArrayOfPrimitives\n */\npublic inline fun <K, V> BooleanArray.associate(transform: (Boolean) -> Pair<K, V>): Map<K, V> {\n   val capacity = mapCapacity(size).coerceAtLeast(16)\n   return associateTo(LinkedHashMap<K, V>(capacity), transform)\n}\n\n/**\n * Returns a [Map] containing key-value pairs provided by [transform] function\n * applied to elements of the given array.\n * \n * If any of two pairs would have the same key the last one gets added to the map.\n * \n * The returned map preserves the entry iteration order of the original array.\n * \n * @sample samples.collections.Arrays.Transformations.associateArrayOfPrimitives\n */\npublic inline fun <K, V> CharArray.associate(transform: (Char) -> Pair<K, V>): Map<K, V> {\n   val capacity = mapCapacity(size).coerceAtLeast(16)\n   return associateTo(LinkedHashMap<K, V>(capacity), transform)\n}\n\n/**\n * Returns a [Map] containing the elements from the given array indexed by the key\n * returned from [keySelector] function applied to each element.\n * \n * If any two elements would have the same key returned by [keySelector] the last one gets added to the map.\n * \n * The returned map preserves the entry iteration order of the original array.\n * \n * @sample samples.collections.Arrays.Transformations.associateArrayOfPrimitivesBy\n */\npublic inline fun <T, K> Array<out T>.associateBy(keySelector: (T) -> K): Map<K, T> {\n   val capacity = mapCapacity(size).coerceAtLeast(16)\n   return associateByTo(LinkedHashMap<K, T>(capacity), keySelector)\n}\n\n/**\n * Returns a [Map] containing the elements from the given array indexed by the key\n * returned from [keySelector] function applied to each element.\n * \n * If any two elements would have the same key returned by [keySelector] the last one gets added to the map.\n * \n * The returned map preserves the entry iteration order of the original array.\n * \n * @sample samples.collections.Arrays.Transformations.associateArrayOfPrimitivesBy\n */\npublic inline fun <K> ByteArray.associateBy(keySelector: (Byte) -> K): Map<K, Byte> {\n   val capacity = mapCapacity(size).coerceAtLeast(16)\n   return associateByTo(LinkedHashMap<K, Byte>(capacity), keySelector)\n}\n\n/**\n * Returns a [Map] containing the elements from the given array indexed by the key\n * returned from [keySelector] function applied to each element.\n * \n * If any two elements would have the same key returned by [keySelector] the last one gets added to the map.\n * \n * The returned map preserves the entry iteration order of the original array.\n * \n * @sample samples.collections.Arrays.Transformations.associateArrayOfPrimitivesBy\n */\npublic inline fun <K> ShortArray.associateBy(keySelector: (Short) -> K): Map<K, Short> {\n   val capacity = mapCapacity(size).coerceAtLeast(16)\n   return associateByTo(LinkedHashMap<K, Short>(capacity), keySelector)\n}\n\n/**\n * Returns a [Map] containing the elements from the given array indexed by the key\n * returned from [keySelector] function applied to each element.\n * \n * If any two elements would have the same key returned by [keySelector] the last one gets added to the map.\n * \n * The returned map preserves the entry iteration order of the original array.\n * \n * @sample samples.collections.Arrays.Transformations.associateArrayOfPrimitivesBy\n */\npublic inline fun <K> IntArray.associateBy(keySelector: (Int) -> K): Map<K, Int> {\n   val capacity = mapCapacity(size).coerceAtLeast(16)\n   return associateByTo(LinkedHashMap<K, Int>(capacity), keySelector)\n}\n\n/**\n * Returns a [Map] containing the elements from the given array indexed by the key\n * returned from [keySelector] function applied to each element.\n * \n * If any two elements would have the same key returned by [keySelector] the last one gets added to the map.\n * \n * The returned map preserves the entry iteration order of the original array.\n * \n * @sample samples.collections.Arrays.Transformations.associateArrayOfPrimitivesBy\n */\npublic inline fun <K> LongArray.associateBy(keySelector: (Long) -> K): Map<K, Long> {\n   val capacity = mapCapacity(size).coerceAtLeast(16)\n   return associateByTo(LinkedHashMap<K, Long>(capacity), keySelector)\n}\n\n/**\n * Returns a [Map] containing the elements from the given array indexed by the key\n * returned from [keySelector] function applied to each element.\n * \n * If any two elements would have the same key returned by [keySelector] the last one gets added to the map.\n * \n * The returned map preserves the entry iteration order of the original array.\n * \n * @sample samples.collections.Arrays.Transformations.associateArrayOfPrimitivesBy\n */\npublic inline fun <K> FloatArray.associateBy(keySelector: (Float) -> K): Map<K, Float> {\n   val capacity = mapCapacity(size).coerceAtLeast(16)\n   return associateByTo(LinkedHashMap<K, Float>(capacity), keySelector)\n}\n\n/**\n * Returns a [Map] containing the elements from the given array indexed by the key\n * returned from [keySelector] function applied to each element.\n * \n * If any two elements would have the same key returned by [keySelector] the last one gets added to the map.\n * \n * The returned map preserves the entry iteration order of the original array.\n * \n * @sample samples.collections.Arrays.Transformations.associateArrayOfPrimitivesBy\n */\npublic inline fun <K> DoubleArray.associateBy(keySelector: (Double) -> K): Map<K, Double> {\n   val capacity = mapCapacity(size).coerceAtLeast(16)\n   return associateByTo(LinkedHashMap<K, Double>(capacity), keySelector)\n}\n\n/**\n * Returns a [Map] containing the elements from the given array indexed by the key\n * returned from [keySelector] function applied to each element.\n * \n * If any two elements would have the same key returned by [keySelector] the last one gets added to the map.\n * \n * The returned map preserves the entry iteration order of the original array.\n * \n * @sample samples.collections.Arrays.Transformations.associateArrayOfPrimitivesBy\n */\npublic inline fun <K> BooleanArray.associateBy(keySelector: (Boolean) -> K): Map<K, Boolean> {\n   val capacity = mapCapacity(size).coerceAtLeast(16)\n   return associateByTo(LinkedHashMap<K, Boolean>(capacity), keySelector)\n}\n\n/**\n * Returns a [Map] containing the elements from the given array indexed by the key\n * returned from [keySelector] function applied to each element.\n * \n * If any two elements would have the same key returned by [keySelector] the last one gets added to the map.\n * \n * The returned map preserves the entry iteration order of the original array.\n * \n * @sample samples.collections.Arrays.Transformations.associateArrayOfPrimitivesBy\n */\npublic inline fun <K> CharArray.associateBy(keySelector: (Char) -> K): Map<K, Char> {\n   val capacity = mapCapacity(size).coerceAtLeast(16)\n   return associateByTo(LinkedHashMap<K, Char>(capacity), keySelector)\n}\n\n/**\n * Returns a [Map] containing the values provided by [valueTransform] and indexed by [keySelector] functions applied to elements of the given array.\n * \n * If any two elements would have the same key returned by [keySelector] the last one gets added to the map.\n * \n * The returned map preserves the entry iteration order of the original array.\n * \n * @sample samples.collections.Arrays.Transformations.associateArrayOfPrimitivesByWithValueTransform\n */\npublic inline fun <T, K, V> Array<out T>.associateBy(keySelector: (T) -> K, valueTransform: (T) -> V): Map<K, V> {\n   val capacity = mapCapacity(size).coerceAtLeast(16)\n   return associateByTo(LinkedHashMap<K, V>(capacity), keySelector, valueTransform)\n}\n\n/**\n * Returns a [Map] containing the values provided by [valueTransform] and indexed by [keySelector] functions applied to elements of the given array.\n * \n * If any two elements would have the same key returned by [keySelector] the last one gets added to the map.\n * \n * The returned map preserves the entry iteration order of the original array.\n * \n * @sample samples.collections.Arrays.Transformations.associateArrayOfPrimitivesByWithValueTransform\n */\npublic inline fun <K, V> ByteArray.associateBy(keySelector: (Byte) -> K, valueTransform: (Byte) -> V): Map<K, V> {\n   val capacity = mapCapacity(size).coerceAtLeast(16)\n   return associateByTo(LinkedHashMap<K, V>(capacity), keySelector, valueTransform)\n}\n\n/**\n * Returns a [Map] containing the values provided by [valueTransform] and indexed by [keySelector] functions applied to elements of the given array.\n * \n * If any two elements would have the same key returned by [keySelector] the last one gets added to the map.\n * \n * The returned map preserves the entry iteration order of the original array.\n * \n * @sample samples.collections.Arrays.Transformations.associateArrayOfPrimitivesByWithValueTransform\n */\npublic inline fun <K, V> ShortArray.associateBy(keySelector: (Short) -> K, valueTransform: (Short) -> V): Map<K, V> {\n   val capacity = mapCapacity(size).coerceAtLeast(16)\n   return associateByTo(LinkedHashMap<K, V>(capacity), keySelector, valueTransform)\n}\n\n/**\n * Returns a [Map] containing the values provided by [valueTransform] and indexed by [keySelector] functions applied to elements of the given array.\n * \n * If any two elements would have the same key returned by [keySelector] the last one gets added to the map.\n * \n * The returned map preserves the entry iteration order of the original array.\n * \n * @sample samples.collections.Arrays.Transformations.associateArrayOfPrimitivesByWithValueTransform\n */\npublic inline fun <K, V> IntArray.associateBy(keySelector: (Int) -> K, valueTransform: (Int) -> V): Map<K, V> {\n   val capacity = mapCapacity(size).coerceAtLeast(16)\n   return associateByTo(LinkedHashMap<K, V>(capacity), keySelector, valueTransform)\n}\n\n/**\n * Returns a [Map] containing the values provided by [valueTransform] and indexed by [keySelector] functions applied to elements of the given array.\n * \n * If any two elements would have the same key returned by [keySelector] the last one gets added to the map.\n * \n * The returned map preserves the entry iteration order of the original array.\n * \n * @sample samples.collections.Arrays.Transformations.associateArrayOfPrimitivesByWithValueTransform\n */\npublic inline fun <K, V> LongArray.associateBy(keySelector: (Long) -> K, valueTransform: (Long) -> V): Map<K, V> {\n   val capacity = mapCapacity(size).coerceAtLeast(16)\n   return associateByTo(LinkedHashMap<K, V>(capacity), keySelector, valueTransform)\n}\n\n/**\n * Returns a [Map] containing the values provided by [valueTransform] and indexed by [keySelector] functions applied to elements of the given array.\n * \n * If any two elements would have the same key returned by [keySelector] the last one gets added to the map.\n * \n * The returned map preserves the entry iteration order of the original array.\n * \n * @sample samples.collections.Arrays.Transformations.associateArrayOfPrimitivesByWithValueTransform\n */\npublic inline fun <K, V> FloatArray.associateBy(keySelector: (Float) -> K, valueTransform: (Float) -> V): Map<K, V> {\n   val capacity = mapCapacity(size).coerceAtLeast(16)\n   return associateByTo(LinkedHashMap<K, V>(capacity), keySelector, valueTransform)\n}\n\n/**\n * Returns a [Map] containing the values provided by [valueTransform] and indexed by [keySelector] functions applied to elements of the given array.\n * \n * If any two elements would have the same key returned by [keySelector] the last one gets added to the map.\n * \n * The returned map preserves the entry iteration order of the original array.\n * \n * @sample samples.collections.Arrays.Transformations.associateArrayOfPrimitivesByWithValueTransform\n */\npublic inline fun <K, V> DoubleArray.associateBy(keySelector: (Double) -> K, valueTransform: (Double) -> V): Map<K, V> {\n   val capacity = mapCapacity(size).coerceAtLeast(16)\n   return associateByTo(LinkedHashMap<K,

V>(capacity), keySelector, valueTransform)\n}\n\n/**\n * Returns a [Map] containing the values provided by [valueTransform] and indexed by [keySelector] functions applied to elements of the given array.\n * \n * If any two elements would have the same key returned by [keySelector] the last one gets added to the map.\n * \n * The returned map preserves the entry iteration order of the original array.\n * \n * @sample samples.collections.Arrays.Transformations.associateArrayOfPrimitivesByWithValueTransform\n */\npublic inline fun <K, V> BooleanArray.associateBy(keySelector: (Boolean) -> K, valueTransform: (Boolean) -> V): Map<K, V> {\n   val capacity = mapCapacity(size).coerceAtLeast(16)\n   return associateByTo(LinkedHashMap<K, V>(capacity), keySelector, valueTransform)\n}\n\n/**\n * Returns a [Map] containing the values provided by [valueTransform] and indexed by [keySelector] functions applied to elements of the given array.\n * \n * If any two elements would have the same key returned by [keySelector] the last one gets added to the map.\n * \n * The returned map preserves the entry iteration order of the original array.\n * \n * @sample samples.collections.Arrays.Transformations.associateArrayOfPrimitivesByWithValueTransform\n */\npublic inline fun <K, V> CharArray.associateBy(keySelector: (Char) -> K, valueTransform: (Char) -> V): Map<K, V> {\n   val capacity = mapCapacity(size).coerceAtLeast(16)\n   return associateByTo(LinkedHashMap<K, V>(capacity), keySelector, valueTransform)\n}\n\n/**\n * Populates and returns the [destination] mutable map with key-value pairs,\n * where key is provided by the [keySelector] function applied to each element of the given array\n * and value is the element itself.\n * \n * If any two elements would have the same key returned by [keySelector] the last one gets added to the map.\n * \n * @sample samples.collections.Arrays.Transformations.associateArrayOfPrimitivesByTo\n */\npublic inline fun <T, K, M : MutableMap<in K, in T>> Array<out T>.associateByTo(destination: M, keySelector: (T) -> K): M {\n   for (element in this) {\n   destination.put(keySelector(element), element)\n   }\n   return destination\n}\n\n/**\n * Populates and returns the [destination] mutable map with key-value pairs,\n * where key is provided by the [keySelector] function applied to each element of the given array\n * and value is the element itself.\n * \n * If any two elements would have the same key returned by [keySelector] the last one gets added to the map.\n * \n * @sample samples.collections.Arrays.Transformations.associateArrayOfPrimitivesByTo\n */\npublic inline fun <K, M : MutableMap<in K, in Byte>> ByteArray.associateByTo(destination: M, keySelector: (Byte) -> K): M {\n   for (element in this) {\n   destination.put(keySelector(element), element)\n   }\n   return destination\n}\n\n/**\n * Populates and returns the [destination] mutable map with key-value pairs,\n * where key is provided by the [keySelector] function applied to each element of the given array\n * and value is the element itself.\n * \n * If any two elements would have the same key returned by [keySelector] the last one gets added to the map.\n * \n * @sample samples.collections.Arrays.Transformations.associateArrayOfPrimitivesByTo\n */\npublic inline fun <K, M : MutableMap<in K, in Short>> ShortArray.associateByTo(destination: M, keySelector: (Short) -> K): M {\n   for (element in this) {\n   destination.put(keySelector(element), element)\n   }\n   return destination\n}\n\n/**\n * Populates and returns the [destination] mutable map with key-value pairs,\n * where key is provided by the [keySelector] function applied to each element of the given array\n * and value is the element itself.\n * \n * If any two elements would have the same key returned by [keySelector] the last one gets added to the map.\n * \n * @sample samples.collections.Arrays.Transformations.associateArrayOfPrimitivesByTo\n */\npublic inline fun <K, M : MutableMap<in K, in Int>> IntArray.associateByTo(destination: M, keySelector: (Int) -> K): M {\n   for (element in this) {\n   destination.put(keySelector(element), element)\n   }\n   return destination\n}\n\n/**\n * Populates and returns the [destination] mutable map with key-value pairs,\n * where key is provided by the [keySelector] function applied to each element of the given array\n * and value is the element itself.\n * \n * If any two elements would have the same key returned by [keySelector] the last one gets added to the map.\n * \n * @sample samples.collections.Arrays.Transformations.associateArrayOfPrimitivesByTo\n */\npublic inline fun <K, M : MutableMap<in K, in Long>> LongArray.associateByTo(destination: M, keySelector: (Long) -> K): M {\n   for (element in this) {\n   destination.put(keySelector(element), element)\n   }\n   return destination\n}\n\n/**\n * Populates and returns the [destination] mutable map with key-value pairs,\n * where key is provided by the [keySelector] function applied to each element of the given array\n * and value is the element itself.\n * \n * If any two elements would have the same key returned by [keySelector] the last one gets added to the map.\n * \n *

@sample samples.collections.Arrays.Transformations.associateArrayOfPrimitivesByTo\n */\npublic inline fun <K, M : MutableMap<in K, in Float>> FloatArray.associateByTo(destination: M, keySelector: (Float) -> K): M {\n   for (element in this) {\n   destination.put(keySelector(element), element)\n   }\n   return destination\n}\n\n/**\n * Populates and returns the [destination] mutable map with key-value pairs,\n * where key is provided by the [keySelector] function applied to each element of the given array\n * and value is the element itself.\n * \n * If any two elements would have the same key returned by [keySelector] the last one gets added to the map.\n * \n * @sample samples.collections.Arrays.Transformations.associateArrayOfPrimitivesByTo\n */\npublic inline fun <K, M : MutableMap<in K, in Double>> DoubleArray.associateByTo(destination: M, keySelector: (Double) -> K): M {\n   for (element in this) {\n   destination.put(keySelector(element), element)\n   }\n   return destination\n}\n\n/**\n * Populates and returns the [destination] mutable map with key-value pairs,\n * where key is provided by the [keySelector] function applied to each element of the given array\n * and value is the element itself.\n * \n * If any two elements would have the same key returned by [keySelector] the last one gets added to the map.\n * \n * @sample samples.collections.Arrays.Transformations.associateArrayOfPrimitivesByTo\n */\npublic inline fun <K, M : MutableMap<in K, in Boolean>> BooleanArray.associateByTo(destination: M, keySelector: (Boolean) -> K): M {\n   for (element in this) {\n   destination.put(keySelector(element), element)\n   }\n   return destination\n}\n\n/**\n * Populates and returns the [destination] mutable map with key-value pairs,\n * where key is provided by the [keySelector] function applied to each element of the given array\n * and value is the element itself.\n * \n * If any two elements would have the same key returned by [keySelector] the last one gets added to the map.\n * \n * @sample samples.collections.Arrays.Transformations.associateArrayOfPrimitivesByTo\n */\npublic inline fun <K, M : MutableMap<in K, in Char>> CharArray.associateByTo(destination: M, keySelector: (Char) -> K): M {\n   for (element in this) {\n   destination.put(keySelector(element), element)\n   }\n   return destination\n}\n\n/**\n * Populates and returns the [destination] mutable map with key-value pairs,\n * where key is provided by the [keySelector] function and\n * and value is provided by the [valueTransform] function applied to elements of the given array.\n * \n * If any two elements would have the same key returned by [keySelector] the last one gets added to the map.\n * \n * @sample samples.collections.Arrays.Transformations.associateArrayOfPrimitivesByToWithValueTransform\n */\npublic inline fun <T, K, V, M : MutableMap<in K, in V>> Array<out T>.associateByTo(destination: M, keySelector: (T) -> K, valueTransform: (T) -> V): M {\n   for (element in this) {\n   destination.put(keySelector(element), valueTransform(element))\n   }\n   return destination\n}\n\n/**\n * Populates and returns the [destination] mutable map with key-value pairs,\n * where key is provided by the [keySelector] function and\n * and value is provided by the [valueTransform] function applied to elements of the given array.\n * \n * If any two elements would have the same key returned by [keySelector] the last one gets added to the map.\n * \n * @sample samples.collections.Arrays.Transformations.associateArrayOfPrimitivesByToWithValueTransform\n */\npublic inline fun <K, V, M : MutableMap<in K, in V>> ByteArray.associateByTo(destination: M, keySelector: (Byte) -> K, valueTransform: (Byte) -> V): M {\n   for (element in this) {\n   destination.put(keySelector(element), valueTransform(element))\n   }\n   return destination\n}\n\n/**\n * Populates and returns the [destination] mutable map with key-value pairs,\n * where key is provided by the [keySelector] function and\n * and value is provided by the [valueTransform] function applied to elements of the given array.\n * \n * If any two elements would have the same key returned by [keySelector] the last one gets added to the map.\n * \n * @sample samples.collections.Arrays.Transformations.associateArrayOfPrimitivesByToWithValueTransform\n */\npublic inline fun <K, V, M : MutableMap<in K, in V>> ShortArray.associateByTo(destination: M, keySelector: (Short) -> K, valueTransform: (Short) -> V): M {\n   for (element in this) {\n   destination.put(keySelector(element), valueTransform(element))\n   }\n   return destination\n}\n\n/**\n * Populates and returns the [destination] mutable map with key-value pairs,\n * where key is provided by the [keySelector] function and\n * and value is provided by the [valueTransform] function applied to elements of the given array.\n * \n * If any two elements would have the same key returned by [keySelector] the last one gets added to the map.\n * \n * @sample samples.collections.Arrays.Transformations.associateArrayOfPrimitivesByToWithValueTransform\n */\npublic inline fun <K, V, M : MutableMap<in K, in V>> IntArray.associateByTo(destination: M, keySelector: (Int) -> K, valueTransform: (Int) -> V): M {\n   for (element in this) {\n   destination.put(keySelector(element), valueTransform(element))\n   }\n   return destination\n}\n\n/**\n * Populates and returns the [destination] mutable map with key-value pairs,\n * where key is provided by the [keySelector] function and\n * and value is provided by the [valueTransform] function applied to elements of the given array.\n * \n * If any two elements would have the same key returned by [keySelector] the last one gets added to the map.\n * \n * @sample samples.collections.Arrays.Transformations.associateArrayOfPrimitivesByToWithValueTransform\n */\npublic inline fun <K, V, M : MutableMap<in K, in V>> LongArray.associateByTo(destination: M, keySelector: (Long) -> K, valueTransform: (Long) -> V): M {\n   for (element in this) {\n   destination.put(keySelector(element), valueTransform(element))\n   }\n   return destination\n}\n\n/**\n * Populates and returns the [destination] mutable map with key-value pairs,\n * where key is provided by the [keySelector] function and\n * and value is provided by the [valueTransform] function applied to elements of the given array.\n * \n * If any two elements would have the same key returned by [keySelector] the last one gets added to the map.\n * \n * @sample samples.collections.Arrays.Transformations.associateArrayOfPrimitivesByToWithValueTransform\n */\npublic inline fun <K, V, M : MutableMap<in K, in V>> FloatArray.associateByTo(destination: M, keySelector: (Float) -> K, valueTransform: (Float) -> V): M {\n   for (element in this) {\n   destination.put(keySelector(element), valueTransform(element))\n   }\n   return destination\n}\n\n/**\n * Populates and returns the [destination] mutable map with key-value pairs,\n * where key 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gets added to the map.\n * \n * @sample samples.collections.Arrays.Transformations.associateArrayOfPrimitivesByToWithValueTransform\n */\npublic inline fun <K, V, M : MutableMap<in K, in V>> BooleanArray.associateByTo(destination: M, keySelector: (Boolean) -> K, valueTransform: (Boolean) -> V): M {\n   for (element in this) {\n   destination.put(keySelector(element), valueTransform(element))\n   }\n   return destination\n}\n\n/**\n * Populates and returns the [destination] mutable map with key-value pairs,\n * where key is provided by the [keySelector] function and\n * and value is provided by the [valueTransform] function applied to elements of the given array.\n * \n * If any two elements would have the same key returned by [keySelector] the last one gets added to the map.\n * \n * @sample samples.collections.Arrays.Transformations.associateArrayOfPrimitivesByToWithValueTransform\n */\npublic inline fun <K, V, M : MutableMap<in K, in V>> CharArray.associateByTo(destination: M, keySelector: (Char) -> K, valueTransform: (Char) -> V): M {\n   for (element in this) {\n   destination.put(keySelector(element), valueTransform(element))\n   }\n   return destination\n}\n\n/**\n * Populates and returns the [destination] mutable map with key-value pairs\n * provided by [transform] function applied to each element of the given array.\n * \n * If any of two pairs would have the same key the last one gets added to the map.\n * \n * @sample samples.collections.Arrays.Transformations.associateArrayOfPrimitivesTo\n */\npublic inline fun <T, K, V, M : MutableMap<in K, in V>> Array<out T>.associateTo(destination: M, transform: (T) -> Pair<K, V>): M {\n   for (element in this) {\n   destination += transform(element)\n   }\n   return destination\n}\n\n/**\n * Populates and returns the [destination] mutable map with key-value pairs\n * provided by [transform] function applied to each element of the given array.\n * \n * If any of two pairs would have the same key the last one gets added to the map.\n * \n * @sample samples.collections.Arrays.Transformations.associateArrayOfPrimitivesTo\n */\npublic inline fun <K, V, M : MutableMap<in K, in V>> ByteArray.associateTo(destination: M, transform: (Byte) -> Pair<K, V>): M {\n   for (element in this) {\n   destination += transform(element)\n   }\n   return destination\n}\n\n/**\n * Populates and returns the [destination] mutable map with key-value pairs\n * provided by [transform] function applied to each element of the given array.\n * \n * If any of two pairs would have the same key the last one gets added to the map.\n * \n * @sample samples.collections.Arrays.Transformations.associateArrayOfPrimitivesTo\n */\npublic inline fun <K, V, M : MutableMap<in K, in V>> ShortArray.associateTo(destination: M, transform: (Short) -> Pair<K, V>): M {\n   for (element in this) {\n   destination += transform(element)\n   }\n   return destination\n}\n\n/**\n * Populates and returns the [destination] mutable map with key-value pairs\n * provided by [transform] function applied to each element of the given array.\n * \n * If any of two pairs would have the same key the last one gets added to the map.\n * \n * @sample samples.collections.Arrays.Transformations.associateArrayOfPrimitivesTo\n */\npublic inline fun <K, V, M : MutableMap<in K, in V>> IntArray.associateTo(destination: M, transform: (Int) -> Pair<K, V>): M {\n   for (element in this) {\n   destination += transform(element)\n   }\n   return destination\n}\n\n/**\n * Populates and returns the [destination] mutable map with key-value pairs\n * provided by [transform] function applied to each element of the given array.\n * \n * If any of two pairs would have the same key the last one gets added to the map.\n * \n * @sample samples.collections.Arrays.Transformations.associateArrayOfPrimitivesTo\n */\npublic inline fun <K, V, M : MutableMap<in K, in V>> LongArray.associateTo(destination: M, transform: (Long) -> Pair<K, V>): M {\n   for (element in this) {\n   destination += transform(element)\n   }\n   return destination\n}\n\n/**\n * Populates and returns the [destination] mutable map with key-value pairs\n * provided by [transform] function applied to each element of the given array.\n * \n * If any of two pairs would have the same key the last one gets added to the map.\n * \n * @sample samples.collections.Arrays.Transformations.associateArrayOfPrimitivesTo\n */\npublic inline fun <K, V, M : MutableMap<in K, in V>> FloatArray.associateTo(destination: M, transform: (Float) -> Pair<K, V>): M {\n   for (element in this) {\n   destination += transform(element)\n   }\n   return destination\n}\n\n/**\n * Populates and returns the [destination] mutable map with key-value pairs\n * provided by [transform] function applied to each element of the given array.\n * \n * If any of two pairs would have the same key the last one gets added to the map.\n * \n * @sample samples.collections.Arrays.Transformations.associateArrayOfPrimitivesTo\n */\npublic inline fun <K, V, M : MutableMap<in K, in V>> DoubleArray.associateTo(destination: M, transform: (Double) -> Pair<K, V>): M {\n   for (element in this) {\n   destination += transform(element)\n   }\n   return destination\n}\n\n/**\n * Populates and returns the [destination] mutable map with key-value pairs\n * provided by [transform] function applied to each element of the given array.\n * \n * If any of two pairs would have the same key the last one gets added to the map.\n * \n * @sample samples.collections.Arrays.Transformations.associateArrayOfPrimitivesTo\n */\npublic inline fun <K, V, M : MutableMap<in K, in V>> BooleanArray.associateTo(destination: M, transform: (Boolean) -> Pair<K, V>): M {\n   for (element in this) {\n   destination += transform(element)\n   }\n   return destination\n}\n\n/**\n * Populates and returns the [destination] mutable map with key-value pairs\n * provided by [transform] function applied to each element of the given array.\n * \n * If any of two pairs would have the same key the last one gets added to the map.\n * \n * @sample samples.collections.Arrays.Transformations.associateArrayOfPrimitivesTo\n */\npublic inline fun <K, V, M : MutableMap<in K, in V>> CharArray.associateTo(destination: M, transform: (Char) -> Pair<K, V>): M {\n   for (element in this) {\n   destination += transform(element)\n   }\n   return destination\n}\n\n/**\n * Returns a [Map] where keys are elements from the given array and values are\n * produced by the [valueSelector] function applied to each element.\n * \n * If any two elements are equal, the last one gets added to the map.\n * \n * The returned map preserves the entry iteration order of the original array.\n * \n * @sample samples.collections.Collections.Transformations.associateWith\n */\n@SinceKotlin(\"1.4\")\npublic inline fun <K, V> Array<out K>.associateWith(valueSelector: (K) -> V): Map<K, V> {\n   val result = LinkedHashMap<K, V>(mapCapacity(size).coerceAtLeast(16))\n   return associateWithTo(result, valueSelector)\n}\n\n/**\n * Returns a [Map] where keys are elements from the given array and values are\n * produced by the [valueSelector] function applied to each element.\n * \n * If any two elements are equal, the last one gets added to the map.\n * \n * The returned map preserves the entry iteration order of the original array.\n * \n * @sample samples.collections.Collections.Transformations.associateWith\n

*/\n@SinceKotlin(\"1.4\")\n@kotlin.internal.InlineOnly\npublic inline fun <V> ByteArray.associateWith(valueSelector: (Byte) -> V): Map<Byte, V> {\n   val result = LinkedHashMap<Byte, V>(mapCapacity(size).coerceAtLeast(16))\n   return associateWithTo(result, valueSelector)\n}\n\n/**\n * Returns a [Map] where keys are elements from the given array and values are\n * produced by the [valueSelector] function applied to each element.\n * \n * If any two elements are equal, the last one gets added to the map.\n * \n * The returned map preserves the entry iteration order of the original array.\n * \n * @sample samples.collections.Collections.Transformations.associateWith\n */\n@SinceKotlin(\"1.4\")\n@kotlin.internal.InlineOnly\npublic inline fun <V> ShortArray.associateWith(valueSelector: (Short) -> V): Map<Short, V> {\n   val result = LinkedHashMap<Short, V>(mapCapacity(size).coerceAtLeast(16))\n   return associateWithTo(result, valueSelector)\n}\n\n/**\n * Returns a [Map] where keys are elements from the given array and values are\n * produced by the [valueSelector] function applied to each element.\n * \n * If any two elements are equal, the last one gets added to the map.\n * \n * The returned map preserves the entry iteration order of the original array.\n * \n * @sample samples.collections.Collections.Transformations.associateWith\n */\n@SinceKotlin(\"1.4\")\n@kotlin.internal.InlineOnly\npublic inline fun <V> IntArray.associateWith(valueSelector: (Int) -> V): Map<Int, V> {\n   val result = LinkedHashMap<Int, V>(mapCapacity(size).coerceAtLeast(16))\n   return associateWithTo(result, valueSelector)\n}\n\n/**\n * Returns a [Map] where keys are elements from the given array and values are\n * produced by the [valueSelector] function applied to each element.\n * \n * If any two elements are equal, the last one gets added to the map.\n * \n * The returned map preserves the entry iteration order of the original array.\n * \n * @sample samples.collections.Collections.Transformations.associateWith\n */\n@SinceKotlin(\"1.4\")\n@kotlin.internal.InlineOnly\npublic inline fun <V> LongArray.associateWith(valueSelector: (Long) -> V): Map<Long, V> {\n   val result = LinkedHashMap<Long, V>(mapCapacity(size).coerceAtLeast(16))\n   return associateWithTo(result, valueSelector)\n}\n\n/**\n * Returns a [Map] where keys are elements from the given array and values are\n * produced by the [valueSelector] function applied to each element.\n * \n * If any two elements are equal, the last one gets added to the map.\n * \n * The returned map preserves the entry iteration order of the original array.\n * \n * @sample samples.collections.Collections.Transformations.associateWith\n */\n@SinceKotlin(\"1.4\")\n@kotlin.internal.InlineOnly\npublic inline fun <V> FloatArray.associateWith(valueSelector: (Float) -> V): Map<Float, V> {\n   val result = LinkedHashMap<Float, V>(mapCapacity(size).coerceAtLeast(16))\n   return associateWithTo(result, valueSelector)\n}\n\n/**\n * Returns a [Map] where keys are elements from the given array and values are\n * produced by the [valueSelector] function applied to each element.\n * \n * If any two elements are equal, the last one gets added to the map.\n * \n * The returned map preserves the entry iteration order of the original array.\n * \n * @sample samples.collections.Collections.Transformations.associateWith\n */\n@SinceKotlin(\"1.4\")\n@kotlin.internal.InlineOnly\npublic inline fun <V> DoubleArray.associateWith(valueSelector: (Double) -> V): Map<Double, V> {\n   val result = LinkedHashMap<Double, V>(mapCapacity(size).coerceAtLeast(16))\n   return associateWithTo(result, valueSelector)\n}\n\n/**\n * Returns a [Map] where keys are elements from the given array and values are\n * produced by the [valueSelector] function applied to each element.\n * \n * If any two elements are equal, the last one gets added to the map.\n * \n * The returned map preserves the entry iteration order of the original array.\n * \n * @sample samples.collections.Collections.Transformations.associateWith\n */\n@SinceKotlin(\"1.4\")\n@kotlin.internal.InlineOnly\npublic inline fun <V> BooleanArray.associateWith(valueSelector: (Boolean) -> V): Map<Boolean, V> {\n   val result = LinkedHashMap<Boolean, V>(mapCapacity(size).coerceAtLeast(16))\n   return associateWithTo(result, valueSelector)\n}\n\n/**\n * Returns a [Map] where keys are elements from the given array and values are\n * produced by the [valueSelector] function applied to each element.\n * \n * If any two elements are equal, the last one gets added to the map.\n * \n * The returned map preserves the entry iteration order of the original array.\n * \n *

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*/\n@SinceKotlin(\"1.4\")\n@kotlin.internal.InlineOnly\npublic inline fun <V>
CharArray.associateWith(valueSelector: (Char) -> V): Map<Char, V> {\n   val result = LinkedHashMap<Char,
V>(mapCapacity(size.coerceAtMost(128)).coerceAtLeast(16))\n   return associateWithTo(result,
valueSelector)\n}\n\n/**\n * Populates and returns the [destination] mutable map with key-value pairs for each
element of the given array,\n * where key is the element itself and value is provided by the [valueSelector] function
applied to that key.\n * \n * If any two elements are equal, the last one overwrites the former value in the map.\n * \n
* @sample samples.collections.Collections.Transformations.associateWithTo\n */\n@SinceKotlin(\"1.4\")\npublic
inline fun <K, V, M : MutableMap<in K, in V>> Array<out K>.associateWithTo(destination: M, valueSelector: (K)
-> V): M {\n   for (element in this) {\n   destination.put(element, valueSelector(element))\n   }\n   return
destination\n}\n\n/**\n * Populates and returns the [destination] mutable map with key-value pairs for each element
of the given array,\n * where key is the element itself and value is provided by the [valueSelector] function applied
to that key.\n * \n * If any two elements are equal, the last one overwrites the former value in the map.\n * \n *
@sample samples.collections.Collections.Transformations.associateWithTo\n
*/\n@SinceKotlin(\"1.4\")\n@kotlin.internal.InlineOnly\npublic inline fun <V, M : MutableMap<in Byte, in V>>
ByteArray.associateWithTo(destination: M, valueSelector: (Byte) -> V): M {\n   for (element in this) {\n
destination.put(element, valueSelector(element))\n   }\n   return destination\n}\n\n/**\n * Populates and returns the
[destination] mutable map with key-value pairs for each element of the given array,\n * where key is the element
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*/\n@SinceKotlin(\"1.4\")\n@kotlin.internal.InlineOnly\npublic inline fun <V, M : MutableMap<in Short, in V>>
ShortArray.associateWithTo(destination: M, valueSelector: (Short) -> V): M {\n   for (element in this) {\n
destination.put(element, valueSelector(element))\n   }\n   return destination\n}\n\n/**\n * Populates and returns the
[destination] mutable map with key-value pairs for each element of the given array,\n * where key is the element
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*/\n@SinceKotlin(\"1.4\")\n@kotlin.internal.InlineOnly\npublic inline fun <V, M : MutableMap<in Int, in V>>
IntArray.associateWithTo(destination: M, valueSelector: (Int) -> V): M {\n   for (element in this) {\n
destination.put(element, valueSelector(element))\n   }\n   return destination\n}\n\n/**\n * Populates and returns the
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*/\n@SinceKotlin(\"1.4\")\n@kotlin.internal.InlineOnly\npublic inline fun <V, M : MutableMap<in Long, in V>>
LongArray.associateWithTo(destination: M, valueSelector: (Long) -> V): M {\n   for (element in this) {\n
destination.put(element, valueSelector(element))\n   }\n   return destination\n}\n\n/**\n * Populates and returns the
[destination] mutable map with key-value pairs for each element of the given array,\n * where key is the element
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*/\n@SinceKotlin(\"1.4\")\n@kotlin.internal.InlineOnly\npublic inline fun <V, M : MutableMap<in Float, in V>>
FloatArray.associateWithTo(destination: M, valueSelector: (Float) -> V): M {\n   for (element in this) {\n
destination.put(element, valueSelector(element))\n   }\n   return destination\n}\n\n/**\n * Populates and returns the
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*/\n@SinceKotlin(\"1.4\")\n@kotlin.internal.InlineOnly\npublic inline fun <V, M : MutableMap<in Double, in V>> DoubleArray.associateWithTo(destination: M, valueSelector: (Double) -> V): M {\n   for (element in this) {\n destination.put(element, valueSelector(element))\n   }\n   return destination\n}\n\n/**\n * Populates and returns the [destination] mutable map with key-value pairs for each element of the given array,\n * where key is the element itself and value is provided by the [valueSelector] function applied to that key.\n * \n * If any two elements are equal, the last one overwrites the former value in the map.\n * \n * @sample
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*/\n@SinceKotlin(\"1.4\")\n@kotlin.internal.InlineOnly\npublic inline fun <V, M : MutableMap<in Boolean, in V>> BooleanArray.associateWithTo(destination: M, valueSelector: (Boolean) -> V): M {\n   for (element in this) {\n   destination.put(element, valueSelector(element))\n   }\n   return destination\n}\n\n/**\n * Populates and returns the [destination] mutable map with key-value pairs for each element of the given array,\n * where key is the element itself and value is provided by the [valueSelector] function applied to that key.\n * \n * If any two elements are equal, the last one overwrites the former value in the map.\n * \n * @sample
samples.collections.Collections.Transformations.associateWithTo\n
*/\n@SinceKotlin(\"1.4\")\n@kotlin.internal.InlineOnly\npublic inline fun <V, M : MutableMap<in Char, in V>> CharArray.associateWithTo(destination: M, valueSelector: (Char) -> V): M {\n   for (element in this) {\n destination.put(element, valueSelector(element))\n   }\n   return destination\n}\n\n/**\n * Appends all elements to the given [destination] collection.\n */\npublic fun <T, C : MutableCollection<in T>> Array<out T>.toCollection(destination: C): C {\n   for (item in this) {\n   destination.add(item)\n   }\n   return destination\n}\n\n/**\n * Appends all elements to the given [destination] collection.\n */\npublic fun <C : MutableCollection<in Byte>> ByteArray.toCollection(destination: C): C {\n   for (item in this) {\n destination.add(item)\n   }\n   return destination\n}\n\n/**\n * Appends all elements to the given [destination] collection.\n */\npublic fun <C : MutableCollection<in Short>> ShortArray.toCollection(destination: C): C {\n   for (item in this) {\n   destination.add(item)\n   }\n   return destination\n}\n\n/**\n * Appends all elements to the given [destination] collection.\n */\npublic fun <C : MutableCollection<in Int>> IntArray.toCollection(destination: C): C {\n   for (item in this) {\n   destination.add(item)\n   }\n   return destination\n}\n\n/**\n * Appends all elements to the given [destination] collection.\n */\npublic fun <C : MutableCollection<in Long>> LongArray.toCollection(destination: C): C {\n   for (item in this) {\n   destination.add(item)\n   }\n   return destination\n}\n\n/**\n * Appends all elements to the given [destination] collection.\n */\npublic fun <C : MutableCollection<in Float>> FloatArray.toCollection(destination: C): C {\n   for (item in this) {\n destination.add(item)\n   }\n   return destination\n}\n\n/**\n * Appends all elements to the given [destination] collection.\n */\npublic fun <C : MutableCollection<in Double>> DoubleArray.toCollection(destination: C): C {\n for (item in this) {\n   destination.add(item)\n   }\n   return destination\n}\n\n/**\n * Appends all elements to the given [destination] collection.\n */\npublic fun <C : MutableCollection<in Boolean>> BooleanArray.toCollection(destination: C): C {\n   for (item in this) {\n   destination.add(item)\n   }\n   return destination\n}\n\n/**\n * Appends all elements to the given [destination] collection.\n */\npublic fun <C : MutableCollection<in Char>> CharArray.toCollection(destination: C): C {\n   for (item in this) {\n destination.add(item)\n   }\n   return destination\n}\n\n/**\n * Returns a new [HashSet] of all elements.\n */\npublic fun <T> Array<out T>.toHashSet(): HashSet<T> {\n   return toCollection(HashSet<T>(mapCapacity(size)))\n}\n\n/**\n * Returns a new [HashSet] of all elements.\n */\npublic fun ByteArray.toHashSet(): HashSet<Byte> {\n   return toCollection(HashSet<Byte>(mapCapacity(size)))\n}\n\n/**\n * Returns a new [HashSet] of all elements.\n */\npublic fun ShortArray.toHashSet(): HashSet<Short> {\n   return toCollection(HashSet<Short>(mapCapacity(size)))\n}\n\n/**\n * Returns a new [HashSet] of all elements.\n */\npublic fun IntArray.toHashSet(): HashSet<Int> {\n   return toCollection(HashSet<Int>(mapCapacity(size)))\n}\n\n/**\n * Returns a new [HashSet] of all elements.\n */\npublic fun LongArray.toHashSet(): HashSet<Long> {\n   return

toCollection(HashSet<Long>(mapCapacity(size)))\n}\n\n/**\n * Returns a new [HashSet] of all elements.\n */\npublic fun FloatArray.toHashSet(): HashSet<Float> {\n   return toCollection(HashSet<Float>(mapCapacity(size)))\n}\n\n/**\n * Returns a new [HashSet] of all elements.\n */\npublic fun DoubleArray.toHashSet(): HashSet<Double> {\n   return toCollection(HashSet<Double>(mapCapacity(size)))\n}\n\n/**\n * Returns a new [HashSet] of all elements.\n */\npublic fun BooleanArray.toHashSet(): HashSet<Boolean> {\n   return toCollection(HashSet<Boolean>(mapCapacity(size)))\n}\n\n/**\n * Returns a new [HashSet] of all elements.\n */\npublic fun CharArray.toHashSet(): HashSet<Char> {\n   return toCollection(HashSet<Char>(mapCapacity(size.coerceAtMost(128))))\n}\n\n/**\n * Returns a [List] containing all elements.\n */\npublic fun <T> Array<out T>.toList(): List<T> {\n   return when (size) {\n   0 -> emptyList()\n   1 -> listOf(this[0])\n   else -> this.toMutableList()\n   }\n}\n\n/**\n * Returns a [List] containing all elements.\n */\npublic fun ByteArray.toList(): List<Byte> {\n   return when (size) {\n   0 -> emptyList()\n   1 -> listOf(this[0])\n   else -> this.toMutableList()\n   }\n}\n\n/**\n * Returns a [List] containing all elements.\n */\npublic fun ShortArray.toList(): List<Short> {\n   return when (size) {\n   0 -> emptyList()\n   1 -> listOf(this[0])\n   else -> this.toMutableList()\n   }\n}\n\n/**\n * Returns a [List] containing all elements.\n */\npublic fun IntArray.toList(): List<Int> {\n   return when (size) {\n   0 -> emptyList()\n   1 -> listOf(this[0])\n   else -> this.toMutableList()\n   }\n}\n\n/**\n * Returns a [List] containing all elements.\n */\npublic fun LongArray.toList(): List<Long> {\n   return when (size) {\n   0 -> emptyList()\n   1 -> listOf(this[0])\n   else -> this.toMutableList()\n   }\n}\n\n/**\n * Returns a [List] containing all elements.\n */\npublic fun FloatArray.toList(): List<Float> {\n   return when (size) {\n   0 -> emptyList()\n   1 -> listOf(this[0])\n   else -> this.toMutableList()\n   }\n}\n\n/**\n * Returns a [List] containing all elements.\n */\npublic fun DoubleArray.toList(): List<Double> {\n   return when (size) {\n   0 -> emptyList()\n   1 -> listOf(this[0])\n   else -> this.toMutableList()\n   }\n}\n\n/**\n * Returns a [List] containing all elements.\n */\npublic fun BooleanArray.toList(): List<Boolean> {\n   return when (size) {\n   0 -> emptyList()\n   1 -> listOf(this[0])\n   else -> this.toMutableList()\n   }\n}\n\n/**\n * Returns a [List] containing all elements.\n */\npublic fun CharArray.toList(): List<Char> {\n   return when (size) {\n   0 -> emptyList()\n   1 -> listOf(this[0])\n   else -> this.toMutableList()\n   }\n}\n\n/**\n * Returns a new [MutableList] filled with all elements of this array.\n */\npublic fun <T> Array<out T>.toMutableList(): MutableList<T> {\n   return ArrayList(this.asCollection())\n}\n\n/**\n * Returns a new [MutableList] filled with all elements of this array.\n */\npublic fun ByteArray.toMutableList(): MutableList<Byte> {\n   val list = ArrayList<Byte>(size)\n   for (item in this) list.add(item)\n   return list\n}\n\n/**\n * Returns a new [MutableList] filled with all elements of this array.\n */\npublic fun ShortArray.toMutableList(): MutableList<Short> {\n   val list = ArrayList<Short>(size)\n   for (item in this) list.add(item)\n   return list\n}\n\n/**\n * Returns a new [MutableList] filled with all elements of this array.\n */\npublic fun IntArray.toMutableList(): MutableList<Int> {\n   val list = ArrayList<Int>(size)\n   for (item in this) list.add(item)\n   return list\n}\n\n/**\n * Returns a new [MutableList] filled with all elements of this array.\n */\npublic fun LongArray.toMutableList(): MutableList<Long> {\n   val list = ArrayList<Long>(size)\n   for (item in this) list.add(item)\n   return list\n}\n\n/**\n * Returns a new [MutableList] filled with all elements of this array.\n */\npublic fun FloatArray.toMutableList(): MutableList<Float> {\n   val list = ArrayList<Float>(size)\n   for (item in this) list.add(item)\n   return list\n}\n\n/**\n * Returns a new [MutableList] filled with all elements of this array.\n */\npublic fun DoubleArray.toMutableList(): MutableList<Double> {\n   val list = ArrayList<Double>(size)\n   for (item in this) list.add(item)\n   return list\n}\n\n/**\n * Returns a new [MutableList] filled with all elements of this array.\n */\npublic fun BooleanArray.toMutableList(): MutableList<Boolean> {\n   val list = ArrayList<Boolean>(size)\n   for (item in this) list.add(item)\n   return list\n}\n\n/**\n * Returns a new [MutableList] filled with all elements of this array.\n */\npublic fun CharArray.toMutableList(): MutableList<Char> {\n   val list = ArrayList<Char>(size)\n   for (item in this) list.add(item)\n   return list\n}\n\n/**\n * Returns a [Set] of all elements.\n * \n * The returned set preserves the element iteration order of the original array.\n */\npublic fun <T> Array<out T>.toSet(): Set<T> {\n   return when (size) {\n   0 -> emptySet()\n   1 -> setOf(this[0])\n   else ->

toCollection(LinkedHashSet<T>(mapCapacity(size)))\n   }\n}\n\n/**\n * Returns a [Set] of all elements.\n * \n * The returned set preserves the element iteration order of the original array.\n */\npublic fun ByteArray.toSet(): Set<Byte> {\n   return when (size) {\n   0 -> emptySet()\n   1 -> setOf(this[0])\n   else -> toCollection(LinkedHashSet<Byte>(mapCapacity(size)))\n   }\n}\n\n/**\n * Returns a [Set] of all elements.\n * \n * The returned set preserves the element iteration order of the original array.\n */\npublic fun ShortArray.toSet(): Set<Short> {\n   return when (size) {\n   0 -> emptySet()\n   1 -> setOf(this[0])\n   else -> toCollection(LinkedHashSet<Short>(mapCapacity(size)))\n   }\n}\n\n/**\n * Returns a [Set] of all elements.\n * \n * The returned set preserves the element iteration order of the original array.\n */\npublic fun IntArray.toSet(): Set<Int> {\n   return when (size) {\n   0 -> emptySet()\n   1 -> setOf(this[0])\n   else -> toCollection(LinkedHashSet<Int>(mapCapacity(size)))\n   }\n}\n\n/**\n * Returns a [Set] of all elements.\n * \n * The returned set preserves the element iteration order of the original array.\n */\npublic fun LongArray.toSet(): Set<Long> {\n   return when (size) {\n   0 -> emptySet()\n   1 -> setOf(this[0])\n   else -> toCollection(LinkedHashSet<Long>(mapCapacity(size)))\n   }\n}\n\n/**\n * Returns a [Set] of all elements.\n * \n * The returned set preserves the element iteration order of the original array.\n */\npublic fun FloatArray.toSet(): Set<Float> {\n   return when (size) {\n   0 -> emptySet()\n   1 -> setOf(this[0])\n   else -> toCollection(LinkedHashSet<Float>(mapCapacity(size)))\n   }\n}\n\n/**\n * Returns a [Set] of all elements.\n * \n * The returned set preserves the element iteration order of the original array.\n */\npublic fun DoubleArray.toSet(): Set<Double> {\n   return when (size) {\n   0 -> emptySet()\n   1 -> setOf(this[0])\n   else -> toCollection(LinkedHashSet<Double>(mapCapacity(size)))\n   }\n}\n\n/**\n * Returns a [Set] of all elements.\n * \n * The returned set preserves the element iteration order of the original array.\n */\npublic fun BooleanArray.toSet(): Set<Boolean> {\n   return when (size) {\n   0 -> emptySet()\n   1 -> setOf(this[0])\n   else -> toCollection(LinkedHashSet<Boolean>(mapCapacity(size)))\n   }\n}\n\n/**\n * Returns a [Set] of all elements.\n * \n * The returned set preserves the element iteration order of the original array.\n */\npublic fun CharArray.toSet(): Set<Char> {\n   return when (size) {\n   0 -> emptySet()\n   1 -> setOf(this[0])\n   else -> toCollection(LinkedHashSet<Char>(mapCapacity(size.coerceAtMost(128))))\n   }\n}\n\n/**\n * Returns a single list of all elements yielded from results of [transform] function being invoked on each element of original array.\n * \n * @sample samples.collections.Collections.Transformations.flatMap\n */\npublic inline fun <T, R> Array<out T>.flatMap(transform: (T) -> Iterable<R>): List<R> {\n   return flatMapTo(ArrayList<R>(), transform)\n}\n\n/**\n * Returns a single list of all elements yielded from results of [transform] function being invoked on each element of original array.\n * \n * @sample samples.collections.Collections.Transformations.flatMap\n */\npublic inline fun <R> ByteArray.flatMap(transform: (Byte) -> Iterable<R>): List<R> {\n   return flatMapTo(ArrayList<R>(), transform)\n}\n\n/**\n * Returns a single list of all elements yielded from results of [transform] function being invoked on each element of original array.\n * \n * @sample samples.collections.Collections.Transformations.flatMap\n */\npublic inline fun <R> ShortArray.flatMap(transform: (Short) -> Iterable<R>): List<R> {\n   return flatMapTo(ArrayList<R>(), transform)\n}\n\n/**\n * Returns a single list of all elements yielded from results of [transform] function being invoked on each element of original array.\n * \n * @sample samples.collections.Collections.Transformations.flatMap\n */\npublic inline fun <R> IntArray.flatMap(transform: (Int) -> Iterable<R>): List<R> {\n   return flatMapTo(ArrayList<R>(), transform)\n}\n\n/**\n * Returns a single list of all elements yielded from results of [transform] function being invoked on each element of original array.\n * \n * @sample samples.collections.Collections.Transformations.flatMap\n */\npublic inline fun <R> LongArray.flatMap(transform: (Long) -> Iterable<R>): List<R> {\n   return flatMapTo(ArrayList<R>(), transform)\n}\n\n/**\n * Returns a single list of all elements yielded from results of [transform] function being invoked on each element of original array.\n * \n * @sample samples.collections.Collections.Transformations.flatMap\n */\npublic inline fun <R> FloatArray.flatMap(transform: (Float) -> Iterable<R>): List<R> {\n   return flatMapTo(ArrayList<R>(), transform)\n}\n\n/**\n * Returns a single list of all elements yielded from results of [transform] function being invoked on each element of original array.\n * \n * @sample samples.collections.Collections.Transformations.flatMap\n */\npublic inline fun <R>

DoubleArray.flatMap(transform: (Double) -> Iterable<R>): List<R> {\n   return flatMapTo(ArrayList<R>(), transform)\n}\n\n/**\n * Returns a single list of all elements yielded from results of [transform] function being invoked on each element of original array.\n * \n * @sample samples.collections.Collections.Transformations.flatMap\n */\npublic inline fun <R> BooleanArray.flatMap(transform: (Boolean) -> Iterable<R>): List<R> {\n   return flatMapTo(ArrayList<R>(), transform)\n}\n\n/**\n * Returns a single list of all elements yielded from results of [transform] function being invoked on each element of original array.\n * \n * @sample samples.collections.Collections.Transformations.flatMap\n */\npublic inline fun <R> CharArray.flatMap(transform: (Char) -> Iterable<R>): List<R> {\n   return flatMapTo(ArrayList<R>(), transform)\n}\n\n/**\n * Returns a single list of all elements yielded from results of [transform] function being invoked on each element of original array.\n * \n * @sample samples.collections.Collections.Transformations.flatMap\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.jvm.JvmName(\"flatMapSequence\")\npublic inline fun <T, R> Array<out T>.flatMap(transform: (T) -> Sequence<R>): List<R> {\n   return flatMapTo(ArrayList<R>(), transform)\n}\n\n/**\n * Returns a single list of all elements yielded from results of [transform] function being invoked on each element\n * and its index in the original array.\n * \n * @sample samples.collections.Collections.Transformations.flatMapIndexed\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.jvm.JvmName(\"flatMapIndexedIterable\")\n@kotlin.internal.InlineOnly\npublic inline fun <T, R> Array<out T>.flatMapIndexed(transform: (index: Int, T) -> Iterable<R>): List<R> {\n   return flatMapIndexedTo(ArrayList<R>(), transform)\n}\n\n/**\n * Returns a single list of all elements yielded from results of [transform] function being invoked on each element\n * and its index in the original array.\n * \n * @sample samples.collections.Collections.Transformations.flatMapIndexed\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.jvm.JvmName(\"flatMapIndexedIterable\")\n@kotlin.internal.InlineOnly\npublic inline fun <R> ByteArray.flatMapIndexed(transform: (index: Int, Byte) -> Iterable<R>): List<R> {\n   return flatMapIndexedTo(ArrayList<R>(), transform)\n}\n\n/**\n * Returns a single list of all elements yielded from results of [transform] function being invoked on each element\n * and its index in the original array.\n * \n * @sample samples.collections.Collections.Transformations.flatMapIndexed\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.jvm.JvmName(\"flatMapIndexedIterable\")\n@kotlin.internal.InlineOnly\npublic inline fun <R> ShortArray.flatMapIndexed(transform: (index: Int, Short) -> Iterable<R>): List<R> {\n   return flatMapIndexedTo(ArrayList<R>(), transform)\n}\n\n/**\n * Returns a single list of all elements yielded from results of [transform] function being invoked on each element\n * and its index in the original array.\n * \n * @sample samples.collections.Collections.Transformations.flatMapIndexed\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.jvm.JvmName(\"flatMapIndexedIterable\")\n@kotlin.internal.InlineOnly\npublic inline fun <R> IntArray.flatMapIndexed(transform: (index: Int, Int) -> Iterable<R>): List<R> {\n   return flatMapIndexedTo(ArrayList<R>(), transform)\n}\n\n/**\n * Returns a single list of all elements yielded from results of [transform] function being invoked on each element\n * and its index in the original array.\n * \n * @sample samples.collections.Collections.Transformations.flatMapIndexed\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.jvm.JvmName(\"flatMapIndexedIterable\")\n@kotlin.internal.InlineOnly\npublic inline fun <R> LongArray.flatMapIndexed(transform: (index: Int, Long) -> Iterable<R>): List<R> {\n   return flatMapIndexedTo(ArrayList<R>(), transform)\n}\n\n/**\n * Returns a single list of all elements yielded from results of [transform] function being invoked on each element\n * and its index in the original array.\n * \n * @sample samples.collections.Collections.Transformations.flatMapIndexed\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution

ByLambdaReturnType\n@kotlin.jvm.JvmName(\"flatMapIndexedIterable\")\n@kotlin.internal.InlineOnly\npublic
inline fun <R> FloatArray.flatMapIndexed(transform: (index: Int, Float) -> Iterable<R>): List<R> {\n   return
flatMapIndexedTo(ArrayList<R>(), transform)\n}\n\n/**\n * Returns a single list of all elements yielded from
results of [transform] function being invoked on each element\n * and its index in the original array.\n * \n *
@sample samples.collections.Collections.Transformations.flatMapIndexed\n
*/\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.jvm.JvmName(\"flatMapIndexedIterable\")\n@kotlin.internal.InlineOnly\npublic
inline fun <R> DoubleArray.flatMapIndexed(transform: (index: Int, Double) -> Iterable<R>): List<R> {\n   return
flatMapIndexedTo(ArrayList<R>(), transform)\n}\n\n/**\n * Returns a single list of all elements yielded from
results of [transform] function being invoked on each element\n * and its index in the original array.\n * \n *
@sample samples.collections.Collections.Transformations.flatMapIndexed\n
*/\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.jvm.JvmName(\"flatMapIndexedIterable\")\n@kotlin.internal.InlineOnly\npublic
inline fun <R> BooleanArray.flatMapIndexed(transform: (index: Int, Boolean) -> Iterable<R>): List<R> {\n
return flatMapIndexedTo(ArrayList<R>(), transform)\n}\n\n/**\n * Returns a single list of all elements yielded
from results of [transform] function being invoked on each element\n * and its index in the original array.\n * \n *
@sample samples.collections.Collections.Transformations.flatMapIndexed\n
*/\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.jvm.JvmName(\"flatMapIndexedIterable\")\n@kotlin.internal.InlineOnly\npublic
inline fun <R> CharArray.flatMapIndexed(transform: (index: Int, Char) -> Iterable<R>): List<R> {\n   return
flatMapIndexedTo(ArrayList<R>(), transform)\n}\n\n/**\n * Returns a single list of all elements yielded from
results of [transform] function being invoked on each element\n * and its index in the original array.\n * \n *
@sample samples.collections.Collections.Transformations.flatMapIndexed\n
*/\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.jvm.JvmName(\"flatMapIndexedSequence\")\n@kotlin.internal.InlineOnly\npubli
c inline fun <T, R> Array<out T>.flatMapIndexed(transform: (index: Int, T) -> Sequence<R>): List<R> {\n   return
flatMapIndexedTo(ArrayList<R>(), transform)\n}\n\n/**\n * Appends all elements yielded from results of
[transform] function being invoked on each element\n * and its index in the original array, to the given
[destination].\n
*/\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.jvm.JvmName(\"flatMapIndexedIterableTo\")\n@kotlin.internal.InlineOnly\npubli
c inline fun <T, R, C : MutableCollection<in R>> Array<out T>.flatMapIndexedTo(destination: C, transform:
(index: Int, T) -> Iterable<R>): C {\n   var index = 0\n   for (element in this) {\n   val list = transform(index++,
element)\n   destination.addAll(list)\n   }\n   return destination\n}\n\n/**\n * Appends all elements yielded from
results of [transform] function being invoked on each element\n * and its index in the original array, to the given
[destination].\n
*/\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.jvm.JvmName(\"flatMapIndexedIterableTo\")\n@kotlin.internal.InlineOnly\npubli
c inline fun <R, C : MutableCollection<in R>> ByteArray.flatMapIndexedTo(destination: C, transform: (index: Int,
Byte) -> Iterable<R>): C {\n   var index = 0\n   for (element in this) {\n   val list = transform(index++,
element)\n   destination.addAll(list)\n   }\n   return destination\n}\n\n/**\n * Appends all elements yielded from
results of [transform] function being invoked on each element\n * and its index in the original array, to the given
[destination].\n
*/\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.jvm.JvmName(\"flatMapIndexedIterableTo\")\n@kotlin.internal.InlineOnly\npubli
c inline fun <R, C : MutableCollection<in R>> ShortArray.flatMapIndexedTo(destination: C, transform: (index: Int,
Short) -> Iterable<R>): C {\n   var index = 0\n   for (element in this) {\n   val list = transform(index++,
element)\n   destination.addAll(list)\n   }\n   return destination\n}\n\n/**\n * Appends all elements yielded from

results of [transform] function being invoked on each element\n * and its index in the original array, to the given [destination].\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.jvm.JvmName(\"flatMapIndexedIterableTo\")\n@kotlin.internal.InlineOnly\npublic inline fun <R, C : MutableCollection<in R>> IntArray.flatMapIndexedTo(destination: C, transform: (index: Int, Int) -> Iterable<R>): C {\n   var index = 0\n   for (element in this) {\n   val list = transform(index++, element)\n   destination.addAll(list)\n   }\n   return destination\n}\n\n/**\n * Appends all elements yielded from results of [transform] function being invoked on each element\n * and its index in the original array, to the given [destination].\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.jvm.JvmName(\"flatMapIndexedIterableTo\")\n@kotlin.internal.InlineOnly\npublic inline fun <R, C : MutableCollection<in R>> LongArray.flatMapIndexedTo(destination: C, transform: (index: Int, Long) -> Iterable<R>): C {\n   var index = 0\n   for (element in this) {\n   val list = transform(index++, element)\n   destination.addAll(list)\n   }\n   return destination\n}\n\n/**\n * Appends all elements yielded from results of [transform] function being invoked on each element\n * and its index in the original array, to the given [destination].\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.jvm.JvmName(\"flatMapIndexedIterableTo\")\n@kotlin.internal.InlineOnly\npublic inline fun <R, C : MutableCollection<in R>> FloatArray.flatMapIndexedTo(destination: C, transform: (index: Int, Float) -> Iterable<R>): C {\n   var index = 0\n   for (element in this) {\n   val list = transform(index++, element)\n   destination.addAll(list)\n   }\n   return destination\n}\n\n/**\n * Appends all elements yielded from results of [transform] function being invoked on each element\n * and its index in the original array, to the given [destination].\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.jvm.JvmName(\"flatMapIndexedIterableTo\")\n@kotlin.internal.InlineOnly\npublic inline fun <R, C : MutableCollection<in R>> DoubleArray.flatMapIndexedTo(destination: C, transform: (index: Int, Double) -> Iterable<R>): C {\n   var index = 0\n   for (element in this) {\n   val list = transform(index++, element)\n   destination.addAll(list)\n   }\n   return destination\n}\n\n/**\n * Appends all elements yielded from results of [transform] function being invoked on each element\n * and its index in the original array, to the given [destination].\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.jvm.JvmName(\"flatMapIndexedIterableTo\")\n@kotlin.internal.InlineOnly\npublic inline fun <R, C : MutableCollection<in R>> BooleanArray.flatMapIndexedTo(destination: C, transform: (index: Int, Boolean) -> Iterable<R>): C {\n   var index = 0\n   for (element in this) {\n   val list = transform(index++, element)\n   destination.addAll(list)\n   }\n   return destination\n}\n\n/**\n * Appends all elements yielded from results of [transform] function being invoked on each element\n * and its index in the original array, to the given [destination].\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.jvm.JvmName(\"flatMapIndexedIterableTo\")\n@kotlin.internal.InlineOnly\npublic inline fun <R, C : MutableCollection<in R>> CharArray.flatMapIndexedTo(destination: C, transform: (index: Int, Char) -> Iterable<R>): C {\n   var index = 0\n   for (element in this) {\n   val list = transform(index++, element)\n   destination.addAll(list)\n   }\n   return destination\n}\n\n/**\n * Appends all elements yielded from results of [transform] function being invoked on each element\n * and its index in the original array, to the given [destination].\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.jvm.JvmName(\"flatMapIndexedSequenceTo\")\n@kotlin.internal.InlineOnly\npublic inline fun <T, R, C : MutableCollection<in R>> Array<out T>.flatMapIndexedTo(destination: C, transform: (index: Int, T) -> Sequence<R>): C {\n   var index = 0\n   for (element in this) {\n   val list =

transform(index++, element)\n   destination.addAll(list)\n   }\n   return destination\n}\n\n/**\n * Appends all elements yielded from results of [transform] function being invoked on each element of original array, to the given [destination].\n */\npublic inline fun <T, R, C : MutableCollection<in R>> Array<out T>.flatMapTo(destination: C, transform: (T) -> Iterable<R>): C {\n   for (element in this) {\n   val list = transform(element)\n   destination.addAll(list)\n   }\n   return destination\n}\n\n/**\n * Appends all elements yielded from results of [transform] function being invoked on each element of original array, to the given [destination].\n */\npublic inline fun <R, C : MutableCollection<in R>> ByteArray.flatMapTo(destination: C, transform: (Byte) -> Iterable<R>): C {\n   for (element in this) {\n   val list = transform(element)\n   destination.addAll(list)\n   }\n   return destination\n}\n\n/**\n * Appends all elements yielded from results of [transform] function being invoked on each element of original array, to the given [destination].\n */\npublic inline fun <R, C : MutableCollection<in R>> ShortArray.flatMapTo(destination: C, transform: (Short) -> Iterable<R>): C {\n   for (element in this) {\n   val list = transform(element)\n   destination.addAll(list)\n   }\n   return destination\n}\n\n/**\n * Appends all elements yielded from results of [transform] function being invoked on each element of original array, to the given [destination].\n */\npublic inline fun <R, C : MutableCollection<in R>> IntArray.flatMapTo(destination: C, transform: (Int) -> Iterable<R>): C {\n   for (element in this) {\n   val list = transform(element)\n   destination.addAll(list)\n   }\n   return destination\n}\n\n/**\n * Appends all elements yielded from results of [transform] function being invoked on each element of original array, to the given [destination].\n */\npublic inline fun <R, C : MutableCollection<in R>> LongArray.flatMapTo(destination: C, transform: (Long) -> Iterable<R>): C {\n   for (element in this) {\n   val list = transform(element)\n   destination.addAll(list)\n   }\n   return destination\n}\n\n/**\n * Appends all elements yielded from results of [transform] function being invoked on each element of original array, to the given [destination].\n */\npublic inline fun <R, C : MutableCollection<in R>> FloatArray.flatMapTo(destination: C, transform: (Float) -> Iterable<R>): C {\n   for (element in this) {\n   val list = transform(element)\n   destination.addAll(list)\n   }\n   return destination\n}\n\n/**\n * Appends all elements yielded from results of [transform] function being invoked on each element of original array, to the given [destination].\n */\npublic inline fun <R, C : MutableCollection<in R>> DoubleArray.flatMapTo(destination: C, transform: (Double) -> Iterable<R>): C {\n   for (element in this) {\n   val list = transform(element)\n   destination.addAll(list)\n   }\n   return destination\n}\n\n/**\n * Appends all elements yielded from results of [transform] function being invoked on each element of original array, to the given [destination].\n */\npublic inline fun <R, C : MutableCollection<in R>> BooleanArray.flatMapTo(destination: C, transform: (Boolean) -> Iterable<R>): C {\n   for (element in this) {\n   val list = transform(element)\n   destination.addAll(list)\n   }\n   return destination\n}\n\n/**\n * Appends all elements yielded from results of [transform] function being invoked on each element of original array, to the given [destination].\n */\npublic inline fun <R, C : MutableCollection<in R>> CharArray.flatMapTo(destination: C, transform: (Char) -> Iterable<R>): C {\n   for (element in this) {\n   val list = transform(element)\n   destination.addAll(list)\n   }\n   return destination\n}\n\n/**\n * Appends all elements yielded from results of [transform] function being invoked on each element of original array, to the given [destination].\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.jvm.JvmName(\"flatMapSequenceTo\")\npublic inline fun <T, R, C : MutableCollection<in R>> Array<out T>.flatMapTo(destination: C, transform: (T) -> Sequence<R>): C {\n   for (element in this) {\n   val list = transform(element)\n   destination.addAll(list)\n   }\n   return destination\n}\n\n/**\n * Groups elements of the original array by the key returned by the given [keySelector] function\n * applied to each element and returns a map where each group key is associated with a list of corresponding elements.\n * \n * The returned map preserves the entry iteration order of the keys produced from the original array.\n * \n * @sample samples.collections.Collections.Transformations.groupBy\n */\npublic inline fun <T, K> Array<out T>.groupBy(keySelector: (T) -> K): Map<K, List<T>> {\n   return groupByTo(LinkedHashMap<K, MutableList<T>>(), keySelector)\n}\n\n/**\n * Groups elements of the original array by the key returned by the given [keySelector] function\n * applied to each element and returns a map where each group key is associated with a list of corresponding elements.\n * \n * The returned map preserves the entry iteration order of the keys produced from the original array.\n * \n * @sample samples.collections.Collections.Transformations.groupBy\n */\npublic inline fun <K> ByteArray.groupBy(keySelector: (Byte) -> K): Map<K, List<Byte>> {\n   return groupByTo(LinkedHashMap<K, MutableList<Byte>>(), keySelector)\n}\n\n/**\n * Groups elements of the original array by the key returned by the given [keySelector] function\n * applied to each element and returns a map where each group key is associated with a list of corresponding elements.\n * \n * The returned map preserves the entry iteration order of the keys produced from the original array.\n * \n * @sample samples.collections.Collections.Transformations.groupBy\n */\npublic inline fun <K> ShortArray.groupBy(keySelector: (Short) -> K): Map<K, List<Short>> {\n   return groupByTo(LinkedHashMap<K, MutableList<Short>>(), keySelector)\n}\n\n/**\n * Groups elements of the original array by the key returned by the given [keySelector] function\n * applied to each element and returns a map where each group key is associated with a list of corresponding elements.\n * \n * The returned map preserves the entry iteration order of the keys produced from the original array.\n * \n * @sample samples.collections.Collections.Transformations.groupBy\n */\npublic inline fun <K> IntArray.groupBy(keySelector: (Int) -> K): Map<K, List<Int>> {\n   return groupByTo(LinkedHashMap<K, MutableList<Int>>(), keySelector)\n}\n\n/**\n * Groups elements of the original array by the key returned by the given [keySelector] function\n * applied to each element and returns a map where each group key is associated with a list of corresponding elements.\n * \n * The returned map 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function\n * applied to each element and returns a map where each group key is associated with a list of corresponding elements.\n * \n * The returned map preserves the entry iteration order of the keys produced from the original array.\n * \n * @sample samples.collections.Collections.Transformations.groupBy\n */\npublic inline fun <K> DoubleArray.groupBy(keySelector: (Double) -> K): Map<K, List<Double>> {\n   return groupByTo(LinkedHashMap<K, MutableList<Double>>(), keySelector)\n}\n\n/**\n * Groups elements of the original array by the key returned by the given [keySelector] function\n * applied to each element and returns a map where each group key is associated with a list of corresponding elements.\n * \n * The returned map preserves the entry iteration order of the keys produced from the original array.\n * \n * @sample samples.collections.Collections.Transformations.groupBy\n */\npublic inline fun <K> BooleanArray.groupBy(keySelector: (Boolean) -> K): Map<K, List<Boolean>> {\n   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order of the keys produced from the original array.\n * \n * @sample samples.collections.Collections.Transformations.groupByKeysAndValues\n */\npublic inline fun <T, K, V> Array<out T>.groupBy(keySelector: (T) -> K, valueTransform: (T) -> V): Map<K, List<V>> {\n   return groupByTo(LinkedHashMap<K, MutableList<V>>(), keySelector, valueTransform)\n}\n\n/**\n * Groups values returned by the [valueTransform] function applied to each element of the original array\n * by the key returned by the given [keySelector] function applied to the element\n * and returns a map where each group key is associated with a list of corresponding values.\n * \n * The returned map preserves the entry iteration order of the keys produced from the original array.\n * \n * @sample samples.collections.Collections.Transformations.groupByKeysAndValues\n */\npublic inline fun <K, V> ByteArray.groupBy(keySelector: (Byte) -> K, valueTransform: (Byte) -> V): Map<K, List<V>> {\n   return groupByTo(LinkedHashMap<K, MutableList<V>>(), keySelector, valueTransform)\n}\n\n/**\n * Groups values returned by the [valueTransform] function applied to each element of the original array\n * by the key returned by the given [keySelector] function applied to the element\n * and returns a map where each group key is associated with a list of corresponding values.\n * \n * The returned map preserves the entry iteration order of the keys produced from the original array.\n * \n * @sample samples.collections.Collections.Transformations.groupByKeysAndValues\n */\npublic inline fun <K, V> ShortArray.groupBy(keySelector: (Short) -> K, valueTransform: (Short) -> V): Map<K, List<V>> {\n   return groupByTo(LinkedHashMap<K, MutableList<V>>(), keySelector, valueTransform)\n}\n\n/**\n * Groups values returned by the [valueTransform] function applied to each element of the original array\n * by the key returned by the given [keySelector] function applied to the element\n * and returns a map where each group key is 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(Long) -> K, valueTransform: (Long) -> V): Map<K, List<V>> {\n   return groupByTo(LinkedHashMap<K, MutableList<V>>(), keySelector, valueTransform)\n}\n\n/**\n * Groups values returned by the [valueTransform] function applied to each element of the original array\n * by the key returned by the given [keySelector] function applied to the element\n * and returns a map where each group key is associated with a list of corresponding values.\n * \n * The returned map preserves the entry iteration order of the keys produced from the original array.\n * \n * @sample samples.collections.Collections.Transformations.groupByKeysAndValues\n */\npublic inline fun <K, V> FloatArray.groupBy(keySelector: (Float) -> K, valueTransform: (Float) -> V): Map<K, List<V>> {\n   return groupByTo(LinkedHashMap<K, MutableList<V>>(), keySelector, valueTransform)\n}\n\n/**\n * Groups values returned by the [valueTransform] function applied to each element of the original array\n * by the key returned by the given [keySelector] function applied to the element\n * and returns a map where each group key is associated with a list of corresponding values.\n * \n * The returned map preserves the entry iteration order of the keys produced from the original array.\n * \n * @sample samples.collections.Collections.Transformations.groupByKeysAndValues\n */\npublic inline fun <K, V> DoubleArray.groupBy(keySelector: (Double) -> K, valueTransform: (Double) -> V): Map<K, List<V>> {\n   return groupByTo(LinkedHashMap<K, MutableList<V>>(), keySelector, valueTransform)\n}\n\n/**\n * Groups values returned by the [valueTransform] function applied to each element of the original array\n * by the key returned by the given [keySelector] function applied to the element\n * and returns a map where each group key is associated with a list of corresponding values.\n * \n * The returned map preserves the entry iteration order of the keys produced from the original array.\n * \n * @sample samples.collections.Collections.Transformations.groupByKeysAndValues\n */\npublic inline fun <K, V>

BooleanArray.groupBy(keySelector: (Boolean) -> K, valueTransform: (Boolean) -> V): Map<K, List<V>> {\n return groupByTo(LinkedHashMap<K, MutableList<V>>(), keySelector, valueTransform)\n}\n\n/**\n * Groups values returned by the [valueTransform] function applied to each element of the original array\n * by the key returned by the given [keySelector] function applied to the element\n * and returns a map where each group key is associated with a list of corresponding values.\n * \n * The returned map preserves the entry iteration order of the keys produced from the original array.\n * \n * @sample samples.collections.Collections.Transformations.groupByKeysAndValues\n */\npublic inline fun <K, V> CharArray.groupBy(keySelector: (Char) -> K, valueTransform: (Char) -> V): Map<K, List<V>> {\n   return groupByTo(LinkedHashMap<K, MutableList<V>>(), keySelector, valueTransform)\n}\n\n/**\n * Groups elements of the original array by the key returned by the given [keySelector] function\n * applied to each element and puts to the [destination] map each group key associated with a list of corresponding elements.\n * \n * @return The [destination] map.\n * \n * @sample samples.collections.Collections.Transformations.groupBy\n */\npublic inline fun <T, K, M : MutableMap<in K, MutableList<T>>> Array<out T>.groupByTo(destination: M, keySelector: (T) -> K): M {\n   for (element in this) {\n   val key = keySelector(element)\n   val list = destination.getOrPut(key) { ArrayList<T>() }\n   list.add(element)\n   }\n   return destination\n}\n\n/**\n * Groups elements of the original array by the key returned by the given [keySelector] function\n * applied to each element and puts to the [destination] map each group key associated with a list of corresponding elements.\n * \n * @return The [destination] map.\n * \n * @sample samples.collections.Collections.Transformations.groupBy\n */\npublic inline fun <K, M : MutableMap<in K, MutableList<Byte>>> ByteArray.groupByTo(destination: M, keySelector: (Byte) -> K): M {\n   for (element in this) {\n   val key = keySelector(element)\n   val list = destination.getOrPut(key) { ArrayList<Byte>() }\n   list.add(element)\n   }\n   return destination\n}\n\n/**\n * Groups elements of the original array by the key returned by the given [keySelector] function\n * applied to each element and puts to the [destination] map each group key associated with a list of corresponding elements.\n * \n * @return The [destination] map.\n * \n * @sample samples.collections.Collections.Transformations.groupBy\n */\npublic inline fun <K, M : MutableMap<in K, MutableList<Short>>> ShortArray.groupByTo(destination: M, keySelector: (Short) -> K): M {\n   for (element in this) {\n   val key = keySelector(element)\n   val list = destination.getOrPut(key) { ArrayList<Short>() }\n   list.add(element)\n   }\n   return destination\n}\n\n/**\n * Groups elements of the original array by the key returned by the given [keySelector] function\n * applied to each element and puts to the [destination] map each group key associated with a list of corresponding elements.\n * \n * @return The [destination] map.\n * \n * @sample samples.collections.Collections.Transformations.groupBy\n */\npublic inline fun <K, M : MutableMap<in K, MutableList<Int>>> IntArray.groupByTo(destination: M, keySelector: (Int) -> K): M {\n   for (element in this) {\n   val key = keySelector(element)\n   val list = destination.getOrPut(key) { ArrayList<Int>() }\n   list.add(element)\n   }\n   return destination\n}\n\n/**\n * Groups elements of the original array by the key returned by the given [keySelector] function\n * applied to each element and puts to the [destination] map each group key associated with a list of corresponding elements.\n * \n * @return The [destination] map.\n * \n * @sample samples.collections.Collections.Transformations.groupBy\n */\npublic inline fun <K, M : MutableMap<in K, MutableList<Long>>> LongArray.groupByTo(destination: M, keySelector: (Long) -> K): M {\n   for (element in this) {\n   val key = keySelector(element)\n   val list = destination.getOrPut(key) { ArrayList<Long>() }\n   list.add(element)\n   }\n   return destination\n}\n\n/**\n * Groups elements of the original array by the key returned by the given [keySelector] function\n * applied to each element and puts to the [destination] map each group key associated with a list of corresponding elements.\n * \n * @return The [destination] map.\n * \n * @sample samples.collections.Collections.Transformations.groupBy\n */\npublic inline fun <K, M : MutableMap<in K, MutableList<Float>>> FloatArray.groupByTo(destination: M, keySelector: (Float) -> K): M {\n   for (element in this) {\n   val key = keySelector(element)\n   val list = destination.getOrPut(key) { ArrayList<Float>() }\n   list.add(element)\n   }\n   return destination\n}\n\n/**\n * Groups elements of the original array by the key returned by the given [keySelector] function\n * applied to each element and puts to the [destination] map each group key associated with a list of corresponding elements.\n * \n * @return The [destination] map.\n * \n * @sample samples.collections.Collections.Transformations.groupBy\n

*/\npublic inline fun <K, M : MutableMap<in K, MutableList<Double>>> DoubleArray.groupByTo(destination: M, keySelector: (Double) -> K): M {\n   for (element in this) {\n   val key = keySelector(element)\n   val list = destination.getOrPut(key) { ArrayList<Double>() }\n   list.add(element)\n   }\n   return destination\n}\n\n/**\n * Groups elements of the original array by the key returned by the given [keySelector] function\n * applied to each element and puts to the [destination] map each group key associated with a list of corresponding elements.\n * \n * @return The [destination] map.\n * \n * @sample samples.collections.Collections.Transformations.groupBy\n */\npublic inline fun <K, M : MutableMap<in K, MutableList<Boolean>>> BooleanArray.groupByTo(destination: M, keySelector: (Boolean) -> K): M {\n   for (element in this) {\n   val key = keySelector(element)\n   val list = destination.getOrPut(key) { ArrayList<Boolean>() }\n   list.add(element)\n   }\n   return destination\n}\n\n/**\n * Groups elements of the original array by the key returned by the given [keySelector] function\n * applied to each element and puts to the [destination] map each group key associated with a list of corresponding elements.\n * \n * @return The [destination] map.\n * \n * @sample samples.collections.Collections.Transformations.groupBy\n */\npublic inline fun <K, M : MutableMap<in K, MutableList<Char>>> CharArray.groupByTo(destination: M, keySelector: (Char) -> K): M {\n   for (element in this) {\n   val key = keySelector(element)\n   val list = destination.getOrPut(key) { ArrayList<Char>() }\n list.add(element)\n   }\n   return destination\n}\n\n/**\n * Groups values returned by the [valueTransform] function applied to each element of the original array\n * by the key returned by the given [keySelector] function applied to the element\n * and puts to the [destination] map each group key associated with a list of corresponding values.\n * \n * @return The [destination] map.\n * \n * @sample samples.collections.Collections.Transformations.groupByKeysAndValues\n */\npublic inline fun <T, K, V, M : MutableMap<in K, MutableList<V>>> Array<out T>.groupByTo(destination: M, keySelector: (T) -> K, valueTransform: (T) -> V): M {\n   for (element in this) {\n   val key = keySelector(element)\n   val list = destination.getOrPut(key) { ArrayList<V>() }\n   list.add(valueTransform(element))\n   }\n   return destination\n}\n\n/**\n * Groups values returned by the [valueTransform] function applied to each element of the original array\n * by the key returned by the given [keySelector] function applied to the element\n * and puts to the [destination] map each group key associated with a list of corresponding values.\n * \n * @return The [destination] map.\n * \n * @sample samples.collections.Collections.Transformations.groupByKeysAndValues\n */\npublic inline fun <K, V, M : MutableMap<in K, MutableList<V>>> ByteArray.groupByTo(destination: M, keySelector: (Byte) -> K, valueTransform: (Byte) -> V): M {\n   for (element in this) {\n   val key = keySelector(element)\n   val list = destination.getOrPut(key) { ArrayList<V>() }\n   list.add(valueTransform(element))\n   }\n   return destination\n}\n\n/**\n * Groups values returned by the [valueTransform] function applied to each element of the original array\n * by the key returned by the given [keySelector] function applied to the element\n * and puts to the [destination] map each group key associated with a list of corresponding values.\n * \n * @return The [destination] map.\n * \n * @sample samples.collections.Collections.Transformations.groupByKeysAndValues\n */\npublic inline fun <K, V, M : MutableMap<in K, MutableList<V>>> ShortArray.groupByTo(destination: M, keySelector: (Short) -> K, valueTransform: (Short) -> V): M {\n   for (element in this) {\n   val key = keySelector(element)\n   val list = destination.getOrPut(key) { ArrayList<V>() }\n   list.add(valueTransform(element))\n   }\n   return destination\n}\n\n/**\n * Groups values returned by the [valueTransform] function applied to each element of the original array\n * by the key returned by the given [keySelector] function applied to the element\n * and puts to the [destination] map each group key associated with a list of corresponding values.\n * \n * @return The [destination] map.\n * \n * @sample samples.collections.Collections.Transformations.groupByKeysAndValues\n */\npublic inline fun <K, V, M : MutableMap<in K, MutableList<V>>> IntArray.groupByTo(destination: M, keySelector: (Int) -> K, valueTransform: (Int) -> V): M {\n   for (element in this) {\n   val key = keySelector(element)\n val list = destination.getOrPut(key) { ArrayList<V>() }\n   list.add(valueTransform(element))\n   }\n   return destination\n}\n\n/**\n * Groups values returned by the [valueTransform] function applied to each element of the original array\n * by the key returned by the given [keySelector] function applied to the element\n * and puts to the [destination] map each group key associated with a list of corresponding values.\n * \n * @return The [destination] map.\n * \n * @sample samples.collections.Collections.Transformations.groupByKeysAndValues\n */\npublic

inline fun <K, V, M : MutableMap<in K, MutableList<V>>> LongArray.groupByTo(destination: M, keySelector: (Long) -> K, valueTransform: (Long) -> V): M {\n   for (element in this) {\n   val key = keySelector(element)\n   val list = destination.getOrPut(key) { ArrayList<V>() }\n   list.add(valueTransform(element))\n   }\n   return destination\n}\n\n/**\n * Groups values returned by the [valueTransform] function applied to each element of the original array\n * by the key returned by the given [keySelector] function applied to the element\n * and puts to the [destination] map each group key associated with a list of corresponding values.\n * \n * @return The [destination] map.\n * \n * @sample samples.collections.Collections.Transformations.groupByKeysAndValues\n */\npublic inline fun <K, V, M : MutableMap<in K, MutableList<V>>> FloatArray.groupByTo(destination: M, keySelector: (Float) -> K, valueTransform: (Float) -> V): M {\n   for (element in this) {\n   val key = keySelector(element)\n   val list = destination.getOrPut(key) { ArrayList<V>() }\n   list.add(valueTransform(element))\n   }\n   return destination\n}\n\n/**\n * Groups values returned by the [valueTransform] function applied to each element of the original array\n * by the key returned by the given [keySelector] function applied to the element\n * and puts to the [destination] map each group key associated with a list of corresponding values.\n * \n * @return The [destination] map.\n * \n * @sample samples.collections.Collections.Transformations.groupByKeysAndValues\n */\npublic inline fun <K, V, M : MutableMap<in K, MutableList<V>>> DoubleArray.groupByTo(destination: M, keySelector: (Double) -> K, valueTransform: (Double) -> V): M {\n   for (element in this) {\n   val key = keySelector(element)\n   val list = destination.getOrPut(key) { ArrayList<V>() }\n   list.add(valueTransform(element))\n   }\n   return destination\n}\n\n/**\n * Groups values returned by the [valueTransform] function applied to each element of the original array\n * by the key returned by the given [keySelector] function applied to the element\n * and puts to the [destination] map each group key associated with a list of corresponding values.\n * \n * @return The [destination] map.\n * \n * @sample samples.collections.Collections.Transformations.groupByKeysAndValues\n */\npublic inline fun <K, V, M : MutableMap<in K, MutableList<V>>> BooleanArray.groupByTo(destination: M, keySelector: (Boolean) -> K, valueTransform: (Boolean) -> V): M {\n   for (element in this) {\n   val key = keySelector(element)\n   val list = destination.getOrPut(key) { ArrayList<V>() }\n   list.add(valueTransform(element))\n   }\n   return destination\n}\n\n/**\n * Groups values returned by the [valueTransform] function applied to each element of the original array\n * by the key returned by the given [keySelector] function applied to the element\n * and puts to the [destination] map each group key associated with a list of corresponding values.\n * \n * @return The [destination] map.\n * \n * @sample samples.collections.Collections.Transformations.groupByKeysAndValues\n */\npublic inline fun <K, V, M : MutableMap<in K, MutableList<V>>> CharArray.groupByTo(destination: M, keySelector: (Char) -> K, valueTransform: (Char) -> V): M {\n   for (element in this) {\n   val key = keySelector(element)\n   val list = destination.getOrPut(key) { ArrayList<V>() }\n   list.add(valueTransform(element))\n   }\n   return destination\n}\n\n/**\n * Creates a [Grouping] source from an array to be used later with one of group-and-fold operations\n * using the specified [keySelector] function to extract a key from each element.\n * \n * @sample samples.collections.Grouping.groupingByEachCount\n */\n@SinceKotlin(\"1.1\")\npublic inline fun <T, K> Array<out T>.groupingBy(crossinline keySelector: (T) -> K): Grouping<T, K> {\n   return object : Grouping<T, K> {\n   override fun sourceIterator(): Iterator<T> = this@groupingBy.iterator()\n   override fun keyOf(element: T): K = keySelector(element)\n   }\n}\n\n/**\n * Returns a list containing the results of applying the given [transform] function\n * to each element in the original array.\n * \n * @sample samples.collections.Collections.Transformations.map\n */\npublic inline fun <T, R> Array<out T>.map(transform: (T) -> R): List<R> {\n   return mapTo(ArrayList<R>(size), transform)\n}\n\n/**\n * Returns a list containing the results of applying the given [transform] function\n * to each element in the original array.\n * \n * @sample samples.collections.Collections.Transformations.map\n */\npublic inline fun <R> ByteArray.map(transform: (Byte) -> R): List<R> {\n   return mapTo(ArrayList<R>(size), transform)\n}\n\n/**\n * Returns a list containing the results of applying the given [transform] function\n * to each element in the original array.\n * \n * @sample samples.collections.Collections.Transformations.map\n */\npublic inline fun <R> ShortArray.map(transform: (Short) -> R): List<R> {\n   return mapTo(ArrayList<R>(size), transform)\n}\n\n/**\n * Returns a list containing the results of applying the given [transform] function\n * to each element in the original array.\n * \n * @sample samples.collections.Collections.Transformations.map\n */\npublic inline fun <R> IntArray.map(transform: (Int) -> R): List<R> {\n   return mapTo(ArrayList<R>(size), transform)\n}\n\n/**\n * Returns a list containing the results of applying the given [transform] function\n * to each element in the original array.\n * \n * @sample samples.collections.Collections.Transformations.map\n */\npublic inline fun <R> LongArray.map(transform: (Long) -> R): List<R> {\n   return mapTo(ArrayList<R>(size), transform)\n}\n\n/**\n * Returns a list containing the results of applying the given [transform] function\n * to each element in the original array.\n * \n * @sample samples.collections.Collections.Transformations.map\n */\npublic inline fun <R> FloatArray.map(transform: (Float) -> R): List<R> {\n   return mapTo(ArrayList<R>(size), transform)\n}\n\n/**\n * Returns a list containing the results of applying the given [transform] function\n * to each element in the original array.\n * \n * @sample samples.collections.Collections.Transformations.map\n */\npublic inline fun <R> DoubleArray.map(transform: (Double) -> R): List<R> {\n   return mapTo(ArrayList<R>(size), transform)\n}\n\n/**\n * Returns a list containing the results of applying the given [transform] function\n * to each element in the original array.\n * \n * @sample samples.collections.Collections.Transformations.map\n */\npublic inline fun <R> BooleanArray.map(transform: (Boolean) -> R): List<R> {\n   return mapTo(ArrayList<R>(size), transform)\n}\n\n/**\n * Returns a list containing the results of applying the given [transform] function\n * to each element in the original array.\n * \n * @sample samples.collections.Collections.Transformations.map\n */\npublic inline fun <R> CharArray.map(transform: (Char) -> R): List<R> {\n   return mapTo(ArrayList<R>(size), transform)\n}\n\n/**\n * Returns a list containing the results of applying the given [transform] function\n * to each element and its index in the original array.\n * @param [transform] function that takes the index of an element and the element itself\n * and returns the result of the transform applied to the element.\n */\npublic inline fun <T, R> Array<out T>.mapIndexed(transform: (index: Int, T) -> R): List<R> {\n   return mapIndexedTo(ArrayList<R>(size), transform)\n}\n\n/**\n * Returns a list containing the results of applying the given [transform] function\n * to each element and its index in the original array.\n * @param [transform] function that takes the index of an element and the element itself\n * and returns the result of the transform applied to the element.\n */\npublic inline fun <R> ByteArray.mapIndexed(transform: (index: Int, Byte) -> R): List<R> {\n   return mapIndexedTo(ArrayList<R>(size), transform)\n}\n\n/**\n * Returns a list containing the results of applying the given [transform] function\n * to each element and its index in the original array.\n * @param [transform] function that takes the index of an element and the element itself\n * and returns the result of the transform applied to the element.\n */\npublic inline fun <R> ShortArray.mapIndexed(transform: (index: Int, Short) -> R): List<R> {\n   return mapIndexedTo(ArrayList<R>(size), transform)\n}\n\n/**\n * Returns a list containing the results of applying the given [transform] function\n * to each element and its index in the original array.\n * @param [transform] function that takes the index of an element and the element itself\n * and returns the result of the transform applied to the element.\n */\npublic inline fun <R> IntArray.mapIndexed(transform: (index: Int, Int) -> R): List<R> {\n   return mapIndexedTo(ArrayList<R>(size), transform)\n}\n\n/**\n * Returns a list containing the results of applying the given [transform] function\n * to each element and its index in the original array.\n * @param [transform] function that takes the index of an element and the element itself\n * and returns the result of the transform applied to the element.\n */\npublic inline fun <R> LongArray.mapIndexed(transform: (index: Int, Long) -> R): List<R> {\n   return mapIndexedTo(ArrayList<R>(size), transform)\n}\n\n/**\n * Returns a list containing the results of applying the given [transform] function\n * to each element and its index in the original array.\n * @param [transform] function that takes the index of an element and the element itself\n * and returns the result of the transform applied to the element.\n */\npublic inline fun <R> FloatArray.mapIndexed(transform: (index: Int, Float) -> R): List<R> {\n   return mapIndexedTo(ArrayList<R>(size), transform)\n}\n\n/**\n * Returns a list containing the results of applying the given [transform] function\n * to each element and its index in the original array.\n * @param [transform] function that takes the index of an element and the element itself\n * and returns the result of the transform applied to the element.\n */\npublic inline fun <R> DoubleArray.mapIndexed(transform: (index: Int, Double) -> R): List<R> {\n   return mapIndexedTo(ArrayList<R>(size), transform)\n}\n\n/**\n * Returns a list containing the results of applying the given [transform] function\n * to each element and its index in the original array.\n * @param [transform] function that takes the index of an element and the element itself\n * and returns the result of the transform applied to the element.\n */\npublic inline fun <R> BooleanArray.mapIndexed(transform: (index: Int, Boolean) -> R): List<R> {\n return mapIndexedTo(ArrayList<R>(size), transform)\n}\n\n/**\n * Returns a list containing the results of applying the given [transform] function\n * to each element and its index in the original array.\n * @param [transform] function that takes the index of an element and the element itself\n * and returns the result of the transform applied to the element.\n */\npublic inline fun <R> CharArray.mapIndexed(transform: (index: Int, Char) -> R): List<R> {\n return mapIndexedTo(ArrayList<R>(size), transform)\n}\n\n/**\n * Returns a list containing only the non-null results of applying the given [transform] function\n * to each element and its index in the original array.\n * @param [transform] function that takes the index of an element and the element itself\n * and returns the result of the transform applied to the element.\n */\npublic inline fun <T, R : Any> Array<out T>.mapIndexedNotNull(transform: (index: Int, T) -> R?): List<R> {\n return mapIndexedNotNullTo(ArrayList<R>(), transform)\n}\n\n/**\n * Applies the given [transform] function to each element and its index in the original array\n * and appends only the non-null results to the given [destination].\n * @param [transform] function that takes the index of an element and the element itself\n * and returns the result of the transform applied to the element.\n */\npublic inline fun <T, R : Any, C : MutableCollection<in R>> Array<out T>.mapIndexedNotNullTo(destination: C, transform: (index: Int, T) -> R?): C {\n forEachIndexed { index, element -> transform(index, element)?.let { destination.add(it) } }\n return destination\n}\n\n/**\n * Applies the given [transform] function to each element and its index in the original array\n * and appends the results to the given [destination].\n * @param [transform] function that takes the index of an element and the element itself\n * and returns the result of the transform applied to the element.\n */\npublic inline fun <T, R, C : MutableCollection<in R>> Array<out T>.mapIndexedTo(destination: C, transform: (index: Int, T) -> R): C {\n var index = 0\n for (item in this)\n destination.add(transform(index++, item))\n return destination\n}\n\n/**\n * Applies the given [transform] function to each element and its index in the original array\n * and appends the results to the given [destination].\n * @param [transform] function that takes the index of an element and the element itself\n * and returns the result of the transform applied to the element.\n */\npublic inline fun <R, C : MutableCollection<in R>> ByteArray.mapIndexedTo(destination: C, transform: (index: Int, Byte) -> R): C {\n var index = 0\n for (item in this)\n destination.add(transform(index++, item))\n return destination\n}\n\n/**\n * Applies the given [transform] function to each element and its index in the original array\n * and appends the results to the given [destination].\n * @param [transform] function that takes the index of an element and the element itself\n * and returns the result of the transform applied to the element.\n */\npublic inline fun <R, C : MutableCollection<in R>> ShortArray.mapIndexedTo(destination: C, transform: (index: Int, Short) -> R): C {\n var index = 0\n for (item in this)\n destination.add(transform(index++, item))\n return destination\n}\n\n/**\n * Applies the given [transform] function to each element and its index in the original array\n * and appends the results to the given [destination].\n * @param [transform] function that takes the index of an element and the element itself\n * and returns the result of the transform applied to the element.\n */\npublic inline fun <R, C : MutableCollection<in R>> IntArray.mapIndexedTo(destination: C, transform: (index: Int, Int) -> R): C {\n var index = 0\n for (item in this)\n destination.add(transform(index++, item))\n return destination\n}\n\n/**\n * Applies the given [transform] function to each element and its index in the original array\n * and appends the results to the given [destination].\n * @param [transform] function that takes the index of an element and the element itself\n * and returns the result of the transform applied to the element.\n */\npublic inline fun <R, C : MutableCollection<in R>> LongArray.mapIndexedTo(destination: C, transform: (index: Int, Long) -> R): C {\n var index = 0\n for (item in this)\n destination.add(transform(index++, item))\n return destination\n}\n\n/**\n * Applies the given [transform] function to each element and its index in the original array\n * and appends the results to the given [destination].\n * @param [transform] function that takes the index of an element and the element itself\n * and returns the result of the transform applied to the element.\n */\npublic inline fun <R, C : MutableCollection<in R>> FloatArray.mapIndexedTo(destination: C, transform: (index: Int, Float) -> R): C {\n var index = 0\n for (item in this)\n destination.add(transform(index++, item))\n return destination\n}\n\n/**\n * Applies the given [transform] function to each element and its index in the original array\n * and appends the results to the given [destination].\n * @param [transform] function that takes the index of an element and the element itself\n * and returns the result of the transform applied to the element.\n */\npublic inline fun <R, C : MutableCollection<in R>> DoubleArray.mapIndexedTo(destination: C, transform: (index: Int, Double) -> R): C {\n   var index = 0\n   for (item in this)\n   destination.add(transform(index++, item))\n   return destination\n}\n\n/**\n * Applies the given [transform] function to each element and its index in the original array\n * and appends the results to the given [destination].\n * @param [transform] function that takes the index of an element and the element itself\n * and returns the result of the transform applied to the element.\n */\npublic inline fun <R, C : MutableCollection<in R>> BooleanArray.mapIndexedTo(destination: C, transform: (index: Int, Boolean) -> R): C {\n   var index = 0\n   for (item in this)\n   destination.add(transform(index++, item))\n   return destination\n}\n\n/**\n * Applies the given [transform] function to each element and its index in the original array\n * and appends the results to the given [destination].\n * @param [transform] function that takes the index of an element and the element itself\n * and returns the result of the transform applied to the element.\n */\npublic inline fun <R, C : MutableCollection<in R>> CharArray.mapIndexedTo(destination: C, transform: (index: Int, Char) -> R): C {\n   var index = 0\n   for (item in this)\n   destination.add(transform(index++, item))\n   return destination\n}\n\n/**\n * Returns a list containing only the non-null results of applying the given [transform] function\n * to each element in the original array.\n * \n * @sample samples.collections.Collections.Transformations.mapNotNull\n */\npublic inline fun <T, R : Any> Array<out T>.mapNotNull(transform: (T) -> R?): List<R> {\n   return mapNotNullTo(ArrayList<R>(), transform)\n}\n\n/**\n * Applies the given [transform] function to each element in the original array\n * and appends only the non-null results to the given [destination].\n */\npublic inline fun <T, R : Any, C : MutableCollection<in R>> Array<out T>.mapNotNullTo(destination: C, transform: (T) -> R?): C {\n   forEach { element -> transform(element)?.let { destination.add(it) } }\n   return destination\n}\n\n/**\n * Applies the given [transform] function to each element of the original array\n * and appends the results to the given [destination].\n */\npublic inline fun <T, R, C : MutableCollection<in R>> Array<out T>.mapTo(destination: C, transform: (T) -> R): C {\n   for (item in this)\n   destination.add(transform(item))\n   return destination\n}\n\n/**\n * Applies the given [transform] function to each element of the original array\n * and appends the results to the given [destination].\n */\npublic inline fun <R, C : MutableCollection<in R>> ByteArray.mapTo(destination: C, transform: (Byte) -> R): C {\n   for (item in this)\n   destination.add(transform(item))\n   return destination\n}\n\n/**\n * Applies the given [transform] function to each element of the original array\n * and appends the results to the given [destination].\n */\npublic inline fun <R, C : MutableCollection<in R>> ShortArray.mapTo(destination: C, transform: (Short) -> R): C {\n   for (item in this)\n   destination.add(transform(item))\n   return destination\n}\n\n/**\n * Applies the given [transform] function to each element of the original array\n * and appends the results to the given [destination].\n */\npublic inline fun <R, C : MutableCollection<in R>> IntArray.mapTo(destination: C, transform: (Int) -> R): C {\n   for (item in this)\n   destination.add(transform(item))\n   return destination\n}\n\n/**\n * Applies the given [transform] function to each element of the original array\n * and appends the results to the given [destination].\n */\npublic inline fun <R, C : MutableCollection<in R>> LongArray.mapTo(destination: C, transform: (Long) -> R): C {\n   for (item in this)\n   destination.add(transform(item))\n   return destination\n}\n\n/**\n * Applies the given [transform] function to each element of the original array\n * and appends the results to the given [destination].\n */\npublic inline fun <R, C : MutableCollection<in R>> FloatArray.mapTo(destination: C, transform: (Float) -> R): C {\n   for (item in this)\n   destination.add(transform(item))\n   return destination\n}\n\n/**\n * Applies the given [transform] function to each element of the original array\n * and appends the results to the given [destination].\n */\npublic inline fun <R, C : MutableCollection<in R>> DoubleArray.mapTo(destination: C, transform: (Double) -> R): C {\n   for (item in this)\n   destination.add(transform(item))\n   return destination\n}\n\n/**\n * Applies the given [transform] function to each element of the original array\n * and appends the results to the given [destination].\n */\npublic inline fun <R, C : MutableCollection<in R>> BooleanArray.mapTo(destination: C, transform: (Boolean) -> R): C {\n   for (item in this)\n   destination.add(transform(item))\n   return destination\n}\n\n/**\n * Applies the given [transform] function to each element of the original array\n * and appends the results to the given [destination].\n */\npublic inline fun <R, C : MutableCollection<in R>> CharArray.mapTo(destination: C, transform: (Char) -> R): C {\n   for (item in this)\n   destination.add(transform(item))\n   return destination\n}\n\n/**\n * Returns a lazy [Iterable] that wraps each element of the original array\n * into an [IndexedValue] containing the index of that element and the element itself.\n */\npublic fun <T> Array<out T>.withIndex(): Iterable<IndexedValue<T>> {\n   return IndexingIterable { iterator() }\n}\n\n/**\n * Returns a lazy [Iterable] that wraps each element of the original array\n * into an [IndexedValue] containing the index of that element and the element itself.\n */\npublic fun ByteArray.withIndex(): Iterable<IndexedValue<Byte>> {\n   return IndexingIterable { iterator() }\n}\n\n/**\n * Returns a lazy [Iterable] that wraps each element of the original array\n * into an [IndexedValue] containing the index of that element and the element itself.\n */\npublic fun ShortArray.withIndex(): Iterable<IndexedValue<Short>> {\n   return IndexingIterable { iterator() }\n}\n\n/**\n * Returns a lazy [Iterable] that wraps each element of the original array\n * into an [IndexedValue] containing the index of that element and the element itself.\n */\npublic fun IntArray.withIndex(): Iterable<IndexedValue<Int>> {\n   return IndexingIterable { iterator() }\n}\n\n/**\n * Returns a lazy [Iterable] that wraps each element of the original array\n * into an [IndexedValue] containing the index of that element and the element itself.\n */\npublic fun LongArray.withIndex(): Iterable<IndexedValue<Long>> {\n   return IndexingIterable { iterator() }\n}\n\n/**\n * Returns a lazy [Iterable] that wraps each element of the original array\n * into an [IndexedValue] containing the index of that element and the element itself.\n */\npublic fun FloatArray.withIndex(): Iterable<IndexedValue<Float>> {\n   return IndexingIterable { iterator() }\n}\n\n/**\n * Returns a lazy [Iterable] that wraps each element of the original array\n * into an [IndexedValue] containing the index of that element and the element itself.\n */\npublic fun DoubleArray.withIndex(): Iterable<IndexedValue<Double>> {\n   return IndexingIterable { iterator() }\n}\n\n/**\n * Returns a lazy [Iterable] that wraps each element of the original array\n * into an [IndexedValue] containing the index of that element and the element itself.\n */\npublic fun BooleanArray.withIndex(): Iterable<IndexedValue<Boolean>> {\n   return IndexingIterable { iterator() }\n}\n\n/**\n * Returns a lazy [Iterable] that wraps each element of the original array\n * into an [IndexedValue] containing the index of that element and the element itself.\n */\npublic fun CharArray.withIndex(): Iterable<IndexedValue<Char>> {\n   return IndexingIterable { iterator() }\n}\n\n/**\n * Returns a list containing only distinct elements from the given array.\n * \n * Among equal elements of the given array, only the first one will be present in the resulting list.\n * The elements in the resulting list are in the same order as they were in the source array.\n * \n * @sample samples.collections.Collections.Transformations.distinctAndDistinctBy\n */\npublic fun <T> Array<out T>.distinct(): List<T> {\n   return this.toMutableSet().toList()\n}\n\n/**\n * Returns a list containing only distinct elements from the given array.\n * \n * The elements in the resulting list are in the same order as they were in the source array.\n * \n * @sample samples.collections.Collections.Transformations.distinctAndDistinctBy\n */\npublic fun ByteArray.distinct(): List<Byte> {\n   return this.toMutableSet().toList()\n}\n\n/**\n * Returns a list containing only distinct elements from the given array.\n * \n * The elements in the resulting list are in the same order as they were in the source array.\n * \n * @sample samples.collections.Collections.Transformations.distinctAndDistinctBy\n */\npublic fun ShortArray.distinct(): List<Short> {\n   return this.toMutableSet().toList()\n}\n\n/**\n * Returns a list containing only distinct elements from the given array.\n * \n * The elements in the resulting list are in the same order as they were in the source array.\n * \n * @sample samples.collections.Collections.Transformations.distinctAndDistinctBy\n */\npublic fun IntArray.distinct(): List<Int> {\n   return this.toMutableSet().toList()\n}\n\n/**\n * Returns a list containing only distinct elements from the given array.\n * \n * The elements in the resulting list are in the same order as they were in the source array.\n * \n * @sample samples.collections.Collections.Transformations.distinctAndDistinctBy\n */\npublic fun LongArray.distinct(): List<Long> {\n   return this.toMutableSet().toList()\n}\n\n/**\n * Returns a list containing only distinct elements from the given array.\n * \n * The elements in the resulting list are in the same order as they were in the source array.\n * \n * @sample samples.collections.Collections.Transformations.distinctAndDistinctBy\n */\npublic fun FloatArray.distinct(): List<Float> {\n   return this.toMutableSet().toList()\n}\n\n/**\n * Returns a list containing only distinct elements from the given array.\n * \n * The elements in the resulting list are in the same order as they were in the source array.\n * \n * @sample samples.collections.Collections.Transformations.distinctAndDistinctBy\n */\npublic fun DoubleArray.distinct(): List<Double> {\n   return this.toMutableSet().toList()\n}\n\n/**\n * Returns a list containing only distinct elements from the given array.\n * \n * The elements in the resulting list are in the same order as they were in the source array.\n * \n * @sample samples.collections.Collections.Transformations.distinctAndDistinctBy\n */\npublic fun BooleanArray.distinct(): List<Boolean> {\n   return this.toMutableSet().toList()\n}\n\n/**\n * Returns a list containing only distinct elements from the given array.\n * \n * The elements in the resulting list are in the same order as they were in the source array.\n * \n * @sample samples.collections.Collections.Transformations.distinctAndDistinctBy\n */\npublic fun CharArray.distinct(): List<Char> {\n   return this.toMutableSet().toList()\n}\n\n/**\n * Returns a list containing only elements from the given array\n * having distinct keys returned by the given [selector] function.\n * \n * Among elements of the given array with equal keys, only the first one will be present in the resulting list.\n * The elements in the resulting list are in the same order as they were in the source array.\n * \n * @sample samples.collections.Collections.Transformations.distinctAndDistinctBy\n */\npublic inline fun <T, K> Array<out T>.distinctBy(selector: (T) -> K): List<T> {\n   val set = HashSet<K>()\n   val list = ArrayList<T>()\n   for (e in this) {\n   val key = selector(e)\n   if (set.add(key))\n   list.add(e)\n   }\n   return list\n}\n\n/**\n * Returns a list containing only elements from the given array\n * having distinct keys returned by the given [selector] function.\n * \n * The elements in the resulting list are in the same order as they were in the source array.\n * \n * @sample samples.collections.Collections.Transformations.distinctAndDistinctBy\n */\npublic inline fun <K> ByteArray.distinctBy(selector: (Byte) -> K): List<Byte> {\n   val set = HashSet<K>()\n   val list = ArrayList<Byte>()\n   for (e in this) {\n   val key = selector(e)\n   if (set.add(key))\n   list.add(e)\n   }\n   return list\n}\n\n/**\n * Returns a list containing only elements from the given array\n * having distinct keys returned by the given [selector] function.\n * \n * The elements in the resulting list are in the same order as they were in the source array.\n * \n * @sample samples.collections.Collections.Transformations.distinctAndDistinctBy\n */\npublic inline fun <K> ShortArray.distinctBy(selector: (Short) -> K): List<Short> {\n   val set = HashSet<K>()\n   val list = ArrayList<Short>()\n   for (e in this) {\n   val key = selector(e)\n   if (set.add(key))\n   list.add(e)\n   }\n   return list\n}\n\n/**\n * Returns a list containing only elements from the given array\n * having distinct keys returned by the given [selector] function.\n * \n * The elements in the resulting list are in the same order as they were in the source array.\n * \n * @sample samples.collections.Collections.Transformations.distinctAndDistinctBy\n */\npublic inline fun <K> IntArray.distinctBy(selector: (Int) -> K): List<Int> {\n   val set = HashSet<K>()\n   val list = ArrayList<Int>()\n   for (e in this) {\n   val key = selector(e)\n   if (set.add(key))\n   list.add(e)\n   }\n   return list\n}\n\n/**\n * Returns a list containing only elements from the given array\n * having distinct keys returned by the given [selector] function.\n * \n * The elements in the resulting list are in the same order as they were in the source array.\n * \n * @sample samples.collections.Collections.Transformations.distinctAndDistinctBy\n */\npublic inline fun <K> LongArray.distinctBy(selector: (Long) -> K): List<Long> {\n   val set = HashSet<K>()\n   val list = ArrayList<Long>()\n   for (e in this) {\n   val key = selector(e)\n   if (set.add(key))\n   list.add(e)\n   }\n   return list\n}\n\n/**\n * Returns a list containing only elements from the given array\n * having distinct keys returned by the given [selector] function.\n * \n * The elements in the resulting list are in the same order as they were in the source array.\n * \n * @sample samples.collections.Collections.Transformations.distinctAndDistinctBy\n */\npublic inline fun <K> FloatArray.distinctBy(selector: (Float) -> K): List<Float> {\n   val set = HashSet<K>()\n   val list = ArrayList<Float>()\n   for (e in this) {\n   val key = selector(e)\n   if (set.add(key))\n   list.add(e)\n   }\n   return list\n}\n\n/**\n * Returns a list containing only elements from the given array\n * having distinct keys returned by the given [selector] function.\n * \n * The elements in the resulting list are in the same order as they were in the source array.\n * \n * @sample samples.collections.Collections.Transformations.distinctAndDistinctBy\n */\npublic inline fun <K> DoubleArray.distinctBy(selector: (Double) -> K): List<Double> {\n   val set = HashSet<K>()\n   val list =

ArrayList<Double>()\n   for (e in this) {\n   val key = selector(e)\n   if (set.add(key))\n   list.add(e)\n   }\n   return list\n}\n\n/**\n * Returns a list containing only elements from the given array\n * having distinct keys returned by the given [selector] function.\n * \n * The elements in the resulting list are in the same order as they were in the source array.\n * \n * @sample samples.collections.Collections.Transformations.distinctAndDistinctBy\n */\npublic inline fun <K> BooleanArray.distinctBy(selector: (Boolean) -> K): List<Boolean> {\n   val set = HashSet<K>()\n   val list = ArrayList<Boolean>()\n   for (e in this) {\n   val key = selector(e)\n   if (set.add(key))\n   list.add(e)\n   }\n   return list\n}\n\n/**\n * Returns a list containing only elements from the given array\n * having distinct keys returned by the given [selector] function.\n * \n * The elements in the resulting list are in the same order as they were in the source array.\n * \n * @sample samples.collections.Collections.Transformations.distinctAndDistinctBy\n */\npublic inline fun <K> CharArray.distinctBy(selector: (Char) -> K): List<Char> {\n   val set = HashSet<K>()\n   val list = ArrayList<Char>()\n   for (e in this) {\n   val key = selector(e)\n   if (set.add(key))\n   list.add(e)\n   }\n   return list\n}\n\n/**\n * Returns a set containing all elements that are contained by both this array and the specified collection.\n * \n * The returned set preserves the element iteration order of the original array.\n * \n * To get a set containing all elements that are contained at least in one of these collections use [union].\n */\npublic infix fun <T> Array<out T>.intersect(other: Iterable<T>): Set<T> {\n   val set = this.toMutableSet()\n   set.retainAll(other)\n   return set\n}\n\n/**\n * Returns a set containing all elements that are contained by both this array and the specified collection.\n * \n * The returned set preserves the element iteration order of the original array.\n * \n * To get a set containing all elements that are contained at least in one of these collections use [union].\n */\npublic infix fun ByteArray.intersect(other: Iterable<Byte>): Set<Byte> {\n   val set = this.toMutableSet()\n   set.retainAll(other)\n   return set\n}\n\n/**\n * Returns a set containing all elements that are contained by both this array and the specified collection.\n * \n * The returned set preserves the element iteration order of the original array.\n * \n * To get a set containing all elements that are contained at least in one of these collections use [union].\n */\npublic infix fun ShortArray.intersect(other: Iterable<Short>): Set<Short> {\n   val set = this.toMutableSet()\n   set.retainAll(other)\n   return set\n}\n\n/**\n * Returns a set containing all elements that are contained by both this array and the specified collection.\n * \n * The returned set preserves the element iteration order of the original array.\n * \n * To get a set containing all elements that are contained at least in one of these collections use [union].\n */\npublic infix fun IntArray.intersect(other: Iterable<Int>): Set<Int> {\n   val set = this.toMutableSet()\n   set.retainAll(other)\n   return set\n}\n\n/**\n * Returns a set containing all elements that are contained by both this array and the specified collection.\n * \n * The returned set preserves the element iteration order of the original array.\n * \n * To get a set containing all elements that are contained at least in one of these collections use [union].\n */\npublic infix fun LongArray.intersect(other: Iterable<Long>): Set<Long> {\n   val set = this.toMutableSet()\n   set.retainAll(other)\n   return set\n}\n\n/**\n * Returns a set containing all elements that are contained by both this array and the specified collection.\n * \n * The returned set preserves the element iteration order of the original array.\n * \n * To get a set containing all elements that are contained at least in one of these collections use [union].\n */\npublic infix fun FloatArray.intersect(other: Iterable<Float>): Set<Float> {\n   val set = this.toMutableSet()\n   set.retainAll(other)\n   return set\n}\n\n/**\n * Returns a set containing all elements that are contained by both this array and the specified collection.\n * \n * The returned set preserves the element iteration order of the original array.\n * \n * To get a set containing all elements that are contained at least in one of these collections use [union].\n */\npublic infix fun DoubleArray.intersect(other: Iterable<Double>): Set<Double> {\n   val set = this.toMutableSet()\n   set.retainAll(other)\n   return set\n}\n\n/**\n * Returns a set containing all elements that are contained by both this array and the specified collection.\n * \n * The returned set preserves the element iteration order of the original array.\n * \n * To get a set containing all elements that are contained at least in one of these collections use [union].\n */\npublic infix fun BooleanArray.intersect(other: Iterable<Boolean>): Set<Boolean> {\n   val set = this.toMutableSet()\n   set.retainAll(other)\n   return set\n}\n\n/**\n * Returns a set containing all elements that are contained by both this array and the specified collection.\n * \n * The returned set preserves the element iteration order of the original array.\n * \n * To get a set containing all elements that are contained at least in one of these collections use [union].\n */\npublic infix fun CharArray.intersect(other: Iterable<Char>): Set<Char> {\n   val set = this.toMutableSet()\n   set.retainAll(other)\n   return set\n}\n\n/**\n * Returns a set containing all elements that are contained by this array and not contained by the specified collection.\n * \n * The returned set preserves the element iteration order of the original array.\n */\npublic infix fun <T> Array<out T>.subtract(other: Iterable<T>): Set<T> {\n   val set = this.toMutableSet()\n   set.removeAll(other)\n   return set\n}\n\n/**\n * Returns a set containing all elements that are contained by this array and not contained by the specified collection.\n * \n * The returned set preserves the element iteration order of the original array.\n */\npublic infix fun ByteArray.subtract(other: Iterable<Byte>): Set<Byte> {\n   val set = this.toMutableSet()\n   set.removeAll(other)\n   return set\n}\n\n/**\n * Returns a set containing all elements that are contained by this array and not contained by the specified collection.\n * \n * The returned set preserves the element iteration order of the original array.\n */\npublic infix fun ShortArray.subtract(other: Iterable<Short>): Set<Short> {\n   val set = this.toMutableSet()\n   set.removeAll(other)\n   return set\n}\n\n/**\n * Returns a set containing all elements that are contained by this array and not contained by the specified collection.\n * \n * The returned set preserves the element iteration order of the original array.\n */\npublic infix fun IntArray.subtract(other: Iterable<Int>): Set<Int> {\n   val set = this.toMutableSet()\n   set.removeAll(other)\n   return set\n}\n\n/**\n * Returns a set containing all elements that are contained by this array and not contained by the specified collection.\n * \n * The returned set preserves the element iteration order of the original array.\n */\npublic infix fun LongArray.subtract(other: Iterable<Long>): Set<Long> {\n   val set = this.toMutableSet()\n   set.removeAll(other)\n   return set\n}\n\n/**\n * Returns a set containing all elements that are contained by this array and not contained by the specified collection.\n * \n * The returned set preserves the element iteration order of the original array.\n */\npublic infix fun FloatArray.subtract(other: Iterable<Float>): Set<Float> {\n   val set = this.toMutableSet()\n   set.removeAll(other)\n   return set\n}\n\n/**\n * Returns a set containing all elements that are contained by this array and not contained by the specified collection.\n * \n * The returned set preserves the element iteration order of the original array.\n */\npublic infix fun DoubleArray.subtract(other: Iterable<Double>): Set<Double> {\n   val set = this.toMutableSet()\n   set.removeAll(other)\n   return set\n}\n\n/**\n * Returns a set containing all elements that are contained by this array and not contained by the specified collection.\n * \n * The returned set preserves the element iteration order of the original array.\n */\npublic infix fun BooleanArray.subtract(other: Iterable<Boolean>): Set<Boolean> {\n   val set = this.toMutableSet()\n   set.removeAll(other)\n   return set\n}\n\n/**\n * Returns a set containing all elements that are contained by this array and not contained by the specified collection.\n * \n * The returned set preserves the element iteration order of the original array.\n */\npublic infix fun CharArray.subtract(other: Iterable<Char>): Set<Char> {\n   val set = this.toMutableSet()\n   set.removeAll(other)\n   return set\n}\n\n/**\n * Returns a new [MutableSet] containing all distinct elements from the given array.\n * \n * The returned set preserves the element iteration order of the original array.\n */\npublic fun <T> Array<out T>.toMutableSet(): MutableSet<T> {\n   return toCollection(LinkedHashSet<T>(mapCapacity(size)))\n}\n\n/**\n * Returns a new [MutableSet] containing all distinct elements from the given array.\n * \n * The returned set preserves the element iteration order of the original array.\n */\npublic fun ByteArray.toMutableSet(): MutableSet<Byte> {\n   return toCollection(LinkedHashSet<Byte>(mapCapacity(size)))\n}\n\n/**\n * Returns a new [MutableSet] containing all distinct elements from the given array.\n * \n * The returned set preserves the element iteration order of the original array.\n */\npublic fun ShortArray.toMutableSet(): MutableSet<Short> {\n   return toCollection(LinkedHashSet<Short>(mapCapacity(size)))\n}\n\n/**\n * Returns a new [MutableSet] containing all distinct elements from the given array.\n * \n * The returned set preserves the element iteration order of the original array.\n */\npublic fun IntArray.toMutableSet(): MutableSet<Int> {\n   return toCollection(LinkedHashSet<Int>(mapCapacity(size)))\n}\n\n/**\n * Returns a new [MutableSet] containing all distinct elements from the given array.\n * \n * The returned set preserves the element iteration order of the original array.\n */\npublic fun LongArray.toMutableSet(): MutableSet<Long> {\n   return toCollection(LinkedHashSet<Long>(mapCapacity(size)))\n}\n\n/**\n * Returns a new [MutableSet] containing all distinct elements from the given array.\n * \n * The returned set preserves the element iteration order of the original array.\n */\npublic fun FloatArray.toMutableSet(): MutableSet<Float> {\n   return toCollection(LinkedHashSet<Float>(mapCapacity(size)))\n}\n\n/**\n * Returns a new [MutableSet] containing all distinct elements from the given array.\n * \n * The returned set preserves the element iteration order of the original array.\n */\npublic fun DoubleArray.toMutableSet(): MutableSet<Double> {\n   return toCollection(LinkedHashSet<Double>(mapCapacity(size)))\n}\n\n/**\n * Returns a new [MutableSet] containing all distinct elements from the given array.\n * \n * The returned set preserves the element iteration order of the original array.\n */\npublic fun BooleanArray.toMutableSet(): MutableSet<Boolean> {\n   return toCollection(LinkedHashSet<Boolean>(mapCapacity(size)))\n}\n\n/**\n * Returns a new [MutableSet] containing all distinct elements from the given array.\n * \n * The returned set preserves the element iteration order of the original array.\n */\npublic fun CharArray.toMutableSet(): MutableSet<Char> {\n   return toCollection(LinkedHashSet<Char>(mapCapacity(size.coerceAtMost(128))))\n}\n\n/**\n * Returns a set containing all distinct elements from both collections.\n * \n * The returned set preserves the element iteration order of the original array.\n * Those elements of the [other] collection that are unique are iterated in the end\n * in the order of the [other] collection.\n * \n * To get a set containing all elements that are contained in both collections use [intersect].\n */\npublic infix fun <T> Array<out T>.union(other: Iterable<T>): Set<T> {\n   val set = this.toMutableSet()\n   set.addAll(other)\n   return set\n}\n\n/**\n * Returns a set containing all distinct elements from both collections.\n * \n * The returned set preserves the element iteration order of the original array.\n * Those elements of the [other] collection that are unique are iterated in the end\n * in the order of the [other] collection.\n * \n * To get a set containing all elements that are contained in both collections use [intersect].\n */\npublic infix fun ByteArray.union(other: Iterable<Byte>): Set<Byte> {\n   val set = this.toMutableSet()\n   set.addAll(other)\n   return set\n}\n\n/**\n * Returns a set containing all distinct elements from both collections.\n * \n * The returned set preserves the element iteration order of the original array.\n * Those elements of the [other] collection that are unique are iterated in the end\n * in the order of the [other] collection.\n * \n * To get a set containing all elements that are contained in both collections use [intersect].\n */\npublic infix fun ShortArray.union(other: Iterable<Short>): Set<Short> {\n   val set = this.toMutableSet()\n   set.addAll(other)\n   return set\n}\n\n/**\n * Returns a set containing all distinct elements from both collections.\n * \n * The returned set preserves the element iteration order of the original array.\n * Those elements of the [other] collection that are unique are iterated in the end\n * in the order of the [other] collection.\n * \n * To get a set containing all elements that are contained in both collections use [intersect].\n */\npublic infix fun IntArray.union(other: Iterable<Int>): Set<Int> {\n   val set = this.toMutableSet()\n   set.addAll(other)\n   return set\n}\n\n/**\n * Returns a set containing all distinct elements from both collections.\n * \n * The returned set preserves the element iteration order of the original array.\n * Those elements of the [other] collection that are unique are iterated in the end\n * in the order of the [other] collection.\n * \n * To get a set containing all elements that are contained in both collections use [intersect].\n */\npublic infix fun LongArray.union(other: Iterable<Long>): Set<Long> {\n   val set = this.toMutableSet()\n   set.addAll(other)\n   return set\n}\n\n/**\n * Returns a set containing all distinct elements from both collections.\n * \n * The returned set preserves the element iteration order of the original array.\n * Those elements of the [other] collection that are unique are iterated in the end\n * in the order of the [other] collection.\n * \n * To get a set containing all elements that are contained in both collections use [intersect].\n */\npublic infix fun FloatArray.union(other: Iterable<Float>): Set<Float> {\n   val set = this.toMutableSet()\n   set.addAll(other)\n   return set\n}\n\n/**\n * Returns a set containing all distinct elements from both collections.\n * \n * The returned set preserves the element iteration order of the original array.\n * Those elements of the [other] collection that are unique are iterated in the end\n * in the order of the [other] collection.\n * \n * To get a set containing all elements that are contained in both collections use [intersect].\n */\npublic infix fun DoubleArray.union(other: Iterable<Double>): Set<Double> {\n   val set = this.toMutableSet()\n   set.addAll(other)\n   return set\n}\n\n/**\n * Returns a set containing all distinct elements from both collections.\n * \n * The returned set preserves the element iteration order of the original array.\n * Those elements of the [other] collection that are unique are iterated in the end\n * in the order of the [other] collection.\n * \n * To get a set containing all elements that are contained in both collections use [intersect].\n */\npublic infix fun BooleanArray.union(other: Iterable<Boolean>): Set<Boolean> {\n   val set = this.toMutableSet()\n   set.addAll(other)\n   return set\n}\n\n/**\n * Returns a set containing all distinct elements from both collections.\n *

\n * The returned set preserves the element iteration order of the original array.\n * Those elements of the [other] collection that are unique are iterated in the end\n * in the order of the [other] collection.\n * \n * To get a set containing all elements that are contained in both collections use [intersect].\n */\npublic infix fun CharArray.union(other: Iterable<Char>): Set<Char> {\n   val set = this.toMutableSet()\n   set.addAll(other)\n   return set\n}\n\n/**\n * Returns `true` if all elements match the given [predicate].\n * \n * @sample samples.collections.Collections.Aggregates.all\n */\npublic inline fun <T> Array<out T>.all(predicate: (T) -> Boolean): Boolean {\n   for (element in this) if (!predicate(element)) return false\n   return true\n}\n\n/**\n * Returns `true` if all elements match the given [predicate].\n * \n * @sample samples.collections.Collections.Aggregates.all\n */\npublic inline fun ByteArray.all(predicate: (Byte) -> Boolean): Boolean {\n   for (element in this) if (!predicate(element)) return false\n   return true\n}\n\n/**\n * Returns `true` if all elements match the given [predicate].\n * \n * @sample samples.collections.Collections.Aggregates.all\n */\npublic inline fun ShortArray.all(predicate: (Short) -> Boolean): Boolean {\n   for (element in this) if (!predicate(element)) return false\n   return true\n}\n\n/**\n * Returns `true` if all elements match the given [predicate].\n * \n * @sample samples.collections.Collections.Aggregates.all\n */\npublic inline fun IntArray.all(predicate: (Int) -> Boolean): Boolean {\n   for (element in this) if (!predicate(element)) return false\n   return true\n}\n\n/**\n * Returns `true` if all elements match the given [predicate].\n * \n * @sample samples.collections.Collections.Aggregates.all\n */\npublic inline fun LongArray.all(predicate: (Long) -> Boolean): Boolean {\n   for (element in this) if (!predicate(element)) return false\n   return true\n}\n\n/**\n * Returns `true` if all elements match the given [predicate].\n * \n * @sample samples.collections.Collections.Aggregates.all\n */\npublic inline fun FloatArray.all(predicate: (Float) -> Boolean): Boolean {\n   for (element in this) if (!predicate(element)) return false\n   return true\n}\n\n/**\n * Returns `true` if all elements match the given [predicate].\n * \n * @sample samples.collections.Collections.Aggregates.all\n */\npublic inline fun DoubleArray.all(predicate: (Double) -> Boolean): Boolean {\n   for (element in this) if (!predicate(element)) return false\n   return true\n}\n\n/**\n * Returns `true` if all elements match the given [predicate].\n * \n * @sample samples.collections.Collections.Aggregates.all\n */\npublic inline fun BooleanArray.all(predicate: (Boolean) -> Boolean): Boolean {\n   for (element in this) if (!predicate(element)) return false\n   return true\n}\n\n/**\n * Returns `true` if all elements match the given [predicate].\n * \n * @sample samples.collections.Collections.Aggregates.all\n */\npublic inline fun CharArray.all(predicate: (Char) -> Boolean): Boolean {\n   for (element in this) if (!predicate(element)) return false\n   return true\n}\n\n/**\n * Returns `true` if array has at least one element.\n * \n * @sample samples.collections.Collections.Aggregates.any\n */\npublic fun <T> Array<out T>.any(): Boolean {\n   return !isEmpty()\n}\n\n/**\n * Returns `true` if array has at least one element.\n * \n * @sample samples.collections.Collections.Aggregates.any\n */\npublic fun ByteArray.any(): Boolean {\n   return !isEmpty()\n}\n\n/**\n * Returns `true` if array has at least one element.\n * \n * @sample samples.collections.Collections.Aggregates.any\n */\npublic fun ShortArray.any(): Boolean {\n   return !isEmpty()\n}\n\n/**\n * Returns `true` if array has at least one element.\n * \n * @sample samples.collections.Collections.Aggregates.any\n */\npublic fun IntArray.any(): Boolean {\n   return !isEmpty()\n}\n\n/**\n * Returns `true` if array has at least one element.\n * \n * @sample samples.collections.Collections.Aggregates.any\n */\npublic fun LongArray.any(): Boolean {\n   return !isEmpty()\n}\n\n/**\n * Returns `true` if array has at least one element.\n * \n * @sample samples.collections.Collections.Aggregates.any\n */\npublic fun FloatArray.any(): Boolean {\n   return !isEmpty()\n}\n\n/**\n * Returns `true` if array has at least one element.\n * \n * @sample samples.collections.Collections.Aggregates.any\n */\npublic fun DoubleArray.any(): Boolean {\n   return !isEmpty()\n}\n\n/**\n * Returns `true` if array has at least one element.\n * \n * @sample samples.collections.Collections.Aggregates.any\n */\npublic fun BooleanArray.any(): Boolean {\n   return !isEmpty()\n}\n\n/**\n * Returns `true` if array has at least one element.\n * \n * @sample samples.collections.Collections.Aggregates.any\n */\npublic fun CharArray.any(): Boolean {\n   return !isEmpty()\n}\n\n/**\n * Returns `true` if at least one element matches the given [predicate].\n * \n * @sample samples.collections.Collections.Aggregates.anyWithPredicate\n */\npublic inline fun <T> Array<out

T>.any(predicate: (T) -> Boolean): Boolean {\n   for (element in this) if (predicate(element)) return true\n   return false\n}\n\n/**\n * Returns `true` if at least one element matches the given [predicate].\n * \n * @sample samples.collections.Collections.Aggregates.anyWithPredicate\n */\npublic inline fun ByteArray.any(predicate: (Byte) -> Boolean): Boolean {\n   for (element in this) if (predicate(element)) return true\n   return false\n}\n\n/**\n * Returns `true` if at least one element matches the given [predicate].\n * \n * @sample samples.collections.Collections.Aggregates.anyWithPredicate\n */\npublic inline fun ShortArray.any(predicate: (Short) -> Boolean): Boolean {\n   for (element in this) if (predicate(element)) return true\n   return false\n}\n\n/**\n * Returns `true` if at least one element matches the given [predicate].\n * \n * @sample samples.collections.Collections.Aggregates.anyWithPredicate\n */\npublic inline fun IntArray.any(predicate: (Int) -> Boolean): Boolean {\n   for (element in this) if (predicate(element)) return true\n   return false\n}\n\n/**\n * Returns `true` if at least one element matches the given [predicate].\n * \n * @sample samples.collections.Collections.Aggregates.anyWithPredicate\n */\npublic inline fun LongArray.any(predicate: (Long) -> Boolean): Boolean {\n   for (element in this) if (predicate(element)) return true\n   return false\n}\n\n/**\n * Returns `true` if at least one element matches the given [predicate].\n * \n * @sample samples.collections.Collections.Aggregates.anyWithPredicate\n */\npublic inline fun FloatArray.any(predicate: (Float) -> Boolean): Boolean {\n   for (element in this) if (predicate(element)) return true\n   return false\n}\n\n/**\n * Returns `true` if at least one element matches the given [predicate].\n * \n * @sample samples.collections.Collections.Aggregates.anyWithPredicate\n */\npublic inline fun DoubleArray.any(predicate: (Double) -> Boolean): Boolean {\n   for (element in this) if (predicate(element)) return true\n   return false\n}\n\n/**\n * Returns `true` if at least one element matches the given [predicate].\n * \n * @sample samples.collections.Collections.Aggregates.anyWithPredicate\n */\npublic inline fun BooleanArray.any(predicate: (Boolean) -> Boolean): Boolean {\n   for (element in this) if (predicate(element)) return true\n   return false\n}\n\n/**\n * Returns `true` if at least one element matches the given [predicate].\n * \n * @sample samples.collections.Collections.Aggregates.anyWithPredicate\n */\npublic inline fun CharArray.any(predicate: (Char) -> Boolean): Boolean {\n   for (element in this) if (predicate(element)) return true\n   return false\n}\n\n/**\n * Returns the number of elements in this array.\n */\n@kotlin.internal.InlineOnly\npublic inline fun <T> Array<out T>.count(): Int {\n   return size\n}\n\n/**\n * Returns the number of elements in this array.\n */\n@kotlin.internal.InlineOnly\npublic inline fun ByteArray.count(): Int {\n   return size\n}\n\n/**\n * Returns the number of elements in this array.\n */\n@kotlin.internal.InlineOnly\npublic inline fun ShortArray.count(): Int {\n   return size\n}\n\n/**\n * Returns the number of elements in this array.\n */\n@kotlin.internal.InlineOnly\npublic inline fun IntArray.count(): Int {\n   return size\n}\n\n/**\n * Returns the number of elements in this array.\n */\n@kotlin.internal.InlineOnly\npublic inline fun LongArray.count(): Int {\n   return size\n}\n\n/**\n * Returns the number of elements in this array.\n */\n@kotlin.internal.InlineOnly\npublic inline fun FloatArray.count(): Int {\n   return size\n}\n\n/**\n * Returns the number of elements in this array.\n */\n@kotlin.internal.InlineOnly\npublic inline fun DoubleArray.count(): Int {\n   return size\n}\n\n/**\n * Returns the number of elements in this array.\n */\n@kotlin.internal.InlineOnly\npublic inline fun BooleanArray.count(): Int {\n   return size\n}\n\n/**\n * Returns the number of elements in this array.\n */\n@kotlin.internal.InlineOnly\npublic inline fun CharArray.count(): Int {\n   return size\n}\n\n/**\n * Returns the number of elements matching the given [predicate].\n */\npublic inline fun <T> Array<out T>.count(predicate: (T) -> Boolean): Int {\n   var count = 0\n   for (element in this) if (predicate(element)) ++count\n   return count\n}\n\n/**\n * Returns the number of elements matching the given [predicate].\n */\npublic inline fun ByteArray.count(predicate: (Byte) -> Boolean): Int {\n   var count = 0\n   for (element in this) if (predicate(element)) ++count\n   return count\n}\n\n/**\n * Returns the number of elements matching the given [predicate].\n */\npublic inline fun ShortArray.count(predicate: (Short) -> Boolean): Int {\n   var count = 0\n   for (element in this) if (predicate(element)) ++count\n   return count\n}\n\n/**\n * Returns the number of elements matching the given [predicate].\n */\npublic inline fun IntArray.count(predicate: (Int) -> Boolean): Int {\n   var count = 0\n   for (element in this) if (predicate(element)) ++count\n   return count\n}\n\n/**\n * Returns the number of elements matching the given [predicate].\n */\npublic inline fun LongArray.count(predicate: (Long) -> Boolean): Int {\n   var count = 0\n   for (element in this) if (predicate(element)) ++count\n   return count\n}\n\n/**\n * Returns the number of elements matching the given [predicate].\n */\npublic inline fun FloatArray.count(predicate: (Float) -> Boolean): Int {\n   var count = 0\n   for (element in this) if (predicate(element)) ++count\n   return count\n}\n\n/**\n * Returns the number of elements matching the given [predicate].\n */\npublic inline fun DoubleArray.count(predicate: (Double) -> Boolean): Int {\n var count = 0\n   for (element in this) if (predicate(element)) ++count\n   return count\n}\n\n/**\n * Returns the number of elements matching the given [predicate].\n */\npublic inline fun BooleanArray.count(predicate: (Boolean) -> Boolean): Int {\n   var count = 0\n   for (element in this) if (predicate(element)) ++count\n   return count\n}\n\n/**\n * Returns the number of elements matching the given [predicate].\n */\npublic inline fun CharArray.count(predicate: (Char) -> Boolean): Int {\n   var count = 0\n   for (element in this) if (predicate(element)) ++count\n   return count\n}\n\n/**\n * Accumulates value starting with [initial] value and applying [operation] from left to right\n * to current accumulator value and each element.\n * \n * Returns the specified [initial] value if the array is empty.\n * \n * @param [operation] function that takes current accumulator value and an element, and calculates the next accumulator value.\n */\npublic inline fun <T, R> Array<out T>.fold(initial: R, operation: (acc: R, T) -> R): R {\n   var accumulator = initial\n   for (element in this) accumulator = operation(accumulator, element)\n   return accumulator\n}\n\n/**\n * Accumulates value starting with [initial] value and applying [operation] from left to right\n * to current accumulator value and each element.\n * \n * Returns the specified [initial] value if the array is empty.\n * \n * @param [operation] function that takes current accumulator value and an element, and calculates the next accumulator value.\n */\npublic inline fun <R> ByteArray.fold(initial: R, operation: (acc: R, Byte) -> R): R {\n   var accumulator = initial\n   for (element in this) accumulator = operation(accumulator, element)\n   return accumulator\n}\n\n/**\n * Accumulates value starting with [initial] value and applying [operation] from left to right\n * to current accumulator value and each element.\n * \n * Returns the specified [initial] value if the array is empty.\n * \n * @param [operation] function that takes current accumulator value and an element, and calculates the next accumulator value.\n */\npublic inline fun <R> ShortArray.fold(initial: R, operation: (acc: R, Short) -> R): R {\n   var accumulator = initial\n   for (element in this) accumulator = operation(accumulator, element)\n   return accumulator\n}\n\n/**\n * Accumulates value starting with [initial] value and applying [operation] from left to right\n * to current accumulator value and each element.\n * \n * Returns the specified [initial] value if the array is empty.\n * \n * @param [operation] function that takes current accumulator value and an element, and calculates the next accumulator value.\n */\npublic inline fun <R> IntArray.fold(initial: R, operation: (acc: R, Int) -> R): R {\n   var accumulator = initial\n   for (element in this) accumulator = operation(accumulator, element)\n   return accumulator\n}\n\n/**\n * Accumulates value starting with [initial] value and applying [operation] from left to right\n * to current accumulator value and each element.\n * \n * Returns the specified [initial] value if the array is empty.\n * \n * @param [operation] function that takes current accumulator value and an element, and calculates the next accumulator value.\n */\npublic inline fun <R> LongArray.fold(initial: R, operation: (acc: R, Long) -> R): R {\n   var accumulator = initial\n   for (element in this) accumulator = operation(accumulator, element)\n   return accumulator\n}\n\n/**\n * Accumulates value starting with [initial] value and applying [operation] from left to right\n * to current accumulator value and each element.\n * \n * Returns the specified [initial] value if the array is empty.\n * \n * @param [operation] function that takes current accumulator value and an element, and calculates the next accumulator value.\n */\npublic inline fun <R> FloatArray.fold(initial: R, operation: (acc: R, Float) -> R): R {\n   var accumulator = initial\n   for (element in this) accumulator = operation(accumulator, element)\n   return accumulator\n}\n\n/**\n * Accumulates value starting with [initial] value and applying [operation] from left to right\n * to current accumulator value and each element.\n * \n * Returns the specified [initial] value if the array is empty.\n * \n * @param [operation] function that takes current accumulator value and an element, and calculates the next accumulator value.\n */\npublic inline fun <R> DoubleArray.fold(initial: R, operation: (acc: R, Double) -> R): R {\n   var accumulator = initial\n   for (element in this) accumulator = operation(accumulator, element)\n   return accumulator\n}\n\n/**\n * Accumulates value starting with [initial] value and applying [operation] from left to right\n * to current accumulator value and each element.\n * \n * Returns the specified [initial] value if the array is empty.\n * \n * @param [operation] function that takes current accumulator value and an element, and calculates the next accumulator value.\n */\npublic inline fun

<R> BooleanArray.fold(initial: R, operation: (acc: R, Boolean) -> R): R {\n   var accumulator = initial\n   for (element in this) accumulator = operation(accumulator, element)\n   return accumulator\n}\n\n/**\n * Accumulates value starting with [initial] value and applying [operation] from left to right\n * to current accumulator value and each element.\n * \n * Returns the specified [initial] value if the array is empty.\n * \n * @param [operation] function that takes current accumulator value and an element, and calculates the next accumulator value.\n */\npublic inline fun <R> CharArray.fold(initial: R, operation: (acc: R, Char) -> R): R {\n   var accumulator = initial\n   for (element in this) accumulator = operation(accumulator, element)\n   return accumulator\n}\n\n/**\n * Accumulates value starting with [initial] value and applying [operation] from left to right\n * to current accumulator value and each element with its index in the original array.\n * \n * Returns the specified [initial] value if the array is empty.\n * \n * @param [operation] function that takes the index of an element, current accumulator value\n * and the element itself, and calculates the next accumulator value.\n */\npublic inline fun <T, R> Array<out T>.foldIndexed(initial: R, operation: (index: Int, acc: R, T) -> R): R {\n   var index = 0\n   var accumulator = initial\n   for (element in this) accumulator = operation(index++, accumulator, element)\n   return accumulator\n}\n\n/**\n * Accumulates value starting with [initial] value and applying [operation] from left to right\n * to current accumulator value and each element with its index in the original array.\n * \n * Returns the specified [initial] value if the array is empty.\n * \n * @param [operation] function that takes the index of an element, current accumulator value\n * and the element itself, and calculates the next accumulator value.\n */\npublic inline fun <R> ByteArray.foldIndexed(initial: R, operation: (index: Int, acc: R, Byte) -> R): R {\n   var index = 0\n   var accumulator = initial\n   for (element in this) accumulator = operation(index++, accumulator, element)\n   return accumulator\n}\n\n/**\n * Accumulates value starting with [initial] value and applying [operation] from left to right\n * to current accumulator value and each element with its index in the original array.\n * \n * Returns the specified [initial] value if the array is empty.\n * \n * @param [operation] function that takes the index of an element, current accumulator value\n * and the element itself, and calculates the next accumulator value.\n */\npublic inline fun <R> ShortArray.foldIndexed(initial: R, operation: (index: Int, acc: R, Short) -> R): R {\n   var index = 0\n   var accumulator = initial\n   for (element in this) accumulator = operation(index++, accumulator, element)\n   return accumulator\n}\n\n/**\n * Accumulates value starting with [initial] value and applying [operation] from left to right\n * to current accumulator value and each element with its index in the original array.\n * \n * Returns the specified [initial] value if the array is empty.\n * \n * @param [operation] function that takes the index of an element, current accumulator value\n * and the element itself, and calculates the next accumulator value.\n */\npublic inline fun <R> IntArray.foldIndexed(initial: R, operation: (index: Int, acc: R, Int) -> R): R {\n   var index = 0\n   var accumulator = initial\n   for (element in this) accumulator = operation(index++, accumulator, element)\n   return accumulator\n}\n\n/**\n * Accumulates value starting with [initial] value and applying [operation] from left to right\n * to current accumulator value and each element with its index in the original array.\n * \n * Returns the specified [initial] value if the array is empty.\n * \n * @param [operation] function that takes the index of an element, current accumulator value\n * and the element itself, and calculates the next accumulator value.\n */\npublic inline fun <R> LongArray.foldIndexed(initial: R, operation: (index: Int, acc: R, Long) -> R): R {\n   var index = 0\n   var accumulator = initial\n   for (element in this) accumulator = operation(index++, accumulator, element)\n   return accumulator\n}\n\n/**\n * Accumulates value starting with [initial] value and applying [operation] from left to right\n * to current accumulator value and each element with its index in the original array.\n * \n * Returns the specified [initial] value if the array is empty.\n * \n * @param [operation] function that takes the index of an element, current accumulator value\n * and the element itself, and calculates the next accumulator value.\n */\npublic inline fun <R> FloatArray.foldIndexed(initial: R, operation: (index: Int, acc: R, Float) -> R): R {\n   var index = 0\n   var accumulator = initial\n   for (element in this) accumulator = operation(index++, accumulator, element)\n   return accumulator\n}\n\n/**\n * Accumulates value starting with [initial] value and applying [operation] from left to right\n * to current accumulator value and each element with its index in the original array.\n * \n * Returns the specified [initial] value if the array is empty.\n * \n * @param [operation] function that takes the index of an element, current accumulator value\n * and the element itself, and calculates the next accumulator value.\n */\npublic inline fun <R>

DoubleArray.foldIndexed(initial: R, operation: (index: Int, acc: R, Double) -> R): R {\n   var index = 0\n   var accumulator = initial\n   for (element in this) accumulator = operation(index++, accumulator, element)\n   return accumulator\n}\n\n/**\n * Accumulates value starting with [initial] value and applying [operation] from left to right\n * to current accumulator value and each element with its index in the original array.\n * \n * Returns the specified [initial] value if the array is empty.\n * \n * @param [operation] function that takes the index of an element, current accumulator value\n * and the element itself, and calculates the next accumulator value.\n */\npublic inline fun <R> BooleanArray.foldIndexed(initial: R, operation: (index: Int, acc: R, Boolean) -> R): R {\n   var index = 0\n   var accumulator = initial\n   for (element in this) accumulator = operation(index++, accumulator, element)\n   return accumulator\n}\n\n/**\n * Accumulates value starting with [initial] value and applying [operation] from left to right\n * to current accumulator value and each element with its index in the original array.\n * \n * Returns the specified [initial] value if the array is empty.\n * \n * @param [operation] function that takes the index of an element, current accumulator value\n * and the element itself, and calculates the next accumulator value.\n */\npublic inline fun <R> CharArray.foldIndexed(initial: R, operation: (index: Int, acc: R, Char) -> R): R {\n   var index = 0\n   var accumulator = initial\n   for (element in this) accumulator = operation(index++, accumulator, element)\n   return accumulator\n}\n\n/**\n * Accumulates value starting with [initial] value and applying [operation] from right to left\n * to each element and current accumulator value.\n * \n * Returns the specified [initial] value if the array is empty.\n * \n * @param [operation] function that takes an element and current accumulator value, and calculates the next accumulator value.\n */\npublic inline fun <T, R> Array<out T>.foldRight(initial: R, operation: (T, acc: R) -> R): R {\n   var index = lastIndex\n   var accumulator = initial\n   while (index >= 0) {\n   accumulator = operation(get(index--), accumulator)\n   }\n   return accumulator\n}\n\n/**\n * Accumulates value starting with [initial] value and applying [operation] from right to left\n * to each element and current accumulator value.\n * \n * Returns the specified [initial] value if the array is empty.\n * \n * @param [operation] function that takes an element and current accumulator value, and calculates the next accumulator value.\n */\npublic inline fun <R> ByteArray.foldRight(initial: R, operation: (Byte, acc: R) -> R): R {\n   var index = lastIndex\n   var accumulator = initial\n   while (index >= 0) {\n   accumulator = operation(get(index--), accumulator)\n   }\n   return accumulator\n}\n\n/**\n * Accumulates value starting with [initial] value and applying [operation] from right to left\n * to each element and current accumulator value.\n * \n * Returns the specified [initial] value if the array is empty.\n * \n * @param [operation] function that takes an element and current accumulator value, and calculates the next accumulator value.\n */\npublic inline fun <R> ShortArray.foldRight(initial: R, operation: (Short, acc: R) -> R): R {\n   var index = lastIndex\n   var accumulator = initial\n   while (index >= 0) {\n   accumulator = operation(get(index--), accumulator)\n   }\n   return accumulator\n}\n\n/**\n * Accumulates value starting with [initial] value and applying [operation] from right to left\n * to each element and current accumulator value.\n * \n * Returns the specified [initial] value if the array is empty.\n * \n * @param [operation] function that takes an element and current accumulator value, and calculates the next accumulator value.\n */\npublic inline fun <R> IntArray.foldRight(initial: R, operation: (Int, acc: R) -> R): R {\n   var index = lastIndex\n   var accumulator = initial\n   while (index >= 0) {\n   accumulator = operation(get(index--), accumulator)\n   }\n   return accumulator\n}\n\n/**\n * Accumulates value starting with [initial] value and applying [operation] from right to left\n * to each element and current accumulator value.\n * \n * Returns the specified [initial] value if the array is empty.\n * \n * @param [operation] function that takes an element and current accumulator value, and calculates the next accumulator value.\n */\npublic inline fun <R> LongArray.foldRight(initial: R, operation: (Long, acc: R) -> R): R {\n   var index = lastIndex\n   var accumulator = initial\n   while (index >= 0) {\n   accumulator = operation(get(index--), accumulator)\n   }\n   return accumulator\n}\n\n/**\n * Accumulates value starting with [initial] value and applying [operation] from right to left\n * to each element and current accumulator value.\n * \n * Returns the specified [initial] value if the array is empty.\n * \n * @param [operation] function that takes an element and current accumulator value, and calculates the next accumulator value.\n */\npublic inline fun <R> FloatArray.foldRight(initial: R, operation: (Float, acc: R) -> R): R {\n   var index = lastIndex\n   var accumulator = initial\n   while (index >= 0) {\n   accumulator = operation(get(index--), accumulator)\n   }\n   return accumulator\n}\n\n/**\n * Accumulates value starting with [initial] value and applying [operation] from right to left\n * to each element and current accumulator value.\n * \n * Returns the specified [initial] value if the array is empty.\n * \n * @param [operation] function that takes an element and current accumulator value, and calculates the next accumulator value.\n */\npublic inline fun <R> DoubleArray.foldRight(initial: R, operation: (Double, acc: R) -> R): R {\n   var index = lastIndex\n   var accumulator = initial\n   while (index >= 0) {\n   accumulator = operation(get(index--), accumulator)\n   }\n   return accumulator\n}\n\n/**\n * Accumulates value starting with [initial] value and applying [operation] from right to left\n * to each element and current accumulator value.\n * \n * Returns the specified [initial] value if the array is empty.\n * \n * @param [operation] function that takes an element and current accumulator value, and calculates the next accumulator value.\n */\npublic inline fun <R> BooleanArray.foldRight(initial: R, operation: (Boolean, acc: R) -> R): R {\n   var index = lastIndex\n   var accumulator = initial\n   while (index >= 0) {\n   accumulator = operation(get(index--), accumulator)\n   }\n   return accumulator\n}\n\n/**\n * Accumulates value starting with [initial] value and applying [operation] from right to left\n * to each element and current accumulator value.\n * \n * Returns the specified [initial] value if the array is empty.\n * \n * @param [operation] function that takes an element and current accumulator value, and calculates the next accumulator value.\n */\npublic inline fun <R> CharArray.foldRight(initial: R, operation: (Char, acc: R) -> R): R {\n   var index = lastIndex\n   var accumulator = initial\n   while (index >= 0) {\n   accumulator = operation(get(index--), accumulator)\n   }\n   return accumulator\n}\n\n/**\n * Accumulates value starting with [initial] value and applying [operation] from right to left\n * to each element with its index in the original array and current accumulator value.\n * \n * Returns the specified [initial] value if the array is empty.\n * \n * @param [operation] function that takes the index of an element, the element itself\n * and current accumulator value, and calculates the next accumulator value.\n */\npublic inline fun <T, R> Array<out T>.foldRightIndexed(initial: R, operation: (index: Int, T, acc: R) -> R): R {\n   var index = lastIndex\n   var accumulator = initial\n   while (index >= 0) {\n   accumulator = operation(index, get(index), accumulator)\n   --index\n   }\n   return accumulator\n}\n\n/**\n * Accumulates value starting with [initial] value and applying [operation] from right to left\n * to each element with its index in the original array and current accumulator value.\n * \n * Returns the specified [initial] value if the array is empty.\n * \n * @param [operation] function that takes the index of an element, the element itself\n * and current accumulator value, and calculates the next accumulator value.\n */\npublic inline fun <R> ByteArray.foldRightIndexed(initial: R, operation: (index: Int, Byte, acc: R) -> R): R {\n   var index = lastIndex\n   var accumulator = initial\n   while (index >= 0) {\n   accumulator = operation(index, get(index), accumulator)\n   --index\n   }\n   return accumulator\n}\n\n/**\n * Accumulates value starting with [initial] value and applying [operation] from right to left\n * to each element with its index in the original array and current accumulator value.\n * \n * Returns the specified [initial] value if the array is empty.\n * \n * @param [operation] function that takes the index of an element, the element itself\n * and current accumulator value, and calculates the next accumulator value.\n */\npublic inline fun <R> ShortArray.foldRightIndexed(initial: R, operation: (index: Int, Short, acc: R) -> R): R {\n   var index = lastIndex\n   var accumulator = initial\n   while (index >= 0) {\n   accumulator = operation(index, get(index), accumulator)\n   --index\n   }\n   return accumulator\n}\n\n/**\n * Accumulates value starting with [initial] value and applying [operation] from right to left\n * to each element with its index in the original array and current accumulator value.\n * \n * Returns the specified [initial] value if the array is empty.\n * \n * @param [operation] function that takes the index of an element, the element itself\n * and current accumulator value, and calculates the next accumulator value.\n */\npublic inline fun <R> IntArray.foldRightIndexed(initial: R, operation: (index: Int, Int, acc: R) -> R): R {\n   var index = lastIndex\n   var accumulator = initial\n   while (index >= 0) {\n   accumulator = operation(index, get(index), accumulator)\n   --index\n   }\n   return accumulator\n}\n\n/**\n * Accumulates value starting with [initial] value and applying [operation] from right to left\n * to each element with its index in the original array and current accumulator value.\n * \n * Returns the specified [initial] value if the array is empty.\n * \n * @param [operation] function that takes the index of an element, the element itself\n * and current accumulator value, and calculates the next accumulator value.\n */\npublic inline fun <R> LongArray.foldRightIndexed(initial: R, operation: (index: Int, Long, acc: R) -> R): R {\n   var index = lastIndex\n   var accumulator = initial\n   while (index >= 0) {\n   accumulator = operation(index, get(index), accumulator)\n

--index\n   }\n   return accumulator\n}\n\n/**\n * Accumulates value starting with [initial] value and applying [operation] from right to left\n * to each element with its index in the original array and current accumulator value.\n * \n * Returns the specified [initial] value if the array is empty.\n * \n * @param [operation] function that takes the index of an element, the element itself\n * and current accumulator value, and calculates the next accumulator value.\n */\npublic inline fun <R> FloatArray.foldRightIndexed(initial: R, operation: (index: Int, Float, acc: R) -> R): R {\n   var index = lastIndex\n   var accumulator = initial\n   while (index >= 0) {\n   accumulator = operation(index, get(index), accumulator)\n   --index\n   }\n   return accumulator\n}\n\n/**\n * Accumulates value starting with [initial] value and applying [operation] from right to left\n * to each element with its index in the original array and current accumulator value.\n * \n * Returns the specified [initial] value if the array is empty.\n * \n * @param [operation] function that takes the index of an element, the element itself\n * and current accumulator value, and calculates the next accumulator value.\n */\npublic inline fun <R> DoubleArray.foldRightIndexed(initial: R, operation: (index: Int, Double, acc: R) -> R): R {\n   var index = lastIndex\n   var accumulator = initial\n   while (index >= 0) {\n   accumulator = operation(index, get(index), accumulator)\n   --index\n   }\n   return accumulator\n}\n\n/**\n * Accumulates value starting with [initial] value and applying [operation] from right to left\n * to each element with its index in the original array and current accumulator value.\n * \n * Returns the specified [initial] value if the array is empty.\n * \n * @param [operation] function that takes the index of an element, the element itself\n * and current accumulator value, and calculates the next accumulator value.\n */\npublic inline fun <R> BooleanArray.foldRightIndexed(initial: R, operation: (index: Int, Boolean, acc: R) -> R): R {\n   var index = lastIndex\n   var accumulator = initial\n   while (index >= 0) {\n   accumulator = operation(index, get(index), accumulator)\n   --index\n   }\n   return accumulator\n}\n\n/**\n * Accumulates value starting with [initial] value and applying [operation] from right to left\n * to each element with its index in the original array and current accumulator value.\n * \n * Returns the specified [initial] value if the array is empty.\n * \n * @param [operation] function that takes the index of an element, the element itself\n * and current accumulator value, and calculates the next accumulator value.\n */\npublic inline fun <R> CharArray.foldRightIndexed(initial: R, operation: (index: Int, Char, acc: R) -> R): R {\n   var index = lastIndex\n   var accumulator = initial\n   while (index >= 0) {\n   accumulator = operation(index, get(index), accumulator)\n   --index\n   }\n   return accumulator\n}\n\n/**\n * Performs the given [action] on each element.\n */\npublic inline fun <T> Array<out T>.forEach(action: (T) -> Unit): Unit {\n   for (element in this) action(element)\n}\n\n/**\n * Performs the given [action] on each element.\n */\npublic inline fun ByteArray.forEach(action: (Byte) -> Unit): Unit {\n   for (element in this) action(element)\n}\n\n/**\n * Performs the given [action] on each element.\n */\npublic inline fun ShortArray.forEach(action: (Short) -> Unit): Unit {\n   for (element in this) action(element)\n}\n\n/**\n * Performs the given [action] on each element.\n */\npublic inline fun IntArray.forEach(action: (Int) -> Unit): Unit {\n   for (element in this) action(element)\n}\n\n/**\n * Performs the given [action] on each element.\n */\npublic inline fun LongArray.forEach(action: (Long) -> Unit): Unit {\n   for (element in this) action(element)\n}\n\n/**\n * Performs the given [action] on each element.\n */\npublic inline fun FloatArray.forEach(action: (Float) -> Unit): Unit {\n   for (element in this) action(element)\n}\n\n/**\n * Performs the given [action] on each element.\n */\npublic inline fun DoubleArray.forEach(action: (Double) -> Unit): Unit {\n   for (element in this) action(element)\n}\n\n/**\n * Performs the given [action] on each element.\n */\npublic inline fun BooleanArray.forEach(action: (Boolean) -> Unit): Unit {\n   for (element in this) action(element)\n}\n\n/**\n * Performs the given [action] on each element.\n */\npublic inline fun CharArray.forEach(action: (Char) -> Unit): Unit {\n   for (element in this) action(element)\n}\n\n/**\n * Performs the given [action] on each element, providing sequential index with the element.\n * @param [action] function that takes the index of an element and the element itself\n * and performs the action on the element.\n */\npublic inline fun <T> Array<out T>.forEachIndexed(action: (index: Int, T) -> Unit): Unit {\n   var index = 0\n   for (item in this) action(index++, item)\n}\n\n/**\n * Performs the given [action] on each element, providing sequential index with the element.\n * @param [action] function that takes the index of an element and the element itself\n * and performs the action on the element.\n */\npublic inline fun ByteArray.forEachIndexed(action: (index: Int, Byte) -> Unit): Unit {\n   var index = 0\n   for (item in this) action(index++, item)\n}\n\n/**\n * Performs the given [action] on each element, providing sequential index with the element.\n * @param [action] function that takes the index of an element and the element itself\n * and performs the action on the element.\n */\npublic inline fun ShortArray.forEachIndexed(action: (index: Int, Short) -> Unit): Unit {\n   var index = 0\n   for (item in this) action(index++, item)\n}\n\n/**\n * Performs the given [action] on each element, providing sequential index with the element.\n * @param [action] function that takes the index of an element and the element itself\n * and performs the action on the element.\n */\npublic inline fun IntArray.forEachIndexed(action: (index: Int, Int) -> Unit): Unit {\n   var index = 0\n   for (item in this) action(index++, item)\n}\n\n/**\n * Performs the given [action] on each element, providing sequential index with the element.\n * @param [action] function that takes the index of an element and the element itself\n * and performs the action on the element.\n */\npublic inline fun LongArray.forEachIndexed(action: (index: Int, Long) -> Unit): Unit {\n   var index = 0\n   for (item in this) action(index++, item)\n}\n\n/**\n * Performs the given [action] on each element, providing sequential index with the element.\n * @param [action] function that takes the index of an element and the element itself\n * and performs the action on the element.\n */\npublic inline fun FloatArray.forEachIndexed(action: (index: Int, Float) -> Unit): Unit {\n   var index = 0\n   for (item in this) action(index++, item)\n}\n\n/**\n * Performs the given [action] on each element, providing sequential index with the element.\n * @param [action] function that takes the index of an element and the element itself\n * and performs the action on the element.\n */\npublic inline fun DoubleArray.forEachIndexed(action: (index: Int, Double) -> Unit): Unit {\n   var index = 0\n   for (item in this) action(index++, item)\n}\n\n/**\n * Performs the given [action] on each element, providing sequential index with the element.\n * @param [action] function that takes the index of an element and the element itself\n * and performs the action on the element.\n */\npublic inline fun BooleanArray.forEachIndexed(action: (index: Int, Boolean) -> Unit): Unit {\n   var index = 0\n   for (item in this) action(index++, item)\n}\n\n/**\n * Performs the given [action] on each element, providing sequential index with the element.\n * @param [action] function that takes the index of an element and the element itself\n * and performs the action on the element.\n */\npublic inline fun CharArray.forEachIndexed(action: (index: Int, Char) -> Unit): Unit {\n   var index = 0\n   for (item in this) action(index++, item)\n}\n\n/**\n * Returns the largest element.\n * \n * If any of elements is `NaN` returns `NaN`.\n * \n * @throws NoSuchElementException if the array is empty.\n */\n@SinceKotlin(\"1.7\")\n@kotlin.jvm.JvmName(\"maxOrThrow\")\n@Suppress(\"CONFLICTING_OVERLOADS\")\npublic fun Array<out Double>.max(): Double {\n   if (isEmpty()) throw NoSuchElementException()\n   var max = this[0]\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   max = maxOf(max, e)\n   }\n   return max\n}\n\n/**\n * Returns the largest element.\n * \n * If any of elements is `NaN` returns `NaN`.\n * \n * @throws NoSuchElementException if the array is empty.\n */\n@SinceKotlin(\"1.7\")\n@kotlin.jvm.JvmName(\"maxOrThrow\")\n@Suppress(\"CONFLICTING_OVERLOADS\")\npublic fun Array<out Float>.max(): Float {\n   if (isEmpty()) throw NoSuchElementException()\n   var max = this[0]\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   max = maxOf(max, e)\n   }\n   return max\n}\n\n/**\n * Returns the largest element.\n * \n * @throws NoSuchElementException if the array is empty.\n */\n@SinceKotlin(\"1.7\")\n@kotlin.jvm.JvmName(\"maxOrThrow\")\n@Suppress(\"CONFLICTING_OVERLOADS\")\npublic fun <T : Comparable<T>> Array<out T>.max(): T {\n   if (isEmpty()) throw NoSuchElementException()\n   var max = this[0]\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   if (max < e) max = e\n   }\n   return max\n}\n\n/**\n * Returns the largest element.\n * \n * @throws NoSuchElementException if the array is empty.\n */\n@SinceKotlin(\"1.7\")\n@kotlin.jvm.JvmName(\"maxOrThrow\")\n@Suppress(\"CONFLICTING_OVERLOADS\")\npublic fun ByteArray.max(): Byte {\n   if (isEmpty()) throw NoSuchElementException()\n   var max = this[0]\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   if (max < e) max = e\n   }\n   return max\n}\n\n/**\n * Returns the largest element.\n * \n * @throws NoSuchElementException if the array is empty.\n */\n@SinceKotlin(\"1.7\")\n@kotlin.jvm.JvmName(\"maxOrThrow\")\n@Suppress(\"CONFLICTING_OVERLOADS\")\npublic fun ShortArray.max(): Short {\n   if (isEmpty()) throw NoSuchElementException()\n   var max = this[0]\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   if (max < e) max = e\n   }\n   return max\n}\n\n/**\n * Returns the largest element.\n * \n * @throws NoSuchElementException if the array is empty.\n */\n@SinceKotlin(\"1.7\")\n@kotlin.jvm.JvmName(\"maxOrThrow\")\n@Suppress(\"CONFLICTING_OVERLOA

DS\")\npublic fun IntArray.max(): Int {\n   if (isEmpty()) throw NoSuchElementException()\n   var max = this[0]\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   if (max < e) max = e\n   }\n   return max\n}\n\n/**\n * Returns the largest element.\n * \n * @throws NoSuchElementException if the array is empty.\n */\n@SinceKotlin(\"1.7\")\n@kotlin.jvm.JvmName(\"maxOrThrow\")\n@Suppress(\"CONFLICTING_OVERLOADS\")\npublic fun LongArray.max(): Long {\n   if (isEmpty()) throw NoSuchElementException()\n   var max = this[0]\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   if (max < e) max = e\n   }\n   return max\n}\n\n/**\n * Returns the largest element.\n * \n * If any of elements is `NaN` returns `NaN`.\n * \n * @throws NoSuchElementException if the array is empty.\n */\n@SinceKotlin(\"1.7\")\n@kotlin.jvm.JvmName(\"maxOrThrow\")\n@Suppress(\"CONFLICTING_OVERLOADS\")\npublic fun FloatArray.max(): Float {\n   if (isEmpty()) throw NoSuchElementException()\n   var max = this[0]\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   max = maxOf(max, e)\n   }\n   return max\n}\n\n/**\n * Returns the largest element.\n * \n * If any of elements is `NaN` returns `NaN`.\n * \n * @throws NoSuchElementException if the array is empty.\n */\n@SinceKotlin(\"1.7\")\n@kotlin.jvm.JvmName(\"maxOrThrow\")\n@Suppress(\"CONFLICTING_OVERLOADS\")\npublic fun DoubleArray.max(): Double {\n   if (isEmpty()) throw NoSuchElementException()\n   var max = this[0]\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   max = maxOf(max, e)\n   }\n   return max\n}\n\n/**\n * Returns the largest element.\n * \n * @throws NoSuchElementException if the array is empty.\n */\n@SinceKotlin(\"1.7\")\n@kotlin.jvm.JvmName(\"maxOrThrow\")\n@Suppress(\"CONFLICTING_OVERLOADS\")\npublic fun CharArray.max(): Char {\n   if (isEmpty()) throw NoSuchElementException()\n   var max = this[0]\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   if (max < e) max = e\n   }\n   return max\n}\n\n/**\n * Returns the first element yielding the largest value of the given function.\n * \n * @throws NoSuchElementException if the array is empty.\n * \n * @sample samples.collections.Collections.Aggregates.maxBy\n */\n@SinceKotlin(\"1.7\")\n@kotlin.jvm.JvmName(\"maxByOrThrow\")\n@Suppress(\"CONFLICTING_OVERLOADS\")\npublic inline fun <T, R : Comparable<R>> Array<out T>.maxBy(selector: (T) -> R): T {\n   if (isEmpty()) throw NoSuchElementException()\n   var maxElem = this[0]\n   val lastIndex = this.lastIndex\n   if (lastIndex == 0) return maxElem\n   var maxValue = selector(maxElem)\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   val v = selector(e)\n   if (maxValue < v) {\n   maxElem = e\n   maxValue = v\n   }\n   }\n   return maxElem\n}\n\n/**\n * Returns the first element yielding the largest value of the given function.\n * \n * @throws NoSuchElementException if the array is empty.\n * \n * @sample samples.collections.Collections.Aggregates.maxBy\n */\n@SinceKotlin(\"1.7\")\n@kotlin.jvm.JvmName(\"maxByOrThrow\")\n@Suppress(\"CONFLICTING_OVERLOADS\")\npublic inline fun <R : Comparable<R>> ByteArray.maxBy(selector: (Byte) -> R): Byte {\n   if (isEmpty()) throw NoSuchElementException()\n   var maxElem = this[0]\n   val lastIndex = this.lastIndex\n   if (lastIndex == 0) return maxElem\n   var maxValue = selector(maxElem)\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   val v = selector(e)\n   if (maxValue < v) {\n   maxElem = e\n   maxValue = v\n   }\n   }\n   return maxElem\n}\n\n/**\n * Returns the first element yielding the largest value of the given function.\n * \n * @throws NoSuchElementException if the array is empty.\n * \n * @sample samples.collections.Collections.Aggregates.maxBy\n */\n@SinceKotlin(\"1.7\")\n@kotlin.jvm.JvmName(\"maxByOrThrow\")\n@Suppress(\"CONFLICTING_OVERLOADS\")\npublic inline fun <R : Comparable<R>> ShortArray.maxBy(selector: (Short) -> R): Short {\n   if (isEmpty()) throw NoSuchElementException()\n   var maxElem = this[0]\n   val lastIndex = this.lastIndex\n   if (lastIndex == 0) return maxElem\n   var maxValue = selector(maxElem)\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   val v = selector(e)\n   if (maxValue < v) {\n   maxElem = e\n   maxValue = v\n   }\n   }\n   return maxElem\n}\n\n/**\n * Returns the first element yielding the largest value of the given function.\n * \n * @throws NoSuchElementException if the array is empty.\n * \n * @sample samples.collections.Collections.Aggregates.maxBy\n */\n@SinceKotlin(\"1.7\")\n@kotlin.jvm.JvmName(\"maxByOrThrow\")\n@Suppress(\"CONFLICTING_OVERL

OADS\")\npublic inline fun <R : Comparable<R>> IntArray.maxBy(selector: (Int) -> R): Int {\n   if (isEmpty()) throw NoSuchElementException()\n   var maxElem = this[0]\n   val lastIndex = this.lastIndex\n   if (lastIndex == 0) return maxElem\n   var maxValue = selector(maxElem)\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   val v = selector(e)\n   if (maxValue < v) {\n   maxElem = e\n   maxValue = v\n   }\n   }\n   return maxElem\n}\n\n/**\n * Returns the first element yielding the largest value of the given function.\n * \n * @throws NoSuchElementException if the array is empty.\n * \n * @sample samples.collections.Collections.Aggregates.maxBy\n */\n@SinceKotlin(\"1.7\")\n@kotlin.jvm.JvmName(\"maxByOrThrow\")\n@Suppress(\"CONFLICTING_OVERLOADS\")\npublic inline fun <R : Comparable<R>> LongArray.maxBy(selector: (Long) -> R): Long {\n   if (isEmpty()) throw NoSuchElementException()\n   var maxElem = this[0]\n   val lastIndex = this.lastIndex\n   if (lastIndex == 0) return maxElem\n   var maxValue = selector(maxElem)\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   val v = selector(e)\n   if (maxValue < v) {\n   maxElem = e\n   maxValue = v\n   }\n   }\n   return maxElem\n}\n\n/**\n * Returns the first element yielding the largest value of the given function.\n * \n * @throws NoSuchElementException if the array is empty.\n * \n * @sample samples.collections.Collections.Aggregates.maxBy\n */\n@SinceKotlin(\"1.7\")\n@kotlin.jvm.JvmName(\"maxByOrThrow\")\n@Suppress(\"CONFLICTING_OVERLOADS\")\npublic inline fun <R : Comparable<R>> FloatArray.maxBy(selector: (Float) -> R): Float {\n   if (isEmpty()) throw NoSuchElementException()\n   var maxElem = this[0]\n   val lastIndex = this.lastIndex\n   if (lastIndex == 0) return maxElem\n   var maxValue = selector(maxElem)\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   val v = selector(e)\n   if (maxValue < v) {\n   maxElem = e\n   maxValue = v\n   }\n   }\n   return maxElem\n}\n\n/**\n * Returns the first element yielding the largest value of the given function.\n * \n * @throws NoSuchElementException if the array is empty.\n * \n * @sample samples.collections.Collections.Aggregates.maxBy\n */\n@SinceKotlin(\"1.7\")\n@kotlin.jvm.JvmName(\"maxByOrThrow\")\n@Suppress(\"CONFLICTING_OVERLOADS\")\npublic inline fun <R : Comparable<R>> DoubleArray.maxBy(selector: (Double) -> R): Double {\n   if (isEmpty()) throw NoSuchElementException()\n   var maxElem = this[0]\n   val lastIndex = this.lastIndex\n   if (lastIndex == 0) return maxElem\n   var maxValue = selector(maxElem)\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   val v = selector(e)\n   if (maxValue < v) {\n   maxElem = e\n   maxValue = v\n   }\n   }\n   return maxElem\n}\n\n/**\n * Returns the first element yielding the largest value of the given function.\n * \n * @throws NoSuchElementException if the array is empty.\n * \n * @sample samples.collections.Collections.Aggregates.maxBy\n */\n@SinceKotlin(\"1.7\")\n@kotlin.jvm.JvmName(\"maxByOrThrow\")\n@Suppress(\"CONFLICTING_OVERLOADS\")\npublic inline fun <R : Comparable<R>> BooleanArray.maxBy(selector: (Boolean) -> R): Boolean {\n   if (isEmpty()) throw NoSuchElementException()\n   var maxElem = this[0]\n   val lastIndex = this.lastIndex\n   if (lastIndex == 0) return maxElem\n   var maxValue = selector(maxElem)\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   val v = selector(e)\n   if (maxValue < v) {\n   maxElem = e\n   maxValue = v\n   }\n   }\n   return maxElem\n}\n\n/**\n * Returns the first element yielding the largest value of the given function.\n * \n * @throws NoSuchElementException if the array is empty.\n * \n * @sample samples.collections.Collections.Aggregates.maxBy\n */\n@SinceKotlin(\"1.7\")\n@kotlin.jvm.JvmName(\"maxByOrThrow\")\n@Suppress(\"CONFLICTING_OVERLOADS\")\npublic inline fun <R : Comparable<R>> CharArray.maxBy(selector: (Char) -> R): Char {\n   if (isEmpty()) throw NoSuchElementException()\n   var maxElem = this[0]\n   val lastIndex = this.lastIndex\n   if (lastIndex == 0) return maxElem\n   var maxValue = selector(maxElem)\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   val v = selector(e)\n   if (maxValue < v) {\n   maxElem = e\n   maxValue = v\n   }\n   }\n   return maxElem\n}\n\n/**\n * Returns the first element yielding the largest value of the given function or `null` if there are no elements.\n * \n * @sample samples.collections.Collections.Aggregates.maxByOrNull\n */\n@SinceKotlin(\"1.4\")\npublic inline fun <T, R : Comparable<R>> Array<out T>.maxByOrNull(selector: (T) -> R): T? {\n   if (isEmpty()) return null\n   var maxElem = this[0]\n   val lastIndex = this.lastIndex\n   if (lastIndex

== 0) return maxElem\n   var maxValue = selector(maxElem)\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   val v = selector(e)\n   if (maxValue < v) {\n   maxElem = e\n   maxValue = v\n   }\n   }\n   return maxElem\n}\n\n/**\n * Returns the first element yielding the largest value of the given function or `null` if there are no elements.\n * \n * @sample samples.collections.Collections.Aggregates.maxByOrNull\n */\n@SinceKotlin(\"1.4\")\npublic inline fun <R : Comparable<R>> ByteArray.maxByOrNull(selector: (Byte) -> R): Byte? {\n   if (isEmpty()) return null\n   var maxElem = this[0]\n   val lastIndex = this.lastIndex\n   if (lastIndex == 0) return maxElem\n   var maxValue = selector(maxElem)\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   val v = selector(e)\n   if (maxValue < v) {\n   maxElem = e\n   maxValue = v\n   }\n   }\n   return maxElem\n}\n\n/**\n * Returns the first element yielding the largest value of the given function or `null` if there are no elements.\n * \n * @sample samples.collections.Collections.Aggregates.maxByOrNull\n */\n@SinceKotlin(\"1.4\")\npublic inline fun <R : Comparable<R>> ShortArray.maxByOrNull(selector: (Short) -> R): Short? {\n   if (isEmpty()) return null\n   var maxElem = this[0]\n   val lastIndex = this.lastIndex\n   if (lastIndex == 0) return maxElem\n   var maxValue = selector(maxElem)\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   val v = selector(e)\n   if (maxValue < v) {\n   maxElem = e\n   maxValue = v\n   }\n   }\n   return maxElem\n}\n\n/**\n * Returns the first element yielding the largest value of the given function or `null` if there are no elements.\n * \n * @sample samples.collections.Collections.Aggregates.maxByOrNull\n */\n@SinceKotlin(\"1.4\")\npublic inline fun <R : Comparable<R>> IntArray.maxByOrNull(selector: (Int) -> R): Int? {\n   if (isEmpty()) return null\n   var maxElem = this[0]\n   val lastIndex = this.lastIndex\n   if (lastIndex == 0) return maxElem\n   var maxValue = selector(maxElem)\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   val v = selector(e)\n   if (maxValue < v) {\n   maxElem = e\n   maxValue = v\n   }\n   }\n   return maxElem\n}\n\n/**\n * Returns the first element yielding the largest value of the given function or `null` if there are no elements.\n * \n * @sample samples.collections.Collections.Aggregates.maxByOrNull\n */\n@SinceKotlin(\"1.4\")\npublic inline fun <R : Comparable<R>> LongArray.maxByOrNull(selector: (Long) -> R): Long? {\n   if (isEmpty()) return null\n   var maxElem = this[0]\n   val lastIndex = this.lastIndex\n   if (lastIndex == 0) return maxElem\n   var maxValue = selector(maxElem)\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   val v = selector(e)\n   if (maxValue < v) {\n   maxElem = e\n   maxValue = v\n   }\n   }\n   return maxElem\n}\n\n/**\n * Returns the first element yielding the largest value of the given function or `null` if there are no elements.\n * \n * @sample samples.collections.Collections.Aggregates.maxByOrNull\n */\n@SinceKotlin(\"1.4\")\npublic inline fun <R : Comparable<R>> FloatArray.maxByOrNull(selector: (Float) -> R): Float? {\n   if (isEmpty()) return null\n   var maxElem = this[0]\n   val lastIndex = this.lastIndex\n   if (lastIndex == 0) return maxElem\n   var maxValue = selector(maxElem)\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   val v = selector(e)\n   if (maxValue < v) {\n   maxElem = e\n   maxValue = v\n   }\n   }\n   return maxElem\n}\n\n/**\n * Returns the first element yielding the largest value of the given function or `null` if there are no elements.\n * \n * @sample samples.collections.Collections.Aggregates.maxByOrNull\n */\n@SinceKotlin(\"1.4\")\npublic inline fun <R : Comparable<R>> DoubleArray.maxByOrNull(selector: (Double) -> R): Double? {\n   if (isEmpty()) return null\n   var maxElem = this[0]\n   val lastIndex = this.lastIndex\n   if (lastIndex == 0) return maxElem\n   var maxValue = selector(maxElem)\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   val v = selector(e)\n   if (maxValue < v) {\n   maxElem = e\n   maxValue = v\n   }\n   }\n   return maxElem\n}\n\n/**\n * Returns the first element yielding the largest value of the given function or `null` if there are no elements.\n * \n * @sample samples.collections.Collections.Aggregates.maxByOrNull\n */\n@SinceKotlin(\"1.4\")\npublic inline fun <R : Comparable<R>> BooleanArray.maxByOrNull(selector: (Boolean) -> R): Boolean? {\n   if (isEmpty()) return null\n   var maxElem = this[0]\n   val lastIndex = this.lastIndex\n   if (lastIndex == 0) return maxElem\n   var maxValue = selector(maxElem)\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   val v = selector(e)\n   if (maxValue < v) {\n   maxElem = e\n   maxValue = v\n   }\n   }\n   return maxElem\n}\n\n/**\n * Returns the first element yielding the largest value of the given function or `null` if there are no elements.\n * \n * @sample samples.collections.Collections.Aggregates.maxByOrNull\n */\n@SinceKotlin(\"1.4\")\npublic inline fun <R : Comparable<R>> CharArray.maxByOrNull(selector: (Char) -> R): Char? {\n   if (isEmpty()) return null\n   var maxElem = this[0]\n   val lastIndex = this.lastIndex\n   if (lastIndex == 0) return maxElem\n   var maxValue = selector(maxElem)\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   val v = selector(e)\n   if (maxValue < v) {\n   maxElem = e\n   maxValue = v\n   }\n   }\n   return maxElem\n}\n\n/**\n * Returns the largest value among all values produced by [selector] function\n * applied to each element in the array.\n * \n * If any of values produced by [selector] function is `NaN`, the returned result is `NaN`.\n * \n * @throws NoSuchElementException if the array is empty.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <T> Array<out T>.maxOf(selector: (T) -> Double): Double {\n   if (isEmpty()) throw NoSuchElementException()\n   var maxValue = selector(this[0])\n   for (i in 1..lastIndex) {\n   val v = selector(this[i])\n   maxValue = maxOf(maxValue, v)\n   }\n   return maxValue\n}\n\n/**\n * Returns the largest value among all values produced by [selector] function\n * applied to each element in the array.\n * \n * If any of values produced by [selector] function is `NaN`, the returned result is `NaN`.\n * \n * @throws NoSuchElementException if the array is empty.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun ByteArray.maxOf(selector: (Byte) -> Double): Double {\n   if (isEmpty()) throw NoSuchElementException()\n   var maxValue = selector(this[0])\n   for (i in 1..lastIndex) {\n   val v = selector(this[i])\n   maxValue = maxOf(maxValue, v)\n   }\n   return maxValue\n}\n\n/**\n * 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NoSuchElementException if the array is empty.\n
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ByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <R : Comparable<R>>
ShortArray.maxOf(selector: (Short) -> R): R {\n   if (isEmpty()) throw NoSuchElementException()\n   var
maxValue = selector(this[0])\n   for (i in 1..lastIndex) {\n   val v = selector(this[i])\n   if (maxValue < v) {\n
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ByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <R : Comparable<R>>
IntArray.maxOf(selector: (Int) -> R): R {\n   if (isEmpty()) throw NoSuchElementException()\n   var maxValue =
selector(this[0])\n   for (i in 1..lastIndex) {\n   val v = selector(this[i])\n   if (maxValue < v) {\n
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LongArray.maxOf(selector: (Long) -> R): R {\n   if (isEmpty()) throw NoSuchElementException()\n   var
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FloatArray.maxOf(selector: (Float) -> R): R {\n   if (isEmpty()) throw NoSuchElementException()\n   var
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ByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <R : Comparable<R>>
DoubleArray.maxOf(selector: (Double) -> R): R {\n   if (isEmpty()) throw NoSuchElementException()\n   var
maxValue = selector(this[0])\n   for (i in 1..lastIndex) {\n   val v = selector(this[i])\n   if (maxValue < v) {\n
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{\n   if (isEmpty()) return null\n   var maxValue = selector(this[0])\n   for (i in 1..lastIndex) {\n   val v = selector(this[i])\n   maxValue = maxOf(maxValue, v)\n   }\n   return maxValue\n}\n\n/**\n * Returns the largest value among all values produced by [selector] function\n * applied to each element in the array or `null` if there are no elements.\n * \n * If any of values produced by [selector] function is `NaN`, the returned result is `NaN`.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun LongArray.maxOfOrNull(selector: (Long) -> Double): Double? {\n   if (isEmpty()) return null\n   var maxValue = selector(this[0])\n   for (i in 1..lastIndex) {\n   val v = selector(this[i])\n   maxValue = maxOf(maxValue, v)\n   }\n   return maxValue\n}\n\n/**\n * Returns the largest value among all values produced by [selector] function\n * applied to each element in the array or `null` if there are no elements.\n * \n * If any of values produced by [selector] function is `NaN`, the returned result is `NaN`.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun FloatArray.maxOfOrNull(selector: (Float) -> Double): Double? {\n   if (isEmpty()) return null\n   var maxValue = selector(this[0])\n   for (i in 1..lastIndex) {\n   val v = selector(this[i])\n   maxValue = maxOf(maxValue, v)\n   }\n   return maxValue\n}\n\n/**\n * Returns the largest value among all values produced by [selector] function\n * applied to each element in the array or `null` if there are no elements.\n * \n * If any of values produced by [selector] function is `NaN`, the returned result is `NaN`.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun DoubleArray.maxOfOrNull(selector: (Double) -> Double): Double? {\n   if (isEmpty()) return null\n   var maxValue = selector(this[0])\n   for (i in 1..lastIndex) {\n   val v = selector(this[i])\n   maxValue = maxOf(maxValue, v)\n   }\n   return maxValue\n}\n\n/**\n * Returns the largest value among all values produced by [selector] function\n * applied to each element in the array or `null` if there are no elements.\n * \n * If any of values produced by [selector] function is `NaN`, the returned result is `NaN`.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun BooleanArray.maxOfOrNull(selector: (Boolean) -> Double): Double? {\n   if (isEmpty()) return null\n   var maxValue = selector(this[0])\n   for (i in 1..lastIndex) {\n   val v = selector(this[i])\n   maxValue = maxOf(maxValue, v)\n   }\n   return maxValue\n}\n\n/**\n * Returns the largest value among all values produced by [selector] function\n * applied to each element in the array or `null` if there are no elements.\n * \n * If any of values produced by [selector] function is `NaN`, the returned result is `NaN`.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun CharArray.maxOfOrNull(selector: (Char) -> Double): Double? {\n   if (isEmpty()) return null\n   var maxValue = selector(this[0])\n   for (i in 1..lastIndex) {\n   val v = selector(this[i])\n   maxValue = maxOf(maxValue, v)\n   }\n   return maxValue\n}\n\n/**\n * Returns the largest value among all values produced by [selector] function\n * applied to each element in the array or `null` if there are no elements.\n * \n * If any of values produced by [selector] function is `NaN`, the returned result is `NaN`.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <T> Array<out T>.maxOfOrNull(selector: (T) -> Float): Float? 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Comparator<in R>, selector: (Byte) -> R): R {\n   if (isEmpty()) throw NoSuchElementException()\n   var maxValue = selector(this[0])\n   for (i in 1..lastIndex) {\n   val v = selector(this[i])\n   if (comparator.compare(maxValue, v) < 0) {\n   maxValue = v\n   }\n   }\n   return maxValue\n}\n\n/**\n * Returns the largest value according to the provided [comparator]\n * among all values produced by [selector] function applied to each element in the array.\n * \n * @throws NoSuchElementException if the array is empty.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <R> ShortArray.maxOfWith(comparator: Comparator<in R>, selector: (Short) -> R): R {\n   if (isEmpty()) throw NoSuchElementException()\n   var maxValue = selector(this[0])\n   for (i in 1..lastIndex) {\n   val v = selector(this[i])\n   if (comparator.compare(maxValue, v) < 0) {\n   maxValue = v\n   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largest value according to the provided [comparator]\n * among all values produced by [selector] function applied to each element in the array.\n * \n * @throws NoSuchElementException if the array is empty.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <R> BooleanArray.maxOfWith(comparator: Comparator<in R>, selector: (Boolean) -> R): R {\n   if (isEmpty()) throw NoSuchElementException()\n   var maxValue = selector(this[0])\n   for (i in 1..lastIndex) {\n   val v = selector(this[i])\n   if (comparator.compare(maxValue, v) < 0) {\n   maxValue = v\n   }\n   }\n   return maxValue\n}\n\n/**\n * Returns the largest value according to the provided [comparator]\n * among all values produced by [selector] function applied to each element in the array.\n * \n * @throws NoSuchElementException if the array is empty.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution

ByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <R> CharArray.maxOfWith(comparator: Comparator<in R>, selector: (Char) -> R): R {\n   if (isEmpty()) throw NoSuchElementException()\n   var maxValue = selector(this[0])\n   for (i in 1..lastIndex) {\n   val v = selector(this[i])\n   if (comparator.compare(maxValue, v) < 0) {\n   maxValue = v\n   }\n   }\n   return maxValue\n}\n\n/**\n * Returns the largest value according to the provided [comparator]\n * among all values produced by [selector] function applied to each element in the array or `null` if there are no elements.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <T, R> Array<out T>.maxOfWithOrNull(comparator: Comparator<in R>, selector: (T) -> R): R? {\n   if (isEmpty()) return null\n   var maxValue = selector(this[0])\n   for (i in 1..lastIndex) {\n   val v = selector(this[i])\n   if (comparator.compare(maxValue, v) < 0) {\n   maxValue = v\n   }\n   }\n   return maxValue\n}\n\n/**\n * Returns the largest value according to the provided [comparator]\n * among all values produced by [selector] function applied to each element in the array or `null` if there are no elements.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <R> ByteArray.maxOfWithOrNull(comparator: Comparator<in R>, selector: (Byte) -> R): R? {\n   if (isEmpty()) return null\n   var maxValue = selector(this[0])\n   for (i in 1..lastIndex) {\n   val v = selector(this[i])\n   if (comparator.compare(maxValue, v) < 0) {\n   maxValue = v\n   }\n   }\n   return maxValue\n}\n\n/**\n * Returns the largest value according to the provided [comparator]\n * among all values produced by [selector] function applied to each element in the array or `null` if there are no elements.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <R> ShortArray.maxOfWithOrNull(comparator: Comparator<in R>, selector: (Short) -> R): R? {\n   if (isEmpty()) return null\n   var maxValue = selector(this[0])\n   for (i in 1..lastIndex) {\n   val v = selector(this[i])\n   if (comparator.compare(maxValue, v) < 0) {\n   maxValue = v\n   }\n   }\n   return maxValue\n}\n\n/**\n * Returns the largest value according to the provided [comparator]\n * among all values produced by [selector] function applied to each element in the array or `null` if there are no elements.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <R> IntArray.maxOfWithOrNull(comparator: Comparator<in R>, selector: (Int) -> R): R? {\n   if (isEmpty()) return null\n   var maxValue = selector(this[0])\n   for (i in 1..lastIndex) {\n   val v = selector(this[i])\n   if (comparator.compare(maxValue, v) < 0) {\n   maxValue = v\n   }\n   }\n   return maxValue\n}\n\n/**\n * Returns the largest value according to the provided [comparator]\n * among all values produced by [selector] function applied to each element in the array or `null` if there are no elements.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <R> LongArray.maxOfWithOrNull(comparator: Comparator<in R>, selector: (Long) -> R): R? {\n   if (isEmpty()) return null\n   var maxValue = selector(this[0])\n   for (i in 1..lastIndex) {\n   val v = selector(this[i])\n   if (comparator.compare(maxValue, v) < 0) {\n   maxValue = v\n   }\n   }\n   return maxValue\n}\n\n/**\n * Returns the largest value according to the provided [comparator]\n * among all values produced by [selector] function applied to each element in the array or `null` if there are no elements.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <R> FloatArray.maxOfWithOrNull(comparator: Comparator<in R>, selector: (Float) -> R): R? {\n   if (isEmpty()) return null\n   var maxValue = selector(this[0])\n   for (i in 1..lastIndex) {\n   val v = selector(this[i])\n   if (comparator.compare(maxValue, v) < 0) {\n   maxValue = v\n   }\n   }\n   return maxValue\n}\n\n/**\n * Returns the largest value according to the provided [comparator]\n * among all values produced by [selector] function applied to each element in the array or `null` if there are no elements.\n

*/\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <R> DoubleArray.maxOfWithOrNull(comparator: Comparator<in R>, selector: (Double) -> R): R? {\n if (isEmpty()) return null\n var maxValue = selector(this[0])\n for (i in 1..lastIndex) {\n val v = selector(this[i])\n if (comparator.compare(maxValue, v) < 0) {\n maxValue = v\n }\n }\n return maxValue\n}\n\n/**\n * Returns the largest value according to the provided [comparator]\n * among all values produced by [selector] function applied to each element in the array or `null` if there are no elements.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <R> BooleanArray.maxOfWithOrNull(comparator: Comparator<in R>, selector: (Boolean) -> R): R? {\n if (isEmpty()) return null\n var maxValue = selector(this[0])\n for (i in 1..lastIndex) {\n val v = selector(this[i])\n if (comparator.compare(maxValue, v) < 0) {\n maxValue = v\n }\n }\n return maxValue\n}\n\n/**\n * Returns the largest value according to the provided [comparator]\n * among all values produced by [selector] function applied to each element in the array or `null` if there are no elements.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <R> CharArray.maxOfWithOrNull(comparator: Comparator<in R>, selector: (Char) -> R): R? {\n if (isEmpty()) return null\n var maxValue = selector(this[0])\n for (i in 1..lastIndex) {\n val v = selector(this[i])\n if (comparator.compare(maxValue, v) < 0) {\n maxValue = v\n }\n }\n return maxValue\n}\n\n/**\n * Returns the largest element or `null` if there are no elements.\n * \n * If any of elements is `NaN` returns `NaN`.\n */\n@SinceKotlin(\"1.4\")\npublic fun Array<out Double>.maxOrNull(): Double? {\n if (isEmpty()) return null\n var max = this[0]\n for (i in 1..lastIndex) {\n val e = this[i]\n max = maxOf(max, e)\n }\n return max\n}\n\n/**\n * Returns the largest element or `null` if there are no elements.\n * \n * If any of elements is `NaN` returns `NaN`.\n */\n@SinceKotlin(\"1.4\")\npublic fun Array<out Float>.maxOrNull(): Float? {\n if (isEmpty()) return null\n var max = this[0]\n for (i in 1..lastIndex) {\n val e = this[i]\n max = maxOf(max, e)\n }\n return max\n}\n\n/**\n * Returns the largest element or `null` if there are no elements.\n */\n@SinceKotlin(\"1.4\")\npublic fun <T : Comparable<T>> Array<out T>.maxOrNull(): T? {\n if (isEmpty()) return null\n var max = this[0]\n for (i in 1..lastIndex) {\n val e = this[i]\n if (max < e) max = e\n }\n return max\n}\n\n/**\n * Returns the largest element or `null` if there are no elements.\n */\n@SinceKotlin(\"1.4\")\npublic fun ByteArray.maxOrNull(): Byte? {\n if (isEmpty()) return null\n var max = this[0]\n for (i in 1..lastIndex) {\n val e = this[i]\n if (max < e) max = e\n }\n return max\n}\n\n/**\n * Returns the largest element or `null` if there are no elements.\n */\n@SinceKotlin(\"1.4\")\npublic fun ShortArray.maxOrNull(): Short? {\n if (isEmpty()) return null\n var max = this[0]\n for (i in 1..lastIndex) {\n val e = this[i]\n if (max < e) max = e\n }\n return max\n}\n\n/**\n * Returns the largest element or `null` if there are no elements.\n */\n@SinceKotlin(\"1.4\")\npublic fun IntArray.maxOrNull(): Int? {\n if (isEmpty()) return null\n var max = this[0]\n for (i in 1..lastIndex) {\n val e = this[i]\n if (max < e) max = e\n }\n return max\n}\n\n/**\n * Returns the largest element or `null` if there are no elements.\n */\n@SinceKotlin(\"1.4\")\npublic fun LongArray.maxOrNull(): Long? {\n if (isEmpty()) return null\n var max = this[0]\n for (i in 1..lastIndex) {\n val e = this[i]\n if (max < e) max = e\n }\n return max\n}\n\n/**\n * Returns the largest element or `null` if there are no elements.\n * \n * If any of elements is `NaN` returns `NaN`.\n */\n@SinceKotlin(\"1.4\")\npublic fun FloatArray.maxOrNull(): Float? {\n if (isEmpty()) return null\n var max = this[0]\n for (i in 1..lastIndex) {\n val e = this[i]\n max = maxOf(max, e)\n }\n return max\n}\n\n/**\n * Returns the largest element or `null` if there are no elements.\n * \n * If any of elements is `NaN` returns `NaN`.\n */\n@SinceKotlin(\"1.4\")\npublic fun DoubleArray.maxOrNull(): Double? {\n if (isEmpty()) return null\n var max = this[0]\n for (i in 1..lastIndex) {\n val e = this[i]\n max = maxOf(max, e)\n }\n return max\n}\n\n/**\n * Returns the largest element or `null` if there are no elements.\n */\n@SinceKotlin(\"1.4\")\npublic fun CharArray.maxOrNull(): Char? {\n if (isEmpty()) return null\n var max = this[0]\n for (i in 1..lastIndex) {\n val e = this[i]\n if (max < e) max = e\n }\n return max\n}\n\n/**\n *

Returns the first element having the largest value according to the provided [comparator].\n * \n * @throws NoSuchElementException if the array is empty.\n */\n@SinceKotlin(\"1.7\")\n@kotlin.jvm.JvmName(\"maxWithOrThrow\")\n@Suppress(\"CONFLICTING_OVERLOADS\")\npublic fun <T> Array<out T>.maxWith(comparator: Comparator<in T>): T {\n   if (isEmpty()) throw NoSuchElementException()\n   var max = this[0]\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   if (comparator.compare(max, e) < 0) max = e\n   }\n   return max\n}\n\n/**\n * Returns the first element having the largest value according to the provided [comparator].\n * \n * @throws NoSuchElementException if the array is empty.\n */\n@SinceKotlin(\"1.7\")\n@kotlin.jvm.JvmName(\"maxWithOrThrow\")\n@Suppress(\"CONFLICTING_OVERLOADS\")\npublic fun ByteArray.maxWith(comparator: Comparator<in Byte>): Byte {\n   if (isEmpty()) throw NoSuchElementException()\n   var max = this[0]\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   if (comparator.compare(max, e) < 0) max = e\n   }\n   return max\n}\n\n/**\n * Returns the first element having the largest value according to the provided [comparator].\n * \n * @throws NoSuchElementException if the array is empty.\n */\n@SinceKotlin(\"1.7\")\n@kotlin.jvm.JvmName(\"maxWithOrThrow\")\n@Suppress(\"CONFLICTING_OVERLOADS\")\npublic fun ShortArray.maxWith(comparator: Comparator<in Short>): Short {\n   if (isEmpty()) throw NoSuchElementException()\n   var max = this[0]\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   if (comparator.compare(max, e) < 0) max = e\n   }\n   return max\n}\n\n/**\n * Returns the first element having the largest value according to the provided [comparator].\n * \n * @throws NoSuchElementException if the array is empty.\n */\n@SinceKotlin(\"1.7\")\n@kotlin.jvm.JvmName(\"maxWithOrThrow\")\n@Suppress(\"CONFLICTING_OVERLOADS\")\npublic fun IntArray.maxWith(comparator: Comparator<in Int>): Int {\n   if (isEmpty()) throw NoSuchElementException()\n   var max = this[0]\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   if (comparator.compare(max, e) < 0) max = e\n   }\n   return max\n}\n\n/**\n * Returns the first element having the largest value according to the provided [comparator].\n * \n * @throws NoSuchElementException if the array is empty.\n */\n@SinceKotlin(\"1.7\")\n@kotlin.jvm.JvmName(\"maxWithOrThrow\")\n@Suppress(\"CONFLICTING_OVERLOADS\")\npublic fun LongArray.maxWith(comparator: Comparator<in Long>): Long {\n   if (isEmpty()) throw NoSuchElementException()\n   var max = this[0]\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   if (comparator.compare(max, e) < 0) max = e\n   }\n   return max\n}\n\n/**\n * Returns the first element having the largest value according to the provided [comparator].\n * \n * @throws NoSuchElementException if the array is empty.\n */\n@SinceKotlin(\"1.7\")\n@kotlin.jvm.JvmName(\"maxWithOrThrow\")\n@Suppress(\"CONFLICTING_OVERLOADS\")\npublic fun FloatArray.maxWith(comparator: Comparator<in Float>): Float {\n   if (isEmpty()) throw NoSuchElementException()\n   var max = this[0]\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   if (comparator.compare(max, e) < 0) max = e\n   }\n   return max\n}\n\n/**\n * Returns the first element having the largest value according to the provided [comparator].\n * \n * @throws NoSuchElementException if the array is empty.\n */\n@SinceKotlin(\"1.7\")\n@kotlin.jvm.JvmName(\"maxWithOrThrow\")\n@Suppress(\"CONFLICTING_OVERLOADS\")\npublic fun DoubleArray.maxWith(comparator: Comparator<in Double>): Double {\n   if (isEmpty()) throw NoSuchElementException()\n   var max = this[0]\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   if (comparator.compare(max, e) < 0) max = e\n   }\n   return max\n}\n\n/**\n * Returns the first element having the largest value according to the provided [comparator].\n * \n * @throws NoSuchElementException if the array is empty.\n */\n@SinceKotlin(\"1.7\")\n@kotlin.jvm.JvmName(\"maxWithOrThrow\")\n@Suppress(\"CONFLICTING_OVERLOADS\")\npublic fun BooleanArray.maxWith(comparator: Comparator<in Boolean>): Boolean {\n   if (isEmpty()) throw NoSuchElementException()\n   var max = this[0]\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   if (comparator.compare(max, e) < 0) max = e\n   }\n   return max\n}\n\n/**\n * Returns the first element having the largest value according to the provided [comparator].\n * \n * @throws NoSuchElementException if the array is empty.\n */\n@SinceKotlin(\"1.7\")\n@kotlin.jvm.JvmName(\"maxWithOrThrow\")\n@Suppress(\"CONFLICTING_OVERLOADS\")\npublic fun CharArray.maxWith(comparator: Comparator<in Char>): Char {\n   if (isEmpty()) throw NoSuchElementException()\n   var max = this[0]\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   if (comparator.compare(max, e) < 0) max = e\n   }\n   return max\n}\n\n/**\n * Returns the first element having the largest value according to the provided [comparator] or `null` if there are no elements.\n */\n@SinceKotlin(\"1.4\")\npublic fun <T> Array<out T>.maxWithOrNull(comparator: Comparator<in T>): T? {\n   if (isEmpty()) return null\n   var max = this[0]\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   if (comparator.compare(max, e) < 0) max = e\n   }\n   return max\n}\n\n/**\n * Returns the first element having the largest value according to the provided [comparator] or `null` if there are no elements.\n */\n@SinceKotlin(\"1.4\")\npublic fun ByteArray.maxWithOrNull(comparator: Comparator<in Byte>): Byte? {\n   if (isEmpty()) return null\n   var max = this[0]\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   if (comparator.compare(max, e) < 0) max = e\n   }\n   return max\n}\n\n/**\n * Returns the first element having the largest value according to the provided [comparator] or `null` if there are no elements.\n */\n@SinceKotlin(\"1.4\")\npublic fun ShortArray.maxWithOrNull(comparator: Comparator<in Short>): Short? {\n   if (isEmpty()) return null\n   var max = this[0]\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   if (comparator.compare(max, e) < 0) max = e\n   }\n   return max\n}\n\n/**\n * Returns the first element having the largest value according to the provided [comparator] or `null` if there are no elements.\n */\n@SinceKotlin(\"1.4\")\npublic fun IntArray.maxWithOrNull(comparator: Comparator<in Int>): Int? {\n   if (isEmpty()) return null\n   var max = this[0]\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   if (comparator.compare(max, e) < 0) max = e\n   }\n   return max\n}\n\n/**\n * Returns the first element having the largest value according to the provided [comparator] or `null` if there are no elements.\n */\n@SinceKotlin(\"1.4\")\npublic fun LongArray.maxWithOrNull(comparator: Comparator<in Long>): Long? {\n   if (isEmpty()) return null\n   var max = this[0]\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   if (comparator.compare(max, e) < 0) max = e\n   }\n   return max\n}\n\n/**\n * Returns the first element having the largest value according to the provided [comparator] or `null` if there are no elements.\n */\n@SinceKotlin(\"1.4\")\npublic fun FloatArray.maxWithOrNull(comparator: Comparator<in Float>): Float? {\n   if (isEmpty()) return null\n   var max = this[0]\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   if (comparator.compare(max, e) < 0) max = e\n   }\n   return max\n}\n\n/**\n * Returns the first element having the largest value according to the provided [comparator] or `null` if there are no elements.\n */\n@SinceKotlin(\"1.4\")\npublic fun DoubleArray.maxWithOrNull(comparator: Comparator<in Double>): Double? {\n   if (isEmpty()) return null\n   var max = this[0]\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   if (comparator.compare(max, e) < 0) max = e\n   }\n   return max\n}\n\n/**\n * Returns the first element having the largest value according to the provided [comparator] or `null` if there are no elements.\n */\n@SinceKotlin(\"1.4\")\npublic fun BooleanArray.maxWithOrNull(comparator: Comparator<in Boolean>): Boolean? {\n   if (isEmpty()) return null\n   var max = this[0]\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   if (comparator.compare(max, e) < 0) max = e\n   }\n   return max\n}\n\n/**\n * Returns the first element having the largest value according to the provided [comparator] or `null` if there are no elements.\n */\n@SinceKotlin(\"1.4\")\npublic fun CharArray.maxWithOrNull(comparator: Comparator<in Char>): Char? {\n   if (isEmpty()) return null\n   var max = this[0]\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   if (comparator.compare(max, e) < 0) max = e\n   }\n   return max\n}\n\n/**\n * Returns the smallest element.\n * \n * If any of elements is `NaN` returns `NaN`.\n * \n * @throws NoSuchElementException if the array is empty.\n */\n@SinceKotlin(\"1.7\")\n@kotlin.jvm.JvmName(\"minOrThrow\")\n@Suppress(\"CONFLICTING_OVERLOADS\")\npublic fun Array<out Double>.min(): Double {\n   if (isEmpty()) throw NoSuchElementException()\n   var min = this[0]\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   min = minOf(min, e)\n   }\n   return min\n}\n\n/**\n * Returns the smallest element.\n * \n * If any of elements is `NaN` returns `NaN`.\n * \n * @throws NoSuchElementException if the array is empty.\n

*/\n@SinceKotlin(\"1.7\")\n@kotlin.jvm.JvmName(\"minOrThrow\")\n@Suppress(\"CONFLICTING_OVERLOADS\")\npublic fun Array<out Float>.min(): Float {\n   if (isEmpty()) throw NoSuchElementException()\n   var min = this[0]\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   min = minOf(min, e)\n   }\n   return min\n}\n\n/**\n * Returns the smallest element.\n * \n * @throws NoSuchElementException if the array is empty.\n */\n@SinceKotlin(\"1.7\")\n@kotlin.jvm.JvmName(\"minOrThrow\")\n@Suppress(\"CONFLICTING_OVERLOADS\")\npublic fun <T : Comparable<T>> Array<out T>.min(): T {\n   if (isEmpty()) throw NoSuchElementException()\n   var min = this[0]\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   if (min > e) min = e\n   }\n   return min\n}\n\n/**\n * Returns the smallest element.\n * \n * @throws NoSuchElementException if the array is empty.\n */\n@SinceKotlin(\"1.7\")\n@kotlin.jvm.JvmName(\"minOrThrow\")\n@Suppress(\"CONFLICTING_OVERLOADS\")\npublic fun ByteArray.min(): Byte {\n   if (isEmpty()) throw NoSuchElementException()\n   var min = this[0]\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   if (min > e) min = e\n   }\n   return min\n}\n\n/**\n * Returns the smallest element.\n * \n * @throws NoSuchElementException if the array is empty.\n */\n@SinceKotlin(\"1.7\")\n@kotlin.jvm.JvmName(\"minOrThrow\")\n@Suppress(\"CONFLICTING_OVERLOADS\")\npublic fun ShortArray.min(): Short {\n   if (isEmpty()) throw NoSuchElementException()\n   var min = this[0]\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   if (min > e) min = e\n   }\n   return min\n}\n\n/**\n * Returns the smallest element.\n * \n * @throws NoSuchElementException if the array is empty.\n */\n@SinceKotlin(\"1.7\")\n@kotlin.jvm.JvmName(\"minOrThrow\")\n@Suppress(\"CONFLICTING_OVERLOADS\")\npublic fun IntArray.min(): Int {\n   if (isEmpty()) throw NoSuchElementException()\n   var min = this[0]\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   if (min > e) min = e\n   }\n   return min\n}\n\n/**\n * Returns the smallest element.\n * \n * @throws NoSuchElementException if the array is empty.\n */\n@SinceKotlin(\"1.7\")\n@kotlin.jvm.JvmName(\"minOrThrow\")\n@Suppress(\"CONFLICTING_OVERLOADS\")\npublic fun LongArray.min(): Long {\n   if (isEmpty()) throw NoSuchElementException()\n   var min = this[0]\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   if (min > e) min = e\n   }\n   return min\n}\n\n/**\n * Returns the smallest element.\n * \n * If any of elements is `NaN` returns `NaN`.\n * \n * @throws NoSuchElementException if the array is empty.\n */\n@SinceKotlin(\"1.7\")\n@kotlin.jvm.JvmName(\"minOrThrow\")\n@Suppress(\"CONFLICTING_OVERLOADS\")\npublic fun FloatArray.min(): Float {\n   if (isEmpty()) throw NoSuchElementException()\n   var min = this[0]\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   min = minOf(min, e)\n   }\n   return min\n}\n\n/**\n * Returns the smallest element.\n * \n * If any of elements is `NaN` returns `NaN`.\n * \n * @throws NoSuchElementException if the array is empty.\n */\n@SinceKotlin(\"1.7\")\n@kotlin.jvm.JvmName(\"minOrThrow\")\n@Suppress(\"CONFLICTING_OVERLOADS\")\npublic fun DoubleArray.min(): Double {\n   if (isEmpty()) throw NoSuchElementException()\n   var min = this[0]\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   min = minOf(min, e)\n   }\n   return min\n}\n\n/**\n * Returns the smallest element.\n * \n * @throws NoSuchElementException if the array is empty.\n */\n@SinceKotlin(\"1.7\")\n@kotlin.jvm.JvmName(\"minOrThrow\")\n@Suppress(\"CONFLICTING_OVERLOADS\")\npublic fun CharArray.min(): Char {\n   if (isEmpty()) throw NoSuchElementException()\n   var min = this[0]\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   if (min > e) min = e\n   }\n   return min\n}\n\n/**\n * Returns the first element yielding the smallest value of the given function.\n * \n * @throws NoSuchElementException if the array is empty.\n * \n * @sample samples.collections.Collections.Aggregates.minBy\n */\n@SinceKotlin(\"1.7\")\n@kotlin.jvm.JvmName(\"minByOrThrow\")\n@Suppress(\"CONFLICTING_OVERLOADS\")\npublic inline fun <T, R : Comparable<R>> Array<out T>.minBy(selector: (T) -> R): T {\n   if (isEmpty()) throw NoSuchElementException()\n   var minElem = this[0]\n   val lastIndex = this.lastIndex\n   if (lastIndex == 0) return minElem\n   var minValue = selector(minElem)\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   val v = selector(e)\n   if (minValue > v) {\n   minElem = e\n   minValue = v\n   }\n   }\n   return minElem\n}\n\n/**\n * Returns the first element yielding the smallest value of the given function.\n * \n * @throws NoSuchElementException if the array is empty.\n * \n * @sample

samples.collections.Collections.Aggregates.minBy\n
*/\n@SinceKotlin(\"1.7\")\n@kotlin.jvm.JvmName(\"minByOrThrow\")\n@Suppress(\"CONFLICTING_OVERLOADS\")\npublic inline fun <R : Comparable<R>> ByteArray.minBy(selector: (Byte) -> R): Byte {\n   if (isEmpty()) throw NoSuchElementException()\n   var minElem = this[0]\n   val lastIndex = this.lastIndex\n   if (lastIndex == 0) return minElem\n   var minValue = selector(minElem)\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   val v = selector(e)\n   if (minValue > v) {\n   minElem = e\n   minValue = v\n   }\n   }\n   return minElem\n}\n\n/**\n * Returns the first element yielding the smallest value of the given function.\n * \n * @throws NoSuchElementException if the array is empty.\n * \n * @sample
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*/\n@SinceKotlin(\"1.7\")\n@kotlin.jvm.JvmName(\"minByOrThrow\")\n@Suppress(\"CONFLICTING_OVERLOADS\")\npublic inline fun <R : Comparable<R>> ShortArray.minBy(selector: (Short) -> R): Short {\n   if (isEmpty()) throw NoSuchElementException()\n   var minElem = this[0]\n   val lastIndex = this.lastIndex\n   if (lastIndex == 0) return minElem\n   var minValue = selector(minElem)\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   val v = selector(e)\n   if (minValue > v) {\n   minElem = e\n   minValue = v\n   }\n   }\n   return minElem\n}\n\n/**\n * Returns the first element yielding the smallest value of the given function.\n * \n * @throws NoSuchElementException if the array is empty.\n * \n * @sample
samples.collections.Collections.Aggregates.minBy\n
*/\n@SinceKotlin(\"1.7\")\n@kotlin.jvm.JvmName(\"minByOrThrow\")\n@Suppress(\"CONFLICTING_OVERLOADS\")\npublic inline fun <R : Comparable<R>> IntArray.minBy(selector: (Int) -> R): Int {\n   if (isEmpty()) throw NoSuchElementException()\n   var minElem = this[0]\n   val lastIndex = this.lastIndex\n   if (lastIndex == 0) return minElem\n   var minValue = selector(minElem)\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   val v = selector(e)\n   if (minValue > v) {\n   minElem = e\n   minValue = v\n   }\n   }\n   return minElem\n}\n\n/**\n * Returns the first element yielding the smallest value of the given function.\n * \n * @throws NoSuchElementException if the array is empty.\n * \n * @sample
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*/\n@SinceKotlin(\"1.7\")\n@kotlin.jvm.JvmName(\"minByOrThrow\")\n@Suppress(\"CONFLICTING_OVERLOADS\")\npublic inline fun <R : Comparable<R>> LongArray.minBy(selector: (Long) -> R): Long {\n   if (isEmpty()) throw NoSuchElementException()\n   var minElem = this[0]\n   val lastIndex = this.lastIndex\n   if (lastIndex == 0) return minElem\n   var minValue = selector(minElem)\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   val v = selector(e)\n   if (minValue > v) {\n   minElem = e\n   minValue = v\n   }\n   }\n   return minElem\n}\n\n/**\n * Returns the first element yielding the smallest value of the given function.\n * \n * @throws NoSuchElementException if the array is empty.\n * \n * @sample
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*/\n@SinceKotlin(\"1.7\")\n@kotlin.jvm.JvmName(\"minByOrThrow\")\n@Suppress(\"CONFLICTING_OVERLOADS\")\npublic inline fun <R : Comparable<R>> FloatArray.minBy(selector: (Float) -> R): Float {\n   if (isEmpty()) throw NoSuchElementException()\n   var minElem = this[0]\n   val lastIndex = this.lastIndex\n   if (lastIndex == 0) return minElem\n   var minValue = selector(minElem)\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   val v = selector(e)\n   if (minValue > v) {\n   minElem = e\n   minValue = v\n   }\n   }\n   return minElem\n}\n\n/**\n * Returns the first element yielding the smallest value of the given function.\n * \n * @throws NoSuchElementException if the array is empty.\n * \n * @sample
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*/\n@SinceKotlin(\"1.7\")\n@kotlin.jvm.JvmName(\"minByOrThrow\")\n@Suppress(\"CONFLICTING_OVERLOADS\")\npublic inline fun <R : Comparable<R>> DoubleArray.minBy(selector: (Double) -> R): Double {\n   if (isEmpty()) throw NoSuchElementException()\n   var minElem = this[0]\n   val lastIndex = this.lastIndex\n   if (lastIndex == 0) return minElem\n   var minValue = selector(minElem)\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   val v = selector(e)\n   if (minValue > v) {\n   minElem = e\n   minValue = v\n   }\n   }\n   return minElem\n}\n\n/**\n * Returns the first element yielding the smallest value of the given function.\n * \n * @throws NoSuchElementException if the array is empty.\n * \n * @sample

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*/\n@SinceKotlin(\"1.7\")\n@kotlin.jvm.JvmName(\"minByOrThrow\")\n@Suppress(\"CONFLICTING_OVERLOADS\")\npublic inline fun <R : Comparable<R>> BooleanArray.minBy(selector: (Boolean) -> R): Boolean {\n   if (isEmpty()) throw NoSuchElementException()\n   var minElem = this[0]\n   val lastIndex = this.lastIndex\n   if (lastIndex == 0) return minElem\n   var minValue = selector(minElem)\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   val v = selector(e)\n   if (minValue > v) {\n   minElem = e\n   minValue = v\n   }\n   }\n   return minElem\n}\n\n/**\n * Returns the first element yielding the smallest value of the given function.\n * \n * @throws NoSuchElementException if the array is empty.\n * \n * @sample
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*/\n@SinceKotlin(\"1.7\")\n@kotlin.jvm.JvmName(\"minByOrThrow\")\n@Suppress(\"CONFLICTING_OVERLOADS\")\npublic inline fun <R : Comparable<R>> CharArray.minBy(selector: (Char) -> R): Char {\n   if (isEmpty()) throw NoSuchElementException()\n   var minElem = this[0]\n   val lastIndex = this.lastIndex\n   if (lastIndex == 0) return minElem\n   var minValue = selector(minElem)\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   val v = selector(e)\n   if (minValue > v) {\n   minElem = e\n   minValue = v\n   }\n   }\n   return minElem\n}\n\n/**\n * Returns the first element yielding the smallest value of the given function or `null` if there are no elements.\n * \n * @sample samples.collections.Collections.Aggregates.minByOrNull\n
*/\n@SinceKotlin(\"1.4\")\npublic inline fun <T, R : Comparable<R>> Array<out T>.minByOrNull(selector: (T) -> R): T? {\n   if (isEmpty()) return null\n   var minElem = this[0]\n   val lastIndex = this.lastIndex\n   if (lastIndex == 0) return minElem\n   var minValue = selector(minElem)\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   val v = selector(e)\n   if (minValue > v) {\n   minElem = e\n   minValue = v\n   }\n   }\n   return minElem\n}\n\n/**\n * Returns the first element yielding the smallest value of the given function or `null` if there are no elements.\n * \n * @sample samples.collections.Collections.Aggregates.minByOrNull\n
*/\n@SinceKotlin(\"1.4\")\npublic inline fun <R : Comparable<R>> ByteArray.minByOrNull(selector: (Byte) -> R): Byte? {\n   if (isEmpty()) return null\n   var minElem = this[0]\n   val lastIndex = this.lastIndex\n   if (lastIndex == 0) return minElem\n   var minValue = selector(minElem)\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   val v = selector(e)\n   if (minValue > v) {\n   minElem = e\n   minValue = v\n   }\n   }\n   return minElem\n}\n\n/**\n * Returns the first element yielding the smallest value of the given function or `null` if there are no elements.\n * \n * @sample samples.collections.Collections.Aggregates.minByOrNull\n
*/\n@SinceKotlin(\"1.4\")\npublic inline fun <R : Comparable<R>> ShortArray.minByOrNull(selector: (Short) -> R): Short? {\n   if (isEmpty()) return null\n   var minElem = this[0]\n   val lastIndex = this.lastIndex\n   if (lastIndex == 0) return minElem\n   var minValue = selector(minElem)\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   val v = selector(e)\n   if (minValue > v) {\n   minElem = e\n   minValue = v\n   }\n   }\n   return minElem\n}\n\n/**\n * Returns the first element yielding the smallest value of the given function or `null` if there are no elements.\n * \n * @sample samples.collections.Collections.Aggregates.minByOrNull\n
*/\n@SinceKotlin(\"1.4\")\npublic inline fun <R : Comparable<R>> IntArray.minByOrNull(selector: (Int) -> R): Int? {\n   if (isEmpty()) return null\n   var minElem = this[0]\n   val lastIndex = this.lastIndex\n   if (lastIndex == 0) return minElem\n   var minValue = selector(minElem)\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   val v = selector(e)\n   if (minValue > v) {\n   minElem = e\n   minValue = v\n   }\n   }\n   return minElem\n}\n\n/**\n * Returns the first element yielding the smallest value of the given function or `null` if there are no elements.\n * \n * @sample samples.collections.Collections.Aggregates.minByOrNull\n
*/\n@SinceKotlin(\"1.4\")\npublic inline fun <R : Comparable<R>> LongArray.minByOrNull(selector: (Long) -> R): Long? {\n   if (isEmpty()) return null\n   var minElem = this[0]\n   val lastIndex = this.lastIndex\n   if (lastIndex == 0) return minElem\n   var minValue = selector(minElem)\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   val v = selector(e)\n   if (minValue > v) {\n   minElem = e\n   minValue = v\n   }\n   }\n   return minElem\n}\n\n/**\n * Returns the first element yielding the smallest value of the given function or `null` if there are no elements.\n * \n * @sample samples.collections.Collections.Aggregates.minByOrNull\n
*/\n@SinceKotlin(\"1.4\")\npublic inline fun <R : Comparable<R>> FloatArray.minByOrNull(selector: (Float) -> R): Float? {\n   if (isEmpty()) return null\n   var minElem = this[0]\n   val lastIndex = this.lastIndex\n   if

(lastIndex == 0) return minElem\n   var minValue = selector(minElem)\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   val v = selector(e)\n   if (minValue > v) {\n   minElem = e\n   minValue = v\n   }\n   }\n   return minElem\n}\n\n/**\n * Returns the first element yielding the smallest value of the given function or `null` if there are no elements.\n * \n * @sample samples.collections.Collections.Aggregates.minByOrNull\n */\n@SinceKotlin(\"1.4\")\npublic inline fun <R : Comparable<R>> DoubleArray.minByOrNull(selector: (Double) -> R): Double? {\n   if (isEmpty()) return null\n   var minElem = this[0]\n   val lastIndex = this.lastIndex\n   if (lastIndex == 0) return minElem\n   var minValue = selector(minElem)\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   val v = selector(e)\n   if (minValue > v) {\n   minElem = e\n   minValue = v\n   }\n   }\n   return minElem\n}\n\n/**\n * Returns the first element yielding the smallest value of the given function or `null` if there are no elements.\n * \n * @sample samples.collections.Collections.Aggregates.minByOrNull\n */\n@SinceKotlin(\"1.4\")\npublic inline fun <R : Comparable<R>> BooleanArray.minByOrNull(selector: (Boolean) -> R): Boolean? {\n   if (isEmpty()) return null\n   var minElem = this[0]\n   val lastIndex = this.lastIndex\n   if (lastIndex == 0) return minElem\n   var minValue = selector(minElem)\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   val v = selector(e)\n   if (minValue > v) {\n   minElem = e\n   minValue = v\n   }\n   }\n   return minElem\n}\n\n/**\n * Returns the first element yielding the smallest value of the given function or `null` if there are no elements.\n * \n * @sample samples.collections.Collections.Aggregates.minByOrNull\n */\n@SinceKotlin(\"1.4\")\npublic inline fun <R : Comparable<R>> CharArray.minByOrNull(selector: (Char) -> R): Char? {\n   if (isEmpty()) return null\n   var minElem = this[0]\n   val lastIndex = this.lastIndex\n   if (lastIndex == 0) return minElem\n   var minValue = selector(minElem)\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   val v = selector(e)\n   if (minValue > v) {\n   minElem = e\n   minValue = v\n   }\n   }\n   return minElem\n}\n\n/**\n * Returns the smallest value among all values produced by [selector] function\n * applied to each element in the array.\n * \n * If any of values produced by [selector] function is `NaN`, the returned result is `NaN`.\n * \n * @throws NoSuchElementException if the array is empty.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <T> Array<out T>.minOf(selector: (T) -> Double): Double {\n   if (isEmpty()) throw NoSuchElementException()\n   var minValue = selector(this[0])\n   for (i in 1..lastIndex) {\n   val v = selector(this[i])\n   minValue = minOf(minValue, v)\n   }\n   return minValue\n}\n\n/**\n * Returns the smallest value among all values produced by [selector] function\n * applied to each element in the array.\n * \n * If any of values produced by [selector] function is `NaN`, the returned result is `NaN`.\n * \n * @throws NoSuchElementException if the array is empty.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun ByteArray.minOf(selector: (Byte) -> Double): Double {\n   if (isEmpty()) throw NoSuchElementException()\n   var minValue = selector(this[0])\n   for (i in 1..lastIndex) {\n   val v = selector(this[i])\n   minValue = minOf(minValue, v)\n   }\n   return minValue\n}\n\n/**\n * Returns the smallest value among all values produced by [selector] function\n * applied to each element in the array.\n * \n * If any of values produced by [selector] function is `NaN`, the returned result is `NaN`.\n * \n * @throws NoSuchElementException if the array is empty.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun ShortArray.minOf(selector: (Short) -> Double): Double {\n   if (isEmpty()) throw NoSuchElementException()\n   var minValue = selector(this[0])\n   for (i in 1..lastIndex) {\n   val v = selector(this[i])\n   minValue = minOf(minValue, v)\n   }\n   return minValue\n}\n\n/**\n * Returns the smallest value among all values produced by [selector] function\n * applied to each element in the array.\n * \n * If any of values produced by [selector] function is `NaN`, the returned result is `NaN`.\n * \n * @throws NoSuchElementException if the array is empty.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun IntArray.minOf(selector: (Int) -> Double): Double {\n   if (isEmpty()) throw NoSuchElementException()\n   var minValue = selector(this[0])\n   for (i in

1..lastIndex) {\n   val v = selector(this[i])\n   minValue = minOf(minValue, v)\n   }\n   return minValue\n}\n\n/**\n * Returns the smallest value among all values produced by [selector] function\n * applied to each element in the array.\n * \n * If any of values produced by [selector] function is `NaN`, the returned result is `NaN`.\n * \n * @throws NoSuchElementException if the array is empty.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun LongArray.minOf(selector: (Long) -> Double): Double {\n   if (isEmpty()) throw NoSuchElementException()\n   var minValue = selector(this[0])\n   for (i in 1..lastIndex) {\n   val v = selector(this[i])\n   minValue = minOf(minValue, v)\n   }\n   return minValue\n}\n\n/**\n * Returns the smallest value among all values produced by [selector] function\n * applied to each element in the array.\n * \n * If any of values 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*/\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <T, R : Comparable<R>> Array<out T>.minOfOrNull(selector: (T) -> R): R? {\n   if (isEmpty()) return null\n   var minValue = selector(this[0])\n   for (i in 1..lastIndex) {\n   val v = selector(this[i])\n   if (minValue > v) {\n   minValue = v\n   }\n   }\n   return minValue\n}\n\n/**\n * Returns the smallest value among all values produced by [selector] function\n * applied to each element in the array or `null` if there are no elements.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <R : Comparable<R>> ByteArray.minOfOrNull(selector: (Byte) -> R): R? {\n   if (isEmpty()) return null\n   var minValue = selector(this[0])\n   for (i in 1..lastIndex) {\n   val v = selector(this[i])\n   if (minValue > v) {\n   minValue = v\n   }\n   }\n   return minValue\n}\n\n/**\n * Returns the smallest value among all values produced by [selector] function\n * applied to each element in the array or `null` if there are no elements.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <R : Comparable<R>> ShortArray.minOfOrNull(selector: (Short) -> R): R? {\n   if (isEmpty()) return null\n   var minValue = selector(this[0])\n   for (i in 1..lastIndex) {\n   val v = selector(this[i])\n   if (minValue > v) {\n   minValue = v\n   }\n   }\n   return minValue\n}\n\n/**\n * Returns the smallest value among all values produced by [selector] function\n * applied to each element in the array or `null` if there are no elements.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <R : Comparable<R>> IntArray.minOfOrNull(selector: (Int) -> R): R? {\n   if (isEmpty()) return null\n   var minValue = selector(this[0])\n   for (i in 1..lastIndex) {\n   val v = selector(this[i])\n   if (minValue > v) {\n   minValue = v\n   }\n   }\n   return minValue\n}\n\n/**\n * Returns the smallest value among all values produced by [selector] function\n * applied to each element in the array or `null` if there are no elements.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <R : Comparable<R>> LongArray.minOfOrNull(selector: (Long) -> R): R? {\n   if (isEmpty()) return null\n   var minValue = selector(this[0])\n   for (i in 1..lastIndex) {\n   val v = selector(this[i])\n   if (minValue > v) {\n   minValue = v\n   }\n   }\n   return minValue\n}\n\n/**\n * Returns the smallest value among all values produced by [selector] function\n * applied to each element in the array or `null` if there are no elements.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <R : Comparable<R>> FloatArray.minOfOrNull(selector: (Float) -> R): R? {\n   if (isEmpty()) return null\n   var minValue = selector(this[0])\n   for (i in 1..lastIndex) {\n   val v = selector(this[i])\n   if (minValue > v) {\n   minValue = v\n   }\n   }\n   return minValue\n}\n\n/**\n * Returns the smallest value among all values produced by [selector] function\n * applied to each element in the array or `null` if there are no elements.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <R : Comparable<R>> DoubleArray.minOfOrNull(selector: (Double) -> R): R? {\n   if (isEmpty()) return null\n   var minValue = selector(this[0])\n   for (i in 1..lastIndex) {\n   val v = selector(this[i])\n   if (minValue > v) {\n   minValue = v\n   }\n   }\n   return minValue\n}\n\n/**\n * Returns the smallest value among all values produced by [selector] function\n * applied to each element in the array or `null` if there are no elements.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <R : Comparable<R>> BooleanArray.minOfOrNull(selector: (Boolean) -> R): R? {\n   if (isEmpty()) return null\n   var minValue = selector(this[0])\n   for (i in 1..lastIndex) {\n   val v = selector(this[i])\n   if (minValue > v) {\n   minValue = v\n   }\n   }\n   return minValue\n}\n\n/**\n * Returns the smallest value among all values produced

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minValue = selector(this[0])\n   for (i in 1..lastIndex) {\n   val v = selector(this[i])\n   if (comparator.compare(minValue, v) > 0) {\n   minValue = v\n   }\n   }\n   return minValue\n}\n\n/**\n * Returns the smallest value according to the provided [comparator]\n * among all values produced by [selector] function applied to each element in the array or `null` if there are no elements.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <R> LongArray.minOfWithOrNull(comparator: Comparator<in R>, selector: (Long) -> R): R? {\n   if (isEmpty()) return null\n   var minValue = selector(this[0])\n   for (i in 1..lastIndex) {\n   val v = selector(this[i])\n   if (comparator.compare(minValue, v) > 0) {\n   minValue = v\n   }\n   }\n   return minValue\n}\n\n/**\n * Returns the smallest value according to the provided [comparator]\n * among all values produced by 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DoubleArray.minOfWithOrNull(comparator: Comparator<in R>, selector: (Double) -> R): R? {\n   if (isEmpty()) return null\n   var minValue = selector(this[0])\n   for (i in 1..lastIndex) {\n   val v = selector(this[i])\n   if (comparator.compare(minValue, v) > 0) {\n   minValue = v\n   }\n   }\n   return minValue\n}\n\n/**\n * Returns the smallest value according to the provided [comparator]\n * among all values produced by [selector] function applied to each element in the array or `null` if there are no elements.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <R> BooleanArray.minOfWithOrNull(comparator: Comparator<in R>, selector: (Boolean) -> R): R? {\n   if (isEmpty()) return null\n   var minValue = selector(this[0])\n   for (i in 1..lastIndex) {\n   val v = selector(this[i])\n   if (comparator.compare(minValue, v) > 0) {\n   minValue = v\n   }\n   }\n   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1..lastIndex) {\n   val e = this[i]\n   min = minOf(min, e)\n   }\n   return min\n}\n\n/**\n * Returns the smallest element or `null` if there are no elements.\n * \n * If any of elements is `NaN` returns `NaN`.\n */\n@SinceKotlin(\"1.4\")\npublic fun Array<out Float>.minOrNull(): Float? {\n   if (isEmpty()) return null\n   var min = this[0]\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   min = minOf(min, e)\n   }\n   return min\n}\n\n/**\n * Returns the smallest element or `null` if there are no elements.\n */\n@SinceKotlin(\"1.4\")\npublic fun <T : Comparable<T>> Array<out T>.minOrNull(): T? {\n   if (isEmpty()) return null\n   var min = this[0]\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   if (min > e) min = e\n   }\n   return min\n}\n\n/**\n * Returns the smallest element or `null` if there are no elements.\n */\n@SinceKotlin(\"1.4\")\npublic fun ByteArray.minOrNull(): Byte? {\n   if (isEmpty()) return null\n   var min =

this[0]\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   if (min > e) min = e\n   }\n   return min\n}\n\n/**\n * Returns the smallest element or `null` if there are no elements.\n */\n@SinceKotlin(\"1.4\")\npublic fun ShortArray.minOrNull(): Short? {\n   if (isEmpty()) return null\n   var min = this[0]\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   if (min > e) min = e\n   }\n   return min\n}\n\n/**\n * Returns the smallest element or `null` if there are no elements.\n */\n@SinceKotlin(\"1.4\")\npublic fun IntArray.minOrNull(): Int? {\n   if (isEmpty()) return null\n   var min = this[0]\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   if (min > e) min = e\n   }\n   return min\n}\n\n/**\n * Returns the smallest element or `null` if there are no elements.\n */\n@SinceKotlin(\"1.4\")\npublic fun LongArray.minOrNull(): Long? {\n   if (isEmpty()) return null\n   var min = this[0]\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   if (min > e) min = e\n   }\n   return min\n}\n\n/**\n * Returns the smallest element or `null` if there are no elements.\n * \n * If any of elements is `NaN` returns `NaN`.\n */\n@SinceKotlin(\"1.4\")\npublic fun FloatArray.minOrNull(): Float? {\n   if (isEmpty()) return null\n   var min = this[0]\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   min = minOf(min, e)\n   }\n   return min\n}\n\n/**\n * Returns the smallest element or `null` if there are no elements.\n * \n * If any of elements is `NaN` returns `NaN`.\n */\n@SinceKotlin(\"1.4\")\npublic fun DoubleArray.minOrNull(): Double? {\n   if (isEmpty()) return null\n   var min = this[0]\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   min = minOf(min, e)\n   }\n   return min\n}\n\n/**\n * Returns the smallest element or `null` if there are no elements.\n */\n@SinceKotlin(\"1.4\")\npublic fun CharArray.minOrNull(): Char? {\n   if (isEmpty()) return null\n   var min = this[0]\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   if (min > e) min = e\n   }\n   return min\n}\n\n/**\n * Returns the first element having the smallest value according to the provided [comparator].\n * \n * @throws NoSuchElementException if the array is empty.\n */\n@SinceKotlin(\"1.7\")\n@kotlin.jvm.JvmName(\"minWithOrThrow\")\n@Suppress(\"CONFLICTING_OVERLOADS\")\npublic fun <T> Array<out T>.minWith(comparator: Comparator<in T>): T {\n   if (isEmpty()) throw NoSuchElementException()\n   var min = this[0]\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   if (comparator.compare(min, e) > 0) min = e\n   }\n   return min\n}\n\n/**\n * Returns the first element having the smallest value according to the provided [comparator].\n * \n * @throws NoSuchElementException if the array is empty.\n */\n@SinceKotlin(\"1.7\")\n@kotlin.jvm.JvmName(\"minWithOrThrow\")\n@Suppress(\"CONFLICTING_OVERLOADS\")\npublic fun ByteArray.minWith(comparator: Comparator<in Byte>): Byte {\n   if (isEmpty()) throw NoSuchElementException()\n   var min = this[0]\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   if (comparator.compare(min, e) > 0) min = e\n   }\n   return min\n}\n\n/**\n * Returns the first element having the smallest value according to the provided [comparator].\n * \n * @throws NoSuchElementException if the array is empty.\n */\n@SinceKotlin(\"1.7\")\n@kotlin.jvm.JvmName(\"minWithOrThrow\")\n@Suppress(\"CONFLICTING_OVERLOADS\")\npublic fun ShortArray.minWith(comparator: Comparator<in Short>): Short {\n   if (isEmpty()) throw NoSuchElementException()\n   var min = this[0]\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   if (comparator.compare(min, e) > 0) min = e\n   }\n   return min\n}\n\n/**\n * Returns the first element having the smallest value according to the provided [comparator].\n * \n * @throws NoSuchElementException if the array is empty.\n */\n@SinceKotlin(\"1.7\")\n@kotlin.jvm.JvmName(\"minWithOrThrow\")\n@Suppress(\"CONFLICTING_OVERLOADS\")\npublic fun IntArray.minWith(comparator: Comparator<in Int>): Int {\n   if (isEmpty()) throw NoSuchElementException()\n   var min = this[0]\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   if (comparator.compare(min, e) > 0) min = e\n   }\n   return min\n}\n\n/**\n * Returns the first element having the smallest value according to the provided [comparator].\n * \n * @throws NoSuchElementException if the array is empty.\n */\n@SinceKotlin(\"1.7\")\n@kotlin.jvm.JvmName(\"minWithOrThrow\")\n@Suppress(\"CONFLICTING_OVERLOADS\")\npublic fun LongArray.minWith(comparator: Comparator<in Long>): Long {\n   if (isEmpty()) throw NoSuchElementException()\n   var min = this[0]\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   if (comparator.compare(min, e) > 0) min = e\n   }\n   return min\n}\n\n/**\n * Returns the first element having the smallest value according to the provided [comparator].\n * \n * @throws NoSuchElementException if the array is empty.\n */\n@SinceKotlin(\"1.7\")\n@kotlin.jvm.JvmName(\"minWithOrThrow\")\n@Suppress(\"CONFLICTING_OVERLOADS\")\npublic fun FloatArray.minWith(comparator: Comparator<in Float>): Float {\n   if (isEmpty()) throw NoSuchElementException()\n   var min = this[0]\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   if (comparator.compare(min, e) > 0) min = e\n   }\n   return min\n}\n\n/**\n * Returns the first element having the smallest value according to the provided [comparator].\n * \n * @throws NoSuchElementException if the array is empty.\n */\n@SinceKotlin(\"1.7\")\n@kotlin.jvm.JvmName(\"minWithOrThrow\")\n@Suppress(\"CONFLICTING_OVERLOADS\")\npublic fun DoubleArray.minWith(comparator: Comparator<in Double>): Double {\n   if (isEmpty()) throw NoSuchElementException()\n   var min = this[0]\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   if (comparator.compare(min, e) > 0) min = e\n   }\n   return min\n}\n\n/**\n * Returns the first element having the smallest value according to the provided [comparator].\n * \n * @throws NoSuchElementException if the array is empty.\n */\n@SinceKotlin(\"1.7\")\n@kotlin.jvm.JvmName(\"minWithOrThrow\")\n@Suppress(\"CONFLICTING_OVERLOADS\")\npublic fun BooleanArray.minWith(comparator: Comparator<in Boolean>): Boolean {\n   if (isEmpty()) throw NoSuchElementException()\n   var min = this[0]\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   if (comparator.compare(min, e) > 0) min = e\n   }\n   return min\n}\n\n/**\n * Returns the first element having the smallest value according to the provided [comparator].\n * \n * @throws NoSuchElementException if the array is empty.\n */\n@SinceKotlin(\"1.7\")\n@kotlin.jvm.JvmName(\"minWithOrThrow\")\n@Suppress(\"CONFLICTING_OVERLOADS\")\npublic fun CharArray.minWith(comparator: Comparator<in Char>): Char {\n   if (isEmpty()) throw NoSuchElementException()\n   var min = this[0]\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   if (comparator.compare(min, e) > 0) min = e\n   }\n   return min\n}\n\n/**\n * Returns the first element having the smallest value according to the provided [comparator] or `null` if there are no elements.\n */\n@SinceKotlin(\"1.4\")\npublic fun <T> Array<out T>.minWithOrNull(comparator: Comparator<in T>): T? {\n   if (isEmpty()) return null\n   var min = this[0]\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   if (comparator.compare(min, e) > 0) min = e\n   }\n   return min\n}\n\n/**\n * Returns the first element having the smallest value according to the provided [comparator] or `null` if there are no elements.\n */\n@SinceKotlin(\"1.4\")\npublic fun ByteArray.minWithOrNull(comparator: Comparator<in Byte>): Byte? {\n   if (isEmpty()) return null\n   var min = this[0]\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   if (comparator.compare(min, e) > 0) min = e\n   }\n   return min\n}\n\n/**\n * Returns the first element having the smallest value according to the provided [comparator] or `null` if there are no elements.\n */\n@SinceKotlin(\"1.4\")\npublic fun ShortArray.minWithOrNull(comparator: Comparator<in Short>): Short? {\n   if (isEmpty()) return null\n   var min = this[0]\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   if (comparator.compare(min, e) > 0) min = e\n   }\n   return min\n}\n\n/**\n * Returns the first element having the smallest value according to the provided [comparator] or `null` if there are no elements.\n */\n@SinceKotlin(\"1.4\")\npublic fun IntArray.minWithOrNull(comparator: Comparator<in Int>): Int? {\n   if (isEmpty()) return null\n   var min = this[0]\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   if (comparator.compare(min, e) > 0) min = e\n   }\n   return min\n}\n\n/**\n * Returns the first element having the smallest value according to the provided [comparator] or `null` if there are no elements.\n */\n@SinceKotlin(\"1.4\")\npublic fun LongArray.minWithOrNull(comparator: Comparator<in Long>): Long? {\n   if (isEmpty()) return null\n   var min = this[0]\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   if (comparator.compare(min, e) > 0) min = e\n   }\n   return min\n}\n\n/**\n * Returns the first element having the smallest value according to the provided [comparator] or `null` if there are no elements.\n */\n@SinceKotlin(\"1.4\")\npublic fun FloatArray.minWithOrNull(comparator: Comparator<in Float>): Float? {\n   if (isEmpty()) return null\n   var min = this[0]\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   if (comparator.compare(min, e) > 0) min = e\n   }\n   return min\n}\n\n/**\n * Returns the first element having the smallest value according to the provided [comparator] or `null` if there are no elements.\n */\n@SinceKotlin(\"1.4\")\npublic fun DoubleArray.minWithOrNull(comparator: Comparator<in Double>): Double? {\n   if (isEmpty()) return null\n   var min = this[0]\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   if (comparator.compare(min, e) > 0) min = e\n   }\n   return min\n}\n\n/**\n * Returns the first element having the smallest value according to the provided [comparator] or `null` if there are no elements.\n */\n@SinceKotlin(\"1.4\")\npublic fun BooleanArray.minWithOrNull(comparator: Comparator<in Boolean>): Boolean? {\n   if (isEmpty()) return null\n   var min = this[0]\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   if (comparator.compare(min, e) > 0) min = e\n   }\n   return min\n}\n\n/**\n * Returns the first element having the smallest value according to the provided [comparator] or `null` if there are no elements.\n */\n@SinceKotlin(\"1.4\")\npublic fun CharArray.minWithOrNull(comparator: Comparator<in Char>): Char? {\n   if (isEmpty()) return null\n   var min = this[0]\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   if (comparator.compare(min, e) > 0) min = e\n   }\n   return min\n}\n\n/**\n * Returns `true` if the array has no elements.\n * \n * @sample samples.collections.Collections.Aggregates.none\n */\npublic fun <T> Array<out T>.none(): Boolean {\n   return isEmpty()\n}\n\n/**\n * Returns `true` if the array has no elements.\n * \n * @sample samples.collections.Collections.Aggregates.none\n */\npublic fun ByteArray.none(): Boolean {\n   return isEmpty()\n}\n\n/**\n * Returns `true` if the array has no elements.\n * \n * @sample samples.collections.Collections.Aggregates.none\n */\npublic fun ShortArray.none(): Boolean {\n   return isEmpty()\n}\n\n/**\n * Returns `true` if the array has no elements.\n * \n * @sample samples.collections.Collections.Aggregates.none\n */\npublic fun IntArray.none(): Boolean {\n   return isEmpty()\n}\n\n/**\n * Returns `true` if the array has no elements.\n * \n * @sample samples.collections.Collections.Aggregates.none\n */\npublic fun LongArray.none(): Boolean {\n   return isEmpty()\n}\n\n/**\n * Returns `true` if the array has no elements.\n * \n * @sample samples.collections.Collections.Aggregates.none\n */\npublic fun FloatArray.none(): Boolean {\n   return isEmpty()\n}\n\n/**\n * Returns `true` if the array has no elements.\n * \n * @sample samples.collections.Collections.Aggregates.none\n */\npublic fun DoubleArray.none(): Boolean {\n   return isEmpty()\n}\n\n/**\n * Returns `true` if the array has no elements.\n * \n * @sample samples.collections.Collections.Aggregates.none\n */\npublic fun BooleanArray.none(): Boolean {\n   return isEmpty()\n}\n\n/**\n * Returns `true` if the array has no elements.\n * \n * @sample samples.collections.Collections.Aggregates.none\n */\npublic fun CharArray.none(): Boolean {\n   return isEmpty()\n}\n\n/**\n * Returns `true` if no elements match the given [predicate].\n * \n * @sample samples.collections.Collections.Aggregates.noneWithPredicate\n */\npublic inline fun <T> Array<out T>.none(predicate: (T) -> Boolean): Boolean {\n   for (element in this) if (predicate(element)) return false\n   return true\n}\n\n/**\n * Returns `true` if no elements match the given [predicate].\n * \n * @sample samples.collections.Collections.Aggregates.noneWithPredicate\n */\npublic inline fun ByteArray.none(predicate: (Byte) -> Boolean): Boolean {\n   for (element in this) if (predicate(element)) return false\n   return true\n}\n\n/**\n * Returns `true` if no elements match the given [predicate].\n * \n * @sample samples.collections.Collections.Aggregates.noneWithPredicate\n */\npublic inline fun ShortArray.none(predicate: (Short) -> Boolean): Boolean {\n   for (element in this) if (predicate(element)) return false\n   return true\n}\n\n/**\n * Returns `true` if no elements match the given [predicate].\n * \n * @sample samples.collections.Collections.Aggregates.noneWithPredicate\n */\npublic inline fun IntArray.none(predicate: (Int) -> Boolean): Boolean {\n   for (element in this) if (predicate(element)) return false\n   return true\n}\n\n/**\n * Returns `true` if no elements match the given [predicate].\n * \n * @sample samples.collections.Collections.Aggregates.noneWithPredicate\n */\npublic inline fun LongArray.none(predicate: (Long) -> Boolean): Boolean {\n   for (element in this) if (predicate(element)) return false\n   return true\n}\n\n/**\n * Returns `true` if no elements match the given [predicate].\n * \n * @sample samples.collections.Collections.Aggregates.noneWithPredicate\n */\npublic inline fun FloatArray.none(predicate: (Float) -> Boolean): Boolean {\n   for (element in this) if (predicate(element)) return false\n   return true\n}\n\n/**\n * Returns `true` if no elements match the given [predicate].\n * \n * @sample

samples.collections.Collections.Aggregates.noneWithPredicate\n */\npublic inline fun DoubleArray.none(predicate: (Double) -> Boolean): Boolean {\n   for (element in this) if (predicate(element)) return false\n   return true\n}\n\n/**\n * Returns `true` if no elements match the given [predicate].\n * \n * @sample samples.collections.Collections.Aggregates.noneWithPredicate\n */\npublic inline fun BooleanArray.none(predicate: (Boolean) -> Boolean): Boolean {\n   for (element in this) if (predicate(element)) return false\n   return true\n}\n\n/**\n * Returns `true` if no elements match the given [predicate].\n * \n * @sample samples.collections.Collections.Aggregates.noneWithPredicate\n */\npublic inline fun CharArray.none(predicate: (Char) -> Boolean): Boolean {\n   for (element in this) if (predicate(element)) return false\n   return true\n}\n\n/**\n * Performs the given [action] on each element and returns the array itself afterwards.\n */\n@SinceKotlin(\"1.4\")\n@kotlin.internal.InlineOnly\npublic inline fun <T> Array<out T>.onEach(action: (T) -> Unit): Array<out T> {\n   return apply { for (element in this) action(element) }\n}\n\n/**\n * Performs the given [action] on each element and returns the array itself afterwards.\n */\n@SinceKotlin(\"1.4\")\n@kotlin.internal.InlineOnly\npublic inline fun ByteArray.onEach(action: (Byte) -> Unit): ByteArray {\n   return apply { for (element in this) action(element) }\n}\n\n/**\n * Performs the given [action] on each element and returns the array itself afterwards.\n */\n@SinceKotlin(\"1.4\")\n@kotlin.internal.InlineOnly\npublic inline fun ShortArray.onEach(action: (Short) -> Unit): ShortArray {\n   return apply { for (element in this) action(element) }\n}\n\n/**\n * Performs the given [action] on each element and returns the array itself afterwards.\n */\n@SinceKotlin(\"1.4\")\n@kotlin.internal.InlineOnly\npublic inline fun IntArray.onEach(action: (Int) -> Unit): IntArray {\n   return apply { for (element in this) action(element) }\n}\n\n/**\n * Performs the given [action] on each element and returns the array itself afterwards.\n */\n@SinceKotlin(\"1.4\")\n@kotlin.internal.InlineOnly\npublic inline fun LongArray.onEach(action: (Long) -> Unit): LongArray {\n   return apply { for (element in this) action(element) }\n}\n\n/**\n * Performs the given [action] on each element and returns the array itself afterwards.\n */\n@SinceKotlin(\"1.4\")\n@kotlin.internal.InlineOnly\npublic inline fun FloatArray.onEach(action: (Float) -> Unit): FloatArray {\n   return apply { for (element in this) action(element) }\n}\n\n/**\n * Performs the given [action] on each element and returns the array itself afterwards.\n */\n@SinceKotlin(\"1.4\")\n@kotlin.internal.InlineOnly\npublic inline fun DoubleArray.onEach(action: (Double) -> Unit): DoubleArray {\n   return apply { for (element in this) action(element) }\n}\n\n/**\n * Performs the given [action] on each element and returns the array itself afterwards.\n */\n@SinceKotlin(\"1.4\")\n@kotlin.internal.InlineOnly\npublic inline fun BooleanArray.onEach(action: (Boolean) -> Unit): BooleanArray {\n   return apply { for (element in this) action(element) }\n}\n\n/**\n * Performs the given [action] on each element and returns the array itself afterwards.\n */\n@SinceKotlin(\"1.4\")\n@kotlin.internal.InlineOnly\npublic inline fun CharArray.onEach(action: (Char) -> Unit): CharArray {\n   return apply { for (element in this) action(element) }\n}\n\n/**\n * Performs the given [action] on each element, providing sequential index with the element,\n * and returns the array itself afterwards.\n * @param [action] function that takes the index of an element and the element itself\n * and performs the action on the element.\n */\n@SinceKotlin(\"1.4\")\n@kotlin.internal.InlineOnly\npublic inline fun <T> Array<out T>.onEachIndexed(action: (index: Int, T) -> Unit): Array<out T> {\n   return apply { forEachIndexed(action) }\n}\n\n/**\n * Performs the given [action] on each element, providing sequential index with the element,\n * and returns the array itself afterwards.\n * @param [action] function that takes the index of an element and the element itself\n * and performs the action on the element.\n */\n@SinceKotlin(\"1.4\")\n@kotlin.internal.InlineOnly\npublic inline fun ByteArray.onEachIndexed(action: (index: Int, Byte) -> Unit): ByteArray {\n   return apply { forEachIndexed(action) }\n}\n\n/**\n * Performs the given [action] on each element, providing sequential index with the element,\n * and returns the array itself afterwards.\n * @param [action] function that takes the index of an element and the element itself\n * and performs the action on the element.\n */\n@SinceKotlin(\"1.4\")\n@kotlin.internal.InlineOnly\npublic inline fun ShortArray.onEachIndexed(action: (index: Int, Short) -> Unit): ShortArray {\n   return apply { forEachIndexed(action) }\n}\n\n/**\n * Performs the

given [action] on each element, providing sequential index with the element,\n * and returns the array itself afterwards.\n * @param [action] function that takes the index of an element and the element itself\n * and performs the action on the element.\n */\n@SinceKotlin(\"1.4\")\n@kotlin.internal.InlineOnly\npublic inline fun IntArray.onEachIndexed(action: (index: Int, Int) -> Unit): IntArray {\n   return apply { forEachIndexed(action) }\n}\n\n/**\n * Performs the given [action] on each element, providing sequential index with the element,\n * and returns the array itself afterwards.\n * @param [action] function that takes the index of an element and the element itself\n * and performs the action on the element.\n */\n@SinceKotlin(\"1.4\")\n@kotlin.internal.InlineOnly\npublic inline fun LongArray.onEachIndexed(action: (index: Int, Long) -> Unit): LongArray {\n   return apply { forEachIndexed(action) }\n}\n\n/**\n * Performs the given [action] on each element, providing sequential index with the element,\n * and returns the array itself afterwards.\n * @param [action] function that takes the index of an element and the element itself\n * and performs the action on the element.\n */\n@SinceKotlin(\"1.4\")\n@kotlin.internal.InlineOnly\npublic inline fun FloatArray.onEachIndexed(action: (index: Int, Float) -> Unit): FloatArray {\n   return apply { forEachIndexed(action) }\n}\n\n/**\n * Performs the given [action] on each element, providing sequential index with the element,\n * and returns the array itself afterwards.\n * @param [action] function that takes the index of an element and the element itself\n * and performs the action on the element.\n */\n@SinceKotlin(\"1.4\")\n@kotlin.internal.InlineOnly\npublic inline fun DoubleArray.onEachIndexed(action: (index: Int, Double) -> Unit): DoubleArray {\n   return apply { forEachIndexed(action) }\n}\n\n/**\n * Performs the given [action] on each element, providing sequential index with the element,\n * and returns the array itself afterwards.\n * @param [action] function that takes the index of an element and the element itself\n * and performs the action on the element.\n */\n@SinceKotlin(\"1.4\")\n@kotlin.internal.InlineOnly\npublic inline fun BooleanArray.onEachIndexed(action: (index: Int, Boolean) -> Unit): BooleanArray {\n   return apply { forEachIndexed(action) }\n}\n\n/**\n * Performs the given [action] on each element, providing sequential index with the element,\n * and returns the array itself afterwards.\n * @param [action] function that takes the index of an element and the element itself\n * and performs the action on the element.\n */\n@SinceKotlin(\"1.4\")\n@kotlin.internal.InlineOnly\npublic inline fun CharArray.onEachIndexed(action: (index: Int, Char) -> Unit): CharArray {\n   return apply { forEachIndexed(action) }\n}\n\n/**\n * Accumulates value starting with the first element and applying [operation] from left to right\n * to current accumulator value and each element.\n * \n * Throws an exception if this array is empty. If the array can be empty in an expected way,\n * please use [reduceOrNull] instead. It returns `null` when its receiver is empty.\n * \n * @param [operation] function that takes current accumulator value and an element,\n * and calculates the next accumulator value.\n * \n * @sample samples.collections.Collections.Aggregates.reduce\n */\npublic inline fun <S, T : S> Array<out T>.reduce(operation: (acc: S, T) -> S): S {\n   if (isEmpty())\n   throw UnsupportedOperationException(\"Empty array can't be reduced.\")\n   var accumulator: S = this[0]\n   for (index in 1..lastIndex) {\n   accumulator = operation(accumulator, this[index])\n   }\n   return accumulator\n}\n\n/**\n * Accumulates value starting with the first element and applying [operation] from left to right\n * to current accumulator value and each element.\n * \n * Throws an exception if this array is empty. If the array can be empty in an expected way,\n * please use [reduceOrNull] instead. It returns `null` when its receiver is empty.\n * \n * @param [operation] function that takes current accumulator value and an element,\n * and calculates the next accumulator value.\n * \n * @sample samples.collections.Collections.Aggregates.reduce\n */\npublic inline fun ByteArray.reduce(operation: (acc: Byte, Byte) -> Byte): Byte {\n   if (isEmpty())\n   throw UnsupportedOperationException(\"Empty array can't be reduced.\")\n   var accumulator = this[0]\n   for (index in 1..lastIndex) {\n   accumulator = operation(accumulator, this[index])\n   }\n   return accumulator\n}\n\n/**\n * Accumulates value starting with the first element and applying [operation] from left to right\n * to current accumulator value and each element.\n * \n * Throws an exception if this array is empty. If the array can be empty in an expected way,\n * please use [reduceOrNull] instead. 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{\n   var index = lastIndex\n   if (index < 0) return null\n   var accumulator = get(index--)\n   while (index >= 0) {\n   accumulator = operation(index, get(index), accumulator)\n   --index\n   }\n   return accumulator\n}\n\n/**\n * Accumulates value starting with the last element and applying [operation] from right to left\n * to each element with its index in the original array and current accumulator value.\n * \n * Returns `null` if the array is empty.\n * \n * @param [operation] function that takes the index of an element, the element itself and current accumulator value,\n * and calculates the next accumulator value.\n * \n * @sample samples.collections.Collections.Aggregates.reduceRightOrNull\n */\n@SinceKotlin(\"1.4\")\npublic inline fun FloatArray.reduceRightIndexedOrNull(operation: (index: Int, Float, acc: Float) -> Float): Float? {\n   var index = lastIndex\n   if (index < 0) return null\n   var accumulator = get(index--)\n   while (index >= 0) {\n   accumulator = operation(index, get(index), accumulator)\n   --index\n   }\n   return accumulator\n}\n\n/**\n * Accumulates value starting with the last element and applying [operation] from right to left\n * to each element with its index in the original array and current accumulator value.\n * \n * Returns `null` if the array is empty.\n * \n * @param [operation] function that takes the index of an element, the element itself and current accumulator value,\n * and calculates the next accumulator value.\n * \n * @sample samples.collections.Collections.Aggregates.reduceRightOrNull\n */\n@SinceKotlin(\"1.4\")\npublic inline fun

DoubleArray.reduceRightIndexedOrNull(operation: (index: Int, Double, acc: Double) -> Double): Double? {\n   var index = lastIndex\n   if (index < 0) return null\n   var accumulator = get(index--)\n   while (index >= 0) {\n   accumulator = operation(index, get(index), accumulator)\n   --index\n   }\n   return accumulator\n}\n\n/**\n * Accumulates value starting with the last element and applying [operation] from right to left\n * to each element with its index in the original array and current accumulator value.\n * \n * Returns `null` if the array is empty.\n * \n * @param [operation] function that takes the index of an element, the element itself and current accumulator value,\n * and calculates the next accumulator value.\n * \n * @sample samples.collections.Collections.Aggregates.reduceRightOrNull\n */\n@SinceKotlin(\"1.4\")\npublic inline fun BooleanArray.reduceRightIndexedOrNull(operation: (index: Int, Boolean, acc: Boolean) -> Boolean): Boolean? {\n   var index = lastIndex\n   if (index < 0) return null\n   var accumulator = get(index--)\n   while (index >= 0) {\n   accumulator = operation(index, get(index), accumulator)\n   --index\n   }\n   return accumulator\n}\n\n/**\n * Accumulates value starting with the last element and applying [operation] from right to left\n * to each element with its index in the original array and current accumulator value.\n * \n * Returns `null` if the array is empty.\n * \n * @param [operation] function that takes the index of an element, the element itself and current accumulator value,\n * and calculates the next accumulator value.\n * \n * @sample samples.collections.Collections.Aggregates.reduceRightOrNull\n */\n@SinceKotlin(\"1.4\")\npublic inline fun CharArray.reduceRightIndexedOrNull(operation: (index: Int, Char, acc: Char) -> Char): Char? {\n   var index = lastIndex\n   if (index < 0) return null\n   var accumulator = get(index--)\n   while (index >= 0) {\n   accumulator = operation(index, get(index), accumulator)\n   --index\n   }\n   return accumulator\n}\n\n/**\n * Accumulates value starting with the last element and applying [operation] from right to left\n * to each element and current accumulator value.\n * \n * Returns `null` if the array is empty.\n * \n * @param [operation] function that takes an element and current accumulator value,\n * and calculates the next accumulator value.\n * \n * @sample samples.collections.Collections.Aggregates.reduceRightOrNull\n */\n@SinceKotlin(\"1.4\")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic inline fun <S, T : S> Array<out T>.reduceRightOrNull(operation: (T, acc: S) -> S): S? {\n   var index = lastIndex\n   if (index < 0) return null\n   var accumulator: S = get(index--)\n   while (index >= 0) {\n   accumulator = operation(get(index--), accumulator)\n   }\n   return accumulator\n}\n\n/**\n * Accumulates value starting with the last element and applying [operation] from right to left\n * to each element and current accumulator value.\n * \n * Returns `null` if the array is empty.\n * \n * @param [operation] function that takes an element and current accumulator value,\n * and calculates the next accumulator value.\n * \n * @sample samples.collections.Collections.Aggregates.reduceRightOrNull\n */\n@SinceKotlin(\"1.4\")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic inline fun ByteArray.reduceRightOrNull(operation: (Byte, acc: Byte) -> Byte): Byte? {\n   var index = lastIndex\n   if (index < 0) return null\n   var accumulator = get(index--)\n   while (index >= 0) {\n   accumulator = operation(get(index--), accumulator)\n   }\n   return accumulator\n}\n\n/**\n * Accumulates value starting with the last element and applying [operation] from right to left\n * to each element and current accumulator value.\n * \n * Returns `null` if the array is empty.\n * \n * @param [operation] function that takes an element and current accumulator value,\n * and calculates the next accumulator value.\n * \n * @sample samples.collections.Collections.Aggregates.reduceRightOrNull\n */\n@SinceKotlin(\"1.4\")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic inline fun ShortArray.reduceRightOrNull(operation: (Short, acc: Short) -> Short): Short? {\n   var index = lastIndex\n   if (index < 0) return null\n   var accumulator = get(index--)\n   while (index >= 0) {\n   accumulator = operation(get(index--), accumulator)\n   }\n   return accumulator\n}\n\n/**\n * Accumulates value starting with the last element and applying [operation] from right to left\n * to each element and current accumulator value.\n * \n * Returns `null` if the array is empty.\n * \n * @param [operation] function that takes an element and current accumulator value,\n * and calculates the next accumulator value.\n * \n * @sample samples.collections.Collections.Aggregates.reduceRightOrNull\n */\n@SinceKotlin(\"1.4\")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic inline fun

IntArray.reduceRightOrNull(operation: (Int, acc: Int) -> Int): Int? {\n   var index = lastIndex\n   if (index < 0) return null\n   var accumulator = get(index--)\n   while (index >= 0) {\n   accumulator = operation(get(index--), accumulator)\n   }\n   return accumulator\n}\n\n/**\n * Accumulates value starting with the last element and applying [operation] from right to left\n * to each element and current accumulator value.\n * \n * Returns `null` if the array is empty.\n * \n * @param [operation] function that takes an element and current accumulator value,\n * and calculates the next accumulator value.\n * \n * @sample samples.collections.Collections.Aggregates.reduceRightOrNull\n */\n@SinceKotlin(\"1.4\")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic inline fun LongArray.reduceRightOrNull(operation: (Long, acc: Long) -> Long): Long? {\n   var index = lastIndex\n   if (index < 0) return null\n   var accumulator = get(index--)\n   while (index >= 0) {\n   accumulator = operation(get(index--), accumulator)\n   }\n   return accumulator\n}\n\n/**\n * Accumulates value starting with the last element and applying [operation] from right to left\n * to each element and current accumulator value.\n * \n * Returns `null` if the array is empty.\n * \n * @param [operation] function that takes an element and current accumulator value,\n * and calculates the next accumulator value.\n * \n * @sample samples.collections.Collections.Aggregates.reduceRightOrNull\n */\n@SinceKotlin(\"1.4\")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic inline fun FloatArray.reduceRightOrNull(operation: (Float, acc: Float) -> Float): Float? {\n   var index = lastIndex\n   if (index < 0) return null\n   var accumulator = get(index--)\n   while (index >= 0) {\n   accumulator = operation(get(index--), accumulator)\n   }\n   return accumulator\n}\n\n/**\n * Accumulates value starting with the last element and applying [operation] from right to left\n * to each element and current accumulator value.\n * \n * Returns `null` if the array is empty.\n * \n * @param [operation] function that takes an element and current accumulator value,\n * and calculates the next accumulator value.\n * \n * @sample samples.collections.Collections.Aggregates.reduceRightOrNull\n */\n@SinceKotlin(\"1.4\")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic inline fun DoubleArray.reduceRightOrNull(operation: (Double, acc: Double) -> Double): Double? {\n   var index = lastIndex\n   if (index < 0) return null\n   var accumulator = get(index--)\n   while (index >= 0) {\n   accumulator = operation(get(index--), accumulator)\n   }\n   return accumulator\n}\n\n/**\n * Accumulates value starting with the last element and applying [operation] from right to left\n * to each element and current accumulator value.\n * \n * Returns `null` if the array is empty.\n * \n * @param [operation] function that takes an element and current accumulator value,\n * and calculates the next accumulator value.\n * \n * @sample samples.collections.Collections.Aggregates.reduceRightOrNull\n */\n@SinceKotlin(\"1.4\")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic inline fun BooleanArray.reduceRightOrNull(operation: (Boolean, acc: Boolean) -> Boolean): Boolean? {\n   var index = lastIndex\n   if (index < 0) return null\n   var accumulator = get(index--)\n   while (index >= 0) {\n   accumulator = operation(get(index--), accumulator)\n   }\n   return accumulator\n}\n\n/**\n * Accumulates value starting with the last element and applying [operation] from right to left\n * to each element and current accumulator value.\n * \n * Returns `null` if the array is empty.\n * \n * @param [operation] function that takes an element and current accumulator value,\n * and calculates the next accumulator value.\n * \n * @sample samples.collections.Collections.Aggregates.reduceRightOrNull\n */\n@SinceKotlin(\"1.4\")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic inline fun CharArray.reduceRightOrNull(operation: (Char, acc: Char) -> Char): Char? {\n   var index = lastIndex\n   if (index < 0) return null\n   var accumulator = get(index--)\n   while (index >= 0) {\n   accumulator = operation(get(index--), accumulator)\n   }\n   return accumulator\n}\n\n/**\n * Returns a list containing successive accumulation values generated by applying [operation] from left to right\n * to each element and current accumulator value that starts with [initial] value.\n * \n * Note that `acc` value passed to [operation] function should not be mutated;\n * otherwise it would affect the previous value in resulting list.\n * \n * @param [operation] function that takes current accumulator value and an element, and calculates the next accumulator value.\n * \n * @sample samples.collections.Collections.Aggregates.runningFold\n */\n@SinceKotlin(\"1.4\")\npublic inline fun

<T, R> Array<out T>.runningFold(initial: R, operation: (acc: R, T) -> R): List<R> {\n   if (isEmpty()) return listOf(initial)\n   val result = ArrayList<R>(size + 1).apply { add(initial) }\n   var accumulator = initial\n   for (element in this) {\n   accumulator = operation(accumulator, element)\n   result.add(accumulator)\n   }\n   return result\n}\n\n/**\n * Returns a list containing successive accumulation values generated by applying [operation] from left to right\n * to each element and current accumulator value that starts with [initial] value.\n * \n * Note that `acc` value passed to [operation] function should not be mutated;\n * otherwise it would affect the previous value in resulting list.\n * \n * @param [operation] function that takes current accumulator value and an element, and calculates the next accumulator value.\n * \n * @sample samples.collections.Collections.Aggregates.runningFold\n */\n@SinceKotlin(\"1.4\")\n@kotlin.internal.InlineOnly\npublic inline fun <R> ByteArray.runningFold(initial: R, operation: (acc: R, Byte) -> R): List<R> {\n   if (isEmpty()) return listOf(initial)\n   val result = ArrayList<R>(size + 1).apply { add(initial) }\n   var accumulator = initial\n   for (element in this) {\n   accumulator = operation(accumulator, element)\n   result.add(accumulator)\n   }\n   return result\n}\n\n/**\n * Returns a list containing successive accumulation values generated by applying [operation] from left to right\n * to each element and current accumulator value that starts with [initial] value.\n * \n * Note that `acc` value passed to [operation] function should not be mutated;\n * otherwise it would affect the previous value in resulting list.\n * \n * @param [operation] function that takes current accumulator value and an element, and calculates the next accumulator value.\n * \n * @sample samples.collections.Collections.Aggregates.runningFold\n */\n@SinceKotlin(\"1.4\")\n@kotlin.internal.InlineOnly\npublic inline fun <R> ShortArray.runningFold(initial: R, operation: (acc: R, Short) -> R): List<R> {\n   if (isEmpty()) return listOf(initial)\n   val result = ArrayList<R>(size + 1).apply { add(initial) }\n   var accumulator = initial\n   for (element in this) {\n   accumulator = operation(accumulator, element)\n   result.add(accumulator)\n   }\n   return result\n}\n\n/**\n * Returns a list containing successive accumulation values generated by applying [operation] from left to right\n * to each element and current accumulator value that starts with [initial] value.\n * \n * Note that `acc` value passed to [operation] function should not be mutated;\n * otherwise it would affect the previous value in resulting list.\n * \n * @param [operation] function that takes current accumulator value and an element, and calculates the next accumulator value.\n * \n * @sample samples.collections.Collections.Aggregates.runningFold\n */\n@SinceKotlin(\"1.4\")\n@kotlin.internal.InlineOnly\npublic inline fun <R> IntArray.runningFold(initial: R, operation: (acc: R, Int) -> R): List<R> {\n   if (isEmpty()) return listOf(initial)\n   val result = ArrayList<R>(size + 1).apply { add(initial) }\n   var accumulator = initial\n   for (element in this) {\n   accumulator = operation(accumulator, element)\n   result.add(accumulator)\n   }\n   return result\n}\n\n/**\n * Returns a list containing successive accumulation values generated by applying [operation] from left to right\n * to each element and current accumulator value that starts with [initial] value.\n * \n * Note that `acc` value passed to [operation] function should not be mutated;\n * otherwise it would affect the previous value in resulting list.\n * \n * @param [operation] function that takes current accumulator value and an element, and calculates the next accumulator value.\n * \n * @sample samples.collections.Collections.Aggregates.runningFold\n */\n@SinceKotlin(\"1.4\")\n@kotlin.internal.InlineOnly\npublic inline fun <R> LongArray.runningFold(initial: R, operation: (acc: R, Long) -> R): List<R> {\n   if (isEmpty()) return listOf(initial)\n   val result = ArrayList<R>(size + 1).apply { add(initial) }\n   var accumulator = initial\n   for (element in this) {\n   accumulator = operation(accumulator, element)\n   result.add(accumulator)\n   }\n   return result\n}\n\n/**\n * Returns a list containing successive accumulation values generated by applying [operation] from left to right\n * to each element and current accumulator value that starts with [initial] value.\n * \n * Note that `acc` value passed to [operation] function should not be mutated;\n * otherwise it would affect the previous value in resulting list.\n * \n * @param [operation] function that takes current accumulator value and an element, and calculates the next accumulator value.\n * \n * @sample samples.collections.Collections.Aggregates.runningFold\n */\n@SinceKotlin(\"1.4\")\n@kotlin.internal.InlineOnly\npublic inline fun <R> FloatArray.runningFold(initial: R, operation: (acc: R, Float) -> R): List<R> {\n   if (isEmpty()) return listOf(initial)\n   val result = ArrayList<R>(size + 1).apply { add(initial) }\n   var accumulator = initial\n   for (element in this) {\n   accumulator =

operation(accumulator, element)\n   result.add(accumulator)\n   }\n   return result\n}\n\n/**\n * Returns a list containing successive accumulation values generated by applying [operation] from left to right\n * to each element and current accumulator value that starts with [initial] value.\n * \n * Note that `acc` value passed to [operation] function should not be mutated;\n * otherwise it would affect the previous value in resulting list.\n * \n * @param [operation] function that takes current accumulator value and an element, and calculates the next accumulator value.\n * \n * @sample samples.collections.Collections.Aggregates.runningFold\n */\n@SinceKotlin(\"1.4\")\n@kotlin.internal.InlineOnly\npublic inline fun <R> DoubleArray.runningFold(initial: R, operation: (acc: R, Double) -> R): List<R> {\n   if (isEmpty()) return listOf(initial)\n   val result = ArrayList<R>(size + 1).apply { add(initial) }\n   var accumulator = initial\n   for (element in this) {\n   accumulator = operation(accumulator, element)\n   result.add(accumulator)\n   }\n   return result\n}\n\n/**\n * Returns a list containing successive accumulation values generated by applying [operation] from left to right\n * to each element and current accumulator value that starts with [initial] value.\n * \n * Note that `acc` value passed to [operation] function should not be mutated;\n * otherwise it would affect the previous value in resulting list.\n * \n * @param [operation] function that takes current accumulator value and an element, and calculates the next accumulator value.\n * \n * @sample samples.collections.Collections.Aggregates.runningFold\n */\n@SinceKotlin(\"1.4\")\n@kotlin.internal.InlineOnly\npublic inline fun <R> BooleanArray.runningFold(initial: R, operation: (acc: R, Boolean) -> R): List<R> {\n   if (isEmpty()) return listOf(initial)\n   val result = ArrayList<R>(size + 1).apply { add(initial) }\n   var accumulator = initial\n   for (element in this) {\n   accumulator = operation(accumulator, element)\n   result.add(accumulator)\n   }\n   return result\n}\n\n/**\n * Returns a list containing successive accumulation values generated by applying [operation] from left to right\n * to each element and current accumulator value that starts with [initial] value.\n * \n * Note that `acc` value passed to [operation] function should not be mutated;\n * otherwise it would affect the previous value in resulting list.\n * \n * @param [operation] function that takes current accumulator value and an element, and calculates the next accumulator value.\n * \n * @sample samples.collections.Collections.Aggregates.runningFold\n */\n@SinceKotlin(\"1.4\")\n@kotlin.internal.InlineOnly\npublic inline fun <R> CharArray.runningFold(initial: R, operation: (acc: R, Char) -> R): List<R> {\n   if (isEmpty()) return listOf(initial)\n   val result = ArrayList<R>(size + 1).apply { add(initial) }\n   var accumulator = initial\n   for (element in this) {\n   accumulator = operation(accumulator, element)\n   result.add(accumulator)\n   }\n   return result\n}\n\n/**\n * Returns a list containing successive accumulation values generated by applying [operation] from left to right\n * to each element, its index in the original array and current accumulator value that starts with [initial] value.\n * \n * Note that `acc` value passed to [operation] function should not be mutated;\n * otherwise it would affect the previous value in resulting list.\n * \n * @param [operation] function that takes the index of an element, current accumulator value\n * and the element itself, and calculates the next accumulator value.\n * \n * @sample samples.collections.Collections.Aggregates.runningFold\n */\n@SinceKotlin(\"1.4\")\npublic inline fun <T, R> Array<out T>.runningFoldIndexed(initial: R, operation: (index: Int, acc: R, T) -> R): List<R> {\n   if (isEmpty()) return listOf(initial)\n   val result = ArrayList<R>(size + 1).apply { add(initial) }\n   var accumulator = initial\n   for (index in indices) {\n   accumulator = operation(index, accumulator, this[index])\n   result.add(accumulator)\n   }\n   return result\n}\n\n/**\n * Returns a list containing successive accumulation values generated by applying [operation] from left to right\n * to each element, its index in the original array and current accumulator value that starts with [initial] value.\n * \n * Note that `acc` value passed to [operation] function should not be mutated;\n * otherwise it would affect the previous value in resulting list.\n * \n * @param [operation] function that takes the index of an element, current accumulator value\n * and the element itself, and calculates the next accumulator value.\n * \n * @sample samples.collections.Collections.Aggregates.runningFold\n */\n@SinceKotlin(\"1.4\")\n@kotlin.internal.InlineOnly\npublic inline fun <R> ByteArray.runningFoldIndexed(initial: R, operation: (index: Int, acc: R, Byte) -> R): List<R> {\n   if (isEmpty()) return listOf(initial)\n   val result = ArrayList<R>(size + 1).apply { add(initial) }\n   var accumulator = initial\n   for (index in indices) {\n   accumulator = operation(index, accumulator, this[index])\n   result.add(accumulator)\n   }\n   return result\n}\n\n/**\n * Returns a list containing successive accumulation values generated by applying [operation] from left to right\n * to each element, its index in the original array and current accumulator value that starts with [initial] value.\n * \n * Note that `acc` value passed to [operation] function should not be mutated;\n * otherwise it would affect the previous value in resulting list.\n * \n * @param [operation] function that takes the index of an element, current accumulator value\n * and the element itself, and calculates the next accumulator value.\n * \n * @sample samples.collections.Collections.Aggregates.runningFold\n */\n@SinceKotlin(\"1.4\")\n@kotlin.internal.InlineOnly\npublic inline fun <R> ShortArray.runningFoldIndexed(initial: R, operation: (index: Int, acc: R, Short) -> R): List<R> {\n   if (isEmpty()) return listOf(initial)\n   val result = ArrayList<R>(size + 1).apply { add(initial) }\n   var accumulator = initial\n   for (index in indices) {\n   accumulator = operation(index, accumulator, this[index])\n   result.add(accumulator)\n   }\n   return result\n}\n\n/**\n * Returns a list containing successive accumulation values generated by applying [operation] from left to right\n * to each element, its index in the original array and current accumulator value that starts with [initial] value.\n * \n * Note that `acc` value passed to [operation] function should not be mutated;\n * otherwise it would affect the previous value in resulting list.\n * \n * @param [operation] function that takes the index of an element, current accumulator value\n * and the element itself, and calculates the next accumulator value.\n * \n * @sample samples.collections.Collections.Aggregates.runningFold\n */\n@SinceKotlin(\"1.4\")\n@kotlin.internal.InlineOnly\npublic inline fun <R> IntArray.runningFoldIndexed(initial: R, operation: (index: Int, acc: R, Int) -> R): List<R> {\n   if (isEmpty()) return listOf(initial)\n   val result = ArrayList<R>(size + 1).apply { add(initial) }\n   var accumulator = initial\n   for (index in indices) {\n   accumulator = operation(index, accumulator, this[index])\n   result.add(accumulator)\n   }\n   return result\n}\n\n/**\n * Returns a list containing successive accumulation values generated by applying [operation] from left to right\n * to each element, its index in the original array and current accumulator value that starts with [initial] value.\n * \n * Note that `acc` value passed to [operation] function should not be mutated;\n * otherwise it would affect the previous value in resulting list.\n * \n * @param [operation] function that takes the index of an element, current accumulator value\n * and the element itself, and calculates the next accumulator value.\n * \n * @sample samples.collections.Collections.Aggregates.runningFold\n */\n@SinceKotlin(\"1.4\")\n@kotlin.internal.InlineOnly\npublic inline fun <R> LongArray.runningFoldIndexed(initial: R, operation: (index: Int, acc: R, Long) -> R): List<R> {\n   if (isEmpty()) return listOf(initial)\n   val result = ArrayList<R>(size + 1).apply { add(initial) }\n   var accumulator = initial\n   for (index in indices) {\n   accumulator = operation(index, accumulator, this[index])\n   result.add(accumulator)\n   }\n   return result\n}\n\n/**\n * Returns a list containing successive accumulation values generated by applying [operation] from left to right\n * to each element, its index in the original array and current accumulator value that starts with [initial] value.\n * \n * Note that `acc` value passed to [operation] function should not be mutated;\n * otherwise it would affect the previous value in resulting list.\n * \n * 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@param [operation] function that takes the index of an element, current accumulator value\n * and the element itself, and calculates the next accumulator value.\n * \n * @sample samples.collections.Collections.Aggregates.scan\n */\n@SinceKotlin(\"1.4\")\n@WasExperimental(ExperimentalStdlibApi::class)\n@kotlin.internal.InlineOnly\npublic inline fun <R> ByteArray.scanIndexed(initial: R, operation: (index: Int, acc: R, Byte) -> R): List<R> {\n   return runningFoldIndexed(initial, operation)\n}\n\n/**\n * Returns a list containing successive accumulation values generated by applying [operation] from left to right\n * to each element, its index in the original array and current accumulator value that starts with [initial] value.\n * \n * Note that `acc` value passed to [operation] function should not be mutated;\n * otherwise it would affect the previous value in resulting list.\n * \n * @param [operation] function that takes the index of an element, current accumulator value\n * and the element itself, and calculates the next accumulator value.\n * \n * @sample samples.collections.Collections.Aggregates.scan\n */\n@SinceKotlin(\"1.4\")\n@WasExperimental(ExperimentalStdlibApi::class)\n@kotlin.internal.InlineOnly\npublic inline fun <R> ShortArray.scanIndexed(initial: R, operation: (index: Int, acc: R, Short) -> R): List<R> {\n   return runningFoldIndexed(initial, operation)\n}\n\n/**\n * Returns a list containing successive accumulation values generated by applying [operation] from left to right\n * to each element, its index in the original array and current accumulator value that starts with [initial] value.\n * \n * Note that `acc` value passed to [operation] function should not be mutated;\n * otherwise it would affect the previous value in resulting list.\n * \n * @param [operation] function that takes the index of an element, current accumulator value\n * and the element itself, and calculates the next accumulator value.\n * \n * @sample samples.collections.Collections.Aggregates.scan\n */\n@SinceKotlin(\"1.4\")\n@WasExperimental(ExperimentalStdlibApi::class)\n@kotlin.internal.InlineOnly\npublic inline fun <R> IntArray.scanIndexed(initial: R, operation: (index: Int, acc: R, Int) -> R): List<R> {\n   return runningFoldIndexed(initial, operation)\n}\n\n/**\n * Returns a list containing successive accumulation values generated by applying [operation] from left to right\n * to each element, its index in the original array and current accumulator value that starts with [initial] value.\n * \n * Note that `acc` value passed to [operation] function should not be mutated;\n * otherwise it would affect the previous value in resulting list.\n * \n * @param [operation] function that takes the index of an element, current accumulator value\n * and the element itself, and calculates the next accumulator value.\n * \n * @sample samples.collections.Collections.Aggregates.scan\n */\n@SinceKotlin(\"1.4\")\n@WasExperimental(ExperimentalStdlibApi::class)\n@kotlin.internal.InlineOnly\npublic inline fun <R> LongArray.scanIndexed(initial: R, operation: (index: Int, acc: R, Long) -> R): List<R> {\n   return runningFoldIndexed(initial, operation)\n}\n\n/**\n * Returns a list containing successive accumulation values generated by applying [operation] from left to right\n * to each element, its index in the original array and current accumulator value that starts with [initial] value.\n * \n * Note that `acc` value passed to [operation] function should not be mutated;\n * otherwise it would affect the previous value in resulting list.\n * \n * @param [operation] function that takes the index of an element, current accumulator value\n * and the element itself, and calculates the next accumulator value.\n * \n * @sample samples.collections.Collections.Aggregates.scan\n */\n@SinceKotlin(\"1.4\")\n@WasExperimental(ExperimentalStdlibApi::class)\n@kotlin.internal.InlineOnly\npublic inline fun <R> FloatArray.scanIndexed(initial: R, operation: (index: Int, acc: R, Float) -> R): List<R> {\n   return runningFoldIndexed(initial, operation)\n}\n\n/**\n * Returns a list containing successive accumulation values generated by applying [operation] from left to right\n * to each element, its index in the original array and current accumulator value that starts with [initial] value.\n * \n * Note that `acc` value passed to [operation] function should not be mutated;\n * otherwise it would affect the previous value in resulting list.\n * \n * @param [operation] function that takes the index of an element, current accumulator value\n * and the element itself, and calculates the next accumulator value.\n * \n * @sample samples.collections.Collections.Aggregates.scan\n */\n@SinceKotlin(\"1.4\")\n@WasExperimental(ExperimentalStdlibApi::class)\n@kotlin.internal.InlineOnly\npublic inline fun <R> DoubleArray.scanIndexed(initial: R, operation: (index: Int, acc: R, Double) -> R): List<R> {\n   return runningFoldIndexed(initial, operation)\n}\n\n/**\n * Returns a list containing successive accumulation values generated by applying [operation] from left to right\n * to each element, its index in the original array and current accumulator value that starts with [initial] value.\n * \n * Note that `acc` value passed to [operation] function should not be mutated;\n * otherwise it would affect the previous value in resulting list.\n * \n * @param [operation] function that takes the index of an element, current accumulator value\n * and the element itself, and calculates the next accumulator value.\n * \n * @sample samples.collections.Collections.Aggregates.scan\n */\n@SinceKotlin(\"1.4\")\n@WasExperimental(ExperimentalStdlibApi::class)\n@kotlin.internal.InlineOnly\npublic inline fun <R> BooleanArray.scanIndexed(initial: R, operation: (index: Int, acc: R, Boolean) -> R): List<R> {\n   return runningFoldIndexed(initial, operation)\n}\n\n/**\n * Returns a list containing successive accumulation values generated by applying [operation] from left to right\n * to each element, its index in the original array and current accumulator value that starts with [initial] value.\n * \n * Note that `acc` value passed to [operation] function should not be mutated;\n * otherwise it would affect the previous value in resulting list.\n * \n * @param [operation] function that takes the index of an element, current accumulator value\n * and the element itself, and calculates the next accumulator value.\n * \n * @sample samples.collections.Collections.Aggregates.scan\n */\n@SinceKotlin(\"1.4\")\n@WasExperimental(ExperimentalStdlibApi::class)\n@kotlin.internal.InlineOnly\npublic inline fun <R> CharArray.scanIndexed(initial: R, operation: (index: Int, acc: R, Char) -> R): List<R> {\n   return runningFoldIndexed(initial, operation)\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each element in the array.\n */\n@Deprecated(\"Use sumOf instead.\", ReplaceWith(\"this.sumOf(selector)\"))\n@DeprecatedSinceKotlin(warningSince = \"1.5\")\npublic inline fun <T> Array<out T>.sumBy(selector: (T) -> Int): Int {\n   var sum: Int = 0\n   for (element in this) {\n   sum += selector(element)\n   }\n   return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each element in the array.\n */\n@Deprecated(\"Use sumOf instead.\", ReplaceWith(\"this.sumOf(selector)\"))\n@DeprecatedSinceKotlin(warningSince = \"1.5\")\npublic inline fun ByteArray.sumBy(selector: (Byte) -> Int): Int {\n   var sum: Int = 0\n   for (element in this) {\n   sum += selector(element)\n   }\n   return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each element in the array.\n */\n@Deprecated(\"Use sumOf instead.\", ReplaceWith(\"this.sumOf(selector)\"))\n@DeprecatedSinceKotlin(warningSince = \"1.5\")\npublic inline fun ShortArray.sumBy(selector: (Short) -> Int): Int {\n   var sum: Int = 0\n   for (element in this) {\n   sum += selector(element)\n   }\n   return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each element in the array.\n */\n@Deprecated(\"Use sumOf instead.\", ReplaceWith(\"this.sumOf(selector)\"))\n@DeprecatedSinceKotlin(warningSince = \"1.5\")\npublic inline fun IntArray.sumBy(selector: (Int) -> Int): Int {\n   var sum: Int = 0\n   for (element in this) {\n   sum += selector(element)\n   }\n   return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each element in the array.\n */\n@Deprecated(\"Use sumOf instead.\", ReplaceWith(\"this.sumOf(selector)\"))\n@DeprecatedSinceKotlin(warningSince = \"1.5\")\npublic inline fun LongArray.sumBy(selector: (Long) -> Int): Int {\n   var sum: Int = 0\n   for (element in this) {\n   sum += selector(element)\n   }\n   return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each element in the array.\n */\n@Deprecated(\"Use sumOf instead.\", ReplaceWith(\"this.sumOf(selector)\"))\n@DeprecatedSinceKotlin(warningSince = \"1.5\")\npublic inline fun FloatArray.sumBy(selector: (Float) -> Int): Int {\n   var sum: Int = 0\n   for (element in this) {\n   sum += selector(element)\n   }\n   return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each element in the array.\n */\n@Deprecated(\"Use sumOf instead.\", ReplaceWith(\"this.sumOf(selector)\"))\n@DeprecatedSinceKotlin(warningSince = \"1.5\")\npublic inline fun DoubleArray.sumBy(selector: (Double) -> Int): Int {\n   var sum: Int = 0\n   for (element in this) {\n   sum += selector(element)\n   }\n   return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each element in the array.\n */\n@Deprecated(\"Use sumOf instead.\", ReplaceWith(\"this.sumOf(selector)\"))\n@DeprecatedSinceKotlin(warningSince = \"1.5\")\npublic inline fun BooleanArray.sumBy(selector: (Boolean) -> Int): Int {\n   var sum: Int = 0\n   for (element in this) {\n   sum += selector(element)\n   }\n   return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each element in the array.\n */\n@Deprecated(\"Use sumOf instead.\", ReplaceWith(\"this.sumOf(selector)\"))\n@DeprecatedSinceKotlin(warningSince = \"1.5\")\npublic inline fun CharArray.sumBy(selector: (Char) -> Int): Int {\n   var sum: Int = 0\n   for (element in this) {\n   sum += selector(element)\n   }\n   return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each element in the array.\n */\n@Deprecated(\"Use sumOf instead.\", ReplaceWith(\"this.sumOf(selector)\"))\n@DeprecatedSinceKotlin(warningSince = \"1.5\")\npublic inline fun <T> Array<out T>.sumByDouble(selector: (T) -> Double): Double {\n   var sum: Double = 0.0\n   for (element in this) {\n   sum += selector(element)\n   }\n   return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each element in the array.\n */\n@Deprecated(\"Use sumOf instead.\", ReplaceWith(\"this.sumOf(selector)\"))\n@DeprecatedSinceKotlin(warningSince = \"1.5\")\npublic inline fun ByteArray.sumByDouble(selector: (Byte) -> Double): Double {\n   var sum: Double = 0.0\n   for (element in this) {\n   sum += selector(element)\n   }\n   return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each element in the array.\n */\n@Deprecated(\"Use sumOf instead.\", ReplaceWith(\"this.sumOf(selector)\"))\n@DeprecatedSinceKotlin(warningSince = \"1.5\")\npublic inline fun ShortArray.sumByDouble(selector: (Short) -> Double): Double {\n   var sum: Double = 0.0\n   for (element in this) {\n   sum += selector(element)\n   }\n   return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each element in the array.\n */\n@Deprecated(\"Use sumOf instead.\", ReplaceWith(\"this.sumOf(selector)\"))\n@DeprecatedSinceKotlin(warningSince = \"1.5\")\npublic inline fun IntArray.sumByDouble(selector: (Int) -> Double): Double {\n   var sum: Double = 0.0\n   for (element in this) {\n   sum += selector(element)\n   }\n   return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each element in the array.\n */\n@Deprecated(\"Use sumOf instead.\", ReplaceWith(\"this.sumOf(selector)\"))\n@DeprecatedSinceKotlin(warningSince = \"1.5\")\npublic inline fun LongArray.sumByDouble(selector: (Long) -> Double): Double {\n   var sum: Double = 0.0\n   for (element in this) {\n   sum += selector(element)\n   }\n   return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each element in the array.\n */\n@Deprecated(\"Use sumOf instead.\", ReplaceWith(\"this.sumOf(selector)\"))\n@DeprecatedSinceKotlin(warningSince = \"1.5\")\npublic inline fun FloatArray.sumByDouble(selector: (Float) -> Double): Double {\n   var sum: Double = 0.0\n   for (element in this) {\n   sum += selector(element)\n   }\n   return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each element in the array.\n */\n@Deprecated(\"Use sumOf instead.\", ReplaceWith(\"this.sumOf(selector)\"))\n@DeprecatedSinceKotlin(warningSince = \"1.5\")\npublic inline fun DoubleArray.sumByDouble(selector: (Double) -> Double): Double {\n   var sum: Double = 0.0\n   for (element in this) {\n   sum += selector(element)\n   }\n   return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each element in the array.\n */\n@Deprecated(\"Use sumOf instead.\", ReplaceWith(\"this.sumOf(selector)\"))\n@DeprecatedSinceKotlin(warningSince = \"1.5\")\npublic inline fun BooleanArray.sumByDouble(selector: (Boolean) -> Double): Double {\n   var sum: Double = 0.0\n   for (element in this) {\n   sum += selector(element)\n   }\n   return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each element in the array.\n */\n@Deprecated(\"Use sumOf instead.\", ReplaceWith(\"this.sumOf(selector)\"))\n@DeprecatedSinceKotlin(warningSince = \"1.5\")\npublic inline fun CharArray.sumByDouble(selector: (Char) -> Double): Double {\n   var sum: Double = 0.0\n   for (element in this) {\n   sum += selector(element)\n   }\n   return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each element in the array.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.jvm.JvmName(\"sumOfDouble\")\n@kotlin.internal.InlineOnly\npublic inline fun <T> Array<out T>.sumOf(selector: (T) -> Double): Double {\n   var sum: Double = 0.toDouble()\n   for (element in this) {\n   sum += selector(element)\n   }\n   return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each element in the array.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.jvm.JvmName(\"sumOfDouble\")\n@kotlin.internal.InlineOnly\npublic inline fun ByteArray.sumOf(selector: (Byte) -> Double): Double {\n   var sum: Double = 0.toDouble()\n   for (element in this) {\n   sum += selector(element)\n   }\n   return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each element in the array.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.jvm.JvmName(\"sumOfDouble\")\n@kotlin.internal.InlineOnly\npublic inline fun ShortArray.sumOf(selector: (Short) -> Double): Double {\n   var sum: Double = 0.toDouble()\n   for (element in this) {\n   sum += selector(element)\n   }\n   return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each element in the array.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.jvm.JvmName(\"sumOfDouble\")\n@kotlin.internal.InlineOnly\npublic inline fun IntArray.sumOf(selector: (Int) -> Double): Double {\n   var sum: Double = 0.toDouble()\n   for (element in this) {\n   sum += selector(element)\n   }\n   return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each element in the array.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.jvm.JvmName(\"sumOfDouble\")\n@kotlin.internal.InlineOnly\npublic inline fun LongArray.sumOf(selector: (Long) -> Double): Double {\n   var sum: Double = 0.toDouble()\n   for (element in this) {\n   sum += selector(element)\n   }\n   return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each element in the array.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.jvm.JvmName(\"sumOfDouble\")\n@kotlin.internal.InlineOnly\npublic inline fun FloatArray.sumOf(selector: (Float) -> Double): Double {\n   var sum: Double = 0.toDouble()\n   for (element in this) {\n   sum += selector(element)\n   }\n   return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each element in the array.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.jvm.JvmName(\"sumOfDouble\")\n@kotlin.internal.InlineOnly\npublic inline fun DoubleArray.sumOf(selector: (Double) -> Double): Double {\n   var sum: Double = 0.toDouble()\n   for (element in this) {\n   sum += selector(element)\n   }\n   return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each element in the array.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.jvm.JvmName(\"sumOfDouble\")\n@kotlin.internal.InlineOnly\npublic inline fun BooleanArray.sumOf(selector: (Boolean) -> Double): Double {\n   var sum: Double = 0.toDouble()\n   for (element in this) {\n   sum += selector(element)\n   }\n   return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each element in the array.\n

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*/\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.jvm.JvmName(\"sumOfInt\")\n@kotlin.internal.InlineOnly\npublic inline fun <T> Array<out T>.sumOf(selector: (T) -> Int): Int {\n   var sum: Int = 0.toInt()\n   for (element in this) {\n   sum += selector(element)\n   }\n   return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each element in the array.\n
*/\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.jvm.JvmName(\"sumOfInt\")\n@kotlin.internal.InlineOnly\npublic inline fun ByteArray.sumOf(selector: (Byte) -> Int): Int {\n   var sum: Int = 0.toInt()\n   for (element in this) {\n   sum += selector(element)\n   }\n   return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each element in the array.\n
*/\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.jvm.JvmName(\"sumOfInt\")\n@kotlin.internal.InlineOnly\npublic inline fun ShortArray.sumOf(selector: (Short) -> Int): Int {\n   var sum: Int = 0.toInt()\n   for (element in this) {\n   sum += selector(element)\n   }\n   return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each element in the array.\n
*/\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.jvm.JvmName(\"sumOfInt\")\n@kotlin.internal.InlineOnly\npublic inline fun IntArray.sumOf(selector: (Int) -> Int): Int {\n   var sum: Int = 0.toInt()\n   for (element in this) {\n   sum += selector(element)\n   }\n   return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each element in the array.\n
*/\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.jvm.JvmName(\"sumOfInt\")\n@kotlin.internal.InlineOnly\npublic inline fun LongArray.sumOf(selector: (Long) -> Int): Int {\n   var sum: Int = 0.toInt()\n   for (element in this) {\n   sum += selector(element)\n   }\n   return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each element in the array.\n
*/\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.jvm.JvmName(\"sumOfInt\")\n@kotlin.internal.InlineOnly\npublic inline fun FloatArray.sumOf(selector: (Float) -> Int): Int {\n   var sum: Int = 0.toInt()\n   for (element in this) {\n   sum += selector(element)\n   }\n   return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each element in the array.\n
*/\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.jvm.JvmName(\"sumOfInt\")\n@kotlin.internal.InlineOnly\npublic inline fun DoubleArray.sumOf(selector: (Double) -> Int): Int {\n   var sum: Int = 0.toInt()\n   for (element in this) {\n   sum += selector(element)\n   }\n   return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each element in the array.\n
*/\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.jvm.JvmName(\"sumOfInt\")\n@kotlin.internal.InlineOnly\npublic inline fun BooleanArray.sumOf(selector: (Boolean) -> Int): Int {\n   var sum: Int = 0.toInt()\n   for (element in this) {\n   sum += selector(element)\n   }\n   return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each element in the array.\n
*/\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.jvm.JvmName(\"sumOfInt\")\n@kotlin.internal.InlineOnly\npublic inline fun CharArray.sumOf(selector: (Char) -> Int): Int {\n   var sum: Int = 0.toInt()\n   for (element in this) {\n   sum +=

selector(element)\n   }\n   return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each element in the array.\n
*/\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.jvm.JvmName(\"sumOfLong\")\n@kotlin.internal.InlineOnly\npublic inline fun <T> Array<out T>.sumOf(selector: (T) -> Long): Long {\n   var sum: Long = 0.toLong()\n   for (element in this) {\n   sum += selector(element)\n   }\n   return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each element in the array.\n
*/\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.jvm.JvmName(\"sumOfLong\")\n@kotlin.internal.InlineOnly\npublic inline fun ByteArray.sumOf(selector: (Byte) -> Long): Long {\n   var sum: Long = 0.toLong()\n   for (element in this) {\n   sum += selector(element)\n   }\n   return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each element in the array.\n
*/\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.jvm.JvmName(\"sumOfLong\")\n@kotlin.internal.InlineOnly\npublic inline fun ShortArray.sumOf(selector: (Short) -> Long): Long {\n   var sum: Long = 0.toLong()\n   for (element in this) {\n   sum += selector(element)\n   }\n   return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each element in the array.\n
*/\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.jvm.JvmName(\"sumOfLong\")\n@kotlin.internal.InlineOnly\npublic inline fun IntArray.sumOf(selector: (Int) -> Long): Long {\n   var sum: Long = 0.toLong()\n   for (element in this) {\n   sum += selector(element)\n   }\n   return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each element in the array.\n
*/\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.jvm.JvmName(\"sumOfLong\")\n@kotlin.internal.InlineOnly\npublic inline fun LongArray.sumOf(selector: (Long) -> Long): Long {\n   var sum: Long = 0.toLong()\n   for (element in this) {\n   sum += selector(element)\n   }\n   return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each element in the array.\n
*/\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.jvm.JvmName(\"sumOfLong\")\n@kotlin.internal.InlineOnly\npublic inline fun FloatArray.sumOf(selector: (Float) -> Long): Long {\n   var sum: Long = 0.toLong()\n   for (element in this) {\n   sum += selector(element)\n   }\n   return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each element in the array.\n
*/\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.jvm.JvmName(\"sumOfLong\")\n@kotlin.internal.InlineOnly\npublic inline fun DoubleArray.sumOf(selector: (Double) -> Long): Long {\n   var sum: Long = 0.toLong()\n   for (element in this) {\n   sum += selector(element)\n   }\n   return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each element in the array.\n
*/\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.jvm.JvmName(\"sumOfLong\")\n@kotlin.internal.InlineOnly\npublic inline fun BooleanArray.sumOf(selector: (Boolean) -> Long): Long {\n   var sum: Long = 0.toLong()\n   for (element in this) {\n   sum += selector(element)\n   }\n   return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each element in the array.\n
*/\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.jvm.JvmName(\"sumOfLong\")\n@kotlin.internal.InlineOnly\npublic inline fun CharArray.sumOf(selector: (Char) -> Long): Long {\n   var sum: Long = 0.toLong()\n   for (element in this) {\n   sum += selector(element)\n   }\n   return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each element in the array.\n
*/\n@SinceKotlin(\"1.5\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution

ByLambdaReturnType\n@kotlin.jvm.JvmName(\"sumOfUInt\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\n@kotlin.internal.InlineOnly\npublic inline fun <T> Array<out T>.sumOf(selector: (T) -> UInt): UInt {\n   var sum: UInt = 0.toUInt()\n   for (element in this) {\n   sum += selector(element)\n   }\n   return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each element in the array.\n */\n@SinceKotlin(\"1.5\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.jvm.JvmName(\"sumOfUInt\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\n@kotlin.internal.InlineOnly\npublic inline fun ByteArray.sumOf(selector: (Byte) -> UInt): UInt {\n   var sum: UInt = 0.toUInt()\n   for (element in this) {\n   sum += selector(element)\n   }\n   return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each element in the array.\n */\n@SinceKotlin(\"1.5\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.jvm.JvmName(\"sumOfUInt\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\n@kotlin.internal.InlineOnly\npublic inline fun ShortArray.sumOf(selector: (Short) -> UInt): UInt {\n   var sum: UInt = 0.toUInt()\n   for (element in this) {\n   sum += selector(element)\n   }\n   return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each element in the array.\n */\n@SinceKotlin(\"1.5\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.jvm.JvmName(\"sumOfUInt\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\n@kotlin.internal.InlineOnly\npublic inline fun IntArray.sumOf(selector: (Int) -> UInt): UInt {\n   var sum: UInt = 0.toUInt()\n   for (element in this) {\n   sum += selector(element)\n   }\n   return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each element in the array.\n */\n@SinceKotlin(\"1.5\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.jvm.JvmName(\"sumOfUInt\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\n@kotlin.internal.InlineOnly\npublic inline fun LongArray.sumOf(selector: (Long) -> UInt): UInt {\n   var sum: UInt = 0.toUInt()\n   for (element in this) {\n   sum += selector(element)\n   }\n   return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each element in the array.\n */\n@SinceKotlin(\"1.5\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.jvm.JvmName(\"sumOfUInt\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\n@kotlin.internal.InlineOnly\npublic inline fun FloatArray.sumOf(selector: (Float) -> UInt): UInt {\n   var sum: UInt = 0.toUInt()\n   for (element in this) {\n   sum += selector(element)\n   }\n   return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each element in the array.\n */\n@SinceKotlin(\"1.5\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.jvm.JvmName(\"sumOfUInt\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\n@kotlin.internal.InlineOnly\npublic inline fun DoubleArray.sumOf(selector: (Double) -> UInt): UInt {\n   var sum: UInt = 0.toUInt()\n   for (element in this) {\n   sum += selector(element)\n   }\n   return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each element in the array.\n */\n@SinceKotlin(\"1.5\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.jvm.JvmName(\"sumOfUInt\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\n@kotlin.internal.InlineOnly\npublic inline fun BooleanArray.sumOf(selector: (Boolean) -> UInt): UInt {\n   var sum: UInt = 0.toUInt()\n   for (element in this) {\n   sum += selector(element)\n   }\n   return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each element in the array.\n */\n@SinceKotlin(\"1.5\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.jvm.JvmName(\"sumOfUInt\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\n@kotlin.internal.InlineOnly\npublic inline fun CharArray.sumOf(selector: (Char) -> UInt): UInt {\n   var sum: UInt = 0.toUInt()\n   for (element in this) {\n   sum += selector(element)\n   }\n   return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each element in the array.\n */\n@SinceKotlin(\"1.5\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution

ByLambdaReturnType\n@kotlin.jvm.JvmName(\"sumOfULong\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\n@kotlin.internal.InlineOnly\npublic inline fun <T> Array<out T>.sumOf(selector: (T) -> ULong): ULong {\n   var sum: ULong = 0.toULong()\n   for (element in this) {\n   sum += selector(element)\n   }\n   return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each element in the array.\n */\n@SinceKotlin(\"1.5\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.jvm.JvmName(\"sumOfULong\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\n@kotlin.internal.InlineOnly\npublic inline fun ByteArray.sumOf(selector: (Byte) -> ULong): ULong {\n   var sum: ULong = 0.toULong()\n   for (element in this) {\n   sum += selector(element)\n   }\n   return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each element in the array.\n */\n@SinceKotlin(\"1.5\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.jvm.JvmName(\"sumOfULong\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\n@kotlin.internal.InlineOnly\npublic inline fun ShortArray.sumOf(selector: (Short) -> ULong): ULong {\n   var sum: ULong = 0.toULong()\n   for (element in this) {\n   sum += selector(element)\n   }\n   return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each element in the array.\n */\n@SinceKotlin(\"1.5\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.jvm.JvmName(\"sumOfULong\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\n@kotlin.internal.InlineOnly\npublic inline fun IntArray.sumOf(selector: (Int) -> ULong): ULong {\n   var sum: ULong = 0.toULong()\n   for (element in this) {\n   sum += selector(element)\n   }\n   return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each element in the array.\n */\n@SinceKotlin(\"1.5\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.jvm.JvmName(\"sumOfULong\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\n@kotlin.internal.InlineOnly\npublic inline fun LongArray.sumOf(selector: (Long) -> ULong): ULong {\n   var sum: ULong = 0.toULong()\n   for (element in this) {\n   sum += selector(element)\n   }\n   return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each element in the array.\n */\n@SinceKotlin(\"1.5\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.jvm.JvmName(\"sumOfULong\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\n@kotlin.internal.InlineOnly\npublic inline fun FloatArray.sumOf(selector: (Float) -> ULong): ULong {\n   var sum: ULong = 0.toULong()\n   for (element in this) {\n   sum += selector(element)\n   }\n   return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each element in the array.\n */\n@SinceKotlin(\"1.5\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.jvm.JvmName(\"sumOfULong\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\n@kotlin.internal.InlineOnly\npublic inline fun DoubleArray.sumOf(selector: (Double) -> ULong): ULong {\n   var sum: ULong = 0.toULong()\n   for (element in this) {\n   sum += selector(element)\n   }\n   return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each element in the array.\n */\n@SinceKotlin(\"1.5\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.jvm.JvmName(\"sumOfULong\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\n@kotlin.internal.InlineOnly\npublic inline fun BooleanArray.sumOf(selector: (Boolean) -> ULong): ULong {\n   var sum: ULong = 0.toULong()\n   for (element in this) {\n   sum += selector(element)\n   }\n   return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each element in the array.\n */\n@SinceKotlin(\"1.5\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution

ByLambdaReturnType\n@kotlin.jvm.JvmName(\"sumOfULong\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\n@kotlin.internal.InlineOnly\npublic inline fun CharArray.sumOf(selector: (Char) -> ULong): ULong {\n   var sum: ULong = 0.toULong()\n   for (element in this) {\n   sum += selector(element)\n   }\n   return sum\n}\n\n/**\n * Returns an original collection containing all the non-`null` elements, throwing an [IllegalArgumentException] if there are any `null` elements.\n */\npublic fun <T : Any> Array<T?>.requireNoNulls(): Array<T> {\n   for (element in this) {\n   if (element == null) {\n   throw IllegalArgumentException(\"null element found in $this.\")\n   }\n   }\n   @Suppress(\"UNCHECKED_CAST\")\n   return this as Array<T>\n}\n\n/**\n * Splits the original array into pair of lists,\n * where *first* list contains elements for which [predicate] yielded `true`,\n * while *second* list contains elements for which [predicate] yielded `false`.\n * \n * @sample samples.collections.Arrays.Transformations.partitionArrayOfPrimitives\n */\npublic inline fun <T> Array<out T>.partition(predicate: (T) -> Boolean): Pair<List<T>, List<T>> {\n   val first = ArrayList<T>()\n   val second = ArrayList<T>()\n   for (element in this) {\n   if (predicate(element)) {\n   first.add(element)\n   } else {\n   second.add(element)\n   }\n   }\n   return Pair(first, second)\n}\n\n/**\n * Splits the original array into pair of lists,\n * where *first* list contains elements for which [predicate] yielded `true`,\n * while *second* list contains elements for which [predicate] yielded `false`.\n * \n * @sample samples.collections.Arrays.Transformations.partitionArrayOfPrimitives\n */\npublic inline fun ByteArray.partition(predicate: (Byte) -> Boolean): Pair<List<Byte>, List<Byte>> {\n   val first = ArrayList<Byte>()\n   val second = ArrayList<Byte>()\n   for (element in this) {\n   if (predicate(element)) {\n   first.add(element)\n   } else {\n   second.add(element)\n   }\n   }\n   return Pair(first, second)\n}\n\n/**\n * Splits the original array into pair of lists,\n * where *first* list contains elements for which [predicate] yielded `true`,\n * while *second* list contains elements for which [predicate] yielded `false`.\n * \n * @sample samples.collections.Arrays.Transformations.partitionArrayOfPrimitives\n */\npublic inline fun ShortArray.partition(predicate: (Short) -> Boolean): Pair<List<Short>, List<Short>> {\n   val first = ArrayList<Short>()\n   val second = ArrayList<Short>()\n   for (element in this) {\n   if (predicate(element)) {\n   first.add(element)\n   } else {\n   second.add(element)\n   }\n   }\n   return Pair(first, second)\n}\n\n/**\n * Splits the original array into pair of lists,\n * where *first* list contains elements for which [predicate] yielded `true`,\n * while *second* list contains elements for which [predicate] yielded `false`.\n * \n * @sample samples.collections.Arrays.Transformations.partitionArrayOfPrimitives\n */\npublic inline fun IntArray.partition(predicate: (Int) -> Boolean): Pair<List<Int>, List<Int>> {\n   val first = ArrayList<Int>()\n   val second = ArrayList<Int>()\n   for (element in this) {\n   if (predicate(element)) {\n   first.add(element)\n   } else {\n   second.add(element)\n   }\n   }\n   return Pair(first, second)\n}\n\n/**\n * Splits the original array into pair of lists,\n * where *first* list contains elements for which [predicate] yielded `true`,\n * while *second* list contains elements for which [predicate] yielded `false`.\n * \n * @sample samples.collections.Arrays.Transformations.partitionArrayOfPrimitives\n */\npublic inline fun LongArray.partition(predicate: (Long) -> Boolean): Pair<List<Long>, List<Long>> {\n   val first = ArrayList<Long>()\n   val second = ArrayList<Long>()\n   for (element in this) {\n   if (predicate(element)) {\n   first.add(element)\n   } else {\n   second.add(element)\n   }\n   }\n   return Pair(first, second)\n}\n\n/**\n * Splits the original array into pair of lists,\n * where *first* list contains elements for which [predicate] yielded `true`,\n * while *second* list contains elements for which [predicate] yielded `false`.\n * \n * @sample samples.collections.Arrays.Transformations.partitionArrayOfPrimitives\n */\npublic inline fun FloatArray.partition(predicate: (Float) -> Boolean): Pair<List<Float>, List<Float>> {\n   val first = ArrayList<Float>()\n   val second = ArrayList<Float>()\n   for (element in this) {\n   if (predicate(element)) {\n   first.add(element)\n   } else {\n   second.add(element)\n   }\n   }\n   return Pair(first, second)\n}\n\n/**\n * Splits the original array into pair of lists,\n * where *first* list contains elements for which [predicate] yielded `true`,\n * while *second* list contains elements for which [predicate] yielded `false`.\n * \n * @sample samples.collections.Arrays.Transformations.partitionArrayOfPrimitives\n */\npublic inline fun DoubleArray.partition(predicate: (Double) -> Boolean): Pair<List<Double>, List<Double>> {\n   val first =

ArrayList<Double>()\n   val second = ArrayList<Double>()\n   for (element in this) {\n   if (predicate(element)) {\n   first.add(element)\n   } else {\n   second.add(element)\n   }\n   }\n   return Pair(first, second)\n}\n\n/**\n * Splits the original array into pair of lists,\n * where *first* list contains elements for which [predicate] yielded `true`,\n * while *second* list contains elements for which [predicate] yielded `false`.\n * \n * @sample samples.collections.Arrays.Transformations.partitionArrayOfPrimitives\n */\npublic inline fun BooleanArray.partition(predicate: (Boolean) -> Boolean): Pair<List<Boolean>, List<Boolean>> {\n   val first = ArrayList<Boolean>()\n   val second = ArrayList<Boolean>()\n   for (element in this) {\n   if (predicate(element)) {\n   first.add(element)\n   } else {\n   second.add(element)\n   }\n   }\n   return Pair(first, second)\n}\n\n/**\n * Splits the original array into pair of lists,\n * where *first* list contains elements for which [predicate] yielded `true`,\n * while *second* list contains elements for which [predicate] yielded `false`.\n * \n * @sample samples.collections.Arrays.Transformations.partitionArrayOfPrimitives\n */\npublic inline fun CharArray.partition(predicate: (Char) -> Boolean): Pair<List<Char>, List<Char>> {\n   val first = ArrayList<Char>()\n   val second = ArrayList<Char>()\n   for (element in this) {\n   if (predicate(element)) {\n   first.add(element)\n   } else {\n   second.add(element)\n   }\n   }\n   return Pair(first, second)\n}\n\n/**\n * Returns a list of pairs built from the elements of `this` array and the [other] array with the same index.\n * The returned list has length of the shortest collection.\n * \n * @sample samples.collections.Iterables.Operations.zipIterable\n */\npublic infix fun <T, R> Array<out T>.zip(other: Array<out R>): List<Pair<T, R>> {\n   return zip(other) { t1, t2 -> t1 to t2 }\n}\n\n/**\n * Returns a list of pairs built from the elements of `this` array and the [other] array with the same index.\n * The returned list has length of the shortest collection.\n * \n * @sample samples.collections.Iterables.Operations.zipIterable\n */\npublic infix fun <R> ByteArray.zip(other: Array<out R>): List<Pair<Byte, R>> {\n   return zip(other) { t1, t2 -> t1 to t2 }\n}\n\n/**\n * Returns a list of pairs built from the elements of `this` array and the [other] array with the same index.\n * The returned list has length of the shortest collection.\n * \n * @sample samples.collections.Iterables.Operations.zipIterable\n */\npublic infix fun <R> ShortArray.zip(other: Array<out R>): List<Pair<Short, R>> {\n   return zip(other) { t1, t2 -> t1 to t2 }\n}\n\n/**\n * Returns a list of pairs built from the elements of `this` array and the [other] array with the same index.\n * The returned list has length of the shortest collection.\n * \n * @sample samples.collections.Iterables.Operations.zipIterable\n */\npublic infix fun <R> IntArray.zip(other: Array<out R>): List<Pair<Int, R>> {\n   return zip(other) { t1, t2 -> t1 to t2 }\n}\n\n/**\n * Returns a list of pairs built from the elements of `this` array and the [other] array with the same index.\n * The returned list has length of the shortest collection.\n * \n * @sample samples.collections.Iterables.Operations.zipIterable\n */\npublic infix fun <R> LongArray.zip(other: Array<out R>): List<Pair<Long, R>> {\n   return zip(other) { t1, t2 -> t1 to t2 }\n}\n\n/**\n * Returns a list of pairs built from the elements of `this` array and the [other] array with the same index.\n * The returned list has length of the shortest collection.\n * \n * @sample samples.collections.Iterables.Operations.zipIterable\n */\npublic infix fun <R> FloatArray.zip(other: Array<out R>): List<Pair<Float, R>> {\n   return zip(other) { t1, t2 -> t1 to t2 }\n}\n\n/**\n * Returns a list of pairs built from the elements of `this` array and the [other] array with the same index.\n * The returned list has length of the shortest collection.\n * \n * @sample samples.collections.Iterables.Operations.zipIterable\n */\npublic infix fun <R> DoubleArray.zip(other: Array<out R>): List<Pair<Double, R>> {\n   return zip(other) { t1, t2 -> t1 to t2 }\n}\n\n/**\n * Returns a list of pairs built from the elements of `this` array and the [other] array with the same index.\n * The returned list has length of the shortest collection.\n * \n * @sample samples.collections.Iterables.Operations.zipIterable\n */\npublic infix fun <R> BooleanArray.zip(other: Array<out R>): List<Pair<Boolean, R>> {\n   return zip(other) { t1, t2 -> t1 to t2 }\n}\n\n/**\n * Returns a list of pairs built from the elements of `this` array and the [other] array with the same index.\n * The returned list has length of the shortest collection.\n * \n * @sample samples.collections.Iterables.Operations.zipIterable\n */\npublic infix fun <R> CharArray.zip(other: Array<out R>): List<Pair<Char, R>> {\n   return zip(other) { t1, t2 -> t1 to t2 }\n}\n\n/**\n * Returns a list of values built from the elements of `this` array and the [other] array with the same index\n * using the provided [transform] function applied to each pair of elements.\n * The returned list has length of the shortest collection.\n * \n * @sample samples.collections.Iterables.Operations.zipIterableWithTransform\n */\npublic inline fun <T, R, V> Array<out T>.zip(other: Array<out R>, transform: (a: T, b: R) -> V): List<V> {\n   val size = minOf(size, other.size)\n   val list = ArrayList<V>(size)\n   for (i in 0 until size) {\n   list.add(transform(this[i], other[i]))\n   }\n   return list\n}\n\n/**\n * Returns a list of values built from the elements of `this` array and the [other] array with the same index\n * using the provided [transform] function applied to each pair of elements.\n * The returned list has length of the shortest collection.\n * \n * @sample samples.collections.Iterables.Operations.zipIterableWithTransform\n */\npublic inline fun <R, V> ByteArray.zip(other: Array<out R>, transform: (a: Byte, b: R) -> V): List<V> {\n   val size = minOf(size, other.size)\n   val list = ArrayList<V>(size)\n   for (i in 0 until size) {\n list.add(transform(this[i], other[i]))\n   }\n   return list\n}\n\n/**\n * Returns a list of values built from the elements of `this` array and the [other] array with the same index\n * using the provided [transform] function applied to each pair of elements.\n * The returned list has length of the shortest collection.\n * \n * @sample samples.collections.Iterables.Operations.zipIterableWithTransform\n */\npublic inline fun <R, V> ShortArray.zip(other: Array<out R>, transform: (a: Short, b: R) -> V): List<V> {\n   val size = minOf(size, other.size)\n   val list = ArrayList<V>(size)\n   for (i in 0 until size) {\n   list.add(transform(this[i], other[i]))\n   }\n   return list\n}\n\n/**\n * Returns a list of values built from the elements of `this` array and the [other] array with the same index\n * using 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samples.collections.Iterables.Operations.zipIterable\n */\npublic infix fun <R> IntArray.zip(other: Iterable<R>): List<Pair<Int, R>> {\n   return zip(other) { t1, t2 -> t1 to t2 }\n}\n\n/**\n * Returns a list of pairs built from the elements of `this` collection and [other] array with the same index.\n * The returned list has length of the shortest collection.\n * \n * @sample samples.collections.Iterables.Operations.zipIterable\n */\npublic infix fun <R> LongArray.zip(other: Iterable<R>): List<Pair<Long, R>> {\n   return zip(other) { t1, t2 -> t1 to t2 }\n}\n\n/**\n * Returns a list of pairs built from the elements of `this` collection and [other] array with the same index.\n * The returned list has length of the shortest collection.\n * \n * @sample samples.collections.Iterables.Operations.zipIterable\n */\npublic infix fun <R> FloatArray.zip(other: Iterable<R>): List<Pair<Float, R>> {\n   return zip(other) { t1, t2 -> t1 to t2 }\n}\n\n/**\n * Returns a list of pairs built from the elements of `this` collection and [other] array with the same index.\n * The returned list has length of the shortest collection.\n * \n * @sample samples.collections.Iterables.Operations.zipIterable\n */\npublic infix fun <R> DoubleArray.zip(other: Iterable<R>): List<Pair<Double, R>> {\n   return zip(other) { t1, t2 -> t1 to t2 }\n}\n\n/**\n * Returns a list of pairs built from the elements of `this` collection and [other] array with the same index.\n * The returned list has length of the shortest collection.\n * \n * @sample samples.collections.Iterables.Operations.zipIterable\n */\npublic infix fun <R> BooleanArray.zip(other: Iterable<R>): List<Pair<Boolean, R>> {\n   return zip(other) { t1, t2 -> t1 to t2 }\n}\n\n/**\n * Returns a list of pairs built from the elements of `this` collection and [other] array with the same index.\n * The returned list has length of the shortest collection.\n * \n * @sample samples.collections.Iterables.Operations.zipIterable\n */\npublic infix fun <R> CharArray.zip(other: Iterable<R>): List<Pair<Char, R>> {\n   return zip(other) { t1, t2 -> t1 to t2 }\n}\n\n/**\n * Returns a list of values built from the elements of `this` array and the [other] collection with the same index\n * using the provided [transform] function applied to each pair of elements.\n * The returned list has length of the shortest collection.\n * \n * @sample samples.collections.Iterables.Operations.zipIterableWithTransform\n */\npublic inline fun <T, R, V> Array<out T>.zip(other: Iterable<R>, transform: (a: T, b: R) -> V): List<V> {\n   val arraySize = size\n   val list = ArrayList<V>(minOf(other.collectionSizeOrDefault(10), arraySize))\n   var i = 0\n   for (element in other) {\n   if (i >= arraySize) break\n   list.add(transform(this[i++], element))\n   }\n   return list\n}\n\n/**\n * Returns a list of values built from the elements of `this` array and the [other] collection with the same index\n * using the provided [transform] function applied to each pair of 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ShortArray.zip(other: ShortArray): List<Pair<Short, Short>> {\n   return zip(other) { t1, t2 -> t1 to t2 }\n}\n\n/**\n * Returns a list of pairs built from the elements of `this` array and the [other] array with the same index.\n * The returned list has length of the shortest collection.\n * \n * @sample samples.collections.Iterables.Operations.zipIterable\n */\npublic infix fun IntArray.zip(other: IntArray): List<Pair<Int, Int>> {\n   return zip(other) { t1, t2 -> t1 to t2 }\n}\n\n/**\n * Returns a list of pairs built from the elements of `this` array and the [other] array with the same index.\n * The returned list has length of the shortest collection.\n * \n * @sample samples.collections.Iterables.Operations.zipIterable\n */\npublic infix fun LongArray.zip(other: LongArray): List<Pair<Long, Long>> {\n   return zip(other) { t1, t2 -> t1 to t2 }\n}\n\n/**\n * Returns a list of pairs built from the elements of `this` array and the [other] array with the same index.\n * The returned 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FloatArray.zip(other: FloatArray, transform: (a: Float, b: Float) -> V): List<V> {\n   val size = minOf(size, other.size)\n   val list = ArrayList<V>(size)\n   for (i in 0 until size) {\n   list.add(transform(this[i], other[i]))\n   }\n   return list\n}\n\n/**\n * Returns a list of values built from the elements of `this` array and the [other] array with the same index\n * using the provided [transform] function applied to each pair of elements.\n * The returned list has length of the shortest array.\n * \n * @sample samples.collections.Iterables.Operations.zipIterableWithTransform\n */\npublic inline fun <V> DoubleArray.zip(other: DoubleArray, transform: (a: Double, b: Double) -> V): List<V> {\n   val size = minOf(size, other.size)\n   val list = ArrayList<V>(size)\n   for (i in 0 until size) {\n   list.add(transform(this[i], other[i]))\n   }\n   return list\n}\n\n/**\n * Returns a list of values built from the elements of `this` array and the [other] array with the same index\n * using the provided [transform] function applied to each pair of elements.\n * The returned list has length of the shortest array.\n * \n * @sample samples.collections.Iterables.Operations.zipIterableWithTransform\n */\npublic inline fun <V> BooleanArray.zip(other: BooleanArray, transform: (a: Boolean, b: Boolean) -> V): List<V> {\n   val size = minOf(size, other.size)\n   val list = ArrayList<V>(size)\n   for (i in 0 until size) {\n   list.add(transform(this[i], other[i]))\n   }\n   return list\n}\n\n/**\n * Returns a list of values built from the elements of `this` array and the [other] array with the same index\n * using the provided [transform] function applied to each pair of elements.\n * The returned list has length of the shortest array.\n * \n * @sample samples.collections.Iterables.Operations.zipIterableWithTransform\n */\npublic inline fun <V> CharArray.zip(other: CharArray, transform: (a: Char, b: Char) -> V): List<V> {\n   val size = minOf(size, other.size)\n   val list = ArrayList<V>(size)\n   for (i in 0 until size) {\n   list.add(transform(this[i], other[i]))\n   }\n   return list\n}\n\n/**\n * Appends the string from all the elements separated using [separator] and using the given [prefix] and [postfix] if supplied.\n * \n * If the collection could be huge, you can specify a non-negative value of [limit], in which case only the first [limit]\n * elements will be appended, followed by the [truncated] string (which defaults to \"...\").\n * \n * @sample samples.collections.Collections.Transformations.joinTo\n */\npublic fun <T, A : Appendable> Array<out T>.joinTo(buffer: A, separator: CharSequence = \", \", prefix: CharSequence = \"\", postfix: CharSequence = \"\", limit: Int = -1, truncated: CharSequence = \"...\", transform: ((T) -> CharSequence)? = null): A {\n   buffer.append(prefix)\n   var count = 0\n   for (element in this) {\n   if (++count > 1) buffer.append(separator)\n   if (limit < 0 || count <= limit) {\n   buffer.appendElement(element, transform)\n   } else break\n   }\n   if (limit >= 0 && count > limit) buffer.append(truncated)\n   buffer.append(postfix)\n   return buffer\n}\n\n/**\n * Appends the string from all the elements separated using [separator] and using the given [prefix] and [postfix] if supplied.\n * \n * If the collection could be huge, you can specify a non-negative value of [limit], in which case only the first [limit]\n * elements will be appended, followed by the [truncated] string (which defaults to \"...\").\n * \n * @sample samples.collections.Collections.Transformations.joinTo\n */\npublic fun <A : Appendable> ByteArray.joinTo(buffer: A, separator: CharSequence = \", \", prefix: CharSequence = \"\", postfix: CharSequence = \"\", limit: Int = -1, truncated: CharSequence = \"...\", transform: ((Byte) -> CharSequence)? = null): A {\n   buffer.append(prefix)\n   var count = 0\n   for (element in this) {\n   if (++count > 1) buffer.append(separator)\n   if (limit < 0 || count <= limit) {\n   if (transform != null)\n   buffer.append(transform(element))\n   else\n   buffer.append(element.toString())\n   } else break\n   }\n   if (limit >= 0 && count > limit) buffer.append(truncated)\n   buffer.append(postfix)\n   return buffer\n}\n\n/**\n * Appends the string from all the elements separated using [separator] and using the given [prefix] and [postfix] if supplied.\n * \n * If the collection could be huge, you can specify a non-negative value of [limit], in which case only the first [limit]\n * elements will be appended, followed by the [truncated] string (which defaults to \"...\").\n * \n * @sample samples.collections.Collections.Transformations.joinTo\n */\npublic fun <A : Appendable> ShortArray.joinTo(buffer: A, separator: CharSequence = \", \", prefix: CharSequence = \"\", postfix: CharSequence = \"\", limit: Int = -1, truncated: CharSequence = \"...\", transform: ((Short) -> CharSequence)? = null): A {\n   buffer.append(prefix)\n   var count = 0\n   for (element in this) {\n   if (++count > 1) buffer.append(separator)\n   if (limit < 0 || count <= limit) {\n   if (transform != null)\n   buffer.append(transform(element))\n   else\n   buffer.append(element.toString())\n   } else break\n

}\n if (limit >= 0 && count > limit) buffer.append(truncated)\n buffer.append(postfix)\n return buffer\n}\n\n/**\n * Appends the string from all the elements separated using [separator] and using the given [prefix] and [postfix] if supplied.\n * \n * If the collection could be huge, you can specify a non-negative value of [limit], in which case only the first [limit]\n * elements will be appended, followed by the [truncated] string (which defaults to \"...\").\n * \n * @sample samples.collections.Collections.Transformations.joinTo\n */\npublic fun <A : Appendable> IntArray.joinTo(buffer: A, separator: CharSequence = \", \", prefix: CharSequence = \"\", postfix: CharSequence = \"\", limit: Int = -1, truncated: CharSequence = \"...\", transform: ((Int) -> CharSequence)? = null): A {\n buffer.append(prefix)\n var count = 0\n for (element in this) {\n if (++count > 1) buffer.append(separator)\n if (limit < 0 || count <= limit) {\n if (transform != null)\n buffer.append(transform(element))\n else\n buffer.append(element.toString())\n } else break\n }\n if (limit >= 0 && count > limit) buffer.append(truncated)\n buffer.append(postfix)\n return buffer\n}\n\n/**\n * Appends the string from all the elements separated using [separator] and using the given [prefix] and [postfix] if supplied.\n * \n * If the collection could be huge, you can specify a non-negative value of [limit], in which case only the first [limit]\n * elements will be appended, followed by the [truncated] string (which defaults to \"...\").\n * \n * @sample samples.collections.Collections.Transformations.joinTo\n */\npublic fun <A : Appendable> LongArray.joinTo(buffer: A, separator: CharSequence = \", \", prefix: CharSequence = \"\", postfix: CharSequence = \"\", limit: Int = -1, truncated: CharSequence = \"...\", transform: ((Long) -> CharSequence)? = null): A {\n buffer.append(prefix)\n var count = 0\n for (element in this) {\n if (++count > 1) buffer.append(separator)\n if (limit < 0 || count <= limit) {\n if (transform != null)\n buffer.append(transform(element))\n else\n buffer.append(element.toString())\n } else break\n }\n if (limit >= 0 && count > limit) buffer.append(truncated)\n buffer.append(postfix)\n return buffer\n}\n\n/**\n * Appends the string from all the elements separated using [separator] and using the given [prefix] and [postfix] if supplied.\n * \n * If the collection could be huge, you can specify a non-negative value of [limit], in which case only the first [limit]\n * elements will be appended, followed by the [truncated] string (which defaults to \"...\").\n * \n * @sample samples.collections.Collections.Transformations.joinTo\n */\npublic fun <A : Appendable> FloatArray.joinTo(buffer: A, separator: CharSequence = \", \", prefix: CharSequence = \"\", postfix: CharSequence = \"\", limit: Int = -1, truncated: CharSequence = \"...\", transform: ((Float) -> CharSequence)? = null): A {\n buffer.append(prefix)\n var count = 0\n for (element in this) {\n if (++count > 1) buffer.append(separator)\n if (limit < 0 || count <= limit) {\n if (transform != null)\n buffer.append(transform(element))\n else\n buffer.append(element.toString())\n } else break\n }\n if (limit >= 0 && count > limit) buffer.append(truncated)\n buffer.append(postfix)\n return buffer\n}\n\n/**\n * Appends the string from all the elements separated using [separator] and using the given [prefix] and [postfix] if supplied.\n * \n * If the collection could be huge, you can specify a non-negative value of [limit], in which case only the first [limit]\n * elements will be appended, followed by the [truncated] string (which defaults to \"...\").\n * \n * @sample samples.collections.Collections.Transformations.joinTo\n */\npublic fun <A : Appendable> DoubleArray.joinTo(buffer: A, separator: CharSequence = \", \", prefix: CharSequence = \"\", postfix: CharSequence = \"\", limit: Int = -1, truncated: CharSequence = \"...\", transform: ((Double) -> CharSequence)? = null): A {\n buffer.append(prefix)\n var count = 0\n for (element in this) {\n if (++count > 1) buffer.append(separator)\n if (limit < 0 || count <= limit) {\n if (transform != null)\n buffer.append(transform(element))\n else\n buffer.append(element.toString())\n } else break\n }\n if (limit >= 0 && count > limit) buffer.append(truncated)\n buffer.append(postfix)\n return buffer\n}\n\n/**\n * Appends the string from all the elements separated using [separator] and using the given [prefix] and [postfix] if supplied.\n * \n * If the collection could be huge, you can specify a non-negative value of [limit], in which case only the first [limit]\n * elements will be appended, followed by the [truncated] string (which defaults to \"...\").\n * \n * @sample samples.collections.Collections.Transformations.joinTo\n */\npublic fun <A : Appendable> BooleanArray.joinTo(buffer: A, separator: CharSequence = \", \", prefix: CharSequence = \"\", postfix: CharSequence = \"\", limit: Int = -1, truncated: CharSequence = \"...\", transform: ((Boolean) -> CharSequence)? = null): A {\n buffer.append(prefix)\n var count = 0\n for (element in this) {\n if (++count

> 1) buffer.append(separator)\n   if (limit < 0 || count <= limit) {\n   if (transform != null)\n buffer.append(transform(element))\n   else\n   buffer.append(element.toString())\n   } else break\n }\n   if (limit >= 0 && count > limit) buffer.append(truncated)\n   buffer.append(postfix)\n   return buffer\n}\n\n/**\n * Appends the string from all the elements separated using [separator] and using the given [prefix] and [postfix] if supplied.\n * \n * If the collection could be huge, you can specify a non-negative value of [limit], in which case only the first [limit]\n * elements will be appended, followed by the [truncated] string (which defaults to \"...\").\n * \n * @sample samples.collections.Collections.Transformations.joinTo\n */\npublic fun <A : Appendable> CharArray.joinTo(buffer: A, separator: CharSequence = \", \", prefix: CharSequence = \"\", postfix: CharSequence = \"\", limit: Int = -1, truncated: CharSequence = \"...\", transform: ((Char) -> CharSequence)? = null): A {\n   buffer.append(prefix)\n   var count = 0\n   for (element in this) {\n   if (++count > 1) buffer.append(separator)\n   if (limit < 0 || count <= limit) {\n   if (transform != null)\n buffer.append(transform(element))\n   else\n   buffer.append(element)\n   } else break\n   }\n   if (limit >= 0 && count > limit) buffer.append(truncated)\n   buffer.append(postfix)\n   return buffer\n}\n\n/**\n * Creates a string from all the elements separated using [separator] and using the given [prefix] and [postfix] if supplied.\n * \n * If the collection could be huge, you can specify a non-negative value of [limit], in which case only the first [limit]\n * elements will be appended, followed by the [truncated] string (which defaults to \"...\").\n * \n * @sample samples.collections.Collections.Transformations.joinToString\n */\npublic fun <T> Array<out T>.joinToString(separator: CharSequence = \", \", prefix: CharSequence = \"\", postfix: CharSequence = \"\", limit: Int = -1, truncated: CharSequence = \"...\", transform: ((T) -> CharSequence)? = null): String {\n   return joinTo(StringBuilder(), separator, prefix, postfix, limit, truncated, transform).toString()\n}\n\n/**\n * Creates a string from all the elements separated using [separator] and using the given [prefix] and [postfix] if supplied.\n * \n * If the collection could be huge, you can specify a non-negative value of [limit], in which case only the first [limit]\n * elements will be appended, followed by the [truncated] string (which defaults to \"...\").\n * \n * @sample samples.collections.Collections.Transformations.joinToString\n */\npublic fun ByteArray.joinToString(separator: CharSequence = \", \", prefix: CharSequence = \"\", postfix: CharSequence = \"\", limit: Int = -1, truncated: CharSequence = \"...\", transform: ((Byte) -> CharSequence)? = null): String {\n   return joinTo(StringBuilder(), separator, prefix, postfix, limit, truncated, transform).toString()\n}\n\n/**\n * Creates a string from all the elements separated using [separator] and using the given [prefix] and [postfix] if supplied.\n * \n * If the collection could be huge, you can specify a non-negative value of [limit], in which case only the first [limit]\n * elements will be appended, followed by the [truncated] string (which defaults to \"...\").\n * \n * @sample samples.collections.Collections.Transformations.joinToString\n */\npublic fun ShortArray.joinToString(separator: CharSequence = \", \", prefix: CharSequence = \"\", postfix: CharSequence = \"\", limit: Int = -1, truncated: CharSequence = \"...\", transform: ((Short) -> CharSequence)? = null): String {\n   return joinTo(StringBuilder(), separator, prefix, postfix, limit, truncated, transform).toString()\n}\n\n/**\n * Creates a string from all the elements separated using [separator] and using the given [prefix] and [postfix] if supplied.\n * \n * If the collection could be huge, you can specify a non-negative value of [limit], in which case only the first [limit]\n * elements will be appended, followed by the [truncated] string (which defaults to \"...\").\n * \n * @sample samples.collections.Collections.Transformations.joinToString\n */\npublic fun IntArray.joinToString(separator: CharSequence = \", \", prefix: CharSequence = \"\", postfix: CharSequence = \"\", limit: Int = -1, truncated: CharSequence = \"...\", transform: ((Int) -> CharSequence)? = null): String {\n   return joinTo(StringBuilder(), separator, prefix, postfix, limit, truncated, transform).toString()\n}\n\n/**\n * Creates a string from all the elements separated using [separator] and using the given [prefix] and [postfix] if supplied.\n * \n * If the collection could be huge, you can specify a non-negative value of [limit], in which case only the first [limit]\n * elements will be appended, followed by the [truncated] string (which defaults to \"...\").\n * \n * @sample samples.collections.Collections.Transformations.joinToString\n */\npublic fun LongArray.joinToString(separator: CharSequence = \", \", prefix: CharSequence = \"\", postfix: CharSequence = \"\", limit: Int = -1, truncated: CharSequence = \"...\", transform: ((Long) -> CharSequence)? = null): String {\n   return joinTo(StringBuilder(), separator, prefix, postfix, limit, truncated, transform).toString()\n}\n\n/**\n * Creates a string from all the elements

separated using [separator] and using the given [prefix] and [postfix] if supplied.\n * \n * If the collection could be huge, you can specify a non-negative value of [limit], in which case only the first [limit]\n * elements will be appended, followed by the [truncated] string (which defaults to \"...\").\n * \n * @sample samples.collections.Collections.Transformations.joinToString\n */\npublic fun FloatArray.joinToString(separator: CharSequence = \", \", prefix: CharSequence = \"\", postfix: CharSequence = \"\", limit: Int = -1, truncated: CharSequence = \"...\", transform: ((Float) -> CharSequence)? = null): String {\n   return joinTo(StringBuilder(), separator, prefix, postfix, limit, truncated, transform).toString()\n}\n\n/**\n * Creates a string from all the elements separated using [separator] and using the given [prefix] and [postfix] if supplied.\n * \n * If the collection could be huge, you can specify a non-negative value of [limit], in which case only the first [limit]\n * elements will be appended, followed by the [truncated] string (which defaults to \"...\").\n * \n * @sample samples.collections.Collections.Transformations.joinToString\n */\npublic fun DoubleArray.joinToString(separator: CharSequence = \", \", prefix: CharSequence = \"\", postfix: CharSequence = \"\", limit: Int = -1, truncated: CharSequence = \"...\", transform: ((Double) -> CharSequence)? = null): String {\n   return joinTo(StringBuilder(), separator, prefix, postfix, limit, truncated, transform).toString()\n}\n\n/**\n * Creates a string from all the elements separated using [separator] and using the given [prefix] and [postfix] if supplied.\n * \n * If the collection could be huge, you can specify a non-negative value of [limit], in which case only the first [limit]\n * elements will be appended, followed by the [truncated] string (which defaults to \"...\").\n * \n * @sample samples.collections.Collections.Transformations.joinToString\n */\npublic fun BooleanArray.joinToString(separator: CharSequence = \", \", prefix: CharSequence = \"\", postfix: CharSequence = \"\", limit: Int = -1, truncated: CharSequence = \"...\", transform: ((Boolean) -> CharSequence)? = null): String {\n return joinTo(StringBuilder(), separator, prefix, postfix, limit, truncated, transform).toString()\n}\n\n/**\n * Creates a string from all the elements separated using [separator] and using the given [prefix] and [postfix] if supplied.\n * \n * If the collection could be huge, you can specify a non-negative value of [limit], in which case only the first [limit]\n * elements will be appended, followed by the [truncated] string (which defaults to \"...\").\n * \n * @sample samples.collections.Collections.Transformations.joinToString\n */\npublic fun CharArray.joinToString(separator: CharSequence = \", \", prefix: CharSequence = \"\", postfix: CharSequence = \"\", limit: Int = -1, truncated: CharSequence = \"...\", transform: ((Char) -> CharSequence)? = null): String {\n   return joinTo(StringBuilder(), separator, prefix, postfix, limit, truncated, transform).toString()\n}\n\n/**\n * Creates an [Iterable] instance that wraps the original array returning its elements when being iterated.\n */\npublic fun <T> Array<out T>.asIterable(): Iterable<T> {\n   if (isEmpty()) return emptyList()\n   return Iterable { this.iterator() }\n}\n\n/**\n * Creates an [Iterable] instance that wraps the original array returning its elements when being iterated.\n */\npublic fun ByteArray.asIterable(): Iterable<Byte> {\n   if (isEmpty()) return emptyList()\n   return Iterable { this.iterator() }\n}\n\n/**\n * Creates an [Iterable] instance that wraps the original array returning its elements when being iterated.\n */\npublic fun ShortArray.asIterable(): Iterable<Short> {\n   if (isEmpty()) return emptyList()\n   return Iterable { this.iterator() }\n}\n\n/**\n * Creates an [Iterable] instance that wraps the original array returning its elements when being iterated.\n */\npublic fun IntArray.asIterable(): Iterable<Int> {\n   if (isEmpty()) return emptyList()\n   return Iterable { this.iterator() }\n}\n\n/**\n * Creates an [Iterable] instance that wraps the original array returning its elements when being iterated.\n */\npublic fun LongArray.asIterable(): Iterable<Long> {\n   if (isEmpty()) return emptyList()\n   return Iterable { this.iterator() }\n}\n\n/**\n * Creates an [Iterable] instance that wraps the original array returning its elements when being iterated.\n */\npublic fun FloatArray.asIterable(): Iterable<Float> {\n   if (isEmpty()) return emptyList()\n   return Iterable { this.iterator() }\n}\n\n/**\n * Creates an [Iterable] instance that wraps the original array returning its elements when being iterated.\n */\npublic fun DoubleArray.asIterable(): Iterable<Double> {\n   if (isEmpty()) return emptyList()\n   return Iterable { this.iterator() }\n}\n\n/**\n * Creates an [Iterable] instance that wraps the original array returning its elements when being iterated.\n */\npublic fun BooleanArray.asIterable(): Iterable<Boolean> {\n   if (isEmpty()) return emptyList()\n   return Iterable { this.iterator() }\n}\n\n/**\n * Creates an [Iterable] instance that wraps the original array returning its elements when being iterated.\n */\npublic fun CharArray.asIterable(): Iterable<Char> {\n   if (isEmpty()) return emptyList()\n   return Iterable { this.iterator() }\n}\n\n/**\n * Creates a [Sequence] instance that wraps the original array returning its elements when being iterated.\n * \n * @sample samples.collections.Sequences.Building.sequenceFromArray\n */\npublic fun <T> Array<out T>.asSequence(): Sequence<T> {\n   if (isEmpty()) return emptySequence()\n   return Sequence { this.iterator() }\n}\n\n/**\n * Creates a [Sequence] instance that wraps the original array returning its elements when being iterated.\n * \n * @sample samples.collections.Sequences.Building.sequenceFromArray\n */\npublic fun ByteArray.asSequence(): Sequence<Byte> {\n   if (isEmpty()) return emptySequence()\n   return Sequence { this.iterator() }\n}\n\n/**\n * Creates a [Sequence] instance that wraps the original array returning its elements when being iterated.\n * \n * @sample samples.collections.Sequences.Building.sequenceFromArray\n */\npublic fun ShortArray.asSequence(): Sequence<Short> {\n   if (isEmpty()) return emptySequence()\n   return Sequence { this.iterator() }\n}\n\n/**\n * Creates a [Sequence] instance that wraps the original array returning its elements when being iterated.\n * \n * @sample samples.collections.Sequences.Building.sequenceFromArray\n */\npublic fun IntArray.asSequence(): Sequence<Int> {\n   if (isEmpty()) return emptySequence()\n   return Sequence { this.iterator() }\n}\n\n/**\n * Creates a [Sequence] instance that wraps the original array returning its elements when being iterated.\n * \n * @sample samples.collections.Sequences.Building.sequenceFromArray\n */\npublic fun LongArray.asSequence(): Sequence<Long> {\n   if (isEmpty()) return emptySequence()\n   return Sequence { this.iterator() }\n}\n\n/**\n * Creates a [Sequence] instance that wraps the original array returning its elements when being iterated.\n * \n * @sample samples.collections.Sequences.Building.sequenceFromArray\n */\npublic fun FloatArray.asSequence(): Sequence<Float> {\n   if (isEmpty()) return emptySequence()\n   return Sequence { this.iterator() }\n}\n\n/**\n * Creates a [Sequence] instance that wraps the original array returning its elements when being iterated.\n * \n * @sample samples.collections.Sequences.Building.sequenceFromArray\n */\npublic fun DoubleArray.asSequence(): Sequence<Double> {\n   if (isEmpty()) return emptySequence()\n   return Sequence { this.iterator() }\n}\n\n/**\n * Creates a [Sequence] instance that wraps the original array returning its elements when being iterated.\n * \n * @sample samples.collections.Sequences.Building.sequenceFromArray\n */\npublic fun BooleanArray.asSequence(): Sequence<Boolean> {\n   if (isEmpty()) return emptySequence()\n   return Sequence { this.iterator() }\n}\n\n/**\n * Creates a [Sequence] instance that wraps the original array returning its elements when being iterated.\n * \n * @sample samples.collections.Sequences.Building.sequenceFromArray\n */\npublic fun CharArray.asSequence(): Sequence<Char> {\n   if (isEmpty()) return emptySequence()\n   return Sequence { this.iterator() }\n}\n\n/**\n * Returns an average value of elements in the array.\n */\n@kotlin.jvm.JvmName(\"averageOfByte\")\npublic fun Array<out Byte>.average(): Double {\n   var sum: Double = 0.0\n   var count: Int = 0\n   for (element in this) {\n   sum += element\n   ++count\n   }\n   return if (count == 0) Double.NaN else sum / count\n}\n\n/**\n * Returns an average value of elements in the array.\n */\n@kotlin.jvm.JvmName(\"averageOfShort\")\npublic fun Array<out Short>.average(): Double {\n   var sum: Double = 0.0\n   var count: Int = 0\n   for (element in this) {\n   sum += element\n   ++count\n   }\n   return if (count == 0) Double.NaN else sum / count\n}\n\n/**\n * Returns an average value of elements in the array.\n */\n@kotlin.jvm.JvmName(\"averageOfInt\")\npublic fun Array<out Int>.average(): Double {\n   var sum: Double = 0.0\n   var count: Int = 0\n   for (element in this) {\n   sum += element\n   ++count\n   }\n   return if (count == 0) Double.NaN else sum / count\n}\n\n/**\n * Returns an average value of elements in the array.\n */\n@kotlin.jvm.JvmName(\"averageOfLong\")\npublic fun Array<out Long>.average(): Double {\n   var sum: Double = 0.0\n   var count: Int = 0\n   for (element in this) {\n   sum += element\n   ++count\n   }\n   return if (count == 0) Double.NaN else sum / count\n}\n\n/**\n * Returns an average value of elements in the array.\n */\n@kotlin.jvm.JvmName(\"averageOfFloat\")\npublic fun Array<out Float>.average(): Double {\n   var sum: Double = 0.0\n   var count: Int = 0\n   for (element in this) {\n   sum += element\n   ++count\n   }\n   return if (count == 0) Double.NaN else sum / count\n}\n\n/**\n * Returns an average value of elements in the array.\n */\n@kotlin.jvm.JvmName(\"averageOfDouble\")\npublic fun Array<out Double>.average(): Double {\n   var sum: Double = 0.0\n   var count: Int = 0\n   for (element in this) {\n   sum += element\n   ++count\n   }\n   return if (count == 0) Double.NaN else sum / count\n}\n\n/**\n * Returns an average value of elements in the array.\n */\npublic fun ByteArray.average(): Double {\n   var sum: Double = 0.0\n   var count: Int = 0\n   for (element in this) {\n   sum += element\n   ++count\n   }\n   return if (count == 0) Double.NaN else sum /

count\n}\n\n/**\n * Returns an average value of elements in the array.\n */\npublic fun ShortArray.average(): Double {\n   var sum: Double = 0.0\n   var count: Int = 0\n   for (element in this) {\n   sum += element\n   ++count\n   }\n   return if (count == 0) Double.NaN else sum / count\n}\n\n/**\n * Returns an average value of elements in the array.\n */\npublic fun IntArray.average(): Double {\n   var sum: Double = 0.0\n   var count: Int = 0\n   for (element in this) {\n   sum += element\n   ++count\n   }\n   return if (count == 0) Double.NaN else sum / count\n}\n\n/**\n * Returns an average value of elements in the array.\n */\npublic fun LongArray.average(): Double {\n   var sum: Double = 0.0\n   var count: Int = 0\n   for (element in this) {\n   sum += element\n   ++count\n   }\n   return if (count == 0) Double.NaN else sum / count\n}\n\n/**\n * Returns an average value of elements in the array.\n */\npublic fun FloatArray.average(): Double {\n   var sum: Double = 0.0\n   var count: Int = 0\n   for (element in this) {\n   sum += element\n   ++count\n   }\n   return if (count == 0) Double.NaN else sum / count\n}\n\n/**\n * Returns an average value of elements in the array.\n */\npublic fun DoubleArray.average(): Double {\n   var sum: Double = 0.0\n   var count: Int = 0\n   for (element in this) {\n   sum += element\n   ++count\n   }\n   return if (count == 0) Double.NaN else sum / count\n}\n\n/**\n * Returns the sum of all elements in the array.\n */\n@kotlin.jvm.JvmName(\"sumOfByte\")\npublic fun Array<out Byte>.sum(): Int {\n   var sum: Int = 0\n   for (element in this) {\n   sum += element\n   }\n   return sum\n}\n\n/**\n * Returns the sum of all elements in the array.\n */\n@kotlin.jvm.JvmName(\"sumOfShort\")\npublic fun Array<out Short>.sum(): Int {\n   var sum: Int = 0\n   for (element in this) {\n   sum += element\n   }\n   return sum\n}\n\n/**\n * Returns the sum of all elements in the array.\n */\n@kotlin.jvm.JvmName(\"sumOfInt\")\npublic fun Array<out Int>.sum(): Int {\n   var sum: Int = 0\n   for (element in this) {\n   sum += element\n   }\n   return sum\n}\n\n/**\n * Returns the sum of all elements in the array.\n */\n@kotlin.jvm.JvmName(\"sumOfLong\")\npublic fun Array<out Long>.sum(): Long {\n   var sum: Long = 0L\n   for (element in this) {\n   sum += element\n   }\n   return sum\n}\n\n/**\n * Returns the sum of all elements in the array.\n */\n@kotlin.jvm.JvmName(\"sumOfFloat\")\npublic fun Array<out Float>.sum(): Float {\n   var sum: Float = 0.0f\n   for (element in this) {\n   sum += element\n   }\n   return sum\n}\n\n/**\n * Returns the sum of all elements in the array.\n */\n@kotlin.jvm.JvmName(\"sumOfDouble\")\npublic fun Array<out Double>.sum(): Double {\n   var sum: Double = 0.0\n   for (element in this) {\n   sum += element\n   }\n   return sum\n}\n\n/**\n * Returns the sum of all elements in the array.\n */\npublic fun ByteArray.sum(): Int {\n   var sum: Int = 0\n   for (element in this) {\n   sum += element\n   }\n   return sum\n}\n\n/**\n * Returns the sum of all elements in the array.\n */\npublic fun ShortArray.sum(): Int {\n   var sum: Int = 0\n   for (element in this) {\n   sum += element\n   }\n   return sum\n}\n\n/**\n * Returns the sum of all elements in the array.\n */\npublic fun IntArray.sum(): Int {\n   var sum: Int = 0\n   for (element in this) {\n   sum += element\n   }\n   return sum\n}\n\n/**\n * Returns the sum of all elements in the array.\n */\npublic fun LongArray.sum(): Long {\n   var sum: Long = 0L\n   for (element in this) {\n   sum += element\n   }\n   return sum\n}\n\n/**\n * Returns the sum of all elements in the array.\n */\npublic fun FloatArray.sum(): Float {\n   var sum: Float = 0.0f\n   for (element in this) {\n   sum += element\n   }\n   return sum\n}\n\n/**\n * Returns the sum of all elements in the array.\n */\npublic fun DoubleArray.sum(): Double {\n   var sum: Double = 0.0\n   for (element in this) {\n   sum += element\n   }\n   return sum\n}\n\n","/*\n * Copyright 2010-2022 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\n@file:kotlin.jvm.JvmMultifileClass\n@file:kotlin.jvm.JvmName(\"RangesKt\")\n\npackage kotlin.ranges\n\n//\n// NOTE: THIS FILE IS AUTO-GENERATED by the GenerateStandardLib.kt\n// See: https://github.com/JetBrains/kotlin/tree/master/libraries/stdlib\n//\n\nimport kotlin.random.*\n\n/**\n * Returns the first element.\n * \n * @throws NoSuchElementException if the progression is empty.\n */\n@SinceKotlin(\"1.7\")\npublic fun IntProgression.first(): Int {\n   if (isEmpty())\n   throw NoSuchElementException(\"Progression $this is empty.\")\n   return this.first\n}\n\n/**\n * Returns the first element.\n * \n * @throws NoSuchElementException if the progression is empty.\n */\n@SinceKotlin(\"1.7\")\npublic fun LongProgression.first(): Long {\n   if (isEmpty())\n   throw NoSuchElementException(\"Progression $this is empty.\")\n   return this.first\n}\n\n/**\n * Returns the first

element.\n * \n * @throws NoSuchElementException if the progression is empty.\n */\n@SinceKotlin(\"1.7\")\npublic fun CharProgression.first(): Char {\n   if (isEmpty())\n   throw NoSuchElementException(\"Progression $this is empty.\")\n   return this.first\n}\n\n/**\n * Returns the first element, or `null` if the progression is empty.\n */\n@SinceKotlin(\"1.7\")\npublic fun IntProgression.firstOrNull(): Int? {\n   return if (isEmpty()) null else this.first\n}\n\n/**\n * Returns the first element, or `null` if the progression is empty.\n */\n@SinceKotlin(\"1.7\")\npublic fun LongProgression.firstOrNull(): Long? {\n   return if (isEmpty()) null else this.first\n}\n\n/**\n * Returns the first element, or `null` if the progression is empty.\n */\n@SinceKotlin(\"1.7\")\npublic fun CharProgression.firstOrNull(): Char? {\n   return if (isEmpty()) null else this.first\n}\n\n/**\n * Returns the last element.\n * \n * @throws NoSuchElementException if the progression is empty.\n * \n * @sample samples.collections.Collections.Elements.last\n */\n@SinceKotlin(\"1.7\")\npublic fun IntProgression.last(): Int {\n   if (isEmpty())\n   throw NoSuchElementException(\"Progression $this is empty.\")\n   return this.last\n}\n\n/**\n * Returns the last element.\n * \n * @throws NoSuchElementException if the progression is empty.\n * \n * @sample samples.collections.Collections.Elements.last\n */\n@SinceKotlin(\"1.7\")\npublic fun LongProgression.last(): Long {\n   if (isEmpty())\n   throw NoSuchElementException(\"Progression $this is empty.\")\n   return this.last\n}\n\n/**\n * Returns the last element.\n * \n * @throws NoSuchElementException if the progression is empty.\n * \n * @sample samples.collections.Collections.Elements.last\n */\n@SinceKotlin(\"1.7\")\npublic fun CharProgression.last(): Char {\n   if (isEmpty())\n   throw NoSuchElementException(\"Progression $this is empty.\")\n   return this.last\n}\n\n/**\n * Returns the last element, or `null` if the progression is empty.\n * \n * @sample samples.collections.Collections.Elements.last\n */\n@SinceKotlin(\"1.7\")\npublic fun IntProgression.lastOrNull(): Int? {\n   return if (isEmpty()) null else this.last\n}\n\n/**\n * Returns the last element, or `null` if the progression is empty.\n * \n * @sample samples.collections.Collections.Elements.last\n */\n@SinceKotlin(\"1.7\")\npublic fun LongProgression.lastOrNull(): Long? {\n   return if (isEmpty()) null else this.last\n}\n\n/**\n * Returns the last element, or `null` if the progression is empty.\n * \n * @sample samples.collections.Collections.Elements.last\n */\n@SinceKotlin(\"1.7\")\npublic fun CharProgression.lastOrNull(): Char? {\n   return if (isEmpty()) null else this.last\n}\n\n/**\n * Returns a random element from this range.\n * \n * @throws IllegalArgumentException if this range is empty.\n */\n@SinceKotlin(\"1.3\")\n@kotlin.internal.InlineOnly\npublic inline fun IntRange.random(): Int {\n   return random(Random)\n}\n\n/**\n * Returns a random element from this range.\n * \n * @throws IllegalArgumentException if this range is empty.\n */\n@SinceKotlin(\"1.3\")\n@kotlin.internal.InlineOnly\npublic inline fun LongRange.random(): Long {\n   return random(Random)\n}\n\n/**\n * Returns a random element from this range.\n * \n * @throws IllegalArgumentException if this range is empty.\n */\n@SinceKotlin(\"1.3\")\n@kotlin.internal.InlineOnly\npublic inline fun CharRange.random(): Char {\n   return random(Random)\n}\n\n/**\n * Returns a random element from this range using the specified source of randomness.\n * \n * @throws IllegalArgumentException if this range is empty.\n */\n@SinceKotlin(\"1.3\")\npublic fun IntRange.random(random: Random): Int {\n   try {\n   return random.nextInt(this)\n   } catch(e: IllegalArgumentException) {\n   throw NoSuchElementException(e.message)\n   }\n}\n\n/**\n * Returns a random element from this range using the specified source of randomness.\n * \n * @throws IllegalArgumentException if this range is empty.\n */\n@SinceKotlin(\"1.3\")\npublic fun LongRange.random(random: Random): Long {\n   try {\n   return random.nextLong(this)\n   } catch(e: IllegalArgumentException) {\n   throw NoSuchElementException(e.message)\n   }\n}\n\n/**\n * Returns a random element from this range using the specified source of randomness.\n * \n * @throws IllegalArgumentException if this range is empty.\n */\n@SinceKotlin(\"1.3\")\npublic fun CharRange.random(random: Random): Char {\n   try {\n   return random.nextInt(first.code, last.code + 1).toChar()\n   } catch(e: IllegalArgumentException) {\n   throw NoSuchElementException(e.message)\n   }\n}\n\n/**\n * Returns a random element from this range, or `null` if this range is empty.\n */\n@SinceKotlin(\"1.4\")\n@WasExperimental(ExperimentalStdlibApi::class)\n@kotlin.internal.InlineOnly\npublic inline fun IntRange.randomOrNull(): Int? {\n   return randomOrNull(Random)\n}\n\n/**\n * Returns a random

element from this range, or `null` if this range is empty.\n
*/\n@SinceKotlin(\"1.4\")\n@WasExperimental(ExperimentalStdlibApi::class)\n@kotlin.internal.InlineOnly\npublic inline fun LongRange.randomOrNull(): Long? {\n   return randomOrNull(Random)\n}\n\n/**\n * Returns a random element from this range, or `null` if this range is empty.\n
*/\n@SinceKotlin(\"1.4\")\n@WasExperimental(ExperimentalStdlibApi::class)\n@kotlin.internal.InlineOnly\npublic inline fun CharRange.randomOrNull(): Char? {\n   return randomOrNull(Random)\n}\n\n/**\n * Returns a random element from this range using the specified source of randomness, or `null` if this range is empty.\n
*/\n@SinceKotlin(\"1.4\")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic fun IntRange.randomOrNull(random: Random): Int? {\n   if (isEmpty())\n   return null\n   return random.nextInt(this)\n}\n\n/**\n * Returns a random element from this range using the specified source of randomness, or `null` if this range is empty.\n
*/\n@SinceKotlin(\"1.4\")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic fun LongRange.randomOrNull(random: Random): Long? {\n   if (isEmpty())\n   return null\n   return random.nextLong(this)\n}\n\n/**\n * Returns a random element from this range using the specified source of randomness, or `null` if this range is empty.\n
*/\n@SinceKotlin(\"1.4\")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic fun CharRange.randomOrNull(random: Random): Char? {\n   if (isEmpty())\n   return null\n   return random.nextInt(first.code, last.code + 1).toChar()\n}\n\n/**\n * Returns `true` if this range contains the specified [element].\n * \n * Always returns `false` if the [element] is `null`.\n
*/\n@SinceKotlin(\"1.3\")\n@kotlin.internal.InlineOnly\npublic inline operator fun IntRange.contains(element: Int?): Boolean {\n   return element != null && contains(element)\n}\n\n/**\n * Returns `true` if this range contains the specified [element].\n * \n * Always returns `false` if the [element] is `null`.\n
*/\n@SinceKotlin(\"1.3\")\n@kotlin.internal.InlineOnly\npublic inline operator fun LongRange.contains(element: Long?): Boolean {\n   return element != null && contains(element)\n}\n\n/**\n * Returns `true` if this range contains the specified [element].\n * \n * Always returns `false` if the [element] is `null`.\n
*/\n@SinceKotlin(\"1.3\")\n@kotlin.internal.InlineOnly\npublic inline operator fun CharRange.contains(element: Char?): Boolean {\n   return element != null && contains(element)\n}\n\n/**\n * Checks if the specified [value] belongs to this range.\n */\n@kotlin.jvm.JvmName(\"intRangeContains\")\npublic operator fun ClosedRange<Int>.contains(value: Byte): Boolean {\n   return contains(value.toInt())\n}\n\n/**\n * Checks if the specified [value] belongs to this range.\n */\n@kotlin.jvm.JvmName(\"longRangeContains\")\npublic operator fun ClosedRange<Long>.contains(value: Byte): Boolean {\n   return contains(value.toLong())\n}\n\n/**\n * Checks if the specified [value] belongs to this range.\n */\n@kotlin.jvm.JvmName(\"shortRangeContains\")\npublic operator fun ClosedRange<Short>.contains(value: Byte): Boolean {\n   return contains(value.toShort())\n}\n\n/**\n * Checks if the specified [value] belongs to this range.\n */\n@Deprecated(\"This `contains` operation mixing integer and floating point arguments has ambiguous semantics and is going to be removed.\")\n@DeprecatedSinceKotlin(warningSince = \"1.3\", errorSince = \"1.4\", hiddenSince = \"1.5\")\n@kotlin.jvm.JvmName(\"doubleRangeContains\")\npublic operator fun ClosedRange<Double>.contains(value: Byte): Boolean {\n   return contains(value.toDouble())\n}\n\n/**\n * Checks if the specified [value] belongs to this range.\n */\n@Deprecated(\"This `contains` operation mixing integer and floating point arguments has ambiguous semantics and is going to be removed.\")\n@DeprecatedSinceKotlin(warningSince = \"1.3\", errorSince = \"1.4\", hiddenSince = \"1.5\")\n@kotlin.jvm.JvmName(\"floatRangeContains\")\npublic operator fun ClosedRange<Float>.contains(value: Byte): Boolean {\n   return contains(value.toFloat())\n}\n\n/**\n * Checks if the specified [value] belongs to this range.\n
*/\n@kotlin.jvm.JvmName(\"intRangeContains\")\n@SinceKotlin(\"1.7\")\n@ExperimentalStdlibApi\npublic operator fun OpenEndRange<Int>.contains(value: Byte): Boolean {\n   return contains(value.toInt())\n}\n\n/**\n * Checks if the specified [value] belongs to this range.\n
*/\n@kotlin.jvm.JvmName(\"longRangeContains\")\n@SinceKotlin(\"1.7\")\n@ExperimentalStdlibApi\npublic

operator fun OpenEndRange<Long>.contains(value: Byte): Boolean {\n   return contains(value.toLong())\n}\n\n/**\n * Checks if the specified [value] belongs to this range.\n */\n@kotlin.jvm.JvmName(\"shortRangeContains\")\n@SinceKotlin(\"1.7\")\n@ExperimentalStdlibApi\npublic operator fun OpenEndRange<Short>.contains(value: Byte): Boolean {\n   return contains(value.toShort())\n}\n\n/**\n * Checks if the specified [value] belongs to this range.\n */\n@kotlin.internal.InlineOnly\npublic inline operator fun IntRange.contains(value: Byte): Boolean {\n   return (this as ClosedRange<Int>).contains(value)\n}\n\n/**\n * Checks if the specified [value] belongs to this range.\n */\n@kotlin.internal.InlineOnly\npublic inline operator fun LongRange.contains(value: Byte): Boolean {\n   return (this as ClosedRange<Long>).contains(value)\n}\n\n/**\n * Checks if the specified [value] belongs to this range.\n */\n@Deprecated(\"This `contains` operation mixing integer and floating point arguments has ambiguous semantics and is going to be removed.\")\n@DeprecatedSinceKotlin(warningSince = \"1.3\", errorSince = \"1.4\", hiddenSince = \"1.5\")\n@kotlin.jvm.JvmName(\"intRangeContains\")\npublic operator fun ClosedRange<Int>.contains(value: Double): Boolean {\n   return value.toIntExactOrNull().let { if (it != null) contains(it) else false }\n}\n\n/**\n * Checks if the specified [value] belongs to this range.\n */\n@Deprecated(\"This `contains` operation mixing integer and floating point arguments has ambiguous semantics and is going to be removed.\")\n@DeprecatedSinceKotlin(warningSince = \"1.3\", errorSince = \"1.4\", hiddenSince = \"1.5\")\n@kotlin.jvm.JvmName(\"longRangeContains\")\npublic operator fun ClosedRange<Long>.contains(value: Double): Boolean {\n   return value.toLongExactOrNull().let { if (it != null) contains(it) else false }\n}\n\n/**\n * Checks if the specified [value] belongs to this range.\n */\n@Deprecated(\"This `contains` operation mixing integer and floating point arguments has ambiguous semantics and is going to be removed.\")\n@DeprecatedSinceKotlin(warningSince = \"1.3\", errorSince = \"1.4\", hiddenSince = \"1.5\")\n@kotlin.jvm.JvmName(\"byteRangeContains\")\npublic operator fun ClosedRange<Byte>.contains(value: Double): Boolean {\n   return value.toByteExactOrNull().let { if (it != null) contains(it) else false }\n}\n\n/**\n * Checks if the specified [value] belongs to this range.\n */\n@Deprecated(\"This `contains` operation mixing integer and floating point arguments has ambiguous semantics and is going to be removed.\")\n@DeprecatedSinceKotlin(warningSince = \"1.3\", errorSince = \"1.4\", hiddenSince = \"1.5\")\n@kotlin.jvm.JvmName(\"shortRangeContains\")\npublic operator fun ClosedRange<Short>.contains(value: Double): Boolean {\n   return value.toShortExactOrNull().let { if (it != null) contains(it) else false }\n}\n\n/**\n * Checks if the specified [value] belongs to this range.\n */\n@kotlin.jvm.JvmName(\"floatRangeContains\")\npublic operator fun ClosedRange<Float>.contains(value: Double): Boolean {\n   return contains(value.toFloat())\n}\n\n/**\n * Checks if the specified [value] belongs to this range.\n */\n@Deprecated(\"This `contains` operation mixing integer and floating point arguments has ambiguous semantics and is going to be removed.\")\n@DeprecatedSinceKotlin(warningSince = \"1.3\", errorSince = \"1.4\", hiddenSince = \"1.5\")\n@kotlin.jvm.JvmName(\"intRangeContains\")\npublic operator fun ClosedRange<Int>.contains(value: Float): Boolean {\n   return value.toIntExactOrNull().let { if (it != null) contains(it) else false }\n}\n\n/**\n * Checks if the specified [value] belongs to this range.\n */\n@Deprecated(\"This `contains` operation mixing integer and floating point arguments has ambiguous semantics and is going to be removed.\")\n@DeprecatedSinceKotlin(warningSince = \"1.3\", errorSince = \"1.4\", hiddenSince = \"1.5\")\n@kotlin.jvm.JvmName(\"longRangeContains\")\npublic operator fun ClosedRange<Long>.contains(value: Float): Boolean {\n   return value.toLongExactOrNull().let { if (it != null) contains(it) else false }\n}\n\n/**\n * Checks if the specified [value] belongs to this range.\n */\n@Deprecated(\"This `contains` operation mixing integer and floating point arguments has ambiguous semantics and is going to be removed.\")\n@DeprecatedSinceKotlin(warningSince = \"1.3\", errorSince = \"1.4\", hiddenSince = \"1.5\")\n@kotlin.jvm.JvmName(\"byteRangeContains\")\npublic operator fun ClosedRange<Byte>.contains(value: Float): Boolean {\n   return value.toByteExactOrNull().let { if (it != null) contains(it) else false }\n}\n\n/**\n * Checks if the specified [value] belongs to this range.\n */\n@Deprecated(\"This `contains` operation mixing integer and floating point arguments has ambiguous semantics and is going to be removed.\")\n@DeprecatedSinceKotlin(warningSince = \"1.3\", errorSince = \"1.4\", hiddenSince

= \"1.5\")\n@kotlin.jvm.JvmName(\"shortRangeContains\")\npublic operator fun ClosedRange<Short>.contains(value: Float): Boolean {\n   return value.toShortExactOrNull().let { if (it != null) contains(it) else false }\n}\n\n/**\n * Checks if the specified [value] belongs to this range.\n */\n@kotlin.jvm.JvmName(\"doubleRangeContains\")\npublic operator fun ClosedRange<Double>.contains(value: Float): Boolean {\n   return contains(value.toDouble())\n}\n\n/**\n * Checks if the specified [value] belongs to this range.\n */\n@kotlin.jvm.JvmName(\"doubleRangeContains\")\n@SinceKotlin(\"1.7\")\n@ExperimentalStdlibApi\npublic operator fun OpenEndRange<Double>.contains(value: Float): Boolean {\n   return contains(value.toDouble())\n}\n\n/**\n * Checks if the specified [value] belongs to this range.\n */\n@kotlin.jvm.JvmName(\"longRangeContains\")\npublic operator fun ClosedRange<Long>.contains(value: Int): Boolean {\n   return contains(value.toLong())\n}\n\n/**\n * Checks if the specified [value] belongs to this range.\n */\n@kotlin.jvm.JvmName(\"byteRangeContains\")\npublic operator fun ClosedRange<Byte>.contains(value: Int): Boolean {\n   return value.toByteExactOrNull().let { if (it != null) contains(it) else false }\n}\n\n/**\n * Checks if the specified [value] belongs to this range.\n */\n@kotlin.jvm.JvmName(\"shortRangeContains\")\npublic operator fun ClosedRange<Short>.contains(value: Int): Boolean {\n   return value.toShortExactOrNull().let { if (it != null) contains(it) else false }\n}\n\n/**\n * Checks if the specified [value] belongs to this range.\n */\n@Deprecated(\"This `contains` operation mixing integer and floating point arguments has ambiguous semantics and is going to be removed.\")\n@DeprecatedSinceKotlin(warningSince = \"1.3\", errorSince = \"1.4\", hiddenSince = \"1.5\")\n@kotlin.jvm.JvmName(\"doubleRangeContains\")\npublic operator fun ClosedRange<Double>.contains(value: Int): Boolean {\n   return contains(value.toDouble())\n}\n\n/**\n * Checks if the specified [value] belongs to this range.\n */\n@Deprecated(\"This `contains` operation mixing integer and floating point arguments has ambiguous semantics and is going to be removed.\")\n@DeprecatedSinceKotlin(warningSince = \"1.3\", errorSince = \"1.4\", hiddenSince = \"1.5\")\n@kotlin.jvm.JvmName(\"floatRangeContains\")\npublic operator fun ClosedRange<Float>.contains(value: Int): Boolean {\n   return contains(value.toFloat())\n}\n\n/**\n * Checks if the specified [value] belongs to this range.\n */\n@kotlin.jvm.JvmName(\"longRangeContains\")\n@SinceKotlin(\"1.7\")\n@ExperimentalStdlibApi\npublic operator fun OpenEndRange<Long>.contains(value: Int): Boolean {\n   return contains(value.toLong())\n}\n\n/**\n * Checks if the specified [value] belongs to this range.\n */\n@kotlin.jvm.JvmName(\"byteRangeContains\")\n@SinceKotlin(\"1.7\")\n@ExperimentalStdlibApi\npublic operator fun OpenEndRange<Byte>.contains(value: Int): Boolean {\n   return value.toByteExactOrNull().let { if (it != null) contains(it) else false }\n}\n\n/**\n * Checks if the specified [value] belongs to this range.\n */\n@kotlin.jvm.JvmName(\"shortRangeContains\")\n@SinceKotlin(\"1.7\")\n@ExperimentalStdlibApi\npublic operator fun OpenEndRange<Short>.contains(value: Int): Boolean {\n   return value.toShortExactOrNull().let { if (it != null) contains(it) else false }\n}\n\n/**\n * Checks if the specified [value] belongs to this range.\n */\n@kotlin.internal.InlineOnly\npublic inline operator fun LongRange.contains(value: Int): Boolean {\n   return (this as ClosedRange<Long>).contains(value)\n}\n\n/**\n * Checks if the specified [value] belongs to this range.\n */\n@kotlin.jvm.JvmName(\"intRangeContains\")\npublic operator fun ClosedRange<Int>.contains(value: Long): Boolean {\n   return value.toIntExactOrNull().let { if (it != null) contains(it) else false }\n}\n\n/**\n * Checks if the specified [value] belongs to this range.\n */\n@kotlin.jvm.JvmName(\"byteRangeContains\")\npublic operator fun ClosedRange<Byte>.contains(value: Long): Boolean {\n   return value.toByteExactOrNull().let { if (it != null) contains(it) else false }\n}\n\n/**\n * Checks if the specified [value] belongs to this range.\n */\n@kotlin.jvm.JvmName(\"shortRangeContains\")\npublic operator fun ClosedRange<Short>.contains(value: Long): Boolean {\n   return value.toShortExactOrNull().let { if (it != null) contains(it) else false }\n}\n\n/**\n * Checks if the specified [value] belongs to this range.\n */\n@Deprecated(\"This `contains` operation mixing integer and floating point arguments has ambiguous semantics and is going to be removed.\")\n@DeprecatedSinceKotlin(warningSince = \"1.3\", errorSince = \"1.4\", hiddenSince = \"1.5\")\n@kotlin.jvm.JvmName(\"doubleRangeContains\")\npublic operator fun

ClosedRange<Double>.contains(value: Long): Boolean {\n   return contains(value.toDouble())\n}\n\n/**\n * Checks if the specified [value] belongs to this range.\n */\n@Deprecated(\"This `contains` operation mixing integer and floating point arguments has ambiguous semantics and is going to be removed.\")\n@DeprecatedSinceKotlin(warningSince = \"1.3\", errorSince = \"1.4\", hiddenSince = \"1.5\")\n@kotlin.jvm.JvmName(\"floatRangeContains\")\npublic operator fun ClosedRange<Float>.contains(value: Long): Boolean {\n   return contains(value.toFloat())\n}\n\n/**\n * Checks if the specified [value] belongs to this range.\n */\n@kotlin.jvm.JvmName(\"intRangeContains\")\n@SinceKotlin(\"1.7\")\n@ExperimentalStdlibApi\npublic operator fun OpenEndRange<Int>.contains(value: Long): Boolean {\n   return value.toIntExactOrNull().let { if (it != null) contains(it) else false }\n}\n\n/**\n * Checks if the specified [value] belongs to this range.\n */\n@kotlin.jvm.JvmName(\"byteRangeContains\")\n@SinceKotlin(\"1.7\")\n@ExperimentalStdlibApi\npublic operator fun OpenEndRange<Byte>.contains(value: Long): Boolean {\n   return value.toByteExactOrNull().let { if (it != null) contains(it) else false }\n}\n\n/**\n * Checks if the specified [value] belongs to this range.\n */\n@kotlin.jvm.JvmName(\"shortRangeContains\")\n@SinceKotlin(\"1.7\")\n@ExperimentalStdlibApi\npublic operator fun OpenEndRange<Short>.contains(value: Long): Boolean {\n   return value.toShortExactOrNull().let { if (it != null) contains(it) else false }\n}\n\n/**\n * Checks if the specified [value] belongs to this range.\n */\n@kotlin.internal.InlineOnly\npublic inline operator fun IntRange.contains(value: Long): Boolean {\n   return (this as ClosedRange<Int>).contains(value)\n}\n\n/**\n * Checks if the specified [value] belongs to this range.\n */\n@kotlin.jvm.JvmName(\"intRangeContains\")\npublic operator fun ClosedRange<Int>.contains(value: Short): Boolean {\n   return contains(value.toInt())\n}\n\n/**\n * Checks if the specified [value] belongs to this range.\n */\n@kotlin.jvm.JvmName(\"longRangeContains\")\npublic operator fun ClosedRange<Long>.contains(value: Short): Boolean {\n   return contains(value.toLong())\n}\n\n/**\n * Checks if the specified [value] belongs to this range.\n */\n@kotlin.jvm.JvmName(\"byteRangeContains\")\npublic operator fun ClosedRange<Byte>.contains(value: Short): Boolean {\n   return value.toByteExactOrNull().let { if (it != null) contains(it) else false }\n}\n\n/**\n * Checks if the specified [value] belongs to this range.\n */\n@Deprecated(\"This `contains` operation mixing integer and floating point arguments has ambiguous semantics and is going to be removed.\")\n@DeprecatedSinceKotlin(warningSince = \"1.3\", errorSince = \"1.4\", hiddenSince = \"1.5\")\n@kotlin.jvm.JvmName(\"doubleRangeContains\")\npublic operator fun ClosedRange<Double>.contains(value: Short): Boolean {\n   return contains(value.toDouble())\n}\n\n/**\n * Checks if the specified [value] belongs to this range.\n */\n@Deprecated(\"This `contains` operation mixing integer and floating point arguments has ambiguous semantics and is going to be removed.\")\n@DeprecatedSinceKotlin(warningSince = \"1.3\", errorSince = \"1.4\", hiddenSince = \"1.5\")\n@kotlin.jvm.JvmName(\"floatRangeContains\")\npublic operator fun ClosedRange<Float>.contains(value: Short): Boolean {\n   return contains(value.toFloat())\n}\n\n/**\n * Checks if the specified [value] belongs to this range.\n */\n@kotlin.jvm.JvmName(\"intRangeContains\")\n@SinceKotlin(\"1.7\")\n@ExperimentalStdlibApi\npublic operator fun OpenEndRange<Int>.contains(value: Short): Boolean {\n   return contains(value.toInt())\n}\n\n/**\n * Checks if the specified [value] belongs to this range.\n */\n@kotlin.jvm.JvmName(\"longRangeContains\")\n@SinceKotlin(\"1.7\")\n@ExperimentalStdlibApi\npublic operator fun OpenEndRange<Long>.contains(value: Short): Boolean {\n   return contains(value.toLong())\n}\n\n/**\n * Checks if the specified [value] belongs to this range.\n */\n@kotlin.jvm.JvmName(\"byteRangeContains\")\n@SinceKotlin(\"1.7\")\n@ExperimentalStdlibApi\npublic operator fun OpenEndRange<Byte>.contains(value: Short): Boolean {\n   return value.toByteExactOrNull().let { if (it != null) contains(it) else false }\n}\n\n/**\n * Checks if the specified [value] belongs to this range.\n */\n@kotlin.internal.InlineOnly\npublic inline operator fun IntRange.contains(value: Short): Boolean {\n   return (this as ClosedRange<Int>).contains(value)\n}\n\n/**\n * Checks if the specified [value] belongs to this range.\n */\n@kotlin.internal.InlineOnly\npublic inline operator fun LongRange.contains(value: Short): Boolean {\n   return (this as ClosedRange<Long>).contains(value)\n}\n\n/**\n * Returns a progression from this value down to the specified [to] value with the step -1.\n * \n * The [to] value should be less than or equal to `this` value.\n * If the [to] value is greater than `this` value the returned progression is empty.\n */\npublic infix fun Int.downTo(to: Byte): IntProgression {\n   return IntProgression.fromClosedRange(this, to.toInt(), -1)\n}\n\n/**\n * Returns a progression from this value down to the specified [to] value with the step -1.\n * \n * The [to] value should be less than or equal to `this` value.\n * If the [to] value is greater than `this` value the returned progression is empty.\n */\npublic infix fun Long.downTo(to: Byte): LongProgression {\n   return LongProgression.fromClosedRange(this, to.toLong(), -1L)\n}\n\n/**\n * Returns a progression from this value down to the specified [to] value with the step -1.\n * \n * The [to] value should be less than or equal to `this` value.\n * If the [to] value is greater than `this` value the returned progression is empty.\n */\npublic infix fun Byte.downTo(to: Byte): IntProgression {\n   return IntProgression.fromClosedRange(this.toInt(), to.toInt(), -1)\n}\n\n/**\n * Returns a progression from this value down to the specified [to] value with the step -1.\n * \n * The [to] value should be less than or equal to `this` value.\n * If the [to] value is greater than `this` value the returned progression is empty.\n */\npublic infix fun Short.downTo(to: Byte): IntProgression {\n   return IntProgression.fromClosedRange(this.toInt(), to.toInt(), -1)\n}\n\n/**\n * Returns a progression from this value down to the specified [to] value with the step -1.\n * \n * The [to] value should be less than or equal to `this` value.\n * If the [to] value is greater than `this` value the returned progression is empty.\n */\npublic infix fun Char.downTo(to: Char): CharProgression {\n   return CharProgression.fromClosedRange(this, to, -1)\n}\n\n/**\n * Returns a progression from this value down to the specified [to] value with the step -1.\n * \n * The [to] value should be less than or equal to `this` value.\n * If the [to] value is greater than `this` value the returned progression is empty.\n */\npublic infix fun Int.downTo(to: Int): IntProgression {\n   return IntProgression.fromClosedRange(this, to, -1)\n}\n\n/**\n * Returns a progression from this value down to the specified [to] value with the step -1.\n * \n * The [to] value should be less than or equal to `this` value.\n * If the [to] value is greater than `this` value the returned progression is empty.\n */\npublic infix fun Long.downTo(to: Int): LongProgression {\n   return LongProgression.fromClosedRange(this, to.toLong(), -1L)\n}\n\n/**\n * Returns a progression from this value down to the specified [to] value with the step -1.\n * \n * The [to] value should be less than or equal to `this` value.\n * If the [to] value is greater than `this` value the returned progression is empty.\n */\npublic infix fun Byte.downTo(to: Int): IntProgression {\n   return IntProgression.fromClosedRange(this.toInt(), to, -1)\n}\n\n/**\n * Returns a progression from this value down to the specified [to] value 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LongProgression {\n   return LongProgression.fromClosedRange(this, to, -1L)\n}\n\n/**\n * Returns a progression from this value down to the specified [to] value with the step -1.\n * \n * The [to] value should be less than or equal to `this` value.\n * If the [to] value is greater than `this` value the returned progression is empty.\n */\npublic infix fun Byte.downTo(to: Long): LongProgression {\n   return LongProgression.fromClosedRange(this.toLong(), to, -1L)\n}\n\n/**\n * Returns a progression from this value down to the specified [to] value with the step -1.\n * \n * The [to] value should be less than or equal to `this` value.\n * If the [to] value is greater than `this` value the returned progression is empty.\n */\npublic infix fun Short.downTo(to: Long): LongProgression {\n   return LongProgression.fromClosedRange(this.toLong(), to, -1L)\n}\n\n/**\n * Returns a progression from this value down to the specified [to] value with the step -1.\n * \n * The [to] value should be less than or equal to `this` value.\n * If the [to] value is greater than `this` value the returned progression is empty.\n */\npublic infix fun Int.downTo(to: Short): IntProgression {\n   return IntProgression.fromClosedRange(this, to.toInt(), -1)\n}\n\n/**\n * Returns a progression from this value down to the specified [to] value with the step -1.\n * \n * The [to] value should be less than or equal to `this` value.\n * If the [to] value is greater than `this` value the returned progression is empty.\n */\npublic infix fun Long.downTo(to: Short): LongProgression {\n   return LongProgression.fromClosedRange(this, to.toLong(), -1L)\n}\n\n/**\n * Returns a progression from this value down to the specified [to] value with the step -1.\n * \n * The [to] value should be less than or equal to `this` value.\n * If the [to] value is greater than `this` value the returned progression is empty.\n */\npublic infix fun Byte.downTo(to: Short): IntProgression {\n   return 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Int.rangeUntil(to: Long): LongRange {\n   return until(to)\n}\n\n/**\n * Returns a range from this value up to but excluding the specified [to] value.\n * \n * If the [to] value is less than or equal to `this` value, then the returned range is empty.\n */\n@SinceKotlin(\"1.7\")\n@ExperimentalStdlibApi\n@kotlin.internal.InlineOnly\npublic inline operator fun Long.rangeUntil(to: Long): LongRange {\n   return until(to)\n}\n\n/**\n * Returns a range from this value up to but excluding the specified [to] value.\n * \n * If the [to] value is less than or equal to `this` value, then the returned range is empty.\n */\n@SinceKotlin(\"1.7\")\n@ExperimentalStdlibApi\n@kotlin.internal.InlineOnly\npublic inline operator fun Byte.rangeUntil(to: Long): LongRange {\n   return until(to)\n}\n\n/**\n * Returns a range from this value up to but excluding the specified [to] value.\n * \n * If the [to] value is less than or equal to `this` value, then the returned range is empty.\n */\n@SinceKotlin(\"1.7\")\n@ExperimentalStdlibApi\n@kotlin.internal.InlineOnly\npublic inline operator fun Short.rangeUntil(to: Long): LongRange {\n   return until(to)\n}\n\n/**\n * Returns a range from this value up to but excluding the specified [to] value.\n * \n * If the [to] value is less than or equal to `this` value, then the returned range is empty.\n */\n@SinceKotlin(\"1.7\")\n@ExperimentalStdlibApi\n@kotlin.internal.InlineOnly\npublic inline operator fun Int.rangeUntil(to: Short): IntRange {\n   return until(to)\n}\n\n/**\n * Returns a range from this value up to but excluding the specified [to] value.\n * \n * If the [to] value is less than or equal to `this` value, then the returned range is empty.\n */\n@SinceKotlin(\"1.7\")\n@ExperimentalStdlibApi\n@kotlin.internal.InlineOnly\npublic inline operator fun Long.rangeUntil(to: Short): LongRange {\n   return until(to)\n}\n\n/**\n * Returns a range from this value up to but excluding the specified [to] value.\n * \n * If the [to] value is less than or equal to `this` value, then the returned range is empty.\n */\n@SinceKotlin(\"1.7\")\n@ExperimentalStdlibApi\n@kotlin.internal.InlineOnly\npublic inline operator fun Byte.rangeUntil(to: Short): IntRange {\n   return until(to)\n}\n\n/**\n * Returns a range from this value up to but excluding the specified [to] value.\n * \n * If the [to] value is less than or equal to `this` value, then the returned range is empty.\n */\n@SinceKotlin(\"1.7\")\n@ExperimentalStdlibApi\n@kotlin.internal.InlineOnly\npublic inline operator fun Short.rangeUntil(to: Short): IntRange {\n   return until(to)\n}\n\n/**\n * Returns a progression that goes over the same range in the opposite direction with the same step.\n */\npublic fun IntProgression.reversed(): IntProgression {\n   return IntProgression.fromClosedRange(last, first, -step)\n}\n\n/**\n * Returns a progression that goes over the same range in the opposite direction with the same step.\n */\npublic fun LongProgression.reversed(): LongProgression {\n   return LongProgression.fromClosedRange(last, first, -step)\n}\n\n/**\n * Returns a progression that goes over the same range in the opposite direction with the same step.\n */\npublic fun CharProgression.reversed(): CharProgression {\n   return CharProgression.fromClosedRange(last, first, -step)\n}\n\n/**\n * Returns a progression that goes over the same range with the given step.\n */\npublic infix fun IntProgression.step(step: Int): IntProgression {\n   checkStepIsPositive(step > 0, step)\n   return IntProgression.fromClosedRange(first, last, if (this.step > 0) step else -step)\n}\n\n/**\n * Returns a progression that goes over the same range with the given step.\n */\npublic infix fun LongProgression.step(step: Long): LongProgression {\n   checkStepIsPositive(step > 0, step)\n   return LongProgression.fromClosedRange(first, last, if (this.step > 0) step else -step)\n}\n\n/**\n * Returns a progression that goes over the same range with the given step.\n */\npublic infix fun CharProgression.step(step: Int): CharProgression {\n   checkStepIsPositive(step > 0, step)\n   return CharProgression.fromClosedRange(first, last, if (this.step > 0) step else -step)\n}\n\ninternal fun Int.toByteExactOrNull(): Byte? {\n   return if (this in Byte.MIN_VALUE.toInt()..Byte.MAX_VALUE.toInt()) this.toByte() else null\n}\n\ninternal fun Long.toByteExactOrNull(): Byte? {\n   return if (this in Byte.MIN_VALUE.toLong()..Byte.MAX_VALUE.toLong()) this.toByte() else null\n}\n\ninternal fun Short.toByteExactOrNull(): Byte? {\n   return if (this in Byte.MIN_VALUE.toShort()..Byte.MAX_VALUE.toShort()) this.toByte() else null\n}\n\ninternal fun Double.toByteExactOrNull(): Byte? {\n   return if (this in Byte.MIN_VALUE.toDouble()..Byte.MAX_VALUE.toDouble()) this.toInt().toByte() else null\n}\n\ninternal fun Float.toByteExactOrNull(): Byte? {\n   return if (this in Byte.MIN_VALUE.toFloat()..Byte.MAX_VALUE.toFloat()) this.toInt().toByte() else null\n}\n\ninternal fun Long.toIntExactOrNull(): Int? {\n   return if (this in Int.MIN_VALUE.toLong()..Int.MAX_VALUE.toLong()) this.toInt() else null\n}\n\ninternal fun Double.toIntExactOrNull(): Int? {\n   return if (this in Int.MIN_VALUE.toDouble()..Int.MAX_VALUE.toDouble()) this.toInt() else null\n}\n\ninternal fun Float.toIntExactOrNull(): Int? {\n   return if (this in Int.MIN_VALUE.toFloat()..Int.MAX_VALUE.toFloat())

this.toInt() else null\n}\n\ninternal fun Double.toLongExactOrNull(): Long? {\n   return if (this in Long.MIN_VALUE.toDouble()..Long.MAX_VALUE.toDouble()) this.toLong() else null\n}\n\ninternal fun Float.toLongExactOrNull(): Long? {\n   return if (this in Long.MIN_VALUE.toFloat()..Long.MAX_VALUE.toFloat()) this.toLong() else null\n}\n\ninternal fun Int.toShortExactOrNull(): Short? {\n   return if (this in Short.MIN_VALUE.toInt()..Short.MAX_VALUE.toInt()) this.toShort() else null\n}\n\ninternal fun Long.toShortExactOrNull(): Short? {\n   return if (this in Short.MIN_VALUE.toLong()..Short.MAX_VALUE.toLong()) this.toShort() else null\n}\n\ninternal fun Double.toShortExactOrNull(): Short? {\n   return if (this in Short.MIN_VALUE.toDouble()..Short.MAX_VALUE.toDouble()) this.toInt().toShort() else null\n}\n\ninternal fun Float.toShortExactOrNull(): Short? {\n   return if (this in Short.MIN_VALUE.toFloat()..Short.MAX_VALUE.toFloat()) this.toInt().toShort() else null\n}\n\n/**\n * Returns a range from this value up to but excluding the specified [to] value.\n * \n * If the [to] value is less than or equal to `this` value, then the returned range is empty.\n */\npublic infix fun Int.until(to: Byte): IntRange {\n   return this .. 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(to.toInt() - 1).toInt()\n}\n\n/**\n * Returns a range from this value up to but excluding the specified [to] value.\n * \n * If the [to] value is less than or equal to `this` value, then the returned range is empty.\n */\npublic infix fun Char.until(to: Char): CharRange {\n   if (to <= '\\u0000') return CharRange.EMPTY\n   return this .. (to - 1).toChar()\n}\n\n/**\n * Returns a range from this value up to but excluding the specified [to] value.\n * \n * If the [to] value is less than or equal to `this` value, then the returned range is empty.\n */\npublic infix fun Int.until(to: Int): IntRange {\n   if (to <= Int.MIN_VALUE) return IntRange.EMPTY\n   return this .. (to - 1).toInt()\n}\n\n/**\n * Returns a range from this value up to but excluding the specified [to] value.\n * \n * If the [to] value is less than or equal to `this` value, then the returned range is empty.\n */\npublic infix fun Long.until(to: Int): LongRange {\n   return this .. (to.toLong() - 1).toLong()\n}\n\n/**\n * Returns a range from this value up to but excluding the specified [to] value.\n * \n * If the [to] value is less than or equal to `this` value, then the returned range is empty.\n */\npublic infix fun Byte.until(to: Int): IntRange {\n   if (to <= Int.MIN_VALUE) return IntRange.EMPTY\n   return this.toInt() .. (to - 1).toInt()\n}\n\n/**\n * Returns a range from this value up to but excluding the specified [to] value.\n * \n * If the [to] value is less than or equal to `this` value, then the returned range is empty.\n */\npublic infix fun Short.until(to: Int): IntRange {\n   if (to <= Int.MIN_VALUE) return IntRange.EMPTY\n   return this.toInt() .. 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(to - 1).toLong()\n}\n\n/**\n * Returns a range from this value up to but excluding the specified [to] value.\n * \n * If the [to] value is less than or equal to `this` value, then the returned range is empty.\n */\npublic infix fun Byte.until(to: Long): LongRange {\n   if (to <= Long.MIN_VALUE) return LongRange.EMPTY\n   return this.toLong() .. (to - 1).toLong()\n}\n\n/**\n * Returns a range from this value up to but excluding the specified [to] value.\n * \n * If the [to] value is less than or equal to `this` value, then the returned range is empty.\n */\npublic infix fun Short.until(to: Long): LongRange {\n   if (to <= Long.MIN_VALUE) return LongRange.EMPTY\n   return this.toLong() .. (to - 1).toLong()\n}\n\n/**\n * Returns a range from this value up to but excluding the specified [to] value.\n * \n * If the

[to] value is less than or equal to `this` value, then the returned range is empty.\n */\npublic infix fun Int.until(to: Short): IntRange {\n   return this .. (to.toInt() - 1).toInt()\n}\n\n/**\n * Returns a range from this value up to but excluding the specified [to] value.\n * \n * If the [to] value is less than or equal to `this` value, then the returned range is empty.\n */\npublic infix fun Long.until(to: Short): LongRange {\n   return this .. (to.toLong() - 1).toLong()\n}\n\n/**\n * Returns a range from this value up to but excluding the specified [to] value.\n * \n * If the [to] value is less than or equal to `this` value, then the returned range is empty.\n */\npublic infix fun Byte.until(to: Short): IntRange {\n   return this.toInt() .. (to.toInt() - 1).toInt()\n}\n\n/**\n * Returns a range from this value up to but excluding the specified [to] value.\n * \n * If the [to] value is less than or equal to `this` value, then the returned range is empty.\n */\npublic infix fun Short.until(to: Short): IntRange {\n   return this.toInt() .. (to.toInt() - 1).toInt()\n}\n\n/**\n * Ensures that this value is not less than the specified [minimumValue].\n * \n * @return this value if it's greater than or equal to the [minimumValue] or the [minimumValue] otherwise.\n * \n * @sample samples.comparisons.ComparableOps.coerceAtLeastComparable\n */\npublic fun <T : Comparable<T>> T.coerceAtLeast(minimumValue: T): T {\n   return if (this < minimumValue) minimumValue else this\n}\n\n/**\n * Ensures that this value is not less than the specified [minimumValue].\n * \n * @return this value if it's greater than or equal to the [minimumValue] or the [minimumValue] otherwise.\n * \n * @sample samples.comparisons.ComparableOps.coerceAtLeast\n */\npublic fun Byte.coerceAtLeast(minimumValue: Byte): Byte {\n   return if (this < minimumValue) minimumValue else this\n}\n\n/**\n * Ensures that this value is not less than the specified [minimumValue].\n * \n * @return this value if it's greater than or equal to the [minimumValue] or the [minimumValue] otherwise.\n * \n * @sample samples.comparisons.ComparableOps.coerceAtLeast\n */\npublic fun Short.coerceAtLeast(minimumValue: Short): Short {\n   return if (this < minimumValue) minimumValue else this\n}\n\n/**\n * Ensures that this value is not less than the specified [minimumValue].\n * \n * @return this value if it's greater than or equal to the [minimumValue] or the [minimumValue] otherwise.\n * \n * @sample samples.comparisons.ComparableOps.coerceAtLeast\n */\npublic fun Int.coerceAtLeast(minimumValue: Int): Int {\n   return if (this < minimumValue) minimumValue else this\n}\n\n/**\n * Ensures that this value is not less than the specified [minimumValue].\n * \n * @return this value if it's greater than or equal to the [minimumValue] or the [minimumValue] otherwise.\n * \n * @sample samples.comparisons.ComparableOps.coerceAtLeast\n */\npublic fun Long.coerceAtLeast(minimumValue: Long): Long {\n   return if (this < minimumValue) minimumValue else this\n}\n\n/**\n * Ensures that this value is not less than the specified [minimumValue].\n * \n * @return this value if it's greater than or equal to the [minimumValue] or the [minimumValue] otherwise.\n * \n * @sample samples.comparisons.ComparableOps.coerceAtLeast\n */\npublic fun Float.coerceAtLeast(minimumValue: Float): Float {\n   return if (this < minimumValue) minimumValue else this\n}\n\n/**\n * Ensures that this value is not less than the specified [minimumValue].\n * \n * @return this value if it's greater than or equal to the [minimumValue] or the [minimumValue] otherwise.\n * \n * @sample samples.comparisons.ComparableOps.coerceAtLeast\n */\npublic fun Double.coerceAtLeast(minimumValue: Double): Double {\n   return if (this < minimumValue) minimumValue else this\n}\n\n/**\n * Ensures that this value is not greater than the specified [maximumValue].\n * \n * @return this value if it's less than or equal to the [maximumValue] or the [maximumValue] otherwise.\n * \n * @sample samples.comparisons.ComparableOps.coerceAtMostComparable\n */\npublic fun <T : Comparable<T>> T.coerceAtMost(maximumValue: T): T {\n   return if (this > maximumValue) maximumValue else this\n}\n\n/**\n * Ensures that this value is not greater than the specified [maximumValue].\n * \n * @return this value if it's less than or equal to the [maximumValue] or the [maximumValue] otherwise.\n * \n * @sample samples.comparisons.ComparableOps.coerceAtMost\n */\npublic fun Byte.coerceAtMost(maximumValue: Byte): Byte {\n   return if (this > maximumValue) maximumValue else this\n}\n\n/**\n * Ensures that this value is not greater than the specified [maximumValue].\n * \n * @return this value if it's less than or equal to the [maximumValue] or the [maximumValue] otherwise.\n * \n * @sample samples.comparisons.ComparableOps.coerceAtMost\n */\npublic fun Short.coerceAtMost(maximumValue: Short): Short {\n   return if (this > maximumValue) maximumValue else this\n}\n\n/**\n * Ensures that this value is not greater than the specified [maximumValue].\n * \n * @return this value if it's less than or equal to the

[maximumValue] or the [maximumValue] otherwise.\n * \n * @sample samples.comparisons.ComparableOps.coerceAtMost\n */\npublic fun Int.coerceAtMost(maximumValue: Int): Int {\n   return if (this > maximumValue) maximumValue else this\n}\n\n/**\n * Ensures that this value is not greater than the specified [maximumValue].\n * \n * @return this value if it's less than or equal to the [maximumValue] or the [maximumValue] otherwise.\n * \n * @sample samples.comparisons.ComparableOps.coerceAtMost\n */\npublic fun Long.coerceAtMost(maximumValue: Long): Long {\n   return if (this > maximumValue) maximumValue else this\n}\n\n/**\n * Ensures that this value is not greater than the specified [maximumValue].\n * \n * @return this value if it's less than or equal to the [maximumValue] or the [maximumValue] otherwise.\n * \n * @sample samples.comparisons.ComparableOps.coerceAtMost\n */\npublic fun Float.coerceAtMost(maximumValue: Float): Float {\n   return if (this > maximumValue) maximumValue else this\n}\n\n/**\n * Ensures that this value is not greater than the specified [maximumValue].\n * \n * @return this value if it's less than or equal to the [maximumValue] or the [maximumValue] otherwise.\n * \n * @sample samples.comparisons.ComparableOps.coerceAtMost\n */\npublic fun Double.coerceAtMost(maximumValue: Double): Double {\n   return if (this > maximumValue) maximumValue else this\n}\n\n/**\n * Ensures that this value lies in the specified range [minimumValue]..[maximumValue].\n * \n * @return this value if it's in the range, or [minimumValue] if this value is less than [minimumValue], or [maximumValue] if this value is greater than [maximumValue].\n * \n * @sample samples.comparisons.ComparableOps.coerceInComparable\n */\npublic fun <T : Comparable<T>> T.coerceIn(minimumValue: T?, maximumValue: T?): T {\n   if (minimumValue !== null && maximumValue !== null) {\n   if (minimumValue > maximumValue) throw IllegalArgumentException(\"Cannot coerce value to an empty range: maximum $maximumValue is less than minimum $minimumValue.\")\n   if (this < minimumValue) return minimumValue\n   if (this > maximumValue) return maximumValue\n   }\n   else {\n   if (minimumValue !== null && this < minimumValue) return minimumValue\n   if (maximumValue !== null && this > maximumValue) return maximumValue\n   }\n   return this\n}\n\n/**\n * Ensures that this value lies in the specified range [minimumValue]..[maximumValue].\n * \n * @return this value if it's in the range, or [minimumValue] if this value is less than [minimumValue], or [maximumValue] if this value is greater than [maximumValue].\n * \n * @sample samples.comparisons.ComparableOps.coerceIn\n */\npublic fun Byte.coerceIn(minimumValue: Byte, maximumValue: Byte): Byte {\n   if (minimumValue > maximumValue) throw IllegalArgumentException(\"Cannot coerce value to an empty range: maximum $maximumValue is less than minimum $minimumValue.\")\n   if (this < minimumValue) return minimumValue\n   if (this > maximumValue) return maximumValue\n   return this\n}\n\n/**\n * Ensures that this value lies in the specified range [minimumValue]..[maximumValue].\n * \n * @return this value if it's in the range, or [minimumValue] if this value is less than [minimumValue], or [maximumValue] if this value is greater than [maximumValue].\n * \n * @sample samples.comparisons.ComparableOps.coerceIn\n */\npublic fun Short.coerceIn(minimumValue: Short, maximumValue: Short): Short {\n   if (minimumValue > maximumValue) throw IllegalArgumentException(\"Cannot coerce value to an empty range: maximum $maximumValue is less than minimum $minimumValue.\")\n   if (this < minimumValue) return minimumValue\n   if (this > maximumValue) return maximumValue\n   return this\n}\n\n/**\n * Ensures that this value lies in the specified range [minimumValue]..[maximumValue].\n * \n * @return this value if it's in the range, or [minimumValue] if this value is less than [minimumValue], or [maximumValue] if this value is greater than [maximumValue].\n * \n * @sample samples.comparisons.ComparableOps.coerceIn\n */\npublic fun Int.coerceIn(minimumValue: Int, maximumValue: Int): Int {\n   if (minimumValue > maximumValue) throw IllegalArgumentException(\"Cannot coerce value to an empty range: maximum $maximumValue is less than minimum $minimumValue.\")\n   if (this < minimumValue) return minimumValue\n   if (this > maximumValue) return maximumValue\n   return this\n}\n\n/**\n * Ensures that this value lies in the specified range [minimumValue]..[maximumValue].\n * \n * @return this value if it's in the range, or [minimumValue] if this value is less than [minimumValue], or [maximumValue] if this value is greater than [maximumValue].\n * \n * @sample samples.comparisons.ComparableOps.coerceIn\n */\npublic fun Long.coerceIn(minimumValue: Long, maximumValue: Long): Long {\n   if (minimumValue > maximumValue) throw IllegalArgumentException(\"Cannot coerce value to an empty range: maximum $maximumValue is less than minimum $minimumValue.\")\n   if (this < minimumValue) return minimumValue\n   if (this > maximumValue) return maximumValue\n   return this\n}\n\n/**\n * Ensures that this value lies in the specified range [minimumValue]..[maximumValue].\n * \n * @return this value if it's in the range, or [minimumValue] if this value is less than [minimumValue], or [maximumValue] if this value is greater than [maximumValue].\n * \n * @sample samples.comparisons.ComparableOps.coerceIn\n */\npublic fun Float.coerceIn(minimumValue: Float, maximumValue: Float): Float {\n   if (minimumValue > maximumValue) throw IllegalArgumentException(\"Cannot coerce value to an empty range: maximum $maximumValue is less than minimum $minimumValue.\")\n   if (this < minimumValue) return minimumValue\n   if (this > maximumValue) return maximumValue\n   return this\n}\n\n/**\n * Ensures that this value lies in the specified range [minimumValue]..[maximumValue].\n * \n * @return this value if it's in the range, or [minimumValue] if this value is less than [minimumValue], or [maximumValue] if this value is greater than [maximumValue].\n * \n * @sample samples.comparisons.ComparableOps.coerceIn\n */\npublic fun Double.coerceIn(minimumValue: Double, maximumValue: Double): Double {\n   if (minimumValue > maximumValue) throw IllegalArgumentException(\"Cannot coerce value to an empty range: maximum $maximumValue is less than minimum $minimumValue.\")\n   if (this < minimumValue) return minimumValue\n   if (this > maximumValue) return maximumValue\n   return this\n}\n\n/**\n * Ensures that this value lies in the specified [range].\n * \n * @return this value if it's in the [range], or `range.start` if this value is less than `range.start`, or `range.endInclusive` if this value is greater than `range.endInclusive`.\n * \n * @sample samples.comparisons.ComparableOps.coerceInFloatingPointRange\n */\n@SinceKotlin(\"1.1\")\npublic fun <T : Comparable<T>> T.coerceIn(range: ClosedFloatingPointRange<T>): T {\n   if (range.isEmpty()) throw IllegalArgumentException(\"Cannot coerce value to an empty range: $range.\")\n   return when {\n   // this < start equiv to this <= start && !(this >= start)\n   range.lessThanOrEquals(this, range.start) && !range.lessThanOrEquals(range.start, this) -> range.start\n   // this > end equiv to this >= end && !(this <= end)\n   range.lessThanOrEquals(range.endInclusive, this) && !range.lessThanOrEquals(this, range.endInclusive) -> range.endInclusive\n   else -> this\n   }\n}\n\n/**\n * Ensures that this value lies in the specified [range].\n * \n * @return this value if it's in the [range], or `range.start` if this value is less than `range.start`, or `range.endInclusive` if this value is greater than `range.endInclusive`.\n * \n * @sample samples.comparisons.ComparableOps.coerceInComparable\n */\npublic fun <T : Comparable<T>> T.coerceIn(range: ClosedRange<T>): T {\n   if (range is ClosedFloatingPointRange) {\n   return this.coerceIn<T>(range)\n   }\n   if (range.isEmpty()) throw IllegalArgumentException(\"Cannot coerce value to an empty range: $range.\")\n   return when {\n   this < range.start -> range.start\n   this > range.endInclusive -> range.endInclusive\n   else -> this\n   }\n}\n\n/**\n * Ensures that this value lies in the specified [range].\n * \n * @return this value if it's in the [range], or `range.start` if this value is less than `range.start`, or `range.endInclusive` if this value is greater than `range.endInclusive`.\n * \n * @sample samples.comparisons.ComparableOps.coerceIn\n */\npublic fun Int.coerceIn(range: ClosedRange<Int>): Int {\n   if (range is ClosedFloatingPointRange) {\n   return this.coerceIn<Int>(range)\n   }\n   if (range.isEmpty()) throw IllegalArgumentException(\"Cannot coerce value to an empty range: $range.\")\n   return when {\n   this < range.start -> range.start\n   this > range.endInclusive -> range.endInclusive\n   else -> this\n   }\n}\n\n/**\n * Ensures that this value lies in the specified [range].\n * \n * @return this value if it's in the [range], or `range.start` if this value is less than `range.start`, or `range.endInclusive` if this value is greater than `range.endInclusive`.\n * \n * @sample samples.comparisons.ComparableOps.coerceIn\n */\npublic fun Long.coerceIn(range: ClosedRange<Long>): Long {\n   if (range is ClosedFloatingPointRange) {\n   return this.coerceIn<Long>(range)\n   }\n   if (range.isEmpty()) throw IllegalArgumentException(\"Cannot coerce value to an empty range: $range.\")\n   return when {\n   this < range.start -> range.start\n   this > range.endInclusive -> range.endInclusive\n   else -> this\n   }\n}\n\n","/*\n * Copyright 2010-2022 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\n// Auto-generated file. DO NOT EDIT!\n\npackage kotlin\n\nimport kotlin.experimental.*\nimport kotlin.jvm.*\n\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\n@JvmInline\npublic value class UByte @kotlin.internal.IntrinsicConstEvaluation @PublishedApi internal constructor(@PublishedApi internal val data: Byte) : Comparable<UByte> {\n\n   companion object {\n   /**\n   * A constant holding the minimum value an instance of UByte can have.\n   */\n   public const val MIN_VALUE: UByte = UByte(0)\n\n   /**\n   * A constant holding the maximum value an instance of UByte can have.\n   */\n   public const val MAX_VALUE: UByte = UByte(-1)\n\n   /**\n   * The number of bytes used to represent an instance of UByte in a binary form.\n   */\n   public const val SIZE_BYTES: Int = 1\n\n   /**\n   * The number of bits used to represent an instance of UByte in a binary form.\n   */\n   public const val SIZE_BITS: Int = 8\n   }\n\n   /**\n   * Compares this value with the specified value for order.\n   * Returns zero if this value is equal to the specified other value, a negative number if it's less than other,\n   * or a positive number if it's greater than other.\n   */\n   @kotlin.internal.InlineOnly\n   @Suppress(\"OVERRIDE_BY_INLINE\")\n   public override inline operator fun compareTo(other: UByte): Int = this.toInt().compareTo(other.toInt())\n\n   /**\n   * Compares this value with the specified value for order.\n   * Returns zero if this value is equal to the specified other value, a negative number if it's less than other,\n   * or a positive number if it's greater than other.\n   */\n   @kotlin.internal.InlineOnly\n   public inline operator fun compareTo(other: UShort): Int = this.toInt().compareTo(other.toInt())\n\n   /**\n   * Compares this value with the specified value for order.\n   * Returns zero if this value is equal to the specified other value, a negative number if it's less than other,\n   * or a positive number if it's greater than other.\n   */\n   @kotlin.internal.InlineOnly\n   public inline operator fun compareTo(other: UInt): Int = this.toUInt().compareTo(other)\n\n   /**\n   * Compares this value with the specified value for order.\n   * Returns zero if this value is equal to the specified other value, a negative number if it's less than other,\n   * or a positive number if it's greater than other.\n   */\n   @kotlin.internal.InlineOnly\n   public inline operator fun compareTo(other: ULong): Int = this.toULong().compareTo(other)\n\n   /** Adds the other value to this value. */\n   @kotlin.internal.InlineOnly\n   public inline operator fun plus(other: UByte): UInt = this.toUInt().plus(other.toUInt())\n   /** Adds the other value to this value. */\n   @kotlin.internal.InlineOnly\n   public inline operator fun plus(other: UShort): UInt = this.toUInt().plus(other.toUInt())\n   /** Adds the other value to this value. */\n   @kotlin.internal.InlineOnly\n   public inline operator fun plus(other: UInt): UInt = this.toUInt().plus(other)\n   /** Adds the other value to this value. */\n   @kotlin.internal.InlineOnly\n   public inline operator fun plus(other: ULong): ULong = this.toULong().plus(other)\n\n   /** Subtracts the other value from this value. */\n   @kotlin.internal.InlineOnly\n   public inline operator fun minus(other: UByte): UInt = this.toUInt().minus(other.toUInt())\n   /** Subtracts the other value from this value. */\n   @kotlin.internal.InlineOnly\n   public inline operator fun minus(other: UShort): UInt = this.toUInt().minus(other.toUInt())\n   /** Subtracts the other value from this value. */\n   @kotlin.internal.InlineOnly\n   public inline operator fun minus(other: UInt): UInt = this.toUInt().minus(other)\n   /** Subtracts the other value from this value. */\n   @kotlin.internal.InlineOnly\n   public inline operator fun minus(other: ULong): ULong = this.toULong().minus(other)\n\n   /** Multiplies this value by the other value. */\n   @kotlin.internal.InlineOnly\n   public inline operator fun times(other: UByte): UInt = this.toUInt().times(other.toUInt())\n   /** Multiplies this value by the other value. */\n   @kotlin.internal.InlineOnly\n   public inline operator fun times(other: UShort): UInt = this.toUInt().times(other.toUInt())\n   /** Multiplies this value by the other value. */\n   @kotlin.internal.InlineOnly\n   public inline operator fun times(other: UInt): UInt = this.toUInt().times(other)\n   /** Multiplies this value by the other value. */\n   @kotlin.internal.InlineOnly\n   public inline operator fun times(other: ULong): ULong = this.toULong().times(other)\n\n   /** Divides this value by the other value, truncating the result to an integer that is closer to zero. */\n   @kotlin.internal.InlineOnly\n   public inline operator fun div(other: UByte): UInt = this.toUInt().div(other.toUInt())\n   /** Divides this value by the other value, truncating the result to an integer that is closer to zero. */\n   @kotlin.internal.InlineOnly\n   public inline operator fun div(other: UShort): UInt = this.toUInt().div(other.toUInt())\n   /** Divides this value by the other value, truncating the result to an integer that is closer to zero. */\n   @kotlin.internal.InlineOnly\n   public inline operator fun div(other: UInt): UInt = this.toUInt().div(other)\n   /** Divides this value by the other value, truncating the result to an integer that is closer to zero. */\n @kotlin.internal.InlineOnly\n public inline operator fun div(other: ULong): ULong = this.toULong().div(other)\n\n /**\n * Calculates the remainder of truncating division of this value by the other value.\n * \n * The result is always less than the divisor.\n */\n @kotlin.internal.InlineOnly\n public inline operator fun rem(other: UByte): UInt = this.toUInt().rem(other.toUInt())\n /**\n * Calculates the remainder of truncating division of this value by the other value.\n * \n * The result is always less than the divisor.\n */\n @kotlin.internal.InlineOnly\n public inline operator fun rem(other: UShort): UInt = this.toUInt().rem(other.toUInt())\n /**\n * Calculates the remainder of truncating division of this value by the other value.\n * \n * The result is always less than the divisor.\n */\n @kotlin.internal.InlineOnly\n public inline operator fun rem(other: UInt): UInt = this.toUInt().rem(other)\n /**\n * Calculates the remainder of truncating division of this value by the other value.\n * \n * The result is always less than the divisor.\n */\n @kotlin.internal.InlineOnly\n public inline operator fun rem(other: ULong): ULong = this.toULong().rem(other)\n\n /**\n * Divides this value by the other value, flooring the result to an integer that is closer to negative infinity.\n * \n * For unsigned types, the results of flooring division and truncating division are the same.\n */\n @kotlin.internal.InlineOnly\n public inline fun floorDiv(other: UByte): UInt = this.toUInt().floorDiv(other.toUInt())\n /**\n * Divides this value by the other value, flooring the result to an integer that is closer to negative infinity.\n * \n * For unsigned types, the results of flooring division and truncating division are the same.\n */\n @kotlin.internal.InlineOnly\n public inline fun floorDiv(other: UShort): UInt = this.toUInt().floorDiv(other.toUInt())\n /**\n * Divides this value by the other value, flooring the result to an integer that is closer to negative infinity.\n * \n * For unsigned types, the results of flooring division and truncating division are the same.\n */\n @kotlin.internal.InlineOnly\n public inline fun floorDiv(other: UInt): UInt = this.toUInt().floorDiv(other)\n /**\n * Divides this value by the other value, flooring the result to an integer that is closer to negative infinity.\n * \n * For unsigned types, the results of flooring division and truncating division are the same.\n */\n @kotlin.internal.InlineOnly\n public inline fun floorDiv(other: ULong): ULong = this.toULong().floorDiv(other)\n\n /**\n * Calculates the remainder of flooring division of this value by the other value.\n * \n * The result is always less than the divisor.\n * \n * For unsigned types, the remainders of flooring division and truncating division are the same.\n */\n @kotlin.internal.InlineOnly\n public inline fun mod(other: UByte): UByte = this.toUInt().mod(other.toUInt()).toUByte()\n /**\n * Calculates the remainder of flooring division of this value by the other value.\n * \n * The result is always less than the divisor.\n * \n * For unsigned types, the remainders of flooring division and truncating division are the same.\n */\n @kotlin.internal.InlineOnly\n public inline fun mod(other: UShort): UShort = this.toUInt().mod(other.toUInt()).toUShort()\n /**\n * Calculates the remainder of flooring division of this value by the other value.\n * \n * The result is always less than the divisor.\n * \n * For unsigned types, the remainders of flooring division and truncating division are the same.\n */\n @kotlin.internal.InlineOnly\n public inline fun mod(other: UInt): UInt = this.toUInt().mod(other)\n /**\n * Calculates the remainder of flooring division of this value by the other value.\n * \n * The result is always less than the divisor.\n * \n * For unsigned types, the remainders of flooring division and truncating division are the same.\n */\n @kotlin.internal.InlineOnly\n public inline fun mod(other: ULong): ULong = this.toULong().mod(other)\n\n /**\n * Returns this value incremented by one.\n *\n * @sample samples.misc.Builtins.inc\n */\n @kotlin.internal.InlineOnly\n public inline operator fun inc(): UByte = UByte(data.inc())\n\n /**\n * Returns this value decremented by one.\n *\n * @sample samples.misc.Builtins.dec\n */\n @kotlin.internal.InlineOnly\n public inline operator fun dec(): UByte = UByte(data.dec())\n\n /** Creates a range from this value to the specified [other] value. */\n @kotlin.internal.InlineOnly\n public inline operator fun rangeTo(other: UByte): UIntRange = UIntRange(this.toUInt(), other.toUInt())\n\n /** Performs a bitwise AND operation between the two values. */\n @kotlin.internal.InlineOnly\n public inline infix fun and(other: UByte): UByte = UByte(this.data and other.data)\n /** Performs a bitwise OR operation between the two values. */\n @kotlin.internal.InlineOnly\n public inline infix fun or(other: UByte): UByte = UByte(this.data or other.data)\n /** Performs a bitwise XOR operation between the two values. */\n @kotlin.internal.InlineOnly\n public inline infix fun xor(other: UByte): UByte =

UByte(this.data xor other.data)\n   /** Inverts the bits in this value. */\n   @kotlin.internal.InlineOnly\n   public inline fun inv(): UByte = UByte(data.inv())\n\n   /**\n   * Converts this [UByte] value to [Byte].\n   *\n   * If this value is less than or equals to [Byte.MAX_VALUE], the resulting `Byte` value represents\n   * the same numerical value as this `UByte`. Otherwise the result is negative.\n   *\n   * The resulting `Byte` value has the same binary representation as this `UByte` value.\n   */\n   @kotlin.internal.InlineOnly\n   public inline fun toByte(): Byte = data\n   /**\n   * Converts this [UByte] value to [Short].\n   *\n   * The resulting `Short` value represents the same numerical value as this `UByte`.\n   *\n   * The least significant 8 bits of the resulting `Short` value are the same as the bits of this `UByte` value,\n   * whereas the most significant 8 bits are filled with zeros.\n   */\n   @kotlin.internal.InlineOnly\n   public inline fun toShort(): Short = data.toShort() and 0xFF\n   /**\n   * Converts this [UByte] value to [Int].\n   *\n   * The resulting `Int` value represents the same numerical value as this `UByte`.\n   *\n   * The least significant 8 bits of the resulting `Int` value are the same as the bits of this `UByte` value,\n   * whereas the most significant 24 bits are filled with zeros.\n   */\n   @kotlin.internal.InlineOnly\n   public inline fun toInt(): Int = data.toInt() and 0xFF\n   /**\n   * Converts this [UByte] value to [Long].\n   *\n   * The resulting `Long` value represents the same numerical value as this `UByte`.\n   *\n   * The least significant 8 bits of the resulting `Long` value are the same as the bits of this `UByte` value,\n   * whereas the most significant 56 bits are filled with zeros.\n   */\n   @kotlin.internal.InlineOnly\n   public inline fun toLong(): Long = data.toLong() and 0xFF\n\n   /** Returns this value. */\n   @kotlin.internal.InlineOnly\n   public inline fun toUByte(): UByte = this\n   /**\n   * Converts this [UByte] value to [UShort].\n   *\n   * The resulting `UShort` value represents the same numerical value as this `UByte`.\n   *\n   * The least significant 8 bits of the resulting `UShort` value are the same as the bits of this `UByte` value,\n   * whereas the most significant 8 bits are filled with zeros.\n   */\n   @kotlin.internal.InlineOnly\n   public inline fun toUShort(): UShort = UShort(data.toShort() and 0xFF)\n   /**\n   * Converts this [UByte] value to [UInt].\n   *\n   * The resulting `UInt` value represents the same numerical value as this `UByte`.\n   *\n   * The least significant 8 bits of the resulting `UInt` value are the same as the bits of this `UByte` value,\n   * whereas the most significant 24 bits are filled with zeros.\n   */\n   @kotlin.internal.InlineOnly\n   public inline fun toUInt(): UInt = UInt(data.toInt() and 0xFF)\n   /**\n   * Converts this [UByte] value to [ULong].\n   *\n   * The resulting `ULong` value represents the same numerical value as this `UByte`.\n   *\n   * The least significant 8 bits of the resulting `ULong` value are the same as the bits of this `UByte` value,\n   * whereas the most significant 56 bits are filled with zeros.\n   */\n   @kotlin.internal.InlineOnly\n   public inline fun toULong(): ULong = ULong(data.toLong() and 0xFF)\n\n   /**\n   * Converts this [UByte] value to [Float].\n   *\n   * The resulting `Float` value represents the same numerical value as this `UByte`.\n   */\n   @kotlin.internal.InlineOnly\n   public inline fun toFloat(): Float = this.toInt().toFloat()\n   /**\n   * Converts this [UByte] value to [Double].\n   *\n   * The resulting `Double` value represents the same numerical value as this `UByte`.\n   */\n   @kotlin.internal.InlineOnly\n   public inline fun toDouble(): Double = this.toInt().toDouble()\n\n   public override fun toString(): String = toInt().toString()\n\n}\n\n/**\n * Converts this [Byte] value to [UByte].\n *\n * If this value is positive, the resulting `UByte` value represents the same numerical value as this `Byte`.\n *\n * The resulting `UByte` value has the same binary representation as this `Byte` value.\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\n@kotlin.internal.InlineOnly\npublic inline fun Byte.toUByte(): UByte = UByte(this)\n/**\n * Converts this [Short] value to [UByte].\n *\n * If this value is positive and less than or equals to [UByte.MAX_VALUE], the resulting `UByte` value represents\n * the same numerical value as this `Short`.\n *\n * The resulting `UByte` value is represented by the least significant 8 bits of this `Short` value.\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\n@kotlin.internal.InlineOnly\npublic inline fun Short.toUByte(): UByte = UByte(this.toByte())\n/**\n * Converts this [Int] value to [UByte].\n *\n * If this value is positive and less than or equals to [UByte.MAX_VALUE], the resulting `UByte` value represents\n * the same numerical value as this `Int`.\n *\n * The resulting `UByte` value is represented by the least significant 8 bits of this `Int` value.\n

*/\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\n@kotlin.internal.InlineOnly\npublic inline fun Int.toUByte(): UByte = UByte(this.toByte())\n/**\n * Converts this [Long] value to [UByte].\n *\n * If this value is positive and less than or equals to [UByte.MAX_VALUE], the resulting `UByte` value represents\n * the same numerical value as this `Long`.\n *\n * The resulting `UByte` value is represented by the least significant 8 bits of this `Long` value.\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\n@kotlin.internal.InlineOnly\npublic inline fun Long.toUByte(): UByte = UByte(this.toByte())\n","/*\n * Copyright 2010-2022 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\n// Auto-generated file. DO NOT EDIT!\n\npackage kotlin\n\nimport kotlin.experimental.*\nimport kotlin.jvm.*\n\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\n@JvmInline\npublic value class UInt @kotlin.internal.IntrinsicConstEvaluation @PublishedApi internal constructor(@PublishedApi internal val data: Int) : Comparable<UInt> {\n\n   companion object {\n   /**\n   * A constant holding the minimum value an instance of UInt can have.\n   */\n   public const val MIN_VALUE: UInt = UInt(0)\n\n   /**\n   * A constant holding the maximum value an instance of UInt can have.\n   */\n   public const val MAX_VALUE: UInt = UInt(-1)\n\n   /**\n   * The number of bytes used to represent an instance of UInt in a binary form.\n   */\n   public const val SIZE_BYTES: Int = 4\n\n   /**\n   * The number of bits used to represent an instance of UInt in a binary form.\n   */\n   public const val SIZE_BITS: Int = 32\n   }\n\n   /**\n   * Compares this value with the specified value for order.\n   * Returns zero if this value is equal to the specified other value, a negative number if it's less than other,\n   * or a positive number if it's greater than other.\n   */\n   @kotlin.internal.InlineOnly\n   public inline operator fun compareTo(other: UByte): Int = this.compareTo(other.toUInt())\n\n   /**\n   * Compares this value with the specified value for order.\n   * Returns zero if this value is equal to the specified other value, a negative number if it's less than other,\n   * or a positive number if it's greater than other.\n   */\n   @kotlin.internal.InlineOnly\n   public inline operator fun compareTo(other: UShort): Int = this.compareTo(other.toUInt())\n\n   /**\n   * Compares this value with the specified value for order.\n   * Returns zero if this value is equal to the specified other value, a negative number if it's less than other,\n   * or a positive number if it's greater than other.\n   */\n   @kotlin.internal.InlineOnly\n   @Suppress(\"OVERRIDE_BY_INLINE\")\n   public override inline operator fun compareTo(other: UInt): Int = uintCompare(this.data, other.data)\n\n   /**\n   * Compares this value with the specified value for order.\n   * Returns zero if this value is equal to the specified other value, a negative number if it's less than other,\n   * or a positive number if it's greater than other.\n   */\n   @kotlin.internal.InlineOnly\n   public inline operator fun compareTo(other: ULong): Int = this.toULong().compareTo(other)\n\n   /** Adds the other value to this value. */\n   @kotlin.internal.InlineOnly\n   public inline operator fun plus(other: UByte): UInt = this.plus(other.toUInt())\n   /** Adds the other value to this value. */\n   @kotlin.internal.InlineOnly\n   public inline operator fun plus(other: UShort): UInt = this.plus(other.toUInt())\n   /** Adds the other value to this value. */\n   @kotlin.internal.InlineOnly\n   public inline operator fun plus(other: UInt): UInt = UInt(this.data.plus(other.data))\n   /** Adds the other value to this value. */\n   @kotlin.internal.InlineOnly\n   public inline operator fun plus(other: ULong): ULong = this.toULong().plus(other)\n\n   /** Subtracts the other value from this value. */\n   @kotlin.internal.InlineOnly\n   public inline operator fun minus(other: UByte): UInt = this.minus(other.toUInt())\n   /** Subtracts the other value from this value. */\n   @kotlin.internal.InlineOnly\n   public inline operator fun minus(other: UShort): UInt = this.minus(other.toUInt())\n   /** Subtracts the other value from this value. */\n   @kotlin.internal.InlineOnly\n   public inline operator fun minus(other: UInt): UInt = UInt(this.data.minus(other.data))\n   /** Subtracts the other value from this value. */\n   @kotlin.internal.InlineOnly\n   public inline operator fun minus(other: ULong): ULong = this.toULong().minus(other)\n\n   /** Multiplies this value by the other value. */\n   @kotlin.internal.InlineOnly\n   public inline operator fun times(other: UByte): UInt = this.times(other.toUInt())\n   /** Multiplies this value by the other value. */\n   @kotlin.internal.InlineOnly\n   public inline operator fun times(other: UShort): UInt = this.times(other.toUInt())\n   /** Multiplies this value by the other value. */\n   @kotlin.internal.InlineOnly\n

public inline operator fun times(other: UInt): UInt = UInt(this.data.times(other.data))\n   /** Multiplies this value by the other value. */\n   @kotlin.internal.InlineOnly\n   public inline operator fun times(other: ULong): ULong = this.toULong().times(other)\n\n   /** Divides this value by the other value, truncating the result to an integer that is closer to zero. */\n   @kotlin.internal.InlineOnly\n   public inline operator fun div(other: UByte): UInt = this.div(other.toUInt())\n   /** Divides this value by the other value, truncating the result to an integer that is closer to zero. */\n   @kotlin.internal.InlineOnly\n   public inline operator fun div(other: UShort): UInt = this.div(other.toUInt())\n   /** Divides this value by the other value, truncating the result to an integer that is closer to zero. */\n   @kotlin.internal.InlineOnly\n   public inline operator fun div(other: UInt): UInt = uintDivide(this, other)\n   /** Divides this value by the other value, truncating the result to an integer that is closer to zero. */\n   @kotlin.internal.InlineOnly\n   public inline operator fun div(other: ULong): ULong = this.toULong().div(other)\n\n   /**\n   * Calculates the remainder of truncating division of this value by the other value.\n   * \n   * The result is always less than the divisor.\n   */\n   @kotlin.internal.InlineOnly\n   public inline operator fun rem(other: UByte): UInt = this.rem(other.toUInt())\n   /**\n   * Calculates the remainder of truncating division of this value by the other value.\n   * \n   * The result is always less than the divisor.\n   */\n   @kotlin.internal.InlineOnly\n   public inline operator fun rem(other: UShort): UInt = this.rem(other.toUInt())\n   /**\n   * Calculates the remainder of truncating division of this value by the other value.\n   * \n   * The result is always less than the divisor.\n   */\n   @kotlin.internal.InlineOnly\n   public inline operator fun rem(other: UInt): UInt = uintRemainder(this, other)\n   /**\n   * Calculates the remainder of truncating division of this value by the other value.\n   * \n   * The result is always less than the divisor.\n   */\n   @kotlin.internal.InlineOnly\n   public inline operator fun rem(other: ULong): ULong = this.toULong().rem(other)\n\n   /**\n   * Divides this value by the other value, flooring the result to an integer that is closer to negative infinity.\n   * \n   * For unsigned types, the results of flooring division and truncating division are the same.\n   */\n   @kotlin.internal.InlineOnly\n   public inline fun floorDiv(other: UByte): UInt = this.floorDiv(other.toUInt())\n   /**\n   * Divides this value by the other value, flooring the result to an integer that is closer to negative infinity.\n   * \n   * For unsigned types, the results of flooring division and truncating division are the same.\n   */\n   @kotlin.internal.InlineOnly\n   public inline fun floorDiv(other: UShort): UInt = this.floorDiv(other.toUInt())\n   /**\n   * Divides this value by the other value, flooring the result to an integer that is closer to negative infinity.\n   * \n   * For unsigned types, the results of flooring division and truncating division are the same.\n   */\n   @kotlin.internal.InlineOnly\n   public inline fun floorDiv(other: UInt): UInt = div(other)\n   /**\n   * Divides this value by the other value, flooring the result to an integer that is closer to negative infinity.\n   * \n   * For unsigned types, the results of flooring division and truncating division are the same.\n   */\n   @kotlin.internal.InlineOnly\n   public inline fun floorDiv(other: ULong): ULong = this.toULong().floorDiv(other)\n\n   /**\n   * Calculates the remainder of flooring division of this value by the other value.\n   * \n   * The result is always less than the divisor.\n   * \n   * For unsigned types, the remainders of flooring division and truncating division are the same.\n   */\n   @kotlin.internal.InlineOnly\n   public inline fun mod(other: UByte): UByte = this.mod(other.toUInt()).toUByte()\n   /**\n   * Calculates the remainder of flooring division of this value by the other value.\n   * \n   * The result is always less than the divisor.\n   * \n   * For unsigned types, the remainders of flooring division and truncating division are the same.\n   */\n   @kotlin.internal.InlineOnly\n   public inline fun mod(other: UShort): UShort = this.mod(other.toUInt()).toUShort()\n   /**\n   * Calculates the remainder of flooring division of this value by the other value.\n   * \n   * The result is always less than the divisor.\n   * \n   * For unsigned types, the remainders of flooring division and truncating division are the same.\n   */\n   @kotlin.internal.InlineOnly\n   public inline fun mod(other: UInt): UInt = rem(other)\n   /**\n   * Calculates the remainder of flooring division of this value by the other value.\n   * \n   * The result is always less than the divisor.\n   * \n   * For unsigned types, the remainders of flooring division and truncating division are the same.\n   */\n   @kotlin.internal.InlineOnly\n   public inline fun mod(other: ULong): ULong = this.toULong().mod(other)\n\n   /**\n   * Returns this value incremented by one.\n   *\n   * @sample samples.misc.Builtins.inc\n   */\n   @kotlin.internal.InlineOnly\n   public inline operator fun inc(): UInt = UInt(data.inc())\n\n   /**\n   * Returns this value decremented by one.\n   *\n   * @sample samples.misc.Builtins.dec\n   */\n   @kotlin.internal.InlineOnly\n   public inline operator fun dec(): UInt = UInt(data.dec())\n\n   /** Creates a range from this value to the specified [other] value. */\n   @kotlin.internal.InlineOnly\n   public inline operator fun rangeTo(other: UInt): UIntRange = UIntRange(this, other)\n\n   /**\n   * Shifts this value left by the [bitCount] number of bits.\n   *\n   * Note that only the five lowest-order bits of the [bitCount] are used as the shift distance.\n   * The shift distance actually used is therefore always in the range `0..31`.\n   */\n   @kotlin.internal.InlineOnly\n   public inline infix fun shl(bitCount: Int): UInt = UInt(data shl bitCount)\n\n   /**\n   * Shifts this value right by the [bitCount] number of bits, filling the leftmost bits with zeros.\n   *\n   * Note that only the five lowest-order bits of the [bitCount] are used as the shift distance.\n   * The shift distance actually used is therefore always in the range `0..31`.\n   */\n   @kotlin.internal.InlineOnly\n   public inline infix fun shr(bitCount: Int): UInt = UInt(data ushr bitCount)\n\n   /** Performs a bitwise AND operation between the two values. */\n   @kotlin.internal.InlineOnly\n   public inline infix fun and(other: UInt): UInt = UInt(this.data and other.data)\n   /** Performs a bitwise OR operation between the two values. */\n   @kotlin.internal.InlineOnly\n   public inline infix fun or(other: UInt): UInt = UInt(this.data or other.data)\n   /** Performs a bitwise XOR operation between the two values. */\n   @kotlin.internal.InlineOnly\n   public inline infix fun xor(other: UInt): UInt = UInt(this.data xor other.data)\n   /** Inverts the bits in this value. */\n   @kotlin.internal.InlineOnly\n   public inline fun inv(): UInt = UInt(data.inv())\n\n   /**\n   * Converts this [UInt] value to [Byte].\n   *\n   * If this value is less than or equals to [Byte.MAX_VALUE], the resulting `Byte` value represents\n   * the same numerical value as this `UInt`.\n   *\n   * The resulting `Byte` value is represented by the least significant 8 bits of this `UInt` value.\n   * Note that the resulting `Byte` value may be negative.\n   */\n   @kotlin.internal.InlineOnly\n   public inline fun toByte(): Byte = data.toByte()\n   /**\n   * Converts this [UInt] value to [Short].\n   *\n   * If this value is less than or equals to [Short.MAX_VALUE], the resulting `Short` value represents\n   * the same numerical value as this `UInt`.\n   *\n   * The resulting `Short` value is represented by the least significant 16 bits of this `UInt` value.\n   * Note that the resulting `Short` value may be negative.\n   */\n   @kotlin.internal.InlineOnly\n   public inline fun toShort(): Short = data.toShort()\n   /**\n   * Converts this [UInt] value to [Int].\n   *\n   * If this value is less than or equals to [Int.MAX_VALUE], the resulting `Int` value represents\n   * the same numerical value as this `UInt`. Otherwise the result is negative.\n   *\n   * The resulting `Int` value has the same binary representation as this `UInt` value.\n   */\n   @kotlin.internal.InlineOnly\n   public inline fun toInt(): Int = data\n   /**\n   * Converts this [UInt] value to [Long].\n   *\n   * The resulting `Long` value represents the same numerical value as this `UInt`.\n   *\n   * The least significant 32 bits of the resulting `Long` value are the same as the bits of this `UInt` value,\n   * whereas the most significant 32 bits are filled with zeros.\n   */\n   @kotlin.internal.InlineOnly\n   public inline fun toLong(): Long = data.toLong() and 0xFFFF_FFFF\n\n   /**\n   * Converts this [UInt] value to [UByte].\n   *\n   * If this value is less than or equals to [UByte.MAX_VALUE], the resulting `UByte` value represents\n   * the same numerical value as this `UInt`.\n   *\n   * The resulting `UByte` value is represented by the least significant 8 bits of this `UInt` value.\n   */\n   @kotlin.internal.InlineOnly\n   public inline fun toUByte(): UByte = data.toUByte()\n   /**\n   * Converts this [UInt] value to [UShort].\n   *\n   * If this value is less than or equals to [UShort.MAX_VALUE], the resulting `UShort` value represents\n   * the same numerical value as this `UInt`.\n   *\n   * The resulting `UShort` value is represented by the least significant 16 bits of this `UInt` value.\n   */\n   @kotlin.internal.InlineOnly\n   public inline fun toUShort(): UShort = data.toUShort()\n   /** Returns this value. */\n   @kotlin.internal.InlineOnly\n   public inline fun toUInt(): UInt = this\n   /**\n   * Converts this [UInt] value to [ULong].\n   *\n   * The resulting `ULong` value represents the same numerical value as this `UInt`.\n   *\n   * The least significant 32 bits of the resulting `ULong` value are the same as the bits of this `UInt` value,\n   * whereas the most significant 32 bits are filled with zeros.\n   */\n   @kotlin.internal.InlineOnly\n   public inline fun toULong(): ULong = ULong(data.toLong() and 0xFFFF_FFFF)\n\n   /**\n   * Converts this [UInt] value to [Float].\n   *\n   * The resulting value is the closest `Float` to this `UInt` value.\n   * In case when this `UInt` value is exactly between two `Float`s,\n   * the one with zero at least significant bit of mantissa is selected.\n   */\n   @kotlin.internal.InlineOnly\n   public inline fun toFloat(): Float = this.toDouble().toFloat()\n   /**\n   * Converts this [UInt] value to [Double].\n   *\n   * The resulting `Double` value represents the same numerical value as this `UInt`.\n   */\n   @kotlin.internal.InlineOnly\n   public inline fun toDouble(): Double = uintToDouble(data)\n\n public override fun toString(): String = toLong().toString()\n\n}\n\n/**\n * Converts this [Byte] value to [UInt].\n *\n * If this value is positive, the resulting `UInt` value represents the same numerical value as this `Byte`.\n *\n * The least significant 8 bits of the resulting `UInt` value are the same as the bits of this `Byte` value,\n * whereas the most significant 24 bits are filled with the sign bit of this value.\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\n@kotlin.internal.InlineOnly\npublic inline fun Byte.toUInt(): UInt = UInt(this.toInt())\n/**\n * Converts this [Short] value to [UInt].\n *\n * If this value is positive, the resulting `UInt` value represents the same numerical value as this `Short`.\n *\n * The least significant 16 bits of the resulting `UInt` value are the same as the bits of this `Short` value,\n * whereas the most significant 16 bits are filled with the sign bit of this value.\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\n@kotlin.internal.InlineOnly\npublic inline fun Short.toUInt(): UInt = UInt(this.toInt())\n/**\n * Converts this [Int] value to [UInt].\n *\n * If this value is positive, the resulting `UInt` value represents the same numerical value as this `Int`.\n *\n * The resulting `UInt` value has the same binary representation as this `Int` value.\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\n@kotlin.internal.InlineOnly\npublic inline fun Int.toUInt(): UInt = UInt(this)\n/**\n * Converts this [Long] value to [UInt].\n *\n * If this value is positive and less than or equals to [UInt.MAX_VALUE], the resulting `UInt` value represents\n * the same numerical value as this `Long`.\n *\n * The resulting `UInt` value is represented by the least significant 32 bits of this `Long` value.\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\n@kotlin.internal.InlineOnly\npublic inline fun Long.toUInt(): UInt = UInt(this.toInt())\n\n/**\n * Converts this [Float] value to [UInt].\n *\n * The fractional part, if any, is rounded down towards zero.\n * Returns zero if this `Float` value is negative or `NaN`, [UInt.MAX_VALUE] if it's bigger than `UInt.MAX_VALUE`.\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\n@kotlin.internal.InlineOnly\npublic inline fun Float.toUInt(): UInt = doubleToUInt(this.toDouble())\n/**\n * Converts this [Double] value to [UInt].\n *\n * The fractional part, if any, is rounded down towards zero.\n * Returns zero if this `Double` value is negative or `NaN`, [UInt.MAX_VALUE] if it's bigger than `UInt.MAX_VALUE`.\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\n@kotlin.internal.InlineOnly\npublic inline fun Double.toUInt(): UInt = doubleToUInt(this)\n","/*\n * Copyright 2010-2022 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\n// Auto-generated file. DO NOT EDIT!\n\npackage kotlin\n\nimport kotlin.experimental.*\nimport kotlin.jvm.*\n\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\n@JvmInline\npublic value class UShort @kotlin.internal.IntrinsicConstEvaluation @PublishedApi internal constructor(@PublishedApi internal val data: Short) : Comparable<UShort> {\n\n   companion object {\n   /**\n   * A constant holding the minimum value an instance of UShort can have.\n   */\n   public const val MIN_VALUE: UShort = UShort(0)\n\n   /**\n   * A constant holding the maximum value an instance of UShort can have.\n   */\n   public const val MAX_VALUE: UShort = UShort(-1)\n\n   /**\n   * The number of bytes used to represent an instance of UShort in a binary form.\n   */\n   public const val SIZE_BYTES: Int = 2\n\n   /**\n   * The number of bits used to represent an instance of UShort in a binary form.\n   */\n   public const val SIZE_BITS: Int = 16\n   }\n\n   /**\n   * Compares this value with the specified value for order.\n   * Returns zero if this value is equal to the specified other value, a negative number if it's less than other,\n   * or a positive number if it's greater than other.\n   */\n   @kotlin.internal.InlineOnly\n   public inline operator fun compareTo(other: UByte): Int = this.toInt().compareTo(other.toInt())\n\n   /**\n   * Compares this value with the specified value for order.\n   * Returns zero if this value is equal to the specified other value, a negative number if it's less than other,\n   * or a positive number if it's greater than other.\n   */\n   @kotlin.internal.InlineOnly\n   @Suppress(\"OVERRIDE_BY_INLINE\")\n   public override inline operator fun compareTo(other: UShort): Int = this.toInt().compareTo(other.toInt())\n\n   /**\n   * Compares this value with the specified value for order.\n   * Returns zero if this value is equal to the specified other value, a negative number if it's less than other,\n   * or a positive number if it's greater than other.\n   */\n   @kotlin.internal.InlineOnly\n   public inline operator fun compareTo(other: UInt): Int = this.toUInt().compareTo(other)\n\n   /**\n   * Compares this value with the specified value for order.\n   * Returns zero if this value is equal to the specified other value, a negative number if it's less than other,\n   * or a positive number if it's greater than other.\n   */\n   @kotlin.internal.InlineOnly\n   public inline operator fun compareTo(other: ULong): Int = this.toULong().compareTo(other)\n\n   /** Adds the other value to this value. */\n   @kotlin.internal.InlineOnly\n   public inline operator fun plus(other: UByte): UInt = this.toUInt().plus(other.toUInt())\n   /** Adds the other value to this value. */\n   @kotlin.internal.InlineOnly\n   public inline operator fun plus(other: UShort): UInt = this.toUInt().plus(other.toUInt())\n   /** Adds the other value to this value. */\n   @kotlin.internal.InlineOnly\n   public inline operator fun plus(other: UInt): UInt = this.toUInt().plus(other)\n   /** Adds the other value to this value. */\n   @kotlin.internal.InlineOnly\n   public inline operator fun plus(other: ULong): ULong = this.toULong().plus(other)\n\n   /** Subtracts the other value from this value. */\n   @kotlin.internal.InlineOnly\n   public inline operator fun minus(other: UByte): UInt = this.toUInt().minus(other.toUInt())\n   /** Subtracts the other value from this value. */\n   @kotlin.internal.InlineOnly\n   public inline operator fun minus(other: UShort): UInt = this.toUInt().minus(other.toUInt())\n   /** Subtracts the other value from this value. */\n   @kotlin.internal.InlineOnly\n   public inline operator fun minus(other: UInt): UInt = this.toUInt().minus(other)\n   /** Subtracts the other value from this value. */\n   @kotlin.internal.InlineOnly\n   public inline operator fun minus(other: ULong): ULong = this.toULong().minus(other)\n\n   /** Multiplies this value by the other value. */\n   @kotlin.internal.InlineOnly\n   public inline operator fun times(other: UByte): UInt = this.toUInt().times(other.toUInt())\n   /** Multiplies this value by the other value. */\n   @kotlin.internal.InlineOnly\n   public inline operator fun times(other: UShort): UInt = this.toUInt().times(other.toUInt())\n   /** Multiplies this value by the other value. */\n   @kotlin.internal.InlineOnly\n   public inline operator fun times(other: UInt): UInt = this.toUInt().times(other)\n   /** Multiplies this value by the other value. */\n   @kotlin.internal.InlineOnly\n   public inline operator fun times(other: ULong): ULong = this.toULong().times(other)\n\n   /** Divides this value by the other value, truncating the result to an integer that is closer to zero. */\n   @kotlin.internal.InlineOnly\n   public inline operator fun div(other: UByte): UInt = this.toUInt().div(other.toUInt())\n   /** Divides this value by the other value, truncating the result to an integer that is closer to zero. */\n   @kotlin.internal.InlineOnly\n   public inline operator fun div(other: UShort): UInt = this.toUInt().div(other.toUInt())\n   /** Divides this value by the other value, truncating the result to an integer that is closer to zero. */\n   @kotlin.internal.InlineOnly\n   public inline operator fun div(other: UInt): UInt = this.toUInt().div(other)\n   /** Divides this value by the other value, truncating the result to an integer that is closer to zero. */\n   @kotlin.internal.InlineOnly\n   public inline operator fun div(other: ULong): ULong = this.toULong().div(other)\n\n   /**\n   * Calculates the remainder of truncating division of this value by the other value.\n   * \n   * The result is always less than the divisor.\n   */\n   @kotlin.internal.InlineOnly\n   public inline operator fun rem(other: UByte): UInt = this.toUInt().rem(other.toUInt())\n   /**\n   * Calculates the remainder of truncating division of this value by the other value.\n   * \n   * The result is always less than the divisor.\n   */\n   @kotlin.internal.InlineOnly\n   public inline operator fun rem(other: UShort): UInt = this.toUInt().rem(other.toUInt())\n   /**\n   * Calculates the remainder of truncating division of this value by the other value.\n   * \n   * The result is always less than the divisor.\n   */\n   @kotlin.internal.InlineOnly\n   public inline operator fun rem(other: UInt): UInt = this.toUInt().rem(other)\n   /**\n   * Calculates the remainder of truncating division of this value by the other value.\n   * \n   * The result is always less than the divisor.\n   */\n   @kotlin.internal.InlineOnly\n   public inline operator fun rem(other: ULong): ULong = this.toULong().rem(other)\n\n   /**\n   * Divides this value by the other value, flooring the result to an integer that is closer to negative infinity.\n   * \n   * For unsigned types, the results of flooring division and truncating division are the same.\n   */\n   @kotlin.internal.InlineOnly\n   public inline fun floorDiv(other: UByte): UInt = this.toUInt().floorDiv(other.toUInt())\n   /**\n   * Divides this value by the other value, flooring the result to an integer that is closer to negative infinity.\n   * \n   * For unsigned types, the results of flooring division and truncating division are the same.\n   */\n   @kotlin.internal.InlineOnly\n public inline fun floorDiv(other: UShort): UInt = this.toUInt().floorDiv(other.toUInt())\n   /**\n   * Divides this value by the other value, flooring the result to an integer that is closer to negative infinity.\n   * \n   * For unsigned types, the results of flooring division and truncating division are the same.\n   */\n   @kotlin.internal.InlineOnly\n public inline fun floorDiv(other: UInt): UInt = this.toUInt().floorDiv(other)\n   /**\n   * Divides this value by the other value, flooring the result to an integer that is closer to negative infinity.\n   * \n   * For unsigned types, the results of flooring division and truncating division are the same.\n   */\n   @kotlin.internal.InlineOnly\n   public inline fun floorDiv(other: ULong): ULong = this.toULong().floorDiv(other)\n\n   /**\n   * Calculates the remainder of flooring division of this value by the other value.\n   * \n   * The result is always less than the divisor.\n   * \n   * For unsigned types, the remainders of flooring division and truncating division are the same.\n   */\n   @kotlin.internal.InlineOnly\n   public inline fun mod(other: UByte): UByte = this.toUInt().mod(other.toUInt()).toUByte()\n   /**\n   * Calculates the remainder of flooring division of this value by the other value.\n   * \n   * The result is always less than the divisor.\n   * \n   * For unsigned types, the remainders of flooring division and truncating division are the same.\n   */\n   @kotlin.internal.InlineOnly\n public inline fun mod(other: UShort): UShort = this.toUInt().mod(other.toUInt()).toUShort()\n   /**\n   * Calculates the remainder of flooring division of this value by the other value.\n   * \n   * The result is always less than the divisor.\n   * \n   * For unsigned types, the remainders of flooring division and truncating division are the same.\n   */\n   @kotlin.internal.InlineOnly\n   public inline fun mod(other: UInt): UInt = this.toUInt().mod(other)\n   /**\n   * Calculates the remainder of flooring division of this value by the other value.\n   * \n   * The result is always less than the divisor.\n   * \n   * For unsigned types, the remainders of flooring division and truncating division are the same.\n   */\n   @kotlin.internal.InlineOnly\n   public inline fun mod(other: ULong): ULong = this.toULong().mod(other)\n\n   /**\n   * Returns this value incremented by one.\n   *\n   * @sample samples.misc.Builtins.inc\n   */\n   @kotlin.internal.InlineOnly\n   public inline operator fun inc(): UShort = UShort(data.inc())\n\n   /**\n   * Returns this value decremented by one.\n   *\n   * @sample samples.misc.Builtins.dec\n   */\n   @kotlin.internal.InlineOnly\n   public inline operator fun dec(): UShort = UShort(data.dec())\n\n   /** Creates a range from this value to the specified [other] value. */\n   @kotlin.internal.InlineOnly\n   public inline operator fun rangeTo(other: UShort): UIntRange = UIntRange(this.toUInt(), other.toUInt())\n\n   /** Performs a bitwise AND operation between the two values. */\n   @kotlin.internal.InlineOnly\n   public inline infix fun and(other: UShort): UShort = UShort(this.data and other.data)\n   /** Performs a bitwise OR operation between the two values. */\n   @kotlin.internal.InlineOnly\n public inline infix fun or(other: UShort): UShort = UShort(this.data or other.data)\n   /** Performs a bitwise XOR operation between the two values. */\n   @kotlin.internal.InlineOnly\n   public inline infix fun xor(other: UShort): UShort = UShort(this.data xor other.data)\n   /** Inverts the bits in this value. */\n   @kotlin.internal.InlineOnly\n public inline fun inv(): UShort = UShort(data.inv())\n\n   /**\n   * Converts this [UShort] value to [Byte].\n   *\n   * If this value is less than or equals to [Byte.MAX_VALUE], the resulting `Byte` value represents\n   * the same numerical value as this `UShort`.\n   *\n   * The resulting `Byte` value is represented by the least significant 8 bits of this `UShort` value.\n   * Note that the resulting `Byte` value may be negative.\n   */\n   @kotlin.internal.InlineOnly\n   public inline fun toByte(): Byte = data.toByte()\n   /**\n   * Converts this [UShort] value to [Short].\n   *\n   * If this value is less than or equals to [Short.MAX_VALUE], the resulting `Short` value represents\n   * the same numerical value as this `UShort`. Otherwise the result is negative.\n   *\n   * The resulting `Short` value has the same binary representation as this `UShort` value.\n   */\n   @kotlin.internal.InlineOnly\n   public inline fun toShort(): Short = data\n   /**\n   * Converts this [UShort] value to [Int].\n   *\n   * The resulting `Int` value represents the same numerical value as this `UShort`.\n   *\n   * The least significant 16 bits of the resulting `Int` value are the same as the bits of this `UShort` value,\n   * whereas the most significant 16 bits are filled with zeros.\n   */\n   @kotlin.internal.InlineOnly\n   public inline fun toInt(): Int = data.toInt() and 0xFFFF\n   /**\n   * Converts this [UShort] value to [Long].\n   *\n   * The resulting `Long` value represents the same numerical value as this `UShort`.\n   *\n   * The least significant 16 bits of the resulting `Long` value are the same as the bits of this `UShort` value,\n   * whereas the most significant 48 bits are filled with zeros.\n   */\n   @kotlin.internal.InlineOnly\n   public inline fun toLong(): Long = data.toLong() and

0xFFFF\n\n   /**\n   * Converts this [UShort] value to [UByte].\n   *\n   * If this value is less than or equals to [UByte.MAX_VALUE], the resulting `UByte` value represents\n   * the same numerical value as this `UShort`.\n   *\n   * The resulting `UByte` value is represented by the least significant 8 bits of this `UShort` value.\n   */\n   @kotlin.internal.InlineOnly\n   public inline fun toUByte(): UByte = data.toUByte()\n   /** Returns this value. */\n   @kotlin.internal.InlineOnly\n   public inline fun toUShort(): UShort = this\n   /**\n   * Converts this [UShort] value to [UInt].\n   *\n   * The resulting `UInt` value represents the same numerical value as this `UShort`.\n   *\n   * The least significant 16 bits of the resulting `UInt` value are the same as the bits of this `UShort` value,\n   * whereas the most significant 16 bits are filled with zeros.\n   */\n   @kotlin.internal.InlineOnly\n   public inline fun toUInt(): UInt = UInt(data.toInt() and 0xFFFF)\n   /**\n   * Converts this [UShort] value to [ULong].\n   *\n   * The resulting `ULong` value represents the same numerical value as this `UShort`.\n   *\n   * The least significant 16 bits of the resulting `ULong` value are the same as the bits of this `UShort` value,\n   * whereas the most significant 48 bits are filled with zeros.\n   */\n   @kotlin.internal.InlineOnly\n   public inline fun toULong(): ULong = ULong(data.toLong() and 0xFFFF)\n\n   /**\n   * Converts this [UShort] value to [Float].\n   *\n   * The resulting `Float` value represents the same numerical value as this `UShort`.\n   */\n   @kotlin.internal.InlineOnly\n   public inline fun toFloat(): Float = this.toInt().toFloat()\n   /**\n   * Converts this [UShort] value to [Double].\n   *\n   * The resulting `Double` value represents the same numerical value as this `UShort`.\n   */\n   @kotlin.internal.InlineOnly\n   public inline fun toDouble(): Double = this.toInt().toDouble()\n\n   public override fun toString(): String = toInt().toString()\n\n}\n\n/**\n * Converts this [Byte] value to [UShort].\n *\n * If this value is positive, the resulting `UShort` value represents the same numerical value as this `Byte`.\n *\n * The least significant 8 bits of the resulting `UShort` value are the same as the bits of this `Byte` value,\n * whereas the most significant 8 bits are filled with the sign bit of this value.\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\n@kotlin.internal.InlineOnly\npublic inline fun Byte.toUShort(): UShort = UShort(this.toShort())\n/**\n * Converts this [Short] value to [UShort].\n *\n * If this value is positive, the resulting `UShort` value represents the same numerical value as this `Short`.\n *\n * The resulting `UShort` value has the same binary representation as this `Short` value.\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\n@kotlin.internal.InlineOnly\npublic inline fun Short.toUShort(): UShort = UShort(this)\n/**\n * Converts this [Int] value to [UShort].\n *\n * If this value is positive and less than or equals to [UShort.MAX_VALUE], the resulting `UShort` value represents\n * the same numerical value as this `Int`.\n *\n * The resulting `UShort` value is represented by the least significant 16 bits of this `Int` value.\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\n@kotlin.internal.InlineOnly\npublic inline fun Int.toUShort(): UShort = UShort(this.toShort())\n/**\n * Converts this [Long] value to [UShort].\n *\n * If this value is positive and less than or equals to [UShort.MAX_VALUE], the resulting `UShort` value represents\n * the same numerical value as this `Long`.\n *\n * The resulting `UShort` value is represented by the least significant 16 bits of this `Long` value.\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\n@kotlin.internal.InlineOnly\npublic inline fun Long.toUShort(): UShort = UShort(this.toShort())\n","/*\n * Copyright 2010-2021 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\n@file:kotlin.jvm.JvmMultifileClass\n@file:kotlin.jvm.JvmName(\"CollectionsKt\")\n@file:OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n\npackage kotlin.collections\n\nimport kotlin.contracts.*\nimport kotlin.random.Random\n\ninternal object EmptyIterator : ListIterator<Nothing> {\n   override fun hasNext(): Boolean = false\n   override fun hasPrevious(): Boolean = false\n   override fun nextIndex(): Int = 0\n   override fun previousIndex(): Int = -1\n   override fun next(): Nothing = throw NoSuchElementException()\n   override fun previous(): Nothing = throw NoSuchElementException()\n}\n\ninternal object EmptyList : List<Nothing>, Serializable, RandomAccess {\n   private const val serialVersionUID: Long = -7390468764508069838L\n\n   override fun equals(other: Any?): Boolean = other is List<*> && other.isEmpty()\n   override fun hashCode(): Int = 1\n   override fun toString(): String = \"[]\"\n\n   override val size: Int get() = 0\n   override fun isEmpty():

Boolean = true\n   override fun contains(element: Nothing): Boolean = false\n   override fun containsAll(elements: Collection<Nothing>): Boolean = elements.isEmpty()\n\n   override fun get(index: Int): Nothing = throw IndexOutOfBoundsException(\"Empty list doesn't contain element at index $index.\")\n   override fun indexOf(element: Nothing): Int = -1\n   override fun lastIndexOf(element: Nothing): Int = -1\n\n   override fun iterator(): Iterator<Nothing> = EmptyIterator\n   override fun listIterator(): ListIterator<Nothing> = EmptyIterator\n   override fun listIterator(index: Int): ListIterator<Nothing> {\n   if (index != 0) throw IndexOutOfBoundsException(\"Index: $index\")\n   return EmptyIterator\n   }\n\n   override fun subList(fromIndex: Int, toIndex: Int): List<Nothing> {\n   if (fromIndex == 0 && toIndex == 0) return this\n throw IndexOutOfBoundsException(\"fromIndex: $fromIndex, toIndex: $toIndex\")\n   }\n\n   private fun readResolve(): Any = EmptyList\n}\n\ninternal fun <T> Array<out T>.asCollection(): Collection<T> = ArrayAsCollection(this, isVarargs = false)\n\nprivate class ArrayAsCollection<T>(val values: Array<out T>, val isVarargs: Boolean) : Collection<T> {\n   override val size: Int get() = values.size\n   override fun isEmpty(): Boolean = values.isEmpty()\n   override fun contains(element: T): Boolean = values.contains(element)\n   override fun containsAll(elements: Collection<T>): Boolean = elements.all { contains(it) }\n   override fun iterator(): Iterator<T> = values.iterator()\n   // override hidden toArray implementation to prevent copying of values array\n public fun toArray(): Array<out Any?> = values.copyToArrayOfAny(isVarargs)\n}\n\n/**\n * Returns an empty read-only list. The returned list is serializable (JVM).\n * @sample samples.collections.Collections.Lists.emptyReadOnlyList\n */\npublic fun <T> emptyList(): List<T> = EmptyList\n\n/**\n * Returns a new read-only list of given elements. The returned list is serializable (JVM).\n * @sample samples.collections.Collections.Lists.readOnlyList\n */\npublic fun <T> listOf(vararg elements: T): List<T> = if (elements.size > 0) elements.asList() else emptyList()\n\n/**\n * Returns an empty read-only list. The returned list is serializable (JVM).\n * @sample samples.collections.Collections.Lists.emptyReadOnlyList\n */\n@kotlin.internal.InlineOnly\npublic inline fun <T> listOf(): List<T> = emptyList()\n\n/**\n * Returns an empty new [MutableList].\n * @sample samples.collections.Collections.Lists.emptyMutableList\n */\n@SinceKotlin(\"1.1\")\n@kotlin.internal.InlineOnly\npublic inline fun <T> mutableListOf(): MutableList<T> = ArrayList()\n\n/**\n * Returns an empty new [ArrayList].\n * @sample samples.collections.Collections.Lists.emptyArrayList\n */\n@SinceKotlin(\"1.1\")\n@kotlin.internal.InlineOnly\npublic inline fun <T> arrayListOf(): ArrayList<T> = ArrayList()\n\n/**\n * Returns a new [MutableList] with the given elements.\n * @sample samples.collections.Collections.Lists.mutableList\n */\npublic fun <T> mutableListOf(vararg elements: T): MutableList<T> =\n   if (elements.size == 0) ArrayList() else ArrayList(ArrayAsCollection(elements, isVarargs = true))\n\n/**\n * Returns a new [ArrayList] with the given elements.\n * @sample samples.collections.Collections.Lists.arrayList\n */\npublic fun <T> arrayListOf(vararg elements: T): ArrayList<T> =\n   if (elements.size == 0) ArrayList() else ArrayList(ArrayAsCollection(elements, isVarargs = true))\n\n/**\n * Returns a new read-only list either of single given element, if it is not null, or empty list if the element is null. The returned list is serializable (JVM).\n * @sample samples.collections.Collections.Lists.listOfNotNull\n */\npublic fun <T : Any> listOfNotNull(element: T?): List<T> = if (element != null) listOf(element) else emptyList()\n\n/**\n * Returns a new read-only list only of those given elements, that are not null. The returned list is serializable (JVM).\n * @sample samples.collections.Collections.Lists.listOfNotNull\n */\npublic fun <T : Any> listOfNotNull(vararg elements: T?): List<T> = elements.filterNotNull()\n\n/**\n * Creates a new read-only list with the specified [size], where each element is calculated by calling the specified\n * [init] function.\n *\n * The function [init] is called for each list element sequentially starting from the first one.\n * It should return the value for a list element given its index.\n *\n * @sample samples.collections.Collections.Lists.readOnlyListFromInitializer\n */\n@SinceKotlin(\"1.1\")\n@kotlin.internal.InlineOnly\npublic inline fun <T> List(size: Int, init: (index: Int) -> T): List<T> = MutableList(size, init)\n\n/**\n * Creates a new mutable list with the specified [size], where each element is calculated by calling the specified\n * [init] function.\n *\n * The function [init] is called for each list element sequentially starting from the first one.\n * It should return the value for a list element given its index.\n *\n * @sample samples.collections.Collections.Lists.mutableListFromInitializer\n

*/\n@SinceKotlin(\"1.1\")\n@kotlin.internal.InlineOnly\npublic inline fun <T> MutableList(size: Int, init: (index: Int) -> T): MutableList<T> {\n   val list = ArrayList<T>(size)\n   repeat(size) { index -> list.add(init(index)) }\n   return list\n}\n\n/**\n * Builds a new read-only [List] by populating a [MutableList] using the given [builderAction]\n * and returning a read-only list with the same elements.\n *\n * The list passed as a receiver to the [builderAction] is valid only inside that function.\n * Using it outside of the function produces an unspecified behavior.\n *\n * The returned list is serializable (JVM).\n *\n * @sample samples.collections.Builders.Lists.buildListSample\n */\n@SinceKotlin(\"1.6\")\n@WasExperimental(ExperimentalStdlibApi::class)\n@kotlin.internal.InlineOnly\n@Suppress(\"DEPRECATION\")\npublic inline fun <E> buildList(@BuilderInference builderAction: MutableList<E>.() -> Unit): List<E> {\n   contract { callsInPlace(builderAction, InvocationKind.EXACTLY_ONCE) }\n   return buildListInternal(builderAction)\n}\n\n@PublishedApi\n@SinceKotlin(\"1.3\")\n@kotlin.internal.InlineOnly\ninternal expect inline fun <E> buildListInternal(builderAction: MutableList<E>.() -> Unit): List<E>\n\n/**\n * Builds a new read-only [List] by populating a [MutableList] using the given [builderAction]\n * and returning a read-only list with the same elements.\n *\n * The list passed as a receiver to the [builderAction] is valid only inside that function.\n * Using it outside of the function produces an unspecified behavior.\n *\n * The returned list is serializable (JVM).\n *\n * [capacity] is used to hint the expected number of elements added in the [builderAction].\n *\n * @throws IllegalArgumentException if the given [capacity] is negative.\n *\n * @sample samples.collections.Builders.Lists.buildListSampleWithCapacity\n */\n@SinceKotlin(\"1.6\")\n@WasExperimental(ExperimentalStdlibApi::class)\n@kotlin.internal.InlineOnly\n@Suppress(\"DEPRECATION\")\npublic inline fun <E> buildList(capacity: Int, @BuilderInference builderAction: MutableList<E>.() -> Unit): List<E> {\n   contract { callsInPlace(builderAction, InvocationKind.EXACTLY_ONCE) }\n   return buildListInternal(capacity, builderAction)\n}\n\n@PublishedApi\n@SinceKotlin(\"1.3\")\n@kotlin.internal.InlineOnly\ninternal expect inline fun <E> buildListInternal(capacity: Int, builderAction: MutableList<E>.() -> Unit): List<E>\n\n/**\n * Returns an [IntRange] of the valid indices for this collection.\n * @sample samples.collections.Collections.Collections.indicesOfCollection\n */\npublic val Collection<*>.indices: IntRange\n   get() = 0..size - 1\n\n/**\n * Returns the index of the last item in the list or -1 if the list is empty.\n *\n * @sample samples.collections.Collections.Lists.lastIndexOfList\n */\npublic val <T> List<T>.lastIndex: Int\n   get() = this.size - 1\n\n/**\n * Returns `true` if the collection is not empty.\n * @sample samples.collections.Collections.Collections.collectionIsNotEmpty\n */\n@kotlin.internal.InlineOnly\npublic inline fun <T> Collection<T>.isNotEmpty(): Boolean = !isEmpty()\n\n/**\n * Returns `true` if this nullable collection is either null or empty.\n * @sample samples.collections.Collections.Collections.collectionIsNullOrEmpty\n */\n@SinceKotlin(\"1.3\")\n@kotlin.internal.InlineOnly\npublic inline fun <T> Collection<T>?.isNullOrEmpty(): Boolean {\n   contract {\n   returns(false) implies (this@isNullOrEmpty != null)\n   }\n\n   return this == null || this.isEmpty()\n}\n\n/**\n * Returns this Collection if it's not `null` and the empty list otherwise.\n * @sample samples.collections.Collections.Collections.collectionOrEmpty\n */\n@kotlin.internal.InlineOnly\npublic inline fun <T> Collection<T>?.orEmpty(): Collection<T> = this ?: emptyList()\n\n/**\n * Returns this List if it's not `null` and the empty list otherwise.\n * @sample samples.collections.Collections.Lists.listOrEmpty\n */\n@kotlin.internal.InlineOnly\npublic inline fun <T> List<T>?.orEmpty(): List<T> = this ?: emptyList()\n\n/**\n * Returns this collection if it's not empty\n * or the result of calling [defaultValue] function if the collection is empty.\n *\n * @sample samples.collections.Collections.Collections.collectionIfEmpty\n */\n@SinceKotlin(\"1.3\")\n@kotlin.internal.InlineOnly\npublic inline fun <C, R> C.ifEmpty(defaultValue: () -> R): R where C : Collection<*>, C : R =\n   if (isEmpty()) defaultValue() else this\n\n\n/**\n * Checks if all elements in the specified collection are contained in this collection.\n *\n * Allows to overcome type-safety restriction of `containsAll` that requires to pass a collection of type `Collection<E>`.\n * @sample samples.collections.Collections.Collections.collectionContainsAll\n */\n@Suppress(\"EXTENSION_SHADOWED_BY_MEMBER\") // false warning, extension takes precedence in some cases\n@kotlin.internal.InlineOnly\npublic inline fun <@kotlin.internal.OnlyInputTypes T>

Collection<T>.containsAll(elements: Collection<T>): Boolean = this.containsAll(elements)\n\n\n/**\n * Returns a new list with the elements of this list randomly shuffled\n * using the specified [random] instance as the source of randomness.\n */\n@SinceKotlin(\"1.3\")\npublic fun <T> Iterable<T>.shuffled(random: Random): List<T> = toMutableList().apply { shuffle(random) }\n\n\ninternal fun <T> List<T>.optimizeReadOnlyList() = when (size) {\n 0 -> emptyList()\n 1 -> listOf(this[0])\n else -> this\n}\n\n/**\n * Searches this list or its range for the provided [element] using the binary search algorithm.\n * The list is expected to be sorted into ascending order according to the Comparable natural ordering of its elements,\n * otherwise the result is undefined.\n *\n * If the list contains multiple elements equal to the specified [element], there is no guarantee which one will be found.\n *\n * `null` value is considered to be less than any non-null value.\n *\n * @return the index of the element, if it is contained in the list within the specified range;\n * otherwise, the inverted insertion point `(-insertion point - 1)`.\n * The insertion point is defined as the index at which the element should be inserted,\n * so that the list (or the specified subrange of list) still remains sorted.\n * @sample samples.collections.Collections.Lists.binarySearchOnComparable\n * @sample samples.collections.Collections.Lists.binarySearchWithBoundaries\n */\npublic fun <T : Comparable<T>> List<T?>.binarySearch(element: T?, fromIndex: Int = 0, toIndex: Int = size): Int {\n rangeCheck(size, fromIndex, toIndex)\n\n var low = fromIndex\n var high = toIndex - 1\n\n while (low <= high) {\n val mid = (low + high).ushr(1) // safe from overflows\n val midVal = get(mid)\n val cmp = compareValues(midVal, element)\n\n if (cmp < 0)\n low = mid + 1\n else if (cmp > 0)\n high = mid - 1\n else\n return mid // key found\n }\n return -(low + 1) // key not found\n}\n\n/**\n * Searches this list or its range for the provided [element] using the binary search algorithm.\n * The list is expected to be sorted into ascending order according to the specified [comparator],\n * otherwise the result is undefined.\n *\n * If the list contains multiple elements equal to the specified [element], there is no guarantee which one will be found.\n *\n * `null` value is considered to be less than any non-null value.\n *\n * @return the index of the element, if it is contained in the list within the specified range;\n * otherwise, the inverted insertion point `(-insertion point - 1)`.\n * The insertion point is defined as the index at which the element should be inserted,\n * so that the list (or the specified subrange of list) still remains sorted according to the specified [comparator].\n * @sample samples.collections.Collections.Lists.binarySearchWithComparator\n */\npublic fun <T> List<T>.binarySearch(element: T, comparator: Comparator<in T>, fromIndex: Int = 0, toIndex: Int = size): Int {\n rangeCheck(size, fromIndex, toIndex)\n\n var low = fromIndex\n var high = toIndex - 1\n\n while (low <= high) {\n val mid = (low + high).ushr(1) // safe from overflows\n val midVal = get(mid)\n val cmp = comparator.compare(midVal, element)\n\n if (cmp < 0)\n low = mid + 1\n else if (cmp > 0)\n high = mid - 1\n else\n return mid // key found\n }\n return -(low + 1) // key not found\n}\n\n/**\n * Searches this list or its range for an element having the key returned by the specified [selector] function\n * equal to the provided [key] value using the binary search algorithm.\n * The list is expected to be sorted into ascending order according to the Comparable natural ordering of keys of its elements.\n * otherwise the result is undefined.\n *\n * If the list contains multiple elements with the specified [key], there is no guarantee which one will be found.\n *\n * `null` value is considered to be less than any non-null value.\n *\n * @return the index of the element with the specified [key], if it is contained in the list within the specified range;\n * otherwise, the inverted insertion point `(-insertion point - 1)`.\n * The insertion point is defined as the index at which the element should be inserted,\n * so that the list (or the specified subrange of list) still remains sorted.\n * @sample samples.collections.Collections.Lists.binarySearchByKey\n */\npublic inline fun <T, K : Comparable<K>> List<T>.binarySearchBy(\n key: K?,\n fromIndex: Int = 0,\n toIndex: Int = size,\n crossinline selector: (T) -> K?\n): Int =\n binarySearch(fromIndex, toIndex) { compareValues(selector(it), key) }\n\n// do not introduce this overload --- too rare\n//public fun <T, K> List<T>.binarySearchBy(key: K, comparator: Comparator<K>, fromIndex: Int = 0, toIndex: Int = size(), selector: (T) -> K): Int =\n// binarySearch(fromIndex, toIndex) { comparator.compare(selector(it), key) }\n\n\n/**\n * Searches this list or its range for an element for which the given [comparison] function returns zero using the binary search algorithm.\n *\n * The list is expected to be sorted so that the signs of the [comparison] function's return values ascend on the list elements,\n * i.e. negative values come before zero and zeroes come before positive values.\n * Otherwise, the result is undefined.\n *\n * If the list contains multiple elements for which [comparison] returns zero, there is no guarantee which one will be found.\n *\n * @param comparison function that returns zero when called on the list element being searched.\n * On the elements coming before the target element, the function must return negative values;\n * on the elements coming after the target element, the function must return positive values.\n *\n * @return the index of the found element, if it is contained in the list within the specified range;\n * otherwise, the inverted insertion point `(-insertion point - 1)`.\n * The insertion point is defined as the index at which the element should be inserted,\n * so that the list (or the specified subrange of list) still remains sorted.\n * @sample samples.collections.Collections.Lists.binarySearchWithComparisonFunction\n */\npublic fun <T> List<T>.binarySearch(fromIndex: Int = 0, toIndex: Int = size, comparison: (T) -> Int): Int {\n   rangeCheck(size, fromIndex, toIndex)\n\n   var low = fromIndex\n   var high = toIndex - 1\n\n   while (low <= high) {\n   val mid = (low + high).ushr(1) // safe from overflows\n   val midVal = get(mid)\n   val cmp = comparison(midVal)\n\n   if (cmp < 0)\n   low = mid + 1\n   else if (cmp > 0)\n   high = mid - 1\n   else\n   return mid // key found\n   }\n   return -(low + 1) // key not found\n}\n\n/**\n * Checks that `from` and `to` are in\n * the range of [0..size] and throws an appropriate exception, if they aren't.\n */\nprivate fun rangeCheck(size: Int, fromIndex: Int, toIndex: Int) {\n   when {\n   fromIndex > toIndex -> throw IllegalArgumentException(\"fromIndex ($fromIndex) is greater than toIndex ($toIndex).\")\n   fromIndex < 0 -> throw IndexOutOfBoundsException(\"fromIndex ($fromIndex) is less than zero.\")\n   toIndex > size -> throw IndexOutOfBoundsException(\"toIndex ($toIndex) is greater than size ($size).\")\n   }\n}\n\n\n@PublishedApi\n@SinceKotlin(\"1.3\")\ninternal expect fun checkIndexOverflow(index: Int): Int\n\n@PublishedApi\n@SinceKotlin(\"1.3\")\ninternal expect fun checkCountOverflow(count: Int): Int\n\n\n@PublishedApi\n@SinceKotlin(\"1.3\")\ninternal fun throwIndexOverflow() { throw ArithmeticException(\"Index overflow has happened.\") }\n\n@PublishedApi\n@SinceKotlin(\"1.3\")\ninternal fun throwCountOverflow() { throw ArithmeticException(\"Count overflow has happened.\") }\n\n","/*\n * Copyright 2010-2021 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\n@file:kotlin.jvm.JvmMultifileClass\n@file:kotlin.jvm.JvmName(\"MapsKt\")\n@file:OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n\npackage kotlin.collections\n\nimport kotlin.contracts.*\n\nprivate object EmptyMap : Map<Any?, Nothing>, Serializable {\n   private const val serialVersionUID: Long = 8246714829545688274\n\n   override fun equals(other: Any?): Boolean = other is Map<*, *> && other.isEmpty()\n   override fun hashCode(): Int = 0\n   override fun toString(): String = \"{}\"\n\n   override val size: Int get() = 0\n   override fun isEmpty(): Boolean = true\n\n   override fun containsKey(key: Any?): Boolean = false\n   override fun containsValue(value: Nothing): Boolean = false\n   override fun get(key: Any?): Nothing? = null\n   override val entries: Set<Map.Entry<Any?, Nothing>> get() = EmptySet\n   override val keys: Set<Any?> get() = EmptySet\n   override val values: Collection<Nothing> get() = EmptyList\n\n   private fun readResolve(): Any = EmptyMap\n}\n\n/**\n * Returns an empty read-only map of specified type.\n *\n * The returned map is serializable (JVM).\n * @sample samples.collections.Maps.Instantiation.emptyReadOnlyMap\n */\npublic fun <K, V> emptyMap(): Map<K, V> = @Suppress(\"UNCHECKED_CAST\") (EmptyMap as Map<K, V>)\n\n/**\n * Returns a new read-only map with the specified contents, given as a list of pairs\n * where the first value is the key and the second is the value.\n *\n * If multiple pairs have the same key, the resulting map will contain the value from the last of those pairs.\n *\n * Entries of the map are iterated in the order they were specified.\n *\n * The returned map is serializable (JVM).\n *\n * @sample samples.collections.Maps.Instantiation.mapFromPairs\n */\npublic fun <K, V> mapOf(vararg pairs: Pair<K, V>): Map<K, V> =\n   if (pairs.size > 0) pairs.toMap(LinkedHashMap(mapCapacity(pairs.size))) else emptyMap()\n\n/**\n * Returns an empty read-only map.\n *\n * The returned map is serializable (JVM).\n * @sample samples.collections.Maps.Instantiation.emptyReadOnlyMap\n */\n@kotlin.internal.InlineOnly\npublic inline fun <K, V> mapOf(): Map<K, V> = emptyMap()\n\n/**\n * Returns an empty new [MutableMap].\n *\n * The returned map preserves the entry iteration order.\n * @sample samples.collections.Maps.Instantiation.emptyMutableMap\n

*/\n@SinceKotlin(\"1.1\")\n@kotlin.internal.InlineOnly\npublic inline fun <K, V> mutableMapOf():
MutableMap<K, V> = LinkedHashMap()\n\n/**\n * Returns a new [MutableMap] with the specified contents, given
as a list of pairs\n * where the first component is the key and the second is the value.\n *\n * If multiple pairs have
the same key, the resulting map will contain the value from the last of those pairs.\n *\n * Entries of the map are
iterated in the order they were specified.\n *\n * @sample
samples.collections.Maps.Instantiation.mutableMapFromPairs\n * @sample
samples.collections.Maps.Instantiation.emptyMutableMap\n */\npublic fun <K, V> mutableMapOf(vararg pairs:
Pair<K, V>): MutableMap<K, V> =\n   LinkedHashMap<K, V>(mapCapacity(pairs.size)).apply { putAll(pairs)
}\n\n/**\n * Returns an empty new [HashMap].\n *\n * @sample
samples.collections.Maps.Instantiation.emptyHashMap\n
*/\n@SinceKotlin(\"1.1\")\n@kotlin.internal.InlineOnly\npublic inline fun <K, V> hashMapOf(): HashMap<K, V>
= HashMap<K, V>()\n\n/**\n * Returns a new [HashMap] with the specified contents, given as a list of pairs\n *
where the first component is the key and the second is the value.\n *\n * @sample
samples.collections.Maps.Instantiation.hashMapFromPairs\n */\npublic fun <K, V> hashMapOf(vararg pairs:
Pair<K, V>): HashMap<K, V> = HashMap<K, V>(mapCapacity(pairs.size)).apply { putAll(pairs) }\n\n/**\n *
Returns an empty new [LinkedHashMap].\n */\n@SinceKotlin(\"1.1\")\n@kotlin.internal.InlineOnly\npublic inline
fun <K, V> linkedMapOf(): LinkedHashMap<K, V> = LinkedHashMap<K, V>()\n\n/**\n * Returns a new
[LinkedHashMap] with the specified contents, given as a list of pairs\n * where the first component is the key and
the second is the value.\n *\n * If multiple pairs have the same key, the resulting map will contain the value from the
last of those pairs.\n *\n * Entries of the map are iterated in the order they were specified.\n *\n * @sample
samples.collections.Maps.Instantiation.linkedMapFromPairs\n */\npublic fun <K, V> linkedMapOf(vararg pairs:
Pair<K, V>): LinkedHashMap<K, V> = pairs.toMap(LinkedHashMap(mapCapacity(pairs.size)))\n\n/**\n * Builds
a new read-only [Map] by populating a [MutableMap] using the given [builderAction]\n * and returning a read-only
map with the same key-value pairs.\n *\n * The map passed as a receiver to the [builderAction] is valid only inside
that function.\n * Using it outside of the function produces an unspecified behavior.\n *\n * Entries of the map are
iterated in the order they were added by the [builderAction].\n *\n * The returned map is serializable (JVM).\n *\n *
@sample samples.collections.Builders.Maps.buildMapSample\n
*/\n@SinceKotlin(\"1.6\")\n@WasExperimental(ExperimentalStdlibApi::class)\n@kotlin.internal.InlineOnly\n@Su
ppress(\"DEPRECATION\")\npublic inline fun <K, V> buildMap(@BuilderInference builderAction:
MutableMap<K, V>.() -> Unit): Map<K, V> {\n   contract { callsInPlace(builderAction,
InvocationKind.EXACTLY_ONCE) }\n   return
buildMapInternal(builderAction)\n}\n\n@PublishedApi\n@SinceKotlin(\"1.3\")\n@kotlin.internal.InlineOnly\ninter
nal expect inline fun <K, V> buildMapInternal(builderAction: MutableMap<K, V>.() -> Unit): Map<K,
V>\n\n/**\n * Builds a new read-only [Map] by populating a [MutableMap] using the given [builderAction]\n * and
returning a read-only map with the same key-value pairs.\n *\n * The map passed as a receiver to the
[builderAction] is valid only inside that function.\n * Using it outside of the function produces an unspecified
behavior.\n *\n * [capacity] is used to hint the expected number of pairs added in the [builderAction].\n *\n * Entries
of the map are iterated in the order they were added by the [builderAction].\n *\n * The returned map is serializable
(JVM).\n *\n * @throws IllegalArgumentException if the given [capacity] is negative.\n *\n * @sample
samples.collections.Builders.Maps.buildMapSample\n
*/\n@SinceKotlin(\"1.6\")\n@WasExperimental(ExperimentalStdlibApi::class)\n@kotlin.internal.InlineOnly\n@Su
ppress(\"DEPRECATION\")\npublic inline fun <K, V> buildMap(capacity: Int, @BuilderInference builderAction:
MutableMap<K, V>.() -> Unit): Map<K, V> {\n   contract { callsInPlace(builderAction,
InvocationKind.EXACTLY_ONCE) }\n   return buildMapInternal(capacity,
builderAction)\n}\n\n@PublishedApi\n@SinceKotlin(\"1.3\")\n@kotlin.internal.InlineOnly\ninternal expect inline
fun <K, V> buildMapInternal(capacity: Int, builderAction: MutableMap<K, V>.() -> Unit): Map<K, V>\n\n/**\n *
Calculate the initial capacity of a map.\n */\n@PublishedApi\ninternal expect fun mapCapacity(expectedSize: Int):
Int\n\n/**\n * Returns `true` if this map is not empty.\n * @sample

samples.collections.Maps.Usage.mapIsNotEmpty\n */\n@kotlin.internal.InlineOnly\npublic inline fun <K, V> Map<out K, V>.isNotEmpty(): Boolean = !isEmpty()\n\n/**\n * Returns `true` if this nullable map is either null or empty.\n * @sample samples.collections.Maps.Usage.mapIsNullOrEmpty\n */\n@SinceKotlin(\"1.3\")\n@kotlin.internal.InlineOnly\npublic inline fun <K, V> Map<out K, V>?.isNullOrEmpty(): Boolean {\n   contract {\n   returns(false) implies (this@isNullOrEmpty != null)\n   }\n\n   return this == null || isEmpty()\n}\n\n/**\n * Returns the [Map] if its not `null`, or the empty [Map] otherwise.\n *\n * @sample samples.collections.Maps.Usage.mapOrEmpty\n */\n@kotlin.internal.InlineOnly\npublic inline fun <K, V> Map<K, V>?.orEmpty(): Map<K, V> = this ?: emptyMap()\n\n/**\n * Returns this map if it's not empty\n * or the result of calling [defaultValue] function if the map is empty.\n *\n * @sample samples.collections.Maps.Usage.mapIfEmpty\n */\n@SinceKotlin(\"1.3\")\n@kotlin.internal.InlineOnly\npublic inline fun <M, R> M.ifEmpty(defaultValue: () -> R): R where M : Map<*, *>, M : R =\n   if (isEmpty()) defaultValue() else this\n\n/**\n * Checks if the map contains the given key.\n *\n * This method allows to use the `x in map` syntax for checking whether an object is contained in the map.\n *\n * @sample samples.collections.Maps.Usage.containsKey\n */\n@kotlin.internal.InlineOnly\npublic inline operator fun <@kotlin.internal.OnlyInputTypes K, V> Map<out K, V>.contains(key: K): Boolean = containsKey(key)\n\n/**\n * Returns the value corresponding to the given [key], or `null` if such a key is not present in the map.\n */\n@kotlin.internal.InlineOnly\npublic inline operator fun <@kotlin.internal.OnlyInputTypes K, V> Map<out K, V>.get(key: K): V? =\n   @Suppress(\"UNCHECKED_CAST\") (this as Map<K, V>).get(key)\n\n/**\n * Allows to use the index operator for storing values in a mutable map.\n */\n@kotlin.internal.InlineOnly\npublic inline operator fun <K, V> MutableMap<K, V>.set(key: K, value: V): Unit {\n   put(key, value)\n}\n\n/**\n * Returns `true` if the map contains the specified [key].\n *\n * Allows to overcome type-safety restriction of `containsKey` that requires to pass a key of type `K`.\n */\n@kotlin.internal.InlineOnly\npublic inline fun <@kotlin.internal.OnlyInputTypes K> Map<out K, *>.containsKey(key: K): Boolean =\n   @Suppress(\"UNCHECKED_CAST\") (this as Map<K, *>).containsKey(key)\n\n/**\n * Returns `true` if the map maps one or more keys to the specified [value].\n *\n * Allows to overcome type-safety restriction of `containsValue` that requires to pass a value of type `V`.\n *\n * @sample samples.collections.Maps.Usage.containsValue\n */\n@Suppress(\"EXTENSION_SHADOWED_BY_MEMBER\") // false warning, extension takes precedence in some cases\n@kotlin.internal.InlineOnly\npublic inline fun <K, @kotlin.internal.OnlyInputTypes V> Map<K, V>.containsValue(value: V): Boolean = this.containsValue(value)\n\n\n/**\n * Removes the specified key and its corresponding value from this map.\n *\n * @return the previous value associated with the key, or `null` if the key was not present in the map.\n\n * Allows to overcome type-safety restriction of `remove` that requires to pass a key of type `K`.\n */\n@kotlin.internal.InlineOnly\npublic inline fun <@kotlin.internal.OnlyInputTypes K, V> MutableMap<out K, V>.remove(key: K): V? =\n   @Suppress(\"UNCHECKED_CAST\") (this as MutableMap<K, V>).remove(key)\n\n/**\n * Returns the key component of the map entry.\n *\n * This method allows to use destructuring declarations when working with maps, for example:\n * ```\n * for ((key, value) in map) {\n *   // do something with the key and the value\n * }\n * ```\n */\n@kotlin.internal.InlineOnly\npublic inline operator fun <K, V> Map.Entry<K, V>.component1(): K = key\n\n/**\n * Returns the value component of the map entry.\n *\n * This method allows to use destructuring declarations when working with maps, for example:\n * ```\n * for ((key, value) in map) {\n *   // do something with the key and the value\n * }\n * ```\n */\n@kotlin.internal.InlineOnly\npublic inline operator fun <K, V> Map.Entry<K, V>.component2(): V = value\n\n/**\n * Converts entry to [Pair] with key being first component and value being second.\n */\n@kotlin.internal.InlineOnly\npublic inline fun <K, V> Map.Entry<K, V>.toPair(): Pair<K, V> = Pair(key, value)\n\n/**\n * Returns the value for the given key, or the result of the [defaultValue] function if there was no entry for the given key.\n *\n * @sample samples.collections.Maps.Usage.getOrElse\n */\n@kotlin.internal.InlineOnly\npublic inline fun <K, V> Map<K, V>.getOrElse(key: K, defaultValue: () -> V): V = get(key) ?: defaultValue()\n\n\ninternal inline fun <K, V> Map<K, V>.getOrElseNullable(key: K, defaultValue: () -> V): V {\n   val value = get(key)\n   if (value == null && !containsKey(key)) {\n   return defaultValue()\n   } else {\n   @Suppress(\"UNCHECKED_CAST\")\n   return value as V\n   }\n}\n\n/**\n * Returns the value for the given [key] or throws an exception if there is no such key in the map.\n *\n * If the map was created by [withDefault], resorts to its `defaultValue` provider function\n * instead of throwing an exception.\n *\n * @throws NoSuchElementException when the map doesn't contain a value for the specified key and\n * no implicit default value was provided for that map.\n */\n@SinceKotlin(\"1.1\")\npublic fun <K, V> Map<K, V>.getValue(key: K): V = getOrImplicitDefault(key)\n\n/**\n * Returns the value for the given key. If the key is not found in the map, calls the [defaultValue] function,\n * puts its result into the map under the given key and returns it.\n *\n * Note that the operation is not guaranteed to be atomic if the map is being modified concurrently.\n *\n * @sample samples.collections.Maps.Usage.getOrPut\n */\npublic inline fun <K, V> MutableMap<K, V>.getOrPut(key: K, defaultValue: () -> V): V {\n   val value = get(key)\n   return if (value == null) {\n   val answer = defaultValue()\n   put(key, answer)\n   answer\n   } else {\n   value\n   }\n}\n\n/**\n * Returns an [Iterator] over the entries in the [Map].\n *\n * @sample samples.collections.Maps.Usage.forOverEntries\n */\n@kotlin.internal.InlineOnly\npublic inline operator fun <K, V> Map<out K, V>.iterator(): Iterator<Map.Entry<K, V>> = entries.iterator()\n\n/**\n * Returns a [MutableIterator] over the mutable entries in the [MutableMap].\n *\n */\n@kotlin.jvm.JvmName(\"mutableIterator\")\n@kotlin.internal.InlineOnly\npublic inline operator fun <K, V> MutableMap<K, V>.iterator(): MutableIterator<MutableMap.MutableEntry<K, V>> = entries.iterator()\n\n/**\n * Populates the given [destination] map with entries having the keys of this map and the values obtained\n * by applying the [transform] function to each entry in this [Map].\n */\npublic inline fun <K, V, R, M : MutableMap<in K, in R>> Map<out K, V>.mapValuesTo(destination: M, transform: (Map.Entry<K, V>) -> R): M {\n   return entries.associateByTo(destination, { it.key }, transform)\n}\n\n/**\n * Populates the given [destination] map with entries having the keys obtained\n * by applying the [transform] function to each entry in this [Map] and the values of this map.\n *\n * In case if any two entries are mapped to the equal keys, the value of the latter one will overwrite\n * the value associated with the former one.\n */\npublic inline fun <K, V, R, M : MutableMap<in R, in V>> Map<out K, V>.mapKeysTo(destination: M, transform: (Map.Entry<K, V>) -> R): M {\n   return entries.associateByTo(destination, transform, { it.value })\n}\n\n/**\n * Puts all the given [pairs] into this [MutableMap] with the first component in the pair being the key and the second the value.\n */\npublic fun <K, V> MutableMap<in K, in V>.putAll(pairs: Array<out Pair<K, V>>): Unit {\n   for ((key, value) in pairs) {\n   put(key, value)\n   }\n}\n\n/**\n * Puts all the elements of the given collection into this [MutableMap] with the first component in the pair being the key and the second the value.\n */\npublic fun <K, V> MutableMap<in K, in V>.putAll(pairs: Iterable<Pair<K, V>>): Unit {\n   for ((key, value) in pairs) {\n   put(key, value)\n   }\n}\n\n/**\n * Puts all the elements of the given sequence into this [MutableMap] with the first component in the pair being the key and the second the value.\n */\npublic fun <K, V> MutableMap<in K, in V>.putAll(pairs: Sequence<Pair<K, V>>): Unit {\n   for ((key, value) in pairs) {\n   put(key, value)\n   }\n}\n\n/**\n * Returns a new map with entries having the keys of this map and the values obtained by applying the [transform]\n * function to each entry in this [Map].\n *\n * The returned map preserves the entry iteration order of the original map.\n *\n * @sample samples.collections.Maps.Transformations.mapValues\n */\npublic inline fun <K, V, R> Map<out K, V>.mapValues(transform: (Map.Entry<K, V>) -> R): Map<K, R> {\n   return mapValuesTo(LinkedHashMap<K, R>(mapCapacity(size)), transform) // .optimizeReadOnlyMap()\n}\n\n/**\n * Returns a new Map with entries having the keys obtained by applying the [transform] function to each entry in this\n * [Map] and the values of this map.\n *\n * In case if any two entries are mapped to the equal keys, the value of the latter one will overwrite\n * the value associated with the former one.\n *\n * The returned map preserves the entry iteration order of the original map.\n *\n * @sample samples.collections.Maps.Transformations.mapKeys\n */\npublic inline fun <K, V, R> Map<out K, V>.mapKeys(transform: (Map.Entry<K, V>) -> R): Map<R, V> {\n   return mapKeysTo(LinkedHashMap<R, V>(mapCapacity(size)), transform) // .optimizeReadOnlyMap()\n}\n\n/**\n * Returns a map containing all key-value pairs with keys matching the given [predicate].\n *\n * The returned map preserves the entry iteration order of the original map.\n * @sample samples.collections.Maps.Filtering.filterKeys\n */\npublic inline fun <K, V> Map<out K, V>.filterKeys(predicate: (K) -> Boolean): Map<K, V> {\n   val result = LinkedHashMap<K, V>()\n   for (entry in this) {\n   if (predicate(entry.key)) {\n   result.put(entry.key, entry.value)\n   }\n   }\n   return result\n}\n\n/**\n * Returns a map containing all key-value pairs with values matching the given [predicate].\n *\n * The returned map preserves the entry iteration order of the original map.\n * @sample samples.collections.Maps.Filtering.filterValues\n */\npublic inline fun <K, V> Map<out K, V>.filterValues(predicate: (V) -> Boolean): Map<K, V> {\n   val result = LinkedHashMap<K, V>()\n   for (entry in this) {\n   if (predicate(entry.value)) {\n   result.put(entry.key, entry.value)\n   }\n   }\n   return result\n}\n\n\n/**\n * Appends all entries matching the given [predicate] into the mutable map given as [destination] parameter.\n *\n * @return the destination map.\n * @sample samples.collections.Maps.Filtering.filterTo\n */\npublic inline fun <K, V, M : MutableMap<in K, in V>> Map<out K, V>.filterTo(destination: M, predicate: (Map.Entry<K, V>) -> Boolean): M {\n   for (element in this) {\n   if (predicate(element)) {\n destination.put(element.key, element.value)\n   }\n   }\n   return destination\n}\n\n/**\n * Returns a new map containing all key-value pairs matching the given [predicate].\n *\n * The returned map preserves the entry iteration order of the original map.\n * @sample samples.collections.Maps.Filtering.filter\n */\npublic inline fun <K, V> Map<out K, V>.filter(predicate: (Map.Entry<K, V>) -> Boolean): Map<K, V> {\n   return filterTo(LinkedHashMap<K, V>(), predicate)\n}\n\n/**\n * Appends all entries not matching the given [predicate] into the given [destination].\n *\n * @return the destination map.\n * @sample samples.collections.Maps.Filtering.filterNotTo\n */\npublic inline fun <K, V, M : MutableMap<in K, in V>> Map<out K, V>.filterNotTo(destination: M, predicate: (Map.Entry<K, V>) -> Boolean): M {\n   for (element in this) {\n   if (!predicate(element)) {\n   destination.put(element.key, element.value)\n   }\n   }\n   return destination\n}\n\n/**\n * Returns a new map containing all key-value pairs not matching the given [predicate].\n *\n * The returned map preserves the entry iteration order of the original map.\n * @sample samples.collections.Maps.Filtering.filterNot\n */\npublic inline fun <K, V> Map<out K, V>.filterNot(predicate: (Map.Entry<K, V>) -> Boolean): Map<K, V> {\n   return filterNotTo(LinkedHashMap<K, V>(), predicate)\n}\n\n/**\n * Returns a new map containing all key-value pairs from the given collection of pairs.\n *\n * The returned map preserves the entry iteration order of the original collection.\n * If any of two pairs would have the same key the last one gets added to the map.\n */\npublic fun <K, V> Iterable<Pair<K, V>>.toMap(): Map<K, V> {\n   if (this is Collection) {\n   return when (size) {\n   0 -> emptyMap()\n   1 -> mapOf(if (this is List) this[0] else iterator().next())\n   else -> toMap(LinkedHashMap<K, V>(mapCapacity(size)))\n   }\n   }\n   return toMap(LinkedHashMap<K, V>()).optimizeReadOnlyMap()\n}\n\n/**\n * Populates and returns the [destination] mutable map with key-value pairs from the given collection of pairs.\n */\npublic fun <K, V, M : MutableMap<in K, in V>> Iterable<Pair<K, V>>.toMap(destination: M): M =\n   destination.apply { putAll(this@toMap) }\n\n/**\n * Returns a new map containing all key-value pairs from the given array of pairs.\n *\n * The returned map preserves the entry iteration order of the original array.\n * If any of two pairs would have the same key the last one gets added to the map.\n */\npublic fun <K, V> Array<out Pair<K, V>>.toMap(): Map<K, V> = when (size) {\n   0 -> emptyMap()\n   1 -> mapOf(this[0])\n   else -> toMap(LinkedHashMap<K, V>(mapCapacity(size)))\n}\n\n/**\n * Populates and returns the [destination] mutable map with key-value pairs from the given array of pairs.\n */\npublic fun <K, V, M : MutableMap<in K, in V>> Array<out Pair<K, V>>.toMap(destination: M): M =\n   destination.apply { putAll(this@toMap) }\n\n/**\n * Returns a new map containing all key-value pairs from the given sequence of pairs.\n *\n * The returned map preserves the entry iteration order of the original sequence.\n * If any of two pairs would have the same key the last one gets added to the map.\n */\npublic fun <K, V> Sequence<Pair<K, V>>.toMap(): Map<K, V> = toMap(LinkedHashMap<K, V>()).optimizeReadOnlyMap()\n\n/**\n * Populates and returns the [destination] mutable map with key-value pairs from the given sequence of pairs.\n */\npublic fun <K, V, M : MutableMap<in K, in V>> Sequence<Pair<K, V>>.toMap(destination: M): M =\n   destination.apply { putAll(this@toMap) }\n\n/**\n * Returns a new read-only map containing all key-value pairs from the original map.\n *\n * The returned map preserves the entry iteration order of the original map.\n */\n@SinceKotlin(\"1.1\")\npublic fun <K, V> Map<out K, V>.toMap(): Map<K, V> = when (size) {\n   0 -> emptyMap()\n   1 -> toSingletonMap()\n   else -> toMutableMap()\n}\n\n/**\n * Returns a new mutable map containing all key-value pairs from the original map.\n *\n * The returned map preserves the entry iteration order of the original map.\n */\n@SinceKotlin(\"1.1\")\npublic fun <K, V> Map<out K,

V>.toMutableMap(): MutableMap<K, V> = LinkedHashMap(this)\n\n/**\n * Populates and returns the [destination] mutable map with key-value pairs from the given map.\n */\n@SinceKotlin(\"1.1\")\npublic fun <K, V, M : MutableMap<in K, in V>> Map<out K, V>.toMap(destination: M): M =\n   destination.apply { putAll(this@toMap) }\n\n/**\n * Creates a new read-only map by replacing or adding an entry to this map from a given key-value [pair].\n *\n * The returned map preserves the entry iteration order of the original map.\n * The [pair] is iterated in the end if it has a unique key.\n */\npublic operator fun <K, V> Map<out K, V>.plus(pair: Pair<K, V>): Map<K, V> =\n   if (this.isEmpty()) mapOf(pair) else LinkedHashMap(this).apply { put(pair.first, pair.second) }\n\n/**\n * Creates a new read-only map by replacing or adding entries to this map from a given collection of key-value [pairs].\n *\n * The returned map preserves the entry iteration order of the original map.\n * Those [pairs] with unique keys are iterated in the end in the order of [pairs] collection.\n */\npublic operator fun <K, V> Map<out K, V>.plus(pairs: Iterable<Pair<K, V>>): Map<K, V> =\n   if (this.isEmpty()) pairs.toMap() else LinkedHashMap(this).apply { putAll(pairs) }\n\n/**\n * Creates a new read-only map by replacing or adding entries to this map from a given array of key-value [pairs].\n *\n * The returned map preserves the entry iteration order of the original map.\n * Those [pairs] with unique keys are iterated in the end in the order of [pairs] array.\n */\npublic operator fun <K, V> Map<out K, V>.plus(pairs: Array<out Pair<K, V>>): Map<K, V> =\n   if (this.isEmpty()) pairs.toMap() else LinkedHashMap(this).apply { putAll(pairs) }\n\n/**\n * Creates a new read-only map by replacing or adding entries to this map from a given sequence of key-value [pairs].\n *\n * The returned map preserves the entry iteration order of the original map.\n * Those [pairs] with unique keys are iterated in the end in the order of [pairs] sequence.\n */\npublic operator fun <K, V> Map<out K, V>.plus(pairs: Sequence<Pair<K, V>>): Map<K, V> =\n   LinkedHashMap(this).apply { putAll(pairs) }.optimizeReadOnlyMap()\n\n/**\n * Creates a new read-only map by replacing or adding entries to this map from another [map].\n *\n * The returned map preserves the entry iteration order of the original map.\n * Those entries of another [map] that are missing in this map are iterated in the end in the order of that [map].\n */\npublic operator fun <K, V> Map<out K, V>.plus(map: Map<out K, V>): Map<K, V> =\n   LinkedHashMap(this).apply { putAll(map) }\n\n\n/**\n * Appends or replaces the given [pair] in this mutable map.\n */\n@kotlin.internal.InlineOnly\npublic inline operator fun <K, V> MutableMap<in K, in V>.plusAssign(pair: Pair<K, V>) {\n   put(pair.first, pair.second)\n}\n\n/**\n * Appends or replaces all pairs from the given collection of [pairs] in this mutable map.\n */\n@kotlin.internal.InlineOnly\npublic inline operator fun <K, V> MutableMap<in K, in V>.plusAssign(pairs: Iterable<Pair<K, V>>) {\n putAll(pairs)\n}\n\n/**\n * Appends or replaces all pairs from the given array of [pairs] in this mutable map.\n */\n@kotlin.internal.InlineOnly\npublic inline operator fun <K, V> MutableMap<in K, in V>.plusAssign(pairs: Array<out Pair<K, V>>) {\n   putAll(pairs)\n}\n\n/**\n * Appends or replaces all pairs from the given sequence of [pairs] in this mutable map.\n */\n@kotlin.internal.InlineOnly\npublic inline operator fun <K, V> MutableMap<in K, in V>.plusAssign(pairs: Sequence<Pair<K, V>>) {\n   putAll(pairs)\n}\n\n/**\n * Appends or replaces all entries from the given [map] in this mutable map.\n */\n@kotlin.internal.InlineOnly\npublic inline operator fun <K, V> MutableMap<in K, in V>.plusAssign(map: Map<K, V>) {\n   putAll(map)\n}\n\n/**\n * Returns a map containing all entries of the original map except the entry with the given [key].\n *\n * The returned map preserves the entry iteration order of the original map.\n */\n@SinceKotlin(\"1.1\")\npublic operator fun <K, V> Map<out K, V>.minus(key: K): Map<K, V> =\n   this.toMutableMap().apply { minusAssign(key) }.optimizeReadOnlyMap()\n\n/**\n * Returns a map containing all entries of the original map except those entries\n * the keys of which are contained in the given [keys] collection.\n *\n * The returned map preserves the entry iteration order of the original map.\n */\n@SinceKotlin(\"1.1\")\npublic operator fun <K, V> Map<out K, V>.minus(keys: Iterable<K>): Map<K, V> =\n   this.toMutableMap().apply { minusAssign(keys) }.optimizeReadOnlyMap()\n\n/**\n * Returns a map containing all entries of the original map except those entries\n * the keys of which are contained in the given [keys] array.\n *\n * The returned map preserves the entry iteration order of the original map.\n */\n@SinceKotlin(\"1.1\")\npublic operator fun <K, V> Map<out K, V>.minus(keys: Array<out K>): Map<K, V> =\n   this.toMutableMap().apply { minusAssign(keys) }.optimizeReadOnlyMap()\n\n/**\n * Returns a map containing all entries of the original map except those entries\n * the keys of which are contained in the given [keys] sequence.\n *\n * The returned map preserves the entry iteration order of the original map.\n */\n@SinceKotlin(\"1.1\")\npublic operator fun <K, V> Map<out K, V>.minus(keys: Sequence<K>): Map<K, V> =\n   this.toMutableMap().apply { minusAssign(keys) }.optimizeReadOnlyMap()\n\n/**\n * Removes the entry with the given [key] from this mutable map.\n */\n@SinceKotlin(\"1.1\")\n@kotlin.internal.InlineOnly\npublic inline operator fun <K, V> MutableMap<K, V>.minusAssign(key: K) {\n   remove(key)\n}\n\n/**\n * Removes all entries the keys of which are contained in the given [keys] collection from this mutable map.\n */\n@SinceKotlin(\"1.1\")\n@kotlin.internal.InlineOnly\npublic inline operator fun <K, V> MutableMap<K, V>.minusAssign(keys: Iterable<K>) {\n   this.keys.removeAll(keys)\n}\n\n/**\n * Removes all entries the keys of which are contained in the given [keys] array from this mutable map.\n */\n@SinceKotlin(\"1.1\")\n@kotlin.internal.InlineOnly\npublic inline operator fun <K, V> MutableMap<K, V>.minusAssign(keys: Array<out K>) {\n   this.keys.removeAll(keys)\n}\n\n/**\n * Removes all entries from the keys of which are contained in the given [keys] sequence from this mutable map.\n */\n@SinceKotlin(\"1.1\")\n@kotlin.internal.InlineOnly\npublic inline operator fun <K, V> MutableMap<K, V>.minusAssign(keys: Sequence<K>) {\n   this.keys.removeAll(keys)\n}\n\n\n// do not expose for now @PublishedApi\ninternal fun <K, V> Map<K, V>.optimizeReadOnlyMap() = when (size) {\n   0 -> emptyMap()\n   1 -> toSingletonMapOrSelf()\n   else -> this\n}\n","/*\n * Copyright 2010-2021 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\n@file:kotlin.jvm.JvmMultifileClass\n@file:kotlin.jvm.JvmName(\"SetsKt\")\n@file:OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n\npackage kotlin.collections\n\nimport kotlin.contracts.*\n\ninternal object EmptySet : Set<Nothing>, Serializable {\n   private const val serialVersionUID: Long = 3406603774387020532\n\n   override fun equals(other: Any?): Boolean = other is Set<*> && other.isEmpty()\n   override fun hashCode(): Int = 0\n   override fun toString(): String = \"[]\"\n\n   override val size: Int get() = 0\n   override fun isEmpty(): Boolean = true\n   override fun contains(element: Nothing): Boolean = false\n   override fun containsAll(elements: Collection<Nothing>): Boolean = elements.isEmpty()\n\n   override fun iterator(): Iterator<Nothing> = EmptyIterator\n\n   private fun readResolve(): Any = EmptySet\n}\n\n\n/**\n * Returns an empty read-only set. The returned set is serializable (JVM).\n * @sample samples.collections.Collections.Sets.emptyReadOnlySet\n */\npublic fun <T> emptySet(): Set<T> = EmptySet\n\n/**\n * Returns a new read-only set with the given elements.\n * Elements of the set are iterated in the order they were specified.\n * The returned set is serializable (JVM).\n * @sample samples.collections.Collections.Sets.readOnlySet\n */\npublic fun <T> setOf(vararg elements: T): Set<T> = if (elements.size > 0) elements.toSet() else emptySet()\n\n/**\n * Returns an empty read-only set. The returned set is serializable (JVM).\n * @sample samples.collections.Collections.Sets.emptyReadOnlySet\n */\n@kotlin.internal.InlineOnly\npublic inline fun <T> setOf(): Set<T> = emptySet()\n\n/**\n * Returns an empty new [MutableSet].\n *\n * The returned set preserves the element iteration order.\n * @sample samples.collections.Collections.Sets.emptyMutableSet\n */\n@SinceKotlin(\"1.1\")\n@kotlin.internal.InlineOnly\npublic inline fun <T> mutableSetOf(): MutableSet<T> = LinkedHashSet()\n\n/**\n * Returns a new [MutableSet] with the given elements.\n * Elements of the set are iterated in the order they were specified.\n * @sample samples.collections.Collections.Sets.mutableSet\n */\npublic fun <T> mutableSetOf(vararg elements: T): MutableSet<T> = elements.toCollection(LinkedHashSet(mapCapacity(elements.size)))\n\n/** Returns an empty new [HashSet]. */\n@SinceKotlin(\"1.1\")\n@kotlin.internal.InlineOnly\npublic inline fun <T> hashSetOf(): HashSet<T> = HashSet()\n\n/** Returns a new [HashSet] with the given elements. */\npublic fun <T> hashSetOf(vararg elements: T): HashSet<T> = elements.toCollection(HashSet(mapCapacity(elements.size)))\n\n/**\n * Returns an empty new [LinkedHashSet].\n * @sample samples.collections.Collections.Sets.emptyLinkedHashSet\n */\n@SinceKotlin(\"1.1\")\n@kotlin.internal.InlineOnly\npublic inline fun <T> linkedSetOf(): LinkedHashSet<T> = LinkedHashSet()\n\n/**\n * Returns a new [LinkedHashSet] with the given elements.\n * Elements of the set are iterated in the order they were specified.\n * @sample samples.collections.Collections.Sets.linkedHashSet\n

*/\npublic fun <T> linkedSetOf(vararg elements: T): LinkedHashSet<T> = elements.toCollection(LinkedHashSet(mapCapacity(elements.size)))\n\n/**\n * Returns a new read-only set either with single given element, if it is not null, or empty set if the element is null.\n * The returned set is serializable (JVM).\n * @sample samples.collections.Collections.Sets.setOfNotNull\n */\n@SinceKotlin(\"1.4\")\npublic fun <T : Any> setOfNotNull(element: T?): Set<T> = if (element != null) setOf(element) else emptySet()\n\n/**\n * Returns a new read-only set only with those given elements, that are not null.\n * Elements of the set are iterated in the order they were specified.\n * The returned set is serializable (JVM).\n * @sample samples.collections.Collections.Sets.setOfNotNull\n */\n@SinceKotlin(\"1.4\")\npublic fun <T : Any> setOfNotNull(vararg elements: T?): Set<T> {\n   return elements.filterNotNullTo(LinkedHashSet())\n}\n\n/**\n * Builds a new read-only [Set] by populating a [MutableSet] using the given [builderAction]\n * and returning a read-only set with the same elements.\n *\n * The set passed as a receiver to the [builderAction] is valid only inside that function.\n * Using it outside of the function produces an unspecified behavior.\n *\n * Elements of the set are iterated in the order they were added by the [builderAction].\n *\n * The returned set is serializable (JVM).\n *\n * @sample samples.collections.Builders.Sets.buildSetSample\n */\n@SinceKotlin(\"1.6\")\n@WasExperimental(ExperimentalStdlibApi::class)\n@kotlin.internal.InlineOnly\n@Suppress(\"DEPRECATION\")\npublic inline fun <E> buildSet(@BuilderInference builderAction: MutableSet<E>.() -> Unit): Set<E> {\n   contract { callsInPlace(builderAction, InvocationKind.EXACTLY_ONCE) }\n   return buildSetInternal(builderAction)\n}\n\n@PublishedApi\n@SinceKotlin(\"1.3\")\n@kotlin.internal.InlineOnly\ninternal expect inline fun <E> buildSetInternal(builderAction: MutableSet<E>.() -> Unit): Set<E>\n\n/**\n * Builds a new read-only [Set] by populating a [MutableSet] using the given [builderAction]\n * and returning a read-only set with the same elements.\n *\n * The set passed as a receiver to the [builderAction] is valid only inside that function.\n * Using it outside of the function produces an unspecified behavior.\n *\n * [capacity] is used to hint the expected number of elements added in the [builderAction].\n *\n * Elements of the set are iterated in the order they were added by the [builderAction].\n *\n * The returned set is serializable (JVM).\n *\n * @throws IllegalArgumentException if the given [capacity] is negative.\n *\n * @sample samples.collections.Builders.Sets.buildSetSample\n */\n@SinceKotlin(\"1.6\")\n@WasExperimental(ExperimentalStdlibApi::class)\n@kotlin.internal.InlineOnly\n@Suppress(\"DEPRECATION\")\npublic inline fun <E> buildSet(capacity: Int, @BuilderInference builderAction: MutableSet<E>.() -> Unit): Set<E> {\n   contract { callsInPlace(builderAction, InvocationKind.EXACTLY_ONCE) }\n   return buildSetInternal(capacity, builderAction)\n}\n\n@PublishedApi\n@SinceKotlin(\"1.3\")\n@kotlin.internal.InlineOnly\ninternal expect inline fun <E> buildSetInternal(capacity: Int, builderAction: MutableSet<E>.() -> Unit): Set<E>\n\n\n/** Returns this Set if it's not `null` and the empty set otherwise. */\n@kotlin.internal.InlineOnly\npublic inline fun <T> Set<T>?.orEmpty(): Set<T> = this ?: emptySet()\n\ninternal fun <T> Set<T>.optimizeReadOnlySet() = when (size) {\n   0 -> emptySet()\n   1 -> setOf(iterator().next())\n   else -> this\n}\n","/*\n * Copyright 2010-2022 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\n// Auto-generated file. DO NOT EDIT!\n\npackage kotlin.ranges\n\n/**\n * A range of values of type `Char`.\n */\n@OptIn(ExperimentalStdlibApi::class)\npublic class CharRange(start: Char, endInclusive: Char) : CharProgression(start, endInclusive, 1), ClosedRange<Char>, OpenEndRange<Char> {\n   override val start: Char get() = first\n   override val endInclusive: Char get() = last\n   \n   @Deprecated(\"Can throw an exception when it's impossible to represent the value with Char type, for example, when the range includes MAX_VALUE. It's recommended to use 'endInclusive' property that doesn't throw.\")\n   @SinceKotlin(\"1.7\")\n   @ExperimentalStdlibApi\n   override val endExclusive: Char get() {\n   if (last == Char.MAX_VALUE) error(\"Cannot return the exclusive upper bound of a range that includes MAX_VALUE.\")\n   return last + 1\n   }\n\n   override fun contains(value: Char): Boolean = first <= value && value <= last\n\n   /** \n   * Checks whether the range is empty.\n   *\n   * The range is empty if its start value is greater than the end value.\n   */\n   override fun isEmpty(): Boolean = first > last\n\n   override fun equals(other: Any?): Boolean =\n   other is

CharRange && (isEmpty() && other.isEmpty() ||\n   first == other.first && last == other.last)\n\n   override fun hashCode(): Int =\n   if (isEmpty()) -1 else (31 * first.code + last.code)\n\n   override fun toString(): String = \"$first..$last\"\n\n   companion object {\n   /** An empty range of values of type Char. */\n   public val EMPTY: CharRange = CharRange(1.toChar(), 0.toChar())\n   }\n}\n\n/**\n * A range of values of type `Int`.\n */\n@OptIn(ExperimentalStdlibApi::class)\npublic class IntRange(start: Int, endInclusive: Int) : IntProgression(start, endInclusive, 1), ClosedRange<Int>, OpenEndRange<Int> {\n   override val start: Int get() = first\n   override val endInclusive: Int get() = last\n   \n   @Deprecated(\"Can throw an exception when it's impossible to represent the value with Int type, for example, when the range includes MAX_VALUE. It's recommended to use 'endInclusive' property that doesn't throw.\")\n   @SinceKotlin(\"1.7\")\n   @ExperimentalStdlibApi\n   override val endExclusive: Int get() {\n   if (last == Int.MAX_VALUE) error(\"Cannot return the exclusive upper bound of a range that includes MAX_VALUE.\")\n   return last + 1\n   }\n\n   override fun contains(value: Int): Boolean = first <= value && value <= last\n\n   /** \n   * Checks whether the range is empty.\n   *\n   * The range is empty if its start value is greater than the end value.\n   */\n   override fun isEmpty(): Boolean = first > last\n\n   override fun equals(other: Any?): Boolean =\n   other is IntRange && (isEmpty() && other.isEmpty() ||\n   first == other.first && last == other.last)\n\n   override fun hashCode(): Int =\n   if (isEmpty()) -1 else (31 * first + last)\n\n   override fun toString(): String = \"$first..$last\"\n\n   companion object {\n   /** An empty range of values of type Int. */\n   public val EMPTY: IntRange = IntRange(1, 0)\n   }\n}\n\n/**\n * A range of values of type `Long`.\n */\n@OptIn(ExperimentalStdlibApi::class)\npublic class LongRange(start: Long, endInclusive: Long) : LongProgression(start, endInclusive, 1), ClosedRange<Long>, OpenEndRange<Long> {\n   override val start: Long get() = first\n   override val endInclusive: Long get() = last\n   \n   @Deprecated(\"Can throw an exception when it's impossible to represent the value with Long type, for example, when the range includes MAX_VALUE. It's recommended to use 'endInclusive' property that doesn't throw.\")\n   @SinceKotlin(\"1.7\")\n   @ExperimentalStdlibApi\n   override val endExclusive: Long get() {\n   if (last == Long.MAX_VALUE) error(\"Cannot return the exclusive upper bound of a range that includes MAX_VALUE.\")\n   return last + 1\n   }\n\n   override fun contains(value: Long): Boolean = first <= value && value <= last\n\n   /** \n   * Checks whether the range is empty.\n   *\n   * The range is empty if its start value is greater than the end value.\n   */\n   override fun isEmpty(): Boolean = first > last\n\n   override fun equals(other: Any?): Boolean =\n   other is LongRange && (isEmpty() && other.isEmpty() ||\n   first == other.first && last == other.last)\n\n   override fun hashCode(): Int =\n   if (isEmpty()) -1 else (31 * (first xor (first ushr 32)) + (last xor (last ushr 32))).toInt()\n\n   override fun toString(): String = \"$first..$last\"\n\n   companion object {\n   /** An empty range of values of type Long. */\n   public val EMPTY: LongRange = LongRange(1, 0)\n   }\n}\n\n","/*\n * Copyright 2010-2018 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\n@file:kotlin.jvm.JvmMultifileClass\n@file:kotlin.jvm.JvmName(\"StringsKt\")\n@file:Suppress(\"PLATFORM_CLASS_MAPPED_TO_KOTLIN\")\n\npackage kotlin.text\n\n/**\n * Parses the string as a signed [Byte] number and returns the result\n * or `null` if the string is not a valid representation of a number.\n */\n@SinceKotlin(\"1.1\")\npublic fun String.toByteOrNull(): Byte? = toByteOrNull(radix = 10)\n\n/**\n * Parses the string as a signed [Byte] number and returns the result\n * or `null` if the string is not a valid representation of a number.\n *\n * @throws IllegalArgumentException when [radix] is not a valid radix for string to number conversion.\n */\n@SinceKotlin(\"1.1\")\npublic fun String.toByteOrNull(radix: Int): Byte? {\n   val int = this.toIntOrNull(radix) ?: return null\n   if (int < Byte.MIN_VALUE || int > Byte.MAX_VALUE) return null\n   return int.toByte()\n}\n\n/**\n * Parses the string as a [Short] number and returns the result\n * or `null` if the string is not a valid representation of a number.\n */\n@SinceKotlin(\"1.1\")\npublic fun String.toShortOrNull(): Short? = toShortOrNull(radix = 10)\n\n/**\n * Parses the string as a [Short] number and returns the result\n * or `null` if the string is not a valid representation of a number.\n *\n * @throws IllegalArgumentException when [radix] is not a valid radix for string to number conversion.\n */\n@SinceKotlin(\"1.1\")\npublic fun String.toShortOrNull(radix: Int): Short? {\n   val int = this.toIntOrNull(radix) ?: return null\n   if (int < Short.MIN_VALUE || int >

Short.MAX_VALUE) return null\n   return int.toShort()\n}\n\n/**\n * Parses the string as an [Int] number and returns the result\n * or `null` if the string is not a valid representation of a number.\n */\n@SinceKotlin(\"1.1\")\npublic fun String.toIntOrNull(): Int? = toIntOrNull(radix = 10)\n\n/**\n * Parses the string as an [Int] number and returns the result\n * or `null` if the string is not a valid representation of a number.\n *\n * @throws IllegalArgumentException when [radix] is not a valid radix for string to number conversion.\n */\n@SinceKotlin(\"1.1\")\npublic fun String.toIntOrNull(radix: Int): Int? {\n   checkRadix(radix)\n\n   val length = this.length\n   if (length == 0) return null\n\n   val start: Int\n   val isNegative: Boolean\n   val limit: Int\n\n   val firstChar = this[0]\n   if (firstChar < '0') { // Possible leading sign\n   if (length == 1) return null // non-digit (possible sign) only, no digits after\n\n   start = 1\n\n   if (firstChar == '-') {\n   isNegative = true\n   limit = Int.MIN_VALUE\n   } else if (firstChar == '+') {\n   isNegative = false\n   limit = -Int.MAX_VALUE\n   } else\n   return null\n   } else {\n   start = 0\n   isNegative = false\n   limit = -Int.MAX_VALUE\n   }\n\n\n   val limitForMaxRadix = (-Int.MAX_VALUE) / 36\n\n   var limitBeforeMul = limitForMaxRadix\n   var result = 0\n   for (i in start until length) {\n   val digit = digitOf(this[i], radix)\n\n   if (digit < 0) return null\n   if (result < limitBeforeMul) {\n   if (limitBeforeMul == limitForMaxRadix) {\n   limitBeforeMul = limit / radix\n\n   if (result < limitBeforeMul) {\n   return null\n   }\n   } else {\n   return null\n   }\n   }\n\n   result *= radix\n\n   if (result < limit + digit) return null\n\n   result -= digit\n   }\n\n   return if (isNegative) result else -result\n}\n\n/**\n * Parses the string as a [Long] number and returns the result\n * or `null` if the string is not a valid representation of a number.\n */\n@SinceKotlin(\"1.1\")\npublic fun String.toLongOrNull(): Long? = toLongOrNull(radix = 10)\n\n/**\n * Parses the string as a [Long] number and returns the result\n * or `null` if the string is not a valid representation of a number.\n *\n * @throws IllegalArgumentException when [radix] is not a valid radix for string to number conversion.\n */\n@SinceKotlin(\"1.1\")\npublic fun String.toLongOrNull(radix: Int): Long? {\n   checkRadix(radix)\n\n   val length = this.length\n   if (length == 0) return null\n\n   val start: Int\n   val isNegative: Boolean\n   val limit: Long\n\n   val firstChar = this[0]\n   if (firstChar < '0') { // Possible leading sign\n   if (length == 1) return null // non-digit (possible sign) only, no digits after\n\n   start = 1\n\n   if (firstChar == '-') {\n   isNegative = true\n   limit = Long.MIN_VALUE\n   } else if (firstChar == '+') {\n   isNegative = false\n   limit = -Long.MAX_VALUE\n   } else\n   return null\n   } else {\n   start = 0\n   isNegative = false\n   limit = -Long.MAX_VALUE\n   }\n\n\n   val limitForMaxRadix = (-Long.MAX_VALUE) / 36\n\n   var limitBeforeMul = limitForMaxRadix\n   var result = 0L\n   for (i in start until length) {\n   val digit = digitOf(this[i], radix)\n\n   if (digit < 0) return null\n   if (result < limitBeforeMul) {\n   if (limitBeforeMul == limitForMaxRadix) {\n   limitBeforeMul = limit / radix\n\n   if (result < limitBeforeMul) {\n   return null\n   }\n   } else {\n   return null\n   }\n   }\n\n   result *= radix\n\n   if (result < limit + digit) return null\n\n   result -= digit\n   }\n\n   return if (isNegative) result else -result\n}\n\n\ninternal fun numberFormatError(input: String): Nothing = throw NumberFormatException(\"Invalid number format: '$input'\")\n","/*\n * Copyright 2010-2021 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin.time\n\nimport kotlin.contracts.*\nimport kotlin.jvm.JvmInline\nimport kotlin.math.*\n\n/**\n * Represents the amount of time one instant of time is away from another instant.\n *\n * A negative duration is possible in a situation when the second instant is earlier than the first one.\n *\n * The type can store duration values up to \u00b1146 years with nanosecond precision,\n * and up to \u00b1146 million years with millisecond precision.\n * If a duration-returning operation provided in `kotlin.time` produces a duration value that doesn't fit into the above range,\n * the returned `Duration` is infinite.\n *\n * An infinite duration value [Duration.INFINITE] can be used to represent infinite timeouts.\n *\n * To construct a duration use either the extension function [toDuration],\n * or the extension properties [hours], [minutes], [seconds], and so on,\n * available on [Int], [Long], and [Double] numeric types.\n *\n * To get the value of this duration expressed in a particular [duration units][DurationUnit]\n * use the functions [toInt], [toLong], and [toDouble]\n * or the properties [inWholeHours], [inWholeMinutes], [inWholeSeconds], [inWholeNanoseconds], and so on.\n */\n@SinceKotlin(\"1.6\")\n@WasExperimental(ExperimentalTime::class)\n@JvmInline\npublic value class

Duration internal constructor(private val rawValue: Long) : Comparable<Duration> {\n\n   private val value: Long get() = rawValue shr 1\n   private inline val unitDiscriminator: Int get() = rawValue.toInt() and 1\n   private fun isInNanos() = unitDiscriminator == 0\n   private fun isInMillis() = unitDiscriminator == 1\n   private val storageUnit get() = if (isInNanos()) DurationUnit.NANOSECONDS else DurationUnit.MILLISECONDS\n\n   init {\n   if (durationAssertionsEnabled) {\n   if (isInNanos()) {\n   if (value !in -MAX_NANOS..MAX_NANOS) throw AssertionError(\"$value ns is out of nanoseconds range\")\n   } else {\n   if (value !in -MAX_MILLIS..MAX_MILLIS) throw AssertionError(\"$value ms is out of milliseconds range\")\n   if (value in -MAX_NANOS_IN_MILLIS..MAX_NANOS_IN_MILLIS) throw AssertionError(\"$value ms is denormalized\")\n   }\n   }\n   }\n\n   companion object {\n   /** The duration equal to exactly 0 seconds. */\n   public val ZERO: Duration = Duration(0L)\n\n   /** The duration whose value is positive infinity. It is useful for representing timeouts that should never expire. */\n   public val INFINITE: Duration = durationOfMillis(MAX_MILLIS)\n   internal val NEG_INFINITE: Duration = durationOfMillis(-MAX_MILLIS)\n\n   /** Converts the given time duration [value] expressed in the specified [sourceUnit] into the specified [targetUnit]. */\n   @ExperimentalTime\n   public fun convert(value: Double, sourceUnit: DurationUnit, targetUnit: DurationUnit): Double =\n   convertDurationUnit(value, sourceUnit, targetUnit)\n\n   // Duration construction extension properties in Duration companion scope\n\n   /** Returns a [Duration] equal to this [Int] number of nanoseconds. */\n   @kotlin.internal.InlineOnly\n   public inline val Int.nanoseconds get() = toDuration(DurationUnit.NANOSECONDS)\n\n   /** Returns a [Duration] equal to this [Long] number of nanoseconds. */\n   @kotlin.internal.InlineOnly\n   public inline val Long.nanoseconds get() = toDuration(DurationUnit.NANOSECONDS)\n\n   /**\n   * Returns a [Duration] equal to this [Double] number of nanoseconds.\n   *\n   * Depending on its magnitude, the value is rounded to an integer number of nanoseconds or milliseconds.\n   *\n   * @throws IllegalArgumentException if this [Double] value is `NaN`.\n   */\n   @kotlin.internal.InlineOnly\n   public inline val Double.nanoseconds get() = toDuration(DurationUnit.NANOSECONDS)\n\n\n   /** Returns a [Duration] equal to this [Int] number of microseconds. */\n   @kotlin.internal.InlineOnly\n   public inline val Int.microseconds get() = toDuration(DurationUnit.MICROSECONDS)\n\n   /** Returns a [Duration] equal to this [Long] number of microseconds. */\n   @kotlin.internal.InlineOnly\n   public inline val Long.microseconds get() = toDuration(DurationUnit.MICROSECONDS)\n\n   /**\n   * Returns a [Duration] equal to this [Double] number of microseconds.\n   *\n   * Depending on its magnitude, the value is rounded to an integer number of nanoseconds or milliseconds.\n   *\n   * @throws IllegalArgumentException if this [Double] value is `NaN`.\n   */\n   @kotlin.internal.InlineOnly\n   public inline val Double.microseconds get() = toDuration(DurationUnit.MICROSECONDS)\n\n\n   /** Returns a [Duration] equal to this [Int] number of milliseconds. */\n   @kotlin.internal.InlineOnly\n   public inline val Int.milliseconds get() = toDuration(DurationUnit.MILLISECONDS)\n\n   /** Returns a [Duration] equal to this [Long] number of milliseconds. */\n   @kotlin.internal.InlineOnly\n   public inline val Long.milliseconds get() = toDuration(DurationUnit.MILLISECONDS)\n\n   /**\n   * Returns a [Duration] equal to this [Double] number of milliseconds.\n   *\n   * Depending on its magnitude, the value is rounded to an integer number of nanoseconds or milliseconds.\n   *\n   * @throws IllegalArgumentException if this [Double] value is `NaN`.\n   */\n   @kotlin.internal.InlineOnly\n   public inline val Double.milliseconds get() = toDuration(DurationUnit.MILLISECONDS)\n\n\n   /** Returns a [Duration] equal to this [Int] number of seconds. */\n   @kotlin.internal.InlineOnly\n   public inline val Int.seconds get() = toDuration(DurationUnit.SECONDS)\n\n   /** Returns a [Duration] equal to this [Long] number of seconds. */\n   @kotlin.internal.InlineOnly\n   public inline val Long.seconds get() = toDuration(DurationUnit.SECONDS)\n\n   /**\n   * Returns a [Duration] equal to this [Double] number of seconds.\n   *\n   * Depending on its magnitude, the value is rounded to an integer number of nanoseconds or milliseconds.\n   *\n   * @throws IllegalArgumentException if this [Double] value is `NaN`.\n   */\n   @kotlin.internal.InlineOnly\n   public inline val Double.seconds get() = toDuration(DurationUnit.SECONDS)\n\n\n   /** Returns a [Duration] equal to this [Int] number of minutes. */\n

@kotlin.internal.InlineOnly\n public inline val Int.minutes get() = toDuration(DurationUnit.MINUTES)\n\n /** Returns a [Duration] equal to this [Long] number of minutes. */\n @kotlin.internal.InlineOnly\n public inline val Long.minutes get() = toDuration(DurationUnit.MINUTES)\n\n /**\n * Returns a [Duration] equal to this [Double] number of minutes.\n *\n * Depending on its magnitude, the value is rounded to an integer number of nanoseconds or milliseconds.\n *\n * @throws IllegalArgumentException if this [Double] value is `NaN`.\n */\n @kotlin.internal.InlineOnly\n public inline val Double.minutes get() = toDuration(DurationUnit.MINUTES)\n\n\n /** Returns a [Duration] equal to this [Int] number of hours. */\n @kotlin.internal.InlineOnly\n public inline val Int.hours get() = toDuration(DurationUnit.HOURS)\n\n /** Returns a [Duration] equal to this [Long] number of hours. */\n @kotlin.internal.InlineOnly\n public inline val Long.hours get() = toDuration(DurationUnit.HOURS)\n\n /**\n * Returns a [Duration] equal to this [Double] number of hours.\n *\n * Depending on its magnitude, the value is rounded to an integer number of nanoseconds or milliseconds.\n *\n * @throws IllegalArgumentException if this [Double] value is `NaN`.\n */\n @kotlin.internal.InlineOnly\n public inline val Double.hours get() = toDuration(DurationUnit.HOURS)\n\n\n /** Returns a [Duration] equal to this [Int] number of days. */\n @kotlin.internal.InlineOnly\n public inline val Int.days get() = toDuration(DurationUnit.DAYS)\n\n /** Returns a [Duration] equal to this [Long] number of days. */\n @kotlin.internal.InlineOnly\n public inline val Long.days get() = toDuration(DurationUnit.DAYS)\n\n /**\n * Returns a [Duration] equal to this [Double] number of days.\n *\n * Depending on its magnitude, the value is rounded to an integer number of nanoseconds or milliseconds.\n *\n * @throws IllegalArgumentException if this [Double] value is `NaN`.\n */\n @kotlin.internal.InlineOnly\n public inline val Double.days get() = toDuration(DurationUnit.DAYS)\n\n\n // deprecated static factory functions\n\n /** Returns a [Duration] representing the specified [value] number of nanoseconds. */\n @SinceKotlin(\"1.5\")\n @ExperimentalTime\n @Deprecated(\"Use 'Int.nanoseconds' extension property from Duration.Companion instead.\", ReplaceWith(\"value.nanoseconds\", \"kotlin.time.Duration.Companion.nanoseconds\"))\n @DeprecatedSinceKotlin(warningSince = \"1.6\")\n public fun nanoseconds(value: Int): Duration = value.toDuration(DurationUnit.NANOSECONDS)\n\n /** Returns a [Duration] representing the specified [value] number of nanoseconds. */\n @SinceKotlin(\"1.5\")\n @ExperimentalTime\n @Deprecated(\"Use 'Long.nanoseconds' extension property from Duration.Companion instead.\", ReplaceWith(\"value.nanoseconds\", \"kotlin.time.Duration.Companion.nanoseconds\"))\n @DeprecatedSinceKotlin(warningSince = \"1.6\")\n public fun nanoseconds(value: Long): Duration = value.toDuration(DurationUnit.NANOSECONDS)\n\n /**\n * Returns a [Duration] representing the specified [value] number of nanoseconds.\n *\n * @throws IllegalArgumentException if the provided `Double` [value] is `NaN`.\n */\n @SinceKotlin(\"1.5\")\n @ExperimentalTime\n @Deprecated(\"Use 'Double.nanoseconds' extension property from Duration.Companion instead.\", ReplaceWith(\"value.nanoseconds\", \"kotlin.time.Duration.Companion.nanoseconds\"))\n @DeprecatedSinceKotlin(warningSince = \"1.6\")\n public fun nanoseconds(value: Double): Duration = value.toDuration(DurationUnit.NANOSECONDS)\n\n\n /** Returns a [Duration] representing the specified [value] number of microseconds. */\n @SinceKotlin(\"1.5\")\n @ExperimentalTime\n @Deprecated(\"Use 'Int.microseconds' extension property from Duration.Companion instead.\", ReplaceWith(\"value.microseconds\", \"kotlin.time.Duration.Companion.microseconds\"))\n @DeprecatedSinceKotlin(warningSince = \"1.6\")\n public fun microseconds(value: Int): Duration = value.toDuration(DurationUnit.MICROSECONDS)\n\n /** Returns a [Duration] representing the specified [value] number of microseconds. */\n @SinceKotlin(\"1.5\")\n @ExperimentalTime\n @Deprecated(\"Use 'Long.microseconds' extension property from Duration.Companion instead.\", ReplaceWith(\"value.microseconds\", \"kotlin.time.Duration.Companion.microseconds\"))\n @DeprecatedSinceKotlin(warningSince = \"1.6\")\n public fun microseconds(value: Long): Duration = value.toDuration(DurationUnit.MICROSECONDS)\n\n /**\n * Returns a [Duration] representing the specified [value] number of microseconds.\n *\n * @throws IllegalArgumentException if the provided

`Double` [value] is `NaN`.\n   */\n   @SinceKotlin(\"1.5\")\n   @ExperimentalTime\n   @Deprecated(\"Use 'Double.microseconds' extension property from Duration.Companion instead.\", ReplaceWith(\"value.microseconds\", \"kotlin.time.Duration.Companion.microseconds\"))\n   @DeprecatedSinceKotlin(warningSince = \"1.6\")\n   public fun microseconds(value: Double): Duration = value.toDuration(DurationUnit.MICROSECONDS)\n\n\n   /** Returns a [Duration] representing the specified [value] number of milliseconds. */\n   @SinceKotlin(\"1.5\")\n   @ExperimentalTime\n   @Deprecated(\"Use 'Int.milliseconds' extension property from Duration.Companion instead.\", ReplaceWith(\"value.milliseconds\", \"kotlin.time.Duration.Companion.milliseconds\"))\n   @DeprecatedSinceKotlin(warningSince = \"1.6\")\n   public fun milliseconds(value: Int): Duration = value.toDuration(DurationUnit.MILLISECONDS)\n\n   /** Returns a [Duration] representing the specified [value] number of milliseconds. */\n   @SinceKotlin(\"1.5\")\n   @ExperimentalTime\n   @Deprecated(\"Use 'Long.milliseconds' extension property from Duration.Companion instead.\", ReplaceWith(\"value.milliseconds\", \"kotlin.time.Duration.Companion.milliseconds\"))\n   @DeprecatedSinceKotlin(warningSince = \"1.6\")\n   public fun milliseconds(value: Long): Duration = value.toDuration(DurationUnit.MILLISECONDS)\n\n   /**\n   * Returns a [Duration] representing the specified [value] number of milliseconds.\n   *\n   * @throws IllegalArgumentException if the provided `Double` [value] is `NaN`.\n   */\n   @SinceKotlin(\"1.5\")\n   @ExperimentalTime\n   @Deprecated(\"Use 'Double.milliseconds' extension property from Duration.Companion instead.\", ReplaceWith(\"value.milliseconds\", \"kotlin.time.Duration.Companion.milliseconds\"))\n   @DeprecatedSinceKotlin(warningSince = \"1.6\")\n   public fun milliseconds(value: Double): Duration = value.toDuration(DurationUnit.MILLISECONDS)\n\n\n   /** Returns a [Duration] representing the specified [value] number of seconds. */\n   @SinceKotlin(\"1.5\")\n   @ExperimentalTime\n   @Deprecated(\"Use 'Int.seconds' extension property from Duration.Companion instead.\", ReplaceWith(\"value.seconds\", \"kotlin.time.Duration.Companion.seconds\"))\n   @DeprecatedSinceKotlin(warningSince = \"1.6\")\n   public fun seconds(value: Int): Duration = value.toDuration(DurationUnit.SECONDS)\n\n   /** Returns a [Duration] representing the specified [value] number of seconds. */\n   @SinceKotlin(\"1.5\")\n   @ExperimentalTime\n   @Deprecated(\"Use 'Long.seconds' extension property from Duration.Companion instead.\", ReplaceWith(\"value.seconds\", \"kotlin.time.Duration.Companion.seconds\"))\n   @DeprecatedSinceKotlin(warningSince = \"1.6\")\n   public fun seconds(value: Long): Duration = value.toDuration(DurationUnit.SECONDS)\n\n   /**\n   * Returns a [Duration] representing the specified [value] number of seconds.\n   *\n   * @throws IllegalArgumentException if the provided `Double` [value] is `NaN`.\n   */\n   @SinceKotlin(\"1.5\")\n   @ExperimentalTime\n   @Deprecated(\"Use 'Double.seconds' extension property from Duration.Companion instead.\", ReplaceWith(\"value.seconds\", \"kotlin.time.Duration.Companion.seconds\"))\n   @DeprecatedSinceKotlin(warningSince = \"1.6\")\n   public fun seconds(value: Double): Duration = value.toDuration(DurationUnit.SECONDS)\n\n\n   /** Returns a [Duration] representing the specified [value] number of minutes. */\n   @SinceKotlin(\"1.5\")\n   @ExperimentalTime\n   @Deprecated(\"Use 'Int.minutes' extension property from Duration.Companion instead.\", ReplaceWith(\"value.minutes\", \"kotlin.time.Duration.Companion.minutes\"))\n   @DeprecatedSinceKotlin(warningSince = \"1.6\")\n   public fun minutes(value: Int): Duration = value.toDuration(DurationUnit.MINUTES)\n\n   /** Returns a [Duration] representing the specified [value] number of minutes. */\n   @SinceKotlin(\"1.5\")\n   @ExperimentalTime\n   @Deprecated(\"Use 'Long.minutes' extension property from Duration.Companion instead.\", ReplaceWith(\"value.minutes\", \"kotlin.time.Duration.Companion.minutes\"))\n   @DeprecatedSinceKotlin(warningSince = \"1.6\")\n   public fun minutes(value: Long): Duration = value.toDuration(DurationUnit.MINUTES)\n\n   /**\n   * Returns a [Duration] representing the specified [value] number of minutes.\n   *\n   * @throws IllegalArgumentException if the provided `Double` [value] is `NaN`.\n   */\n   @SinceKotlin(\"1.5\")\n   @ExperimentalTime\n   @Deprecated(\"Use 'Double.minutes' extension property from Duration.Companion instead.\", ReplaceWith(\"value.minutes\", \"kotlin.time.Duration.Companion.minutes\"))\n

@DeprecatedSinceKotlin(warningSince = \"1.6\")\n   public fun minutes(value: Double): Duration = value.toDuration(DurationUnit.MINUTES)\n\n\n   /** Returns a [Duration] representing the specified [value] number of hours. */\n   @SinceKotlin(\"1.5\")\n   @ExperimentalTime\n   @Deprecated(\"Use 'Int.hours' extension property from Duration.Companion instead.\", ReplaceWith(\"value.hours\", \"kotlin.time.Duration.Companion.hours\"))\n   @DeprecatedSinceKotlin(warningSince = \"1.6\")\n   public fun hours(value: Int): Duration = value.toDuration(DurationUnit.HOURS)\n\n   /** Returns a [Duration] representing the specified [value] number of hours. */\n   @SinceKotlin(\"1.5\")\n   @ExperimentalTime\n   @Deprecated(\"Use 'Long.hours' extension property from Duration.Companion instead.\", ReplaceWith(\"value.hours\", \"kotlin.time.Duration.Companion.hours\"))\n   @DeprecatedSinceKotlin(warningSince = \"1.6\")\n   public fun hours(value: Long): Duration = value.toDuration(DurationUnit.HOURS)\n\n   /**\n   * Returns a [Duration] representing the specified [value] number of hours.\n   *\n   * @throws IllegalArgumentException if the provided `Double` [value] is `NaN`.\n   */\n   @SinceKotlin(\"1.5\")\n   @ExperimentalTime\n   @Deprecated(\"Use 'Double.hours' extension property from Duration.Companion instead.\", ReplaceWith(\"value.hours\", \"kotlin.time.Duration.Companion.hours\"))\n   @DeprecatedSinceKotlin(warningSince = \"1.6\")\n   public fun hours(value: Double): Duration = value.toDuration(DurationUnit.HOURS)\n\n\n   /** Returns a [Duration] representing the specified [value] number of days. */\n   @SinceKotlin(\"1.5\")\n   @ExperimentalTime\n   @Deprecated(\"Use 'Int.days' extension property from Duration.Companion instead.\", ReplaceWith(\"value.days\", \"kotlin.time.Duration.Companion.days\"))\n   @DeprecatedSinceKotlin(warningSince = \"1.6\")\n   public fun days(value: Int): Duration = value.toDuration(DurationUnit.DAYS)\n\n   /** Returns a [Duration] representing the specified [value] number of days. */\n   @SinceKotlin(\"1.5\")\n   @ExperimentalTime\n   @Deprecated(\"Use 'Long.days' extension property from Duration.Companion instead.\", ReplaceWith(\"value.days\", \"kotlin.time.Duration.Companion.days\"))\n   @DeprecatedSinceKotlin(warningSince = \"1.6\")\n   public fun days(value: Long): Duration = value.toDuration(DurationUnit.DAYS)\n\n   /**\n   * Returns a [Duration] representing the specified [value] number of days.\n   *\n   * @throws IllegalArgumentException if the provided `Double` [value] is `NaN`.\n   */\n   @SinceKotlin(\"1.5\")\n   @ExperimentalTime\n   @Deprecated(\"Use 'Double.days' extension property from Duration.Companion instead.\", ReplaceWith(\"value.days\", \"kotlin.time.Duration.Companion.days\"))\n   @DeprecatedSinceKotlin(warningSince = \"1.6\")\n   public fun days(value: Double): Duration = value.toDuration(DurationUnit.DAYS)\n\n   /**\n   * Parses a string that represents a duration and returns the parsed [Duration] value.\n   *\n   * The following formats are accepted:\n   *\n   * - ISO-8601 Duration format, e.g. `P1DT2H3M4.058S`, see [toIsoString] and [parseIsoString].\n   * - The format of string returned by the default [Duration.toString] and `toString` in a specific unit,\n   *   e.g. `10s`, `1h 30m` or `-(1h 30m)`.\n   *\n   * @throws IllegalArgumentException if the string doesn't represent a duration in any of the supported formats.\n   * @sample samples.time.Durations.parse\n   */\n   public fun parse(value: String): Duration = try {\n   parseDuration(value, strictIso = false)\n   } catch (e: IllegalArgumentException) {\n   throw IllegalArgumentException(\"Invalid duration string format: '$value'.\", e)\n   }\n\n   /**\n   * Parses a string that represents a duration in a restricted ISO-8601 composite representation\n   * and returns the parsed [Duration] value.\n   * Composite representation is a relaxed version of ISO-8601 duration format that supports\n   * negative durations and negative values of individual components.\n   *\n   * The following restrictions are imposed:\n   *\n   * - The only allowed non-time designator is days (`D`). `Y` (years), `W` (weeks), and `M` (months) are not supported.\n   * - Day is considered to be exactly 24 hours (24-hour clock time scale).\n   * - Alternative week-based representation `[\"P\"][number][\"W\"]` is not supported.\n   *\n   * @throws IllegalArgumentException if the string doesn't represent a duration in ISO-8601 format.\n   * @sample samples.time.Durations.parseIsoString\n   */\n   public fun parseIsoString(value: String): Duration = try {\n   parseDuration(value, strictIso = true)\n   } catch (e: IllegalArgumentException) {\n   throw IllegalArgumentException(\"Invalid ISO duration string format: '$value'.\", e)\n   }\n\n   /**\n   * Parses a string that represents a duration and returns the parsed [Duration] value,\n * or `null` if the string doesn't represent a duration in any of the supported formats.\n *\n * The following formats are accepted:\n *\n * - Restricted ISO-8601 duration composite representation, e.g. `P1DT2H3M4.058S`, see [toIsoString] and [parseIsoString].\n * - The format of string returned by the default [Duration.toString] and `toString` in a specific unit,\n * e.g. `10s`, `1h 30m` or `-(1h 30m)`.\n * @sample samples.time.Durations.parse\n */\n public fun parseOrNull(value: String): Duration? = try {\n parseDuration(value, strictIso = false)\n } catch (e: IllegalArgumentException) {\n null\n }\n\n /**\n * Parses a string that represents a duration in restricted ISO-8601 composite representation\n * and returns the parsed [Duration] value or `null` if the string doesn't represent a duration in the format\n * acceptable by [parseIsoString].\n *\n * @sample samples.time.Durations.parseIsoString\n */\n public fun parseIsoStringOrNull(value: String): Duration? = try {\n parseDuration(value, strictIso = true)\n } catch (e: IllegalArgumentException) {\n null\n }\n }\n\n // arithmetic operators\n\n /** Returns the negative of this value. */\n public operator fun unaryMinus(): Duration = durationOf(-value, unitDiscriminator)\n\n /**\n * Returns a duration whose value is the sum of this and [other] duration values.\n *\n * @throws IllegalArgumentException if the operation results in an undefined value for the given arguments,\n * e.g. when adding infinite durations of different sign.\n */\n public operator fun plus(other: Duration): Duration {\n when {\n this.isInfinite() -> {\n if (other.isFinite() || (this.rawValue xor other.rawValue >= 0))\n return this\n else\n throw IllegalArgumentException(\"Summing infinite durations of different signs yields an undefined result.\")\n }\n other.isInfinite() -> return other\n }\n\n return when {\n this.unitDiscriminator == other.unitDiscriminator -> {\n val result = this.value + other.value // never overflows long, but can overflow long63\n when {\n isInNanos() ->\n durationOfNanosNormalized(result)\n else ->\n durationOfMillisNormalized(result)\n }\n }\n this.isInMillis() ->\n addValuesMixedRanges(this.value, other.value)\n else ->\n addValuesMixedRanges(other.value, this.value)\n }\n }\n\n private fun addValuesMixedRanges(thisMillis: Long, otherNanos: Long): Duration {\n val otherMillis = nanosToMillis(otherNanos)\n val resultMillis = thisMillis + otherMillis\n return if (resultMillis in -MAX_NANOS_IN_MILLIS..MAX_NANOS_IN_MILLIS) {\n val otherNanoRemainder = otherNanos - millisToNanos(otherMillis)\n durationOfNanos(millisToNanos(resultMillis) + otherNanoRemainder)\n } else {\n durationOfMillis(resultMillis.coerceIn(-MAX_MILLIS, MAX_MILLIS))\n }\n }\n\n /**\n * Returns a duration whose value is the difference between this and [other] duration values.\n *\n * @throws IllegalArgumentException if the operation results in an undefined value for the given arguments,\n * e.g. when subtracting infinite durations of the same sign.\n */\n public operator fun minus(other: Duration): Duration = this + (-other)\n\n /**\n * Returns a duration whose value is this duration value multiplied by the given [scale] number.\n *\n * @throws IllegalArgumentException if the operation results in an undefined value for the given arguments,\n * e.g. when multiplying an infinite duration by zero.\n */\n public operator fun times(scale: Int): Duration {\n if (isInfinite()) {\n return when {\n scale == 0 -> throw IllegalArgumentException(\"Multiplying infinite duration by zero yields an undefined result.\")\n scale > 0 -> this\n else -> -this\n }\n }\n if (scale == 0) return ZERO\n\n val value = value\n val result = value * scale\n return if (isInNanos()) {\n if (value in (MAX_NANOS / Int.MIN_VALUE)..(-MAX_NANOS / Int.MIN_VALUE)) {\n // can't overflow nanos range for any scale\n durationOfNanos(result)\n } else {\n if (result / scale == value) {\n durationOfNanosNormalized(result)\n } else {\n val millis = nanosToMillis(value)\n val remNanos = value - millisToNanos(millis)\n val resultMillis = millis * scale\n val totalMillis = resultMillis + nanosToMillis(remNanos * scale)\n if (resultMillis / scale == millis && totalMillis xor resultMillis >= 0) {\n durationOfMillis(totalMillis.coerceIn(-MAX_MILLIS..MAX_MILLIS))\n } else {\n if (value.sign * scale.sign > 0) INFINITE else NEG_INFINITE\n }\n }\n }\n } else {\n if (result / scale == value) {\n durationOfMillis(result.coerceIn(-MAX_MILLIS..MAX_MILLIS))\n } else {\n if (value.sign

* scale.sign > 0) INFINITE else NEG_INFINITE\n   }\n   }\n   }\n\n   /**\n   * Returns a duration whose value is this duration value multiplied by the given [scale] number.\n   *\n   * The operation may involve rounding when the result cannot be represented exactly with a [Double] number.\n   *\n   * @throws IllegalArgumentException if the operation results in an undefined value for the given arguments,\n   * e.g. when multiplying an infinite duration by zero.\n   */\n   public operator fun times(scale: Double): Duration {\n   val intScale = scale.roundToInt()\n   if (intScale.toDouble() == scale) {\n   return times(intScale)\n   }\n\n   val unit = storageUnit\n   val result = toDouble(unit) * scale\n   return result.toDuration(unit)\n   }\n\n   /**\n   * Returns a duration whose value is this duration value divided by the given [scale] number.\n   *\n   * @throws IllegalArgumentException if the operation results in an undefined value for the given arguments,\n   * e.g. when dividing zero duration by zero.\n   */\n   public operator fun div(scale: Int): Duration {\n   if (scale == 0) {\n   return when {\n   isPositive() -> INFINITE\n   isNegative() -> NEG_INFINITE\n   else -> throw IllegalArgumentException(\"Dividing zero duration by zero yields an undefined result.\")\n   }\n   }\n   if (isInNanos()) {\n   return durationOfNanos(value / scale)\n   } else {\n   if (isInfinite())\n   return this * scale.sign\n\n   val result = value / scale\n\n   if (result in -MAX_NANOS_IN_MILLIS..MAX_NANOS_IN_MILLIS) {\n   val rem = millisToNanos(value - (result * scale)) / scale\n   return durationOfNanos(millisToNanos(result) + rem)\n   }\n   return durationOfMillis(result)\n   }\n   }\n\n   /**\n   * Returns a duration whose value is this duration value divided by the given [scale] number.\n   *\n   * @throws IllegalArgumentException if the operation results in an undefined value for the given arguments,\n   * e.g. when dividing an infinite duration by infinity or zero duration by zero.\n   */\n   public operator fun div(scale: Double): Duration {\n   val intScale = scale.roundToInt()\n   if (intScale.toDouble() == scale && intScale != 0) {\n   return div(intScale)\n   }\n\n   val unit = storageUnit\n   val result = toDouble(unit) / scale\n   return result.toDuration(unit)\n   }\n\n   /** Returns a number that is the ratio of this and [other] duration values. */\n   public operator fun div(other: Duration): Double {\n   val coarserUnit = maxOf(this.storageUnit, other.storageUnit)\n   return this.toDouble(coarserUnit) / other.toDouble(coarserUnit)\n   }\n\n   /** Returns true, if the duration value is less than zero. */\n   public fun isNegative(): Boolean = rawValue < 0\n\n   /** Returns true, if the duration value is greater than zero. */\n   public fun isPositive(): Boolean = rawValue > 0\n\n   /** Returns true, if the duration value is infinite. */\n   public fun isInfinite(): Boolean = rawValue == INFINITE.rawValue || rawValue == NEG_INFINITE.rawValue\n\n   /** Returns true, if the duration value is finite. */\n   public fun isFinite(): Boolean = !isInfinite()\n\n   /** Returns the absolute value of this value. The returned value is always non-negative. */\n   public val absoluteValue: Duration get() = if (isNegative()) -this else this\n\n   override fun compareTo(other: Duration): Int {\n   val compareBits = this.rawValue xor other.rawValue\n   if (compareBits < 0 || compareBits.toInt() and 1 == 0) // different signs or same sign/same range\n   return this.rawValue.compareTo(other.rawValue)\n   // same sign/different ranges\n   val r = this.unitDiscriminator - other.unitDiscriminator // compare ranges\n   return if (isNegative()) -r else r\n   }\n\n\n   // splitting to components\n\n   /**\n   * Splits this duration into days, hours, minutes, seconds, and nanoseconds and executes the given [action] with these components.\n   * The result of [action] is returned as the result of this function.\n   *\n   * - `nanoseconds` represents the whole number of nanoseconds in this duration, and its absolute value is less than 1_000_000_000;\n   * - `seconds` represents the whole number of seconds in this duration, and its absolute value is less than 60;\n   * - `minutes` represents the whole number of minutes in this duration, and its absolute value is less than 60;\n   * - `hours` represents the whole number of hours in this duration, and its absolute value is less than 24;\n   * - `days` represents the whole number of days in this duration.\n   *\n   *   Infinite durations are represented as either [Long.MAX_VALUE] days, or [Long.MIN_VALUE] days (depending on the sign of infinity),\n   *   and zeroes in the lower components.\n   */\n   public inline fun <T> toComponents(action: (days: Long, hours: Int, minutes: Int, seconds: Int, nanoseconds: Int) -> T): T {\n   contract { callsInPlace(action, InvocationKind.EXACTLY_ONCE) }\n   return action(inWholeDays, hoursComponent, minutesComponent, secondsComponent, nanosecondsComponent)\n   }\n\n   /**\n   * Splits this duration into hours, minutes, seconds, and nanoseconds and executes the given [action] with these components.\n   * The result of [action] is returned as the result of this function.\n   *\n   * - `nanoseconds`

represents the whole number of nanoseconds in this duration, and its absolute value is less than 1_000_000_000;\n * - `seconds` represents the whole number of seconds in this duration, and its absolute value is less than 60;\n * - `minutes` represents the whole number of minutes in this duration, and its absolute value is less than 60;\n * - `hours` represents the whole number of hours in this duration.\n *\n * Infinite durations are represented as either [Long.MAX_VALUE] hours, or [Long.MIN_VALUE] hours (depending on the sign of infinity),\n * and zeroes in the lower components.\n */\n public inline fun <T> toComponents(action: (hours: Long, minutes: Int, seconds: Int, nanoseconds: Int) -> T): T {\n contract { callsInPlace(action, InvocationKind.EXACTLY_ONCE) }\n return action(inWholeHours, minutesComponent, secondsComponent, nanosecondsComponent)\n }\n\n /**\n * Splits this duration into minutes, seconds, and nanoseconds and executes the given [action] with these components.\n * The result of [action] is returned as the result of this function.\n *\n * - `nanoseconds` represents the whole number of nanoseconds in this duration, and its absolute value is less than 1_000_000_000;\n * - `seconds` represents the whole number of seconds in this duration, and its absolute value is less than 60;\n * - `minutes` represents the whole number of minutes in this duration.\n *\n * Infinite durations are represented as either [Long.MAX_VALUE] minutes, or [Long.MIN_VALUE] minutes (depending on the sign of infinity),\n * and zeroes in the lower components.\n */\n public inline fun <T> toComponents(action: (minutes: Long, seconds: Int, nanoseconds: Int) -> T): T {\n contract { callsInPlace(action, InvocationKind.EXACTLY_ONCE) }\n return action(inWholeMinutes, secondsComponent, nanosecondsComponent)\n }\n\n /**\n * Splits this duration into seconds, and nanoseconds and executes the given [action] with these components.\n * The result of [action] is returned as the result of this function.\n *\n * - `nanoseconds` represents the whole number of nanoseconds in this duration, and its absolute value is less than 1_000_000_000;\n * - `seconds` represents the whole number of seconds in this duration.\n *\n * Infinite durations are represented as either [Long.MAX_VALUE] seconds, or [Long.MIN_VALUE] seconds (depending on the sign of infinity),\n * and zero nanoseconds.\n */\n public inline fun <T> toComponents(action: (seconds: Long, nanoseconds: Int) -> T): T {\n contract { callsInPlace(action, InvocationKind.EXACTLY_ONCE) }\n return action(inWholeSeconds, nanosecondsComponent)\n }\n\n @PublishedApi\n internal val hoursComponent: Int\n get() = if (isInfinite()) 0 else (inWholeHours % 24).toInt()\n\n @PublishedApi\n internal val minutesComponent: Int\n get() = if (isInfinite()) 0 else (inWholeMinutes % 60).toInt()\n\n @PublishedApi\n internal val secondsComponent: Int\n get() = if (isInfinite()) 0 else (inWholeSeconds % 60).toInt()\n\n @PublishedApi\n internal val nanosecondsComponent: Int\n get() = when {\n isInfinite() -> 0\n isInMillis() -> millisToNanos(value % 1_000).toInt()\n else -> (value % 1_000_000_000).toInt()\n }\n\n\n // conversion to units\n\n /**\n * Returns the value of this duration expressed as a [Double] number of the specified [unit].\n *\n * The operation may involve rounding when the result cannot be represented exactly with a [Double] number.\n *\n * An infinite duration value is converted either to [Double.POSITIVE_INFINITY] or [Double.NEGATIVE_INFINITY] depending on its sign.\n */\n public fun toDouble(unit: DurationUnit): Double {\n return when (rawValue) {\n INFINITE.rawValue -> Double.POSITIVE_INFINITY\n NEG_INFINITE.rawValue -> Double.NEGATIVE_INFINITY\n else -> {\n // TODO: whether it's ok to convert to Double before scaling\n convertDurationUnit(value.toDouble(), storageUnit, unit)\n }\n }\n }\n\n /**\n * Returns the value of this duration expressed as a [Long] number of the specified [unit].\n *\n * If the result doesn't fit in the range of [Long] type, it is coerced into that range:\n * - [Long.MIN_VALUE] is returned if it's less than `Long.MIN_VALUE`,\n * - [Long.MAX_VALUE] is returned if it's greater than `Long.MAX_VALUE`.\n *\n * An infinite duration value is converted either to [Long.MAX_VALUE] or [Long.MIN_VALUE] depending on its sign.\n */\n public fun toLong(unit: DurationUnit): Long {\n return when (rawValue) {\n INFINITE.rawValue -> Long.MAX_VALUE\n NEG_INFINITE.rawValue -> Long.MIN_VALUE\n else -> convertDurationUnit(value, storageUnit, unit)\n }\n }\n\n /**\n * Returns the value of this duration expressed as an [Int] number of the specified [unit].\n *\n * If the result doesn't fit in the range of [Int] type, it is coerced into that range:\n * - [Int.MIN_VALUE] is returned if it's less than `Int.MIN_VALUE`,\n * - [Int.MAX_VALUE] is returned if it's greater than `Int.MAX_VALUE`.\n *\n * An infinite duration value is converted either to [Int.MAX_VALUE] or [Int.MIN_VALUE] depending on its sign.\n   */\n   public fun toInt(unit: DurationUnit): Int =\n   toLong(unit).coerceIn(Int.MIN_VALUE.toLong(), Int.MAX_VALUE.toLong()).toInt()\n\n   /** The value of this duration expressed as a [Double] number of days. */\n   @ExperimentalTime\n   @Deprecated(\"Use inWholeDays property instead or convert toDouble(DAYS) if a double value is required.\", ReplaceWith(\"toDouble(DurationUnit.DAYS)\"))\n   public val inDays: Double get() = toDouble(DurationUnit.DAYS)\n\n   /** The value of this duration expressed as a [Double] number of hours. */\n   @ExperimentalTime\n   @Deprecated(\"Use inWholeHours property instead or convert toDouble(HOURS) if a double value is required.\", ReplaceWith(\"toDouble(DurationUnit.HOURS)\"))\n   public val inHours: Double get() = toDouble(DurationUnit.HOURS)\n\n   /** The value of this duration expressed as a [Double] number of minutes. */\n   @ExperimentalTime\n   @Deprecated(\"Use inWholeMinutes property instead or convert toDouble(MINUTES) if a double value is required.\", ReplaceWith(\"toDouble(DurationUnit.MINUTES)\"))\n   public val inMinutes: Double get() = toDouble(DurationUnit.MINUTES)\n\n   /** The value of this duration expressed as a [Double] number of seconds. */\n   @ExperimentalTime\n   @Deprecated(\"Use inWholeSeconds property instead or convert toDouble(SECONDS) if a double value is required.\", ReplaceWith(\"toDouble(DurationUnit.SECONDS)\"))\n   public val inSeconds: Double get() = toDouble(DurationUnit.SECONDS)\n\n   /** The value of this duration expressed as a [Double] number of milliseconds. */\n   @ExperimentalTime\n   @Deprecated(\"Use inWholeMilliseconds property instead or convert toDouble(MILLISECONDS) if a double value is required.\", ReplaceWith(\"toDouble(DurationUnit.MILLISECONDS)\"))\n   public val inMilliseconds: Double get() = toDouble(DurationUnit.MILLISECONDS)\n\n   /** The value of this duration expressed as a [Double] number of microseconds. */\n   @ExperimentalTime\n   @Deprecated(\"Use inWholeMicroseconds property instead or convert toDouble(MICROSECONDS) if a double value is required.\", ReplaceWith(\"toDouble(DurationUnit.MICROSECONDS)\"))\n   public val inMicroseconds: Double get() = toDouble(DurationUnit.MICROSECONDS)\n\n   /** The value of this duration expressed as a [Double] number of nanoseconds. */\n   @ExperimentalTime\n   @Deprecated(\"Use inWholeNanoseconds property instead or convert toDouble(NANOSECONDS) if a double value is required.\", ReplaceWith(\"toDouble(DurationUnit.NANOSECONDS)\"))\n   public val inNanoseconds: Double get() = toDouble(DurationUnit.NANOSECONDS)\n\n\n   /**\n   * The value of this duration expressed as a [Long] number of days.\n   *\n   * An infinite duration value is converted either to [Long.MAX_VALUE] or [Long.MIN_VALUE] depending on its sign.\n   */\n   public val inWholeDays: Long\n   get() = toLong(DurationUnit.DAYS)\n\n   /**\n   * The value of this duration expressed as a [Long] number of hours.\n   *\n   * An infinite duration value is converted either to [Long.MAX_VALUE] or [Long.MIN_VALUE] depending on its sign.\n   */\n   public val inWholeHours: Long\n   get() = toLong(DurationUnit.HOURS)\n\n   /**\n   * The value of this duration expressed as a [Long] number of minutes.\n   *\n   * An infinite duration value is converted either to [Long.MAX_VALUE] or [Long.MIN_VALUE] depending on its sign.\n   */\n   public val inWholeMinutes: Long\n   get() = toLong(DurationUnit.MINUTES)\n\n   /**\n   * The value of this duration expressed as a [Long] number of seconds.\n   *\n   * An infinite duration value is converted either to [Long.MAX_VALUE] or [Long.MIN_VALUE] depending on its sign.\n   */\n   public val inWholeSeconds: Long\n   get() = toLong(DurationUnit.SECONDS)\n\n   /**\n   * The value of this duration expressed as a [Long] number of milliseconds.\n   *\n   * An infinite duration value is converted either to [Long.MAX_VALUE] or [Long.MIN_VALUE] depending on its sign.\n   */\n   public val inWholeMilliseconds: Long\n   get() {\n   return if (isInMillis() && isFinite()) value else toLong(DurationUnit.MILLISECONDS)\n   }\n\n   /**\n   * The value of this duration expressed as a [Long] number of microseconds.\n   *\n   * If the result doesn't fit in the range of [Long] type, it is coerced into that range:\n   * - [Long.MIN_VALUE] is returned if it's less than `Long.MIN_VALUE`,\n   * - [Long.MAX_VALUE] is returned if it's greater than `Long.MAX_VALUE`.\n   *\n   * An infinite duration value is converted either to [Long.MAX_VALUE] or [Long.MIN_VALUE] depending on its sign.\n   */\n   public val inWholeMicroseconds: Long\n   get() = toLong(DurationUnit.MICROSECONDS)\n\n   /**\n   * The value of this duration expressed as a [Long] number of nanoseconds.\n   *\n   * If the result doesn't fit in the range of [Long] type, it is coerced into that range:\n   * - [Long.MIN_VALUE] is returned if it's less than `Long.MIN_VALUE`,\n   * - [Long.MAX_VALUE] is returned if it's greater than `Long.MAX_VALUE`.\n   *\n   * An infinite duration value is converted either to [Long.MAX_VALUE] or [Long.MIN_VALUE] depending on its sign.\n   */\n   public val inWholeNanoseconds: Long\n   get() {\n   val value = value\n   return when {\n   isInNanos() -> value\n value > Long.MAX_VALUE / NANOS_IN_MILLIS -> Long.MAX_VALUE\n   value < Long.MIN_VALUE / NANOS_IN_MILLIS -> Long.MIN_VALUE\n   else -> millisToNanos(value)\n }\n   }\n\n   // shortcuts\n\n   /**\n   * Returns the value of this duration expressed as a [Long] number of nanoseconds.\n   *\n   * If the value doesn't fit in the range of [Long] type, it is coerced into that range, see the conversion [Double.toLong] for details.\n   *\n   * The range of durations that can be expressed as a `Long` number of nanoseconds is approximately \u00b1292 years.\n   */\n   @ExperimentalTime\n   @Deprecated(\"Use inWholeNanoseconds property instead.\", ReplaceWith(\"this.inWholeNanoseconds\"))\n   public fun toLongNanoseconds(): Long = inWholeNanoseconds\n\n   /**\n   * Returns the value of this duration expressed as a [Long] number of milliseconds.\n   *\n   * The value is coerced to the range of [Long] type, if it doesn't fit in that range, see the conversion [Double.toLong] for details.\n   *\n   * The range of durations that can be expressed as a `Long` number of milliseconds is approximately \u00b1292 million years.\n   */\n   @ExperimentalTime\n @Deprecated(\"Use inWholeMilliseconds property instead.\", ReplaceWith(\"this.inWholeMilliseconds\"))\n public fun toLongMilliseconds(): Long = inWholeMilliseconds\n\n   /**\n   * Returns a string representation of this duration value\n   * expressed as a combination of numeric components, each in its own unit.\n   *\n   * Each component is a number followed by the unit abbreviated name: `d`, `h`, `m`, `s`:\n   * `5h`, `1d 12h`, `1h 0m 30.340s`.\n   * The last component, usually seconds, can be a number with a fractional part.\n   *\n   * If the duration is less than a second, it is represented as a single number\n   * with one of sub-second units: `ms` (milliseconds), `us` (microseconds), or `ns` (nanoseconds):\n   * `140.884ms`, `500us`, `24ns`.\n   *\n   * A negative duration is prefixed with `-` sign and, if it consists of multiple components, surrounded with parentheses:\n   * `-12m` and `-(1h 30m)`.\n   *\n   * Special cases:\n   * - an infinite duration is formatted as `\"Infinity\"` or `\"-Infinity\"` without a unit.\n   *\n   * It's recommended to use [toIsoString] that uses more strict ISO-8601 format instead of this `toString`\n   * when you want to convert a duration to a string in cases of serialization, interchange, etc.\n   *\n   * @sample samples.time.Durations.toStringDefault\n   */\n   override fun toString(): String = when (rawValue) {\n   0L -> \"0s\"\n   INFINITE.rawValue -> \"Infinity\"\n NEG_INFINITE.rawValue -> \"-Infinity\"\n   else -> {\n   val isNegative = isNegative()\n buildString {\n   if (isNegative) append('-')\n   absoluteValue.toComponents { days, hours, minutes, seconds, nanoseconds ->\n   val hasDays = days != 0L\n   val hasHours = hours != 0\n val hasMinutes = minutes != 0\n   val hasSeconds = seconds != 0 || nanoseconds != 0\n   var components = 0\n   if (hasDays) {\n   append(days).append('d')\n components++\n   }\n   if (hasHours || (hasDays && (hasMinutes || hasSeconds))) {\n if (components++ > 0) append(' ')\n   append(hours).append('h')\n   }\n   if (hasMinutes || (hasSeconds && (hasHours || hasDays))) {\n   if (components++ > 0) append(' ')\n append(minutes).append('m')\n   }\n   if (hasSeconds) {\n   if (components++ > 0) append(' ')\n   when {\n   seconds != 0 || hasDays || hasHours || hasMinutes ->\n   appendFractional(seconds, nanoseconds, 9, \"s\", isoZeroes = false)\n nanoseconds >= 1_000_000 ->\n   appendFractional(nanoseconds / 1_000_000, nanoseconds % 1_000_000, 6, \"ms\", isoZeroes = false)\n   nanoseconds >= 1_000 ->\n appendFractional(nanoseconds / 1_000, nanoseconds % 1_000, 3, \"us\", isoZeroes = false)\n   else ->\n   append(nanoseconds).append(\"ns\")\n   }\n   }\n   if (isNegative && components > 1) insert(1, '(').append(')')\n   }\n   }\n   }\n   }\n\n   private fun StringBuilder.appendFractional(whole: Int, fractional: Int, fractionalSize: Int, unit: String, isoZeroes: Boolean) {\n append(whole)\n   if (fractional != 0) {\n   append('.')\n   val fracString = fractional.toString().padStart(fractionalSize, '0')\n   val nonZeroDigits = fracString.indexOfLast { it != '0' } +

1\n   when {\n   !isoZeroes && nonZeroDigits < 3 -> appendRange(fracString, 0, nonZeroDigits)\n   else -> appendRange(fracString, 0, ((nonZeroDigits + 2) / 3) * 3)\n   }\n   }\n   append(unit)\n   }\n\n   /**\n   * Returns a string representation of this duration value expressed in the given [unit]\n   * and formatted with the specified [decimals] number of digits after decimal point.\n   *\n   * Special cases:\n   * - an infinite duration is formatted as `\"Infinity\"` or `\"-Infinity\"` without a unit.\n   *\n   * @param decimals the number of digits after decimal point to show. The value must be non-negative.\n   * No more than 12 decimals will be shown, even if a larger number is requested.\n   *\n   * @return the value of duration in the specified [unit] followed by that unit abbreviated name: `d`, `h`, `m`, `s`, `ms`, `us`, or `ns`.\n   *\n   * @throws IllegalArgumentException if [decimals] is less than zero.\n   *\n   * @sample samples.time.Durations.toStringDecimals\n   */\n   public fun toString(unit: DurationUnit, decimals: Int = 0): String {\n   require(decimals >= 0) { \"decimals must be not negative, but was $decimals\" }\n   val number = toDouble(unit)\n   if (number.isInfinite()) return number.toString()\n   return formatToExactDecimals(number, decimals.coerceAtMost(12)) + unit.shortName()\n   }\n\n\n   /**\n   * Returns an ISO-8601 based string representation of this duration.\n   *\n   * The returned value is presented in the format `PThHmMs.fS`, where `h`, `m`, `s` are the integer components of this duration (see [toComponents])\n   * and `f` is a fractional part of second. Depending on the roundness of the value the fractional part can be formatted with either\n   * 0, 3, 6, or 9 decimal digits.\n   *\n   * The infinite duration is represented as `\"PT9999999999999H\"` which is larger than any possible finite duration in Kotlin.\n   *\n   * Negative durations are indicated with the sign `-` in the beginning of the returned string, for example, `\"-PT5M30S\"`.\n   *\n   * @sample samples.time.Durations.toIsoString\n   */\n   public fun toIsoString(): String = buildString {\n   if (isNegative()) append('-')\n   append(\"PT\")\n   this@Duration.absoluteValue.toComponents { hours, minutes, seconds, nanoseconds ->\n   @Suppress(\"NAME_SHADOWING\")\n   var hours = hours\n   if (isInfinite()) {\n   // use large enough value instead of Long.MAX_VALUE\n   hours = 9_999_999_999_999\n   }\n   val hasHours = hours != 0L\n   val hasSeconds = seconds != 0 || nanoseconds != 0\n   val hasMinutes = minutes != 0 || (hasSeconds && hasHours)\n   if (hasHours) {\n   append(hours).append('H')\n   }\n   if (hasMinutes) {\n   append(minutes).append('M')\n   }\n   if (hasSeconds || (!hasHours && !hasMinutes)) {\n   appendFractional(seconds, nanoseconds, 9, \"S\", isoZeroes = true)\n   }\n   }\n   }\n\n}\n\n// constructing from number of units\n// extension functions\n\n/** Returns a [Duration] equal to this [Int] number of the specified [unit]. */\n@SinceKotlin(\"1.6\")\n@WasExperimental(ExperimentalTime::class)\npublic fun Int.toDuration(unit: DurationUnit): Duration {\n   return if (unit <= DurationUnit.SECONDS) {\n   durationOfNanos(convertDurationUnitOverflow(this.toLong(), unit, DurationUnit.NANOSECONDS))\n   } else\n   toLong().toDuration(unit)\n}\n\n/** Returns a [Duration] equal to this [Long] number of the specified [unit]. */\n@SinceKotlin(\"1.6\")\n@WasExperimental(ExperimentalTime::class)\npublic fun Long.toDuration(unit: DurationUnit): Duration {\n   val maxNsInUnit = convertDurationUnitOverflow(MAX_NANOS, DurationUnit.NANOSECONDS, unit)\n   if (this in -maxNsInUnit..maxNsInUnit) {\n   return durationOfNanos(convertDurationUnitOverflow(this, unit, DurationUnit.NANOSECONDS))\n   } else {\n   val millis = convertDurationUnit(this, unit, DurationUnit.MILLISECONDS)\n   return durationOfMillis(millis.coerceIn(-MAX_MILLIS, MAX_MILLIS))\n   }\n}\n\n/**\n * Returns a [Duration] equal to this [Double] number of the specified [unit].\n *\n * Depending on its magnitude, the value is rounded to an integer number of nanoseconds or milliseconds.\n *\n * @throws IllegalArgumentException if this `Double` value is `NaN`.\n */\n@SinceKotlin(\"1.6\")\n@WasExperimental(ExperimentalTime::class)\npublic fun Double.toDuration(unit: DurationUnit): Duration {\n   val valueInNs = convertDurationUnit(this, unit, DurationUnit.NANOSECONDS)\n   require(!valueInNs.isNaN()) { \"Duration value cannot be NaN.\" }\n   val nanos = valueInNs.roundToLong()\n   return if (nanos in -MAX_NANOS..MAX_NANOS) {\n   durationOfNanos(nanos)\n   } else {\n   val millis = convertDurationUnit(this, unit, DurationUnit.MILLISECONDS).roundToLong()\n   durationOfMillisNormalized(millis)\n   }\n}\n\n// constructing from number of units\n// deprecated extension properties\n\n/** Returns a [Duration] equal to this [Int] number of nanoseconds. */\n@SinceKotlin(\"1.3\")\n@ExperimentalTime\n@Deprecated(\"Use 'Int.nanoseconds' extension property from Duration.Companion instead.\", ReplaceWith(\"this.nanoseconds\", \"kotlin.time.Duration.Companion.nanoseconds\"))\n@DeprecatedSinceKotlin(warningSince = \"1.5\")\npublic val Int.nanoseconds get() = toDuration(DurationUnit.NANOSECONDS)\n\n/** Returns a [Duration] equal to this [Long] number of nanoseconds. */\n@SinceKotlin(\"1.3\")\n@ExperimentalTime\n@Deprecated(\"Use 'Long.nanoseconds' extension property from Duration.Companion instead.\", ReplaceWith(\"this.nanoseconds\", \"kotlin.time.Duration.Companion.nanoseconds\"))\n@DeprecatedSinceKotlin(warningSince = \"1.5\")\npublic val Long.nanoseconds get() = toDuration(DurationUnit.NANOSECONDS)\n\n/**\n * Returns a [Duration] equal to this [Double] number of nanoseconds.\n *\n * @throws IllegalArgumentException if this [Double] value is `NaN`.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalTime\n@Deprecated(\"Use 'Double.nanoseconds' extension property from Duration.Companion instead.\", ReplaceWith(\"this.nanoseconds\", \"kotlin.time.Duration.Companion.nanoseconds\"))\n@DeprecatedSinceKotlin(warningSince = \"1.5\")\npublic val Double.nanoseconds get() = toDuration(DurationUnit.NANOSECONDS)\n\n\n/** Returns a [Duration] equal to this [Int] number of microseconds. */\n@SinceKotlin(\"1.3\")\n@ExperimentalTime\n@Deprecated(\"Use 'Int.microseconds' extension property from Duration.Companion instead.\", ReplaceWith(\"this.microseconds\", \"kotlin.time.Duration.Companion.microseconds\"))\n@DeprecatedSinceKotlin(warningSince = \"1.5\")\npublic val Int.microseconds get() = toDuration(DurationUnit.MICROSECONDS)\n\n/** Returns a [Duration] equal to this [Long] number of microseconds. */\n@SinceKotlin(\"1.3\")\n@ExperimentalTime\n@Deprecated(\"Use 'Long.microseconds' extension property from Duration.Companion instead.\", ReplaceWith(\"this.microseconds\", \"kotlin.time.Duration.Companion.microseconds\"))\n@DeprecatedSinceKotlin(warningSince = \"1.5\")\npublic val Long.microseconds get() = toDuration(DurationUnit.MICROSECONDS)\n\n/**\n * Returns a [Duration] equal to this [Double] number of microseconds.\n *\n * @throws IllegalArgumentException if this [Double] value is `NaN`.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalTime\n@Deprecated(\"Use 'Double.microseconds' extension property from Duration.Companion instead.\", ReplaceWith(\"this.microseconds\", \"kotlin.time.Duration.Companion.microseconds\"))\n@DeprecatedSinceKotlin(warningSince = \"1.5\")\npublic val Double.microseconds get() = toDuration(DurationUnit.MICROSECONDS)\n\n\n/** Returns a [Duration] equal to this [Int] number of milliseconds. */\n@SinceKotlin(\"1.3\")\n@ExperimentalTime\n@Deprecated(\"Use 'Int.milliseconds' extension property from Duration.Companion instead.\", ReplaceWith(\"this.milliseconds\", \"kotlin.time.Duration.Companion.milliseconds\"))\n@DeprecatedSinceKotlin(warningSince = \"1.5\")\npublic val Int.milliseconds get() = toDuration(DurationUnit.MILLISECONDS)\n\n/** Returns a [Duration] equal to this [Long] number of milliseconds. */\n@SinceKotlin(\"1.3\")\n@ExperimentalTime\n@Deprecated(\"Use 'Long.milliseconds' extension property from Duration.Companion instead.\", ReplaceWith(\"this.milliseconds\", \"kotlin.time.Duration.Companion.milliseconds\"))\n@DeprecatedSinceKotlin(warningSince = \"1.5\")\npublic val Long.milliseconds get() = toDuration(DurationUnit.MILLISECONDS)\n\n/**\n * Returns a [Duration] equal to this [Double] number of milliseconds.\n *\n * @throws IllegalArgumentException if this [Double] value is `NaN`.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalTime\n@Deprecated(\"Use 'Double.milliseconds' extension property from Duration.Companion instead.\", ReplaceWith(\"this.milliseconds\", \"kotlin.time.Duration.Companion.milliseconds\"))\n@DeprecatedSinceKotlin(warningSince = \"1.5\")\npublic val Double.milliseconds get() = toDuration(DurationUnit.MILLISECONDS)\n\n\n/** Returns a [Duration] equal to this [Int] number of seconds. */\n@SinceKotlin(\"1.3\")\n@ExperimentalTime\n@Deprecated(\"Use 'Int.seconds' extension property from Duration.Companion instead.\", ReplaceWith(\"this.seconds\", \"kotlin.time.Duration.Companion.seconds\"))\n@DeprecatedSinceKotlin(warningSince = \"1.5\")\npublic val Int.seconds get() = toDuration(DurationUnit.SECONDS)\n\n/** Returns a [Duration] equal to this [Long] number of seconds. */\n@SinceKotlin(\"1.3\")\n@ExperimentalTime\n@Deprecated(\"Use 'Long.seconds' extension property from Duration.Companion instead.\", ReplaceWith(\"this.seconds\", \"kotlin.time.Duration.Companion.seconds\"))\n@DeprecatedSinceKotlin(warningSince = \"1.5\")\npublic val Long.seconds get() = toDuration(DurationUnit.SECONDS)\n\n/**\n * Returns a [Duration] equal to this [Double] number of seconds.\n *\n * @throws IllegalArgumentException if this [Double] value is `NaN`.\n

*/\n@SinceKotlin(\"1.3\")\n@ExperimentalTime\n@Deprecated(\"Use 'Double.seconds' extension property from Duration.Companion instead.\", ReplaceWith(\"this.seconds\", \"kotlin.time.Duration.Companion.seconds\"))\n@DeprecatedSinceKotlin(warningSince = \"1.5\")\npublic val Double.seconds get() = toDuration(DurationUnit.SECONDS)\n\n\n/** Returns a [Duration] equal to this [Int] number of minutes. */\n@SinceKotlin(\"1.3\")\n@ExperimentalTime\n@Deprecated(\"Use 'Int.minutes' extension property from Duration.Companion instead.\", ReplaceWith(\"this.minutes\", \"kotlin.time.Duration.Companion.minutes\"))\n@DeprecatedSinceKotlin(warningSince = \"1.5\")\npublic val Int.minutes get() = toDuration(DurationUnit.MINUTES)\n\n/** Returns a [Duration] equal to this [Long] number of minutes. */\n@SinceKotlin(\"1.3\")\n@ExperimentalTime\n@Deprecated(\"Use 'Long.minutes' extension property from Duration.Companion instead.\", ReplaceWith(\"this.minutes\", \"kotlin.time.Duration.Companion.minutes\"))\n@DeprecatedSinceKotlin(warningSince = \"1.5\")\npublic val Long.minutes get() = toDuration(DurationUnit.MINUTES)\n\n/**\n * Returns a [Duration] equal to this [Double] number of minutes.\n *\n * @throws IllegalArgumentException if this [Double] value is `NaN`.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalTime\n@Deprecated(\"Use 'Double.minutes' extension property from Duration.Companion instead.\", ReplaceWith(\"this.minutes\", \"kotlin.time.Duration.Companion.minutes\"))\n@DeprecatedSinceKotlin(warningSince = \"1.5\")\npublic val Double.minutes get() = toDuration(DurationUnit.MINUTES)\n\n\n/** Returns a [Duration] equal to this [Int] number of hours. */\n@SinceKotlin(\"1.3\")\n@ExperimentalTime\n@Deprecated(\"Use 'Int.hours' extension property from Duration.Companion instead.\", ReplaceWith(\"this.hours\", \"kotlin.time.Duration.Companion.hours\"))\n@DeprecatedSinceKotlin(warningSince = \"1.5\")\npublic val Int.hours get() = toDuration(DurationUnit.HOURS)\n\n/** Returns a [Duration] equal to this [Long] number of hours. */\n@SinceKotlin(\"1.3\")\n@ExperimentalTime\n@Deprecated(\"Use 'Long.hours' extension property from Duration.Companion instead.\", ReplaceWith(\"this.hours\", \"kotlin.time.Duration.Companion.hours\"))\n@DeprecatedSinceKotlin(warningSince = \"1.5\")\npublic val Long.hours get() = toDuration(DurationUnit.HOURS)\n\n/**\n * Returns a [Duration] equal to this [Double] number of hours.\n *\n * @throws IllegalArgumentException if this [Double] value is `NaN`.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalTime\n@Deprecated(\"Use 'Double.hours' extension property from Duration.Companion instead.\", ReplaceWith(\"this.hours\", \"kotlin.time.Duration.Companion.hours\"))\n@DeprecatedSinceKotlin(warningSince = \"1.5\")\npublic val Double.hours get() = toDuration(DurationUnit.HOURS)\n\n\n/** Returns a [Duration] equal to this [Int] number of days. */\n@SinceKotlin(\"1.3\")\n@ExperimentalTime\n@Deprecated(\"Use 'Int.days' extension property from Duration.Companion instead.\", ReplaceWith(\"this.days\", \"kotlin.time.Duration.Companion.days\"))\n@DeprecatedSinceKotlin(warningSince = \"1.5\")\npublic val Int.days get() = toDuration(DurationUnit.DAYS)\n\n/** Returns a [Duration] equal to this [Long] number of days. */\n@SinceKotlin(\"1.3\")\n@ExperimentalTime\n@Deprecated(\"Use 'Long.days' extension property from Duration.Companion instead.\", ReplaceWith(\"this.days\", \"kotlin.time.Duration.Companion.days\"))\n@DeprecatedSinceKotlin(warningSince = \"1.5\")\npublic val Long.days get() = toDuration(DurationUnit.DAYS)\n\n/**\n * Returns a [Duration] equal to this [Double] number of days.\n *\n * @throws IllegalArgumentException if this [Double] value is `NaN`.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalTime\n@Deprecated(\"Use 'Double.days' extension property from Duration.Companion instead.\", ReplaceWith(\"this.days\", \"kotlin.time.Duration.Companion.days\"))\n@DeprecatedSinceKotlin(warningSince = \"1.5\")\npublic val Double.days get() = toDuration(DurationUnit.DAYS)\n\n\n/** Returns a duration whose value is the specified [duration] value multiplied by this number. */\n@SinceKotlin(\"1.6\")\n@WasExperimental(ExperimentalTime::class)\n@kotlin.internal.InlineOnly\npublic inline operator fun Int.times(duration: Duration): Duration = duration * this\n\n/**\n * Returns a duration whose value is the specified [duration] value multiplied by this number.\n *\n * The operation may involve rounding when the result cannot be represented exactly with a [Double] number.\n *\n * @throws IllegalArgumentException if the

operation results in a `NaN` value.\n */\n@SinceKotlin(\"1.6\")\n@WasExperimental(ExperimentalTime::class)\n@kotlin.internal.InlineOnly\npublic inline operator fun Double.times(duration: Duration): Duration = duration * this\n\n\n\nprivate fun parseDuration(value: String, strictIso: Boolean): Duration {\n   var length = value.length\n   if (length == 0) throw IllegalArgumentException(\"The string is empty\")\n   var index = 0\n   var result = Duration.ZERO\n   val infinityString = \"Infinity\"\n   when (value[index]) {\n   '+', '-' -> index++\n   }\n   val hasSign = index > 0\n   val isNegative = hasSign && value.startsWith('-')\n   when {\n   length <= index ->\n   throw IllegalArgumentException(\"No components\")\n   value[index] == 'P' -> {\n   if (++index == length) throw IllegalArgumentException()\n   val nonDigitSymbols = \"+-.\"\n   var isTimeComponent = false\n   var prevUnit: DurationUnit? = null\n   while (index < length) {\n   if (value[index] == 'T') {\n   if (isTimeComponent || ++index == length) throw IllegalArgumentException()\n   isTimeComponent = true\n   continue\n   }\n   val component = value.substringWhile(index) { it in '0'..'9' || it in nonDigitSymbols }\n   if (component.isEmpty()) throw IllegalArgumentException()\n   index += component.length\n   val unitChar = value.getOrElse(index) { throw IllegalArgumentException(\"Missing unit for value $component\") }\n   index++\n   val unit = durationUnitByIsoChar(unitChar, isTimeComponent)\n   if (prevUnit != null && prevUnit <= unit) throw IllegalArgumentException(\"Unexpected order of duration components\")\n   prevUnit = unit\n   val dotIndex = component.indexOf('.')\n   if (unit == DurationUnit.SECONDS && dotIndex > 0) {\n   val whole = component.substring(0, dotIndex)\n   result += parseOverLongIsoComponent(whole).toDuration(unit)\n   result += component.substring(dotIndex).toDouble().toDuration(unit)\n   } else {\n   result += parseOverLongIsoComponent(component).toDuration(unit)\n   }\n   }\n   }\n   strictIso ->\n   throw IllegalArgumentException()\n   value.regionMatches(index, infinityString, 0, length = maxOf(length - index, infinityString.length), ignoreCase = true) -> {\n   result = Duration.INFINITE\n   }\n   else -> {\n   // parse default string format\n   var prevUnit: DurationUnit? = null\n   var afterFirst = false\n   var allowSpaces = !hasSign\n   if (hasSign && value[index] == '(' && value.last() == ')') {\n   allowSpaces = true\n   if (++index == --length) throw IllegalArgumentException(\"No components\")\n   }\n   while (index < length) {\n   if (afterFirst && allowSpaces) {\n   index = value.skipWhile(index) { it == ' ' }\n   }\n   afterFirst = true\n   val component = value.substringWhile(index) { it in '0'..'9' || it == '.' }\n   if (component.isEmpty()) throw IllegalArgumentException()\n   index += component.length\n   val unitName = value.substringWhile(index) { it in 'a'..'z' }\n   index += unitName.length\n   val unit = durationUnitByShortName(unitName)\n   if (prevUnit != null && prevUnit <= unit) throw IllegalArgumentException(\"Unexpected order of duration components\")\n   prevUnit = unit\n   val dotIndex = component.indexOf('.')\n   if (dotIndex > 0) {\n   val whole = component.substring(0, dotIndex)\n   result += whole.toLong().toDuration(unit)\n   result += component.substring(dotIndex).toDouble().toDuration(unit)\n   if (index < length) throw IllegalArgumentException(\"Fractional component must be last\")\n   } else {\n   result += component.toLong().toDuration(unit)\n   }\n   }\n   }\n   }\n   return if (isNegative) -result else result\n}\n\n\nprivate fun parseOverLongIsoComponent(value: String): Long {\n   val length = value.length\n   var startIndex = 0\n   if (length > 0 && value[0] in \"+-\") startIndex++\n   if ((length - startIndex) > 16 && (startIndex..value.lastIndex).all { value[it] in '0'..'9' }) {\n   // all chars are digits, but more than ceiling(log10(MAX_MILLIS / 1000)) of them\n   return if (value[0] == '-') Long.MIN_VALUE else Long.MAX_VALUE\n   }\n   // TODO: replace with just toLong after min JDK becomes 8\n   return if (value.startsWith(\"+\")) value.drop(1).toLong() else value.toLong()\n}\n\n\n\nprivate inline fun String.substringWhile(startIndex: Int, predicate: (Char) -> Boolean): String =\n   substring(startIndex, skipWhile(startIndex, predicate))\n\nprivate inline fun String.skipWhile(startIndex: Int, predicate: (Char) -> Boolean): Int {\n   var i = startIndex\n   while (i < length && predicate(this[i])) i++\n   return i\n}\n\n\n\n\n\n//

The ranges are chosen so that they are:\n// - symmetric relative to zero: this greatly simplifies operations with sign, e.g. unaryMinus and minus.\n// - non-overlapping, but adjacent: the first value that doesn't fit in nanos range, can be exactly represented in millis.\n\ninternal const val NANOS_IN_MILLIS = 1_000_000\n// maximum number duration can store in nanosecond range\ninternal const val MAX_NANOS = Long.MAX_VALUE / 2 / NANOS_IN_MILLIS * NANOS_IN_MILLIS - 1 // ends in ..._999_999\n// maximum number duration can store in millisecond range, also encodes an infinite value\ninternal const val MAX_MILLIS = Long.MAX_VALUE / 2\n// MAX_NANOS expressed in milliseconds\nprivate const val MAX_NANOS_IN_MILLIS = MAX_NANOS / NANOS_IN_MILLIS\n\nprivate fun nanosToMillis(nanos: Long): Long = nanos / NANOS_IN_MILLIS\nprivate fun millisToNanos(millis: Long): Long = millis * NANOS_IN_MILLIS\n\nprivate fun durationOfNanos(normalNanos: Long) = Duration(normalNanos shl 1)\nprivate fun durationOfMillis(normalMillis: Long) = Duration((normalMillis shl 1) + 1)\nprivate fun durationOf(normalValue: Long, unitDiscriminator: Int) = Duration((normalValue shl 1) + unitDiscriminator)\nprivate fun durationOfNanosNormalized(nanos: Long) =\n   if (nanos in -MAX_NANOS..MAX_NANOS) {\n   durationOfNanos(nanos)\n   } else {\n   durationOfMillis(nanosToMillis(nanos))\n   }\n\nprivate fun durationOfMillisNormalized(millis: Long) =\n   if (millis in -MAX_NANOS_IN_MILLIS..MAX_NANOS_IN_MILLIS) {\n   durationOfNanos(millisToNanos(millis))\n   } else {\n   durationOfMillis(millis.coerceIn(-MAX_MILLIS, MAX_MILLIS))\n   }\n\ninternal expect val durationAssertionsEnabled: Boolean\n\ninternal expect fun formatToExactDecimals(value: Double, decimals: Int): String\ninternal expect fun formatUpToDecimals(value: Double, decimals: Int): String\n","/*\n * Copyright 2010-2021 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n@file:kotlin.jvm.JvmName(\"UnsignedKt\")\npackage kotlin\n\n@PublishedApi\ninternal fun uintCompare(v1: Int, v2: Int): Int = (v1 xor Int.MIN_VALUE).compareTo(v2 xor Int.MIN_VALUE)\n@PublishedApi\ninternal fun ulongCompare(v1: Long, v2: Long): Int = (v1 xor Long.MIN_VALUE).compareTo(v2 xor Long.MIN_VALUE)\n\n@PublishedApi\ninternal fun uintDivide(v1: UInt, v2: UInt): UInt = (v1.toLong() / v2.toLong()).toUInt()\n@PublishedApi\ninternal fun uintRemainder(v1: UInt, v2: UInt): UInt = (v1.toLong() % v2.toLong()).toUInt()\n\n// Division and remainder are based on Guava's UnsignedLongs implementation\n// Copyright 2011 The Guava Authors\n\n@PublishedApi\ninternal fun ulongDivide(v1: ULong, v2: ULong): ULong {\n   val dividend = v1.toLong()\n   val divisor = v2.toLong()\n   if (divisor < 0) { // i.e., divisor >= 2^63:\n   return if (v1 < v2) ULong(0) else ULong(1)\n   }\n\n   // Optimization - use signed division if both dividend and divisor < 2^63\n   if (dividend >= 0) {\n   return ULong(dividend / divisor)\n   }\n\n   // Otherwise, approximate the quotient, check, and correct if necessary.\n   val quotient = ((dividend ushr 1) / divisor) shl 1\n   val rem = dividend - quotient * divisor\n   return ULong(quotient + if (ULong(rem) >= ULong(divisor)) 1 else 0)\n\n}\n\n@PublishedApi\ninternal fun ulongRemainder(v1: ULong, v2: ULong): ULong {\n   val dividend = v1.toLong()\n   val divisor = v2.toLong()\n   if (divisor < 0) { // i.e., divisor >= 2^63:\n   return if (v1 < v2) {\n   v1 // dividend < divisor\n   } else {\n   v1 - v2 // dividend >= divisor\n   }\n   }\n\n   // Optimization - use signed modulus if both dividend and divisor < 2^63\n   if (dividend >= 0) {\n   return ULong(dividend % divisor)\n   }\n\n   // Otherwise, approximate the quotient, check, and correct if necessary.\n   val quotient = ((dividend ushr 1) / divisor) shl 1\n   val rem = dividend - quotient * divisor\n   return ULong(rem - if (ULong(rem) >= ULong(divisor)) divisor else 0)\n}\n\n@PublishedApi\ninternal fun doubleToUInt(v: Double): UInt = when {\n   v.isNaN() -> 0u\n   v <= UInt.MIN_VALUE.toDouble() -> UInt.MIN_VALUE\n   v >= UInt.MAX_VALUE.toDouble() -> UInt.MAX_VALUE\n   v <= Int.MAX_VALUE -> v.toInt().toUInt()\n   else -> (v - Int.MAX_VALUE).toInt().toUInt() + Int.MAX_VALUE.toUInt()   // Int.MAX_VALUE < v < UInt.MAX_VALUE\n}\n\n@PublishedApi\ninternal fun doubleToULong(v: Double): ULong = when {\n   v.isNaN() -> 0u\n   v <= ULong.MIN_VALUE.toDouble() -> ULong.MIN_VALUE\n   v >= ULong.MAX_VALUE.toDouble() -> ULong.MAX_VALUE\n   v < Long.MAX_VALUE -> v.toLong().toULong()\n\n   // Real values from Long.MAX_VALUE to (Long.MAX_VALUE + 1) are not representable in Double, so don't handle them.\n   else -> (v - 9223372036854775808.0).toLong().toULong() +

9223372036854775808uL // Long.MAX_VALUE + 1 < v <
ULong.MAX_VALUE\n}\n\n\n@PublishedApi\ninternal fun uintToDouble(v: Int): Double = (v and
Int.MAX_VALUE).toDouble() + (v ushr 31 shl 30).toDouble() * 2\n\n@PublishedApi\ninternal fun
ulongToDouble(v: Long): Double = (v ushr 11).toDouble() * 2048 + (v and 2047)\n\n\ninternal fun
ulongToString(v: Long): String = ulongToString(v, 10)\n\ninternal fun ulongToString(v: Long, base: Int): String {\n
if (v >= 0) return v.toString(base)\n\n var quotient = ((v ushr 1) / base) shl 1\n var rem = v - quotient * base\n
if (rem >= base) {\n rem -= base\n quotient += 1\n }\n return quotient.toString(base) +
rem.toString(base)\n}\n\n","/*\n * Copyright 2010-2016 JetBrains s.r.o.\n *\n * Licensed under the Apache License,
Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may
obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by
applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\"
BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the
License for the specific language governing permissions and\n * limitations under the License.\n */\n\npackage
kotlin.internal\n\n/**\n * Specifies that the corresponding type parameter is not used for unsafe operations such as
casts or 'is' checks\n * That means it's completely safe to use generic types as argument for such parameter.\n
*/\n@Target(AnnotationTarget.TYPE_PARAMETER)\n@Retention(AnnotationRetention.BINARY)\ninternal
annotation class PureReifiable\n\n/**\n * Specifies that the corresponding built-in method exists depending on
platform.\n * Current implementation for JVM looks whether method with same JVM descriptor exists in the
module JDK.\n * For example MutableMap.remove(K, V) available only if corresponding\n * method
'java/util/Map.remove(Ljava/lang/Object;Ljava/lang/Object;)Z' is defined in JDK (i.e. for major versions >= 8)\n
*/\n@Target(AnnotationTarget.FUNCTION)\n@Retention(AnnotationRetention.BINARY)\ninternal annotation
class PlatformDependent\n\n/**\n * When applied to a function or property, enables a compiler optimization that
evaluates that function or property\n * at compile-time and replaces calls to it with the computed result.\n
*/\n@Target(AnnotationTarget.CONSTRUCTOR, AnnotationTarget.FUNCTION,
AnnotationTarget.PROPERTY)\n@Retention(AnnotationRetention.BINARY)\n@SinceKotlin(\"1.7\")\ninternal
annotation class IntrinsicConstEvaluation\n","/*\n * Copyright 2010-2018 JetBrains s.r.o. and Kotlin Programming
Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the
license/LICENSE.txt file.\n
*/\n@file:kotlin.jvm.JvmMultifileClass\n@file:kotlin.jvm.JvmName(\"CollectionsKt\")\n\npackage
kotlin.collections\n\n/**\n * Given an [iterator] function constructs an [Iterable] instance that returns values through
the [Iterator]\n * provided by that function.\n * @sample samples.collections.Iterables.Building.iterable\n
*/\n@kotlin.internal.InlineOnly\npublic inline fun <T> Iterable(crossinline iterator: () -> Iterator<T>): Iterable<T>
= object : Iterable<T> {\n override fun iterator(): Iterator<T> = iterator()\n}\n\n/**\n * A wrapper over another
[Iterable] (or any other object that can produce an [Iterator]) that returns\n * an indexing iterator.\n */\ninternal class
IndexingIterable<out T>(private val iteratorFactory: () -> Iterator<T>) : Iterable<IndexedValue<T>> {\n override
fun iterator(): Iterator<IndexedValue<T>> = IndexingIterator(iteratorFactory())\n}\n\n\n/**\n * Returns the size of
this iterable if it is known, or `null` otherwise.\n */\n@PublishedApi\ninternal fun <T>
Iterable<T>.collectionSizeOrNull(): Int? = if (this is Collection<*>) this.size else null\n\n/**\n * Returns the size of
this iterable if it is known, or the specified [default] value otherwise.\n */\n@PublishedApi\ninternal fun <T>
Iterable<T>.collectionSizeOrDefault(default: Int): Int = if (this is Collection<*>) this.size else default\n\n\n/**\n *
Returns a single list of all elements from all collections in the given collection.\n * @sample
samples.collections.Iterables.Operations.flattenIterable\n */\npublic fun <T> Iterable<Iterable<T>>.flatten():
List<T> {\n val result = ArrayList<T>()\n for (element in this) {\n result.addAll(element)\n }\n return
result\n}\n\n/**\n * Returns a pair of lists, where\n * *first* list is built from the first values of each pair from this
collection,\n * *second* list is built from the second values of each pair from this collection.\n * @sample
samples.collections.Iterables.Operations.unzipIterable\n */\npublic fun <T, R> Iterable<Pair<T, R>>.unzip():
Pair<List<T>, List<R>> {\n val expectedSize = collectionSizeOrDefault(10)\n val listT =
ArrayList<T>(expectedSize)\n val listR = ArrayList<R>(expectedSize)\n for (pair in this) {\n

listT.add(pair.first)\n   listR.add(pair.second)\n   }\n   return listT to listR\n}\n","/*\n * Copyright 2010-2020 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\n@file:kotlin.jvm.JvmMultifileClass\n@file:kotlin.jvm.JvmName(\"SequencesKt\")\n\npackage kotlin.sequences\n\nimport kotlin.random.Random\n\n/**\n * Given an [iterator] function constructs a [Sequence] that returns values through the [Iterator]\n * provided by that function.\n * The values are evaluated lazily, and the sequence is potentially infinite.\n *\n * @sample samples.collections.Sequences.Building.sequenceFromIterator\n */\n@kotlin.internal.InlineOnly\npublic inline fun <T> Sequence(crossinline iterator: () -> Iterator<T>): Sequence<T> = object : Sequence<T> {\n   override fun iterator(): Iterator<T> = iterator()\n}\n\n/**\n * Creates a sequence that returns all elements from this iterator. The sequence is constrained to be iterated only once.\n *\n * @sample samples.collections.Sequences.Building.sequenceFromIterator\n */\npublic fun <T> Iterator<T>.asSequence(): Sequence<T> = Sequence { this }.constrainOnce()\n\n/**\n * Creates a sequence that returns the specified values.\n *\n * @sample samples.collections.Sequences.Building.sequenceOfValues\n */\npublic fun <T> sequenceOf(vararg elements: T): Sequence<T> = if (elements.isEmpty()) emptySequence() else elements.asSequence()\n\n/**\n * Returns an empty sequence.\n */\npublic fun <T> emptySequence(): Sequence<T> = EmptySequence\n\nprivate object EmptySequence : Sequence<Nothing>, DropTakeSequence<Nothing> {\n   override fun iterator(): Iterator<Nothing> = EmptyIterator\n   override fun drop(n: Int) = EmptySequence\n   override fun take(n: Int) = EmptySequence\n}\n\n/**\n * Returns this sequence if it's not `null` and the empty sequence otherwise.\n * @sample samples.collections.Sequences.Usage.sequenceOrEmpty\n */\n@SinceKotlin(\"1.3\")\n@kotlin.internal.InlineOnly\npublic inline fun <T> Sequence<T>?.orEmpty(): Sequence<T> = this ?: emptySequence()\n\n\n/**\n * Returns a sequence that iterates through the elements either of this sequence\n * or, if this sequence turns out to be empty, of the sequence returned by [defaultValue] function.\n *\n * @sample samples.collections.Sequences.Usage.sequenceIfEmpty\n */\n@SinceKotlin(\"1.3\")\npublic fun <T> Sequence<T>.ifEmpty(defaultValue: () -> Sequence<T>): Sequence<T> = sequence {\n   val iterator = this@ifEmpty.iterator()\n   if (iterator.hasNext()) {\n   yieldAll(iterator)\n   } else {\n   yieldAll(defaultValue())\n   }\n}\n\n/**\n * Returns a sequence of all elements from all sequences in this sequence.\n *\n * The operation is _intermediate_ and _stateless_.\n *\n * @sample samples.collections.Sequences.Transformations.flattenSequenceOfSequences\n */\npublic fun <T> Sequence<Sequence<T>>.flatten(): Sequence<T> = flatten { it.iterator() }\n\n/**\n * Returns a sequence of all elements from all iterables in this sequence.\n *\n * The operation is _intermediate_ and _stateless_.\n *\n * @sample samples.collections.Sequences.Transformations.flattenSequenceOfLists\n */\n@kotlin.jvm.JvmName(\"flattenSequenceOfIterable\")\npublic fun <T> Sequence<Iterable<T>>.flatten(): Sequence<T> = flatten { it.iterator() }\n\nprivate fun <T, R> Sequence<T>.flatten(iterator: (T) -> Iterator<R>): Sequence<R> {\n   if (this is TransformingSequence<*, *>) {\n   return (this as TransformingSequence<*, T>).flatten(iterator)\n   }\n   return FlatteningSequence(this, { it }, iterator)\n}\n\n/**\n * Returns a pair of lists, where\n * *first* list is built from the first values of each pair from this sequence,\n * *second* list is built from the second values of each pair from this sequence.\n *\n * The operation is _terminal_.\n *\n * @sample samples.collections.Sequences.Transformations.unzip\n */\npublic fun <T, R> Sequence<Pair<T, R>>.unzip(): Pair<List<T>, List<R>> {\n   val listT = ArrayList<T>()\n   val listR = ArrayList<R>()\n   for (pair in this) {\n   listT.add(pair.first)\n   listR.add(pair.second)\n   }\n   return listT to listR\n}\n\n/**\n * Returns a sequence that yields elements of this sequence randomly shuffled.\n *\n * Note that every iteration of the sequence returns elements in a different order.\n *\n * The operation is _intermediate_ and _stateful_.\n */\n@SinceKotlin(\"1.4\")\npublic fun <T> Sequence<T>.shuffled(): Sequence<T> = shuffled(Random)\n\n/**\n * Returns a sequence that yields elements of this sequence randomly shuffled\n * using the specified [random] instance as the source of randomness.\n *\n * Note that every iteration of the sequence returns elements in a different order.\n *\n * The operation is _intermediate_ and _stateful_.\n */\n@SinceKotlin(\"1.4\")\npublic fun <T> Sequence<T>.shuffled(random: Random): Sequence<T> = sequence<T> {\n   val buffer = toMutableList()\n while (buffer.isNotEmpty()) {\n val j = random.nextInt(buffer.size)\n val last = buffer.removeLast()\n val value = if (j < buffer.size) buffer.set(j, last) else last\n yield(value)\n }\n}\n\n\n/**\n * A sequence that returns the values from the underlying [sequence] that either match or do not match\n * the specified [predicate].\n *\n * @param sendWhen If `true`, values for which the predicate returns `true` are returned. Otherwise,\n * values for which the predicate returns `false` are returned\n */\ninternal class FilteringSequence<T>(\n private val sequence: Sequence<T>,\n private val sendWhen: Boolean = true,\n private val predicate: (T) -> Boolean\n) : Sequence<T> {\n\n override fun iterator(): Iterator<T> = object : Iterator<T> {\n val iterator = sequence.iterator()\n var nextState: Int = -1 // -1 for unknown, 0 for done, 1 for continue\n var nextItem: T? = null\n\n private fun calcNext() {\n while (iterator.hasNext()) {\n val item = iterator.next()\n if (predicate(item) == sendWhen) {\n nextItem = item\n nextState = 1\n return\n }\n }\n nextState = 0\n }\n\n override fun next(): T {\n if (nextState == -1)\n calcNext()\n if (nextState == 0)\n throw NoSuchElementException()\n val result = nextItem\n nextItem = null\n nextState = -1\n @Suppress(\"UNCHECKED_CAST\")\n return result as T\n }\n\n override fun hasNext(): Boolean {\n if (nextState == -1)\n calcNext()\n return nextState == 1\n }\n }\n}\n\n/**\n * A sequence which returns the results of applying the given [transformer] function to the values\n * in the underlying [sequence].\n */\n\ninternal class TransformingSequence<T, R>\nconstructor(private val sequence: Sequence<T>, private val transformer: (T) -> R) : Sequence<R> {\n override fun iterator(): Iterator<R> = object : Iterator<R> {\n val iterator = sequence.iterator()\n override fun next(): R {\n return transformer(iterator.next())\n }\n\n override fun hasNext(): Boolean {\n return iterator.hasNext()\n }\n }\n\n internal fun <E> flatten(iterator: (R) -> Iterator<E>): Sequence<E> {\n return FlatteningSequence<T, R, E>(sequence, transformer, iterator)\n }\n}\n\n/**\n * A sequence which returns the results of applying the given [transformer] function to the values\n * in the underlying [sequence], where the transformer function takes the index of the value in the underlying\n * sequence along with the value itself.\n */\ninternal class TransformingIndexedSequence<T, R>\nconstructor(private val sequence: Sequence<T>, private val transformer: (Int, T) -> R) : Sequence<R> {\n override fun iterator(): Iterator<R> = object : Iterator<R> {\n val iterator = sequence.iterator()\n var index = 0\n override fun next(): R {\n return transformer(checkIndexOverflow(index++), iterator.next())\n }\n\n override fun hasNext(): Boolean {\n return iterator.hasNext()\n }\n }\n}\n\n/**\n * A sequence which combines values from the underlying [sequence] with their indices and returns them as\n * [IndexedValue] objects.\n */\ninternal class IndexingSequence<T>\nconstructor(private val sequence: Sequence<T>) : Sequence<IndexedValue<T>> {\n override fun iterator(): Iterator<IndexedValue<T>> = object : Iterator<IndexedValue<T>> {\n val iterator = sequence.iterator()\n var index = 0\n override fun next(): IndexedValue<T> {\n return IndexedValue(checkIndexOverflow(index++), iterator.next())\n }\n\n override fun hasNext(): Boolean {\n return iterator.hasNext()\n }\n }\n}\n\n/**\n * A sequence which takes the values from two parallel underlying sequences, passes them to the given\n * [transform] function and returns the values returned by that function. The sequence stops returning\n * values as soon as one of the underlying sequences stops returning values.\n */\ninternal class MergingSequence<T1, T2, V>\nconstructor(\n private val sequence1: Sequence<T1>,\n private val sequence2: Sequence<T2>,\n private val transform: (T1, T2) -> V\n) : Sequence<V> {\n override fun iterator(): Iterator<V> = object : Iterator<V> {\n val iterator1 = sequence1.iterator()\n val iterator2 = sequence2.iterator()\n override fun next(): V {\n return transform(iterator1.next(), iterator2.next())\n }\n\n override fun hasNext(): Boolean {\n return iterator1.hasNext() && iterator2.hasNext()\n }\n }\n}\n\ninternal class FlatteningSequence<T, R, E>\nconstructor(\n private val sequence: Sequence<T>,\n private val transformer: (T) -> R,\n private val iterator: (R) -> Iterator<E>\n) : Sequence<E> {\n override fun iterator(): Iterator<E> = object : Iterator<E> {\n val iterator = sequence.iterator()\n var itemIterator: Iterator<E>? = null\n\n override fun next(): E {\n if (!ensureItemIterator())\n throw NoSuchElementException()\n return itemIterator!!.next()\n }\n\n override fun hasNext(): Boolean {\n return ensureItemIterator()\n }\n\n private fun ensureItemIterator(): Boolean {\n if (itemIterator?.hasNext() == false)\n itemIterator = null\n\n while (itemIterator == null) {\n if (!iterator.hasNext()) {\n return false\n } else {\n val element = iterator.next()\n val nextItemIterator = iterator(transformer(element))\n if (nextItemIterator.hasNext()) {\n itemIterator = nextItemIterator\n return true\n }\n }\n }\n return true\n }\n }\n}\n\ninternal fun <T, C, R> flatMapIndexed(source: Sequence<T>, transform: (Int, T) -> C, iterator: (C) -> Iterator<R>): Sequence<R> =\n sequence {\n var index = 0\n for (element in source) {\n val result = transform(checkIndexOverflow(index++), element)\n yieldAll(iterator(result))\n }\n }\n\n/**\n * A sequence that supports drop(n) and take(n) operations\n */\ninternal interface DropTakeSequence<T> : Sequence<T> {\n fun drop(n: Int): Sequence<T>\n fun take(n: Int): Sequence<T>\n}\n\n/**\n * A sequence that skips [startIndex] values from the underlying [sequence]\n * and stops returning values right before [endIndex], i.e. stops at `endIndex - 1`\n */\ninternal class SubSequence<T>(\n private val sequence: Sequence<T>,\n private val startIndex: Int,\n private val endIndex: Int\n) : Sequence<T>, DropTakeSequence<T> {\n\n init {\n require(startIndex >= 0) { \"startIndex should be non-negative, but is $startIndex\" }\n require(endIndex >= 0) { \"endIndex should be non-negative, but is $endIndex\" }\n require(endIndex >= startIndex) { \"endIndex should be not less than startIndex, but was $endIndex < $startIndex\" }\n }\n\n private val count: Int get() = endIndex - startIndex\n\n override fun drop(n: Int): Sequence<T> = if (n >= count) emptySequence() else SubSequence(sequence, startIndex + n, endIndex)\n override fun take(n: Int): Sequence<T> = if (n >= count) this else SubSequence(sequence, startIndex, startIndex + n)\n\n override fun iterator() = object : Iterator<T> {\n\n val iterator = sequence.iterator()\n var position = 0\n\n // Shouldn't be called from constructor to avoid premature iteration\n private fun drop() {\n while (position < startIndex && iterator.hasNext()) {\n iterator.next()\n position++\n }\n }\n\n override fun hasNext(): Boolean {\n drop()\n return (position < endIndex) && iterator.hasNext()\n }\n\n override fun next(): T {\n drop()\n if (position >= endIndex)\n throw NoSuchElementException()\n position++\n return iterator.next()\n }\n }\n}\n\n/**\n * A sequence that returns at most [count] values from the underlying [sequence], and stops returning values\n * as soon as that count is reached.\n */\ninternal class TakeSequence<T>(\n private val sequence: Sequence<T>,\n private val count: Int\n) : Sequence<T>, DropTakeSequence<T> {\n\n init {\n require(count >= 0) { \"count must be non-negative, but was $count.\" }\n }\n\n override fun drop(n: Int): Sequence<T> = if (n >= count) emptySequence() else SubSequence(sequence, n, count)\n override fun take(n: Int): Sequence<T> = if (n >= count) this else TakeSequence(sequence, n)\n\n override fun iterator(): Iterator<T> = object : Iterator<T> {\n var left = count\n val iterator = sequence.iterator()\n\n override fun next(): T {\n if (left == 0)\n throw NoSuchElementException()\n left--\n return iterator.next()\n }\n\n override fun hasNext(): Boolean {\n return left > 0 && iterator.hasNext()\n }\n }\n}\n\n/**\n * A sequence that returns values from the underlying [sequence] while the [predicate] function returns\n * `true`, and stops returning values once the function returns `false` for the next element.\n */\ninternal class TakeWhileSequence<T>\nconstructor(\n private val sequence: Sequence<T>,\n private val predicate: (T) -> Boolean\n) : Sequence<T> {\n override fun iterator(): Iterator<T> = object : Iterator<T> {\n val iterator = sequence.iterator()\n var nextState: Int = -1 // -1 for unknown, 0 for done, 1 for continue\n var nextItem: T? = null\n\n private fun calcNext() {\n if (iterator.hasNext()) {\n val item = iterator.next()\n if (predicate(item)) {\n nextState = 1\n nextItem = item\n return\n }\n }\n nextState = 0\n }\n\n override fun next(): T {\n if (nextState == -1)\n calcNext() // will change nextState\n if (nextState == 0)\n throw NoSuchElementException()\n @Suppress(\"UNCHECKED_CAST\")\n val result = nextItem as T\n\n // Clean next to avoid keeping reference on yielded instance\n nextItem = null\n nextState = -1\n return result\n }\n\n override fun hasNext(): Boolean {\n if (nextState == -1)\n calcNext() // will change nextState\n return nextState == 1\n }\n }\n}\n\n/**\n * A sequence that skips the specified number of values from the underlying [sequence] and returns\n * all values after that.\n */\ninternal class DropSequence<T>(\n private val sequence: Sequence<T>,\n private val count: Int\n) : Sequence<T>, DropTakeSequence<T> {\n init {\n require(count >= 0) { \"count must be non-negative, but was $count.\" }\n }\n\n override fun drop(n: Int):

Sequence<T> = (count + n).let { n1 -> if (n1 < 0) DropSequence(this, n) else DropSequence(sequence, n1) }\n override fun take(n: Int): Sequence<T> = (count + n).let { n1 -> if (n1 < 0) TakeSequence(this, n) else SubSequence(sequence, count, n1) }\n\n   override fun iterator(): Iterator<T> = object : Iterator<T> {\n   val iterator = sequence.iterator()\n   var left = count\n\n   // Shouldn't be called from constructor to avoid premature iteration\n   private fun drop() {\n   while (left > 0 && iterator.hasNext()) {\n iterator.next()\n   left--\n   }\n   }\n\n   override fun next(): T {\n   drop()\n   return iterator.next()\n   }\n\n   override fun hasNext(): Boolean {\n   drop()\n   return iterator.hasNext()\n   }\n   }\n}\n\n/**\n * A sequence that skips the values from the underlying [sequence] while the given [predicate] returns `true` and returns\n * all values after that.\n */\ninternal class DropWhileSequence<T>\nconstructor(\n   private val sequence: Sequence<T>,\n   private val predicate: (T) -> Boolean\n) : Sequence<T> {\n\n   override fun iterator(): Iterator<T> = object : Iterator<T> {\n   val iterator = sequence.iterator()\n   var dropState: Int = -1 // -1 for not dropping, 1 for nextItem, 0 for normal iteration\n var nextItem: T? = null\n\n   private fun drop() {\n   while (iterator.hasNext()) {\n   val item = iterator.next()\n   if (!predicate(item)) {\n   nextItem = item\n   dropState = 1\n   return\n   }\n   }\n   dropState = 0\n   }\n\n   override fun next(): T {\n   if (dropState == -1)\n   drop()\n\n   if (dropState == 1) {\n @Suppress(\"UNCHECKED_CAST\")\n   val result = nextItem as T\n   nextItem = null\n dropState = 0\n   return result\n   }\n   return iterator.next()\n   }\n\n   override fun hasNext(): Boolean {\n   if (dropState == -1)\n   drop()\n   return dropState == 1 || iterator.hasNext()\n   }\n   }\n}\n\ninternal class DistinctSequence<T, K>(private val source: Sequence<T>, private val keySelector: (T) -> K) : Sequence<T> {\n   override fun iterator(): Iterator<T> = DistinctIterator(source.iterator(), keySelector)\n}\n\nprivate class DistinctIterator<T, K>(private val source: Iterator<T>, private val keySelector: (T) -> K) : AbstractIterator<T>() {\n   private val observed = HashSet<K>()\n\n   override fun computeNext() {\n   while (source.hasNext()) {\n   val next = source.next()\n   val key = keySelector(next)\n\n   if (observed.add(key)) {\n   setNext(next)\n   return\n   }\n   }\n\n   done()\n   }\n}\n\n\nprivate class GeneratorSequence<T : Any>(private val getInitialValue: () -> T?, private val getNextValue: (T) -> T?) : Sequence<T> {\n   override fun iterator(): Iterator<T> = object : Iterator<T> {\n   var nextItem: T? = null\n   var nextState: Int = -2 // -2 for initial unknown, -1 for next unknown, 0 for done, 1 for continue\n\n   private fun calcNext() {\n   nextItem = if (nextState == -2) getInitialValue() else getNextValue(nextItem!!)\n   nextState = if (nextItem == null) 0 else 1\n   }\n\n   override fun next(): T {\n   if (nextState < 0)\n   calcNext()\n\n   if (nextState == 0)\n   throw NoSuchElementException()\n   val result = nextItem as T\n   // Do not clean nextItem (to avoid keeping reference on yielded instance) -- need to keep state for getNextValue\n   nextState = -1\n   return result\n   }\n\n   override fun hasNext(): Boolean {\n   if (nextState < 0)\n calcNext()\n   return nextState == 1\n   }\n   }\n}\n\n/**\n * Returns a wrapper sequence that provides values of this sequence, but ensures it can be iterated only one time.\n *\n * The operation is _intermediate_ and _stateless_.\n *\n * [IllegalStateException] is thrown on iterating the returned sequence for the second time and the following times.\n *\n */\npublic fun <T> Sequence<T>.constrainOnce(): Sequence<T> {\n   // as? does not work in js\n   //return this as? ConstrainedOnceSequence<T> ?: ConstrainedOnceSequence(this)\n   return if (this is ConstrainedOnceSequence<T>) this else ConstrainedOnceSequence(this)\n}\n\n\n/**\n * Returns a sequence which invokes the function to calculate the next value on each iteration until the function returns `null`.\n *\n * The returned sequence is constrained to be iterated only once.\n *\n * @see constrainOnce\n * @see kotlin.sequences.sequence\n *\n * @sample samples.collections.Sequences.Building.generateSequence\n */\npublic fun <T : Any> generateSequence(nextFunction: () -> T?): Sequence<T> {\n   return GeneratorSequence(nextFunction, { nextFunction() }).constrainOnce()\n}\n\n/**\n * Returns a sequence defined by the starting value [seed] and the function [nextFunction],\n * which is invoked to calculate the next value based on the previous one on each iteration.\n *\n * The sequence produces values until it encounters first `null` value.\n * If [seed] is `null`, an empty sequence is produced.\n *\n * The sequence can be iterated multiple times, each time starting with [seed].\n *\n * @see kotlin.sequences.sequence\n *\n * @sample samples.collections.Sequences.Building.generateSequenceWithSeed\n */\n@kotlin.internal.LowPriorityInOverloadResolution\npublic fun <T : Any> generateSequence(seed: T?, nextFunction: (T) -> T?): Sequence<T> =\n   if (seed == null)\n   EmptySequence\n   else\n   GeneratorSequence({ seed }, nextFunction)\n\n/**\n * Returns a sequence defined by the function [seedFunction], which is invoked to produce the starting value,\n * and the [nextFunction], which is invoked to calculate the next value based on the previous one on each iteration.\n *\n * The sequence produces values until it encounters first `null` value.\n * If [seedFunction] returns `null`, an empty sequence is produced.\n *\n * The sequence can be iterated multiple times.\n *\n * @see kotlin.sequences.sequence\n *\n * @sample samples.collections.Sequences.Building.generateSequenceWithLazySeed\n */\npublic fun <T : Any> generateSequence(seedFunction: () -> T?, nextFunction: (T) -> T?): Sequence<T> =\n   GeneratorSequence(seedFunction, nextFunction)\n\n","/*\n * Copyright 2010-2018 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\n@file:kotlin.jvm.JvmMultifileClass\n@file:kotlin.jvm.JvmName(\"PreconditionsKt\")\n\npackage kotlin\n\nimport kotlin.contracts.contract\n\n/**\n * Throws an [IllegalArgumentException] if the [value] is false.\n *\n * @sample samples.misc.Preconditions.failRequireWithLazyMessage\n */\n@kotlin.internal.InlineOnly\npublic inline fun require(value: Boolean): Unit {\n   contract {\n   returns() implies value\n   }\n   require(value) { \"Failed requirement.\" }\n}\n\n/**\n * Throws an [IllegalArgumentException] with the result of calling [lazyMessage] if the [value] is false.\n *\n * @sample samples.misc.Preconditions.failRequireWithLazyMessage\n */\n@kotlin.internal.InlineOnly\npublic inline fun require(value: Boolean, lazyMessage: () -> Any): Unit {\n   contract {\n   returns() implies value\n   }\n   if (!value) {\n   val message = lazyMessage()\n   throw IllegalArgumentException(message.toString())\n   }\n}\n\n/**\n * Throws an [IllegalArgumentException] if the [value] is null. Otherwise returns the not null value.\n */\n@kotlin.internal.InlineOnly\npublic inline fun <T : Any> requireNotNull(value: T?): T {\n   contract {\n   returns() implies (value != null)\n   }\n   return requireNotNull(value) { \"Required value was null.\" }\n}\n\n/**\n * Throws an [IllegalArgumentException] with the result of calling [lazyMessage] if the [value] is null. Otherwise\n * returns the not null value.\n *\n * @sample samples.misc.Preconditions.failRequireNotNullWithLazyMessage\n */\n@kotlin.internal.InlineOnly\npublic inline fun <T : Any> requireNotNull(value: T?, lazyMessage: () -> Any): T {\n   contract {\n   returns() implies (value != null)\n   }\n\n   if (value == null) {\n   val message = lazyMessage()\n   throw IllegalArgumentException(message.toString())\n   } else {\n   return value\n   }\n}\n\n/**\n * Throws an [IllegalStateException] if the [value] is false.\n *\n * @sample samples.misc.Preconditions.failCheckWithLazyMessage\n */\n@kotlin.internal.InlineOnly\npublic inline fun check(value: Boolean): Unit {\n   contract {\n   returns() implies value\n   }\n   check(value) { \"Check failed.\" }\n}\n\n/**\n * Throws an [IllegalStateException] with the result of calling [lazyMessage] if the [value] is false.\n *\n * @sample samples.misc.Preconditions.failCheckWithLazyMessage\n */\n@kotlin.internal.InlineOnly\npublic inline fun check(value: Boolean, lazyMessage: () -> Any): Unit {\n   contract {\n   returns() implies value\n   }\n   if (!value) {\n   val message = lazyMessage()\n   throw IllegalStateException(message.toString())\n   }\n}\n\n/**\n * Throws an [IllegalStateException] if the [value] is null. Otherwise\n * returns the not null value.\n *\n * @sample samples.misc.Preconditions.failCheckWithLazyMessage\n */\n@kotlin.internal.InlineOnly\npublic inline fun <T : Any> checkNotNull(value: T?): T {\n   contract {\n   returns() implies (value != null)\n   }\n   return checkNotNull(value) { \"Required value was null.\" }\n}\n\n/**\n * Throws an [IllegalStateException] with the result of calling [lazyMessage] if the [value] is null. Otherwise\n * returns the not null value.\n *\n * @sample samples.misc.Preconditions.failCheckWithLazyMessage\n */\n@kotlin.internal.InlineOnly\npublic inline fun <T : Any> checkNotNull(value: T?, lazyMessage: () -> Any): T {\n   contract {\n   returns() implies (value != null)\n   }\n\n   if (value == null) {\n   val message = lazyMessage()\n   throw IllegalStateException(message.toString())\n   } else {\n   return value\n   }\n}\n\n\n/**\n * Throws an [IllegalStateException] with the given [message].\n *\n * @sample samples.misc.Preconditions.failWithError\n

/\n@kotlin.internal.InlineOnly\npublic inline fun error(message: Any): Nothing = throw IllegalStateException(message.toString())\n","/\n * Copyright 2010-2022 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin.collections\n\n//\n// NOTE: THIS FILE IS AUTO-GENERATED by the GenerateStandardLib.kt\n// See: https://github.com/JetBrains/kotlin/tree/master/libraries/stdlib\n//\n\nimport kotlin.js.*\nimport primitiveArrayConcat\nimport withType\nimport kotlin.ranges.contains\nimport kotlin.ranges.reversed\n\n/**\n * Returns an element at the given [index] or throws an [IndexOutOfBoundsException] if the [index] is out of bounds of this array.\n * \n * @sample samples.collections.Collections.Elements.elementAt\n */\npublic actual fun <T> Array<out T>.elementAt(index: Int): T {\n   return elementAtOrElse(index) { throw IndexOutOfBoundsException(\"index: $index, size: $size}\") }\n}\n\n/**\n * Returns an element at the given [index] or throws an [IndexOutOfBoundsException] if the [index] is out of bounds of this array.\n * \n * @sample samples.collections.Collections.Elements.elementAt\n */\npublic actual fun ByteArray.elementAt(index: Int): Byte {\n   return elementAtOrElse(index) { throw IndexOutOfBoundsException(\"index: $index, size: $size}\") }\n}\n\n/**\n * Returns an element at the given [index] or throws an [IndexOutOfBoundsException] if the [index] is out of bounds of this array.\n * \n * @sample samples.collections.Collections.Elements.elementAt\n */\npublic actual fun ShortArray.elementAt(index: Int): Short {\n   return elementAtOrElse(index) { throw IndexOutOfBoundsException(\"index: $index, size: $size}\") }\n}\n\n/**\n * Returns an element at the given [index] or throws an [IndexOutOfBoundsException] if the [index] is out of bounds of this array.\n * \n * @sample samples.collections.Collections.Elements.elementAt\n */\npublic actual fun IntArray.elementAt(index: Int): Int {\n   return elementAtOrElse(index) { throw IndexOutOfBoundsException(\"index: $index, size: $size}\") }\n}\n\n/**\n * Returns an element at the given [index] or throws an [IndexOutOfBoundsException] if the [index] is out of bounds of this array.\n * \n * @sample samples.collections.Collections.Elements.elementAt\n */\npublic actual fun LongArray.elementAt(index: Int): Long {\n   return elementAtOrElse(index) { throw IndexOutOfBoundsException(\"index: $index, size: $size}\") }\n}\n\n/**\n * Returns an element at the given [index] or throws an [IndexOutOfBoundsException] if the [index] is out of bounds of this array.\n * \n * @sample samples.collections.Collections.Elements.elementAt\n */\npublic actual fun FloatArray.elementAt(index: Int): Float {\n   return elementAtOrElse(index) { throw IndexOutOfBoundsException(\"index: $index, size: $size}\") }\n}\n\n/**\n * Returns an element at the given [index] or throws an [IndexOutOfBoundsException] if the [index] is out of bounds of this array.\n * \n * @sample samples.collections.Collections.Elements.elementAt\n */\npublic actual fun DoubleArray.elementAt(index: Int): Double {\n   return elementAtOrElse(index) { throw IndexOutOfBoundsException(\"index: $index, size: $size}\") }\n}\n\n/**\n * Returns an element at the given [index] or throws an [IndexOutOfBoundsException] if the [index] is out of bounds of this array.\n * \n * @sample samples.collections.Collections.Elements.elementAt\n */\npublic actual fun BooleanArray.elementAt(index: Int): Boolean {\n   return elementAtOrElse(index) { throw IndexOutOfBoundsException(\"index: $index, size: $size}\") }\n}\n\n/**\n * Returns an element at the given [index] or throws an [IndexOutOfBoundsException] if the [index] is out of bounds of this array.\n * \n * @sample samples.collections.Collections.Elements.elementAt\n */\npublic actual fun CharArray.elementAt(index: Int): Char {\n   return elementAtOrElse(index) { throw IndexOutOfBoundsException(\"index: $index, size: $size}\") }\n}\n\n/**\n * Returns a [List] that wraps the original array.\n */\npublic actual fun <T> Array<out T>.asList(): List<T> {\n   return ArrayList<T>(this.unsafeCast<Array<Any?>>())\n}\n\n/**\n * Returns a [List] that wraps the original array.\n */\n@kotlin.internal.InlineOnly\npublic actual inline fun ByteArray.asList(): List<Byte> {\n   return this.unsafeCast<Array<Byte>>().asList()\n}\n\n/**\n * Returns a [List] that wraps the original array.\n */\n@kotlin.internal.InlineOnly\npublic actual inline fun ShortArray.asList(): List<Short> {\n   return this.unsafeCast<Array<Short>>().asList()\n}\n\n/**\n * Returns a [List] that wraps the original array.\n */\n@kotlin.internal.InlineOnly\npublic actual inline fun IntArray.asList(): List<Int> {\n   return this.unsafeCast<Array<Int>>().asList()\n}\n\n/**\n * Returns a [List] that wraps the original array.\n */\n@kotlin.internal.InlineOnly\npublic actual inline fun LongArray.asList(): List<Long> {\n   return this.unsafeCast<Array<Long>>().asList()\n}\n\n/**\n * Returns a [List] that wraps the original array.\n

*/\n@kotlin.internal.InlineOnly\npublic actual inline fun FloatArray.asList(): List<Float> {\n   return this.unsafeCast<Array<Float>>().asList()\n}\n\n/**\n * Returns a [List] that wraps the original array.\n */\n@kotlin.internal.InlineOnly\npublic actual inline fun DoubleArray.asList(): List<Double> {\n   return this.unsafeCast<Array<Double>>().asList()\n}\n\n/**\n * Returns a [List] that wraps the original array.\n */\n@kotlin.internal.InlineOnly\npublic actual inline fun BooleanArray.asList(): List<Boolean> {\n   return this.unsafeCast<Array<Boolean>>().asList()\n}\n\n/**\n * Returns a [List] that wraps the original array.\n */\npublic actual fun CharArray.asList(): List<Char> {\n   return object : AbstractList<Char>(), RandomAccess {\n   override val size: Int get() = this@asList.size\n   override fun isEmpty(): Boolean = this@asList.isEmpty()\n   override fun contains(element: Char): Boolean = this@asList.contains(element)\n   override fun get(index: Int): Char {\n   AbstractList.checkElementIndex(index, size)\n   return this@asList[index]\n   }\n   override fun indexOf(element: Char): Int {\n   @Suppress(\"USELESS_CAST\")\n   if ((element as Any?) !is Char) return -1\n   return this@asList.indexOf(element)\n   }\n   override fun lastIndexOf(element: Char): Int {\n   @Suppress(\"USELESS_CAST\")\n   if ((element as Any?) !is Char) return -1\n   return this@asList.lastIndexOf(element)\n   }\n   }\n}\n\n/**\n * Returns `true` if the two specified arrays are *deeply* equal to one another,\n * i.e. contain the same number of the same elements in the same order.\n * \n * If two corresponding elements are nested arrays, they are also compared deeply.\n * If any of arrays contains itself on any nesting level the behavior is undefined.\n * \n * The elements of other types are compared for equality with the [equals][Any.equals] function.\n * For floating point numbers it means that `NaN` is equal to itself and `-0.0` is not equal to `0.0`.\n */\n@SinceKotlin(\"1.1\")\n@kotlin.internal.LowPriorityInOverloadResolution\npublic actual infix fun <T> Array<out T>.contentDeepEquals(other: Array<out T>): Boolean {\n   return this.contentDeepEquals(other)\n}\n\n/**\n * Returns `true` if the two specified arrays are *deeply* equal to one another,\n * i.e. contain the same number of the same elements in the same order.\n * \n * The specified arrays are also considered deeply equal if both are `null`.\n * \n * If two corresponding elements are nested arrays, they are also compared deeply.\n * If any of arrays contains itself on any nesting level the behavior is undefined.\n * \n * The elements of other types are compared for equality with the [equals][Any.equals] function.\n * For floating point numbers it means that `NaN` is equal to itself and `-0.0` is not equal to `0.0`.\n */\n@SinceKotlin(\"1.4\")\n@library(\"arrayDeepEquals\")\npublic actual infix fun <T> Array<out T>?.contentDeepEquals(other: Array<out T>?): Boolean {\n   definedExternally\n}\n\n/**\n * Returns a hash code based on the contents of this array as if it is [List].\n * Nested arrays are treated as lists too.\n * \n * If any of arrays contains itself on any nesting level the behavior is undefined.\n */\n@SinceKotlin(\"1.1\")\n@kotlin.internal.LowPriorityInOverloadResolution\npublic actual fun <T> Array<out T>.contentDeepHashCode(): Int {\n   return this.contentDeepHashCode()\n}\n\n/**\n * Returns a hash code based on the contents of this array as if it is [List].\n * Nested arrays are treated as lists too.\n * \n * If any of arrays contains itself on any nesting level the behavior is undefined.\n */\n@SinceKotlin(\"1.4\")\n@library(\"arrayDeepHashCode\")\npublic actual fun <T> Array<out T>?.contentDeepHashCode(): Int {\n   definedExternally\n}\n\n/**\n * Returns a string representation of the contents of this array as if it is a [List].\n * Nested arrays are treated as lists too.\n * \n * If any of arrays contains itself on any nesting level that reference\n * is rendered as `\"[...]\"` to prevent recursion.\n * \n * @sample samples.collections.Arrays.ContentOperations.contentDeepToString\n */\n@SinceKotlin(\"1.1\")\n@kotlin.internal.LowPriorityInOverloadResolution\npublic actual fun <T> Array<out T>.contentDeepToString(): String {\n   return this.contentDeepToString()\n}\n\n/**\n * Returns a string representation of the contents of this array as if it is a [List].\n * Nested arrays are treated as lists too.\n * \n * If any of arrays contains itself on any nesting level that reference\n * is rendered as `\"[...]\"` to prevent recursion.\n * \n * @sample samples.collections.Arrays.ContentOperations.contentDeepToString\n */\n@SinceKotlin(\"1.4\")\n@library(\"arrayDeepToString\")\npublic actual fun <T> Array<out T>?.contentDeepToString(): String {\n   definedExternally\n}\n\n/**\n * Returns `true` if the two specified arrays are *structurally* equal to one another,\n * i.e. contain the same number of the same elements in the same order.\n *

\n * The elements are compared for equality with the [equals][Any.equals] function.\n * For floating point numbers it means that `NaN` is equal to itself and `-0.0` is not equal to `0.0`.\n */\n@Deprecated(\"Use Kotlin compiler 1.4 to avoid deprecation warning.\")\n@SinceKotlin(\"1.1\")\n@DeprecatedSinceKotlin(hiddenSince = \"1.4\")\npublic actual infix fun <T> Array<out T>.contentEquals(other: Array<out T>): Boolean {\n   return this.contentEquals(other)\n}\n\n/**\n * Returns `true` if the two specified arrays are *structurally* equal to one another,\n * i.e. contain the same number of the same elements in the same order.\n * \n * The elements are compared for equality with the [equals][Any.equals] function.\n * For floating point numbers it means that `NaN` is equal to itself and `-0.0` is not equal to `0.0`.\n */\n@Deprecated(\"Use Kotlin compiler 1.4 to avoid deprecation warning.\")\n@SinceKotlin(\"1.1\")\n@DeprecatedSinceKotlin(hiddenSince = \"1.4\")\npublic actual infix fun ByteArray.contentEquals(other: ByteArray): Boolean {\n   return this.contentEquals(other)\n}\n\n/**\n * Returns `true` if the two specified arrays are *structurally* equal to one another,\n * i.e. contain the same number of the same elements in the same order.\n * \n * The elements are compared for equality with the [equals][Any.equals] function.\n * For floating point numbers it means that `NaN` is equal to itself and `-0.0` is not equal to `0.0`.\n */\n@Deprecated(\"Use Kotlin compiler 1.4 to avoid deprecation warning.\")\n@SinceKotlin(\"1.1\")\n@DeprecatedSinceKotlin(hiddenSince = \"1.4\")\npublic actual infix fun ShortArray.contentEquals(other: ShortArray): Boolean {\n   return this.contentEquals(other)\n}\n\n/**\n * Returns `true` if the two specified arrays are *structurally* equal to one another,\n * i.e. contain the same number of the same elements in the same order.\n * \n * The elements are compared for equality with the [equals][Any.equals] function.\n * For floating point numbers it means that `NaN` is equal to itself and `-0.0` is not equal to `0.0`.\n */\n@Deprecated(\"Use Kotlin compiler 1.4 to avoid deprecation warning.\")\n@SinceKotlin(\"1.1\")\n@DeprecatedSinceKotlin(hiddenSince = \"1.4\")\npublic actual infix fun IntArray.contentEquals(other: IntArray): Boolean {\n   return this.contentEquals(other)\n}\n\n/**\n * Returns `true` if the two specified arrays are *structurally* equal to one another,\n * i.e. contain the same number of the same elements in the same order.\n * \n * The elements are compared for equality with the [equals][Any.equals] function.\n * For floating point numbers it means that `NaN` is equal to itself and `-0.0` is not equal to `0.0`.\n */\n@Deprecated(\"Use Kotlin compiler 1.4 to avoid deprecation warning.\")\n@SinceKotlin(\"1.1\")\n@DeprecatedSinceKotlin(hiddenSince = \"1.4\")\npublic actual infix fun LongArray.contentEquals(other: LongArray): Boolean {\n   return this.contentEquals(other)\n}\n\n/**\n * Returns `true` if the two specified arrays are *structurally* equal to one another,\n * i.e. contain the same number of the same elements in the same order.\n * \n * The elements are compared for equality with the [equals][Any.equals] function.\n * For floating point numbers it means that `NaN` is equal to itself and `-0.0` is not equal to `0.0`.\n */\n@Deprecated(\"Use Kotlin compiler 1.4 to avoid deprecation warning.\")\n@SinceKotlin(\"1.1\")\n@DeprecatedSinceKotlin(hiddenSince = \"1.4\")\npublic actual infix fun FloatArray.contentEquals(other: FloatArray): Boolean {\n   return this.contentEquals(other)\n}\n\n/**\n * Returns `true` if the two specified arrays are *structurally* equal to one another,\n * i.e. contain the same number of the same elements in the same order.\n * \n * The elements are compared for equality with the [equals][Any.equals] function.\n * For floating point numbers it means that `NaN` is equal to itself and `-0.0` is not equal to `0.0`.\n */\n@Deprecated(\"Use Kotlin compiler 1.4 to avoid deprecation warning.\")\n@SinceKotlin(\"1.1\")\n@DeprecatedSinceKotlin(hiddenSince = \"1.4\")\npublic actual infix fun DoubleArray.contentEquals(other: DoubleArray): Boolean {\n   return this.contentEquals(other)\n}\n\n/**\n * Returns `true` if the two specified arrays are *structurally* equal to one another,\n * i.e. contain the same number of the same elements in the same order.\n * \n * The elements are compared for equality with the [equals][Any.equals] function.\n * For floating point numbers it means that `NaN` is equal to itself and `-0.0` is not equal to `0.0`.\n */\n@Deprecated(\"Use Kotlin compiler 1.4 to avoid deprecation warning.\")\n@SinceKotlin(\"1.1\")\n@DeprecatedSinceKotlin(hiddenSince = \"1.4\")\npublic actual infix fun BooleanArray.contentEquals(other: BooleanArray): Boolean {\n   return this.contentEquals(other)\n}\n\n/**\n * Returns `true` if the two specified arrays are *structurally* equal to one another,\n * i.e. contain the same number of the same elements in the same order.\n * \n * The elements are compared for equality with the [equals][Any.equals] function.\n * For floating point numbers it means that `NaN` is equal to itself and `-0.0` is not equal to `0.0`.\n */\n@Deprecated(\"Use Kotlin compiler 1.4 to avoid deprecation warning.\")\n@SinceKotlin(\"1.1\")\n@DeprecatedSinceKotlin(hiddenSince = \"1.4\")\npublic actual infix fun CharArray.contentEquals(other: CharArray): Boolean {\n   return this.contentEquals(other)\n}\n\n/**\n * Returns `true` if the two specified arrays are *structurally* equal to one another,\n * i.e. contain the same number of the same elements in the same order.\n * \n * The elements are compared for equality with the [equals][Any.equals] function.\n * For floating point numbers it means that `NaN` is equal to itself and `-0.0` is not equal to `0.0`.\n */\n@SinceKotlin(\"1.4\")\n@library(\"arrayEquals\")\npublic actual infix fun <T> Array<out T>?.contentEquals(other: Array<out T>?): Boolean {\n   definedExternally\n}\n\n/**\n * Returns `true` if the two specified arrays are *structurally* equal to one another,\n * i.e. contain the same number of the same elements in the same order.\n * \n * The elements are compared for equality with the [equals][Any.equals] function.\n * For floating point numbers it means that `NaN` is equal to itself and `-0.0` is not equal to `0.0`.\n */\n@SinceKotlin(\"1.4\")\n@library(\"arrayEquals\")\npublic actual infix fun ByteArray?.contentEquals(other: ByteArray?): Boolean {\n   definedExternally\n}\n\n/**\n * Returns `true` if the two specified arrays are *structurally* equal to one another,\n * i.e. contain the same number of the same elements in the same order.\n * \n * The elements are compared for equality with the [equals][Any.equals] function.\n * For floating point numbers it means that `NaN` is equal to itself and `-0.0` is not equal to `0.0`.\n */\n@SinceKotlin(\"1.4\")\n@library(\"arrayEquals\")\npublic actual infix fun ShortArray?.contentEquals(other: ShortArray?): Boolean {\n   definedExternally\n}\n\n/**\n * Returns `true` if the two specified arrays are *structurally* equal to one another,\n * i.e. contain the same number of the same elements in the same order.\n * \n * The elements are compared for equality with the [equals][Any.equals] function.\n * For floating point numbers it means that `NaN` is equal to itself and `-0.0` is not equal to `0.0`.\n */\n@SinceKotlin(\"1.4\")\n@library(\"arrayEquals\")\npublic actual infix fun IntArray?.contentEquals(other: IntArray?): Boolean {\n   definedExternally\n}\n\n/**\n * Returns `true` if the two specified arrays are *structurally* equal to one another,\n * i.e. contain the same number of the same elements in the same order.\n * \n * The elements are compared for equality with the [equals][Any.equals] function.\n * For floating point numbers it means that `NaN` is equal to itself and `-0.0` is not equal to `0.0`.\n */\n@SinceKotlin(\"1.4\")\n@library(\"arrayEquals\")\npublic actual infix fun LongArray?.contentEquals(other: LongArray?): Boolean {\n   definedExternally\n}\n\n/**\n * Returns `true` if the two specified arrays are *structurally* equal to one another,\n * i.e. contain the same number of the same elements in the same order.\n * \n * The elements are compared for equality with the [equals][Any.equals] function.\n * For floating point numbers it means that `NaN` is equal to itself and `-0.0` is not equal to `0.0`.\n */\n@SinceKotlin(\"1.4\")\n@library(\"arrayEquals\")\npublic actual infix fun FloatArray?.contentEquals(other: FloatArray?): Boolean {\n   definedExternally\n}\n\n/**\n * Returns `true` if the two specified arrays are *structurally* equal to one another,\n * i.e. contain the same number of the same elements in the same order.\n * \n * The elements are compared for equality with the [equals][Any.equals] function.\n * For floating point numbers it means that `NaN` is equal to itself and `-0.0` is not equal to `0.0`.\n */\n@SinceKotlin(\"1.4\")\n@library(\"arrayEquals\")\npublic actual infix fun DoubleArray?.contentEquals(other: DoubleArray?): Boolean {\n   definedExternally\n}\n\n/**\n * Returns `true` if the two specified arrays are *structurally* equal to one another,\n * i.e. contain the same number of the same elements in the same order.\n * \n * The elements are compared for equality with the [equals][Any.equals] function.\n * For floating point numbers it means that `NaN` is equal to itself and `-0.0` is not equal to `0.0`.\n */\n@SinceKotlin(\"1.4\")\n@library(\"arrayEquals\")\npublic actual infix fun BooleanArray?.contentEquals(other: BooleanArray?): Boolean {\n   definedExternally\n}\n\n/**\n * Returns `true` if the two specified arrays are *structurally* equal to one another,\n * i.e. contain the same number of the same elements in the same order.\n * \n * The elements are compared for equality with the [equals][Any.equals] function.\n * For floating point numbers it means that `NaN` is equal to itself and `-0.0` is not equal to `0.0`.\n */\n@SinceKotlin(\"1.4\")\n@library(\"arrayEquals\")\npublic actual infix fun CharArray?.contentEquals(other:

CharArray?): Boolean {\n   definedExternally\n}\n\n/**\n * Returns a hash code based on the contents of this array as if it is [List].\n */\n@Deprecated(\"Use Kotlin compiler 1.4 to avoid deprecation warning.\")\n@SinceKotlin(\"1.1\")\n@DeprecatedSinceKotlin(hiddenSince = \"1.4\")\npublic actual fun <T> Array<out T>.contentHashCode(): Int {\n   return this.contentHashCode()\n}\n\n/**\n * Returns a hash code based on the contents of this array as if it is [List].\n */\n@Deprecated(\"Use Kotlin compiler 1.4 to avoid deprecation warning.\")\n@SinceKotlin(\"1.1\")\n@DeprecatedSinceKotlin(hiddenSince = \"1.4\")\npublic actual fun ByteArray.contentHashCode(): Int {\n   return this.contentHashCode()\n}\n\n/**\n * Returns a hash code based on the contents of this array as if it is [List].\n */\n@Deprecated(\"Use Kotlin compiler 1.4 to avoid deprecation warning.\")\n@SinceKotlin(\"1.1\")\n@DeprecatedSinceKotlin(hiddenSince = \"1.4\")\npublic actual fun ShortArray.contentHashCode(): Int {\n   return this.contentHashCode()\n}\n\n/**\n * Returns a hash code based on the contents of this array as if it is [List].\n */\n@Deprecated(\"Use Kotlin compiler 1.4 to avoid deprecation warning.\")\n@SinceKotlin(\"1.1\")\n@DeprecatedSinceKotlin(hiddenSince = \"1.4\")\npublic actual fun IntArray.contentHashCode(): Int {\n   return this.contentHashCode()\n}\n\n/**\n * Returns a hash code based on the contents of this array as if it is [List].\n */\n@Deprecated(\"Use Kotlin compiler 1.4 to avoid deprecation warning.\")\n@SinceKotlin(\"1.1\")\n@DeprecatedSinceKotlin(hiddenSince = \"1.4\")\npublic actual fun LongArray.contentHashCode(): Int {\n   return this.contentHashCode()\n}\n\n/**\n * Returns a hash code based on the contents of this array as if it is [List].\n */\n@Deprecated(\"Use Kotlin compiler 1.4 to avoid deprecation warning.\")\n@SinceKotlin(\"1.1\")\n@DeprecatedSinceKotlin(hiddenSince = \"1.4\")\npublic actual fun FloatArray.contentHashCode(): Int {\n   return this.contentHashCode()\n}\n\n/**\n * Returns a hash code based on the contents of this array as if it is [List].\n */\n@Deprecated(\"Use Kotlin compiler 1.4 to avoid deprecation warning.\")\n@SinceKotlin(\"1.1\")\n@DeprecatedSinceKotlin(hiddenSince = \"1.4\")\npublic actual fun DoubleArray.contentHashCode(): Int {\n   return this.contentHashCode()\n}\n\n/**\n * Returns a hash code based on the contents of this array as if it is [List].\n */\n@Deprecated(\"Use Kotlin compiler 1.4 to avoid deprecation warning.\")\n@SinceKotlin(\"1.1\")\n@DeprecatedSinceKotlin(hiddenSince = \"1.4\")\npublic actual fun BooleanArray.contentHashCode(): Int {\n   return this.contentHashCode()\n}\n\n/**\n * Returns a hash code based on the contents of this array as if it is [List].\n */\n@Deprecated(\"Use Kotlin compiler 1.4 to avoid deprecation warning.\")\n@SinceKotlin(\"1.1\")\n@DeprecatedSinceKotlin(hiddenSince = \"1.4\")\npublic actual fun CharArray.contentHashCode(): Int {\n   return this.contentHashCode()\n}\n\n/**\n * Returns a hash code based on the contents of this array as if it is [List].\n */\n@SinceKotlin(\"1.4\")\n@library(\"arrayHashCode\")\npublic actual fun <T> Array<out T>?.contentHashCode(): Int {\n   definedExternally\n}\n\n/**\n * Returns a hash code based on the contents of this array as if it is [List].\n */\n@SinceKotlin(\"1.4\")\n@library(\"arrayHashCode\")\npublic actual fun ByteArray?.contentHashCode(): Int {\n   definedExternally\n}\n\n/**\n * Returns a hash code based on the contents of this array as if it is [List].\n */\n@SinceKotlin(\"1.4\")\n@library(\"arrayHashCode\")\npublic actual fun ShortArray?.contentHashCode(): Int {\n   definedExternally\n}\n\n/**\n * Returns a hash code based on the contents of this array as if it is [List].\n */\n@SinceKotlin(\"1.4\")\n@library(\"arrayHashCode\")\npublic actual fun IntArray?.contentHashCode(): Int {\n   definedExternally\n}\n\n/**\n * Returns a hash code based on the contents of this array as if it is [List].\n */\n@SinceKotlin(\"1.4\")\n@library(\"arrayHashCode\")\npublic actual fun LongArray?.contentHashCode(): Int {\n   definedExternally\n}\n\n/**\n * Returns a hash code based on the contents of this array as if it is [List].\n */\n@SinceKotlin(\"1.4\")\n@library(\"arrayHashCode\")\npublic actual fun FloatArray?.contentHashCode(): Int {\n   definedExternally\n}\n\n/**\n * Returns a hash code based on the contents of this array as if it is [List].\n */\n@SinceKotlin(\"1.4\")\n@library(\"arrayHashCode\")\npublic actual fun DoubleArray?.contentHashCode(): Int {\n   definedExternally\n}\n\n/**\n * Returns a hash code based on the contents of this array as if it is [List].\n */\n@SinceKotlin(\"1.4\")\n@library(\"arrayHashCode\")\npublic actual fun BooleanArray?.contentHashCode(): Int {\n   definedExternally\n}\n\n/**\n * Returns a hash code based on the contents of this array as if it is [List].\n */\n@SinceKotlin(\"1.4\")\n@library(\"arrayHashCode\")\npublic actual fun CharArray?.contentHashCode(): Int {\n   definedExternally\n}\n\n/**\n * Returns a string representation of the contents of the specified array as if it is [List].\n * \n * @sample samples.collections.Arrays.ContentOperations.contentToString\n */\n@Deprecated(\"Use Kotlin compiler 1.4 to

avoid deprecation warning.\")\n@SinceKotlin(\"1.1\")\n@DeprecatedSinceKotlin(hiddenSince = \"1.4\")\npublic actual fun <T> Array<out T>.contentToString(): String {\n   return this.contentToString()\n}\n\n/**\n * Returns a string representation of the contents of the specified array as if it is [List].\n * \n * @sample samples.collections.Arrays.ContentOperations.contentToString\n */\n@Deprecated(\"Use Kotlin compiler 1.4 to avoid deprecation warning.\")\n@SinceKotlin(\"1.1\")\n@DeprecatedSinceKotlin(hiddenSince = \"1.4\")\npublic actual fun ByteArray.contentToString(): String {\n   return this.contentToString()\n}\n\n/**\n * Returns a string representation of the contents of the specified array as if it is [List].\n * \n * @sample samples.collections.Arrays.ContentOperations.contentToString\n */\n@Deprecated(\"Use Kotlin compiler 1.4 to avoid deprecation warning.\")\n@SinceKotlin(\"1.1\")\n@DeprecatedSinceKotlin(hiddenSince = \"1.4\")\npublic actual fun ShortArray.contentToString(): String {\n   return this.contentToString()\n}\n\n/**\n * Returns a string representation of the contents of the specified array as if it is [List].\n * \n * @sample samples.collections.Arrays.ContentOperations.contentToString\n */\n@Deprecated(\"Use Kotlin compiler 1.4 to avoid deprecation warning.\")\n@SinceKotlin(\"1.1\")\n@DeprecatedSinceKotlin(hiddenSince = \"1.4\")\npublic actual fun IntArray.contentToString(): String {\n   return this.contentToString()\n}\n\n/**\n * Returns a string representation of the contents of the specified array as if it is [List].\n * \n * @sample samples.collections.Arrays.ContentOperations.contentToString\n */\n@Deprecated(\"Use Kotlin compiler 1.4 to avoid deprecation warning.\")\n@SinceKotlin(\"1.1\")\n@DeprecatedSinceKotlin(hiddenSince = \"1.4\")\npublic actual fun LongArray.contentToString(): String {\n   return this.contentToString()\n}\n\n/**\n * Returns a string representation of the contents of the specified array as if it is [List].\n * \n * @sample samples.collections.Arrays.ContentOperations.contentToString\n */\n@Deprecated(\"Use Kotlin compiler 1.4 to avoid deprecation warning.\")\n@SinceKotlin(\"1.1\")\n@DeprecatedSinceKotlin(hiddenSince = \"1.4\")\npublic actual fun FloatArray.contentToString(): String {\n   return this.contentToString()\n}\n\n/**\n * Returns a string representation of the contents of the specified array as if it is [List].\n * \n * @sample samples.collections.Arrays.ContentOperations.contentToString\n */\n@Deprecated(\"Use Kotlin compiler 1.4 to avoid deprecation warning.\")\n@SinceKotlin(\"1.1\")\n@DeprecatedSinceKotlin(hiddenSince = \"1.4\")\npublic actual fun DoubleArray.contentToString(): String {\n   return this.contentToString()\n}\n\n/**\n * Returns a string representation of the contents of the specified array as if it is [List].\n * \n * @sample samples.collections.Arrays.ContentOperations.contentToString\n */\n@Deprecated(\"Use Kotlin compiler 1.4 to avoid deprecation warning.\")\n@SinceKotlin(\"1.1\")\n@DeprecatedSinceKotlin(hiddenSince = \"1.4\")\npublic actual fun BooleanArray.contentToString(): String {\n   return this.contentToString()\n}\n\n/**\n * Returns a string representation of the contents of the specified array as if it is [List].\n * \n * @sample samples.collections.Arrays.ContentOperations.contentToString\n */\n@Deprecated(\"Use Kotlin compiler 1.4 to avoid deprecation warning.\")\n@SinceKotlin(\"1.1\")\n@DeprecatedSinceKotlin(hiddenSince = \"1.4\")\npublic actual fun CharArray.contentToString(): String {\n   return this.contentToString()\n}\n\n/**\n * Returns a string representation of the contents of the specified array as if it is [List].\n * \n * @sample samples.collections.Arrays.ContentOperations.contentToString\n */\n@SinceKotlin(\"1.4\")\n@library(\"arrayToString\")\npublic actual fun <T> Array<out T>?.contentToString(): String {\n   definedExternally\n}\n\n/**\n * Returns a string representation of the contents of the specified array as if it is [List].\n * \n * @sample samples.collections.Arrays.ContentOperations.contentToString\n */\n@SinceKotlin(\"1.4\")\n@library(\"arrayToString\")\npublic actual fun ByteArray?.contentToString(): String {\n   definedExternally\n}\n\n/**\n * Returns a string representation of the contents of the specified array as if it is [List].\n * \n * @sample samples.collections.Arrays.ContentOperations.contentToString\n */\n@SinceKotlin(\"1.4\")\n@library(\"arrayToString\")\npublic actual fun ShortArray?.contentToString(): String {\n   definedExternally\n}\n\n/**\n * Returns a string representation of the contents of the specified array as if it is [List].\n * \n * @sample samples.collections.Arrays.ContentOperations.contentToString\n */\n@SinceKotlin(\"1.4\")\n@library(\"arrayToString\")\npublic actual fun IntArray?.contentToString(): String {\n definedExternally\n}\n\n/**\n * Returns a string representation of the contents of the specified array as if it is [List].\n * \n * @sample samples.collections.Arrays.ContentOperations.contentToString\n

*/\n@SinceKotlin(\"1.4\")\n@library(\"arrayToString\")\npublic actual fun LongArray?.contentToString(): String {\n   definedExternally\n}\n\n/**\n * Returns a string representation of the contents of the specified array as if it is [List].\n * \n * @sample samples.collections.Arrays.ContentOperations.contentToString\n */\n@SinceKotlin(\"1.4\")\n@library(\"arrayToString\")\npublic actual fun FloatArray?.contentToString(): String {\n   definedExternally\n}\n\n/**\n * Returns a string representation of the contents of the specified array as if it is [List].\n * \n * @sample samples.collections.Arrays.ContentOperations.contentToString\n */\n@SinceKotlin(\"1.4\")\n@library(\"arrayToString\")\npublic actual fun DoubleArray?.contentToString(): String {\n   definedExternally\n}\n\n/**\n * Returns a string representation of the contents of the specified array as if it is [List].\n * \n * @sample samples.collections.Arrays.ContentOperations.contentToString\n */\n@SinceKotlin(\"1.4\")\n@library(\"arrayToString\")\npublic actual fun BooleanArray?.contentToString(): String {\n   definedExternally\n}\n\n/**\n * Returns a string representation of the contents of the specified array as if it is [List].\n * \n * @sample samples.collections.Arrays.ContentOperations.contentToString\n */\n@SinceKotlin(\"1.4\")\n@library(\"arrayToString\")\npublic actual fun CharArray?.contentToString(): String {\n   definedExternally\n}\n\n/**\n * Copies this array or its subrange into the [destination] array and returns that array.\n * \n * It's allowed to pass the same array in the [destination] and even specify the subrange so that it overlaps with the destination range.\n * \n * @param destination the array to copy to.\n * @param destinationOffset the position in the [destination] array to copy to, 0 by default.\n * @param startIndex the beginning (inclusive) of the subrange to copy, 0 by default.\n * @param endIndex the end (exclusive) of the subrange to copy, size of this array by default.\n * \n * @throws IndexOutOfBoundsException or [IllegalArgumentException] when [startIndex] or [endIndex] is out of range of this array indices or when `startIndex > endIndex`.\n * @throws IndexOutOfBoundsException when the subrange doesn't fit into the [destination] array starting at the specified [destinationOffset],\n * or when that index is out of the [destination] array indices range.\n * \n * @return the [destination] array.\n */\n@SinceKotlin(\"1.3\")\n@kotlin.internal.InlineOnly\n@Suppress(\"ACTUAL_FUNCTION_WITH_DEFAULT_ARGUMENTS\")\npublic actual inline fun <T> Array<out T>.copyInto(destination: Array<T>, destinationOffset: Int = 0, startIndex: Int = 0, endIndex: Int = size): Array<T> {\n   arrayCopy(this, destination, destinationOffset, startIndex, endIndex)\n   return destination\n}\n\n/**\n * Copies this array or its subrange into the [destination] array and returns that array.\n * \n * It's allowed to pass the same array in the [destination] and even specify the subrange so that it overlaps with the destination range.\n * \n * @param destination the array to copy to.\n * @param destinationOffset the position in the [destination] array to copy to, 0 by default.\n * @param startIndex the beginning (inclusive) of the subrange to copy, 0 by default.\n * @param endIndex the end (exclusive) of the subrange to copy, size of this array by default.\n * \n * @throws IndexOutOfBoundsException or [IllegalArgumentException] when [startIndex] or [endIndex] is out of range of this array indices or when `startIndex > endIndex`.\n * @throws IndexOutOfBoundsException when the subrange doesn't fit into the [destination] array starting at the specified [destinationOffset],\n * or when that index is out of the [destination] array indices range.\n * \n * @return the [destination] array.\n */\n@SinceKotlin(\"1.3\")\n@kotlin.internal.InlineOnly\n@Suppress(\"ACTUAL_FUNCTION_WITH_DEFAULT_ARGUMENTS\")\npublic actual inline fun ByteArray.copyInto(destination: ByteArray, destinationOffset: Int = 0, startIndex: Int = 0, endIndex: Int = size): ByteArray {\n   arrayCopy(this.unsafeCast<Array<Byte>>(), destination.unsafeCast<Array<Byte>>(), destinationOffset, startIndex, endIndex)\n   return destination\n}\n\n/**\n * Copies this array or its subrange into the [destination] array and returns that array.\n * \n * It's allowed to pass the same array in the [destination] and even specify the subrange so that it overlaps with the destination range.\n * \n * @param destination the array to copy to.\n * @param destinationOffset the position in the [destination] array to copy to, 0 by default.\n * @param startIndex the beginning (inclusive) of the subrange to copy, 0 by default.\n * @param endIndex the end (exclusive) of the subrange to copy, size of this array by default.\n * \n * @throws IndexOutOfBoundsException or [IllegalArgumentException] when [startIndex] or [endIndex] is out of range of this array indices or when `startIndex > endIndex`.\n * @throws IndexOutOfBoundsException when the subrange doesn't fit into the [destination] array starting at the specified [destinationOffset],\n * or when that index is out of the

[destination] array indices range.\n * \n * @return the [destination] array.\n */\n@SinceKotlin(\"1.3\")\n@kotlin.internal.InlineOnly\n@Suppress(\"ACTUAL_FUNCTION_WITH_DEFAULT_ARGUMENTS\")\npublic actual inline fun ShortArray.copyInto(destination: ShortArray, destinationOffset: Int = 0, startIndex: Int = 0, endIndex: Int = size): ShortArray {\n   arrayCopy(this.unsafeCast<Array<Short>>(), destination.unsafeCast<Array<Short>>(), destinationOffset, startIndex, endIndex)\n   return destination\n}\n\n/**\n * Copies this array or its subrange into the [destination] array and returns that array.\n * \n * It's allowed to pass the same array in the [destination] and even specify the subrange so that it overlaps with the destination range.\n * \n * @param destination the array to copy to.\n * @param destinationOffset the position in the [destination] array to copy to, 0 by default.\n * @param startIndex the beginning (inclusive) of the subrange to copy, 0 by default.\n * @param endIndex the end (exclusive) of the subrange to copy, size of this array by default.\n * \n * @throws IndexOutOfBoundsException or [IllegalArgumentException] when [startIndex] or [endIndex] is out of range of this array indices or when `startIndex > endIndex`.\n * @throws IndexOutOfBoundsException when the subrange doesn't fit into the [destination] array starting at the specified [destinationOffset],\n * or when that index is out of the [destination] array indices range.\n * \n * @return the [destination] array.\n */\n@SinceKotlin(\"1.3\")\n@kotlin.internal.InlineOnly\n@Suppress(\"ACTUAL_FUNCTION_WITH_DEFAULT_ARGUMENTS\")\npublic actual inline fun IntArray.copyInto(destination: IntArray, destinationOffset: Int = 0, startIndex: Int = 0, endIndex: Int = size): IntArray {\n   arrayCopy(this.unsafeCast<Array<Int>>(), destination.unsafeCast<Array<Int>>(), destinationOffset, startIndex, endIndex)\n   return destination\n}\n\n/**\n * Copies this array or its subrange into the [destination] array and returns that array.\n * \n * It's allowed to pass the same array in the [destination] and even specify the subrange so that it overlaps with the destination range.\n * \n * @param destination the array to copy to.\n * @param destinationOffset the position in the [destination] array to copy to, 0 by default.\n * @param startIndex the beginning (inclusive) of the subrange to copy, 0 by default.\n * @param endIndex the end (exclusive) of the subrange to copy, size of this array by default.\n * \n * @throws IndexOutOfBoundsException or [IllegalArgumentException] when [startIndex] or [endIndex] is out of range of this array indices or when `startIndex > endIndex`.\n * @throws IndexOutOfBoundsException when the subrange doesn't fit into the [destination] array starting at the specified [destinationOffset],\n * or when that index is out of the [destination] array indices range.\n * \n * @return the [destination] array.\n */\n@SinceKotlin(\"1.3\")\n@kotlin.internal.InlineOnly\n@Suppress(\"ACTUAL_FUNCTION_WITH_DEFAULT_ARGUMENTS\")\npublic actual inline fun LongArray.copyInto(destination: LongArray, destinationOffset: Int = 0, startIndex: Int = 0, endIndex: Int = size): LongArray {\n   arrayCopy(this.unsafeCast<Array<Long>>(), destination.unsafeCast<Array<Long>>(), destinationOffset, startIndex, endIndex)\n   return destination\n}\n\n/**\n * Copies this array or its subrange into the [destination] array and returns that array.\n * \n * It's allowed to pass the same array in the [destination] and even specify the subrange so that it overlaps with the destination range.\n * \n * @param destination the array to copy to.\n * @param destinationOffset the position in the [destination] array to copy to, 0 by default.\n * @param startIndex the beginning (inclusive) of the subrange to copy, 0 by default.\n * @param endIndex the end (exclusive) of the subrange to copy, size of this array by default.\n * \n * @throws IndexOutOfBoundsException or [IllegalArgumentException] when [startIndex] or [endIndex] is out of range of this array indices or when `startIndex > endIndex`.\n * @throws IndexOutOfBoundsException when the subrange doesn't fit into the [destination] array starting at the specified [destinationOffset],\n * or when that index is out of the [destination] array indices range.\n * \n * @return the [destination] array.\n */\n@SinceKotlin(\"1.3\")\n@kotlin.internal.InlineOnly\n@Suppress(\"ACTUAL_FUNCTION_WITH_DEFAULT_ARGUMENTS\")\npublic actual inline fun FloatArray.copyInto(destination: FloatArray, destinationOffset: Int = 0, startIndex: Int = 0, endIndex: Int = size): FloatArray {\n   arrayCopy(this.unsafeCast<Array<Float>>(), destination.unsafeCast<Array<Float>>(), destinationOffset, startIndex, endIndex)\n   return destination\n}\n\n/**\n * Copies this array or its subrange into the [destination] array and returns that array.\n * \n * It's allowed to pass the same array in the [destination] and even specify the subrange so that it overlaps with the destination range.\n * \n * @param destination the array to copy to.\n * @param destinationOffset the position in the [destination] array to copy to, 0 by default.\n * @param startIndex the beginning (inclusive) of the subrange to copy, 0 by default.\n *

@param endIndex the end (exclusive) of the subrange to copy, size of this array by default.\n * \n * @throws IndexOutOfBoundsException or [IllegalArgumentException] when [startIndex] or [endIndex] is out of range of this array indices or when `startIndex > endIndex`.\n * @throws IndexOutOfBoundsException when the subrange doesn't fit into the [destination] array starting at the specified [destinationOffset],\n * or when that index is out of the [destination] array indices range.\n * \n * @return the [destination] array.\n */\n@SinceKotlin(\"1.3\")\n@kotlin.internal.InlineOnly\n@Suppress(\"ACTUAL_FUNCTION_WITH_DEFAULT_ARGUMENTS\")\npublic actual inline fun DoubleArray.copyInto(destination: DoubleArray, destinationOffset: Int = 0, startIndex: Int = 0, endIndex: Int = size): DoubleArray {\n   arrayCopy(this.unsafeCast<Array<Double>>(), destination.unsafeCast<Array<Double>>(), destinationOffset, startIndex, endIndex)\n   return destination\n}\n\n/**\n * Copies this array or its subrange into the [destination] array and returns that array.\n * \n * It's allowed to pass the same array in the [destination] and even specify the subrange so that it overlaps with the destination range.\n * \n * @param destination the array to copy to.\n * @param destinationOffset the position in the [destination] array to copy to, 0 by default.\n * @param startIndex the beginning (inclusive) of the subrange to copy, 0 by default.\n * @param endIndex the end (exclusive) of the subrange to copy, size of this array by default.\n * \n * @throws IndexOutOfBoundsException or [IllegalArgumentException] when [startIndex] or [endIndex] is out of range of this array indices or when `startIndex > endIndex`.\n * @throws IndexOutOfBoundsException when the subrange doesn't fit into the [destination] array starting at the specified [destinationOffset],\n * or when that index is out of the [destination] array indices range.\n * \n * @return the [destination] array.\n */\n@SinceKotlin(\"1.3\")\n@kotlin.internal.InlineOnly\n@Suppress(\"ACTUAL_FUNCTION_WITH_DEFAULT_ARGUMENTS\")\npublic actual inline fun BooleanArray.copyInto(destination: BooleanArray, destinationOffset: Int = 0, startIndex: Int = 0, endIndex: Int = size): BooleanArray {\n   arrayCopy(this.unsafeCast<Array<Boolean>>(), destination.unsafeCast<Array<Boolean>>(), destinationOffset, startIndex, endIndex)\n   return destination\n}\n\n/**\n * Copies this array or its subrange into the [destination] array and returns that array.\n * \n * It's allowed to pass the same array in the [destination] and even specify the subrange so that it overlaps with the destination range.\n * \n * @param destination the array to copy to.\n * @param destinationOffset the position in the [destination] array to copy to, 0 by default.\n * @param startIndex the beginning (inclusive) of the subrange to copy, 0 by default.\n * @param endIndex the end (exclusive) of the subrange to copy, size of this array by default.\n * \n * @throws IndexOutOfBoundsException or [IllegalArgumentException] when [startIndex] or [endIndex] is out of range of this array indices or when `startIndex > endIndex`.\n * @throws IndexOutOfBoundsException when the subrange doesn't fit into the [destination] array starting at the specified [destinationOffset],\n * or when that index is out of the [destination] array indices range.\n * \n * @return the [destination] array.\n */\n@SinceKotlin(\"1.3\")\n@kotlin.internal.InlineOnly\n@Suppress(\"ACTUAL_FUNCTION_WITH_DEFAULT_ARGUMENTS\")\npublic actual inline fun CharArray.copyInto(destination: CharArray, destinationOffset: Int = 0, startIndex: Int = 0, endIndex: Int = size): CharArray {\n   arrayCopy(this.unsafeCast<Array<Char>>(), destination.unsafeCast<Array<Char>>(), destinationOffset, startIndex, endIndex)\n   return destination\n}\n\n/**\n * Returns new array which is a copy of the original array.\n * \n * @sample samples.collections.Arrays.CopyOfOperations.copyOf\n */\n@Suppress(\"ACTUAL_WITHOUT_EXPECT\", \"NOTHING_TO_INLINE\")\npublic actual inline fun <T> Array<out T>.copyOf(): Array<T> {\n   return this.asDynamic().slice()\n}\n\n/**\n * Returns new array which is a copy of the original array.\n * \n * @sample samples.collections.Arrays.CopyOfOperations.copyOf\n */\n@Suppress(\"NOTHING_TO_INLINE\")\npublic actual inline fun ByteArray.copyOf(): ByteArray {\n   return this.asDynamic().slice()\n}\n\n/**\n * Returns new array which is a copy of the original array.\n * \n * @sample samples.collections.Arrays.CopyOfOperations.copyOf\n */\n@Suppress(\"NOTHING_TO_INLINE\")\npublic actual inline fun ShortArray.copyOf(): ShortArray {\n   return this.asDynamic().slice()\n}\n\n/**\n * Returns new array which is a copy of the original array.\n * \n * @sample samples.collections.Arrays.CopyOfOperations.copyOf\n */\n@Suppress(\"NOTHING_TO_INLINE\")\npublic actual inline fun IntArray.copyOf(): IntArray {\n   return this.asDynamic().slice()\n}\n\n/**\n * Returns new array which is a copy of the original array.\n * \n * @sample samples.collections.Arrays.CopyOfOperations.copyOf\n */\npublic actual fun LongArray.copyOf(): LongArray {\n   return withType(\"LongArray\", this.asDynamic().slice())\n}\n\n/**\n * Returns new array which is a copy of the original array.\n * \n * @sample samples.collections.Arrays.CopyOfOperations.copyOf\n */\n@Suppress(\"NOTHING_TO_INLINE\")\npublic actual inline fun FloatArray.copyOf(): FloatArray {\n   return this.asDynamic().slice()\n}\n\n/**\n * Returns new array which is a copy of the original array.\n * \n * @sample samples.collections.Arrays.CopyOfOperations.copyOf\n */\n@Suppress(\"NOTHING_TO_INLINE\")\npublic actual inline fun DoubleArray.copyOf(): DoubleArray {\n   return this.asDynamic().slice()\n}\n\n/**\n * Returns new array which is a copy of the original array.\n * \n * @sample samples.collections.Arrays.CopyOfOperations.copyOf\n */\npublic actual fun BooleanArray.copyOf(): BooleanArray {\n   return withType(\"BooleanArray\", this.asDynamic().slice())\n}\n\n/**\n * Returns new array which is a copy of the original array.\n * \n * @sample samples.collections.Arrays.CopyOfOperations.copyOf\n */\npublic actual fun CharArray.copyOf(): CharArray {\n   return withType(\"CharArray\", this.asDynamic().slice())\n}\n\n/**\n * Returns new array which is a copy of the original array, resized to the given [newSize].\n * The copy is either truncated or padded at the end with zero values if necessary.\n * \n * - If [newSize] is less than the size of the original array, the copy array is truncated to the [newSize].\n * - If [newSize] is greater than the size of the original array, the extra elements in the copy array are filled with zero values.\n * \n * @sample samples.collections.Arrays.CopyOfOperations.resizedPrimitiveCopyOf\n */\npublic actual fun ByteArray.copyOf(newSize: Int): ByteArray {\n   require(newSize >= 0) { \"Invalid new array size: $newSize.\" }\n   return fillFrom(this, ByteArray(newSize))\n}\n\n/**\n * Returns new array which is a copy of the original array, resized to the given [newSize].\n * The copy is either truncated or padded at the end with zero values if necessary.\n * \n * - If [newSize] is less than the size of the original array, the copy array is truncated to the [newSize].\n * - If [newSize] is greater than the size of the original array, the extra elements in the copy array are filled with zero values.\n * \n * @sample samples.collections.Arrays.CopyOfOperations.resizedPrimitiveCopyOf\n */\npublic actual fun ShortArray.copyOf(newSize: Int): ShortArray {\n   require(newSize >= 0) { \"Invalid new array size: $newSize.\" }\n   return fillFrom(this, ShortArray(newSize))\n}\n\n/**\n * Returns new array which is a copy of the original array, resized to the given [newSize].\n * The copy is either truncated or padded at the end with zero values if necessary.\n * \n * - If [newSize] is less than the size of the original array, the copy array is truncated to the [newSize].\n * - If [newSize] is greater than the size of the original array, the extra elements in the copy array are filled with zero values.\n * \n * @sample samples.collections.Arrays.CopyOfOperations.resizedPrimitiveCopyOf\n */\npublic actual fun IntArray.copyOf(newSize: Int): IntArray {\n   require(newSize >= 0) { \"Invalid new array size: $newSize.\" }\n   return fillFrom(this, IntArray(newSize))\n}\n\n/**\n * Returns new array which is a copy of the original array, resized to the given [newSize].\n * The copy is either truncated or padded at the end with zero values if necessary.\n * \n * - If [newSize] is less than the size of the original array, the copy array is truncated to the [newSize].\n * - If [newSize] is greater than the size of the original array, the extra elements in the copy array are filled with zero values.\n * \n * @sample samples.collections.Arrays.CopyOfOperations.resizedPrimitiveCopyOf\n */\npublic actual fun LongArray.copyOf(newSize: Int): LongArray {\n   require(newSize >= 0) { \"Invalid new array size: $newSize.\" }\n   return withType(\"LongArray\", arrayCopyResize(this, newSize, 0L))\n}\n\n/**\n * Returns new array which is a copy of the original array, resized to the given [newSize].\n * The copy is either truncated or padded at the end with zero values if necessary.\n * \n * - If [newSize] is less than the size of the original array, the copy array is truncated to the [newSize].\n * - If [newSize] is greater than the size of the original array, the extra elements in the copy array are filled with zero values.\n * \n * @sample samples.collections.Arrays.CopyOfOperations.resizedPrimitiveCopyOf\n */\npublic actual fun FloatArray.copyOf(newSize: Int): FloatArray {\n   require(newSize >= 0) { \"Invalid new array size: $newSize.\" }\n   return fillFrom(this, FloatArray(newSize))\n}\n\n/**\n * Returns new array which is a copy of the original array, resized to the given [newSize].\n * The copy is either truncated or padded at the end with zero values if necessary.\n * \n * - If [newSize] is less than the size of the original array, the copy array is truncated to the [newSize].\n * - If [newSize] is greater than the size of the original array, the extra elements in the copy array are filled with zero values.\n * \n * @sample samples.collections.Arrays.CopyOfOperations.resizedPrimitiveCopyOf\n */\npublic actual fun DoubleArray.copyOf(newSize: Int): DoubleArray {\n   require(newSize >= 0) { \"Invalid new array size: $newSize.\" }\n   return fillFrom(this, DoubleArray(newSize))\n}\n\n/**\n * Returns new array which is a copy of the original array, resized to the given [newSize].\n * The copy is either truncated or padded at the end with `false` values if necessary.\n * \n * - If [newSize] is less than the size of the original array, the copy array is truncated to the [newSize].\n * - If [newSize] is greater than the size of the original array, the extra elements in the copy array are filled with `false` values.\n * \n * @sample samples.collections.Arrays.CopyOfOperations.resizedPrimitiveCopyOf\n */\npublic actual fun BooleanArray.copyOf(newSize: Int): BooleanArray {\n   require(newSize >= 0) { \"Invalid new array size: $newSize.\" }\n   return withType(\"BooleanArray\", arrayCopyResize(this, newSize, false))\n}\n\n/**\n * Returns new array which is a copy of the original array, resized to the given [newSize].\n * The copy is either truncated or padded at the end with null char (`\\u0000`) values if necessary.\n * \n * - If [newSize] is less than the size of the original array, the copy array is truncated to the [newSize].\n * - If [newSize] is greater than the size of the original array, the extra elements in the copy array are filled with null char (`\\u0000`) values.\n * \n * @sample samples.collections.Arrays.CopyOfOperations.resizedPrimitiveCopyOf\n */\npublic actual fun CharArray.copyOf(newSize: Int): CharArray {\n   require(newSize >= 0) { \"Invalid new array size: $newSize.\" }\n   return withType(\"CharArray\", fillFrom(this, CharArray(newSize)))\n}\n\n/**\n * Returns new array which is a copy of the original array, resized to the given [newSize].\n * The copy is either truncated or padded at the end with `null` values if necessary.\n * \n * - If [newSize] is less than the size of the original array, the copy array is truncated to the [newSize].\n * - If [newSize] is greater than the size of the original array, the extra elements in the copy array are filled with `null` values.\n * \n * @sample samples.collections.Arrays.CopyOfOperations.resizingCopyOf\n */\n@Suppress(\"ACTUAL_WITHOUT_EXPECT\")\npublic actual fun <T> Array<out T>.copyOf(newSize: Int): Array<T?> {\n   require(newSize >= 0) { \"Invalid new array size: $newSize.\" }\n   return arrayCopyResize(this, newSize, null)\n}\n\n/**\n * Returns a new array which is a copy of the specified range of the original array.\n * \n * @param fromIndex the start of the range (inclusive) to copy.\n * @param toIndex the end of the range (exclusive) to copy.\n * \n * @throws IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n * @throws IllegalArgumentException if [fromIndex] is greater than [toIndex].\n */\n@Suppress(\"ACTUAL_WITHOUT_EXPECT\")\npublic actual fun <T> Array<out T>.copyOfRange(fromIndex: Int, toIndex: Int): Array<T> {\n   AbstractList.checkRangeIndexes(fromIndex, toIndex, size)\n   return this.asDynamic().slice(fromIndex, toIndex)\n}\n\n/**\n * Returns a new array which is a copy of the specified range of the original array.\n * \n * @param fromIndex the start of the range (inclusive) to copy.\n * @param toIndex the end of the range (exclusive) to copy.\n * \n * @throws IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n * @throws IllegalArgumentException if [fromIndex] is greater than [toIndex].\n */\npublic actual fun ByteArray.copyOfRange(fromIndex: Int, toIndex: Int): ByteArray {\n   AbstractList.checkRangeIndexes(fromIndex, toIndex, size)\n   return this.asDynamic().slice(fromIndex, toIndex)\n}\n\n/**\n * Returns a new array which is a copy of the specified range of the original array.\n * \n * @param fromIndex the start of the range (inclusive) to copy.\n * @param toIndex the end of the range (exclusive) to copy.\n * \n * @throws IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n * @throws IllegalArgumentException if [fromIndex] is greater than [toIndex].\n */\npublic actual fun ShortArray.copyOfRange(fromIndex: Int, toIndex: Int): ShortArray {\n   AbstractList.checkRangeIndexes(fromIndex, toIndex, size)\n   return this.asDynamic().slice(fromIndex, toIndex)\n}\n\n/**\n * Returns a new array which is a copy of the specified range of the original array.\n * \n * @param fromIndex the start of the range (inclusive) to copy.\n * @param toIndex the end of the range (exclusive) to copy.\n * \n * @throws IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n * @throws IllegalArgumentException if [fromIndex] is greater than [toIndex].\n */\npublic actual fun IntArray.copyOfRange(fromIndex: Int, toIndex: Int): IntArray {\n AbstractList.checkRangeIndexes(fromIndex, toIndex, size)\n return this.asDynamic().slice(fromIndex, toIndex)\n}\n\n/**\n * Returns a new array which is a copy of the specified range of the original array.\n * \n * @param fromIndex the start of the range (inclusive) to copy.\n * @param toIndex the end of the range (exclusive) to copy.\n * \n * @throws IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n * @throws IllegalArgumentException if [fromIndex] is greater than [toIndex].\n */\npublic actual fun LongArray.copyOfRange(fromIndex: Int, toIndex: Int): LongArray {\n AbstractList.checkRangeIndexes(fromIndex, toIndex, size)\n return withType(\"LongArray\", this.asDynamic().slice(fromIndex, toIndex))\n}\n\n/**\n * Returns a new array which is a copy of the specified range of the original array.\n * \n * @param fromIndex the start of the range (inclusive) to copy.\n * @param toIndex the end of the range (exclusive) to copy.\n * \n * @throws IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n * @throws IllegalArgumentException if [fromIndex] is greater than [toIndex].\n */\npublic actual fun FloatArray.copyOfRange(fromIndex: Int, toIndex: Int): FloatArray {\n AbstractList.checkRangeIndexes(fromIndex, toIndex, size)\n return this.asDynamic().slice(fromIndex, toIndex)\n}\n\n/**\n * Returns a new array which is a copy of the specified range of the original array.\n * \n * @param fromIndex the start of the range (inclusive) to copy.\n * @param toIndex the end of the range (exclusive) to copy.\n * \n * @throws IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n * @throws IllegalArgumentException if [fromIndex] is greater than [toIndex].\n */\npublic actual fun DoubleArray.copyOfRange(fromIndex: Int, toIndex: Int): DoubleArray {\n AbstractList.checkRangeIndexes(fromIndex, toIndex, size)\n return this.asDynamic().slice(fromIndex, toIndex)\n}\n\n/**\n * Returns a new array which is a copy of the specified range of the original array.\n * \n * @param fromIndex the start of the range (inclusive) to copy.\n * @param toIndex the end of the range (exclusive) to copy.\n * \n * @throws IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n * @throws IllegalArgumentException if [fromIndex] is greater than [toIndex].\n */\npublic actual fun BooleanArray.copyOfRange(fromIndex: Int, toIndex: Int): BooleanArray {\n AbstractList.checkRangeIndexes(fromIndex, toIndex, size)\n return withType(\"BooleanArray\", this.asDynamic().slice(fromIndex, toIndex))\n}\n\n/**\n * Returns a new array which is a copy of the specified range of the original array.\n * \n * @param fromIndex the start of the range (inclusive) to copy.\n * @param toIndex the end of the range (exclusive) to copy.\n * \n * @throws IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n * @throws IllegalArgumentException if [fromIndex] is greater than [toIndex].\n */\npublic actual fun CharArray.copyOfRange(fromIndex: Int, toIndex: Int): CharArray {\n AbstractList.checkRangeIndexes(fromIndex, toIndex, size)\n return withType(\"CharArray\", this.asDynamic().slice(fromIndex, toIndex))\n}\n\n/**\n * Fills this array or its subrange with the specified [element] value.\n * \n * @param fromIndex the start of the range (inclusive) to fill, 0 by default.\n * @param toIndex the end of the range (exclusive) to fill, size of this array by default.\n * \n * @throws IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n * @throws IllegalArgumentException if [fromIndex] is greater than [toIndex].\n */\n@SinceKotlin(\"1.3\")\n@Suppress(\"ACTUAL_FUNCTION_WITH_DEFAULT_ARGUMENTS\")\npublic actual fun <T> Array<T>.fill(element: T, fromIndex: Int = 0, toIndex: Int = size): Unit {\n AbstractList.checkRangeIndexes(fromIndex, toIndex, size)\n nativeFill(element, fromIndex, toIndex);\n}\n\n/**\n * Fills this array or its subrange with the specified [element] value.\n * \n * @param fromIndex the start of the range (inclusive) to fill, 0 by default.\n * @param toIndex the end of the range (exclusive) to fill, size of this array by default.\n * \n * @throws IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n * @throws IllegalArgumentException if [fromIndex] is greater than [toIndex].\n */\n@SinceKotlin(\"1.3\")\n@Suppress(\"ACTUAL_FUNCTION_WITH_DEFAULT_ARGUMENTS\")\npublic actual fun ByteArray.fill(element: Byte, fromIndex: Int = 0, toIndex: Int = size): Unit {\n AbstractList.checkRangeIndexes(fromIndex, toIndex, size)\n nativeFill(element, fromIndex, toIndex);\n}\n\n/**\n * Fills this array or its subrange with the specified [element] value.\n * \n * @param fromIndex the start of the range (inclusive) to fill, 0 by default.\n * @param toIndex the end of the range (exclusive) to fill, size of this array by default.\n * \n * @throws IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n * @throws IllegalArgumentException if [fromIndex] is greater than [toIndex].\n */\n@SinceKotlin(\"1.3\")\n@Suppress(\"ACTUAL_FUNCTION_WITH_DEFAULT_ARGUMENTS\")\npublic actual fun ShortArray.fill(element: Short, fromIndex: Int = 0, toIndex: Int = size): Unit {\n AbstractList.checkRangeIndexes(fromIndex, toIndex, size)\n   nativeFill(element, fromIndex, toIndex);\n}\n\n/**\n * Fills this array or its subrange with the specified [element] value.\n * \n * @param fromIndex the start of the range (inclusive) to fill, 0 by default.\n * @param toIndex the end of the range (exclusive) to fill, size of this array by default.\n * \n * @throws IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n * @throws IllegalArgumentException if [fromIndex] is greater than [toIndex].\n */\n@SinceKotlin(\"1.3\")\n@Suppress(\"ACTUAL_FUNCTION_WITH_DEFAULT_ARGUMENTS\")\npublic actual fun IntArray.fill(element: Int, fromIndex: Int = 0, toIndex: Int = size): Unit {\n AbstractList.checkRangeIndexes(fromIndex, toIndex, size)\n   nativeFill(element, fromIndex, toIndex);\n}\n\n/**\n * Fills this array or its subrange with the specified [element] value.\n * \n * @param fromIndex the start of the range (inclusive) to fill, 0 by default.\n * @param toIndex the end of the range (exclusive) to fill, size of this array by default.\n * \n * @throws IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n * @throws IllegalArgumentException if [fromIndex] is greater than [toIndex].\n */\n@SinceKotlin(\"1.3\")\n@Suppress(\"ACTUAL_FUNCTION_WITH_DEFAULT_ARGUMENTS\")\npublic actual fun LongArray.fill(element: Long, fromIndex: Int = 0, toIndex: Int = size): Unit {\n AbstractList.checkRangeIndexes(fromIndex, toIndex, size)\n   nativeFill(element, fromIndex, toIndex);\n}\n\n/**\n * Fills this array or its subrange with the specified [element] value.\n * \n * @param fromIndex the start of the range (inclusive) to fill, 0 by default.\n * @param toIndex the end of the range (exclusive) to fill, size of this array by default.\n * \n * @throws IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n * @throws IllegalArgumentException if [fromIndex] is greater than [toIndex].\n */\n@SinceKotlin(\"1.3\")\n@Suppress(\"ACTUAL_FUNCTION_WITH_DEFAULT_ARGUMENTS\")\npublic actual fun FloatArray.fill(element: Float, fromIndex: Int = 0, toIndex: Int = size): Unit {\n AbstractList.checkRangeIndexes(fromIndex, toIndex, size)\n   nativeFill(element, fromIndex, toIndex);\n}\n\n/**\n * Fills this array or its subrange with the specified [element] value.\n * \n * @param fromIndex the start of the range (inclusive) to fill, 0 by default.\n * @param toIndex the end of the range (exclusive) to fill, size of this array by default.\n * \n * @throws IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n * @throws IllegalArgumentException if [fromIndex] is greater than [toIndex].\n */\n@SinceKotlin(\"1.3\")\n@Suppress(\"ACTUAL_FUNCTION_WITH_DEFAULT_ARGUMENTS\")\npublic actual fun DoubleArray.fill(element: Double, fromIndex: Int = 0, toIndex: Int = size): Unit {\n AbstractList.checkRangeIndexes(fromIndex, toIndex, size)\n   nativeFill(element, fromIndex, toIndex);\n}\n\n/**\n * Fills this array or its subrange with the specified [element] value.\n * \n * @param fromIndex the start of the range (inclusive) to fill, 0 by default.\n * @param toIndex the end of the range (exclusive) to fill, size of this array by default.\n * \n * @throws IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n * @throws IllegalArgumentException if [fromIndex] is greater than [toIndex].\n */\n@SinceKotlin(\"1.3\")\n@Suppress(\"ACTUAL_FUNCTION_WITH_DEFAULT_ARGUMENTS\")\npublic actual fun BooleanArray.fill(element: Boolean, fromIndex: Int = 0, toIndex: Int = size): Unit {\n AbstractList.checkRangeIndexes(fromIndex, toIndex, size)\n   nativeFill(element, fromIndex, toIndex);\n}\n\n/**\n * Fills this array or its subrange with the specified [element] value.\n * \n * @param fromIndex the start of the range (inclusive) to fill, 0 by default.\n * @param toIndex the end of the range (exclusive) to fill, size of this array by default.\n * \n * @throws IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n * @throws IllegalArgumentException if [fromIndex] is greater than [toIndex].\n */\n@SinceKotlin(\"1.3\")\n@Suppress(\"ACTUAL_FUNCTION_WITH_DEFAULT_ARGUMENTS\")\npublic actual fun CharArray.fill(element: Char, fromIndex: Int = 0, toIndex: Int = size): Unit {\n AbstractList.checkRangeIndexes(fromIndex, toIndex, size)\n   nativeFill(element, fromIndex, toIndex);\n}\n\n/**\n

* Returns an array containing all elements of the original array and then the given [element].\n */\n@Suppress(\"ACTUAL_WITHOUT_EXPECT\", \"NOTHING_TO_INLINE\")\npublic actual inline operator fun <T> Array<out T>.plus(element: T): Array<T> {\n   return this.asDynamic().concat(arrayOf(element))\n}\n\n/**\n * Returns an array containing all elements of the original array and then the given [element].\n */\n@Suppress(\"NOTHING_TO_INLINE\")\npublic actual inline operator fun ByteArray.plus(element: Byte): ByteArray {\n   return plus(byteArrayOf(element))\n}\n\n/**\n * Returns an array containing all elements of the original array and then the given [element].\n */\n@Suppress(\"NOTHING_TO_INLINE\")\npublic actual inline operator fun ShortArray.plus(element: Short): ShortArray {\n   return plus(shortArrayOf(element))\n}\n\n/**\n * Returns an array containing all elements of the original array and then the given [element].\n */\n@Suppress(\"NOTHING_TO_INLINE\")\npublic actual inline operator fun IntArray.plus(element: Int): IntArray {\n   return plus(intArrayOf(element))\n}\n\n/**\n * Returns an array containing all elements of the original array and then the given [element].\n */\n@Suppress(\"NOTHING_TO_INLINE\")\npublic actual inline operator fun LongArray.plus(element: Long): LongArray {\n   return plus(longArrayOf(element))\n}\n\n/**\n * Returns an array containing all elements of the original array and then the given [element].\n */\n@Suppress(\"NOTHING_TO_INLINE\")\npublic actual inline operator fun FloatArray.plus(element: Float): FloatArray {\n   return plus(floatArrayOf(element))\n}\n\n/**\n * Returns an array containing all elements of the original array and then the given [element].\n */\n@Suppress(\"NOTHING_TO_INLINE\")\npublic actual inline operator fun DoubleArray.plus(element: Double): DoubleArray {\n   return plus(doubleArrayOf(element))\n}\n\n/**\n * Returns an array containing all elements of the original array and then the given [element].\n */\n@Suppress(\"NOTHING_TO_INLINE\")\npublic actual inline operator fun BooleanArray.plus(element: Boolean): BooleanArray {\n   return plus(booleanArrayOf(element))\n}\n\n/**\n * Returns an array containing all elements of the original array and then the given [element].\n */\n@Suppress(\"NOTHING_TO_INLINE\")\npublic actual inline operator fun CharArray.plus(element: Char): CharArray {\n   return plus(charArrayOf(element))\n}\n\n/**\n * Returns an array containing all elements of the original array and then all elements of the given [elements] collection.\n */\n@Suppress(\"ACTUAL_WITHOUT_EXPECT\")\npublic actual operator fun <T> Array<out T>.plus(elements: Collection<T>): Array<T> {\n   return arrayPlusCollection(this, elements)\n}\n\n/**\n * Returns an array containing all elements of the original array and then all elements of the given [elements] collection.\n */\npublic actual operator fun ByteArray.plus(elements: Collection<Byte>): ByteArray {\n   return fillFromCollection(this.copyOf(size + elements.size), this.size, elements)\n}\n\n/**\n * Returns an array containing all elements of the original array and then all elements of the given [elements] collection.\n */\npublic actual operator fun ShortArray.plus(elements: Collection<Short>): ShortArray {\n   return fillFromCollection(this.copyOf(size + elements.size), this.size, elements)\n}\n\n/**\n * Returns an array containing all elements of the original array and then all elements of the given [elements] collection.\n */\npublic actual operator fun IntArray.plus(elements: Collection<Int>): IntArray {\n   return fillFromCollection(this.copyOf(size + elements.size), this.size, elements)\n}\n\n/**\n * Returns an array containing all elements of the original array and then all elements of the given [elements] collection.\n */\npublic actual operator fun LongArray.plus(elements: Collection<Long>): LongArray {\n   return arrayPlusCollection(this, elements)\n}\n\n/**\n * Returns an array containing all elements of the original array and then all elements of the given [elements] collection.\n */\npublic actual operator fun FloatArray.plus(elements: Collection<Float>): FloatArray {\n   return fillFromCollection(this.copyOf(size + elements.size), this.size, elements)\n}\n\n/**\n * Returns an array containing all elements of the original array and then all elements of the given [elements] collection.\n */\npublic actual operator fun DoubleArray.plus(elements: Collection<Double>): DoubleArray {\n   return fillFromCollection(this.copyOf(size + elements.size), this.size, elements)\n}\n\n/**\n * Returns an array containing all elements of the original array and then all elements of the given [elements] collection.\n */\npublic actual operator fun BooleanArray.plus(elements: Collection<Boolean>): BooleanArray {\n   return arrayPlusCollection(this, elements)\n}\n\n/**\n * Returns an array containing all elements of the original array and then all elements of the given [elements] collection.\n */\npublic actual operator fun CharArray.plus(elements:

Collection<Char>): CharArray {\n   return fillFromCollection(this.copyOf(size + elements.size), this.size, elements)\n}\n\n/**\n * Returns an array containing all elements of the original array and then all elements of the given [elements] array.\n */\n@Suppress(\"ACTUAL_WITHOUT_EXPECT\", \"NOTHING_TO_INLINE\")\npublic actual inline operator fun <T> Array<out T>.plus(elements: Array<out T>): Array<T> {\n   return this.asDynamic().concat(elements)\n}\n\n/**\n * Returns an array containing all elements of the original array and then all elements of the given [elements] array.\n */\n@Suppress(\"NOTHING_TO_INLINE\")\npublic actual inline operator fun ByteArray.plus(elements: ByteArray): ByteArray {\n   return primitiveArrayConcat(this, elements)\n}\n\n/**\n * Returns an array containing all elements of the original array and then all elements of the given [elements] array.\n */\n@Suppress(\"NOTHING_TO_INLINE\")\npublic actual inline operator fun ShortArray.plus(elements: ShortArray): ShortArray {\n   return primitiveArrayConcat(this, elements)\n}\n\n/**\n * Returns an array containing all elements of the original array and then all elements of the given [elements] array.\n */\n@Suppress(\"NOTHING_TO_INLINE\")\npublic actual inline operator fun IntArray.plus(elements: IntArray): IntArray {\n   return primitiveArrayConcat(this, elements)\n}\n\n/**\n * Returns an array containing all elements of the original array and then all elements of the given [elements] array.\n */\n@Suppress(\"NOTHING_TO_INLINE\")\npublic actual inline operator fun LongArray.plus(elements: LongArray): LongArray {\n   return primitiveArrayConcat(this, elements)\n}\n\n/**\n * Returns an array containing all elements of the original array and then all elements of the given [elements] array.\n */\n@Suppress(\"NOTHING_TO_INLINE\")\npublic actual inline operator fun FloatArray.plus(elements: FloatArray): FloatArray {\n   return primitiveArrayConcat(this, elements)\n}\n\n/**\n * Returns an array containing all elements of the original array and then all elements of the given [elements] array.\n */\n@Suppress(\"NOTHING_TO_INLINE\")\npublic actual inline operator fun DoubleArray.plus(elements: DoubleArray): DoubleArray {\n   return primitiveArrayConcat(this, elements)\n}\n\n/**\n * Returns an array containing all elements of the original array and then all elements of the given [elements] array.\n */\n@Suppress(\"NOTHING_TO_INLINE\")\npublic actual inline operator fun BooleanArray.plus(elements: BooleanArray): BooleanArray {\n   return primitiveArrayConcat(this, elements)\n}\n\n/**\n * Returns an array containing all elements of the original array and then all elements of the given [elements] array.\n */\n@Suppress(\"NOTHING_TO_INLINE\")\npublic actual inline operator fun CharArray.plus(elements: CharArray): CharArray {\n   return primitiveArrayConcat(this, elements)\n}\n\n/**\n * Returns an array containing all elements of the original array and then the given [element].\n */\n@Suppress(\"ACTUAL_WITHOUT_EXPECT\", \"NOTHING_TO_INLINE\")\npublic actual inline fun <T> Array<out T>.plusElement(element: T): Array<T> {\n   return this.asDynamic().concat(arrayOf(element))\n}\n\n/**\n * Sorts the array in-place.\n * \n * @sample samples.collections.Arrays.Sorting.sortArray\n */\n@library(\"primitiveArraySort\")\npublic actual fun IntArray.sort(): Unit {\n   definedExternally\n}\n\n/**\n * Sorts the array in-place.\n * \n * @sample samples.collections.Arrays.Sorting.sortArray\n */\npublic actual fun LongArray.sort(): Unit {\n   @Suppress(\"DEPRECATION\")\n   if (size > 1) sort { a: Long, b: Long -> a.compareTo(b) }\n}\n\n/**\n * Sorts the array in-place.\n * \n * @sample samples.collections.Arrays.Sorting.sortArray\n */\n@library(\"primitiveArraySort\")\npublic actual fun ByteArray.sort(): Unit {\n   definedExternally\n}\n\n/**\n * Sorts the array in-place.\n * \n * @sample samples.collections.Arrays.Sorting.sortArray\n */\n@library(\"primitiveArraySort\")\npublic actual fun ShortArray.sort(): Unit {\n   definedExternally\n}\n\n/**\n * Sorts the array in-place.\n * \n * @sample samples.collections.Arrays.Sorting.sortArray\n */\n@library(\"primitiveArraySort\")\npublic actual fun DoubleArray.sort(): Unit {\n   definedExternally\n}\n\n/**\n * Sorts the array in-place.\n * \n * @sample samples.collections.Arrays.Sorting.sortArray\n */\n@library(\"primitiveArraySort\")\npublic actual fun FloatArray.sort(): Unit {\n   definedExternally\n}\n\n/**\n * Sorts the array in-place.\n * \n * @sample samples.collections.Arrays.Sorting.sortArray\n */\n@library(\"primitiveArraySort\")\npublic actual fun CharArray.sort(): Unit {\n   definedExternally\n}\n\n/**\n * Sorts the array in-place according to the natural order of its elements.\n * \n * The sort is _stable_. It means that equal elements preserve their order relative to each other after sorting.\n * \n * @sample samples.collections.Arrays.Sorting.sortArrayOfComparable\n */\npublic actual fun <T : Comparable<T>> Array<out T>.sort(): Unit {\n   if (size > 1) sortArray(this)\n}\n\n/**\n * Sorts the array in-place according to the order specified by the given [comparison] function.\n * \n * The sort is _stable_. It means that equal elements preserve their order relative to each other after sorting.\n */\n@Deprecated(\"Use sortWith instead\", ReplaceWith(\"this.sortWith(Comparator(comparison))\"))\n@DeprecatedSinceKotlin(warningSince = \"1.6\")\npublic fun <T> Array<out T>.sort(comparison: (a: T, b: T) -> Int): Unit {\n   if (size > 1) sortArrayWith(this, comparison)\n}\n\n/**\n * Sorts a range in the array in-place.\n * \n * The sort is _stable_. It means that equal elements preserve their order relative to each other after sorting.\n * \n * @param fromIndex the start of the range (inclusive) to sort, 0 by default.\n * @param toIndex the end of the range (exclusive) to sort, size of this array by default.\n * \n * @throws IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n * @throws IllegalArgumentException if [fromIndex] is greater than [toIndex].\n * \n * @sample samples.collections.Arrays.Sorting.sortRangeOfArrayOfComparable\n */\n@SinceKotlin(\"1.4\")\n@Suppress(\"ACTUAL_FUNCTION_WITH_DEFAULT_ARGUMENTS\")\npublic actual fun <T : Comparable<T>> Array<out T>.sort(fromIndex: Int = 0, toIndex: Int = size): Unit {\n   AbstractList.checkRangeIndexes(fromIndex, toIndex, size)\n   sortArrayWith(this, fromIndex, toIndex, naturalOrder())\n}\n\n/**\n * Sorts a range in the array in-place.\n * \n * @param fromIndex the start of the range (inclusive) to sort, 0 by default.\n * @param toIndex the end of the range (exclusive) to sort, size of this array by default.\n * \n * @throws IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n * @throws IllegalArgumentException if [fromIndex] is greater than [toIndex].\n * \n * @sample samples.collections.Arrays.Sorting.sortRangeOfArray\n */\n@SinceKotlin(\"1.4\")\n@Suppress(\"ACTUAL_FUNCTION_WITH_DEFAULT_ARGUMENTS\")\npublic actual fun ByteArray.sort(fromIndex: Int = 0, toIndex: Int = size): Unit {\n   AbstractList.checkRangeIndexes(fromIndex, toIndex, size)\n   val subarray = this.asDynamic().subarray(fromIndex, toIndex).unsafeCast<ByteArray>()\n   subarray.sort()\n}\n\n/**\n * Sorts a range in the array in-place.\n * \n * @param fromIndex the start of the range (inclusive) to sort, 0 by default.\n * @param toIndex the end of the range (exclusive) to sort, size of this array by default.\n * \n * @throws IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n * @throws IllegalArgumentException if [fromIndex] is greater than [toIndex].\n * \n * @sample samples.collections.Arrays.Sorting.sortRangeOfArray\n */\n@SinceKotlin(\"1.4\")\n@Suppress(\"ACTUAL_FUNCTION_WITH_DEFAULT_ARGUMENTS\")\npublic actual fun ShortArray.sort(fromIndex: Int = 0, toIndex: Int = size): Unit {\n   AbstractList.checkRangeIndexes(fromIndex, toIndex, size)\n   val subarray = this.asDynamic().subarray(fromIndex, toIndex).unsafeCast<ShortArray>()\n   subarray.sort()\n}\n\n/**\n * Sorts a range in the array in-place.\n * \n * @param fromIndex the start of the range (inclusive) to sort, 0 by default.\n * @param toIndex the end of the range (exclusive) to sort, size of this array by default.\n * \n * @throws IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n * @throws IllegalArgumentException if [fromIndex] is greater than [toIndex].\n * \n * @sample samples.collections.Arrays.Sorting.sortRangeOfArray\n */\n@SinceKotlin(\"1.4\")\n@Suppress(\"ACTUAL_FUNCTION_WITH_DEFAULT_ARGUMENTS\")\npublic actual fun IntArray.sort(fromIndex: Int = 0, toIndex: Int = size): Unit {\n   AbstractList.checkRangeIndexes(fromIndex, toIndex, size)\n   val subarray = this.asDynamic().subarray(fromIndex, toIndex).unsafeCast<IntArray>()\n   subarray.sort()\n}\n\n/**\n * Sorts a range in the array in-place.\n * \n * @param fromIndex the start of the range (inclusive) to sort, 0 by default.\n * @param toIndex the end of the range (exclusive) to sort, size of this array by default.\n * \n * @throws IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n * @throws IllegalArgumentException if [fromIndex] is greater than [toIndex].\n * \n * @sample samples.collections.Arrays.Sorting.sortRangeOfArray\n

*/\n@SinceKotlin(\"1.4\")\n@Suppress(\"ACTUAL_FUNCTION_WITH_DEFAULT_ARGUMENTS\")\npublic actual fun LongArray.sort(fromIndex: Int = 0, toIndex: Int = size): Unit {\n AbstractList.checkRangeIndexes(fromIndex, toIndex, size)\n   sortArrayWith(this.unsafeCast<Array<Long>>(), fromIndex, toIndex, naturalOrder())\n}\n\n/**\n * Sorts a range in the array in-place.\n * \n * @param fromIndex the start of the range (inclusive) to sort, 0 by default.\n * @param toIndex the end of the range (exclusive) to sort, size of this array by default.\n * \n * @throws IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n * @throws IllegalArgumentException if [fromIndex] is greater than [toIndex].\n * \n * @sample samples.collections.Arrays.Sorting.sortRangeOfArray\n */\n@SinceKotlin(\"1.4\")\n@Suppress(\"ACTUAL_FUNCTION_WITH_DEFAULT_ARGUMENTS\")\npublic actual fun FloatArray.sort(fromIndex: Int = 0, toIndex: Int = size): Unit {\n AbstractList.checkRangeIndexes(fromIndex, toIndex, size)\n   val subarray = this.asDynamic().subarray(fromIndex, toIndex).unsafeCast<FloatArray>()\n   subarray.sort()\n}\n\n/**\n * Sorts a range in the array in-place.\n * \n * @param fromIndex the start of the range (inclusive) to sort, 0 by default.\n * @param toIndex the end of the range (exclusive) to sort, size of this array by default.\n * \n * @throws IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n * @throws IllegalArgumentException if [fromIndex] is greater than [toIndex].\n * \n * @sample samples.collections.Arrays.Sorting.sortRangeOfArray\n */\n@SinceKotlin(\"1.4\")\n@Suppress(\"ACTUAL_FUNCTION_WITH_DEFAULT_ARGUMENTS\")\npublic actual fun DoubleArray.sort(fromIndex: Int = 0, toIndex: Int = size): Unit {\n AbstractList.checkRangeIndexes(fromIndex, toIndex, size)\n   val subarray = this.asDynamic().subarray(fromIndex, toIndex).unsafeCast<DoubleArray>()\n   subarray.sort()\n}\n\n/**\n * Sorts a range in the array in-place.\n * \n * @param fromIndex the start of the range (inclusive) to sort, 0 by default.\n * @param toIndex the end of the range (exclusive) to sort, size of this array by default.\n * \n * @throws IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n * @throws IllegalArgumentException if [fromIndex] is greater than [toIndex].\n * \n * @sample samples.collections.Arrays.Sorting.sortRangeOfArray\n */\n@SinceKotlin(\"1.4\")\n@Suppress(\"ACTUAL_FUNCTION_WITH_DEFAULT_ARGUMENTS\")\npublic actual fun CharArray.sort(fromIndex: Int = 0, toIndex: Int = size): Unit {\n AbstractList.checkRangeIndexes(fromIndex, toIndex, size)\n   val subarray = this.asDynamic().subarray(fromIndex, toIndex).unsafeCast<CharArray>()\n   subarray.sort()\n}\n\n/**\n * Sorts the array in-place according to the order specified by the given [comparison] function.\n */\n@Deprecated(\"Use other sorting functions from the Standard Library\")\n@DeprecatedSinceKotlin(warningSince = \"1.6\")\n@kotlin.internal.InlineOnly\npublic inline fun ByteArray.sort(noinline comparison: (a: Byte, b: Byte) -> Int): Unit {\n   nativeSort(comparison)\n}\n\n/**\n * Sorts the array in-place according to the order specified by the given [comparison] function.\n */\n@Deprecated(\"Use other sorting functions from the Standard Library\")\n@DeprecatedSinceKotlin(warningSince = \"1.6\")\n@kotlin.internal.InlineOnly\npublic inline fun ShortArray.sort(noinline comparison: (a: Short, b: Short) -> Int): Unit {\n   nativeSort(comparison)\n}\n\n/**\n * Sorts the array in-place according to the order specified by the given [comparison] function.\n */\n@Deprecated(\"Use other sorting functions from the Standard Library\")\n@DeprecatedSinceKotlin(warningSince = \"1.6\")\n@kotlin.internal.InlineOnly\npublic inline fun IntArray.sort(noinline comparison: (a: Int, b: Int) -> Int): Unit {\n   nativeSort(comparison)\n}\n\n/**\n * Sorts the array in-place according to the order specified by the given [comparison] function.\n */\n@Deprecated(\"Use other sorting functions from the Standard Library\")\n@DeprecatedSinceKotlin(warningSince = \"1.6\")\n@kotlin.internal.InlineOnly\npublic inline fun LongArray.sort(noinline comparison: (a: Long, b: Long) -> Int): Unit {\n   nativeSort(comparison)\n}\n\n/**\n * Sorts the array in-place according to the order specified by the given [comparison] function.\n */\n@Deprecated(\"Use other sorting functions from the Standard Library\")\n@DeprecatedSinceKotlin(warningSince = \"1.6\")\n@kotlin.internal.InlineOnly\npublic inline fun FloatArray.sort(noinline comparison: (a: Float, b: Float) -> Int): Unit {\n   nativeSort(comparison)\n}\n\n/**\n *

Sorts the array in-place according to the order specified by the given [comparison] function.\n */\n@Deprecated(\"Use other sorting functions from the Standard Library\")\n@DeprecatedSinceKotlin(warningSince = \"1.6\")\n@kotlin.internal.InlineOnly\npublic inline fun DoubleArray.sort(noinline comparison: (a: Double, b: Double) -> Int): Unit {\n nativeSort(comparison)\n}\n\n/**\n * Sorts the array in-place according to the order specified by the given [comparison] function.\n */\n@Deprecated(\"Use other sorting functions from the Standard Library\")\n@DeprecatedSinceKotlin(warningSince = \"1.6\")\n@kotlin.internal.InlineOnly\npublic inline fun CharArray.sort(noinline comparison: (a: Char, b: Char) -> Int): Unit {\n   nativeSort(comparison)\n}\n\n/**\n * Sorts the array in-place according to the order specified by the given [comparator].\n * \n * The sort is _stable_. It means that equal elements preserve their order relative to each other after sorting.\n */\npublic actual fun <T> Array<out T>.sortWith(comparator: Comparator<in T>): Unit {\n   if (size > 1) sortArrayWith(this, comparator)\n}\n\n/**\n * Sorts a range in the array in-place with the given [comparator].\n * \n * The sort is _stable_. It means that equal elements preserve their order relative to each other after sorting.\n * \n * @param fromIndex the start of the range (inclusive) to sort, 0 by default.\n * @param toIndex the end of the range (exclusive) to sort, size of this array by default.\n * \n * @throws IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n * @throws IllegalArgumentException if [fromIndex] is greater than [toIndex].\n */\n@SinceKotlin(\"1.4\")\n@Suppress(\"ACTUAL_FUNCTION_WITH_DEFAULT_ARGUMENTS\")\npublic actual fun <T> Array<out T>.sortWith(comparator: Comparator<in T>, fromIndex: Int = 0, toIndex: Int = size): Unit {\n   AbstractList.checkRangeIndexes(fromIndex, toIndex, size)\n   sortArrayWith(this, fromIndex, toIndex, comparator)\n}\n\n/**\n * Returns a *typed* object array containing all of the elements of this primitive array.\n */\npublic actual fun ByteArray.toTypedArray(): Array<Byte> {\n   return js(\"[]\").slice.call(this)\n}\n\n/**\n * Returns a *typed* object array containing all of the elements of this primitive array.\n */\npublic actual fun ShortArray.toTypedArray(): Array<Short> {\n   return js(\"[]\").slice.call(this)\n}\n\n/**\n * Returns a *typed* object array containing all of the elements of this primitive array.\n */\npublic actual fun IntArray.toTypedArray(): Array<Int> {\n   return js(\"[]\").slice.call(this)\n}\n\n/**\n * Returns a *typed* object array containing all of the elements of this primitive array.\n */\npublic actual fun LongArray.toTypedArray(): Array<Long> {\n   return js(\"[]\").slice.call(this)\n}\n\n/**\n * Returns a *typed* object array containing all of the elements of this primitive array.\n */\npublic actual fun FloatArray.toTypedArray(): Array<Float> {\n   return js(\"[]\").slice.call(this)\n}\n\n/**\n * Returns a *typed* object array containing all of the elements of this primitive array.\n */\npublic actual fun DoubleArray.toTypedArray(): Array<Double> {\n   return js(\"[]\").slice.call(this)\n}\n\n/**\n * Returns a *typed* object array containing all of the elements of this primitive array.\n */\npublic actual fun BooleanArray.toTypedArray(): Array<Boolean> {\n   return js(\"[]\").slice.call(this)\n}\n\n/**\n * Returns a *typed* object array containing all of the elements of this primitive array.\n */\npublic actual fun CharArray.toTypedArray(): Array<Char> {\n   return Array(size) { index -> this[index] }\n}\n\n","/*\n * Copyright 2010-2018 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n@file:kotlin.jvm.JvmName(\"ComparisonsKt\")\n@file:kotlin.jvm.JvmMultifileClass\n\npackage kotlin.comparisons\n\n/**\n * Compares two values using the specified functions [selectors] to calculate the result of the comparison.\n * The functions are called sequentially, receive the given values [a] and [b] and return [Comparable]\n * objects. As soon as the [Comparable] instances returned by a function for [a] and [b] values do not\n * compare as equal, the result of that comparison is returned.\n *\n * @sample samples.comparisons.Comparisons.compareValuesByWithSelectors\n */\npublic fun <T> compareValuesBy(a: T, b: T, vararg selectors: (T) -> Comparable<*>?): Int {\n   require(selectors.size > 0)\n   return compareValuesByImpl(a, b, selectors)\n}\n\nprivate fun <T> compareValuesByImpl(a: T, b: T, selectors: Array<out (T) -> Comparable<*>?>): Int {\n   for (fn in selectors) {\n   val v1 = fn(a)\n   val v2 = fn(b)\n val diff = compareValues(v1, v2)\n   if (diff != 0) return diff\n   }\n   return 0\n}\n\n/**\n * Compares two values using the specified [selector] function to calculate the result of the comparison.\n * The function is applied to the given values [a] and [b] and return [Comparable] objects.\n * The result of comparison of these [Comparable] instances is returned.\n *\n * @sample samples.comparisons.Comparisons.compareValuesByWithSingleSelector\n */\n@kotlin.internal.InlineOnly\npublic inline fun <T> compareValuesBy(a: T, b: T, selector: (T) -> Comparable<*>?): Int {\n   return compareValues(selector(a), selector(b))\n}\n\n/**\n * Compares two values using the specified [selector] function to calculate the result of the comparison.\n * The function is applied to the given values [a] and [b] and return objects of type K which are then being\n * compared with the given [comparator].\n *\n * @sample samples.comparisons.Comparisons.compareValuesByWithComparator\n */\n@kotlin.internal.InlineOnly\npublic inline fun <T, K> compareValuesBy(a: T, b: T, comparator: Comparator<in K>, selector: (T) -> K): Int {\n   return comparator.compare(selector(a), selector(b))\n}\n\n//// Not so useful without type inference for receiver of expression\n//// compareValuesWith(v1, v2, compareBy { it.prop1 } thenByDescending { it.prop2 })\n///**\n// * Compares two values using the specified [comparator].\n// */\n//@Suppress(\"NOTHING_TO_INLINE\")\n//public inline fun <T> compareValuesWith(a: T, b: T, comparator: Comparator<T>): Int = comparator.compare(a, b)\n//\n\n\n/**\n * Compares two nullable [Comparable] values. Null is considered less than any value.\n *\n * @sample samples.comparisons.Comparisons.compareValues\n */\npublic fun <T : Comparable<*>> compareValues(a: T?, b: T?): Int {\n   if (a === b) return 0\n   if (a == null) return -1\n   if (b == null) return 1\n\n   @Suppress(\"UNCHECKED_CAST\")\n   return (a as Comparable<Any>).compareTo(b)\n}\n\n/**\n * Creates a comparator using the sequence of functions to calculate a result of comparison.\n * The functions are called sequentially, receive the given values `a` and `b` and return [Comparable]\n * objects. As soon as the [Comparable] instances returned by a function for `a` and `b` values do not\n * compare as equal, the result of that comparison is returned from the [Comparator].\n *\n * @sample samples.comparisons.Comparisons.compareByWithSelectors\n */\npublic fun <T> compareBy(vararg selectors: (T) -> Comparable<*>?): Comparator<T> {\n   require(selectors.size > 0)\n   return Comparator { a, b -> compareValuesByImpl(a, b, selectors) }\n}\n\n\n/**\n * Creates a comparator using the function to transform value to a [Comparable] instance for comparison.\n *\n * @sample samples.comparisons.Comparisons.compareByWithSingleSelector\n */\n@kotlin.internal.InlineOnly\npublic inline fun <T> compareBy(crossinline selector: (T) -> Comparable<*>?): Comparator<T> =\n   Comparator { a, b -> compareValuesBy(a, b, selector) }\n\n/**\n * Creates a comparator using the [selector] function to transform values being compared and then applying\n * the specified [comparator] to compare transformed values.\n *\n * @sample samples.comparisons.Comparisons.compareByWithComparator\n */\n@kotlin.internal.InlineOnly\npublic inline fun <T, K> compareBy(comparator: Comparator<in K>, crossinline selector: (T) -> K): Comparator<T> =\n Comparator { a, b -> compareValuesBy(a, b, comparator, selector) }\n\n/**\n * Creates a descending comparator using the function to transform value to a [Comparable] instance for comparison.\n *\n * @sample samples.comparisons.Comparisons.compareByDescendingWithSingleSelector\n */\n@kotlin.internal.InlineOnly\npublic inline fun <T> compareByDescending(crossinline selector: (T) -> Comparable<*>?): Comparator<T> =\n   Comparator { a, b -> compareValuesBy(b, a, selector) }\n\n/**\n * Creates a descending comparator using the [selector] function to transform values being compared and then applying\n * the specified [comparator] to compare transformed values.\n *\n * Note that an order of [comparator] is reversed by this wrapper.\n *\n * @sample samples.comparisons.Comparisons.compareByDescendingWithComparator\n */\n@kotlin.internal.InlineOnly\npublic inline fun <T, K> compareByDescending(comparator: Comparator<in K>, crossinline selector: (T) -> K): Comparator<T> =\n   Comparator { a, b -> compareValuesBy(b, a, comparator, selector) }\n\n/**\n * Creates a comparator comparing values after the primary comparator defined them equal. It uses\n * the function to transform value to a [Comparable] instance for comparison.\n *\n * @sample samples.comparisons.Comparisons.thenBy\n */\n@kotlin.internal.InlineOnly\npublic inline fun <T> Comparator<T>.thenBy(crossinline selector: (T) -> Comparable<*>?): Comparator<T> =\n   Comparator { a, b ->\n   val previousCompare = this@thenBy.compare(a, b)\n   if (previousCompare != 0) previousCompare else compareValuesBy(a, b, selector)\n   }\n\n/**\n * Creates a comparator comparing values after the primary comparator defined them equal. It uses\n * the [selector] function to transform values and then compares them with the given [comparator].\n *\n * @sample samples.comparisons.Comparisons.thenByWithComparator\n */\n@kotlin.internal.InlineOnly\npublic inline fun <T, K> Comparator<T>.thenBy(comparator: Comparator<in K>, crossinline selector: (T) -> K): Comparator<T> =\n   Comparator { a, b ->\n   val previousCompare = this@thenBy.compare(a, b)\n   if (previousCompare != 0) previousCompare else compareValuesBy(a, b, comparator, selector)\n   }\n\n/**\n * Creates a descending comparator using the primary comparator and\n * the function to transform value to a [Comparable] instance for comparison.\n *\n * @sample samples.comparisons.Comparisons.thenByDescending\n */\n@kotlin.internal.InlineOnly\npublic inline fun <T> Comparator<T>.thenByDescending(crossinline selector: (T) -> Comparable<*>?): Comparator<T> =\n   Comparator { a, b ->\n   val previousCompare = this@thenByDescending.compare(a, b)\n   if (previousCompare != 0) previousCompare else compareValuesBy(b, a, selector)\n   }\n\n/**\n * Creates a descending comparator comparing values after the primary comparator defined them equal. It uses\n * the [selector] function to transform values and then compares them with the given [comparator].\n *\n * @sample samples.comparisons.Comparisons.thenByDescendingWithComparator\n */\n@kotlin.internal.InlineOnly\npublic inline fun <T, K> Comparator<T>.thenByDescending(comparator: Comparator<in K>, crossinline selector: (T) -> K): Comparator<T> =\n   Comparator { a, b ->\n   val previousCompare = this@thenByDescending.compare(a, b)\n   if (previousCompare != 0) previousCompare else compareValuesBy(b, a, comparator, selector)\n   }\n\n\n/**\n * Creates a comparator using the primary comparator and function to calculate a result of comparison.\n *\n * @sample samples.comparisons.Comparisons.thenComparator\n */\n@kotlin.internal.InlineOnly\npublic inline fun <T> Comparator<T>.thenComparator(crossinline comparison: (a: T, b: T) -> Int): Comparator<T> =\n   Comparator { a, b ->\n   val previousCompare = this@thenComparator.compare(a, b)\n   if (previousCompare != 0) previousCompare else comparison(a, b)\n   }\n\n/**\n * Combines this comparator and the given [comparator] such that the latter is applied only\n * when the former considered values equal.\n *\n * @sample samples.comparisons.Comparisons.then\n */\npublic infix fun <T> Comparator<T>.then(comparator: Comparator<in T>): Comparator<T> =\n   Comparator { a, b ->\n   val previousCompare = this@then.compare(a, b)\n   if (previousCompare != 0) previousCompare else comparator.compare(a, b)\n   }\n\n/**\n * Combines this comparator and the given [comparator] such that the latter is applied only\n * when the former considered values equal.\n *\n * @sample samples.comparisons.Comparisons.thenDescending\n */\npublic infix fun <T> Comparator<T>.thenDescending(comparator: Comparator<in T>): Comparator<T> =\n   Comparator<T> { a, b ->\n   val previousCompare = this@thenDescending.compare(a, b)\n   if (previousCompare != 0) previousCompare else comparator.compare(b, a)\n   }\n\n// Not so useful without type inference for receiver of expression\n/**\n * Extends the given [comparator] of non-nullable values to a comparator of nullable values\n * considering `null` value less than any other value.\n *\n * @sample samples.comparisons.Comparisons.nullsFirstLastWithComparator\n */\npublic fun <T : Any> nullsFirst(comparator: Comparator<in T>): Comparator<T?> =\n   Comparator { a, b ->\n   when {\n   a === b -> 0\n   a == null -> -1\n   b == null -> 1\n   else -> comparator.compare(a, b)\n   }\n   }\n\n/**\n * Provides a comparator of nullable [Comparable] values\n * considering `null` value less than any other value.\n *\n * @sample samples.comparisons.Comparisons.nullsFirstLastComparator\n */\n@kotlin.internal.InlineOnly\npublic inline fun <T : Comparable<T>> nullsFirst(): Comparator<T?> = nullsFirst(naturalOrder())\n\n/**\n * Extends the given [comparator] of non-nullable values to a comparator of nullable values\n * considering `null` value greater than any other value.\n *\n * @sample samples.comparisons.Comparisons.nullsFirstLastWithComparator\n */\npublic fun <T : Any> nullsLast(comparator: Comparator<in T>): Comparator<T?> =\n   Comparator { a, b ->\n   when {\n   a === b -> 0\n   a == null -> 1\n   b == null -> -1\n   else -> comparator.compare(a, b)\n   }\n   }\n\n/**\n * Provides a comparator of nullable [Comparable] values\n * considering `null` value greater than any other value.\n *\n * @sample samples.comparisons.Comparisons.nullsFirstLastComparator\n */\n@kotlin.internal.InlineOnly\npublic inline fun <T : Comparable<T>> nullsLast(): Comparator<T?> = nullsLast(naturalOrder())\n\n/**\n * Returns a comparator that compares [Comparable] objects in natural order.\n

*\n * @sample samples.comparisons.Comparisons.naturalOrderComparator\n */\npublic fun <T : Comparable<T>>
naturalOrder(): Comparator<T> = @Suppress(\"UNCHECKED_CAST\") (NaturalOrderComparator as
Comparator<T>)\n\n/**\n * Returns a comparator that compares [Comparable] objects in reversed natural order.\n
*\n * @sample samples.comparisons.Comparisons.nullsFirstLastWithComparator\n */\npublic fun <T :
Comparable<T>> reverseOrder(): Comparator<T> = @Suppress(\"UNCHECKED_CAST\")
(ReverseOrderComparator as Comparator<T>)\n\n/**\n * Returns a comparator that imposes the reverse ordering
of this comparator.\n *\n * @sample samples.comparisons.Comparisons.reversed\n
*/\n@Suppress(\"EXTENSION_SHADOWED_BY_MEMBER\")\npublic fun <T> Comparator<T>.reversed():
Comparator<T> = when (this) {\n   is ReversedComparator -> this.comparator\n   NaturalOrderComparator ->
@Suppress(\"UNCHECKED_CAST\") (ReverseOrderComparator as Comparator<T>)\n
ReverseOrderComparator -> @Suppress(\"UNCHECKED_CAST\") (NaturalOrderComparator as
Comparator<T>)\n   else -> ReversedComparator(this)\n}\n\n\nprivate class ReversedComparator<T>(public val
comparator: Comparator<T>) : Comparator<T> {\n   override fun compare(a: T, b: T): Int = comparator.compare(b,
a)\n   @Suppress(\"VIRTUAL_MEMBER_HIDDEN\")\n   fun reversed(): Comparator<T> =
comparator\n}\n\nprivate object NaturalOrderComparator : Comparator<Comparable<Any>> {\n   override fun
compare(a: Comparable<Any>, b: Comparable<Any>): Int = a.compareTo(b)\n
@Suppress(\"VIRTUAL_MEMBER_HIDDEN\")\n   fun reversed(): Comparator<Comparable<Any>> =
ReverseOrderComparator\n}\n\nprivate object ReverseOrderComparator : Comparator<Comparable<Any>> {\n
override fun compare(a: Comparable<Any>, b: Comparable<Any>): Int = b.compareTo(a)\n
@Suppress(\"VIRTUAL_MEMBER_HIDDEN\")\n   fun reversed(): Comparator<Comparable<Any>> =
NaturalOrderComparator\n}\n","/*\n * Copyright 2010-2018 JetBrains s.r.o. and Kotlin Programming Language
contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the
license/LICENSE.txt file.\n
*/\n\n@file:kotlin.jvm.JvmMultifileClass\n@file:kotlin.jvm.JvmName(\"StandardKt\")\npackage kotlin\n\nimport
kotlin.contracts.*\n\n/**\n * An exception is thrown to indicate that a method body remains to be implemented.\n
*/\npublic class NotImplementedError(message: String = \"An operation is not implemented.\") :
Error(message)\n\n/**\n * Always throws [NotImplementedError] stating that operation is not implemented.\n
*/\n\n@kotlin.internal.InlineOnly\npublic inline fun TODO(): Nothing = throw NotImplementedError()\n\n/**\n *
Always throws [NotImplementedError] stating that operation is not implemented.\n *\n * @param reason a string
explaining why the implementation is missing.\n */\n@kotlin.internal.InlineOnly\npublic inline fun TODO(reason:
String): Nothing = throw NotImplementedError(\"An operation is not implemented: $reason\")\n\n\n\n/**\n * Calls
the specified function [block] and returns its result.\n *\n * For detailed usage information see the documentation for
[scope functions](https://kotlinlang.org/docs/reference/scope-functions.html#run).\n
*/\n@kotlin.internal.InlineOnly\npublic inline fun <R> run(block: () -> R): R {\n   contract {\n
callsInPlace(block, InvocationKind.EXACTLY_ONCE)\n   }\n   return block()\n}\n\n/**\n * Calls the specified
function [block] with `this` value as its receiver and returns its result.\n *\n * For detailed usage information see the
documentation for [scope functions](https://kotlinlang.org/docs/reference/scope-functions.html#run).\n
*/\n@kotlin.internal.InlineOnly\npublic inline fun <T, R> T.run(block: T.() -> R): R {\n   contract {\n
callsInPlace(block, InvocationKind.EXACTLY_ONCE)\n   }\n   return block()\n}\n\n/**\n * Calls the specified
function [block] with the given [receiver] as its receiver and returns its result.\n *\n * For detailed usage information
see the documentation for [scope functions](https://kotlinlang.org/docs/reference/scope-functions.html#with).\n
*/\n@kotlin.internal.InlineOnly\npublic inline fun <T, R> with(receiver: T, block: T.() -> R): R {\n   contract {\n
  callsInPlace(block, InvocationKind.EXACTLY_ONCE)\n   }\n   return receiver.block()\n}\n\n/**\n * Calls the
specified function [block] with `this` value as its receiver and returns `this` value.\n *\n * For detailed usage
information see the documentation for [scope functions](https://kotlinlang.org/docs/reference/scope-
functions.html#apply).\n */\n@kotlin.internal.InlineOnly\npublic inline fun <T> T.apply(block: T.() -> Unit): T {\n
 contract {\n   callsInPlace(block, InvocationKind.EXACTLY_ONCE)\n   }\n   block()\n   return
this\n}\n\n/**\n * Calls the specified function [block] with `this` value as its argument and returns `this` value.\n *\n

* For detailed usage information see the documentation for [scope
functions](https://kotlinlang.org/docs/reference/scope-functions.html#also).\n
*/\n@kotlin.internal.InlineOnly\n@SinceKotlin(\"1.1\")\npublic inline fun <T> T.also(block: (T) -> Unit): T {\n
contract {\n   callsInPlace(block, InvocationKind.EXACTLY_ONCE)\n   }\n   block(this)\n   return
this\n}\n\n/**\n * Calls the specified function [block] with `this` value as its argument and returns its result.\n *\n *
For detailed usage information see the documentation for [scope
functions](https://kotlinlang.org/docs/reference/scope-functions.html#let).\n */\n@kotlin.internal.InlineOnly\npublic
inline fun <T, R> T.let(block: (T) -> R): R {\n   contract {\n   callsInPlace(block,
InvocationKind.EXACTLY_ONCE)\n   }\n   return block(this)\n}\n\n/**\n * Returns `this` value if it satisfies the
given [predicate] or `null`, if it doesn't.\n *\n * For detailed usage information see the documentation for [scope
functions](https://kotlinlang.org/docs/reference/scope-functions.html#takeif-and-takeunless).\n
*/\n@kotlin.internal.InlineOnly\n@SinceKotlin(\"1.1\")\npublic inline fun <T> T.takeIf(predicate: (T) -> Boolean):
T? {\n   contract {\n   callsInPlace(predicate, InvocationKind.EXACTLY_ONCE)\n   }\n   return if
(predicate(this)) this else null\n}\n\n/**\n * Returns `this` value if it _does not_ satisfy the given [predicate] or
`null`, if it does.\n *\n * For detailed usage information see the documentation for [scope
functions](https://kotlinlang.org/docs/reference/scope-functions.html#takeif-and-takeunless).\n
*/\n@kotlin.internal.InlineOnly\n@SinceKotlin(\"1.1\")\npublic inline fun <T> T.takeUnless(predicate: (T) ->
Boolean): T? {\n   contract {\n   callsInPlace(predicate, InvocationKind.EXACTLY_ONCE)\n   }\n   return if
(!predicate(this)) this else null\n}\n\n/**\n * Executes the given function [action] specified number of [times].\n *\n
* A zero-based index of current iteration is passed as a parameter to [action].\n *\n * @sample
samples.misc.ControlFlow.repeat\n */\n@kotlin.internal.InlineOnly\npublic inline fun repeat(times: Int, action: (Int)
-> Unit) {\n   contract { callsInPlace(action) }\n\n   for (index in 0 until times) {\n   action(index)\n
}\n}\n","/*\n * Copyright 2010-2022 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of
this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n
*/\n\npackage kotlin.comparisons\n\n//\n// NOTE: THIS FILE IS AUTO-GENERATED by the
GenerateStandardLib.kt\n// See: https://github.com/JetBrains/kotlin/tree/master/libraries/stdlib\n//\n\nimport
kotlin.js.*\n\n/**\n * Returns the greater of two values.\n * \n * If values are equal, returns the first one.\n
*/\n@SinceKotlin(\"1.1\")\npublic actual fun <T : Comparable<T>> maxOf(a: T, b: T): T {\n   return if (a >= b) a
else b\n}\n\n/**\n * Returns the greater of two values.\n
*/\n@SinceKotlin(\"1.1\")\n@kotlin.internal.InlineOnly\npublic actual inline fun maxOf(a: Byte, b: Byte): Byte {\n
 return maxOf(a.toInt(), b.toInt()).unsafeCast<Byte>()\n}\n\n/**\n * Returns the greater of two values.\n
*/\n@SinceKotlin(\"1.1\")\n@kotlin.internal.InlineOnly\npublic actual inline fun maxOf(a: Short, b: Short): Short
{\n   return maxOf(a.toInt(), b.toInt()).unsafeCast<Short>()\n}\n\n/**\n * Returns the greater of two values.\n
*/\n@SinceKotlin(\"1.1\")\n@kotlin.internal.InlineOnly\npublic actual inline fun maxOf(a: Int, b: Int): Int {\n
return JsMath.max(a, b)\n}\n\n/**\n * Returns the greater of two values.\n
*/\n@SinceKotlin(\"1.1\")\n@Suppress(\"NOTHING_TO_INLINE\")\npublic actual inline fun maxOf(a: Long, b:
Long): Long {\n   return if (a >= b) a else b\n}\n\n/**\n * Returns the greater of two values.\n * \n * If either value
is `NaN`, returns `NaN`.\n */\n@SinceKotlin(\"1.1\")\n@kotlin.internal.InlineOnly\npublic actual inline fun
maxOf(a: Float, b: Float): Float {\n   return JsMath.max(a, b)\n}\n\n/**\n * Returns the greater of two values.\n * \n
* If either value is `NaN`, returns `NaN`.\n */\n@SinceKotlin(\"1.1\")\n@kotlin.internal.InlineOnly\npublic actual
inline fun maxOf(a: Double, b: Double): Double {\n   return JsMath.max(a, b)\n}\n\n/**\n * Returns the greater of
three values.\n * \n * If there are multiple equal maximal values, returns the first of them.\n
*/\n@SinceKotlin(\"1.1\")\npublic actual fun <T : Comparable<T>> maxOf(a: T, b: T, c: T): T {\n   return
maxOf(a, maxOf(b, c))\n}\n\n/**\n * Returns the greater of three values.\n
*/\n@SinceKotlin(\"1.1\")\n@kotlin.internal.InlineOnly\npublic actual inline fun maxOf(a: Byte, b: Byte, c: Byte):
Byte {\n   return JsMath.max(a.toInt(), b.toInt(), c.toInt()).unsafeCast<Byte>()\n}\n\n/**\n * Returns the greater of
three values.\n */\n@SinceKotlin(\"1.1\")\n@kotlin.internal.InlineOnly\npublic actual inline fun maxOf(a: Short, b:
Short, c: Short): Short {\n   return JsMath.max(a.toInt(), b.toInt(), c.toInt()).unsafeCast<Short>()\n}\n\n/**\n *

Returns the greater of three values.\n */\n@SinceKotlin(\"1.1\")\n@kotlin.internal.InlineOnly\npublic actual inline
fun maxOf(a: Int, b: Int, c: Int): Int {\n   return JsMath.max(a, b, c)\n}\n\n/**\n * Returns the greater of three
values.\n */\n@SinceKotlin(\"1.1\")\n@kotlin.internal.InlineOnly\npublic actual inline fun maxOf(a: Long, b: Long,
c: Long): Long {\n   return maxOf(a, maxOf(b, c))\n}\n\n/**\n * Returns the greater of three values.\n * \n * If any
value is `NaN`, returns `NaN`.\n */\n@SinceKotlin(\"1.1\")\n@kotlin.internal.InlineOnly\npublic actual inline fun
maxOf(a: Float, b: Float, c: Float): Float {\n   return JsMath.max(a, b, c)\n}\n\n/**\n * Returns the greater of three
values.\n * \n * If any value is `NaN`, returns `NaN`.\n
*/\n@SinceKotlin(\"1.1\")\n@kotlin.internal.InlineOnly\npublic actual inline fun maxOf(a: Double, b: Double, c:
Double): Double {\n   return JsMath.max(a, b, c)\n}\n\n/**\n * Returns the greater of the given values.\n * \n * If
there are multiple equal maximal values, returns the first of them.\n */\n@SinceKotlin(\"1.4\")\npublic actual fun <T
: Comparable<T>> maxOf(a: T, vararg other: T): T {\n   var max = a\n   for (e in other) max = maxOf(max, e)\n
return max\n}\n\n/**\n * Returns the greater of the given values.\n */\n@SinceKotlin(\"1.4\")\npublic actual fun
maxOf(a: Byte, vararg other: Byte): Byte {\n   var max = a\n   for (e in other) max = maxOf(max, e)\n   return
max\n}\n\n/**\n * Returns the greater of the given values.\n */\n@SinceKotlin(\"1.4\")\npublic actual fun maxOf(a:
Short, vararg other: Short): Short {\n   var max = a\n   for (e in other) max = maxOf(max, e)\n   return
max\n}\n\n/**\n * Returns the greater of the given values.\n */\n@SinceKotlin(\"1.4\")\npublic actual fun maxOf(a:
Int, vararg other: Int): Int {\n   var max = a\n   for (e in other) max = maxOf(max, e)\n   return max\n}\n\n/**\n *
Returns the greater of the given values.\n */\n@SinceKotlin(\"1.4\")\npublic actual fun maxOf(a: Long, vararg
other: Long): Long {\n   var max = a\n   for (e in other) max = maxOf(max, e)\n   return max\n}\n\n/**\n *
Returns the greater of the given values.\n * \n * If any value is `NaN`, returns `NaN`.\n
*/\n@SinceKotlin(\"1.4\")\npublic actual fun maxOf(a: Float, vararg other: Float): Float {\n   var max = a\n   for (e
in other) max = maxOf(max, e)\n   return max\n}\n\n/**\n * Returns the greater of the given values.\n * \n * If any
value is `NaN`, returns `NaN`.\n */\n@SinceKotlin(\"1.4\")\npublic actual fun maxOf(a: Double, vararg other:
Double): Double {\n   var max = a\n   for (e in other) max = maxOf(max, e)\n   return max\n}\n\n/**\n * Returns
the smaller of two values.\n * \n * If values are equal, returns the first one.\n */\n@SinceKotlin(\"1.1\")\npublic
actual fun <T : Comparable<T>> minOf(a: T, b: T): T {\n   return if (a <= b) a else b\n}\n\n/**\n * Returns the
smaller of two values.\n */\n@SinceKotlin(\"1.1\")\n@kotlin.internal.InlineOnly\npublic actual inline fun minOf(a:
Byte, b: Byte): Byte {\n   return minOf(a.toInt(), b.toInt()).unsafeCast<Byte>()\n}\n\n/**\n * Returns the smaller of
two values.\n */\n@SinceKotlin(\"1.1\")\n@kotlin.internal.InlineOnly\npublic actual inline fun minOf(a: Short, b:
Short): Short {\n   return minOf(a.toInt(), b.toInt()).unsafeCast<Short>()\n}\n\n/**\n * Returns the smaller of two
values.\n */\n@SinceKotlin(\"1.1\")\n@kotlin.internal.InlineOnly\npublic actual inline fun minOf(a: Int, b: Int): Int
{\n   return JsMath.min(a, b)\n}\n\n/**\n * Returns the smaller of two values.\n
*/\n@SinceKotlin(\"1.1\")\n@Suppress(\"NOTHING_TO_INLINE\")\npublic actual inline fun minOf(a: Long, b:
Long): Long {\n   return if (a <= b) a else b\n}\n\n/**\n * Returns the smaller of two values.\n * \n * If either value
is `NaN`, returns `NaN`.\n */\n@SinceKotlin(\"1.1\")\n@kotlin.internal.InlineOnly\npublic actual inline fun
minOf(a: Float, b: Float): Float {\n   return JsMath.min(a, b)\n}\n\n/**\n * Returns the smaller of two values.\n * \n
* If either value is `NaN`, returns `NaN`.\n */\n@SinceKotlin(\"1.1\")\n@kotlin.internal.InlineOnly\npublic actual
inline fun minOf(a: Double, b: Double): Double {\n   return JsMath.min(a, b)\n}\n\n/**\n * Returns the smaller of
three values.\n * \n * If there are multiple equal minimal values, returns the first of them.\n
*/\n@SinceKotlin(\"1.1\")\npublic actual fun <T : Comparable<T>> minOf(a: T, b: T, c: T): T {\n   return minOf(a,
minOf(b, c))\n}\n\n/**\n * Returns the smaller of three values.\n
*/\n@SinceKotlin(\"1.1\")\n@kotlin.internal.InlineOnly\npublic actual inline fun minOf(a: Byte, b: Byte, c: Byte):
Byte {\n   return JsMath.min(a.toInt(), b.toInt(), c.toInt()).unsafeCast<Byte>()\n}\n\n/**\n * Returns the smaller of
three values.\n */\n@SinceKotlin(\"1.1\")\n@kotlin.internal.InlineOnly\npublic actual inline fun minOf(a: Short, b:
Short, c: Short): Short {\n   return JsMath.min(a.toInt(), b.toInt(), c.toInt()).unsafeCast<Short>()\n}\n\n/**\n *
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fun minOf(a: Int, b: Int, c: Int): Int {\n   return JsMath.min(a, b, c)\n}\n\n/**\n * Returns the smaller of three
values.\n */\n@SinceKotlin(\"1.1\")\n@kotlin.internal.InlineOnly\npublic actual inline fun minOf(a: Long, b: Long,

c: Long): Long {\n   return minOf(a, minOf(b, c))\n}\n\n/**\n * Returns the smaller of three values.\n * \n * If any value is `NaN`, returns `NaN`.\n */\n@SinceKotlin(\"1.1\")\n@kotlin.internal.InlineOnly\npublic actual inline fun minOf(a: Float, b: Float, c: Float): Float {\n   return JsMath.min(a, b, c)\n}\n\n/**\n * Returns the smaller of three values.\n * \n * If any value is `NaN`, returns `NaN`.\n */\n@SinceKotlin(\"1.1\")\n@kotlin.internal.InlineOnly\npublic actual inline fun minOf(a: Double, b: Double, c: Double): Double {\n   return JsMath.min(a, b, c)\n}\n\n/**\n * Returns the smaller of the given values.\n * \n * If there are multiple equal minimal values, returns the first of them.\n */\n@SinceKotlin(\"1.4\")\npublic actual fun <T : Comparable<T>> minOf(a: T, vararg other: T): T {\n   var min = a\n   for (e in other) min = minOf(min, e)\n   return min\n}\n\n/**\n * Returns the smaller of the given values.\n */\n@SinceKotlin(\"1.4\")\npublic actual fun minOf(a: Byte, vararg other: Byte): Byte {\n   var min = a\n   for (e in other) min = minOf(min, e)\n   return min\n}\n\n/**\n * Returns the smaller of the given values.\n */\n@SinceKotlin(\"1.4\")\npublic actual fun minOf(a: Short, vararg other: Short): Short {\n   var min = a\n   for (e in other) min = minOf(min, e)\n   return min\n}\n\n/**\n * Returns the smaller of the given values.\n */\n@SinceKotlin(\"1.4\")\npublic actual fun minOf(a: Int, vararg other: Int): Int {\n   var min = a\n   for (e in other) min = minOf(min, e)\n   return min\n}\n\n/**\n * Returns the smaller of the given values.\n */\n@SinceKotlin(\"1.4\")\npublic actual fun minOf(a: Long, vararg other: Long): Long {\n   var min = a\n   for (e in other) min = minOf(min, e)\n   return min\n}\n\n/**\n * Returns the smaller of the given values.\n * \n * If any value is `NaN`, returns `NaN`.\n */\n@SinceKotlin(\"1.4\")\npublic actual fun minOf(a: Float, vararg other: Float): Float {\n   var min = a\n   for (e in other) min = minOf(min, e)\n   return min\n}\n\n/**\n * Returns the smaller of the given values.\n * \n * If any value is `NaN`, returns `NaN`.\n */\n@SinceKotlin(\"1.4\")\npublic actual fun minOf(a: Double, vararg other: Double): Double {\n   var min = a\n   for (e in other) min = minOf(min, e)\n   return min\n}\n\n","/*\n * Copyright 2010-2022 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\n// Auto-generated file. DO NOT EDIT!\n\npackage kotlin\n\nimport kotlin.experimental.*\nimport kotlin.jvm.*\n\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\n@JvmInline\npublic value class ULong @kotlin.internal.IntrinsicConstEvaluation @PublishedApi internal constructor(@PublishedApi internal val data: Long) : Comparable<ULong> {\n\n   companion object {\n   /**\n   * A constant holding the minimum value an instance of ULong can have.\n   */\n   public const val MIN_VALUE: ULong = ULong(0)\n\n   /**\n   * A constant holding the maximum value an instance of ULong can have.\n   */\n   public const val MAX_VALUE: ULong = ULong(-1)\n\n   /**\n   * The number of bytes used to represent an instance of ULong in a binary form.\n   */\n   public const val SIZE_BYTES: Int = 8\n\n   /**\n   * The number of bits used to represent an instance of ULong in a binary form.\n   */\n   public const val SIZE_BITS: Int = 64\n   }\n\n   /**\n   * Compares this value with the specified value for order.\n   * Returns zero if this value is equal to the specified other value, a negative number if it's less than other,\n   * or a positive number if it's greater than other.\n   */\n   @kotlin.internal.InlineOnly\n   public inline operator fun compareTo(other: UByte): Int = this.compareTo(other.toULong())\n\n   /**\n   * Compares this value with the specified value for order.\n   * Returns zero if this value is equal to the specified other value, a negative number if it's less than other,\n   * or a positive number if it's greater than other.\n   */\n   @kotlin.internal.InlineOnly\n   public inline operator fun compareTo(other: UShort): Int = this.compareTo(other.toULong())\n\n   /**\n   * Compares this value with the specified value for order.\n   * Returns zero if this value is equal to the specified other value, a negative number if it's less than other,\n   * or a positive number if it's greater than other.\n   */\n   @kotlin.internal.InlineOnly\n   public inline operator fun compareTo(other: UInt): Int = this.compareTo(other.toULong())\n\n   /**\n   * Compares this value with the specified value for order.\n   * Returns zero if this value is equal to the specified other value, a negative number if it's less than other,\n   * or a positive number if it's greater than other.\n   */\n   @kotlin.internal.InlineOnly\n   @Suppress(\"OVERRIDE_BY_INLINE\")\n   public override inline operator fun compareTo(other: ULong): Int = ulongCompare(this.data, other.data)\n\n   /** Adds the other value to this value. */\n   @kotlin.internal.InlineOnly\n   public inline operator fun plus(other: UByte): ULong = this.plus(other.toULong())\n

/** Adds the other value to this value. */\n   @kotlin.internal.InlineOnly\n   public inline operator fun plus(other: UShort): ULong = this.plus(other.toULong())\n   /** Adds the other value to this value. */\n   @kotlin.internal.InlineOnly\n   public inline operator fun plus(other: UInt): ULong = this.plus(other.toULong())\n   /** Adds the other value to this value. */\n   @kotlin.internal.InlineOnly\n   public inline operator fun plus(other: ULong): ULong = ULong(this.data.plus(other.data))\n\n   /** Subtracts the other value from this value. */\n   @kotlin.internal.InlineOnly\n   public inline operator fun minus(other: UByte): ULong = this.minus(other.toULong())\n   /** Subtracts the other value from this value. */\n   @kotlin.internal.InlineOnly\n   public inline operator fun minus(other: UShort): ULong = this.minus(other.toULong())\n   /** Subtracts the other value from this value. */\n   @kotlin.internal.InlineOnly\n   public inline operator fun minus(other: UInt): ULong = this.minus(other.toULong())\n   /** Subtracts the other value from this value. */\n   @kotlin.internal.InlineOnly\n   public inline operator fun minus(other: ULong): ULong = ULong(this.data.minus(other.data))\n\n   /** Multiplies this value by the other value. */\n   @kotlin.internal.InlineOnly\n   public inline operator fun times(other: UByte): ULong = this.times(other.toULong())\n   /** Multiplies this value by the other value. */\n   @kotlin.internal.InlineOnly\n   public inline operator fun times(other: UShort): ULong = this.times(other.toULong())\n   /** Multiplies this value by the other value. */\n   @kotlin.internal.InlineOnly\n   public inline operator fun times(other: UInt): ULong = this.times(other.toULong())\n   /** Multiplies this value by the other value. */\n   @kotlin.internal.InlineOnly\n   public inline operator fun times(other: ULong): ULong = ULong(this.data.times(other.data))\n\n   /** Divides this value by the other value, truncating the result to an integer that is closer to zero. */\n   @kotlin.internal.InlineOnly\n   public inline operator fun div(other: UByte): ULong = this.div(other.toULong())\n   /** Divides this value by the other value, truncating the result to an integer that is closer to zero. */\n   @kotlin.internal.InlineOnly\n   public inline operator fun div(other: UShort): ULong = this.div(other.toULong())\n   /** Divides this value by the other value, truncating the result to an integer that is closer to zero. */\n   @kotlin.internal.InlineOnly\n   public inline operator fun div(other: UInt): ULong = this.div(other.toULong())\n   /** Divides this value by the other value, truncating the result to an integer that is closer to zero. */\n   @kotlin.internal.InlineOnly\n   public inline operator fun div(other: ULong): ULong = ulongDivide(this, other)\n\n   /**\n   * Calculates the remainder of truncating division of this value by the other value.\n   * \n   * The result is always less than the divisor.\n   */\n   @kotlin.internal.InlineOnly\n   public inline operator fun rem(other: UByte): ULong = this.rem(other.toULong())\n   /**\n   * Calculates the remainder of truncating division of this value by the other value.\n   * \n   * The result is always less than the divisor.\n   */\n   @kotlin.internal.InlineOnly\n   public inline operator fun rem(other: UShort): ULong = this.rem(other.toULong())\n   /**\n   * Calculates the remainder of truncating division of this value by the other value.\n   * \n   * The result is always less than the divisor.\n   */\n   @kotlin.internal.InlineOnly\n   public inline operator fun rem(other: UInt): ULong = this.rem(other.toULong())\n   /**\n   * Calculates the remainder of truncating division of this value by the other value.\n   * \n   * The result is always less than the divisor.\n   */\n   @kotlin.internal.InlineOnly\n   public inline operator fun rem(other: ULong): ULong = ulongRemainder(this, other)\n\n   /**\n   * Divides this value by the other value, flooring the result to an integer that is closer to negative infinity.\n   * \n   * For unsigned types, the results of flooring division and truncating division are the same.\n   */\n   @kotlin.internal.InlineOnly\n   public inline fun floorDiv(other: UByte): ULong = this.floorDiv(other.toULong())\n   /**\n   * Divides this value by the other value, flooring the result to an integer that is closer to negative infinity.\n   * \n   * For unsigned types, the results of flooring division and truncating division are the same.\n   */\n   @kotlin.internal.InlineOnly\n   public inline fun floorDiv(other: UShort): ULong = this.floorDiv(other.toULong())\n   /**\n   * Divides this value by the other value, flooring the result to an integer that is closer to negative infinity.\n   * \n   * For unsigned types, the results of flooring division and truncating division are the same.\n   */\n   @kotlin.internal.InlineOnly\n   public inline fun floorDiv(other: UInt): ULong = this.floorDiv(other.toULong())\n   /**\n   * Divides this value by the other value, flooring the result to an integer that is closer to negative infinity.\n   * \n   * For unsigned types, the results of flooring division and truncating division are the same.\n   */\n   @kotlin.internal.InlineOnly\n   public inline fun floorDiv(other: ULong): ULong = div(other)\n\n   /**\n   * Calculates the remainder of flooring division of this value by the other value.\n   * \n   *

The result is always less than the divisor.\n * \n * For unsigned types, the remainders of flooring division and truncating division are the same.\n */\n @kotlin.internal.InlineOnly\n public inline fun mod(other: UByte): UByte = this.mod(other.toULong()).toUByte()\n /**\n * Calculates the remainder of flooring division of this value by the other value.\n * \n * The result is always less than the divisor.\n * \n * For unsigned types, the remainders of flooring division and truncating division are the same.\n */\n @kotlin.internal.InlineOnly\n public inline fun mod(other: UShort): UShort = this.mod(other.toULong()).toUShort()\n /**\n * Calculates the remainder of flooring division of this value by the other value.\n * \n * The result is always less than the divisor.\n * \n * For unsigned types, the remainders of flooring division and truncating division are the same.\n */\n @kotlin.internal.InlineOnly\n public inline fun mod(other: UInt): UInt = this.mod(other.toULong()).toUInt()\n /**\n * Calculates the remainder of flooring division of this value by the other value.\n * \n * The result is always less than the divisor.\n * \n * For unsigned types, the remainders of flooring division and truncating division are the same.\n */\n @kotlin.internal.InlineOnly\n public inline fun mod(other: ULong): ULong = rem(other)\n\n /**\n * Returns this value incremented by one.\n *\n * @sample samples.misc.Builtins.inc\n */\n @kotlin.internal.InlineOnly\n public inline operator fun inc(): ULong = ULong(data.inc())\n\n /**\n * Returns this value decremented by one.\n *\n * @sample samples.misc.Builtins.dec\n */\n @kotlin.internal.InlineOnly\n public inline operator fun dec(): ULong = ULong(data.dec())\n\n /** Creates a range from this value to the specified [other] value. */\n @kotlin.internal.InlineOnly\n public inline operator fun rangeTo(other: ULong): ULongRange = ULongRange(this, other)\n\n /**\n * Shifts this value left by the [bitCount] number of bits.\n *\n * Note that only the six lowest-order bits of the [bitCount] are used as the shift distance.\n * The shift distance actually used is therefore always in the range `0..63`.\n */\n @kotlin.internal.InlineOnly\n public inline infix fun shl(bitCount: Int): ULong = ULong(data shl bitCount)\n\n /**\n * Shifts this value right by the [bitCount] number of bits, filling the leftmost bits with zeros.\n *\n * Note that only the six lowest-order bits of the [bitCount] are used as the shift distance.\n * The shift distance actually used is therefore always in the range `0..63`.\n */\n @kotlin.internal.InlineOnly\n public inline infix fun shr(bitCount: Int): ULong = ULong(data ushr bitCount)\n\n /** Performs a bitwise AND operation between the two values. */\n @kotlin.internal.InlineOnly\n public inline infix fun and(other: ULong): ULong = ULong(this.data and other.data)\n /** Performs a bitwise OR operation between the two values. */\n @kotlin.internal.InlineOnly\n public inline infix fun or(other: ULong): ULong = ULong(this.data or other.data)\n /** Performs a bitwise XOR operation between the two values. */\n @kotlin.internal.InlineOnly\n public inline infix fun xor(other: ULong): ULong = ULong(this.data xor other.data)\n /** Inverts the bits in this value. */\n @kotlin.internal.InlineOnly\n public inline fun inv(): ULong = ULong(data.inv())\n\n /**\n * Converts this [ULong] value to [Byte].\n *\n * If this value is less than or equals to [Byte.MAX_VALUE], the resulting `Byte` value represents\n * the same numerical value as this `ULong`.\n *\n * The resulting `Byte` value is represented by the least significant 8 bits of this `ULong` value.\n * Note that the resulting `Byte` value may be negative.\n */\n @kotlin.internal.InlineOnly\n public inline fun toByte(): Byte = data.toByte()\n /**\n * Converts this [ULong] value to [Short].\n *\n * If this value is less than or equals to [Short.MAX_VALUE], the resulting `Short` value represents\n * the same numerical value as this `ULong`.\n *\n * The resulting `Short` value is represented by the least significant 16 bits of this `ULong` value.\n * Note that the resulting `Short` value may be negative.\n */\n @kotlin.internal.InlineOnly\n public inline fun toShort(): Short = data.toShort()\n /**\n * Converts this [ULong] value to [Int].\n *\n * If this value is less than or equals to [Int.MAX_VALUE], the resulting `Int` value represents\n * the same numerical value as this `ULong`.\n *\n * The resulting `Int` value is represented by the least significant 32 bits of this `ULong` value.\n * Note that the resulting `Int` value may be negative.\n */\n @kotlin.internal.InlineOnly\n public inline fun toInt(): Int = data.toInt()\n /**\n * Converts this [ULong] value to [Long].\n *\n * If this value is less than or equals to [Long.MAX_VALUE], the resulting `Long` value represents\n * the same numerical value as this `ULong`. Otherwise the result is negative.\n *\n * The resulting `Long` value has the same binary representation as this `ULong` value.\n */\n @kotlin.internal.InlineOnly\n public inline fun toLong(): Long = data\n\n /**\n * Converts this [ULong] value to [UByte].\n   *\n   * If this value is less than or equals to [UByte.MAX_VALUE], the resulting `UByte` value represents\n   * the same numerical value as this `ULong`.\n   *\n   * The resulting `UByte` value is represented by the least significant 8 bits of this `ULong` value.\n   */\n   @kotlin.internal.InlineOnly\n   public inline fun toUByte(): UByte = data.toUByte()\n   /**\n   * Converts this [ULong] value to [UShort].\n   *\n   * If this value is less than or equals to [UShort.MAX_VALUE], the resulting `UShort` value represents\n   * the same numerical value as this `ULong`.\n   *\n   * The resulting `UShort` value is represented by the least significant 16 bits of this `ULong` value.\n   */\n   @kotlin.internal.InlineOnly\n   public inline fun toUShort(): UShort = data.toUShort()\n   /**\n   * Converts this [ULong] value to [UInt].\n   *\n   * If this value is less than or equals to [UInt.MAX_VALUE], the resulting `UInt` value represents\n   * the same numerical value as this `ULong`.\n   *\n   * The resulting `UInt` value is represented by the least significant 32 bits of this `ULong` value.\n   */\n   @kotlin.internal.InlineOnly\n   public inline fun toUInt(): UInt = data.toUInt()\n   /** Returns this value. */\n   @kotlin.internal.InlineOnly\n   public inline fun toULong(): ULong = this\n\n   /**\n   * Converts this [ULong] value to [Float].\n   *\n   * The resulting value is the closest `Float` to this `ULong` value.\n   * In case when this `ULong` value is exactly between two `Float`s,\n   * the one with zero at least significant bit of mantissa is selected.\n   */\n   @kotlin.internal.InlineOnly\n   public inline fun toFloat(): Float = this.toDouble().toFloat()\n   /**\n   * Converts this [ULong] value to [Double].\n   *\n   * The resulting value is the closest `Double` to this `ULong` value.\n   * In case when this `ULong` value is exactly between two `Double`s,\n   * the one with zero at least significant bit of mantissa is selected.\n   */\n   @kotlin.internal.InlineOnly\n   public inline fun toDouble(): Double = ulongToDouble(data)\n\n   public override fun toString(): String = ulongToString(data)\n\n}\n\n/**\n * Converts this [Byte] value to [ULong].\n *\n * If this value is positive, the resulting `ULong` value represents the same numerical value as this `Byte`.\n *\n * The least significant 8 bits of the resulting `ULong` value are the same as the bits of this `Byte` value,\n * whereas the most significant 56 bits are filled with the sign bit of this value.\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\n@kotlin.internal.InlineOnly\npublic inline fun Byte.toULong(): ULong = ULong(this.toLong())\n/**\n * Converts this [Short] value to [ULong].\n *\n * If this value is positive, the resulting `ULong` value represents the same numerical value as this `Short`.\n *\n * The least significant 16 bits of the resulting `ULong` value are the same as the bits of this `Short` value,\n * whereas the most significant 48 bits are filled with the sign bit of this value.\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\n@kotlin.internal.InlineOnly\npublic inline fun Short.toULong(): ULong = ULong(this.toLong())\n/**\n * Converts this [Int] value to [ULong].\n *\n * If this value is positive, the resulting `ULong` value represents the same numerical value as this `Int`.\n *\n * The least significant 32 bits of the resulting `ULong` value are the same as the bits of this `Int` value,\n * whereas the most significant 32 bits are filled with the sign bit of this value.\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\n@kotlin.internal.InlineOnly\npublic inline fun Int.toULong(): ULong = ULong(this.toLong())\n/**\n * Converts this [Long] value to [ULong].\n *\n * If this value is positive, the resulting `ULong` value represents the same numerical value as this `Long`.\n *\n * The resulting `ULong` value has the same binary representation as this `Long` value.\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\n@kotlin.internal.InlineOnly\npublic inline fun Long.toULong(): ULong = ULong(this)\n\n/**\n * Converts this [Float] value to [ULong].\n *\n * The fractional part, if any, is rounded down towards zero.\n * Returns zero if this `Float` value is negative or `NaN`, [ULong.MAX_VALUE] if it's bigger than `ULong.MAX_VALUE`.\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\n@kotlin.internal.InlineOnly\npublic inline fun Float.toULong(): ULong = doubleToULong(this.toDouble())\n/**\n * Converts this [Double] value to [ULong].\n *\n * The fractional part, if any, is rounded down towards zero.\n * Returns zero if this `Double` value is negative or `NaN`, [ULong.MAX_VALUE] if it's bigger than `ULong.MAX_VALUE`.\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\n@kotlin.internal.InlineOnly\npublic inline fun Double.toULong(): ULong = doubleToULong(this)\n","/*\n * Copyright 2010-2022 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n

/\n\n@file:kotlin.jvm.JvmMultifileClass\n@file:kotlin.jvm.JvmName(\"CollectionsKt\")\n\npackage kotlin.collections\n\n//\n// NOTE: THIS FILE IS AUTO-GENERATED by the GenerateStandardLib.kt\n// See: https://github.com/JetBrains/kotlin/tree/master/libraries/stdlib\n//\n\nimport kotlin.random.\nimport kotlin.ranges.contains\nimport kotlin.ranges.reversed\n\n/**\n * Returns 1st *element* from the list.\n * \n * Throws an [IndexOutOfBoundsException] if the size of this list is less than 1.\n */\n@kotlin.internal.InlineOnly\npublic inline operator fun <T> List<T>.component1(): T {\n   return get(0)\n}\n\n/**\n * Returns 2nd *element* from the list.\n * \n * Throws an [IndexOutOfBoundsException] if the size of this list is less than 2.\n */\n@kotlin.internal.InlineOnly\npublic inline operator fun <T> List<T>.component2(): T {\n   return get(1)\n}\n\n/**\n * Returns 3rd *element* from the list.\n * \n * Throws an [IndexOutOfBoundsException] if the size of this list is less than 3.\n */\n@kotlin.internal.InlineOnly\npublic inline operator fun <T> List<T>.component3(): T {\n   return get(2)\n}\n\n/**\n * Returns 4th *element* from the list.\n * \n * Throws an [IndexOutOfBoundsException] if the size of this list is less than 4.\n */\n@kotlin.internal.InlineOnly\npublic inline operator fun <T> List<T>.component4(): T {\n   return get(3)\n}\n\n/**\n * Returns 5th *element* from the list.\n * \n * Throws an [IndexOutOfBoundsException] if the size of this list is less than 5.\n */\n@kotlin.internal.InlineOnly\npublic inline operator fun <T> List<T>.component5(): T {\n   return get(4)\n}\n\n/**\n * Returns `true` if [element] is found in the collection.\n */\npublic operator fun <@kotlin.internal.OnlyInputTypes T> Iterable<T>.contains(element: T): Boolean {\n   if (this is Collection)\n   return contains(element)\n   return indexOf(element) >= 0\n}\n\n/**\n * Returns an element at the given [index] or throws an [IndexOutOfBoundsException] if the [index] is out of bounds of this collection.\n * \n * @sample samples.collections.Collections.Elements.elementAt\n */\npublic fun <T> Iterable<T>.elementAt(index: Int): T {\n   if (this is List)\n   return get(index)\n   return elementAtOrElse(index) { throw IndexOutOfBoundsException(\"Collection doesn't contain element at index $index.\") }\n}\n\n/**\n * Returns an element at the given [index] or throws an [IndexOutOfBoundsException] if the [index] is out of bounds of this list.\n * \n * @sample samples.collections.Collections.Elements.elementAt\n */\n@kotlin.internal.InlineOnly\npublic inline fun <T> List<T>.elementAt(index: Int): T {\n   return get(index)\n}\n\n/**\n * Returns an element at the given [index] or the result of calling the [defaultValue] function if the [index] is out of bounds of this collection.\n * \n * @sample samples.collections.Collections.Elements.elementAtOrElse\n */\npublic fun <T> Iterable<T>.elementAtOrElse(index: Int, defaultValue: (Int) -> T): T {\n   if (this is List)\n   return this.getOrElse(index, defaultValue)\n   if (index < 0)\n   return defaultValue(index)\n   val iterator = iterator()\n   var count = 0\n   while (iterator.hasNext()) {\n   val element = iterator.next()\n   if (index == count++)\n   return element\n   }\n   return defaultValue(index)\n}\n\n/**\n * Returns an element at the given [index] or the result of calling the [defaultValue] function if the [index] is out of bounds of this list.\n * \n * @sample samples.collections.Collections.Elements.elementAtOrElse\n */\n@kotlin.internal.InlineOnly\npublic inline fun <T> List<T>.elementAtOrElse(index: Int, defaultValue: (Int) -> T): T {\n   return if (index >= 0 && index <= lastIndex) get(index) else defaultValue(index)\n}\n\n/**\n * Returns an element at the given [index] or `null` if the [index] is out of bounds of this collection.\n * \n * @sample samples.collections.Collections.Elements.elementAtOrNull\n */\npublic fun <T> Iterable<T>.elementAtOrNull(index: Int): T? {\n   if (this is List)\n   return this.getOrNull(index)\n   if (index < 0)\n   return null\n   val iterator = iterator()\n   var count = 0\n   while (iterator.hasNext()) {\n   val element = iterator.next()\n   if (index == count++)\n   return element\n   }\n   return null\n}\n\n/**\n * Returns an element at the given [index] or `null` if the [index] is out of bounds of this list.\n * \n * @sample samples.collections.Collections.Elements.elementAtOrNull\n */\n@kotlin.internal.InlineOnly\npublic inline fun <T> List<T>.elementAtOrNull(index: Int): T? {\n   return this.getOrNull(index)\n}\n\n/**\n * Returns the first element matching the given [predicate], or `null` if no such element was found.\n * \n * @sample samples.collections.Collections.Elements.find\n */\n@kotlin.internal.InlineOnly\npublic inline fun <T> Iterable<T>.find(predicate: (T) -> Boolean): T? {\n   return firstOrNull(predicate)\n}\n\n/**\n * Returns the last element matching the given [predicate], or `null` if no such element was found.\n * \n * @sample

samples.collections.Collections.Elements.find\n */\n@kotlin.internal.InlineOnly\npublic inline fun <T>
Iterable<T>.findLast(predicate: (T) -> Boolean): T? {\n   return lastOrNull(predicate)\n}\n\n/**\n * Returns the last
element matching the given [predicate], or `null` if no such element was found.\n * \n * @sample
samples.collections.Collections.Elements.find\n */\n@kotlin.internal.InlineOnly\npublic inline fun <T>
List<T>.findLast(predicate: (T) -> Boolean): T? {\n   return lastOrNull(predicate)\n}\n\n/**\n * Returns the first
element.\n * \n * @throws NoSuchElementException if the collection is empty.\n */\npublic fun <T>
Iterable<T>.first(): T {\n   when (this) {\n   is List -> return this.first()\n   else -> {\n   val iterator =
iterator()\n   if (!iterator.hasNext())\n   throw NoSuchElementException(\"Collection is empty.\")\n
    return iterator.next()\n   }\n   }\n}\n\n/**\n * Returns the first element.\n * \n * @throws
NoSuchElementException if the list is empty.\n */\npublic fun <T> List<T>.first(): T {\n   if (isEmpty())\n
throw NoSuchElementException(\"List is empty.\")\n   return this[0]\n}\n\n/**\n * Returns the first element
matching the given [predicate].\n * @throws [NoSuchElementException] if no such element is found.\n */\npublic
inline fun <T> Iterable<T>.first(predicate: (T) -> Boolean): T {\n   for (element in this) if (predicate(element))
return element\n   throw NoSuchElementException(\"Collection contains no element matching the
predicate.\")\n}\n\n/**\n * Returns the first non-null value produced by [transform] function being applied to
elements of this collection in iteration order,\n * or throws [NoSuchElementException] if no non-null value was
produced.\n * \n * @sample samples.collections.Collections.Transformations.firstNotNullOf\n
*/\n@SinceKotlin(\"1.5\")\n@kotlin.internal.InlineOnly\npublic inline fun <T, R : Any>
Iterable<T>.firstNotNullOf(transform: (T) -> R?): R {\n   return firstNotNullOfOrNull(transform) ?: throw
NoSuchElementException(\"No element of the collection was transformed to a non-null value.\")\n}\n\n/**\n *
Returns the first non-null value produced by [transform] function being applied to elements of this collection in
iteration order,\n * or `null` if no non-null value was produced.\n * \n * @sample
samples.collections.Collections.Transformations.firstNotNullOf\n
*/\n@SinceKotlin(\"1.5\")\n@kotlin.internal.InlineOnly\npublic inline fun <T, R : Any>
Iterable<T>.firstNotNullOfOrNull(transform: (T) -> R?): R? {\n   for (element in this) {\n   val result =
transform(element)\n   if (result != null) {\n   return result\n   }\n   }\n   return null\n}\n\n/**\n *
Returns the first element, or `null` if the collection is empty.\n */\npublic fun <T> Iterable<T>.firstOrNull(): T? {\n
when (this) {\n   is List -> {\n   if (isEmpty())\n   return null\n   else\n   return this[0]\n
        }\n   else -> {\n   val iterator = iterator()\n   if (!iterator.hasNext())\n   return null\n
return iterator.next()\n   }\n   }\n}\n\n/**\n * Returns the first element, or `null` if the list is empty.\n */\npublic
fun <T> List<T>.firstOrNull(): T? {\n   return if (isEmpty()) null else this[0]\n}\n\n/**\n * Returns the first element
matching the given [predicate], or `null` if element was not found.\n */\npublic inline fun <T>
Iterable<T>.firstOrNull(predicate: (T) -> Boolean): T? {\n   for (element in this) if (predicate(element)) return
element\n   return null\n}\n\n/**\n * Returns an element at the given [index] or the result of calling the
[defaultValue] function if the [index] is out of bounds of this list.\n */\n@kotlin.internal.InlineOnly\npublic inline
fun <T> List<T>.getOrElse(index: Int, defaultValue: (Int) -> T): T {\n   return if (index >= 0 && index <=
lastIndex) get(index) else defaultValue(index)\n}\n\n/**\n * Returns an element at the given [index] or `null` if the
[index] is out of bounds of this list.\n * \n * @sample samples.collections.Collections.Elements.getOrNull\n
*/\npublic fun <T> List<T>.getOrNull(index: Int): T? {\n   return if (index >= 0 && index <= lastIndex) get(index)
else null\n}\n\n/**\n * Returns first index of [element], or -1 if the collection does not contain element.\n */\npublic
fun <@kotlin.internal.OnlyInputTypes T> Iterable<T>.indexOf(element: T): Int {\n   if (this is List) return
this.indexOf(element)\n   var index = 0\n   for (item in this) {\n   checkIndexOverflow(index)\n   if (element
== item)\n   return index\n   index++\n   }\n   return -1\n}\n\n/**\n * Returns first index of [element], or -1
if the list does not contain element.\n */\n@Suppress(\"EXTENSION_SHADOWED_BY_MEMBER\") // false
warning, extension takes precedence in some cases\npublic fun <@kotlin.internal.OnlyInputTypes T>
List<T>.indexOf(element: T): Int {\n   return indexOf(element)\n}\n\n/**\n * Returns index of the first element
matching the given [predicate], or -1 if the collection does not contain such element.\n */\npublic inline fun <T>
Iterable<T>.indexOfFirst(predicate: (T) -> Boolean): Int {\n   var index = 0\n   for (item in this) {\n

checkIndexOverflow(index)\n   if (predicate(item))\n   return index\n   index++\n   }\n   return -1\n}\n\n/**\n * Returns index of the first element matching the given [predicate], or -1 if the list does not contain such element.\n */\npublic inline fun <T> List<T>.indexOfFirst(predicate: (T) -> Boolean): Int {\n   var index = 0\n   for (item in this) {\n   if (predicate(item))\n   return index\n   index++\n   }\n   return -1\n}\n\n/**\n * Returns index of the last element matching the given [predicate], or -1 if the collection does not contain such element.\n */\npublic inline fun <T> Iterable<T>.indexOfLast(predicate: (T) -> Boolean): Int {\n   var lastIndex = -1\n   var index = 0\n   for (item in this) {\n   checkIndexOverflow(index)\n   if (predicate(item))\n   lastIndex = index\n   index++\n   }\n   return lastIndex\n}\n\n/**\n * Returns index of the last element matching the given [predicate], or -1 if the list does not contain such element.\n */\npublic inline fun <T> List<T>.indexOfLast(predicate: (T) -> Boolean): Int {\n   val iterator = this.listIterator(size)\n   while (iterator.hasPrevious()) {\n   if (predicate(iterator.previous())) {\n   return iterator.nextIndex()\n   }\n   }\n   return -1\n}\n\n/**\n * Returns the last element.\n * \n * @throws NoSuchElementException if the collection is empty.\n * \n * @sample samples.collections.Collections.Elements.last\n */\npublic fun <T> Iterable<T>.last(): T {\n   when (this) {\n   is List -> return this.last()\n   else -> {\n   val iterator = iterator()\n   if (!iterator.hasNext())\n   throw NoSuchElementException(\"Collection is empty.\")\n   var last = iterator.next()\n   while (iterator.hasNext())\n   last = iterator.next()\n   return last\n   }\n   }\n}\n\n/**\n * Returns the last element.\n * \n * @throws NoSuchElementException if the list is empty.\n * \n * @sample samples.collections.Collections.Elements.last\n */\npublic fun <T> List<T>.last(): T {\n   if (isEmpty())\n   throw NoSuchElementException(\"List is empty.\")\n   return this[lastIndex]\n}\n\n/**\n * Returns the last element matching the given [predicate].\n * \n * @throws NoSuchElementException if no such element is found.\n * \n * @sample samples.collections.Collections.Elements.last\n */\npublic inline fun <T> Iterable<T>.last(predicate: (T) -> Boolean): T {\n   var last: T? = null\n   var found = false\n   for (element in this) {\n   if (predicate(element)) {\n   last = element\n   found = true\n   }\n   }\n   if (!found) throw NoSuchElementException(\"Collection contains no element matching the predicate.\")\n   @Suppress(\"UNCHECKED_CAST\")\n   return last as T\n}\n\n/**\n * Returns the last element matching the given [predicate].\n * \n * @throws NoSuchElementException if no such element is found.\n * \n * @sample samples.collections.Collections.Elements.last\n */\npublic inline fun <T> List<T>.last(predicate: (T) -> Boolean): T {\n   val iterator = this.listIterator(size)\n   while (iterator.hasPrevious()) {\n   val element = iterator.previous()\n   if (predicate(element)) return element\n   }\n   throw NoSuchElementException(\"List contains no element matching the predicate.\")\n}\n\n/**\n * Returns last index of [element], or -1 if the collection does not contain element.\n */\npublic fun <@kotlin.internal.OnlyInputTypes T> Iterable<T>.lastIndexOf(element: T): Int {\n   if (this is List) return this.lastIndexOf(element)\n   var lastIndex = -1\n   var index = 0\n   for (item in this) {\n   checkIndexOverflow(index)\n   if (element == item)\n   lastIndex = index\n   index++\n   }\n   return lastIndex\n}\n\n/**\n * Returns last index of [element], or -1 if the list does not contain element.\n */\n@Suppress(\"EXTENSION_SHADOWED_BY_MEMBER\") // false warning, extension takes precedence in some cases\npublic fun <@kotlin.internal.OnlyInputTypes T> List<T>.lastIndexOf(element: T): Int {\n   return lastIndexOf(element)\n}\n\n/**\n * Returns the last element, or `null` if the collection is empty.\n * \n * @sample samples.collections.Collections.Elements.last\n */\npublic fun <T> Iterable<T>.lastOrNull(): T? {\n   when (this) {\n   is List -> return if (isEmpty()) null else this[size - 1]\n   else -> {\n   val iterator = iterator()\n   if (!iterator.hasNext())\n   return null\n   var last = iterator.next()\n   while (iterator.hasNext())\n   last = iterator.next()\n   return last\n   }\n   }\n}\n\n/**\n * Returns the last element, or `null` if the list is empty.\n * \n * @sample samples.collections.Collections.Elements.last\n */\npublic fun <T> List<T>.lastOrNull(): T? {\n   return if (isEmpty()) null else this[size - 1]\n}\n\n/**\n * Returns the last element matching the given [predicate], or `null` if no such element was found.\n * \n * @sample samples.collections.Collections.Elements.last\n */\npublic inline fun <T> Iterable<T>.lastOrNull(predicate: (T) -> Boolean): T? {\n   var last: T? = null\n   for (element in this) {\n   if (predicate(element)) {\n   last = element\n   }\n   }\n   return last\n}\n\n/**\n * Returns the last element matching the given [predicate], or `null` if no such element was found.\n * \n * @sample samples.collections.Collections.Elements.last\n */\npublic inline fun <T> List<T>.lastOrNull(predicate: (T) -> Boolean): T? {\n   val iterator = this.listIterator(size)\n   while (iterator.hasPrevious()) {\n   val element = iterator.previous()\n   if (predicate(element)) return element\n   }\n   return null\n}\n\n/**\n * Returns a random element from this collection.\n * \n * @throws NoSuchElementException if this collection is empty.\n */\n@SinceKotlin(\"1.3\")\n@kotlin.internal.InlineOnly\npublic inline fun <T> Collection<T>.random(): T {\n   return random(Random)\n}\n\n/**\n * Returns a random element from this collection using the specified source of randomness.\n * \n * @throws NoSuchElementException if this collection is empty.\n */\n@SinceKotlin(\"1.3\")\npublic fun <T> Collection<T>.random(random: Random): T {\n   if (isEmpty())\n   throw NoSuchElementException(\"Collection is empty.\")\n   return elementAt(random.nextInt(size))\n}\n\n/**\n * Returns a random element from this collection, or `null` if this collection is empty.\n */\n@SinceKotlin(\"1.4\")\n@WasExperimental(ExperimentalStdlibApi::class)\n@kotlin.internal.InlineOnly\npublic inline fun <T> Collection<T>.randomOrNull(): T? {\n   return randomOrNull(Random)\n}\n\n/**\n * Returns a random element from this collection using the specified source of randomness, or `null` if this collection is empty.\n */\n@SinceKotlin(\"1.4\")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic fun <T> Collection<T>.randomOrNull(random: Random): T? {\n   if (isEmpty())\n   return null\n   return elementAt(random.nextInt(size))\n}\n\n/**\n * Returns the single element, or throws an exception if the collection is empty or has more than one element.\n */\npublic fun <T> Iterable<T>.single(): T {\n   when (this) {\n   is List -> return this.single()\n   else -> {\n   val iterator = iterator()\n   if (!iterator.hasNext())\n   throw NoSuchElementException(\"Collection is empty.\")\n   val single = iterator.next()\n   if (iterator.hasNext())\n   throw IllegalArgumentException(\"Collection has more than one element.\")\n   return single\n   }\n   }\n}\n\n/**\n * Returns the single element, or throws an exception if the list is empty or has more than one element.\n */\npublic fun <T> List<T>.single(): T {\n   return when (size) {\n   0 -> throw NoSuchElementException(\"List is empty.\")\n   1 -> this[0]\n   else -> throw IllegalArgumentException(\"List has more than one element.\")\n   }\n}\n\n/**\n * Returns the single element matching the given [predicate], or throws exception if there is no or more than one matching element.\n */\npublic inline fun <T> Iterable<T>.single(predicate: (T) -> Boolean): T {\n   var single: T? = null\n   var found = false\n   for (element in this) {\n   if (predicate(element)) {\n   if (found) throw IllegalArgumentException(\"Collection contains more than one matching element.\")\n   single = element\n   found = true\n   }\n   }\n   if (!found) throw NoSuchElementException(\"Collection contains no element matching the predicate.\")\n   @Suppress(\"UNCHECKED_CAST\")\n   return single as T\n}\n\n/**\n * Returns single element, or `null` if the collection is empty or has more than one element.\n */\npublic fun <T> Iterable<T>.singleOrNull(): T? {\n   when (this) {\n   is List -> return if (size == 1) this[0] else null\n   else -> {\n   val iterator = iterator()\n   if (!iterator.hasNext())\n   return null\n   val single = iterator.next()\n   if (iterator.hasNext())\n   return null\n   return single\n   }\n   }\n}\n\n/**\n * Returns single element, or `null` if the list is empty or has more than one element.\n */\npublic fun <T> List<T>.singleOrNull(): T? {\n   return if (size == 1) this[0] else null\n}\n\n/**\n * Returns the single element matching the given [predicate], or `null` if element was not found or more than one element was found.\n */\npublic inline fun <T> Iterable<T>.singleOrNull(predicate: (T) -> Boolean): T? {\n   var single: T? = null\n   var found = false\n   for (element in this) {\n   if (predicate(element)) {\n   if (found) return null\n   single = element\n   found = true\n   }\n   }\n   if (!found) return null\n   return single\n}\n\n/**\n * Returns a list containing all elements except first [n] elements.\n * \n * @throws IllegalArgumentException if [n] is negative.\n * \n * @sample samples.collections.Collections.Transformations.drop\n */\npublic fun <T> Iterable<T>.drop(n: Int): List<T> {\n   require(n >= 0) { \"Requested element count $n is less than zero.\" }\n   if (n == 0) return toList()\n   val list: ArrayList<T>\n   if (this is Collection<*>) {\n   val resultSize = size - n\n   if (resultSize <= 0)\n   return emptyList()\n   if (resultSize == 1)\n   return listOf(last())\n   list = ArrayList<T>(resultSize)\n   if (this is List<T>) {\n   if (this is RandomAccess) {\n   for (index in n until size)\n   list.add(this[index])\n   } else {\n   for (item in listIterator(n))\n   list.add(item)\n   }\n   return list\n   }\n   }\n   else {\n   list = ArrayList<T>()\n   }\n   var count = 0\n   for (item in this) {\n if (count >= n) list.add(item) else ++count\n   }\n   return list.optimizeReadOnlyList()\n}\n\n/**\n * Returns a list containing all elements except last [n] elements.\n * \n * @throws IllegalArgumentException if [n] is negative.\n * \n * @sample samples.collections.Collections.Transformations.drop\n */\npublic fun <T> List<T>.dropLast(n: Int): List<T> {\n   require(n >= 0) { \"Requested element count $n is less than zero.\" }\n   return take((size - n).coerceAtLeast(0))\n}\n\n/**\n * Returns a list containing all elements except last elements that satisfy the given [predicate].\n * \n * @sample samples.collections.Collections.Transformations.drop\n */\npublic inline fun <T> List<T>.dropLastWhile(predicate: (T) -> Boolean): List<T> {\n   if (!isEmpty()) {\n   val iterator = listIterator(size)\n   while (iterator.hasPrevious()) {\n   if (!predicate(iterator.previous())) {\n   return take(iterator.nextIndex() + 1)\n   }\n   }\n   }\n   return emptyList()\n}\n\n/**\n * Returns a list containing all elements except first elements that satisfy the given [predicate].\n * \n * @sample samples.collections.Collections.Transformations.drop\n */\npublic inline fun <T> Iterable<T>.dropWhile(predicate: (T) -> Boolean): List<T> {\n   var yielding = false\n   val list = ArrayList<T>()\n   for (item in this)\n   if (yielding)\n   list.add(item)\n   else if (!predicate(item)) {\n   list.add(item)\n   yielding = true\n   }\n   return list\n}\n\n/**\n * Returns a list containing only elements matching the given [predicate].\n * \n * @sample samples.collections.Collections.Filtering.filter\n */\npublic inline fun <T> Iterable<T>.filter(predicate: (T) -> Boolean): List<T> {\n   return filterTo(ArrayList<T>(), predicate)\n}\n\n/**\n * Returns a list containing only elements matching the given [predicate].\n * @param [predicate] function that takes the index of an element and the element itself\n * and returns the result of predicate evaluation on the element.\n * \n * @sample samples.collections.Collections.Filtering.filterIndexed\n */\npublic inline fun <T> Iterable<T>.filterIndexed(predicate: (index: Int, T) -> Boolean): List<T> {\n   return filterIndexedTo(ArrayList<T>(), predicate)\n}\n\n/**\n * Appends all elements matching the given [predicate] to the given [destination].\n * @param [predicate] function that takes the index of an element and the element itself\n * and returns the result of predicate evaluation on the element.\n * \n * @sample samples.collections.Collections.Filtering.filterIndexedTo\n */\npublic inline fun <T, C : MutableCollection<in T>> Iterable<T>.filterIndexedTo(destination: C, predicate: (index: Int, T) -> Boolean): C {\n   forEachIndexed { index, element ->\n   if (predicate(index, element)) destination.add(element)\n   }\n   return destination\n}\n\n/**\n * Returns a list containing all elements that are instances of specified type parameter R.\n * \n * @sample samples.collections.Collections.Filtering.filterIsInstance\n */\npublic inline fun <reified R> Iterable<*>.filterIsInstance(): List<@kotlin.internal.NoInfer R> {\n   return filterIsInstanceTo(ArrayList<R>())\n}\n\n/**\n * Appends all elements that are instances of specified type parameter R to the given [destination].\n * \n * @sample samples.collections.Collections.Filtering.filterIsInstanceTo\n */\npublic inline fun <reified R, C : MutableCollection<in R>> Iterable<*>.filterIsInstanceTo(destination: C): C {\n   for (element in this) if (element is R) destination.add(element)\n   return destination\n}\n\n/**\n * Returns a list containing all elements not matching the given [predicate].\n * \n * @sample samples.collections.Collections.Filtering.filter\n */\npublic inline fun <T> Iterable<T>.filterNot(predicate: (T) -> Boolean): List<T> {\n   return filterNotTo(ArrayList<T>(), predicate)\n}\n\n/**\n * Returns a list containing all elements that are not `null`.\n * \n * @sample samples.collections.Collections.Filtering.filterNotNull\n */\npublic fun <T : Any> Iterable<T?>.filterNotNull(): List<T> {\n   return filterNotNullTo(ArrayList<T>())\n}\n\n/**\n * Appends all elements that are not `null` to the given [destination].\n * \n * @sample samples.collections.Collections.Filtering.filterNotNullTo\n */\npublic fun <C : MutableCollection<in T>, T : Any> Iterable<T?>.filterNotNullTo(destination: C): C {\n   for (element in this) if (element != null) destination.add(element)\n   return destination\n}\n\n/**\n * Appends all elements not matching the given [predicate] to the given [destination].\n * \n * @sample samples.collections.Collections.Filtering.filterTo\n */\npublic inline fun <T, C : MutableCollection<in T>> Iterable<T>.filterNotTo(destination: C, predicate: (T) -> Boolean): C {\n   for (element in this) if (!predicate(element)) destination.add(element)\n   return destination\n}\n\n/**\n * Appends all elements matching the given [predicate] to the given [destination].\n * \n * @sample samples.collections.Collections.Filtering.filterTo\n */\npublic inline fun <T, C : MutableCollection<in T>> Iterable<T>.filterTo(destination: C, predicate: (T) -> Boolean): C {\n   for (element in this) if (predicate(element)) destination.add(element)\n   return destination\n}\n\n/**\n * Returns a list containing elements at indices in the specified [indices] range.\n */\npublic fun <T> List<T>.slice(indices: IntRange): List<T> {\n   if (indices.isEmpty()) return listOf()\n   return this.subList(indices.start, indices.endInclusive + 1).toList()\n}\n\n/**\n * Returns a list containing elements at specified [indices].\n */\npublic fun <T> List<T>.slice(indices: Iterable<Int>): List<T> {\n   val size = indices.collectionSizeOrDefault(10)\n   if (size == 0) return emptyList()\n   val list = ArrayList<T>(size)\n   for (index in indices) {\n   list.add(get(index))\n   }\n   return list\n}\n\n/**\n * Returns a list containing first [n] elements.\n * \n * @throws IllegalArgumentException if [n] is negative.\n * \n * @sample samples.collections.Collections.Transformations.take\n */\npublic fun <T> Iterable<T>.take(n: Int): List<T> {\n   require(n >= 0) { \"Requested element count $n is less than zero.\" }\n   if (n == 0) return emptyList()\n   if (this is Collection<T>) {\n   if (n >= size) return toList()\n   if (n == 1) return listOf(first())\n   }\n   var count = 0\n   val list = ArrayList<T>(n)\n   for (item in this) {\n   list.add(item)\n   if (++count == n)\n   break\n   }\n   return list.optimizeReadOnlyList()\n}\n\n/**\n * Returns a list containing last [n] elements.\n * \n * @throws IllegalArgumentException if [n] is negative.\n * \n * @sample samples.collections.Collections.Transformations.take\n */\npublic fun <T> List<T>.takeLast(n: Int): List<T> {\n   require(n >= 0) { \"Requested element count $n is less than zero.\" }\n   if (n == 0) return emptyList()\n   val size = size\n   if (n >= size) return toList()\n   if (n == 1) return listOf(last())\n   val list = ArrayList<T>(n)\n   if (this is RandomAccess) {\n   for (index in size - n until size)\n   list.add(this[index])\n   } else {\n   for (item in listIterator(size - n))\n   list.add(item)\n   }\n   return list\n}\n\n/**\n * Returns a list containing last elements satisfying the given [predicate].\n * \n * @sample samples.collections.Collections.Transformations.take\n */\npublic inline fun <T> List<T>.takeLastWhile(predicate: (T) -> Boolean): List<T> {\n   if (isEmpty())\n   return emptyList()\n   val iterator = listIterator(size)\n   while (iterator.hasPrevious()) {\n   if (!predicate(iterator.previous())) {\n   iterator.next()\n   val expectedSize = size - iterator.nextIndex()\n   if (expectedSize == 0) return emptyList()\n   return ArrayList<T>(expectedSize).apply {\n   while (iterator.hasNext())\n   add(iterator.next())\n   }\n   }\n   }\n   return toList()\n}\n\n/**\n * Returns a list containing first elements satisfying the given [predicate].\n * \n * @sample samples.collections.Collections.Transformations.take\n */\npublic inline fun <T> Iterable<T>.takeWhile(predicate: (T) -> Boolean): List<T> {\n   val list = ArrayList<T>()\n   for (item in this) {\n   if (!predicate(item))\n   break\n   list.add(item)\n   }\n   return list\n}\n\n/**\n * Reverses elements in the list in-place.\n */\npublic expect fun <T> MutableList<T>.reverse(): Unit\n\n/**\n * Returns a list with elements in reversed order.\n */\npublic fun <T> Iterable<T>.reversed(): List<T> {\n   if (this is Collection && size <= 1) return toList()\n   val list = toMutableList()\n   list.reverse()\n   return list\n}\n\n/**\n * Randomly shuffles elements in this list in-place using the specified [random] instance as the source of randomness.\n * \n * See: https://en.wikipedia.org/wiki/Fisher%E2%80%93Yates_shuffle#The_modern_algorithm\n */\n@SinceKotlin(\"1.3\")\npublic fun <T> MutableList<T>.shuffle(random: Random): Unit {\n   for (i in lastIndex downTo 1) {\n   val j = random.nextInt(i + 1)\n   this[j] = this.set(i, this[j])\n   }\n}\n\n/**\n * Sorts elements in the list in-place according to natural sort order of the value returned by specified [selector] function.\n * \n * The sort is _stable_. It means that equal elements preserve their order relative to each other after sorting.\n */\npublic inline fun <T, R : Comparable<R>> MutableList<T>.sortBy(crossinline selector: (T) -> R?): Unit {\n   if (size > 1) sortWith(compareBy(selector))\n}\n\n/**\n * Sorts elements in the list in-place descending according to natural sort order of the value returned by specified [selector] function.\n * \n * The sort is _stable_. It means that equal elements preserve their order relative to each other after sorting.\n */\npublic inline fun <T, R : Comparable<R>> MutableList<T>.sortByDescending(crossinline selector: (T) -> R?): Unit {\n   if (size > 1) sortWith(compareByDescending(selector))\n}\n\n/**\n * Sorts elements in the list in-place descending according to their natural sort order.\n * \n * The sort is _stable_. It means that equal elements preserve their order relative to each other after sorting.\n */\npublic fun <T : Comparable<T>> MutableList<T>.sortDescending(): Unit {\n   sortWith(reverseOrder())\n}\n\n/**\n * Returns a list of all elements sorted according to their natural sort order.\n * \n * The sort is _stable_. It means that equal elements preserve their order relative to each other after sorting.\n */\npublic fun <T : Comparable<T>> Iterable<T>.sorted(): List<T> {\n   if (this is Collection) {\n   if (size <= 1) return this.toList()\n   @Suppress(\"UNCHECKED_CAST\")\n   return (toTypedArray<Comparable<T>>() as Array<T>).apply { sort() }.asList()\n   }\n   return toMutableList().apply { sort() }\n}\n\n/**\n * Returns a list of all elements sorted according to natural sort order of the value returned by specified [selector] function.\n * \n * The sort is _stable_. It means that equal elements preserve their order relative to each other after sorting.\n * \n * @sample samples.collections.Collections.Sorting.sortedBy\n */\npublic inline fun <T, R : Comparable<R>> Iterable<T>.sortedBy(crossinline selector: (T) -> R?): List<T> {\n   return sortedWith(compareBy(selector))\n}\n\n/**\n * Returns a list of all elements sorted descending according to natural sort order of the value returned by specified [selector] function.\n * \n * The sort is _stable_. It means that equal elements preserve their order relative to each other after sorting.\n */\npublic inline fun <T, R : Comparable<R>> Iterable<T>.sortedByDescending(crossinline selector: (T) -> R?): List<T> {\n   return sortedWith(compareByDescending(selector))\n}\n\n/**\n * Returns a list of all elements sorted descending according to their natural sort order.\n * \n * The sort is _stable_. It means that equal elements preserve their order relative to each other after sorting.\n */\npublic fun <T : Comparable<T>> Iterable<T>.sortedDescending(): List<T> {\n   return sortedWith(reverseOrder())\n}\n\n/**\n * Returns a list of all elements sorted according to the specified [comparator].\n * \n * The sort is _stable_. It means that equal elements preserve their order relative to each other after sorting.\n */\npublic fun <T> Iterable<T>.sortedWith(comparator: Comparator<in T>): List<T> {\n   if (this is Collection) {\n   if (size <= 1) return this.toList()\n   @Suppress(\"UNCHECKED_CAST\")\n   return (toTypedArray<Any?>() as Array<T>).apply { sortWith(comparator) }.asList()\n   }\n   return toMutableList().apply { sortWith(comparator) }\n}\n\n/**\n * Returns an array of Boolean containing all of the elements of this collection.\n */\npublic fun Collection<Boolean>.toBooleanArray(): BooleanArray {\n   val result = BooleanArray(size)\n   var index = 0\n   for (element in this)\n   result[index++] = element\n   return result\n}\n\n/**\n * Returns an array of Byte containing all of the elements of this collection.\n */\npublic fun Collection<Byte>.toByteArray(): ByteArray {\n   val result = ByteArray(size)\n   var index = 0\n   for (element in this)\n   result[index++] = element\n   return result\n}\n\n/**\n * Returns an array of Char containing all of the elements of this collection.\n */\npublic fun Collection<Char>.toCharArray(): CharArray {\n   val result = CharArray(size)\n   var index = 0\n   for (element in this)\n   result[index++] = element\n   return result\n}\n\n/**\n * Returns an array of Double containing all of the elements of this collection.\n */\npublic fun Collection<Double>.toDoubleArray(): DoubleArray {\n   val result = DoubleArray(size)\n   var index = 0\n   for (element in this)\n   result[index++] = element\n   return result\n}\n\n/**\n * Returns an array of Float containing all of the elements of this collection.\n */\npublic fun Collection<Float>.toFloatArray(): FloatArray {\n   val result = FloatArray(size)\n   var index = 0\n   for (element in this)\n   result[index++] = element\n   return result\n}\n\n/**\n * Returns an array of Int containing all of the elements of this collection.\n */\npublic fun Collection<Int>.toIntArray(): IntArray {\n   val result = IntArray(size)\n   var index = 0\n   for (element in this)\n   result[index++] = element\n   return result\n}\n\n/**\n * Returns an array of Long containing all of the elements of this collection.\n */\npublic fun Collection<Long>.toLongArray(): LongArray {\n   val result = LongArray(size)\n   var index = 0\n   for (element in this)\n   result[index++] = element\n   return result\n}\n\n/**\n * Returns an array of Short containing all of the elements of this collection.\n */\npublic fun Collection<Short>.toShortArray(): ShortArray {\n   val result = ShortArray(size)\n   var index = 0\n   for (element in this)\n   result[index++] = element\n   return result\n}\n\n/**\n * Returns a [Map] containing key-value pairs provided by [transform] function\n * applied to elements of the given collection.\n * \n * If any of two pairs would have the same key the last one gets added to the map.\n * \n * The returned map preserves the entry iteration order of the original collection.\n * \n * @sample samples.collections.Collections.Transformations.associate\n */\npublic inline fun <T, K, V> Iterable<T>.associate(transform: (T) -> Pair<K, V>): Map<K, V> {\n   val capacity = mapCapacity(collectionSizeOrDefault(10)).coerceAtLeast(16)\n   return associateTo(LinkedHashMap<K, V>(capacity), transform)\n}\n\n/**\n * Returns a [Map] containing the elements from the given collection indexed by the key\n * returned from [keySelector] function applied to each element.\n * \n * If any two elements would have the same key returned by [keySelector] the last one gets added to the map.\n * \n * The returned map preserves the entry iteration order of the original collection.\n * \n * @sample

samples.collections.Collections.Transformations.associateBy\n */\npublic inline fun <T, K>
Iterable<T>.associateBy(keySelector: (T) -> K): Map<K, T> {\n   val capacity =
mapCapacity(collectionSizeOrDefault(10)).coerceAtLeast(16)\n   return associateByTo(LinkedHashMap<K,
T>(capacity), keySelector)\n}\n\n/**\n * Returns a [Map] containing the values provided by [valueTransform] and
indexed by [keySelector] functions applied to elements of the given collection.\n * \n * If any two elements would
have the same key returned by [keySelector] the last one gets added to the map.\n * \n * The returned map preserves
the entry iteration order of the original collection.\n * \n * @sample
samples.collections.Collections.Transformations.associateByWithValueTransform\n */\npublic inline fun <T, K, V>
Iterable<T>.associateBy(keySelector: (T) -> K, valueTransform: (T) -> V): Map<K, V> {\n   val capacity =
mapCapacity(collectionSizeOrDefault(10)).coerceAtLeast(16)\n   return associateByTo(LinkedHashMap<K,
V>(capacity), keySelector, valueTransform)\n}\n\n/**\n * Populates and returns the [destination] mutable map with
key-value pairs,\n * where key is provided by the [keySelector] function applied to each element of the given
collection\n * and value is the element itself.\n * \n * If any two elements would have the same key returned by
[keySelector] the last one gets added to the map.\n * \n * @sample
samples.collections.Collections.Transformations.associateByTo\n */\npublic inline fun <T, K, M : MutableMap<in
K, in T>> Iterable<T>.associateByTo(destination: M, keySelector: (T) -> K): M {\n   for (element in this) {\n
destination.put(keySelector(element), element)\n   }\n   return destination\n}\n\n/**\n * Populates and returns the
[destination] mutable map with key-value pairs,\n * where key is provided by the [keySelector] function and\n * and
value is provided by the [valueTransform] function applied to elements of the given collection.\n * \n * If any two
elements would have the same key returned by [keySelector] the last one gets added to the map.\n * \n * @sample
samples.collections.Collections.Transformations.associateByToWithValueTransform\n */\npublic inline fun <T, K,
V, M : MutableMap<in K, in V>> Iterable<T>.associateByTo(destination: M, keySelector: (T) -> K,
valueTransform: (T) -> V): M {\n   for (element in this) {\n   destination.put(keySelector(element),
valueTransform(element))\n   }\n   return destination\n}\n\n/**\n * Populates and returns the [destination] mutable
map with key-value pairs\n * provided by [transform] function applied to each element of the given collection.\n *
\n * If any of two pairs would have the same key the last one gets added to the map.\n * \n * @sample
samples.collections.Collections.Transformations.associateTo\n */\npublic inline fun <T, K, V, M : MutableMap<in
K, in V>> Iterable<T>.associateTo(destination: M, transform: (T) -> Pair<K, V>): M {\n   for (element in this) {\n
    destination += transform(element)\n   }\n   return destination\n}\n\n/**\n * Returns a [Map] where keys are
elements from the given collection and values are\n * produced by the [valueSelector] function applied to each
element.\n * \n * If any two elements are equal, the last one gets added to the map.\n * \n * The returned map
preserves the entry iteration order of the original collection.\n * \n * @sample
samples.collections.Collections.Transformations.associateWith\n */\n@SinceKotlin(\"1.3\")\npublic inline fun <K,
V> Iterable<K>.associateWith(valueSelector: (K) -> V): Map<K, V> {\n   val result = LinkedHashMap<K,
V>(mapCapacity(collectionSizeOrDefault(10)).coerceAtLeast(16))\n   return associateWithTo(result,
valueSelector)\n}\n\n/**\n * Populates and returns the [destination] mutable map with key-value pairs for each
element of the given collection,\n * where key is the element itself and value is provided by the [valueSelector]
function applied to that key.\n * \n * If any two elements are equal, the last one overwrites the former value in the
map.\n * \n * @sample samples.collections.Collections.Transformations.associateWithTo\n
*/\n@SinceKotlin(\"1.3\")\npublic inline fun <K, V, M : MutableMap<in K, in V>>
Iterable<K>.associateWithTo(destination: M, valueSelector: (K) -> V): M {\n   for (element in this) {\n
destination.put(element, valueSelector(element))\n   }\n   return destination\n}\n\n/**\n * Appends all elements to
the given [destination] collection.\n */\npublic fun <T, C : MutableCollection<in T>>
Iterable<T>.toCollection(destination: C): C {\n   for (item in this) {\n   destination.add(item)\n   }\n   return
destination\n}\n\n/**\n * Returns a new [HashSet] of all elements.\n */\npublic fun <T> Iterable<T>.toHashSet():
HashSet<T> {\n   return toCollection(HashSet<T>(mapCapacity(collectionSizeOrDefault(12))))\n}\n\n/**\n *
Returns a [List] containing all elements.\n */\npublic fun <T> Iterable<T>.toList(): List<T> {\n   if (this is
Collection) {\n   return when (size) {\n   0 -> emptyList()\n   1 -> listOf(if (this is List) get(0) else

iterator().next())\n else -> this.toMutableList()\n }\n }\n return this.toMutableList().optimizeReadOnlyList()\n}\n\n/**\n * Returns a new [MutableList] filled with all elements of this collection.\n */\npublic fun <T> Iterable<T>.toMutableList(): MutableList<T> {\n if (this is Collection<T>)\n return this.toMutableList()\n return toCollection(ArrayList<T>())\n}\n\n/**\n * Returns a new [MutableList] filled with all elements of this collection.\n */\npublic fun <T> Collection<T>.toMutableList(): MutableList<T> {\n return ArrayList(this)\n}\n\n/**\n * Returns a [Set] of all elements.\n * \n * The returned set preserves the element iteration order of the original collection.\n */\npublic fun <T> Iterable<T>.toSet(): Set<T> {\n if (this is Collection) {\n return when (size) {\n 0 -> emptySet()\n 1 -> setOf(if (this is List) this[0] else iterator().next())\n else -> toCollection(LinkedHashSet<T>(mapCapacity(size)))\n }\n }\n return toCollection(LinkedHashSet<T>()).optimizeReadOnlySet()\n}\n\n/**\n * Returns a single list of all elements yielded from results of [transform] function being invoked on each element of original collection.\n * \n * @sample samples.collections.Collections.Transformations.flatMap\n */\npublic inline fun <T, R> Iterable<T>.flatMap(transform: (T) -> Iterable<R>): List<R> {\n return flatMapTo(ArrayList<R>(), transform)\n}\n\n/**\n * Returns a single list of all elements yielded from results of [transform] function being invoked on each element of original collection.\n * \n * @sample samples.collections.Collections.Transformations.flatMap\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.jvm.JvmName(\"flatMapSequence\")\npublic inline fun <T, R> Iterable<T>.flatMap(transform: (T) -> Sequence<R>): List<R> {\n return flatMapTo(ArrayList<R>(), transform)\n}\n\n/**\n * Returns a single list of all elements yielded from results of [transform] function being invoked on each element\n * and its index in the original collection.\n * \n * @sample samples.collections.Collections.Transformations.flatMapIndexed\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.jvm.JvmName(\"flatMapIndexedIterable\")\n@kotlin.internal.InlineOnly\npublic inline fun <T, R> Iterable<T>.flatMapIndexed(transform: (index: Int, T) -> Iterable<R>): List<R> {\n return flatMapIndexedTo(ArrayList<R>(), transform)\n}\n\n/**\n * Returns a single list of all elements yielded from results of [transform] function being invoked on each element\n * and its index in the original collection.\n * \n * @sample samples.collections.Collections.Transformations.flatMapIndexed\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.jvm.JvmName(\"flatMapIndexedSequence\")\n@kotlin.internal.InlineOnly\npublic inline fun <T, R> Iterable<T>.flatMapIndexed(transform: (index: Int, T) -> Sequence<R>): List<R> {\n return flatMapIndexedTo(ArrayList<R>(), transform)\n}\n\n/**\n * Appends all elements yielded from results of [transform] function being invoked on each element\n * and its index in the original collection, to the given [destination].\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.jvm.JvmName(\"flatMapIndexedIterableTo\")\n@kotlin.internal.InlineOnly\npublic inline fun <T, R, C : MutableCollection<in R>> Iterable<T>.flatMapIndexedTo(destination: C, transform: (index: Int, T) -> Iterable<R>): C {\n var index = 0\n for (element in this) {\n val list = transform(checkIndexOverflow(index++), element)\n destination.addAll(list)\n }\n return destination\n}\n\n/**\n * Appends all elements yielded from results of [transform] function being invoked on each element\n * and its index in the original collection, to the given [destination].\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.jvm.JvmName(\"flatMapIndexedSequenceTo\")\n@kotlin.internal.InlineOnly\npublic inline fun <T, R, C : MutableCollection<in R>> Iterable<T>.flatMapIndexedTo(destination: C, transform: (index: Int, T) -> Sequence<R>): C {\n var index = 0\n for (element in this) {\n val list = transform(checkIndexOverflow(index++), element)\n destination.addAll(list)\n }\n return destination\n}\n\n/**\n * Appends all elements yielded from results of [transform] function being invoked on each element of original collection, to the given [destination].\n */\npublic inline fun <T, R, C : MutableCollection<in

R>> Iterable<T>.flatMapTo(destination: C, transform: (T) -> Iterable<R>): C {\n   for (element in this) {\n   val list = transform(element)\n   destination.addAll(list)\n   }\n   return destination\n}\n\n/**\n * Appends all elements yielded from results of [transform] function being invoked on each element of original collection, to the given [destination].\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.jvm.JvmName(\"flatMapSequenceTo\")\npublic inline fun <T, R, C : MutableCollection<in R>> Iterable<T>.flatMapTo(destination: C, transform: (T) -> Sequence<R>): C {\n   for (element in this) {\n   val list = transform(element)\n   destination.addAll(list)\n   }\n   return destination\n}\n\n/**\n * Groups elements of the original collection by the key returned by the given [keySelector] function\n * applied to each element and returns a map where each group key is associated with a list of corresponding elements.\n * \n * The returned map preserves the entry iteration order of the keys produced from the original collection.\n * \n * @sample samples.collections.Collections.Transformations.groupBy\n */\npublic inline fun <T, K> Iterable<T>.groupBy(keySelector: (T) -> K): Map<K, List<T>> {\n   return groupByTo(LinkedHashMap<K, MutableList<T>>(), keySelector)\n}\n\n/**\n * Groups values returned by the [valueTransform] function applied to each element of the original collection\n * by the key returned by the given [keySelector] function applied to the element\n * and returns a map where each group key is associated with a list of corresponding values.\n * \n * The returned map preserves the entry iteration order of the keys produced from the original collection.\n * \n * @sample samples.collections.Collections.Transformations.groupByKeysAndValues\n */\npublic inline fun <T, K, V> Iterable<T>.groupBy(keySelector: (T) -> K, valueTransform: (T) -> V): Map<K, List<V>> {\n   return groupByTo(LinkedHashMap<K, MutableList<V>>(), keySelector, valueTransform)\n}\n\n/**\n * Groups elements of the original collection by the key returned by the given [keySelector] function\n * applied to each element and puts to the [destination] map each group key associated with a list of corresponding elements.\n * \n * @return The [destination] map.\n * \n * @sample samples.collections.Collections.Transformations.groupBy\n */\npublic inline fun <T, K, M : MutableMap<in K, MutableList<T>>> Iterable<T>.groupByTo(destination: M, keySelector: (T) -> K): M {\n   for (element in this) {\n   val key = keySelector(element)\n   val list = destination.getOrPut(key) { ArrayList<T>() }\n   list.add(element)\n   }\n   return destination\n}\n\n/**\n * Groups values returned by the [valueTransform] function applied to each element of the original collection\n * by the key returned by the given [keySelector] function applied to the element\n * and puts to the [destination] map each group key associated with a list of corresponding values.\n * \n * @return The [destination] map.\n * \n * @sample samples.collections.Collections.Transformations.groupByKeysAndValues\n */\npublic inline fun <T, K, V, M : MutableMap<in K, MutableList<V>>> Iterable<T>.groupByTo(destination: M, keySelector: (T) -> K, valueTransform: (T) -> V): M {\n   for (element in this) {\n   val key = keySelector(element)\n   val list = destination.getOrPut(key) { ArrayList<V>() }\n   list.add(valueTransform(element))\n   }\n   return destination\n}\n\n/**\n * Creates a [Grouping] source from a collection to be used later with one of group-and-fold operations\n * using the specified [keySelector] function to extract a key from each element.\n * \n * @sample samples.collections.Grouping.groupingByEachCount\n */\n@SinceKotlin(\"1.1\")\npublic inline fun <T, K> Iterable<T>.groupingBy(crossinline keySelector: (T) -> K): Grouping<T, K> {\n   return object : Grouping<T, K> {\n   override fun sourceIterator(): Iterator<T> = this@groupingBy.iterator()\n   override fun keyOf(element: T): K = keySelector(element)\n   }\n}\n\n/**\n * Returns a list containing the results of applying the given [transform] function\n * to each element in the original collection.\n * \n * @sample samples.collections.Collections.Transformations.map\n */\npublic inline fun <T, R> Iterable<T>.map(transform: (T) -> R): List<R> {\n   return mapTo(ArrayList<R>(collectionSizeOrDefault(10)), transform)\n}\n\n/**\n * Returns a list containing the results of applying the given [transform] function\n * to each element and its index in the original collection.\n * @param [transform] function that takes the index of an element and the element itself\n * and returns the result of the transform applied to the element.\n */\npublic inline fun <T, R> Iterable<T>.mapIndexed(transform: (index: Int, T) -> R): List<R> {\n   return mapIndexedTo(ArrayList<R>(collectionSizeOrDefault(10)), transform)\n}\n\n/**\n * Returns a list containing only the non-null results of applying the given [transform] function\n * to each element and its index in the original collection.\n * @param [transform] function that takes the index of an element and the element itself\n * and returns the result of the transform applied to the element.\n */\npublic inline fun <T, R : Any> Iterable<T>.mapIndexedNotNull(transform: (index: Int, T) -> R?): List<R> {\n   return mapIndexedNotNullTo(ArrayList<R>(), transform)\n}\n\n/**\n * Applies the given [transform] function to each element and its index in the original collection\n * and appends only the non-null results to the given [destination].\n * @param [transform] function that takes the index of an element and the element itself\n * and returns the result of the transform applied to the element.\n */\npublic inline fun <T, R : Any, C : MutableCollection<in R>> Iterable<T>.mapIndexedNotNullTo(destination: C, transform: (index: Int, T) -> R?): C {\n   forEachIndexed { index, element -> transform(index, element)?.let { destination.add(it) } }\n   return destination\n}\n\n/**\n * Applies the given [transform] function to each element and its index in the original collection\n * and appends the results to the given [destination].\n * @param [transform] function that takes the index of an element and the element itself\n * and returns the result of the transform applied to the element.\n */\npublic inline fun <T, R, C : MutableCollection<in R>> Iterable<T>.mapIndexedTo(destination: C, transform: (index: Int, T) -> R): C {\n   var index = 0\n   for (item in this)\n   destination.add(transform(checkIndexOverflow(index++), item))\n   return destination\n}\n\n/**\n * Returns a list containing only the non-null results of applying the given [transform] function\n * to each element in the original collection.\n * \n * @sample samples.collections.Collections.Transformations.mapNotNull\n */\npublic inline fun <T, R : Any> Iterable<T>.mapNotNull(transform: (T) -> R?): List<R> {\n   return mapNotNullTo(ArrayList<R>(), transform)\n}\n\n/**\n * Applies the given [transform] function to each element in the original collection\n * and appends only the non-null results to the given [destination].\n */\npublic inline fun <T, R : Any, C : MutableCollection<in R>> Iterable<T>.mapNotNullTo(destination: C, transform: (T) -> R?): C {\n   forEach { element -> transform(element)?.let { destination.add(it) } }\n   return destination\n}\n\n/**\n * Applies the given [transform] function to each element of the original collection\n * and appends the results to the given [destination].\n */\npublic inline fun <T, R, C : MutableCollection<in R>> Iterable<T>.mapTo(destination: C, transform: (T) -> R): C {\n   for (item in this)\n   destination.add(transform(item))\n   return destination\n}\n\n/**\n * Returns a lazy [Iterable] that wraps each element of the original collection\n * into an [IndexedValue] containing the index of that element and the element itself.\n */\npublic fun <T> Iterable<T>.withIndex(): Iterable<IndexedValue<T>> {\n   return IndexingIterable { iterator() }\n}\n\n/**\n * Returns a list containing only distinct elements from the given collection.\n * \n * Among equal elements of the given collection, only the first one will be present in the resulting list.\n * The elements in the resulting list are in the same order as they were in the source collection.\n * \n * @sample samples.collections.Collections.Transformations.distinctAndDistinctBy\n */\npublic fun <T> Iterable<T>.distinct(): List<T> {\n   return this.toMutableSet().toList()\n}\n\n/**\n * Returns a list containing only elements from the given collection\n * having distinct keys returned by the given [selector] function.\n * \n * Among elements of the given collection with equal keys, only the first one will be present in the resulting list.\n * The elements in the resulting list are in the same order as they were in the source collection.\n * \n * @sample samples.collections.Collections.Transformations.distinctAndDistinctBy\n */\npublic inline fun <T, K> Iterable<T>.distinctBy(selector: (T) -> K): List<T> {\n   val set = HashSet<K>()\n   val list = ArrayList<T>()\n   for (e in this) {\n   val key = selector(e)\n   if (set.add(key))\n   list.add(e)\n   }\n   return list\n}\n\n/**\n * Returns a set containing all elements that are contained by both this collection and the specified collection.\n * \n * The returned set preserves the element iteration order of the original collection.\n * \n * To get a set containing all elements that are contained at least in one of these collections use [union].\n */\npublic infix fun <T> Iterable<T>.intersect(other: Iterable<T>): Set<T> {\n   val set = this.toMutableSet()\n   set.retainAll(other)\n   return set\n}\n\n/**\n * Returns a set containing all elements that are contained by this collection and not contained by the specified collection.\n * \n * The returned set preserves the element iteration order of the original collection.\n */\npublic infix fun <T> Iterable<T>.subtract(other: Iterable<T>): Set<T> {\n   val set = this.toMutableSet()\n   set.removeAll(other)\n   return set\n}\n\n/**\n * Returns a new [MutableSet] containing all distinct elements from the given collection.\n * \n * The returned set preserves the element iteration order of the original collection.\n */\npublic fun <T> Iterable<T>.toMutableSet(): MutableSet<T> {\n   return when (this) {\n   is Collection<T> -> LinkedHashSet(this)\n   else -> toCollection(LinkedHashSet<T>())\n   }\n}\n\n/**\n * Returns a set containing all distinct elements from both collections.\n * \n * The returned set preserves the element iteration order of the original collection.\n * Those elements of the [other] collection that are unique are iterated in the end\n * in the order of the [other] collection.\n * \n * To get a set containing all elements that are contained in both collections use [intersect].\n */\npublic infix fun <T> Iterable<T>.union(other: Iterable<T>): Set<T> {\n   val set = this.toMutableSet()\n   set.addAll(other)\n   return set\n}\n\n/**\n * Returns `true` if all elements match the given [predicate].\n * \n * @sample samples.collections.Collections.Aggregates.all\n */\npublic inline fun <T> Iterable<T>.all(predicate: (T) -> Boolean): Boolean {\n   if (this is Collection && isEmpty()) return true\n   for (element in this) if (!predicate(element)) return false\n   return true\n}\n\n/**\n * Returns `true` if collection has at least one element.\n * \n * @sample samples.collections.Collections.Aggregates.any\n */\npublic fun <T> Iterable<T>.any(): Boolean {\n   if (this is Collection) return !isEmpty()\n   return iterator().hasNext()\n}\n\n/**\n * Returns `true` if at least one element matches the given [predicate].\n * \n * @sample samples.collections.Collections.Aggregates.anyWithPredicate\n */\npublic inline fun <T> Iterable<T>.any(predicate: (T) -> Boolean): Boolean {\n   if (this is Collection && isEmpty()) return false\n   for (element in this) if (predicate(element)) return true\n   return false\n}\n\n/**\n * Returns the number of elements in this collection.\n */\npublic fun <T> Iterable<T>.count(): Int {\n   if (this is Collection) return size\n   var count = 0\n   for (element in this) checkCountOverflow(++count)\n   return count\n}\n\n/**\n * Returns the number of elements in this collection.\n */\n@kotlin.internal.InlineOnly\npublic inline fun <T> Collection<T>.count(): Int {\n   return size\n}\n\n/**\n * Returns the number of elements matching the given [predicate].\n */\npublic inline fun <T> Iterable<T>.count(predicate: (T) -> Boolean): Int {\n   if (this is Collection && isEmpty()) return 0\n   var count = 0\n   for (element in this) if (predicate(element)) checkCountOverflow(++count)\n   return count\n}\n\n/**\n * Accumulates value starting with [initial] value and applying [operation] from left to right\n * to current accumulator value and each element.\n * \n * Returns the specified [initial] value if the collection is empty.\n * \n * @param [operation] function that takes current accumulator value and an element, and calculates the next accumulator value.\n */\npublic inline fun <T, R> Iterable<T>.fold(initial: R, operation: (acc: R, T) -> R): R {\n   var accumulator = initial\n   for (element in this) accumulator = operation(accumulator, element)\n   return accumulator\n}\n\n/**\n * Accumulates value starting with [initial] value and applying [operation] from left to right\n * to current accumulator value and each element with its index in the original collection.\n * \n * Returns the specified [initial] value if the collection is empty.\n * \n * @param [operation] function that takes the index of an element, current accumulator value\n * and the element itself, and calculates the next accumulator value.\n */\npublic inline fun <T, R> Iterable<T>.foldIndexed(initial: R, operation: (index: Int, acc: R, T) -> R): R {\n   var index = 0\n   var accumulator = initial\n   for (element in this) accumulator = operation(checkIndexOverflow(index++), accumulator, element)\n   return accumulator\n}\n\n/**\n * Accumulates value starting with [initial] value and applying [operation] from right to left\n * to each element and current accumulator value.\n * \n * Returns the specified [initial] value if the list is empty.\n * \n * @param [operation] function that takes an element and current accumulator value, and calculates the next accumulator value.\n */\npublic inline fun <T, R> List<T>.foldRight(initial: R, operation: (T, acc: R) -> R): R {\n   var accumulator = initial\n   if (!isEmpty()) {\n   val iterator = listIterator(size)\n   while (iterator.hasPrevious()) {\n   accumulator = operation(iterator.previous(), accumulator)\n   }\n   }\n   return accumulator\n}\n\n/**\n * Accumulates value starting with [initial] value and applying [operation] from right to left\n * to each element with its index in the original list and current accumulator value.\n * \n * Returns the specified [initial] value if the list is empty.\n * \n * @param [operation] function that takes the index of an element, the element itself\n * and current accumulator value, and calculates the next accumulator value.\n */\npublic inline fun <T, R> List<T>.foldRightIndexed(initial: R, operation: (index: Int, T, acc: R) -> R): R {\n   var accumulator = initial\n   if (!isEmpty()) {\n   val iterator = listIterator(size)\n   while (iterator.hasPrevious()) {\n   val index = iterator.previousIndex()\n   accumulator = operation(index, iterator.previous(), accumulator)\n   }\n   }\n return accumulator\n}\n\n/**\n * Performs the given [action] on each element.\n */\n@kotlin.internal.HidesMembers\npublic inline fun <T> Iterable<T>.forEach(action: (T) -> Unit): Unit {\n   for (element in this) action(element)\n}\n\n/**\n * Performs the given [action] on each element, providing sequential index with the element.\n * @param [action] function that takes the index of an element and the element itself\n * and performs the action on the element.\n */\npublic inline fun <T> Iterable<T>.forEachIndexed(action: (index: Int, T) -> Unit): Unit {\n   var index = 0\n   for (item in this) action(checkIndexOverflow(index++), item)\n}\n\n/**\n * Returns the largest element.\n * \n * If any of elements is `NaN` returns `NaN`.\n * \n * @throws NoSuchElementException if the collection is empty.\n */\n@SinceKotlin(\"1.7\")\n@kotlin.jvm.JvmName(\"maxOrThrow\")\n@Suppress(\"CONFLICTING_OVERLOADS\")\npublic fun Iterable<Double>.max(): Double {\n   val iterator = iterator()\n   if (!iterator.hasNext()) throw NoSuchElementException()\n   var max = iterator.next()\n   while (iterator.hasNext()) {\n   val e = iterator.next()\n   max = maxOf(max, e)\n   }\n   return max\n}\n\n/**\n * Returns the largest element.\n * \n * If any of elements is `NaN` returns `NaN`.\n * \n * @throws NoSuchElementException if the collection is empty.\n */\n@SinceKotlin(\"1.7\")\n@kotlin.jvm.JvmName(\"maxOrThrow\")\n@Suppress(\"CONFLICTING_OVERLOADS\")\npublic fun Iterable<Float>.max(): Float {\n   val iterator = iterator()\n   if (!iterator.hasNext()) throw NoSuchElementException()\n   var max = iterator.next()\n   while (iterator.hasNext()) {\n   val e = iterator.next()\n   max = maxOf(max, e)\n   }\n   return max\n}\n\n/**\n * Returns the largest element.\n * \n * @throws NoSuchElementException if the collection is empty.\n */\n@SinceKotlin(\"1.7\")\n@kotlin.jvm.JvmName(\"maxOrThrow\")\n@Suppress(\"CONFLICTING_OVERLOADS\")\npublic fun <T : Comparable<T>> Iterable<T>.max(): T {\n   val iterator = iterator()\n   if (!iterator.hasNext()) throw NoSuchElementException()\n   var max = iterator.next()\n   while (iterator.hasNext()) {\n   val e = iterator.next()\n   if (max < e) max = e\n   }\n   return max\n}\n\n/**\n * Returns the first element yielding the largest value of the given function.\n * \n * @throws NoSuchElementException if the collection is empty.\n * \n * @sample samples.collections.Collections.Aggregates.maxBy\n */\n@SinceKotlin(\"1.7\")\n@kotlin.jvm.JvmName(\"maxByOrThrow\")\n@Suppress(\"CONFLICTING_OVERLOADS\")\npublic inline fun <T, R : Comparable<R>> Iterable<T>.maxBy(selector: (T) -> R): T {\n   val iterator = iterator()\n   if (!iterator.hasNext()) throw NoSuchElementException()\n   var maxElem = iterator.next()\n   if (!iterator.hasNext()) return maxElem\n   var maxValue = selector(maxElem)\n   do {\n   val e = iterator.next()\n   val v = selector(e)\n   if (maxValue < v) {\n   maxElem = e\n   maxValue = v\n   }\n   } while (iterator.hasNext())\n   return maxElem\n}\n\n/**\n * Returns the first element yielding the largest value of the given function or `null` if there are no elements.\n * \n * @sample samples.collections.Collections.Aggregates.maxByOrNull\n */\n@SinceKotlin(\"1.4\")\npublic inline fun <T, R : Comparable<R>> Iterable<T>.maxByOrNull(selector: (T) -> R): T? {\n   val iterator = iterator()\n   if (!iterator.hasNext()) return null\n   var maxElem = iterator.next()\n   if (!iterator.hasNext()) return maxElem\n   var maxValue = selector(maxElem)\n   do {\n   val e = iterator.next()\n   val v = selector(e)\n   if (maxValue < v) {\n   maxElem = e\n   maxValue = v\n   }\n   } while (iterator.hasNext())\n   return maxElem\n}\n\n/**\n * Returns the largest value among all values produced by [selector] function\n * applied to each element in the collection.\n * \n * If any of values produced by [selector] function is `NaN`, the returned result is `NaN`.\n * \n * @throws NoSuchElementException if the collection is empty.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <T> Iterable<T>.maxOf(selector: (T) -> Double): Double {\n   val iterator = iterator()\n   if (!iterator.hasNext()) throw NoSuchElementException()\n   var maxValue = selector(iterator.next())\n   while (iterator.hasNext()) {\n   val v = selector(iterator.next())\n   maxValue = maxOf(maxValue, v)\n   }\n   return maxValue\n}\n\n/**\n * Returns the largest value among all values produced by [selector] function\n * applied to each element in the collection.\n * \n * If any of values produced by [selector] function is `NaN`, the returned result is `NaN`.\n * \n * @throws NoSuchElementException if the collection is empty.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution

ByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <T> Iterable<T>.maxOf(selector: (T) -> Float): Float {\n   val iterator = iterator()\n   if (!iterator.hasNext()) throw NoSuchElementException()\n   var maxValue = selector(iterator.next())\n   while (iterator.hasNext()) {\n   val v = selector(iterator.next())\n   maxValue = maxOf(maxValue, v)\n   }\n   return maxValue\n}\n\n/**\n * Returns the largest value among all values produced by [selector] function\n * applied to each element in the collection.\n * \n * @throws NoSuchElementException if the collection is empty.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <T, R : Comparable<R>> Iterable<T>.maxOf(selector: (T) -> R): R {\n   val iterator = iterator()\n   if (!iterator.hasNext()) throw NoSuchElementException()\n   var maxValue = selector(iterator.next())\n   while (iterator.hasNext()) {\n   val v = selector(iterator.next())\n   if (maxValue < v) {\n   maxValue = v\n   }\n   }\n   return maxValue\n}\n\n/**\n * Returns the largest value among all values produced by [selector] function\n * applied to each element in the collection or `null` if there are no elements.\n * \n * If any of values produced by [selector] function is `NaN`, the returned result is `NaN`.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <T> Iterable<T>.maxOfOrNull(selector: (T) -> Double): Double? {\n   val iterator = iterator()\n   if (!iterator.hasNext()) return null\n   var maxValue = selector(iterator.next())\n   while (iterator.hasNext()) {\n   val v = selector(iterator.next())\n   maxValue = maxOf(maxValue, v)\n   }\n   return maxValue\n}\n\n/**\n * Returns the largest value among all values produced by [selector] function\n * applied to each element in the collection or `null` if there are no elements.\n * \n * If any of values produced by [selector] function is `NaN`, the returned result is `NaN`.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <T> Iterable<T>.maxOfOrNull(selector: (T) -> Float): Float? {\n   val iterator = iterator()\n   if (!iterator.hasNext()) return null\n   var maxValue = selector(iterator.next())\n   while (iterator.hasNext()) {\n   val v = selector(iterator.next())\n   maxValue = maxOf(maxValue, v)\n   }\n   return maxValue\n}\n\n/**\n * Returns the largest value among all values produced by [selector] function\n * applied to each element in the collection or `null` if there are no elements.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <T, R : Comparable<R>> Iterable<T>.maxOfOrNull(selector: (T) -> R): R? {\n   val iterator = iterator()\n   if (!iterator.hasNext()) return null\n   var maxValue = selector(iterator.next())\n   while (iterator.hasNext()) {\n   val v = selector(iterator.next())\n   if (maxValue < v) {\n   maxValue = v\n   }\n   }\n   return maxValue\n}\n\n/**\n * Returns the largest value according to the provided [comparator]\n * among all values produced by [selector] function applied to each element in the collection.\n * \n * @throws NoSuchElementException if the collection is empty.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <T, R> Iterable<T>.maxOfWith(comparator: Comparator<in R>, selector: (T) -> R): R {\n   val iterator = iterator()\n   if (!iterator.hasNext()) throw NoSuchElementException()\n   var maxValue = selector(iterator.next())\n   while (iterator.hasNext()) {\n   val v = selector(iterator.next())\n   if (comparator.compare(maxValue, v) < 0) {\n   maxValue = v\n   }\n   }\n   return maxValue\n}\n\n/**\n * Returns the largest value according to the provided [comparator]\n * among all values produced by [selector] function applied to each element in the collection or `null` if there are no elements.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <T, R> Iterable<T>.maxOfWithOrNull(comparator: Comparator<in R>, selector: (T) -> R): R? {\n   val iterator = iterator()\n   if (!iterator.hasNext()) return null\n   var maxValue = selector(iterator.next())\n   while (iterator.hasNext()) {\n   val v = selector(iterator.next())\n   if (comparator.compare(maxValue, v) < 0) {\n maxValue = v\n   }\n   }\n   return maxValue\n}\n\n/**\n * Returns the largest element or `null` if there are no elements.\n * \n * If any of elements is `NaN` returns `NaN`.\n */\n@SinceKotlin(\"1.4\")\npublic fun Iterable<Double>.maxOrNull(): Double? {\n   val iterator = iterator()\n   if (!iterator.hasNext()) return null\n   var max = iterator.next()\n   while (iterator.hasNext()) {\n   val e = iterator.next()\n   max = maxOf(max, e)\n   }\n   return max\n}\n\n/**\n * Returns the largest element or `null` if there are no elements.\n * \n * If any of elements is `NaN` returns `NaN`.\n */\n@SinceKotlin(\"1.4\")\npublic fun Iterable<Float>.maxOrNull(): Float? {\n   val iterator = iterator()\n   if (!iterator.hasNext()) return null\n   var max = iterator.next()\n   while (iterator.hasNext()) {\n   val e = iterator.next()\n   max = maxOf(max, e)\n   }\n   return max\n}\n\n/**\n * Returns the largest element or `null` if there are no elements.\n */\n@SinceKotlin(\"1.4\")\npublic fun <T : Comparable<T>> Iterable<T>.maxOrNull(): T? {\n   val iterator = iterator()\n   if (!iterator.hasNext()) return null\n   var max = iterator.next()\n   while (iterator.hasNext()) {\n   val e = iterator.next()\n   if (max < e) max = e\n   }\n   return max\n}\n\n/**\n * Returns the first element having the largest value according to the provided [comparator].\n * \n * @throws NoSuchElementException if the collection is empty.\n */\n@SinceKotlin(\"1.7\")\n@kotlin.jvm.JvmName(\"maxWithOrThrow\")\n@Suppress(\"CONFLICTING_OVERLOADS\")\npublic fun <T> Iterable<T>.maxWith(comparator: Comparator<in T>): T {\n   val iterator = iterator()\n   if (!iterator.hasNext()) throw NoSuchElementException()\n   var max = iterator.next()\n   while (iterator.hasNext()) {\n   val e = iterator.next()\n   if (comparator.compare(max, e) < 0) max = e\n   }\n   return max\n}\n\n/**\n * Returns the first element having the largest value according to the provided [comparator] or `null` if there are no elements.\n */\n@SinceKotlin(\"1.4\")\npublic fun <T> Iterable<T>.maxWithOrNull(comparator: Comparator<in T>): T? {\n   val iterator = iterator()\n   if (!iterator.hasNext()) return null\n   var max = iterator.next()\n   while (iterator.hasNext()) {\n   val e = iterator.next()\n   if (comparator.compare(max, e) < 0) max = e\n   }\n   return max\n}\n\n/**\n * Returns the smallest element.\n * \n * If any of elements is `NaN` returns `NaN`.\n * \n * @throws NoSuchElementException if the collection is empty.\n */\n@SinceKotlin(\"1.7\")\n@kotlin.jvm.JvmName(\"minOrThrow\")\n@Suppress(\"CONFLICTING_OVERLOADS\")\npublic fun Iterable<Double>.min(): Double {\n   val iterator = iterator()\n   if (!iterator.hasNext()) throw NoSuchElementException()\n   var min = iterator.next()\n   while (iterator.hasNext()) {\n   val e = iterator.next()\n   min = minOf(min, e)\n   }\n   return min\n}\n\n/**\n * Returns the smallest element.\n * \n * If any of elements is `NaN` returns `NaN`.\n * \n * @throws NoSuchElementException if the collection is empty.\n */\n@SinceKotlin(\"1.7\")\n@kotlin.jvm.JvmName(\"minOrThrow\")\n@Suppress(\"CONFLICTING_OVERLOADS\")\npublic fun Iterable<Float>.min(): Float {\n   val iterator = iterator()\n   if (!iterator.hasNext()) throw NoSuchElementException()\n   var min = iterator.next()\n   while (iterator.hasNext()) {\n   val e = iterator.next()\n   min = minOf(min, e)\n   }\n   return min\n}\n\n/**\n * Returns the smallest element.\n * \n * @throws NoSuchElementException if the collection is empty.\n */\n@SinceKotlin(\"1.7\")\n@kotlin.jvm.JvmName(\"minOrThrow\")\n@Suppress(\"CONFLICTING_OVERLOADS\")\npublic fun <T : Comparable<T>> Iterable<T>.min(): T {\n   val iterator = iterator()\n   if (!iterator.hasNext()) throw NoSuchElementException()\n   var min = iterator.next()\n   while (iterator.hasNext()) {\n   val e = iterator.next()\n   if (min > e) min = e\n   }\n   return min\n}\n\n/**\n * Returns the first element yielding the smallest value of the given function.\n * \n * @throws NoSuchElementException if the collection is empty.\n * \n * @sample samples.collections.Collections.Aggregates.minBy\n */\n@SinceKotlin(\"1.7\")\n@kotlin.jvm.JvmName(\"minByOrThrow\")\n@Suppress(\"CONFLICTING_OVERLOADS\")\npublic inline fun <T, R : Comparable<R>> Iterable<T>.minBy(selector: (T) -> R): T {\n   val iterator = iterator()\n   if (!iterator.hasNext()) throw NoSuchElementException()\n   var minElem = iterator.next()\n   if (!iterator.hasNext()) return minElem\n   var minValue = selector(minElem)\n   do {\n   val e = iterator.next()\n   val v = selector(e)\n   if (minValue > v) {\n   minElem = e\n   minValue = v\n   }\n   } while (iterator.hasNext())\n   return minElem\n}\n\n/**\n * Returns the first element yielding the smallest value of the given function or `null` if there are no elements.\n * \n * @sample samples.collections.Collections.Aggregates.minByOrNull\n */\n@SinceKotlin(\"1.4\")\npublic inline fun <T, R :

Comparable<R>> Iterable<T>.minByOrNull(selector: (T) -> R): T? {\n   val iterator = iterator()\n   if (!iterator.hasNext()) return null\n   var minElem = iterator.next()\n   if (!iterator.hasNext()) return minElem\n   var minValue = selector(minElem)\n   do {\n   val e = iterator.next()\n   val v = selector(e)\n   if (minValue > v) {\n   minElem = e\n   minValue = v\n   }\n   } while (iterator.hasNext())\n   return minElem\n}\n\n/**\n * Returns the smallest value among all values produced by [selector] function\n * applied to each element in the collection.\n * \n * If any of values produced by [selector] function is `NaN`, the returned result is `NaN`.\n * \n * @throws NoSuchElementException if the collection is empty.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <T> Iterable<T>.minOf(selector: (T) -> Double): Double {\n   val iterator = iterator()\n   if (!iterator.hasNext()) throw NoSuchElementException()\n   var minValue = selector(iterator.next())\n   while (iterator.hasNext()) {\n   val v = selector(iterator.next())\n   minValue = minOf(minValue, v)\n   }\n   return minValue\n}\n\n/**\n * Returns the smallest value among all values produced by [selector] function\n * applied to each element in the collection.\n * \n * If any of values produced by [selector] function is `NaN`, the returned result is `NaN`.\n * \n * @throws NoSuchElementException if the collection is empty.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <T> Iterable<T>.minOf(selector: (T) -> Float): Float {\n   val iterator = iterator()\n   if (!iterator.hasNext()) throw NoSuchElementException()\n   var minValue = selector(iterator.next())\n   while (iterator.hasNext()) {\n   val v = selector(iterator.next())\n   minValue = minOf(minValue, v)\n   }\n   return minValue\n}\n\n/**\n * Returns the smallest value among all values produced by [selector] function\n * applied to each element in the collection.\n * \n * @throws NoSuchElementException if the collection is empty.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <T, R : Comparable<R>> Iterable<T>.minOf(selector: (T) -> R): R {\n   val iterator = iterator()\n   if (!iterator.hasNext()) throw NoSuchElementException()\n   var minValue = selector(iterator.next())\n   while (iterator.hasNext()) {\n   val v = selector(iterator.next())\n   if (minValue > v) {\n   minValue = v\n   }\n   }\n   return minValue\n}\n\n/**\n * Returns the smallest value among all values produced by [selector] function\n * applied to each element in the collection or `null` if there are no elements.\n * \n * If any of values produced by [selector] function is `NaN`, the returned result is `NaN`.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <T> Iterable<T>.minOfOrNull(selector: (T) -> Double): Double? {\n   val iterator = iterator()\n   if (!iterator.hasNext()) return null\n   var minValue = selector(iterator.next())\n   while (iterator.hasNext()) {\n   val v = selector(iterator.next())\n   minValue = minOf(minValue, v)\n   }\n   return minValue\n}\n\n/**\n * Returns the smallest value among all values produced by [selector] function\n * applied to each element in the collection or `null` if there are no elements.\n * \n * If any of values produced by [selector] function is `NaN`, the returned result is `NaN`.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <T> Iterable<T>.minOfOrNull(selector: (T) -> Float): Float? {\n   val iterator = iterator()\n   if (!iterator.hasNext()) return null\n   var minValue = selector(iterator.next())\n   while (iterator.hasNext()) {\n   val v = selector(iterator.next())\n   minValue = minOf(minValue, v)\n   }\n   return minValue\n}\n\n/**\n * Returns the smallest value among all values produced by [selector] function\n * applied to each element in the collection or `null` if there are no elements.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <T, R : Comparable<R>> Iterable<T>.minOfOrNull(selector: (T) -> R): R? {\n   val iterator = iterator()\n   if (!iterator.hasNext()) return null\n   var minValue = selector(iterator.next())\n   while (iterator.hasNext()) {\n   val v = selector(iterator.next())\n   if (minValue > v) {\n   minValue = v\n   }\n   }\n   return minValue\n}\n\n/**\n * Returns the smallest value according to the provided [comparator]\n * among all values produced by [selector] function applied to each element in the collection.\n * \n * @throws NoSuchElementException if the collection is empty.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <T, R> Iterable<T>.minOfWith(comparator: Comparator<in R>, selector: (T) -> R): R {\n   val iterator = iterator()\n   if (!iterator.hasNext()) throw NoSuchElementException()\n   var minValue = selector(iterator.next())\n   while (iterator.hasNext()) {\n   val v = selector(iterator.next())\n   if (comparator.compare(minValue, v) > 0) {\n   minValue = v\n   }\n   }\n   return minValue\n}\n\n/**\n * Returns the smallest value according to the provided [comparator]\n * among all values produced by [selector] function applied to each element in the collection or `null` if there are no elements.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <T, R> Iterable<T>.minOfWithOrNull(comparator: Comparator<in R>, selector: (T) -> R): R? {\n   val iterator = iterator()\n   if (!iterator.hasNext()) return null\n   var minValue = selector(iterator.next())\n   while (iterator.hasNext()) {\n   val v = selector(iterator.next())\n   if (comparator.compare(minValue, v) > 0) {\n   minValue = v\n   }\n   }\n   return minValue\n}\n\n/**\n * Returns the smallest element or `null` if there are no elements.\n * \n * If any of elements is `NaN` returns `NaN`.\n */\n@SinceKotlin(\"1.4\")\npublic fun Iterable<Double>.minOrNull(): Double? {\n   val iterator = iterator()\n   if (!iterator.hasNext()) return null\n   var min = iterator.next()\n   while (iterator.hasNext()) {\n   val e = iterator.next()\n   min = minOf(min, e)\n   }\n   return min\n}\n\n/**\n * Returns the smallest element or `null` if there are no elements.\n * \n * If any of elements is `NaN` returns `NaN`.\n */\n@SinceKotlin(\"1.4\")\npublic fun Iterable<Float>.minOrNull(): Float? {\n   val iterator = iterator()\n   if (!iterator.hasNext()) return null\n   var min = iterator.next()\n   while (iterator.hasNext()) {\n   val e = iterator.next()\n   min = minOf(min, e)\n   }\n   return min\n}\n\n/**\n * Returns the smallest element or `null` if there are no elements.\n */\n@SinceKotlin(\"1.4\")\npublic fun <T : Comparable<T>> Iterable<T>.minOrNull(): T? {\n   val iterator = iterator()\n   if (!iterator.hasNext()) return null\n   var min = iterator.next()\n   while (iterator.hasNext()) {\n   val e = iterator.next()\n   if (min > e) min = e\n   }\n   return min\n}\n\n/**\n * Returns the first element having the smallest value according to the provided [comparator].\n * \n * @throws NoSuchElementException if the collection is empty.\n */\n@SinceKotlin(\"1.7\")\n@kotlin.jvm.JvmName(\"minWithOrThrow\")\n@Suppress(\"CONFLICTING_OVERLOADS\")\npublic fun <T> Iterable<T>.minWith(comparator: Comparator<in T>): T {\n   val iterator = iterator()\n   if (!iterator.hasNext()) throw NoSuchElementException()\n   var min = iterator.next()\n   while (iterator.hasNext()) {\n   val e = iterator.next()\n   if (comparator.compare(min, e) > 0) min = e\n   }\n   return min\n}\n\n/**\n * Returns the first element having the smallest value according to the provided [comparator] or `null` if there are no elements.\n */\n@SinceKotlin(\"1.4\")\npublic fun <T> Iterable<T>.minWithOrNull(comparator: Comparator<in T>): T? {\n   val iterator = iterator()\n   if (!iterator.hasNext()) return null\n   var min = iterator.next()\n   while (iterator.hasNext()) {\n   val e = iterator.next()\n   if (comparator.compare(min, e) > 0) min = e\n   }\n   return min\n}\n\n/**\n * Returns `true` if the collection has no elements.\n * \n * @sample samples.collections.Collections.Aggregates.none\n */\npublic fun <T> Iterable<T>.none(): Boolean {\n   if (this is Collection) return isEmpty()\n   return !iterator().hasNext()\n}\n\n/**\n * Returns `true` if no elements match the given [predicate].\n * \n * @sample samples.collections.Collections.Aggregates.noneWithPredicate\n */\npublic inline fun <T> Iterable<T>.none(predicate: (T) -> Boolean): Boolean {\n   if (this is Collection && isEmpty()) return true\n   for (element in this) if (predicate(element)) return false\n   return true\n}\n\n/**\n * Performs the given [action] on each element and returns the collection itself afterwards.\n */\n@SinceKotlin(\"1.1\")\npublic inline fun <T, C : Iterable<T>> C.onEach(action: (T) -> Unit): C {\n   return apply { for (element in this) action(element) }\n}\n\n/**\n * Performs the given [action] on each element, providing sequential index with the element,\n * and returns the collection itself afterwards.\n * @param [action] function that takes the index of an element and the element itself\n * and performs the action on the element.\n */\n@SinceKotlin(\"1.4\")\npublic inline fun <T, C :

Iterable<T>> C.onEachIndexed(action: (index: Int, T) -> Unit): C {\n   return apply { forEachIndexed(action) }\n}\n\n/**\n * Accumulates value starting with the first element and applying [operation] from left to right\n * to current accumulator value and each element.\n * \n * Throws an exception if this collection is empty. If the collection can be empty in an expected way,\n * please use [reduceOrNull] instead. It returns `null` when its receiver is empty.\n * \n * @param [operation] function that takes current accumulator value and an element,\n * and calculates the next accumulator value.\n * \n * @sample samples.collections.Collections.Aggregates.reduce\n */\npublic inline fun <S, T : S> Iterable<T>.reduce(operation: (acc: S, T) -> S): S {\n   val iterator = this.iterator()\n   if (!iterator.hasNext()) throw UnsupportedOperationException(\"Empty collection can't be reduced.\")\n   var accumulator: S = iterator.next()\n   while (iterator.hasNext()) {\n   accumulator = operation(accumulator, iterator.next())\n   }\n   return accumulator\n}\n\n/**\n * Accumulates value starting with the first element and applying [operation] from left to right\n * to current accumulator value and each element with its index in the original collection.\n * \n * Throws an exception if this collection is empty. If the collection can be empty in an expected way,\n * please use [reduceIndexedOrNull] instead. It returns `null` when its receiver is empty.\n * \n * @param [operation] function that takes the index of an element, current accumulator value and the element itself,\n * and calculates the next accumulator value.\n * \n * @sample samples.collections.Collections.Aggregates.reduce\n */\npublic inline fun <S, T : S> Iterable<T>.reduceIndexed(operation: (index: Int, acc: S, T) -> S): S {\n   val iterator = this.iterator()\n   if (!iterator.hasNext()) throw UnsupportedOperationException(\"Empty collection can't be reduced.\")\n   var index = 1\n   var accumulator: S = iterator.next()\n   while (iterator.hasNext()) {\n   accumulator = operation(checkIndexOverflow(index++), accumulator, iterator.next())\n   }\n   return accumulator\n}\n\n/**\n * Accumulates value starting with the first element and applying [operation] from left to right\n * to current accumulator value and each element with its index in the original collection.\n * \n * Returns `null` if the collection is empty.\n * \n * @param [operation] function that takes the index of an element, current accumulator value and the element itself,\n * and calculates the next accumulator value.\n * \n * @sample samples.collections.Collections.Aggregates.reduceOrNull\n */\n@SinceKotlin(\"1.4\")\npublic inline fun <S, T : S> Iterable<T>.reduceIndexedOrNull(operation: (index: Int, acc: S, T) -> S): S? {\n   val iterator = this.iterator()\n   if (!iterator.hasNext()) return null\n   var index = 1\n   var accumulator: S = iterator.next()\n   while (iterator.hasNext()) {\n   accumulator = operation(checkIndexOverflow(index++), accumulator, iterator.next())\n   }\n   return accumulator\n}\n\n/**\n * Accumulates value starting with the first element and applying [operation] from left to right\n * to current accumulator value and each element.\n * \n * Returns `null` if the collection is empty.\n * \n * @param [operation] function that takes current accumulator value and an element,\n * and calculates the next accumulator value.\n * \n * @sample samples.collections.Collections.Aggregates.reduceOrNull\n */\n@SinceKotlin(\"1.4\")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic inline fun <S, T : S> Iterable<T>.reduceOrNull(operation: (acc: S, T) -> S): S? {\n   val iterator = this.iterator()\n   if (!iterator.hasNext()) return null\n   var accumulator: S = iterator.next()\n   while (iterator.hasNext()) {\n   accumulator = operation(accumulator, iterator.next())\n   }\n   return accumulator\n}\n\n/**\n * Accumulates value starting with the last element and applying [operation] from right to left\n * to each element and current accumulator value.\n * \n * Throws an exception if this list is empty. If the list can be empty in an expected way,\n * please use [reduceRightOrNull] instead. It returns `null` when its receiver is empty.\n * \n * @param [operation] function that takes an element and current accumulator value,\n * and calculates the next accumulator value.\n * \n * @sample samples.collections.Collections.Aggregates.reduceRight\n */\npublic inline fun <S, T : S> List<T>.reduceRight(operation: (T, acc: S) -> S): S {\n   val iterator = listIterator(size)\n   if (!iterator.hasPrevious())\n   throw UnsupportedOperationException(\"Empty list can't be reduced.\")\n   var accumulator: S = iterator.previous()\n   while (iterator.hasPrevious()) {\n   accumulator = operation(iterator.previous(), accumulator)\n   }\n   return accumulator\n}\n\n/**\n * Accumulates value starting with the last element and applying [operation] from right to left\n * to each element with its index in the original list and current accumulator value.\n * \n * Throws an exception if this list is empty. If the list can be empty in an expected way,\n * please use [reduceRightIndexedOrNull] instead. It returns `null` when its receiver is empty.\n * \n * @param [operation] function that takes the index of an element, the element itself and current accumulator value,\n * and calculates the next accumulator value.\n * \n * @sample samples.collections.Collections.Aggregates.reduceRight\n */\npublic inline fun <S, T : S> List<T>.reduceRightIndexed(operation: (index: Int, T, acc: S) -> S): S {\n   val iterator = listIterator(size)\n   if (!iterator.hasPrevious())\n   throw UnsupportedOperationException(\"Empty list can't be reduced.\")\n   var accumulator: S = iterator.previous()\n   while (iterator.hasPrevious()) {\n   val index = iterator.previousIndex()\n   accumulator = operation(index, iterator.previous(), accumulator)\n   }\n   return accumulator\n}\n\n/**\n * Accumulates value starting with the last element and applying [operation] from right to left\n * to each element with its index in the original list and current accumulator value.\n * \n * Returns `null` if the list is empty.\n * \n * @param [operation] function that takes the index of an element, the element itself and current accumulator value,\n * and calculates the next accumulator value.\n * \n * @sample samples.collections.Collections.Aggregates.reduceRightOrNull\n */\n@SinceKotlin(\"1.4\")\npublic inline fun <S, T : S> List<T>.reduceRightIndexedOrNull(operation: (index: Int, T, acc: S) -> S): S? {\n   val iterator = listIterator(size)\n   if (!iterator.hasPrevious())\n   return null\n   var accumulator: S = iterator.previous()\n   while (iterator.hasPrevious()) {\n   val index = iterator.previousIndex()\n   accumulator = operation(index, iterator.previous(), accumulator)\n   }\n   return accumulator\n}\n\n/**\n * Accumulates value starting with the last element and applying [operation] from right to left\n * to each element and current accumulator value.\n * \n * Returns `null` if the list is empty.\n * \n * @param [operation] function that takes an element and current accumulator value,\n * and calculates the next accumulator value.\n * \n * @sample samples.collections.Collections.Aggregates.reduceRightOrNull\n */\n@SinceKotlin(\"1.4\")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic inline fun <S, T : S> List<T>.reduceRightOrNull(operation: (T, acc: S) -> S): S? {\n   val iterator = listIterator(size)\n   if (!iterator.hasPrevious())\n   return null\n   var accumulator: S = iterator.previous()\n   while (iterator.hasPrevious()) {\n   accumulator = operation(iterator.previous(), accumulator)\n   }\n   return accumulator\n}\n\n/**\n * Returns a list containing successive accumulation values generated by applying [operation] from left to right\n * to each element and current accumulator value that starts with [initial] value.\n * \n * Note that `acc` value passed to [operation] function should not be mutated;\n * otherwise it would affect the previous value in resulting list.\n * \n * @param [operation] function that takes current accumulator value and an element, and calculates the next accumulator value.\n * \n * @sample samples.collections.Collections.Aggregates.runningFold\n */\n@SinceKotlin(\"1.4\")\npublic inline fun <T, R> Iterable<T>.runningFold(initial: R, operation: (acc: R, T) -> R): List<R> {\n   val estimatedSize = collectionSizeOrDefault(9)\n   if (estimatedSize == 0) return listOf(initial)\n   val result = ArrayList<R>(estimatedSize + 1).apply { add(initial) }\n   var accumulator = initial\n   for (element in this) {\n accumulator = operation(accumulator, element)\n   result.add(accumulator)\n   }\n   return result\n}\n\n/**\n * Returns a list containing successive accumulation values generated by applying [operation] from left to right\n * to each element, its index in the original collection and current accumulator value that starts with [initial] value.\n * \n * Note that `acc` value passed to [operation] function should not be mutated;\n * otherwise it would affect the previous value in resulting list.\n * \n * @param [operation] function that takes the index of an element, current accumulator value\n * and the element itself, and calculates the next accumulator value.\n * \n * @sample samples.collections.Collections.Aggregates.runningFold\n */\n@SinceKotlin(\"1.4\")\npublic inline fun <T, R> Iterable<T>.runningFoldIndexed(initial: R, operation: (index: Int, acc: R, T) -> R): List<R> {\n   val estimatedSize = collectionSizeOrDefault(9)\n   if (estimatedSize == 0) return listOf(initial)\n   val result = ArrayList<R>(estimatedSize + 1).apply { add(initial) }\n   var index = 0\n   var accumulator = initial\n   for (element in this) {\n   accumulator = operation(index++, accumulator, element)\n   result.add(accumulator)\n   }\n   return result\n}\n\n/**\n * Returns a list containing successive accumulation values generated by applying [operation] from left to right\n * to each element and current accumulator value that starts with the first element of this collection.\n * \n * Note that `acc` value passed to [operation] function should not be mutated;\n * otherwise it would affect the previous value in resulting list.\n * \n * @param [operation] function that takes current accumulator value and the element, and calculates the next accumulator value.\n * \n * @sample samples.collections.Collections.Aggregates.runningReduce\n */\n@SinceKotlin(\"1.4\")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic inline fun <S, T : S> Iterable<T>.runningReduce(operation: (acc: S, T) -> S): List<S> {\n   val iterator = this.iterator()\n   if (!iterator.hasNext()) return emptyList()\n   var accumulator: S = iterator.next()\n   val result = ArrayList<S>(collectionSizeOrDefault(10)).apply { add(accumulator) }\n   while (iterator.hasNext()) {\n   accumulator = operation(accumulator, iterator.next())\n   result.add(accumulator)\n   }\n   return result\n}\n\n/**\n * Returns a list containing successive accumulation values generated by applying [operation] from left to right\n * to each element, its index in the original collection and current accumulator value that starts with the first element of this collection.\n * \n * Note that `acc` value passed to [operation] function should not be mutated;\n * otherwise it would affect the previous value in resulting list.\n * \n * @param [operation] function that takes the index of an element, current accumulator value\n * and the element itself, and calculates the next accumulator value.\n * \n * @sample samples.collections.Collections.Aggregates.runningReduce\n */\n@SinceKotlin(\"1.4\")\npublic inline fun <S, T : S> Iterable<T>.runningReduceIndexed(operation: (index: Int, acc: S, T) -> S): List<S> {\n   val iterator = this.iterator()\n   if (!iterator.hasNext()) return emptyList()\n   var accumulator: S = iterator.next()\n   val result = ArrayList<S>(collectionSizeOrDefault(10)).apply { add(accumulator) }\n   var index = 1\n   while (iterator.hasNext()) {\n   accumulator = operation(index++, accumulator, iterator.next())\n   result.add(accumulator)\n   }\n   return result\n}\n\n/**\n * Returns a list containing successive accumulation values generated by applying [operation] from left to right\n * to each element and current accumulator value that starts with [initial] value.\n * \n * Note that `acc` value passed to [operation] function should not be mutated;\n * otherwise it would affect the previous value in resulting list.\n * \n * @param [operation] function that takes current accumulator value and an element, and calculates the next accumulator value.\n * \n * @sample samples.collections.Collections.Aggregates.scan\n */\n@SinceKotlin(\"1.4\")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic inline fun <T, R> Iterable<T>.scan(initial: R, operation: (acc: R, T) -> R): List<R> {\n   return runningFold(initial, operation)\n}\n\n/**\n * Returns a list containing successive accumulation values generated by applying [operation] from left to right\n * to each element, its index in the original collection and current accumulator value that starts with [initial] value.\n * \n * Note that `acc` value passed to [operation] function should not be mutated;\n * otherwise it would affect the previous value in resulting list.\n * \n * @param [operation] function that takes the index of an element, current accumulator value\n * and the element itself, and calculates the next accumulator value.\n * \n * @sample samples.collections.Collections.Aggregates.scan\n */\n@SinceKotlin(\"1.4\")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic inline fun <T, R> Iterable<T>.scanIndexed(initial: R, operation: (index: Int, acc: R, T) -> R): List<R> {\n   return runningFoldIndexed(initial, operation)\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each element in the collection.\n */\n@Deprecated(\"Use sumOf instead.\", ReplaceWith(\"this.sumOf(selector)\"))\n@DeprecatedSinceKotlin(warningSince = \"1.5\")\npublic inline fun <T> Iterable<T>.sumBy(selector: (T) -> Int): Int {\n   var sum: Int = 0\n   for (element in this) {\n   sum += selector(element)\n   }\n   return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each element in the collection.\n */\n@Deprecated(\"Use sumOf instead.\", ReplaceWith(\"this.sumOf(selector)\"))\n@DeprecatedSinceKotlin(warningSince = \"1.5\")\npublic inline fun <T> Iterable<T>.sumByDouble(selector: (T) -> Double): Double {\n   var sum: Double = 0.0\n   for (element in this) {\n   sum += selector(element)\n   }\n   return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each element in the collection.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.jvm.JvmName(\"sumOfDouble\")\n@kotlin.internal.InlineOnly\npublic inline fun <T> Iterable<T>.sumOf(selector: (T) -> Double): Double {\n   var sum: Double = 0.toDouble()\n   for (element in this) {\n   sum += selector(element)\n   }\n   return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each element in the collection.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution

ByLambdaReturnType\n@kotlin.jvm.JvmName(\"sumOfInt\")\n@kotlin.internal.InlineOnly\npublic inline fun <T> Iterable<T>.sumOf(selector: (T) -> Int): Int {\n   var sum: Int = 0.toInt()\n   for (element in this) {\n   sum += selector(element)\n   }\n   return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each element in the collection.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.jvm.JvmName(\"sumOfLong\")\n@kotlin.internal.InlineOnly\npublic inline fun <T> Iterable<T>.sumOf(selector: (T) -> Long): Long {\n   var sum: Long = 0.toLong()\n   for (element in this) {\n   sum += selector(element)\n   }\n   return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each element in the collection.\n */\n@SinceKotlin(\"1.5\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.jvm.JvmName(\"sumOfUInt\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\n@kotlin.internal.InlineOnly\npublic inline fun <T> Iterable<T>.sumOf(selector: (T) -> UInt): UInt {\n   var sum: UInt = 0.toUInt()\n   for (element in this) {\n   sum += selector(element)\n   }\n   return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each element in the collection.\n */\n@SinceKotlin(\"1.5\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.jvm.JvmName(\"sumOfULong\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\n@kotlin.internal.InlineOnly\npublic inline fun <T> Iterable<T>.sumOf(selector: (T) -> ULong): ULong {\n   var sum: ULong = 0.toULong()\n   for (element in this) {\n   sum += selector(element)\n   }\n   return sum\n}\n\n/**\n * Returns an original collection containing all the non-`null` elements, throwing an [IllegalArgumentException] if there are any `null` elements.\n */\npublic fun <T : Any> Iterable<T?>.requireNoNulls(): Iterable<T> {\n   for (element in this) {\n   if (element == null) {\n   throw IllegalArgumentException(\"null element found in $this.\")\n   }\n   }\n   @Suppress(\"UNCHECKED_CAST\")\n   return this as Iterable<T>\n}\n\n/**\n * Returns an original collection containing all the non-`null` elements, throwing an [IllegalArgumentException] if there are any `null` elements.\n */\npublic fun <T : Any> List<T?>.requireNoNulls(): List<T> {\n   for (element in this) {\n   if (element == null) {\n   throw IllegalArgumentException(\"null element found in $this.\")\n   }\n   }\n   @Suppress(\"UNCHECKED_CAST\")\n   return this as List<T>\n}\n\n/**\n * Splits this collection into a list of lists each not exceeding the given [size].\n * \n * The last list in the resulting list may have fewer elements than the given [size].\n * \n * @param size the number of elements to take in each list, must be positive and can be greater than the number of elements in this collection.\n * \n * @sample samples.collections.Collections.Transformations.chunked\n */\n@SinceKotlin(\"1.2\")\npublic fun <T> Iterable<T>.chunked(size: Int): List<List<T>> {\n   return windowed(size, size, partialWindows = true)\n}\n\n/**\n * Splits this collection into several lists each not exceeding the given [size]\n * and applies the given [transform] function to an each.\n * \n * @return list of results of the [transform] applied to an each list.\n * \n * Note that the list passed to the [transform] function is ephemeral and is valid only inside that function.\n * You should not store it or allow it to escape in some way, unless you made a snapshot of it.\n * The last list may have fewer elements than the given [size].\n * \n * @param size the number of elements to take in each list, must be positive and can be greater than the number of elements in this collection.\n * \n * @sample samples.text.Strings.chunkedTransform\n */\n@SinceKotlin(\"1.2\")\npublic fun <T, R> Iterable<T>.chunked(size: Int, transform: (List<T>) -> R): List<R> {\n   return windowed(size, size, partialWindows = true, transform = transform)\n}\n\n/**\n * Returns a list containing all elements of the original collection without the first occurrence of the given [element].\n */\npublic operator fun <T> Iterable<T>.minus(element: T): List<T> {\n   val result = ArrayList<T>(collectionSizeOrDefault(10))\n   var removed = false\n   return this.filterTo(result) { if (!removed && it == element) { removed = true; false } else true }\n}\n\n/**\n * Returns a list containing all elements of the original collection except the elements contained in the given [elements] array.\n * \n * Before Kotlin 1.6, the [elements] array may have been converted to a [HashSet] to speed up the operation, thus the elements were required to have\n * a correct and stable implementation of `hashCode()` that didn't change between successive invocations.\n * On JVM, you can enable this behavior back with the system property `kotlin.collections.convert_arg_to_set_in_removeAll` set to `true`.\n */\npublic operator fun <T> Iterable<T>.minus(elements: Array<out T>): List<T> {\n   if (elements.isEmpty()) return this.toList()\n   val other = elements.convertToSetForSetOperation()\n   return this.filterNot { it in other }\n}\n\n/**\n * Returns a list containing all elements of the original collection except the elements contained in the given [elements] collection.\n * \n * Before Kotlin 1.6, the [elements] collection may have been converted to a [HashSet] to speed up the operation, thus the elements were required to have\n * a correct and stable implementation of `hashCode()` that didn't change between successive invocations.\n * On JVM, you can enable this behavior back with the system property `kotlin.collections.convert_arg_to_set_in_removeAll` set to `true`.\n */\npublic operator fun <T> Iterable<T>.minus(elements: Iterable<T>): List<T> {\n   val other = elements.convertToSetForSetOperationWith(this)\n   if (other.isEmpty())\n   return this.toList()\n   return this.filterNot { it in other }\n}\n\n/**\n * Returns a list containing all elements of the original collection except the elements contained in the given [elements] sequence.\n * \n * Before Kotlin 1.6, the [elements] sequence may have been converted to a [HashSet] to speed up the operation, thus the elements were required to have\n * a correct and stable implementation of `hashCode()` that didn't change between successive invocations.\n * On JVM, you can enable this behavior back with the system property `kotlin.collections.convert_arg_to_set_in_removeAll` set to `true`.\n */\npublic operator fun <T> Iterable<T>.minus(elements: Sequence<T>): List<T> {\n   val other = elements.convertToSetForSetOperation()\n   if (other.isEmpty())\n   return this.toList()\n   return this.filterNot { it in other }\n}\n\n/**\n * Returns a list containing all elements of the original collection without the first occurrence of the given [element].\n */\n@kotlin.internal.InlineOnly\npublic inline fun <T> Iterable<T>.minusElement(element: T): List<T> {\n   return minus(element)\n}\n\n/**\n * Splits the original collection into pair of lists,\n * where *first* list contains elements for which [predicate] yielded `true`,\n * while *second* list contains elements for which [predicate] yielded `false`.\n * \n * @sample samples.collections.Iterables.Operations.partition\n */\npublic inline fun <T> Iterable<T>.partition(predicate: (T) -> Boolean): Pair<List<T>, List<T>> {\n   val first = ArrayList<T>()\n   val second = ArrayList<T>()\n   for (element in this) {\n   if (predicate(element)) {\n   first.add(element)\n   } else {\n   second.add(element)\n   }\n   }\n   return Pair(first, second)\n}\n\n/**\n * Returns a list containing all elements of the original collection and then the given [element].\n */\npublic operator fun <T> Iterable<T>.plus(element: T): List<T> {\n   if (this is Collection) return this.plus(element)\n   val result = ArrayList<T>()\n   result.addAll(this)\n   result.add(element)\n   return result\n}\n\n/**\n * Returns a list containing all elements of the original collection and then the given [element].\n */\npublic operator fun <T> Collection<T>.plus(element: T): List<T> {\n   val result = ArrayList<T>(size + 1)\n   result.addAll(this)\n   result.add(element)\n   return result\n}\n\n/**\n * Returns a list containing all elements of the original collection and then all elements of the given [elements] array.\n */\npublic operator fun <T> Iterable<T>.plus(elements: Array<out T>): List<T> {\n   if (this is Collection) return this.plus(elements)\n   val result = ArrayList<T>()\n   result.addAll(this)\n   result.addAll(elements)\n   return result\n}\n\n/**\n * Returns a list containing all elements of the original collection and then all elements of the given [elements] array.\n */\npublic operator fun <T> Collection<T>.plus(elements: Array<out T>): List<T> {\n   val result = ArrayList<T>(this.size + elements.size)\n   result.addAll(this)\n   result.addAll(elements)\n   return result\n}\n\n/**\n * Returns a list containing all elements of the original collection and then all elements of the given [elements] collection.\n */\npublic operator fun <T> Iterable<T>.plus(elements: Iterable<T>): List<T> {\n   if (this is Collection) return this.plus(elements)\n   val result = ArrayList<T>()\n   result.addAll(this)\n   result.addAll(elements)\n   return result\n}\n\n/**\n * Returns a list containing all elements of the original collection and then all elements of the given [elements] collection.\n */\npublic operator fun <T> Collection<T>.plus(elements: Iterable<T>): List<T> {\n   if (elements is Collection) {\n   val result = ArrayList<T>(this.size + elements.size)\n   result.addAll(this)\n   result.addAll(elements)\n   return result\n   } else {\n   val result = ArrayList<T>(this)\n   result.addAll(elements)\n   return result\n   }\n}\n\n/**\n * Returns a list containing all elements of the original collection and then all elements of the given [elements] sequence.\n */\npublic operator fun <T>

Iterable<T>.plus(elements: Sequence<T>): List<T> {\n   val result = ArrayList<T>()\n   result.addAll(this)\n   result.addAll(elements)\n   return result\n}\n\n/**\n * Returns a list containing all elements of the original collection and then all elements of the given [elements] sequence.\n */\npublic operator fun <T> Collection<T>.plus(elements: Sequence<T>): List<T> {\n   val result = ArrayList<T>(this.size + 10)\n   result.addAll(this)\n   result.addAll(elements)\n   return result\n}\n\n/**\n * Returns a list containing all elements of the original collection and then the given [element].\n */\n@kotlin.internal.InlineOnly\npublic inline fun <T> Iterable<T>.plusElement(element: T): List<T> {\n   return plus(element)\n}\n\n/**\n * Returns a list containing all elements of the original collection and then the given [element].\n */\n@kotlin.internal.InlineOnly\npublic inline fun <T> Collection<T>.plusElement(element: T): List<T> {\n   return plus(element)\n}\n\n/**\n * Returns a list of snapshots of the window of the given [size]\n * sliding along this collection with the given [step], where each\n * snapshot is a list.\n * \n * Several last lists may have fewer elements than the given [size].\n * \n * Both [size] and [step] must be positive and can be greater than the number of elements in this collection.\n * @param size the number of elements to take in each window\n * @param step the number of elements to move the window forward by on an each step, by default 1\n * @param partialWindows controls whether or not to keep partial windows in the end if any,\n * by default `false` which means partial windows won't be preserved\n * \n * @sample samples.collections.Sequences.Transformations.takeWindows\n */\n@SinceKotlin(\"1.2\")\npublic fun <T> Iterable<T>.windowed(size: Int, step: Int = 1, partialWindows: Boolean = false): List<List<T>> {\n   checkWindowSizeStep(size, step)\n   if (this is RandomAccess && this is List) {\n   val thisSize = this.size\n   val resultCapacity = thisSize / step + if (thisSize % step == 0) 0 else 1\n   val result = ArrayList<List<T>>(resultCapacity)\n   var index = 0\n   while (index in 0 until thisSize) {\n   val windowSize = size.coerceAtMost(thisSize - index)\n   if (windowSize < size && !partialWindows) break\n   result.add(List(windowSize) { this[it + index] })\n   index += step\n   }\n   return result\n   }\n   val result = ArrayList<List<T>>()\n   windowedIterator(iterator(), size, step, partialWindows, reuseBuffer = false).forEach {\n   result.add(it)\n   }\n   return result\n}\n\n/**\n * Returns a list of results of applying the given [transform] function to\n * an each list representing a view over the window of the given [size]\n * sliding along this collection with the given [step].\n * \n * Note that the list passed to the [transform] function is ephemeral and is valid only inside that function.\n * You should not store it or allow it to escape in some way, unless you made a snapshot of it.\n * Several last lists may have fewer elements than the given [size].\n * \n * Both [size] and [step] must be positive and can be greater than the number of elements in this collection.\n * @param size the number of elements to take in each window\n * @param step the number of elements to move the window forward by on an each step, by default 1\n * @param partialWindows controls whether or not to keep partial windows in the end if any,\n * by default `false` which means partial windows won't be preserved\n * \n * @sample samples.collections.Sequences.Transformations.averageWindows\n */\n@SinceKotlin(\"1.2\")\npublic fun <T, R> Iterable<T>.windowed(size: Int, step: Int = 1, partialWindows: Boolean = false, transform: (List<T>) -> R): List<R> {\n   checkWindowSizeStep(size, step)\n   if (this is RandomAccess && this is List) {\n   val thisSize = this.size\n   val resultCapacity = thisSize / step + if (thisSize % step == 0) 0 else 1\n   val result = ArrayList<R>(resultCapacity)\n   val window = MovingSubList(this)\n   var index = 0\n   while (index in 0 until thisSize) {\n   val windowSize = size.coerceAtMost(thisSize - index)\n   if (!partialWindows && windowSize < size) break\n   window.move(index, index + windowSize)\n   result.add(transform(window))\n   index += step\n   }\n   return result\n   }\n   val result = ArrayList<R>()\n   windowedIterator(iterator(), size, step, partialWindows, reuseBuffer = true).forEach {\n   result.add(transform(it))\n   }\n   return result\n}\n\n/**\n * Returns a list of pairs built from the elements of `this` collection and the [other] array with the same index.\n * The returned list has length of the shortest collection.\n * \n * @sample samples.collections.Iterables.Operations.zipIterable\n */\npublic infix fun <T, R> Iterable<T>.zip(other: Array<out R>): List<Pair<T, R>> {\n   return zip(other) { t1, t2 -> t1 to t2 }\n}\n\n/**\n * Returns a list of values built from the elements of `this` collection and the [other] array with the same index\n * using the provided [transform] function applied to each pair of elements.\n * The returned list has length of the shortest collection.\n * \n * @sample samples.collections.Iterables.Operations.zipIterableWithTransform\n */\npublic inline fun <T, R, V>

Iterable<T>.zip(other: Array<out R>, transform: (a: T, b: R) -> V): List<V> {\n   val arraySize = other.size\n   val list = ArrayList<V>(minOf(collectionSizeOrDefault(10), arraySize))\n   var i = 0\n   for (element in this) {\n   if (i >= arraySize) break\n   list.add(transform(element, other[i++]))\n   }\n   return list\n}\n\n/**\n * Returns a list of pairs built from the elements of `this` collection and [other] collection with the same index.\n * The returned list has length of the shortest collection.\n * \n * @sample samples.collections.Iterables.Operations.zipIterable\n */\npublic infix fun <T, R> Iterable<T>.zip(other: Iterable<R>): List<Pair<T, R>> {\n   return zip(other) { t1, t2 -> t1 to t2 }\n}\n\n/**\n * Returns a list of values built from the elements of `this` collection and the [other] collection with the same index\n * using the provided [transform] function applied to each pair of elements.\n * The returned list has length of the shortest collection.\n * \n * @sample samples.collections.Iterables.Operations.zipIterableWithTransform\n */\npublic inline fun <T, R, V> Iterable<T>.zip(other: Iterable<R>, transform: (a: T, b: R) -> V): List<V> {\n   val first = iterator()\n   val second = other.iterator()\n   val list = ArrayList<V>(minOf(collectionSizeOrDefault(10), other.collectionSizeOrDefault(10)))\n   while (first.hasNext() && second.hasNext()) {\n list.add(transform(first.next(), second.next()))\n   }\n   return list\n}\n\n/**\n * Returns a list of pairs of each two adjacent elements in this collection.\n * \n * The returned list is empty if this collection contains less than two elements.\n * \n * @sample samples.collections.Collections.Transformations.zipWithNext\n */\n@SinceKotlin(\"1.2\")\npublic fun <T> Iterable<T>.zipWithNext(): List<Pair<T, T>> {\n   return zipWithNext { a, b -> a to b }\n}\n\n/**\n * Returns a list containing the results of applying the given [transform] function\n * to an each pair of two adjacent elements in this collection.\n * \n * The returned list is empty if this collection contains less than two elements.\n * \n * @sample samples.collections.Collections.Transformations.zipWithNextToFindDeltas\n */\n@SinceKotlin(\"1.2\")\npublic inline fun <T, R> Iterable<T>.zipWithNext(transform: (a: T, b: T) -> R): List<R> {\n   val iterator = iterator()\n   if (!iterator.hasNext()) return emptyList()\n   val result = mutableListOf<R>()\n   var current = iterator.next()\n   while (iterator.hasNext()) {\n   val next = iterator.next()\n   result.add(transform(current, next))\n   current = next\n   }\n   return result\n}\n\n/**\n * Appends the string from all the elements separated using [separator] and using the given [prefix] and [postfix] if supplied.\n * \n * If the collection could be huge, you can specify a non-negative value of [limit], in which case only the first [limit]\n * elements will be appended, followed by the [truncated] string (which defaults to \"...\").\n * \n * @sample samples.collections.Collections.Transformations.joinTo\n */\npublic fun <T, A : Appendable> Iterable<T>.joinTo(buffer: A, separator: CharSequence = \", \", prefix: CharSequence = \"\", postfix: CharSequence = \"\", limit: Int = -1, truncated: CharSequence = \"...\", transform: ((T) -> CharSequence)? = null): A {\n buffer.append(prefix)\n   var count = 0\n   for (element in this) {\n   if (++count > 1) buffer.append(separator)\n   if (limit < 0 || count <= limit) {\n   buffer.appendElement(element, transform)\n   } else break\n   }\n   if (limit >= 0 && count > limit) buffer.append(truncated)\n   buffer.append(postfix)\n   return buffer\n}\n\n/**\n * Creates a string from all the elements separated using [separator] and using the given [prefix] and [postfix] if supplied.\n * \n * If the collection could be huge, you can specify a non-negative value of [limit], in which case only the first [limit]\n * elements will be appended, followed by the [truncated] string (which defaults to \"...\").\n * \n * @sample samples.collections.Collections.Transformations.joinToString\n */\npublic fun <T> Iterable<T>.joinToString(separator: CharSequence = \", \", prefix: CharSequence = \"\", postfix: CharSequence = \"\", limit: Int = -1, truncated: CharSequence = \"...\", transform: ((T) -> CharSequence)? = null): String {\n   return joinTo(StringBuilder(), separator, prefix, postfix, limit, truncated, transform).toString()\n}\n\n/**\n * Returns this collection as an [Iterable].\n */\n@kotlin.internal.InlineOnly\npublic inline fun <T> Iterable<T>.asIterable(): Iterable<T> {\n   return this\n}\n\n/**\n * Creates a [Sequence] instance that wraps the original collection returning its elements when being iterated.\n * \n * @sample samples.collections.Sequences.Building.sequenceFromCollection\n */\npublic fun <T> Iterable<T>.asSequence(): Sequence<T> {\n   return Sequence { this.iterator() }\n}\n\n/**\n * Returns an average value of elements in the collection.\n */\n@kotlin.jvm.JvmName(\"averageOfByte\")\npublic fun Iterable<Byte>.average(): Double {\n   var sum: Double = 0.0\n   var count: Int = 0\n   for (element in this) {\n   sum += element\n

checkCountOverflow(++count)\n   }\n   return if (count == 0) Double.NaN else sum / count\n}\n\n/**\n * Returns an average value of elements in the collection.\n */\n@kotlin.jvm.JvmName(\"averageOfShort\")\npublic fun Iterable<Short>.average(): Double {\n   var sum: Double = 0.0\n   var count: Int = 0\n   for (element in this) {\n   sum += element\n   checkCountOverflow(++count)\n   }\n   return if (count == 0) Double.NaN else sum / count\n}\n\n/**\n * Returns an average value of elements in the collection.\n */\n@kotlin.jvm.JvmName(\"averageOfInt\")\npublic fun Iterable<Int>.average(): Double {\n   var sum: Double = 0.0\n   var count: Int = 0\n   for (element in this) {\n   sum += element\n   checkCountOverflow(++count)\n   }\n   return if (count == 0) Double.NaN else sum / count\n}\n\n/**\n * Returns an average value of elements in the collection.\n */\n@kotlin.jvm.JvmName(\"averageOfLong\")\npublic fun Iterable<Long>.average(): Double {\n   var sum: Double = 0.0\n   var count: Int = 0\n   for (element in this) {\n   sum += element\n   checkCountOverflow(++count)\n   }\n   return if (count == 0) Double.NaN else sum / count\n}\n\n/**\n * Returns an average value of elements in the collection.\n */\n@kotlin.jvm.JvmName(\"averageOfFloat\")\npublic fun Iterable<Float>.average(): Double {\n   var sum: Double = 0.0\n   var count: Int = 0\n   for (element in this) {\n   sum += element\n   checkCountOverflow(++count)\n   }\n   return if (count == 0) Double.NaN else sum / count\n}\n\n/**\n * Returns an average value of elements in the collection.\n */\n@kotlin.jvm.JvmName(\"averageOfDouble\")\npublic fun Iterable<Double>.average(): Double {\n   var sum: Double = 0.0\n   var count: Int = 0\n   for (element in this) {\n   sum += element\n   checkCountOverflow(++count)\n   }\n   return if (count == 0) Double.NaN else sum / count\n}\n\n/**\n * Returns the sum of all elements in the collection.\n */\n@kotlin.jvm.JvmName(\"sumOfByte\")\npublic fun Iterable<Byte>.sum(): Int {\n   var sum: Int = 0\n   for (element in this) {\n   sum += element\n   }\n   return sum\n}\n\n/**\n * Returns the sum of all elements in the collection.\n */\n@kotlin.jvm.JvmName(\"sumOfShort\")\npublic fun Iterable<Short>.sum(): Int {\n   var sum: Int = 0\n   for (element in this) {\n   sum += element\n   }\n   return sum\n}\n\n/**\n * Returns the sum of all elements in the collection.\n */\n@kotlin.jvm.JvmName(\"sumOfInt\")\npublic fun Iterable<Int>.sum(): Int {\n   var sum: Int = 0\n   for (element in this) {\n   sum += element\n   }\n   return sum\n}\n\n/**\n * Returns the sum of all elements in the collection.\n */\n@kotlin.jvm.JvmName(\"sumOfLong\")\npublic fun Iterable<Long>.sum(): Long {\n   var sum: Long = 0L\n   for (element in this) {\n   sum += element\n   }\n   return sum\n}\n\n/**\n * Returns the sum of all elements in the collection.\n */\n@kotlin.jvm.JvmName(\"sumOfFloat\")\npublic fun Iterable<Float>.sum(): Float {\n   var sum: Float = 0.0f\n   for (element in this) {\n   sum += element\n   }\n   return sum\n}\n\n/**\n * Returns the sum of all elements in the collection.\n */\n@kotlin.jvm.JvmName(\"sumOfDouble\")\npublic fun Iterable<Double>.sum(): Double {\n   var sum: Double = 0.0\n   for (element in this) {\n   sum += element\n   }\n   return sum\n}\n\n","/*\n * Copyright 2010-2018 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin.collections\n\nimport kotlin.comparisons.naturalOrder\nimport kotlin.random.Random\nimport kotlin.js.arrayBufferIsView\n\n/**\n * Returns the array if it's not `null`, or an empty array otherwise.\n * @sample samples.collections.Arrays.Usage.arrayOrEmpty\n */\n@kotlin.internal.InlineOnly\npublic actual inline fun <T> Array<out T>?.orEmpty(): Array<out T> = this ?: emptyArray<T>()\n\n/**\n * Returns a *typed* array containing all of the elements of this collection.\n *\n * Allocates an array of runtime type `T` having its size equal to the size of this collection\n * and populates the array with the elements of this collection.\n * @sample samples.collections.Collections.Collections.collectionToTypedArray\n */\n@kotlin.internal.InlineOnly\npublic actual inline fun <T> Collection<T>.toTypedArray(): Array<T> = copyToArray(this)\n\n@JsName(\"copyToArray\")\n@PublishedApi\ninternal fun <T> copyToArray(collection: Collection<T>): Array<T> {\n   return if (collection.asDynamic().toArray !== undefined)\n   collection.asDynamic().toArray().unsafeCast<Array<T>>()\n   else\n   copyToArrayImpl(collection).unsafeCast<Array<T>>()\n}\n\n@JsName(\"copyToArrayImpl\")\ninternal actual fun copyToArrayImpl(collection: Collection<*>): Array<Any?> {\n   val array = emptyArray<Any?>()\n   val iterator = collection.iterator()\n   while (iterator.hasNext())\n   array.asDynamic().push(iterator.next())\n   return

array\n}\n\n@JsName(\"copyToExistingArrayImpl\")\ninternal actual fun <T> copyToArrayImpl(collection: Collection<*>, array: Array<T>): Array<T> {\n   if (array.size < collection.size)\n   return copyToArrayImpl(collection).unsafeCast<Array<T>>()\n\n   val iterator = collection.iterator()\n   var index = 0\n   while (iterator.hasNext()) {\n   array[index++] = iterator.next().unsafeCast<T>()\n   }\n   if (index < array.size) {\n   array[index] = null.unsafeCast<T>()\n   }\n   return array\n}\n\n\n/**\n * Returns an immutable list containing only the specified object [element].\n */\npublic fun <T> listOf(element: T): List<T> = arrayListOf(element)\n\n@PublishedApi\n@SinceKotlin(\"1.3\")\n@kotlin.internal.InlineOnly\ninternal actual inline fun <E> buildListInternal(builderAction: MutableList<E>.() -> Unit): List<E> {\n   return ArrayList<E>().apply(builderAction).build()\n}\n\n@PublishedApi\n@SinceKotlin(\"1.3\")\n@kotlin.internal.InlineOnly\ninternal actual inline fun <E> buildListInternal(capacity: Int, builderAction: MutableList<E>.() -> Unit): List<E> {\n   checkBuilderCapacity(capacity)\n   return ArrayList<E>(capacity).apply(builderAction).build()\n}\n\n\n/**\n * Returns an immutable set containing only the specified object [element].\n */\npublic fun <T> setOf(element: T): Set<T> = hashSetOf(element)\n\n@PublishedApi\n@SinceKotlin(\"1.3\")\n@kotlin.internal.InlineOnly\ninternal actual inline fun <E> buildSetInternal(builderAction: MutableSet<E>.() -> Unit): Set<E> {\n   return LinkedHashSet<E>().apply(builderAction).build()\n}\n\n@PublishedApi\n@SinceKotlin(\"1.3\")\n@kotlin.internal.InlineOnly\ninternal actual inline fun <E> buildSetInternal(capacity: Int, builderAction: MutableSet<E>.() -> Unit): Set<E> {\n   return LinkedHashSet<E>(capacity).apply(builderAction).build()\n}\n\n\n/**\n * Returns an immutable map, mapping only the specified key to the\n * specified value.\n */\npublic fun <K, V> mapOf(pair: Pair<K, V>): Map<K, V> = hashMapOf(pair)\n\n@PublishedApi\n@SinceKotlin(\"1.3\")\n@kotlin.internal.InlineOnly\ninternal actual inline fun <K, V> buildMapInternal(builderAction: MutableMap<K, V>.() -> Unit): Map<K, V> {\n   return LinkedHashMap<K, V>().apply(builderAction).build()\n}\n\n@PublishedApi\n@SinceKotlin(\"1.3\")\n@kotlin.internal.InlineOnly\ninternal actual inline fun <K, V> buildMapInternal(capacity: Int, builderAction: MutableMap<K, V>.() -> Unit): Map<K, V> {\n   return LinkedHashMap<K, V>(capacity).apply(builderAction).build()\n}\n\n\n/**\n * Fills the list with the provided [value].\n *\n * Each element in the list gets replaced with the [value].\n */\n@SinceKotlin(\"1.2\")\npublic actual fun <T> MutableList<T>.fill(value: T): Unit {\n   for (index in 0..lastIndex) {\n   this[index] = value\n   }\n}\n\n/**\n * Randomly shuffles elements in this list.\n *\n * See: https://en.wikipedia.org/wiki/Fisher%E2%80%93Yates_shuffle#The_modern_algorithm\n */\n@SinceKotlin(\"1.2\")\npublic actual fun <T> MutableList<T>.shuffle(): Unit = shuffle(Random)\n\n/**\n * Returns a new list with the elements of this list randomly shuffled.\n */\n@SinceKotlin(\"1.2\")\npublic actual fun <T> Iterable<T>.shuffled(): List<T> = toMutableList().apply { shuffle() }\n\n/**\n * Sorts elements in the list in-place according to their natural sort order.\n *\n * The sort is _stable_. It means that equal elements preserve their order relative to each other after sorting.\n *\n * @sample samples.collections.Collections.Sorting.sortMutableList\n */\npublic actual fun <T : Comparable<T>> MutableList<T>.sort(): Unit {\n   collectionsSort(this, naturalOrder())\n}\n\n/**\n * Sorts elements in the list in-place according to the order specified with [comparator].\n *\n * The sort is _stable_. It means that equal elements preserve their order relative to each other after sorting.\n *\n * @sample samples.collections.Collections.Sorting.sortMutableListWith\n */\npublic actual fun <T> MutableList<T>.sortWith(comparator: Comparator<in T>): Unit {\n   collectionsSort(this, comparator)\n}\n\nprivate fun <T> collectionsSort(list: MutableList<T>, comparator: Comparator<in T>) {\n   if (list.size <= 1) return\n\n   val array = copyToArray(list)\n   sortArrayWith(array, comparator)\n\n   for (i in 0 until array.size) {\n   list[i] = array[i]\n   }\n}\n\ninternal actual fun <T> arrayOfNulls(reference: Array<T>, size: Int): Array<T> {\n   return arrayOfNulls<Any>(size).unsafeCast<Array<T>>()\n}\n\n@SinceKotlin(\"1.3\")\n@PublishedApi\n@JsName(\"arrayCopy\")\ninternal fun <T> arrayCopy(source: Array<out T>, destination: Array<in T>, destinationOffset: Int, startIndex: Int, endIndex: Int) {\n   AbstractList.checkRangeIndexes(startIndex, endIndex, source.size)\n   val rangeSize = endIndex - startIndex\n   AbstractList.checkRangeIndexes(destinationOffset, destinationOffset +

rangeSize, destination.size)\n\n   if (arrayBufferIsView(destination) && arrayBufferIsView(source)) {\n   val subrange = source.asDynamic().subarray(startIndex, endIndex)\n   destination.asDynamic().set(subrange, destinationOffset)\n   } else {\n   if (source !== destination || destinationOffset <= startIndex) {\n   for (index in 0 until rangeSize) {\n   destination[destinationOffset + index] = source[startIndex + index]\n   }\n   } else {\n   for (index in rangeSize - 1 downTo 0) {\n   destination[destinationOffset + index] = source[startIndex + index]\n   }\n   }\n   }\n}\n\n// no singleton map implementation in js, return map as is\n@Suppress(\"NOTHING_TO_INLINE\")\ninternal actual inline fun <K, V> Map<K, V>.toSingletonMapOrSelf(): Map<K, V> = this\n\n@Suppress(\"NOTHING_TO_INLINE\")\ninternal actual inline fun <K, V> Map<out K, V>.toSingletonMap(): Map<K, V> = this.toMutableMap()\n\n\n@Suppress(\"NOTHING_TO_INLINE\")\ninternal actual inline fun <T> Array<out T>.copyToArrayOfAny(isVarargs: Boolean): Array<out Any?> =\n   if (isVarargs)\n   // no need to copy vararg array in JS\n   this\n   else\n   this.copyOf()\n\n\n\n@PublishedApi\ninternal actual fun checkIndexOverflow(index: Int): Int {\n   if (index < 0) {\n   throwIndexOverflow()\n   }\n   return index\n}\n\n@PublishedApi\ninternal actual fun checkCountOverflow(count: Int): Int {\n   if (count < 0) {\n   throwCountOverflow()\n   }\n   return count\n}\n\n\n/**\n * JS map and set implementations do not make use of capacities or load factors.\n */\n@PublishedApi\ninternal actual fun mapCapacity(expectedSize: Int) = expectedSize\n\n/**\n * Checks a collection builder function capacity argument.\n * In JS no validation is made in Map/Set constructor yet.\n */\n@SinceKotlin(\"1.3\")\n@PublishedApi\ninternal fun checkBuilderCapacity(capacity: Int) {\n   require(capacity >= 0) { \"capacity must be non-negative.\" }\n}\n\ninternal actual fun brittleContainsOptimizationEnabled(): Boolean = false","/*\n * Copyright 2010-2018 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\n@file:kotlin.jvm.JvmMultifileClass\n@file:kotlin.jvm.JvmName(\"CollectionsKt\")\n\npackage kotlin.collections\n\n\n/**\n * Returns the given iterator itself. This allows to use an instance of iterator in a `for` loop.\n * @sample samples.collections.Iterators.iterator\n */\n@kotlin.internal.InlineOnly\npublic inline operator fun <T> Iterator<T>.iterator(): Iterator<T> = this\n\n/**\n * Returns an [Iterator] that wraps each element produced by the original iterator\n * into an [IndexedValue] containing the index of that element and the element itself.\n *\n * @sample samples.collections.Iterators.withIndexIterator\n */\npublic fun <T> Iterator<T>.withIndex(): Iterator<IndexedValue<T>> = IndexingIterator(this)\n\n/**\n * Performs the given [operation] on each element of this [Iterator].\n * @sample samples.collections.Iterators.forEachIterator\n */\npublic inline fun <T> Iterator<T>.forEach(operation: (T) -> Unit): Unit {\n   for (element in this) operation(element)\n}\n\n/**\n * Iterator transforming original `iterator` into iterator of [IndexedValue], counting index from zero.\n */\ninternal class IndexingIterator<out T>(private val iterator: Iterator<T>) : Iterator<IndexedValue<T>> {\n   private var index = 0\n   final override fun hasNext(): Boolean = iterator.hasNext()\n   final override fun next(): IndexedValue<T> = IndexedValue(checkIndexOverflow(index++), iterator.next())\n}\n","/*\n * Copyright 2010-2022 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\n@file:kotlin.jvm.JvmMultifileClass\n@file:kotlin.jvm.JvmName(\"ComparisonsKt\")\n\npackage kotlin.comparisons\n\n//\n// NOTE: THIS FILE IS AUTO-GENERATED by the GenerateStandardLib.kt\n// See: https://github.com/JetBrains/kotlin/tree/master/libraries/stdlib\n//\n\nimport kotlin.random.*\n\n/**\n * Returns the greater of two values.\n * \n * If values are equal, returns the first one.\n */\n@SinceKotlin(\"1.1\")\npublic expect fun <T : Comparable<T>> maxOf(a: T, b: T): T\n\n/**\n * Returns the greater of two values.\n */\n@SinceKotlin(\"1.1\")\n@kotlin.internal.InlineOnly\npublic expect inline fun maxOf(a: Byte, b: Byte): Byte\n\n/**\n * Returns the greater of two values.\n */\n@SinceKotlin(\"1.1\")\n@kotlin.internal.InlineOnly\npublic expect inline fun maxOf(a: Short, b: Short): Short\n\n/**\n * Returns the greater of two values.\n */\n@SinceKotlin(\"1.1\")\n@kotlin.internal.InlineOnly\npublic expect inline fun maxOf(a: Int, b: Int): Int\n\n/**\n * Returns the greater of two values.\n */\n@SinceKotlin(\"1.1\")\n@kotlin.internal.InlineOnly\npublic expect inline fun maxOf(a: Long, b: Long): Long\n\n/**\n * Returns the greater of two values.\n * \n * If either value is `NaN`, returns `NaN`.\n */\n@SinceKotlin(\"1.1\")\n@kotlin.internal.InlineOnly\npublic expect inline fun maxOf(a: Float, b: Float): Float\n\n/**\n * Returns the greater of two values.\n * \n * If either value is `NaN`, returns `NaN`.\n */\n@SinceKotlin(\"1.1\")\n@kotlin.internal.InlineOnly\npublic expect inline fun maxOf(a: Double, b: Double): Double\n\n/**\n * Returns the greater of three values.\n * \n * If there are multiple equal maximal values, returns the first of them.\n */\n@SinceKotlin(\"1.1\")\npublic expect fun <T : Comparable<T>> maxOf(a: T, b: T, c: T): T\n\n/**\n * Returns the greater of three values.\n */\n@SinceKotlin(\"1.1\")\n@kotlin.internal.InlineOnly\npublic expect inline fun maxOf(a: Byte, b: Byte, c: Byte): Byte\n\n/**\n * Returns the greater of three values.\n */\n@SinceKotlin(\"1.1\")\n@kotlin.internal.InlineOnly\npublic expect inline fun maxOf(a: Short, b: Short, c: Short): Short\n\n/**\n * Returns the greater of three values.\n */\n@SinceKotlin(\"1.1\")\n@kotlin.internal.InlineOnly\npublic expect inline fun maxOf(a: Int, b: Int, c: Int): Int\n\n/**\n * Returns the greater of three values.\n */\n@SinceKotlin(\"1.1\")\n@kotlin.internal.InlineOnly\npublic expect inline fun maxOf(a: Long, b: Long, c: Long): Long\n\n/**\n * Returns the greater of three values.\n * \n * If any value is `NaN`, returns `NaN`.\n */\n@SinceKotlin(\"1.1\")\n@kotlin.internal.InlineOnly\npublic expect inline fun maxOf(a: Float, b: Float, c: Float): Float\n\n/**\n * Returns the greater of three values.\n * \n * If any value is `NaN`, returns `NaN`.\n */\n@SinceKotlin(\"1.1\")\n@kotlin.internal.InlineOnly\npublic expect inline fun maxOf(a: Double, b: Double, c: Double): Double\n\n/**\n * Returns the greater of three values according to the order specified by the given [comparator].\n * \n * If there are multiple equal maximal values, returns the first of them.\n */\n@SinceKotlin(\"1.1\")\npublic fun <T> maxOf(a: T, b: T, c: T, comparator: Comparator<in T>): T {\n   return maxOf(a, maxOf(b, c, comparator), comparator)\n}\n\n/**\n * Returns the greater of two values according to the order specified by the given [comparator].\n * \n * If values are equal, returns the first one.\n */\n@SinceKotlin(\"1.1\")\npublic fun <T> maxOf(a: T, b: T, comparator: Comparator<in T>): T {\n   return if (comparator.compare(a, b) >= 0) a else b\n}\n\n/**\n * Returns the greater of the given values.\n * \n * If there are multiple equal maximal values, returns the first of them.\n */\n@SinceKotlin(\"1.4\")\npublic expect fun <T : Comparable<T>> maxOf(a: T, vararg other: T): T\n\n/**\n * Returns the greater of the given values.\n */\n@SinceKotlin(\"1.4\")\npublic expect fun maxOf(a: Byte, vararg other: Byte): Byte\n\n/**\n * Returns the greater of the given values.\n */\n@SinceKotlin(\"1.4\")\npublic expect fun maxOf(a: Short, vararg other: Short): Short\n\n/**\n * Returns the greater of the given values.\n */\n@SinceKotlin(\"1.4\")\npublic expect fun maxOf(a: Int, vararg other: Int): Int\n\n/**\n * Returns the greater of the given values.\n */\n@SinceKotlin(\"1.4\")\npublic expect fun maxOf(a: Long, vararg other: Long): Long\n\n/**\n * Returns the greater of the given values.\n * \n * If any value is `NaN`, returns `NaN`.\n */\n@SinceKotlin(\"1.4\")\npublic expect fun maxOf(a: Float, vararg other: Float): Float\n\n/**\n * Returns the greater of the given values.\n * \n * If any value is `NaN`, returns `NaN`.\n */\n@SinceKotlin(\"1.4\")\npublic expect fun maxOf(a: Double, vararg other: Double): Double\n\n/**\n * Returns the greater of the given values according to the order specified by the given [comparator].\n * \n * If there are multiple equal maximal values, returns the first of them.\n */\n@SinceKotlin(\"1.4\")\npublic fun <T> maxOf(a: T, vararg other: T, comparator: Comparator<in T>): T {\n   var max = a\n   for (e in other) if (comparator.compare(max, e) < 0) max = e\n   return max\n}\n\n/**\n * Returns the smaller of two values.\n * \n * If values are equal, returns the first one.\n */\n@SinceKotlin(\"1.1\")\npublic expect fun <T : Comparable<T>> minOf(a: T, b: T): T\n\n/**\n * Returns the smaller of two values.\n */\n@SinceKotlin(\"1.1\")\n@kotlin.internal.InlineOnly\npublic expect inline fun minOf(a: Byte, b: Byte): Byte\n\n/**\n * Returns the smaller of two values.\n */\n@SinceKotlin(\"1.1\")\n@kotlin.internal.InlineOnly\npublic expect inline fun minOf(a: Short, b: Short): Short\n\n/**\n * Returns the smaller of two values.\n */\n@SinceKotlin(\"1.1\")\n@kotlin.internal.InlineOnly\npublic expect inline fun minOf(a: Int, b: Int): Int\n\n/**\n * Returns the smaller of two values.\n */\n@SinceKotlin(\"1.1\")\n@kotlin.internal.InlineOnly\npublic expect inline fun minOf(a: Long, b: Long): Long\n\n/**\n * Returns the smaller of two values.\n * \n * If either value is `NaN`, returns `NaN`.\n */\n@SinceKotlin(\"1.1\")\n@kotlin.internal.InlineOnly\npublic expect inline fun minOf(a: Float, b: Float): Float\n\n/**\n * Returns the smaller of two values.\n * \n * If either value is `NaN`, returns `NaN`.\n */\n@SinceKotlin(\"1.1\")\n@kotlin.internal.InlineOnly\npublic expect inline fun minOf(a: Double, b: Double):

Double\n\n/**\n * Returns the smaller of three values.\n * \n * If there are multiple equal minimal values, returns the first of them.\n */\n@SinceKotlin(\"1.1\")\npublic expect fun <T : Comparable<T>> minOf(a: T, b: T, c: T): T\n\n/**\n * Returns the smaller of three values.\n */\n@SinceKotlin(\"1.1\")\n@kotlin.internal.InlineOnly\npublic expect inline fun minOf(a: Byte, b: Byte, c: Byte): Byte\n\n/**\n * Returns the smaller of three values.\n */\n@SinceKotlin(\"1.1\")\n@kotlin.internal.InlineOnly\npublic expect inline fun minOf(a: Short, b: Short, c: Short): Short\n\n/**\n * Returns the smaller of three values.\n */\n@SinceKotlin(\"1.1\")\n@kotlin.internal.InlineOnly\npublic expect inline fun minOf(a: Int, b: Int, c: Int): Int\n\n/**\n * Returns the smaller of three values.\n */\n@SinceKotlin(\"1.1\")\n@kotlin.internal.InlineOnly\npublic expect inline fun minOf(a: Long, b: Long, c: Long): Long\n\n/**\n * Returns the smaller of three values.\n * \n * If any value is `NaN`, returns `NaN`.\n */\n@SinceKotlin(\"1.1\")\n@kotlin.internal.InlineOnly\npublic expect inline fun minOf(a: Float, b: Float, c: Float): Float\n\n/**\n * Returns the smaller of three values.\n * \n * If any value is `NaN`, returns `NaN`.\n */\n@SinceKotlin(\"1.1\")\n@kotlin.internal.InlineOnly\npublic expect inline fun minOf(a: Double, b: Double, c: Double): Double\n\n/**\n * Returns the smaller of three values according to the order specified by the given [comparator].\n * \n * If there are multiple equal minimal values, returns the first of them.\n */\n@SinceKotlin(\"1.1\")\npublic fun <T> minOf(a: T, b: T, c: T, comparator: Comparator<in T>): T {\n   return minOf(a, minOf(b, c, comparator), comparator)\n}\n\n/**\n * Returns the smaller of two values according to the order specified by the given [comparator].\n * \n * If values are equal, returns the first one.\n */\n@SinceKotlin(\"1.1\")\npublic fun <T> minOf(a: T, b: T, comparator: Comparator<in T>): T {\n   return if (comparator.compare(a, b) <= 0) a else b\n}\n\n/**\n * Returns the smaller of the given values.\n * \n * If there are multiple equal minimal values, returns the first of them.\n */\n@SinceKotlin(\"1.4\")\npublic expect fun <T : Comparable<T>> minOf(a: T, vararg other: T): T\n\n/**\n * Returns the smaller of the given values.\n */\n@SinceKotlin(\"1.4\")\npublic expect fun minOf(a: Byte, vararg other: Byte): Byte\n\n/**\n * Returns the smaller of the given values.\n */\n@SinceKotlin(\"1.4\")\npublic expect fun minOf(a: Short, vararg other: Short): Short\n\n/**\n * Returns the smaller of the given values.\n */\n@SinceKotlin(\"1.4\")\npublic expect fun minOf(a: Int, vararg other: Int): Int\n\n/**\n * Returns the smaller of the given values.\n */\n@SinceKotlin(\"1.4\")\npublic expect fun minOf(a: Long, vararg other: Long): Long\n\n/**\n * Returns the smaller of the given values.\n * \n * If any value is `NaN`, returns `NaN`.\n */\n@SinceKotlin(\"1.4\")\npublic expect fun minOf(a: Float, vararg other: Float): Float\n\n/**\n * Returns the smaller of the given values.\n * \n * If any value is `NaN`, returns `NaN`.\n */\n@SinceKotlin(\"1.4\")\npublic expect fun minOf(a: Double, vararg other: Double): Double\n\n/**\n * Returns the smaller of the given values according to the order specified by the given [comparator].\n * \n * If there are multiple equal minimal values, returns the first of them.\n */\n@SinceKotlin(\"1.4\")\npublic fun <T> minOf(a: T, vararg other: T, comparator: Comparator<in T>): T {\n   var min = a\n   for (e in other) if (comparator.compare(min, e) > 0) min = e\n   return min\n}\n\n","/*\n * Copyright 2010-2022 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\n@file:kotlin.jvm.JvmMultifileClass\n@file:kotlin.jvm.JvmName(\"MapsKt\")\n\npackage kotlin.collections\n\n//\n// NOTE: THIS FILE IS AUTO-GENERATED by the GenerateStandardLib.kt\n// See: https://github.com/JetBrains/kotlin/tree/master/libraries/stdlib\n//\n\nimport kotlin.random.*\nimport kotlin.ranges.contains\nimport kotlin.ranges.reversed\n\n/**\n * Returns the first non-null value produced by [transform] function being applied to entries of this map in iteration order,\n * or throws [NoSuchElementException] if no non-null value was produced.\n * \n * @sample samples.collections.Collections.Transformations.firstNotNullOf\n */\n@SinceKotlin(\"1.5\")\n@kotlin.internal.InlineOnly\npublic inline fun <K, V, R : Any> Map<out K, V>.firstNotNullOf(transform: (Map.Entry<K, V>) -> R?): R {\n   return firstNotNullOfOrNull(transform) ?: throw NoSuchElementException(\"No element of the map was transformed to a non-null value.\")\n}\n\n/**\n * Returns the first non-null value produced by [transform] function being applied to entries of this map in iteration order,\n * or `null` if no non-null value was produced.\n * \n * @sample samples.collections.Collections.Transformations.firstNotNullOf\n

*/\n@SinceKotlin(\"1.5\")\n@kotlin.internal.InlineOnly\npublic inline fun <K, V, R : Any> Map<out K, V>.firstNotNullOfOrNull(transform: (Map.Entry<K, V>) -> R?): R? {\n   for (element in this) {\n   val result = transform(element)\n   if (result != null) {\n   return result\n   }\n   }\n   return null\n}\n\n/**\n * Returns a [List] containing all key-value pairs.\n */\npublic fun <K, V> Map<out K, V>.toList(): List<Pair<K, V>> {\n   if (size == 0)\n   return emptyList()\n   val iterator = entries.iterator()\n   if (!iterator.hasNext())\n   return emptyList()\n   val first = iterator.next()\n   if (!iterator.hasNext())\n   return listOf(first.toPair())\n   val result = ArrayList<Pair<K, V>>(size)\n   result.add(first.toPair())\n   do {\n   result.add(iterator.next().toPair())\n   } while (iterator.hasNext())\n   return result\n}\n\n/**\n * Returns a single list of all elements yielded from results of [transform] function being invoked on each entry of original map.\n * \n * @sample samples.collections.Maps.Transformations.flatMap\n */\npublic inline fun <K, V, R> Map<out K, V>.flatMap(transform: (Map.Entry<K, V>) -> Iterable<R>): List<R> {\n   return flatMapTo(ArrayList<R>(), transform)\n}\n\n/**\n * Returns a single list of all elements yielded from results of [transform] function being invoked on each entry of original map.\n * \n * @sample samples.collections.Collections.Transformations.flatMap\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.jvm.JvmName(\"flatMapSequence\")\npublic inline fun <K, V, R> Map<out K, V>.flatMap(transform: (Map.Entry<K, V>) -> Sequence<R>): List<R> {\n   return flatMapTo(ArrayList<R>(), transform)\n}\n\n/**\n * Appends all elements yielded from results of [transform] function being invoked on each entry of original map, to the given [destination].\n */\npublic inline fun <K, V, R, C : MutableCollection<in R>> Map<out K, V>.flatMapTo(destination: C, transform: (Map.Entry<K, V>) -> Iterable<R>): C {\n   for (element in this) {\n   val list = transform(element)\n   destination.addAll(list)\n   }\n   return destination\n}\n\n/**\n * Appends all elements yielded from results of [transform] function being invoked on each entry of original map, to the given [destination].\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.jvm.JvmName(\"flatMapSequenceTo\")\npublic inline fun <K, V, R, C : MutableCollection<in R>> Map<out K, V>.flatMapTo(destination: C, transform: (Map.Entry<K, V>) -> Sequence<R>): C {\n   for (element in this) {\n   val list = transform(element)\n   destination.addAll(list)\n   }\n   return destination\n}\n\n/**\n * Returns a list containing the results of applying the given [transform] function\n * to each entry in the original map.\n * \n * @sample samples.collections.Maps.Transformations.mapToList\n */\npublic inline fun <K, V, R> Map<out K, V>.map(transform: (Map.Entry<K, V>) -> R): List<R> {\n   return mapTo(ArrayList<R>(size), transform)\n}\n\n/**\n * Returns a list containing only the non-null results of applying the given [transform] function\n * to each entry in the original map.\n * \n * @sample samples.collections.Maps.Transformations.mapNotNull\n */\npublic inline fun <K, V, R : Any> Map<out K, V>.mapNotNull(transform: (Map.Entry<K, V>) -> R?): List<R> {\n   return mapNotNullTo(ArrayList<R>(), transform)\n}\n\n/**\n * Applies the given [transform] function to each entry in the original map\n * and appends only the non-null results to the given [destination].\n */\npublic inline fun <K, V, R : Any, C : MutableCollection<in R>> Map<out K, V>.mapNotNullTo(destination: C, transform: (Map.Entry<K, V>) -> R?): C {\n   forEach { element -> transform(element)?.let { destination.add(it) } }\n   return destination\n}\n\n/**\n * Applies the given [transform] function to each entry of the original map\n * and appends the results to the given [destination].\n */\npublic inline fun <K, V, R, C : MutableCollection<in R>> Map<out K, V>.mapTo(destination: C, transform: (Map.Entry<K, V>) -> R): C {\n   for (item in this)\n   destination.add(transform(item))\n   return destination\n}\n\n/**\n * Returns `true` if all entries match the given [predicate].\n * \n * @sample samples.collections.Collections.Aggregates.all\n */\npublic inline fun <K, V> Map<out K, V>.all(predicate: (Map.Entry<K, V>) -> Boolean): Boolean {\n   if (isEmpty()) return true\n   for (element in this) if (!predicate(element)) return false\n   return true\n}\n\n/**\n * Returns `true` if map has at least one entry.\n * \n * @sample samples.collections.Collections.Aggregates.any\n */\npublic fun <K, V> Map<out K, V>.any(): Boolean {\n   return !isEmpty()\n}\n\n/**\n * Returns `true` if at least one entry matches the given [predicate].\n * \n * @sample samples.collections.Collections.Aggregates.anyWithPredicate\n */\npublic inline fun <K, V> Map<out K,

V>.any(predicate: (Map.Entry<K, V>) -> Boolean): Boolean {\n   if (isEmpty()) return false\n   for (element in this) if (predicate(element)) return true\n   return false\n}\n\n/**\n * Returns the number of entries in this map.\n */\n@kotlin.internal.InlineOnly\npublic inline fun <K, V> Map<out K, V>.count(): Int {\n   return size\n}\n\n/**\n * Returns the number of entries matching the given [predicate].\n */\npublic inline fun <K, V> Map<out K, V>.count(predicate: (Map.Entry<K, V>) -> Boolean): Int {\n   if (isEmpty()) return 0\n   var count = 0\n   for (element in this) if (predicate(element)) ++count\n   return count\n}\n\n/**\n * Performs the given [action] on each entry.\n */\n@kotlin.internal.HidesMembers\npublic inline fun <K, V> Map<out K, V>.forEach(action: (Map.Entry<K, V>) -> Unit): Unit {\n   for (element in this) action(element)\n}\n\n/**\n * Returns the first entry yielding the largest value of the given function.\n * \n * @throws NoSuchElementException if the map is empty.\n * \n * @sample samples.collections.Collections.Aggregates.maxBy\n */\n@SinceKotlin(\"1.7\")\n@kotlin.jvm.JvmName(\"maxByOrThrow\")\n@kotlin.internal.InlineOnly\n@Suppress(\"CONFLICTING_OVERLOADS\")\npublic inline fun <K, V, R : Comparable<R>> Map<out K, V>.maxBy(selector: (Map.Entry<K, V>) -> R): Map.Entry<K, V> {\n   return entries.maxBy(selector)\n}\n\n/**\n * Returns the first entry yielding the largest value of the given function or `null` if there are no entries.\n * \n * @sample samples.collections.Collections.Aggregates.maxByOrNull\n */\n@SinceKotlin(\"1.4\")\n@kotlin.internal.InlineOnly\npublic inline fun <K, V, R : Comparable<R>> Map<out K, V>.maxByOrNull(selector: (Map.Entry<K, V>) -> R): Map.Entry<K, V>? {\n   return entries.maxByOrNull(selector)\n}\n\n/**\n * Returns the largest value among all values produced by [selector] function\n * applied to each entry in the map.\n * \n * If any of values produced by [selector] function is `NaN`, the returned result is `NaN`.\n * \n * @throws NoSuchElementException if the map is empty.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <K, V> Map<out K, V>.maxOf(selector: (Map.Entry<K, V>) -> Double): Double {\n   return entries.maxOf(selector)\n}\n\n/**\n * Returns the largest value among all values produced by [selector] function\n * applied to each entry in the map.\n * \n * If any of values produced by [selector] function is `NaN`, the returned result is `NaN`.\n * \n * @throws NoSuchElementException if the map is empty.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <K, V> Map<out K, V>.maxOf(selector: (Map.Entry<K, V>) -> Float): Float {\n   return entries.maxOf(selector)\n}\n\n/**\n * Returns the largest value among all values produced by [selector] function\n * applied to each entry in the map.\n * \n * @throws NoSuchElementException if the map is empty.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <K, V, R : Comparable<R>> Map<out K, V>.maxOf(selector: (Map.Entry<K, V>) -> R): R {\n   return entries.maxOf(selector)\n}\n\n/**\n * Returns the largest value among all values produced by [selector] function\n * applied to each entry in the map or `null` if there are no entries.\n * \n * If any of values produced by [selector] function is `NaN`, the returned result is `NaN`.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <K, V> Map<out K, V>.maxOfOrNull(selector: (Map.Entry<K, V>) -> Double): Double? {\n   return entries.maxOfOrNull(selector)\n}\n\n/**\n * Returns the largest value among all values produced by [selector] function\n * applied to each entry in the map or `null` if there are no entries.\n * \n * If any of values produced by [selector] function is `NaN`, the returned result is `NaN`.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <K, V> Map<out K, V>.maxOfOrNull(selector: (Map.Entry<K, V>) -> Float): Float? {\n   return entries.maxOfOrNull(selector)\n}\n\n/**\n * Returns the largest value among all values produced by [selector] function\n * applied to each entry in the map or `null` if there are no entries.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution

ByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <K, V, R : Comparable<R>> Map<out K, V>.maxOfOrNull(selector: (Map.Entry<K, V>) -> R): R? {\n   return entries.maxOfOrNull(selector)\n}\n\n/**\n * Returns the largest value according to the provided [comparator]\n * among all values produced by [selector] function applied to each entry in the map.\n * \n * @throws NoSuchElementException if the map is empty.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <K, V, R> Map<out K, V>.maxOfWith(comparator: Comparator<in R>, selector: (Map.Entry<K, V>) -> R): R {\n   return entries.maxOfWith(comparator, selector)\n}\n\n/**\n * Returns the largest value according to the provided [comparator]\n * among all values produced by [selector] function applied to each entry in the map or `null` if there are no entries.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <K, V, R> Map<out K, V>.maxOfWithOrNull(comparator: Comparator<in R>, selector: (Map.Entry<K, V>) -> R): R? {\n   return entries.maxOfWithOrNull(comparator, selector)\n}\n\n/**\n * Returns the first entry having the largest value according to the provided [comparator].\n * \n * @throws NoSuchElementException if the map is empty.\n */\n@SinceKotlin(\"1.7\")\n@kotlin.jvm.JvmName(\"maxWithOrThrow\")\n@kotlin.internal.InlineOnly\n@Suppress(\"CONFLICTING_OVERLOADS\")\npublic inline fun <K, V> Map<out K, V>.maxWith(comparator: Comparator<in Map.Entry<K, V>>): Map.Entry<K, V> {\n   return entries.maxWith(comparator)\n}\n\n/**\n * Returns the first entry having the largest value according to the provided [comparator] or `null` if there are no entries.\n */\n@SinceKotlin(\"1.4\")\n@kotlin.internal.InlineOnly\npublic inline fun <K, V> Map<out K, V>.maxWithOrNull(comparator: Comparator<in Map.Entry<K, V>>): Map.Entry<K, V>? {\n   return entries.maxWithOrNull(comparator)\n}\n\n/**\n * Returns the first entry yielding the smallest value of the given function.\n * \n * @throws NoSuchElementException if the map is empty.\n * \n * @sample samples.collections.Collections.Aggregates.minBy\n */\n@SinceKotlin(\"1.7\")\n@kotlin.jvm.JvmName(\"minByOrThrow\")\n@kotlin.internal.InlineOnly\n@Suppress(\"CONFLICTING_OVERLOADS\")\npublic inline fun <K, V, R : Comparable<R>> Map<out K, V>.minBy(selector: (Map.Entry<K, V>) -> R): Map.Entry<K, V> {\n   return entries.minBy(selector)\n}\n\n/**\n * Returns the first entry yielding the smallest value of the given function or `null` if there are no entries.\n * \n * @sample samples.collections.Collections.Aggregates.minByOrNull\n */\n@SinceKotlin(\"1.4\")\n@kotlin.internal.InlineOnly\npublic inline fun <K, V, R : Comparable<R>> Map<out K, V>.minByOrNull(selector: (Map.Entry<K, V>) -> R): Map.Entry<K, V>? {\n   return entries.minByOrNull(selector)\n}\n\n/**\n * Returns the smallest value among all values produced by [selector] function\n * applied to each entry in the map.\n * \n * If any of values produced by [selector] function is `NaN`, the returned result is `NaN`.\n * \n * @throws NoSuchElementException if the map is empty.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <K, V> Map<out K, V>.minOf(selector: (Map.Entry<K, V>) -> Double): Double {\n   return entries.minOf(selector)\n}\n\n/**\n * Returns the smallest value among all values produced by [selector] function\n * applied to each entry in the map.\n * \n * If any of values produced by [selector] function is `NaN`, the returned result is `NaN`.\n * \n * @throws NoSuchElementException if the map is empty.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <K, V> Map<out K, V>.minOf(selector: (Map.Entry<K, V>) -> Float): Float {\n   return entries.minOf(selector)\n}\n\n/**\n * Returns the smallest value among all values produced by [selector] function\n * applied to each entry in the map.\n * \n * @throws NoSuchElementException if the map is empty.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <K, V, R : Comparable<R>> Map<out K, V>.minOf(selector: (Map.Entry<K, V>) -> R): R {\n   return entries.minOf(selector)\n}\n\n/**\n * Returns the smallest value among all values produced by [selector] function\n * applied to each entry in the map or `null` if there are no entries.\n * \n * If any of values produced by [selector] function is `NaN`, the returned result is `NaN`.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <K, V> Map<out K, V>.minOfOrNull(selector: (Map.Entry<K, V>) -> Double): Double? {\n   return entries.minOfOrNull(selector)\n}\n\n/**\n * Returns the smallest value among all values produced by [selector] function\n * applied to each entry in the map or `null` if there are no entries.\n * \n * If any of values produced by [selector] function is `NaN`, the returned result is `NaN`.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <K, V> Map<out K, V>.minOfOrNull(selector: (Map.Entry<K, V>) -> Float): Float? {\n   return entries.minOfOrNull(selector)\n}\n\n/**\n * Returns the smallest value among all values produced by [selector] function\n * applied to each entry in the map or `null` if there are no entries.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <K, V, R : Comparable<R>> Map<out K, V>.minOfOrNull(selector: (Map.Entry<K, V>) -> R): R? {\n   return entries.minOfOrNull(selector)\n}\n\n/**\n * Returns the smallest value according to the provided [comparator]\n * among all values produced by [selector] function applied to each entry in the map.\n * \n * @throws NoSuchElementException if the map is empty.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <K, V, R> Map<out K, V>.minOfWith(comparator: Comparator<in R>, selector: (Map.Entry<K, V>) -> R): R {\n   return entries.minOfWith(comparator, selector)\n}\n\n/**\n * Returns the smallest value according to the provided [comparator]\n * among all values produced by [selector] function applied to each entry in the map or `null` if there are no entries.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <K, V, R> Map<out K, V>.minOfWithOrNull(comparator: Comparator<in R>, selector: (Map.Entry<K, V>) -> R): R? {\n   return entries.minOfWithOrNull(comparator, selector)\n}\n\n/**\n * Returns the first entry having the smallest value according to the provided [comparator].\n * \n * @throws NoSuchElementException if the map is empty.\n */\n@SinceKotlin(\"1.7\")\n@kotlin.jvm.JvmName(\"minWithOrThrow\")\n@kotlin.internal.InlineOnly\n@Suppress(\"CONFLICTING_OVERLOADS\")\npublic inline fun <K, V> Map<out K, V>.minWith(comparator: Comparator<in Map.Entry<K, V>>): Map.Entry<K, V> {\n   return entries.minWith(comparator)\n}\n\n/**\n * Returns the first entry having the smallest value according to the provided [comparator] or `null` if there are no entries.\n */\n@SinceKotlin(\"1.4\")\n@kotlin.internal.InlineOnly\npublic inline fun <K, V> Map<out K, V>.minWithOrNull(comparator: Comparator<in Map.Entry<K, V>>): Map.Entry<K, V>? {\n   return entries.minWithOrNull(comparator)\n}\n\n/**\n * Returns `true` if the map has no entries.\n * \n * @sample samples.collections.Collections.Aggregates.none\n */\npublic fun <K, V> Map<out K, V>.none(): Boolean {\n   return isEmpty()\n}\n\n/**\n * Returns `true` if no entries match the given [predicate].\n * \n * @sample samples.collections.Collections.Aggregates.noneWithPredicate\n */\npublic inline fun <K, V> Map<out K, V>.none(predicate: (Map.Entry<K, V>) -> Boolean): Boolean {\n   if (isEmpty()) return true\n   for (element in this) if (predicate(element)) return false\n   return true\n}\n\n/**\n * Performs the given [action] on each entry and returns the map itself afterwards.\n */\n@SinceKotlin(\"1.1\")\npublic inline fun <K, V, M : Map<out K, V>> M.onEach(action: (Map.Entry<K, V>) -> Unit): M {\n   return apply { for (element in this) action(element) }\n}\n\n/**\n * Performs the given [action] on each entry, providing sequential index with the entry,\n * and returns the map itself afterwards.\n * @param [action] function that takes the index of an entry and the entry itself\n * and performs the action on the entry.\n */\n@SinceKotlin(\"1.4\")\npublic inline fun <K, V, M : Map<out K, V>> M.onEachIndexed(action: (index: Int, Map.Entry<K, V>) -> Unit): M {\n   return apply { entries.forEachIndexed(action) }\n}\n\n/**\n * Creates an [Iterable] instance that wraps the original map returning its entries when being iterated.\n */\n@kotlin.internal.InlineOnly\npublic inline fun <K, V> Map<out K, V>.asIterable(): Iterable<Map.Entry<K, V>> {\n   return entries\n}\n\n/**\n * Creates a [Sequence] instance that wraps the original map returning its entries when being iterated.\n */\npublic fun <K, V> Map<out K, V>.asSequence(): Sequence<Map.Entry<K, V>> {\n   return entries.asSequence()\n}\n\n","/*\n * Copyright 2010-2021 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin.text\n\n//\n// NOTE: THIS FILE IS AUTO-GENERATED by the GenerateUnicodeData.kt\n// See: https://github.com/JetBrains/kotlin/tree/master/libraries/stdlib\n//\n\n// 10 mappings totally\ninternal fun Char.titlecaseImpl(): String {\n   val uppercase = uppercase()\n   if (uppercase.length > 1) {\n   return if (this == '\\u0149') uppercase else uppercase[0] + uppercase.substring(1).lowercase()\n   }\n   return titlecaseChar().toString()\n}\n","/*\n * Copyright 2010-2021 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin.text\n\n/**\n * Converts this character to lower case using Unicode mapping rules of the invariant locale.\n */\n@Deprecated(\"Use lowercaseChar() instead.\", ReplaceWith(\"lowercaseChar()\"))\n@DeprecatedSinceKotlin(warningSince = \"1.5\")\n@kotlin.internal.InlineOnly\npublic actual inline fun Char.toLowerCase(): Char = lowercaseChar()\n\n/**\n * Converts this character to lower case using Unicode mapping rules of the invariant locale.\n *\n * This function performs one-to-one character mapping.\n * To support one-to-many character mapping use the [lowercase] function.\n * If this character has no mapping equivalent, the character itself is returned.\n *\n * @sample samples.text.Chars.lowercase\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalStdlibApi::class)\n@kotlin.internal.InlineOnly\npublic actual inline fun Char.lowercaseChar(): Char = lowercase()[0]\n\n/**\n * Converts this character to lower case using Unicode mapping rules of the invariant locale.\n *\n * This function supports one-to-many character mapping, thus the length of the returned string can be greater than one.\n * For example, `'\\u0130'.lowercase()` returns `\"\\u0069\\u0307\"`,\n * where `'\\u0130'` is the LATIN CAPITAL LETTER I WITH DOT ABOVE character (`\u0130`).\n * If this character has no lower case mapping, the result of `toString()` of this char is returned.\n *\n * @sample samples.text.Chars.lowercase\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalStdlibApi::class)\n@kotlin.internal.InlineOnly\npublic actual inline fun Char.lowercase(): String = toString().asDynamic().toLowerCase().unsafeCast<String>()\n\n/**\n * Converts this character to upper case using Unicode mapping rules of the invariant locale.\n */\n@Deprecated(\"Use uppercaseChar() instead.\", ReplaceWith(\"uppercaseChar()\"))\n@DeprecatedSinceKotlin(warningSince = \"1.5\")\n@kotlin.internal.InlineOnly\npublic actual inline fun Char.toUpperCase(): Char = uppercaseChar()\n\n/**\n * Converts this character to upper case using Unicode mapping rules of the invariant locale.\n *\n * This function performs one-to-one character mapping.\n * To support one-to-many character mapping use the [uppercase] function.\n * If this character has no mapping equivalent, the character itself is returned.\n *\n * @sample samples.text.Chars.uppercase\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic actual fun Char.uppercaseChar(): Char {\n   val uppercase = uppercase()\n   return if (uppercase.length > 1) this else uppercase[0]\n}\n\n/**\n * Converts this character to upper case using Unicode mapping rules of the invariant locale.\n *\n * This function supports one-to-many character mapping, thus the length of the returned string can be greater than one.\n * For example, `'\\uFB00'.uppercase()` returns `\"\\u0046\\u0046\"`,\n * where `'\\uFB00'` is the LATIN SMALL LIGATURE FF character (`\ufb00`).\n * If this character has no upper case mapping, the result of `toString()` of this char is returned.\n *\n * @sample samples.text.Chars.uppercase\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalStdlibApi::class)\n@kotlin.internal.InlineOnly\npublic actual inline fun Char.uppercase(): String = toString().asDynamic().toUpperCase().unsafeCast<String>()\n\n/**\n * Converts this character to title case using Unicode mapping rules of the invariant locale.\n *\n * This function performs one-to-one character mapping.\n * To support one-to-many character mapping use the [titlecase] function.\n * If this character has no mapping equivalent, the result of calling [uppercaseChar] is returned.\n *\n * @sample samples.text.Chars.titlecase\n */\n@SinceKotlin(\"1.5\")\npublic actual fun Char.titlecaseChar(): Char = titlecaseCharImpl()\n\n/**\n * Returns `true` if this character is a Unicode high-surrogate code unit (also known as leading-surrogate code unit).\n */\npublic actual fun Char.isHighSurrogate(): Boolean = this in Char.MIN_HIGH_SURROGATE..Char.MAX_HIGH_SURROGATE\n\n/**\n * Returns `true` if this character is a Unicode low-surrogate code unit (also known as trailing-surrogate code unit).\n */\npublic actual fun Char.isLowSurrogate(): Boolean = this in Char.MIN_LOW_SURROGATE..Char.MAX_LOW_SURROGATE\n\n/**\n * Returns the Unicode general category of this character.\n */\n@SinceKotlin(\"1.5\")\npublic actual val Char.category: CharCategory\n   get() = CharCategory.valueOf(getCategoryValue())\n\n/**\n * Returns `true` if this character (Unicode code point) is defined in Unicode.\n *\n * A character is considered to be defined in Unicode if its [category] is not [CharCategory.UNASSIGNED].\n */\n@SinceKotlin(\"1.5\")\npublic actual fun Char.isDefined(): Boolean {\n   if (this < '\\u0080') {\n   return true\n   }\n   return getCategoryValue() != CharCategory.UNASSIGNED.value\n}\n\n/**\n * Returns `true` if this character is a letter.\n *\n * A character is considered to be a letter if its [category] is [CharCategory.UPPERCASE_LETTER],\n * [CharCategory.LOWERCASE_LETTER], [CharCategory.TITLECASE_LETTER], [CharCategory.MODIFIER_LETTER], or [CharCategory.OTHER_LETTER].\n *\n * @sample samples.text.Chars.isLetter\n */\n@SinceKotlin(\"1.5\")\npublic actual fun Char.isLetter(): Boolean {\n   if (this in 'a'..'z' || this in 'A'..'Z') {\n   return true\n   }\n   if (this < '\\u0080') {\n   return false\n   }\n   return isLetterImpl()\n}\n\n/**\n * Returns `true` if this character is a letter or digit.\n *\n * @see isLetter\n * @see isDigit\n *\n * @sample samples.text.Chars.isLetterOrDigit\n */\n@SinceKotlin(\"1.5\")\npublic actual fun Char.isLetterOrDigit(): Boolean {\n   if (this in 'a'..'z' || this in 'A'..'Z' || this in '0'..'9') {\n   return true\n   }\n   if (this < '\\u0080') {\n   return false\n   }\n\n   return isDigitImpl() || isLetterImpl()\n}\n\n/**\n * Returns `true` if this character is a digit.\n *\n * A character is considered to be a digit if its [category] is [CharCategory.DECIMAL_DIGIT_NUMBER].\n *\n * @sample samples.text.Chars.isDigit\n */\n@SinceKotlin(\"1.5\")\npublic actual fun Char.isDigit(): Boolean {\n   if (this in '0'..'9') {\n   return true\n   }\n   if (this < '\\u0080') {\n   return false\n   }\n   return isDigitImpl()\n}\n\n/**\n * Returns `true` if this character is upper case.\n *\n * A character is considered to be an upper case character if its [category] is [CharCategory.UPPERCASE_LETTER],\n * or it has contributory property `Other_Uppercase` as defined by the Unicode Standard.\n *\n * @sample samples.text.Chars.isUpperCase\n */\n@SinceKotlin(\"1.5\")\npublic actual fun Char.isUpperCase(): Boolean {\n   if (this in 'A'..'Z') {\n   return true\n   }\n   if (this < '\\u0080') {\n   return false\n   }\n   return isUpperCaseImpl()\n}\n\n/**\n * Returns `true` if this character is lower case.\n *\n * A character is considered to be a lower case character if its [category] is [CharCategory.LOWERCASE_LETTER],\n * or it has contributory property `Other_Lowercase` as defined by the Unicode Standard.\n *\n * @sample samples.text.Chars.isLowerCase\n */\n@SinceKotlin(\"1.5\")\npublic actual fun Char.isLowerCase(): Boolean {\n   if (this in 'a'..'z') {\n   return true\n   }\n   if (this < '\\u0080') {\n   return false\n   }\n   return isLowerCaseImpl()\n}\n\n/**\n * Returns `true` if this character is a title case letter.\n *\n * A character is considered to be a title case letter if its [category] is [CharCategory.TITLECASE_LETTER].\n *\n * @sample samples.text.Chars.isTitleCase\n */\n@SinceKotlin(\"1.5\")\npublic actual fun Char.isTitleCase(): Boolean {\n   if (this < '\\u0080') {\n   return false\n   }\n   return getCategoryValue() == CharCategory.TITLECASE_LETTER.value\n}\n\n/**\n * Returns `true` if this character is an ISO control character.\n *\n * A character is considered to be an ISO control character if its [category] is [CharCategory.CONTROL],\n * meaning the Char is in the range `'\\u0000'..'\\u001F'` or in the range `'\\u007F'..'\\u009F'`.\n *\n * @sample samples.text.Chars.isISOControl\n */\n@SinceKotlin(\"1.5\")\npublic actual fun Char.isISOControl(): Boolean {\n   return this <= '\\u001F' || this in '\\u007F'..'\\u009F'\n}\n\n/**\n * Determines whether a character is whitespace according to the Unicode standard.\n * Returns `true` if the character is whitespace.\n *\n * @sample samples.text.Chars.isWhitespace\n */\npublic actual fun Char.isWhitespace(): Boolean = isWhitespaceImpl()","/*\n * Copyright 2010-2021 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin.text\n\nimport kotlin.js.RegExp\n\n/**\n * Converts the characters in the specified array to a string.\n */\n@SinceKotlin(\"1.2\")\n@Deprecated(\"Use CharArray.concatToString() instead\", ReplaceWith(\"chars.concatToString()\"))\n@DeprecatedSinceKotlin(warningSince = \"1.4\", errorSince = \"1.5\")\npublic actual fun String(chars: CharArray): String {\n   var result = \"\"\n   for (char in chars) {\n   result += char\n   }\n   return result\n}\n\n/**\n * Converts the characters from a portion of the specified array to a string.\n *\n * @throws IndexOutOfBoundsException if either [offset] or [length] are less than zero\n * or `offset + length` is out of [chars] array bounds.\n */\n@SinceKotlin(\"1.2\")\n@Deprecated(\"Use CharArray.concatToString(startIndex, endIndex) instead\", ReplaceWith(\"chars.concatToString(offset, offset + length)\"))\n@DeprecatedSinceKotlin(warningSince = \"1.4\", errorSince = \"1.5\")\npublic actual fun String(chars: CharArray, offset: Int, length: Int): String {\n   if (offset < 0 || length < 0 || chars.size - offset < length)\n   throw IndexOutOfBoundsException(\"size: ${chars.size}; offset: $offset; length: $length\")\n   var result = \"\"\n   for (index in offset until offset + length) {\n   result += chars[index]\n   }\n   return result\n}\n\n/**\n * Concatenates characters in this [CharArray] into a String.\n */\n@SinceKotlin(\"1.4\")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic actual fun CharArray.concatToString(): String {\n   var result = \"\"\n   for (char in this) {\n   result += char\n   }\n   return result\n}\n\n/**\n * Concatenates characters in this [CharArray] or its subrange into a String.\n *\n * @param startIndex the beginning (inclusive) of the subrange of characters, 0 by default.\n * @param endIndex the end (exclusive) of the subrange of characters, size of this array by default.\n *\n * @throws IndexOutOfBoundsException if [startIndex] is less than zero or [endIndex] is greater than the size of this array.\n * @throws IllegalArgumentException if [startIndex] is greater than [endIndex].\n */\n@SinceKotlin(\"1.4\")\n@WasExperimental(ExperimentalStdlibApi::class)\n@Suppress(\"ACTUAL_FUNCTION_WITH_DEFAULT_ARGUMENTS\")\npublic actual fun CharArray.concatToString(startIndex: Int = 0, endIndex: Int = this.size): String {\n   AbstractList.checkBoundsIndexes(startIndex, endIndex, this.size)\n   var result = \"\"\n   for (index in startIndex until endIndex) {\n   result += this[index]\n   }\n   return result\n}\n\n/**\n * Returns a [CharArray] containing characters of this string.\n */\n@SinceKotlin(\"1.4\")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic actual fun String.toCharArray(): CharArray {\n   return CharArray(length) { get(it) }\n}\n\n/**\n * Returns a [CharArray] containing characters of this string or its substring.\n *\n * @param startIndex the beginning (inclusive) of the substring, 0 by default.\n * @param endIndex the end (exclusive) of the substring, length of this string by default.\n *\n * @throws IndexOutOfBoundsException if [startIndex] is less than zero or [endIndex] is greater than the length of this string.\n * @throws IllegalArgumentException if [startIndex] is greater than [endIndex].\n */\n@SinceKotlin(\"1.4\")\n@WasExperimental(ExperimentalStdlibApi::class)\n@Suppress(\"ACTUAL_FUNCTION_WITH_DEFAULT_ARGUMENTS\")\npublic actual fun String.toCharArray(startIndex: Int = 0, endIndex: Int = this.length): CharArray {\n   AbstractList.checkBoundsIndexes(startIndex, endIndex, length)\n   return CharArray(endIndex - startIndex) { get(startIndex + it) }\n}\n\n/**\n * Decodes a string from the bytes in UTF-8 encoding in this array.\n *\n * Malformed byte sequences are replaced by the replacement char `\\uFFFD`.\n */\n@SinceKotlin(\"1.4\")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic actual fun ByteArray.decodeToString(): String {\n   return decodeUtf8(this, 0, size, false)\n}\n\n/**\n * Decodes a string from the bytes in UTF-8 encoding in this array or its subrange.\n *\n * @param startIndex the beginning (inclusive) of the subrange to decode, 0 by default.\n * @param endIndex the end (exclusive) of the subrange to decode, size of this array by default.\n * @param throwOnInvalidSequence specifies whether to throw an exception on malformed byte sequence or replace it by the replacement char `\\uFFFD`.\n *\n * @throws IndexOutOfBoundsException if [startIndex] is less than zero or [endIndex] is greater than the size of this array.\n * @throws IllegalArgumentException if [startIndex] is greater than [endIndex].\n * @throws CharacterCodingException if the byte array contains malformed UTF-8 byte sequence and [throwOnInvalidSequence] is true.\n */\n@SinceKotlin(\"1.4\")\n@WasExperimental(ExperimentalStdlibApi::class)\n@Suppress(\"ACTUAL_FUNCTION_WITH_DEFAULT_ARGUMENTS\")\npublic actual fun ByteArray.decodeToString(\n   startIndex: Int = 0,\n endIndex: Int = this.size,\n   throwOnInvalidSequence: Boolean = false\n): String {\n   AbstractList.checkBoundsIndexes(startIndex, endIndex, this.size)\n   return decodeUtf8(this, startIndex, endIndex, throwOnInvalidSequence)\n}\n\n/**\n * Encodes this string to an array of bytes in UTF-8 encoding.\n *\n * Any malformed char sequence is replaced by the replacement byte sequence.\n */\n@SinceKotlin(\"1.4\")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic actual fun String.encodeToByteArray(): ByteArray {\n   return encodeUtf8(this, 0, length, false)\n}\n\n/**\n * Encodes this string or its substring to an array of bytes in UTF-8 encoding.\n *\n * @param startIndex the beginning (inclusive) of the substring to encode, 0 by default.\n * @param endIndex the end (exclusive) of the substring to encode, length of this string by default.\n * @param throwOnInvalidSequence specifies whether to throw an exception on malformed char sequence or replace.\n *\n * @throws IndexOutOfBoundsException if [startIndex] is less than zero or [endIndex] is greater than the length of this string.\n * @throws IllegalArgumentException if [startIndex] is greater than [endIndex].\n * @throws CharacterCodingException if this string contains malformed char sequence and [throwOnInvalidSequence] is true.\n */\n@SinceKotlin(\"1.4\")\n@WasExperimental(ExperimentalStdlibApi::class)\n@Suppress(\"ACTUAL_FUNCTION_WITH_DEFAULT_ARGUMENTS\")\npublic actual fun String.encodeToByteArray(\n   startIndex: Int = 0,\n   endIndex: Int = this.length,\n   throwOnInvalidSequence: Boolean = false\n): ByteArray {\n   AbstractList.checkBoundsIndexes(startIndex, endIndex, length)\n   return encodeUtf8(this, startIndex, endIndex, throwOnInvalidSequence)\n}\n\n/**\n * Returns a copy of this string converted to upper case using the rules of the default locale.\n */\n@Deprecated(\"Use uppercase() instead.\", ReplaceWith(\"uppercase()\"))\n@DeprecatedSinceKotlin(warningSince = \"1.5\")\n@kotlin.internal.InlineOnly\npublic actual inline fun String.toUpperCase(): String = asDynamic().toUpperCase()\n\n/**\n * Returns a copy of this string converted to upper case using Unicode mapping rules of the invariant locale.\n *\n * This function supports one-to-many and many-to-one character mapping,\n * thus the length of the returned string can be different from the length of the original string.\n *\n * @sample samples.text.Strings.uppercase\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalStdlibApi::class)\n@kotlin.internal.InlineOnly\npublic actual inline fun String.uppercase(): String = asDynamic().toUpperCase()\n\n/**\n * Returns a copy of this string converted to lower case using the rules of the default locale.\n */\n@Deprecated(\"Use lowercase() instead.\", ReplaceWith(\"lowercase()\"))\n@DeprecatedSinceKotlin(warningSince = \"1.5\")\n@kotlin.internal.InlineOnly\npublic actual inline fun String.toLowerCase(): String = asDynamic().toLowerCase()\n\n/**\n * Returns a copy of this string converted to lower case using Unicode mapping rules of the invariant locale.\n *\n * This function supports one-to-many and many-to-one character mapping,\n * thus the length of the returned string can be different from the length of the original string.\n *\n * @sample samples.text.Strings.lowercase\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalStdlibApi::class)\n@kotlin.internal.InlineOnly\npublic actual inline fun String.lowercase(): String = asDynamic().toLowerCase()\n\n@kotlin.internal.InlineOnly\ninternal actual inline fun String.nativeIndexOf(str: String, fromIndex: Int): Int = asDynamic().indexOf(str, fromIndex)\n\n@kotlin.internal.InlineOnly\ninternal actual inline fun String.nativeLastIndexOf(str: String, fromIndex: Int): Int = asDynamic().lastIndexOf(str, fromIndex)\n\n@kotlin.internal.InlineOnly\n@kotlin.js.JsPolyfill(\"\"\"\nif (typeof String.prototype.startsWith === \"undefined\") {\n   Object.defineProperty(String.prototype, \"startsWith\", {\n   value: function (searchString, position) {\n   position = position || 0;\n   return this.lastIndexOf(searchString, position) === position;\n   }\n   });\n}\n\"\"\")\ninternal inline fun String.nativeStartsWith(s: String, position: Int): Boolean = asDynamic().startsWith(s, position)\n\n@kotlin.internal.InlineOnly\n@kotlin.js.JsPolyfill(\"\"\"\nif (typeof String.prototype.endsWith === \"undefined\") {\n   Object.defineProperty(String.prototype, \"endsWith\", {\n   value: function (searchString, position) {\n   var subjectString = this.toString();\n   if (position === undefined || position > subjectString.length) {\n   position = subjectString.length;\n   }\n   position -= searchString.length;\n   var lastIndex = subjectString.indexOf(searchString, position);\n return lastIndex !== -1 && lastIndex === position;\n   }\n   });\n}\n\"\"\")\ninternal inline fun String.nativeEndsWith(s: String): Boolean = asDynamic().endsWith(s)\n\n@kotlin.internal.InlineOnly\npublic actual inline fun String.substring(startIndex: Int): String = asDynamic().substring(startIndex)\n\n@kotlin.internal.InlineOnly\npublic actual inline fun String.substring(startIndex: Int, endIndex: Int): String = asDynamic().substring(startIndex, endIndex)\n\n@Deprecated(\"Use String.plus() instead\", ReplaceWith(\"this + str\"))\n@DeprecatedSinceKotlin(warningSince = \"1.6\")\n@kotlin.internal.InlineOnly\npublic inline fun String.concat(str: String): String = asDynamic().concat(str)\n\n@Deprecated(\"Use Regex.findAll() instead or invoke matches() on String dynamically: this.asDynamic().match(regex)\")\n@DeprecatedSinceKotlin(warningSince = \"1.6\")\n@kotlin.internal.InlineOnly\npublic inline fun String.match(regex: String): Array<String>? = asDynamic().match(regex)\n\n//native public fun String.trim(): String\n//TODO: String.replace to implement effective trimLeading and trimTrailing\n\n@kotlin.internal.InlineOnly\ninternal inline fun String.nativeReplace(pattern: RegExp, replacement: String): String = asDynamic().replace(pattern, replacement)\n\n/**\n * Compares two strings lexicographically, optionally ignoring case differences.\n *\n * If [ignoreCase] is true, the result of `Char.uppercaseChar().lowercaseChar()` on each character is compared.\n */\n@SinceKotlin(\"1.2\")\n@Suppress(\"ACTUAL_FUNCTION_WITH_DEFAULT_ARGUMENTS\")\npublic actual fun String.compareTo(other: String, ignoreCase: Boolean = false): Int {\n   if (ignoreCase) {\n   val n1 = this.length\n   val n2 = other.length\n   val min = minOf(n1, n2)\n   if (min == 0) return n1 - n2\n   for (index in 0 until min) {\n   var thisChar = this[index]\n   var otherChar = other[index]\n\n   if (thisChar != otherChar) {\n   thisChar = thisChar.uppercaseChar()\n   otherChar = otherChar.uppercaseChar()\n\n   if (thisChar != otherChar) {\n   thisChar = thisChar.lowercaseChar()\n   otherChar = otherChar.lowercaseChar()\n\n   if (thisChar != otherChar) {\n   return thisChar.compareTo(otherChar)\n   }\n   }\n   }\n   }\n   return n1 - n2\n   } else {\n   return compareTo(other)\n   }\n}\n\n/**\n * Returns `true` if the contents of this char sequence are equal to the contents of the specified [other],\n * i.e. both char sequences contain the same number of the same characters in the same order.\n *\n * @sample samples.text.Strings.contentEquals\n */\n@SinceKotlin(\"1.5\")\npublic actual infix fun CharSequence?.contentEquals(other: CharSequence?): Boolean = contentEqualsImpl(other)\n\n/**\n * Returns `true` if the contents of this char sequence are equal to the contents of the specified [other], optionally ignoring case difference.\n *\n * @param ignoreCase `true` to ignore character case when comparing contents.\n *\n * @sample samples.text.Strings.contentEquals\n */\n@SinceKotlin(\"1.5\")\npublic actual fun CharSequence?.contentEquals(other: CharSequence?, ignoreCase: Boolean): Boolean {\n   return if (ignoreCase)\n   this.contentEqualsIgnoreCaseImpl(other)\n   else\n   this.contentEqualsImpl(other)\n}\n\n\nprivate val STRING_CASE_INSENSITIVE_ORDER = Comparator<String> { a, b -> a.compareTo(b, ignoreCase = true) }\n\n@SinceKotlin(\"1.2\")\npublic actual val String.Companion.CASE_INSENSITIVE_ORDER: Comparator<String>\n   get() = STRING_CASE_INSENSITIVE_ORDER\n","/*\n * Copyright 2010-2021 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\n@file:kotlin.jvm.JvmMultifileClass\n@file:kotlin.jvm.JvmName(\"CharsKt\")\n\npackage kotlin.text\n\n/**\n * Returns the numeric value of the decimal digit that this Char represents.\n * Throws an exception if this Char is not a valid decimal digit.\n *\n * A Char is considered to represent a decimal digit if [isDigit] is true for the Char.\n * In this case, the Unicode decimal digit value of the character is returned.\n *\n * @sample samples.text.Chars.digitToInt\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic fun Char.digitToInt(): Int {\n   return digitOf(this, 10).also {\n   if (it < 0) throw IllegalArgumentException(\"Char $this is not a decimal digit\")\n   }\n}\n\n/**\n * Returns the numeric value of the digit that this Char represents in the specified [radix].\n * Throws an exception if the [radix] is not in the range `2..36` or if this Char is not a valid digit in the specified [radix].\n *\n * A Char is considered to represent a digit in the specified [radix] if at least one of the following is true:\n * - [isDigit] is `true` for the Char and the Unicode decimal digit value of the character is less than the specified [radix]. In this case the decimal digit value is returned.\n * - The Char is one of the uppercase Latin letters 'A' through 'Z' and its [code] is less than `radix + 'A'.code - 10`. In this case, `this.code - 'A'.code + 10` is returned.\n * - The Char is one of the lowercase Latin letters 'a' through 'z' and its [code] is less than `radix + 'a'.code - 10`. In this case, `this.code - 'a'.code + 10` is returned.\n * - The Char is one of the fullwidth Latin capital letters '\\uFF21' through '\\uFF3A' and its [code] is less than `radix + 0xFF21 - 10`. In this case, `this.code - 0xFF21 + 10` is returned.\n * - The Char is one of the fullwidth Latin small letters '\\uFF41' through '\\uFF5A' and its [code] is less than `radix + 0xFF41 - 10`. In this case, `this.code - 0xFF41 + 10` is returned.\n *\n * @sample samples.text.Chars.digitToInt\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic fun Char.digitToInt(radix: Int): Int {\n   return digitToIntOrNull(radix) ?: throw IllegalArgumentException(\"Char $this is not a digit in the given radix=$radix\")\n}\n\n/**\n *\n * Returns the numeric value of the decimal digit that this Char represents, or `null` if this Char is not a valid decimal digit.\n *\n * A Char is considered to represent a decimal digit if [isDigit] is true for the Char.\n * In this case, the Unicode decimal digit value of the character is returned.\n *\n * @sample samples.text.Chars.digitToIntOrNull\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic fun Char.digitToIntOrNull(): Int? {\n   return digitOf(this, 10).takeIf { it >= 0 }\n}\n\n/**\n * Returns the numeric value of the digit that this Char represents in the specified [radix], or `null` if this Char is not a valid digit in the specified [radix].\n * Throws an exception if the [radix] is not in the range `2..36`.\n *\n * A Char is considered to represent a digit in the specified [radix] if at least one of the following is true:\n * - [isDigit] is `true` for the Char and the Unicode decimal digit value of the character is less than the specified [radix]. In this case the decimal digit value is returned.\n * - The Char is one of the uppercase Latin letters 'A' through 'Z' and its [code] is less than `radix + 'A'.code - 10`. In this case, `this.code - 'A'.code + 10` is returned.\n * - The Char is one of the lowercase Latin letters 'a' through 'z' and its [code] is less than `radix + 'a'.code - 10`. In this case, `this.code - 'a'.code + 10` is returned.\n * - The Char is one of the fullwidth Latin capital letters '\\uFF21' through '\\uFF3A' and its [code] is less than `radix + 0xFF21 - 10`. In this case, `this.code - 0xFF21 + 10` is returned.\n * - The Char is one of the fullwidth Latin small letters '\\uFF41' through '\\uFF5A' and its [code] is less than `radix + 0xFF41 - 10`. In this case, `this.code - 0xFF41 + 10` is returned.\n *\n * @sample samples.text.Chars.digitToIntOrNull\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic fun Char.digitToIntOrNull(radix: Int): Int? {\n   checkRadix(radix)\n   return digitOf(this, radix).takeIf { it >= 0 }\n}\n\n/**\n * Returns the Char that represents this decimal digit.\n * Throws an exception if this value is not in the range `0..9`.\n *\n * If this value is in `0..9`, the decimal digit Char with code `'0'.code + this` is returned.\n *\n * @sample samples.text.Chars.digitToChar\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic fun Int.digitToChar(): Char {\n   if (this in 0..9) {\n   return '0' + this\n   }\n   throw IllegalArgumentException(\"Int $this is not a decimal digit\")\n}\n\n/**\n * Returns the Char that represents this numeric digit value in the specified [radix].\n * Throws an exception if the [radix] is not in the range `2..36` or if this value is not in the range `0 until radix`.\n *\n * If this value is less than `10`, the decimal digit Char with code `'0'.code + this` is returned.\n * Otherwise, the uppercase Latin letter with code `'A'.code + this - 10` is returned.\n *\n * @sample samples.text.Chars.digitToChar\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic fun Int.digitToChar(radix: Int): Char {\n   if (radix !in 2..36) {\n   throw IllegalArgumentException(\"Invalid radix: $radix. Valid radix values are in range 2..36\")\n   }\n   if (this < 0 || this >= radix) {\n   throw IllegalArgumentException(\"Digit $this does not represent a valid digit in radix $radix\")\n   }\n   return if (this < 10) {\n   '0' + this\n   } else {\n   'A' + this - 10\n   }\n}\n\n/**\n * Converts this character to lower case using Unicode mapping rules of the invariant locale.\n */\n@Deprecated(\"Use lowercaseChar() instead.\", ReplaceWith(\"lowercaseChar()\"))\n@DeprecatedSinceKotlin(warningSince = \"1.5\")\npublic expect fun Char.toLowerCase(): Char\n\n/**\n * Converts this character to lower case using Unicode mapping rules of the

invariant locale.\n *\n * This function performs one-to-one character mapping.\n * To support one-to-many character mapping use the [lowercase] function.\n * If this character has no mapping equivalent, the character itself is returned.\n *\n * @sample samples.text.Chars.lowercase\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic expect fun Char.lowercaseChar(): Char\n\n/**\n * Converts this character to lower case using Unicode mapping rules of the invariant locale.\n *\n * This function supports one-to-many character mapping, thus the length of the returned string can be greater than one.\n * For example, `'\\u0130'.lowercase()` returns `\"\\u0069\\u0307\"`,\n * where `'\\u0130'` is the LATIN CAPITAL LETTER I WITH DOT ABOVE character (`\ufffd\ufffd`).\n * If this character has no lower case mapping, the result of `toString()` of this char is returned.\n *\n * @sample samples.text.Chars.lowercase\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic expect fun Char.lowercase(): String\n\n/**\n * Converts this character to upper case using Unicode mapping rules of the invariant locale.\n */\n@Deprecated(\"Use uppercaseChar() instead.\", ReplaceWith(\"uppercaseChar()\"))\n@DeprecatedSinceKotlin(warningSince = \"1.5\")\npublic expect fun Char.toUpperCase(): Char\n\n/**\n * Converts this character to upper case using Unicode mapping rules of the invariant locale.\n *\n * This function performs one-to-one character mapping.\n * To support one-to-many character mapping use the [uppercase] function.\n * If this character has no mapping equivalent, the character itself is returned.\n *\n * @sample samples.text.Chars.uppercase\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic expect fun Char.uppercaseChar(): Char\n\n/**\n * Converts this character to upper case using Unicode mapping rules of the invariant locale.\n *\n * This function supports one-to-many character mapping, thus the length of the returned string can be greater than one.\n * For example, `'\\uFB00'.uppercase()` returns `\"\\u0046\\u0046\"`,\n * where `'\\uFB00'` is the LATIN SMALL LIGATURE FF character (`\ufffd\ufffd\ufffd`).\n * If this character has no upper case mapping, the result of `toString()` of this char is returned.\n *\n * @sample samples.text.Chars.uppercase\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic expect fun Char.uppercase(): String\n\n/**\n * Converts this character to title case using Unicode mapping rules of the invariant locale.\n *\n * This function performs one-to-one character mapping.\n * To support one-to-many character mapping use the [titlecase] function.\n * If this character has no mapping equivalent, the result of calling [uppercaseChar] is returned.\n *\n * @sample samples.text.Chars.titlecase\n */\n@SinceKotlin(\"1.5\")\npublic expect fun Char.titlecaseChar(): Char\n\n/**\n * Converts this character to title case using Unicode mapping rules of the invariant locale.\n *\n * This function supports one-to-many character mapping, thus the length of the returned string can be greater than one.\n * For example, `'\\uFB00'.titlecase()` returns `\"\\u0046\\u0066\"`,\n * where `'\\uFB00'` is the LATIN SMALL LIGATURE FF character (`\ufffd\ufffd\ufffd`).\n * If this character has no title case mapping, the result of [uppercase] is returned instead.\n *\n * @sample samples.text.Chars.titlecase\n */\n@SinceKotlin(\"1.5\")\npublic fun Char.titlecase(): String = titlecaseImpl()\n\n/**\n * Concatenates this Char and a String.\n *\n * @sample samples.text.Chars.plus\n */\n@kotlin.internal.InlineOnly\npublic inline operator fun Char.plus(other: String): String = this.toString() + other\n\n/**\n * Returns `true` if this character is equal to the [other] character, optionally ignoring character case.\n *\n * Two characters are considered equal ignoring case if `Char.uppercaseChar().lowercaseChar()` on each character produces the same result.\n *\n * @param ignoreCase `true` to ignore character case when comparing characters. By default `false`.\n * @sample samples.text.Chars.equals\n */\npublic fun Char.equals(other: Char, ignoreCase: Boolean = false): Boolean {\n   if (this == other) return true\n   if (!ignoreCase) return false\n\n   val thisUpper = this.uppercaseChar()\n   val otherUpper = other.uppercaseChar()\n\n   return thisUpper == otherUpper || thisUpper.lowercaseChar() == otherUpper.lowercaseChar()\n}\n\n/**\n * Returns `true` if this character is a Unicode surrogate code unit.\n */\npublic fun Char.isSurrogate(): Boolean = this in Char.MIN_SURROGATE..Char.MAX_SURROGATE\n\n/**\n * Returns the Unicode general category of this character.\n */\n@SinceKotlin(\"1.5\")\npublic expect val Char.category: CharCategory\n\n/**\n * Returns `true` if this character (Unicode code point) is defined in Unicode.\n *\n * A character is considered to be defined in Unicode if its [category] is not

[CharCategory.UNASSIGNED].\n */\n@SinceKotlin(\"1.5\")\npublic expect fun Char.isDefined(): Boolean\n\n/**\n * Returns `true` if this character is a letter.\n *\n * A character is considered to be a letter if its [category] is [CharCategory.UPPERCASE_LETTER],\n * [CharCategory.LOWERCASE_LETTER], [CharCategory.TITLECASE_LETTER], [CharCategory.MODIFIER_LETTER], or [CharCategory.OTHER_LETTER].\n *\n * @sample samples.text.Chars.isLetter\n */\n@SinceKotlin(\"1.5\")\npublic expect fun Char.isLetter(): Boolean\n\n/**\n * Returns `true` if this character is a letter or digit.\n *\n * @see isLetter\n * @see isDigit\n *\n * @sample samples.text.Chars.isLetterOrDigit\n */\n@SinceKotlin(\"1.5\")\npublic expect fun Char.isLetterOrDigit(): Boolean\n\n/**\n * Returns `true` if this character is a digit.\n *\n * A character is considered to be a digit if its [category] is [CharCategory.DECIMAL_DIGIT_NUMBER].\n *\n * @sample samples.text.Chars.isDigit\n */\n@SinceKotlin(\"1.5\")\npublic expect fun Char.isDigit(): Boolean\n\n/**\n * Returns `true` if this character is upper case.\n *\n * A character is considered to be an upper case character if its [category] is [CharCategory.UPPERCASE_LETTER],\n * or it has contributory property `Other_Uppercase` as defined by the Unicode Standard.\n *\n * @sample samples.text.Chars.isUpperCase\n */\n@SinceKotlin(\"1.5\")\npublic expect fun Char.isUpperCase(): Boolean\n\n/**\n * Returns `true` if this character is lower case.\n *\n * A character is considered to be a lower case character if its [category] is [CharCategory.LOWERCASE_LETTER],\n * or it has contributory property `Other_Lowercase` as defined by the Unicode Standard.\n *\n * @sample samples.text.Chars.isLowerCase\n */\n@SinceKotlin(\"1.5\")\npublic expect fun Char.isLowerCase(): Boolean\n\n/**\n * Returns `true` if this character is a title case letter.\n *\n * A character is considered to be a title case letter if its [category] is [CharCategory.TITLECASE_LETTER].\n *\n * @sample samples.text.Chars.isTitleCase\n */\n@SinceKotlin(\"1.5\")\npublic expect fun Char.isTitleCase(): Boolean\n\n/**\n * Returns `true` if this character is an ISO control character.\n *\n * A character is considered to be an ISO control character if its [category] is [CharCategory.CONTROL],\n * meaning the Char is in the range `'\\u0000'..'\\u001F'` or in the range `'\\u007F'..'\\u009F'`.\n *\n * @sample samples.text.Chars.isISOControl\n */\n@SinceKotlin(\"1.5\")\npublic expect fun Char.isISOControl(): Boolean\n\n/**\n * Determines whether a character is whitespace according to the Unicode standard.\n * Returns `true` if the character is whitespace.\n *\n * @sample samples.text.Chars.isWhitespace\n */\npublic expect fun Char.isWhitespace(): Boolean\n","/*\n * Copyright 2010-2021 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin\n\n\n\n/**\n * Creates a Char with the specified [code], or throws an exception if the [code] is out of `Char.MIN_VALUE.code..Char.MAX_VALUE.code`.\n *\n * If the program that calls this function is written in a way that only valid [code] is passed as the argument,\n * using the overload that takes a [UShort] argument is preferable (`Char(intValue.toUShort())`).\n * That overload doesn't check validity of the argument, and may improve program performance when the function is called routinely inside a loop.\n *\n * @sample samples.text.Chars.charFromCode\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalStdlibApi::class)\n@kotlin.internal.InlineOnly\npublic inline fun Char(code: Int): Char {\n   if (code < Char.MIN_VALUE.code || code > Char.MAX_VALUE.code) {\n   throw IllegalArgumentException(\"Invalid Char code: $code\")\n   }\n   return code.toChar()\n}\n\n/**\n * Creates a Char with the specified [code].\n *\n * @sample samples.text.Chars.charFromCode\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalStdlibApi::class)\n@Suppress(\"NO_ACTUAL_FOR_EXPECT\")\npublic expect fun Char(code: UShort): Char\n\n/**\n * Returns the code of this Char.\n *\n * Code of a Char is the value it was constructed with, and the UTF-16 code unit corresponding to this Char.\n *\n * @sample samples.text.Chars.code\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalStdlibApi::class)\n@kotlin.internal.InlineOnly\n@Suppress(\"DEPRECATION\")\n@kotlin.internal.IntrinsicConstEvaluation\npublic inline val Char.code: Int get() = this.toInt()\n","/*\n * Copyright 2010-2022 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\n@file:kotlin.jvm.JvmMultifileClass\n@file:kotlin.jvm.JvmName(\"SequencesKt\")\n\npackage kotlin.sequences\n\n//\n// NOTE: THIS FILE IS AUTO-GENERATED by the GenerateStandardLib.kt\n// See: https://github.com/JetBrains/kotlin/tree/master/libraries/stdlib\n//\n\nimport kotlin.random.*\n\n/**\n * Returns `true` if [element] is found in the sequence.\n *\n * The operation is _terminal_.\n */\npublic operator fun <@kotlin.internal.OnlyInputTypes T> Sequence<T>.contains(element: T): Boolean {\n   return indexOf(element) >= 0\n}\n\n/**\n * Returns an element at the given [index] or throws an [IndexOutOfBoundsException] if the [index] is out of bounds of this sequence.\n *\n * The operation is _terminal_.\n * \n * @sample samples.collections.Collections.Elements.elementAt\n */\npublic fun <T> Sequence<T>.elementAt(index: Int): T {\n   return elementAtOrElse(index) { throw IndexOutOfBoundsException(\"Sequence doesn't contain element at index $index.\") }\n}\n\n/**\n * Returns an element at the given [index] or the result of calling the [defaultValue] function if the [index] is out of bounds of this sequence.\n *\n * The operation is _terminal_.\n * \n * @sample samples.collections.Collections.Elements.elementAtOrElse\n */\npublic fun <T> Sequence<T>.elementAtOrElse(index: Int, defaultValue: (Int) -> T): T {\n   if (index < 0)\n   return defaultValue(index)\n   val iterator = iterator()\n   var count = 0\n   while (iterator.hasNext()) {\n   val element = iterator.next()\n   if (index == count++)\n   return element\n   }\n   return defaultValue(index)\n}\n\n/**\n * Returns an element at the given [index] or `null` if the [index] is out of bounds of this sequence.\n *\n * The operation is _terminal_.\n * \n * @sample samples.collections.Collections.Elements.elementAtOrNull\n */\npublic fun <T> Sequence<T>.elementAtOrNull(index: Int): T? {\n   if (index < 0)\n   return null\n   val iterator = iterator()\n   var count = 0\n   while (iterator.hasNext()) {\n   val element = iterator.next()\n   if (index == count++)\n   return element\n   }\n   return null\n}\n\n/**\n * Returns the first element matching the given [predicate], or `null` if no such element was found.\n *\n * The operation is _terminal_.\n * \n * @sample samples.collections.Collections.Elements.find\n */\n@kotlin.internal.InlineOnly\npublic inline fun <T> Sequence<T>.find(predicate: (T) -> Boolean): T? {\n   return firstOrNull(predicate)\n}\n\n/**\n * Returns the last element matching the given [predicate], or `null` if no such element was found.\n *\n * The operation is _terminal_.\n * \n * @sample samples.collections.Collections.Elements.find\n */\n@kotlin.internal.InlineOnly\npublic inline fun <T> Sequence<T>.findLast(predicate: (T) -> Boolean): T? {\n   return lastOrNull(predicate)\n}\n\n/**\n * Returns the first element.\n *\n * The operation is _terminal_.\n * \n * @throws NoSuchElementException if the sequence is empty.\n */\npublic fun <T> Sequence<T>.first(): T {\n   val iterator = iterator()\n   if (!iterator.hasNext())\n   throw NoSuchElementException(\"Sequence is empty.\")\n   return iterator.next()\n}\n\n/**\n * Returns the first element matching the given [predicate].\n * @throws [NoSuchElementException] if no such element is found.\n *\n * The operation is _terminal_.\n */\npublic inline fun <T> Sequence<T>.first(predicate: (T) -> Boolean): T {\n   for (element in this) if (predicate(element)) return element\n   throw NoSuchElementException(\"Sequence contains no element matching the predicate.\")\n}\n\n/**\n * Returns the first non-null value produced by [transform] function being applied to elements of this sequence in iteration order,\n * or throws [NoSuchElementException] if no non-null value was produced.\n *\n * The operation is _terminal_.\n * \n * @sample samples.collections.Collections.Transformations.firstNotNullOf\n */\n@SinceKotlin(\"1.5\")\n@kotlin.internal.InlineOnly\npublic inline fun <T, R : Any> Sequence<T>.firstNotNullOf(transform: (T) -> R?): R {\n   return firstNotNullOfOrNull(transform) ?: throw NoSuchElementException(\"No element of the sequence was transformed to a non-null value.\")\n}\n\n/**\n * Returns the first non-null value produced by [transform] function being applied to elements of this sequence in iteration order,\n * or `null` if no non-null value was produced.\n *\n * The operation is _terminal_.\n * \n * @sample samples.collections.Collections.Transformations.firstNotNullOf\n */\n@SinceKotlin(\"1.5\")\n@kotlin.internal.InlineOnly\npublic inline fun <T, R : Any> Sequence<T>.firstNotNullOfOrNull(transform: (T) -> R?): R? {\n   for (element in this) {\n   val result = transform(element)\n   if (result != null) {\n   return result\n   }\n   }\n   return null\n}\n\n/**\n * Returns the first element, or `null` if the sequence is empty.\n *\n * The operation is _terminal_.\n */\npublic fun <T> Sequence<T>.firstOrNull(): T? {\n   val iterator = iterator()\n   if (!iterator.hasNext())\n   return null\n   return iterator.next()\n}\n\n/**\n * Returns the first element matching the given [predicate], or `null` if element was not found.\n *\n * The operation is _terminal_.\n */\npublic inline fun <T> Sequence<T>.firstOrNull(predicate: (T) -> Boolean): T? {\n   for (element in this) if (predicate(element)) return element\n   return null\n}\n\n/**\n * Returns first index of [element], or -1 if the sequence does not contain element.\n *\n * The operation is _terminal_.\n */\npublic fun <@kotlin.internal.OnlyInputTypes T> Sequence<T>.indexOf(element: T): Int {\n   var index = 0\n   for (item in this) {\n   checkIndexOverflow(index)\n   if (element == item)\n   return index\n   index++\n   }\n   return -1\n}\n\n/**\n * Returns index of the first element matching the given [predicate], or -1 if the sequence does not contain such element.\n *\n * The operation is _terminal_.\n */\npublic inline fun <T> Sequence<T>.indexOfFirst(predicate: (T) -> Boolean): Int {\n   var index = 0\n   for (item in this) {\n   checkIndexOverflow(index)\n   if (predicate(item))\n   return index\n   index++\n   }\n   return -1\n}\n\n/**\n * Returns index of the last element matching the given [predicate], or -1 if the sequence does not contain such element.\n *\n * The operation is _terminal_.\n */\npublic inline fun <T> Sequence<T>.indexOfLast(predicate: (T) -> Boolean): Int {\n   var lastIndex = -1\n   var index = 0\n   for (item in this) {\n   checkIndexOverflow(index)\n   if (predicate(item))\n   lastIndex = index\n   index++\n   }\n   return lastIndex\n}\n\n/**\n * Returns the last element.\n *\n * The operation is _terminal_.\n * \n * @throws NoSuchElementException if the sequence is empty.\n * \n * @sample samples.collections.Collections.Elements.last\n */\npublic fun <T> Sequence<T>.last(): T {\n   val iterator = iterator()\n   if (!iterator.hasNext())\n   throw NoSuchElementException(\"Sequence is empty.\")\n   var last = iterator.next()\n   while (iterator.hasNext())\n   last = iterator.next()\n   return last\n}\n\n/**\n * Returns the last element matching the given [predicate].\n *\n * The operation is _terminal_.\n * \n * @throws NoSuchElementException if no such element is found.\n * \n * @sample samples.collections.Collections.Elements.last\n */\npublic inline fun <T> Sequence<T>.last(predicate: (T) -> Boolean): T {\n   var last: T? = null\n   var found = false\n   for (element in this) {\n   if (predicate(element)) {\n   last = element\n   found = true\n   }\n   }\n   if (!found) throw NoSuchElementException(\"Sequence contains no element matching the predicate.\")\n   @Suppress(\"UNCHECKED_CAST\")\n   return last as T\n}\n\n/**\n * Returns last index of [element], or -1 if the sequence does not contain element.\n *\n * The operation is _terminal_.\n */\npublic fun <@kotlin.internal.OnlyInputTypes T> Sequence<T>.lastIndexOf(element: T): Int {\n   var lastIndex = -1\n   var index = 0\n   for (item in this) {\n   checkIndexOverflow(index)\n   if (element == item)\n   lastIndex = index\n   index++\n   }\n   return lastIndex\n}\n\n/**\n * Returns the last element, or `null` if the sequence is empty.\n *\n * The operation is _terminal_.\n * \n * @sample samples.collections.Collections.Elements.last\n */\npublic fun <T> Sequence<T>.lastOrNull(): T? {\n   val iterator = iterator()\n   if (!iterator.hasNext())\n   return null\n   var last = iterator.next()\n   while (iterator.hasNext())\n   last = iterator.next()\n   return last\n}\n\n/**\n * Returns the last element matching the given [predicate], or `null` if no such element was found.\n *\n * The operation is _terminal_.\n * \n * @sample samples.collections.Collections.Elements.last\n */\npublic inline fun <T> Sequence<T>.lastOrNull(predicate: (T) -> Boolean): T? {\n   var last: T? = null\n   for (element in this) {\n   if (predicate(element)) {\n   last = element\n   }\n   }\n   return last\n}\n\n/**\n * Returns the single element, or throws an exception if the sequence is empty or has more than one element.\n *\n * The operation is _terminal_.\n */\npublic fun <T> Sequence<T>.single(): T {\n   val iterator = iterator()\n   if (!iterator.hasNext())\n   throw NoSuchElementException(\"Sequence is empty.\")\n   val single = iterator.next()\n   if (iterator.hasNext())\n   throw IllegalArgumentException(\"Sequence has more than one element.\")\n   return single\n}\n\n/**\n * Returns the single element matching the given [predicate], or throws exception if there is no or more than one matching element.\n *\n * The operation is _terminal_.\n */\npublic inline fun <T> Sequence<T>.single(predicate: (T) -> Boolean): T {\n   var single: T? = null\n   var found = false\n   for (element in this) {\n   if (predicate(element)) {\n   if (found) throw IllegalArgumentException(\"Sequence contains more than one matching element.\")\n   single = element\n   found = true\n   }\n   }\n   if (!found) throw NoSuchElementException(\"Sequence contains no element matching the predicate.\")\n   @Suppress(\"UNCHECKED_CAST\")\n   return single as T\n}\n\n/**\n * Returns single element, or `null` if the sequence is empty or has more than one element.\n *\n * The operation is _terminal_.\n */\npublic fun <T>

Sequence<T>.singleOrNull(): T? {\n   val iterator = iterator()\n   if (!iterator.hasNext())\n   return null\n   val single = iterator.next()\n   if (iterator.hasNext())\n   return null\n   return single\n}\n\n/**\n * Returns the single element matching the given [predicate], or `null` if element was not found or more than one element was found.\n *\n * The operation is _terminal_.\n */\npublic inline fun <T> Sequence<T>.singleOrNull(predicate: (T) -> Boolean): T? {\n   var single: T? = null\n   var found = false\n   for (element in this) {\n   if (predicate(element)) {\n   if (found) return null\n   single = element\n   found = true\n   }\n   }\n   if (!found) return null\n   return single\n}\n\n/**\n * Returns a sequence containing all elements except first [n] elements.\n *\n * The operation is _intermediate_ and _stateless_.\n * \n * @throws IllegalArgumentException if [n] is negative.\n * \n * @sample samples.collections.Collections.Transformations.drop\n */\npublic fun <T> Sequence<T>.drop(n: Int): Sequence<T> {\n   require(n >= 0) { \"Requested element count $n is less than zero.\" }\n   return when {\n   n == 0 -> this\n   this is DropTakeSequence -> this.drop(n)\n   else -> DropSequence(this, n)\n   }\n}\n\n/**\n * Returns a sequence containing all elements except first elements that satisfy the given [predicate].\n *\n * The operation is _intermediate_ and _stateless_.\n * \n * @sample samples.collections.Collections.Transformations.drop\n */\npublic fun <T> Sequence<T>.dropWhile(predicate: (T) -> Boolean): Sequence<T> {\n   return DropWhileSequence(this, predicate)\n}\n\n/**\n * Returns a sequence containing only elements matching the given [predicate].\n *\n * The operation is _intermediate_ and _stateless_.\n * \n * @sample samples.collections.Collections.Filtering.filter\n */\npublic fun <T> Sequence<T>.filter(predicate: (T) -> Boolean): Sequence<T> {\n   return FilteringSequence(this, true, predicate)\n}\n\n/**\n * Returns a sequence containing only elements matching the given [predicate].\n * @param [predicate] function that takes the index of an element and the element itself\n * and returns the result of predicate evaluation on the element.\n *\n * The operation is _intermediate_ and _stateless_.\n * \n * @sample samples.collections.Collections.Filtering.filterIndexed\n */\npublic fun <T> Sequence<T>.filterIndexed(predicate: (index: Int, T) -> Boolean): Sequence<T> {\n   // TODO: Rewrite with generalized MapFilterIndexingSequence\n   return TransformingSequence(FilteringSequence(IndexingSequence(this), true, { predicate(it.index, it.value) }), { it.value })\n}\n\n/**\n * Appends all elements matching the given [predicate] to the given [destination].\n * @param [predicate] function that takes the index of an element and the element itself\n * and returns the result of predicate evaluation on the element.\n *\n * The operation is _terminal_.\n * \n * @sample samples.collections.Collections.Filtering.filterIndexedTo\n */\npublic inline fun <T, C : MutableCollection<in T>> Sequence<T>.filterIndexedTo(destination: C, predicate: (index: Int, T) -> Boolean): C {\n   forEachIndexed { index, element ->\n   if (predicate(index, element)) destination.add(element)\n   }\n   return destination\n}\n\n/**\n * Returns a sequence containing all elements that are instances of specified type parameter R.\n *\n * The operation is _intermediate_ and _stateless_.\n * \n * @sample samples.collections.Collections.Filtering.filterIsInstance\n */\npublic inline fun <reified R> Sequence<*>.filterIsInstance(): Sequence<@kotlin.internal.NoInfer R> {\n   @Suppress(\"UNCHECKED_CAST\")\n   return filter { it is R } as Sequence<R>\n}\n\n/**\n * Appends all elements that are instances of specified type parameter R to the given [destination].\n *\n * The operation is _terminal_.\n * \n * @sample samples.collections.Collections.Filtering.filterIsInstanceTo\n */\npublic inline fun <reified R, C : MutableCollection<in R>> Sequence<*>.filterIsInstanceTo(destination: C): C {\n   for (element in this) if (element is R) destination.add(element)\n   return destination\n}\n\n/**\n * Returns a sequence containing all elements not matching the given [predicate].\n *\n * The operation is _intermediate_ and _stateless_.\n * \n * @sample samples.collections.Collections.Filtering.filter\n */\npublic fun <T> Sequence<T>.filterNot(predicate: (T) -> Boolean): Sequence<T> {\n   return FilteringSequence(this, false, predicate)\n}\n\n/**\n * Returns a sequence containing all elements that are not `null`.\n *\n * The operation is _intermediate_ and _stateless_.\n * \n * @sample samples.collections.Collections.Filtering.filterNotNull\n */\npublic fun <T : Any> Sequence<T?>.filterNotNull(): Sequence<T> {\n   @Suppress(\"UNCHECKED_CAST\")\n   return filterNot { it == null } as Sequence<T>\n}\n\n/**\n * Appends all elements that are not `null` to the given [destination].\n *\n * The operation is _terminal_.\n * \n * @sample samples.collections.Collections.Filtering.filterNotNullTo\n */\npublic fun <C : MutableCollection<in T>, T : Any> Sequence<T?>.filterNotNullTo(destination: C): C {\n   for (element in this) if (element != null) destination.add(element)\n   return destination\n}\n\n/**\n * Appends all elements not matching the given [predicate] to the given [destination].\n *\n * The operation is _terminal_.\n * \n * @sample samples.collections.Collections.Filtering.filterTo\n */\npublic inline fun <T, C : MutableCollection<in T>> Sequence<T>.filterNotTo(destination: C, predicate: (T) -> Boolean): C {\n   for (element in this) if (!predicate(element)) destination.add(element)\n   return destination\n}\n\n/**\n * Appends all elements matching the given [predicate] to the given [destination].\n *\n * The operation is _terminal_.\n * \n * @sample samples.collections.Collections.Filtering.filterTo\n */\npublic inline fun <T, C : MutableCollection<in T>> Sequence<T>.filterTo(destination: C, predicate: (T) -> Boolean): C {\n   for (element in this) if (predicate(element)) destination.add(element)\n   return destination\n}\n\n/**\n * Returns a sequence containing first [n] elements.\n *\n * The operation is _intermediate_ and _stateless_.\n * \n * @throws IllegalArgumentException if [n] is negative.\n * \n * @sample samples.collections.Collections.Transformations.take\n */\npublic fun <T> Sequence<T>.take(n: Int): Sequence<T> {\n   require(n >= 0) { \"Requested element count $n is less than zero.\" }\n   return when {\n   n == 0 -> emptySequence()\n   this is DropTakeSequence -> this.take(n)\n   else -> TakeSequence(this, n)\n   }\n}\n\n/**\n * Returns a sequence containing first elements satisfying the given [predicate].\n *\n * The operation is _intermediate_ and _stateless_.\n * \n * @sample samples.collections.Collections.Transformations.take\n */\npublic fun <T> Sequence<T>.takeWhile(predicate: (T) -> Boolean): Sequence<T> {\n   return TakeWhileSequence(this, predicate)\n}\n\n/**\n * Returns a sequence that yields elements of this sequence sorted according to their natural sort order.\n * \n * The sort is _stable_. It means that equal elements preserve their order relative to each other after sorting.\n *\n * The operation is _intermediate_ and _stateful_.\n */\npublic fun <T : Comparable<T>> Sequence<T>.sorted(): Sequence<T> {\n   return object : Sequence<T> {\n   override fun iterator(): Iterator<T> {\n   val sortedList = this@sorted.toMutableList()\n   sortedList.sort()\n   return sortedList.iterator()\n   }\n   }\n}\n\n/**\n * Returns a sequence that yields elements of this sequence sorted according to natural sort order of the value returned by specified [selector] function.\n * \n * The sort is _stable_. It means that equal elements preserve their order relative to each other after sorting.\n *\n * The operation is _intermediate_ and _stateful_.\n * \n * @sample samples.collections.Collections.Sorting.sortedBy\n */\npublic inline fun <T, R : Comparable<R>> Sequence<T>.sortedBy(crossinline selector: (T) -> R?): Sequence<T> {\n   return sortedWith(compareBy(selector))\n}\n\n/**\n * Returns a sequence that yields elements of this sequence sorted descending according to natural sort order of the value returned by specified [selector] function.\n * \n * The sort is _stable_. It means that equal elements preserve their order relative to each other after sorting.\n *\n * The operation is _intermediate_ and _stateful_.\n */\npublic inline fun <T, R : Comparable<R>> Sequence<T>.sortedByDescending(crossinline selector: (T) -> R?): Sequence<T> {\n   return sortedWith(compareByDescending(selector))\n}\n\n/**\n * Returns a sequence that yields elements of this sequence sorted descending according to their natural sort order.\n * \n * The sort is _stable_. It means that equal elements preserve their order relative to each other after sorting.\n *\n * The operation is _intermediate_ and _stateful_.\n */\npublic fun <T : Comparable<T>> Sequence<T>.sortedDescending(): Sequence<T> {\n   return sortedWith(reverseOrder())\n}\n\n/**\n * Returns a sequence that yields elements of this sequence sorted according to the specified [comparator].\n * \n * The sort is _stable_. It means that equal elements preserve their order relative to each other after sorting.\n *\n * The operation is _intermediate_ and _stateful_.\n */\npublic fun <T> Sequence<T>.sortedWith(comparator: Comparator<in T>): Sequence<T> {\n   return object : Sequence<T> {\n   override fun iterator(): Iterator<T> {\n   val sortedList = this@sortedWith.toMutableList()\n   sortedList.sortWith(comparator)\n   return sortedList.iterator()\n   }\n   }\n}\n\n/**\n * Returns a [Map] containing key-value pairs provided by [transform] function\n * applied to elements of the given sequence.\n * \n * If any of two pairs would have the same key the last one gets added to the map.\n * \n * The returned map preserves the entry iteration order of the original sequence.\n *\n * The operation is _terminal_.\n * \n * @sample samples.collections.Collections.Transformations.associate\n */\npublic inline fun <T, K, V> Sequence<T>.associate(transform: (T) -> Pair<K, V>): Map<K, V> {\n   return associateTo(LinkedHashMap<K, V>(), transform)\n}\n\n/**\n * Returns a [Map] containing the elements from the given sequence indexed by the key\n * returned from [keySelector] function applied to each element.\n * \n * If any two elements would have the same key returned by [keySelector] the last one gets added to the map.\n * \n * The returned map preserves the entry iteration order of the original sequence.\n *\n * The operation is _terminal_.\n * \n * @sample samples.collections.Collections.Transformations.associateBy\n */\npublic inline fun <T, K> Sequence<T>.associateBy(keySelector: (T) -> K): Map<K, T> {\n   return associateByTo(LinkedHashMap<K, T>(), keySelector)\n}\n\n/**\n * Returns a [Map] containing the values provided by [valueTransform] and indexed by [keySelector] functions applied to elements of the given sequence.\n * \n * If any two elements would have the same key returned by [keySelector] the last one gets added to the map.\n * \n * The returned map preserves the entry iteration order of the original sequence.\n *\n * The operation is _terminal_.\n * \n * @sample samples.collections.Collections.Transformations.associateByWithValueTransform\n */\npublic inline fun <T, K, V> Sequence<T>.associateBy(keySelector: (T) -> K, valueTransform: (T) -> V): Map<K, V> {\n   return associateByTo(LinkedHashMap<K, V>(), keySelector, valueTransform)\n}\n\n/**\n * Populates and returns the [destination] mutable map with key-value pairs,\n * where key is provided by the [keySelector] function applied to each element of the given sequence\n * and value is the element itself.\n * \n * If any two elements would have the same key returned by [keySelector] the last one gets added to the map.\n *\n * The operation is _terminal_.\n * \n * @sample samples.collections.Collections.Transformations.associateByTo\n */\npublic inline fun <T, K, M : MutableMap<in K, in T>> Sequence<T>.associateByTo(destination: M, keySelector: (T) -> K): M {\n   for (element in this) {\n   destination.put(keySelector(element), element)\n   }\n   return destination\n}\n\n/**\n * Populates and returns the [destination] mutable map with key-value pairs,\n * where key is provided by the [keySelector] function and\n * and value is provided by the [valueTransform] function applied to elements of the given sequence.\n * \n * If any two elements would have the same key returned by [keySelector] the last one gets added to the map.\n *\n * The operation is _terminal_.\n * \n * @sample samples.collections.Collections.Transformations.associateByToWithValueTransform\n */\npublic inline fun <T, K, V, M : MutableMap<in K, in V>> Sequence<T>.associateByTo(destination: M, keySelector: (T) -> K, valueTransform: (T) -> V): M {\n   for (element in this) {\n   destination.put(keySelector(element), valueTransform(element))\n   }\n   return destination\n}\n\n/**\n * Populates and returns the [destination] mutable map with key-value pairs\n * provided by [transform] function applied to each element of the given sequence.\n * \n * If any of two pairs would have the same key the last one gets added to the map.\n *\n * The operation is _terminal_.\n * \n * @sample samples.collections.Collections.Transformations.associateTo\n */\npublic inline fun <T, K, V, M : MutableMap<in K, in V>> Sequence<T>.associateTo(destination: M, transform: (T) -> Pair<K, V>): M {\n   for (element in this) {\n   destination += transform(element)\n   }\n   return destination\n}\n\n/**\n * Returns a [Map] where keys are elements from the given sequence and values are\n * produced by the [valueSelector] function applied to each element.\n * \n * If any two elements are equal, the last one gets added to the map.\n * \n * The returned map preserves the entry iteration order of the original sequence.\n *\n * The operation is _terminal_.\n * \n * @sample samples.collections.Collections.Transformations.associateWith\n */\n@SinceKotlin(\"1.3\")\npublic inline fun <K, V> Sequence<K>.associateWith(valueSelector: (K) -> V): Map<K, V> {\n   val result = LinkedHashMap<K, V>()\n   return associateWithTo(result, valueSelector)\n}\n\n/**\n * Populates and returns the [destination] mutable map with key-value pairs for each element of the given sequence,\n * where key is the element itself and value is provided by the [valueSelector] function applied to that key.\n * \n * If any two elements are equal, the last one overwrites the former value in the map.\n *\n * The operation is _terminal_.\n * \n * @sample samples.collections.Collections.Transformations.associateWithTo\n */\n@SinceKotlin(\"1.3\")\npublic inline fun <K, V, M : MutableMap<in K, in V>> Sequence<K>.associateWithTo(destination: M, valueSelector: (K) -> V): M {\n   for (element in this) {\n   destination.put(element, valueSelector(element))\n   }\n   return destination\n}\n\n/**\n * Appends all elements to the given [destination] collection.\n *\n * The operation is _terminal_.\n */\npublic fun <T, C : MutableCollection<in T>> Sequence<T>.toCollection(destination: C): C {\n   for (item in this) {\n   destination.add(item)\n   }\n   return destination\n}\n\n/**\n * Returns a new [HashSet] of all elements.\n *\n * The operation is _terminal_.\n */\npublic fun <T> Sequence<T>.toHashSet(): HashSet<T> {\n   return toCollection(HashSet<T>())\n}\n\n/**\n * Returns a [List] containing all elements.\n *\n * The operation is _terminal_.\n */\npublic fun <T> Sequence<T>.toList(): List<T> {\n   return this.toMutableList().optimizeReadOnlyList()\n}\n\n/**\n * Returns a new [MutableList] filled with all elements of this sequence.\n *\n * The operation is _terminal_.\n */\npublic fun <T> Sequence<T>.toMutableList(): MutableList<T> {\n   return toCollection(ArrayList<T>())\n}\n\n/**\n * Returns a [Set] of all elements.\n * \n * The returned set preserves the element iteration order of the original sequence.\n *\n * The operation is _terminal_.\n */\npublic fun <T> Sequence<T>.toSet(): Set<T> {\n   return toCollection(LinkedHashSet<T>()).optimizeReadOnlySet()\n}\n\n/**\n * Returns a single sequence of all elements from results of [transform] function being invoked on each element of original sequence.\n *\n * The operation is _intermediate_ and _stateless_.\n * \n * @sample samples.collections.Collections.Transformations.flatMap\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.jvm.JvmName(\"flatMapIterable\")\npublic fun <T, R> Sequence<T>.flatMap(transform: (T) -> Iterable<R>): Sequence<R> {\n   return FlatteningSequence(this, transform, Iterable<R>::iterator)\n}\n\n/**\n * Returns a single sequence of all elements from results of [transform] function being invoked on each element of original sequence.\n *\n * The operation is _intermediate_ and _stateless_.\n * \n * @sample samples.collections.Collections.Transformations.flatMap\n */\npublic fun <T, R> Sequence<T>.flatMap(transform: (T) -> Sequence<R>): Sequence<R> {\n   return FlatteningSequence(this, transform, Sequence<R>::iterator)\n}\n\n/**\n * Returns a single sequence of all elements yielded from results of [transform] function being invoked on each element\n * and its index in the original sequence.\n *\n * The operation is _intermediate_ and _stateless_.\n * \n * @sample samples.collections.Collections.Transformations.flatMapIndexed\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.jvm.JvmName(\"flatMapIndexedIterable\")\npublic fun <T, R> Sequence<T>.flatMapIndexed(transform: (index: Int, T) -> Iterable<R>): Sequence<R> {\n   return flatMapIndexed(this, transform, Iterable<R>::iterator)\n}\n\n/**\n * Returns a single sequence of all elements yielded from results of [transform] function being invoked on each element\n * and its index in the original sequence.\n *\n * The operation is _intermediate_ and _stateless_.\n * \n * @sample samples.collections.Collections.Transformations.flatMapIndexed\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.jvm.JvmName(\"flatMapIndexedSequence\")\npublic fun <T, R> Sequence<T>.flatMapIndexed(transform: (index: Int, T) -> Sequence<R>): Sequence<R> {\n   return flatMapIndexed(this, transform, Sequence<R>::iterator)\n}\n\n/**\n * Appends all elements yielded from results of [transform] function being invoked on each element\n * and its index in the original sequence, to the given [destination].\n *\n * The operation is _terminal_.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.jvm.JvmName(\"flatMapIndexedIterableTo\")\n@kotlin.internal.InlineOnly\npublic inline fun <T, R, C : MutableCollection<in R>> Sequence<T>.flatMapIndexedTo(destination: C, transform: (index: Int, T) -> Iterable<R>): C {\n   var index = 0\n   for (element in this) {\n   val list = transform(checkIndexOverflow(index++), element)\n   destination.addAll(list)\n   }\n   return destination\n}\n\n/**\n * Appends all elements yielded from results of [transform] function being invoked on each element\n * and its index in the original sequence, to the given [destination].\n *\n * The operation is _terminal_.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.jvm.JvmName(\"flatMapIndexedSequenceTo\")\n@kotlin.internal.InlineOnly\npublic inline fun <T, R, C : MutableCollection<in R>> Sequence<T>.flatMapIndexedTo(destination: C, transform: (index: Int, T) -> Sequence<R>): C {\n   var index = 0\n   for (element in this) {\n   val list = transform(checkIndexOverflow(index++), element)\n   destination.addAll(list)\n   }\n   return destination\n}\n\n/**\n * Appends all elements yielded from results of [transform] function being invoked on each element of original sequence, to the given [destination].\n *\n * The operation is _terminal_.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution

ByLambdaReturnType\n@kotlin.jvm.JvmName(\"flatMapIterableTo\")\npublic inline fun <T, R, C : MutableCollection<in R>> Sequence<T>.flatMapTo(destination: C, transform: (T) -> Iterable<R>): C {\n   for (element in this) {\n   val list = transform(element)\n   destination.addAll(list)\n   }\n   return destination\n}\n\n/**\n * Appends all elements yielded from results of [transform] function being invoked on each element of original sequence, to the given [destination].\n *\n * The operation is _terminal_.\n */\npublic inline fun <T, R, C : MutableCollection<in R>> Sequence<T>.flatMapTo(destination: C, transform: (T) -> Sequence<R>): C {\n   for (element in this) {\n   val list = transform(element)\n   destination.addAll(list)\n   }\n   return destination\n}\n\n/**\n * Groups elements of the original sequence by the key returned by the given [keySelector] function\n * applied to each element and returns a map where each group key is associated with a list of corresponding elements.\n * \n * The returned map preserves the entry iteration order of the keys produced from the original sequence.\n *\n * The operation is _terminal_.\n * \n * @sample samples.collections.Collections.Transformations.groupBy\n */\npublic inline fun <T, K> Sequence<T>.groupBy(keySelector: (T) -> K): Map<K, List<T>> {\n   return groupByTo(LinkedHashMap<K, MutableList<T>>(), keySelector)\n}\n\n/**\n * Groups values returned by the [valueTransform] function applied to each element of the original sequence\n * by the key returned by the given [keySelector] function applied to the element\n * and returns a map where each group key is associated with a list of corresponding values.\n * \n * The returned map preserves the entry iteration order of the keys produced from the original sequence.\n *\n * The operation is _terminal_.\n * \n * @sample samples.collections.Collections.Transformations.groupByKeysAndValues\n */\npublic inline fun <T, K, V> Sequence<T>.groupBy(keySelector: (T) -> K, valueTransform: (T) -> V): Map<K, List<V>> {\n   return groupByTo(LinkedHashMap<K, MutableList<V>>(), keySelector, valueTransform)\n}\n\n/**\n * Groups elements of the original sequence by the key returned by the given [keySelector] function\n * applied to each element and puts to the [destination] map each group key associated with a list of corresponding elements.\n * \n * @return The [destination] map.\n *\n * The operation is _terminal_.\n * \n * @sample samples.collections.Collections.Transformations.groupBy\n */\npublic inline fun <T, K, M : MutableMap<in K, MutableList<T>>> Sequence<T>.groupByTo(destination: M, keySelector: (T) -> K): M {\n   for (element in this) {\n   val key = keySelector(element)\n   val list = destination.getOrPut(key) { ArrayList<T>() }\n   list.add(element)\n   }\n   return destination\n}\n\n/**\n * Groups values returned by the [valueTransform] function applied to each element of the original sequence\n * by the key returned by the given [keySelector] function applied to the element\n * and puts to the [destination] map each group key associated with a list of corresponding values.\n * \n * @return The [destination] map.\n *\n * The operation is _terminal_.\n * \n * @sample samples.collections.Collections.Transformations.groupByKeysAndValues\n */\npublic inline fun <T, K, V, M : MutableMap<in K, MutableList<V>>> Sequence<T>.groupByTo(destination: M, keySelector: (T) -> K, valueTransform: (T) -> V): M {\n   for (element in this) {\n   val key = keySelector(element)\n   val list = destination.getOrPut(key) { ArrayList<V>() }\n   list.add(valueTransform(element))\n   }\n   return destination\n}\n\n/**\n * Creates a [Grouping] source from a sequence to be used later with one of group-and-fold operations\n * using the specified [keySelector] function to extract a key from each element.\n *\n * The operation is _intermediate_ and _stateless_.\n * \n * @sample samples.collections.Grouping.groupingByEachCount\n */\n@SinceKotlin(\"1.1\")\npublic inline fun <T, K> Sequence<T>.groupingBy(crossinline keySelector: (T) -> K): Grouping<T, K> {\n   return object : Grouping<T, K> {\n   override fun sourceIterator(): Iterator<T> = this@groupingBy.iterator()\n   override fun keyOf(element: T): K = keySelector(element)\n   }\n}\n\n/**\n * Returns a sequence containing the results of applying the given [transform] function\n * to each element in the original sequence.\n *\n * The operation is _intermediate_ and _stateless_.\n * \n * @sample samples.collections.Collections.Transformations.map\n */\npublic fun <T, R> Sequence<T>.map(transform: (T) -> R): Sequence<R> {\n   return TransformingSequence(this, transform)\n}\n\n/**\n * Returns a sequence containing the results of applying the given [transform] function\n * to each element and its index in the original sequence.\n * @param [transform] function that takes the index of an element and the element itself\n * and returns the result of the transform applied to the element.\n *\n * The operation is _intermediate_ and _stateless_.\n */\npublic fun <T,

R> Sequence<T>.mapIndexed(transform: (index: Int, T) -> R): Sequence<R> {\n   return TransformingIndexedSequence(this, transform)\n}\n\n/**\n * Returns a sequence containing only the non-null results of applying the given [transform] function\n * to each element and its index in the original sequence.\n * @param [transform] function that takes the index of an element and the element itself\n * and returns the result of the transform applied to the element.\n *\n * The operation is _intermediate_ and _stateless_.\n */\npublic fun <T, R : Any> Sequence<T>.mapIndexedNotNull(transform: (index: Int, T) -> R?): Sequence<R> {\n   return TransformingIndexedSequence(this, transform).filterNotNull()\n}\n\n/**\n * Applies the given [transform] function to each element and its index in the original sequence\n * and appends only the non-null results to the given [destination].\n * @param [transform] function that takes the index of an element and the element itself\n * and returns the result of the transform applied to the element.\n *\n * The operation is _terminal_.\n */\npublic inline fun <T, R : Any, C : MutableCollection<in R>> Sequence<T>.mapIndexedNotNullTo(destination: C, transform: (index: Int, T) -> R?): C {\n   forEachIndexed { index, element -> transform(index, element)?.let { destination.add(it) } }\n   return destination\n}\n\n/**\n * Applies the given [transform] function to each element and its index in the original sequence\n * and appends the results to the given [destination].\n * @param [transform] function that takes the index of an element and the element itself\n * and returns the result of the transform applied to the element.\n *\n * The operation is _terminal_.\n */\npublic inline fun <T, R, C : MutableCollection<in R>> Sequence<T>.mapIndexedTo(destination: C, transform: (index: Int, T) -> R): C {\n   var index = 0\n   for (item in this)\n   destination.add(transform(checkIndexOverflow(index++), item))\n   return destination\n}\n\n/**\n * Returns a sequence containing only the non-null results of applying the given [transform] function\n * to each element in the original sequence.\n *\n * The operation is _intermediate_ and _stateless_.\n * \n * @sample samples.collections.Collections.Transformations.mapNotNull\n */\npublic fun <T, R : Any> Sequence<T>.mapNotNull(transform: (T) -> R?): Sequence<R> {\n   return TransformingSequence(this, transform).filterNotNull()\n}\n\n/**\n * Applies the given [transform] function to each element in the original sequence\n * and appends only the non-null results to the given [destination].\n *\n * The operation is _terminal_.\n */\npublic inline fun <T, R : Any, C : MutableCollection<in R>> Sequence<T>.mapNotNullTo(destination: C, transform: (T) -> R?): C {\n   forEach { element -> transform(element)?.let { destination.add(it) } }\n   return destination\n}\n\n/**\n * Applies the given [transform] function to each element of the original sequence\n * and appends the results to the given [destination].\n *\n * The operation is _terminal_.\n */\npublic inline fun <T, R, C : MutableCollection<in R>> Sequence<T>.mapTo(destination: C, transform: (T) -> R): C {\n   for (item in this)\n   destination.add(transform(item))\n   return destination\n}\n\n/**\n * Returns a sequence that wraps each element of the original sequence\n * into an [IndexedValue] containing the index of that element and the element itself.\n *\n * The operation is _intermediate_ and _stateless_.\n */\npublic fun <T> Sequence<T>.withIndex(): Sequence<IndexedValue<T>> {\n   return IndexingSequence(this)\n}\n\n/**\n * Returns a sequence containing only distinct elements from the given sequence.\n * \n * Among equal elements of the given sequence, only the first one will be present in the resulting sequence.\n * The elements in the resulting sequence are in the same order as they were in the source sequence.\n *\n * The operation is _intermediate_ and _stateful_.\n * \n * @sample samples.collections.Collections.Transformations.distinctAndDistinctBy\n */\npublic fun <T> Sequence<T>.distinct(): Sequence<T> {\n   return this.distinctBy { it }\n}\n\n/**\n * Returns a sequence containing only elements from the given sequence\n * having distinct keys returned by the given [selector] function.\n * \n * Among elements of the given sequence with equal keys, only the first one will be present in the resulting sequence.\n * The elements in the resulting sequence are in the same order as they were in the source sequence.\n *\n * The operation is _intermediate_ and _stateful_.\n * \n * @sample samples.collections.Collections.Transformations.distinctAndDistinctBy\n */\npublic fun <T, K> Sequence<T>.distinctBy(selector: (T) -> K): Sequence<T> {\n   return DistinctSequence(this, selector)\n}\n\n/**\n * Returns a new [MutableSet] containing all distinct elements from the given sequence.\n * \n * The returned set preserves the element iteration order of the original sequence.\n *\n * The operation is _terminal_.\n */\npublic fun <T> Sequence<T>.toMutableSet(): MutableSet<T> {\n   val set = LinkedHashSet<T>()\n   for (item in this) set.add(item)\n   return set\n}\n\n/**\n * Returns `true` if all elements match the given [predicate].\n *\n * The operation is _terminal_.\n * \n * @sample samples.collections.Collections.Aggregates.all\n */\npublic inline fun <T> Sequence<T>.all(predicate: (T) -> Boolean): Boolean {\n   for (element in this) if (!predicate(element)) return false\n   return true\n}\n\n/**\n * Returns `true` if sequence has at least one element.\n *\n * The operation is _terminal_.\n * \n * @sample samples.collections.Collections.Aggregates.any\n */\npublic fun <T> Sequence<T>.any(): Boolean {\n   return iterator().hasNext()\n}\n\n/**\n * Returns `true` if at least one element matches the given [predicate].\n *\n * The operation is _terminal_.\n * \n * @sample samples.collections.Collections.Aggregates.anyWithPredicate\n */\npublic inline fun <T> Sequence<T>.any(predicate: (T) -> Boolean): Boolean {\n   for (element in this) if (predicate(element)) return true\n   return false\n}\n\n/**\n * Returns the number of elements in this sequence.\n *\n * The operation is _terminal_.\n */\npublic fun <T> Sequence<T>.count(): Int {\n   var count = 0\n   for (element in this) checkCountOverflow(++count)\n   return count\n}\n\n/**\n * Returns the number of elements matching the given [predicate].\n *\n * The operation is _terminal_.\n */\npublic inline fun <T> Sequence<T>.count(predicate: (T) -> Boolean): Int {\n   var count = 0\n   for (element in this) if (predicate(element)) checkCountOverflow(++count)\n   return count\n}\n\n/**\n * Accumulates value starting with [initial] value and applying [operation] from left to right\n * to current accumulator value and each element.\n * \n * Returns the specified [initial] value if the sequence is empty.\n * \n * @param [operation] function that takes current accumulator value and an element, and calculates the next accumulator value.\n *\n * The operation is _terminal_.\n */\npublic inline fun <T, R> Sequence<T>.fold(initial: R, operation: (acc: R, T) -> R): R {\n   var accumulator = initial\n   for (element in this) accumulator = operation(accumulator, element)\n   return accumulator\n}\n\n/**\n * Accumulates value starting with [initial] value and applying [operation] from left to right\n * to current accumulator value and each element with its index in the original sequence.\n * \n * Returns the specified [initial] value if the sequence is empty.\n * \n * @param [operation] function that takes the index of an element, current accumulator value\n * and the element itself, and calculates the next accumulator value.\n *\n * The operation is _terminal_.\n */\npublic inline fun <T, R> Sequence<T>.foldIndexed(initial: R, operation: (index: Int, acc: R, T) -> R): R {\n   var index = 0\n   var accumulator = initial\n   for (element in this) accumulator = operation(checkIndexOverflow(index++), accumulator, element)\n   return accumulator\n}\n\n/**\n * Performs the given [action] on each element.\n *\n * The operation is _terminal_.\n */\npublic inline fun <T> Sequence<T>.forEach(action: (T) -> Unit): Unit {\n   for (element in this) action(element)\n}\n\n/**\n * Performs the given [action] on each element, providing sequential index with the element.\n * @param [action] function that takes the index of an element and the element itself\n * and performs the action on the element.\n *\n * The operation is _terminal_.\n */\npublic inline fun <T> Sequence<T>.forEachIndexed(action: (index: Int, T) -> Unit): Unit {\n   var index = 0\n   for (item in this) action(checkIndexOverflow(index++), item)\n}\n\n/**\n * Returns the largest element.\n * \n * If any of elements is `NaN` returns `NaN`.\n *\n * The operation is _terminal_.\n * \n * @throws NoSuchElementException if the sequence is empty.\n */\n@SinceKotlin(\"1.7\")\n@kotlin.jvm.JvmName(\"maxOrThrow\")\n@Suppress(\"CONFLICTING_OVERLOADS\")\npublic fun Sequence<Double>.max(): Double {\n   val iterator = iterator()\n   if (!iterator.hasNext()) throw NoSuchElementException()\n   var max = iterator.next()\n   while (iterator.hasNext()) {\n   val e = iterator.next()\n   max = maxOf(max, e)\n   }\n   return max\n}\n\n/**\n * Returns the largest element.\n * \n * If any of elements is `NaN` returns `NaN`.\n *\n * The operation is _terminal_.\n * \n * @throws NoSuchElementException if the sequence is empty.\n */\n@SinceKotlin(\"1.7\")\n@kotlin.jvm.JvmName(\"maxOrThrow\")\n@Suppress(\"CONFLICTING_OVERLOADS\")\npublic fun Sequence<Float>.max(): Float {\n   val iterator = iterator()\n   if (!iterator.hasNext()) throw NoSuchElementException()\n   var max = iterator.next()\n   while (iterator.hasNext()) {\n   val e = iterator.next()\n   max = maxOf(max, e)\n   }\n   return max\n}\n\n/**\n * Returns the largest element.\n *\n * The operation is _terminal_.\n * \n * @throws NoSuchElementException if the sequence is empty.\n */\n@SinceKotlin(\"1.7\")\n@kotlin.jvm.JvmName(\"maxOrThrow\")\n@Suppress(\"CONFLICTING_OVERLOADS\")\npublic fun <T : Comparable<T>> Sequence<T>.max(): T {\n   val iterator = iterator()\n   if (!iterator.hasNext()) throw NoSuchElementException()\n   var max = iterator.next()\n   while (iterator.hasNext())

{\n   val e = iterator.next()\n   if (max < e) max = e\n   }\n   return max\n}\n\n/**\n * Returns the first element yielding the largest value of the given function.\n *\n * The operation is _terminal_.\n * \n * @throws NoSuchElementException if the sequence is empty.\n * \n * @sample samples.collections.Collections.Aggregates.maxBy\n */\n@SinceKotlin(\"1.7\")\n@kotlin.jvm.JvmName(\"maxByOrThrow\")\n@Suppress(\"CONFLICTING_OVERLOADS\")\npublic inline fun <T, R : Comparable<R>> Sequence<T>.maxBy(selector: (T) -> R): T {\n   val iterator = iterator()\n   if (!iterator.hasNext()) throw NoSuchElementException()\n   var maxElem = iterator.next()\n   if (!iterator.hasNext()) return maxElem\n   var maxValue = selector(maxElem)\n   do {\n   val e = iterator.next()\n   val v = selector(e)\n   if (maxValue < v) {\n   maxElem = e\n   maxValue = v\n   }\n   } while (iterator.hasNext())\n   return maxElem\n}\n\n/**\n * Returns the first element yielding the largest value of the given function or `null` if there are no elements.\n *\n * The operation is _terminal_.\n * \n * @sample samples.collections.Collections.Aggregates.maxByOrNull\n */\n@SinceKotlin(\"1.4\")\npublic inline fun <T, R : Comparable<R>> Sequence<T>.maxByOrNull(selector: (T) -> R): T? {\n   val iterator = iterator()\n   if (!iterator.hasNext()) return null\n   var maxElem = iterator.next()\n   if (!iterator.hasNext()) return maxElem\n   var maxValue = selector(maxElem)\n   do {\n   val e = iterator.next()\n   val v = selector(e)\n   if (maxValue < v) {\n   maxElem = e\n   maxValue = v\n   }\n   } while (iterator.hasNext())\n   return maxElem\n}\n\n/**\n * Returns the largest value among all values produced by [selector] function\n * applied to each element in the sequence.\n * \n * If any of values produced by [selector] function is `NaN`, the returned result is `NaN`.\n *\n * The operation is _terminal_.\n * \n * @throws NoSuchElementException if the sequence is empty.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <T> Sequence<T>.maxOf(selector: (T) -> Double): Double {\n   val iterator = iterator()\n   if (!iterator.hasNext()) throw NoSuchElementException()\n   var maxValue = selector(iterator.next())\n   while (iterator.hasNext()) {\n   val v = selector(iterator.next())\n   maxValue = maxOf(maxValue, v)\n   }\n   return maxValue\n}\n\n/**\n * Returns the largest value among all values produced by [selector] function\n * applied to each element in the sequence.\n * \n * If any of values produced by [selector] function is `NaN`, the returned result is `NaN`.\n *\n * The operation is _terminal_.\n * \n * @throws NoSuchElementException if the sequence is empty.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <T> Sequence<T>.maxOf(selector: (T) -> Float): Float {\n   val iterator = iterator()\n   if (!iterator.hasNext()) throw NoSuchElementException()\n   var maxValue = selector(iterator.next())\n   while (iterator.hasNext()) {\n   val v = selector(iterator.next())\n   maxValue = maxOf(maxValue, v)\n   }\n   return maxValue\n}\n\n/**\n * Returns the largest value among all values produced by [selector] function\n * applied to each element in the sequence.\n *\n * The operation is _terminal_.\n * \n * @throws NoSuchElementException if the sequence is empty.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <T, R : Comparable<R>> Sequence<T>.maxOf(selector: (T) -> R): R {\n   val iterator = iterator()\n   if (!iterator.hasNext()) throw NoSuchElementException()\n   var maxValue = selector(iterator.next())\n   while (iterator.hasNext()) {\n   val v = selector(iterator.next())\n   if (maxValue < v) {\n   maxValue = v\n   }\n   }\n   return maxValue\n}\n\n/**\n * Returns the largest value among all values produced by [selector] function\n * applied to each element in the sequence or `null` if there are no elements.\n * \n * If any of values produced by [selector] function is `NaN`, the returned result is `NaN`.\n *\n * The operation is _terminal_.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <T> Sequence<T>.maxOfOrNull(selector: (T) -> Double): Double? {\n   val iterator = iterator()\n   if (!iterator.hasNext()) return null\n   var maxValue = selector(iterator.next())\n   while (iterator.hasNext()) {\n   val v = selector(iterator.next())\n   maxValue = maxOf(maxValue, v)\n   }\n   return maxValue\n}\n\n/**\n * Returns the largest value among all values produced by [selector] function\n * applied to each element in the sequence or `null` if there are no elements.\n * \n * If any of values produced by [selector] function is `NaN`, the returned result is `NaN`.\n *\n * The operation is _terminal_.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <T> Sequence<T>.maxOfOrNull(selector: (T) -> Float): Float? {\n   val iterator = iterator()\n   if (!iterator.hasNext()) return null\n   var maxValue = selector(iterator.next())\n   while (iterator.hasNext()) {\n   val v = selector(iterator.next())\n   maxValue = maxOf(maxValue, v)\n   }\n   return maxValue\n}\n\n/**\n * Returns the largest value among all values produced by [selector] function\n * applied to each element in the sequence or `null` if there are no elements.\n *\n * The operation is _terminal_.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <T, R : Comparable<R>> Sequence<T>.maxOfOrNull(selector: (T) -> R): R? {\n   val iterator = iterator()\n   if (!iterator.hasNext()) return null\n   var maxValue = selector(iterator.next())\n   while (iterator.hasNext()) {\n   val v = selector(iterator.next())\n   if (maxValue < v) {\n   maxValue = v\n   }\n   }\n   return maxValue\n}\n\n/**\n * Returns the largest value according to the provided [comparator]\n * among all values produced by [selector] function applied to each element in the sequence.\n * \n * @throws NoSuchElementException if the sequence is empty.\n *\n * The operation is _terminal_.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <T, R> Sequence<T>.maxOfWith(comparator: Comparator<in R>, selector: (T) -> R): R {\n   val iterator = iterator()\n   if (!iterator.hasNext()) throw NoSuchElementException()\n   var maxValue = selector(iterator.next())\n   while (iterator.hasNext()) {\n   val v = selector(iterator.next())\n   if (comparator.compare(maxValue, v) < 0) {\n   maxValue = v\n   }\n   }\n   return maxValue\n}\n\n/**\n * Returns the largest value according to the provided [comparator]\n * among all values produced by [selector] function applied to each element in the sequence or `null` if there are no elements.\n *\n * The operation is _terminal_.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <T, R> Sequence<T>.maxOfWithOrNull(comparator: Comparator<in R>, selector: (T) -> R): R? {\n   val iterator = iterator()\n   if (!iterator.hasNext()) return null\n   var maxValue = selector(iterator.next())\n   while (iterator.hasNext()) {\n   val v = selector(iterator.next())\n   if (comparator.compare(maxValue, v) < 0) {\n   maxValue = v\n   }\n   }\n   return maxValue\n}\n\n/**\n * Returns the largest element or `null` if there are no elements.\n * \n * If any of elements is `NaN` returns `NaN`.\n *\n * The operation is _terminal_.\n */\n@SinceKotlin(\"1.4\")\npublic fun Sequence<Double>.maxOrNull(): Double? {\n   val iterator = iterator()\n   if (!iterator.hasNext()) return null\n   var max = iterator.next()\n   while (iterator.hasNext()) {\n   val e = iterator.next()\n   max = maxOf(max, e)\n   }\n   return max\n}\n\n/**\n * Returns the largest element or `null` if there are no elements.\n * \n * If any of elements is `NaN` returns `NaN`.\n *\n * The operation is _terminal_.\n */\n@SinceKotlin(\"1.4\")\npublic fun Sequence<Float>.maxOrNull(): Float? {\n   val iterator = iterator()\n   if (!iterator.hasNext()) return null\n   var max = iterator.next()\n   while (iterator.hasNext()) {\n   val e = iterator.next()\n   max = maxOf(max, e)\n   }\n   return max\n}\n\n/**\n * Returns the largest element or `null` if there are no elements.\n *\n * The operation is _terminal_.\n */\n@SinceKotlin(\"1.4\")\npublic fun <T : Comparable<T>> Sequence<T>.maxOrNull(): T? {\n   val iterator = iterator()\n   if (!iterator.hasNext()) return null\n   var max = iterator.next()\n   while (iterator.hasNext()) {\n   val e = iterator.next()\n   if (max < e) max = e\n   }\n   return max\n}\n\n/**\n * Returns the first element having the largest value according to the provided [comparator].\n *\n * The operation is _terminal_.\n * \n * @throws NoSuchElementException if the sequence is empty.\n */\n@SinceKotlin(\"1.7\")\n@kotlin.jvm.JvmName(\"maxWithOrThrow\")\n@Suppress(\"CONFLICTING_OVERLOADS\")\npublic fun <T> Sequence<T>.maxWith(comparator: Comparator<in T>): T {\n   val iterator = iterator()\n   if (!iterator.hasNext()) throw NoSuchElementException()\n   var max = iterator.next()\n   while (iterator.hasNext()) {\n   val e = iterator.next()\n   if (comparator.compare(max, e) < 0) max = e\n   }\n   return max\n}\n\n/**\n * Returns the first element having the largest value according to the provided [comparator] or `null` if there are no elements.\n *\n * The operation is _terminal_.\n */\n@SinceKotlin(\"1.4\")\npublic fun <T> Sequence<T>.maxWithOrNull(comparator: Comparator<in T>): T? {\n   val iterator = iterator()\n   if (!iterator.hasNext()) return null\n   var max = iterator.next()\n   while (iterator.hasNext()) {\n   val e = iterator.next()\n   if (comparator.compare(max, e) < 0) max = e\n   }\n   return max\n}\n\n/**\n * Returns the smallest element.\n * \n * If any of elements is `NaN` returns `NaN`.\n *\n * The operation is _terminal_.\n * \n * @throws NoSuchElementException if the sequence is empty.\n */\n@SinceKotlin(\"1.7\")\n@kotlin.jvm.JvmName(\"minOrThrow\")\n@Suppress(\"CONFLICTING_OVERLOADS\")\npublic fun Sequence<Double>.min(): Double {\n   val iterator = iterator()\n   if (!iterator.hasNext()) throw NoSuchElementException()\n   var min = iterator.next()\n   while (iterator.hasNext()) {\n   val e = iterator.next()\n   min = minOf(min, e)\n   }\n   return min\n}\n\n/**\n * Returns the smallest element.\n * \n * If any of elements is `NaN` returns `NaN`.\n *\n * The operation is _terminal_.\n * \n * @throws NoSuchElementException if the sequence is empty.\n */\n@SinceKotlin(\"1.7\")\n@kotlin.jvm.JvmName(\"minOrThrow\")\n@Suppress(\"CONFLICTING_OVERLOADS\")\npublic fun Sequence<Float>.min(): Float {\n   val iterator = iterator()\n   if (!iterator.hasNext()) throw NoSuchElementException()\n   var min = iterator.next()\n   while (iterator.hasNext()) {\n   val e = iterator.next()\n   min = minOf(min, e)\n   }\n   return min\n}\n\n/**\n * Returns the smallest element.\n *\n * The operation is _terminal_.\n * \n * @throws NoSuchElementException if the sequence is empty.\n */\n@SinceKotlin(\"1.7\")\n@kotlin.jvm.JvmName(\"minOrThrow\")\n@Suppress(\"CONFLICTING_OVERLOADS\")\npublic fun <T : Comparable<T>> Sequence<T>.min(): T {\n   val iterator = iterator()\n   if (!iterator.hasNext()) throw NoSuchElementException()\n   var min = iterator.next()\n   while (iterator.hasNext()) {\n   val e = iterator.next()\n   if (min > e) min = e\n   }\n   return min\n}\n\n/**\n * Returns the first element yielding the smallest value of the given function.\n *\n * The operation is _terminal_.\n * \n * @throws NoSuchElementException if the sequence is empty.\n * \n * @sample samples.collections.Collections.Aggregates.minBy\n */\n@SinceKotlin(\"1.7\")\n@kotlin.jvm.JvmName(\"minByOrThrow\")\n@Suppress(\"CONFLICTING_OVERLOADS\")\npublic inline fun <T, R : Comparable<R>> Sequence<T>.minBy(selector: (T) -> R): T {\n   val iterator = iterator()\n   if (!iterator.hasNext()) throw NoSuchElementException()\n   var minElem = iterator.next()\n   if (!iterator.hasNext()) return minElem\n   var minValue = selector(minElem)\n   do {\n   val e = iterator.next()\n   val v = selector(e)\n   if (minValue > v) {\n   minElem = e\n   minValue = v\n   }\n   } while (iterator.hasNext())\n   return minElem\n}\n\n/**\n * Returns the first element yielding the smallest value of the given function or `null` if there are no elements.\n *\n * The operation is _terminal_.\n * \n * @sample samples.collections.Collections.Aggregates.minByOrNull\n */\n@SinceKotlin(\"1.4\")\npublic inline fun <T, R : Comparable<R>> Sequence<T>.minByOrNull(selector: (T) -> R): T? {\n   val iterator = iterator()\n   if (!iterator.hasNext()) return null\n   var minElem = iterator.next()\n   if (!iterator.hasNext()) return minElem\n   var minValue = selector(minElem)\n   do {\n   val e = iterator.next()\n   val v = selector(e)\n   if (minValue > v) {\n   minElem = e\n   minValue = v\n   }\n   } while (iterator.hasNext())\n   return minElem\n}\n\n/**\n * Returns the smallest value among all values produced by [selector] function\n * applied to each element in the sequence.\n * \n * If any of values produced by [selector] function is `NaN`, the returned result is `NaN`.\n *\n * The operation is _terminal_.\n * \n * @throws NoSuchElementException if the sequence is empty.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <T> Sequence<T>.minOf(selector: (T) -> Double): Double {\n   val iterator = iterator()\n   if (!iterator.hasNext()) throw NoSuchElementException()\n   var minValue = selector(iterator.next())\n   while (iterator.hasNext()) {\n   val v = selector(iterator.next())\n   minValue = minOf(minValue, v)\n   }\n   return minValue\n}\n\n/**\n * Returns the smallest value among all values produced by [selector] function\n * applied to each element in the sequence.\n * \n * If any of values produced by [selector] function is `NaN`, the returned result is `NaN`.\n *\n * The operation is _terminal_.\n * \n * @throws NoSuchElementException if the sequence is empty.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <T> Sequence<T>.minOf(selector: (T) -> Float): Float {\n   val iterator = iterator()\n   if (!iterator.hasNext()) throw NoSuchElementException()\n   var minValue = selector(iterator.next())\n   while (iterator.hasNext()) {\n   val v = selector(iterator.next())\n   minValue = minOf(minValue, v)\n   }\n   return minValue\n}\n\n/**\n * Returns the smallest value among all values produced by [selector] function\n * applied to each element in the sequence.\n *\n * The operation is _terminal_.\n * \n * @throws NoSuchElementException if the sequence is empty.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <T, R : Comparable<R>> Sequence<T>.minOf(selector: (T) -> R): R {\n   val iterator = iterator()\n   if (!iterator.hasNext()) throw NoSuchElementException()\n   var minValue = selector(iterator.next())\n   while (iterator.hasNext()) {\n   val v = selector(iterator.next())\n   if (minValue > v) {\n   minValue = v\n   }\n   }\n   return minValue\n}\n\n/**\n * Returns the smallest value among all values produced by [selector] function\n * applied to each element in the sequence or `null` if there are no elements.\n * \n * If any of values produced by [selector] function is `NaN`, the returned result is `NaN`.\n *\n * The operation is _terminal_.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <T> Sequence<T>.minOfOrNull(selector: (T) -> Double): Double? {\n   val iterator = iterator()\n   if (!iterator.hasNext()) return null\n   var minValue = selector(iterator.next())\n   while (iterator.hasNext()) {\n   val v = selector(iterator.next())\n   minValue = minOf(minValue, v)\n   }\n   return minValue\n}\n\n/**\n * Returns the smallest value among all values produced by [selector] function\n * applied to each element in the sequence or `null` if there are no elements.\n * \n * If any of values produced by [selector] function is `NaN`, the returned result is `NaN`.\n *\n * The operation is _terminal_.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <T> Sequence<T>.minOfOrNull(selector: (T) -> Float): Float? {\n   val iterator = iterator()\n   if (!iterator.hasNext()) return null\n   var minValue = selector(iterator.next())\n   while (iterator.hasNext()) {\n   val v = selector(iterator.next())\n   minValue = minOf(minValue, v)\n   }\n   return minValue\n}\n\n/**\n * Returns the smallest value among all values produced by [selector] function\n * applied to each element in the sequence or `null` if there are no elements.\n *\n * The operation is _terminal_.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <T, R : Comparable<R>> Sequence<T>.minOfOrNull(selector: (T) -> R): R? {\n   val iterator = iterator()\n   if (!iterator.hasNext()) return null\n   var minValue = selector(iterator.next())\n   while (iterator.hasNext()) {\n   val v = selector(iterator.next())\n   if (minValue > v) {\n   minValue = v\n   }\n   }\n   return minValue\n}\n\n/**\n * Returns the smallest value according to the provided [comparator]\n * among all values produced by [selector] function applied to each element in the sequence.\n * \n * @throws NoSuchElementException if the sequence is empty.\n *\n * The operation is _terminal_.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <T, R> Sequence<T>.minOfWith(comparator: Comparator<in R>, selector: (T) -> R): R {\n   val iterator = iterator()\n   if (!iterator.hasNext()) throw NoSuchElementException()\n   var minValue = selector(iterator.next())\n   while (iterator.hasNext()) {\n   val v = selector(iterator.next())\n   if (comparator.compare(minValue, v) > 0) {\n   minValue = v\n   }\n   }\n   return minValue\n}\n\n/**\n * Returns the smallest value according to the provided [comparator]\n * among all values produced by [selector] function applied to each element in the sequence or `null` if there are no elements.\n *\n * The operation is _terminal_.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution

ByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <T, R> Sequence<T>.minOfWithOrNull(comparator: Comparator<in R>, selector: (T) -> R): R? {\n   val iterator = iterator()\n   if (!iterator.hasNext()) return null\n   var minValue = selector(iterator.next())\n   while (iterator.hasNext()) {\n   val v = selector(iterator.next())\n   if (comparator.compare(minValue, v) > 0) {\n   minValue = v\n   }\n   }\n   return minValue\n}\n\n/**\n * Returns the smallest element or `null` if there are no elements.\n * \n * If any of elements is `NaN` returns `NaN`.\n *\n * The operation is _terminal_.\n */\n@SinceKotlin(\"1.4\")\npublic fun Sequence<Double>.minOrNull(): Double? {\n   val iterator = iterator()\n   if (!iterator.hasNext()) return null\n   var min = iterator.next()\n   while (iterator.hasNext()) {\n   val e = iterator.next()\n   min = minOf(min, e)\n   }\n   return min\n}\n\n/**\n * Returns the smallest element or `null` if there are no elements.\n * \n * If any of elements is `NaN` returns `NaN`.\n *\n * The operation is _terminal_.\n */\n@SinceKotlin(\"1.4\")\npublic fun Sequence<Float>.minOrNull(): Float? {\n   val iterator = iterator()\n   if (!iterator.hasNext()) return null\n   var min = iterator.next()\n   while (iterator.hasNext()) {\n   val e = iterator.next()\n   min = minOf(min, e)\n   }\n   return min\n}\n\n/**\n * Returns the smallest element or `null` if there are no elements.\n *\n * The operation is _terminal_.\n */\n@SinceKotlin(\"1.4\")\npublic fun <T : Comparable<T>> Sequence<T>.minOrNull(): T? {\n   val iterator = iterator()\n   if (!iterator.hasNext()) return null\n   var min = iterator.next()\n   while (iterator.hasNext()) {\n   val e = iterator.next()\n   if (min > e) min = e\n   }\n   return min\n}\n\n/**\n * Returns the first element having the smallest value according to the provided [comparator].\n *\n * The operation is _terminal_.\n * \n * @throws NoSuchElementException if the sequence is empty.\n */\n@SinceKotlin(\"1.7\")\n@kotlin.jvm.JvmName(\"minWithOrThrow\")\n@Suppress(\"CONFLICTING_OVERLOADS\")\npublic fun <T> Sequence<T>.minWith(comparator: Comparator<in T>): T {\n   val iterator = iterator()\n   if (!iterator.hasNext()) throw NoSuchElementException()\n   var min = iterator.next()\n   while (iterator.hasNext()) {\n   val e = iterator.next()\n   if (comparator.compare(min, e) > 0) min = e\n   }\n   return min\n}\n\n/**\n * Returns the first element having the smallest value according to the provided [comparator] or `null` if there are no elements.\n *\n * The operation is _terminal_.\n */\n@SinceKotlin(\"1.4\")\npublic fun <T> Sequence<T>.minWithOrNull(comparator: Comparator<in T>): T? {\n   val iterator = iterator()\n   if (!iterator.hasNext()) return null\n   var min = iterator.next()\n   while (iterator.hasNext()) {\n   val e = iterator.next()\n   if (comparator.compare(min, e) > 0) min = e\n   }\n   return min\n}\n\n/**\n * Returns `true` if the sequence has no elements.\n *\n * The operation is _terminal_.\n * \n * @sample samples.collections.Collections.Aggregates.none\n */\npublic fun <T> Sequence<T>.none(): Boolean {\n   return !iterator().hasNext()\n}\n\n/**\n * Returns `true` if no elements match the given [predicate].\n *\n * The operation is _terminal_.\n * \n * @sample samples.collections.Collections.Aggregates.noneWithPredicate\n */\npublic inline fun <T> Sequence<T>.none(predicate: (T) -> Boolean): Boolean {\n   for (element in this) if (predicate(element)) return false\n   return true\n}\n\n/**\n * Returns a sequence which performs the given [action] on each element of the original sequence as they pass through it.\n *\n * The operation is _intermediate_ and _stateless_.\n */\n@SinceKotlin(\"1.1\")\npublic fun <T> Sequence<T>.onEach(action: (T) -> Unit): Sequence<T> {\n   return map {\n   action(it)\n   it\n   }\n}\n\n/**\n * Returns a sequence which performs the given [action] on each element of the original sequence as they pass through it.\n * @param [action] function that takes the index of an element and the element itself\n * and performs the action on the element.\n *\n * The operation is _intermediate_ and _stateless_.\n */\n@SinceKotlin(\"1.4\")\npublic fun <T> Sequence<T>.onEachIndexed(action: (index: Int, T) -> Unit): Sequence<T> {\n   return mapIndexed { index, element ->\n   action(index, element)\n   element\n   }\n}\n\n/**\n * Accumulates value starting with the first element and applying [operation] from left to right\n * to current accumulator value and each element.\n * \n * Throws an exception if this sequence is empty. If the sequence can be empty in an expected way,\n * please use [reduceOrNull] instead. It returns `null` when its receiver is empty.\n * \n * @param [operation] function that takes current accumulator value and an element,\n * and calculates the next accumulator value.\n *\n * The operation is _terminal_.\n * \n * @sample samples.collections.Collections.Aggregates.reduce\n */\npublic inline fun <S, T : S> Sequence<T>.reduce(operation: (acc: S, T) -> S): S {\n   val iterator = this.iterator()\n   if (!iterator.hasNext())

throw UnsupportedOperationException(\"Empty sequence can't be reduced.\")\n   var accumulator: S = iterator.next()\n   while (iterator.hasNext()) {\n   accumulator = operation(accumulator, iterator.next())\n   }\n   return accumulator\n}\n\n/**\n * Accumulates value starting with the first element and applying [operation] from left to right\n * to current accumulator value and each element with its index in the original sequence.\n * \n * Throws an exception if this sequence is empty. If the sequence can be empty in an expected way,\n * please use [reduceIndexedOrNull] instead. It returns `null` when its receiver is empty.\n * \n * @param [operation] function that takes the index of an element, current accumulator value and the element itself,\n * and calculates the next accumulator value.\n *\n * The operation is _terminal_.\n * \n * @sample samples.collections.Collections.Aggregates.reduce\n */\npublic inline fun <S, T : S> Sequence<T>.reduceIndexed(operation: (index: Int, acc: S, T) -> S): S {\n   val iterator = this.iterator()\n   if (!iterator.hasNext()) throw UnsupportedOperationException(\"Empty sequence can't be reduced.\")\n   var index = 1\n   var accumulator: S = iterator.next()\n   while (iterator.hasNext()) {\n   accumulator = operation(checkIndexOverflow(index++), accumulator, iterator.next())\n   }\n   return accumulator\n}\n\n/**\n * Accumulates value starting with the first element and applying [operation] from left to right\n * to current accumulator value and each element with its index in the original sequence.\n * \n * Returns `null` if the sequence is empty.\n * \n * @param [operation] function that takes the index of an element, current accumulator value and the element itself,\n * and calculates the next accumulator value.\n *\n * The operation is _terminal_.\n * \n * @sample samples.collections.Collections.Aggregates.reduceOrNull\n */\n@SinceKotlin(\"1.4\")\npublic inline fun <S, T : S> Sequence<T>.reduceIndexedOrNull(operation: (index: Int, acc: S, T) -> S): S? {\n   val iterator = this.iterator()\n   if (!iterator.hasNext()) return null\n   var index = 1\n   var accumulator: S = iterator.next()\n   while (iterator.hasNext()) {\n   accumulator = operation(checkIndexOverflow(index++), accumulator, iterator.next())\n   }\n   return accumulator\n}\n\n/**\n * Accumulates value starting with the first element and applying [operation] from left to right\n * to current accumulator value and each element.\n * \n * Returns `null` if the sequence is empty.\n * \n * @param [operation] function that takes current accumulator value and an element,\n * and calculates the next accumulator value.\n *\n * The operation is _terminal_.\n * \n * @sample samples.collections.Collections.Aggregates.reduceOrNull\n */\n@SinceKotlin(\"1.4\")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic inline fun <S, T : S> Sequence<T>.reduceOrNull(operation: (acc: S, T) -> S): S? {\n   val iterator = this.iterator()\n   if (!iterator.hasNext()) return null\n   var accumulator: S = iterator.next()\n   while (iterator.hasNext()) {\n   accumulator = operation(accumulator, iterator.next())\n   }\n   return accumulator\n}\n\n/**\n * Returns a sequence containing successive accumulation values generated by applying [operation] from left to right\n * to each element and current accumulator value that starts with [initial] value.\n * \n * Note that `acc` value passed to [operation] function should not be mutated;\n * otherwise it would affect the previous value in resulting sequence.\n * The [initial] value should also be immutable (or should not be mutated)\n * as it may be passed to [operation] function later because of sequence's lazy nature.\n * \n * @param [operation] function that takes current accumulator value and an element, and calculates the next accumulator value.\n *\n * The operation is _intermediate_ and _stateless_.\n * \n * @sample samples.collections.Collections.Aggregates.runningFold\n */\n@SinceKotlin(\"1.4\")\npublic fun <T, R> Sequence<T>.runningFold(initial: R, operation: (acc: R, T) -> R): Sequence<R> {\n   return sequence {\n   yield(initial)\n   var accumulator = initial\n   for (element in this@runningFold) {\n   accumulator = operation(accumulator, element)\n   yield(accumulator)\n   }\n   }\n}\n\n/**\n * Returns a sequence containing successive accumulation values generated by applying [operation] from left to right\n * to each element, its index in the original sequence and current accumulator value that starts with [initial] value.\n * \n * Note that `acc` value passed to [operation] function should not be mutated;\n * otherwise it would affect the previous value in resulting sequence.\n * The [initial] value should also be immutable (or should not be mutated)\n * as it may be passed to [operation] function later because of sequence's lazy nature.\n * \n * @param [operation] function that takes the index of an element, current accumulator value\n * and the element itself, and calculates the next accumulator value.\n *\n * The operation is _intermediate_ and _stateless_.\n * \n * @sample samples.collections.Collections.Aggregates.runningFold\n */\n@SinceKotlin(\"1.4\")\npublic fun

<T, R> Sequence<T>.runningFoldIndexed(initial: R, operation: (index: Int, acc: R, T) -> R): Sequence<R> {\n   return sequence {\n   yield(initial)\n   var index = 0\n   var accumulator = initial\n   for (element in this@runningFoldIndexed) {\n   accumulator = operation(checkIndexOverflow(index++), accumulator, element)\n   yield(accumulator)\n   }\n   }\n}\n\n/**\n * Returns a sequence containing successive accumulation values generated by applying [operation] from left to right\n * to each element and current accumulator value that starts with the first element of this sequence.\n * \n * Note that `acc` value passed to [operation] function should not be mutated;\n * otherwise it would affect the previous value in resulting sequence.\n * \n * @param [operation] function that takes current accumulator value and the element, and calculates the next accumulator value.\n *\n * The operation is _intermediate_ and _stateless_.\n * \n * @sample samples.collections.Collections.Aggregates.runningReduce\n */\n@SinceKotlin(\"1.4\")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic fun <S, T : S> Sequence<T>.runningReduce(operation: (acc: S, T) -> S): Sequence<S> {\n   return sequence {\n   val iterator = iterator()\n   if (iterator.hasNext()) {\n   var accumulator: S = iterator.next()\n   yield(accumulator)\n   while (iterator.hasNext()) {\n   accumulator = operation(accumulator, iterator.next())\n   yield(accumulator)\n   }\n   }\n   }\n}\n\n/**\n * Returns a sequence containing successive accumulation values generated by applying [operation] from left to right\n * to each element, its index in the original sequence and current accumulator value that starts with the first element of this sequence.\n * \n * Note that `acc` value passed to [operation] function should not be mutated;\n * otherwise it would affect the previous value in resulting sequence.\n * \n * @param [operation] function that takes the index of an element, current accumulator value\n * and the element itself, and calculates the next accumulator value.\n *\n * The operation is _intermediate_ and _stateless_.\n * \n * @sample samples.collections.Collections.Aggregates.runningReduce\n */\n@SinceKotlin(\"1.4\")\npublic fun <S, T : S> Sequence<T>.runningReduceIndexed(operation: (index: Int, acc: S, T) -> S): Sequence<S> {\n   return sequence {\n   val iterator = iterator()\n   if (iterator.hasNext()) {\n   var accumulator: S = iterator.next()\n   yield(accumulator)\n   var index = 1\n   while (iterator.hasNext()) {\n   accumulator = operation(checkIndexOverflow(index++), accumulator, iterator.next())\n   yield(accumulator)\n   }\n   }\n   }\n}\n\n/**\n * Returns a sequence containing successive accumulation values generated by applying [operation] from left to right\n * to each element and current accumulator value that starts with [initial] value.\n * \n * Note that `acc` value passed to [operation] function should not be mutated;\n * otherwise it would affect the previous value in resulting sequence.\n * The [initial] value should also be immutable (or should not be mutated)\n * as it may be passed to [operation] function later because of sequence's lazy nature.\n * \n * @param [operation] function that takes current accumulator value and an element, and calculates the next accumulator value.\n *\n * The operation is _intermediate_ and _stateless_.\n * \n * @sample samples.collections.Collections.Aggregates.scan\n */\n@SinceKotlin(\"1.4\")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic fun <T, R> Sequence<T>.scan(initial: R, operation: (acc: R, T) -> R): Sequence<R> {\n   return runningFold(initial, operation)\n}\n\n/**\n * Returns a sequence containing successive accumulation values generated by applying [operation] from left to right\n * to each element, its index in the original sequence and current accumulator value that starts with [initial] value.\n * \n * Note that `acc` value passed to [operation] function should not be mutated;\n * otherwise it would affect the previous value in resulting sequence.\n * The [initial] value should also be immutable (or should not be mutated)\n * as it may be passed to [operation] function later because of sequence's lazy nature.\n * \n * @param [operation] function that takes the index of an element, current accumulator value\n * and the element itself, and calculates the next accumulator value.\n *\n * The operation is _intermediate_ and _stateless_.\n * \n * @sample samples.collections.Collections.Aggregates.scan\n */\n@SinceKotlin(\"1.4\")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic fun <T, R> Sequence<T>.scanIndexed(initial: R, operation: (index: Int, acc: R, T) -> R): Sequence<R> {\n   return runningFoldIndexed(initial, operation)\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each element in the sequence.\n *\n * The operation is _terminal_.\n */\n@Deprecated(\"Use sumOf instead.\", ReplaceWith(\"this.sumOf(selector)\"))\n@DeprecatedSinceKotlin(warningSince = \"1.5\")\npublic inline

fun <T> Sequence<T>.sumBy(selector: (T) -> Int): Int {\n   var sum: Int = 0\n   for (element in this) {\n   sum += selector(element)\n   }\n   return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each element in the sequence.\n *\n * The operation is _terminal_.\n */\n@Deprecated(\"Use sumOf instead.\", ReplaceWith(\"this.sumOf(selector)\"))\n@DeprecatedSinceKotlin(warningSince = \"1.5\")\npublic inline fun <T> Sequence<T>.sumByDouble(selector: (T) -> Double): Double {\n   var sum: Double = 0.0\n   for (element in this) {\n   sum += selector(element)\n   }\n   return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each element in the sequence.\n *\n * The operation is _terminal_.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.jvm.JvmName(\"sumOfDouble\")\n@kotlin.internal.InlineOnly\npublic inline fun <T> Sequence<T>.sumOf(selector: (T) -> Double): Double {\n   var sum: Double = 0.toDouble()\n   for (element in this) {\n   sum += selector(element)\n   }\n   return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each element in the sequence.\n *\n * The operation is _terminal_.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.jvm.JvmName(\"sumOfInt\")\n@kotlin.internal.InlineOnly\npublic inline fun <T> Sequence<T>.sumOf(selector: (T) -> Int): Int {\n   var sum: Int = 0.toInt()\n   for (element in this) {\n   sum += selector(element)\n   }\n   return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each element in the sequence.\n *\n * The operation is _terminal_.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.jvm.JvmName(\"sumOfLong\")\n@kotlin.internal.InlineOnly\npublic inline fun <T> Sequence<T>.sumOf(selector: (T) -> Long): Long {\n   var sum: Long = 0.toLong()\n   for (element in this) {\n   sum += selector(element)\n   }\n   return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each element in the sequence.\n *\n * The operation is _terminal_.\n */\n@SinceKotlin(\"1.5\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.jvm.JvmName(\"sumOfUInt\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\n@kotlin.internal.InlineOnly\npublic inline fun <T> Sequence<T>.sumOf(selector: (T) -> UInt): UInt {\n   var sum: UInt = 0.toUInt()\n   for (element in this) {\n   sum += selector(element)\n   }\n   return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each element in the sequence.\n *\n * The operation is _terminal_.\n */\n@SinceKotlin(\"1.5\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.jvm.JvmName(\"sumOfULong\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\n@kotlin.internal.InlineOnly\npublic inline fun <T> Sequence<T>.sumOf(selector: (T) -> ULong): ULong {\n   var sum: ULong = 0.toULong()\n   for (element in this) {\n   sum += selector(element)\n   }\n   return sum\n}\n\n/**\n * Returns an original collection containing all the non-`null` elements, throwing an [IllegalArgumentException] if there are any `null` elements.\n *\n * The operation is _intermediate_ and _stateless_.\n */\npublic fun <T : Any> Sequence<T?>.requireNoNulls(): Sequence<T> {\n   return map { it ?: throw IllegalArgumentException(\"null element found in $this.\") }\n}\n\n/**\n * Splits this sequence into a sequence of lists each not exceeding the given [size].\n * \n * The last list in the resulting sequence may have fewer elements than the given [size].\n * \n * @param size the number of elements to take in each list, must be positive and can be greater than the number of elements in this sequence.\n *\n * The operation is _intermediate_ and _stateful_.\n * \n * @sample samples.collections.Collections.Transformations.chunked\n */\n@SinceKotlin(\"1.2\")\npublic fun <T> Sequence<T>.chunked(size: Int): Sequence<List<T>> {\n   return windowed(size, size, partialWindows = true)\n}\n\n/**\n * Splits this sequence into several lists each not exceeding the given [size]\n * and applies the given [transform] function to an each.\n * \n * @return sequence of results of the [transform] applied to an each list.\n * \n * Note that the list passed to the [transform] function is ephemeral and is valid only inside that function.\n * You should not store it or allow it to escape in some way, unless you made a snapshot of it.\n * The last list may have fewer elements than the given [size].\n * \n * @param size the number of elements to take in each list, must be positive and can be greater than the number of elements in this sequence.\n *\n

* The operation is _intermediate_ and _stateful_.\n * \n * @sample samples.text.Strings.chunkedTransform\n */\n@SinceKotlin(\"1.2\")\npublic fun <T, R> Sequence<T>.chunked(size: Int, transform: (List<T>) -> R): Sequence<R> {\n   return windowed(size, size, partialWindows = true, transform = transform)\n}\n\n/**\n * Returns a sequence containing all elements of the original sequence without the first occurrence of the given [element].\n *\n * The operation is _intermediate_ and _stateless_.\n */\npublic operator fun <T> Sequence<T>.minus(element: T): Sequence<T> {\n   return object: Sequence<T> {\n   override fun iterator(): Iterator<T> {\n   var removed = false\n   return this@minus.filter { if (!removed && it == element) { removed = true; false } else true }.iterator()\n   }\n   }\n}\n\n/**\n * Returns a sequence containing all elements of original sequence except the elements contained in the given [elements] array.\n * \n * Note that the source sequence and the array being subtracted are iterated only when an `iterator` is requested from\n * the resulting sequence. Changing any of them between successive calls to `iterator` may affect the result.\n * \n * Before Kotlin 1.6, the [elements] array may have been converted to a [HashSet] to speed up the operation, thus the elements were required to have\n * a correct and stable implementation of `hashCode()` that didn't change between successive invocations.\n * On JVM, you can enable this behavior back with the system property `kotlin.collections.convert_arg_to_set_in_removeAll` set to `true`.\n *\n * The operation is _intermediate_ and _stateful_.\n */\npublic operator fun <T> Sequence<T>.minus(elements: Array<out T>): Sequence<T> {\n   if (elements.isEmpty()) return this\n   return object: Sequence<T> {\n   override fun iterator(): Iterator<T> {\n   val other = elements.convertToSetForSetOperation()\n   return this@minus.filterNot { it in other }.iterator()\n   }\n   }\n}\n\n/**\n * Returns a sequence containing all elements of original sequence except the elements contained in the given [elements] collection.\n * \n * Note that the source sequence and the collection being subtracted are iterated only when an `iterator` is requested from\n * the resulting sequence. Changing any of them between successive calls to `iterator` may affect the result.\n * \n * Before Kotlin 1.6, the [elements] collection may have been converted to a [HashSet] to speed up the operation, thus the elements were required to have\n * a correct and stable implementation of `hashCode()` that didn't change between successive invocations.\n * On JVM, you can enable this behavior back with the system property `kotlin.collections.convert_arg_to_set_in_removeAll` set to `true`.\n *\n * The operation is _intermediate_ and _stateful_.\n */\npublic operator fun <T> Sequence<T>.minus(elements: Iterable<T>): Sequence<T> {\n   return object: Sequence<T> {\n   override fun iterator(): Iterator<T> {\n   val other = elements.convertToSetForSetOperation()\n   if (other.isEmpty())\n   return this@minus.iterator()\n   else\n   return this@minus.filterNot { it in other }.iterator()\n   }\n   }\n}\n\n/**\n * Returns a sequence containing all elements of original sequence except the elements contained in the given [elements] sequence.\n * \n * Note that the source sequence and the sequence being subtracted are iterated only when an `iterator` is requested from\n * the resulting sequence. Changing any of them between successive calls to `iterator` may affect the result.\n * \n * The operation is _intermediate_ for this sequence and _terminal_ and _stateful_ for the [elements] sequence.\n * \n * Before Kotlin 1.6, the [elements] sequence may have been converted to a [HashSet] to speed up the operation, thus the elements were required to have\n * a correct and stable implementation of `hashCode()` that didn't change between successive invocations.\n * On JVM, you can enable this behavior back with the system property `kotlin.collections.convert_arg_to_set_in_removeAll` set to `true`.\n */\npublic operator fun <T> Sequence<T>.minus(elements: Sequence<T>): Sequence<T> {\n   return object: Sequence<T> {\n   override fun iterator(): Iterator<T> {\n   val other = elements.convertToSetForSetOperation()\n   if (other.isEmpty())\n   return this@minus.iterator()\n   else\n   return this@minus.filterNot { it in other }.iterator()\n   }\n   }\n}\n\n/**\n * Returns a sequence containing all elements of the original sequence without the first occurrence of the given [element].\n *\n * The operation is _intermediate_ and _stateless_.\n */\n@kotlin.internal.InlineOnly\npublic inline fun <T> Sequence<T>.minusElement(element: T): Sequence<T> {\n   return minus(element)\n}\n\n/**\n * Splits the original sequence into pair of lists,\n * where *first* list contains elements for which [predicate] yielded `true`,\n * while *second* list contains elements for which [predicate] yielded `false`.\n *\n * The operation is _terminal_.\n * \n * @sample samples.collections.Sequences.Transformations.partition\n */\npublic inline fun <T> Sequence<T>.partition(predicate: (T) -> Boolean): Pair<List<T>, List<T>> {\n   val first = ArrayList<T>()\n   val

second = ArrayList<T>()\n   for (element in this) {\n   if (predicate(element)) {\n   first.add(element)\n   } else {\n   second.add(element)\n   }\n   }\n   return Pair(first, second)\n}\n\n/**\n * Returns a sequence containing all elements of the original sequence and then the given [element].\n *\n * The operation is _intermediate_ and _stateless_.\n */\npublic operator fun <T> Sequence<T>.plus(element: T): Sequence<T> {\n   return sequenceOf(this, sequenceOf(element)).flatten()\n}\n\n/**\n * Returns a sequence containing all elements of original sequence and then all elements of the given [elements] array.\n * \n * Note that the source sequence and the array being added are iterated only when an `iterator` is requested from\n * the resulting sequence. Changing any of them between successive calls to `iterator` may affect the result.\n *\n * The operation is _intermediate_ and _stateless_.\n */\npublic operator fun <T> Sequence<T>.plus(elements: Array<out T>): Sequence<T> {\n   return this.plus(elements.asList())\n}\n\n/**\n * Returns a sequence containing all elements of original sequence and then all elements of the given [elements] collection.\n * \n * Note that the source sequence and the collection being added are iterated only when an `iterator` is requested from\n * the resulting sequence. Changing any of them between successive calls to `iterator` may affect the result.\n *\n * The operation is _intermediate_ and _stateless_.\n */\npublic operator fun <T> Sequence<T>.plus(elements: Iterable<T>): Sequence<T> {\n   return sequenceOf(this, elements.asSequence()).flatten()\n}\n\n/**\n * Returns a sequence containing all elements of original sequence and then all elements of the given [elements] sequence.\n * \n * Note that the source sequence and the sequence being added are iterated only when an `iterator` is requested from\n * the resulting sequence. Changing any of them between successive calls to `iterator` may affect the result.\n *\n * The operation is _intermediate_ and _stateless_.\n */\npublic operator fun <T> Sequence<T>.plus(elements: Sequence<T>): Sequence<T> {\n   return sequenceOf(this, elements).flatten()\n}\n\n/**\n * Returns a sequence containing all elements of the original sequence and then the given [element].\n *\n * The operation is _intermediate_ and _stateless_.\n */\n@kotlin.internal.InlineOnly\npublic inline fun <T> Sequence<T>.plusElement(element: T): Sequence<T> {\n   return plus(element)\n}\n\n/**\n * Returns a sequence of snapshots of the window of the given [size]\n * sliding along this sequence with the given [step], where each\n * snapshot is a list.\n * \n * Several last lists may have fewer elements than the given [size].\n * \n * Both [size] and [step] must be positive and can be greater than the number of elements in this sequence.\n * @param size the number of elements to take in each window\n * @param step the number of elements to move the window forward by on an each step, by default 1\n * @param partialWindows controls whether or not to keep partial windows in the end if any,\n * by default `false` which means partial windows won't be preserved\n * \n * @sample samples.collections.Sequences.Transformations.takeWindows\n */\n@SinceKotlin(\"1.2\")\npublic fun <T> Sequence<T>.windowed(size: Int, step: Int = 1, partialWindows: Boolean = false): Sequence<List<T>> {\n   return windowedSequence(size, step, partialWindows, reuseBuffer = false)\n}\n\n/**\n * Returns a sequence of results of applying the given [transform] function to\n * an each list representing a view over the window of the given [size]\n * sliding along this sequence with the given [step].\n * \n * Note that the list passed to the [transform] function is ephemeral and is valid only inside that function.\n * You should not store it or allow it to escape in some way, unless you made a snapshot of it.\n * Several last lists may have fewer elements than the given [size].\n * \n * Both [size] and [step] must be positive and can be greater than the number of elements in this sequence.\n * @param size the number of elements to take in each window\n * @param step the number of elements to move the window forward by on an each step, by default 1\n * @param partialWindows controls whether or not to keep partial windows in the end if any,\n * by default `false` which means partial windows won't be preserved\n * \n * @sample samples.collections.Sequences.Transformations.averageWindows\n */\n@SinceKotlin(\"1.2\")\npublic fun <T, R> Sequence<T>.windowed(size: Int, step: Int = 1, partialWindows: Boolean = false, transform: (List<T>) -> R): Sequence<R> {\n   return windowedSequence(size, step, partialWindows, reuseBuffer = true).map(transform)\n}\n\n/**\n * Returns a sequence of values built from the elements of `this` sequence and the [other] sequence with the same index.\n * The resulting sequence ends as soon as the shortest input sequence ends.\n *\n * The operation is _intermediate_ and _stateless_.\n * \n * @sample samples.collections.Sequences.Transformations.zip\n */\npublic infix fun <T, R> Sequence<T>.zip(other: Sequence<R>): Sequence<Pair<T, R>> {\n   return MergingSequence(this, other) { t1, t2 -> t1 to t2 }\n}\n\n/**\n *

Returns a sequence of values built from the elements of `this` sequence and the [other] sequence with the same index\n * using the provided [transform] function applied to each pair of elements.\n * The resulting sequence ends as soon as the shortest input sequence ends.\n *\n * The operation is _intermediate_ and _stateless_.\n * \n * @sample samples.collections.Sequences.Transformations.zipWithTransform\n */\npublic fun <T, R, V> Sequence<T>.zip(other: Sequence<R>, transform: (a: T, b: R) -> V): Sequence<V> {\n   return MergingSequence(this, other, transform)\n}\n\n/**\n * Returns a sequence of pairs of each two adjacent elements in this sequence.\n * \n * The returned sequence is empty if this sequence contains less than two elements.\n *\n * The operation is _intermediate_ and _stateless_.\n * \n * @sample samples.collections.Collections.Transformations.zipWithNext\n */\n@SinceKotlin(\"1.2\")\npublic fun <T> Sequence<T>.zipWithNext(): Sequence<Pair<T, T>> {\n   return zipWithNext { a, b -> a to b }\n}\n\n/**\n * Returns a sequence containing the results of applying the given [transform] function\n * to an each pair of two adjacent elements in this sequence.\n * \n * The returned sequence is empty if this sequence contains less than two elements.\n *\n * The operation is _intermediate_ and _stateless_.\n * \n * @sample samples.collections.Collections.Transformations.zipWithNextToFindDeltas\n */\n@SinceKotlin(\"1.2\")\npublic fun <T, R> Sequence<T>.zipWithNext(transform: (a: T, b: T) -> R): Sequence<R> {\n   return sequence result@ {\n   val iterator = iterator()\n   if (!iterator.hasNext()) return@result\n   var current = iterator.next()\n   while (iterator.hasNext()) {\n   val next = iterator.next()\n   yield(transform(current, next))\n   current = next\n   }\n   }\n}\n\n/**\n * Appends the string from all the elements separated using [separator] and using the given [prefix] and [postfix] if supplied.\n * \n * If the collection could be huge, you can specify a non-negative value of [limit], in which case only the first [limit]\n * elements will be appended, followed by the [truncated] string (which defaults to \"...\").\n *\n * The operation is _terminal_.\n * \n * @sample samples.collections.Collections.Transformations.joinTo\n */\npublic fun <T, A : Appendable> Sequence<T>.joinTo(buffer: A, separator: CharSequence = \", \", prefix: CharSequence = \"\", postfix: CharSequence = \"\", limit: Int = -1, truncated: CharSequence = \"...\", transform: ((T) -> CharSequence)? = null): A {\n   buffer.append(prefix)\n   var count = 0\n   for (element in this) {\n   if (++count > 1) buffer.append(separator)\n   if (limit < 0 || count <= limit) {\n   buffer.appendElement(element, transform)\n   } else break\n   }\n   if (limit >= 0 && count > limit) buffer.append(truncated)\n   buffer.append(postfix)\n   return buffer\n}\n\n/**\n * Creates a string from all the elements separated using [separator] and using the given [prefix] and [postfix] if supplied.\n * \n * If the collection could be huge, you can specify a non-negative value of [limit], in which case only the first [limit]\n * elements will be appended, followed by the [truncated] string (which defaults to \"...\").\n *\n * The operation is _terminal_.\n * \n * @sample samples.collections.Collections.Transformations.joinToString\n */\npublic fun <T> Sequence<T>.joinToString(separator: CharSequence = \", \", prefix: CharSequence = \"\", postfix: CharSequence = \"\", limit: Int = -1, truncated: CharSequence = \"...\", transform: ((T) -> CharSequence)? = null): String {\n   return joinTo(StringBuilder(), separator, prefix, postfix, limit, truncated, transform).toString()\n}\n\n/**\n * Creates an [Iterable] instance that wraps the original sequence returning its elements when being iterated.\n */\npublic fun <T> Sequence<T>.asIterable(): Iterable<T> {\n   return Iterable { this.iterator() }\n}\n\n/**\n * Returns this sequence as a [Sequence].\n */\n@kotlin.internal.InlineOnly\npublic inline fun <T> Sequence<T>.asSequence(): Sequence<T> {\n   return this\n}\n\n/**\n * Returns an average value of elements in the sequence.\n *\n * The operation is _terminal_.\n */\n@kotlin.jvm.JvmName(\"averageOfByte\")\npublic fun Sequence<Byte>.average(): Double {\n   var sum: Double = 0.0\n   var count: Int = 0\n   for (element in this) {\n   sum += element\n   checkCountOverflow(++count)\n   }\n   return if (count == 0) Double.NaN else sum / count\n}\n\n/**\n * Returns an average value of elements in the sequence.\n *\n * The operation is _terminal_.\n */\n@kotlin.jvm.JvmName(\"averageOfShort\")\npublic fun Sequence<Short>.average(): Double {\n   var sum: Double = 0.0\n   var count: Int = 0\n   for (element in this) {\n   sum += element\n   checkCountOverflow(++count)\n   }\n   return if (count == 0) Double.NaN else sum / count\n}\n\n/**\n * Returns an average value of elements in the sequence.\n *\n * The operation is _terminal_.\n */\n@kotlin.jvm.JvmName(\"averageOfInt\")\npublic fun Sequence<Int>.average(): Double {\n   var sum: Double

= 0.0\n   var count: Int = 0\n   for (element in this) {\n   sum += element\n   checkCountOverflow(++count)\n   }\n   return if (count == 0) Double.NaN else sum / count\n}\n\n/**\n * Returns an average value of elements in the sequence.\n *\n * The operation is _terminal_.\n */\n@kotlin.jvm.JvmName(\"averageOfLong\")\npublic fun Sequence<Long>.average(): Double {\n   var sum: Double = 0.0\n   var count: Int = 0\n   for (element in this) {\n   sum += element\n   checkCountOverflow(++count)\n   }\n   return if (count == 0) Double.NaN else sum / count\n}\n\n/**\n * Returns an average value of elements in the sequence.\n *\n * The operation is _terminal_.\n */\n@kotlin.jvm.JvmName(\"averageOfFloat\")\npublic fun Sequence<Float>.average(): Double {\n   var sum: Double = 0.0\n   var count: Int = 0\n   for (element in this) {\n   sum += element\n   checkCountOverflow(++count)\n   }\n   return if (count == 0) Double.NaN else sum / count\n}\n\n/**\n * Returns an average value of elements in the sequence.\n *\n * The operation is _terminal_.\n */\n@kotlin.jvm.JvmName(\"averageOfDouble\")\npublic fun Sequence<Double>.average(): Double {\n   var sum: Double = 0.0\n   var count: Int = 0\n   for (element in this) {\n   sum += element\n   checkCountOverflow(++count)\n   }\n   return if (count == 0) Double.NaN else sum / count\n}\n\n/**\n * Returns the sum of all elements in the sequence.\n *\n * The operation is _terminal_.\n */\n@kotlin.jvm.JvmName(\"sumOfByte\")\npublic fun Sequence<Byte>.sum(): Int {\n   var sum: Int = 0\n   for (element in this) {\n   sum += element\n   }\n   return sum\n}\n\n/**\n * Returns the sum of all elements in the sequence.\n *\n * The operation is _terminal_.\n */\n@kotlin.jvm.JvmName(\"sumOfShort\")\npublic fun Sequence<Short>.sum(): Int {\n   var sum: Int = 0\n   for (element in this) {\n   sum += element\n   }\n   return sum\n}\n\n/**\n * Returns the sum of all elements in the sequence.\n *\n * The operation is _terminal_.\n */\n@kotlin.jvm.JvmName(\"sumOfInt\")\npublic fun Sequence<Int>.sum(): Int {\n   var sum: Int = 0\n   for (element in this) {\n   sum += element\n   }\n   return sum\n}\n\n/**\n * Returns the sum of all elements in the sequence.\n *\n * The operation is _terminal_.\n */\n@kotlin.jvm.JvmName(\"sumOfLong\")\npublic fun Sequence<Long>.sum(): Long {\n   var sum: Long = 0L\n   for (element in this) {\n   sum += element\n   }\n   return sum\n}\n\n/**\n * Returns the sum of all elements in the sequence.\n *\n * The operation is _terminal_.\n */\n@kotlin.jvm.JvmName(\"sumOfFloat\")\npublic fun Sequence<Float>.sum(): Float {\n   var sum: Float = 0.0f\n   for (element in this) {\n   sum += element\n   }\n   return sum\n}\n\n/**\n * Returns the sum of all elements in the sequence.\n *\n * The operation is _terminal_.\n */\n@kotlin.jvm.JvmName(\"sumOfDouble\")\npublic fun Sequence<Double>.sum(): Double {\n   var sum: Double = 0.0\n   for (element in this) {\n   sum += element\n   }\n   return sum\n}\n\n","/*\n * Copyright 2010-2022 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\n@file:kotlin.jvm.JvmMultifileClass\n@file:kotlin.jvm.JvmName(\"SetsKt\")\n\npackage kotlin.collections\n\n//\n// NOTE: THIS FILE IS AUTO-GENERATED by the GenerateStandardLib.kt\n// See: https://github.com/JetBrains/kotlin/tree/master/libraries/stdlib\n//\n\nimport kotlin.random.*\nimport kotlin.ranges.contains\nimport kotlin.ranges.reversed\n\n/**\n * Returns a set containing all elements of the original set except the given [element].\n * \n * The returned set preserves the element iteration order of the original set.\n */\npublic operator fun <T> Set<T>.minus(element: T): Set<T> {\n   val result = LinkedHashSet<T>(mapCapacity(size))\n   var removed = false\n   return this.filterTo(result) { if (!removed && it == element) { removed = true; false } else true }\n}\n\n/**\n * Returns a set containing all elements of the original set except the elements contained in the given [elements] array.\n * \n * The returned set preserves the element iteration order of the original set.\n * \n * Before Kotlin 1.6, the [elements] array may have been converted to a [HashSet] to speed up the operation, thus the elements were required to have\n * a correct and stable implementation of `hashCode()` that didn't change between successive invocations.\n * On JVM, you can enable this behavior back with the system property `kotlin.collections.convert_arg_to_set_in_removeAll` set to `true`.\n */\npublic operator fun <T> Set<T>.minus(elements: Array<out T>): Set<T> {\n   val result = LinkedHashSet<T>(this)\n   result.removeAll(elements)\n   return result\n}\n\n/**\n * Returns a set containing all elements of the original set except the elements contained in the given [elements] collection.\n * \n * The returned set preserves the element iteration order of the original set.\n * \n * Before Kotlin 1.6, the [elements] collection may have been converted to a

[HashSet] to speed up the operation, thus the elements were required to have\n * a correct and stable implementation of `hashCode()` that didn't change between successive invocations.\n * On JVM, you can enable this behavior back with the system property `kotlin.collections.convert_arg_to_set_in_removeAll` set to `true`.\n */\npublic operator fun <T> Set<T>.minus(elements: Iterable<T>): Set<T> {\n   val other = elements.convertToSetForSetOperationWith(this)\n   if (other.isEmpty())\n   return this.toSet()\n   if (other is Set)\n   return this.filterNotTo(LinkedHashSet<T>()) { it in other }\n   val result = LinkedHashSet<T>(this)\n   result.removeAll(other)\n   return result\n}\n\n/**\n * Returns a set containing all elements of the original set except the elements contained in the given [elements] sequence.\n * \n * The returned set preserves the element iteration order of the original set.\n * \n * Before Kotlin 1.6, the [elements] sequence may have been converted to a [HashSet] to speed up the operation, thus the elements were required to have\n * a correct and stable implementation of `hashCode()` that didn't change between successive invocations.\n * On JVM, you can enable this behavior back with the system property `kotlin.collections.convert_arg_to_set_in_removeAll` set to `true`.\n */\npublic operator fun <T> Set<T>.minus(elements: Sequence<T>): Set<T> {\n   val result = LinkedHashSet<T>(this)\n   result.removeAll(elements)\n   return result\n}\n\n/**\n * Returns a set containing all elements of the original set except the given [element].\n * \n * The returned set preserves the element iteration order of the original set.\n */\n@kotlin.internal.InlineOnly\npublic inline fun <T> Set<T>.minusElement(element: T): Set<T> {\n   return minus(element)\n}\n\n/**\n * Returns a set containing all elements of the original set and then the given [element] if it isn't already in this set.\n * \n * The returned set preserves the element iteration order of the original set.\n */\npublic operator fun <T> Set<T>.plus(element: T): Set<T> {\n   val result = LinkedHashSet<T>(mapCapacity(size + 1))\n   result.addAll(this)\n   result.add(element)\n   return result\n}\n\n/**\n * Returns a set containing all elements of the original set and the given [elements] array,\n * which aren't already in this set.\n * \n * The returned set preserves the element iteration order of the original set.\n */\npublic operator fun <T> Set<T>.plus(elements: Array<out T>): Set<T> {\n   val result = LinkedHashSet<T>(mapCapacity(this.size + elements.size))\n   result.addAll(this)\n   result.addAll(elements)\n   return result\n}\n\n/**\n * Returns a set containing all elements of the original set and the given [elements] collection,\n * which aren't already in this set.\n * The returned set preserves the element iteration order of the original set.\n */\npublic operator fun <T> Set<T>.plus(elements: Iterable<T>): Set<T> {\n   val result = LinkedHashSet<T>(mapCapacity(elements.collectionSizeOrNull()?.let { this.size + it } ?: this.size * 2))\n   result.addAll(this)\n   result.addAll(elements)\n   return result\n}\n\n/**\n * Returns a set containing all elements of the original set and the given [elements] sequence,\n * which aren't already in this set.\n * \n * The returned set preserves the element iteration order of the original set.\n */\npublic operator fun <T> Set<T>.plus(elements: Sequence<T>): Set<T> {\n   val result = LinkedHashSet<T>(mapCapacity(this.size * 2))\n   result.addAll(this)\n   result.addAll(elements)\n   return result\n}\n\n/**\n * Returns a set containing all elements of the original set and then the given [element] if it isn't already in this set.\n * \n * The returned set preserves the element iteration order of the original set.\n */\n@kotlin.internal.InlineOnly\npublic inline fun <T> Set<T>.plusElement(element: T): Set<T> {\n   return plus(element)\n}\n\n","/*\n * Copyright 2010-2022 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\n@file:kotlin.jvm.JvmMultifileClass\n@file:kotlin.jvm.JvmName(\"StringsKt\")\n\npackage kotlin.text\n\n//\n// NOTE: THIS FILE IS AUTO-GENERATED by the GenerateStandardLib.kt\n// See: https://github.com/JetBrains/kotlin/tree/master/libraries/stdlib\n//\n\nimport kotlin.random.*\n\n/**\n * Returns a character at the given [index] or throws an [IndexOutOfBoundsException] if the [index] is out of bounds of this char sequence.\n * \n * @sample samples.collections.Collections.Elements.elementAt\n */\npublic expect fun CharSequence.elementAt(index: Int): Char\n\n/**\n * Returns a character at the given [index] or the result of calling the [defaultValue] function if the [index] is out of bounds of this char sequence.\n * \n * @sample samples.collections.Collections.Elements.elementAtOrElse\n */\n@kotlin.internal.InlineOnly\npublic inline fun CharSequence.elementAtOrElse(index: Int, defaultValue: (Int) -> Char): Char {\n   return if (index >= 0 && index <= lastIndex) get(index) else defaultValue(index)\n}\n\n/**\n * Returns a character at the given [index] or `null` if

the [index] is out of bounds of this char sequence.\n * \n * @sample
samples.collections.Collections.Elements.elementAtOrNull\n */\n@kotlin.internal.InlineOnly\npublic inline fun
CharSequence.elementAtOrNull(index: Int): Char? {\n   return this.getOrNull(index)\n}\n\n/**\n * Returns the first
character matching the given [predicate], or `null` if no such character was found.\n * \n * @sample
samples.collections.Collections.Elements.find\n */\n@kotlin.internal.InlineOnly\npublic inline fun
CharSequence.find(predicate: (Char) -> Boolean): Char? {\n   return firstOrNull(predicate)\n}\n\n/**\n * Returns
the last character matching the given [predicate], or `null` if no such character was found.\n * \n * @sample
samples.collections.Collections.Elements.find\n */\n@kotlin.internal.InlineOnly\npublic inline fun
CharSequence.findLast(predicate: (Char) -> Boolean): Char? {\n   return lastOrNull(predicate)\n}\n\n/**\n *
Returns the first character.\n * \n * @throws NoSuchElementException if the char sequence is empty.\n */\npublic
fun CharSequence.first(): Char {\n   if (isEmpty())\n   throw NoSuchElementException(\"Char sequence is
empty.\")\n   return this[0]\n}\n\n/**\n * Returns the first character matching the given [predicate].\n * @throws
[NoSuchElementException] if no such character is found.\n */\npublic inline fun CharSequence.first(predicate:
(Char) -> Boolean): Char {\n   for (element in this) if (predicate(element)) return element\n   throw
NoSuchElementException(\"Char sequence contains no character matching the predicate.\")\n}\n\n/**\n * Returns
the first non-null value produced by [transform] function being applied to characters of this char sequence in
iteration order,\n * or throws [NoSuchElementException] if no non-null value was produced.\n * \n * @sample
samples.collections.Collections.Transformations.firstNotNullOf\n
*/\n@SinceKotlin(\"1.5\")\n@kotlin.internal.InlineOnly\npublic inline fun <R : Any>
CharSequence.firstNotNullOf(transform: (Char) -> R?): R {\n   return firstNotNullOfOrNull(transform) ?: throw
NoSuchElementException(\"No element of the char sequence was transformed to a non-null value.\")\n}\n\n/**\n *
Returns the first non-null value produced by [transform] function being applied to characters of this char sequence in
iteration order,\n * or `null` if no non-null value was produced.\n * \n * @sample
samples.collections.Collections.Transformations.firstNotNullOf\n
*/\n@SinceKotlin(\"1.5\")\n@kotlin.internal.InlineOnly\npublic inline fun <R : Any>
CharSequence.firstNotNullOfOrNull(transform: (Char) -> R?): R? {\n   for (element in this) {\n   val result =
transform(element)\n   if (result != null) {\n   return result\n   }\n   }\n   return null\n}\n\n/**\n *
Returns the first character, or `null` if the char sequence is empty.\n */\npublic fun CharSequence.firstOrNull():
Char? {\n   return if (isEmpty()) null else this[0]\n}\n\n/**\n * Returns the first character matching the given
[predicate], or `null` if character was not found.\n */\npublic inline fun CharSequence.firstOrNull(predicate: (Char) -
> Boolean): Char? {\n   for (element in this) if (predicate(element)) return element\n   return null\n}\n\n/**\n *
Returns a character at the given [index] or the result of calling the [defaultValue] function if the [index] is out of
bounds of this char sequence.\n */\n@kotlin.internal.InlineOnly\npublic inline fun CharSequence.getOrElse(index:
Int, defaultValue: (Int) -> Char): Char {\n   return if (index >= 0 && index <= lastIndex) get(index) else
defaultValue(index)\n}\n\n/**\n * Returns a character at the given [index] or `null` if the [index] is out of bounds of
this char sequence.\n * \n * @sample samples.collections.Collections.Elements.getOrNull\n */\npublic fun
CharSequence.getOrNull(index: Int): Char? {\n   return if (index >= 0 && index <= lastIndex) get(index) else
null\n}\n\n/**\n * Returns index of the first character matching the given [predicate], or -1 if the char sequence does
not contain such character.\n */\npublic inline fun CharSequence.indexOfFirst(predicate: (Char) -> Boolean): Int {\n
  for (index in indices) {\n   if (predicate(this[index])) {\n   return index\n   }\n   }\n   return -
1\n}\n\n/**\n * Returns index of the last character matching the given [predicate], or -1 if the char sequence does
not contain such character.\n */\npublic inline fun CharSequence.indexOfLast(predicate: (Char) -> Boolean): Int {\n
 for (index in indices.reversed()) {\n   if (predicate(this[index])) {\n   return index\n   }\n   }\n   return -
1\n}\n\n/**\n * Returns the last character.\n * \n * @throws NoSuchElementException if the char sequence is
empty.\n * \n * @sample samples.text.Strings.last\n */\npublic fun CharSequence.last(): Char {\n   if (isEmpty())\n
    throw NoSuchElementException(\"Char sequence is empty.\")\n   return this[lastIndex]\n}\n\n/**\n * Returns the
last character matching the given [predicate].\n * \n * @throws NoSuchElementException if no such character is
found.\n * \n * @sample samples.text.Strings.last\n */\npublic inline fun CharSequence.last(predicate: (Char) ->

Boolean): Char {\n   for (index in this.indices.reversed()) {\n   val element = this[index]\n   if (predicate(element)) return element\n   }\n   throw NoSuchElementException(\"Char sequence contains no character matching the predicate.\")\n}\n\n/**\n * Returns the last character, or `null` if the char sequence is empty.\n * \n * @sample samples.text.Strings.last\n */\npublic fun CharSequence.lastOrNull(): Char? {\n   return if (isEmpty()) null else this[length - 1]\n}\n\n/**\n * Returns the last character matching the given [predicate], or `null` if no such character was found.\n * \n * @sample samples.text.Strings.last\n */\npublic inline fun CharSequence.lastOrNull(predicate: (Char) -> Boolean): Char? {\n   for (index in this.indices.reversed()) {\n   val element = this[index]\n   if (predicate(element)) return element\n   }\n   return null\n}\n\n/**\n * Returns a random character from this char sequence.\n * \n * @throws NoSuchElementException if this char sequence is empty.\n */\n@SinceKotlin(\"1.3\")\n@kotlin.internal.InlineOnly\npublic inline fun CharSequence.random(): Char {\n   return random(Random)\n}\n\n/**\n * Returns a random character from this char sequence using the specified source of randomness.\n * \n * @throws NoSuchElementException if this char sequence is empty.\n */\n@SinceKotlin(\"1.3\")\npublic fun CharSequence.random(random: Random): Char {\n   if (isEmpty())\n   throw NoSuchElementException(\"Char sequence is empty.\")\n   return get(random.nextInt(length))\n}\n\n/**\n * Returns a random character from this char sequence, or `null` if this char sequence is empty.\n */\n@SinceKotlin(\"1.4\")\n@WasExperimental(ExperimentalStdlibApi::class)\n@kotlin.internal.InlineOnly\npublic inline fun CharSequence.randomOrNull(): Char? {\n   return randomOrNull(Random)\n}\n\n/**\n * Returns a random character from this char sequence using the specified source of randomness, or `null` if this char sequence is empty.\n */\n@SinceKotlin(\"1.4\")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic fun CharSequence.randomOrNull(random: Random): Char? {\n   if (isEmpty())\n   return null\n   return get(random.nextInt(length))\n}\n\n/**\n * Returns the single character, or throws an exception if the char sequence is empty or has more than one character.\n */\npublic fun CharSequence.single(): Char {\n   return when (length) {\n   0 -> throw NoSuchElementException(\"Char sequence is empty.\")\n   1 -> this[0]\n   else -> throw IllegalArgumentException(\"Char sequence has more than one element.\")\n   }\n}\n\n/**\n * Returns the single character matching the given [predicate], or throws exception if there is no or more than one matching character.\n */\npublic inline fun CharSequence.single(predicate: (Char) -> Boolean): Char {\n   var single: Char? = null\n   var found = false\n   for (element in this) {\n   if (predicate(element)) {\n   if (found) throw IllegalArgumentException(\"Char sequence contains more than one matching element.\")\n   single = element\n   found = true\n   }\n   }\n   if (!found) throw NoSuchElementException(\"Char sequence contains no character matching the predicate.\")\n   @Suppress(\"UNCHECKED_CAST\")\n   return single as Char\n}\n\n/**\n * Returns single character, or `null` if the char sequence is empty or has more than one character.\n */\npublic fun CharSequence.singleOrNull(): Char? {\n   return if (length == 1) this[0] else null\n}\n\n/**\n * Returns the single character matching the given [predicate], or `null` if character was not found or more than one character was found.\n */\npublic inline fun CharSequence.singleOrNull(predicate: (Char) -> Boolean): Char? {\n   var single: Char? = null\n   var found = false\n   for (element in this) {\n   if (predicate(element)) {\n   if (found) return null\n   single = element\n   found = true\n   }\n   }\n   if (!found) return null\n   return single\n}\n\n/**\n * Returns a subsequence of this char sequence with the first [n] characters removed.\n * \n * @throws IllegalArgumentException if [n] is negative.\n * \n * @sample samples.text.Strings.drop\n */\npublic fun CharSequence.drop(n: Int): CharSequence {\n   require(n >= 0) { \"Requested character count $n is less than zero.\" }\n   return subSequence(n.coerceAtMost(length), length)\n}\n\n/**\n * Returns a string with the first [n] characters removed.\n * \n * @throws IllegalArgumentException if [n] is negative.\n * \n * @sample samples.text.Strings.drop\n */\npublic fun String.drop(n: Int): String {\n   require(n >= 0) { \"Requested character count $n is less than zero.\" }\n   return substring(n.coerceAtMost(length))\n}\n\n/**\n * Returns a subsequence of this char sequence with the last [n] characters removed.\n * \n * @throws IllegalArgumentException if [n] is negative.\n * \n * @sample samples.text.Strings.drop\n */\npublic fun CharSequence.dropLast(n: Int): CharSequence {\n   require(n >= 0) { \"Requested character count $n is less than zero.\" }\n   return take((length - n).coerceAtLeast(0))\n}\n\n/**\n * Returns a string with the last [n] characters removed.\n * \n * @throws IllegalArgumentException if [n] is negative.\n * \n * @sample samples.text.Strings.drop\n */\npublic fun

String.dropLast(n: Int): String {\n   require(n >= 0) { \"Requested character count $n is less than zero.\" }\n   return take((length - n).coerceAtLeast(0))\n}\n\n/**\n * Returns a subsequence of this char sequence containing all characters except last characters that satisfy the given [predicate].\n * \n * @sample samples.text.Strings.drop\n */\npublic inline fun CharSequence.dropLastWhile(predicate: (Char) -> Boolean): CharSequence {\n   for (index in lastIndex downTo 0)\n   if (!predicate(this[index]))\n   return subSequence(0, index + 1)\n   return \"\"\n}\n\n/**\n * Returns a string containing all characters except last characters that satisfy the given [predicate].\n * \n * @sample samples.text.Strings.drop\n */\npublic inline fun String.dropLastWhile(predicate: (Char) -> Boolean): String {\n   for (index in lastIndex downTo 0)\n   if (!predicate(this[index]))\n   return substring(0, index + 1)\n   return \"\"\n}\n\n/**\n * Returns a subsequence of this char sequence containing all characters except first characters that satisfy the given [predicate].\n * \n * @sample samples.text.Strings.drop\n */\npublic inline fun CharSequence.dropWhile(predicate: (Char) -> Boolean): CharSequence {\n   for (index in this.indices)\n   if (!predicate(this[index]))\n   return subSequence(index, length)\n   return \"\"\n}\n\n/**\n * Returns a string containing all characters except first characters that satisfy the given [predicate].\n * \n * @sample samples.text.Strings.drop\n */\npublic inline fun String.dropWhile(predicate: (Char) -> Boolean): String {\n   for (index in this.indices)\n   if (!predicate(this[index]))\n   return substring(index)\n   return \"\"\n}\n\n/**\n * Returns a char sequence containing only those characters from the original char sequence that match the given [predicate].\n * \n * @sample samples.text.Strings.filter\n */\npublic inline fun CharSequence.filter(predicate: (Char) -> Boolean): CharSequence {\n   return filterTo(StringBuilder(), predicate)\n}\n\n/**\n * Returns a string containing only those characters from the original string that match the given [predicate].\n * \n * @sample samples.text.Strings.filter\n */\npublic inline fun String.filter(predicate: (Char) -> Boolean): String {\n   return filterTo(StringBuilder(), predicate).toString()\n}\n\n/**\n * Returns a char sequence containing only those characters from the original char sequence that match the given [predicate].\n * @param [predicate] function that takes the index of a character and the character itself\n * and returns the result of predicate evaluation on the character.\n * \n * @sample samples.collections.Collections.Filtering.filterIndexed\n */\npublic inline fun CharSequence.filterIndexed(predicate: (index: Int, Char) -> Boolean): CharSequence {\n   return filterIndexedTo(StringBuilder(), predicate)\n}\n\n/**\n * Returns a string containing only those characters from the original string that match the given [predicate].\n * @param [predicate] function that takes the index of a character and the character itself\n * and returns the result of predicate evaluation on the character.\n * \n * @sample samples.collections.Collections.Filtering.filterIndexed\n */\npublic inline fun String.filterIndexed(predicate: (index: Int, Char) -> Boolean): String {\n   return filterIndexedTo(StringBuilder(), predicate).toString()\n}\n\n/**\n * Appends all characters matching the given [predicate] to the given [destination].\n * @param [predicate] function that takes the index of a character and the character itself\n * and returns the result of predicate evaluation on the character.\n * \n * @sample samples.collections.Collections.Filtering.filterIndexedTo\n */\npublic inline fun <C : Appendable> CharSequence.filterIndexedTo(destination: C, predicate: (index: Int, Char) -> Boolean): C {\n   forEachIndexed { index, element ->\n   if (predicate(index, element)) destination.append(element)\n   }\n   return destination\n}\n\n/**\n * Returns a char sequence containing only those characters from the original char sequence that do not match the given [predicate].\n * \n * @sample samples.text.Strings.filterNot\n */\npublic inline fun CharSequence.filterNot(predicate: (Char) -> Boolean): CharSequence {\n   return filterNotTo(StringBuilder(), predicate)\n}\n\n/**\n * Returns a string containing only those characters from the original string that do not match the given [predicate].\n * \n * @sample samples.text.Strings.filterNot\n */\npublic inline fun String.filterNot(predicate: (Char) -> Boolean): String {\n   return filterNotTo(StringBuilder(), predicate).toString()\n}\n\n/**\n * Appends all characters not matching the given [predicate] to the given [destination].\n * \n * @sample samples.collections.Collections.Filtering.filterTo\n */\npublic inline fun <C : Appendable> CharSequence.filterNotTo(destination: C, predicate: (Char) -> Boolean): C {\n   for (element in this) if (!predicate(element)) destination.append(element)\n   return destination\n}\n\n/**\n * Appends all characters matching the given [predicate] to the given [destination].\n * \n * @sample samples.collections.Collections.Filtering.filterTo\n */\npublic inline fun <C : Appendable> CharSequence.filterTo(destination: C, predicate: (Char) -> Boolean): C {\n   for (index in 0 until length) {\n   val element = get(index)\n   if (predicate(element)) destination.append(element)\n   }\n   return destination\n}\n\n/**\n * Returns a char sequence containing characters of the original char sequence at the specified range of [indices].\n */\npublic fun CharSequence.slice(indices: IntRange): CharSequence {\n   if (indices.isEmpty()) return \"\"\n   return subSequence(indices)\n}\n\n/**\n * Returns a string containing characters of the original string at the specified range of [indices].\n */\npublic fun String.slice(indices: IntRange): String {\n   if (indices.isEmpty()) return \"\"\n   return substring(indices)\n}\n\n/**\n * Returns a char sequence containing characters of the original char sequence at specified [indices].\n */\npublic fun CharSequence.slice(indices: Iterable<Int>): CharSequence {\n   val size = indices.collectionSizeOrDefault(10)\n   if (size == 0) return \"\"\n   val result = StringBuilder(size)\n   for (i in indices) {\n   result.append(get(i))\n   }\n   return result\n}\n\n/**\n * Returns a string containing characters of the original string at specified [indices].\n */\n@kotlin.internal.InlineOnly\npublic inline fun String.slice(indices: Iterable<Int>): String {\n   return (this as CharSequence).slice(indices).toString()\n}\n\n/**\n * Returns a subsequence of this char sequence containing the first [n] characters from this char sequence, or the entire char sequence if this char sequence is shorter.\n * \n * @throws IllegalArgumentException if [n] is negative.\n * \n * @sample samples.text.Strings.take\n */\npublic fun CharSequence.take(n: Int): CharSequence {\n   require(n >= 0) { \"Requested character count $n is less than zero.\" }\n   return subSequence(0, n.coerceAtMost(length))\n}\n\n/**\n * Returns a string containing the first [n] characters from this string, or the entire string if this string is shorter.\n * \n * @throws IllegalArgumentException if [n] is negative.\n * \n * @sample samples.text.Strings.take\n */\npublic fun String.take(n: Int): String {\n   require(n >= 0) { \"Requested character count $n is less than zero.\" }\n   return substring(0, n.coerceAtMost(length))\n}\n\n/**\n * Returns a subsequence of this char sequence containing the last [n] characters from this char sequence, or the entire char sequence if this char sequence is shorter.\n * \n * @throws IllegalArgumentException if [n] is negative.\n * \n * @sample samples.text.Strings.take\n */\npublic fun CharSequence.takeLast(n: Int): CharSequence {\n   require(n >= 0) { \"Requested character count $n is less than zero.\" }\n   val length = length\n   return subSequence(length - n.coerceAtMost(length), length)\n}\n\n/**\n * Returns a string containing the last [n] characters from this string, or the entire string if this string is shorter.\n * \n * @throws IllegalArgumentException if [n] is negative.\n * \n * @sample samples.text.Strings.take\n */\npublic fun String.takeLast(n: Int): String {\n   require(n >= 0) { \"Requested character count $n is less than zero.\" }\n   val length = length\n   return substring(length - n.coerceAtMost(length))\n}\n\n/**\n * Returns a subsequence of this char sequence containing last characters that satisfy the given [predicate].\n * \n * @sample samples.text.Strings.take\n */\npublic inline fun CharSequence.takeLastWhile(predicate: (Char) -> Boolean): CharSequence {\n   for (index in lastIndex downTo 0) {\n   if (!predicate(this[index])) {\n   return subSequence(index + 1, length)\n   }\n   }\n   return subSequence(0, length)\n}\n\n/**\n * Returns a string containing last characters that satisfy the given [predicate].\n * \n * @sample samples.text.Strings.take\n */\npublic inline fun String.takeLastWhile(predicate: (Char) -> Boolean): String {\n   for (index in lastIndex downTo 0) {\n   if (!predicate(this[index])) {\n   return substring(index + 1)\n   }\n   }\n   return this\n}\n\n/**\n * Returns a subsequence of this char sequence containing the first characters that satisfy the given [predicate].\n * \n * @sample samples.text.Strings.take\n */\npublic inline fun CharSequence.takeWhile(predicate: (Char) -> Boolean): CharSequence {\n   for (index in 0 until length)\n   if (!predicate(get(index))) {\n   return subSequence(0, index)\n   }\n   return subSequence(0, length)\n}\n\n/**\n * Returns a string containing the first characters that satisfy the given [predicate].\n * \n * @sample samples.text.Strings.take\n */\npublic inline fun String.takeWhile(predicate: (Char) -> Boolean): String {\n   for (index in 0 until length)\n   if (!predicate(get(index))) {\n   return substring(0, index)\n   }\n   return this\n}\n\n/**\n * Returns a char sequence with characters in reversed order.\n */\npublic fun CharSequence.reversed(): CharSequence {\n   return StringBuilder(this).reverse()\n}\n\n/**\n * Returns a string with characters in reversed order.\n */\n@kotlin.internal.InlineOnly\npublic inline fun String.reversed(): String {\n   return (this as CharSequence).reversed().toString()\n}\n\n/**\n * Returns a [Map] containing key-value pairs provided by [transform] function\n * applied to characters of the given char sequence.\n * \n * If any of two pairs would have the same key the last one gets added to the map.\n * \n * The returned map preserves the entry iteration order of the original char sequence.\n * \n * @sample samples.text.Strings.associate\n */\npublic inline fun <K, V> CharSequence.associate(transform: (Char) -> Pair<K, V>): Map<K, V> {\n   val capacity = mapCapacity(length).coerceAtLeast(16)\n   return associateTo(LinkedHashMap<K, V>(capacity), transform)\n}\n\n/**\n * Returns a [Map] containing the characters from the given char sequence indexed by the key\n * returned from [keySelector] function applied to each character.\n * \n * If any two characters would have the same key returned by [keySelector] the last one gets added to the map.\n * \n * The returned map preserves the entry iteration order of the original char sequence.\n * \n * @sample samples.text.Strings.associateBy\n */\npublic inline fun <K> CharSequence.associateBy(keySelector: (Char) -> K): Map<K, Char> {\n   val capacity = mapCapacity(length).coerceAtLeast(16)\n   return associateByTo(LinkedHashMap<K, Char>(capacity), keySelector)\n}\n\n/**\n * Returns a [Map] containing the values provided by [valueTransform] and indexed by [keySelector] functions applied to characters of the given char sequence.\n * \n * If any two characters would have the same key returned by [keySelector] the last one gets added to the map.\n * \n * The returned map preserves the entry iteration order of the original char sequence.\n * \n * @sample samples.text.Strings.associateByWithValueTransform\n */\npublic inline fun <K, V> CharSequence.associateBy(keySelector: (Char) -> K, valueTransform: (Char) -> V): Map<K, V> {\n   val capacity = mapCapacity(length).coerceAtLeast(16)\n   return associateByTo(LinkedHashMap<K, V>(capacity), keySelector, valueTransform)\n}\n\n/**\n * Populates and returns the [destination] mutable map with key-value pairs,\n * where key is provided by the [keySelector] function applied to each character of the given char sequence\n * and value is the character itself.\n * \n * If any two characters would have the same key returned by [keySelector] the last one gets added to the map.\n * \n * @sample samples.text.Strings.associateByTo\n */\npublic inline fun <K, M : MutableMap<in K, in Char>> CharSequence.associateByTo(destination: M, keySelector: (Char) -> K): M {\n   for (element in this) {\n   destination.put(keySelector(element), element)\n   }\n   return destination\n}\n\n/**\n * Populates and returns the [destination] mutable map with key-value pairs,\n * where key is provided by the [keySelector] function and\n * and value is provided by the [valueTransform] function applied to characters of the given char sequence.\n * \n * If any two characters would have the same key returned by [keySelector] the last one gets added to the map.\n * \n * @sample samples.text.Strings.associateByToWithValueTransform\n */\npublic inline fun <K, V, M : MutableMap<in K, in V>> CharSequence.associateByTo(destination: M, keySelector: (Char) -> K, valueTransform: (Char) -> V): M {\n   for (element in this) {\n   destination.put(keySelector(element), valueTransform(element))\n   }\n   return destination\n}\n\n/**\n * Populates and returns the [destination] mutable map with key-value pairs\n * provided by [transform] function applied to each character of the given char sequence.\n * \n * If any of two pairs would have the same key the last one gets added to the map.\n * \n * @sample samples.text.Strings.associateTo\n */\npublic inline fun <K, V, M : MutableMap<in K, in V>> CharSequence.associateTo(destination: M, transform: (Char) -> Pair<K, V>): M {\n   for (element in this) {\n   destination += transform(element)\n   }\n   return destination\n}\n\n/**\n * Returns a [Map] where keys are characters from the given char sequence and values are\n * produced by the [valueSelector] function applied to each character.\n * \n * If any two characters are equal, the last one gets added to the map.\n * \n * The returned map preserves the entry iteration order of the original char sequence.\n * \n * @sample samples.text.Strings.associateWith\n */\n@SinceKotlin(\"1.3\")\npublic inline fun <V> CharSequence.associateWith(valueSelector: (Char) -> V): Map<Char, V> {\n   val result = LinkedHashMap<Char, V>(mapCapacity(length.coerceAtMost(128)).coerceAtLeast(16))\n   return associateWithTo(result, valueSelector)\n}\n\n/**\n * Populates and returns the [destination] mutable map with key-value pairs for each character of the given char sequence,\n * where key is the character itself and value is provided by the [valueSelector] function applied to that key.\n * \n * If any two characters are equal, the last one overwrites the former value in the map.\n * \n * @sample samples.text.Strings.associateWithTo\n */\n@SinceKotlin(\"1.3\")\npublic inline fun <V, M : MutableMap<in Char, in V>> CharSequence.associateWithTo(destination: M, valueSelector: (Char) -> V): M {\n   for (element in this) {\n   destination.put(element, valueSelector(element))\n   }\n   return destination\n}\n\n/**\n * Appends all characters to the given [destination] collection.\n */\npublic fun <C : MutableCollection<in Char>>

CharSequence.toCollection(destination: C): C {\n   for (item in this) {\n   destination.add(item)\n   }\n   return destination\n}\n\n/**\n * Returns a new [HashSet] of all characters.\n */\npublic fun CharSequence.toHashSet(): HashSet<Char> {\n   return toCollection(HashSet<Char>(mapCapacity(length.coerceAtMost(128))))\n}\n\n/**\n * Returns a [List] containing all characters.\n */\npublic fun CharSequence.toList(): List<Char> {\n   return when (length) {\n   0 -> emptyList()\n   1 -> listOf(this[0])\n   else -> this.toMutableList()\n   }\n}\n\n/**\n * Returns a new [MutableList] filled with all characters of this char sequence.\n */\npublic fun CharSequence.toMutableList(): MutableList<Char> {\n   return toCollection(ArrayList<Char>(length))\n}\n\n/**\n * Returns a [Set] of all characters.\n * \n * The returned set preserves the element iteration order of the original char sequence.\n */\npublic fun CharSequence.toSet(): Set<Char> {\n   return when (length) {\n   0 -> emptySet()\n   1 -> setOf(this[0])\n   else -> toCollection(LinkedHashSet<Char>(mapCapacity(length.coerceAtMost(128))))\n   }\n}\n\n/**\n * Returns a single list of all elements yielded from results of [transform] function being invoked on each character of original char sequence.\n * \n * @sample samples.collections.Collections.Transformations.flatMap\n */\npublic inline fun <R> CharSequence.flatMap(transform: (Char) -> Iterable<R>): List<R> {\n   return flatMapTo(ArrayList<R>(), transform)\n}\n\n/**\n * Returns a single list of all elements yielded from results of [transform] function being invoked on each character\n * and its index in the original char sequence.\n * \n * @sample samples.collections.Collections.Transformations.flatMapIndexed\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.jvm.JvmName(\"flatMapIndexedIterable\")\n@kotlin.internal.InlineOnly\npublic inline fun <R> CharSequence.flatMapIndexed(transform: (index: Int, Char) -> Iterable<R>): List<R> {\n   return flatMapIndexedTo(ArrayList<R>(), transform)\n}\n\n/**\n * Appends all elements yielded from results of [transform] function being invoked on each character\n * and its index in the original char sequence, to the given [destination].\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.jvm.JvmName(\"flatMapIndexedIterableTo\")\n@kotlin.internal.InlineOnly\npublic inline fun <R, C : MutableCollection<in R>> CharSequence.flatMapIndexedTo(destination: C, transform: (index: Int, Char) -> Iterable<R>): C {\n   var index = 0\n   for (element in this) {\n   val list = transform(index++, element)\n   destination.addAll(list)\n   }\n   return destination\n}\n\n/**\n * Appends all elements yielded from results of [transform] function being invoked on each character of original char sequence, to the given [destination].\n */\npublic inline fun <R, C : MutableCollection<in R>> CharSequence.flatMapTo(destination: C, transform: (Char) -> Iterable<R>): C {\n   for (element in this) {\n   val list = transform(element)\n   destination.addAll(list)\n   }\n   return destination\n}\n\n/**\n * Groups characters of the original char sequence by the key returned by the given [keySelector] function\n * applied to each character and returns a map where each group key is associated with a list of corresponding characters.\n * \n * The returned map preserves the entry iteration order of the keys produced from the original char sequence.\n * \n * @sample samples.collections.Collections.Transformations.groupBy\n */\npublic inline fun <K> CharSequence.groupBy(keySelector: (Char) -> K): Map<K, List<Char>> {\n   return groupByTo(LinkedHashMap<K, MutableList<Char>>(), keySelector)\n}\n\n/**\n * Groups values returned by the [valueTransform] function applied to each character of the original char sequence\n * by the key returned by the given [keySelector] function applied to the character\n * and returns a map where each group key is associated with a list of corresponding values.\n * \n * The returned map preserves the entry iteration order of the keys produced from the original char sequence.\n * \n * @sample samples.collections.Collections.Transformations.groupByKeysAndValues\n */\npublic inline fun <K, V> CharSequence.groupBy(keySelector: (Char) -> K, valueTransform: (Char) -> V): Map<K, List<V>> {\n   return groupByTo(LinkedHashMap<K, MutableList<V>>(), keySelector, valueTransform)\n}\n\n/**\n * Groups characters of the original char sequence by the key returned by the given [keySelector] function\n * applied to each character and puts to the [destination] map each group key associated with a list of corresponding characters.\n * \n * @return The [destination] map.\n * \n * @sample samples.collections.Collections.Transformations.groupBy\n

*/\npublic inline fun <K, M : MutableMap<in K, MutableList<Char>>> CharSequence.groupByTo(destination: M, keySelector: (Char) -> K): M {\n   for (element in this) {\n   val key = keySelector(element)\n   val list = destination.getOrPut(key) { ArrayList<Char>() }\n   list.add(element)\n   }\n   return destination\n}\n\n/**\n * Groups values returned by the [valueTransform] function applied to each character of the original char sequence\n * by the key returned by the given [keySelector] function applied to the character\n * and puts to the [destination] map each group key associated with a list of corresponding values.\n * \n * @return The [destination] map.\n * \n * @sample samples.collections.Collections.Transformations.groupByKeysAndValues\n */\npublic inline fun <K, V, M : MutableMap<in K, MutableList<V>>> CharSequence.groupByTo(destination: M, keySelector: (Char) -> K, valueTransform: (Char) -> V): M {\n   for (element in this) {\n   val key = keySelector(element)\n   val list = destination.getOrPut(key) { ArrayList<V>() }\n   list.add(valueTransform(element))\n   }\n   return destination\n}\n\n/**\n * Creates a [Grouping] source from a char sequence to be used later with one of group-and-fold operations\n * using the specified [keySelector] function to extract a key from each character.\n * \n * @sample samples.collections.Grouping.groupingByEachCount\n */\n@SinceKotlin(\"1.1\")\npublic inline fun <K> CharSequence.groupingBy(crossinline keySelector: (Char) -> K): Grouping<Char, K> {\n   return object : Grouping<Char, K> {\n   override fun sourceIterator(): Iterator<Char> = this@groupingBy.iterator()\n   override fun keyOf(element: Char): K = keySelector(element)\n   }\n}\n\n/**\n * Returns a list containing the results of applying the given [transform] function\n * to each character in the original char sequence.\n * \n * @sample samples.text.Strings.map\n */\npublic inline fun <R> CharSequence.map(transform: (Char) -> R): List<R> {\n   return mapTo(ArrayList<R>(length), transform)\n}\n\n/**\n * Returns a list containing the results of applying the given [transform] function\n * to each character and its index in the original char sequence.\n * @param [transform] function that takes the index of a character and the character itself\n * and returns the result of the transform applied to the character.\n */\npublic inline fun <R> CharSequence.mapIndexed(transform: (index: Int, Char) -> R): List<R> {\n   return mapIndexedTo(ArrayList<R>(length), transform)\n}\n\n/**\n * Returns a list containing only the non-null results of applying the given [transform] function\n * to each character and its index in the original char sequence.\n * @param [transform] function that takes the index of a character and the character itself\n * and returns the result of the transform applied to the character.\n */\npublic inline fun <R : Any> CharSequence.mapIndexedNotNull(transform: (index: Int, Char) -> R?): List<R> {\n   return mapIndexedNotNullTo(ArrayList<R>(), transform)\n}\n\n/**\n * Applies the given [transform] function to each character and its index in the original char sequence\n * and appends only the non-null results to the given [destination].\n * @param [transform] function that takes the index of a character and the character itself\n * and returns the result of the transform applied to the character.\n */\npublic inline fun <R : Any, C : MutableCollection<in R>> CharSequence.mapIndexedNotNullTo(destination: C, transform: (index: Int, Char) -> R?): C {\n   forEachIndexed { index, element -> transform(index, element)?.let { destination.add(it) } }\n   return destination\n}\n\n/**\n * Applies the given [transform] function to each character and its index in the original char sequence\n * and appends the results to the given [destination].\n * @param [transform] function that takes the index of a character and the character itself\n * and returns the result of the transform applied to the character.\n */\npublic inline fun <R, C : MutableCollection<in R>> CharSequence.mapIndexedTo(destination: C, transform: (index: Int, Char) -> R): C {\n   var index = 0\n   for (item in this)\n   destination.add(transform(index++, item))\n   return destination\n}\n\n/**\n * Returns a list containing only the non-null results of applying the given [transform] function\n * to each character in the original char sequence.\n * \n * @sample samples.collections.Collections.Transformations.mapNotNull\n */\npublic inline fun <R : Any> CharSequence.mapNotNull(transform: (Char) -> R?): List<R> {\n   return mapNotNullTo(ArrayList<R>(), transform)\n}\n\n/**\n * Applies the given [transform] function to each character in the original char sequence\n * and appends only the non-null results to the given [destination].\n */\npublic inline fun <R : Any, C : MutableCollection<in R>> CharSequence.mapNotNullTo(destination: C, transform: (Char) -> R?): C {\n   forEach { element -> transform(element)?.let { destination.add(it) } }\n   return destination\n}\n\n/**\n * Applies the given [transform] function to each character of the original char sequence\n * and appends the results to the given [destination].\n */\npublic inline fun <R, C : MutableCollection<in R>> CharSequence.mapTo(destination: C,

transform: (Char) -> R): C {\n   for (item in this)\n   destination.add(transform(item))\n   return destination\n}\n\n/**\n * Returns a lazy [Iterable] that wraps each character of the original char sequence\n * into an [IndexedValue] containing the index of that character and the character itself.\n */\npublic fun CharSequence.withIndex(): Iterable<IndexedValue<Char>> {\n   return IndexingIterable { iterator() }\n}\n\n/**\n * Returns `true` if all characters match the given [predicate].\n * \n * @sample samples.collections.Collections.Aggregates.all\n */\npublic inline fun CharSequence.all(predicate: (Char) -> Boolean): Boolean {\n   for (element in this) if (!predicate(element)) return false\n   return true\n}\n\n/**\n * Returns `true` if char sequence has at least one character.\n * \n * @sample samples.collections.Collections.Aggregates.any\n */\npublic fun CharSequence.any(): Boolean {\n   return !isEmpty()\n}\n\n/**\n * Returns `true` if at least one character matches the given [predicate].\n * \n * @sample samples.collections.Collections.Aggregates.anyWithPredicate\n */\npublic inline fun CharSequence.any(predicate: (Char) -> Boolean): Boolean {\n   for (element in this) if (predicate(element)) return true\n   return false\n}\n\n/**\n * Returns the length of this char sequence.\n */\n@kotlin.internal.InlineOnly\npublic inline fun CharSequence.count(): Int {\n   return length\n}\n\n/**\n * Returns the number of characters matching the given [predicate].\n */\npublic inline fun CharSequence.count(predicate: (Char) -> Boolean): Int {\n   var count = 0\n   for (element in this) if (predicate(element)) ++count\n   return count\n}\n\n/**\n * Accumulates value starting with [initial] value and applying [operation] from left to right\n * to current accumulator value and each character.\n * \n * Returns the specified [initial] value if the char sequence is empty.\n * \n * @param [operation] function that takes current accumulator value and a character, and calculates the next accumulator value.\n */\npublic inline fun <R> CharSequence.fold(initial: R, operation: (acc: R, Char) -> R): R {\n   var accumulator = initial\n   for (element in this) accumulator = operation(accumulator, element)\n   return accumulator\n}\n\n/**\n * Accumulates value starting with [initial] value and applying [operation] from left to right\n * to current accumulator value and each character with its index in the original char sequence.\n * \n * Returns the specified [initial] value if the char sequence is empty.\n * \n * @param [operation] function that takes the index of a character, current accumulator value\n * and the character itself, and calculates the next accumulator value.\n */\npublic inline fun <R> CharSequence.foldIndexed(initial: R, operation: (index: Int, acc: R, Char) -> R): R {\n   var index = 0\n   var accumulator = initial\n   for (element in this) accumulator = operation(index++, accumulator, element)\n   return accumulator\n}\n\n/**\n * Accumulates value starting with [initial] value and applying [operation] from right to left\n * to each character and current accumulator value.\n * \n * Returns the specified [initial] value if the char sequence is empty.\n * \n * @param [operation] function that takes a character and current accumulator value, and calculates the next accumulator value.\n */\npublic inline fun <R> CharSequence.foldRight(initial: R, operation: (Char, acc: R) -> R): R {\n   var index = lastIndex\n   var accumulator = initial\n   while (index >= 0) {\n   accumulator = operation(get(index--), accumulator)\n   }\n   return accumulator\n}\n\n/**\n * Accumulates value starting with [initial] value and applying [operation] from right to left\n * to each character with its index in the original char sequence and current accumulator value.\n * \n * Returns the specified [initial] value if the char sequence is empty.\n * \n * @param [operation] function that takes the index of a character, the character itself\n * and current accumulator value, and calculates the next accumulator value.\n */\npublic inline fun <R> CharSequence.foldRightIndexed(initial: R, operation: (index: Int, Char, acc: R) -> R): R {\n   var index = lastIndex\n   var accumulator = initial\n   while (index >= 0) {\n   accumulator = operation(index, get(index), accumulator)\n   --index\n   }\n   return accumulator\n}\n\n/**\n * Performs the given [action] on each character.\n */\npublic inline fun CharSequence.forEach(action: (Char) -> Unit): Unit {\n   for (element in this) action(element)\n}\n\n/**\n * Performs the given [action] on each character, providing sequential index with the character.\n * @param [action] function that takes the index of a character and the character itself\n * and performs the action on the character.\n */\npublic inline fun CharSequence.forEachIndexed(action: (index: Int, Char) -> Unit): Unit {\n   var index = 0\n   for (item in this) action(index++, item)\n}\n\n/**\n * Returns the largest character.\n * \n * @throws NoSuchElementException if the char sequence is empty.\n */\n@SinceKotlin(\"1.7\")\n@kotlin.jvm.JvmName(\"maxOrThrow\")\n@Suppress(\"CONFLICTING_OVERLOADS\")\npublic fun CharSequence.max(): Char {\n   if (isEmpty()) throw NoSuchElementException()\n   var max =

this[0]\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   if (max < e) max = e\n   }\n   return max\n}\n\n/**\n * Returns the first character yielding the largest value of the given function.\n * \n * @throws NoSuchElementException if the char sequence is empty.\n * \n * @sample samples.collections.Collections.Aggregates.maxBy\n */\n@SinceKotlin(\"1.7\")\n@kotlin.jvm.JvmName(\"maxByOrThrow\")\n@Suppress(\"CONFLICTING_OVERLOADS\")\npublic inline fun <R : Comparable<R>> CharSequence.maxBy(selector: (Char) -> R): Char {\n   if (isEmpty()) throw NoSuchElementException()\n   var maxElem = this[0]\n   val lastIndex = this.lastIndex\n   if (lastIndex == 0) return maxElem\n   var maxValue = selector(maxElem)\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   val v = selector(e)\n   if (maxValue < v) {\n   maxElem = e\n   maxValue = v\n   }\n   }\n   return maxElem\n}\n\n/**\n * Returns the first character yielding the largest value of the given function or `null` if there are no characters.\n * \n * @sample samples.collections.Collections.Aggregates.maxByOrNull\n */\n@SinceKotlin(\"1.4\")\npublic inline fun <R : Comparable<R>> CharSequence.maxByOrNull(selector: (Char) -> R): Char? {\n   if (isEmpty()) return null\n   var maxElem = this[0]\n   val lastIndex = this.lastIndex\n   if (lastIndex == 0) return maxElem\n   var maxValue = selector(maxElem)\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   val v = selector(e)\n   if (maxValue < v) {\n   maxElem = e\n   maxValue = v\n   }\n   }\n   return maxElem\n}\n\n/**\n * Returns the largest value among all values produced by [selector] function\n * applied to each character in the char sequence.\n * \n * If any of values produced by [selector] function is `NaN`, the returned result is `NaN`.\n * \n * @throws NoSuchElementException if the char sequence is empty.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun CharSequence.maxOf(selector: (Char) -> Double): Double {\n   if (isEmpty()) throw NoSuchElementException()\n   var maxValue = selector(this[0])\n   for (i in 1..lastIndex) {\n   val v = selector(this[i])\n   maxValue = maxOf(maxValue, v)\n   }\n   return maxValue\n}\n\n/**\n * Returns the largest value among all values produced by [selector] function\n * applied to each character in the char sequence.\n * \n * If any of values produced by [selector] function is `NaN`, the returned result is `NaN`.\n * \n * @throws NoSuchElementException if the char sequence is empty.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun CharSequence.maxOf(selector: (Char) -> Float): Float {\n   if (isEmpty()) throw NoSuchElementException()\n   var maxValue = selector(this[0])\n   for (i in 1..lastIndex) {\n   val v = selector(this[i])\n   maxValue = maxOf(maxValue, v)\n   }\n   return maxValue\n}\n\n/**\n * Returns the largest value among all values produced by [selector] function\n * applied to each character in the char sequence.\n * \n * @throws NoSuchElementException if the char sequence is empty.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <R : Comparable<R>> CharSequence.maxOf(selector: (Char) -> R): R {\n   if (isEmpty()) throw NoSuchElementException()\n   var maxValue = selector(this[0])\n   for (i in 1..lastIndex) {\n   val v = selector(this[i])\n   if (maxValue < v) {\n   maxValue = v\n   }\n   }\n   return maxValue\n}\n\n/**\n * Returns the largest value among all values produced by [selector] function\n * applied to each character in the char sequence or `null` if there are no characters.\n * \n * If any of values produced by [selector] function is `NaN`, the returned result is `NaN`.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun CharSequence.maxOfOrNull(selector: (Char) -> Double): Double? {\n   if (isEmpty()) return null\n   var maxValue = selector(this[0])\n   for (i in 1..lastIndex) {\n   val v = selector(this[i])\n   maxValue = maxOf(maxValue, v)\n   }\n   return maxValue\n}\n\n/**\n * Returns the largest value among all values produced by [selector] function\n * applied to each character in the char sequence or `null` if there are no characters.\n * \n * If any of values produced by [selector] function is `NaN`, the returned result is `NaN`.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun CharSequence.maxOfOrNull(selector: (Char) -> Float): Float? {\n   if (isEmpty()) return null\n   var maxValue = selector(this[0])\n   for (i in

1..lastIndex) {\n   val v = selector(this[i])\n   maxValue = maxOf(maxValue, v)\n   }\n   return maxValue\n}\n\n/**\n * Returns the largest value among all values produced by [selector] function\n * applied to each character in the char sequence or `null` if there are no characters.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <R : Comparable<R>> CharSequence.maxOfOrNull(selector: (Char) -> R): R? {\n   if (isEmpty()) return null\n   var maxValue = selector(this[0])\n   for (i in 1..lastIndex) {\n   val v = selector(this[i])\n   if (maxValue < v) {\n   maxValue = v\n   }\n   }\n   return maxValue\n}\n\n/**\n * Returns the largest value according to the provided [comparator]\n * among all values produced by [selector] function applied to each character in the char sequence.\n * \n * @throws NoSuchElementException if the char sequence is empty.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <R> CharSequence.maxOfWith(comparator: Comparator<in R>, selector: (Char) -> R): R {\n   if (isEmpty()) throw NoSuchElementException()\n   var maxValue = selector(this[0])\n   for (i in 1..lastIndex) {\n   val v = selector(this[i])\n   if (comparator.compare(maxValue, v) < 0) {\n   maxValue = v\n   }\n   }\n   return maxValue\n}\n\n/**\n * Returns the largest value according to the provided [comparator]\n * among all values produced by [selector] function applied to each character in the char sequence or `null` if there are no characters.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <R> CharSequence.maxOfWithOrNull(comparator: Comparator<in R>, selector: (Char) -> R): R? {\n   if (isEmpty()) return null\n   var maxValue = selector(this[0])\n   for (i in 1..lastIndex) {\n   val v = selector(this[i])\n   if (comparator.compare(maxValue, v) < 0) {\n   maxValue = v\n   }\n   }\n   return maxValue\n}\n\n/**\n * Returns the largest character or `null` if there are no characters.\n */\n@SinceKotlin(\"1.4\")\npublic fun CharSequence.maxOrNull(): Char? {\n   if (isEmpty()) return null\n   var max = this[0]\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   if (max < e) max = e\n   }\n   return max\n}\n\n/**\n * Returns the first character having the largest value according to the provided [comparator].\n * \n * @throws NoSuchElementException if the char sequence is empty.\n */\n@SinceKotlin(\"1.7\")\n@kotlin.jvm.JvmName(\"maxWithOrThrow\")\n@Suppress(\"CONFLICTING_OVERLOADS\")\npublic fun CharSequence.maxWith(comparator: Comparator<in Char>): Char {\n   if (isEmpty()) throw NoSuchElementException()\n   var max = this[0]\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   if (comparator.compare(max, e) < 0) max = e\n   }\n   return max\n}\n\n/**\n * Returns the first character having the largest value according to the provided [comparator] or `null` if there are no characters.\n */\n@SinceKotlin(\"1.4\")\npublic fun CharSequence.maxWithOrNull(comparator: Comparator<in Char>): Char? {\n   if (isEmpty()) return null\n   var max = this[0]\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   if (comparator.compare(max, e) < 0) max = e\n   }\n   return max\n}\n\n/**\n * Returns the smallest character.\n * \n * @throws NoSuchElementException if the char sequence is empty.\n */\n@SinceKotlin(\"1.7\")\n@kotlin.jvm.JvmName(\"minOrThrow\")\n@Suppress(\"CONFLICTING_OVERLOADS\")\npublic fun CharSequence.min(): Char {\n   if (isEmpty()) throw NoSuchElementException()\n   var min = this[0]\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   if (min > e) min = e\n   }\n   return min\n}\n\n/**\n * Returns the first character yielding the smallest value of the given function.\n * \n * @throws NoSuchElementException if the char sequence is empty.\n * \n * @sample samples.collections.Collections.Aggregates.minBy\n */\n@SinceKotlin(\"1.7\")\n@kotlin.jvm.JvmName(\"minByOrThrow\")\n@Suppress(\"CONFLICTING_OVERLOADS\")\npublic inline fun <R : Comparable<R>> CharSequence.minBy(selector: (Char) -> R): Char {\n   if (isEmpty()) throw NoSuchElementException()\n   var minElem = this[0]\n   val lastIndex = this.lastIndex\n   if (lastIndex == 0) return minElem\n   var minValue = selector(minElem)\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   val v = selector(e)\n   if (minValue > v) {\n   minElem = e\n   minValue = v\n   }\n   }\n   return minElem\n}\n\n/**\n * Returns the first character yielding the smallest value of the given function or `null` if there are no characters.\n * \n * @sample samples.collections.Collections.Aggregates.minByOrNull\n */\n@SinceKotlin(\"1.4\")\npublic inline fun <R : Comparable<R>> CharSequence.minByOrNull(selector: (Char) -> R): Char? {\n   if (isEmpty()) return null\n   var minElem = this[0]\n   val lastIndex = this.lastIndex\n   if (lastIndex == 0) return minElem\n   var minValue = selector(minElem)\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   val v = selector(e)\n   if (minValue > v) {\n   minElem = e\n   minValue = v\n   }\n   }\n   return minElem\n}\n\n/**\n * Returns the smallest value among all values produced by [selector] function\n * applied to each character in the char sequence.\n * \n * If any of values produced by [selector] function is `NaN`, the returned result is `NaN`.\n * \n * @throws NoSuchElementException if the char sequence is empty.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun CharSequence.minOf(selector: (Char) -> Double): Double {\n   if (isEmpty()) throw NoSuchElementException()\n   var minValue = selector(this[0])\n   for (i in 1..lastIndex) {\n   val v = selector(this[i])\n   minValue = minOf(minValue, v)\n   }\n   return minValue\n}\n\n/**\n * Returns the smallest value among all values produced by [selector] function\n * applied to each character in the char sequence.\n * \n * If any of values produced by [selector] function is `NaN`, the returned result is `NaN`.\n * \n * @throws NoSuchElementException if the char sequence is empty.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun CharSequence.minOf(selector: (Char) -> Float): Float {\n   if (isEmpty()) throw NoSuchElementException()\n   var minValue = selector(this[0])\n   for (i in 1..lastIndex) {\n   val v = selector(this[i])\n   minValue = minOf(minValue, v)\n   }\n   return minValue\n}\n\n/**\n * Returns the smallest value among all values produced by [selector] function\n * applied to each character in the char sequence.\n * \n * @throws NoSuchElementException if the char sequence is empty.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <R : Comparable<R>> CharSequence.minOf(selector: (Char) -> R): R {\n   if (isEmpty()) throw NoSuchElementException()\n   var minValue = selector(this[0])\n   for (i in 1..lastIndex) {\n   val v = selector(this[i])\n   if (minValue > v) {\n   minValue = v\n   }\n   }\n   return minValue\n}\n\n/**\n * Returns the smallest value among all values produced by [selector] function\n * applied to each character in the char sequence or `null` if there are no characters.\n * \n * If any of values produced by [selector] function is `NaN`, the returned result is `NaN`.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun CharSequence.minOfOrNull(selector: (Char) -> Double): Double? {\n   if (isEmpty()) return null\n   var minValue = selector(this[0])\n   for (i in 1..lastIndex) {\n   val v = selector(this[i])\n   minValue = minOf(minValue, v)\n   }\n   return minValue\n}\n\n/**\n * Returns the smallest value among all values produced by [selector] function\n * applied to each character in the char sequence or `null` if there are no characters.\n * \n * If any of values produced by [selector] function is `NaN`, the returned result is `NaN`.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun CharSequence.minOfOrNull(selector: (Char) -> Float): Float? {\n   if (isEmpty()) return null\n   var minValue = selector(this[0])\n   for (i in 1..lastIndex) {\n   val v = selector(this[i])\n   minValue = minOf(minValue, v)\n   }\n   return minValue\n}\n\n/**\n * Returns the smallest value among all values produced by [selector] function\n * applied to each character in the char sequence or `null` if there are no characters.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <R : Comparable<R>> CharSequence.minOfOrNull(selector: (Char) -> R): R? {\n   if (isEmpty()) return null\n   var minValue = selector(this[0])\n   for (i in 1..lastIndex) {\n   val v = selector(this[i])\n   if (minValue > v) {\n   minValue = v\n   }\n   }\n   return minValue\n}\n\n/**\n * Returns the smallest value according to the provided [comparator]\n * among all values produced by [selector] function applied to each character in the char sequence.\n * \n * @throws NoSuchElementException if the char sequence is empty.\n

*/\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <R> CharSequence.minOfWith(comparator: Comparator<in R>, selector: (Char) -> R): R {\n   if (isEmpty()) throw NoSuchElementException()\n   var minValue = selector(this[0])\n   for (i in 1..lastIndex) {\n   val v = selector(this[i])\n   if (comparator.compare(minValue, v) > 0) {\n   minValue = v\n   }\n   }\n   return minValue\n}\n\n/**\n * Returns the smallest value according to the provided [comparator]\n * among all values produced by [selector] function applied to each character in the char sequence or `null` if there are no characters.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <R> CharSequence.minOfWithOrNull(comparator: Comparator<in R>, selector: (Char) -> R): R? {\n   if (isEmpty()) return null\n   var minValue = selector(this[0])\n   for (i in 1..lastIndex) {\n   val v = selector(this[i])\n   if (comparator.compare(minValue, v) > 0) {\n   minValue = v\n   }\n   }\n   return minValue\n}\n\n/**\n * Returns the smallest character or `null` if there are no characters.\n */\n@SinceKotlin(\"1.4\")\npublic fun CharSequence.minOrNull(): Char? {\n   if (isEmpty()) return null\n   var min = this[0]\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   if (min > e) min = e\n   }\n   return min\n}\n\n/**\n * Returns the first character having the smallest value according to the provided [comparator].\n * \n * @throws NoSuchElementException if the char sequence is empty.\n */\n@SinceKotlin(\"1.7\")\n@kotlin.jvm.JvmName(\"minWithOrThrow\")\n@Suppress(\"CONFLICTING_OVERLOADS\")\npublic fun CharSequence.minWith(comparator: Comparator<in Char>): Char {\n   if (isEmpty()) throw NoSuchElementException()\n   var min = this[0]\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   if (comparator.compare(min, e) > 0) min = e\n   }\n   return min\n}\n\n/**\n * Returns the first character having the smallest value according to the provided [comparator] or `null` if there are no characters.\n */\n@SinceKotlin(\"1.4\")\npublic fun CharSequence.minWithOrNull(comparator: Comparator<in Char>): Char? {\n   if (isEmpty()) return null\n   var min = this[0]\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   if (comparator.compare(min, e) > 0) min = e\n   }\n   return min\n}\n\n/**\n * Returns `true` if the char sequence has no characters.\n * \n * @sample samples.collections.Collections.Aggregates.none\n */\npublic fun CharSequence.none(): Boolean {\n   return isEmpty()\n}\n\n/**\n * Returns `true` if no characters match the given [predicate].\n * \n * @sample samples.collections.Collections.Aggregates.noneWithPredicate\n */\npublic inline fun CharSequence.none(predicate: (Char) -> Boolean): Boolean {\n   for (element in this) if (predicate(element)) return false\n   return true\n}\n\n/**\n * Performs the given [action] on each character and returns the char sequence itself afterwards.\n */\n@SinceKotlin(\"1.1\")\npublic inline fun <S : CharSequence> S.onEach(action: (Char) -> Unit): S {\n   return apply { for (element in this) action(element) }\n}\n\n/**\n * Performs the given [action] on each character, providing sequential index with the character,\n * and returns the char sequence itself afterwards.\n * @param [action] function that takes the index of a character and the character itself\n * and performs the action on the character.\n */\n@SinceKotlin(\"1.4\")\npublic inline fun <S : CharSequence> S.onEachIndexed(action: (index: Int, Char) -> Unit): S {\n   return apply { forEachIndexed(action) }\n}\n\n/**\n * Accumulates value starting with the first character and applying [operation] from left to right\n * to current accumulator value and each character.\n * \n * Throws an exception if this char sequence is empty. If the char sequence can be empty in an expected way,\n * please use [reduceOrNull] instead. It returns `null` when its receiver is empty.\n * \n * @param [operation] function that takes current accumulator value and a character,\n * and calculates the next accumulator value.\n * \n * @sample samples.collections.Collections.Aggregates.reduce\n */\npublic inline fun CharSequence.reduce(operation: (acc: Char, Char) -> Char): Char {\n   if (isEmpty())\n   throw UnsupportedOperationException(\"Empty char sequence can't be reduced.\")\n   var accumulator = this[0]\n   for (index in 1..lastIndex) {\n   accumulator = operation(accumulator, this[index])\n   }\n   return accumulator\n}\n\n/**\n * Accumulates value starting with the first character and applying [operation] from left to right\n * to current accumulator value and each character with its index in the original char sequence.\n * \n * Throws an exception if this char sequence is empty. If the char sequence can be empty in an expected way,\n * please use [reduceIndexedOrNull] instead. It returns `null` when its receiver is empty.\n * \n * @param [operation]

function that takes the index of a character, current accumulator value and the character itself,\n * and calculates the next accumulator value.\n * \n * @sample samples.collections.Collections.Aggregates.reduce\n */\npublic inline fun CharSequence.reduceIndexed(operation: (index: Int, acc: Char, Char) -> Char): Char {\n   if (isEmpty())\n   throw UnsupportedOperationException(\"Empty char sequence can't be reduced.\")\n   var accumulator = this[0]\n   for (index in 1..lastIndex) {\n   accumulator = operation(index, accumulator, this[index])\n   }\n   return accumulator\n}\n\n/**\n * Accumulates value starting with the first character and applying [operation] from left to right\n * to current accumulator value and each character with its index in the original char sequence.\n * \n * Returns `null` if the char sequence is empty.\n * \n * @param [operation] function that takes the index of a character, current accumulator value and the character itself,\n * and calculates the next accumulator value.\n * \n * @sample samples.collections.Collections.Aggregates.reduceOrNull\n */\n@SinceKotlin(\"1.4\")\npublic inline fun CharSequence.reduceIndexedOrNull(operation: (index: Int, acc: Char, Char) -> Char): Char? {\n   if (isEmpty())\n   return null\n   var accumulator = this[0]\n   for (index in 1..lastIndex) {\n   accumulator = operation(index, accumulator, this[index])\n   }\n   return accumulator\n}\n\n/**\n * Accumulates value starting with the first character and applying [operation] from left to right\n * to current accumulator value and each character.\n * \n * Returns `null` if the char sequence is empty.\n * \n * @param [operation] function that takes current accumulator value and a character,\n * and calculates the next accumulator value.\n * \n * @sample samples.collections.Collections.Aggregates.reduceOrNull\n */\n@SinceKotlin(\"1.4\")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic inline fun CharSequence.reduceOrNull(operation: (acc: Char, Char) -> Char): Char? {\n   if (isEmpty())\n   return null\n   var accumulator = this[0]\n   for (index in 1..lastIndex) {\n   accumulator = operation(accumulator, this[index])\n   }\n   return accumulator\n}\n\n/**\n * Accumulates value starting with the last character and applying [operation] from right to left\n * to each character and current accumulator value.\n * \n * Throws an exception if this char sequence is empty. If the char sequence can be empty in an expected way,\n * please use [reduceRightOrNull] instead. It returns `null` when its receiver is empty.\n * \n * @param [operation] function that takes a character and current accumulator value,\n * and calculates the next accumulator value.\n * \n * @sample samples.collections.Collections.Aggregates.reduceRight\n */\npublic inline fun CharSequence.reduceRight(operation: (Char, acc: Char) -> Char): Char {\n   var index = lastIndex\n   if (index < 0) throw UnsupportedOperationException(\"Empty char sequence can't be reduced.\")\n   var accumulator = get(index--)\n   while (index >= 0) {\n   accumulator = operation(get(index--), accumulator)\n   }\n   return accumulator\n}\n\n/**\n * Accumulates value starting with the last character and applying [operation] from right to left\n * to each character with its index in the original char sequence and current accumulator value.\n * \n * Throws an exception if this char sequence is empty. If the char sequence can be empty in an expected way,\n * please use [reduceRightIndexedOrNull] instead. It returns `null` when its receiver is empty.\n * \n * @param [operation] function that takes the index of a character, the character itself and current accumulator value,\n * and calculates the next accumulator value.\n * \n * @sample samples.collections.Collections.Aggregates.reduceRight\n */\npublic inline fun CharSequence.reduceRightIndexed(operation: (index: Int, Char, acc: Char) -> Char): Char {\n   var index = lastIndex\n   if (index < 0) throw UnsupportedOperationException(\"Empty char sequence can't be reduced.\")\n   var accumulator = get(index--)\n   while (index >= 0) {\n   accumulator = operation(index, get(index), accumulator)\n   --index\n   }\n   return accumulator\n}\n\n/**\n * Accumulates value starting with the last character and applying [operation] from right to left\n * to each character with its index in the original char sequence and current accumulator value.\n * \n * Returns `null` if the char sequence is empty.\n * \n * @param [operation] function that takes the index of a character, the character itself and current accumulator value,\n * and calculates the next accumulator value.\n * \n * @sample samples.collections.Collections.Aggregates.reduceRightOrNull\n */\n@SinceKotlin(\"1.4\")\npublic inline fun CharSequence.reduceRightIndexedOrNull(operation: (index: Int, Char, acc: Char) -> Char): Char? {\n   var index = lastIndex\n   if (index < 0) return null\n   var accumulator = get(index--)\n   while (index >= 0) {\n   accumulator = operation(index, get(index), accumulator)\n   --index\n   }\n   return accumulator\n}\n\n/**\n * Accumulates value starting with the last character and applying [operation] from right to left\n * to each character and current accumulator value.\n * \n * Returns `null` if the char sequence is empty.\n * \n * @param [operation] function that takes a character and current accumulator value,\n * and calculates the next accumulator value.\n * \n * @sample samples.collections.Collections.Aggregates.reduceRightOrNull\n */\n@SinceKotlin(\"1.4\")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic inline fun CharSequence.reduceRightOrNull(operation: (Char, acc: Char) -> Char): Char? {\n   var index = lastIndex\n   if (index < 0) return null\n   var accumulator = get(index--)\n   while (index >= 0) {\n   accumulator = operation(get(index--), accumulator)\n   }\n   return accumulator\n}\n\n/**\n * Returns a list containing successive accumulation values generated by applying [operation] from left to right\n * to each character and current accumulator value that starts with [initial] value.\n * \n * Note that `acc` value passed to [operation] function should not be mutated;\n * otherwise it would affect the previous value in resulting list.\n * \n * @param [operation] function that takes current accumulator value and a character, and calculates the next accumulator value.\n * \n * @sample samples.collections.Collections.Aggregates.runningFold\n */\n@SinceKotlin(\"1.4\")\npublic inline fun <R> CharSequence.runningFold(initial: R, operation: (acc: R, Char) -> R): List<R> {\n   if (isEmpty()) return listOf(initial)\n   val result = ArrayList<R>(length + 1).apply { add(initial) }\n   var accumulator = initial\n   for (element in this) {\n   accumulator = operation(accumulator, element)\n   result.add(accumulator)\n   }\n   return result\n}\n\n/**\n * Returns a list containing successive accumulation values generated by applying [operation] from left to right\n * to each character, its index in the original char sequence and current accumulator value that starts with [initial] value.\n * \n * Note that `acc` value passed to [operation] function should not be mutated;\n * otherwise it would affect the previous value in resulting list.\n * \n * @param [operation] function that takes the index of a character, current accumulator value\n * and the character itself, and calculates the next accumulator value.\n * \n * @sample samples.collections.Collections.Aggregates.runningFold\n */\n@SinceKotlin(\"1.4\")\npublic inline fun <R> CharSequence.runningFoldIndexed(initial: R, operation: (index: Int, acc: R, Char) -> R): List<R> {\n   if (isEmpty()) return listOf(initial)\n   val result = ArrayList<R>(length + 1).apply { add(initial) }\n   var accumulator = initial\n   for (index in indices) {\n   accumulator = operation(index, accumulator, this[index])\n   result.add(accumulator)\n   }\n   return result\n}\n\n/**\n * Returns a list containing successive accumulation values generated by applying [operation] from left to right\n * to each character and current accumulator value that starts with the first character of this char sequence.\n * \n * Note that `acc` value passed to [operation] function should not be mutated;\n * otherwise it would affect the previous value in resulting list.\n * \n * @param [operation] function that takes current accumulator value and a character, and calculates the next accumulator value.\n * \n * @sample samples.collections.Collections.Aggregates.runningReduce\n */\n@SinceKotlin(\"1.4\")\npublic inline fun CharSequence.runningReduce(operation: (acc: Char, Char) -> Char): List<Char> {\n   if (isEmpty()) return emptyList()\n   var accumulator = this[0]\n   val result = ArrayList<Char>(length).apply { add(accumulator) }\n   for (index in 1 until length) {\n   accumulator = operation(accumulator, this[index])\n   result.add(accumulator)\n   }\n   return result\n}\n\n/**\n * Returns a list containing successive accumulation values generated by applying [operation] from left to right\n * to each character, its index in the original char sequence and current accumulator value that starts with the first character of this char sequence.\n * \n * Note that `acc` value passed to [operation] function should not be mutated;\n * otherwise it would affect the previous value in resulting list.\n * \n * @param [operation] function that takes the index of a character, current accumulator value\n * and the character itself, and calculates the next accumulator value.\n * \n * @sample samples.collections.Collections.Aggregates.runningReduce\n */\n@SinceKotlin(\"1.4\")\npublic inline fun CharSequence.runningReduceIndexed(operation: (index: Int, acc: Char, Char) -> Char): List<Char> {\n   if (isEmpty()) return emptyList()\n   var accumulator = this[0]\n   val result = ArrayList<Char>(length).apply { add(accumulator) }\n   for (index in 1 until length) {\n   accumulator = operation(index, accumulator, this[index])\n   result.add(accumulator)\n   }\n   return result\n}\n\n/**\n * Returns a list containing successive accumulation values generated by applying [operation] from left to right\n * to each character and current accumulator value that starts with [initial] value.\n * \n * Note that `acc` value passed to [operation] function should not be mutated;\n * otherwise it would affect the previous value in resulting list.\n * \n * @param [operation] function that takes current accumulator value and a character, and calculates the next accumulator value.\n * \n *

@sample samples.collections.Collections.Aggregates.scan\n
*/\n@SinceKotlin(\"1.4\")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic inline fun <R> CharSequence.scan(initial: R, operation: (acc: R, Char) -> R): List<R> {\n   return runningFold(initial, operation)\n}\n\n/**\n * Returns a list containing successive accumulation values generated by applying [operation] from left to right\n * to each character, its index in the original char sequence and current accumulator value that starts with [initial] value.\n * \n * Note that `acc` value passed to [operation] function should not be mutated;\n * otherwise it would affect the previous value in resulting list.\n * \n * @param [operation] function that takes the index of a character, current accumulator value\n * and the character itself, and calculates the next accumulator value.\n * \n * @sample samples.collections.Collections.Aggregates.scan\n
*/\n@SinceKotlin(\"1.4\")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic inline fun <R> CharSequence.scanIndexed(initial: R, operation: (index: Int, acc: R, Char) -> R): List<R> {\n   return runningFoldIndexed(initial, operation)\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each character in the char sequence.\n */\n@Deprecated(\"Use sumOf instead.\", ReplaceWith(\"this.sumOf(selector)\"))\n@DeprecatedSinceKotlin(warningSince = \"1.5\")\npublic inline fun CharSequence.sumBy(selector: (Char) -> Int): Int {\n   var sum: Int = 0\n   for (element in this) {\n   sum += selector(element)\n   }\n   return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each character in the char sequence.\n */\n@Deprecated(\"Use sumOf instead.\", ReplaceWith(\"this.sumOf(selector)\"))\n@DeprecatedSinceKotlin(warningSince = \"1.5\")\npublic inline fun CharSequence.sumByDouble(selector: (Char) -> Double): Double {\n   var sum: Double = 0.0\n   for (element in this) {\n   sum += selector(element)\n   }\n   return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each character in the char sequence.\n
*/\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.jvm.JvmName(\"sumOfDouble\")\n@kotlin.internal.InlineOnly\npublic inline fun CharSequence.sumOf(selector: (Char) -> Double): Double {\n   var sum: Double = 0.toDouble()\n   for (element in this) {\n   sum += selector(element)\n   }\n   return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each character in the char sequence.\n
*/\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.jvm.JvmName(\"sumOfInt\")\n@kotlin.internal.InlineOnly\npublic inline fun CharSequence.sumOf(selector: (Char) -> Int): Int {\n   var sum: Int = 0.toInt()\n   for (element in this) {\n   sum += selector(element)\n   }\n   return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each character in the char sequence.\n
*/\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.jvm.JvmName(\"sumOfLong\")\n@kotlin.internal.InlineOnly\npublic inline fun CharSequence.sumOf(selector: (Char) -> Long): Long {\n   var sum: Long = 0.toLong()\n   for (element in this) {\n   sum += selector(element)\n   }\n   return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each character in the char sequence.\n
*/\n@SinceKotlin(\"1.5\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.jvm.JvmName(\"sumOfUInt\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\n@kotlin.internal.InlineOnly\npublic inline fun CharSequence.sumOf(selector: (Char) -> UInt): UInt {\n   var sum: UInt = 0.toUInt()\n   for (element in this) {\n   sum += selector(element)\n   }\n   return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each character in the char sequence.\n
*/\n@SinceKotlin(\"1.5\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@kotlin.jvm.JvmName(\"sumOfULong\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\n@kotlin.internal.InlineOnly\npublic inline fun CharSequence.sumOf(selector: (Char) -> ULong): ULong {\n   var sum: ULong = 0.toULong()\n   for (element in this) {\n   sum += selector(element)\n   }\n   return sum\n}\n\n/**\n * Splits this char sequence into a list of strings each not exceeding the given [size].\n * \n * The last string in the resulting list may have fewer characters than the given [size].\n * \n * @param size the number

of elements to take in each string, must be positive and can be greater than the number of elements in this char sequence.\n * \n * @sample samples.text.Strings.chunked\n */\n@SinceKotlin(\"1.2\")\npublic fun CharSequence.chunked(size: Int): List<String> {\n   return windowed(size, size, partialWindows = true)\n}\n\n/**\n * Splits this char sequence into several char sequences each not exceeding the given [size]\n * and applies the given [transform] function to an each.\n * \n * @return list of results of the [transform] applied to an each char sequence.\n * \n * Note that the char sequence passed to the [transform] function is ephemeral and is valid only inside that function.\n * You should not store it or allow it to escape in some way, unless you made a snapshot of it.\n * The last char sequence may have fewer characters than the given [size].\n * \n * @param size the number of elements to take in each char sequence, must be positive and can be greater than the number of elements in this char sequence.\n * \n * @sample samples.text.Strings.chunkedTransform\n */\n@SinceKotlin(\"1.2\")\npublic fun <R> CharSequence.chunked(size: Int, transform: (CharSequence) -> R): List<R> {\n   return windowed(size, size, partialWindows = true, transform = transform)\n}\n\n/**\n * Splits this char sequence into a sequence of strings each not exceeding the given [size].\n * \n * The last string in the resulting sequence may have fewer characters than the given [size].\n * \n * @param size the number of elements to take in each string, must be positive and can be greater than the number of elements in this char sequence.\n * \n * @sample samples.collections.Collections.Transformations.chunked\n */\n@SinceKotlin(\"1.2\")\npublic fun CharSequence.chunkedSequence(size: Int): Sequence<String> {\n   return chunkedSequence(size) { it.toString() }\n}\n\n/**\n * Splits this char sequence into several char sequences each not exceeding the given [size]\n * and applies the given [transform] function to an each.\n * \n * @return sequence of results of the [transform] applied to an each char sequence.\n * \n * Note that the char sequence passed to the [transform] function is ephemeral and is valid only inside that function.\n * You should not store it or allow it to escape in some way, unless you made a snapshot of it.\n * The last char sequence may have fewer characters than the given [size].\n * \n * @param size the number of elements to take in each char sequence, must be positive and can be greater than the number of elements in this char sequence.\n * \n * @sample samples.text.Strings.chunkedTransformToSequence\n */\n@SinceKotlin(\"1.2\")\npublic fun <R> CharSequence.chunkedSequence(size: Int, transform: (CharSequence) -> R): Sequence<R> {\n   return windowedSequence(size, size, partialWindows = true, transform = transform)\n}\n\n/**\n * Splits the original char sequence into pair of char sequences,\n * where *first* char sequence contains characters for which [predicate] yielded `true`,\n * while *second* char sequence contains characters for which [predicate] yielded `false`.\n * \n * @sample samples.text.Strings.partition\n */\npublic inline fun CharSequence.partition(predicate: (Char) -> Boolean): Pair<CharSequence, CharSequence> {\n   val first = StringBuilder()\n   val second = StringBuilder()\n   for (element in this) {\n   if (predicate(element)) {\n   first.append(element)\n   } else {\n   second.append(element)\n   }\n   }\n   return Pair(first, second)\n}\n\n/**\n * Splits the original string into pair of strings,\n * where *first* string contains characters for which [predicate] yielded `true`,\n * while *second* string contains characters for which [predicate] yielded `false`.\n * \n * @sample samples.text.Strings.partition\n */\npublic inline fun String.partition(predicate: (Char) -> Boolean): Pair<String, String> {\n   val first = StringBuilder()\n   val second = StringBuilder()\n   for (element in this) {\n   if (predicate(element)) {\n   first.append(element)\n   } else {\n   second.append(element)\n   }\n   }\n   return Pair(first.toString(), second.toString())\n}\n\n/**\n * Returns a list of snapshots of the window of the given [size]\n * sliding along this char sequence with the given [step], where each\n * snapshot is a string.\n * \n * Several last strings may have fewer characters than the given [size].\n * \n * Both [size] and [step] must be positive and can be greater than the number of elements in this char sequence.\n * @param size the number of elements to take in each window\n * @param step the number of elements to move the window forward by on an each step, by default 1\n * @param partialWindows controls whether or not to keep partial windows in the end if any,\n * by default `false` which means partial windows won't be preserved\n * \n * @sample samples.collections.Sequences.Transformations.takeWindows\n */\n@SinceKotlin(\"1.2\")\npublic fun CharSequence.windowed(size: Int, step: Int = 1, partialWindows: Boolean = false): List<String> {\n   return windowed(size, step, partialWindows) { it.toString() }\n}\n\n/**\n * Returns a list of results of applying the given [transform] function to\n * an each char sequence representing a view over the window of the given [size]\n * sliding along this char sequence with the given [step].\n * \n * Note that the char sequence passed to the [transform] function is ephemeral and is valid only inside that function.\n * You should not store it or allow it to escape in some way, unless you made a snapshot of it.\n * Several last char sequences may have fewer characters than the given [size].\n * \n * Both [size] and [step] must be positive and can be greater than the number of elements in this char sequence.\n * @param size the number of elements to take in each window\n * @param step the number of elements to move the window forward by on an each step, by default 1\n * @param partialWindows controls whether or not to keep partial windows in the end if any,\n * by default `false` which means partial windows won't be preserved\n * \n * @sample samples.collections.Sequences.Transformations.averageWindows\n */\n@SinceKotlin(\"1.2\")\npublic fun <R> CharSequence.windowed(size: Int, step: Int = 1, partialWindows: Boolean = false, transform: (CharSequence) -> R): List<R> {\n   checkWindowSizeStep(size, step)\n   val thisSize = this.length\n   val resultCapacity = thisSize / step + if (thisSize % step == 0) 0 else 1\n   val result = ArrayList<R>(resultCapacity)\n   var index = 0\n   while (index in 0 until thisSize) {\n   val end = index + size\n   val coercedEnd = if (end < 0 || end > thisSize) { if (partialWindows) thisSize else break } else end\n   result.add(transform(subSequence(index, coercedEnd)))\n   index += step\n   }\n   return result\n}\n\n/**\n * Returns a sequence of snapshots of the window of the given [size]\n * sliding along this char sequence with the given [step], where each\n * snapshot is a string.\n * \n * Several last strings may have fewer characters than the given [size].\n * \n * Both [size] and [step] must be positive and can be greater than the number of elements in this char sequence.\n * @param size the number of elements to take in each window\n * @param step the number of elements to move the window forward by on an each step, by default 1\n * @param partialWindows controls whether or not to keep partial windows in the end if any,\n * by default `false` which means partial windows won't be preserved\n * \n * @sample samples.collections.Sequences.Transformations.takeWindows\n */\n@SinceKotlin(\"1.2\")\npublic fun CharSequence.windowedSequence(size: Int, step: Int = 1, partialWindows: Boolean = false): Sequence<String> {\n   return windowedSequence(size, step, partialWindows) { it.toString() }\n}\n\n/**\n * Returns a sequence of results of applying the given [transform] function to\n * an each char sequence representing a view over the window of the given [size]\n * sliding along this char sequence with the given [step].\n * \n * Note that the char sequence passed to the [transform] function is ephemeral and is valid only inside that function.\n * You should not store it or allow it to escape in some way, unless you made a snapshot of it.\n * Several last char sequences may have fewer characters than the given [size].\n * \n * Both [size] and [step] must be positive and can be greater than the number of elements in this char sequence.\n * @param size the number of elements to take in each window\n * @param step the number of elements to move the window forward by on an each step, by default 1\n * @param partialWindows controls whether or not to keep partial windows in the end if any,\n * by default `false` which means partial windows won't be preserved\n * \n * @sample samples.collections.Sequences.Transformations.averageWindows\n */\n@SinceKotlin(\"1.2\")\npublic fun <R> CharSequence.windowedSequence(size: Int, step: Int = 1, partialWindows: Boolean = false, transform: (CharSequence) -> R): Sequence<R> {\n   checkWindowSizeStep(size, step)\n   val windows = (if (partialWindows) indices else 0 until length - size + 1) step step\n   return windows.asSequence().map { index ->\n   val end = index + size\n   val coercedEnd = if (end < 0 || end > length) length else end\n   transform(subSequence(index, coercedEnd))\n   }\n}\n\n/**\n * Returns a list of pairs built from the characters of `this` and the [other] char sequences with the same index\n * The returned list has length of the shortest char sequence.\n * \n * @sample samples.text.Strings.zip\n */\npublic infix fun CharSequence.zip(other: CharSequence): List<Pair<Char, Char>> {\n   return zip(other) { c1, c2 -> c1 to c2 }\n}\n\n/**\n * Returns a list of values built from the characters of `this` and the [other] char sequences with the same index\n * using the provided [transform] function applied to each pair of characters.\n * The returned list has length of the shortest char sequence.\n * \n * @sample samples.text.Strings.zipWithTransform\n */\npublic inline fun <V> CharSequence.zip(other: CharSequence, transform: (a: Char, b: Char) -> V): List<V> {\n   val length = minOf(this.length, other.length)\n   val list = ArrayList<V>(length)\n   for (i in 0 until length) {\n   list.add(transform(this[i], other[i]))\n   }\n   return list\n}\n\n/**\n * Returns a list of pairs of each two adjacent characters in this char sequence.\n * \n * The returned list is empty if this char sequence contains less than two characters.\n * \n * @sample

samples.collections.Collections.Transformations.zipWithNext\n */\n@SinceKotlin(\"1.2\")\npublic fun
CharSequence.zipWithNext(): List<Pair<Char, Char>> {\n   return zipWithNext { a, b -> a to b }\n}\n\n/**\n *
Returns a list containing the results of applying the given [transform] function\n * to an each pair of two adjacent
characters in this char sequence.\n * \n * The returned list is empty if this char sequence contains less than two
characters.\n * \n * @sample samples.collections.Collections.Transformations.zipWithNextToFindDeltas\n
*/\n@SinceKotlin(\"1.2\")\npublic inline fun <R> CharSequence.zipWithNext(transform: (a: Char, b: Char) -> R):
List<R> {\n   val size = length - 1\n   if (size < 1) return emptyList()\n   val result = ArrayList<R>(size)\n   for
(index in 0 until size) {\n   result.add(transform(this[index], this[index + 1]))\n   }\n   return result\n}\n\n/**\n *
Creates an [Iterable] instance that wraps the original char sequence returning its characters when being iterated.\n
*/\npublic fun CharSequence.asIterable(): Iterable<Char> {\n   if (this is String && isEmpty()) return emptyList()\n
  return Iterable { this.iterator() }\n}\n\n/**\n * Creates a [Sequence] instance that wraps the original char sequence
returning its characters when being iterated.\n */\npublic fun CharSequence.asSequence(): Sequence<Char> {\n   if
(this is String && isEmpty()) return emptySequence()\n   return Sequence { this.iterator() }\n}\n\n","/*\n *
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governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n
*/\n\n@file:kotlin.jvm.JvmMultifileClass\n@file:kotlin.jvm.JvmName(\"StringsKt\")\n\npackage
kotlin.text\n\nimport kotlin.contracts.contract\nimport kotlin.jvm.JvmName\n\n/**\n * Returns a copy of this string
converted to upper case using the rules of the default locale.\n */\n@Deprecated(\"Use uppercase() instead.\",
ReplaceWith(\"uppercase()\"))\n@DeprecatedSinceKotlin(warningSince = \"1.5\")\npublic expect fun
String.toUpperCase(): String\n\n/**\n * Returns a copy of this string converted to upper case using Unicode
mapping rules of the invariant locale.\n *\n * This function supports one-to-many and many-to-one character
mapping,\n * thus the length of the returned string can be different from the length of the original string.\n *\n *
@sample samples.text.Strings.uppercase\n
*/\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic expect fun
String.uppercase(): String\n\n/**\n * Returns a copy of this string converted to lower case using the rules of the
default locale.\n */\n@Deprecated(\"Use lowercase() instead.\",
ReplaceWith(\"lowercase()\"))\n@DeprecatedSinceKotlin(warningSince = \"1.5\")\npublic expect fun
String.toLowerCase(): String\n\n/**\n * Returns a copy of this string converted to lower case using Unicode
mapping rules of the invariant locale.\n *\n * This function supports one-to-many and many-to-one character
mapping,\n * thus the length of the returned string can be different from the length of the original string.\n *\n *
@sample samples.text.Strings.lowercase\n
*/\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic expect fun
String.lowercase(): String\n\n/**\n * Returns a copy of this string having its first letter titlecased using the rules of
the default locale,\n * or the original string if it's empty or already starts with a title case letter.\n *\n * The title case
of a character is usually the same as its upper case with several exceptions.\n * The particular list of characters with
the special title case form depends on the underlying platform.\n *\n * @sample samples.text.Strings.capitalize\n
*/\n@Deprecated(\"Use replaceFirstChar instead.\", ReplaceWith(\"replaceFirstChar { if (it.isLowerCase())
it.titlecase() else it.toString() }\"))\n@DeprecatedSinceKotlin(warningSince = \"1.5\")\npublic expect fun
String.capitalize(): String\n\n/**\n * Returns a copy of this string having its first letter lowercased using the rules of
the default locale,\n * or the original string if it's empty or already starts with a lower case letter.\n *\n * @sample
samples.text.Strings.decapitalize\n */\n@Deprecated(\"Use replaceFirstChar instead.\",
ReplaceWith(\"replaceFirstChar { it.lowercase() }\"))\n@DeprecatedSinceKotlin(warningSince = \"1.5\")\npublic
expect fun String.decapitalize(): String\n\n/**\n * Returns a sub sequence of this char sequence having leading and
trailing characters matching the [predicate] removed.\n */\npublic inline fun CharSequence.trim(predicate: (Char) ->
Boolean): CharSequence {\n   var startIndex = 0\n   var endIndex = length - 1\n   var startFound = false\n\n
while (startIndex <= endIndex) {\n   val index = if (!startFound) startIndex else endIndex\n   val match =
predicate(this[index])\n\n   if (!startFound) {\n   if (!match)\n   startFound = true\n   else\n
        startIndex += 1\n   } else {\n   if (!match)\n   break\n   else\n   endIndex -= 1\n

}\n   }\n\n   return subSequence(startIndex, endIndex + 1)\n}\n\n/**\n * Returns a string having leading and trailing characters matching the [predicate] removed.\n */\npublic inline fun String.trim(predicate: (Char) -> Boolean): String =\n   (this as CharSequence).trim(predicate).toString()\n\n/**\n * Returns a sub sequence of this char sequence having leading characters matching the [predicate] removed.\n */\npublic inline fun CharSequence.trimStart(predicate: (Char) -> Boolean): CharSequence {\n   for (index in this.indices)\n   if (!predicate(this[index]))\n   return subSequence(index, length)\n\n   return \"\"\n}\n\n/**\n * Returns a string having leading characters matching the [predicate] removed.\n */\npublic inline fun String.trimStart(predicate: (Char) -> Boolean): String =\n   (this as CharSequence).trimStart(predicate).toString()\n\n/**\n * Returns a sub sequence of this char sequence having trailing characters matching the [predicate] removed.\n */\npublic inline fun CharSequence.trimEnd(predicate: (Char) -> Boolean): CharSequence {\n   for (index in this.indices.reversed())\n   if (!predicate(this[index]))\n   return subSequence(0, index + 1)\n\n   return \"\"\n}\n\n/**\n * Returns a string having trailing characters matching the [predicate] removed.\n */\npublic inline fun String.trimEnd(predicate: (Char) -> Boolean): String =\n   (this as CharSequence).trimEnd(predicate).toString()\n\n/**\n * Returns a sub sequence of this char sequence having leading and trailing characters from the [chars] array removed.\n */\npublic fun CharSequence.trim(vararg chars: Char): CharSequence = trim { it in chars }\n\n/**\n * Returns a string having leading and trailing characters from the [chars] array removed.\n */\npublic fun String.trim(vararg chars: Char): String = trim { it in chars }\n\n/**\n * Returns a sub sequence of this char sequence having leading characters from the [chars] array removed.\n */\npublic fun CharSequence.trimStart(vararg chars: Char): CharSequence = trimStart { it in chars }\n\n/**\n * Returns a string having leading characters from the [chars] array removed.\n */\npublic fun String.trimStart(vararg chars: Char): String = trimStart { it in chars }\n\n/**\n * Returns a sub sequence of this char sequence having trailing characters from the [chars] array removed.\n */\npublic fun CharSequence.trimEnd(vararg chars: Char): CharSequence = trimEnd { it in chars }\n\n/**\n * Returns a string having trailing characters from the [chars] array removed.\n */\npublic fun String.trimEnd(vararg chars: Char): String = trimEnd { it in chars }\n\n/**\n * Returns a sub sequence of this char sequence having leading and trailing whitespace removed.\n */\npublic fun CharSequence.trim(): CharSequence = trim(Char::isWhitespace)\n\n/**\n * Returns a string having leading and trailing whitespace removed.\n */\n@kotlin.internal.InlineOnly\npublic inline fun String.trim(): String = (this as CharSequence).trim().toString()\n\n/**\n * Returns a sub sequence of this char sequence having leading whitespace removed.\n */\npublic fun CharSequence.trimStart(): CharSequence = trimStart(Char::isWhitespace)\n\n/**\n * Returns a string having leading whitespace removed.\n */\n@kotlin.internal.InlineOnly\npublic inline fun String.trimStart(): String = (this as CharSequence).trimStart().toString()\n\n/**\n * Returns a sub sequence of this char sequence having trailing whitespace removed.\n */\npublic fun CharSequence.trimEnd(): CharSequence = trimEnd(Char::isWhitespace)\n\n/**\n * Returns a string having trailing whitespace removed.\n */\n@kotlin.internal.InlineOnly\npublic inline fun String.trimEnd(): String = (this as CharSequence).trimEnd().toString()\n\n/**\n * Returns a char sequence with content of this char sequence padded at the beginning\n * to the specified [length] with the specified character or space.\n *\n * @param length the desired string length.\n * @param padChar the character to pad string with, if it has length less than the [length] specified. Space is used by default.\n * @return Returns a char sequence of length at least [length] consisting of `this` char sequence prepended with [padChar] as many times\n * as are necessary to reach that length.\n * @sample samples.text.Strings.padStart\n */\npublic fun CharSequence.padStart(length: Int, padChar: Char = ' '): CharSequence {\n   if (length < 0)\n   throw IllegalArgumentException(\"Desired length $length is less than zero.\")\n   if (length <= this.length)\n   return this.subSequence(0, this.length)\n\n   val sb = StringBuilder(length)\n   for (i in 1..(length - this.length))\n   sb.append(padChar)\n   sb.append(this)\n   return sb\n}\n\n/**\n * Pads the string to the specified [length] at the beginning with the specified character or space.\n *\n * @param length the desired string length.\n * @param padChar the character to pad string with, if it has length less than the [length] specified. Space is used by default.\n * @return Returns a string of length at least [length] consisting of `this` string prepended with [padChar] as many times\n * as are necessary to reach that length.\n * @sample samples.text.Strings.padStart\n */\npublic fun String.padStart(length: Int, padChar: Char = ' '): String =\n   (this as CharSequence).padStart(length, padChar).toString()\n\n/**\n * Returns a char sequence with content of this char sequence padded at the end\n * to the specified [length] with the specified character or space.\n *\n * @param length the desired string length.\n * @param padChar the character to pad string with, if it has length less than the [length] specified. Space is used by default.\n * @return Returns a char sequence of length at least [length] consisting of `this` char sequence appended with [padChar] as many times\n * as are necessary to reach that length.\n * @sample samples.text.Strings.padEnd\n */\npublic fun CharSequence.padEnd(length: Int, padChar: Char = ' '): CharSequence {\n   if (length < 0)\n   throw IllegalArgumentException(\"Desired length $length is less than zero.\")\n   if (length <= this.length)\n   return this.subSequence(0, this.length)\n\n   val sb = StringBuilder(length)\n   sb.append(this)\n   for (i in 1..(length - this.length))\n   sb.append(padChar)\n   return sb\n}\n\n/**\n * Pads the string to the specified [length] at the end with the specified character or space.\n *\n * @param length the desired string length.\n * @param padChar the character to pad string with, if it has length less than the [length] specified. Space is used by default.\n * @return Returns a string of length at least [length] consisting of `this` string appended with [padChar] as many times\n * as are necessary to reach that length.\n * @sample samples.text.Strings.padEnd\n */\npublic fun String.padEnd(length: Int, padChar: Char = ' '): String =\n   (this as CharSequence).padEnd(length, padChar).toString()\n\n/**\n * Returns `true` if this nullable char sequence is either `null` or empty.\n *\n * @sample samples.text.Strings.stringIsNullOrEmpty\n */\n@kotlin.internal.InlineOnly\npublic inline fun CharSequence?.isNullOrEmpty(): Boolean {\n   contract {\n   returns(false) implies (this@isNullOrEmpty != null)\n   }\n\n   return this == null || this.length == 0\n}\n\n/**\n * Returns `true` if this char sequence is empty (contains no characters).\n *\n * @sample samples.text.Strings.stringIsEmpty\n */\n@kotlin.internal.InlineOnly\npublic inline fun CharSequence.isEmpty(): Boolean = length == 0\n\n/**\n * Returns `true` if this char sequence is not empty.\n *\n * @sample samples.text.Strings.stringIsNotEmpty\n */\n@kotlin.internal.InlineOnly\npublic inline fun CharSequence.isNotEmpty(): Boolean = length > 0\n\n// implemented differently in JVM and JS\n//public fun String.isBlank(): Boolean = length() == 0 || all { it.isWhitespace() }\n\n\n/**\n * Returns `true` if this char sequence is not empty and contains some characters except of whitespace characters.\n *\n * @sample samples.text.Strings.stringIsNotBlank\n */\n@kotlin.internal.InlineOnly\npublic inline fun CharSequence.isNotBlank(): Boolean = !isBlank()\n\n/**\n * Returns `true` if this nullable char sequence is either `null` or empty or consists solely of whitespace characters.\n *\n * @sample samples.text.Strings.stringIsNullOrBlank\n */\n@kotlin.internal.InlineOnly\npublic inline fun CharSequence?.isNullOrBlank(): Boolean {\n   contract {\n   returns(false) implies (this@isNullOrBlank != null)\n   }\n\n   return this == null || this.isBlank()\n}\n\n/**\n * Iterator for characters of the given char sequence.\n */\npublic operator fun CharSequence.iterator(): CharIterator = object : CharIterator() {\n   private var index = 0\n\n   public override fun nextChar(): Char = get(index++)\n\n   public override fun hasNext(): Boolean = index < length\n}\n\n/** Returns the string if it is not `null`, or the empty string otherwise. */\n@kotlin.internal.InlineOnly\npublic inline fun String?.orEmpty(): String = this ?: \"\"\n\n/**\n * Returns this char sequence if it's not empty\n * or the result of calling [defaultValue] function if the char sequence is empty.\n *\n * @sample samples.text.Strings.stringIfEmpty\n */\n@SinceKotlin(\"1.3\")\n@kotlin.internal.InlineOnly\npublic inline fun <C, R> C.ifEmpty(defaultValue: () -> R): R where C : CharSequence, C : R =\n   if (isEmpty()) defaultValue() else this\n\n/**\n * Returns this char sequence if it is not empty and doesn't consist solely of whitespace characters,\n * or the result of calling [defaultValue] function otherwise.\n *\n * @sample samples.text.Strings.stringIfBlank\n */\n@SinceKotlin(\"1.3\")\n@kotlin.internal.InlineOnly\npublic inline fun <C, R> C.ifBlank(defaultValue: () -> R): R where C : CharSequence, C : R =\n   if (isBlank()) defaultValue() else this\n\n/**\n * Returns the range of valid character indices for this char sequence.\n */\npublic val CharSequence.indices: IntRange\n   get() = 0..length - 1\n\n/**\n * Returns the index of the last character in the char sequence or -1 if it is empty.\n */\npublic val CharSequence.lastIndex: Int\n   get() = this.length - 1\n\n/**\n * Returns `true` if this CharSequence has Unicode surrogate pair at the specified [index].\n */\npublic fun CharSequence.hasSurrogatePairAt(index: Int): Boolean {\n   return index in 0..length - 2\n   && this[index].isHighSurrogate()\n   && this[index + 1].isLowSurrogate()\n}\n\n/**\n * Returns a substring specified by the given [range] of indices.\n */\npublic fun

String.substring(range: IntRange): String = substring(range.start, range.endInclusive + 1)\n\n/**\n * Returns a subsequence of this char sequence specified by the given [range] of indices.\n */\npublic fun CharSequence.subSequence(range: IntRange): CharSequence = subSequence(range.start, range.endInclusive + 1)\n\n/**\n * Returns a subsequence of this char sequence.\n *\n * This extension is chosen only for invocation with old-named parameters.\n * Replace parameter names with the same as those of [CharSequence.subSequence].\n */\n@kotlin.internal.InlineOnly\n@Suppress(\"EXTENSION_SHADOWED_BY_MEMBER\") // false warning\n@Deprecated(\"Use parameters named startIndex and endIndex.\", ReplaceWith(\"subSequence(startIndex = start, endIndex = end)\"))\npublic inline fun String.subSequence(start: Int, end: Int): CharSequence = subSequence(start, end)\n\n/**\n * Returns a substring of chars from a range of this char sequence starting at the [startIndex] and ending right before the [endIndex].\n *\n * @param startIndex the start index (inclusive).\n * @param endIndex the end index (exclusive). If not specified, the length of the char sequence is used.\n */\n@kotlin.internal.InlineOnly\npublic inline fun CharSequence.substring(startIndex: Int, endIndex: Int = length): String = subSequence(startIndex, endIndex).toString()\n\n/**\n * Returns a substring of chars at indices from the specified [range] of this char sequence.\n */\npublic fun CharSequence.substring(range: IntRange): String = subSequence(range.start, range.endInclusive + 1).toString()\n\n/**\n * Returns a substring before the first occurrence of [delimiter].\n * If the string does not contain the delimiter, returns [missingDelimiterValue] which defaults to the original string.\n */\npublic fun String.substringBefore(delimiter: Char, missingDelimiterValue: String = this): String {\n   val index = indexOf(delimiter)\n   return if (index == -1) missingDelimiterValue else substring(0, index)\n}\n\n/**\n * Returns a substring before the first occurrence of [delimiter].\n * If the string does not contain the delimiter, returns [missingDelimiterValue] which defaults to the original string.\n */\npublic fun String.substringBefore(delimiter: String, missingDelimiterValue: String = this): String {\n   val index = indexOf(delimiter)\n   return if (index == -1) missingDelimiterValue else substring(0, index)\n}\n\n/**\n * Returns a substring after the first occurrence of [delimiter].\n * If the string does not contain the delimiter, returns [missingDelimiterValue] which defaults to the original string.\n */\npublic fun String.substringAfter(delimiter: Char, missingDelimiterValue: String = this): String {\n   val index = indexOf(delimiter)\n   return if (index == -1) missingDelimiterValue else substring(index + 1, length)\n}\n\n/**\n * Returns a substring after the first occurrence of [delimiter].\n * If the string does not contain the delimiter, returns [missingDelimiterValue] which defaults to the original string.\n */\npublic fun String.substringAfter(delimiter: String, missingDelimiterValue: String = this): String {\n   val index = indexOf(delimiter)\n   return if (index == -1) missingDelimiterValue else substring(index + delimiter.length, length)\n}\n\n/**\n * Returns a substring before the last occurrence of [delimiter].\n * If the string does not contain the delimiter, returns [missingDelimiterValue] which defaults to the original string.\n */\npublic fun String.substringBeforeLast(delimiter: Char, missingDelimiterValue: String = this): String {\n   val index = lastIndexOf(delimiter)\n   return if (index == -1) missingDelimiterValue else substring(0, index)\n}\n\n/**\n * Returns a substring before the last occurrence of [delimiter].\n * If the string does not contain the delimiter, returns [missingDelimiterValue] which defaults to the original string.\n */\npublic fun String.substringBeforeLast(delimiter: String, missingDelimiterValue: String = this): String {\n   val index = lastIndexOf(delimiter)\n   return if (index == -1) missingDelimiterValue else substring(0, index)\n}\n\n/**\n * Returns a substring after the last occurrence of [delimiter].\n * If the string does not contain the delimiter, returns [missingDelimiterValue] which defaults to the original string.\n */\npublic fun String.substringAfterLast(delimiter: Char, missingDelimiterValue: String = this): String {\n   val index = lastIndexOf(delimiter)\n   return if (index == -1) missingDelimiterValue else substring(index + 1, length)\n}\n\n/**\n * Returns a substring after the last occurrence of [delimiter].\n * If the string does not contain the delimiter, returns [missingDelimiterValue] which defaults to the original string.\n */\npublic fun String.substringAfterLast(delimiter: String, missingDelimiterValue: String = this): String {\n   val index = lastIndexOf(delimiter)\n   return if (index == -1) missingDelimiterValue else substring(index + delimiter.length, length)\n}\n\n/**\n * Returns a char sequence with content of this char sequence where its part at the given range\n * is replaced with the [replacement] char sequence.\n * @param startIndex the index of the first character to be replaced.\n * @param endIndex the index of the first character after the replacement to keep in the string.\n */\npublic fun CharSequence.replaceRange(startIndex: Int, endIndex: Int, replacement: CharSequence):

CharSequence {\n   if (endIndex < startIndex)\n   throw IndexOutOfBoundsException(\"End index ($endIndex) is less than start index ($startIndex).\")\n   val sb = StringBuilder()\n   sb.appendRange(this, 0, startIndex)\n   sb.append(replacement)\n   sb.appendRange(this, endIndex, length)\n   return sb\n}\n\n/**\n * Replaces the part of the string at the given range with the [replacement] char sequence.\n * @param startIndex the index of the first character to be replaced.\n * @param endIndex the index of the first character after the replacement to keep in the string.\n */\n@kotlin.internal.InlineOnly\npublic inline fun String.replaceRange(startIndex: Int, endIndex: Int, replacement: CharSequence): String =\n   (this as CharSequence).replaceRange(startIndex, endIndex, replacement).toString()\n\n/**\n * Returns a char sequence with content of this char sequence where its part at the given [range]\n * is replaced with the [replacement] char sequence.\n *\n * The end index of the [range] is included in the part to be replaced.\n */\npublic fun CharSequence.replaceRange(range: IntRange, replacement: CharSequence): CharSequence =\n   replaceRange(range.start, range.endInclusive + 1, replacement)\n\n/**\n * Replace the part of string at the given [range] with the [replacement] string.\n *\n * The end index of the [range] is included in the part to be replaced.\n */\n@kotlin.internal.InlineOnly\npublic inline fun String.replaceRange(range: IntRange, replacement: CharSequence): String =\n   (this as CharSequence).replaceRange(range, replacement).toString()\n\n/**\n * Returns a char sequence with content of this char sequence where its part at the given range is removed.\n *\n * @param startIndex the index of the first character to be removed.\n * @param endIndex the index of the first character after the removed part to keep in the string.\n *\n * [endIndex] is not included in the removed part.\n */\npublic fun CharSequence.removeRange(startIndex: Int, endIndex: Int): CharSequence {\n   if (endIndex < startIndex)\n   throw IndexOutOfBoundsException(\"End index ($endIndex) is less than start index ($startIndex).\")\n\n   if (endIndex == startIndex)\n   return this.subSequence(0, length)\n\n   val sb = StringBuilder(length - (endIndex - startIndex))\n   sb.appendRange(this, 0, startIndex)\n   sb.appendRange(this, endIndex, length)\n   return sb\n}\n\n/**\n * Removes the part of a string at a given range.\n * @param startIndex the index of the first character to be removed.\n * @param endIndex the index of the first character after the removed part to keep in the string.\n *\n * [endIndex] is not included in the removed part.\n */\n@kotlin.internal.InlineOnly\npublic inline fun String.removeRange(startIndex: Int, endIndex: Int): String =\n   (this as CharSequence).removeRange(startIndex, endIndex).toString()\n\n/**\n * Returns a char sequence with content of this char sequence where its part at the given [range] is removed.\n *\n * The end index of the [range] is included in the removed part.\n */\npublic fun CharSequence.removeRange(range: IntRange): CharSequence = removeRange(range.start, range.endInclusive + 1)\n\n/**\n * Removes the part of a string at the given [range].\n *\n * The end index of the [range] is included in the removed part.\n */\n@kotlin.internal.InlineOnly\npublic inline fun String.removeRange(range: IntRange): String =\n   (this as CharSequence).removeRange(range).toString()\n\n/**\n * If this char sequence starts with the given [prefix], returns a new char sequence\n * with the prefix removed. Otherwise, returns a new char sequence with the same characters.\n */\npublic fun CharSequence.removePrefix(prefix: CharSequence): CharSequence {\n   if (startsWith(prefix)) {\n   return subSequence(prefix.length, length)\n   }\n   return subSequence(0, length)\n}\n\n/**\n * If this string starts with the given [prefix], returns a copy of this string\n * with the prefix removed. Otherwise, returns this string.\n */\npublic fun String.removePrefix(prefix: CharSequence): String {\n   if (startsWith(prefix)) {\n   return substring(prefix.length)\n   }\n   return this\n}\n\n/**\n * If this char sequence ends with the given [suffix], returns a new char sequence\n * with the suffix removed. Otherwise, returns a new char sequence with the same characters.\n */\npublic fun CharSequence.removeSuffix(suffix: CharSequence): CharSequence {\n   if (endsWith(suffix)) {\n   return subSequence(0, length - suffix.length)\n   }\n   return subSequence(0, length)\n}\n\n/**\n * If this string ends with the given [suffix], returns a copy of this string\n * with the suffix removed. Otherwise, returns this string.\n */\npublic fun String.removeSuffix(suffix: CharSequence): String {\n   if (endsWith(suffix)) {\n   return substring(0, length - suffix.length)\n   }\n   return this\n}\n\n/**\n * When this char sequence starts with the given [prefix] and ends with the given [suffix],\n * returns a new char sequence having both the given [prefix] and [suffix] removed.\n * Otherwise returns a new char sequence with the same characters.\n */\npublic fun CharSequence.removeSurrounding(prefix: CharSequence, suffix: CharSequence): CharSequence {\n   if ((length >= prefix.length + suffix.length) && startsWith(prefix) && endsWith(suffix)) {\n   return subSequence(prefix.length, length - suffix.length)\n   }\n   return subSequence(0, length)\n}\n\n/**\n * Removes from a string both the given [prefix] and [suffix] if and only if\n * it starts with the [prefix] and ends with the [suffix].\n * Otherwise returns this string unchanged.\n */\npublic fun String.removeSurrounding(prefix: CharSequence, suffix: CharSequence): String {\n   if ((length >= prefix.length + suffix.length) && startsWith(prefix) && endsWith(suffix)) {\n   return substring(prefix.length, length - suffix.length)\n   }\n return this\n}\n\n/**\n * When this char sequence starts with and ends with the given [delimiter],\n * returns a new char sequence having this [delimiter] removed both from the start and end.\n * Otherwise returns a new char sequence with the same characters.\n */\npublic fun CharSequence.removeSurrounding(delimiter: CharSequence): CharSequence = removeSurrounding(delimiter, delimiter)\n\n/**\n * Removes the given [delimiter] string from both the start and the end of this string\n * if and only if it starts with and ends with the [delimiter].\n * Otherwise returns this string unchanged.\n */\npublic fun String.removeSurrounding(delimiter: CharSequence): String = removeSurrounding(delimiter, delimiter)\n\n/**\n * Replace part of string before the first occurrence of given delimiter with the [replacement] string.\n * If the string does not contain the delimiter, returns [missingDelimiterValue] which defaults to the original string.\n */\npublic fun String.replaceBefore(delimiter: Char, replacement: String, missingDelimiterValue: String = this): String {\n   val index = indexOf(delimiter)\n   return if (index == -1) missingDelimiterValue else replaceRange(0, index, replacement)\n}\n\n/**\n * Replace part of string before the first occurrence of given delimiter with the [replacement] string.\n * If the string does not contain the delimiter, returns [missingDelimiterValue] which defaults to the original string.\n */\npublic fun String.replaceBefore(delimiter: String, replacement: String, missingDelimiterValue: String = this): String {\n   val index = indexOf(delimiter)\n   return if (index == -1) missingDelimiterValue else replaceRange(0, index, replacement)\n}\n\n/**\n * Replace part of string after the first occurrence of given delimiter with the [replacement] string.\n * If the string does not contain the delimiter, returns [missingDelimiterValue] which defaults to the original string.\n */\npublic fun String.replaceAfter(delimiter: Char, replacement: String, missingDelimiterValue: String = this): String {\n   val index = indexOf(delimiter)\n   return if (index == -1) missingDelimiterValue else replaceRange(index + 1, length, replacement)\n}\n\n/**\n * Replace part of string after the first occurrence of given delimiter with the [replacement] string.\n * If the string does not contain the delimiter, returns [missingDelimiterValue] which defaults to the original string.\n */\npublic fun String.replaceAfter(delimiter: String, replacement: String, missingDelimiterValue: String = this): String {\n   val index = indexOf(delimiter)\n   return if (index == -1) missingDelimiterValue else replaceRange(index + delimiter.length, length, replacement)\n}\n\n/**\n * Replace part of string after the last occurrence of given delimiter with the [replacement] string.\n * If the string does not contain the delimiter, returns [missingDelimiterValue] which defaults to the original string.\n */\npublic fun String.replaceAfterLast(delimiter: String, replacement: String, missingDelimiterValue: String = this): String {\n val index = lastIndexOf(delimiter)\n   return if (index == -1) missingDelimiterValue else replaceRange(index + delimiter.length, length, replacement)\n}\n\n/**\n * Replace part of string after the last occurrence of given delimiter with the [replacement] string.\n * If the string does not contain the delimiter, returns [missingDelimiterValue] which defaults to the original string.\n */\npublic fun String.replaceAfterLast(delimiter: Char, replacement: String, missingDelimiterValue: String = this): String {\n   val index = lastIndexOf(delimiter)\n return if (index == -1) missingDelimiterValue else replaceRange(index + 1, length, replacement)\n}\n\n/**\n * Replace part of string before the last occurrence of given delimiter with the [replacement] string.\n * If the string does not contain the delimiter, returns [missingDelimiterValue] which defaults to the original string.\n */\npublic fun String.replaceBeforeLast(delimiter: Char, replacement: String, missingDelimiterValue: String = this): String {\n val index = lastIndexOf(delimiter)\n   return if (index == -1) missingDelimiterValue else replaceRange(0, index, replacement)\n}\n\n/**\n * Replace part of string before the last occurrence of given delimiter with the [replacement] string.\n * If the string does not contain the delimiter, returns [missingDelimiterValue] which defaults to the original string.\n */\npublic fun String.replaceBeforeLast(delimiter: String, replacement: String, missingDelimiterValue: String = this): String {\n   val index = lastIndexOf(delimiter)\n   return if (index == -1) missingDelimiterValue else replaceRange(0, index, replacement)\n}\n\n\n// public fun String.replace(oldChar: Char, newChar: Char, ignoreCase: Boolean): String // JVM- and JS-specific\n// public fun String.replace(oldValue: String, newValue: String, ignoreCase: Boolean): String // JVM- and JS-specific\n\n/**\n * Returns a new string obtained by replacing each substring of this char sequence that matches the given regular expression\n * with the given [replacement].\n *\n * The [replacement] can consist of any combination of literal text and $-substitutions. To treat the replacement string\n * literally escape it with the [kotlin.text.Regex.Companion.escapeReplacement] method.\n */\n@kotlin.internal.InlineOnly\npublic inline fun CharSequence.replace(regex: Regex, replacement: String): String = regex.replace(this, replacement)\n\n/**\n * Returns a new string obtained by replacing each substring of this char sequence that matches the given regular expression\n * with the result of the given function [transform] that takes [MatchResult] and returns a string to be used as a\n * replacement for that match.\n */\n@kotlin.internal.InlineOnly\npublic inline fun CharSequence.replace(regex: Regex, noinline transform: (MatchResult) -> CharSequence): String =\n   regex.replace(this, transform)\n\n/**\n * Replaces the first occurrence of the given regular expression [regex] in this char sequence with specified [replacement] expression.\n *\n * @param replacement A replacement expression that can include substitutions. See [Regex.replaceFirst] for details.\n */\n@kotlin.internal.InlineOnly\npublic inline fun CharSequence.replaceFirst(regex: Regex, replacement: String): String = regex.replaceFirst(this, replacement)\n\n/**\n * Returns a copy of this string having its first character replaced with the result of the specified [transform],\n * or the original string if it's empty.\n *\n * @param transform function that takes the first character and returns the result of the transform applied to the character.\n *\n * @sample samples.text.Strings.replaceFirstChar\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalStdlibApi::class)\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@JvmName(\"replaceFirstCharWithChar\")\n@kotlin.internal.InlineOnly\npublic inline fun String.replaceFirstChar(transform: (Char) -> Char): String {\n return if (isNotEmpty()) transform(this[0]) + substring(1) else this\n}\n\n/**\n * Returns a copy of this string having its first character replaced with the result of the specified [transform],\n * or the original string if it's empty.\n *\n * @param transform function that takes the first character and returns the result of the transform applied to the character.\n *\n * @sample samples.text.Strings.replaceFirstChar\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalStdlibApi::class)\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@JvmName(\"replaceFirstCharWithCharSequence\")\n@kotlin.internal.InlineOnly\npublic inline fun String.replaceFirstChar(transform: (Char) -> CharSequence): String {\n   return if (isNotEmpty()) transform(this[0]).toString() + substring(1) else this\n}\n\n\n/**\n * Returns `true` if this char sequence matches the given regular expression.\n */\n@kotlin.internal.InlineOnly\npublic inline infix fun CharSequence.matches(regex: Regex): Boolean = regex.matches(this)\n\n/**\n * Implementation of [regionMatches] for CharSequences.\n * Invoked when it's already known that arguments are not Strings, so that no additional type checks are performed.\n */\ninternal fun CharSequence.regionMatchesImpl(thisOffset: Int, other: CharSequence, otherOffset: Int, length: Int, ignoreCase: Boolean): Boolean {\n   if ((otherOffset < 0) || (thisOffset < 0) || (thisOffset > this.length - length) || (otherOffset > other.length - length)) {\n   return false\n   }\n\n   for (index in 0 until length) {\n   if (!this[thisOffset + index].equals(other[otherOffset + index], ignoreCase))\n   return false\n   }\n   return true\n}\n\n/**\n * Returns `true` if this char sequence starts with the specified character.\n */\npublic fun CharSequence.startsWith(char: Char, ignoreCase: Boolean = false): Boolean =\n   this.length > 0 && this[0].equals(char, ignoreCase)\n\n/**\n * Returns `true` if this char sequence ends with the specified character.\n */\npublic fun CharSequence.endsWith(char: Char, ignoreCase: Boolean = false): Boolean =\n   this.length > 0 && this[lastIndex].equals(char, ignoreCase)\n\n/**\n * Returns `true` if this char sequence starts with the specified prefix.\n */\npublic fun CharSequence.startsWith(prefix: CharSequence, ignoreCase: Boolean = false): Boolean {\n   if (!ignoreCase && this is String && prefix is String)\n   return this.startsWith(prefix)\n   else\n   return regionMatchesImpl(0, prefix, 0, prefix.length, ignoreCase)\n}\n\n/**\n * Returns `true` if a substring of this char sequence starting at the specified offset [startIndex] starts with the specified prefix.\n */\npublic fun CharSequence.startsWith(prefix: CharSequence, startIndex: Int, ignoreCase: Boolean = false): Boolean {\n   if (!ignoreCase && this is String && prefix is String)\n   return this.startsWith(prefix, startIndex)\n   else\n   return regionMatchesImpl(startIndex, prefix, 0, prefix.length, ignoreCase)\n}\n\n/**\n * Returns `true` if this char sequence ends with the specified suffix.\n */\npublic fun CharSequence.endsWith(suffix: CharSequence, ignoreCase: Boolean = false): Boolean {\n   if (!ignoreCase && this is String && suffix is String)\n   return this.endsWith(suffix)\n   else\n   return regionMatchesImpl(length - suffix.length, suffix, 0, suffix.length, ignoreCase)\n}\n\n\n// common prefix and suffix\n\n/**\n * Returns the longest string `prefix` such that this char sequence and [other] char sequence both start with this prefix,\n * taking care not to split surrogate pairs.\n * If this and [other] have no common prefix, returns the empty string.\n\n * @param ignoreCase `true` to ignore character case when matching a character. By default `false`.\n * @sample samples.text.Strings.commonPrefixWith\n */\npublic fun CharSequence.commonPrefixWith(other: CharSequence, ignoreCase: Boolean = false): String {\n   val shortestLength = minOf(this.length, other.length)\n\n   var i = 0\n   while (i < shortestLength && this[i].equals(other[i], ignoreCase = ignoreCase)) {\n   i++\n   }\n   if (this.hasSurrogatePairAt(i - 1) || other.hasSurrogatePairAt(i - 1)) {\n   i--\n   }\n   return subSequence(0, i).toString()\n}\n\n/**\n * Returns the longest string `suffix` such that this char sequence and [other] char sequence both end with this suffix,\n * taking care not to split surrogate pairs.\n * If this and [other] have no common suffix, returns the empty string.\n\n * @param ignoreCase `true` to ignore character case when matching a character. By default `false`.\n * @sample samples.text.Strings.commonSuffixWith\n */\npublic fun CharSequence.commonSuffixWith(other: CharSequence, ignoreCase: Boolean = false): String {\n   val thisLength = this.length\n   val otherLength = other.length\n   val shortestLength = minOf(thisLength, otherLength)\n\n   var i = 0\n   while (i < shortestLength && this[thisLength - i - 1].equals(other[otherLength - i - 1], ignoreCase = ignoreCase)) {\n   i++\n   }\n   if (this.hasSurrogatePairAt(thisLength - i - 1) || other.hasSurrogatePairAt(otherLength - i - 1)) {\n   i--\n   }\n   return subSequence(thisLength - i, thisLength).toString()\n}\n\n\n// indexOfAny()\n\n/**\n * Finds the index of the first occurrence of any of the specified [chars] in this char sequence,\n * starting from the specified [startIndex] and optionally ignoring the case.\n *\n * @param ignoreCase `true` to ignore character case when matching a character. By default `false`.\n * @return An index of the first occurrence of matched character from [chars] or -1 if none of [chars] are found.\n *\n */\npublic fun CharSequence.indexOfAny(chars: CharArray, startIndex: Int = 0, ignoreCase: Boolean = false): Int {\n   if (!ignoreCase && chars.size == 1 && this is String) {\n   val char = chars.single()\n   return nativeIndexOf(char, startIndex)\n   }\n\n   for (index in startIndex.coerceAtLeast(0)..lastIndex) {\n   val charAtIndex = get(index)\n   if (chars.any { it.equals(charAtIndex, ignoreCase) })\n   return index\n   }\n   return -1\n}\n\n/**\n * Finds the index of the last occurrence of any of the specified [chars] in this char sequence,\n * starting from the specified [startIndex] and optionally ignoring the case.\n *\n * @param startIndex The index of character to start searching at. The search proceeds backward toward the beginning of the string.\n * @param ignoreCase `true` to ignore character case when matching a character. By default `false`.\n * @return An index of the last occurrence of matched character from [chars] or -1 if none of [chars] are found.\n *\n */\npublic fun CharSequence.lastIndexOfAny(chars: CharArray, startIndex: Int = lastIndex, ignoreCase: Boolean = false): Int {\n   if (!ignoreCase && chars.size == 1 && this is String) {\n   val char = chars.single()\n   return nativeLastIndexOf(char, startIndex)\n   }\n\n\n   for (index in startIndex.coerceAtMost(lastIndex) downTo 0) {\n   val charAtIndex = get(index)\n   if (chars.any { it.equals(charAtIndex, ignoreCase) })\n   return index\n   }\n   return -1\n}\n\n\nprivate fun CharSequence.indexOf(other: CharSequence, startIndex: Int, endIndex: Int, ignoreCase: Boolean, last: Boolean = false): Int {\n   val indices = if (!last)\n   startIndex.coerceAtLeast(0)..endIndex.coerceAtMost(length)\n   else\n   startIndex.coerceAtMost(lastIndex) downTo endIndex.coerceAtLeast(0)\n\n   if (this is String && other is String) { // smart cast\n   for (index in indices) {\n   if (other.regionMatches(0, this, index, other.length, ignoreCase))\n   return index\n   }\n   } else {\n   for (index in indices) {\n   if (other.regionMatchesImpl(0, this, index, other.length, ignoreCase))\n   return index\n   }\n   }\n   return -1\n}\n\nprivate fun CharSequence.findAnyOf(strings: Collection<String>, startIndex: Int, ignoreCase: Boolean, last: Boolean): Pair<Int, String>? {\n   if (!ignoreCase && strings.size == 1) {\n   val string = strings.single()\n   val index = if (!last) indexOf(string, startIndex) else lastIndexOf(string, startIndex)\n   return if (index < 0) null else index to string\n   }\n\n   val indices = if (!last) startIndex.coerceAtLeast(0)..length else startIndex.coerceAtMost(lastIndex) downTo 0\n\n   if (this is String) {\n   for (index in indices) {\n   val matchingString = strings.firstOrNull { it.regionMatches(0, this, index, it.length, ignoreCase) }\n   if (matchingString != null)\n   return index to matchingString\n   }\n   } else {\n   for (index in indices) {\n   val matchingString = strings.firstOrNull { it.regionMatchesImpl(0, this, index, it.length, ignoreCase) }\n   if (matchingString != null)\n   return index to matchingString\n   }\n   }\n\n   return null\n}\n\n/**\n * Finds the first occurrence of any of the specified [strings] in this char sequence,\n * starting from the specified [startIndex] and optionally ignoring the case.\n *\n * @param ignoreCase `true` to ignore character case when matching a string. By default `false`.\n * @return A pair of an index of the first occurrence of matched string from [strings] and the string matched\n * or `null` if none of [strings] are found.\n *\n * To avoid ambiguous results when strings in [strings] have characters in common, this method proceeds from\n * the beginning to the end of this string, and finds at each position the first element in [strings]\n * that matches this string at that position.\n */\npublic fun CharSequence.findAnyOf(strings: Collection<String>, startIndex: Int = 0, ignoreCase: Boolean = false): Pair<Int, String>? =\n   findAnyOf(strings, startIndex, ignoreCase, last = false)\n\n/**\n * Finds the last occurrence of any of the specified [strings] in this char sequence,\n * starting from the specified [startIndex] and optionally ignoring the case.\n *\n * @param startIndex The index of character to start searching at. The search proceeds backward toward the beginning of the string.\n * @param ignoreCase `true` to ignore character case when matching a string. By default `false`.\n * @return A pair of an index of the last occurrence of matched string from [strings] and the string matched or `null` if none of [strings] are found.\n *\n * To avoid ambiguous results when strings in [strings] have characters in common, this method proceeds from\n * the end toward the beginning of this string, and finds at each position the first element in [strings]\n * that matches this string at that position.\n */\npublic fun CharSequence.findLastAnyOf(strings: Collection<String>, startIndex: Int = lastIndex, ignoreCase: Boolean = false): Pair<Int, String>? =\n   findAnyOf(strings, startIndex, ignoreCase, last = true)\n\n/**\n * Finds the index of the first occurrence of any of the specified [strings] in this char sequence,\n * starting from the specified [startIndex] and optionally ignoring the case.\n *\n * @param ignoreCase `true` to ignore character case when matching a string. By default `false`.\n * @return An index of the first occurrence of matched string from [strings] or -1 if none of [strings] are found.\n *\n * To avoid ambiguous results when strings in [strings] have characters in common, this method proceeds from\n * the beginning to the end of this string, and finds at each position the first element in [strings]\n * that matches this string at that position.\n */\npublic fun CharSequence.indexOfAny(strings: Collection<String>, startIndex: Int = 0, ignoreCase: Boolean = false): Int =\n   findAnyOf(strings, startIndex, ignoreCase, last = false)?.first ?: -1\n\n/**\n * Finds the index of the last occurrence of any of the specified [strings] in this char sequence,\n * starting from the specified [startIndex] and optionally ignoring the case.\n *\n * @param startIndex The index of character to start searching at. The search proceeds backward toward the beginning of the string.\n * @param ignoreCase `true` to ignore character case when matching a string. By default `false`.\n * @return An index of the last occurrence of matched string from [strings] or -1 if none of [strings] are found.\n *\n * To avoid ambiguous results when strings in [strings] have characters in common, this method proceeds from\n * the end toward the beginning of this string, and finds at each position the first element in [strings]\n * that matches this string at that position.\n */\npublic fun CharSequence.lastIndexOfAny(strings: Collection<String>, startIndex: Int = lastIndex, ignoreCase: Boolean = false): Int =\n   findAnyOf(strings, startIndex, ignoreCase, last = true)?.first ?: -1\n\n\n// indexOf\n\n/**\n * Returns the index within this string of the first occurrence of the specified character, starting from the specified [startIndex].\n *\n * @param ignoreCase `true` to ignore character case when matching a character. By default `false`.\n * @return An index of the first occurrence of [char] or -1 if none is found.\n */\npublic fun CharSequence.indexOf(char: Char, startIndex: Int = 0, ignoreCase: Boolean = false): Int {\n   return if (ignoreCase || this !is String)\n   indexOfAny(charArrayOf(char), startIndex, ignoreCase)\n   else\n   nativeIndexOf(char, startIndex)\n}\n\n/**\n * Returns the index within this char sequence of the first occurrence of the specified [string],\n * starting from the specified [startIndex].\n *\n * @param ignoreCase `true` to ignore character case when matching a string. By default `false`.\n * @return An index of the first occurrence of [string] or `-1` if none is found.\n * @sample samples.text.Strings.indexOf\n */\npublic fun CharSequence.indexOf(string: String, startIndex: Int = 0, ignoreCase: Boolean = false): Int {\n   return if (ignoreCase || this !is String)\n   indexOf(string, startIndex, length, ignoreCase)\n   else\n   nativeIndexOf(string, startIndex)\n}\n\n/**\n * Returns the index within this char sequence of the last occurrence of the specified character,\n * starting from the specified [startIndex].\n *\n * @param startIndex The index of character to start searching at. The search proceeds backward toward the beginning of the string.\n * @param ignoreCase `true` to ignore character case when matching a character. By default `false`.\n * @return An index of the last occurrence of [char] or -1 if none is found.\n */\npublic fun CharSequence.lastIndexOf(char: Char, startIndex: Int = lastIndex, ignoreCase: Boolean = false): Int {\n   return if (ignoreCase || this !is String)\n   lastIndexOfAny(charArrayOf(char), startIndex, ignoreCase)\n   else\n   nativeLastIndexOf(char, startIndex)\n}\n\n/**\n * Returns the index within this char sequence of the last occurrence of the specified [string],\n * starting from the specified [startIndex].\n *\n * @param startIndex The index of character to start searching at. The search proceeds backward toward the beginning of the string.\n * @param ignoreCase `true` to ignore character case when matching a string. By default `false`.\n * @return An index of the last occurrence of [string] or -1 if none is found.\n */\npublic fun CharSequence.lastIndexOf(string: String, startIndex: Int = lastIndex, ignoreCase: Boolean = false): Int {\n   return if (ignoreCase || this !is String)\n   indexOf(string, startIndex, 0, ignoreCase, last = true)\n   else\n   nativeLastIndexOf(string, startIndex)\n}\n\n/**\n * Returns `true` if this char sequence contains the specified [other] sequence of characters as a substring.\n *\n * @param ignoreCase `true` to ignore character case when comparing strings. By default `false`.\n */\n@Suppress(\"INAPPLICABLE_OPERATOR_MODIFIER\")\npublic operator fun CharSequence.contains(other: CharSequence, ignoreCase: Boolean = false): Boolean =\n   if (other is String)\n   indexOf(other, ignoreCase = ignoreCase) >= 0\n   else\n   indexOf(other, 0, length, ignoreCase) >= 0\n\n\n\n/**\n * Returns `true` if this char sequence contains the specified character [char].\n *\n * @param ignoreCase `true` to ignore character case when comparing characters. By default `false`.\n */\n@Suppress(\"INAPPLICABLE_OPERATOR_MODIFIER\")\npublic operator fun CharSequence.contains(char: Char, ignoreCase: Boolean = false): Boolean =\n   indexOf(char, ignoreCase = ignoreCase) >= 0\n\n/**\n * Returns `true` if this char sequence contains at least one match of the specified regular expression [regex].\n */\n@kotlin.internal.InlineOnly\npublic inline operator fun CharSequence.contains(regex: Regex): Boolean = regex.containsMatchIn(this)\n\n\n\n// rangesDelimitedBy\n\n\nprivate class DelimitedRangesSequence(\n   private val input: CharSequence,\n   private val startIndex: Int,\n   private val limit: Int,\n   private val getNextMatch: CharSequence.(currentIndex: Int) -> Pair<Int, Int>?\n) : Sequence<IntRange> {\n\n   override fun iterator(): Iterator<IntRange> = object : Iterator<IntRange> {\n   var nextState: Int = -1 // -1 for unknown, 0 for done, 1 for continue\n   var currentStartIndex: Int = startIndex.coerceIn(0, input.length)\n   var nextSearchIndex: Int = currentStartIndex\n   var nextItem: IntRange? = null\n   var counter: Int = 0\n\n   private fun calcNext() {\n   if (nextSearchIndex < 0) {\n   nextState = 0\n   nextItem = null\n   } else {\n   if (limit > 0 && ++counter >= limit || nextSearchIndex > input.length) {\n   nextItem = currentStartIndex..input.lastIndex\n   nextSearchIndex = -1\n   } else {\n   val match = input.getNextMatch(nextSearchIndex)\n   if (match == null) {\n   nextItem = currentStartIndex..input.lastIndex\n   nextSearchIndex = -1\n   } else {\n   val (index, length) = match\n   nextItem = currentStartIndex until index\n   currentStartIndex = index + length\n   nextSearchIndex = currentStartIndex + if (length == 0) 1 else 0\n   }\n   }\n   nextState = 1\n   }\n   }\n\n   override fun next(): IntRange {\n   if (nextState == -1)\n   calcNext()\n   if (nextState == 0)\n   throw NoSuchElementException()\n   val result = nextItem as IntRange\n   // Clean next to avoid keeping reference on yielded instance\n   nextItem = null\n   nextState = -1\n   return result\n   }\n\n   override fun hasNext(): Boolean {\n   if (nextState == -1)\n   calcNext()\n   return nextState == 1\n   }\n   }\n}\n\n/**\n * Returns a sequence of index ranges of substrings in this char sequence around occurrences of the specified [delimiters].\n *\n * @param delimiters One or more characters to be used as delimiters.\n * @param startIndex The index to start searching delimiters from.\n * No range having its start value less than [startIndex] is returned.\n * [startIndex] is coerced to be non-negative and not greater than length of this string.\n * @param ignoreCase `true` to ignore character case when matching a delimiter. By default `false`.\n * @param limit The maximum number of substrings to return. Zero by default means no limit is set.\n */\nprivate fun CharSequence.rangesDelimitedBy(delimiters:

CharArray, startIndex: Int = 0, ignoreCase: Boolean = false, limit: Int = 0): Sequence<IntRange> {\n requireNonNegativeLimit(limit)\n\n return DelimitedRangesSequence(this, startIndex, limit, { currentIndex ->\n indexOfAny(delimiters, currentIndex, ignoreCase = ignoreCase).let { if (it < 0) null else it to 1 }\n })\n}\n\n\n/**\n * Returns a sequence of index ranges of substrings in this char sequence around occurrences of the specified [delimiters].\n *\n * @param delimiters One or more strings to be used as delimiters.\n * @param startIndex The index to start searching delimiters from.\n * No range having its start value less than [startIndex] is returned.\n * [startIndex] is coerced to be non-negative and not greater than length of this string.\n * @param ignoreCase `true` to ignore character case when matching a delimiter. By default `false`.\n * @param limit The maximum number of substrings to return. Zero by default means no limit is set.\n *\n * To avoid ambiguous results when strings in [delimiters] have characters in common, this method proceeds from\n * the beginning to the end of this string, and finds at each position the first element in [delimiters]\n * that matches this string at that position.\n */\nprivate fun CharSequence.rangesDelimitedBy(delimiters: Array<out String>, startIndex: Int = 0, ignoreCase: Boolean = false, limit: Int = 0): Sequence<IntRange> {\n requireNonNegativeLimit(limit)\n val delimitersList = delimiters.asList()\n\n return DelimitedRangesSequence(this, startIndex, limit, { currentIndex -> findAnyOf(delimitersList, currentIndex, ignoreCase = ignoreCase, last = false)?.let { it.first to it.second.length } })\n\n}\n\ninternal fun requireNonNegativeLimit(limit: Int) =\n require(limit >= 0) { \"Limit must be non-negative, but was $limit\" }\n\n\n// split\n\n/**\n * Splits this char sequence to a sequence of strings around occurrences of the specified [delimiters].\n *\n * @param delimiters One or more strings to be used as delimiters.\n * @param ignoreCase `true` to ignore character case when matching a delimiter. By default `false`.\n * @param limit The maximum number of substrings to return. Zero by default means no limit is set.\n *\n * To avoid ambiguous results when strings in [delimiters] have characters in common, this method proceeds from\n * the beginning to the end of this string, and finds at each position the first element in [delimiters]\n * that matches this string at that position.\n */\npublic fun CharSequence.splitToSequence(vararg delimiters: String, ignoreCase: Boolean = false, limit: Int = 0): Sequence<String> =\n rangesDelimitedBy(delimiters, ignoreCase = ignoreCase, limit = limit).map { substring(it) }\n\n/**\n * Splits this char sequence to a list of strings around occurrences of the specified [delimiters].\n *\n * @param delimiters One or more strings to be used as delimiters.\n * @param ignoreCase `true` to ignore character case when matching a delimiter. By default `false`.\n * @param limit The maximum number of substrings to return. Zero by default means no limit is set.\n *\n * To avoid ambiguous results when strings in [delimiters] have characters in common, this method proceeds from\n * the beginning to the end of this string, and matches at each position the first element in [delimiters]\n * that is equal to a delimiter in this instance at that position.\n */\npublic fun CharSequence.split(vararg delimiters: String, ignoreCase: Boolean = false, limit: Int = 0): List<String> {\n if (delimiters.size == 1) {\n val delimiter = delimiters[0]\n if (!delimiter.isEmpty()) {\n return split(delimiter, ignoreCase, limit)\n }\n }\n\n return rangesDelimitedBy(delimiters, ignoreCase = ignoreCase, limit = limit).asIterable().map { substring(it) }\n}\n\n/**\n * Splits this char sequence to a sequence of strings around occurrences of the specified [delimiters].\n *\n * @param delimiters One or more characters to be used as delimiters.\n * @param ignoreCase `true` to ignore character case when matching a delimiter. By default `false`.\n * @param limit The maximum number of substrings to return.\n */\npublic fun CharSequence.splitToSequence(vararg delimiters: Char, ignoreCase: Boolean = false, limit: Int = 0): Sequence<String> =\n rangesDelimitedBy(delimiters, ignoreCase = ignoreCase, limit = limit).map { substring(it) }\n\n/**\n * Splits this char sequence to a list of strings around occurrences of the specified [delimiters].\n *\n * @param delimiters One or more characters to be used as delimiters.\n * @param ignoreCase `true` to ignore character case when matching a delimiter. By default `false`.\n * @param limit The maximum number of substrings to return.\n */\npublic fun CharSequence.split(vararg delimiters: Char, ignoreCase: Boolean = false, limit: Int = 0): List<String> {\n if (delimiters.size == 1) {\n return split(delimiters[0].toString(), ignoreCase, limit)\n }\n\n return rangesDelimitedBy(delimiters, ignoreCase = ignoreCase, limit = limit).asIterable().map { substring(it) }\n}\n\n/**\n * Splits this char sequence to a list of strings around occurrences of the specified [delimiter].\n * This is specialized version of split which receives single non-empty delimiter and offers better performance\n *\n * @param delimiter String used as delimiter\n * @param ignoreCase `true` to ignore character case when matching a delimiter. By default `false`.\n * @param limit The maximum number of substrings to return.\n */\nprivate fun CharSequence.split(delimiter: String, ignoreCase: Boolean, limit: Int): List<String> {\n requireNonNegativeLimit(limit)\n\n var currentOffset = 0\n var nextIndex = indexOf(delimiter, currentOffset, ignoreCase)\n if (nextIndex == -1 || limit == 1) {\n return listOf(this.toString())\n }\n\n val isLimited = limit > 0\n val result = ArrayList<String>(if (isLimited) limit.coerceAtMost(10) else 10)\n do {\n result.add(substring(currentOffset, nextIndex))\n currentOffset = nextIndex + delimiter.length\n // Do not search for next occurrence if we're reaching limit\n if (isLimited && result.size == limit - 1) break\n nextIndex = indexOf(delimiter, currentOffset, ignoreCase)\n } while (nextIndex != -1)\n\n result.add(substring(currentOffset, length))\n return result\n}\n\n/**\n * Splits this char sequence to a list of strings around matches of the given regular expression.\n *\n * @param limit Non-negative value specifying the maximum number of substrings to return.\n * Zero by default means no limit is set.\n */\n@kotlin.internal.InlineOnly\npublic inline fun CharSequence.split(regex: Regex, limit: Int = 0): List<String> = regex.split(this, limit)\n\n/**\n * Splits this char sequence to a sequence of strings around matches of the given regular expression.\n *\n * @param limit Non-negative value specifying the maximum number of substrings to return.\n * Zero by default means no limit is set.\n * @sample samples.text.Strings.splitToSequence\n */\n@SinceKotlin(\"1.6\")\n@WasExperimental(ExperimentalStdlibApi::class)\n@kotlin.internal.InlineOnly\npublic inline fun CharSequence.splitToSequence(regex: Regex, limit: Int = 0): Sequence<String> = regex.splitToSequence(this, limit)\n\n/**\n * Splits this char sequence to a sequence of lines delimited by any of the following character sequences: CRLF, LF or CR.\n *\n * The lines returned do not include terminating line separators.\n */\npublic fun CharSequence.lineSequence(): Sequence<String> = splitToSequence(\"\\r\\n\", \"\\n\", \"\\r\")\n\n/**\n * Splits this char sequence to a list of lines delimited by any of the following character sequences: CRLF, LF or CR.\n *\n * The lines returned do not include terminating line separators.\n */\npublic fun CharSequence.lines(): List<String> = lineSequence().toList()\n\n/**\n * Returns `true` if the contents of this char sequence are equal to the contents of the specified [other],\n * i.e. both char sequences contain the same number of the same characters in the same order.\n *\n * @sample samples.text.Strings.contentEquals\n */\n@SinceKotlin(\"1.5\")\npublic expect infix fun CharSequence?.contentEquals(other: CharSequence?): Boolean\n\n\n/**\n * Returns `true` if the contents of this char sequence are equal to the contents of the specified [other], optionally ignoring case difference.\n *\n * @param ignoreCase `true` to ignore character case when comparing contents.\n *\n * @sample samples.text.Strings.contentEquals\n */\n@SinceKotlin(\"1.5\")\npublic expect fun CharSequence?.contentEquals(other: CharSequence?, ignoreCase: Boolean): Boolean\n\ninternal fun CharSequence?.contentEqualsIgnoreCaseImpl(other: CharSequence?): Boolean {\n if (this is String && other is String) {\n return this.equals(other, ignoreCase = true)\n }\n\n if (this === other) return true\n if (this == null || other == null || this.length != other.length) return false\n\n for (i in 0 until length) {\n if (!this[i].equals(other[i], ignoreCase = true)) {\n return false\n }\n }\n\n return true\n}\n\ninternal fun CharSequence?.contentEqualsImpl(other: CharSequence?): Boolean {\n if (this is String && other is String) {\n return this == other\n }\n\n if (this === other) return true\n if (this == null || other == null || this.length != other.length) return false\n\n for (i in 0 until length) {\n if (this[i] != other[i]) {\n return false\n }\n }\n\n return true\n}\n\n/**\n * Returns `true` if the content of this string is equal to the word \"true\", `false` if it is equal to \"false\",\n * and throws an exception otherwise.\n *\n * There is also a lenient version of the function available on nullable String, [String?.toBoolean].\n * Note that this function is case-sensitive.\n *\n * @sample samples.text.Strings.toBooleanStrict\n */\n@SinceKotlin(\"1.5\")\npublic fun String.toBooleanStrict(): Boolean = when (this) {\n \"true\" -> true\n \"false\" -> false\n else -> throw IllegalArgumentException(\"The string doesn't represent a boolean value: $this\")\n}\n\n/**\n * Returns `true` if the content of this string is equal to the word \"true\", `false` if it is equal to \"false\",\n * and `null` otherwise.\n *\n * There is also a lenient version of the function available on nullable String, [String?.toBoolean].\n * Note that this function is case-sensitive.\n *\n * @sample samples.text.Strings.toBooleanStrictOrNull\n */\n@SinceKotlin(\"1.5\")\npublic fun String.toBooleanStrictOrNull(): Boolean? = when (this) {\n \"true\" -> true\n \"false\" -> false\n else -> null\n}","/*\n * Copyright 2010-2022 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\n// Auto-generated file. DO NOT EDIT!\n\npackage kotlin\n\nimport kotlin.jvm.*\n\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@JvmInline\npublic value class UByteArray\n@PublishedApi\ninternal constructor(@PublishedApi internal val storage: ByteArray) : Collection<UByte> {\n\n   /** Creates a new array of the specified [size], with all elements initialized to zero. */\n   public constructor(size: Int) : this(ByteArray(size))\n\n   /**\n   * Returns the array element at the given [index]. This method can be called using the index operator.\n   *\n   * If the [index] is out of bounds of this array, throws an [IndexOutOfBoundsException] except in Kotlin/JS\n   * where the behavior is unspecified.\n   */\n   public operator fun get(index: Int): UByte = storage[index].toUByte()\n\n   /**\n   * Sets the element at the given [index] to the given [value]. This method can be called using the index operator.\n   *\n   * If the [index] is out of bounds of this array, throws an [IndexOutOfBoundsException] except in Kotlin/JS\n   * where the behavior is unspecified.\n   */\n   public operator fun set(index: Int, value: UByte) {\n   storage[index] = value.toByte()\n   }\n\n   /** Returns the number of elements in the array. */\n   public override val size: Int get() = storage.size\n\n   /** Creates an iterator over the elements of the array. */\n   public override operator fun iterator(): kotlin.collections.Iterator<UByte> = Iterator(storage)\n\n   private class Iterator(private val array: ByteArray) : kotlin.collections.Iterator<UByte> {\n   private var index = 0\n   override fun hasNext() = index < array.size\n   override fun next() = if (index < array.size) array[index++].toUByte() else throw NoSuchElementException(index.toString())\n   }\n\n   override fun contains(element: UByte): Boolean {\n   // TODO: Eliminate this check after KT-30016 gets fixed.\n   // Currently JS BE does not generate special bridge method for this method.\n   @Suppress(\"USELESS_CAST\")\n   if ((element as Any?) !is UByte) return false\n\n   return storage.contains(element.toByte())\n   }\n\n   override fun containsAll(elements: Collection<UByte>): Boolean {\n   return (elements as Collection<*>).all { it is UByte && storage.contains(it.toByte()) }\n   }\n\n   override fun isEmpty(): Boolean = this.storage.size == 0\n}\n\n/**\n * Creates a new array of the specified [size], where each element is calculated by calling the specified\n * [init] function.\n *\n * The function [init] is called for each array element sequentially starting from the first one.\n * It should return the value for an array element given its index.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UByteArray(size: Int, init: (Int) -> UByte): UByteArray {\n   return UByteArray(ByteArray(size) { index -> init(index).toByte() })\n}\n\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun ubyteArrayOf(vararg elements: UByte): UByteArray = elements\n","/*\n * Copyright 2010-2022 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\n// Auto-generated file. DO NOT EDIT!\n\npackage kotlin\n\nimport kotlin.jvm.*\n\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@JvmInline\npublic value class UIntArray\n@PublishedApi\ninternal constructor(@PublishedApi internal val storage: IntArray) : Collection<UInt> {\n\n   /** Creates a new array of the specified [size], with all elements initialized to zero. */\n   public constructor(size: Int) : this(IntArray(size))\n\n   /**\n   * Returns the array element at the given [index]. This method can be called using the index operator.\n   *\n   * If the [index] is out of bounds of this array, throws an [IndexOutOfBoundsException] except in Kotlin/JS\n   * where the behavior is unspecified.\n   */\n   public operator fun get(index: Int): UInt = storage[index].toUInt()\n\n   /**\n   * Sets the element at the given [index] to the given [value]. This method can be called using the index operator.\n   *\n   * If the [index] is out of bounds of this array, throws an [IndexOutOfBoundsException] except in Kotlin/JS\n   * where the behavior is unspecified.\n   */\n   public operator fun set(index: Int, value: UInt) {\n   storage[index] = value.toInt()\n   }\n\n   /** Returns the number of elements in the array. */\n   public override val size: Int get() = storage.size\n\n   /** Creates an iterator over the elements of the array. */\n   public override operator fun iterator(): kotlin.collections.Iterator<UInt> = Iterator(storage)\n\n   private class Iterator(private val array: IntArray) : kotlin.collections.Iterator<UInt> {\n   private var index = 0\n   override fun hasNext() = index < array.size\n   override fun next() = if (index < array.size) array[index++].toUInt() else throw NoSuchElementException(index.toString())\n   }\n\n   override fun contains(element: UInt): Boolean {\n   // TODO: Eliminate this check after KT-30016 gets fixed.\n   // Currently JS BE does not generate special bridge method for this method.\n   @Suppress(\"USELESS_CAST\")\n   if ((element as Any?) !is UInt) return false\n\n   return storage.contains(element.toInt())\n   }\n\n   override fun containsAll(elements: Collection<UInt>): Boolean {\n   return (elements as Collection<*>).all { it is UInt && storage.contains(it.toInt()) }\n   }\n\n   override fun isEmpty(): Boolean = this.storage.size == 0\n}\n\n/**\n * Creates a new array of the specified [size], where each element is calculated by calling the specified\n * [init] function.\n *\n * The function [init] is called for each array element sequentially starting from the first one.\n * It should return the value for an array element given its index.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UIntArray(size: Int, init: (Int) -> UInt): UIntArray {\n   return UIntArray(IntArray(size) { index -> init(index).toInt() })\n}\n\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun uintArrayOf(vararg elements: UInt): UIntArray = elements\n","/*\n * Copyright 2010-2022 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\n// Auto-generated file. DO NOT EDIT!\n\npackage kotlin\n\nimport kotlin.jvm.*\n\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@JvmInline\npublic value class ULongArray\n@PublishedApi\ninternal constructor(@PublishedApi internal val storage: LongArray) : Collection<ULong> {\n\n   /** Creates a new array of the specified [size], with all elements initialized to zero. */\n   public constructor(size: Int) : this(LongArray(size))\n\n   /**\n   * Returns the array element at the given [index]. This method can be called using the index operator.\n   *\n   * If the [index] is out of bounds of this array, throws an [IndexOutOfBoundsException] except in Kotlin/JS\n   * where the behavior is unspecified.\n   */\n   public operator fun get(index: Int): ULong = storage[index].toULong()\n\n   /**\n   * Sets the element at the given [index] to the given [value]. This method can be called using the index operator.\n   *\n   * If the [index] is out of bounds of this array, throws an [IndexOutOfBoundsException] except in Kotlin/JS\n   * where the behavior is unspecified.\n   */\n   public operator fun set(index: Int, value: ULong) {\n   storage[index] = value.toLong()\n   }\n\n   /** Returns the number of elements in the array. */\n   public override val size: Int get() = storage.size\n\n   /** Creates an iterator over the elements of the array. */\n   public override operator fun iterator(): kotlin.collections.Iterator<ULong> = Iterator(storage)\n\n   private class Iterator(private val array: LongArray) : kotlin.collections.Iterator<ULong> {\n   private var index = 0\n   override fun hasNext() = index < array.size\n   override fun next() = if (index < array.size) array[index++].toULong() else throw NoSuchElementException(index.toString())\n   }\n\n   override fun contains(element: ULong): Boolean {\n   // TODO: Eliminate this check after KT-30016 gets fixed.\n   // Currently JS BE does not generate special bridge method for this method.\n   @Suppress(\"USELESS_CAST\")\n   if ((element as Any?) !is ULong) return false\n\n   return storage.contains(element.toLong())\n   }\n\n   override fun containsAll(elements: Collection<ULong>): Boolean {\n   return (elements as Collection<*>).all { it is ULong && storage.contains(it.toLong()) }\n   }\n\n   override fun isEmpty(): Boolean = this.storage.size == 0\n}\n\n/**\n * Creates a new array of the specified [size], where each element is calculated by calling the specified\n * [init] function.\n *\n * The function [init] is called for each array element sequentially starting from the first one.\n * It should return the value for an array element given its index.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun ULongArray(size: Int, init: (Int) -> ULong): ULongArray {\n   return ULongArray(LongArray(size) { index -> init(index).toLong() })\n}\n\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun ulongArrayOf(vararg elements: ULong): ULongArray = elements\n","/*\n * Copyright 2010-2022 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\n// Auto-generated file. DO NOT EDIT!\n\npackage kotlin\n\nimport kotlin.jvm.*\n\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@JvmInline\npublic value class UShortArray\n@PublishedApi\ninternal constructor(@PublishedApi internal val storage: ShortArray) :

Collection<UShort> {\n\n /** Creates a new array of the specified [size], with all elements initialized to zero. */\n public constructor(size: Int) : this(ShortArray(size))\n\n /**\n * Returns the array element at the given [index]. This method can be called using the index operator.\n *\n * If the [index] is out of bounds of this array, throws an [IndexOutOfBoundsException] except in Kotlin/JS\n * where the behavior is unspecified.\n */\n public operator fun get(index: Int): UShort = storage[index].toUShort()\n\n /**\n * Sets the element at the given [index] to the given [value]. This method can be called using the index operator.\n *\n * If the [index] is out of bounds of this array, throws an [IndexOutOfBoundsException] except in Kotlin/JS\n * where the behavior is unspecified.\n */\n public operator fun set(index: Int, value: UShort) {\n storage[index] = value.toShort()\n }\n\n /** Returns the number of elements in the array. */\n public override val size: Int get() = storage.size\n\n /** Creates an iterator over the elements of the array. */\n public override operator fun iterator(): kotlin.collections.Iterator<UShort> = Iterator(storage)\n\n private class Iterator(private val array: ShortArray) : kotlin.collections.Iterator<UShort> {\n private var index = 0\n override fun hasNext() = index < array.size\n override fun next() = if (index < array.size) array[index++].toUShort() else throw NoSuchElementException(index.toString())\n }\n\n override fun contains(element: UShort): Boolean {\n // TODO: Eliminate this check after KT-30016 gets fixed.\n // Currently JS BE does not generate special bridge method for this method.\n @Suppress(\"USELESS_CAST\")\n if ((element as Any?) !is UShort) return false\n\n return storage.contains(element.toShort())\n }\n\n override fun containsAll(elements: Collection<UShort>): Boolean {\n return (elements as Collection<*>).all { it is UShort && storage.contains(it.toShort()) }\n }\n\n override fun isEmpty(): Boolean = this.storage.size == 0\n}\n\n/**\n * Creates a new array of the specified [size], where each element is calculated by calling the specified\n * [init] function.\n *\n * The function [init] is called for each array element sequentially starting from the first one.\n * It should return the value for an array element given its index.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UShortArray(size: Int, init: (Int) -> UShort): UShortArray {\n return UShortArray(ShortArray(size) { index -> init(index).toShort() })\n}\n\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun ushortArrayOf(vararg elements: UShort): UShortArray = elements\n","/*\n * Copyright 2010-2022 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\n@file:kotlin.jvm.JvmMultifileClass\n@file:kotlin.jvm.JvmName(\"UArraysKt\")\n@file:kotlin.jvm.JvmPackageName(\"kotlin.collections.unsigned\")\n\npackage kotlin.collections\n\n//\n// NOTE: THIS FILE IS AUTO-GENERATED by the GenerateStandardLib.kt\n// See: https://github.com/JetBrains/kotlin/tree/master/libraries/stdlib\n//\n\nimport kotlin.random.*\nimport kotlin.ranges.contains\nimport kotlin.ranges.reversed\n\n/**\n * Returns 1st *element* from the array.\n * \n * If the size of this array is less than 1, throws an [IndexOutOfBoundsException] except in Kotlin/JS\n * where the behavior is unspecified.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline operator fun UIntArray.component1(): UInt {\n return get(0)\n}\n\n/**\n * Returns 1st *element* from the array.\n * \n * If the size of this array is less than 1, throws an [IndexOutOfBoundsException] except in Kotlin/JS\n * where the behavior is unspecified.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline operator fun ULongArray.component1(): ULong {\n return get(0)\n}\n\n/**\n * Returns 1st *element* from the array.\n * \n * If the size of this array is less than 1, throws an [IndexOutOfBoundsException] except in Kotlin/JS\n * where the behavior is unspecified.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline operator fun UByteArray.component1(): UByte {\n return get(0)\n}\n\n/**\n * Returns 1st *element* from the array.\n * \n * If the size of this array is less than 1, throws an [IndexOutOfBoundsException] except in Kotlin/JS\n * where the behavior is unspecified.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline operator fun

UShortArray.component1(): UShort {\n   return get(0)\n}\n\n/**\n * Returns 2nd *element* from the array.\n * \n * If the size of this array is less than 2, throws an [IndexOutOfBoundsException] except in Kotlin/JS\n * where the behavior is unspecified.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline operator fun UIntArray.component2(): UInt {\n   return get(1)\n}\n\n/**\n * Returns 2nd *element* from the array.\n * \n * If the size of this array is less than 2, throws an [IndexOutOfBoundsException] except in Kotlin/JS\n * where the behavior is unspecified.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline operator fun ULongArray.component2(): ULong {\n   return get(1)\n}\n\n/**\n * Returns 2nd *element* from the array.\n * \n * If the size of this array is less than 2, throws an [IndexOutOfBoundsException] except in Kotlin/JS\n * where the behavior is unspecified.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline operator fun UByteArray.component2(): UByte {\n   return get(1)\n}\n\n/**\n * Returns 2nd *element* from the array.\n * \n * If the size of this array is less than 2, throws an [IndexOutOfBoundsException] except in Kotlin/JS\n * where the behavior is unspecified.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline operator fun UShortArray.component2(): UShort {\n   return get(1)\n}\n\n/**\n * Returns 3rd *element* from the array.\n * \n * If the size of this array is less than 3, throws an [IndexOutOfBoundsException] except in Kotlin/JS\n * where the behavior is unspecified.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline operator fun UIntArray.component3(): UInt {\n   return get(2)\n}\n\n/**\n * Returns 3rd *element* from the array.\n * \n * If the size of this array is less than 3, throws an [IndexOutOfBoundsException] except in Kotlin/JS\n * where the behavior is unspecified.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline operator fun ULongArray.component3(): ULong {\n   return get(2)\n}\n\n/**\n * Returns 3rd *element* from the array.\n * \n * If the size of this array is less than 3, throws an [IndexOutOfBoundsException] except in Kotlin/JS\n * where the behavior is unspecified.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline operator fun UByteArray.component3(): UByte {\n   return get(2)\n}\n\n/**\n * Returns 3rd *element* from the array.\n * \n * If the size of this array is less than 3, throws an [IndexOutOfBoundsException] except in Kotlin/JS\n * where the behavior is unspecified.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline operator fun UShortArray.component3(): UShort {\n   return get(2)\n}\n\n/**\n * Returns 4th *element* from the array.\n * \n * If the size of this array is less than 4, throws an [IndexOutOfBoundsException] except in Kotlin/JS\n * where the behavior is unspecified.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline operator fun UIntArray.component4(): UInt {\n   return get(3)\n}\n\n/**\n * Returns 4th *element* from the array.\n * \n * If the size of this array is less than 4, throws an [IndexOutOfBoundsException] except in Kotlin/JS\n * where the behavior is unspecified.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline operator fun ULongArray.component4(): ULong {\n   return get(3)\n}\n\n/**\n * Returns 4th *element* from the array.\n * \n * If the size of this array is less than 4, throws an [IndexOutOfBoundsException] except in Kotlin/JS\n * where the behavior is unspecified.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline operator fun UByteArray.component4(): UByte {\n   return get(3)\n}\n\n/**\n * Returns 4th *element* from the array.\n * \n * If the size of this array is less than 4, throws an [IndexOutOfBoundsException] except in Kotlin/JS\n * where the behavior is unspecified.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline operator fun UShortArray.component4(): UShort {\n   return get(3)\n}\n\n/**\n * Returns 5th *element* from the array.\n * \n *

If the size of this array is less than 5, throws an [IndexOutOfBoundsException] except in Kotlin/JS\n * where the behavior is unspecified.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline operator fun UIntArray.component5(): UInt {\n   return get(4)\n}\n\n/**\n * Returns 5th *element* from the array.\n * \n * If the size of this array is less than 5, throws an [IndexOutOfBoundsException] except in Kotlin/JS\n * where the behavior is unspecified.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline operator fun ULongArray.component5(): ULong {\n   return get(4)\n}\n\n/**\n * Returns 5th *element* from the array.\n * \n * If the size of this array is less than 5, throws an [IndexOutOfBoundsException] except in Kotlin/JS\n * where the behavior is unspecified.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline operator fun UByteArray.component5(): UByte {\n   return get(4)\n}\n\n/**\n * Returns 5th *element* from the array.\n * \n * If the size of this array is less than 5, throws an [IndexOutOfBoundsException] except in Kotlin/JS\n * where the behavior is unspecified.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline operator fun UShortArray.component5(): UShort {\n   return get(4)\n}\n\n/**\n * Returns an element at the given [index] or throws an [IndexOutOfBoundsException] if the [index] is out of bounds of this array.\n * \n * @sample samples.collections.Collections.Elements.elementAt\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\npublic expect fun UIntArray.elementAt(index: Int): UInt\n\n/**\n * Returns an element at the given [index] or throws an [IndexOutOfBoundsException] if the [index] is out of bounds of this array.\n * \n * @sample samples.collections.Collections.Elements.elementAt\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\npublic expect fun ULongArray.elementAt(index: Int): ULong\n\n/**\n * Returns an element at the given [index] or throws an [IndexOutOfBoundsException] if the [index] is out of bounds of this array.\n * \n * @sample samples.collections.Collections.Elements.elementAt\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\npublic expect fun UByteArray.elementAt(index: Int): UByte\n\n/**\n * Returns an element at the given [index] or throws an [IndexOutOfBoundsException] if the [index] is out of bounds of this array.\n * \n * @sample samples.collections.Collections.Elements.elementAt\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\npublic expect fun UShortArray.elementAt(index: Int): UShort\n\n/**\n * Returns an element at the given [index] or the result of calling the [defaultValue] function if the [index] is out of bounds of this array.\n * \n * @sample samples.collections.Collections.Elements.elementAtOrElse\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UIntArray.elementAtOrElse(index: Int, defaultValue: (Int) -> UInt): UInt {\n   return if (index >= 0 && index <= lastIndex) get(index) else defaultValue(index)\n}\n\n/**\n * Returns an element at the given [index] or the result of calling the [defaultValue] function if the [index] is out of bounds of this array.\n * \n * @sample samples.collections.Collections.Elements.elementAtOrElse\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun ULongArray.elementAtOrElse(index: Int, defaultValue: (Int) -> ULong): ULong {\n   return if (index >= 0 && index <= lastIndex) get(index) else defaultValue(index)\n}\n\n/**\n * Returns an element at the given [index] or the result of calling the [defaultValue] function if the [index] is out of bounds of this array.\n * \n * @sample samples.collections.Collections.Elements.elementAtOrElse\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UByteArray.elementAtOrElse(index: Int, defaultValue: (Int) -> UByte): UByte {\n   return if (index >= 0 && index <= lastIndex) get(index) else defaultValue(index)\n}\n\n/**\n * Returns an element at the given [index] or the result of calling the [defaultValue] function if the [index] is out of bounds of this array.\n * \n * @sample samples.collections.Collections.Elements.elementAtOrElse\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UShortArray.elementAtOrElse(index: Int, defaultValue: (Int) -> UShort): UShort {\n   return if (index >= 0 && index <= lastIndex) get(index) else defaultValue(index)\n}\n\n/**\n * Returns an element at the given [index] or `null` if the [index] is out of bounds of this array.\n * \n * @sample samples.collections.Collections.Elements.elementAtOrNull\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UIntArray.elementAtOrNull(index: Int): UInt? {\n   return this.getOrNull(index)\n}\n\n/**\n * Returns an element at the given [index] or `null` if the [index] is out of bounds of this array.\n * \n * @sample samples.collections.Collections.Elements.elementAtOrNull\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun ULongArray.elementAtOrNull(index: Int): ULong? {\n   return this.getOrNull(index)\n}\n\n/**\n * Returns an element at the given [index] or `null` if the [index] is out of bounds of this array.\n * \n * @sample samples.collections.Collections.Elements.elementAtOrNull\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UByteArray.elementAtOrNull(index: Int): UByte? {\n   return this.getOrNull(index)\n}\n\n/**\n * Returns an element at the given [index] or `null` if the [index] is out of bounds of this array.\n * \n * @sample samples.collections.Collections.Elements.elementAtOrNull\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UShortArray.elementAtOrNull(index: Int): UShort? {\n   return this.getOrNull(index)\n}\n\n/**\n * Returns the first element matching the given [predicate], or `null` if no such element was found.\n * \n * @sample samples.collections.Collections.Elements.find\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UIntArray.find(predicate: (UInt) -> Boolean): UInt? {\n   return firstOrNull(predicate)\n}\n\n/**\n * Returns the first element matching the given [predicate], or `null` if no such element was found.\n * \n * @sample samples.collections.Collections.Elements.find\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun ULongArray.find(predicate: (ULong) -> Boolean): ULong? {\n   return firstOrNull(predicate)\n}\n\n/**\n * Returns the first element matching the given [predicate], or `null` if no such element was found.\n * \n * @sample samples.collections.Collections.Elements.find\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UByteArray.find(predicate: (UByte) -> Boolean): UByte? 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UIntArray.lastOrNull(predicate: (UInt) -> Boolean): UInt? {\n   for (index in this.indices.reversed()) {\n   val element = this[index]\n   if (predicate(element)) return element\n   }\n   return null\n}\n\n/**\n * Returns the last element matching the given [predicate], or `null` if no such element was found.\n * \n * @sample samples.collections.Collections.Elements.last\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun ULongArray.lastOrNull(predicate: (ULong) -> Boolean): ULong? {\n   for (index in this.indices.reversed()) {\n   val element = this[index]\n   if (predicate(element)) return element\n   }\n   return null\n}\n\n/**\n * Returns the last element matching the given [predicate], or `null` if no such element was found.\n * \n * @sample samples.collections.Collections.Elements.last\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UByteArray.lastOrNull(predicate: (UByte) -> Boolean): UByte? {\n   for (index in this.indices.reversed()) {\n   val element = this[index]\n   if (predicate(element)) return element\n   }\n   return null\n}\n\n/**\n * Returns the last element matching the given [predicate], or `null` if no such element was found.\n * \n * @sample samples.collections.Collections.Elements.last\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UShortArray.lastOrNull(predicate: (UShort) -> Boolean): UShort? {\n   for (index in this.indices.reversed()) {\n   val element = this[index]\n   if (predicate(element)) return element\n   }\n   return null\n}\n\n/**\n * Returns a random element from this array.\n * \n * @throws NoSuchElementException if this array is empty.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UIntArray.random(): UInt {\n   return random(Random)\n}\n\n/**\n * Returns a random element from this array.\n * \n * @throws NoSuchElementException if this array is empty.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun ULongArray.random(): ULong {\n   return random(Random)\n}\n\n/**\n * Returns a random element from this array.\n * \n * @throws NoSuchElementException if this array is empty.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UByteArray.random(): UByte {\n   return random(Random)\n}\n\n/**\n * Returns a random element from this array.\n * \n * @throws NoSuchElementException if this array is empty.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UShortArray.random(): UShort {\n   return random(Random)\n}\n\n/**\n * Returns a random element from this array using the specified source of randomness.\n * \n * @throws NoSuchElementException if this array is empty.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\npublic fun UIntArray.random(random: Random): UInt {\n   if (isEmpty())\n   throw NoSuchElementException(\"Array is empty.\")\n   return get(random.nextInt(size))\n}\n\n/**\n * Returns a random element from this array using the specified source of randomness.\n * \n * @throws NoSuchElementException if this array is empty.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\npublic fun ULongArray.random(random: Random): ULong {\n   if (isEmpty())\n   throw NoSuchElementException(\"Array is empty.\")\n   return get(random.nextInt(size))\n}\n\n/**\n * Returns a random element from this array using the specified source of randomness.\n * \n * @throws NoSuchElementException if this array is empty.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\npublic fun UByteArray.random(random: Random): UByte {\n   if (isEmpty())\n   throw NoSuchElementException(\"Array is empty.\")\n   return get(random.nextInt(size))\n}\n\n/**\n * Returns a random element from this array using the specified source of randomness.\n * \n * @throws NoSuchElementException if this array is empty.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\npublic fun UShortArray.random(random: Random): UShort {\n   if (isEmpty())\n   throw NoSuchElementException(\"Array is empty.\")\n   return get(random.nextInt(size))\n}\n\n/**\n * Returns a random element from this array, or `null` if this array is empty.\n */\n@SinceKotlin(\"1.4\")\n@ExperimentalUnsignedTypes\n@WasExperimental(ExperimentalStdlibApi::class)\n@kotlin.internal.InlineOnly\npublic inline fun UIntArray.randomOrNull(): UInt? {\n   return randomOrNull(Random)\n}\n\n/**\n * Returns a random element from this array, or `null` if this array is empty.\n

*/\n@SinceKotlin(\"1.4\")\n@ExperimentalUnsignedTypes\n@WasExperimental(ExperimentalStdlibApi::class)\n@kotlin.internal.InlineOnly\npublic inline fun ULongArray.randomOrNull(): ULong? {\n   return randomOrNull(Random)\n}\n\n/**\n * Returns a random element from this array, or `null` if this array is empty.\n */\n@SinceKotlin(\"1.4\")\n@ExperimentalUnsignedTypes\n@WasExperimental(ExperimentalStdlibApi::class)\n@kotlin.internal.InlineOnly\npublic inline fun UByteArray.randomOrNull(): UByte? {\n   return randomOrNull(Random)\n}\n\n/**\n * Returns a random element from this array, or `null` if this array is empty.\n */\n@SinceKotlin(\"1.4\")\n@ExperimentalUnsignedTypes\n@WasExperimental(ExperimentalStdlibApi::class)\n@kotlin.internal.InlineOnly\npublic inline fun UShortArray.randomOrNull(): UShort? {\n   return randomOrNull(Random)\n}\n\n/**\n * Returns a random element from this array using the specified source of randomness, or `null` if this array is empty.\n */\n@SinceKotlin(\"1.4\")\n@ExperimentalUnsignedTypes\n@WasExperimental(ExperimentalStdlibApi::class)\npublic fun UIntArray.randomOrNull(random: Random): UInt? {\n   if (isEmpty())\n   return null\n   return get(random.nextInt(size))\n}\n\n/**\n * Returns a random element from this array using the specified source of randomness, or `null` if this array is empty.\n */\n@SinceKotlin(\"1.4\")\n@ExperimentalUnsignedTypes\n@WasExperimental(ExperimentalStdlibApi::class)\npublic fun ULongArray.randomOrNull(random: Random): ULong? {\n   if (isEmpty())\n   return null\n   return get(random.nextInt(size))\n}\n\n/**\n * Returns a random element from this array using the specified source of randomness, or `null` if this array is empty.\n */\n@SinceKotlin(\"1.4\")\n@ExperimentalUnsignedTypes\n@WasExperimental(ExperimentalStdlibApi::class)\npublic fun UByteArray.randomOrNull(random: Random): UByte? {\n   if (isEmpty())\n   return null\n   return get(random.nextInt(size))\n}\n\n/**\n * Returns a random element from this array using the specified source of randomness, or `null` if this array is empty.\n */\n@SinceKotlin(\"1.4\")\n@ExperimentalUnsignedTypes\n@WasExperimental(ExperimentalStdlibApi::class)\npublic fun UShortArray.randomOrNull(random: Random): UShort? {\n   if (isEmpty())\n   return null\n   return get(random.nextInt(size))\n}\n\n/**\n * Returns the single element, or throws an exception if the array is empty or has more than one element.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UIntArray.single(): UInt {\n   return storage.single().toUInt()\n}\n\n/**\n * Returns the single element, or throws an exception if the array is empty or has more than one element.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun ULongArray.single(): ULong {\n   return storage.single().toULong()\n}\n\n/**\n * Returns the single element, or throws an exception if the array is empty or has more than one element.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UByteArray.single(): UByte {\n   return storage.single().toUByte()\n}\n\n/**\n * Returns the single element, or throws an exception if the array is empty or has more than one element.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UShortArray.single(): UShort {\n   return storage.single().toUShort()\n}\n\n/**\n * Returns the single element matching the given [predicate], or throws exception if there is no or more than one matching element.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UIntArray.single(predicate: (UInt) -> Boolean): UInt {\n   var single: UInt? = null\n   var found = false\n   for (element in this) {\n   if (predicate(element)) {\n   if (found) throw IllegalArgumentException(\"Array contains more than one matching element.\")\n   single = element\n   found = true\n   }\n   }\n   if (!found) throw NoSuchElementException(\"Array contains no element matching the predicate.\")\n   @Suppress(\"UNCHECKED_CAST\")\n   return single as UInt\n}\n\n/**\n * Returns the single element matching the given [predicate], or throws exception if there is no or more than one matching element.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun ULongArray.single(predicate: (ULong) -> Boolean): ULong {\n   var single: ULong? = null\n   var found = false\n   for (element in this) {\n   if (predicate(element)) {\n   if (found) throw IllegalArgumentException(\"Array

contains more than one matching element.\")\n   single = element\n   found = true\n   }\n   }\n   if (!found) throw NoSuchElementException(\"Array contains no element matching the predicate.\")\n   @Suppress(\"UNCHECKED_CAST\")\n   return single as ULong\n}\n\n/**\n * Returns the single element matching the given [predicate], or throws exception if there is no or more than one matching element.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UByteArray.single(predicate: (UByte) -> Boolean): UByte {\n   var single: UByte? = null\n   var found = false\n   for (element in this) {\n   if (predicate(element)) {\n   if (found) throw IllegalArgumentException(\"Array contains more than one matching element.\")\n   single = element\n   found = true\n   }\n   }\n   if (!found) throw NoSuchElementException(\"Array contains no element matching the predicate.\")\n   @Suppress(\"UNCHECKED_CAST\")\n   return single as UByte\n}\n\n/**\n * Returns the single element matching the given [predicate], or throws exception if there is no or more than one matching element.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UShortArray.single(predicate: (UShort) -> Boolean): UShort {\n   var single: UShort? = null\n   var found = false\n   for (element in this) {\n   if (predicate(element)) {\n   if (found) throw IllegalArgumentException(\"Array contains more than one matching element.\")\n   single = element\n   found = true\n   }\n   }\n   if (!found) throw NoSuchElementException(\"Array contains no element matching the predicate.\")\n   @Suppress(\"UNCHECKED_CAST\")\n   return single as UShort\n}\n\n/**\n * Returns single element, or `null` if the array is empty or has more than one element.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\npublic fun UIntArray.singleOrNull(): UInt? {\n   return if (size == 1) this[0] else null\n}\n\n/**\n * Returns single element, or `null` if the array is empty or has more than one element.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\npublic fun ULongArray.singleOrNull(): ULong? {\n   return if (size == 1) this[0] else null\n}\n\n/**\n * Returns single element, or `null` if the array is empty or has more than one element.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\npublic fun UByteArray.singleOrNull(): UByte? {\n   return if (size == 1) this[0] else null\n}\n\n/**\n * Returns single element, or `null` if the array is empty or has more than one element.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\npublic fun UShortArray.singleOrNull(): UShort? {\n   return if (size == 1) this[0] else null\n}\n\n/**\n * Returns the single element matching the given [predicate], or `null` if element was not found or more than one element was found.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UIntArray.singleOrNull(predicate: (UInt) -> Boolean): UInt? {\n   var single: UInt? = null\n   var found = false\n   for (element in this) {\n   if (predicate(element)) {\n   if (found) return null\n   single = element\n   found = true\n   }\n   }\n   if (!found) return null\n   return single\n}\n\n/**\n * Returns the single element matching the given [predicate], or `null` if element was not found or more than one element was found.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun ULongArray.singleOrNull(predicate: (ULong) -> Boolean): ULong? {\n   var single: ULong? = null\n   var found = false\n   for (element in this) {\n   if (predicate(element)) {\n   if (found) return null\n   single = element\n   found = true\n   }\n   }\n   if (!found) return null\n   return single\n}\n\n/**\n * Returns the single element matching the given [predicate], or `null` if element was not found or more than one element was found.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UByteArray.singleOrNull(predicate: (UByte) -> Boolean): UByte? {\n   var single: UByte? = null\n   var found = false\n   for (element in this) {\n   if (predicate(element)) {\n   if (found) return null\n   single = element\n   found = true\n   }\n   }\n   if (!found) return null\n   return single\n}\n\n/**\n * Returns the single element matching the given [predicate], or `null` if element was not found or more than one element was found.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UShortArray.singleOrNull(predicate: (UShort) -> Boolean): UShort? {\n   var single: UShort? = null\n   var found = false\n   for (element in this) {\n   if (predicate(element)) {\n   if (found) return null\n   single = element\n   found = true\n   }\n   }\n   if (!found) return null\n   return single\n}\n\n/**\n * Returns a list containing all elements except first [n] elements.\n * \n * @throws IllegalArgumentException if [n] is negative.\n *

\n * @sample samples.collections.Collections.Transformations.drop\n
*/\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\npublic fun UIntArray.drop(n: Int): List<UInt> {\n
require(n >= 0) { \"Requested element count $n is less than zero.\" }\n   return takeLast((size -
n).coerceAtLeast(0))\n}\n\n/**\n * Returns a list containing all elements except first [n] elements.\n * \n * @throws
IllegalArgumentException if [n] is negative.\n * \n * @sample
samples.collections.Collections.Transformations.drop\n
*/\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\npublic fun ULongArray.drop(n: Int): List<ULong> {\n
require(n >= 0) { \"Requested element count $n is less than zero.\" }\n   return takeLast((size -
n).coerceAtLeast(0))\n}\n\n/**\n * Returns a list containing all elements except first [n] elements.\n * \n * @throws
IllegalArgumentException if [n] is negative.\n * \n * @sample
samples.collections.Collections.Transformations.drop\n
*/\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\npublic fun UByteArray.drop(n: Int): List<UByte> {\n
require(n >= 0) { \"Requested element count $n is less than zero.\" }\n   return takeLast((size -
n).coerceAtLeast(0))\n}\n\n/**\n * Returns a list containing all elements except first [n] elements.\n * \n * @throws
IllegalArgumentException if [n] is negative.\n * \n * @sample
samples.collections.Collections.Transformations.drop\n
*/\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\npublic fun UShortArray.drop(n: Int): List<UShort> {\n
require(n >= 0) { \"Requested element count $n is less than zero.\" }\n   return takeLast((size -
n).coerceAtLeast(0))\n}\n\n/**\n * Returns a list containing all elements except last [n] elements.\n * \n * @throws
IllegalArgumentException if [n] is negative.\n * \n * @sample
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*/\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\npublic fun UIntArray.dropLast(n: Int): List<UInt> {\n
require(n >= 0) { \"Requested element count $n is less than zero.\" }\n   return take((size -
n).coerceAtLeast(0))\n}\n\n/**\n * Returns a list containing all elements except last [n] elements.\n * \n * @throws
IllegalArgumentException if [n] is negative.\n * \n * @sample
samples.collections.Collections.Transformations.drop\n
*/\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\npublic fun ULongArray.dropLast(n: Int):
List<ULong> {\n   require(n >= 0) { \"Requested element count $n is less than zero.\" }\n   return take((size -
n).coerceAtLeast(0))\n}\n\n/**\n * Returns a list containing all elements except last [n] elements.\n * \n * @throws
IllegalArgumentException if [n] is negative.\n * \n * @sample
samples.collections.Collections.Transformations.drop\n
*/\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\npublic fun UByteArray.dropLast(n: Int): List<UByte>
{\n   require(n >= 0) { \"Requested element count $n is less than zero.\" }\n   return take((size -
n).coerceAtLeast(0))\n}\n\n/**\n * Returns a list containing all elements except last [n] elements.\n * \n * @throws
IllegalArgumentException if [n] is negative.\n * \n * @sample
samples.collections.Collections.Transformations.drop\n
*/\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\npublic fun UShortArray.dropLast(n: Int):
List<UShort> {\n   require(n >= 0) { \"Requested element count $n is less than zero.\" }\n   return take((size -
n).coerceAtLeast(0))\n}\n\n/**\n * Returns a list containing all elements except last elements that satisfy the given
[predicate].\n * \n * @sample samples.collections.Collections.Transformations.drop\n
*/\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
UIntArray.dropLastWhile(predicate: (UInt) -> Boolean): List<UInt> {\n   for (index in lastIndex downTo 0) {\n
if (!predicate(this[index])) {\n   return take(index + 1)\n   }\n   }\n   return emptyList()\n}\n\n/**\n *
Returns a list containing all elements except last elements that satisfy the given [predicate].\n * \n * @sample
samples.collections.Collections.Transformations.drop\n
*/\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
ULongArray.dropLastWhile(predicate: (ULong) -> Boolean): List<ULong> {\n   for (index in lastIndex downTo 0)
{\n   if (!predicate(this[index])) {\n   return take(index + 1)\n   }\n   }\n   return emptyList()\n}\n\n/**\n

* Returns a list containing all elements except last elements that satisfy the given [predicate].\n * \n * @sample samples.collections.Collections.Transformations.drop\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UByteArray.dropLastWhile(predicate: (UByte) -> Boolean): List<UByte> {\n   for (index in lastIndex downTo 0) {\n   if (!predicate(this[index])) {\n   return take(index + 1)\n   }\n   }\n   return emptyList()\n}\n\n/**\n * Returns a list containing all elements except last elements that satisfy the given [predicate].\n * \n * @sample samples.collections.Collections.Transformations.drop\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UShortArray.dropLastWhile(predicate: (UShort) -> Boolean): List<UShort> {\n   for (index in lastIndex downTo 0) {\n   if (!predicate(this[index])) {\n   return take(index + 1)\n   }\n   }\n   return emptyList()\n}\n\n/**\n * Returns a list containing all elements except first elements that satisfy the given [predicate].\n * \n * @sample samples.collections.Collections.Transformations.drop\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UIntArray.dropWhile(predicate: (UInt) -> Boolean): List<UInt> {\n   var yielding = false\n   val list = ArrayList<UInt>()\n   for (item in this)\n   if (yielding)\n   list.add(item)\n   else if (!predicate(item)) {\n   list.add(item)\n   yielding = true\n   }\n   return list\n}\n\n/**\n * Returns a list containing all elements except first elements that satisfy the given [predicate].\n * \n * @sample samples.collections.Collections.Transformations.drop\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun ULongArray.dropWhile(predicate: (ULong) -> Boolean): List<ULong> {\n   var yielding = false\n   val list = ArrayList<ULong>()\n   for (item in this)\n   if (yielding)\n   list.add(item)\n   else if (!predicate(item)) {\n   list.add(item)\n   yielding = true\n   }\n   return list\n}\n\n/**\n * Returns a list containing all elements except first elements that satisfy the given [predicate].\n * \n * @sample samples.collections.Collections.Transformations.drop\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UByteArray.dropWhile(predicate: (UByte) -> Boolean): List<UByte> {\n   var yielding = false\n   val list = ArrayList<UByte>()\n   for (item in this)\n   if (yielding)\n   list.add(item)\n   else if (!predicate(item)) {\n   list.add(item)\n   yielding = true\n   }\n   return list\n}\n\n/**\n * Returns a list containing all elements except first elements that satisfy the given [predicate].\n * \n * @sample samples.collections.Collections.Transformations.drop\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UShortArray.dropWhile(predicate: (UShort) -> Boolean): List<UShort> {\n   var yielding = false\n   val list = ArrayList<UShort>()\n   for (item in this)\n   if (yielding)\n   list.add(item)\n   else if (!predicate(item)) {\n   list.add(item)\n   yielding = true\n   }\n   return list\n}\n\n/**\n * Returns a list containing only elements matching the given [predicate].\n * \n * @sample samples.collections.Collections.Filtering.filter\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UIntArray.filter(predicate: (UInt) -> Boolean): List<UInt> {\n   return filterTo(ArrayList<UInt>(), predicate)\n}\n\n/**\n * Returns a list containing only elements matching the given [predicate].\n * \n * @sample samples.collections.Collections.Filtering.filter\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun ULongArray.filter(predicate: (ULong) -> Boolean): List<ULong> {\n   return filterTo(ArrayList<ULong>(), predicate)\n}\n\n/**\n * Returns a list containing only elements matching the given [predicate].\n * \n * @sample samples.collections.Collections.Filtering.filter\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UByteArray.filter(predicate: (UByte) -> Boolean): List<UByte> {\n   return filterTo(ArrayList<UByte>(), predicate)\n}\n\n/**\n * Returns a list containing only elements matching the given [predicate].\n * \n * @sample samples.collections.Collections.Filtering.filter\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun

UShortArray.filter(predicate: (UShort) -> Boolean): List<UShort> {\n   return filterTo(ArrayList<UShort>(), predicate)\n}\n\n/**\n * Returns a list containing only elements matching the given [predicate].\n * @param [predicate] function that takes the index of an element and the element itself\n * and returns the result of predicate evaluation on the element.\n * \n * @sample samples.collections.Collections.Filtering.filterIndexed\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UIntArray.filterIndexed(predicate: (index: Int, UInt) -> Boolean): List<UInt> {\n   return filterIndexedTo(ArrayList<UInt>(), predicate)\n}\n\n/**\n * Returns a list containing only elements matching the given [predicate].\n * @param [predicate] function that takes the index of an element and the element itself\n * and returns the result of predicate evaluation on the element.\n * \n * @sample samples.collections.Collections.Filtering.filterIndexed\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun ULongArray.filterIndexed(predicate: (index: Int, ULong) -> Boolean): List<ULong> {\n   return filterIndexedTo(ArrayList<ULong>(), predicate)\n}\n\n/**\n * Returns a list containing only elements matching the given [predicate].\n * @param [predicate] function that takes the index of an element and the element itself\n * and returns the result of predicate evaluation on the element.\n * \n * @sample samples.collections.Collections.Filtering.filterIndexed\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UByteArray.filterIndexed(predicate: (index: Int, UByte) -> Boolean): List<UByte> {\n   return filterIndexedTo(ArrayList<UByte>(), predicate)\n}\n\n/**\n * Returns a list containing only elements matching the given [predicate].\n * @param [predicate] function that takes the index of an element and the element itself\n * and returns the result of predicate evaluation on the element.\n * \n * @sample samples.collections.Collections.Filtering.filterIndexed\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UShortArray.filterIndexed(predicate: (index: Int, UShort) -> Boolean): List<UShort> {\n   return filterIndexedTo(ArrayList<UShort>(), predicate)\n}\n\n/**\n * Appends all elements matching the given [predicate] to the given [destination].\n * @param [predicate] function that takes the index of an element and the element itself\n * and returns the result of predicate evaluation on the element.\n * \n * @sample samples.collections.Collections.Filtering.filterIndexedTo\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <C : MutableCollection<in UInt>> UIntArray.filterIndexedTo(destination: C, predicate: (index: Int, UInt) -> Boolean): C {\n   forEachIndexed { index, element ->\n   if (predicate(index, element)) destination.add(element)\n   }\n   return destination\n}\n\n/**\n * Appends all elements matching the given [predicate] to the given [destination].\n * @param [predicate] function that takes the index of an element and the element itself\n * and returns the result of predicate evaluation on the element.\n * \n * @sample samples.collections.Collections.Filtering.filterIndexedTo\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <C : MutableCollection<in ULong>> ULongArray.filterIndexedTo(destination: C, predicate: (index: Int, ULong) -> Boolean): C {\n   forEachIndexed { index, element ->\n   if (predicate(index, element)) destination.add(element)\n   }\n   return destination\n}\n\n/**\n * Appends all elements matching the given [predicate] to the given [destination].\n * @param [predicate] function that takes the index of an element and the element itself\n * and returns the result of predicate evaluation on the element.\n * \n * @sample samples.collections.Collections.Filtering.filterIndexedTo\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <C : MutableCollection<in UByte>> UByteArray.filterIndexedTo(destination: C, predicate: (index: Int, UByte) -> Boolean): C {\n   forEachIndexed { index, element ->\n   if (predicate(index, element)) destination.add(element)\n   }\n   return destination\n}\n\n/**\n * Appends all elements matching the given [predicate] to the given [destination].\n * @param [predicate] function that takes the index of an element and the element itself\n * and returns the result of predicate evaluation on the element.\n * \n * @sample samples.collections.Collections.Filtering.filterIndexedTo\n

*/\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <C : MutableCollection<in UShort>> UShortArray.filterIndexedTo(destination: C, predicate: (index: Int, UShort) -> Boolean): C {\n   forEachIndexed { index, element ->\n   if (predicate(index, element)) destination.add(element)\n   }\n   return destination\n}\n\n/**\n * Returns a list containing all elements not matching the given [predicate].\n * \n * @sample samples.collections.Collections.Filtering.filter\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UIntArray.filterNot(predicate: (UInt) -> Boolean): List<UInt> {\n   return filterNotTo(ArrayList<UInt>(), predicate)\n}\n\n/**\n * Returns a list containing all elements not matching the given [predicate].\n * \n * @sample samples.collections.Collections.Filtering.filter\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun ULongArray.filterNot(predicate: (ULong) -> Boolean): List<ULong> {\n   return filterNotTo(ArrayList<ULong>(), predicate)\n}\n\n/**\n * Returns a list containing all elements not matching the given [predicate].\n * \n * @sample samples.collections.Collections.Filtering.filter\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UByteArray.filterNot(predicate: (UByte) -> Boolean): List<UByte> {\n   return filterNotTo(ArrayList<UByte>(), predicate)\n}\n\n/**\n * Returns a list containing all elements not matching the given [predicate].\n * \n * @sample samples.collections.Collections.Filtering.filter\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UShortArray.filterNot(predicate: (UShort) -> Boolean): List<UShort> {\n   return filterNotTo(ArrayList<UShort>(), predicate)\n}\n\n/**\n * Appends all elements not matching the given [predicate] to the given [destination].\n * \n * @sample samples.collections.Collections.Filtering.filterTo\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <C : MutableCollection<in UInt>> UIntArray.filterNotTo(destination: C, predicate: (UInt) -> Boolean): C {\n   for (element in this) if (!predicate(element)) destination.add(element)\n   return destination\n}\n\n/**\n * Appends all elements not matching the given [predicate] to the given [destination].\n * \n * @sample samples.collections.Collections.Filtering.filterTo\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <C : MutableCollection<in ULong>> ULongArray.filterNotTo(destination: C, predicate: (ULong) -> Boolean): C {\n   for (element in this) if (!predicate(element)) destination.add(element)\n   return destination\n}\n\n/**\n * Appends all elements not matching the given [predicate] to the given [destination].\n * \n * @sample samples.collections.Collections.Filtering.filterTo\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <C : MutableCollection<in UByte>> UByteArray.filterNotTo(destination: C, predicate: (UByte) -> Boolean): C {\n   for (element in this) if (!predicate(element)) destination.add(element)\n   return destination\n}\n\n/**\n * Appends all elements not matching the given [predicate] to the given [destination].\n * \n * @sample samples.collections.Collections.Filtering.filterTo\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <C : MutableCollection<in UShort>> UShortArray.filterNotTo(destination: C, predicate: (UShort) -> Boolean): C {\n   for (element in this) if (!predicate(element)) destination.add(element)\n   return destination\n}\n\n/**\n * Appends all elements matching the given [predicate] to the given [destination].\n * \n * @sample samples.collections.Collections.Filtering.filterTo\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <C : MutableCollection<in UInt>> UIntArray.filterTo(destination: C, predicate: (UInt) -> Boolean): C {\n   for (element in this) if (predicate(element)) destination.add(element)\n   return destination\n}\n\n/**\n * Appends all elements matching the given [predicate] to the given [destination].\n * \n * @sample samples.collections.Collections.Filtering.filterTo\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <C : MutableCollection<in ULong>> ULongArray.filterTo(destination: C, predicate: (ULong) -> Boolean): C {\n   for

(element in this) if (predicate(element)) destination.add(element)\n   return destination\n}\n\n/**\n * Appends all elements matching the given [predicate] to the given [destination].\n * \n * @sample samples.collections.Collections.Filtering.filterTo\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <C : MutableCollection<in UByte>> UByteArray.filterTo(destination: C, predicate: (UByte) -> Boolean): C {\n   for (element in this) if (predicate(element)) destination.add(element)\n   return destination\n}\n\n/**\n * Appends all elements matching the given [predicate] to the given [destination].\n * \n * @sample samples.collections.Collections.Filtering.filterTo\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <C : MutableCollection<in UShort>> UShortArray.filterTo(destination: C, predicate: (UShort) -> Boolean): C {\n   for (element in this) if (predicate(element)) destination.add(element)\n   return destination\n}\n\n/**\n * Returns a list containing elements at indices in the specified [indices] range.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\npublic fun UIntArray.slice(indices: IntRange): List<UInt> {\n   if (indices.isEmpty()) return listOf()\n   return copyOfRange(indices.start, indices.endInclusive + 1).asList()\n}\n\n/**\n * Returns a list containing elements at indices in the specified [indices] range.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\npublic fun ULongArray.slice(indices: IntRange): List<ULong> {\n   if (indices.isEmpty()) return listOf()\n   return copyOfRange(indices.start, indices.endInclusive + 1).asList()\n}\n\n/**\n * Returns a list containing elements at indices in the specified [indices] range.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\npublic fun UByteArray.slice(indices: IntRange): List<UByte> {\n   if (indices.isEmpty()) return listOf()\n   return copyOfRange(indices.start, indices.endInclusive + 1).asList()\n}\n\n/**\n * Returns a list containing elements at indices in the specified [indices] range.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\npublic fun UShortArray.slice(indices: IntRange): List<UShort> {\n   if (indices.isEmpty()) return listOf()\n   return copyOfRange(indices.start, indices.endInclusive + 1).asList()\n}\n\n/**\n * Returns a list containing elements at specified [indices].\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\npublic fun UIntArray.slice(indices: Iterable<Int>): List<UInt> {\n   val size = indices.collectionSizeOrDefault(10)\n   if (size == 0) return emptyList()\n   val list = ArrayList<UInt>(size)\n   for (index in indices) {\n   list.add(get(index))\n   }\n   return list\n}\n\n/**\n * Returns a list containing elements at specified [indices].\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\npublic fun ULongArray.slice(indices: Iterable<Int>): List<ULong> {\n   val size = indices.collectionSizeOrDefault(10)\n   if (size == 0) return emptyList()\n   val list = ArrayList<ULong>(size)\n   for (index in indices) {\n   list.add(get(index))\n   }\n   return list\n}\n\n/**\n * Returns a list containing elements at specified [indices].\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\npublic fun UByteArray.slice(indices: Iterable<Int>): List<UByte> {\n   val size = indices.collectionSizeOrDefault(10)\n   if (size == 0) return emptyList()\n   val list = ArrayList<UByte>(size)\n   for (index in indices) {\n   list.add(get(index))\n   }\n   return list\n}\n\n/**\n * Returns a list containing elements at specified [indices].\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\npublic fun UShortArray.slice(indices: Iterable<Int>): List<UShort> {\n   val size = indices.collectionSizeOrDefault(10)\n   if (size == 0) return emptyList()\n   val list = ArrayList<UShort>(size)\n   for (index in indices) {\n   list.add(get(index))\n   }\n   return list\n}\n\n/**\n * Returns an array containing elements of this array at specified [indices].\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\npublic fun UIntArray.sliceArray(indices: Collection<Int>): UIntArray {\n   return UIntArray(storage.sliceArray(indices))\n}\n\n/**\n * Returns an array containing elements of this array at specified [indices].\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\npublic fun ULongArray.sliceArray(indices: Collection<Int>): ULongArray {\n   return ULongArray(storage.sliceArray(indices))\n}\n\n/**\n * Returns an array containing elements of this array at specified [indices].\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\npublic fun UByteArray.sliceArray(indices: Collection<Int>): UByteArray {\n   return UByteArray(storage.sliceArray(indices))\n}\n\n/**\n * Returns an array containing elements of this array at specified [indices].\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\npublic fun UShortArray.sliceArray(indices: Collection<Int>): UShortArray {\n   return UShortArray(storage.sliceArray(indices))\n}\n\n/**\n * Returns an array containing elements at indices in the specified [indices] range.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\npublic fun UIntArray.sliceArray(indices: IntRange): UIntArray {\n   return UIntArray(storage.sliceArray(indices))\n}\n\n/**\n * Returns an array containing elements at indices in the specified [indices] range.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\npublic fun ULongArray.sliceArray(indices: IntRange): ULongArray {\n   return ULongArray(storage.sliceArray(indices))\n}\n\n/**\n * Returns an array containing elements at indices in the specified [indices] range.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\npublic fun UByteArray.sliceArray(indices: IntRange): UByteArray {\n   return UByteArray(storage.sliceArray(indices))\n}\n\n/**\n * Returns an array containing elements at indices in the specified [indices] range.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\npublic fun UShortArray.sliceArray(indices: IntRange): UShortArray {\n   return UShortArray(storage.sliceArray(indices))\n}\n\n/**\n * Returns a list containing first [n] elements.\n * \n * @throws IllegalArgumentException if [n] is negative.\n * \n * @sample samples.collections.Collections.Transformations.take\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\npublic fun UIntArray.take(n: Int): List<UInt> {\n require(n >= 0) { \"Requested element count $n is less than zero.\" }\n   if (n == 0) return emptyList()\n   if (n >= size) return toList()\n   if (n == 1) return listOf(this[0])\n   var count = 0\n   val list = ArrayList<UInt>(n)\n   for (item in this) {\n   list.add(item)\n   if (++count == n)\n   break\n   }\n   return list\n}\n\n/**\n * Returns a list containing first [n] elements.\n * \n * @throws IllegalArgumentException if [n] is negative.\n * \n * @sample samples.collections.Collections.Transformations.take\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\npublic fun ULongArray.take(n: Int): List<ULong> {\n require(n >= 0) { \"Requested element count $n is less than zero.\" }\n   if (n == 0) return emptyList()\n   if (n >= size) return toList()\n   if (n == 1) return listOf(this[0])\n   var count = 0\n   val list = ArrayList<ULong>(n)\n   for (item in this) {\n   list.add(item)\n   if (++count == n)\n   break\n   }\n   return list\n}\n\n/**\n * Returns a list containing first [n] elements.\n * \n * @throws IllegalArgumentException if [n] is negative.\n * \n * @sample samples.collections.Collections.Transformations.take\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\npublic fun UByteArray.take(n: Int): List<UByte> {\n require(n >= 0) { \"Requested element count $n is less than zero.\" }\n   if (n == 0) return emptyList()\n   if (n >= size) return toList()\n   if (n == 1) return listOf(this[0])\n   var count = 0\n   val list = ArrayList<UByte>(n)\n   for (item in this) {\n   list.add(item)\n   if (++count == n)\n   break\n   }\n   return list\n}\n\n/**\n * Returns a list containing first [n] elements.\n * \n * @throws IllegalArgumentException if [n] is negative.\n * \n * @sample samples.collections.Collections.Transformations.take\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\npublic fun UShortArray.take(n: Int): List<UShort> {\n require(n >= 0) { \"Requested element count $n is less than zero.\" }\n   if (n == 0) return emptyList()\n   if (n >= size) return toList()\n   if (n == 1) return listOf(this[0])\n   var count = 0\n   val list = ArrayList<UShort>(n)\n   for (item in this) {\n   list.add(item)\n   if (++count == n)\n   break\n   }\n   return list\n}\n\n/**\n * Returns a list containing last [n] elements.\n * \n * @throws IllegalArgumentException if [n] is negative.\n * \n * @sample samples.collections.Collections.Transformations.take\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\npublic fun UIntArray.takeLast(n: Int): List<UInt> {\n require(n >= 0) { \"Requested element count $n is less than zero.\" }\n   if (n == 0) return emptyList()\n   val size = size\n   if (n >= size) return toList()\n   if (n == 1) return listOf(this[size - 1])\n   val list = ArrayList<UInt>(n)\n   for (index in size - n until size)\n   list.add(this[index])\n   return list\n}\n\n/**\n * Returns a list containing last [n] elements.\n * \n * @throws IllegalArgumentException if [n] is negative.\n * \n * @sample samples.collections.Collections.Transformations.take\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\npublic fun ULongArray.takeLast(n: Int): List<ULong>

{\n   require(n >= 0) { \"Requested element count $n is less than zero.\" }\n   if (n == 0) return emptyList()\n   val size = size\n   if (n >= size) return toList()\n   if (n == 1) return listOf(this[size - 1])\n   val list = ArrayList<ULong>(n)\n   for (index in size - n until size)\n   list.add(this[index])\n   return list\n}\n\n/**\n * Returns a list containing last [n] elements.\n * \n * @throws IllegalArgumentException if [n] is negative.\n * \n * @sample samples.collections.Collections.Transformations.take\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\npublic fun UByteArray.takeLast(n: Int): List<UByte> {\n   require(n >= 0) { \"Requested element count $n is less than zero.\" }\n   if (n == 0) return emptyList()\n   val size = size\n   if (n >= size) return toList()\n   if (n == 1) return listOf(this[size - 1])\n   val list = ArrayList<UByte>(n)\n   for (index in size - n until size)\n   list.add(this[index])\n   return list\n}\n\n/**\n * Returns a list containing last [n] elements.\n * \n * @throws IllegalArgumentException if [n] is negative.\n * \n * @sample samples.collections.Collections.Transformations.take\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\npublic fun UShortArray.takeLast(n: Int): List<UShort> {\n   require(n >= 0) { \"Requested element count $n is less than zero.\" }\n   if (n == 0) return emptyList()\n   val size = size\n   if (n >= size) return toList()\n   if (n == 1) return listOf(this[size - 1])\n   val list = ArrayList<UShort>(n)\n   for (index in size - n until size)\n   list.add(this[index])\n   return list\n}\n\n/**\n * Returns a list containing last elements satisfying the given [predicate].\n * \n * @sample samples.collections.Collections.Transformations.take\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UIntArray.takeLastWhile(predicate: (UInt) -> Boolean): List<UInt> {\n   for (index in lastIndex downTo 0) {\n   if (!predicate(this[index])) {\n   return drop(index + 1)\n   }\n   }\n   return toList()\n}\n\n/**\n * Returns a list containing last elements satisfying the given [predicate].\n * \n * @sample samples.collections.Collections.Transformations.take\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun ULongArray.takeLastWhile(predicate: (ULong) -> Boolean): List<ULong> {\n   for (index in lastIndex downTo 0) {\n   if (!predicate(this[index])) {\n   return drop(index + 1)\n   }\n   }\n   return toList()\n}\n\n/**\n * Returns a list containing last elements satisfying the given [predicate].\n * \n * @sample samples.collections.Collections.Transformations.take\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UByteArray.takeLastWhile(predicate: (UByte) -> Boolean): List<UByte> {\n   for (index in lastIndex downTo 0) {\n   if (!predicate(this[index])) {\n   return drop(index + 1)\n   }\n   }\n   return toList()\n}\n\n/**\n * Returns a list containing last elements satisfying the given [predicate].\n * \n * @sample samples.collections.Collections.Transformations.take\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UShortArray.takeLastWhile(predicate: (UShort) -> Boolean): List<UShort> {\n   for (index in lastIndex downTo 0) {\n   if (!predicate(this[index])) {\n   return drop(index + 1)\n   }\n   }\n   return toList()\n}\n\n/**\n * Returns a list containing first elements satisfying the given [predicate].\n * \n * @sample samples.collections.Collections.Transformations.take\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UIntArray.takeWhile(predicate: (UInt) -> Boolean): List<UInt> {\n   val list = ArrayList<UInt>()\n   for (item in this) {\n   if (!predicate(item))\n   break\n   list.add(item)\n   }\n   return list\n}\n\n/**\n * Returns a list containing first elements satisfying the given [predicate].\n * \n * @sample samples.collections.Collections.Transformations.take\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun ULongArray.takeWhile(predicate: (ULong) -> Boolean): List<ULong> {\n   val list = ArrayList<ULong>()\n   for (item in this) {\n   if (!predicate(item))\n   break\n   list.add(item)\n   }\n   return list\n}\n\n/**\n * Returns a list containing first elements satisfying the given [predicate].\n * \n * @sample samples.collections.Collections.Transformations.take\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun

UByteArray.takeWhile(predicate: (UByte) -> Boolean): List<UByte> {\n   val list = ArrayList<UByte>()\n   for (item in this) {\n   if (!predicate(item))\n   break\n   list.add(item)\n   }\n   return list\n}\n\n/**\n * Returns a list containing first elements satisfying the given [predicate].\n * \n * @sample samples.collections.Collections.Transformations.take\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UShortArray.takeWhile(predicate: (UShort) -> Boolean): List<UShort> {\n   val list = ArrayList<UShort>()\n   for (item in this) {\n   if (!predicate(item))\n   break\n   list.add(item)\n   }\n   return list\n}\n\n/**\n * Reverses elements in the array in-place.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UIntArray.reverse(): Unit {\n   storage.reverse()\n}\n\n/**\n * Reverses elements in the array in-place.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun ULongArray.reverse(): Unit {\n   storage.reverse()\n}\n\n/**\n * Reverses elements in the array in-place.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UByteArray.reverse(): Unit {\n   storage.reverse()\n}\n\n/**\n * Reverses elements in the array in-place.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UShortArray.reverse(): Unit {\n   storage.reverse()\n}\n\n/**\n * Reverses elements of the array in the specified range in-place.\n * \n * @param fromIndex the start of the range (inclusive) to reverse.\n * @param toIndex the end of the range (exclusive) to reverse.\n * \n * @throws IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n * @throws IllegalArgumentException if [fromIndex] is greater than [toIndex].\n */\n@SinceKotlin(\"1.4\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UIntArray.reverse(fromIndex: Int, toIndex: Int): Unit {\n   storage.reverse(fromIndex, toIndex)\n}\n\n/**\n * Reverses elements of the array in the specified range in-place.\n * \n * @param fromIndex the start of the range (inclusive) to reverse.\n * @param toIndex the end of the range (exclusive) to reverse.\n * \n * @throws IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n * @throws IllegalArgumentException if [fromIndex] is greater than [toIndex].\n */\n@SinceKotlin(\"1.4\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun ULongArray.reverse(fromIndex: Int, toIndex: Int): Unit {\n   storage.reverse(fromIndex, toIndex)\n}\n\n/**\n * Reverses elements of the array in the specified range in-place.\n * \n * @param fromIndex the start of the range (inclusive) to reverse.\n * @param toIndex the end of the range (exclusive) to reverse.\n * \n * @throws IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n * @throws IllegalArgumentException if [fromIndex] is greater than [toIndex].\n */\n@SinceKotlin(\"1.4\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UByteArray.reverse(fromIndex: Int, toIndex: Int): Unit {\n   storage.reverse(fromIndex, toIndex)\n}\n\n/**\n * Reverses elements of the array in the specified range in-place.\n * \n * @param fromIndex the start of the range (inclusive) to reverse.\n * @param toIndex the end of the range (exclusive) to reverse.\n * \n * @throws IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n * @throws IllegalArgumentException if [fromIndex] is greater than [toIndex].\n */\n@SinceKotlin(\"1.4\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UShortArray.reverse(fromIndex: Int, toIndex: Int): Unit {\n   storage.reverse(fromIndex, toIndex)\n}\n\n/**\n * Returns a list with elements in reversed order.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\npublic fun UIntArray.reversed(): List<UInt> {\n   if (isEmpty()) return emptyList()\n   val list = toMutableList()\n   list.reverse()\n   return list\n}\n\n/**\n * Returns a list with elements in reversed order.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\npublic fun ULongArray.reversed(): List<ULong> {\n   if (isEmpty()) return emptyList()\n   val list = toMutableList()\n   list.reverse()\n   return list\n}\n\n/**\n * Returns a list with elements in reversed order.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\npublic fun UByteArray.reversed(): List<UByte> {\n   if (isEmpty()) return emptyList()\n   val list = toMutableList()\n   list.reverse()\n   return list\n}\n\n/**\n * Returns a list with elements in reversed order.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\npublic fun UShortArray.reversed(): List<UShort> {\n if (isEmpty()) return emptyList()\n   val list = toMutableList()\n   list.reverse()\n   return list\n}\n\n/**\n * Returns an array with elements of this array in reversed order.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UIntArray.reversedArray(): UIntArray {\n   return UIntArray(storage.reversedArray())\n}\n\n/**\n * Returns an array with elements of this array in reversed order.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun ULongArray.reversedArray(): ULongArray {\n   return ULongArray(storage.reversedArray())\n}\n\n/**\n * Returns an array with elements of this array in reversed order.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UByteArray.reversedArray(): UByteArray {\n   return UByteArray(storage.reversedArray())\n}\n\n/**\n * Returns an array with elements of this array in reversed order.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UShortArray.reversedArray(): UShortArray {\n   return UShortArray(storage.reversedArray())\n}\n\n/**\n * Randomly shuffles elements in this array in-place.\n */\n@SinceKotlin(\"1.4\")\n@ExperimentalUnsignedTypes\npublic fun UIntArray.shuffle(): Unit {\n   shuffle(Random)\n}\n\n/**\n * Randomly shuffles elements in this array in-place.\n */\n@SinceKotlin(\"1.4\")\n@ExperimentalUnsignedTypes\npublic fun ULongArray.shuffle(): Unit {\n   shuffle(Random)\n}\n\n/**\n * Randomly shuffles elements in this array in-place.\n */\n@SinceKotlin(\"1.4\")\n@ExperimentalUnsignedTypes\npublic fun UByteArray.shuffle(): Unit {\n   shuffle(Random)\n}\n\n/**\n * Randomly shuffles elements in this array in-place.\n */\n@SinceKotlin(\"1.4\")\n@ExperimentalUnsignedTypes\npublic fun UShortArray.shuffle(): Unit {\n   shuffle(Random)\n}\n\n/**\n * Randomly shuffles elements in this array in-place using the specified [random] instance as the source of randomness.\n * \n * See: https://en.wikipedia.org/wiki/Fisher%E2%80%93Yates_shuffle#The_modern_algorithm\n */\n@SinceKotlin(\"1.4\")\n@ExperimentalUnsignedTypes\npublic fun UIntArray.shuffle(random: Random): Unit {\n   for (i in lastIndex downTo 1) {\n   val j = random.nextInt(i + 1)\n   val copy = this[i]\n   this[i] = this[j]\n   this[j] = copy\n   }\n}\n\n/**\n * Randomly shuffles elements in this array in-place using the specified [random] instance as the source of randomness.\n * \n * See: https://en.wikipedia.org/wiki/Fisher%E2%80%93Yates_shuffle#The_modern_algorithm\n */\n@SinceKotlin(\"1.4\")\n@ExperimentalUnsignedTypes\npublic fun ULongArray.shuffle(random: Random): Unit {\n   for (i in lastIndex downTo 1) {\n   val j = random.nextInt(i + 1)\n   val copy = this[i]\n   this[i] = this[j]\n   this[j] = copy\n   }\n}\n\n/**\n * Randomly shuffles elements in this array in-place using the specified [random] instance as the source of randomness.\n * \n * See: https://en.wikipedia.org/wiki/Fisher%E2%80%93Yates_shuffle#The_modern_algorithm\n */\n@SinceKotlin(\"1.4\")\n@ExperimentalUnsignedTypes\npublic fun UByteArray.shuffle(random: Random): Unit {\n   for (i in lastIndex downTo 1) {\n   val j = random.nextInt(i + 1)\n   val copy = this[i]\n   this[i] = this[j]\n   this[j] = copy\n   }\n}\n\n/**\n * Randomly shuffles elements in this array in-place using the specified [random] instance as the source of randomness.\n * \n * See: https://en.wikipedia.org/wiki/Fisher%E2%80%93Yates_shuffle#The_modern_algorithm\n */\n@SinceKotlin(\"1.4\")\n@ExperimentalUnsignedTypes\npublic fun UShortArray.shuffle(random: Random): Unit {\n   for (i in lastIndex downTo 1) {\n   val j = random.nextInt(i + 1)\n   val copy = this[i]\n   this[i] = this[j]\n   this[j] = copy\n   }\n}\n\n/**\n * Sorts elements in the array in-place descending according to their natural sort order.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\npublic fun UIntArray.sortDescending(): Unit {\n   if (size > 1) {\n   sort()\n   reverse()\n   }\n}\n\n/**\n * Sorts elements in the array in-place descending according to their natural sort order.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\npublic fun ULongArray.sortDescending(): Unit {\n   if (size > 1) {\n   sort()\n   reverse()\n   }\n}\n\n/**\n * Sorts elements in the array in-place descending according to their natural sort order.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\npublic fun

UByteArray.sortDescending(): Unit {\n   if (size > 1) {\n   sort()\n   reverse()\n   }\n}\n\n/**\n * Sorts elements in the array in-place descending according to their natural sort order.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\npublic fun UShortArray.sortDescending(): Unit {\n   if (size > 1) {\n   sort()\n   reverse()\n   }\n}\n\n/**\n * Returns a list of all elements sorted according to their natural sort order.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\npublic fun UIntArray.sorted(): List<UInt> {\n   return copyOf().apply { sort() }.asList()\n}\n\n/**\n * Returns a list of all elements sorted according to their natural sort order.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\npublic fun ULongArray.sorted(): List<ULong> {\n   return copyOf().apply { sort() }.asList()\n}\n\n/**\n * Returns a list of all elements sorted according to their natural sort order.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\npublic fun UByteArray.sorted(): List<UByte> {\n   return copyOf().apply { sort() }.asList()\n}\n\n/**\n * Returns a list of all elements sorted according to their natural sort order.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\npublic fun UShortArray.sorted(): List<UShort> {\n   return copyOf().apply { sort() }.asList()\n}\n\n/**\n * Returns an array with all elements of this array sorted according to their natural sort order.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\npublic fun UIntArray.sortedArray(): UIntArray {\n   if (isEmpty()) return this\n   return this.copyOf().apply { sort() }\n}\n\n/**\n * Returns an array with all elements of this array sorted according to their natural sort order.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\npublic fun ULongArray.sortedArray(): ULongArray {\n   if (isEmpty()) return this\n   return this.copyOf().apply { sort() }\n}\n\n/**\n * Returns an array with all elements of this array sorted according to their natural sort order.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\npublic fun UByteArray.sortedArray(): UByteArray {\n   if (isEmpty()) return this\n   return this.copyOf().apply { sort() }\n}\n\n/**\n * Returns an array with all elements of this array sorted according to their natural sort order.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\npublic fun UShortArray.sortedArray(): UShortArray {\n   if (isEmpty()) return this\n   return this.copyOf().apply { sort() }\n}\n\n/**\n * Returns an array with all elements of this array sorted descending according to their natural sort order.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\npublic fun UIntArray.sortedArrayDescending(): UIntArray {\n   if (isEmpty()) return this\n   return this.copyOf().apply { sortDescending() }\n}\n\n/**\n * Returns an array with all elements of this array sorted descending according to their natural sort order.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\npublic fun ULongArray.sortedArrayDescending(): ULongArray {\n   if (isEmpty()) return this\n   return this.copyOf().apply { sortDescending() }\n}\n\n/**\n * Returns an array with all elements of this array sorted descending according to their natural sort order.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\npublic fun UByteArray.sortedArrayDescending(): UByteArray {\n   if (isEmpty()) return this\n   return this.copyOf().apply { sortDescending() }\n}\n\n/**\n * Returns an array with all elements of this array sorted descending according to their natural sort order.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\npublic fun UShortArray.sortedArrayDescending(): UShortArray {\n   if (isEmpty()) return this\n   return this.copyOf().apply { sortDescending() }\n}\n\n/**\n * Returns a list of all elements sorted descending according to their natural sort order.\n * \n * The sort is _stable_. It means that equal elements preserve their order relative to each other after sorting.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\npublic fun UIntArray.sortedDescending(): List<UInt> {\n   return copyOf().apply { sort() }.reversed()\n}\n\n/**\n * Returns a list of all elements sorted descending according to their natural sort order.\n * \n * The sort is _stable_. It means that equal elements preserve their order relative to each other after sorting.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\npublic fun ULongArray.sortedDescending(): List<ULong> {\n   return copyOf().apply { sort() }.reversed()\n}\n\n/**\n * Returns a list of all elements sorted descending according to their natural sort order.\n * \n * The sort is _stable_. It means that equal elements preserve their order relative to each other after sorting.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\npublic fun UByteArray.sortedDescending(): List<UByte> {\n   return copyOf().apply { sort() }.reversed()\n}\n\n/**\n * Returns a list of all elements sorted descending according to their natural sort order.\n * \n * The sort is _stable_. It means that equal elements preserve their order relative to each other after sorting.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\npublic fun UShortArray.sortedDescending(): List<UShort> {\n   return copyOf().apply { sort() }.reversed()\n}\n\n/**\n * Returns an array of type [ByteArray], which is a view of this array where each element is a signed reinterpretation\n * of the corresponding element of this array.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UByteArray.asByteArray(): ByteArray {\n   return storage\n}\n\n/**\n * Returns an array of type [IntArray], which is a view of this array where each element is a signed reinterpretation\n * of the corresponding element of this array.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UIntArray.asIntArray(): IntArray {\n   return storage\n}\n\n/**\n * Returns a [List] that wraps the original array.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\npublic expect fun UIntArray.asList(): List<UInt>\n\n/**\n * Returns a [List] that wraps the original array.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\npublic expect fun ULongArray.asList(): List<ULong>\n\n/**\n * Returns a [List] that wraps the original array.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\npublic expect fun UByteArray.asList(): List<UByte>\n\n/**\n * Returns a [List] that wraps the original array.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\npublic expect fun UShortArray.asList(): List<UShort>\n\n/**\n * Returns an array of type [LongArray], which is a view of this array where each element is a signed reinterpretation\n * of the corresponding element of this array.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun ULongArray.asLongArray(): LongArray {\n   return storage\n}\n\n/**\n * Returns an array of type [ShortArray], which is a view of this array where each element is a signed reinterpretation\n * of the corresponding element of this array.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UShortArray.asShortArray(): ShortArray {\n   return storage\n}\n\n/**\n * Returns an array of type [UByteArray], which is a view of this array where each element is an unsigned reinterpretation\n * of the corresponding element of this array.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun ByteArray.asUByteArray(): UByteArray {\n   return UByteArray(this)\n}\n\n/**\n * Returns an array of type [UIntArray], which is a view of this array where each element is an unsigned reinterpretation\n * of the corresponding element of this array.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun IntArray.asUIntArray(): UIntArray {\n   return UIntArray(this)\n}\n\n/**\n * Returns an array of type [ULongArray], which is a view of this array where each element is an unsigned reinterpretation\n * of the corresponding element of this array.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun LongArray.asULongArray(): ULongArray {\n   return ULongArray(this)\n}\n\n/**\n * Returns an array of type [UShortArray], which is a view of this array where each element is an unsigned reinterpretation\n * of the corresponding element of this array.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun ShortArray.asUShortArray(): UShortArray {\n   return UShortArray(this)\n}\n\n/**\n * Returns `true` if the two specified arrays are *structurally* equal to one another,\n * i.e. contain the same number of the same elements in the same order.\n */\n@Deprecated(\"Use Kotlin compiler 1.4 to avoid deprecation warning.\")\n@SinceKotlin(\"1.3\")\n@DeprecatedSinceKotlin(hiddenSince = \"1.4\")\n@ExperimentalUnsignedTypes\npublic infix fun UIntArray.contentEquals(other: UIntArray): Boolean {\n return this.contentEquals(other)\n}\n\n/**\n * Returns `true` if the two specified arrays are *structurally* equal to one another,\n * i.e. contain the same number of the same elements in the same order.\n */\n@Deprecated(\"Use Kotlin compiler 1.4 to avoid deprecation warning.\")\n@SinceKotlin(\"1.3\")\n@DeprecatedSinceKotlin(hiddenSince = \"1.4\")\n@ExperimentalUnsignedTypes\npublic infix fun ULongArray.contentEquals(other: ULongArray):

Boolean {\n   return this.contentEquals(other)\n}\n\n/**\n * Returns `true` if the two specified arrays are *structurally* equal to one another,\n * i.e. contain the same number of the same elements in the same order.\n */\n@Deprecated(\"Use Kotlin compiler 1.4 to avoid deprecation warning.\")\n@SinceKotlin(\"1.3\")\n@DeprecatedSinceKotlin(hiddenSince = \"1.4\")\n@ExperimentalUnsignedTypes\npublic infix fun UByteArray.contentEquals(other: UByteArray): Boolean {\n   return this.contentEquals(other)\n}\n\n/**\n * Returns `true` if the two specified arrays are *structurally* equal to one another,\n * i.e. contain the same number of the same elements in the same order.\n */\n@Deprecated(\"Use Kotlin compiler 1.4 to avoid deprecation warning.\")\n@SinceKotlin(\"1.3\")\n@DeprecatedSinceKotlin(hiddenSince = \"1.4\")\n@ExperimentalUnsignedTypes\npublic infix fun UShortArray.contentEquals(other: UShortArray): Boolean {\n   return this.contentEquals(other)\n}\n\n/**\n * Returns `true` if the two specified arrays are *structurally* equal to one another,\n * i.e. contain the same number of the same elements in the same order.\n */\n@SinceKotlin(\"1.4\")\n@ExperimentalUnsignedTypes\npublic infix fun UIntArray?.contentEquals(other: UIntArray?): Boolean {\n   return this?.storage.contentEquals(other?.storage)\n}\n\n/**\n * Returns `true` if the two specified arrays are *structurally* equal to one another,\n * i.e. contain the same number of the same elements in the same order.\n */\n@SinceKotlin(\"1.4\")\n@ExperimentalUnsignedTypes\npublic infix fun ULongArray?.contentEquals(other: ULongArray?): Boolean {\n   return this?.storage.contentEquals(other?.storage)\n}\n\n/**\n * Returns `true` if the two specified arrays are *structurally* equal to one another,\n * i.e. contain the same number of the same elements in the same order.\n */\n@SinceKotlin(\"1.4\")\n@ExperimentalUnsignedTypes\npublic infix fun UByteArray?.contentEquals(other: UByteArray?): Boolean {\n   return this?.storage.contentEquals(other?.storage)\n}\n\n/**\n * Returns `true` if the two specified arrays are *structurally* equal to one another,\n * i.e. contain the same number of the same elements in the same order.\n */\n@SinceKotlin(\"1.4\")\n@ExperimentalUnsignedTypes\npublic infix fun UShortArray?.contentEquals(other: UShortArray?): Boolean {\n   return this?.storage.contentEquals(other?.storage)\n}\n\n/**\n * Returns a hash code based on the contents of this array as if it is [List].\n */\n@Deprecated(\"Use Kotlin compiler 1.4 to avoid deprecation warning.\")\n@SinceKotlin(\"1.3\")\n@DeprecatedSinceKotlin(hiddenSince = \"1.4\")\n@ExperimentalUnsignedTypes\npublic fun UIntArray.contentHashCode(): Int {\n   return this.contentHashCode()\n}\n\n/**\n * Returns a hash code based on the contents of this array as if it is [List].\n */\n@Deprecated(\"Use Kotlin compiler 1.4 to avoid deprecation warning.\")\n@SinceKotlin(\"1.3\")\n@DeprecatedSinceKotlin(hiddenSince = \"1.4\")\n@ExperimentalUnsignedTypes\npublic fun ULongArray.contentHashCode(): Int {\n   return this.contentHashCode()\n}\n\n/**\n * Returns a hash code based on the contents of this array as if it is [List].\n */\n@Deprecated(\"Use Kotlin compiler 1.4 to avoid deprecation warning.\")\n@SinceKotlin(\"1.3\")\n@DeprecatedSinceKotlin(hiddenSince = \"1.4\")\n@ExperimentalUnsignedTypes\npublic fun UByteArray.contentHashCode(): Int {\n   return this.contentHashCode()\n}\n\n/**\n * Returns a hash code based on the contents of this array as if it is [List].\n */\n@Deprecated(\"Use Kotlin compiler 1.4 to avoid deprecation warning.\")\n@SinceKotlin(\"1.3\")\n@DeprecatedSinceKotlin(hiddenSince = \"1.4\")\n@ExperimentalUnsignedTypes\npublic fun UShortArray.contentHashCode(): Int {\n   return this.contentHashCode()\n}\n\n/**\n * Returns a hash code based on the contents of this array as if it is [List].\n */\n@SinceKotlin(\"1.4\")\n@ExperimentalUnsignedTypes\npublic fun UIntArray?.contentHashCode(): Int {\n   return this?.storage.contentHashCode()\n}\n\n/**\n * Returns a hash code based on the contents of this array as if it is [List].\n */\n@SinceKotlin(\"1.4\")\n@ExperimentalUnsignedTypes\npublic fun ULongArray?.contentHashCode(): Int {\n   return this?.storage.contentHashCode()\n}\n\n/**\n * Returns a hash code based on the contents of this array as if it is [List].\n */\n@SinceKotlin(\"1.4\")\n@ExperimentalUnsignedTypes\npublic fun UByteArray?.contentHashCode(): Int {\n   return this?.storage.contentHashCode()\n}\n\n/**\n * Returns a hash code based on the contents of this array as if it is [List].\n */\n@SinceKotlin(\"1.4\")\n@ExperimentalUnsignedTypes\npublic fun UShortArray?.contentHashCode(): Int {\n   return this?.storage.contentHashCode()\n}\n\n/**\n * Returns a string representation of the contents of the specified array as if it is [List].\n * \n * @sample samples.collections.Arrays.ContentOperations.contentToString\n */\n@Deprecated(\"Use Kotlin compiler 1.4 to avoid deprecation warning.\")\n@SinceKotlin(\"1.3\")\n@DeprecatedSinceKotlin(hiddenSince = \"1.4\")\n@ExperimentalUnsignedTypes\npublic fun UIntArray.contentToString(): String {\n   return this.contentToString()\n}\n\n/**\n * Returns a string representation of the contents of the specified array as if it is [List].\n * \n * @sample samples.collections.Arrays.ContentOperations.contentToString\n */\n@Deprecated(\"Use Kotlin compiler 1.4 to avoid deprecation warning.\")\n@SinceKotlin(\"1.3\")\n@DeprecatedSinceKotlin(hiddenSince = \"1.4\")\n@ExperimentalUnsignedTypes\npublic fun ULongArray.contentToString(): String {\n   return this.contentToString()\n}\n\n/**\n * Returns a string representation of the contents of the specified array as if it is [List].\n * \n * @sample samples.collections.Arrays.ContentOperations.contentToString\n */\n@Deprecated(\"Use Kotlin compiler 1.4 to avoid deprecation warning.\")\n@SinceKotlin(\"1.3\")\n@DeprecatedSinceKotlin(hiddenSince = \"1.4\")\n@ExperimentalUnsignedTypes\npublic fun UByteArray.contentToString(): String {\n   return this.contentToString()\n}\n\n/**\n * Returns a string representation of the contents of the specified array as if it is [List].\n * \n * @sample samples.collections.Arrays.ContentOperations.contentToString\n */\n@Deprecated(\"Use Kotlin compiler 1.4 to avoid deprecation warning.\")\n@SinceKotlin(\"1.3\")\n@DeprecatedSinceKotlin(hiddenSince = \"1.4\")\n@ExperimentalUnsignedTypes\npublic fun UShortArray.contentToString(): String {\n   return this.contentToString()\n}\n\n/**\n * Returns a string representation of the contents of the specified array as if it is [List].\n * \n * @sample samples.collections.Arrays.ContentOperations.contentToString\n */\n@SinceKotlin(\"1.4\")\n@ExperimentalUnsignedTypes\npublic fun UIntArray?.contentToString(): String {\n return this?.joinToString(\", \", \"[\", \"]\") ?: \"null\"\n}\n\n/**\n * Returns a string representation of the contents of the specified array as if it is [List].\n * \n * @sample samples.collections.Arrays.ContentOperations.contentToString\n */\n@SinceKotlin(\"1.4\")\n@ExperimentalUnsignedTypes\npublic fun ULongArray?.contentToString(): String {\n return this?.joinToString(\", \", \"[\", \"]\") ?: \"null\"\n}\n\n/**\n * Returns a string representation of the contents of the specified array as if it is [List].\n * \n * @sample samples.collections.Arrays.ContentOperations.contentToString\n */\n@SinceKotlin(\"1.4\")\n@ExperimentalUnsignedTypes\npublic fun UByteArray?.contentToString(): String {\n return this?.joinToString(\", \", \"[\", \"]\") ?: \"null\"\n}\n\n/**\n * Returns a string representation of the contents of the specified array as if it is [List].\n * \n * @sample samples.collections.Arrays.ContentOperations.contentToString\n */\n@SinceKotlin(\"1.4\")\n@ExperimentalUnsignedTypes\npublic fun UShortArray?.contentToString(): String {\n return this?.joinToString(\", \", \"[\", \"]\") ?: \"null\"\n}\n\n/**\n * Copies this array or its subrange into the [destination] array and returns that array.\n * \n * It's allowed to pass the same array in the [destination] and even specify the subrange so that it overlaps with the destination range.\n * \n * @param destination the array to copy to.\n * @param destinationOffset the position in the [destination] array to copy to, 0 by default.\n * @param startIndex the beginning (inclusive) of the subrange to copy, 0 by default.\n * @param endIndex the end (exclusive) of the subrange to copy, size of this array by default.\n * \n * @throws IndexOutOfBoundsException or [IllegalArgumentException] when [startIndex] or [endIndex] is out of range of this array indices or when `startIndex > endIndex`.\n * @throws IndexOutOfBoundsException when the subrange doesn't fit into the [destination] array starting at the specified [destinationOffset],\n * or when that index is out of the [destination] array indices range.\n * \n * @return the [destination] array.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UIntArray.copyInto(destination: UIntArray, destinationOffset: Int = 0, startIndex: Int = 0, endIndex: Int = size):

UIntArray {\n   storage.copyInto(destination.storage, destinationOffset, startIndex, endIndex)\n   return destination\n}\n\n/**\n * Copies this array or its subrange into the [destination] array and returns that array.\n * \n * It's allowed to pass the same array in the [destination] and even specify the subrange so that it overlaps with the destination range.\n * \n * @param destination the array to copy to.\n * @param destinationOffset the position in the [destination] array to copy to, 0 by default.\n * @param startIndex the beginning (inclusive) of the subrange to copy, 0 by default.\n * @param endIndex the end (exclusive) of the subrange to copy, size of this array by default.\n * \n * @throws IndexOutOfBoundsException or [IllegalArgumentException] when [startIndex] or [endIndex] is out of range of this array indices or when `startIndex > endIndex`.\n * @throws IndexOutOfBoundsException when the subrange doesn't fit into the [destination] array starting at the specified [destinationOffset],\n * or when that index is out of the [destination] array indices range.\n * \n * @return the [destination] array.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun ULongArray.copyInto(destination: ULongArray, destinationOffset: Int = 0, startIndex: Int = 0, endIndex: Int = size): ULongArray {\n   storage.copyInto(destination.storage, destinationOffset, startIndex, endIndex)\n   return destination\n}\n\n/**\n * Copies this array or its subrange into the [destination] array and returns that array.\n * \n * It's allowed to pass the same array in the [destination] and even specify the subrange so that it overlaps with the destination range.\n * \n * @param destination the array to copy to.\n * @param destinationOffset the position in the [destination] array to copy to, 0 by default.\n * @param startIndex the beginning (inclusive) of the subrange to copy, 0 by default.\n * @param endIndex the end (exclusive) of the subrange to copy, size of this array by default.\n * \n * @throws IndexOutOfBoundsException or [IllegalArgumentException] when [startIndex] or [endIndex] is out of range of this array indices or when `startIndex > endIndex`.\n * @throws IndexOutOfBoundsException when the subrange doesn't fit into the [destination] array starting at the specified [destinationOffset],\n * or when that index is out of the [destination] array indices range.\n * \n * @return the [destination] array.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UByteArray.copyInto(destination: UByteArray, destinationOffset: Int = 0, startIndex: Int = 0, endIndex: Int = size): UByteArray {\n   storage.copyInto(destination.storage, destinationOffset, startIndex, endIndex)\n   return destination\n}\n\n/**\n * Copies this array or its subrange into the [destination] array and returns that array.\n * \n * It's allowed to pass the same array in the [destination] and even specify the subrange so that it overlaps with the destination range.\n * \n * @param destination the array to copy to.\n * @param destinationOffset the position in the [destination] array to copy to, 0 by default.\n * @param startIndex the beginning (inclusive) of the subrange to copy, 0 by default.\n * @param endIndex the end (exclusive) of the subrange to copy, size of this array by default.\n * \n * @throws IndexOutOfBoundsException or [IllegalArgumentException] when [startIndex] or [endIndex] is out of range of this array indices or when `startIndex > endIndex`.\n * @throws IndexOutOfBoundsException when the subrange doesn't fit into the [destination] array starting at the specified [destinationOffset],\n * or when that index is out of the [destination] array indices range.\n * \n * @return the [destination] array.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UShortArray.copyInto(destination: UShortArray, destinationOffset: Int = 0, startIndex: Int = 0, endIndex: Int = size): UShortArray {\n   storage.copyInto(destination.storage, destinationOffset, startIndex, endIndex)\n   return destination\n}\n\n/**\n * Returns new array which is a copy of the original array.\n * \n * @sample samples.collections.Arrays.CopyOfOperations.copyOf\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UIntArray.copyOf(): UIntArray {\n   return UIntArray(storage.copyOf())\n}\n\n/**\n * Returns new array which is a copy of the original array.\n * \n * @sample samples.collections.Arrays.CopyOfOperations.copyOf\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun ULongArray.copyOf(): ULongArray {\n   return ULongArray(storage.copyOf())\n}\n\n/**\n * Returns new array which is a copy of the original array.\n * \n * @sample samples.collections.Arrays.CopyOfOperations.copyOf\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UByteArray.copyOf(): UByteArray {\n   return UByteArray(storage.copyOf())\n}\n\n/**\n * Returns new array which is a copy of the original array.\n * \n * @sample samples.collections.Arrays.CopyOfOperations.copyOf\n

*/\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UShortArray.copyOf(): UShortArray {\n   return UShortArray(storage.copyOf())\n}\n\n/**\n * Returns new array which is a copy of the original array, resized to the given [newSize].\n * The copy is either truncated or padded at the end with zero values if necessary.\n * \n * - If [newSize] is less than the size of the original array, the copy array is truncated to the [newSize].\n * - If [newSize] is greater than the size of the original array, the extra elements in the copy array are filled with zero values.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UIntArray.copyOf(newSize: Int): UIntArray {\n   return UIntArray(storage.copyOf(newSize))\n}\n\n/**\n * Returns new array which is a copy of the original array, resized to the given [newSize].\n * The copy is either truncated or padded at the end with zero values if necessary.\n * \n * - If [newSize] is less than the size of the original array, the copy array is truncated to the [newSize].\n * - If [newSize] is greater than the size of the original array, the extra elements in the copy array are filled with zero values.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun ULongArray.copyOf(newSize: Int): ULongArray {\n   return ULongArray(storage.copyOf(newSize))\n}\n\n/**\n * Returns new array which is a copy of the original array, resized to the given [newSize].\n * The copy is either truncated or padded at the end with zero values if necessary.\n * \n * - If [newSize] is less than the size of the original array, the copy array is truncated to the [newSize].\n * - If [newSize] is greater than the size of the original array, the extra elements in the copy array are filled with zero values.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UByteArray.copyOf(newSize: Int): UByteArray {\n   return UByteArray(storage.copyOf(newSize))\n}\n\n/**\n * Returns new array which is a copy of the original array, resized to the given [newSize].\n * The copy is either truncated or padded at the end with zero values if necessary.\n * \n * - If [newSize] is less than the size of the original array, the copy array is truncated to the [newSize].\n * - If [newSize] is greater than the size of the original array, the extra elements in the copy array are filled with zero values.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UShortArray.copyOf(newSize: Int): UShortArray {\n   return UShortArray(storage.copyOf(newSize))\n}\n\n/**\n * Returns a new array which is a copy of the specified range of the original array.\n * \n * @param fromIndex the start of the range (inclusive) to copy.\n * @param toIndex the end of the range (exclusive) to copy.\n * \n * @throws IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n * @throws IllegalArgumentException if [fromIndex] is greater than [toIndex].\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UIntArray.copyOfRange(fromIndex: Int, toIndex: Int): UIntArray {\n   return UIntArray(storage.copyOfRange(fromIndex, toIndex))\n}\n\n/**\n * Returns a new array which is a copy of the specified range of the original array.\n * \n * @param fromIndex the start of the range (inclusive) to copy.\n * @param toIndex the end of the range (exclusive) to copy.\n * \n * @throws IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n * @throws IllegalArgumentException if [fromIndex] is greater than [toIndex].\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun ULongArray.copyOfRange(fromIndex: Int, toIndex: Int): ULongArray {\n   return ULongArray(storage.copyOfRange(fromIndex, toIndex))\n}\n\n/**\n * Returns a new array which is a copy of the specified range of the original array.\n * \n * @param fromIndex the start of the range (inclusive) to copy.\n * @param toIndex the end of the range (exclusive) to copy.\n * \n * @throws IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n * @throws IllegalArgumentException if [fromIndex] is greater than [toIndex].\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UByteArray.copyOfRange(fromIndex: Int, toIndex: Int): UByteArray {\n   return UByteArray(storage.copyOfRange(fromIndex, toIndex))\n}\n\n/**\n * Returns a new array which is a copy of the specified range of the original array.\n * \n * @param fromIndex the start of the range (inclusive) to copy.\n *

@param toIndex the end of the range (exclusive) to copy.\n * \n * @throws IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n * @throws IllegalArgumentException if [fromIndex] is greater than [toIndex].\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UShortArray.copyOfRange(fromIndex: Int, toIndex: Int): UShortArray {\n   return UShortArray(storage.copyOfRange(fromIndex, toIndex))\n}\n\n/**\n * Fills this array or its subrange with the specified [element] value.\n * \n * @param fromIndex the start of the range (inclusive) to fill, 0 by default.\n * @param toIndex the end of the range (exclusive) to fill, size of this array by default.\n * \n * @throws IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n * @throws IllegalArgumentException if [fromIndex] is greater than [toIndex].\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\npublic fun UIntArray.fill(element: UInt, fromIndex: Int = 0, toIndex: Int = size): Unit {\n   storage.fill(element.toInt(), fromIndex, toIndex)\n}\n\n/**\n * Fills this array or its subrange with the specified [element] value.\n * \n * @param fromIndex the start of the range (inclusive) to fill, 0 by default.\n * @param toIndex the end of the range (exclusive) to fill, size of this array by default.\n * \n * @throws IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n * @throws IllegalArgumentException if [fromIndex] is greater than [toIndex].\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\npublic fun ULongArray.fill(element: ULong, fromIndex: Int = 0, toIndex: Int = size): Unit {\n   storage.fill(element.toLong(), fromIndex, toIndex)\n}\n\n/**\n * Fills this array or its subrange with the specified [element] value.\n * \n * @param fromIndex the start of the range (inclusive) to fill, 0 by default.\n * @param toIndex the end of the range (exclusive) to fill, size of this array by default.\n * \n * @throws IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n * @throws IllegalArgumentException if [fromIndex] is greater than [toIndex].\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\npublic fun UByteArray.fill(element: UByte, fromIndex: Int = 0, toIndex: Int = size): Unit {\n   storage.fill(element.toByte(), fromIndex, toIndex)\n}\n\n/**\n * Fills this array or its subrange with the specified [element] value.\n * \n * @param fromIndex the start of the range (inclusive) to fill, 0 by default.\n * @param toIndex the end of the range (exclusive) to fill, size of this array by default.\n * \n * @throws IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n * @throws IllegalArgumentException if [fromIndex] is greater than [toIndex].\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\npublic fun UShortArray.fill(element: UShort, fromIndex: Int = 0, toIndex: Int = size): Unit {\n   storage.fill(element.toShort(), fromIndex, toIndex)\n}\n\n/**\n * Returns the range of valid indices for the array.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\npublic inline val UIntArray.indices: IntRange\n   get() = storage.indices\n\n/**\n * Returns the range of valid indices for the array.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\npublic inline val ULongArray.indices: IntRange\n   get() = storage.indices\n\n/**\n * Returns the range of valid indices for the array.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\npublic inline val UByteArray.indices: IntRange\n   get() = storage.indices\n\n/**\n * Returns the range of valid indices for the array.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\npublic inline val UShortArray.indices: IntRange\n   get() = storage.indices\n\n/**\n * Returns the last valid index for the array.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\npublic inline val UIntArray.lastIndex: Int\n   get() = storage.lastIndex\n\n/**\n * Returns the last valid index for the array.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\npublic inline val ULongArray.lastIndex: Int\n   get() = storage.lastIndex\n\n/**\n * Returns the last valid index for the array.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\npublic inline val UByteArray.lastIndex: Int\n   get() = storage.lastIndex\n\n/**\n * Returns the last valid index for the array.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\npublic inline val UShortArray.lastIndex: Int\n   get() = storage.lastIndex\n\n/**\n * Returns an array containing all elements of the original array and then the given [element].\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline operator fun UIntArray.plus(element: UInt): UIntArray {\n   return UIntArray(storage + element.toInt())\n}\n\n/**\n * Returns an array containing all elements of the original array and then the given [element].\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline operator fun ULongArray.plus(element: ULong): ULongArray {\n   return ULongArray(storage + element.toLong())\n}\n\n/**\n * Returns an array containing all elements of the original array and then the given [element].\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline operator fun UByteArray.plus(element: UByte): UByteArray {\n   return UByteArray(storage + element.toByte())\n}\n\n/**\n * Returns an array containing all elements of the original array and then the given [element].\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline operator fun UShortArray.plus(element: UShort): UShortArray {\n   return UShortArray(storage + element.toShort())\n}\n\n/**\n * Returns an array containing all elements of the original array and then all elements of the given [elements] collection.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\npublic operator fun UIntArray.plus(elements: Collection<UInt>): UIntArray {\n   var index = size\n   val result = storage.copyOf(size + elements.size)\n   for (element in elements) result[index++] = element.toInt()\n   return UIntArray(result)\n}\n\n/**\n * Returns an array containing all elements of the original array and then all elements of the given [elements] collection.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\npublic operator fun ULongArray.plus(elements: Collection<ULong>): ULongArray {\n   var index = size\n   val result = storage.copyOf(size + elements.size)\n   for (element in elements) result[index++] = element.toLong()\n   return ULongArray(result)\n}\n\n/**\n * Returns an array containing all elements of the original array and then all elements of the given [elements] collection.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\npublic operator fun UByteArray.plus(elements: Collection<UByte>): UByteArray {\n   var index = size\n   val result = storage.copyOf(size + elements.size)\n   for (element in elements) result[index++] = element.toByte()\n   return UByteArray(result)\n}\n\n/**\n * Returns an array containing all elements of the original array and then all elements of the given [elements] collection.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\npublic operator fun UShortArray.plus(elements: Collection<UShort>): UShortArray {\n   var index = size\n   val result = storage.copyOf(size + elements.size)\n   for (element in elements) result[index++] = element.toShort()\n   return UShortArray(result)\n}\n\n/**\n * Returns an array containing all elements of the original array and then all elements of the given [elements] array.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline operator fun UIntArray.plus(elements: UIntArray): UIntArray {\n   return UIntArray(storage + elements.storage)\n}\n\n/**\n * Returns an array containing all elements of the original array and then all elements of the given [elements] array.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline operator fun ULongArray.plus(elements: ULongArray): ULongArray {\n   return ULongArray(storage + elements.storage)\n}\n\n/**\n * Returns an array containing all elements of the original array and then all elements of the given [elements] array.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline operator fun UByteArray.plus(elements: UByteArray): UByteArray {\n   return UByteArray(storage + elements.storage)\n}\n\n/**\n * Returns an array containing all elements of the original array and then all elements of the given [elements] array.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline operator fun UShortArray.plus(elements: UShortArray): UShortArray {\n   return UShortArray(storage + elements.storage)\n}\n\n/**\n * Sorts the array in-place.\n * \n * @sample samples.collections.Arrays.Sorting.sortArray\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\npublic fun UIntArray.sort(): Unit {\n   if (size > 1) sortArray(this, 0, size)\n}\n\n/**\n * Sorts the array in-place.\n * \n * @sample samples.collections.Arrays.Sorting.sortArray\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\npublic fun ULongArray.sort(): Unit {\n   if (size > 1) sortArray(this, 0, size)\n}\n\n/**\n * Sorts the array in-place.\n * \n * @sample samples.collections.Arrays.Sorting.sortArray\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\npublic fun UByteArray.sort(): Unit {\n   if (size > 1) sortArray(this, 0, size)\n}\n\n/**\n * Sorts the array in-place.\n * \n * @sample samples.collections.Arrays.Sorting.sortArray\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\npublic fun UShortArray.sort(): Unit {\n   if (size > 1) sortArray(this, 0, size)\n}\n\n/**\n * Sorts a range in the array in-place.\n * \n * @param fromIndex the start of the range (inclusive) to sort, 0 by default.\n * @param toIndex the end of the range (exclusive) to sort, size of this array by default.\n * \n * @throws IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n * @throws IllegalArgumentException if [fromIndex] is greater than [toIndex].\n * \n * @sample samples.collections.Arrays.Sorting.sortRangeOfArray\n */\n@SinceKotlin(\"1.4\")\n@ExperimentalUnsignedTypes\npublic fun UIntArray.sort(fromIndex: Int = 0, toIndex: Int = size): Unit {\n   AbstractList.checkRangeIndexes(fromIndex, toIndex, size)\n   sortArray(this, fromIndex, toIndex)\n}\n\n/**\n * Sorts a range in the array in-place.\n * \n * @param fromIndex the start of the range (inclusive) to sort, 0 by default.\n * @param toIndex the end of the range (exclusive) to sort, size of this array by default.\n * \n * @throws IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n * @throws IllegalArgumentException if [fromIndex] is greater than [toIndex].\n * \n * @sample samples.collections.Arrays.Sorting.sortRangeOfArray\n */\n@SinceKotlin(\"1.4\")\n@ExperimentalUnsignedTypes\npublic fun ULongArray.sort(fromIndex: Int = 0, toIndex: Int = size): Unit {\n   AbstractList.checkRangeIndexes(fromIndex, toIndex, size)\n   sortArray(this, fromIndex, toIndex)\n}\n\n/**\n * Sorts a range in the array in-place.\n * \n * @param fromIndex the start of the range (inclusive) to sort, 0 by default.\n * @param toIndex the end of the range (exclusive) to sort, size of this array by default.\n * \n * @throws IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n * @throws IllegalArgumentException if [fromIndex] is greater than [toIndex].\n * \n * @sample samples.collections.Arrays.Sorting.sortRangeOfArray\n */\n@SinceKotlin(\"1.4\")\n@ExperimentalUnsignedTypes\npublic fun UByteArray.sort(fromIndex: Int = 0, toIndex: Int = size): Unit {\n   AbstractList.checkRangeIndexes(fromIndex, toIndex, size)\n   sortArray(this, fromIndex, toIndex)\n}\n\n/**\n * Sorts a range in the array in-place.\n * \n * @param fromIndex the start of the range (inclusive) to sort, 0 by default.\n * @param toIndex the end of the range (exclusive) to sort, size of this array by default.\n * \n * @throws IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n * @throws IllegalArgumentException if [fromIndex] is greater than [toIndex].\n * \n * @sample samples.collections.Arrays.Sorting.sortRangeOfArray\n */\n@SinceKotlin(\"1.4\")\n@ExperimentalUnsignedTypes\npublic fun UShortArray.sort(fromIndex: Int = 0, toIndex: Int = size): Unit {\n   AbstractList.checkRangeIndexes(fromIndex, toIndex, size)\n   sortArray(this, fromIndex, toIndex)\n}\n\n/**\n * Sorts elements of the array in the specified range in-place.\n * The elements are sorted descending according to their natural sort order.\n * \n * @param fromIndex the start of the range (inclusive) to sort.\n * @param toIndex the end of the range (exclusive) to sort.\n * \n * @throws IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n * @throws IllegalArgumentException if [fromIndex] is greater than [toIndex].\n */\n@SinceKotlin(\"1.4\")\n@ExperimentalUnsignedTypes\npublic fun UIntArray.sortDescending(fromIndex: Int, toIndex: Int): Unit {\n   sort(fromIndex, toIndex)\n   reverse(fromIndex, toIndex)\n}\n\n/**\n * Sorts elements of the array in the specified range in-place.\n * The elements are sorted descending according to their natural sort order.\n * \n * @param fromIndex the start of the range (inclusive) to sort.\n * @param toIndex the end of the range (exclusive) to sort.\n * \n * @throws IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n * @throws IllegalArgumentException if [fromIndex] is greater than [toIndex].\n */\n@SinceKotlin(\"1.4\")\n@ExperimentalUnsignedTypes\npublic fun ULongArray.sortDescending(fromIndex: Int, toIndex: Int): Unit {\n   sort(fromIndex, toIndex)\n   reverse(fromIndex, toIndex)\n}\n\n/**\n * Sorts elements of the array in the specified range in-place.\n * The elements are sorted descending according to their natural sort order.\n * \n * @param fromIndex the start of the range (inclusive) to sort.\n * @param toIndex the end of the range (exclusive) to sort.\n * \n * @throws IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n * @throws IllegalArgumentException if [fromIndex] is greater than [toIndex].\n

*/\n@SinceKotlin(\"1.4\")\n@ExperimentalUnsignedTypes\npublic fun UByteArray.sortDescending(fromIndex: Int, toIndex: Int): Unit {\n   sort(fromIndex, toIndex)\n   reverse(fromIndex, toIndex)\n}\n\n/**\n * Sorts elements of the array in the specified range in-place.\n * The elements are sorted descending according to their natural sort order.\n * \n * @param fromIndex the start of the range (inclusive) to sort.\n * @param toIndex the end of the range (exclusive) to sort.\n * \n * @throws IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n * @throws IllegalArgumentException if [fromIndex] is greater than [toIndex].\n
*/\n@SinceKotlin(\"1.4\")\n@ExperimentalUnsignedTypes\npublic fun UShortArray.sortDescending(fromIndex: Int, toIndex: Int): Unit {\n   sort(fromIndex, toIndex)\n   reverse(fromIndex, toIndex)\n}\n\n/**\n * Returns an array of type [ByteArray], which is a copy of this array where each element is a signed reinterpretation\n * of the corresponding element of this array.\n
*/\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UByteArray.toByteArray(): ByteArray {\n   return storage.copyOf()\n}\n\n/**\n * Returns an array of type [IntArray], which is a copy of this array where each element is a signed reinterpretation\n * of the corresponding element of this array.\n
*/\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UIntArray.toIntArray(): IntArray {\n   return storage.copyOf()\n}\n\n/**\n * Returns an array of type [LongArray], which is a copy of this array where each element is a signed reinterpretation\n * of the corresponding element of this array.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun ULongArray.toLongArray(): LongArray {\n   return storage.copyOf()\n}\n\n/**\n * Returns an array of type [ShortArray], which is a copy of this array where each element is a signed reinterpretation\n * of the corresponding element of this array.\n
*/\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UShortArray.toShortArray(): ShortArray {\n   return storage.copyOf()\n}\n\n/**\n * Returns a *typed* object array containing all of the elements of this primitive array.\n
*/\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\npublic fun UIntArray.toTypedArray(): Array<UInt> {\n   return Array(size) { index -> this[index] }\n}\n\n/**\n * Returns a *typed* object array containing all of the elements of this primitive array.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\npublic fun ULongArray.toTypedArray(): Array<ULong> {\n   return Array(size) { index -> this[index] }\n}\n\n/**\n * Returns a *typed* object array containing all of the elements of this primitive array.\n
*/\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\npublic fun UByteArray.toTypedArray(): Array<UByte> {\n   return Array(size) { index -> this[index] }\n}\n\n/**\n * Returns a *typed* object array containing all of the elements of this primitive array.\n
*/\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\npublic fun UShortArray.toTypedArray(): Array<UShort> {\n   return Array(size) { index -> this[index] }\n}\n\n/**\n * Returns an array of UByte containing all of the elements of this generic array.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\npublic fun Array<out UByte>.toUByteArray(): UByteArray {\n   return UByteArray(size) { index -> this[index] }\n}\n\n/**\n * Returns an array of type [UByteArray], which is a copy of this array where each element is an unsigned reinterpretation\n * of the corresponding element of this array.\n
*/\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun ByteArray.toUByteArray(): UByteArray {\n   return UByteArray(this.copyOf())\n}\n\n/**\n * Returns an array of UInt containing all of the elements of this generic array.\n
*/\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\npublic fun Array<out UInt>.toUIntArray(): UIntArray {\n   return UIntArray(size) { index -> this[index] }\n}\n\n/**\n * Returns an array of type [UIntArray], which is a copy of this array where each element is an unsigned reinterpretation\n * of the corresponding element of this array.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun IntArray.toUIntArray(): UIntArray {\n   return UIntArray(this.copyOf())\n}\n\n/**\n * Returns an array of ULong containing all of the elements of this generic array.\n
*/\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\npublic fun Array<out ULong>.toULongArray():

ULongArray {\n   return ULongArray(size) { index -> this[index] }\n}\n\n/**\n * Returns an array of type [ULongArray], which is a copy of this array where each element is an unsigned reinterpretation\n * of the corresponding element of this array.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun LongArray.toULongArray(): ULongArray {\n   return ULongArray(this.copyOf())\n}\n\n/**\n * Returns an array of UShort containing all of the elements of this generic array.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\npublic fun Array<out UShort>.toUShortArray(): UShortArray {\n   return UShortArray(size) { index -> this[index] }\n}\n\n/**\n * Returns an array of type [UShortArray], which is a copy of this array where each element is an unsigned reinterpretation\n * of the corresponding element of this array.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun ShortArray.toUShortArray(): UShortArray {\n   return UShortArray(this.copyOf())\n}\n\n/**\n * Returns a [Map] where keys are elements from the given array and values are\n * produced by the [valueSelector] function applied to each element.\n * \n * If any two elements are equal, the last one gets added to the map.\n * \n * The returned map preserves the entry iteration order of the original array.\n * \n * @sample samples.collections.Collections.Transformations.associateWith\n */\n@SinceKotlin(\"1.4\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <V> UIntArray.associateWith(valueSelector: (UInt) -> V): Map<UInt, V> {\n   val result = LinkedHashMap<UInt, V>(mapCapacity(size).coerceAtLeast(16))\n   return associateWithTo(result, valueSelector)\n}\n\n/**\n * Returns a [Map] where keys are elements from the given array and values are\n * produced by the [valueSelector] function applied to each element.\n * \n * If any two elements are equal, the last one gets added to the map.\n * \n * The returned map preserves the entry iteration order of the original array.\n * \n * @sample samples.collections.Collections.Transformations.associateWith\n */\n@SinceKotlin(\"1.4\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <V> ULongArray.associateWith(valueSelector: (ULong) -> V): Map<ULong, V> {\n   val result = LinkedHashMap<ULong, V>(mapCapacity(size).coerceAtLeast(16))\n   return associateWithTo(result, valueSelector)\n}\n\n/**\n * Returns a [Map] where keys are elements from the given array and values are\n * produced by the [valueSelector] function applied to each element.\n * \n * If any two elements are equal, the last one gets added to the map.\n * \n * The returned map preserves the entry iteration order of the original array.\n * \n * @sample samples.collections.Collections.Transformations.associateWith\n */\n@SinceKotlin(\"1.4\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <V> UByteArray.associateWith(valueSelector: (UByte) -> V): Map<UByte, V> {\n   val result = LinkedHashMap<UByte, V>(mapCapacity(size).coerceAtLeast(16))\n   return associateWithTo(result, valueSelector)\n}\n\n/**\n * Returns a [Map] where keys are elements from the given array and values are\n * produced by the [valueSelector] function applied to each element.\n * \n * If any two elements are equal, the last one gets added to the map.\n * \n * The returned map preserves the entry iteration order of the original array.\n * \n * @sample samples.collections.Collections.Transformations.associateWith\n */\n@SinceKotlin(\"1.4\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <V> UShortArray.associateWith(valueSelector: (UShort) -> V): Map<UShort, V> {\n   val result = LinkedHashMap<UShort, V>(mapCapacity(size).coerceAtLeast(16))\n   return associateWithTo(result, valueSelector)\n}\n\n/**\n * Populates and returns the [destination] mutable map with key-value pairs for each element of the given array,\n * where key is the element itself and value is provided by the [valueSelector] function applied to that key.\n * \n * If any two elements are equal, the last one overwrites the former value in the map.\n * \n * @sample samples.collections.Collections.Transformations.associateWithTo\n */\n@SinceKotlin(\"1.4\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <V, M : MutableMap<in UInt, in V>> UIntArray.associateWithTo(destination: M, valueSelector: (UInt) -> V): M {\n   for (element in this) {\n   destination.put(element, valueSelector(element))\n   }\n   return destination\n}\n\n/**\n * Populates and returns the [destination] mutable map with key-value pairs for each element of the given array,\n * where key is the element itself and value is provided by the [valueSelector] function applied to that key.\n * \n * If any two elements are equal, the last one overwrites the former value in the map.\n * \n * @sample samples.collections.Collections.Transformations.associateWithTo\n */\n@SinceKotlin(\"1.4\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <V, M : MutableMap<in ULong, in V>> ULongArray.associateWithTo(destination: M, valueSelector: (ULong) -> V): M {\n   for (element in this) {\n   destination.put(element, valueSelector(element))\n   }\n   return destination\n}\n\n/**\n * Populates and returns the [destination] mutable map with key-value pairs for each element of the given array,\n * where key is the element itself and value is provided by the [valueSelector] function applied to that key.\n * \n * If any two elements are equal, the last one overwrites the former value in the map.\n * \n * @sample samples.collections.Collections.Transformations.associateWithTo\n */\n@SinceKotlin(\"1.4\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <V, M : MutableMap<in UByte, in V>> UByteArray.associateWithTo(destination: M, valueSelector: (UByte) -> V): M {\n   for (element in this) {\n   destination.put(element, valueSelector(element))\n   }\n   return destination\n}\n\n/**\n * Populates and returns the [destination] mutable map with key-value pairs for each element of the given array,\n * where key is the element itself and value is provided by the [valueSelector] function applied to that key.\n * \n * If any two elements are equal, the last one overwrites the former value in the map.\n * \n * @sample samples.collections.Collections.Transformations.associateWithTo\n */\n@SinceKotlin(\"1.4\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <V, M : MutableMap<in UShort, in V>> UShortArray.associateWithTo(destination: M, valueSelector: (UShort) -> V): M {\n   for (element in this) {\n   destination.put(element, valueSelector(element))\n   }\n   return destination\n}\n\n/**\n * Returns a single list of all elements yielded from results of [transform] function being invoked on each element of original array.\n * \n * @sample samples.collections.Collections.Transformations.flatMap\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R> UIntArray.flatMap(transform: (UInt) -> Iterable<R>): List<R> {\n   return flatMapTo(ArrayList<R>(), transform)\n}\n\n/**\n * Returns a single list of all elements yielded from results of [transform] function being invoked on each element of original array.\n * \n * @sample samples.collections.Collections.Transformations.flatMap\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R> ULongArray.flatMap(transform: (ULong) -> Iterable<R>): List<R> {\n   return flatMapTo(ArrayList<R>(), transform)\n}\n\n/**\n * Returns a single list of all elements yielded from results of [transform] function being invoked on each element of original array.\n * \n * @sample samples.collections.Collections.Transformations.flatMap\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R> UByteArray.flatMap(transform: (UByte) -> Iterable<R>): List<R> {\n   return flatMapTo(ArrayList<R>(), transform)\n}\n\n/**\n * Returns a single list of all elements yielded from results of [transform] function being invoked on each element of original array.\n * \n * @sample samples.collections.Collections.Transformations.flatMap\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R> UShortArray.flatMap(transform: (UShort) -> Iterable<R>): List<R> {\n   return flatMapTo(ArrayList<R>(), transform)\n}\n\n/**\n * Returns a single list of all elements yielded from results of [transform] function being invoked on each element\n * and its index in the original array.\n * \n * @sample samples.collections.Collections.Transformations.flatMapIndexed\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R> UIntArray.flatMapIndexed(transform: (index: Int, UInt) -> Iterable<R>): List<R> {\n   return flatMapIndexedTo(ArrayList<R>(), transform)\n}\n\n/**\n * Returns a single list of all elements yielded from results of [transform] function being invoked on each element\n * and its index in the original array.\n * \n *

@sample samples.collections.Collections.Transformations.flatMapIndexed\n
*/\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R>
ULongArray.flatMapIndexed(transform: (index: Int, ULong) -> Iterable<R>): List<R> {\n   return
flatMapIndexedTo(ArrayList<R>(), transform)\n}\n\n/**\n * Returns a single list of all elements yielded from
results of [transform] function being invoked on each element\n * and its index in the original array.\n * \n *
@sample samples.collections.Collections.Transformations.flatMapIndexed\n
*/\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R>
UByteArray.flatMapIndexed(transform: (index: Int, UByte) -> Iterable<R>): List<R> {\n   return
flatMapIndexedTo(ArrayList<R>(), transform)\n}\n\n/**\n * Returns a single list of all elements yielded from
results of [transform] function being invoked on each element\n * and its index in the original array.\n * \n *
@sample samples.collections.Collections.Transformations.flatMapIndexed\n
*/\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R>
UShortArray.flatMapIndexed(transform: (index: Int, UShort) -> Iterable<R>): List<R> {\n   return
flatMapIndexedTo(ArrayList<R>(), transform)\n}\n\n/**\n * Appends all elements yielded from results of
[transform] function being invoked on each element\n * and its index in the original array, to the given
[destination].\n
*/\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R, C :
MutableCollection<in R>> UIntArray.flatMapIndexedTo(destination: C, transform: (index: Int, UInt) ->
Iterable<R>): C {\n   var index = 0\n   for (element in this) {\n   val list = transform(index++, element)\n
destination.addAll(list)\n   }\n   return destination\n}\n\n/**\n * Appends all elements yielded from results of
[transform] function being invoked on each element\n * and its index in the original array, to the given
[destination].\n
*/\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R, C :
MutableCollection<in R>> ULongArray.flatMapIndexedTo(destination: C, transform: (index: Int, ULong) ->
Iterable<R>): C {\n   var index = 0\n   for (element in this) {\n   val list = transform(index++, element)\n
destination.addAll(list)\n   }\n   return destination\n}\n\n/**\n * Appends all elements yielded from results of
[transform] function being invoked on each element\n * and its index in the original array, to the given
[destination].\n
*/\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R, C :
MutableCollection<in R>> UByteArray.flatMapIndexedTo(destination: C, transform: (index: Int, UByte) ->
Iterable<R>): C {\n   var index = 0\n   for (element in this) {\n   val list = transform(index++, element)\n
destination.addAll(list)\n   }\n   return destination\n}\n\n/**\n * Appends all elements yielded from results of
[transform] function being invoked on each element\n * and its index in the original array, to the given
[destination].\n
*/\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R, C :
MutableCollection<in R>> UShortArray.flatMapIndexedTo(destination: C, transform: (index: Int, UShort) ->
Iterable<R>): C {\n   var index = 0\n   for (element in this) {\n   val list = transform(index++, element)\n
destination.addAll(list)\n   }\n   return destination\n}\n\n/**\n * Appends all elements yielded from results of
[transform] function being invoked on each element of original array, to the given [destination].\n
*/\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R, C :
MutableCollection<in R>> UIntArray.flatMapTo(destination: C, transform: (UInt) -> Iterable<R>): C {\n   for

(element in this) {\n   val list = transform(element)\n   destination.addAll(list)\n   }\n   return destination\n}\n\n/**\n * Appends all elements yielded from results of [transform] function being invoked on each element of original array, to the given [destination].\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R, C : MutableCollection<in R>> ULongArray.flatMapTo(destination: C, transform: (ULong) -> Iterable<R>): C {\n   for (element in this) {\n   val list = transform(element)\n   destination.addAll(list)\n   }\n   return destination\n}\n\n/**\n * Appends all elements yielded from results of [transform] function being invoked on each element of original array, to the given [destination].\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R, C : MutableCollection<in R>> UByteArray.flatMapTo(destination: C, transform: (UByte) -> Iterable<R>): C {\n   for (element in this) {\n   val list = transform(element)\n   destination.addAll(list)\n   }\n   return destination\n}\n\n/**\n * Appends all elements yielded from results of [transform] function being invoked on each element of original array, to the given [destination].\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R, C : MutableCollection<in R>> UShortArray.flatMapTo(destination: C, transform: (UShort) -> Iterable<R>): C {\n   for (element in this) {\n   val list = transform(element)\n   destination.addAll(list)\n   }\n   return destination\n}\n\n/**\n * Groups elements of the original array by the key returned by the given [keySelector] function\n * applied to each element and returns a map where each group key is associated with a list of corresponding elements.\n * \n * The returned map preserves the entry iteration order of the keys produced from the original array.\n * \n * @sample samples.collections.Collections.Transformations.groupBy\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <K> UIntArray.groupBy(keySelector: (UInt) -> K): Map<K, List<UInt>> {\n   return groupByTo(LinkedHashMap<K, MutableList<UInt>>(), keySelector)\n}\n\n/**\n * Groups elements of the original array by the key returned by the given [keySelector] function\n * applied to each element and returns a map where each group key is associated with a list of corresponding elements.\n * \n * The returned map preserves the entry iteration order of the keys produced from the original array.\n * \n * @sample samples.collections.Collections.Transformations.groupBy\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <K> ULongArray.groupBy(keySelector: (ULong) -> K): Map<K, List<ULong>> {\n   return groupByTo(LinkedHashMap<K, MutableList<ULong>>(), keySelector)\n}\n\n/**\n * Groups elements of the original array by the key returned by the given [keySelector] function\n * applied to each element and returns a map where each group key is associated with a list of corresponding elements.\n * \n * The returned map preserves the entry iteration order of the keys produced from the original array.\n * \n * @sample samples.collections.Collections.Transformations.groupBy\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <K> UByteArray.groupBy(keySelector: (UByte) -> K): Map<K, List<UByte>> {\n   return groupByTo(LinkedHashMap<K, MutableList<UByte>>(), keySelector)\n}\n\n/**\n * Groups elements of the original array by the key returned by the given [keySelector] function\n * applied to each element and returns a map where each group key is associated with a list of corresponding elements.\n * \n * The returned map preserves the entry iteration order of the keys produced from the original array.\n * \n * @sample samples.collections.Collections.Transformations.groupBy\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <K> UShortArray.groupBy(keySelector: (UShort) -> K): Map<K, List<UShort>> {\n   return groupByTo(LinkedHashMap<K, MutableList<UShort>>(), keySelector)\n}\n\n/**\n * Groups values returned by the [valueTransform] function applied to each element of the original array\n * by the key returned by the given [keySelector] function applied to the element\n * and returns a map where each group key is associated with a list of corresponding values.\n * \n * The returned map preserves the entry iteration order of the keys produced from the original array.\n * \n * @sample samples.collections.Collections.Transformations.groupByKeysAndValues\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <K, V>

UIntArray.groupBy(keySelector: (UInt) -> K, valueTransform: (UInt) -> V): Map<K, List<V>> {\n   return groupByTo(LinkedHashMap<K, MutableList<V>>(), keySelector, valueTransform)\n}\n\n/**\n * Groups values returned by the [valueTransform] function applied to each element of the original array\n * by the key returned by the given [keySelector] function applied to the element\n * and returns a map where each group key is associated with a list of corresponding values.\n * \n * The returned map preserves the entry iteration order of the keys produced from the original array.\n * \n * @sample samples.collections.Collections.Transformations.groupByKeysAndValues\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <K, V> ULongArray.groupBy(keySelector: (ULong) -> K, valueTransform: (ULong) -> V): Map<K, List<V>> {\n   return groupByTo(LinkedHashMap<K, MutableList<V>>(), keySelector, valueTransform)\n}\n\n/**\n * Groups values returned by the [valueTransform] function applied to each element of the original array\n * by the key returned by the given [keySelector] function applied to the element\n * and returns a map where each group key is associated with a list of corresponding values.\n * \n * The returned map preserves the entry iteration order of the keys produced from the original array.\n * \n * @sample samples.collections.Collections.Transformations.groupByKeysAndValues\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <K, V> UByteArray.groupBy(keySelector: (UByte) -> K, valueTransform: (UByte) -> V): Map<K, List<V>> {\n   return groupByTo(LinkedHashMap<K, MutableList<V>>(), keySelector, valueTransform)\n}\n\n/**\n * Groups values returned by the [valueTransform] function applied to each element of the original array\n * by the key returned by the given [keySelector] function applied to the element\n * and returns a map where each group key is associated with a list of corresponding values.\n * \n * The returned map preserves the entry iteration order of the keys produced from the original array.\n * \n * @sample samples.collections.Collections.Transformations.groupByKeysAndValues\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <K, V> UShortArray.groupBy(keySelector: (UShort) -> K, valueTransform: (UShort) -> V): Map<K, List<V>> {\n   return groupByTo(LinkedHashMap<K, MutableList<V>>(), keySelector, valueTransform)\n}\n\n/**\n * Groups elements of the original array by the key returned by the given [keySelector] function\n * applied to each element and puts to the [destination] map each group key associated with a list of corresponding elements.\n * \n * @return The [destination] map.\n * \n * @sample samples.collections.Collections.Transformations.groupBy\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <K, M : MutableMap<in K, MutableList<UInt>>> UIntArray.groupByTo(destination: M, keySelector: (UInt) -> K): M {\n   for (element in this) {\n   val key = keySelector(element)\n   val list = destination.getOrPut(key) { ArrayList<UInt>() }\n   list.add(element)\n   }\n   return destination\n}\n\n/**\n * Groups elements of the original array by the key returned by the given [keySelector] function\n * applied to each element and puts to the [destination] map each group key associated with a list of corresponding elements.\n * \n * @return The [destination] map.\n * \n * @sample samples.collections.Collections.Transformations.groupBy\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <K, M : MutableMap<in K, MutableList<ULong>>> ULongArray.groupByTo(destination: M, keySelector: (ULong) -> K): M {\n   for (element in this) {\n   val key = keySelector(element)\n   val list = destination.getOrPut(key) { ArrayList<ULong>() }\n   list.add(element)\n   }\n   return destination\n}\n\n/**\n * Groups elements of the original array by the key returned by the given [keySelector] function\n * applied to each element and puts to the [destination] map each group key associated with a list of corresponding elements.\n * \n * @return The [destination] map.\n * \n * @sample samples.collections.Collections.Transformations.groupBy\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <K, M : MutableMap<in K, MutableList<UByte>>> UByteArray.groupByTo(destination: M, keySelector: (UByte) -> K): M {\n   for (element in this) {\n   val key = keySelector(element)\n   val list = destination.getOrPut(key) { ArrayList<UByte>() }\n   list.add(element)\n   }\n   return destination\n}\n\n/**\n * Groups elements of the original array by the key returned by the given [keySelector] function\n * applied to each element and puts to the [destination] map each group key associated with a list of corresponding elements.\n * \n * @return The [destination] map.\n * \n * @sample samples.collections.Collections.Transformations.groupBy\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <K, M : MutableMap<in K, MutableList<UShort>>> UShortArray.groupByTo(destination: M, keySelector: (UShort) -> K): M {\n for (element in this) {\n val key = keySelector(element)\n val list = destination.getOrPut(key) { ArrayList<UShort>() }\n list.add(element)\n }\n return destination\n}\n\n/**\n * Groups values returned by the [valueTransform] function applied to each element of the original array\n * by the key returned by the given [keySelector] function applied to the element\n * and puts to the [destination] map each group key associated with a list of corresponding values.\n * \n * @return The [destination] map.\n * \n * @sample samples.collections.Collections.Transformations.groupByKeysAndValues\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <K, V, M : MutableMap<in K, MutableList<V>>> UIntArray.groupByTo(destination: M, keySelector: (UInt) -> K, valueTransform: (UInt) -> V): M {\n for (element in this) {\n val key = keySelector(element)\n val list = destination.getOrPut(key) { ArrayList<V>() }\n list.add(valueTransform(element))\n }\n return destination\n}\n\n/**\n * Groups values returned by the [valueTransform] function applied to each element of the original array\n * by the key returned by the given [keySelector] function applied to the element\n * and puts to the [destination] map each group key associated with a list of corresponding values.\n * \n * @return The [destination] map.\n * \n * @sample samples.collections.Collections.Transformations.groupByKeysAndValues\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <K, V, M : MutableMap<in K, MutableList<V>>> ULongArray.groupByTo(destination: M, keySelector: (ULong) -> K, valueTransform: (ULong) -> V): M {\n for (element in this) {\n val key = keySelector(element)\n val list = destination.getOrPut(key) { ArrayList<V>() }\n list.add(valueTransform(element))\n }\n return destination\n}\n\n/**\n * Groups values returned by the [valueTransform] function applied to each element of the original array\n * by the key returned by the given [keySelector] function applied to the element\n * and puts to the [destination] map each group key associated with a list of corresponding values.\n * \n * @return The [destination] map.\n * \n * @sample samples.collections.Collections.Transformations.groupByKeysAndValues\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <K, V, M : MutableMap<in K, MutableList<V>>> UByteArray.groupByTo(destination: M, keySelector: (UByte) -> K, valueTransform: (UByte) -> V): M {\n for (element in this) {\n val key = keySelector(element)\n val list = destination.getOrPut(key) { ArrayList<V>() }\n list.add(valueTransform(element))\n }\n return destination\n}\n\n/**\n * Groups values returned by the [valueTransform] function applied to each element of the original array\n * by the key returned by the given [keySelector] function applied to the element\n * and puts to the [destination] map each group key associated with a list of corresponding values.\n * \n * @return The [destination] map.\n * \n * @sample samples.collections.Collections.Transformations.groupByKeysAndValues\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <K, V, M : MutableMap<in K, MutableList<V>>> UShortArray.groupByTo(destination: M, keySelector: (UShort) -> K, valueTransform: (UShort) -> V): M {\n for (element in this) {\n val key = keySelector(element)\n val list = destination.getOrPut(key) { ArrayList<V>() }\n list.add(valueTransform(element))\n }\n return destination\n}\n\n/**\n * Returns a list containing the results of applying the given [transform] function\n * to each element in the original array.\n * \n * @sample samples.collections.Collections.Transformations.map\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R> UIntArray.map(transform: (UInt) -> R): List<R> {\n return mapTo(ArrayList<R>(size), transform)\n}\n\n/**\n * Returns a list containing the results of applying the given [transform] function\n * to each element in the original array.\n * \n * @sample samples.collections.Collections.Transformations.map\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R> ULongArray.map(transform: (ULong) -> R): List<R> {\n return mapTo(ArrayList<R>(size), transform)\n}\n\n/**\n * Returns a list containing the results of applying the given [transform] function\n * to each element in the original array.\n * \n * @sample samples.collections.Collections.Transformations.map\n

*/\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R> UByteArray.map(transform: (UByte) -> R): List<R> {\n   return mapTo(ArrayList<R>(size), transform)\n}\n\n/**\n * Returns a list containing the results of applying the given [transform] function\n * to each element in the original array.\n * \n * @sample samples.collections.Collections.Transformations.map\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R> UShortArray.map(transform: (UShort) -> R): List<R> {\n   return mapTo(ArrayList<R>(size), transform)\n}\n\n/**\n * Returns a list containing the results of applying the given [transform] function\n * to each element and its index in the original array.\n * @param [transform] function that takes the index of an element and the element itself\n * and returns the result of the transform applied to the element.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R> UIntArray.mapIndexed(transform: (index: Int, UInt) -> R): List<R> {\n   return mapIndexedTo(ArrayList<R>(size), transform)\n}\n\n/**\n * Returns a list containing the results of applying the given [transform] function\n * to each element and its index in the original array.\n * @param [transform] function that takes the index of an element and the element itself\n * and returns the result of the transform applied to the element.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R> ULongArray.mapIndexed(transform: (index: Int, ULong) -> R): List<R> {\n   return mapIndexedTo(ArrayList<R>(size), transform)\n}\n\n/**\n * Returns a list containing the results of applying the given [transform] function\n * to each element and its index in the original array.\n * @param [transform] function that takes the index of an element and the element itself\n * and returns the result of the transform applied to the element.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R> UByteArray.mapIndexed(transform: (index: Int, UByte) -> R): List<R> {\n   return mapIndexedTo(ArrayList<R>(size), transform)\n}\n\n/**\n * Returns a list containing the results of applying the given [transform] function\n * to each element and its index in the original array.\n * @param [transform] function that takes the index of an element and the element itself\n * and returns the result of the transform applied to the element.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R> UShortArray.mapIndexed(transform: (index: Int, UShort) -> R): List<R> {\n   return mapIndexedTo(ArrayList<R>(size), transform)\n}\n\n/**\n * Applies the given [transform] function to each element and its index in the original array\n * and appends the results to the given [destination].\n * @param [transform] function that takes the index of an element and the element itself\n * and returns the result of the transform applied to the element.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R, C : MutableCollection<in R>> UIntArray.mapIndexedTo(destination: C, transform: (index: Int, UInt) -> R): C {\n   var index = 0\n   for (item in this)\n   destination.add(transform(index++, item))\n   return destination\n}\n\n/**\n * Applies the given [transform] function to each element and its index in the original array\n * and appends the results to the given [destination].\n * @param [transform] function that takes the index of an element and the element itself\n * and returns the result of the transform applied to the element.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R, C : MutableCollection<in R>> ULongArray.mapIndexedTo(destination: C, transform: (index: Int, ULong) -> R): C {\n   var index = 0\n   for (item in this)\n   destination.add(transform(index++, item))\n   return destination\n}\n\n/**\n * Applies the given [transform] function to each element and its index in the original array\n * and appends the results to the given [destination].\n * @param [transform] function that takes the index of an element and the element itself\n * and returns the result of the transform applied to the element.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R, C : MutableCollection<in R>> UByteArray.mapIndexedTo(destination: C, transform: (index: Int, UByte) -> R): C {\n   var index = 0\n   for (item in this)\n   destination.add(transform(index++, item))\n   return destination\n}\n\n/**\n * Applies the given [transform] function to each element and its index in the original array\n * and appends the results to the given [destination].\n * @param [transform] function that takes the index of an element and the element itself\n * and returns the result of the transform applied to the element.\n

*/\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R, C : MutableCollection<in R>> UShortArray.mapIndexedTo(destination: C, transform: (index: Int, UShort) -> R): C {\n var index = 0\n   for (item in this)\n   destination.add(transform(index++, item))\n   return destination\n}\n\n/**\n * Applies the given [transform] function to each element of the original array\n * and appends the results to the given [destination].\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R, C : MutableCollection<in R>> UIntArray.mapTo(destination: C, transform: (UInt) -> R): C {\n   for (item in this)\n destination.add(transform(item))\n   return destination\n}\n\n/**\n * Applies the given [transform] function to each element of the original array\n * and appends the results to the given [destination].\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R, C : MutableCollection<in R>> ULongArray.mapTo(destination: C, transform: (ULong) -> R): C {\n   for (item in this)\n   destination.add(transform(item))\n   return destination\n}\n\n/**\n * Applies the given [transform] function to each element of the original array\n * and appends the results to the given [destination].\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R, C : MutableCollection<in R>> UByteArray.mapTo(destination: C, transform: (UByte) -> R): C {\n   for (item in this)\n   destination.add(transform(item))\n   return destination\n}\n\n/**\n * Applies the given [transform] function to each element of the original array\n * and appends the results to the given [destination].\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R, C : MutableCollection<in R>> UShortArray.mapTo(destination: C, transform: (UShort) -> R): C {\n   for (item in this)\n   destination.add(transform(item))\n   return destination\n}\n\n/**\n * Returns a lazy [Iterable] that wraps each element of the original array\n * into an [IndexedValue] containing the index of that element and the element itself.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\npublic fun UIntArray.withIndex(): Iterable<IndexedValue<UInt>> {\n   return IndexingIterable { iterator() }\n}\n\n/**\n * Returns a lazy [Iterable] that wraps each element of the original array\n * into an [IndexedValue] containing the index of that element and the element itself.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\npublic fun ULongArray.withIndex(): Iterable<IndexedValue<ULong>> {\n   return IndexingIterable { iterator() }\n}\n\n/**\n * Returns a lazy [Iterable] that wraps each element of the original array\n * into an [IndexedValue] containing the index of that element and the element itself.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\npublic fun UByteArray.withIndex(): Iterable<IndexedValue<UByte>> {\n   return IndexingIterable { iterator() }\n}\n\n/**\n * Returns a lazy [Iterable] that wraps each element of the original array\n * into an [IndexedValue] containing the index of that element and the element itself.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\npublic fun UShortArray.withIndex(): Iterable<IndexedValue<UShort>> {\n   return IndexingIterable { iterator() }\n}\n\n/**\n * Returns `true` if all elements match the given [predicate].\n * \n * @sample samples.collections.Collections.Aggregates.all\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UIntArray.all(predicate: (UInt) -> Boolean): Boolean {\n   for (element in this) if (!predicate(element)) return false\n   return true\n}\n\n/**\n * Returns `true` if all elements match the given [predicate].\n * \n * @sample samples.collections.Collections.Aggregates.all\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun ULongArray.all(predicate: (ULong) -> Boolean): Boolean {\n   for (element in this) if (!predicate(element)) return false\n   return true\n}\n\n/**\n * Returns `true` if all elements match the given [predicate].\n * \n * @sample samples.collections.Collections.Aggregates.all\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UByteArray.all(predicate: (UByte) -> Boolean): Boolean {\n   for (element in this) if (!predicate(element)) return false\n   return true\n}\n\n/**\n * Returns `true` if all elements match the given [predicate].\n * \n * @sample samples.collections.Collections.Aggregates.all\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UShortArray.all(predicate: (UShort) -> Boolean): Boolean {\n   for (element in this) if (!predicate(element)) return false\n   return true\n}\n\n/**\n * Returns `true` if array has at least one element.\n * \n * @sample

samples.collections.Collections.Aggregates.any\n
*/\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UIntArray.any(): Boolean {\n   return storage.any()\n}\n\n/**\n * Returns `true` if array has at least one element.\n * \n * @sample samples.collections.Collections.Aggregates.any\n
*/\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun ULongArray.any(): Boolean {\n   return storage.any()\n}\n\n/**\n * Returns `true` if array has at least one element.\n * \n * @sample samples.collections.Collections.Aggregates.any\n
*/\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UByteArray.any(): Boolean {\n   return storage.any()\n}\n\n/**\n * Returns `true` if array has at least one element.\n * \n * @sample samples.collections.Collections.Aggregates.any\n
*/\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UShortArray.any(): Boolean {\n   return storage.any()\n}\n\n/**\n * Returns `true` if at least one element matches the given [predicate].\n * \n * @sample samples.collections.Collections.Aggregates.anyWithPredicate\n
*/\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UIntArray.any(predicate: (UInt) -> Boolean): Boolean {\n   for (element in this) if (predicate(element)) return true\n   return false\n}\n\n/**\n * Returns `true` if at least one element matches the given [predicate].\n * \n * @sample samples.collections.Collections.Aggregates.anyWithPredicate\n
*/\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun ULongArray.any(predicate: (ULong) -> Boolean): Boolean {\n   for (element in this) if (predicate(element)) return true\n   return false\n}\n\n/**\n * Returns `true` if at least one element matches the given [predicate].\n * \n * @sample samples.collections.Collections.Aggregates.anyWithPredicate\n
*/\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UByteArray.any(predicate: (UByte) -> Boolean): Boolean {\n   for (element in this) if (predicate(element)) return true\n   return false\n}\n\n/**\n * Returns `true` if at least one element matches the given [predicate].\n * \n * @sample samples.collections.Collections.Aggregates.anyWithPredicate\n
*/\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UShortArray.any(predicate: (UShort) -> Boolean): Boolean {\n   for (element in this) if (predicate(element)) return true\n   return false\n}\n\n/**\n * Returns the number of elements matching the given [predicate].\n
*/\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UIntArray.count(predicate: (UInt) -> Boolean): Int {\n   var count = 0\n   for (element in this) if (predicate(element)) ++count\n   return count\n}\n\n/**\n * Returns the number of elements matching the given [predicate].\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun ULongArray.count(predicate: (ULong) -> Boolean): Int {\n   var count = 0\n   for (element in this) if (predicate(element)) ++count\n   return count\n}\n\n/**\n * Returns the number of elements matching the given [predicate].\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UByteArray.count(predicate: (UByte) -> Boolean): Int {\n   var count = 0\n   for (element in this) if (predicate(element)) ++count\n   return count\n}\n\n/**\n * Returns the number of elements matching the given [predicate].\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UShortArray.count(predicate: (UShort) -> Boolean): Int {\n   var count = 0\n   for (element in this) if (predicate(element)) ++count\n   return count\n}\n\n/**\n * Accumulates value starting with [initial] value and applying [operation] from left to right\n * to current accumulator value and each element.\n * \n * Returns the specified [initial] value if the array is empty.\n * \n * @param [operation] function that takes current accumulator value and an element, and calculates the next accumulator value.\n
*/\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R> UIntArray.fold(initial: R, operation: (acc: R, UInt) -> R): R {\n   var accumulator = initial\n   for (element in this) accumulator = operation(accumulator, element)\n   return accumulator\n}\n\n/**\n * Accumulates value starting with [initial] value and applying [operation] from left to right\n * to current accumulator value and each element.\n * \n * Returns the specified [initial] value if the array is empty.\n * \n * @param [operation] function that takes

current accumulator value and an element, and calculates the next accumulator value.\n
*/\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R>
ULongArray.fold(initial: R, operation: (acc: R, ULong) -> R): R {\n   var accumulator = initial\n   for (element in
this) accumulator = operation(accumulator, element)\n   return accumulator\n}\n\n/**\n * Accumulates value
starting with [initial] value and applying [operation] from left to right\n * to current accumulator value and each
element.\n * \n * Returns the specified [initial] value if the array is empty.\n * \n * @param [operation] function that
takes current accumulator value and an element, and calculates the next accumulator value.\n
*/\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R>
UByteArray.fold(initial: R, operation: (acc: R, UByte) -> R): R {\n   var accumulator = initial\n   for (element in
this) accumulator = operation(accumulator, element)\n   return accumulator\n}\n\n/**\n * Accumulates value
starting with [initial] value and applying [operation] from left to right\n * to current accumulator value and each
element.\n * \n * Returns the specified [initial] value if the array is empty.\n * \n * @param [operation] function that
takes current accumulator value and an element, and calculates the next accumulator value.\n
*/\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R>
UShortArray.fold(initial: R, operation: (acc: R, UShort) -> R): R {\n   var accumulator = initial\n   for (element in
this) accumulator = operation(accumulator, element)\n   return accumulator\n}\n\n/**\n * Accumulates value
starting with [initial] value and applying [operation] from left to right\n * to current accumulator value and each
element with its index in the original array.\n * \n * Returns the specified [initial] value if the array is empty.\n * \n
* @param [operation] function that takes the index of an element, current accumulator value\n * and the element
itself, and calculates the next accumulator value.\n
*/\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R>
UIntArray.foldIndexed(initial: R, operation: (index: Int, acc: R, UInt) -> R): R {\n   var index = 0\n   var
accumulator = initial\n   for (element in this) accumulator = operation(index++, accumulator, element)\n   return
accumulator\n}\n\n/**\n * Accumulates value starting with [initial] value and applying [operation] from left to
right\n * to current accumulator value and each element with its index in the original array.\n * \n * Returns the
specified [initial] value if the array is empty.\n * \n * @param [operation] function that takes the index of an
element, current accumulator value\n * and the element itself, and calculates the next accumulator value.\n
*/\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R>
ULongArray.foldIndexed(initial: R, operation: (index: Int, acc: R, ULong) -> R): R {\n   var index = 0\n   var
accumulator = initial\n   for (element in this) accumulator = operation(index++, accumulator, element)\n   return
accumulator\n}\n\n/**\n * Accumulates value starting with [initial] value and applying [operation] from left to
right\n * to current accumulator value and each element with its index in the original array.\n * \n * Returns the
specified [initial] value if the array is empty.\n * \n * @param [operation] function that takes the index of an
element, current accumulator value\n * and the element itself, and calculates the next accumulator value.\n
*/\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R>
UByteArray.foldIndexed(initial: R, operation: (index: Int, acc: R, UByte) -> R): R {\n   var index = 0\n   var
accumulator = initial\n   for (element in this) accumulator = operation(index++, accumulator, element)\n   return
accumulator\n}\n\n/**\n * Accumulates value starting with [initial] value and applying [operation] from left to
right\n * to current accumulator value and each element with its index in the original array.\n * \n * Returns the
specified [initial] value if the array is empty.\n * \n * @param [operation] function that takes the index of an
element, current accumulator value\n * and the element itself, and calculates the next accumulator value.\n
*/\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R>
UShortArray.foldIndexed(initial: R, operation: (index: Int, acc: R, UShort) -> R): R {\n   var index = 0\n   var
accumulator = initial\n   for (element in this) accumulator = operation(index++, accumulator, element)\n   return
accumulator\n}\n\n/**\n * Accumulates value starting with [initial] value and applying [operation] from right to
left\n * to each element and current accumulator value.\n * \n * Returns the specified [initial] value if the array is
empty.\n * \n * @param [operation] function that takes an element and current accumulator value, and calculates the
next accumulator value.\n

*/\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R> UIntArray.foldRight(initial: R, operation: (UInt, acc: R) -> R): R {\n   var index = lastIndex\n   var accumulator = initial\n   while (index >= 0) {\n   accumulator = operation(get(index--), accumulator)\n   }\n   return accumulator\n}\n\n/**\n * Accumulates value starting with [initial] value and applying [operation] from right to left\n * to each element and current accumulator value.\n * \n * Returns the specified [initial] value if the array is empty.\n * \n * @param [operation] function that takes an element and current accumulator value, and calculates the next accumulator value.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R> ULongArray.foldRight(initial: R, operation: (ULong, acc: R) -> R): R {\n   var index = lastIndex\n   var accumulator = initial\n   while (index >= 0) {\n   accumulator = operation(get(index--), accumulator)\n   }\n   return accumulator\n}\n\n/**\n * Accumulates value starting with [initial] value and applying [operation] from right to left\n * to each element and current accumulator value.\n * \n * Returns the specified [initial] value if the array is empty.\n * \n * @param [operation] function that takes an element and current accumulator value, and calculates the next accumulator value.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R> UByteArray.foldRight(initial: R, operation: (UByte, acc: R) -> R): R {\n   var index = lastIndex\n   var accumulator = initial\n   while (index >= 0) {\n   accumulator = operation(get(index--), accumulator)\n   }\n   return accumulator\n}\n\n/**\n * Accumulates value starting with [initial] value and applying [operation] from right to left\n * to each element and current accumulator value.\n * \n * Returns the specified [initial] value if the array is empty.\n * \n * @param [operation] function that takes an element and current accumulator value, and calculates the next accumulator value.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R> UShortArray.foldRight(initial: R, operation: (UShort, acc: R) -> R): R {\n   var index = lastIndex\n   var accumulator = initial\n   while (index >= 0) {\n   accumulator = operation(get(index--), accumulator)\n   }\n   return accumulator\n}\n\n/**\n * Accumulates value starting with [initial] value and applying [operation] from right to left\n * to each element with its index in the original array and current accumulator value.\n * \n * Returns the specified [initial] value if the array is empty.\n * \n * @param [operation] function that takes the index of an element, the element itself\n * and current accumulator value, and calculates the next accumulator value.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R> UIntArray.foldRightIndexed(initial: R, operation: (index: Int, UInt, acc: R) -> R): R {\n   var index = lastIndex\n   var accumulator = initial\n   while (index >= 0) {\n   accumulator = operation(index, get(index), accumulator)\n   --index\n   }\n   return accumulator\n}\n\n/**\n * Accumulates value starting with [initial] value and applying [operation] from right to left\n * to each element with its index in the original array and current accumulator value.\n * \n * Returns the specified [initial] value if the array is empty.\n * \n * @param [operation] function that takes the index of an element, the element itself\n * and current accumulator value, and calculates the next accumulator value.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R> ULongArray.foldRightIndexed(initial: R, operation: (index: Int, ULong, acc: R) -> R): R {\n   var index = lastIndex\n   var accumulator = initial\n   while (index >= 0) {\n   accumulator = operation(index, get(index), accumulator)\n   --index\n   }\n   return accumulator\n}\n\n/**\n * Accumulates value starting with [initial] value and applying [operation] from right to left\n * to each element with its index in the original array and current accumulator value.\n * \n * Returns the specified [initial] value if the array is empty.\n * \n * @param [operation] function that takes the index of an element, the element itself\n * and current accumulator value, and calculates the next accumulator value.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R> UByteArray.foldRightIndexed(initial: R, operation: (index: Int, UByte, acc: R) -> R): R {\n   var index = lastIndex\n   var accumulator = initial\n   while (index >= 0) {\n   accumulator = operation(index, get(index), accumulator)\n   --index\n   }\n   return accumulator\n}\n\n/**\n * Accumulates value starting with [initial] value and applying [operation] from right to left\n * to each element with its index in the original array and current

accumulator value.\n * \n * Returns the specified [initial] value if the array is empty.\n * \n * @param [operation] function that takes the index of an element, the element itself\n * and current accumulator value, and calculates the next accumulator value.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R> UShortArray.foldRightIndexed(initial: R, operation: (index: Int, UShort, acc: R) -> R): R {\n   var index = lastIndex\n   var accumulator = initial\n   while (index >= 0) {\n   accumulator = operation(index, get(index), accumulator)\n   --index\n   }\n   return accumulator\n}\n\n/**\n * Performs the given [action] on each element.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UIntArray.forEach(action: (UInt) -> Unit): Unit {\n   for (element in this) action(element)\n}\n\n/**\n * Performs the given [action] on each element.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun ULongArray.forEach(action: (ULong) -> Unit): Unit {\n   for (element in this) action(element)\n}\n\n/**\n * Performs the given [action] on each element.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UByteArray.forEach(action: (UByte) -> Unit): Unit {\n   for (element in this) action(element)\n}\n\n/**\n * Performs the given [action] on each element.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UShortArray.forEach(action: (UShort) -> Unit): Unit {\n   for (element in this) action(element)\n}\n\n/**\n * Performs the given [action] on each element, providing sequential index with the element.\n * @param [action] function that takes the index of an element and the element itself\n * and performs the action on the element.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UIntArray.forEachIndexed(action: (index: Int, UInt) -> Unit): Unit {\n   var index = 0\n   for (item in this) action(index++, item)\n}\n\n/**\n * Performs the given [action] on each element, providing sequential index with the element.\n * @param [action] function that takes the index of an element and the element itself\n * and performs the action on the element.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun ULongArray.forEachIndexed(action: (index: Int, ULong) -> Unit): Unit {\n   var index = 0\n   for (item in this) action(index++, item)\n}\n\n/**\n * Performs the given [action] on each element, providing sequential index with the element.\n * @param [action] function that takes the index of an element and the element itself\n * and performs the action on the element.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UByteArray.forEachIndexed(action: (index: Int, UByte) -> Unit): Unit {\n   var index = 0\n   for (item in this) action(index++, item)\n}\n\n/**\n * Performs the given [action] on each element, providing sequential index with the element.\n * @param [action] function that takes the index of an element and the element itself\n * and performs the action on the element.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UShortArray.forEachIndexed(action: (index: Int, UShort) -> Unit): Unit {\n   var index = 0\n   for (item in this) action(index++, item)\n}\n\n/**\n * Returns the largest element.\n * \n * @throws NoSuchElementException if the array is empty.\n */\n@SinceKotlin(\"1.7\")\n@kotlin.jvm.JvmName(\"maxOrThrow-U\")\n@ExperimentalUnsignedTypes\n@Suppress(\"CONFLICTING_OVERLOADS\")\npublic fun UIntArray.max(): UInt {\n   if (isEmpty()) throw NoSuchElementException()\n   var max = this[0]\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   if (max < e) max = e\n   }\n   return max\n}\n\n/**\n * Returns the largest element.\n * \n * @throws NoSuchElementException if the array is empty.\n */\n@SinceKotlin(\"1.7\")\n@kotlin.jvm.JvmName(\"maxOrThrow-U\")\n@ExperimentalUnsignedTypes\n@Suppress(\"CONFLICTING_OVERLOADS\")\npublic fun ULongArray.max(): ULong {\n   if (isEmpty()) throw NoSuchElementException()\n   var max = this[0]\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   if (max < e) max = e\n   }\n   return max\n}\n\n/**\n * Returns the largest element.\n * \n * @throws NoSuchElementException if the array is empty.\n

*/\n@SinceKotlin(\"1.7\")\n@kotlin.jvm.JvmName(\"maxOrThrow-U\")\n@ExperimentalUnsignedTypes\n@Suppress(\"CONFLICTING_OVERLOADS\")\npublic fun UByteArray.max(): UByte {\n   if (isEmpty()) throw NoSuchElementException()\n   var max = this[0]\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   if (max < e) max = e\n   }\n   return max\n}\n\n/**\n * Returns the largest element.\n * \n * @throws NoSuchElementException if the array is empty.\n */\n@SinceKotlin(\"1.7\")\n@kotlin.jvm.JvmName(\"maxOrThrow-U\")\n@ExperimentalUnsignedTypes\n@Suppress(\"CONFLICTING_OVERLOADS\")\npublic fun UShortArray.max(): UShort {\n   if (isEmpty()) throw NoSuchElementException()\n   var max = this[0]\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   if (max < e) max = e\n   }\n   return max\n}\n\n/**\n * Returns the first element yielding the largest value of the given function.\n * \n * @throws NoSuchElementException if the array is empty.\n * \n * @sample samples.collections.Collections.Aggregates.maxBy\n */\n@SinceKotlin(\"1.7\")\n@kotlin.jvm.JvmName(\"maxByOrThrow-U\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\n@Suppress(\"CONFLICTING_OVERLOADS\")\npublic inline fun <R : Comparable<R>> UIntArray.maxBy(selector: (UInt) -> R): UInt {\n   if (isEmpty()) throw NoSuchElementException()\n   var maxElem = this[0]\n   val lastIndex = this.lastIndex\n   if (lastIndex == 0) return maxElem\n   var maxValue = selector(maxElem)\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   val v = selector(e)\n   if (maxValue < v) {\n   maxElem = e\n   maxValue = v\n   }\n   }\n   return maxElem\n}\n\n/**\n * Returns the first element yielding the largest value of the given function.\n * \n * @throws NoSuchElementException if the array is empty.\n * \n * @sample samples.collections.Collections.Aggregates.maxBy\n */\n@SinceKotlin(\"1.7\")\n@kotlin.jvm.JvmName(\"maxByOrThrow-U\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\n@Suppress(\"CONFLICTING_OVERLOADS\")\npublic inline fun <R : Comparable<R>> ULongArray.maxBy(selector: (ULong) -> R): ULong {\n   if (isEmpty()) throw NoSuchElementException()\n   var maxElem = this[0]\n   val lastIndex = this.lastIndex\n   if (lastIndex == 0) return maxElem\n   var maxValue = selector(maxElem)\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   val v = selector(e)\n   if (maxValue < v) {\n   maxElem = e\n   maxValue = v\n   }\n   }\n   return maxElem\n}\n\n/**\n * Returns the first element yielding the largest value of the given function.\n * \n * @throws NoSuchElementException if the array is empty.\n * \n * @sample samples.collections.Collections.Aggregates.maxBy\n */\n@SinceKotlin(\"1.7\")\n@kotlin.jvm.JvmName(\"maxByOrThrow-U\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\n@Suppress(\"CONFLICTING_OVERLOADS\")\npublic inline fun <R : Comparable<R>> UByteArray.maxBy(selector: (UByte) -> R): UByte {\n   if (isEmpty()) throw NoSuchElementException()\n   var maxElem = this[0]\n   val lastIndex = this.lastIndex\n   if (lastIndex == 0) return maxElem\n   var maxValue = selector(maxElem)\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   val v = selector(e)\n   if (maxValue < v) {\n   maxElem = e\n   maxValue = v\n   }\n   }\n   return maxElem\n}\n\n/**\n * Returns the first element yielding the largest value of the given function.\n * \n * @throws NoSuchElementException if the array is empty.\n * \n * @sample samples.collections.Collections.Aggregates.maxBy\n */\n@SinceKotlin(\"1.7\")\n@kotlin.jvm.JvmName(\"maxByOrThrow-U\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\n@Suppress(\"CONFLICTING_OVERLOADS\")\npublic inline fun <R : Comparable<R>> UShortArray.maxBy(selector: (UShort) -> R): UShort {\n   if (isEmpty()) throw NoSuchElementException()\n   var maxElem = this[0]\n   val lastIndex = this.lastIndex\n   if (lastIndex == 0) return maxElem\n   var maxValue = selector(maxElem)\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   val v = selector(e)\n   if (maxValue < v) {\n   maxElem = e\n   maxValue = v\n   }\n   }\n   return maxElem\n}\n\n/**\n * Returns the first element yielding the largest value of the given function or `null` if there are no elements.\n * \n * @sample samples.collections.Collections.Aggregates.maxByOrNull\n */\n@SinceKotlin(\"1.4\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R : Comparable<R>> UIntArray.maxByOrNull(selector: (UInt) -> R): UInt? {\n   if (isEmpty()) return null\n   var

maxElem = this[0]\n   val lastIndex = this.lastIndex\n   if (lastIndex == 0) return maxElem\n   var maxValue = selector(maxElem)\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   val v = selector(e)\n   if (maxValue < v) {\n   maxElem = e\n   maxValue = v\n   }\n   }\n   return maxElem\n}\n\n/**\n * Returns the first element yielding the largest value of the given function or `null` if there are no elements.\n * \n * @sample samples.collections.Collections.Aggregates.maxByOrNull\n */\n@SinceKotlin(\"1.4\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R : Comparable<R>> ULongArray.maxByOrNull(selector: (ULong) -> R): ULong? {\n   if (isEmpty()) return null\n   var maxElem = this[0]\n   val lastIndex = this.lastIndex\n   if (lastIndex == 0) return maxElem\n   var maxValue = selector(maxElem)\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   val v = selector(e)\n   if (maxValue < v) {\n   maxElem = e\n   maxValue = v\n   }\n   }\n   return maxElem\n}\n\n/**\n * Returns the first element yielding the largest value of the given function or `null` if there are no elements.\n * \n * @sample samples.collections.Collections.Aggregates.maxByOrNull\n */\n@SinceKotlin(\"1.4\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R : Comparable<R>> UByteArray.maxByOrNull(selector: (UByte) -> R): UByte? {\n   if (isEmpty()) return null\n   var maxElem = this[0]\n   val lastIndex = this.lastIndex\n   if (lastIndex == 0) return maxElem\n   var maxValue = selector(maxElem)\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   val v = selector(e)\n   if (maxValue < v) {\n   maxElem = e\n   maxValue = v\n   }\n   }\n   return maxElem\n}\n\n/**\n * Returns the first element yielding the largest value of the given function or `null` if there are no elements.\n * \n * @sample samples.collections.Collections.Aggregates.maxByOrNull\n */\n@SinceKotlin(\"1.4\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R : Comparable<R>> UShortArray.maxByOrNull(selector: (UShort) -> R): UShort? {\n   if (isEmpty()) return null\n   var maxElem = this[0]\n   val lastIndex = this.lastIndex\n   if (lastIndex == 0) return maxElem\n   var maxValue = selector(maxElem)\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   val v = selector(e)\n   if (maxValue < v) {\n   maxElem = e\n   maxValue = v\n   }\n   }\n   return maxElem\n}\n\n/**\n * Returns the largest value among all values produced by [selector] function\n * applied to each element in the array.\n * \n * If any of values produced by [selector] function is `NaN`, the returned result is `NaN`.\n * \n * @throws NoSuchElementException if the array is empty.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UIntArray.maxOf(selector: (UInt) -> Double): Double {\n   if (isEmpty()) throw NoSuchElementException()\n   var maxValue = selector(this[0])\n   for (i in 1..lastIndex) {\n   val v = selector(this[i])\n   maxValue = maxOf(maxValue, v)\n   }\n   return maxValue\n}\n\n/**\n * Returns the largest value among all values produced by [selector] function\n * applied to each element in the array.\n * \n * If any of values produced by [selector] function is `NaN`, the returned result is `NaN`.\n * \n * @throws NoSuchElementException if the array is empty.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun ULongArray.maxOf(selector: (ULong) -> Double): Double {\n   if (isEmpty()) throw NoSuchElementException()\n   var maxValue = selector(this[0])\n   for (i in 1..lastIndex) {\n   val v = selector(this[i])\n   maxValue = maxOf(maxValue, v)\n   }\n   return maxValue\n}\n\n/**\n * Returns the largest value among all values produced by [selector] function\n * applied to each element in the array.\n * \n * If any of values produced by [selector] function is `NaN`, the returned result is `NaN`.\n * \n * @throws NoSuchElementException if the array is empty.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UByteArray.maxOf(selector: (UByte) -> Double): Double {\n   if (isEmpty()) throw NoSuchElementException()\n   var maxValue = selector(this[0])\n   for (i in 1..lastIndex) {\n   val v = selector(this[i])\n   maxValue = maxOf(maxValue, v)\n   }\n   return maxValue\n}\n\n/**\n * Returns the largest value among all values produced by [selector] function\n * applied to each element in the array.\n * \n * If any of values produced by [selector] function is `NaN`, the returned result is `NaN`.\n * \n * @throws NoSuchElementException if the array is empty.\n

*/\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UShortArray.maxOf(selector: (UShort) -> Double): Double {\n   if (isEmpty()) throw NoSuchElementException()\n   var maxValue = selector(this[0])\n   for (i in 1..lastIndex) {\n   val v = selector(this[i])\n   maxValue = maxOf(maxValue, v)\n   }\n   return maxValue\n}\n\n/**\n * Returns the largest value among all values produced by [selector] function\n * applied to each element in the array.\n * \n * If any of values produced by [selector] function is `NaN`, the returned result is `NaN`.\n * \n * @throws NoSuchElementException if the array is empty.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UIntArray.maxOf(selector: (UInt) -> Float): Float {\n   if (isEmpty()) throw NoSuchElementException()\n   var maxValue = selector(this[0])\n   for (i in 1..lastIndex) {\n   val v = selector(this[i])\n   maxValue = maxOf(maxValue, v)\n   }\n   return maxValue\n}\n\n/**\n * Returns the largest value among all values produced by [selector] function\n * applied to each element in the array.\n * \n * If any of values produced by [selector] function is `NaN`, the returned result is `NaN`.\n * \n * @throws NoSuchElementException if the array is empty.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun ULongArray.maxOf(selector: (ULong) -> Float): Float {\n   if (isEmpty()) throw NoSuchElementException()\n   var maxValue = selector(this[0])\n   for (i in 1..lastIndex) {\n   val v = selector(this[i])\n   maxValue = maxOf(maxValue, v)\n   }\n   return maxValue\n}\n\n/**\n * Returns the largest value among all values produced by [selector] function\n * applied to each element in the array.\n * \n * If any of values produced by [selector] function is `NaN`, the returned result is `NaN`.\n * \n * @throws NoSuchElementException if the array is empty.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UByteArray.maxOf(selector: (UByte) -> Float): Float {\n   if (isEmpty()) throw NoSuchElementException()\n   var maxValue = selector(this[0])\n   for (i in 1..lastIndex) {\n   val v = selector(this[i])\n   maxValue = maxOf(maxValue, v)\n   }\n   return maxValue\n}\n\n/**\n * Returns the largest value among all values produced by [selector] function\n * applied to each element in the array.\n * \n * If any of values produced by [selector] function is `NaN`, the returned result is `NaN`.\n * \n * @throws NoSuchElementException if the array is empty.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UShortArray.maxOf(selector: (UShort) -> Float): Float {\n   if (isEmpty()) throw NoSuchElementException()\n   var maxValue = selector(this[0])\n   for (i in 1..lastIndex) {\n   val v = selector(this[i])\n   maxValue = maxOf(maxValue, v)\n   }\n   return maxValue\n}\n\n/**\n * Returns the largest value among all values produced by [selector] function\n * applied to each element in the array.\n * \n * @throws NoSuchElementException if the array is empty.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R : Comparable<R>> UIntArray.maxOf(selector: (UInt) -> R): R {\n   if (isEmpty()) throw NoSuchElementException()\n   var maxValue = selector(this[0])\n   for (i in 1..lastIndex) {\n   val v = selector(this[i])\n   if (maxValue < v) {\n   maxValue = v\n   }\n   }\n   return maxValue\n}\n\n/**\n * Returns the largest value among all values produced by [selector] function\n * applied to each element in the array.\n * \n * @throws NoSuchElementException if the array is empty.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R : Comparable<R>> ULongArray.maxOf(selector: (ULong) -> R): R {\n   if (isEmpty()) throw NoSuchElementException()\n   var maxValue = selector(this[0])\n   for (i in 1..lastIndex) {\n   val v = selector(this[i])\n   if (maxValue < v) {\n   maxValue = v\n   }\n   }\n   return maxValue\n}\n\n/**\n *

Returns the largest value among all values produced by [selector] function\n * applied to each element in the array.\n * \n * @throws NoSuchElementException if the array is empty.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R : Comparable<R>> UByteArray.maxOf(selector: (UByte) -> R): R {\n   if (isEmpty()) throw NoSuchElementException()\n   var maxValue = selector(this[0])\n   for (i in 1..lastIndex) {\n   val v = selector(this[i])\n   if (maxValue < v) {\n   maxValue = v\n   }\n   }\n   return maxValue\n}\n\n/**\n * Returns the largest value among all values produced by [selector] function\n * applied to each element in the array.\n * \n * @throws NoSuchElementException if the array is empty.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R : Comparable<R>> UShortArray.maxOf(selector: (UShort) -> R): R {\n   if (isEmpty()) throw NoSuchElementException()\n   var maxValue = selector(this[0])\n   for (i in 1..lastIndex) {\n   val v = selector(this[i])\n   if (maxValue < v) {\n   maxValue = v\n   }\n   }\n   return maxValue\n}\n\n/**\n * Returns the largest value among all values produced by [selector] function\n * applied to each element in the array or `null` if there are no elements.\n * \n * If any of values produced by [selector] function is `NaN`, the returned result is `NaN`.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UIntArray.maxOfOrNull(selector: (UInt) -> Double): Double? {\n   if (isEmpty()) return null\n   var maxValue = selector(this[0])\n   for (i in 1..lastIndex) {\n   val v = selector(this[i])\n   maxValue = maxOf(maxValue, v)\n   }\n   return maxValue\n}\n\n/**\n * Returns the largest value among all values produced by [selector] function\n * applied to each element in the array or `null` if there are no elements.\n * \n * If any of values produced by [selector] function is `NaN`, the returned result is `NaN`.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun ULongArray.maxOfOrNull(selector: (ULong) -> Double): Double? {\n   if (isEmpty()) return null\n   var maxValue = selector(this[0])\n   for (i in 1..lastIndex) {\n   val v = selector(this[i])\n   maxValue = maxOf(maxValue, v)\n   }\n   return maxValue\n}\n\n/**\n * Returns the largest value among all values produced by [selector] function\n * applied to each element in the array or `null` if there are no elements.\n * \n * If any of values produced by [selector] function is `NaN`, the returned result is `NaN`.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UByteArray.maxOfOrNull(selector: (UByte) -> Double): Double? {\n   if (isEmpty()) return null\n   var maxValue = selector(this[0])\n   for (i in 1..lastIndex) {\n   val v = selector(this[i])\n   maxValue = maxOf(maxValue, v)\n   }\n   return maxValue\n}\n\n/**\n * Returns the largest value among all values produced by [selector] function\n * applied to each element in the array or `null` if there are no elements.\n * \n * If any of values produced by [selector] function is `NaN`, the returned result is `NaN`.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UShortArray.maxOfOrNull(selector: (UShort) -> Double): Double? {\n   if (isEmpty()) return null\n   var maxValue = selector(this[0])\n   for (i in 1..lastIndex) {\n   val v = selector(this[i])\n   maxValue = maxOf(maxValue, v)\n   }\n   return maxValue\n}\n\n/**\n * Returns the largest value among all values produced by [selector] function\n * applied to each element in the array or `null` if there are no elements.\n * \n * If any of values produced by [selector] function is `NaN`, the returned result is `NaN`.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UIntArray.maxOfOrNull(selector: (UInt) -> Float): Float? {\n   if (isEmpty()) return null\n   var maxValue =

selector(this[0])\n   for (i in 1..lastIndex) {\n   val v = selector(this[i])\n   maxValue = maxOf(maxValue, v)\n   }\n   return maxValue\n}\n\n/**\n * Returns the largest value among all values produced by [selector] function\n * applied to each element in the array or `null` if there are no elements.\n * \n * If any of values produced by [selector] function is `NaN`, the returned result is `NaN`.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun ULongArray.maxOfOrNull(selector: (ULong) -> Float): Float? {\n   if (isEmpty()) return null\n   var maxValue = selector(this[0])\n   for (i in 1..lastIndex) {\n   val v = selector(this[i])\n   maxValue = maxOf(maxValue, v)\n   }\n   return maxValue\n}\n\n/**\n * Returns the largest value among all values produced by [selector] function\n * applied to each element in the array or `null` if there are no elements.\n * \n * If any of values produced by [selector] function is `NaN`, the returned result is `NaN`.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UByteArray.maxOfOrNull(selector: (UByte) -> Float): Float? 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{\n   if (isEmpty()) return null\n   var maxValue = selector(this[0])\n   for (i in 1..lastIndex) {\n   val v = selector(this[i])\n   if (maxValue < v) {\n   maxValue = v\n   }\n   }\n   return maxValue\n}\n\n/**\n * Returns the largest value among all values produced by [selector] function\n * applied to each element in the array or `null` if there are no elements.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R : Comparable<R>> ULongArray.maxOfOrNull(selector: (ULong) -> R): R? {\n   if (isEmpty()) return null\n   var maxValue = selector(this[0])\n   for (i in 1..lastIndex) {\n   val v = selector(this[i])\n   if (maxValue < v) {\n   maxValue = v\n   }\n   }\n   return maxValue\n}\n\n/**\n * Returns the largest value among all values produced by [selector] function\n * applied to each element in the array or `null` if there are no elements.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R : Comparable<R>> UByteArray.maxOfOrNull(selector: (UByte) -> R): R? 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\n * @throws NoSuchElementException if the array is empty.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R> UIntArray.maxOfWith(comparator: Comparator<in R>, selector: (UInt) -> R): R {\n if (isEmpty()) throw NoSuchElementException()\n var maxValue = selector(this[0])\n for (i in 1..lastIndex) {\n val v = selector(this[i])\n if (comparator.compare(maxValue, v) < 0) {\n maxValue = v\n }\n }\n return maxValue\n}\n\n/**\n * Returns the largest value according to the provided [comparator]\n * among all values produced by [selector] function applied to each element in the array.\n * \n * @throws NoSuchElementException if the array is empty.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R> ULongArray.maxOfWith(comparator: Comparator<in R>, selector: (ULong) -> R): R {\n if (isEmpty()) throw NoSuchElementException()\n var maxValue = selector(this[0])\n for (i in 1..lastIndex) {\n val v = selector(this[i])\n if (comparator.compare(maxValue, v) < 0) {\n maxValue = v\n }\n }\n return maxValue\n}\n\n/**\n * Returns the largest value according to the provided [comparator]\n * among all values produced by [selector] function applied to each element in the array.\n * \n * @throws NoSuchElementException if the array is empty.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R> UByteArray.maxOfWith(comparator: Comparator<in R>, selector: (UByte) -> R): R {\n if (isEmpty()) throw NoSuchElementException()\n var maxValue = selector(this[0])\n for (i in 1..lastIndex) {\n val v = selector(this[i])\n if (comparator.compare(maxValue, v) < 0) {\n maxValue = v\n }\n }\n return maxValue\n}\n\n/**\n * Returns the largest value according to the provided [comparator]\n * among all values produced by [selector] function applied to each element in the array.\n * \n * @throws NoSuchElementException if the array is empty.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R> UShortArray.maxOfWith(comparator: Comparator<in R>, selector: (UShort) -> R): R {\n if (isEmpty()) throw NoSuchElementException()\n var maxValue = selector(this[0])\n for (i in 1..lastIndex) {\n val v = selector(this[i])\n if (comparator.compare(maxValue, v) < 0) {\n maxValue = v\n }\n }\n return maxValue\n}\n\n/**\n * Returns the largest value according to the provided [comparator]\n * among all values produced by [selector] function applied to each element in the array or `null` if there are no elements.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R> UIntArray.maxOfWithOrNull(comparator: Comparator<in R>, selector: (UInt) -> R): R? {\n if (isEmpty()) return null\n var maxValue = selector(this[0])\n for (i in 1..lastIndex) {\n val v = selector(this[i])\n if (comparator.compare(maxValue, v) < 0) {\n maxValue = v\n }\n }\n return maxValue\n}\n\n/**\n * Returns the largest value according to the provided [comparator]\n * among all values produced by [selector] function applied to each element in the array or `null` if there are no elements.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R> ULongArray.maxOfWithOrNull(comparator: Comparator<in R>, selector: (ULong) -> R): R? {\n if (isEmpty()) return null\n var maxValue = selector(this[0])\n for (i in 1..lastIndex) {\n val v = selector(this[i])\n if (comparator.compare(maxValue, v) < 0) {\n maxValue = v\n }\n }\n return maxValue\n}\n\n/**\n * Returns the largest value according to the provided [comparator]\n * among all values produced by [selector] function applied to each element in the array or `null` if there are no elements.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R>

UByteArray.maxOfWithOrNull(comparator: Comparator<in R>, selector: (UByte) -> R): R? {\n   if (isEmpty()) return null\n   var maxValue = selector(this[0])\n   for (i in 1..lastIndex) {\n   val v = selector(this[i])\n   if (comparator.compare(maxValue, v) < 0) {\n   maxValue = v\n   }\n   }\n   return maxValue\n}\n\n/**\n * Returns the largest value according to the provided [comparator]\n * among all values produced by [selector] function applied to each element in the array or `null` if there are no elements.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R> UShortArray.maxOfWithOrNull(comparator: Comparator<in R>, selector: (UShort) -> R): R? {\n   if (isEmpty()) return null\n   var maxValue = selector(this[0])\n   for (i in 1..lastIndex) {\n   val v = selector(this[i])\n   if (comparator.compare(maxValue, v) < 0) {\n   maxValue = v\n   }\n   }\n   return maxValue\n}\n\n/**\n * Returns the largest element or `null` if there are no elements.\n */\n@SinceKotlin(\"1.4\")\n@ExperimentalUnsignedTypes\npublic fun UIntArray.maxOrNull(): UInt? {\n   if (isEmpty()) return null\n   var max = this[0]\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   if (max < e) max = e\n   }\n   return max\n}\n\n/**\n * Returns the largest element or `null` if there are no elements.\n */\n@SinceKotlin(\"1.4\")\n@ExperimentalUnsignedTypes\npublic fun ULongArray.maxOrNull(): ULong? {\n   if (isEmpty()) return null\n   var max = this[0]\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   if (max < e) max = e\n   }\n   return max\n}\n\n/**\n * Returns the largest element or `null` if there are no elements.\n */\n@SinceKotlin(\"1.4\")\n@ExperimentalUnsignedTypes\npublic fun UByteArray.maxOrNull(): UByte? {\n   if (isEmpty()) return null\n   var max = this[0]\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   if (max < e) max = e\n   }\n   return max\n}\n\n/**\n * Returns the largest element or `null` if there are no elements.\n */\n@SinceKotlin(\"1.4\")\n@ExperimentalUnsignedTypes\npublic fun UShortArray.maxOrNull(): UShort? {\n   if (isEmpty()) return null\n   var max = this[0]\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   if (max < e) max = e\n   }\n   return max\n}\n\n/**\n * Returns the first element having the largest value according to the provided [comparator].\n * \n * @throws NoSuchElementException if the array is empty.\n */\n@SinceKotlin(\"1.7\")\n@kotlin.jvm.JvmName(\"maxWithOrThrow-U\")\n@ExperimentalUnsignedTypes\n@Suppress(\"CONFLICTING_OVERLOADS\")\npublic fun UIntArray.maxWith(comparator: Comparator<in UInt>): UInt {\n   if (isEmpty()) throw NoSuchElementException()\n   var max = this[0]\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   if (comparator.compare(max, e) < 0) max = e\n   }\n   return max\n}\n\n/**\n * Returns the first element having the largest value according to the provided [comparator].\n * \n * @throws NoSuchElementException if the array is empty.\n */\n@SinceKotlin(\"1.7\")\n@kotlin.jvm.JvmName(\"maxWithOrThrow-U\")\n@ExperimentalUnsignedTypes\n@Suppress(\"CONFLICTING_OVERLOADS\")\npublic fun ULongArray.maxWith(comparator: Comparator<in ULong>): ULong {\n   if (isEmpty()) throw NoSuchElementException()\n   var max = this[0]\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   if (comparator.compare(max, e) < 0) max = e\n   }\n   return max\n}\n\n/**\n * Returns the first element having the largest value according to the provided [comparator].\n * \n * @throws NoSuchElementException if the array is empty.\n */\n@SinceKotlin(\"1.7\")\n@kotlin.jvm.JvmName(\"maxWithOrThrow-U\")\n@ExperimentalUnsignedTypes\n@Suppress(\"CONFLICTING_OVERLOADS\")\npublic fun UByteArray.maxWith(comparator: Comparator<in UByte>): UByte {\n   if (isEmpty()) throw NoSuchElementException()\n   var max = this[0]\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   if (comparator.compare(max, e) < 0) max = e\n   }\n   return max\n}\n\n/**\n * Returns the first element having the largest value according to the provided [comparator].\n * \n * @throws NoSuchElementException if the array is empty.\n */\n@SinceKotlin(\"1.7\")\n@kotlin.jvm.JvmName(\"maxWithOrThrow-U\")\n@ExperimentalUnsignedTypes\n@Suppress(\"CONFLICTING_OVERLOADS\")\npublic fun UShortArray.maxWith(comparator: Comparator<in UShort>): UShort {\n   if (isEmpty()) throw NoSuchElementException()\n   var max = this[0]\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   if (comparator.compare(max, e) < 0) max = e\n   }\n   return max\n}\n\n/**\n * Returns the first element having the largest value according to the provided [comparator] or `null` if there are no elements.\n

*/\n@SinceKotlin(\"1.4\")\n@ExperimentalUnsignedTypes\npublic fun UIntArray.maxWithOrNull(comparator:
Comparator<in UInt>): UInt? {\n   if (isEmpty()) return null\n   var max = this[0]\n   for (i in 1..lastIndex) {\n
val e = this[i]\n   if (comparator.compare(max, e) < 0) max = e\n   }\n   return max\n}\n\n/**\n * Returns the
first element having the largest value according to the provided [comparator] or `null` if there are no elements.\n
*/\n@SinceKotlin(\"1.4\")\n@ExperimentalUnsignedTypes\npublic fun ULongArray.maxWithOrNull(comparator:
Comparator<in ULong>): ULong? {\n   if (isEmpty()) return null\n   var max = this[0]\n   for (i in 1..lastIndex) {\n
val e = this[i]\n   if (comparator.compare(max, e) < 0) max = e\n   }\n   return max\n}\n\n/**\n * Returns the
first element having the largest value according to the provided [comparator] or `null` if there are no elements.\n
*/\n@SinceKotlin(\"1.4\")\n@ExperimentalUnsignedTypes\npublic fun UByteArray.maxWithOrNull(comparator:
Comparator<in UByte>): UByte? {\n   if (isEmpty()) return null\n   var max = this[0]\n   for (i in 1..lastIndex) {\n
val e = this[i]\n   if (comparator.compare(max, e) < 0) max = e\n   }\n   return max\n}\n\n/**\n * Returns the
first element having the largest value according to the provided [comparator] or `null` if there are no elements.\n
*/\n@SinceKotlin(\"1.4\")\n@ExperimentalUnsignedTypes\npublic fun UShortArray.maxWithOrNull(comparator:
Comparator<in UShort>): UShort? {\n   if (isEmpty()) return null\n   var max = this[0]\n   for (i in 1..lastIndex) {\n
val e = this[i]\n   if (comparator.compare(max, e) < 0) max = e\n   }\n   return max\n}\n\n/**\n * Returns the
smallest element.\n * \n * @throws NoSuchElementException if the array is empty.\n
*/\n@SinceKotlin(\"1.7\")\n@kotlin.jvm.JvmName(\"minOrThrow-
U\")\n@ExperimentalUnsignedTypes\n@Suppress(\"CONFLICTING_OVERLOADS\")\npublic fun
UIntArray.min(): UInt {\n   if (isEmpty()) throw NoSuchElementException()\n   var min = this[0]\n   for (i in
1..lastIndex) {\n   val e = this[i]\n   if (min > e) min = e\n   }\n   return min\n}\n\n/**\n * Returns the smallest
element.\n * \n * @throws NoSuchElementException if the array is empty.\n
*/\n@SinceKotlin(\"1.7\")\n@kotlin.jvm.JvmName(\"minOrThrow-
U\")\n@ExperimentalUnsignedTypes\n@Suppress(\"CONFLICTING_OVERLOADS\")\npublic fun
ULongArray.min(): ULong {\n   if (isEmpty()) throw NoSuchElementException()\n   var min = this[0]\n   for (i in
1..lastIndex) {\n   val e = this[i]\n   if (min > e) min = e\n   }\n   return min\n}\n\n/**\n * Returns the smallest
element.\n * \n * @throws NoSuchElementException if the array is empty.\n
*/\n@SinceKotlin(\"1.7\")\n@kotlin.jvm.JvmName(\"minOrThrow-
U\")\n@ExperimentalUnsignedTypes\n@Suppress(\"CONFLICTING_OVERLOADS\")\npublic fun
UByteArray.min(): UByte {\n   if (isEmpty()) throw NoSuchElementException()\n   var min = this[0]\n   for (i in
1..lastIndex) {\n   val e = this[i]\n   if (min > e) min = e\n   }\n   return min\n}\n\n/**\n * Returns the smallest
element.\n * \n * @throws NoSuchElementException if the array is empty.\n
*/\n@SinceKotlin(\"1.7\")\n@kotlin.jvm.JvmName(\"minOrThrow-
U\")\n@ExperimentalUnsignedTypes\n@Suppress(\"CONFLICTING_OVERLOADS\")\npublic fun
UShortArray.min(): UShort {\n   if (isEmpty()) throw NoSuchElementException()\n   var min = this[0]\n   for (i in
1..lastIndex) {\n   val e = this[i]\n   if (min > e) min = e\n   }\n   return min\n}\n\n/**\n * Returns the first
element yielding the smallest value of the given function.\n * \n * @throws NoSuchElementException if the array is
empty.\n * \n * @sample samples.collections.Collections.Aggregates.minBy\n
*/\n@SinceKotlin(\"1.7\")\n@kotlin.jvm.JvmName(\"minByOrThrow-
U\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\n@Suppress(\"CONFLICTING_OVERLOADS
\")\npublic inline fun <R : Comparable<R>> UIntArray.minBy(selector: (UInt) -> R): UInt {\n   if (isEmpty())
throw NoSuchElementException()\n   var minElem = this[0]\n   val lastIndex = this.lastIndex\n   if (lastIndex ==
0) return minElem\n   var minValue = selector(minElem)\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   val
v = selector(e)\n   if (minValue > v) {\n   minElem = e\n   minValue = v\n   }\n   }\n   return
minElem\n}\n\n/**\n * Returns the first element yielding the smallest value of the given function.\n * \n * @throws
NoSuchElementException if the array is empty.\n * \n * @sample
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*/\n@SinceKotlin(\"1.7\")\n@kotlin.jvm.JvmName(\"minByOrThrow-
U\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\n@Suppress(\"CONFLICTING_OVERLOADS

\")\npublic inline fun <R : Comparable<R>> ULongArray.minBy(selector: (ULong) -> R): ULong {\n   if (isEmpty()) throw NoSuchElementException()\n   var minElem = this[0]\n   val lastIndex = this.lastIndex\n   if (lastIndex == 0) return minElem\n   var minValue = selector(minElem)\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   val v = selector(e)\n   if (minValue > v) {\n   minElem = e\n   minValue = v\n   }\n   }\n   return minElem\n}\n\n/**\n * Returns the first element yielding the smallest value of the given function.\n * \n * @throws NoSuchElementException if the array is empty.\n * \n * @sample samples.collections.Collections.Aggregates.minBy\n */\n@SinceKotlin(\"1.7\")\n@kotlin.jvm.JvmName(\"minByOrThrow-U\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\n@Suppress(\"CONFLICTING_OVERLOADS\")\npublic inline fun <R : Comparable<R>> UByteArray.minBy(selector: (UByte) -> R): UByte {\n   if (isEmpty()) throw NoSuchElementException()\n   var minElem = this[0]\n   val lastIndex = this.lastIndex\n   if (lastIndex == 0) return minElem\n   var minValue = selector(minElem)\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   val v = selector(e)\n   if (minValue > v) {\n   minElem = e\n   minValue = v\n   }\n   }\n   return minElem\n}\n\n/**\n * Returns the first element yielding the smallest value of the given function.\n * \n * @throws NoSuchElementException if the array is empty.\n * \n * @sample samples.collections.Collections.Aggregates.minBy\n */\n@SinceKotlin(\"1.7\")\n@kotlin.jvm.JvmName(\"minByOrThrow-U\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\n@Suppress(\"CONFLICTING_OVERLOADS\")\npublic inline fun <R : Comparable<R>> UShortArray.minBy(selector: (UShort) -> R): UShort {\n   if (isEmpty()) throw NoSuchElementException()\n   var minElem = this[0]\n   val lastIndex = this.lastIndex\n   if (lastIndex == 0) return minElem\n   var minValue = selector(minElem)\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   val v = selector(e)\n   if (minValue > v) {\n   minElem = e\n   minValue = v\n   }\n   }\n   return minElem\n}\n\n/**\n * Returns the first element yielding the smallest value of the given function or `null` if there are no elements.\n * \n * @sample samples.collections.Collections.Aggregates.minByOrNull\n */\n@SinceKotlin(\"1.4\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R : Comparable<R>> UIntArray.minByOrNull(selector: (UInt) -> R): UInt? {\n   if (isEmpty()) return null\n   var minElem = this[0]\n   val lastIndex = this.lastIndex\n   if (lastIndex == 0) return minElem\n   var minValue = selector(minElem)\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   val v = selector(e)\n   if (minValue > v) {\n   minElem = e\n   minValue = v\n   }\n   }\n   return minElem\n}\n\n/**\n * Returns the first element yielding the smallest value of the given function or `null` if there are no elements.\n * \n * @sample samples.collections.Collections.Aggregates.minByOrNull\n */\n@SinceKotlin(\"1.4\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R : Comparable<R>> ULongArray.minByOrNull(selector: (ULong) -> R): ULong? {\n   if (isEmpty()) return null\n   var minElem = this[0]\n   val lastIndex = this.lastIndex\n   if (lastIndex == 0) return minElem\n   var minValue = selector(minElem)\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   val v = selector(e)\n   if (minValue > v) {\n   minElem = e\n   minValue = v\n   }\n   }\n   return minElem\n}\n\n/**\n * Returns the first element yielding the smallest value of the given function or `null` if there are no elements.\n * \n * @sample samples.collections.Collections.Aggregates.minByOrNull\n */\n@SinceKotlin(\"1.4\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R : Comparable<R>> UByteArray.minByOrNull(selector: (UByte) -> R): UByte? {\n   if (isEmpty()) return null\n   var minElem = this[0]\n   val lastIndex = this.lastIndex\n   if (lastIndex == 0) return minElem\n   var minValue = selector(minElem)\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   val v = selector(e)\n   if (minValue > v) {\n   minElem = e\n   minValue = v\n   }\n   }\n   return minElem\n}\n\n/**\n * Returns the first element yielding the smallest value of the given function or `null` if there are no elements.\n * \n * @sample samples.collections.Collections.Aggregates.minByOrNull\n */\n@SinceKotlin(\"1.4\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R : Comparable<R>> UShortArray.minByOrNull(selector: (UShort) -> R): UShort? {\n   if (isEmpty()) return null\n   var minElem = this[0]\n   val lastIndex = this.lastIndex\n   if (lastIndex == 0) return minElem\n   var minValue =

selector(minElem)\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   val v = selector(e)\n   if (minValue > v) {\n   minElem = e\n   minValue = v\n   }\n   }\n   return minElem\n}\n\n/**\n * Returns the smallest value among all values produced by [selector] function\n * applied to each element in the array.\n * \n * If any of values produced by [selector] function is `NaN`, the returned result is `NaN`.\n * \n * @throws NoSuchElementException if the array is empty.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UIntArray.minOf(selector: (UInt) -> Double): Double {\n   if (isEmpty()) throw NoSuchElementException()\n   var minValue = selector(this[0])\n   for (i in 1..lastIndex) {\n   val v = selector(this[i])\n   minValue = minOf(minValue, v)\n   }\n   return minValue\n}\n\n/**\n * Returns the smallest value among all values 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-> Double): Double {\n   if (isEmpty()) throw NoSuchElementException()\n   var minValue = selector(this[0])\n   for (i in 1..lastIndex) {\n   val v = selector(this[i])\n   minValue = minOf(minValue, v)\n   }\n   return minValue\n}\n\n/**\n * Returns the smallest value among all values produced by [selector] function\n * applied to each element in the array.\n * \n * If any of values produced by [selector] function is `NaN`, the returned result is `NaN`.\n * \n * @throws NoSuchElementException if the array is empty.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UIntArray.minOf(selector: (UInt) -> Float): Float {\n   if (isEmpty()) throw NoSuchElementException()\n   var minValue = selector(this[0])\n   for (i in 1..lastIndex) {\n   val v = selector(this[i])\n   minValue = minOf(minValue, v)\n   }\n   return minValue\n}\n\n/**\n * Returns the smallest value among all values produced by [selector] function\n * applied to each element in the array.\n * \n * If any of values produced by [selector] function is `NaN`, the returned result is `NaN`.\n * \n * @throws NoSuchElementException if the array is empty.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun ULongArray.minOf(selector: (ULong) -> Float): Float {\n   if (isEmpty()) throw NoSuchElementException()\n   var minValue = selector(this[0])\n   for (i in 1..lastIndex) {\n   val v = selector(this[i])\n   minValue = minOf(minValue, v)\n   }\n   return minValue\n}\n\n/**\n * Returns the smallest value among all values produced by [selector] function\n * applied to each element in the array.\n * \n * If any of values produced by [selector] function is `NaN`, the returned result is `NaN`.\n * \n * @throws NoSuchElementException if the array is empty.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution

ByLambdaReturnType\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UByteArray.minOf(selector: (UByte) -> Float): Float {\n   if (isEmpty()) throw NoSuchElementException()\n   var minValue = selector(this[0])\n   for (i in 1..lastIndex) {\n   val v = selector(this[i])\n   minValue = minOf(minValue, v)\n   }\n   return minValue\n}\n\n/**\n * Returns the smallest value among all values produced by [selector] function\n * applied to each element in the array.\n * \n * If any of values produced by [selector] function is `NaN`, the returned result is `NaN`.\n * \n * @throws NoSuchElementException if the array is empty.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UShortArray.minOf(selector: (UShort) -> Float): Float {\n   if (isEmpty()) throw NoSuchElementException()\n   var minValue = selector(this[0])\n   for (i in 1..lastIndex) {\n   val v = selector(this[i])\n   minValue = minOf(minValue, v)\n   }\n   return minValue\n}\n\n/**\n * Returns the smallest value among all values produced by [selector] function\n * applied to each element in the array.\n * \n * @throws NoSuchElementException if the array is empty.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R : Comparable<R>> UIntArray.minOf(selector: (UInt) -> R): R {\n   if (isEmpty()) throw NoSuchElementException()\n   var minValue = selector(this[0])\n   for (i in 1..lastIndex) {\n   val v = selector(this[i])\n   if (minValue > v) {\n   minValue = v\n   }\n   }\n   return minValue\n}\n\n/**\n * Returns the smallest value among all values produced by [selector] function\n * applied to each element in the array.\n * \n * @throws NoSuchElementException if the array is empty.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R : Comparable<R>> ULongArray.minOf(selector: (ULong) -> R): R {\n   if (isEmpty()) throw NoSuchElementException()\n   var minValue = selector(this[0])\n   for (i in 1..lastIndex) {\n   val v = selector(this[i])\n   if (minValue > v) {\n   minValue = v\n   }\n   }\n   return minValue\n}\n\n/**\n * Returns the smallest value among all values produced by [selector] function\n * applied to each element in the array.\n * \n * @throws NoSuchElementException if the array is empty.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R : Comparable<R>> UByteArray.minOf(selector: (UByte) -> R): R {\n   if (isEmpty()) throw NoSuchElementException()\n   var minValue = selector(this[0])\n   for (i in 1..lastIndex) {\n   val v = selector(this[i])\n   if (minValue > v) {\n   minValue = v\n   }\n   }\n   return minValue\n}\n\n/**\n * Returns the smallest value among all values produced by [selector] function\n * applied to each element in the array.\n * \n * @throws NoSuchElementException if the array is empty.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R : Comparable<R>> UShortArray.minOf(selector: (UShort) -> R): R {\n   if (isEmpty()) throw NoSuchElementException()\n   var minValue = selector(this[0])\n   for (i in 1..lastIndex) {\n   val v = selector(this[i])\n   if (minValue > v) {\n   minValue = v\n   }\n   }\n   return minValue\n}\n\n/**\n * Returns the smallest value among all values produced by [selector] function\n * applied to each element in the array or `null` if there are no elements.\n * \n * If any of values produced by [selector] function is `NaN`, the returned result is `NaN`.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UIntArray.minOfOrNull(selector: (UInt) -> Double): Double? {\n   if (isEmpty()) return null\n   var minValue = selector(this[0])\n   for (i in 1..lastIndex) {\n   val v = selector(this[i])\n   minValue = minOf(minValue, v)\n   }\n   return minValue\n}\n\n/**\n * Returns the smallest value among all values produced by [selector] function\n * applied to each element in the array or `null` if there are no elements.\n * \n * If any of values produced by [selector]

function is `NaN`, the returned result is `NaN`.\n
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applied to each element in the array or `null` if there are no elements.\n
*/\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R : Comparable<R>> UIntArray.minOfOrNull(selector: (UInt) -> R): R? {\n   if (isEmpty()) return null\n   var minValue = selector(this[0])\n   for (i in 1..lastIndex) {\n   val v = selector(this[i])\n   if (minValue > v) {\n   minValue = v\n   }\n   }\n   return minValue\n}\n\n/**\n * Returns the smallest value among all values produced by [selector] function\n * applied to each element in the array or `null` if there are no elements.\n
*/\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R : Comparable<R>> ULongArray.minOfOrNull(selector: (ULong) -> R): R? {\n   if (isEmpty()) return null\n   var minValue = selector(this[0])\n   for (i in 1..lastIndex) {\n   val v = selector(this[i])\n   if (minValue > v) {\n   minValue = v\n   }\n   }\n   return minValue\n}\n\n/**\n * Returns the smallest value among all values produced by [selector] function\n * applied to each element in the array or `null` if there are no elements.\n
*/\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R : Comparable<R>> UByteArray.minOfOrNull(selector: (UByte) -> R): R? {\n   if (isEmpty()) return null\n   var minValue = selector(this[0])\n   for (i in 1..lastIndex) {\n   val v = selector(this[i])\n   if (minValue > v) {\n   minValue = v\n   }\n   }\n   return minValue\n}\n\n/**\n * Returns the smallest value among all values produced by [selector] function\n * applied to each element in the array or `null` if there are no elements.\n
*/\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R : Comparable<R>> UShortArray.minOfOrNull(selector: (UShort) -> R): R? {\n   if (isEmpty()) return null\n   var minValue = selector(this[0])\n   for (i in 1..lastIndex) {\n   val v = selector(this[i])\n   if (minValue > v) {\n   minValue = v\n   }\n   }\n   return minValue\n}\n\n/**\n * Returns the smallest value according to the provided [comparator]\n * among all values produced by [selector] function applied to each element in the array.\n * \n * @throws NoSuchElementException if the array is empty.\n
*/\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R> UIntArray.minOfWith(comparator: Comparator<in R>, selector: (UInt) -> R): R {\n   if (isEmpty()) throw NoSuchElementException()\n   var minValue = selector(this[0])\n   for (i in 1..lastIndex) {\n   val v = selector(this[i])\n   if (comparator.compare(minValue, v) > 0) {\n   minValue = v\n   }\n   }\n   return minValue\n}\n\n/**\n * Returns the smallest value according to the provided [comparator]\n * among all values produced by [selector] function applied to each element in the array.\n * \n * @throws NoSuchElementException if the array is empty.\n
*/\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R> ULongArray.minOfWith(comparator: Comparator<in R>, selector: (ULong) -> R): R {\n   if (isEmpty()) throw NoSuchElementException()\n   var minValue = selector(this[0])\n   for (i in 1..lastIndex) {\n   val v = selector(this[i])\n   if (comparator.compare(minValue, v) > 0) {\n   minValue = v\n   }\n   }\n   return minValue\n}\n\n/**\n * Returns the smallest value according to the provided [comparator]\n * among all values produced by [selector] function applied to each element in the array.\n * \n * @throws NoSuchElementException if the array is empty.\n
*/\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R> UByteArray.minOfWith(comparator: Comparator<in R>, selector: (UByte) -> R): R {\n   if (isEmpty()) throw NoSuchElementException()\n   var minValue = selector(this[0])\n   for (i in 1..lastIndex) {\n   val v = selector(this[i])\n   if (comparator.compare(minValue, v) > 0) {\n   minValue = v\n   }\n   }\n   return minValue\n}\n\n/**\n * Returns the smallest value according to the provided [comparator]\n * among all values

produced by [selector] function applied to each element in the array.\n * \n * @throws NoSuchElementException if the array is empty.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R> UShortArray.minOfWith(comparator: Comparator<in R>, selector: (UShort) -> R): R {\n   if (isEmpty()) throw NoSuchElementException()\n   var minValue = selector(this[0])\n   for (i in 1..lastIndex) {\n   val v = selector(this[i])\n   if (comparator.compare(minValue, v) > 0) {\n   minValue = v\n   }\n   }\n   return minValue\n}\n\n/**\n * Returns the smallest value according to the provided [comparator]\n * among all values produced by [selector] function applied to each element in the array or `null` if there are no elements.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R> UIntArray.minOfWithOrNull(comparator: Comparator<in R>, selector: (UInt) -> R): R? {\n   if (isEmpty()) return null\n   var minValue = selector(this[0])\n   for (i in 1..lastIndex) {\n   val v = selector(this[i])\n   if (comparator.compare(minValue, v) > 0) {\n   minValue = v\n   }\n   }\n   return minValue\n}\n\n/**\n * Returns the smallest value according to the provided [comparator]\n * among all values produced by [selector] function applied to each element in the array or `null` if there are no elements.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R> ULongArray.minOfWithOrNull(comparator: Comparator<in R>, selector: (ULong) -> R): R? {\n   if (isEmpty()) return null\n   var minValue = selector(this[0])\n   for (i in 1..lastIndex) {\n   val v = selector(this[i])\n   if (comparator.compare(minValue, v) > 0) {\n   minValue = v\n   }\n   }\n   return minValue\n}\n\n/**\n * Returns the smallest value according to the provided [comparator]\n * among all values produced by [selector] function applied to each element in the array or `null` if there are no elements.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R> UByteArray.minOfWithOrNull(comparator: Comparator<in R>, selector: (UByte) -> R): R? {\n   if (isEmpty()) return null\n   var minValue = selector(this[0])\n   for (i in 1..lastIndex) {\n   val v = selector(this[i])\n   if (comparator.compare(minValue, v) > 0) {\n   minValue = v\n   }\n   }\n   return minValue\n}\n\n/**\n * Returns the smallest value according to the provided [comparator]\n * among all values produced by [selector] function applied to each element in the array or `null` if there are no elements.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R> UShortArray.minOfWithOrNull(comparator: Comparator<in R>, selector: (UShort) -> R): R? {\n   if (isEmpty()) return null\n   var minValue = selector(this[0])\n   for (i in 1..lastIndex) {\n   val v = selector(this[i])\n   if (comparator.compare(minValue, v) > 0) {\n   minValue = v\n   }\n   }\n   return minValue\n}\n\n/**\n * Returns the smallest element or `null` if there are no elements.\n */\n@SinceKotlin(\"1.4\")\n@ExperimentalUnsignedTypes\npublic fun UIntArray.minOrNull(): UInt? {\n   if (isEmpty()) return null\n   var min = this[0]\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   if (min > e) min = e\n   }\n   return min\n}\n\n/**\n * Returns the smallest element or `null` if there are no elements.\n */\n@SinceKotlin(\"1.4\")\n@ExperimentalUnsignedTypes\npublic fun ULongArray.minOrNull(): ULong? {\n   if (isEmpty()) return null\n   var min = this[0]\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   if (min > e) min = e\n   }\n   return min\n}\n\n/**\n * Returns the smallest element or `null` if there are no elements.\n */\n@SinceKotlin(\"1.4\")\n@ExperimentalUnsignedTypes\npublic fun UByteArray.minOrNull(): UByte? {\n   if (isEmpty()) return null\n   var min = this[0]\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   if (min > e) min = e\n   }\n   return min\n}\n\n/**\n * Returns the smallest element or `null` if there are no elements.\n */\n@SinceKotlin(\"1.4\")\n@ExperimentalUnsignedTypes\npublic fun UShortArray.minOrNull(): UShort? {\n   if (isEmpty()) return null\n   var min = this[0]\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   if (min > e) min = e\n   }\n   return min\n}\n\n/**\n * Returns the first element having the smallest value according to the provided [comparator].\n * \n * @throws NoSuchElementException if the array is empty.\n */\n@SinceKotlin(\"1.7\")\n@kotlin.jvm.JvmName(\"minWithOrThrow-U\")\n@ExperimentalUnsignedTypes\n@Suppress(\"CONFLICTING_OVERLOADS\")\npublic fun UIntArray.minWith(comparator: Comparator<in UInt>): UInt {\n   if (isEmpty()) throw NoSuchElementException()\n   var min = this[0]\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   if (comparator.compare(min, e) > 0) min = e\n   }\n   return min\n}\n\n/**\n * Returns the first element having the smallest value according to the provided [comparator].\n * \n * @throws NoSuchElementException if the array is empty.\n */\n@SinceKotlin(\"1.7\")\n@kotlin.jvm.JvmName(\"minWithOrThrow-U\")\n@ExperimentalUnsignedTypes\n@Suppress(\"CONFLICTING_OVERLOADS\")\npublic fun ULongArray.minWith(comparator: Comparator<in ULong>): ULong {\n   if (isEmpty()) throw NoSuchElementException()\n   var min = this[0]\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   if (comparator.compare(min, e) > 0) min = e\n   }\n   return min\n}\n\n/**\n * Returns the first element having the smallest value according to the provided [comparator].\n * \n * @throws NoSuchElementException if the array is empty.\n */\n@SinceKotlin(\"1.7\")\n@kotlin.jvm.JvmName(\"minWithOrThrow-U\")\n@ExperimentalUnsignedTypes\n@Suppress(\"CONFLICTING_OVERLOADS\")\npublic fun UByteArray.minWith(comparator: Comparator<in UByte>): UByte {\n   if (isEmpty()) throw NoSuchElementException()\n   var min = this[0]\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   if (comparator.compare(min, e) > 0) min = e\n   }\n   return min\n}\n\n/**\n * Returns the first element having the smallest value according to the provided [comparator].\n * \n * @throws NoSuchElementException if the array is empty.\n */\n@SinceKotlin(\"1.7\")\n@kotlin.jvm.JvmName(\"minWithOrThrow-U\")\n@ExperimentalUnsignedTypes\n@Suppress(\"CONFLICTING_OVERLOADS\")\npublic fun UShortArray.minWith(comparator: Comparator<in UShort>): UShort {\n   if (isEmpty()) throw NoSuchElementException()\n   var min = this[0]\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   if (comparator.compare(min, e) > 0) min = e\n   }\n   return min\n}\n\n/**\n * Returns the first element having the smallest value according to the provided [comparator] or `null` if there are no elements.\n */\n@SinceKotlin(\"1.4\")\n@ExperimentalUnsignedTypes\npublic fun UIntArray.minWithOrNull(comparator: Comparator<in UInt>): UInt? {\n   if (isEmpty()) return null\n   var min = this[0]\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   if (comparator.compare(min, e) > 0) min = e\n   }\n   return min\n}\n\n/**\n * Returns the first element having the smallest value according to the provided [comparator] or `null` if there are no elements.\n */\n@SinceKotlin(\"1.4\")\n@ExperimentalUnsignedTypes\npublic fun ULongArray.minWithOrNull(comparator: Comparator<in ULong>): ULong? {\n   if (isEmpty()) return null\n   var min = this[0]\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   if (comparator.compare(min, e) > 0) min = e\n   }\n   return min\n}\n\n/**\n * Returns the first element having the smallest value according to the provided [comparator] or `null` if there are no elements.\n */\n@SinceKotlin(\"1.4\")\n@ExperimentalUnsignedTypes\npublic fun UByteArray.minWithOrNull(comparator: Comparator<in UByte>): UByte? {\n   if (isEmpty()) return null\n   var min = this[0]\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   if (comparator.compare(min, e) > 0) min = e\n   }\n   return min\n}\n\n/**\n * Returns the first element having the smallest value according to the provided [comparator] or `null` if there are no elements.\n */\n@SinceKotlin(\"1.4\")\n@ExperimentalUnsignedTypes\npublic fun UShortArray.minWithOrNull(comparator: Comparator<in UShort>): UShort? {\n   if (isEmpty()) return null\n   var min = this[0]\n   for (i in 1..lastIndex) {\n   val e = this[i]\n   if (comparator.compare(min, e) > 0) min = e\n   }\n   return min\n}\n\n/**\n * Returns `true` if the array has no elements.\n * \n * @sample samples.collections.Collections.Aggregates.none\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UIntArray.none(): Boolean {\n   return isEmpty()\n}\n\n/**\n * Returns `true` if the array has no elements.\n * \n * @sample samples.collections.Collections.Aggregates.none\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun ULongArray.none(): Boolean {\n   return isEmpty()\n}\n\n/**\n * Returns `true` if the array has no elements.\n * \n * @sample samples.collections.Collections.Aggregates.none\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun

UByteArray.none(): Boolean {\n   return isEmpty()\n}\n\n/**\n * Returns `true` if the array has no elements.\n * \n * @sample samples.collections.Collections.Aggregates.none\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UShortArray.none(): Boolean {\n   return isEmpty()\n}\n\n/**\n * Returns `true` if no elements match the given [predicate].\n * \n * @sample samples.collections.Collections.Aggregates.noneWithPredicate\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UIntArray.none(predicate: (UInt) -> Boolean): Boolean {\n   for (element in this) if (predicate(element)) return false\n   return true\n}\n\n/**\n * Returns `true` if no elements match the given [predicate].\n * \n * @sample samples.collections.Collections.Aggregates.noneWithPredicate\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun ULongArray.none(predicate: (ULong) -> Boolean): Boolean {\n   for (element in this) if (predicate(element)) return false\n   return true\n}\n\n/**\n * Returns `true` if no elements match the given [predicate].\n * \n * @sample samples.collections.Collections.Aggregates.noneWithPredicate\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UByteArray.none(predicate: (UByte) -> Boolean): Boolean {\n   for (element in this) if (predicate(element)) return false\n   return true\n}\n\n/**\n * Returns `true` if no elements match the given [predicate].\n * \n * @sample samples.collections.Collections.Aggregates.noneWithPredicate\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UShortArray.none(predicate: (UShort) -> Boolean): Boolean {\n   for (element in this) if (predicate(element)) return false\n   return true\n}\n\n/**\n * Performs the given [action] on each element and returns the array itself afterwards.\n */\n@SinceKotlin(\"1.4\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UIntArray.onEach(action: (UInt) -> Unit): UIntArray {\n   return apply { for (element in this) action(element) }\n}\n\n/**\n * Performs the given [action] on each element and returns the array itself afterwards.\n */\n@SinceKotlin(\"1.4\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun ULongArray.onEach(action: (ULong) -> Unit): ULongArray {\n   return apply { for (element in this) action(element) }\n}\n\n/**\n * Performs the given [action] on each element and returns the array itself afterwards.\n */\n@SinceKotlin(\"1.4\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UByteArray.onEach(action: (UByte) -> Unit): UByteArray {\n   return apply { for (element in this) action(element) }\n}\n\n/**\n * Performs the given [action] on each element and returns the array itself afterwards.\n */\n@SinceKotlin(\"1.4\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UShortArray.onEach(action: (UShort) -> Unit): UShortArray {\n   return apply { for (element in this) action(element) }\n}\n\n/**\n * Performs the given [action] on each element, providing sequential index with the element,\n * and returns the array itself afterwards.\n * @param [action] function that takes the index of an element and the element itself\n * and performs the action on the element.\n */\n@SinceKotlin(\"1.4\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UIntArray.onEachIndexed(action: (index: Int, UInt) -> Unit): UIntArray {\n   return apply { forEachIndexed(action) }\n}\n\n/**\n * Performs the given [action] on each element, providing sequential index with the element,\n * and returns the array itself afterwards.\n * @param [action] function that takes the index of an element and the element itself\n * and performs the action on the element.\n */\n@SinceKotlin(\"1.4\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun ULongArray.onEachIndexed(action: (index: Int, ULong) -> Unit): ULongArray {\n   return apply { forEachIndexed(action) }\n}\n\n/**\n * Performs the given [action] on each element, providing sequential index with the element,\n * and returns the array itself afterwards.\n * @param [action] function that takes the index of an element and the element itself\n * and performs the action on the element.\n */\n@SinceKotlin(\"1.4\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UByteArray.onEachIndexed(action: (index: Int, UByte) -> Unit): UByteArray {\n   return apply { forEachIndexed(action) }\n}\n\n/**\n * Performs the given [action] on each element, providing sequential index with the element,\n * and returns the array itself afterwards.\n * @param [action] function that takes the index of an element and the element itself\n * and performs the action on the element.\n */\n@SinceKotlin(\"1.4\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UShortArray.onEachIndexed(action: (index: Int, UShort) -> Unit): UShortArray {\n   return apply { forEachIndexed(action) }\n}\n\n/**\n * Accumulates value starting with the first element and applying [operation] from left to right\n * to current accumulator value and each element.\n * \n * Throws an exception if this array is empty. If the array can be empty in an expected way,\n * please use [reduceOrNull] instead. It returns `null` when its receiver is empty.\n * \n * @param [operation] function that takes current accumulator value and an element,\n * and calculates the next accumulator value.\n * \n * @sample samples.collections.Collections.Aggregates.reduce\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UIntArray.reduce(operation: (acc: UInt, UInt) -> UInt): UInt {\n   if (isEmpty())\n   throw UnsupportedOperationException(\"Empty array can't be reduced.\")\n   var accumulator = this[0]\n   for (index in 1..lastIndex) {\n   accumulator = operation(accumulator, this[index])\n   }\n   return accumulator\n}\n\n/**\n * Accumulates value starting with the first element and applying [operation] from left to right\n * to current accumulator value and each element.\n * \n * Throws an exception if this array is empty. If the array can be empty in an expected way,\n * please use [reduceOrNull] instead. It returns `null` when its receiver is empty.\n * \n * @param [operation] function that takes current accumulator value and an element,\n * and calculates the next accumulator value.\n * \n * @sample samples.collections.Collections.Aggregates.reduce\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun ULongArray.reduce(operation: (acc: ULong, ULong) -> ULong): ULong {\n   if (isEmpty())\n   throw UnsupportedOperationException(\"Empty array can't be reduced.\")\n   var accumulator = this[0]\n   for (index in 1..lastIndex) {\n   accumulator = operation(accumulator, this[index])\n   }\n   return accumulator\n}\n\n/**\n * Accumulates value starting with the first element and applying [operation] from left to right\n * to current accumulator value and each element.\n * \n * Throws an exception if this array is empty. If the array can be empty in an expected way,\n * please use [reduceOrNull] instead. It returns `null` when its receiver is empty.\n * \n * @param [operation] function that takes current accumulator value and an element,\n * and calculates the next accumulator value.\n * \n * @sample samples.collections.Collections.Aggregates.reduce\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UByteArray.reduce(operation: (acc: UByte, UByte) -> UByte): UByte {\n   if (isEmpty())\n   throw UnsupportedOperationException(\"Empty array can't be reduced.\")\n   var accumulator = this[0]\n   for (index in 1..lastIndex) {\n   accumulator = operation(accumulator, this[index])\n   }\n   return accumulator\n}\n\n/**\n * Accumulates value starting with the first element and applying [operation] from left to right\n * to current accumulator value and each element.\n * \n * Throws an exception if this array is empty. If the array can be empty in an expected way,\n * please use [reduceOrNull] instead. It returns `null` when its receiver is empty.\n * \n * @param [operation] function that takes current accumulator value and an element,\n * and calculates the next accumulator value.\n * \n * @sample samples.collections.Collections.Aggregates.reduce\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UShortArray.reduce(operation: (acc: UShort, UShort) -> UShort): UShort {\n   if (isEmpty())\n   throw UnsupportedOperationException(\"Empty array can't be reduced.\")\n   var accumulator = this[0]\n   for (index in 1..lastIndex) {\n   accumulator = operation(accumulator, this[index])\n   }\n   return accumulator\n}\n\n/**\n * Accumulates value starting with the first element and applying [operation] from left to right\n * to current accumulator value and each element with its index in the original array.\n * \n * Throws an exception if this array is empty. If the array can be empty in an expected way,\n * please use [reduceIndexedOrNull] instead. It returns `null` when its receiver is empty.\n * \n * @param [operation] function that takes the index of an element, current accumulator value and the element itself,\n * and calculates the next accumulator value.\n * \n * @sample samples.collections.Collections.Aggregates.reduce\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UIntArray.reduceIndexed(operation: (index: Int, acc: UInt, UInt) -> UInt): UInt {\n   if (isEmpty())\n   throw UnsupportedOperationException(\"Empty array can't be reduced.\")\n   var accumulator = this[0]\n   for (index in

1..lastIndex) {\n   accumulator = operation(index, accumulator, this[index])\n   }\n   return accumulator\n}\n\n/**\n * Accumulates value starting with the first element and applying [operation] from left to right\n * to current accumulator value and each element with its index in the original array.\n * \n * Throws an exception if this array is empty. If the array can be empty in an expected way,\n * please use [reduceIndexedOrNull] instead. 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this[0]\n   val result = ArrayList<UInt>(size).apply { add(accumulator) }\n   for (index in 1 until size) {\n   accumulator = operation(accumulator, this[index])\n   result.add(accumulator)\n   }\n   return result\n}\n\n/**\n * Returns a list containing successive accumulation values generated by applying [operation] from left to right\n * to each element and current accumulator value that starts with the first element of this array.\n * \n * Note that `acc` value passed to [operation] function should not be mutated;\n * otherwise it would affect the previous value in resulting list.\n * \n * @param [operation] function that takes current accumulator value and an element, and calculates the next accumulator value.\n * \n * @sample samples.collections.Collections.Aggregates.runningReduce\n */\n@SinceKotlin(\"1.4\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun ULongArray.runningReduce(operation: (acc: ULong, ULong) -> ULong): List<ULong> {\n   if (isEmpty()) return emptyList()\n   var accumulator = this[0]\n   val result = ArrayList<ULong>(size).apply { add(accumulator) }\n   for (index in 1 until size) {\n   accumulator = operation(accumulator, this[index])\n   result.add(accumulator)\n   }\n   return result\n}\n\n/**\n * Returns a list containing successive accumulation values generated by applying [operation] from left to right\n * to each element and current accumulator value that starts with the first element of this array.\n * \n * Note that `acc` value passed to [operation] function should not be mutated;\n * otherwise it would affect the previous value in resulting list.\n * \n * @param [operation] function that takes current accumulator value and an element, and calculates the next accumulator value.\n * \n * @sample samples.collections.Collections.Aggregates.runningReduce\n */\n@SinceKotlin(\"1.4\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UByteArray.runningReduce(operation: (acc: UByte, UByte) -> UByte): List<UByte> {\n   if (isEmpty()) return emptyList()\n   var accumulator = this[0]\n   val result = ArrayList<UByte>(size).apply { add(accumulator) }\n   for (index in 1 until size) {\n   accumulator = operation(accumulator, this[index])\n   result.add(accumulator)\n   }\n   return result\n}\n\n/**\n * Returns a list containing successive accumulation values generated by applying [operation] from left to right\n * to each element and current accumulator value that starts with the first element of this array.\n * \n * Note that `acc` value passed to [operation] function should not be mutated;\n * otherwise it would affect the previous value in resulting list.\n * \n * @param [operation] function that takes current accumulator value and an element, and calculates the next accumulator value.\n * \n * @sample samples.collections.Collections.Aggregates.runningReduce\n */\n@SinceKotlin(\"1.4\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UShortArray.runningReduce(operation: (acc: UShort, UShort) -> UShort): List<UShort> {\n   if (isEmpty()) return emptyList()\n   var accumulator = this[0]\n   val result = ArrayList<UShort>(size).apply { add(accumulator) }\n   for (index in 1 until size) {\n   accumulator = operation(accumulator, this[index])\n   result.add(accumulator)\n   }\n   return result\n}\n\n/**\n * Returns a list containing successive accumulation values generated by applying [operation] from left to right\n * to each element, its index in the original array and current accumulator value that starts with the first element of this array.\n * \n * Note that `acc` value passed to [operation] function should not be mutated;\n * otherwise it would affect the previous value in resulting list.\n * \n * @param [operation] function that takes the index of an element, current accumulator value\n * and the element itself, and calculates the next accumulator value.\n * \n * @sample samples.collections.Collections.Aggregates.runningReduce\n */\n@SinceKotlin(\"1.4\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UIntArray.runningReduceIndexed(operation: (index: Int, acc: UInt, UInt) -> UInt): List<UInt> {\n   if (isEmpty()) return emptyList()\n   var accumulator = this[0]\n   val result = ArrayList<UInt>(size).apply { add(accumulator) }\n   for (index in 1 until size) {\n   accumulator = operation(index, accumulator, this[index])\n   result.add(accumulator)\n   }\n   return result\n}\n\n/**\n * Returns a list containing successive accumulation values generated by applying [operation] from left to right\n * to each element, its index in the original array and current accumulator value that starts with the first element of this array.\n * \n * Note that `acc` value passed to [operation] function should not be mutated;\n * otherwise it would affect the previous value in resulting list.\n * \n * @param [operation] function that takes the 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List<R> {\n   return runningFold(initial, operation)\n}\n\n/**\n * Returns a list containing successive accumulation values generated by applying [operation] from left to right\n * to each element and current accumulator value that starts with [initial] value.\n * \n * Note that `acc` value passed to [operation] function should not be mutated;\n * otherwise it would affect the previous value in resulting list.\n * \n * @param [operation] function that takes current accumulator value and an element, and calculates the next accumulator value.\n * \n * @sample samples.collections.Collections.Aggregates.scan\n */\n@SinceKotlin(\"1.4\")\n@ExperimentalUnsignedTypes\n@WasExperimental(ExperimentalStdlibApi::class)\n@kotlin.internal.InlineOnly\npublic inline fun <R> UShortArray.scan(initial: R, operation: (acc: R, UShort) -> R): List<R> {\n   return runningFold(initial, operation)\n}\n\n/**\n * Returns a list containing successive accumulation values generated by applying [operation] from left 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otherwise it would affect the previous value in resulting list.\n * \n * @param [operation] function that takes the index of an element, current accumulator value\n * and the element itself, and calculates the next accumulator value.\n * \n * @sample samples.collections.Collections.Aggregates.scan\n */\n@SinceKotlin(\"1.4\")\n@ExperimentalUnsignedTypes\n@WasExperimental(ExperimentalStdlibApi::class)\n@kotlin.internal.InlineOnly\npublic inline fun <R> UShortArray.scanIndexed(initial: R, operation: (index: Int, acc: R, UShort) -> R): List<R> {\n   return runningFoldIndexed(initial, operation)\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each element in the array.\n */\n@Deprecated(\"Use sumOf instead.\", ReplaceWith(\"this.sumOf(selector)\"))\n@DeprecatedSinceKotlin(warningSince = \"1.5\")\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UIntArray.sumBy(selector: (UInt) -> UInt): UInt {\n   var sum: UInt = 0u\n   for (element in this) {\n   sum +=

selector(element)\n   }\n   return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each element in the array.\n */\n@Deprecated(\"Use sumOf instead.\", ReplaceWith(\"this.sumOf(selector)\"))\n@DeprecatedSinceKotlin(warningSince = \"1.5\")\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun ULongArray.sumBy(selector: (ULong) -> UInt): UInt {\n   var sum: UInt = 0u\n   for (element in this) {\n   sum += selector(element)\n   }\n   return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each element in the array.\n */\n@Deprecated(\"Use sumOf instead.\", ReplaceWith(\"this.sumOf(selector)\"))\n@DeprecatedSinceKotlin(warningSince = \"1.5\")\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UByteArray.sumBy(selector: (UByte) -> UInt): UInt {\n   var sum: UInt = 0u\n   for (element in this) {\n   sum += selector(element)\n   }\n   return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each element in the array.\n */\n@Deprecated(\"Use sumOf instead.\", ReplaceWith(\"this.sumOf(selector)\"))\n@DeprecatedSinceKotlin(warningSince = \"1.5\")\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UShortArray.sumBy(selector: (UShort) -> UInt): UInt {\n   var sum: UInt = 0u\n   for (element in this) {\n   sum += selector(element)\n   }\n   return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each element in the array.\n */\n@Deprecated(\"Use sumOf instead.\", ReplaceWith(\"this.sumOf(selector)\"))\n@DeprecatedSinceKotlin(warningSince = \"1.5\")\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UIntArray.sumByDouble(selector: (UInt) -> Double): Double {\n   var sum: Double = 0.0\n   for (element in this) {\n   sum += selector(element)\n   }\n   return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each element in the array.\n */\n@Deprecated(\"Use sumOf instead.\", ReplaceWith(\"this.sumOf(selector)\"))\n@DeprecatedSinceKotlin(warningSince = \"1.5\")\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun ULongArray.sumByDouble(selector: (ULong) -> Double): Double {\n   var sum: Double = 0.0\n   for (element in this) {\n   sum += selector(element)\n   }\n   return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each element in the array.\n */\n@Deprecated(\"Use sumOf instead.\", ReplaceWith(\"this.sumOf(selector)\"))\n@DeprecatedSinceKotlin(warningSince = \"1.5\")\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UByteArray.sumByDouble(selector: (UByte) -> Double): Double {\n   var sum: Double = 0.0\n   for (element in this) {\n   sum += selector(element)\n   }\n   return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each element in the array.\n */\n@Deprecated(\"Use sumOf instead.\", ReplaceWith(\"this.sumOf(selector)\"))\n@DeprecatedSinceKotlin(warningSince = \"1.5\")\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UShortArray.sumByDouble(selector: (UShort) -> Double): Double {\n   var sum: Double = 0.0\n   for (element in this) {\n   sum += selector(element)\n   }\n   return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each element in the array.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@Suppress(\"INAPPLICABLE_JVM_NAME\")\n@kotlin.jvm.JvmName(\"sumOfDouble\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UIntArray.sumOf(selector: (UInt) -> Double): Double {\n   var sum: Double = 0.toDouble()\n   for (element in this) {\n   sum += selector(element)\n   }\n   return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each element in the array.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@Suppress(\"INAPPLICABLE_JVM_NAME\")\n@kotlin.jvm.JvmName(\"sumOfDouble\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun ULongArray.sumOf(selector: (ULong) -> Double): Double {\n   var sum: Double = 0.toDouble()\n   for (element in this) {\n   sum += selector(element)\n   }\n   return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function

applied to each element in the array.\n
*/\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@Suppress(\"INAPPLICABLE_JVM_NAME\")\n@kotlin.jvm.JvmName(\"sumOfDouble\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UByteArray.sumOf(selector: (UByte) -> Double): Double {\n   var sum: Double = 0.toDouble()\n   for (element in this) {\n   sum += selector(element)\n   }\n   return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each element in the array.\n
*/\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@Suppress(\"INAPPLICABLE_JVM_NAME\")\n@kotlin.jvm.JvmName(\"sumOfDouble\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UShortArray.sumOf(selector: (UShort) -> Double): Double {\n   var sum: Double = 0.toDouble()\n   for (element in this) {\n   sum += selector(element)\n   }\n   return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each element in the array.\n
*/\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@Suppress(\"INAPPLICABLE_JVM_NAME\")\n@kotlin.jvm.JvmName(\"sumOfInt\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UIntArray.sumOf(selector: (UInt) -> Int): Int {\n   var sum: Int = 0.toInt()\n   for (element in this) {\n   sum += selector(element)\n   }\n   return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each element in the array.\n
*/\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@Suppress(\"INAPPLICABLE_JVM_NAME\")\n@kotlin.jvm.JvmName(\"sumOfInt\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun ULongArray.sumOf(selector: (ULong) -> Int): Int {\n   var sum: Int = 0.toInt()\n   for (element in this) {\n   sum += selector(element)\n   }\n   return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each element in the array.\n
*/\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@Suppress(\"INAPPLICABLE_JVM_NAME\")\n@kotlin.jvm.JvmName(\"sumOfInt\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UByteArray.sumOf(selector: (UByte) -> Int): Int {\n   var sum: Int = 0.toInt()\n   for (element in this) {\n   sum += selector(element)\n   }\n   return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each element in the array.\n
*/\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@Suppress(\"INAPPLICABLE_JVM_NAME\")\n@kotlin.jvm.JvmName(\"sumOfInt\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UShortArray.sumOf(selector: (UShort) -> Int): Int {\n   var sum: Int = 0.toInt()\n   for (element in this) {\n   sum += selector(element)\n   }\n   return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each element in the array.\n
*/\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@Suppress(\"INAPPLICABLE_JVM_NAME\")\n@kotlin.jvm.JvmName(\"sumOfLong\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UIntArray.sumOf(selector: (UInt) -> Long): Long {\n   var sum: Long = 0.toLong()\n   for (element in this) {\n   sum += selector(element)\n   }\n   return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each element in the array.\n
*/\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@Suppress(\"INAPPLICABLE_JVM_NAME\")\n@kotlin.jvm.JvmName(\"sumOfLong\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun ULongArray.sumOf(selector: (ULong) -> Long): Long {\n   var sum: Long = 0.toLong()\n   for (element in this) {\n   sum += selector(element)\n   }\n   return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function

applied to each element in the array.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@Suppress(\"INAPPLICABLE_JVM_NAME\")\n@kotlin.jvm.JvmName(\"sumOfLong\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UByteArray.sumOf(selector: (UByte) -> Long): Long {\n   var sum: Long = 0.toLong()\n   for (element in this) {\n   sum += selector(element)\n   }\n   return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each element in the array.\n */\n@SinceKotlin(\"1.4\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@Suppress(\"INAPPLICABLE_JVM_NAME\")\n@kotlin.jvm.JvmName(\"sumOfLong\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UShortArray.sumOf(selector: (UShort) -> Long): Long {\n   var sum: Long = 0.toLong()\n   for (element in this) {\n   sum += selector(element)\n   }\n   return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each element in the array.\n */\n@SinceKotlin(\"1.5\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@Suppress(\"INAPPLICABLE_JVM_NAME\")\n@kotlin.jvm.JvmName(\"sumOfUInt\")\n@ExperimentalUnsignedTypes\n@WasExperimental(ExperimentalUnsignedTypes::class)\n@kotlin.internal.InlineOnly\npublic inline fun UIntArray.sumOf(selector: (UInt) -> UInt): UInt {\n   var sum: UInt = 0.toUInt()\n   for (element in this) {\n   sum += selector(element)\n   }\n   return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each element in the array.\n */\n@SinceKotlin(\"1.5\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@Suppress(\"INAPPLICABLE_JVM_NAME\")\n@kotlin.jvm.JvmName(\"sumOfUInt\")\n@ExperimentalUnsignedTypes\n@WasExperimental(ExperimentalUnsignedTypes::class)\n@kotlin.internal.InlineOnly\npublic inline fun ULongArray.sumOf(selector: (ULong) -> UInt): UInt {\n   var sum: UInt = 0.toUInt()\n   for (element in this) {\n   sum += selector(element)\n   }\n   return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each element in the array.\n */\n@SinceKotlin(\"1.5\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@Suppress(\"INAPPLICABLE_JVM_NAME\")\n@kotlin.jvm.JvmName(\"sumOfUInt\")\n@ExperimentalUnsignedTypes\n@WasExperimental(ExperimentalUnsignedTypes::class)\n@kotlin.internal.InlineOnly\npublic inline fun UByteArray.sumOf(selector: (UByte) -> UInt): UInt {\n   var sum: UInt = 0.toUInt()\n   for (element in this) {\n   sum += selector(element)\n   }\n   return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each element in the array.\n */\n@SinceKotlin(\"1.5\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@Suppress(\"INAPPLICABLE_JVM_NAME\")\n@kotlin.jvm.JvmName(\"sumOfUInt\")\n@ExperimentalUnsignedTypes\n@WasExperimental(ExperimentalUnsignedTypes::class)\n@kotlin.internal.InlineOnly\npublic inline fun UShortArray.sumOf(selector: (UShort) -> UInt): UInt {\n   var sum: UInt = 0.toUInt()\n   for (element in this) {\n   sum += selector(element)\n   }\n   return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each element in the array.\n */\n@SinceKotlin(\"1.5\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@Suppress(\"INAPPLICABLE_JVM_NAME\")\n@kotlin.jvm.JvmName(\"sumOfULong\")\n@ExperimentalUnsignedTypes\n@WasExperimental(ExperimentalUnsignedTypes::class)\n@kotlin.internal.InlineOnly\npublic inline fun UIntArray.sumOf(selector: (UInt) -> ULong): ULong {\n   var sum: ULong = 0.toULong()\n   for (element in this) {\n   sum += selector(element)\n   }\n   return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each element in the array.\n */\n@SinceKotlin(\"1.5\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@Suppress(\"INAPPLICABLE_JVM_NAME\")\n@kotlin.jvm.JvmName(\"sumOfULong\")\n@ExperimentalUnsignedTypes\n@WasExperimental(ExperimentalUnsignedTypes::class)\n@kotlin.internal.InlineOnly\npublic inline fun ULongArray.sumOf(selector: (ULong) -> ULong): ULong {\n   var sum: ULong = 0.toULong()\n   for (element in this) {\n   sum += selector(element)\n   }\n   return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each element in the array.\n */\n@SinceKotlin(\"1.5\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@Suppress(\"INAPPLICABLE_JVM_NAME\")\n@kotlin.jvm.JvmName(\"sumOfULong\")\n@ExperimentalUnsignedTypes\n@WasExperimental(ExperimentalUnsignedTypes::class)\n@kotlin.internal.InlineOnly\npublic inline fun UByteArray.sumOf(selector: (UByte) -> ULong): ULong {\n   var sum: ULong = 0.toULong()\n   for (element in this) {\n   sum += selector(element)\n   }\n   return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each element in the array.\n */\n@SinceKotlin(\"1.5\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@Suppress(\"INAPPLICABLE_JVM_NAME\")\n@kotlin.jvm.JvmName(\"sumOfULong\")\n@ExperimentalUnsignedTypes\n@WasExperimental(ExperimentalUnsignedTypes::class)\n@kotlin.internal.InlineOnly\npublic inline fun UShortArray.sumOf(selector: (UShort) -> ULong): ULong {\n   var sum: ULong = 0.toULong()\n   for (element in this) {\n   sum += selector(element)\n   }\n   return sum\n}\n\n/**\n * Returns a list of pairs built from the elements of `this` array and the [other] array with the same index.\n * The returned list has length of the shortest collection.\n * \n * @sample samples.collections.Iterables.Operations.zipIterable\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\npublic infix fun <R> UIntArray.zip(other: Array<out R>): List<Pair<UInt, R>> {\n   return zip(other) { t1, t2 -> t1 to t2 }\n}\n\n/**\n * Returns a list of pairs built from the elements of `this` array and the [other] array with the same index.\n * The returned list has length of the shortest collection.\n * \n * @sample samples.collections.Iterables.Operations.zipIterable\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\npublic infix fun <R> ULongArray.zip(other: Array<out R>): List<Pair<ULong, R>> {\n   return zip(other) { t1, t2 -> t1 to t2 }\n}\n\n/**\n * Returns a list of pairs built from the elements of `this` array and the [other] array with the same index.\n * The returned list has length of the shortest collection.\n * \n * @sample samples.collections.Iterables.Operations.zipIterable\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\npublic infix fun <R> UByteArray.zip(other: Array<out R>): List<Pair<UByte, R>> {\n   return zip(other) { t1, t2 -> t1 to t2 }\n}\n\n/**\n * Returns a list of pairs built from the elements of `this` array and the [other] array with the same index.\n * The returned list has length of the shortest collection.\n * \n * @sample samples.collections.Iterables.Operations.zipIterable\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\npublic infix fun <R> UShortArray.zip(other: Array<out R>): List<Pair<UShort, R>> {\n   return zip(other) { t1, t2 -> t1 to t2 }\n}\n\n/**\n * Returns a list of values built from the elements of `this` array and the [other] array with the same index\n * using the provided [transform] function applied to each pair of elements.\n * The returned list has length of the shortest collection.\n * \n * @sample samples.collections.Iterables.Operations.zipIterableWithTransform\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R, V> UIntArray.zip(other: Array<out R>, transform: (a: UInt, b: R) -> V): List<V> {\n   val size = minOf(size, other.size)\n   val list = ArrayList<V>(size)\n   for (i in 0 until size) {\n   list.add(transform(this[i], other[i]))\n   }\n   return list\n}\n\n/**\n * Returns a list of values built from the elements of `this` array and the [other] array with the same index\n * using the provided [transform] function applied to each pair of elements.\n * The returned list has length of the shortest collection.\n * \n * @sample samples.collections.Iterables.Operations.zipIterableWithTransform\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R, V> ULongArray.zip(other: Array<out R>, transform: (a: ULong, b: R) -> V): List<V> {\n   val size = minOf(size, other.size)\n   val list = ArrayList<V>(size)\n   for (i in 0 until size) {\n   list.add(transform(this[i], other[i]))\n   }\n   return list\n}\n\n/**\n * Returns a list of values built from the elements of `this` array and the [other] array with the same index\n * using the provided [transform] function applied to each pair of elements.\n * The returned list has length of the shortest collection.\n * \n * @sample samples.collections.Iterables.Operations.zipIterableWithTransform\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R, V> UByteArray.zip(other: Array<out R>, transform: (a: UByte, b: R) -> V): List<V> {\n   val size = minOf(size, other.size)\n   val list = ArrayList<V>(size)\n   for (i in 0 until size) {\n   list.add(transform(this[i], other[i]))\n

}\n   return list\n}\n\n/**\n * Returns a list of values built from the elements of `this` array and the [other] array with the same index\n * using the provided [transform] function applied to each pair of elements.\n * The returned list has length of the shortest collection.\n * \n * @sample samples.collections.Iterables.Operations.zipIterableWithTransform\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R, V> UShortArray.zip(other: Array<out R>, transform: (a: UShort, b: R) -> V): List<V> {\n   val size = minOf(size, other.size)\n   val list = ArrayList<V>(size)\n   for (i in 0 until size) {\n   list.add(transform(this[i], other[i]))\n   }\n   return list\n}\n\n/**\n * Returns a list of pairs built from the elements of `this` collection and [other] array with the same index.\n * The returned list has length of the shortest collection.\n * \n * @sample samples.collections.Iterables.Operations.zipIterable\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\npublic infix fun <R> UIntArray.zip(other: Iterable<R>): List<Pair<UInt, R>> {\n   return zip(other) { t1, t2 -> t1 to t2 }\n}\n\n/**\n * Returns a list of pairs built from the elements of `this` collection and [other] array with the same index.\n * The returned list has length of the shortest collection.\n * \n * @sample samples.collections.Iterables.Operations.zipIterable\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\npublic infix fun <R> ULongArray.zip(other: Iterable<R>): List<Pair<ULong, R>> {\n   return zip(other) { t1, t2 -> t1 to t2 }\n}\n\n/**\n * Returns a list of pairs built from the elements of `this` collection and [other] array with the same index.\n * The returned list has length of the shortest collection.\n * \n * @sample samples.collections.Iterables.Operations.zipIterable\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\npublic infix fun <R> UByteArray.zip(other: Iterable<R>): List<Pair<UByte, R>> {\n   return zip(other) { t1, t2 -> t1 to t2 }\n}\n\n/**\n * Returns a list of pairs built from the elements of `this` collection and [other] array with the same index.\n * The returned list has length of the shortest collection.\n * \n * @sample samples.collections.Iterables.Operations.zipIterable\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\npublic infix fun <R> UShortArray.zip(other: Iterable<R>): List<Pair<UShort, R>> {\n   return zip(other) { t1, t2 -> t1 to t2 }\n}\n\n/**\n * Returns a list of values built from the elements of `this` array and the [other] collection with the same index\n * using the provided [transform] function applied to each pair of elements.\n * The returned list has length of the shortest collection.\n * \n * @sample samples.collections.Iterables.Operations.zipIterableWithTransform\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R, V> UIntArray.zip(other: Iterable<R>, transform: (a: UInt, b: R) -> V): List<V> {\n   val arraySize = size\n   val list = ArrayList<V>(minOf(other.collectionSizeOrDefault(10), arraySize))\n   var i = 0\n   for (element in other) {\n   if (i >= arraySize) break\n   list.add(transform(this[i++], element))\n   }\n   return list\n}\n\n/**\n * Returns a list of values built from the elements of `this` array and the [other] collection with the same index\n * using the provided [transform] function applied to each pair of elements.\n * The returned list has length of the shortest collection.\n * \n * @sample samples.collections.Iterables.Operations.zipIterableWithTransform\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R, V> ULongArray.zip(other: Iterable<R>, transform: (a: ULong, b: R) -> V): List<V> {\n   val arraySize = size\n   val list = ArrayList<V>(minOf(other.collectionSizeOrDefault(10), arraySize))\n   var i = 0\n   for (element in other) {\n   if (i >= arraySize) break\n   list.add(transform(this[i++], element))\n   }\n   return list\n}\n\n/**\n * Returns a list of values built from the elements of `this` array and the [other] collection with the same index\n * using the provided [transform] function applied to each pair of elements.\n * The returned list has length of the shortest collection.\n * \n * @sample samples.collections.Iterables.Operations.zipIterableWithTransform\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R, V> UByteArray.zip(other: Iterable<R>, transform: (a: UByte, b: R) -> V): List<V> {\n   val arraySize = size\n   val list = ArrayList<V>(minOf(other.collectionSizeOrDefault(10), arraySize))\n   var i = 0\n   for (element in other) {\n   if (i >= arraySize) break\n   list.add(transform(this[i++], element))\n   }\n   return list\n}\n\n/**\n * Returns a list of values built from the elements of `this` array and the [other] collection with the same index\n * using the provided [transform] function applied to each pair of elements.\n * The returned list has length of the shortest collection.\n * \n * @sample samples.collections.Iterables.Operations.zipIterableWithTransform\n

*/\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R, V> UShortArray.zip(other: Iterable<R>, transform: (a: UShort, b: R) -> V): List<V> {\n   val arraySize = size\n   val list = ArrayList<V>(minOf(other.collectionSizeOrDefault(10), arraySize))\n   var i = 0\n   for (element in other) {\n   if (i >= arraySize) break\n   list.add(transform(this[i++], element))\n   }\n   return list\n}\n\n/**\n * Returns a list of pairs built from the elements of `this` array and the [other] array with the same index.\n * The returned list has length of the shortest collection.\n * \n * @sample samples.collections.Iterables.Operations.zipIterable\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\npublic infix fun UIntArray.zip(other: UIntArray): List<Pair<UInt, UInt>> {\n   return zip(other) { t1, t2 -> t1 to t2 }\n}\n\n/**\n * Returns a list of pairs built from the elements of `this` array and the [other] array with the same index.\n * The returned list has length of the shortest collection.\n * \n * @sample samples.collections.Iterables.Operations.zipIterable\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\npublic infix fun ULongArray.zip(other: ULongArray): List<Pair<ULong, ULong>> {\n   return zip(other) { t1, t2 -> t1 to t2 }\n}\n\n/**\n * Returns a list of pairs built from the elements of `this` array and the [other] array with the same index.\n * The returned list has length of the shortest collection.\n * \n * @sample samples.collections.Iterables.Operations.zipIterable\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\npublic infix fun UByteArray.zip(other: UByteArray): List<Pair<UByte, UByte>> {\n   return zip(other) { t1, t2 -> t1 to t2 }\n}\n\n/**\n * Returns a list of pairs built from the elements of `this` array and the [other] array with the same index.\n * The returned list has length of the shortest collection.\n * \n * @sample samples.collections.Iterables.Operations.zipIterable\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\npublic infix fun UShortArray.zip(other: UShortArray): List<Pair<UShort, UShort>> {\n   return zip(other) { t1, t2 -> t1 to t2 }\n}\n\n/**\n * Returns a list of values built from the elements of `this` array and the [other] array with the same index\n * using the provided [transform] function applied to each pair of elements.\n * The returned list has length of the shortest array.\n * \n * @sample samples.collections.Iterables.Operations.zipIterableWithTransform\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <V> UIntArray.zip(other: UIntArray, transform: (a: UInt, b: UInt) -> V): List<V> {\n   val size = minOf(size, other.size)\n   val list = ArrayList<V>(size)\n   for (i in 0 until size) {\n   list.add(transform(this[i], other[i]))\n   }\n   return list\n}\n\n/**\n * Returns a list of values built from the elements of `this` array and the [other] array with the same index\n * using the provided [transform] function applied to each pair of elements.\n * The returned list has length of the shortest array.\n * \n * @sample samples.collections.Iterables.Operations.zipIterableWithTransform\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <V> ULongArray.zip(other: ULongArray, transform: (a: ULong, b: ULong) -> V): List<V> {\n   val size = minOf(size, other.size)\n   val list = ArrayList<V>(size)\n   for (i in 0 until size) {\n   list.add(transform(this[i], other[i]))\n   }\n   return list\n}\n\n/**\n * Returns a list of values built from the elements of `this` array and the [other] array with the same index\n * using the provided [transform] function applied to each pair of elements.\n * The returned list has length of the shortest array.\n * \n * @sample samples.collections.Iterables.Operations.zipIterableWithTransform\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <V> UByteArray.zip(other: UByteArray, transform: (a: UByte, b: UByte) -> V): List<V> {\n   val size = minOf(size, other.size)\n   val list = ArrayList<V>(size)\n   for (i in 0 until size) {\n   list.add(transform(this[i], other[i]))\n   }\n   return list\n}\n\n/**\n * Returns a list of values built from the elements of `this` array and the [other] array with the same index\n * using the provided [transform] function applied to each pair of elements.\n * The returned list has length of the shortest array.\n * \n * @sample samples.collections.Iterables.Operations.zipIterableWithTransform\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <V> UShortArray.zip(other: UShortArray, transform: (a: UShort, b: UShort) -> V): List<V> {\n   val size = minOf(size, other.size)\n   val list = ArrayList<V>(size)\n   for (i in 0 until size) {\n   list.add(transform(this[i], other[i]))\n

}\n   return list\n}\n\n/**\n * Returns the sum of all elements in the array.\n
*/\n@kotlin.jvm.JvmName(\"sumOfUInt\")\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedT
ypes::class)\npublic fun Array<out UInt>.sum(): UInt {\n   var sum: UInt = 0u\n   for (element in this) {\n   sum
+= element\n   }\n   return sum\n}\n\n/**\n * Returns the sum of all elements in the array.\n
*/\n@kotlin.jvm.JvmName(\"sumOfULong\")\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsigned
Types::class)\npublic fun Array<out ULong>.sum(): ULong {\n   var sum: ULong = 0uL\n   for (element in this)
{\n   sum += element\n   }\n   return sum\n}\n\n/**\n * Returns the sum of all elements in the array.\n
*/\n@kotlin.jvm.JvmName(\"sumOfUByte\")\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsigned
Types::class)\npublic fun Array<out UByte>.sum(): UInt {\n   var sum: UInt = 0u\n   for (element in this) {\n
sum += element\n   }\n   return sum\n}\n\n/**\n * Returns the sum of all elements in the array.\n
*/\n@kotlin.jvm.JvmName(\"sumOfUShort\")\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsigned
Types::class)\npublic fun Array<out UShort>.sum(): UInt {\n   var sum: UInt = 0u\n   for (element in this) {\n
sum += element\n   }\n   return sum\n}\n\n/**\n * Returns the sum of all elements in the array.\n
*/\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
UIntArray.sum(): UInt {\n   return storage.sum().toUInt()\n}\n\n/**\n * Returns the sum of all elements in the
array.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
ULongArray.sum(): ULong {\n   return storage.sum().toULong()\n}\n\n/**\n * Returns the sum of all elements in
the array.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline
fun UByteArray.sum(): UInt {\n   return sumOf { it.toUInt() }\n}\n\n/**\n * Returns the sum of all elements in the
array.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
UShortArray.sum(): UInt {\n   return sumOf { it.toUInt() }\n}\n\n","/*\n * Copyright 2010-2022 JetBrains s.r.o. and
Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that
can be found in the license/LICENSE.txt file.\n
*/\n\n@file:kotlin.jvm.JvmMultifileClass\n@file:kotlin.jvm.JvmName(\"UCollectionsKt\")\n\npackage
kotlin.collections\n\n//\n// NOTE: THIS FILE IS AUTO-GENERATED by the GenerateStandardLib.kt\n// See:
https://github.com/JetBrains/kotlin/tree/master/libraries/stdlib\n//\n\nimport kotlin.random.*\nimport
kotlin.ranges.contains\nimport kotlin.ranges.reversed\n\n/**\n * Returns an array of UByte containing all of the
elements of this collection.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\npublic fun
Collection<UByte>.toUByteArray(): UByteArray {\n   val result = UByteArray(size)\n   var index = 0\n   for
(element in this)\n   result[index++] = element\n   return result\n}\n\n/**\n * Returns an array of UInt containing
all of the elements of this collection.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\npublic fun
Collection<UInt>.toUIntArray(): UIntArray {\n   val result = UIntArray(size)\n   var index = 0\n   for (element in
this)\n   result[index++] = element\n   return result\n}\n\n/**\n * Returns an array of ULong containing all of the
elements of this collection.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\npublic fun
Collection<ULong>.toULongArray(): ULongArray {\n   val result = ULongArray(size)\n   var index = 0\n   for
(element in this)\n   result[index++] = element\n   return result\n}\n\n/**\n * Returns an array of UShort
containing all of the elements of this collection.\n
*/\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\npublic fun Collection<UShort>.toUShortArray():
UShortArray {\n   val result = UShortArray(size)\n   var index = 0\n   for (element in this)\n   result[index++] =
element\n   return result\n}\n\n/**\n * Returns the sum of all elements in the collection.\n
*/\n@kotlin.jvm.JvmName(\"sumOfUInt\")\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedT
ypes::class)\npublic fun Iterable<UInt>.sum(): UInt {\n   var sum: UInt = 0u\n   for (element in this) {\n   sum
+= element\n   }\n   return sum\n}\n\n/**\n * Returns the sum of all elements in the collection.\n
*/\n@kotlin.jvm.JvmName(\"sumOfULong\")\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsigned
Types::class)\npublic fun Iterable<ULong>.sum(): ULong {\n   var sum: ULong = 0uL\n   for (element in this) {\n
    sum += element\n   }\n   return sum\n}\n\n/**\n * Returns the sum of all elements in the collection.\n
*/\n@kotlin.jvm.JvmName(\"sumOfUByte\")\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsigned
Types::class)\npublic fun Iterable<UByte>.sum(): UInt {\n   var sum: UInt = 0u\n   for (element in this) {\n

sum += element\n   }\n   return sum\n}\n\n/**\n * Returns the sum of all elements in the collection.\n */\n@kotlin.jvm.JvmName(\"sumOfUShort\")\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic fun Iterable<UShort>.sum(): UInt {\n   var sum: UInt = 0u\n   for (element in this) {\n   sum += element\n   }\n   return sum\n}\n\n","/*\n * Copyright 2010-2022 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\n@file:kotlin.jvm.JvmMultifileClass\n@file:kotlin.jvm.JvmName(\"UComparisonsKt\")\n\npackage kotlin.comparisons\n\n//\n// NOTE: THIS FILE IS AUTO-GENERATED by the GenerateStandardLib.kt\n// See: https://github.com/JetBrains/kotlin/tree/master/libraries/stdlib\n//\n\nimport kotlin.random.*\n\n/**\n * Returns the greater of two values.\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic fun maxOf(a: UInt, b: UInt): UInt {\n   return if (a >= b) a else b\n}\n\n/**\n * Returns the greater of two values.\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic fun maxOf(a: ULong, b: ULong): ULong {\n   return if (a >= b) a else b\n}\n\n/**\n * Returns the greater of two values.\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic fun maxOf(a: UByte, b: UByte): UByte {\n   return if (a >= b) a else b\n}\n\n/**\n * Returns the greater of two values.\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic fun maxOf(a: UShort, b: UShort): UShort {\n   return if (a >= b) a else b\n}\n\n/**\n * Returns the greater of three values.\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\n@kotlin.internal.InlineOnly\npublic inline fun maxOf(a: UInt, b: UInt, c: UInt): UInt {\n   return maxOf(a, maxOf(b, c))\n}\n\n/**\n * Returns the greater of three values.\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\n@kotlin.internal.InlineOnly\npublic inline fun maxOf(a: ULong, b: ULong, c: ULong): ULong {\n   return maxOf(a, maxOf(b, c))\n}\n\n/**\n * Returns the greater of three values.\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\n@kotlin.internal.InlineOnly\npublic inline fun maxOf(a: UByte, b: UByte, c: UByte): UByte {\n   return maxOf(a, maxOf(b, c))\n}\n\n/**\n * Returns the greater of three values.\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\n@kotlin.internal.InlineOnly\npublic inline fun maxOf(a: UShort, b: UShort, c: UShort): UShort {\n   return maxOf(a, maxOf(b, c))\n}\n\n/**\n * Returns the greater of the given values.\n */\n@SinceKotlin(\"1.4\")\n@ExperimentalUnsignedTypes\npublic fun maxOf(a: UInt, vararg other: UInt): UInt {\n   var max = a\n   for (e in other) max = maxOf(max, e)\n   return max\n}\n\n/**\n * Returns the greater of the given values.\n */\n@SinceKotlin(\"1.4\")\n@ExperimentalUnsignedTypes\npublic fun maxOf(a: ULong, vararg other: ULong): ULong {\n   var max = a\n   for (e in other) max = maxOf(max, e)\n   return max\n}\n\n/**\n * Returns the greater of the given values.\n */\n@SinceKotlin(\"1.4\")\n@ExperimentalUnsignedTypes\npublic fun maxOf(a: UByte, vararg other: UByte): UByte {\n   var max = a\n   for (e in other) max = maxOf(max, e)\n   return max\n}\n\n/**\n * Returns the greater of the given values.\n */\n@SinceKotlin(\"1.4\")\n@ExperimentalUnsignedTypes\npublic fun maxOf(a: UShort, vararg other: UShort): UShort {\n   var max = a\n   for (e in other) max = maxOf(max, e)\n   return max\n}\n\n/**\n * Returns the smaller of two values.\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic fun minOf(a: UInt, b: UInt): UInt {\n   return if (a <= b) a else b\n}\n\n/**\n * Returns the smaller of two values.\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic fun minOf(a: ULong, b: ULong): ULong {\n   return if (a <= b) a else b\n}\n\n/**\n * Returns the smaller of two values.\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic fun minOf(a: UByte, b: UByte): UByte {\n   return if (a <= b) a else b\n}\n\n/**\n * Returns the smaller of two values.\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic fun minOf(a: UShort, b: UShort): UShort {\n   return if (a <= b) a else b\n}\n\n/**\n * Returns the smaller of three values.\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\n@kotlin.internal.InlineOnly\

npublic inline fun minOf(a: UInt, b: UInt, c: UInt): UInt {\n   return minOf(a, minOf(b, c))\n}\n\n/**\n * Returns the smaller of three values.\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\n@kotlin.internal.InlineOnly\npublic inline fun minOf(a: ULong, b: ULong, c: ULong): ULong {\n   return minOf(a, minOf(b, c))\n}\n\n/**\n * Returns the smaller of three values.\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\n@kotlin.internal.InlineOnly\npublic inline fun minOf(a: UByte, b: UByte, c: UByte): UByte {\n   return minOf(a, minOf(b, c))\n}\n\n/**\n * Returns the smaller of three values.\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\n@kotlin.internal.InlineOnly\npublic inline fun minOf(a: UShort, b: UShort, c: UShort): UShort {\n   return minOf(a, minOf(b, c))\n}\n\n/**\n * Returns the smaller of the given values.\n */\n@SinceKotlin(\"1.4\")\n@ExperimentalUnsignedTypes\npublic fun minOf(a: UInt, vararg other: UInt): UInt {\n   var min = a\n   for (e in other) min = minOf(min, e)\n   return min\n}\n\n/**\n * Returns the smaller of the given values.\n */\n@SinceKotlin(\"1.4\")\n@ExperimentalUnsignedTypes\npublic fun minOf(a: ULong, vararg other: ULong): ULong {\n   var min = a\n   for (e in other) min = minOf(min, e)\n   return min\n}\n\n/**\n * Returns the smaller of the given values.\n */\n@SinceKotlin(\"1.4\")\n@ExperimentalUnsignedTypes\npublic fun minOf(a: UByte, vararg other: UByte): UByte {\n   var min = a\n   for (e in other) min = minOf(min, e)\n   return min\n}\n\n/**\n * Returns the smaller of the given values.\n */\n@SinceKotlin(\"1.4\")\n@ExperimentalUnsignedTypes\npublic fun minOf(a: UShort, vararg other: UShort): UShort {\n   var min = a\n   for (e in other) min = minOf(min, e)\n   return min\n}\n\n","/*\n * Copyright 2010-2022 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\n@file:kotlin.jvm.JvmMultifileClass\n@file:kotlin.jvm.JvmName(\"URangesKt\")\n\npackage kotlin.ranges\n\n//\n// NOTE: THIS FILE IS AUTO-GENERATED by the GenerateStandardLib.kt\n// See: https://github.com/JetBrains/kotlin/tree/master/libraries/stdlib\n//\n\nimport kotlin.random.*\n\n/**\n * Returns the first element.\n * \n * @throws NoSuchElementException if the progression is empty.\n */\n@SinceKotlin(\"1.7\")\npublic fun UIntProgression.first(): UInt {\n   if (isEmpty())\n   throw NoSuchElementException(\"Progression $this is empty.\")\n   return this.first\n}\n\n/**\n * Returns the first element.\n * \n * @throws NoSuchElementException if the progression is empty.\n */\n@SinceKotlin(\"1.7\")\npublic fun ULongProgression.first(): ULong {\n   if (isEmpty())\n   throw NoSuchElementException(\"Progression $this is empty.\")\n   return this.first\n}\n\n/**\n * Returns the first element, or `null` if the progression is empty.\n */\n@SinceKotlin(\"1.7\")\npublic fun UIntProgression.firstOrNull(): UInt? {\n   return if (isEmpty()) null else this.first\n}\n\n/**\n * Returns the first element, or `null` if the progression is empty.\n */\n@SinceKotlin(\"1.7\")\npublic fun ULongProgression.firstOrNull(): ULong? {\n   return if (isEmpty()) null else this.first\n}\n\n/**\n * Returns the last element.\n * \n * @throws NoSuchElementException if the progression is empty.\n * \n * @sample samples.collections.Collections.Elements.last\n */\n@SinceKotlin(\"1.7\")\npublic fun UIntProgression.last(): UInt {\n   if (isEmpty())\n   throw NoSuchElementException(\"Progression $this is empty.\")\n   return this.last\n}\n\n/**\n * Returns the last element.\n * \n * @throws NoSuchElementException if the progression is empty.\n * \n * @sample samples.collections.Collections.Elements.last\n */\n@SinceKotlin(\"1.7\")\npublic fun ULongProgression.last(): ULong {\n   if (isEmpty())\n   throw NoSuchElementException(\"Progression $this is empty.\")\n   return this.last\n}\n\n/**\n * Returns the last element, or `null` if the progression is empty.\n * \n * @sample samples.collections.Collections.Elements.last\n */\n@SinceKotlin(\"1.7\")\npublic fun UIntProgression.lastOrNull(): UInt? {\n   return if (isEmpty()) null else this.last\n}\n\n/**\n * Returns the last element, or `null` if the progression is empty.\n * \n * @sample samples.collections.Collections.Elements.last\n */\n@SinceKotlin(\"1.7\")\npublic fun ULongProgression.lastOrNull(): ULong? {\n   return if (isEmpty()) null else this.last\n}\n\n/**\n * Returns a random element from this range.\n * \n * @throws IllegalArgumentException if this range is empty.\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\n@kotlin.internal.InlineOnly\

npublic inline fun UIntRange.random(): UInt {\n   return random(Random)\n}\n\n/**\n * Returns a random element from this range.\n * \n * @throws IllegalArgumentException if this range is empty.\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\n@kotlin.internal.InlineOnly\npublic inline fun ULongRange.random(): ULong {\n   return random(Random)\n}\n\n/**\n * Returns a random element from this range using the specified source of randomness.\n * \n * @throws IllegalArgumentException if this range is empty.\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic fun UIntRange.random(random: Random): UInt {\n   try {\n   return random.nextUInt(this)\n   } catch(e: IllegalArgumentException) {\n   throw NoSuchElementException(e.message)\n   }\n}\n\n/**\n * Returns a random element from this range using the specified source of randomness.\n * \n * @throws IllegalArgumentException if this range is empty.\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic fun ULongRange.random(random: Random): ULong {\n   try {\n   return random.nextULong(this)\n   } catch(e: IllegalArgumentException) {\n   throw NoSuchElementException(e.message)\n   }\n}\n\n/**\n * Returns a random element from this range, or `null` if this range is empty.\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalStdlibApi::class, ExperimentalUnsignedTypes::class)\n@kotlin.internal.InlineOnly\npublic inline fun UIntRange.randomOrNull(): UInt? {\n   return randomOrNull(Random)\n}\n\n/**\n * Returns a random element from this range, or `null` if this range is empty.\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalStdlibApi::class, ExperimentalUnsignedTypes::class)\n@kotlin.internal.InlineOnly\npublic inline fun ULongRange.randomOrNull(): ULong? {\n   return randomOrNull(Random)\n}\n\n/**\n * Returns a random element from this range using the specified source of randomness, or `null` if this range is empty.\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalStdlibApi::class, ExperimentalUnsignedTypes::class)\npublic fun UIntRange.randomOrNull(random: Random): UInt? {\n   if (isEmpty())\n   return null\n   return random.nextUInt(this)\n}\n\n/**\n * Returns a random element from this range using the specified source of randomness, or `null` if this range is empty.\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalStdlibApi::class, ExperimentalUnsignedTypes::class)\npublic fun ULongRange.randomOrNull(random: Random): ULong? {\n   if (isEmpty())\n   return null\n   return random.nextULong(this)\n}\n\n/**\n * Returns `true` if this range contains the specified [element].\n * \n * Always returns `false` if the [element] is `null`.\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\n@kotlin.internal.InlineOnly\npublic inline operator fun UIntRange.contains(element: UInt?): Boolean {\n   return element != null && contains(element)\n}\n\n/**\n * Returns `true` if this range contains the specified [element].\n * \n * Always returns `false` if the [element] is `null`.\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\n@kotlin.internal.InlineOnly\npublic inline operator fun ULongRange.contains(element: ULong?): Boolean {\n   return element != null && contains(element)\n}\n\n/**\n * Checks if the specified [value] belongs to this range.\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic operator fun UIntRange.contains(value: UByte): Boolean {\n   return contains(value.toUInt())\n}\n\n/**\n * Checks if the specified [value] belongs to this range.\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic operator fun ULongRange.contains(value: UByte): Boolean {\n   return contains(value.toULong())\n}\n\n/**\n * Checks if the specified [value] belongs to this range.\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic operator fun ULongRange.contains(value: UInt): Boolean {\n   return contains(value.toULong())\n}\n\n/**\n * Checks if the specified [value] belongs to this range.\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic operator fun UIntRange.contains(value: ULong): Boolean {\n   return (value shr UInt.SIZE_BITS) == 0uL && contains(value.toUInt())\n}\n\n/**\n * Checks if the specified [value] belongs to this range.\n

*/\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic operator fun UIntRange.contains(value: UShort): Boolean {\n   return contains(value.toUInt())\n}\n\n/**\n * Checks if the specified [value] belongs to this range.\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic operator fun ULongRange.contains(value: UShort): Boolean {\n   return contains(value.toULong())\n}\n\n/**\n * Returns a progression from this value down to the specified [to] value with the step -1.\n * \n * The [to] value should be less than or equal to `this` value.\n * If the [to] value is greater than `this` value the returned progression is empty.\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic infix fun UByte.downTo(to: UByte): UIntProgression {\n   return UIntProgression.fromClosedRange(this.toUInt(), to.toUInt(), -1)\n}\n\n/**\n * Returns a progression from this value down to the specified [to] value with the step -1.\n * \n * The [to] value should be less than or equal to `this` value.\n * If the [to] value is greater than `this` value the returned progression is empty.\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic infix fun UInt.downTo(to: UInt): UIntProgression {\n   return UIntProgression.fromClosedRange(this, to, -1)\n}\n\n/**\n * Returns a progression from this value down to the specified [to] value with the step -1.\n * \n * The [to] value should be less than or equal to `this` value.\n * If the [to] value is greater than `this` value the returned progression is empty.\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic infix fun ULong.downTo(to: ULong): ULongProgression {\n   return ULongProgression.fromClosedRange(this, to, -1L)\n}\n\n/**\n * Returns a progression from this value down to the specified [to] value with the step -1.\n * \n * The [to] value should be less than or equal to `this` value.\n * If the [to] value is greater than `this` value the returned progression is empty.\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic infix fun UShort.downTo(to: UShort): UIntProgression {\n   return UIntProgression.fromClosedRange(this.toUInt(), to.toUInt(), -1)\n}\n\n/**\n * Returns a range from this value up to but excluding the specified [to] value.\n * \n * If the [to] value is less than or equal to `this` value, then the returned range is empty.\n */\n@SinceKotlin(\"1.7\")\n@ExperimentalStdlibApi\n@kotlin.internal.InlineOnly\npublic inline operator fun UByte.rangeUntil(to: UByte): UIntRange {\n   return until(to)\n}\n\n/**\n * Returns a range from this value up to but excluding the specified [to] value.\n * \n * If the [to] value is less than or equal to `this` value, then the returned range is empty.\n */\n@SinceKotlin(\"1.7\")\n@ExperimentalStdlibApi\n@kotlin.internal.InlineOnly\npublic inline operator fun UInt.rangeUntil(to: UInt): UIntRange {\n   return until(to)\n}\n\n/**\n * Returns a range from this value up to but excluding the specified [to] value.\n * \n * If the [to] value is less than or equal to `this` value, then the returned range is empty.\n */\n@SinceKotlin(\"1.7\")\n@ExperimentalStdlibApi\n@kotlin.internal.InlineOnly\npublic inline operator fun ULong.rangeUntil(to: ULong): ULongRange {\n   return until(to)\n}\n\n/**\n * Returns a range from this value up to but excluding the specified [to] value.\n * \n * If the [to] value is less than or equal to `this` value, then the returned range is empty.\n */\n@SinceKotlin(\"1.7\")\n@ExperimentalStdlibApi\n@kotlin.internal.InlineOnly\npublic inline operator fun UShort.rangeUntil(to: UShort): UIntRange {\n   return until(to)\n}\n\n/**\n * Returns a progression that goes over the same range in the opposite direction with the same step.\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic fun UIntProgression.reversed(): UIntProgression {\n   return UIntProgression.fromClosedRange(last, first, -step)\n}\n\n/**\n * Returns a progression that goes over the same range in the opposite direction with the same step.\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic fun ULongProgression.reversed(): ULongProgression {\n   return ULongProgression.fromClosedRange(last, first, -step)\n}\n\n/**\n * Returns a progression that goes over the same range with the given step.\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic infix fun UIntProgression.step(step: Int): UIntProgression {\n   checkStepIsPositive(step > 0, step)\n   return UIntProgression.fromClosedRange(first, last, if (this.step > 0) step else -step)\n}\n\n/**\n * Returns a progression

that goes over the same range with the given step.\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic infix fun ULongProgression.step(step: Long): ULongProgression {\n   checkStepIsPositive(step > 0, step)\n   return ULongProgression.fromClosedRange(first, last, if (this.step > 0) step else -step)\n}\n\n/**\n * Returns a range from this value up to but excluding the specified [to] value.\n * \n * If the [to] value is less than or equal to `this` value, then the returned range is empty.\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic infix fun UByte.until(to: UByte): UIntRange {\n   if (to <= UByte.MIN_VALUE) return UIntRange.EMPTY\n   return this.toUInt() .. (to - 1u).toUInt()\n}\n\n/**\n * Returns a range from this value up to but excluding the specified [to] value.\n * \n * If the [to] value is less than or equal to `this` value, then the returned range is empty.\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic infix fun UInt.until(to: UInt): UIntRange {\n   if (to <= UInt.MIN_VALUE) return UIntRange.EMPTY\n   return this .. (to - 1u).toUInt()\n}\n\n/**\n * Returns a range from this value up to but excluding the specified [to] value.\n * \n * If the [to] value is less than or equal to `this` value, then the returned range is empty.\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic infix fun ULong.until(to: ULong): ULongRange {\n   if (to <= ULong.MIN_VALUE) return ULongRange.EMPTY\n   return this .. (to - 1u).toULong()\n}\n\n/**\n * Returns a range from this value up to but excluding the specified [to] value.\n * \n * If the [to] value is less than or equal to `this` value, then the returned range is empty.\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic infix fun UShort.until(to: UShort): UIntRange {\n   if (to <= UShort.MIN_VALUE) return UIntRange.EMPTY\n   return this.toUInt() .. (to - 1u).toUInt()\n}\n\n/**\n * Ensures that this value is not less than the specified [minimumValue].\n * \n * @return this value if it's greater than or equal to the [minimumValue] or the [minimumValue] otherwise.\n * \n * @sample samples.comparisons.ComparableOps.coerceAtLeastUnsigned\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic fun UInt.coerceAtLeast(minimumValue: UInt): UInt {\n   return if (this < minimumValue) minimumValue else this\n}\n\n/**\n * Ensures that this value is not less than the specified [minimumValue].\n * \n * @return this value if it's greater than or equal to the [minimumValue] or the [minimumValue] otherwise.\n * \n * @sample samples.comparisons.ComparableOps.coerceAtLeastUnsigned\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic fun ULong.coerceAtLeast(minimumValue: ULong): ULong {\n   return if (this < minimumValue) minimumValue else this\n}\n\n/**\n * Ensures that this value is not less than the specified [minimumValue].\n * \n * @return this value if it's greater than or equal to the [minimumValue] or the [minimumValue] otherwise.\n * \n * @sample samples.comparisons.ComparableOps.coerceAtLeastUnsigned\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic fun UByte.coerceAtLeast(minimumValue: UByte): UByte {\n   return if (this < minimumValue) minimumValue else this\n}\n\n/**\n * Ensures that this value is not less than the specified [minimumValue].\n * \n * @return this value if it's greater than or equal to the [minimumValue] or the [minimumValue] otherwise.\n * \n * @sample samples.comparisons.ComparableOps.coerceAtLeastUnsigned\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic fun UShort.coerceAtLeast(minimumValue: UShort): UShort {\n   return if (this < minimumValue) minimumValue else this\n}\n\n/**\n * Ensures that this value is not greater than the specified [maximumValue].\n * \n * @return this value if it's less than or equal to the [maximumValue] or the [maximumValue] otherwise.\n * \n * @sample samples.comparisons.ComparableOps.coerceAtMostUnsigned\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic fun UInt.coerceAtMost(maximumValue: UInt): UInt {\n   return if (this > maximumValue) maximumValue else this\n}\n\n/**\n * Ensures that this value is not greater than the specified [maximumValue].\n * \n * @return this value if it's less than or equal to the [maximumValue] or the [maximumValue] otherwise.\n * \n * @sample samples.comparisons.ComparableOps.coerceAtMostUnsigned\n

*/\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic fun ULong.coerceAtMost(maximumValue: ULong): ULong {\n   return if (this > maximumValue) maximumValue else this\n}\n\n/**\n * Ensures that this value is not greater than the specified [maximumValue].\n * \n * @return this value if it's less than or equal to the [maximumValue] or the [maximumValue] otherwise.\n * \n * @sample samples.comparisons.ComparableOps.coerceAtMostUnsigned\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic fun UByte.coerceAtMost(maximumValue: UByte): UByte {\n   return if (this > maximumValue) maximumValue else this\n}\n\n/**\n * Ensures that this value is not greater than the specified [maximumValue].\n * \n * @return this value if it's less than or equal to the [maximumValue] or the [maximumValue] otherwise.\n * \n * @sample samples.comparisons.ComparableOps.coerceAtMostUnsigned\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic fun UShort.coerceAtMost(maximumValue: UShort): UShort {\n   return if (this > maximumValue) maximumValue else this\n}\n\n/**\n * Ensures that this value lies in the specified range [minimumValue]..[maximumValue].\n * \n * @return this value if it's in the range, or [minimumValue] if this value is less than [minimumValue], or [maximumValue] if this value is greater than [maximumValue].\n * \n * @sample samples.comparisons.ComparableOps.coerceInUnsigned\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic fun UInt.coerceIn(minimumValue: UInt, maximumValue: UInt): UInt {\n   if (minimumValue > maximumValue) throw IllegalArgumentException(\"Cannot coerce value to an empty range: maximum $maximumValue is less than minimum $minimumValue.\")\n   if (this < minimumValue) return minimumValue\n   if (this > maximumValue) return maximumValue\n   return this\n}\n\n/**\n * Ensures that this value lies in the specified range [minimumValue]..[maximumValue].\n * \n * @return this value if it's in the range, or [minimumValue] if this value is less than [minimumValue], or [maximumValue] if this value is greater than [maximumValue].\n * \n * @sample samples.comparisons.ComparableOps.coerceInUnsigned\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic fun ULong.coerceIn(minimumValue: ULong, maximumValue: ULong): ULong {\n   if (minimumValue > maximumValue) throw IllegalArgumentException(\"Cannot coerce value to an empty range: maximum $maximumValue is less than minimum $minimumValue.\")\n   if (this < minimumValue) return minimumValue\n   if (this > maximumValue) return maximumValue\n   return this\n}\n\n/**\n * Ensures that this value lies in the specified range [minimumValue]..[maximumValue].\n * \n * @return this value if it's in the range, or [minimumValue] if this value is less than [minimumValue], or [maximumValue] if this value is greater than [maximumValue].\n * \n * @sample samples.comparisons.ComparableOps.coerceInUnsigned\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic fun UByte.coerceIn(minimumValue: UByte, maximumValue: UByte): UByte {\n   if (minimumValue > maximumValue) throw IllegalArgumentException(\"Cannot coerce value to an empty range: maximum $maximumValue is less than minimum $minimumValue.\")\n   if (this < minimumValue) return minimumValue\n   if (this > maximumValue) return maximumValue\n   return this\n}\n\n/**\n * Ensures that this value lies in the specified range [minimumValue]..[maximumValue].\n * \n * @return this value if it's in the range, or [minimumValue] if this value is less than [minimumValue], or [maximumValue] if this value is greater than [maximumValue].\n * \n * @sample samples.comparisons.ComparableOps.coerceInUnsigned\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic fun UShort.coerceIn(minimumValue: UShort, maximumValue: UShort): UShort {\n   if (minimumValue > maximumValue) throw IllegalArgumentException(\"Cannot coerce value to an empty range: maximum $maximumValue is less than minimum $minimumValue.\")\n   if (this < minimumValue) return minimumValue\n   if (this > maximumValue) return maximumValue\n   return this\n}\n\n/**\n * Ensures that this value lies in the specified [range].\n * \n * @return this value if it's in the [range], or `range.start` if this value is less than `range.start`, or `range.endInclusive` if this value is greater than `range.endInclusive`.\n * \n * @sample samples.comparisons.ComparableOps.coerceInUnsigned\n

*/\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic fun UInt.coerceIn(range: ClosedRange<UInt>): UInt {\n   if (range is ClosedFloatingPointRange) {\n   return this.coerceIn<UInt>(range)\n   }\n   if (range.isEmpty()) throw IllegalArgumentException(\"Cannot coerce value to an empty range: $range.\")\n   return when {\n   this < range.start -> range.start\n   this > range.endInclusive -> range.endInclusive\n   else -> this\n   }\n}\n\n/**\n * Ensures that this value lies in the specified [range].\n * \n * @return this value if it's in the [range], or `range.start` if this value is less than `range.start`, or `range.endInclusive` if this value is greater than `range.endInclusive`.\n * \n * @sample samples.comparisons.ComparableOps.coerceInUnsigned\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic fun ULong.coerceIn(range: ClosedRange<ULong>): ULong {\n   if (range is ClosedFloatingPointRange) {\n   return this.coerceIn<ULong>(range)\n   }\n   if (range.isEmpty()) throw IllegalArgumentException(\"Cannot coerce value to an empty range: $range.\")\n   return when {\n   this < range.start -> range.start\n   this > range.endInclusive -> range.endInclusive\n   else -> this\n   }\n}\n\n","/*\n * Copyright 2010-2022 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\n@file:kotlin.jvm.JvmMultifileClass\n@file:kotlin.jvm.JvmName(\"USequencesKt\")\n\npackage kotlin.sequences\n\n//\n// NOTE: THIS FILE IS AUTO-GENERATED by the GenerateStandardLib.kt\n// See: https://github.com/JetBrains/kotlin/tree/master/libraries/stdlib\n//\n\nimport kotlin.random.*\n\n/**\n * Returns the sum of all elements in the sequence.\n *\n * The operation is _terminal_.\n */\n@kotlin.jvm.JvmName(\"sumOfUInt\")\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic fun Sequence<UInt>.sum(): UInt {\n   var sum: UInt = 0u\n   for (element in this) {\n   sum += element\n   }\n   return sum\n}\n\n/**\n * Returns the sum of all elements in the sequence.\n *\n * The operation is _terminal_.\n */\n@kotlin.jvm.JvmName(\"sumOfULong\")\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic fun Sequence<ULong>.sum(): ULong {\n   var sum: ULong = 0uL\n   for (element in this) {\n   sum += element\n   }\n   return sum\n}\n\n/**\n * Returns the sum of all elements in the sequence.\n *\n * The operation is _terminal_.\n */\n@kotlin.jvm.JvmName(\"sumOfUByte\")\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic fun Sequence<UByte>.sum(): UInt {\n   var sum: UInt = 0u\n   for (element in this) {\n   sum += element\n   }\n   return sum\n}\n\n/**\n * Returns the sum of all elements in the sequence.\n *\n * The operation is _terminal_.\n */\n@kotlin.jvm.JvmName(\"sumOfUShort\")\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic fun Sequence<UShort>.sum(): UInt {\n   var sum: UInt = 0u\n   for (element in this) {\n   sum += element\n   }\n   return sum\n}\n\n","/*\n * Copyright 2010-2020 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin\n\n\npublic expect open class Error : Throwable {\n   constructor()\n   constructor(message: String?)\n   constructor(message: String?, cause: Throwable?)\n   constructor(cause: Throwable?)\n}\n\npublic expect open class Exception : Throwable {\n   constructor()\n   constructor(message: String?)\n   constructor(message: String?, cause: Throwable?)\n   constructor(cause: Throwable?)\n}\n\npublic expect open class RuntimeException : Exception {\n   constructor()\n   constructor(message: String?)\n   constructor(message: String?, cause: Throwable?)\n   constructor(cause: Throwable?)\n}\n\npublic expect open class IllegalArgumentException : RuntimeException {\n   constructor()\n   constructor(message: String?)\n   constructor(message: String?, cause: Throwable?)\n   constructor(cause: Throwable?)\n}\n\npublic expect open class IllegalStateException : RuntimeException {\n   constructor()\n   constructor(message: String?)\n   constructor(message: String?, cause: Throwable?)\n   constructor(cause: Throwable?)\n}\n\npublic expect open class IndexOutOfBoundsException : RuntimeException {\n   constructor()\n   constructor(message: String?)\n}\n\npublic expect open class ConcurrentModificationException : RuntimeException {\n   constructor()\n   constructor(message: String?)\n   @Deprecated(\"The constructor is not

supported on all platforms and will be removed from kotlin-stdlib-common soon.\", level = DeprecationLevel.ERROR)\n   constructor(message: String?, cause: Throwable?)\n   @Deprecated(\"The constructor is not supported on all platforms and will be removed from kotlin-stdlib-common soon.\", level = DeprecationLevel.ERROR)\n   constructor(cause: Throwable?)\n}\n\npublic expect open class UnsupportedOperationException : RuntimeException {\n   constructor()\n   constructor(message: String?)\n constructor(message: String?, cause: Throwable?)\n   constructor(cause: Throwable?)\n}\n\npublic expect open class NumberFormatException : IllegalArgumentException {\n   constructor()\n   constructor(message: String?)\n}\n\npublic expect open class NullPointerException : RuntimeException {\n   constructor()\n constructor(message: String?)\n}\n\npublic expect open class ClassCastException : RuntimeException {\n constructor()\n   constructor(message: String?)\n}\n\npublic expect open class AssertionError : Error {\n constructor()\n   constructor(message: Any?)\n}\n\npublic expect open class NoSuchElementException : RuntimeException {\n   constructor()\n   constructor(message: String?)\n}\n\n@SinceKotlin(\"1.3\")\npublic expect open class ArithmeticException : RuntimeException {\n   constructor()\n   constructor(message: String?)\n}\n\n@Deprecated(\"This exception type is not supposed to be thrown or caught in common code and will be removed from kotlin-stdlib-common soon.\", level = DeprecationLevel.ERROR)\npublic expect open class NoWhenBranchMatchedException : RuntimeException {\n   constructor()\n   constructor(message: String?)\n constructor(message: String?, cause: Throwable?)\n   constructor(cause: Throwable?)\n}\n\n@Deprecated(\"This exception type is not supposed to be thrown or caught in common code and will be removed from kotlin-stdlib-common soon.\", level = DeprecationLevel.ERROR)\npublic expect class UninitializedPropertyAccessException : RuntimeException {\n   constructor()\n   constructor(message: String?)\n   constructor(message: String?, cause: Throwable?)\n   constructor(cause: Throwable?)\n}\n\n/**\n * Thrown after invocation of a function or property that was expected to return `Nothing`, but returned something instead.\n */\n@SinceKotlin(\"1.4\")\n@PublishedApi\ninternal class KotlinNothingValueException : RuntimeException {\n constructor() : super()\n   constructor(message: String?) : super(message)\n   constructor(message: String?, cause: Throwable?) : super(message, cause)\n   constructor(cause: Throwable?) : super(cause)\n}\n\n\n/**\n * Returns the detailed description of this throwable with its stack trace.\n *\n * The detailed description includes:\n * - the short description (see [Throwable.toString]) of this throwable;\n * - the complete stack trace;\n * - detailed descriptions of the exceptions that were [suppressed][suppressedExceptions] in order to deliver this exception;\n * - the detailed description of each throwable in the [Throwable.cause] chain.\n */\n@SinceKotlin(\"1.4\")\npublic expect fun Throwable.stackTraceToString(): String\n\n/**\n * Prints the [detailed description][Throwable.stackTraceToString] of this throwable to the standard output or standard error output.\n */\n@SinceKotlin(\"1.4\")\n@Suppress(\"EXTENSION_SHADOWED_BY_MEMBER\")\npublic expect fun Throwable.printStackTrace(): Unit\n\n/**\n * When supported by the platform, adds the specified exception to the list of exceptions that were\n * suppressed in order to deliver this exception.\n */\n@SinceKotlin(\"1.4\")\n@Suppress(\"EXTENSION_SHADOWED_BY_MEMBER\")\npublic expect fun Throwable.addSuppressed(exception: Throwable)\n\n/**\n * Returns a list of all exceptions that were suppressed in order to deliver this exception.\n *\n * The list can be empty:\n * - if no exceptions were suppressed;\n * - if the platform doesn't support suppressed exceptions;\n * - if this [Throwable] instance has disabled the suppression.\n */\n@SinceKotlin(\"1.4\")\npublic expect val Throwable.suppressedExceptions: List<Throwable>\n","/*\n * Copyright 2010-2018 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin.js\n\nimport kotlin.annotation.AnnotationTarget.*\n\n/**\n * Gives a declaration (a function, a property or a class) specific name in JavaScript.\n */\n@Target(CLASS, FUNCTION, PROPERTY, CONSTRUCTOR, PROPERTY_GETTER, PROPERTY_SETTER)\n@OptionalExpectation\npublic expect annotation class JsName(val name: String)\n\n/**\n * Marks experimental JS export annotations.\n *\n * Note that behavior of these annotations will likely be changed in the future.\n *\n * Usages of such annotations will be reported as warnings unless an explicit opt-in with\n * the [OptIn] annotation, e.g. `@OptIn(ExperimentalJsExport::class)`,\n * or with the `-opt-in=kotlin.js.ExperimentalJsExport` compiler option is given.\n */\n@RequiresOptIn(level =

RequiresOptIn.Level.WARNING)\n@MustBeDocumented\n@Retention(AnnotationRetention.BINARY)\n@Since
Kotlin(\"1.4\")\npublic annotation class ExperimentalJsExport\n\n/**\n * Exports top-level declaration on JS
platform.\n *\n * Compiled module exposes declarations that are marked with this annotation without name
mangling.\n *\n * This annotation can be applied to either files or top-level declarations.\n *\n * It is currently
prohibited to export the following kinds of declarations:\n *\n *   * `expect` declarations\n *   * inline functions with
reified type parameters\n *   * suspend functions\n *   * secondary constructors without `@JsName`\n *   *
extension properties\n *   * enum classes\n *   * annotation classes\n *\n * Signatures of exported declarations must
only contain \"exportable\" types:\n *\n *   * `dynamic`, `Any`, `String`, `Boolean`, `Byte`, `Short`, `Int`, `Float`,
`Double`\n *   * `BooleanArray`, `ByteArray`, `ShortArray`, `IntArray`, `FloatArray`, `DoubleArray`\n *   *
`Array<exportable-type>`\n *   * Function types with exportable parameters and return types\n *   * `external` or
`@JsExport` classes and interfaces\n *   * Nullable counterparts of types above\n *   * Unit return type. Must not be
nullable\n *\n * This annotation is experimental, meaning that restrictions mentioned above are subject to change.\n
*/\n@ExperimentalJsExport\n@Retention(AnnotationRetention.BINARY)\n@Target(CLASS, PROPERTY,
FUNCTION, FILE)\n@SinceKotlin(\"1.4\")\n@OptionalExpectation\npublic expect annotation class
JsExport()","/*\n * Copyright 2010-2018 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use
of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n
*/\n\npackage kotlin.io\n\n\n/** Prints the line separator to the standard output stream. */\npublic expect fun
println()\n\n/** Prints the given [message] and the line separator to the standard output stream. */\npublic expect fun
println(message: Any?)\n\n/** Prints the given [message] to the standard output stream. */\npublic expect fun
print(message: Any?)\n\n/**\n * Reads a line of input from the standard input stream and returns it,\n * or throws a
[RuntimeException] if EOF has already been reached when [readln] is called.\n *\n * LF or CRLF is treated as the
line terminator. Line terminator is not included in the returned string.\n *\n * Currently this function is not supported
in Kotlin/JS and throws [UnsupportedOperationException].\n */\n@SinceKotlin(\"1.6\")\npublic expect fun
readln(): String\n\n/**\n * Reads a line of input from the standard input stream and returns it,\n * or return `null` if
EOF has already been reached when [readlnOrNull] is called.\n *\n * LF or CRLF is treated as the line terminator.
Line terminator is not included in the returned string.\n *\n * Currently this function is not supported in Kotlin/JS
and throws [UnsupportedOperationException].\n */\n@SinceKotlin(\"1.6\")\npublic expect fun readlnOrNull():
String?\n\ninternal class ReadAfterEOFException(message: String?) : RuntimeException(message)\n\n\ninternal
expect interface Serializable\n","/*\n * Copyright 2010-2020 JetBrains s.r.o. and Kotlin Programming Language
contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the
license/LICENSE.txt file.\n */\n\npackage kotlin.collections\n\nimport kotlin.internal.PlatformDependent\n\n/**\n *
Classes that inherit from this interface can be represented as a sequence of elements that can\n * be iterated over.\n *
@param T the type of element being iterated over. The iterator is covariant in its element type.\n */\npublic interface
Iterable<out T> {\n   /**\n   * Returns an iterator over the elements of this object.\n   */\n   public operator fun
iterator(): Iterator<T>\n}\n\n/**\n * Classes that inherit from this interface can be represented as a sequence of
elements that can\n * be iterated over and that supports removing elements during iteration.\n * @param T the type
of element being iterated over. The mutable iterator is invariant in its element type.\n */\npublic interface
MutableIterable<out T> : Iterable<T> {\n   /**\n   * Returns an iterator over the elements of this sequence that
supports removing elements during iteration.\n   */\n   override fun iterator(): MutableIterator<T>\n}\n\n/**\n * A
generic collection of elements. Methods in this interface support only read-only access to the collection;\n *
read/write access is supported through the [MutableCollection] interface.\n * @param E the type of elements
contained in the collection. The collection is covariant in its element type.\n */\npublic interface Collection<out E> :
Iterable<E> {\n   // Query Operations\n   /**\n   * Returns the size of the collection.\n   */\n   public val size:
Int\n\n   /**\n   * Returns `true` if the collection is empty (contains no elements), `false` otherwise.\n   */\n
public fun isEmpty(): Boolean\n\n   /**\n   * Checks if the specified element is contained in this collection.\n
*/\n   public operator fun contains(element: @UnsafeVariance E): Boolean\n\n   override fun iterator():
Iterator<E>\n\n   // Bulk Operations\n   /**\n   * Checks if all elements in the specified collection are contained in
this collection.\n   */\n   public fun containsAll(elements: Collection<@UnsafeVariance E>): Boolean\n}\n\n/**\n

* A generic collection of elements that supports adding and removing elements.\n *\n * @param E the type of elements contained in the collection. The mutable collection is invariant in its element type.\n */\npublic interface MutableCollection<E> : Collection<E>, MutableIterable<E> {\n   // Query Operations\n   override fun iterator(): MutableIterator<E>\n\n   // Modification Operations\n   /**\n   * Adds the specified element to the collection.\n   *\n   * @return `true` if the element has been added, `false` if the collection does not support duplicates\n   * and the element is already contained in the collection.\n   */\n   public fun add(element: E): Boolean\n\n   /**\n   * Removes a single instance of the specified element from this\n   * collection, if it is present.\n   *\n   * @return `true` if the element has been successfully removed; `false` if it was not present in the collection.\n   */\n   public fun remove(element: E): Boolean\n\n   // Bulk Modification Operations\n   /**\n   * Adds all of the elements of the specified collection to this collection.\n   *\n   * @return `true` if any of the specified elements was added to the collection, `false` if the collection was not modified.\n   */\n   public fun addAll(elements: Collection<E>): Boolean\n\n   /**\n   * Removes all of this collection's elements that are also contained in the specified collection.\n   *\n   * @return `true` if any of the specified elements was removed from the collection, `false` if the collection was not modified.\n   */\n   public fun removeAll(elements: Collection<E>): Boolean\n\n   /**\n   * Retains only the elements in this collection that are contained in the specified collection.\n   *\n   * @return `true` if any element was removed from the collection, `false` if the collection was not modified.\n   */\n   public fun retainAll(elements: Collection<E>): Boolean\n\n   /**\n   * Removes all elements from this collection.\n   */\n   public fun clear(): Unit\n}\n\n/**\n * A generic ordered collection of elements. Methods in this interface support only read-only access to the list;\n * read/write access is supported through the [MutableList] interface.\n * @param E the type of elements contained in the list. The list is covariant in its element type.\n */\npublic interface List<out E> : Collection<E> {\n   // Query Operations\n\n   override val size: Int\n   override fun isEmpty(): Boolean\n   override fun contains(element: @UnsafeVariance E): Boolean\n   override fun iterator(): Iterator<E>\n\n   // Bulk Operations\n   override fun containsAll(elements: Collection<@UnsafeVariance E>): Boolean\n\n   // Positional Access Operations\n   /**\n   * Returns the element at the specified index in the list.\n   */\n   public operator fun get(index: Int): E\n\n   // Search Operations\n   /**\n   * Returns the index of the first occurrence of the specified element in the list, or -1 if the specified\n   * element is not contained in the list.\n   */\n   public fun indexOf(element: @UnsafeVariance E): Int\n\n   /**\n   * Returns the index of the last occurrence of the specified element in the list, or -1 if the specified\n   * element is not contained in the list.\n   */\n   public fun lastIndexOf(element: @UnsafeVariance E): Int\n\n   // List Iterators\n   /**\n   * Returns a list iterator over the elements in this list (in proper sequence).\n   */\n   public fun listIterator(): ListIterator<E>\n\n   /**\n   * Returns a list iterator over the elements in this list (in proper sequence), starting at the specified [index].\n   */\n   public fun listIterator(index: Int): ListIterator<E>\n\n   // View\n   /**\n   * Returns a view of the portion of this list between the specified [fromIndex] (inclusive) and [toIndex] (exclusive).\n   * The returned list is backed by this list, so non-structural changes in the returned list are reflected in this list, and vice-versa.\n   *\n   * Structural changes in the base list make the behavior of the view undefined.\n   */\n   public fun subList(fromIndex: Int, toIndex: Int): List<E>\n}\n\n/**\n * A generic ordered collection of elements that supports adding and removing elements.\n * @param E the type of elements contained in the list. The mutable list is invariant in its element type.\n */\npublic interface MutableList<E> : List<E>, MutableCollection<E> {\n   // Modification Operations\n   /**\n   * Adds the specified element to the end of this list.\n   *\n   * @return `true` because the list is always modified as the result of this operation.\n   */\n   override fun add(element: E): Boolean\n\n   override fun remove(element: E): Boolean\n\n   // Bulk Modification Operations\n   /**\n   * Adds all of the elements of the specified collection to the end of this list.\n   *\n   * The elements are appended in the order they appear in the [elements] collection.\n   *\n   * @return `true` if the list was changed as the result of the operation.\n   */\n   override fun addAll(elements: Collection<E>): Boolean\n\n   /**\n   * Inserts all of the elements of the specified collection [elements] into this list at the specified [index].\n   *\n   * @return `true` if the list was changed as the result of the operation.\n   */\n   public fun addAll(index: Int, elements: Collection<E>): Boolean\n\n   override fun removeAll(elements: Collection<E>): Boolean\n   override fun retainAll(elements: Collection<E>): Boolean\n   override fun clear(): Unit\n\n   // Positional Access Operations\n   /**\n   * Replaces

the element at the specified position in this list with the specified element.\n   *\n   * @return the element
previously at the specified position.\n   */\n   public operator fun set(index: Int, element: E): E\n\n   /**\n   *
Inserts an element into the list at the specified [index].\n   */\n   public fun add(index: Int, element: E): Unit\n\n
/**\n   * Removes an element at the specified [index] from the list.\n   *\n   * @return the element that has been
removed.\n   */\n   public fun removeAt(index: Int): E\n\n   // List Iterators\n   override fun listIterator():
MutableListIterator<E>\n\n   override fun listIterator(index: Int): MutableListIterator<E>\n\n   // View\n   override
fun subList(fromIndex: Int, toIndex: Int): MutableList<E>\n}\n\n/**\n * A generic unordered collection of elements
that does not support duplicate elements.\n * Methods in this interface support only read-only access to the set;\n *
read/write access is supported through the [MutableSet] interface.\n * @param E the type of elements contained in
the set. The set is covariant in its element type.\n */\npublic interface Set<out E> : Collection<E> {\n   // Query
Operations\n\n   override val size: Int\n   override fun isEmpty(): Boolean\n   override fun contains(element:
@UnsafeVariance E): Boolean\n   override fun iterator(): Iterator<E>\n\n   // Bulk Operations\n   override fun
containsAll(elements: Collection<@UnsafeVariance E>): Boolean\n}\n\n/**\n * A generic unordered collection of
elements that does not support duplicate elements, and supports\n * adding and removing elements.\n * @param E
the type of elements contained in the set. The mutable set is invariant in its element type.\n */\npublic interface
MutableSet<E> : Set<E>, MutableCollection<E> {\n   // Query Operations\n   override fun iterator():
MutableIterator<E>\n\n   // Modification Operations\n\n   /**\n   * Adds the specified element to the set.\n   *\n
 * @return `true` if the element has been added, `false` if the element is already contained in the set.\n   */\n
override fun add(element: E): Boolean\n\n   override fun remove(element: E): Boolean\n\n   // Bulk Modification
Operations\n\n   override fun addAll(elements: Collection<E>): Boolean\n   override fun removeAll(elements:
Collection<E>): Boolean\n   override fun retainAll(elements: Collection<E>): Boolean\n   override fun clear():
Unit\n}\n\n/**\n * A collection that holds pairs of objects (keys and values) and supports efficiently retrieving\n *
the value corresponding to each key. Map keys are unique; the map holds only one value for each key.\n * Methods
in this interface support only read-only access to the map; read-write access is supported through\n * the
[MutableMap] interface.\n * @param K the type of map keys. The map is invariant in its key type, as it\n *   can
accept key as a parameter (of [containsKey] for example) and return it in [keys] set.\n * @param V the type of map
values. The map is covariant in its value type.\n */\npublic interface Map<K, out V> {\n   // Query Operations\n
/**\n   * Returns the number of key/value pairs in the map.\n   */\n   public val size: Int\n\n   /**\n   * Returns
`true` if the map is empty (contains no elements), `false` otherwise.\n   */\n   public fun isEmpty(): Boolean\n\n
/**\n   * Returns `true` if the map contains the specified [key].\n   */\n   public fun containsKey(key: K):
Boolean\n\n   /**\n   * Returns `true` if the map maps one or more keys to the specified [value].\n   */\n   public
fun containsValue(value: @UnsafeVariance V): Boolean\n\n   /**\n   * Returns the value corresponding to the
given [key], or `null` if such a key is not present in the map.\n   */\n   public operator fun get(key: K): V?\n\n
/**\n   * Returns the value corresponding to the given [key], or [defaultValue] if such a key is not present in the
map.\n   *\n   * @since JDK 1.8\n   */\n   @SinceKotlin(\"1.1\")\n   @PlatformDependent\n   public fun
getOrDefault(key: K, defaultValue: @UnsafeVariance V): V {\n   // See default implementation in JDK
sources\n   throw NotImplementedError()\n   }\n\n   // Views\n   /**\n   * Returns a read-only [Set] of all keys
in this map.\n   */\n   public val keys: Set<K>\n\n   /**\n   * Returns a read-only [Collection] of all values in this
map. Note that this collection may contain duplicate values.\n   */\n   public val values: Collection<V>\n\n   /**\n
  * Returns a read-only [Set] of all key/value pairs in this map.\n   */\n   public val entries: Set<Map.Entry<K,
V>>\n\n   /**\n   * Represents a key/value pair held by a [Map].\n   */\n   public interface Entry<out K, out V>
{\n   /**\n   * Returns the key of this key/value pair.\n   */\n   public val key: K\n\n   /**\n   *
Returns the value of this key/value pair.\n   */\n   public val value: V\n   }\n}\n\n/**\n * A modifiable
collection that holds pairs of objects (keys and values) and supports efficiently retrieving\n * the value
corresponding to each key. Map keys are unique; the map holds only one value for each key.\n * @param K the type
of map keys. The map is invariant in its key type.\n * @param V the type of map values. The mutable map is
invariant in its value type.\n */\npublic interface MutableMap<K, V> : Map<K, V> {\n   // Modification
Operations\n   /**\n   * Associates the specified [value] with the specified [key] in the map.\n   *\n   * @return

the previous value associated with the key, or `null` if the key was not present in the map.\n   */\n   public fun put(key: K, value: V): V?\n\n   /**\n   * Removes the specified key and its corresponding value from this map.\n   *\n   * @return the previous value associated with the key, or `null` if the key was not present in the map.\n   */\n   public fun remove(key: K): V?\n\n   /**\n   * Removes the entry for the specified key only if it is mapped to the specified value.\n   *\n   * @return true if entry was removed\n   */\n   @SinceKotlin(\"1.1\")\n   @PlatformDependent\n   public fun remove(key: K, value: V): Boolean {\n   // See default implementation in JDK sources\n   return true\n   }\n\n   // Bulk Modification Operations\n   /**\n   * Updates this map with key/value pairs from the specified map [from].\n   */\n   public fun putAll(from: Map<out K, V>): Unit\n\n   /**\n   * Removes all elements from this map.\n   */\n   public fun clear(): Unit\n\n   // Views\n   /**\n   * Returns a [MutableSet] of all keys in this map.\n   */\n   override val keys: MutableSet<K>\n\n   /**\n   * Returns a [MutableCollection] of all values in this map. Note that this collection may contain duplicate values.\n   */\n   override val values: MutableCollection<V>\n\n   /**\n   * Returns a [MutableSet] of all key/value pairs in this map.\n   */\n   override val entries: MutableSet<MutableMap.MutableEntry<K, V>>\n\n   /**\n   * Represents a key/value pair held by a [MutableMap].\n   */\n   public interface MutableEntry<K, V> : Map.Entry<K, V> {\n   /**\n   * Changes the value associated with the key of this entry.\n   *\n   * @return the previous value corresponding to the key.\n   */\n   public fun setValue(newValue: V): V\n   }\n}\n","/*\n * Copyright 2010-2015 JetBrains s.r.o.\n *\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n */\n\npackage kotlin\n\n/**\n * The type with only one value: the `Unit` object. This type corresponds to the `void` type in Java.\n */\npublic object Unit {\n   override fun toString() = \"kotlin.Unit\"\n}\n","/*\n * Copyright 2010-2015 JetBrains s.r.o.\n *\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n */\n\npackage kotlin.annotation\n\nimport kotlin.annotation.AnnotationTarget.*\n\n/**\n * Contains the list of code elements which are the possible annotation targets\n */\npublic enum class AnnotationTarget {\n   /** Class, interface or object, annotation class is also included */\n   CLASS,\n   /** Annotation class only */\n   ANNOTATION_CLASS,\n   /** Generic type parameter */\n   TYPE_PARAMETER,\n   /** Property */\n   PROPERTY,\n   /** Field, including property's backing field */\n   FIELD,\n   /** Local variable */\n   LOCAL_VARIABLE,\n   /** Value parameter of a function or a constructor */\n   VALUE_PARAMETER,\n   /** Constructor only (primary or secondary) */\n   CONSTRUCTOR,\n   /** Function (constructors are not included) */\n   FUNCTION,\n   /** Property getter only */\n   PROPERTY_GETTER,\n   /** Property setter only */\n   PROPERTY_SETTER,\n   /** Type usage */\n   TYPE,\n   /** Any expression */\n   EXPRESSION,\n   /** File */\n   FILE,\n   /** Type alias */\n   @SinceKotlin(\"1.1\")\n   TYPEALIAS\n}\n\n/**\n * Contains the list of possible annotation's retentions.\n *\n * Determines how an annotation is stored in binary output.\n */\npublic enum class AnnotationRetention {\n   /** Annotation isn't stored in binary output */\n   SOURCE,\n   /** Annotation is stored in binary output, but invisible for reflection */\n   BINARY,\n   /** Annotation is stored in binary output and visible for reflection (default retention) */\n   RUNTIME\n}\n\n/**\n * This meta-annotation indicates the kinds of code elements which are possible targets of an annotation.\n *\n * If the target meta-annotation is not present on an annotation declaration, the annotation is applicable to the following elements:\n * [CLASS], [PROPERTY], [FIELD], [LOCAL_VARIABLE], [VALUE_PARAMETER], [CONSTRUCTOR], [FUNCTION], [PROPERTY_GETTER], [PROPERTY_SETTER].\n *\n * @property allowedTargets list of allowed annotation targets\n

*/\n@Target(AnnotationTarget.ANNOTATION_CLASS)\n@MustBeDocumented\npublic annotation class Target(vararg val allowedTargets: AnnotationTarget)\n\n/**\n * This meta-annotation determines whether an annotation is stored in binary output and visible for reflection. By default, both are true.\n *\n * @property value necessary annotation retention (RUNTIME, BINARY or SOURCE)\n */\n@Target(AnnotationTarget.ANNOTATION_CLASS)\npublic annotation class Retention(val value: AnnotationRetention = AnnotationRetention.RUNTIME)\n\n/**\n * This meta-annotation determines that an annotation is applicable twice or more on a single code element\n */\n@Target(AnnotationTarget.ANNOTATION_CLASS)\npublic annotation class Repeatable\n\n/**\n * This meta-annotation determines that an annotation is a part of public API and therefore should be included in the generated\n * documentation for the element to which the annotation is applied.\n */\n@Target(AnnotationTarget.ANNOTATION_CLASS)\npublic annotation class MustBeDocumented\n","/*\n * Copyright 2010-2018 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\n@JsName(\"arrayIterator\")\ninternal fun arrayIterator(array: dynamic, type: String?) = when (type) {\n   null -> {\n   val arr: Array<dynamic> = array\n   object : Iterator<dynamic> {\n   var index = 0\n   override fun hasNext() = index < arr.size\n   override fun next() = if (index < arr.size) arr[index++] else throw NoSuchElementException(\"$index\")\n   }\n   }\n   \"BooleanArray\" -> booleanArrayIterator(array)\n   \"ByteArray\" -> byteArrayIterator(array)\n   \"ShortArray\" -> shortArrayIterator(array)\n   \"CharArray\" -> charArrayIterator(array)\n   \"IntArray\" -> intArrayIterator(array)\n   \"LongArray\" -> longArrayIterator(array)\n   \"FloatArray\" -> floatArrayIterator(array)\n   \"DoubleArray\" -> doubleArrayIterator(array)\n   else -> throw IllegalStateException(\"Unsupported type argument for arrayIterator: $type\")\n}\n\n@JsName(\"booleanArrayIterator\")\ninternal fun booleanArrayIterator(array: BooleanArray) = object : BooleanIterator() {\n   var index = 0\n   override fun hasNext() = index < array.size\n   override fun nextBoolean() = if (index < array.size) array[index++] else throw NoSuchElementException(\"$index\")\n}\n\n@JsName(\"byteArrayIterator\")\ninternal fun byteArrayIterator(array: ByteArray) = object : ByteIterator() {\n   var index = 0\n   override fun hasNext() = index < array.size\n   override fun nextByte() = if (index < array.size) array[index++] else throw NoSuchElementException(\"$index\")\n}\n\n@JsName(\"shortArrayIterator\")\ninternal fun shortArrayIterator(array: ShortArray) = object : ShortIterator() {\n   var index = 0\n   override fun hasNext() = index < array.size\n   override fun nextShort() = if (index < array.size) array[index++] else throw NoSuchElementException(\"$index\")\n}\n\n@JsName(\"charArrayIterator\")\ninternal fun charArrayIterator(array: CharArray) = object : CharIterator() {\n   var index = 0\n   override fun hasNext() = index < array.size\n   override fun nextChar() = if (index < array.size) array[index++] else throw NoSuchElementException(\"$index\")\n}\n\n@JsName(\"intArrayIterator\")\ninternal fun intArrayIterator(array: IntArray) = object : IntIterator() {\n   var index = 0\n   override fun hasNext() = index < array.size\n   override fun nextInt() = if (index < array.size) array[index++] else throw NoSuchElementException(\"$index\")\n}\n\n@JsName(\"floatArrayIterator\")\ninternal fun floatArrayIterator(array: FloatArray) = object : FloatIterator() {\n   var index = 0\n   override fun hasNext() = index < array.size\n   override fun nextFloat() = if (index < array.size) array[index++] else throw NoSuchElementException(\"$index\")\n}\n\n@JsName(\"doubleArrayIterator\")\ninternal fun doubleArrayIterator(array: DoubleArray) = object : DoubleIterator() {\n   var index = 0\n   override fun hasNext() = index < array.size\n   override fun nextDouble() = if (index < array.size) array[index++] else throw NoSuchElementException(\"$index\")\n}\n\n@JsName(\"longArrayIterator\")\ninternal fun longArrayIterator(array: LongArray) = object : LongIterator() {\n   var index = 0\n   override fun hasNext() = index < array.size\n   override fun nextLong() = if (index < array.size) array[index++] else throw NoSuchElementException(\"$index\")\n}\n\n@JsName(\"PropertyMetadata\")\ninternal class PropertyMetadata(@JsName(\"callableName\") val name: String)\n\n@JsName(\"noWhenBranchMatched\")\ninternal fun noWhenBranchMatched(): Nothing = throw

NoWhenBranchMatchedException()\n\n@JsName(\"subSequence\")\ninternal fun subSequence(c: CharSequence, startIndex: Int, endIndex: Int): CharSequence {\n   if (c is String) {\n   return c.substring(startIndex, endIndex)\n   } else {\n   return c.asDynamic().`subSequence_vux9f0$`(startIndex, endIndex)\n   }\n}\n\n@JsName(\"captureStack\")\ninternal fun captureStack(@Suppress(\"UNUSED_PARAMETER\") baseClass: JsClass<in Throwable>, instance: Throwable) {\n   if (js(\"Error\").captureStackTrace) {\n   // Using uncropped stack traces due to KT-37563.\n   // Precise stack traces are implemented in JS IR compiler and stdlib\n   js(\"Error\").captureStackTrace(instance);\n   } else {\n   instance.asDynamic().stack = js(\"new Error()\").stack;\n   }\n}\n\n@JsName(\"newThrowable\")\ninternal fun newThrowable(message: String?, cause: Throwable?): Throwable {\n   val throwable = js(\"new Error()\")\n   throwable.message = if (jsTypeOf(message) == \"undefined\") {\n   if (cause != null) cause.toString() else null\n   } else {\n   message\n   }\n   throwable.cause = cause\n   throwable.name = \"Throwable\"\n   return throwable\n}\n\n@JsName(\"BoxedChar\")\ninternal class BoxedChar(val c: Int) : Comparable<Int> {\n   override fun equals(other: Any?): Boolean {\n   return other is BoxedChar && c == other.c\n   }\n\n   override fun hashCode(): Int {\n   return c\n   }\n\n   override fun toString(): String {\n   return js(\"this.c\").unsafeCast<Char>().toString()\n   }\n\n   override fun compareTo(other: Int): Int {\n   return js(\"this.c - other\").unsafeCast<Int>()\n   }\n\n   @JsName(\"valueOf\")\n   public fun valueOf(): Int {\n   return c\n   }\n}\n\n@kotlin.internal.InlineOnly\ninternal inline fun <T> concat(args: Array<T>): T {\n   val typed = js(\"Array\")(args.size)\n   for (i in args.indices) {\n   val arr = args[i]\n   if (arr !is Array<*>) {\n   typed[i] = js(\"[]\").slice.call(arr)\n   } else {\n   typed[i] = arr\n   }\n   }\n   return js(\"[]\").concat.apply(js(\"[]\"), typed);\n}\n\n/** Concat regular Array's and TypedArray's into an Array.\n */\n@PublishedApi\n@JsName(\"arrayConcat\")\n@Suppress(\"UNUSED_PARAMETER\")\ninternal fun <T> arrayConcat(a: T, b: T): T {\n   return concat(js(\"arguments\"))\n}\n\n/** Concat primitive arrays. Main use: prepare vararg arguments.\n * For compatibility with 1.1.0 the arguments may be a mixture of Array's and TypedArray's.\n *\n * If the first argument is TypedArray (Byte-, Short-, Char-, Int-, Float-, and DoubleArray) returns a TypedArray, otherwise an Array.\n * If the first argument has the $type$ property (Boolean-, Char-, and LongArray) copy its value to result.$type$.\n * If the first argument is a regular Array without the $type$ property default to arrayConcat.\n */\n@PublishedApi\n@JsName(\"primitiveArrayConcat\")\n@Suppress(\"UNUSED_PARAMETER\")\ninternal fun <T> primitiveArrayConcat(a: T, b: T): T {\n   val args: Array<T> = js(\"arguments\")\n   if (a is Array<*> && a.asDynamic().`$type$` === undefined) {\n   return concat(args)\n   } else {\n   var size = 0\n   for (i in args.indices) {\n   size += args[i].asDynamic().length as Int\n   }\n   val result = js(\"new a.constructor(size)\")\n   kotlin.copyArrayType(a, result)\n   size = 0\n   for (i in args.indices) {\n   val arr = args[i].asDynamic()\n   for (j in 0 until arr.length) {\n   result[size++] = arr[j]\n   }\n   }\n   return result\n   }\n}\n\n@JsName(\"booleanArrayOf\")\ninternal fun booleanArrayOf() = withType(\"BooleanArray\", js(\"[].slice.call(arguments)\"))\n\n@JsName(\"charArrayOf\")\ninternal fun charArrayOf() = withType(\"CharArray\", js(\"new Uint16Array(arguments)\"))\n\n@JsName(\"longArrayOf\")\ninternal fun longArrayOf() = withType(\"LongArray\", js(\"[].slice.call(arguments)\"))\n\n@JsName(\"withType\")\n@kotlin.internal.InlineOnly\ninternal inline fun withType(type: String, array: dynamic): dynamic {\n   array.`$type$` = type\n   return array\n}","/*\n * Copyright 2010-2018 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin.js\n\n/**\n * Function corresponding to JavaScript's `typeof` operator\n */\n@kotlin.internal.InlineOnly\n@Suppress(\"UNUSED_PARAMETER\")\npublic inline fun jsTypeOf(a: Any?): String = js(\"typeof a\")\n","/*\n * Copyright 2010-2018 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\n@file:Suppress(\"UNUSED_PARAMETER\", \"NOTHING_TO_INLINE\")\n\npackage kotlin\n\n/**\n * Returns an empty array of the specified type [T].\n

*/\npublic inline fun <T> emptyArray(): Array<T> = js(\"[]\")\n\n@library\npublic fun <T> arrayOf(vararg elements: T): Array<T> = definedExternally\n\n@library\npublic fun doubleArrayOf(vararg elements: Double): DoubleArray = definedExternally\n\n@library\npublic fun floatArrayOf(vararg elements: Float): FloatArray = definedExternally\n\n@library\npublic fun longArrayOf(vararg elements: Long): LongArray = definedExternally\n\n@library\npublic fun intArrayOf(vararg elements: Int): IntArray = definedExternally\n\n@library\npublic fun charArrayOf(vararg elements: Char): CharArray = definedExternally\n\n@library\npublic fun shortArrayOf(vararg elements: Short): ShortArray = definedExternally\n\n@library\npublic fun byteArrayOf(vararg elements: Byte): ByteArray = definedExternally\n\n@library\npublic fun booleanArrayOf(vararg elements: Boolean): BooleanArray = definedExternally\n\n/**\n * Creates a new instance of the [Lazy] that uses the specified initialization function [initializer].\n */\npublic actual fun <T> lazy(initializer: () -> T): Lazy<T> = UnsafeLazyImpl(initializer)\n\n/**\n * Creates a new instance of the [Lazy] that uses the specified initialization function [initializer].\n *\n * The [mode] parameter is ignored. */\npublic actual fun <T> lazy(mode: LazyThreadSafetyMode, initializer: () -> T): Lazy<T> = UnsafeLazyImpl(initializer)\n\n/**\n * Creates a new instance of the [Lazy] that uses the specified initialization function [initializer].\n *\n * The [lock] parameter is ignored.\n */\npublic actual fun <T> lazy(lock: Any?, initializer: () -> T): Lazy<T> = UnsafeLazyImpl(initializer)\n\n\ninternal fun fillFrom(src: dynamic, dst: dynamic): dynamic {\n   val srcLen: Int = src.length\n   val dstLen: Int = dst.length\n   var index: Int = 0\n   while (index < srcLen && index < dstLen) dst[index] = src[index++]\n   return dst\n}\n\n\ninternal fun arrayCopyResize(source: dynamic, newSize: Int, defaultValue: Any?): dynamic {\n   val result = source.slice(0, newSize)\n   copyArrayType(source, result)\n   var index: Int = source.length\n   if (newSize > index) {\n   result.length = newSize\n   while (index < newSize) result[index++] = defaultValue\n   }\n   return result\n}\n\ninternal fun <T> arrayPlusCollection(array: dynamic, collection: Collection<T>): dynamic {\n   val result = array.slice()\n   result.length += collection.size\n   copyArrayType(array, result)\n   var index: Int = array.length\n   for (element in collection) result[index++] = element\n   return result\n}\n\ninternal fun <T> fillFromCollection(dst: dynamic, startIndex: Int, collection: Collection<T>): dynamic {\n   var index = startIndex\n   for (element in collection) dst[index++] = element\n   return dst\n}\n\ninternal inline fun copyArrayType(from: dynamic, to: dynamic) {\n   if (from.`$type$` !== undefined) {\n   to.`$type$` = from.`$type$`\n   }\n}\n\ninternal inline fun jsIsType(obj: dynamic, jsClass: dynamic) = js(\"Kotlin\").isType(obj, jsClass)","/*\n * Copyright 2010-2021 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin\n\n/**\n * Creates a Char with the specified [code].\n *\n * @sample samples.text.Chars.charFromCode\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalStdlibApi::class)\n@kotlin.internal.InlineOnly\npublic actual inline fun Char(code: UShort): Char {\n   return code.toInt().toChar()\n}\n","/*\n * Copyright 2010-2018 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin.coroutines\n\nimport kotlin.coroutines.intrinsics.COROUTINE_SUSPENDED\n\n@SinceKotlin(\"1.3\")\n@JsName(\"CoroutineImpl\")\ninternal abstract class CoroutineImpl(private val resultContinuation: Continuation<Any?>) : Continuation<Any?> {\n   protected var state = 0\n   protected var exceptionState = 0\n   protected var result: Any? = null\n   protected var exception: Throwable? = null\n   protected var finallyPath: Array<Int>? = null\n\n   public override val context: CoroutineContext = resultContinuation.context\n\n   private var intercepted_: Continuation<Any?>? = null\n\n   public fun intercepted(): Continuation<Any?> =\n   intercepted_\n   ?: (context[ContinuationInterceptor]?.interceptContinuation(this) ?: this)\n   .also { intercepted_ = it }\n\n   override fun resumeWith(result: Result<Any?>) {\n   var current = this\n   var currentResult: Any? = result.getOrNull()\n   var currentException: Throwable? = result.exceptionOrNull()\n\n   // This loop unrolls recursion in current.resumeWith(param) to make saner and shorter stack traces on resume\n   while (true) {\n   with(current) {\n   val completion = resultContinuation\n\n   // Set result and exception fields in the current continuation\n   if (currentException == null) {\n   this.result = currentResult\n   } else {\n   state = exceptionState\n   exception = currentException\n   }\n\n

try {\n val outcome = doResume()\n if (outcome === COROUTINE_SUSPENDED) return\n currentResult = outcome\n currentException = null\n } catch (exception: dynamic) { // Catch all exceptions\n currentResult = null\n currentException = exception.unsafeCast<Throwable>()\n }\n\n releaseIntercepted() // this state machine instance is terminating\n\n if (completion is CoroutineImpl) {\n // unrolling recursion via loop\n current = completion\n } else {\n // top-level completion reached -- invoke and return\n currentException?.let {\n completion.resumeWithException(it)\n } ?: completion.resume(currentResult)\n return\n }\n }\n }\n }\n\n private fun releaseIntercepted() {\n val intercepted = intercepted_\n if (intercepted != null && intercepted !== this) {\n context[ContinuationInterceptor]!!.releaseInterceptedContinuation(intercepted)\n }\n this.intercepted_ = CompletedContinuation // just in case\n }\n\n protected abstract fun doResume(): Any?\n}\n\ninternal object CompletedContinuation : Continuation<Any?> {\n override val context: CoroutineContext\n get() = error(\"This continuation is already complete\")\n\n override fun resumeWith(result: Result<Any?>) {\n error(\"This continuation is already complete\")\n }\n\n override fun toString(): String = \"This continuation is already complete\"\n}\n","/*\n * Copyright 2010-2018 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\n@file:Suppress(\"UNCHECKED_CAST\", \"RedundantVisibilityModifier\")\n\npackage kotlin\n\nimport kotlin.contracts.*\nimport kotlin.internal.InlineOnly\nimport kotlin.jvm.JvmField\nimport kotlin.jvm.JvmInline\nimport kotlin.jvm.JvmName\n\n/**\n * A discriminated union that encapsulates a successful outcome with a value of type [T]\n * or a failure with an arbitrary [Throwable] exception.\n */\n@SinceKotlin(\"1.3\")\n@JvmInline\npublic value class Result<out T> @PublishedApi internal constructor(\n @PublishedApi\n internal val value: Any?\n) : Serializable {\n // discovery\n\n /**\n * Returns `true` if this instance represents a successful outcome.\n * In this case [isFailure] returns `false`.\n */\n public val isSuccess: Boolean get() = value !is Failure\n\n /**\n * Returns `true` if this instance represents a failed outcome.\n * In this case [isSuccess] returns `false`.\n */\n public val isFailure: Boolean get() = value is Failure\n\n // value & exception retrieval\n\n /**\n * Returns the encapsulated value if this instance represents [success][Result.isSuccess] or `null`\n * if it is [failure][Result.isFailure].\n *\n * This function is a shorthand for `getOrElse { null }` (see [getOrElse]) or\n * `fold(onSuccess = { it }, onFailure = { null })` (see [fold]).\n */\n @InlineOnly\n public inline fun getOrNull(): T? =\n when {\n isFailure -> null\n else -> value as T\n }\n\n /**\n * Returns the encapsulated [Throwable] exception if this instance represents [failure][isFailure] or `null`\n * if it is [success][isSuccess].\n *\n * This function is a shorthand for `fold(onSuccess = { null }, onFailure = { it })` (see [fold]).\n */\n public fun exceptionOrNull(): Throwable? =\n when (value) {\n is Failure -> value.exception\n else -> null\n }\n\n /**\n * Returns a string `Success(v)` if this instance represents [success][Result.isSuccess]\n * where `v` is a string representation of the value or a string `Failure(x)` if\n * it is [failure][isFailure] where `x` is a string representation of the exception.\n */\n public override fun toString(): String =\n when (value) {\n is Failure -> value.toString() // \"Failure($exception)\"\n else -> \"Success($value)\"\n }\n\n // companion with constructors\n\n /**\n * Companion object for [Result] class that contains its constructor functions\n * [success] and [failure].\n */\n public companion object {\n /**\n * Returns an instance that encapsulates the given [value] as successful value.\n */\n @Suppress(\"INAPPLICABLE_JVM_NAME\")\n @InlineOnly\n @JvmName(\"success\")\n public inline fun <T> success(value: T): Result<T> =\n Result(value)\n\n /**\n * Returns an instance that encapsulates the given [Throwable] [exception] as failure.\n */\n @Suppress(\"INAPPLICABLE_JVM_NAME\")\n @InlineOnly\n @JvmName(\"failure\")\n public inline fun <T> failure(exception: Throwable): Result<T> =\n Result(createFailure(exception))\n }\n\n internal class Failure(\n @JvmField\n val exception: Throwable\n) : Serializable {\n override fun equals(other: Any?): Boolean = other is Failure && exception == other.exception\n override fun hashCode(): Int = exception.hashCode()\n override fun toString(): String = \"Failure($exception)\"\n }\n}\n\n/**\n *

Creates an instance of internal marker [Result.Failure] class to\n * make sure that this class is not exposed in ABI.\n */\n@PublishedApi\n@SinceKotlin(\"1.3\")\ninternal fun createFailure(exception: Throwable): Any =\n Result.Failure(exception)\n\n/**\n * Throws exception if the result is failure. This internal function minimizes\n * inlined bytecode for [getOrThrow] and makes sure that in the future we can\n * add some exception-augmenting logic here (if needed).\n */\n@PublishedApi\n@SinceKotlin(\"1.3\")\ninternal fun Result<*>.throwOnFailure() {\n if (value is Result.Failure) throw value.exception\n}\n\n/**\n * Calls the specified function [block] and returns its encapsulated result if invocation was successful,\n * catching any [Throwable] exception that was thrown from the [block] function execution and encapsulating it as a failure.\n */\n@InlineOnly\n@SinceKotlin(\"1.3\")\npublic inline fun <R> runCatching(block: () -> R): Result<R> {\n   return try {\n   Result.success(block())\n   } catch (e: Throwable) {\n   Result.failure(e)\n   }\n}\n\n/**\n * Calls the specified function [block] with `this` value as its receiver and returns its encapsulated result if invocation was successful,\n * catching any [Throwable] exception that was thrown from the [block] function execution and encapsulating it as a failure.\n */\n@InlineOnly\n@SinceKotlin(\"1.3\")\npublic inline fun <T, R> T.runCatching(block: T.() -> R): Result<R> {\n   return try {\n   Result.success(block())\n   } catch (e: Throwable) {\n   Result.failure(e)\n   }\n}\n\n// -- extensions ---\n\n/**\n * Returns the encapsulated value if this instance represents [success][Result.isSuccess] or throws the encapsulated [Throwable] exception\n * if it is [failure][Result.isFailure].\n *\n * This function is a shorthand for `getOrElse { throw it }` (see [getOrElse]).\n */\n@InlineOnly\n@SinceKotlin(\"1.3\")\npublic inline fun <T> Result<T>.getOrThrow(): T {\n   throwOnFailure()\n   return value as T\n}\n\n/**\n * Returns the encapsulated value if this instance represents [success][Result.isSuccess] or the\n * result of [onFailure] function for the encapsulated [Throwable] exception if it is [failure][Result.isFailure].\n *\n * Note, that this function rethrows any [Throwable] exception thrown by [onFailure] function.\n *\n * This function is a shorthand for `fold(onSuccess = { it }, onFailure = onFailure)` (see [fold]).\n */\n@InlineOnly\n@SinceKotlin(\"1.3\")\npublic inline fun <R, T : R> Result<T>.getOrElse(onFailure: (exception: Throwable) -> R): R {\n   contract {\n   callsInPlace(onFailure, InvocationKind.AT_MOST_ONCE)\n   }\n   return when (val exception = exceptionOrNull()) {\n   null -> value as T\n   else -> onFailure(exception)\n   }\n}\n\n/**\n * Returns the encapsulated value if this instance represents [success][Result.isSuccess] or the\n * [defaultValue] if it is [failure][Result.isFailure].\n *\n * This function is a shorthand for `getOrElse { defaultValue }` (see [getOrElse]).\n */\n@InlineOnly\n@SinceKotlin(\"1.3\")\npublic inline fun <R, T : R> Result<T>.getOrDefault(defaultValue: R): R {\n   if (isFailure) return defaultValue\n   return value as T\n}\n\n/**\n * Returns the result of [onSuccess] for the encapsulated value if this instance represents [success][Result.isSuccess]\n * or the result of [onFailure] function for the encapsulated [Throwable] exception if it is [failure][Result.isFailure].\n *\n * Note, that this function rethrows any [Throwable] exception thrown by [onSuccess] or by [onFailure] function.\n */\n@InlineOnly\n@SinceKotlin(\"1.3\")\npublic inline fun <R, T> Result<T>.fold(\n   onSuccess: (value: T) -> R,\n   onFailure: (exception: Throwable) -> R\n): R {\n   contract {\n   callsInPlace(onSuccess, InvocationKind.AT_MOST_ONCE)\n   callsInPlace(onFailure, InvocationKind.AT_MOST_ONCE)\n   }\n   return when (val exception = exceptionOrNull()) {\n   null -> onSuccess(value as T)\n   else -> onFailure(exception)\n   }\n}\n\n// transformation\n\n/**\n * Returns the encapsulated result of the given [transform] function applied to the encapsulated value\n * if this instance represents [success][Result.isSuccess] or the\n * original encapsulated [Throwable] exception if it is [failure][Result.isFailure].\n *\n * Note, that this function rethrows any [Throwable] exception thrown by [transform] function.\n * See [mapCatching] for an alternative that encapsulates exceptions.\n */\n@InlineOnly\n@SinceKotlin(\"1.3\")\npublic inline fun <R, T> Result<T>.map(transform: (value: T) -> R): Result<R> {\n   contract {\n   callsInPlace(transform, InvocationKind.AT_MOST_ONCE)\n   }\n   return when {\n   isSuccess -> Result.success(transform(value as T))\n   else -> Result(value)\n   }\n}\n\n/**\n * Returns the encapsulated result of the given [transform] function applied to the encapsulated value\n * if this instance represents [success][Result.isSuccess] or the\n * original encapsulated [Throwable] exception if it is [failure][Result.isFailure].\n *\n * This function catches any [Throwable] exception thrown by [transform] function and encapsulates it as a failure.\n * See [map] for an alternative that rethrows exceptions from `transform` function.\n */\n@InlineOnly\n@SinceKotlin(\"1.3\")\npublic inline fun <R,

T> Result<T>.mapCatching(transform: (value: T) -> R): Result<R> {\n return when {\n isSuccess -> runCatching { transform(value as T) }\n else -> Result(value)\n }\n}\n\n/**\n * Returns the encapsulated result of the given [transform] function applied to the encapsulated [Throwable] exception\n * if this instance represents [failure][Result.isFailure] or the\n * original encapsulated value if it is [success][Result.isSuccess].\n *\n * Note, that this function rethrows any [Throwable] exception thrown by [transform] function.\n * See [recoverCatching] for an alternative that encapsulates exceptions.\n */\n@InlineOnly\n@SinceKotlin(\"1.3\")\npublic inline fun <R, T : R> Result<T>.recover(transform: (exception: Throwable) -> R): Result<R> {\n contract {\n callsInPlace(transform, InvocationKind.AT_MOST_ONCE)\n }\n return when (val exception = exceptionOrNull()) {\n null -> this\n else -> Result.success(transform(exception))\n }\n}\n\n/**\n * Returns the encapsulated result of the given [transform] function applied to the encapsulated [Throwable] exception\n * if this instance represents [failure][Result.isFailure] or the\n * original encapsulated value if it is [success][Result.isSuccess].\n *\n * This function catches any [Throwable] exception thrown by [transform] function and encapsulates it as a failure.\n * See [recover] for an alternative that rethrows exceptions.\n */\n@InlineOnly\n@SinceKotlin(\"1.3\")\npublic inline fun <R, T : R> Result<T>.recoverCatching(transform: (exception: Throwable) -> R): Result<R> {\n return when (val exception = exceptionOrNull()) {\n null -> this\n else -> runCatching { transform(exception) }\n }\n}\n\n// \"peek\" onto value/exception and pipe\n\n/**\n * Performs the given [action] on the encapsulated [Throwable] exception if this instance represents [failure][Result.isFailure].\n * Returns the original `Result` unchanged.\n */\n@InlineOnly\n@SinceKotlin(\"1.3\")\npublic inline fun <T> Result<T>.onFailure(action: (exception: Throwable) -> Unit): Result<T> {\n contract {\n callsInPlace(action, InvocationKind.AT_MOST_ONCE)\n }\n exceptionOrNull()?.let { action(it) }\n return this\n}\n\n/**\n * Performs the given [action] on the encapsulated value if this instance represents [success][Result.isSuccess].\n * Returns the original `Result` unchanged.\n */\n@InlineOnly\n@SinceKotlin(\"1.3\")\npublic inline fun <T> Result<T>.onSuccess(action: (value: T) -> Unit): Result<T> {\n contract {\n callsInPlace(action, InvocationKind.AT_MOST_ONCE)\n }\n if (isSuccess) action(value as T)\n return this\n}\n\n// -------------------\n","/*\n * Copyright 2010-2020 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin.coroutines\n\nimport kotlin.contracts.*\nimport kotlin.coroutines.intrinsics.*\nimport kotlin.internal.InlineOnly\n\n/**\n * Interface representing a continuation after a suspension point that returns a value of type `T`.\n */\n@SinceKotlin(\"1.3\")\npublic interface Continuation<in T> {\n /**\n * The context of the coroutine that corresponds to this continuation.\n */\n public val context: CoroutineContext\n\n /**\n * Resumes the execution of the corresponding coroutine passing a successful or failed [result] as the\n * return value of the last suspension point.\n */\n public fun resumeWith(result: Result<T>)\n}\n\n/**\n * Classes and interfaces marked with this annotation are restricted when used as receivers for extension\n * `suspend` functions. These `suspend` extensions can only invoke other member or extension `suspend` functions on this particular\n * receiver and are restricted from calling arbitrary suspension functions.\n */\n@SinceKotlin(\"1.3\")\n@Target(AnnotationTarget.CLASS)\n@Retention(AnnotationRetention.BINARY)\npublic annotation class RestrictsSuspension\n\n/**\n * Resumes the execution of the corresponding coroutine passing [value] as the return value of the last suspension point.\n */\n@SinceKotlin(\"1.3\")\n@InlineOnly\npublic inline fun <T> Continuation<T>.resume(value: T): Unit =\n resumeWith(Result.success(value))\n\n/**\n * Resumes the execution of the corresponding coroutine so that the [exception] is re-thrown right after the\n * last suspension point.\n */\n@SinceKotlin(\"1.3\")\n@InlineOnly\npublic inline fun <T> Continuation<T>.resumeWithException(exception: Throwable): Unit =\n resumeWith(Result.failure(exception))\n\n\n/**\n * Creates a [Continuation] instance with the given [context] and implementation of [resumeWith] method.\n */\n@SinceKotlin(\"1.3\")\n@InlineOnly\npublic inline fun <T> Continuation(\n context: CoroutineContext,\n crossinline resumeWith: (Result<T>) -> Unit\n): Continuation<T> =\n object : Continuation<T> {\n override val context: CoroutineContext\n get() = context\n\n override fun resumeWith(result: Result<T>) =\n resumeWith(result)\n }\n\n/**\n * Creates a coroutine

without a receiver and with result type [T].\n * This function creates a new, fresh instance of suspendable computation every time it is invoked.\n *\n * To start executing the created coroutine, invoke `resume(Unit)` on the returned [Continuation] instance.\n * The [completion] continuation is invoked when the coroutine completes with a result or an exception.\n * Subsequent invocation of any resume function on the resulting continuation will produce an [IllegalStateException].\n */\n@SinceKotlin(\"1.3\")\n@Suppress(\"UNCHECKED_CAST\")\npublic fun <T> (suspend () -> T).createCoroutine(\n   completion: Continuation<T>\n): Continuation<Unit> =\n SafeContinuation(createCoroutineUnintercepted(completion).intercepted(), COROUTINE_SUSPENDED)\n\n/**\n * Creates a coroutine with receiver type [R] and result type [T].\n * This function creates a new, fresh instance of suspendable computation every time it is invoked.\n *\n * To start executing the created coroutine, invoke `resume(Unit)` on the returned [Continuation] instance.\n * The [completion] continuation is invoked when the coroutine completes with a result or an exception.\n * Subsequent invocation of any resume function on the resulting continuation will produce an [IllegalStateException].\n */\n@SinceKotlin(\"1.3\")\n@Suppress(\"UNCHECKED_CAST\")\npublic fun <R, T> (suspend R.() -> T).createCoroutine(\n   receiver: R,\n   completion: Continuation<T>\n): Continuation<Unit> =\n SafeContinuation(createCoroutineUnintercepted(receiver, completion).intercepted(), COROUTINE_SUSPENDED)\n\n/**\n * Starts a coroutine without a receiver and with result type [T].\n * This function creates and starts a new, fresh instance of suspendable computation every time it is invoked.\n * The [completion] continuation is invoked when the coroutine completes with a result or an exception.\n */\n@SinceKotlin(\"1.3\")\n@Suppress(\"UNCHECKED_CAST\")\npublic fun <T> (suspend () -> T).startCoroutine(\n   completion: Continuation<T>\n) {\n createCoroutineUnintercepted(completion).intercepted().resume(Unit)\n}\n\n/**\n * Starts a coroutine with receiver type [R] and result type [T].\n * This function creates and starts a new, fresh instance of suspendable computation every time it is invoked.\n * The [completion] continuation is invoked when the coroutine completes with a result or an exception.\n */\n@SinceKotlin(\"1.3\")\n@Suppress(\"UNCHECKED_CAST\")\npublic fun <R, T> (suspend R.() -> T).startCoroutine(\n   receiver: R,\n   completion: Continuation<T>\n) {\n createCoroutineUnintercepted(receiver, completion).intercepted().resume(Unit)\n}\n\n/**\n * Obtains the current continuation instance inside suspend functions and suspends\n * the currently running coroutine.\n *\n * In this function both [Continuation.resume] and [Continuation.resumeWithException] can be used either synchronously in\n * the same stack-frame where the suspension function is run or asynchronously later in the same thread or\n * from a different thread of execution. Subsequent invocation of any resume function will produce an [IllegalStateException].\n */\n@SinceKotlin(\"1.3\")\n@InlineOnly\npublic suspend inline fun <T> suspendCoroutine(crossinline block: (Continuation<T>) -> Unit): T {\n   contract { callsInPlace(block, InvocationKind.EXACTLY_ONCE) }\n   return suspendCoroutineUninterceptedOrReturn { c: Continuation<T> ->\n   val safe = SafeContinuation(c.intercepted())\n   block(safe)\n   safe.getOrThrow()\n   }\n}\n\n/**\n * Returns the context of the current coroutine.\n */\n@SinceKotlin(\"1.3\")\n@Suppress(\"WRONG_MODIFIER_TARGET\")\n@InlineOnly\npublic suspend inline val coroutineContext: CoroutineContext\n   get() {\n   throw NotImplementedError(\"Implemented as intrinsic\")\n   }\n","/*\n * Copyright 2010-2018 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin.coroutines.intrinsics\n\nimport kotlin.coroutines.*\nimport kotlin.internal.InlineOnly\n\n/**\n * Starts an unintercepted coroutine without a receiver and with result type [T] and executes it until its first suspension.\n * Returns the result of the coroutine or throws its exception if it does not suspend or [COROUTINE_SUSPENDED] if it suspends.\n * In the latter case, the [completion] continuation is invoked when the coroutine completes with a result or an exception.\n *\n * The coroutine is started directly in the invoker's thread without going through the [ContinuationInterceptor] that might\n * be present in the completion's [CoroutineContext]. It is the invoker's responsibility to ensure that a proper invocation\n * context is established.\n *\n * This function is designed to be used from inside of [suspendCoroutineUninterceptedOrReturn] to resume the execution of the suspended\n * coroutine using a reference to the suspending function.\n

*/\n@SinceKotlin(\"1.3\")\n@InlineOnly\npublic actual inline fun <T> (suspend () -> T).startCoroutineUninterceptedOrReturn(\n   completion: Continuation<T>\n): Any? = this.asDynamic()(completion, false)\n\n/**\n * Starts an unintercepted coroutine with receiver type [R] and result type [T] and executes it until its first suspension.\n * Returns the result of the coroutine or throws its exception if it does not suspend or [COROUTINE_SUSPENDED] if it suspends.\n * In the latter case, the [completion] continuation is invoked when the coroutine completes with a result or an exception.\n *\n * The coroutine is started directly in the invoker's thread without going through the [ContinuationInterceptor] that might\n * be present in the completion's [CoroutineContext]. It is the invoker's responsibility to ensure that a proper invocation\n * context is established.\n *\n * This function is designed to be used from inside of [suspendCoroutineUninterceptedOrReturn] to resume the execution of the suspended\n * coroutine using a reference to the suspending function.\n */\n@SinceKotlin(\"1.3\")\n@InlineOnly\npublic actual inline fun <R, T> (suspend R.() -> T).startCoroutineUninterceptedOrReturn(\n   receiver: R,\n   completion: Continuation<T>\n): Any? = this.asDynamic()(receiver, completion, false)\n\n@InlineOnly\ninternal actual inline fun <R, P, T> (suspend R.(P) -> T).startCoroutineUninterceptedOrReturn(\n   receiver: R,\n   param: P,\n   completion: Continuation<T>\n): Any? = this.asDynamic()(receiver, param, completion, false)\n\n/**\n * Creates unintercepted coroutine without receiver and with result type [T].\n * This function creates a new, fresh instance of suspendable computation every time it is invoked.\n *\n * To start executing the created coroutine, invoke `resume(Unit)` on the returned [Continuation] instance.\n * The [completion] continuation is invoked when coroutine completes with result or exception.\n *\n * This function returns unintercepted continuation.\n * Invocation of `resume(Unit)` starts coroutine immediately in the invoker's call stack without going through the\n * [ContinuationInterceptor] that might be present in the completion's [CoroutineContext].\n * It is the invoker's responsibility to ensure that a proper invocation context is established.\n * Note that [completion] of this function may get invoked in an arbitrary context.\n *\n * [Continuation.intercepted] can be used to acquire the intercepted continuation.\n * Invocation of `resume(Unit)` on intercepted continuation guarantees that execution of\n * both the coroutine and [completion] happens in the invocation context established by\n * [ContinuationInterceptor].\n *\n * Repeated invocation of any resume function on the resulting continuation corrupts the\n * state machine of the coroutine and may result in arbitrary behaviour or exception.\n */\n@SinceKotlin(\"1.3\")\npublic actual fun <T> (suspend () -> T).createCoroutineUnintercepted(\n completion: Continuation<T>\n): Continuation<Unit> =\n   // Kotlin/JS suspend lambdas have an extra parameter `suspended`\n   if (this.asDynamic().length == 2) {\n   // When `suspended` is true the continuation is created, but not executed\n   this.asDynamic()(completion, true)\n   } else {\n createCoroutineFromSuspendFunction(completion) {\n   this.asDynamic()(completion)\n   }\n   }\n\n/**\n * Creates unintercepted coroutine with receiver type [R] and result type [T].\n * This function creates a new, fresh instance of suspendable computation every time it is invoked.\n *\n * To start executing the created coroutine, invoke `resume(Unit)` on the returned [Continuation] instance.\n * The [completion] continuation is invoked when coroutine completes with result or exception.\n *\n * This function returns unintercepted continuation.\n * Invocation of `resume(Unit)` starts coroutine immediately in the invoker's call stack without going through the\n * [ContinuationInterceptor] that might be present in the completion's [CoroutineContext].\n * It is the invoker's responsibility to ensure that a proper invocation context is established.\n * Note that [completion] of this function may get invoked in an arbitrary context.\n *\n * [Continuation.intercepted] can be used to acquire the intercepted continuation.\n * Invocation of `resume(Unit)` on intercepted continuation guarantees that execution of\n * both the coroutine and [completion] happens in the invocation context established by\n * [ContinuationInterceptor].\n *\n * Repeated invocation of any resume function on the resulting continuation corrupts the\n * state machine of the coroutine and may result in arbitrary behaviour or exception.\n */\n@SinceKotlin(\"1.3\")\npublic actual fun <R, T> (suspend R.() -> T).createCoroutineUnintercepted(\n   receiver: R,\n   completion: Continuation<T>\n): Continuation<Unit> =\n   // Kotlin/JS suspend lambdas have an extra parameter `suspended`\n   if (this.asDynamic().length == 3) {\n   // When `suspended` is true the continuation is created, but not executed\n   this.asDynamic()(receiver, completion, true)\n   } else {\n   createCoroutineFromSuspendFunction(completion) {\n   this.asDynamic()(receiver, completion)\n   }\n   }\n\n/**\n * Intercepts this continuation with

[ContinuationInterceptor].\n *\n * This function shall be used on the immediate result of [createCoroutineUnintercepted] or [suspendCoroutineUninterceptedOrReturn],\n * in which case it checks for [ContinuationInterceptor] in the continuation's [context][Continuation.context],\n * invokes [ContinuationInterceptor.interceptContinuation], caches and returns the result.\n *\n * If this function is invoked on other [Continuation] instances it returns `this` continuation unchanged.\n */\n@SinceKotlin(\"1.3\")\npublic actual fun <T> Continuation<T>.intercepted(): Continuation<T> =\n   (this as? CoroutineImpl)?.intercepted() ?: this\n\n\nprivate inline fun <T> createCoroutineFromSuspendFunction(\n   completion: Continuation<T>,\n   crossinline block: () -> Any?\n): Continuation<Unit> {\n   @Suppress(\"UNCHECKED_CAST\")\n   return object : CoroutineImpl(completion as Continuation<Any?>) {\n   override fun doResume(): Any? {\n   exception?.let { throw it }\n   return block()\n   }\n   }\n}\n","/*\n * Copyright 2010-2018 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin.js\n\n// Mirrors signature from JS IR BE\n// Used for js.translator/testData/box/number/mulInt32.kt\n@library\n@JsName(\"imulEmulated\")\n@Suppress(\"UNUSED_PARAMETER\")\ninternal fun imul(x: Int, y: Int): Int = definedExternally\n\n@Suppress(\"NOTHING_TO_INLINE\")\ninternal inline fun isArrayish(o: dynamic) = js(\"Kotlin\").isArrayish(o)\n","/*\n * Copyright 2010-2018 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin\n\n// NOTE: Do not author your exceptions as they are written in this file, instead use this template:\n/*\npublic open class MyException : Exception {\n   constructor() : super()\n   constructor(message: String?) : super(message)\n   constructor(message: String?, cause: Throwable?) : super(message, cause)\n   constructor(cause: Throwable?) : super(cause)\n}\n*/\n\n\n// TODO: remove primary constructors, make all secondary KT-22055\n\n@Suppress(\"USELESS_ELVIS_RIGHT_IS_NULL\")\npublic actual open class Error actual constructor(message: String?, cause: Throwable?) : Throwable(message, cause ?: null) {\n   actual constructor() : this(null, null)\n   actual constructor(message: String?) : this(message, null)\n   actual constructor(cause: Throwable?) : this(undefined, cause)\n}\n\n@Suppress(\"USELESS_ELVIS_RIGHT_IS_NULL\")\npublic actual open class Exception actual constructor(message: String?, cause: Throwable?) : Throwable(message, cause ?: null) {\n   actual constructor() : this(null, null)\n   actual constructor(message: String?) : this(message, null)\n   actual constructor(cause: Throwable?) : this(undefined, cause)\n}\n\npublic actual open class RuntimeException actual constructor(message: String?, cause: Throwable?) : Exception(message, cause) {\n   actual constructor() : this(null, null)\n   actual constructor(message: String?) : this(message, null)\n   actual constructor(cause: Throwable?) : this(undefined, cause)\n}\n\npublic actual open class IllegalArgumentException actual constructor(message: String?, cause: Throwable?) : RuntimeException(message, cause) {\n   actual constructor() : this(null, null)\n   actual constructor(message: String?) : this(message, null)\n   actual constructor(cause: Throwable?) : this(undefined, cause)\n}\n\npublic actual open class IllegalStateException actual constructor(message: String?, cause: Throwable?) : RuntimeException(message, cause) {\n   actual constructor() : this(null, null)\n   actual constructor(message: String?) : this(message, null)\n   actual constructor(cause: Throwable?) : this(undefined, cause)\n}\n\npublic actual open class IndexOutOfBoundsException actual constructor(message: String?) : RuntimeException(message) {\n   actual constructor() : this(null)\n}\n\npublic actual open class ConcurrentModificationException actual constructor(message: String?, cause: Throwable?) : RuntimeException(message, cause) {\n   actual constructor() : this(null, null)\n   actual constructor(message: String?) : this(message, null)\n   actual constructor(cause: Throwable?) : this(undefined, cause)\n}\n\npublic actual open class UnsupportedOperationException actual constructor(message: String?, cause: Throwable?) : RuntimeException(message, cause) {\n   actual constructor() : this(null, null)\n   actual constructor(message: String?) : this(message, null)\n   actual constructor(cause: Throwable?) : this(undefined, cause)\n}\n\n\npublic actual open class NumberFormatException actual constructor(message: String?) : IllegalArgumentException(message) {\n   actual constructor() : this(null)\n}\n\n\npublic actual open class NullPointerException actual constructor(message: String?) :

RuntimeException(message) {\n   actual constructor() : this(null)\n}\n\npublic actual open class
ClassCastException actual constructor(message: String?) : RuntimeException(message) {\n   actual constructor() :
this(null)\n}\n\npublic actual open class AssertionError\n@SinceKotlin(\"1.4\")\nconstructor(message: String?,
cause: Throwable?) : Error(message, cause) {\n   actual constructor() : this(null)\n   constructor(message: String?) :
this(message, null)\n   actual constructor(message: Any?) : this(message.toString(), message as?
Throwable)\n}\n\npublic actual open class NoSuchElementException actual constructor(message: String?) :
RuntimeException(message) {\n   actual constructor() : this(null)\n}\n\n@SinceKotlin(\"1.3\")\npublic actual open
class ArithmeticException actual constructor(message: String?) : RuntimeException(message) {\n   actual
constructor() : this(null)\n}\n\npublic actual open class NoWhenBranchMatchedException actual
constructor(message: String?, cause: Throwable?) : RuntimeException(message, cause) {\n   actual constructor() :
this(null, null)\n   actual constructor(message: String?) : this(message, null)\n   actual constructor(cause:
Throwable?) : this(undefined, cause)\n}\n\npublic actual open class UninitializedPropertyAccessException actual
constructor(message: String?, cause: Throwable?) : RuntimeException(message, cause) {\n   actual constructor() :
this(null, null)\n   actual constructor(message: String?) : this(message, null)\n   actual constructor(cause:
Throwable?) : this(undefined, cause)\n}\n","/*\n * Copyright 2010-2019 JetBrains s.r.o. Use of this source code is
governed by the Apache 2.0 license\n * that can be found in the license/LICENSE.txt file.\n
*/\n\n\n@file:Suppress(\"UNUSED_PARAMETER\")\n\npackage kotlin.js\n\n@kotlin.internal.InlineOnly\ninternal
inline fun jsDeleteProperty(obj: Any, property: Any) {\n   js(\"delete
obj[property]\")\n}\n\n@kotlin.internal.InlineOnly\ninternal inline fun jsBitwiseOr(lhs: Any?, rhs: Any?): Int =\n
js(\"lhs | rhs\").unsafeCast<Int>()","/*\n * Copyright 2010-2018 JetBrains s.r.o. and Kotlin Programming Language
contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the
license/LICENSE.txt file.\n */\npackage kotlin.math\n\n\n/**\n * Returns this value with the sign bit same as of the
[sign] value.\n *\n * If [sign] is `NaN` the sign of the result is undefined.\n */\n@SinceKotlin(\"1.2\")\npublic actual
fun Double.withSign(sign: Double): Double {\n   val thisSignBit =
js(\"Kotlin\").doubleSignBit(this).unsafeCast<Int>()\n   val newSignBit =
js(\"Kotlin\").doubleSignBit(sign).unsafeCast<Int>()\n   return if (thisSignBit == newSignBit) this else -
this\n}","/*\n * Copyright 2010-2018 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of
this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n
*/\n\npackage kotlin\n\n\n\n/**\n * Returns a bit representation of the specified floating-point value as [Long]\n *
according to the IEEE 754 floating-point \"double format\" bit layout.\n
*/\n@SinceKotlin(\"1.2\")\n@library(\"doubleToBits\")\npublic actual fun Double.toBits(): Long =
definedExternally\n\n/**\n * Returns a bit representation of the specified floating-point value as [Long]\n *
according to the IEEE 754 floating-point \"double format\" bit layout,\n * preserving `NaN` values exact layout.\n
*/\n@SinceKotlin(\"1.2\")\n@library(\"doubleToRawBits\")\npublic actual fun Double.toRawBits(): Long =
definedExternally\n\n/**\n * Returns the [Double] value corresponding to a given bit representation.\n
*/\n@SinceKotlin(\"1.2\")\n@kotlin.internal.InlineOnly\npublic actual inline fun Double.Companion.fromBits(bits:
Long): Double = js(\"Kotlin\").doubleFromBits(bits).unsafeCast<Double>()\n\n/**\n * Returns a bit representation
of the specified floating-point value as [Int]\n * according to the IEEE 754 floating-point \"single format\" bit
layout.\n *\n * Note that in Kotlin/JS [Float] range is wider than \"single format\" bit layout can represent,\n * so
some [Float] values may overflow, underflow or loose their accuracy after conversion to bits and back.\n
*/\n@SinceKotlin(\"1.2\")\n@library(\"floatToBits\")\npublic actual fun Float.toBits(): Int =
definedExternally\n\n/**\n * Returns a bit representation of the specified floating-point value as [Int]\n * according
to the IEEE 754 floating-point \"single format\" bit layout,\n * preserving `NaN` values exact layout.\n *\n * Note
that in Kotlin/JS [Float] range is wider than \"single format\" bit layout can represent,\n * so some [Float] values
may overflow, underflow or loose their accuracy after conversion to bits and back.\n
*/\n@SinceKotlin(\"1.2\")\n@library(\"floatToRawBits\")\npublic actual fun Float.toRawBits(): Int =
definedExternally\n\n/**\n * Returns the [Float] value corresponding to a given bit representation.\n
*/\n@SinceKotlin(\"1.2\")\n@kotlin.internal.InlineOnly\npublic actual inline fun Float.Companion.fromBits(bits:

Int): Float =
js(\"Kotlin\").floatFromBits(bits).unsafeCast<Float>()\n\n\n@Suppress(\"NOTHING_TO_INLINE\")\ninternal inline fun Long(low: Int, high: Int) = js(\"Kotlin\").Long.fromBits(low, high).unsafeCast<Long>()\ninternal inline val Long.low: Int get() = this.asDynamic().getLowBits().unsafeCast<Int>()\ninternal inline val Long.high: Int get() = this.asDynamic().getHighBits().unsafeCast<Int>()\n","/*\n * Copyright 2010-2020 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\nimport kotlin.reflect.KClass\n\n@PublishedApi\ninternal fun <T : Annotation> KClass<*>.findAssociatedObject(@Suppress(\"UNUSED_PARAMETER\") annotationClass: KClass<T>): Any? {\n   // This API is not supported in js-v1. Return `null` to be source-compatible with js-ir.\n return null\n}\n","/*\n * Copyright 2010-2019 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin.text\n\n/**\n * Returns a string representation of this [Long] value in the specified [radix].\n *\n * @throws IllegalArgumentException when [radix] is not a valid radix for number to string conversion.\n */\n@SinceKotlin(\"1.2\")\npublic actual fun Long.toString(radix: Int): String =
asDynamic().toString(checkRadix(radix))","/*\n * Copyright 2010-2021 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage
kotlin.js\n\n@PublishedApi\n@Suppress(\"NOTHING_TO_INLINE\")\n@JsPolyfill(\"\"\"\nif (typeof Array.prototype.fill === \"undefined\") {\n   // Polyfill from https://developer.mozilla.org/en-US/docs/Web/JavaScript/Reference/Global_Objects/Array/fill#Polyfill\n   Object.defineProperty(Array.prototype, 'fill', {\n   value: function (value) {\n   // Steps 1-2.\n   if (this == null) {\n   throw new TypeError('this is null or not defined');\n   }\n\n   var O = Object(this);\n\n   // Steps 3-5.\n var len = O.length >>> 0;\n\n   // Steps 6-7.\n   var start = arguments[1];\n   var relativeStart = start >> 0;\n\n   // Step 8.\n   var k = relativeStart < 0 ?\n   Math.max(len + relativeStart, 0) :\n   Math.min(relativeStart, len);\n\n   // Steps 9-10.\n   var end = arguments[2];\n   var relativeEnd = end === undefined ?\n   len : end >> 0;\n\n   // Step 11.\n   var finalValue = relativeEnd < 0 ?\n   Math.max(len + relativeEnd, 0) :\n   Math.min(relativeEnd, len);\n\n   // Step 12.\n   while (k < finalValue) {\n   O[k] = value;\n   k++;\n   }\n\n   // Step 13.\n   return O;\n   }\n   });\n}\n\n[Int8Array, Int16Array, Uint16Array, Int32Array, Float32Array, Float64Array].forEach(function (TypedArray) {\n   if (typeof TypedArray.prototype.fill === \"undefined\") {\n   Object.defineProperty(TypedArray.prototype, 'fill', {\n   value: Array.prototype.fill\n });\n   }\n})\n\"\"\")\ninternal inline fun Any.nativeFill(element: Any?, fromIndex: Int, toIndex: Int): Unit {\n asDynamic().fill(element, fromIndex, toIndex)\n}\n","/*\n * Copyright 2010-2021 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage
kotlin.js\n\n@PublishedApi\n@Suppress(\"NOTHING_TO_INLINE\")\n@JsPolyfill(\"\"\"\n[Int8Array, Int16Array, Uint16Array, Int32Array, Float32Array, Float64Array].forEach(function (TypedArray) {\n   if (typeof TypedArray.prototype.sort === \"undefined\") {\n   Object.defineProperty(TypedArray.prototype, 'sort', {\n value: function(compareFunction) {\n   compareFunction = compareFunction || function (a, b) {\n if (a < b) return -1;\n   if (a > b) return 1;\n   if (a === b) {\n   if (a !== 0) return 0;\n   var ia = 1 / a;\n   return ia === 1 / b ? 0 : (ia < 0 ? -1 : 1);\n   }\n return a !== a ? (b !== b ? 0 : 1) : -1\n   }\n   return Array.prototype.sort.call(this, compareFunction || totalOrderComparator);\n   }\n   });\n   }\n})\n\"\"\")\ninternal inline fun Any.nativeSort(noinline comparison: (a: dynamic, b: dynamic) -> Int = js(\"undefined\")): Unit {\n   asDynamic().sort(comparison)\n}","/*\n * Copyright 2010-2021 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin.text\n\n//\n// NOTE: THIS FILE IS AUTO-GENERATED by the GenerateUnicodeData.kt\n// See: https://github.com/JetBrains/kotlin/tree/master/libraries/stdlib\n//\n\n// 1343 ranges totally\nprivate object Category

{\n   val decodedRangeStart: IntArray\n   val decodedRangeCategory: IntArray\n   \n   init {\n   val toBase64 = \"ABCDEFGHIJKLMNOPQRSTUVWXYZabcdefghijklmnopqrstuvwxyz0123456789+/\"\n   val fromBase64 = IntArray(128)\n   for (i in toBase64.indices) {\n   fromBase64[toBase64[i].code] = i\n   }\n   \n   // rangeStartDiff.length = 1482\n   val rangeStartDiff =
\"gBCFEDCKCDCaDDaDBhBCEEDDDDDEDXBHYBH5BRwBGDCHDCIDFHDCHFDCDEIRTEE7BGHDDJlCBbSEMOFGERwDEDDDDECEFCRBJhBFDCYFFCCzBvBjBBFC3BOhDBmBDGpBDDCtBBJIbEECLGDFCLDCgBBKVKEDiDDHCFECECKCEODBebC5CLBOKhBJDDDDWEBHFCFCPBZDEL1BVBSLPBgBB2BDBDICFBHKCCKCPDBHEDWBHEDDDDEDEDIBDGDCKCCGDDDCGECCWBFMDDCDEDDCHDDHKDDBKDBHFCWBFGFDBDDFEDBPDDKCHBGDCHEDWBFGFDCEDEDBHDDGDCKCGJEGDBFDDFDDDDDMEFDBFDCGBOKDFDFDCGFCXBQDDDDDBEGEDFDDKHBHDDGFCXBKBFCEFCFCHCHECCKDNCCHFCoBEDECFDDDDHDCCKJBGDCSDYBJEHBFDDEBIGKDCMuBFHEBGBIBKCkBFBFBXEIFJDFDGCKCEgBBDPEDGKKGECIBkBEOBDFFLBkBBIBEFFEClBrBCEBEGDBKGGDDDDDCHDENDCFEKDDlBDDFrBCDpKBECGEECpBBEChBBECGEECPB5BBECjCCDJUDQKG2CCGDsTCRBaCDrCDDIHNBEDLSDCJSCMLFCCM0BDHGFLBFDDKGKGEFDDBKGjBB1BHFChBDFmCKfDDDDDDCGDCFDKeCFLsBEaGKBDiBXDDD1BDGDEIGJEKGKGHBGCMF/BEBvBCEDDFHEKHKJJDDeDDGDKsBFEDCIEkBIICCDFKDDKeGCJHrBCDIIDBNBHEBEFDBFsB/BNBiBlB6BBF1EIiDJIGCGCIIIIGCGCIIIIOCIIIIIIDFEDDBFEDDDDEBDIFDDFEDBLFGCEEICFBJCDEDCLDKBFBKCCGDDKDDNDgBQNEBDMPFFDEDEBFFHECEBEEDFBEDDQjBCEDEFFCCJHBeEEfsIIEUCHCxCBeZoBGlCZLV8BuCW3FBJB2BIvDB4HOesBFCfKQgIjEW/BEgBCiIwBVCGnBCgBBpDvBBuBEDBHEFGCCjDCGEDCFCFlBDDF4BHCOBXJHBHBHBHBHBHBHBHBHBgBCECGHGEDIFBKCEDMEtBaB5CM2GaMEDDCKCGFCJEDFDDDC2CDDDB6CDCFrBB+CDEKgBkBMQfBKeIBPgBKnBPgKguGgC9vUDVB3jBD3BJoBGCsIBDQKCUuBDDKCcCCmCKCGIXJCNC/BBHGKDECEVFBEMCEEBqBDDGDFDXDCEBDGEG0BEICyBQCICKGSGDEBKcICXLCLBdDDBvBDECCDNCKECFCJKFBpBFEDCJDBICCKCEQBGDDByBEDCEFBYDCLEDDCKGCGCGJHBHBrBBEJDEwCjBIDCKGk9KMXExBEggCgoGuLCqDmBHMFFCKBNBFBIsDQRrLCQgCC2BoBMCCQGEGQDCQDDDDFDGDECEEFBnEEBFEDCKCDCaDDaDBFCKBtBCfDGCGCFEDDDDCECKDC\"\n   val diff = decodeVarLenBase64(rangeStartDiff, fromBase64, 1342)\n   val start = IntArray(diff.size + 1)\n   for (i in diff.indices) {\n   start[i + 1] = start[i] + diff[i]\n   }\n   decodedRangeStart = start\n   \n   // rangeCategory.length = 2033\n   val rangeCategory =
\"PsY44a41W54UYJYZYB14W7XC15WZPsYa84bl9Zw8b85Lr7C44brlerrYBZBCZCiBiBiBhCiiBhChiBhiCBhhChiCihBhChCChiBhChiClBCFhjCiBiBihDhiBhCCihBiBBhCCFCEbEbEb7EbGhCk7BixRkiCi4BRbh4BhRhCBRBCiiBBCiBChiZBCBCiBcGHhChCiBRBxxEYC40Rx8c6RGUm4GRFRFYRQZ44acG4wRYFEFGJYllGFlYGwcGmkEmcGFJFl8cYxwFGFGRFGFRJFGkkcYkxRm6aFGEGmmEmEGRYRFGxxYFRFRFRGQGIFmIFIGIooGFGFGYJ4EFmoIRFlxRlxRFRFxlRxlFllRxmFIGxxIoxRomFRIRxlFlmGRJFaL86F4mRxmGoRFRFRFRFllRxGIGRxmGxmGmxRxGRFlRRJmmFllGYRmmIRFllRlRFRFllRFxxGFIGmmRoxImxRFRllGmxRJ4aRFGxmIoRFlxRlxRFRFllRFxxGlImoGmmRxoIxoIGRmmIRxlFlmGRJ8FLRxmFFRFllRllRxxFlRlxRxlFRFRFRooGRIooRomRxFRIRJLc8aRmoIoGFllRlRFRFRlmGmoIooRGRGRxmGFRllGmxRJRYL8lGooYFllRlRFRFRFRmlIIxGooRGRIRlxFGRJxlFRGIFllRlRFlmGIGxIooRomF8xRxxFllILFGRJLcFxmIoRFRFRFxlRFRxxGxxIooGmmRRIRJxxIoYRFllGGRaFEGYJYRxlFRFRFlRFllGGlxRFxEGRJRFRFcY84c8mGcJL8G1WIFRFRGIGmmYFGRGRcGc88RYcYRFIGIGmmIomGFJYFooGmlFllGmmFIFIFGFmoIGIomFJIm8cBhRRxxBC4ECFRFRFlRFRFRFRFRFRFlRFRFRFRFRFRGYLRFcRBRCxxUF8YFMF1WRFYKFRFRFGRFGYRFGRFllRlRGRFmmIGIooGGY44E46FmxRJRLRY44U44GmmQRJRFEFRFGFlGRFRFxmGmoIooGmoIoxRxxIoGIGRxxcx4YJFRFRFRFRJLRcFmmIomRx4YFoGGmRomIGIGmxRJRJRYEYRGmmHRGIFmIGmIIooGFRJYcGcRmmIFomGmmIomGmlFJFmoGooGGIRYFIGIGRYJRFJFEYCRBRBYRGYGIGFGFllGomGFRCECECEGRGhCCiBCBCRBRCBCBCRBRCxBCBCRCDCDCDCiiRBj7CbCiiRBj7b7iCiiRxiCBRbCBbxxCiiRBj7bRMQUY9+V9+VYtOQMY9eY43X44Z1WY54XYMQRQrERLZ12ELZ12RERaRGHGHGR88B88BihBhiChhC8hcZBc8BB8CBCFi8cihBZBC8Z8CLKhCKr8cRZcZc88ZcZc85Z8ZcZc1WcZc1WcZcZcZcRcRLcLcZcZcZcZc1WLcZ1WZ1WZcZ1WZ1WZ1WZcZcZcRcRcBRCixBBCiBBihCCEBhCCchCGhCRY44LCiRRxxCFRkYRGFRFRFRFRFRFRFRFRFRFRGY9eY49eY44U49e49e1WYEYUY04VY48cRcRcRcRcRs4Y48ElK1Wc1W12U2cKGooUE88KqqEl4c8RFxxGm7bkkFUF4kEkFRFRFx8cLcFcRFcRLcLcLcLcLcFcFRFEFRcRFEYFEYFJFRhClmHnnYG4EhCEGFKGYRbEbhCCiBECiBhCk7bhClBihCiBBCBhCRhiBh

hCCRhiFkkCFlGllGllGFooGmIcGRL88aRFYRIFIGRYJRGFYl4FGJFGYFGIRYFRGIFmoIGIGIYxEJRYFmEFJ
FRFGmoImoIGRFGFmIRJRYFEFcloGIFmlGmlFGFlmGFRllEYFomGo4YlkEoGRFRFRFRFRFRCbECk7bRCFo
oG4oGRJRFRFRFRTSFRFRCRCRlGFZFRFRlxFFbRF2VRFRFRF6cRGY41WRG40UX1W44V24Y44X33Y44R
44U1WY50Z5R46YRFRFxxQY44a41W54UYJYZYB14W7XC15WZ12YYFEFEFRFRFRFlxRllRxxa65b86axcZc
RQcR\"\n decodedRangeCategory = decodeVarLenBase64(rangeCategory, fromBase64, 1343)\n
}\n}\n\nprivate fun categoryValueFrom(code: Int, ch: Int): Int {\n return when {\n code < 0x20 -> code\n
code < 0x400 -> if ((ch and 1) == 1) code shr 5 else code and 0x1f\n else ->\n when (ch % 3) {\n
2 -> code shr 10\n 1 -> (code shr 5) and 0x1f\n else -> code and 0x1f\n }\n }\n}\n\n/**\n
* Returns the Unicode general category of this character as an Int.\n */\ninternal fun Char.getCategoryValue(): Int
{\n val ch = this.code\n\n val index = binarySearchRange(Category.decodedRangeStart, ch)\n val start =
Category.decodedRangeStart[index]\n val code = Category.decodedRangeCategory[index]\n val value =
categoryValueFrom(code, ch - start)\n\n return if (value == 17) CharCategory.UNASSIGNED.value else
value\n}\n\ninternal fun decodeVarLenBase64(base64: String, fromBase64: IntArray, resultLength: Int): IntArray
{\n val result = IntArray(resultLength)\n var index = 0\n var int = 0\n var shift = 0\n for (char in base64)
{\n val sixBit = fromBase64[char.code]\n int = int or ((sixBit and 0x1f) shl shift)\n if (sixBit < 0x20)
{\n result[index++] = int\n int = 0\n shift = 0\n } else {\n shift += 5\n }\n }\n
return result\n}\n","/*\n * Copyright 2010-2022 JetBrains s.r.o. and Kotlin Programming Language contributors.\n *
Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n
*/\n\npackage kotlin.collections\n\n//\n// NOTE: THIS FILE IS AUTO-GENERATED by the
GenerateStandardLib.kt\n// See: https://github.com/JetBrains/kotlin/tree/master/libraries/stdlib\n//\n\nimport
kotlin.js.*\nimport kotlin.ranges.contains\nimport kotlin.ranges.reversed\n\n/**\n * Reverses elements in the list in-
place.\n */\npublic actual fun <T> MutableList<T>.reverse(): Unit {\n val midPoint = (size / 2) - 1\n if
(midPoint < 0) return\n var reverseIndex = lastIndex\n for (index in 0..midPoint) {\n val tmp = this[index]\n
this[index] = this[reverseIndex]\n this[reverseIndex] = tmp\n reverseIndex--\n }\n}\n\n","/*\n *
Copyright 2010-2021 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is
governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage
kotlin.text\n\n//\n// NOTE: THIS FILE IS AUTO-GENERATED by the GenerateUnicodeData.kt\n// See:
https://github.com/JetBrains/kotlin/tree/master/libraries/stdlib\n//\n\n// 37 ranges totally\nprivate object Digit {\n
internal val rangeStart = intArrayOf(\n 0x0030, 0x0660, 0x06f0, 0x07c0, 0x0966, 0x09e6, 0x0a66, 0x0ae6,
0x0b66, 0x0be6, 0x0c66, 0x0ce6, 0x0d66, 0x0de6, 0x0e50, 0x0ed0, 0x0f20, 0x1040, 0x1090, 0x17e0, \n
0x1810, 0x1946, 0x19d0, 0x1a80, 0x1a90, 0x1b50, 0x1bb0, 0x1c40, 0x1c50, 0xa620, 0xa8d0, 0xa900, 0xa9d0,
0xa9f0, 0xaa50, 0xabf0, 0xff10, \n)\n}\n\n/**\n * Returns the index of the largest element in [array] smaller or
equal to the specified [needle],\n * or -1 if [needle] is smaller than the smallest element in [array].\n */\ninternal fun
binarySearchRange(array: IntArray, needle: Int): Int {\n var bottom = 0\n var top = array.size - 1\n var middle
= -1\n var value = 0\n while (bottom <= top) {\n middle = (bottom + top) / 2\n value = array[middle]\n
if (needle > value)\n bottom = middle + 1\n else if (needle == value)\n return middle\n
else\n top = middle - 1\n }\n return middle - (if (needle < value) 1 else 0)\n}\n\n/**\n * Returns an integer
from 0..9 indicating the digit this character represents,\n * or -1 if this character is not a digit.\n */\ninternal fun
Char.digitToIntImpl(): Int {\n val ch = this.code\n val index = binarySearchRange(Digit.rangeStart, ch)\n val
diff = ch - Digit.rangeStart[index]\n return if (diff < 10) diff else -1\n}\n\n/**\n * Returns `true` if this character is
a digit.\n */\ninternal fun Char.isDigitImpl(): Boolean {\n return digitToIntImpl() >= 0\n}\n","/*\n * Copyright
2010-2021 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed
by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin.text\n\n//\n//
NOTE: THIS FILE IS AUTO-GENERATED by the GenerateUnicodeData.kt\n// See:
https://github.com/JetBrains/kotlin/tree/master/libraries/stdlib\n//\n\n// 222 ranges totally\nprivate object Letter {\n
val decodedRangeStart: IntArray\n val decodedRangeLength: IntArray\n val decodedRangeCategory: IntArray\n
\n init {\n val toBase64 =
\"ABCDEFGHIJKLMNOPQRSTUVWXYZabcdefghijklmnopqrstuvwxyz0123456789+/\"\n val fromBase64 =

IntArray(128)\n   for (i in toBase64.indices) {\n   fromBase64[toBase64[i].code] = i\n   }\n   \n   // rangeStartDiff.length = 356\n   val rangeStartDiff =
\"hCgBpCQGYHZH5BRpBPPPPPPRMP5BPPlCPP6BkEPPPPcPXPzBvBrB3BOiDoBHwD+E3DauCnFmBmB2D6E1BlBTiBmBlBP5BhBiBrBvBjBqBnBPRtBiCmCtBlB0BmB5BiB7BmBgEmChBZgCoEoGVpBSfRhBPqKQ2BwBYoFgB4CJuTiEvBuCuDrF5DgEgFlJ1DgFmBQtBsBRGsB+BPiBlD1EIjDPRPPPQPPPPPGQSQS/DxENVNU+B9zCwBwBPPCkDPNnBPqDYY1R8B7FkFgTgwGgwUwmBgKwBuBScmEP/BPPPPPPrBP8B7F1B/ErBqC6B7BiBmBfQsBUwCw/KwqIwLwETPcPjQgJxFgBlBsD\"\n   val diff = decodeVarLenBase64(rangeStartDiff, fromBase64, 222)\n   val start = IntArray(diff.size)\n   for (i in diff.indices) {\n   if (i == 0) start[i] = diff[i]\n   else start[i] = start[i - 1] + diff[i]\n   }\n   decodedRangeStart = start\n   \n   // rangeLength.length = 328\n   val rangeLength =
\"aaMBXHYH5BRpBPPPPPPRMP5BPPlCPPzBDOOPPcPXPzBvBjB3BOhDmBBpB7DoDYxB+EiBP1DoExBkBQhBekBPmBgBhBctBiBMWOOXhCsBpBkBUV3Ba4BkB0DlCgBXgBtD4FSdBfPhBPpKP0BvBXjEQ2CGsT8DhBtCqDpFvD1D3E0IrD2EkBJrBDOBsB+BPiBlB1EIjDPPPPPPPPPPPGPPMNLsBNPNPKCvBvBPPCkDPBmBPhDXXgD4B6FzEgDguG9vUtkB9JcuBSckEP/BPPPPPPBPf4FrBjEhBpC3B5BKaWPrBOwCk/KsCuLqDHPbPxPsFtEaaqDL\"\n   decodedRangeLength = decodeVarLenBase64(rangeLength, fromBase64, 222)\n   \n   // rangeCategory.length = 959\n   val rangeCategory =
\"GFjgggUHGGFFZZZmzpz5qB6s6020B60ptltB6smt2sB60mz22B1+vv+8BZZ5s2850BW5q1ymtB506smzBF3q1q1qB1q1q1+Bgii4wDTm74g3KiggxqM60q1q1Bq1o1q1BF1qlrqrBZ2q5wprBGFZWWZGHFsjiooLowgmOowjkwCkgoiIk7ligGogiioBkwkiYkzj2oNoi+sbkwj04DghhkQ8wgiYkgoioDsgnkwC4gikQ//v+85BkwvoIsgoyI4yguI0whiwEowri4CoghsJowgqYowgm4DkwgsY/nwnzPowhmYkg6wI8yggZswikwHgxgmIoxgqYkwgk4DkxgmIkgoioBsgssoBgzgyI8g9gL8g9kI0wgwJoxgkoC0wgioFkw/wI0w53iF4gioYowjmgBHGq1qkgwBF1q1q8qBHwghuIwghyKk0goQkwgoQk3goQHGFHkyg0pBgxj6IoinkxDswno7Ikwhz9Bo0gioB8z48Rwli0xN0mpjoX8w78pDwltoqKHFGGwwgsIHFH3q1q16BFHWFZ1q10q1B2qlwq1B1q10q1B2q1yq1B6q1gq1Biq1qhxBir1qp1Bqt1q1qB1g1q1+B//3q16B///q1qBH/qlqq9Bholqq9B1i00a1q10qD1op1HkwmigEigiy6Cptogq1Bixo1kDq7/j00B2qgoBWGFm1lz50B6s5q1+BGWhggzhwBFFhgk4//Bo2jigE8wguI8wguI8wgugUog1qoB4qjmIwwi2KgkYHHH4lBgiFWkgIWoghssMmz5smrBZ3q1y50B5sm7gzBtz1smzB5smz50BqzqtmzB5sgzqzBF2/9//5BowgoIwmnkzPkwgk4C8ys65BkgoqI0wgy6FghquZo2giY0ghiIsgh24B4ghsQ8QF/v1q1OFs0O8iCHHF1qggz/B8wg6Iznv+//B08QgohsjK0QGFk7hsQ4gB\"\n   decodedRangeCategory = decodeVarLenBase64(rangeCategory, fromBase64, 222)\n   }\n}\n\n/**\n * Returns `true` if this character is a letter.\n */\ninternal fun Char.isLetterImpl(): Boolean {\n   return getLetterType() != 0\n}\n\n/**\n * Returns `true` if this character is a lower case letter, or it has contributory property `Other_Lowercase`.\n */\ninternal fun Char.isLowerCaseImpl(): Boolean {\n   return getLetterType() == 1 || code.isOtherLowercase()\n}\n\n/**\n * Returns `true` if this character is an upper case letter, or it has contributory property `Other_Uppercase`.\n */\ninternal fun Char.isUpperCaseImpl(): Boolean {\n   return getLetterType() == 2 || code.isOtherUppercase()\n}\n\n/**\n * Returns\n *   - `1` if the character is a lower case letter,\n *   - `2` if the character is an upper case letter,\n *   - `3` if the character is a letter but not a lower or upper case letter,\n *   - `0` otherwise.\n */\nprivate fun Char.getLetterType(): Int {\n   val ch = this.code\n   val index = binarySearchRange(Letter.decodedRangeStart, ch)\n\n   val rangeStart = Letter.decodedRangeStart[index]\n   val rangeEnd = rangeStart + Letter.decodedRangeLength[index] - 1\n   val code = Letter.decodedRangeCategory[index]\n\n   if (ch > rangeEnd) {\n   return 0\n   }\n\n   val lastTwoBits = code and 0x3\n\n   if (lastTwoBits == 0) { // gap pattern\n   var shift = 2\n   var threshold = rangeStart\n   for (i in 0..1) {\n   threshold += (code shr shift) and 0x7f\n   if (threshold > ch) {\n   return 3\n   }\n   shift += 7\n   threshold += (code shr shift) and 0x7f\n   if (threshold > ch) {\n   return 0\n   }\n   shift += 7\n   }\n   return 3\n   }\n\n   if (code <= 0x7) {\n   return lastTwoBits\n   }\n\n   val distance = (ch - rangeStart)\n   val shift = if (code <= 0x1F) distance % 2 else distance\n   return (code shr (2 * shift)) and 0x3\n}\n\n","/*\n * Copyright 2010-2021 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin.text\n\n//\n// NOTE: THIS FILE IS AUTO-GENERATED by the GenerateUnicodeData.kt\n// See: https://github.com/JetBrains/kotlin/tree/master/libraries/stdlib\n//\n\nprivate object

OtherLowercase {\n   internal val otherLowerStart = intArrayOf(\n   0x00aa, 0x00ba, 0x02b0, 0x02c0, 0x02e0, 0x0345, 0x037a, 0x1d2c, 0x1d78, 0x1d9b, 0x2071, 0x207f, 0x2090, 0x2170, 0x24d0, 0x2c7c, 0xa69c, 0xa770, 0xa7f8, 0xab5c, \n   )\n   internal val otherLowerLength = intArrayOf(\n   1, 1, 9, 2, 5, 1, 1, 63, 1, 37, 1, 1, 13, 16, 26, 2, 2, 1, 2, 4, \n   )\n}\n\ninternal fun Int.isOtherLowercase(): Boolean {\n   val index = binarySearchRange(OtherLowercase.otherLowerStart, this)\n   return index >= 0 && this < OtherLowercase.otherLowerStart[index] + OtherLowercase.otherLowerLength[index]\n}\n","/*\n * Copyright 2010-2021 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin.text\n\n//\n// NOTE: THIS FILE IS AUTO-GENERATED by the GenerateUnicodeData.kt\n// See: https://github.com/JetBrains/kotlin/tree/master/libraries/stdlib\n//\n\ninternal fun Int.isOtherUppercase(): Boolean {\n   return this in 0x2160..0x216f\n || this in 0x24b6..0x24cf\n}\n","/*\n * Copyright 2010-2022 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin.text\n\n//\n// NOTE: THIS FILE IS AUTO-GENERATED by the GenerateStandardLib.kt\n// See: https://github.com/JetBrains/kotlin/tree/master/libraries/stdlib\n//\n\nimport kotlin.js.*\n\n/**\n * Returns a character at the given [index] or throws an [IndexOutOfBoundsException] if the [index] is out of bounds of this char sequence.\n * \n * @sample samples.collections.Collections.Elements.elementAt\n */\npublic actual fun CharSequence.elementAt(index: Int): Char {\n   return elementAtOrElse(index) { throw IndexOutOfBoundsException(\"index: $index, length: $length}\") }\n}\n\n","/*\n * Copyright 2010-2021 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin.text\n\n//\n// NOTE: THIS FILE IS AUTO-GENERATED by the GenerateUnicodeData.kt\n// See: https://github.com/JetBrains/kotlin/tree/master/libraries/stdlib\n//\n\n// 4 ranges totally\ninternal fun Char.titlecaseCharImpl(): Char {\n   val code = this.code\n   // Letters repeating <Lu, Lt, Ll> sequence and code of the Lt is a multiple of 3, e.g. <\u01c4, \u01c5, \u01c6>\n   if (code in 0x01c4..0x01cc || code in 0x01f1..0x01f3) {\n   return (3 * ((code + 1) / 3)).toChar()\n   }\n   // Lower case letters whose title case mapping equivalent is equal to the original letter\n   if (code in 0x10d0..0x10fa || code in 0x10fd..0x10ff) {\n   return this\n   }\n   return uppercaseChar()\n}","/*\n * Copyright 2010-2022 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin.collections\n\n//\n// NOTE: THIS FILE IS AUTO-GENERATED by the GenerateStandardLib.kt\n// See: https://github.com/JetBrains/kotlin/tree/master/libraries/stdlib\n//\n\nimport kotlin.js.*\nimport kotlin.ranges.contains\nimport kotlin.ranges.reversed\n\n/**\n * Returns an element at the given [index] or throws an [IndexOutOfBoundsException] if the [index] is out of bounds of this array.\n * \n * @sample samples.collections.Collections.Elements.elementAt\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\npublic actual fun UIntArray.elementAt(index: Int): UInt {\n   return elementAtOrElse(index) { throw IndexOutOfBoundsException(\"index: $index, size: $size}\") }\n}\n\n/**\n * Returns an element at the given [index] or throws an [IndexOutOfBoundsException] if the [index] is out of bounds of this array.\n * \n * @sample samples.collections.Collections.Elements.elementAt\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\npublic actual fun ULongArray.elementAt(index: Int): ULong {\n   return elementAtOrElse(index) { throw IndexOutOfBoundsException(\"index: $index, size: $size}\") }\n}\n\n/**\n * Returns an element at the given [index] or throws an [IndexOutOfBoundsException] if the [index] is out of bounds of this array.\n * \n * @sample samples.collections.Collections.Elements.elementAt\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\npublic actual fun UByteArray.elementAt(index: Int): UByte {\n   return elementAtOrElse(index) { throw IndexOutOfBoundsException(\"index: $index, size: $size}\") }\n}\n\n/**\n * Returns an element at the given [index] or throws an [IndexOutOfBoundsException] if the [index] is out of bounds of this array.\n * \n * @sample samples.collections.Collections.Elements.elementAt\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\npublic actual fun UShortArray.elementAt(index: Int): UShort {\n   return elementAtOrElse(index) { throw IndexOutOfBoundsException(\"index: $index, size: $size}\")

}\n}\n\n/**\n * Returns a [List] that wraps the original array.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\npublic actual fun UIntArray.asList(): List<UInt> {\n return object : AbstractList<UInt>(), RandomAccess {\n override val size: Int get() = this@asList.size\n override fun isEmpty(): Boolean = this@asList.isEmpty()\n override fun contains(element: UInt): Boolean = this@asList.contains(element)\n override fun get(index: Int): UInt {\n AbstractList.checkElementIndex(index, size)\n return this@asList[index]\n }\n override fun indexOf(element: UInt): Int {\n @Suppress(\"USELESS_CAST\")\n if ((element as Any?) !is UInt) return -1\n return this@asList.indexOf(element)\n }\n override fun lastIndexOf(element: UInt): Int {\n @Suppress(\"USELESS_CAST\")\n if ((element as Any?) !is UInt) return -1\n return this@asList.lastIndexOf(element)\n }\n }\n}\n\n/**\n * Returns a [List] that wraps the original array.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\npublic actual fun ULongArray.asList(): List<ULong> {\n return object : AbstractList<ULong>(), RandomAccess {\n override val size: Int get() = this@asList.size\n override fun isEmpty(): Boolean = this@asList.isEmpty()\n override fun contains(element: ULong): Boolean = this@asList.contains(element)\n override fun get(index: Int): ULong {\n AbstractList.checkElementIndex(index, size)\n return this@asList[index]\n }\n override fun indexOf(element: ULong): Int {\n @Suppress(\"USELESS_CAST\")\n if ((element as Any?) !is ULong) return -1\n return this@asList.indexOf(element)\n }\n override fun lastIndexOf(element: ULong): Int {\n @Suppress(\"USELESS_CAST\")\n if ((element as Any?) !is ULong) return -1\n return this@asList.lastIndexOf(element)\n }\n }\n}\n\n/**\n * Returns a [List] that wraps the original array.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\npublic actual fun UByteArray.asList(): List<UByte> {\n return object : AbstractList<UByte>(), RandomAccess {\n override val size: Int get() = this@asList.size\n override fun isEmpty(): Boolean = this@asList.isEmpty()\n override fun contains(element: UByte): Boolean = this@asList.contains(element)\n override fun get(index: Int): UByte {\n AbstractList.checkElementIndex(index, size)\n return this@asList[index]\n }\n override fun indexOf(element: UByte): Int {\n @Suppress(\"USELESS_CAST\")\n if ((element as Any?) !is UByte) return -1\n return this@asList.indexOf(element)\n }\n override fun lastIndexOf(element: UByte): Int {\n @Suppress(\"USELESS_CAST\")\n if ((element as Any?) !is UByte) return -1\n return this@asList.lastIndexOf(element)\n }\n }\n}\n\n/**\n * Returns a [List] that wraps the original array.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\npublic actual fun UShortArray.asList(): List<UShort> {\n return object : AbstractList<UShort>(), RandomAccess {\n override val size: Int get() = this@asList.size\n override fun isEmpty(): Boolean = this@asList.isEmpty()\n override fun contains(element: UShort): Boolean = this@asList.contains(element)\n override fun get(index: Int): UShort {\n AbstractList.checkElementIndex(index, size)\n return this@asList[index]\n }\n override fun indexOf(element: UShort): Int {\n @Suppress(\"USELESS_CAST\")\n if ((element as Any?) !is UShort) return -1\n return this@asList.indexOf(element)\n }\n override fun lastIndexOf(element: UShort): Int {\n @Suppress(\"USELESS_CAST\")\n if ((element as Any?) !is UShort) return -1\n return this@asList.lastIndexOf(element)\n }\n }\n}\n\n","/*\n * Copyright 2010-2021 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin.text\n\n//\n// NOTE: THIS FILE IS AUTO-GENERATED by the GenerateUnicodeData.kt\n// See: https://github.com/JetBrains/kotlin/tree/master/libraries/stdlib\n//\n\n// 9 ranges totally\n/**\n * Returns `true` if this character is a whitespace.\n */\ninternal fun Char.isWhitespaceImpl(): Boolean {\n val ch = this.code\n return ch in 0x0009..0x000d\n || ch in 0x001c..0x0020\n || ch == 0x00a0\n || ch > 0x1000 && (\n ch == 0x1680\n || ch in 0x2000..0x200a\n || ch == 0x2028\n || ch == 0x2029\n || ch == 0x202f\n || ch == 0x205f\n || ch == 0x3000\n)\n}\n","/*\n * Copyright 2010-2020 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin\n\n\npublic actual fun interface Comparator<T> {\n @JsName(\"compare\")\n public actual fun compare(a: T, b: T): Int\n}\n","/*\n *

Copyright 2010-2020 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin.js\n\nimport kotlin.annotation.AnnotationTarget.*\n\n@Target(FUNCTION)\n@Deprecated(\"Use inline extension function with body using dynamic\")\npublic annotation class nativeGetter\n\n@Target(FUNCTION)\n@Deprecated(\"Use inline extension function with body using dynamic\")\npublic annotation class nativeSetter\n\n@Target(FUNCTION)\n@Deprecated(\"Use inline extension function with body using dynamic\")\npublic annotation class nativeInvoke\n\n@Target(CLASS, FUNCTION, PROPERTY)\ninternal annotation class library(public val name: String = \"\")\n\n@Target(CLASS)\ninternal annotation class marker\n\n/**\n * Gives a declaration (a function, a property or a class) specific name in JavaScript.\n *\n * This may be useful in the following cases:\n *\n * * There are two functions for which the compiler gives same name in JavaScript, you can\n * mark one with `@JsName(...)` to prevent the compiler from reporting error.\n * * You are writing a JavaScript library in Kotlin. The compiler produces mangled names\n * for functions with parameters, which is unnatural for usual JavaScript developer.\n * You can put `@JsName(...)` on functions you want to be available from JavaScript.\n * * For some reason you want to rename declaration, e.g. there's common term in JavaScript\n * for a concept provided by the declaration, which in uncommon in Kotlin.\n *\n * Example:\n *\n * ``` kotlin\n * class Person(val name: String) {\n * fun hello() {\n * println(\"Hello $name!\")\n * }\n *\n * @JsName(\"helloWithGreeting\")\n * fun hello(greeting: String) {\n * println(\"$greeting $name!\")\n * }\n * }\n * ```\n *\n * @property name the name which compiler uses both for declaration itself and for all references to the declaration.\n * It's required to denote a valid JavaScript identifier.\n *\n */\n@Retention(AnnotationRetention.BINARY)\n@Target(CLASS, FUNCTION, PROPERTY, CONSTRUCTOR, PROPERTY_GETTER, PROPERTY_SETTER)\npublic actual annotation class JsName(actual val name: String)\n\n/**\n * Denotes an `external` declaration that must be imported from native JavaScript library.\n *\n * The compiler produces the code relevant for the target module system, for example, in case of CommonJS,\n * it will import the declaration via the `require(...)` function.\n *\n * The annotation can be used on top-level external declarations (classes, properties, functions) and files.\n * In case of file (which can't be `external`) the following rule applies: all the declarations in\n * the file must be `external`. By applying `@JsModule(...)` on a file you tell the compiler to import a JavaScript object\n * that contain all the declarations from the file.\n *\n * Example:\n *\n * ``` kotlin\n * @JsModule(\"jquery\")\n * external abstract class JQuery() {\n * // some declarations here\n * }\n *\n * @JsModule(\"jquery\")\n * external fun JQuery(element: Element): JQuery\n * ```\n *\n * @property import name of a module to import declaration from.\n * It is not interpreted by the Kotlin compiler, it's passed as is directly to the target module system.\n *\n * @see JsNonModule\n */\n@Retention(AnnotationRetention.BINARY)\n@Target(CLASS, PROPERTY, FUNCTION, FILE)\npublic annotation class JsModule(val import: String)\n\n/**\n * Denotes an `external` declaration that can be used without module system.\n *\n * By default, an `external` declaration is available regardless your target module system.\n * However, by applying [JsModule] annotation you can make a declaration unavailable to *plain* module system.\n * Some JavaScript libraries are distributed both as a standalone downloadable piece of JavaScript and as a module available\n * as an npm package.\n * To tell the Kotlin compiler to accept both cases, you can augment [JsModule] with the `@JsNonModule` annotation.\n *\n * For example:\n *\n * ``` kotlin\n * @JsModule(\"jquery\")\n * @JsNonModule\n * @JsName(\"$\")\n * external abstract class JQuery() {\n * // some declarations here\n * }\n *\n * @JsModule(\"jquery\")\n * @JsNonModule\n * @JsName(\"$\")\n * external fun JQuery(element: Element): JQuery\n * ```\n *\n * @see JsModule\n */\n@Retention(AnnotationRetention.BINARY)\n@Target(CLASS, PROPERTY, FUNCTION, FILE)\npublic annotation class JsNonModule\n\n/**\n * Adds prefix to `external` declarations in a source file.\n *\n * JavaScript does not have concept of packages (namespaces). They are usually emulated by nested objects.\n * The compiler turns references to `external` declarations either to plain unprefixed names (in case of *plain* modules)\n * or to plain imports.\n * However, if a JavaScript library provides its declarations in packages, you won't be satisfied with this.\n * You can tell the compiler to generate additional prefix before references to `external` declarations using the `@JsQualifier(...)`\n * annotation.\n *\n * Note that a file marked with the `@JsQualifier(...)` annotation can't contain non-`external` declarations.\n *\n * Example:\n *\n *

\n * @file:JsQualifier(\"my.jsPackageName\")\n * package some.kotlinPackage\n *\n * external fun foo(x: Int)\n *\n * external fun bar(): String\n * ```\n *\n * @property value the qualifier to add to the declarations in the generated code.\n *   It must be a sequence of valid JavaScript identifiers separated by the `.` character.\n *   Examples of valid qualifiers are: `foo`, `bar.Baz`, `_.$0.f`.\n *\n * @see JsModule\n */\n@Retention(AnnotationRetention.BINARY)\n@Target(AnnotationTarget.FILE)\npublic annotation class JsQualifier(val value: String)\n\n/**\n * Exports top-level declaration on JS platform.\n *\n * Compiled module exposes declarations that are marked with this annotation without name mangling.\n *\n * This annotation can be applied to either files or top-level declarations.\n *\n * It is currently prohibited to export the following kinds of declarations:\n *\n *   * `expect` declarations\n *   * inline functions with reified type parameters\n *   * suspend functions\n *   * secondary constructors without `@JsName`\n *   * extension properties\n *   * enum classes\n *   * annotation classes\n *\n * Signatures of exported declarations must only contain \"exportable\" types:\n *\n *   * `dynamic`, `Any`, `String`, `Boolean`, `Byte`, `Short`, `Int`, `Float`, `Double`\n *   * `BooleanArray`, `ByteArray`, `ShortArray`, `IntArray`, `FloatArray`, `DoubleArray`\n *   * `Array<exportable-type>`\n *   * Function types with exportable parameters and return types\n *   * `external` or `@JsExport` classes and interfaces\n *   * Nullable counterparts of types above\n *   * Unit return type. Must not be nullable\n *\n * This annotation is experimental, meaning that restrictions mentioned above are subject to change.\n */\n@ExperimentalJsExport\n@Retention(AnnotationRetention.BINARY)\n@Target(CLASS, PROPERTY, FUNCTION, FILE)\n@SinceKotlin(\"1.3\")\npublic actual annotation class JsExport\n\n/**\n * Forces a top-level property to be initialized eagerly, opposed to lazily on the first access to file and/or property.\n */\n@ExperimentalStdlibApi\n@Retention(AnnotationRetention.BINARY)\n@Target(AnnotationTarget.PROPERTY)\n@SinceKotlin(\"1.6\")\n@Deprecated(\"This annotation is a temporal migration assistance and may be removed in the future releases, please consider filing an issue about the case where it is needed\")\npublic annotation class EagerInitialization\n","/*\n * Copyright 2010-2018 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin.jvm\n\n// these are used in common generated code in stdlib\n\n// TODO: find how to deprecate these ones\n\n@Target(AnnotationTarget.FIELD)\n@Retention(AnnotationRetention.SOURCE)\npublic actual annotation class Volatile\n\n@Target(AnnotationTarget.FUNCTION, AnnotationTarget.PROPERTY_GETTER, AnnotationTarget.PROPERTY_SETTER)\n@Retention(AnnotationRetention.SOURCE)\npublic actual annotation class Synchronized\n","/*\n * Copyright 2010-2020 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin.collections\n\n/**\n * Provides a skeletal implementation of the [MutableCollection] interface.\n *\n * @param E the type of elements contained in the collection. The collection is invariant in its element type.\n */\npublic actual abstract class AbstractMutableCollection<E> protected actual constructor() : AbstractCollection<E>(), MutableCollection<E> {\n\n   actual abstract override fun add(element: E): Boolean\n\n   actual override fun remove(element: E): Boolean {\n   checkIsMutable()\n   val iterator = iterator()\n   while (iterator.hasNext()) {\n   if (iterator.next() == element) {\n   iterator.remove()\n   return true\n   }\n   }\n   return false\n   }\n\n   actual override fun addAll(elements: Collection<E>): Boolean {\n   checkIsMutable()\n   var modified = false\n   for (element in elements) {\n   if (add(element)) modified = true\n   }\n   return modified\n   }\n\n   actual override fun removeAll(elements: Collection<E>): Boolean {\n   checkIsMutable()\n   return (this as MutableIterable<E>).removeAll { it in elements }\n   }\n\n   actual override fun retainAll(elements: Collection<E>): Boolean {\n   checkIsMutable()\n   return (this as MutableIterable<E>).removeAll { it !in elements }\n   }\n\n   actual override fun clear(): Unit {\n   checkIsMutable()\n   val iterator = this.iterator()\n   while (iterator.hasNext()) {\n   iterator.next()\n   iterator.remove()\n   }\n   }\n\n   @Deprecated(\"Provided so that subclasses inherit this function\", level = DeprecationLevel.HIDDEN)\n   @JsName(\"toJSON\")\n   protected fun toJSON(): Any = this.toArray()\n\n\n   /**\n   * This method is called every time when a mutating method is called on this mutable collection.\n   * Mutable collections that are built

(frozen) must throw `UnsupportedOperationException`.\n   */\n   internal open fun checkIsMutable(): Unit {\n   }\n}\n\n","/*\n * Copyright 2010-2020 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\n/*\n * Based on GWT AbstractList\n * Copyright 2007 Google Inc.\n*/\n\n\npackage kotlin.collections\n\n/**\n * Provides a skeletal implementation of the [MutableList] interface.\n *\n * @param E the type of elements contained in the list. The list is invariant in its element type.\n */\npublic actual abstract class AbstractMutableList<E> protected actual constructor() : AbstractMutableCollection<E>(), MutableList<E> {\n   protected var modCount: Int = 0\n\n   abstract override fun add(index: Int, element: E): Unit\n   abstract override fun removeAt(index: Int): E\n   abstract override fun set(index: Int, element: E): E\n\n   /**\n   * Adds the specified element to the end of this list.\n   *\n   * @return `true` because the list is always modified as the result of this operation.\n   */\n   actual override fun add(element: E): Boolean {\n   checkIsMutable()\n   add(size, element)\n   return true\n   }\n\n   actual override fun addAll(index: Int, elements: Collection<E>): Boolean {\n   AbstractList.checkPositionIndex(index, size)\n\n   checkIsMutable()\n   var _index = index\n   var changed = false\n   for (e in elements) {\n   add(_index++, e)\n   changed = true\n   }\n   return changed\n   }\n\n   actual override fun clear() {\n   checkIsMutable()\n   removeRange(0, size)\n   }\n\n   actual override fun removeAll(elements: Collection<E>): Boolean {\n   checkIsMutable()\n   return removeAll { it in elements }\n   }\n\n   actual override fun retainAll(elements: Collection<E>): Boolean {\n   checkIsMutable()\n   return removeAll { it !in elements }\n   }\n\n\n   actual override fun iterator(): MutableIterator<E> = IteratorImpl()\n\n   actual override fun contains(element: E): Boolean = indexOf(element) >= 0\n\n   actual override fun indexOf(element: E): Int {\n   for (index in 0..lastIndex) {\n   if (get(index) == element) {\n   return index\n   }\n   }\n   return -1\n   }\n\n   actual override fun lastIndexOf(element: E): Int {\n   for (index in lastIndex downTo 0) {\n   if (get(index) == element) {\n   return index\n   }\n   }\n   return -1\n   }\n\n   actual override fun listIterator(): MutableListIterator<E> = listIterator(0)\n   actual override fun listIterator(index: Int): MutableListIterator<E> = ListIteratorImpl(index)\n\n\n   actual override fun subList(fromIndex: Int, toIndex: Int): MutableList<E> = SubList(this, fromIndex, toIndex)\n\n   /**\n   * Removes the range of elements from this list starting from [fromIndex] and ending with but not including [toIndex].\n   */\n   protected open fun removeRange(fromIndex: Int, toIndex: Int) {\n   val iterator = listIterator(fromIndex)\n   repeat(toIndex - fromIndex) {\n   iterator.next()\n   iterator.remove()\n   }\n   }\n\n   /**\n   * Compares this list with another list instance with the ordered structural equality.\n   *\n   * @return true, if [other] instance is a [List] of the same size, which contains the same elements in the same order.\n   */\n   override fun equals(other: Any?): Boolean {\n   if (other === this) return true\n   if (other !is List<*>) return false\n\n   return AbstractList.orderedEquals(this, other)\n   }\n\n   /**\n   * Returns the hash code value for this list.\n   */\n   override fun hashCode(): Int = AbstractList.orderedHashCode(this)\n\n\n   private open inner class IteratorImpl : MutableIterator<E> {\n   /** the index of the item that will be returned on the next call to [next]`()` */\n   protected var index = 0\n   /** the index of the item that was returned on the previous call to [next]`()`\n   * or [ListIterator.previous]`()` (for `ListIterator`),\n   * -1 if no such item exists\n   */\n   protected var last = -1\n\n   override fun hasNext(): Boolean = index < size\n\n   override fun next(): E {\n   if (!hasNext()) throw NoSuchElementException()\n   last = index++\n   return get(last)\n   }\n\n   override fun remove() {\n   check(last != -1) { \"Call next() or previous() before removing element from the iterator.\" }\n\n   removeAt(last)\n   index = last\n   last = -1\n   }\n   }\n\n   /**\n   * Implementation of `MutableListIterator` for abstract lists.\n   */\n   private inner class ListIteratorImpl(index: Int) : IteratorImpl(), MutableListIterator<E> {\n\n   init {\n   AbstractList.checkPositionIndex(index, this@AbstractMutableList.size)\n   this.index = index\n   }\n\n   override fun hasPrevious(): Boolean = index > 0\n\n   override fun nextIndex(): Int = index\n\n   override fun previous(): E {\n   if (!hasPrevious()) throw NoSuchElementException()\n\n   last = --index\n   return get(last)\n   }\n\n   override fun previousIndex(): Int = index - 1\n\n   override fun add(element: E) {\n   add(index, element)\n   index++\n   last = -1\n   }\n\n   override fun set(element: E) {\n   check(last != -1) { \"Call

next() or previous() before updating element value with the iterator.\" }\n set(last, element)\n }\n }\n\n private class SubList<E>(private val list: AbstractMutableList<E>, private val fromIndex: Int, toIndex: Int) : AbstractMutableList<E>(), RandomAccess {\n private var _size: Int = 0\n\n init {\n AbstractList.checkRangeIndexes(fromIndex, toIndex, list.size)\n this._size = toIndex - fromIndex\n }\n\n override fun add(index: Int, element: E) {\n AbstractList.checkPositionIndex(index, _size)\n\n list.add(fromIndex + index, element)\n _size++\n }\n\n override fun get(index: Int): E {\n AbstractList.checkElementIndex(index, _size)\n\n return list[fromIndex + index]\n }\n\n override fun removeAt(index: Int): E {\n AbstractList.checkElementIndex(index, _size)\n\n val result = list.removeAt(fromIndex + index)\n _size--\n return result\n }\n\n override fun set(index: Int, element: E): E {\n AbstractList.checkElementIndex(index, _size)\n\n return list.set(fromIndex + index, element)\n }\n\n override val size: Int get() = _size\n\n internal override fun checkIsMutable(): Unit = list.checkIsMutable()\n }\n\n}\n","/*\n * Copyright 2010-2020 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\n/*\n * Based on GWT AbstractMap\n * Copyright 2007 Google Inc.\n */\n\npackage kotlin.collections\n\n/**\n * Provides a skeletal implementation of the [MutableMap] interface.\n *\n * The implementor is required to implement [entries] property, which should return mutable set of map entries, and [put] function.\n *\n * @param K the type of map keys. The map is invariant in its key type.\n * @param V the type of map values. The map is invariant in its value type.\n */\npublic actual abstract class AbstractMutableMap<K, V> protected actual constructor() : AbstractMap<K, V>(), MutableMap<K, V> {\n\n /**\n * A mutable [Map.Entry] shared by several [Map] implementations.\n */\n internal open class SimpleEntry<K, V>(override val key: K, value: V) : MutableMap.MutableEntry<K, V> {\n constructor(entry: Map.Entry<K, V>) : this(entry.key, entry.value)\n\n private var _value = value\n\n override val value: V get() = _value\n\n override fun setValue(newValue: V): V {\n // Should check if the map containing this entry is mutable.\n // However, to not increase entry memory footprint it might be worthwhile not to check it here and\n // force subclasses that implement `build()` (freezing) operation to implement their own `MutableEntry`.\n// this@AbstractMutableMap.checkIsMutable()\n val oldValue = this._value\n this._value = newValue\n return oldValue\n }\n\n override fun hashCode(): Int = entryHashCode(this)\n override fun toString(): String = entryToString(this)\n override fun equals(other: Any?): Boolean = entryEquals(this, other)\n\n }\n\n // intermediate abstract class to workaround KT-43321\n internal abstract class AbstractEntrySet<E : Map.Entry<K, V>, K, V> : AbstractMutableSet<E>() {\n final override fun contains(element: E): Boolean = containsEntry(element)\n abstract fun containsEntry(element: Map.Entry<K, V>): Boolean\n final override fun remove(element: E): Boolean = removeEntry(element)\n abstract fun removeEntry(element: Map.Entry<K, V>): Boolean\n }\n\n actual override fun clear() {\n entries.clear()\n }\n\n private var _keys: MutableSet<K>? = null\n actual override val keys: MutableSet<K>\n get() {\n if (_keys == null) {\n _keys = object : AbstractMutableSet<K>() {\n override fun add(element: K): Boolean = throw UnsupportedOperationException(\"Add is not supported on keys\")\n override fun clear() {\n this@AbstractMutableMap.clear()\n }\n\n override operator fun contains(element: K): Boolean = containsKey(element)\n\n override operator fun iterator(): MutableIterator<K> {\n val entryIterator = entries.iterator()\n return object : MutableIterator<K> {\n override fun hasNext(): Boolean = entryIterator.hasNext()\n override fun next(): K = entryIterator.next().key\n override fun remove() = entryIterator.remove()\n }\n }\n\n override fun remove(element: K): Boolean {\n checkIsMutable()\n if (containsKey(element)) {\n this@AbstractMutableMap.remove(element)\n return true\n }\n return false\n }\n\n override val size: Int get() = this@AbstractMutableMap.size\n\n override fun checkIsMutable(): Unit = this@AbstractMutableMap.checkIsMutable()\n }\n }\n return _keys!!\n }\n\n actual abstract override fun put(key: K, value: V): V?\n\n actual override fun putAll(from: Map<out K, V>) {\n checkIsMutable()\n for ((key, value) in from) {\n put(key,

value)\n   }\n   }\n\n   private var _values: MutableCollection<V>? = null\n   actual override val values: MutableCollection<V>\n   get() {\n   if (_values == null) {\n   _values = object : AbstractMutableCollection<V>() {\n   override fun add(element: V): Boolean = throw UnsupportedOperationException(\"Add is not supported on values\")\n   override fun clear() = this@AbstractMutableMap.clear()\n\n   override operator fun contains(element: V): Boolean = containsValue(element)\n\n   override operator fun iterator(): MutableIterator<V> {\n   val entryIterator = entries.iterator()\n   return object : MutableIterator<V> {\n   override fun hasNext(): Boolean = entryIterator.hasNext()\n   override fun next(): V = entryIterator.next().value\n   override fun remove() = entryIterator.remove()\n   }\n   }\n\n   override val size: Int get() = this@AbstractMutableMap.size\n\n   override fun checkIsMutable(): Unit = this@AbstractMutableMap.checkIsMutable()\n   }\n   }\n   return _values!!\n   }\n\n   actual override fun remove(key: K): V? {\n   checkIsMutable()\n   val iter = entries.iterator()\n   while (iter.hasNext()) {\n   val entry = iter.next()\n   val k = entry.key\n   if (key == k) {\n   val value = entry.value\n   iter.remove()\n   return value\n   }\n   }\n   return null\n   }\n\n\n   /**\n   * This method is called every time when a mutating method is called on this mutable map.\n   * Mutable maps that are built (frozen) must throw `UnsupportedOperationException`.\n   */\n   internal open fun checkIsMutable(): Unit {}\n}\n","/*\n * Copyright 2010-2020 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\npackage kotlin.collections\n\n/**\n * Provides a skeletal implementation of the [MutableSet] interface.\n *\n * @param E the type of elements contained in the set. The set is invariant in its element type.\n */\npublic actual abstract class AbstractMutableSet<E> protected actual constructor() : AbstractMutableCollection<E>(), MutableSet<E> {\n\n   /**\n   * Compares this set with another set instance with the unordered structural equality.\n   *\n   * @return `true`, if [other] instance is a [Set] of the same size, all elements of which are contained in this set.\n   */\n   override fun equals(other: Any?): Boolean {\n   if (other === this) return true\n   if (other !is Set<*>) return false\n   return AbstractSet.setEquals(this, other)\n   }\n\n   /**\n   * Returns the hash code value for this set.\n   */\n   override fun hashCode(): Int = AbstractSet.unorderedHashCode(this)\n\n}","/*\n * Copyright 2010-2018 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin.collections\n\n/**\n * Provides a [MutableList] implementation, which uses a resizable array as its backing storage.\n *\n * This implementation doesn't provide a way to manage capacity, as backing JS array is resizeable itself.\n * There is no speed advantage to pre-allocating array sizes in JavaScript, so this implementation does not include any of the\n * capacity and \"growth increment\" concepts.\n */\npublic actual open class ArrayList<E> internal constructor(private var array: Array<Any?>) : AbstractMutableList<E>(), MutableList<E>, RandomAccess {\n   private var isReadOnly: Boolean = false\n\n   /**\n   * Creates an empty [ArrayList].\n   */\n   public actual constructor() : this(emptyArray()) {}\n\n   /**\n   * Creates an empty [ArrayList].\n   * @param initialCapacity initial capacity (ignored)\n   */\n   public actual constructor(initialCapacity: Int) : this(emptyArray()) {}\n\n   /**\n   * Creates an [ArrayList] filled from the [elements] collection.\n   */\n   public actual constructor(elements: Collection<E>) : this(elements.toTypedArray<Any?>()) {}\n\n   @PublishedApi\n   internal fun build(): List<E> {\n   checkIsMutable()\n   isReadOnly = true\n   return this\n   }\n\n   /** Does nothing in this ArrayList implementation. */\n   public actual fun trimToSize() {}\n\n   /** Does nothing in this ArrayList implementation. */\n   public actual fun ensureCapacity(minCapacity: Int) {}\n\n   actual override val size: Int get() = array.size\n   @Suppress(\"UNCHECKED_CAST\")\n   actual override fun get(index: Int): E = array[rangeCheck(index)] as E\n   actual override fun set(index: Int, element: E): E {\n   checkIsMutable()\n   rangeCheck(index)\n   @Suppress(\"UNCHECKED_CAST\")\n   return array[index].apply { array[index] = element } as E\n   }\n\n   actual override fun add(element: E): Boolean {\n   checkIsMutable()\n   array.asDynamic().push(element)\n   modCount++\n   return true\n   }\n\n   actual override fun add(index: Int, element: E): Unit {\n   checkIsMutable()\n   array.asDynamic().splice(insertionRangeCheck(index), 0, element)\n   modCount++\n

}\n\n   actual override fun addAll(elements: Collection<E>): Boolean {\n   checkIsMutable()\n   if (elements.isEmpty()) return false\n\n   array += elements.toTypedArray<Any?>()\n   modCount++\n   return true\n   }\n\n   actual override fun addAll(index: Int, elements: Collection<E>): Boolean {\n   checkIsMutable()\n   insertionRangeCheck(index)\n\n   if (index == size) return addAll(elements)\n   if (elements.isEmpty()) return false\n   when (index) {\n   size -> return addAll(elements)\n   0 -> array = elements.toTypedArray<Any?>() + array\n   else -> array = array.copyOfRange(0, index).asDynamic().concat(elements.toTypedArray<Any?>(), array.copyOfRange(index, size))\n   }\n\n   modCount++\n   return true\n   }\n\n   actual override fun removeAt(index: Int): E {\n   checkIsMutable()\n   rangeCheck(index)\n   modCount++\n   return if (index == lastIndex)\n   array.asDynamic().pop()\n   else\n   array.asDynamic().splice(index, 1)[0]\n   }\n\n   actual override fun remove(element: E): Boolean {\n   checkIsMutable()\n   for (index in array.indices) {\n   if (array[index] == element) {\n   array.asDynamic().splice(index, 1)\n   modCount++\n   return true\n   }\n   }\n   return false\n   }\n\n   override fun removeRange(fromIndex: Int, toIndex: Int) {\n   checkIsMutable()\n   modCount++\n   array.asDynamic().splice(fromIndex, toIndex - fromIndex)\n   }\n\n   actual override fun clear() {\n   checkIsMutable()\n   array = emptyArray()\n   modCount++\n   }\n\n\n   actual override fun indexOf(element: E): Int = array.indexOf(element)\n\n   actual override fun lastIndexOf(element: E): Int = array.lastIndexOf(element)\n\n   override fun toString() = arrayToString(array)\n\n   @Suppress(\"UNCHECKED_CAST\")\n   override fun <T> toArray(array: Array<T>): Array<T> {\n   if (array.size < size) {\n   return toArray() as Array<T>\n   }\n\n   (this.array as Array<T>).copyInto(array)\n\n   if (array.size > size) {\n   array[size] = null as T // null-terminate\n   }\n\n   return array\n   }\n\n   override fun toArray(): Array<Any?> {\n   return js(\"[]\").slice.call(array)\n   }\n\n\n   internal override fun checkIsMutable() {\n   if (isReadOnly) throw UnsupportedOperationException()\n   }\n\n   private fun rangeCheck(index: Int) = index.apply {\n   AbstractList.checkElementIndex(index, size)\n   }\n\n   private fun insertionRangeCheck(index: Int) = index.apply {\n   AbstractList.checkPositionIndex(index, size)\n   }\n}","/*\n * Copyright 2010-2019 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin.collections\n\ninternal fun <T> sortArrayWith(array: Array<out T>, comparison: (T, T) -> Int) {\n   if (getStableSortingIsSupported()) {\n   array.asDynamic().sort(comparison)\n   } else {\n   mergeSort(array.unsafeCast<Array<T>>(), 0, array.lastIndex, Comparator(comparison))\n   }\n}\n\ninternal fun <T> sortArrayWith(array: Array<out T>, comparator: Comparator<in T>) {\n   if (getStableSortingIsSupported()) {\n   val comparison = { a: T, b: T -> comparator.compare(a, b) }\n   array.asDynamic().sort(comparison)\n   } else {\n   mergeSort(array.unsafeCast<Array<T>>(), 0, array.lastIndex, comparator)\n   }\n}\n\ninternal fun <T> sortArrayWith(array: Array<out T>, fromIndex: Int, toIndex: Int, comparator: Comparator<in T>) {\n   if (fromIndex < toIndex - 1) {\n   mergeSort(array.unsafeCast<Array<T>>(), fromIndex, toIndex - 1, comparator)\n   }\n}\n\ninternal fun <T : Comparable<T>> sortArray(array: Array<out T>) {\n   if (getStableSortingIsSupported()) {\n   val comparison = { a: T, b: T -> a.compareTo(b) }\n   array.asDynamic().sort(comparison)\n   } else {\n   mergeSort(array.unsafeCast<Array<T>>(), 0, array.lastIndex, naturalOrder())\n   }\n}\n\nprivate var _stableSortingIsSupported: Boolean? = null\nprivate fun getStableSortingIsSupported(): Boolean {\n   _stableSortingIsSupported?.let { return it }\n   _stableSortingIsSupported = false\n\n   val array = js(\"[]\").unsafeCast<Array<Int>>()\n   // known implementations may use stable sort for arrays of up to 512 elements\n   // so we create slightly more elements to test stability\n   for (index in 0 until 600) array.asDynamic().push(index)\n   val comparison = { a: Int, b: Int -> (a and 3) - (b and 3) }\n   array.asDynamic().sort(comparison)\n   for (index in 1 until array.size) {\n   val a = array[index - 1]\n   val b = array[index]\n   if ((a and 3) == (b and 3) && a >= b) return false\n   }\n   _stableSortingIsSupported = true\n   return true\n}\n\n\nprivate fun <T> mergeSort(array: Array<T>, start: Int, endInclusive: Int, comparator: Comparator<in T>) {\n   val buffer = arrayOfNulls<Any?>(array.size).unsafeCast<Array<T>>()\n   val result = mergeSort(array, buffer, start, endInclusive, comparator)\n   if (result !== array) {\n   for (i in start..endInclusive) array[i] = result[i]\n

}\n}\n\n// Both start and end are inclusive indices.\nprivate fun <T> mergeSort(array: Array<T>, buffer: Array<T>, start: Int, end: Int, comparator: Comparator<in T>): Array<T> {\n   if (start == end) {\n   return array\n   }\n\n   val median = (start + end) / 2\n   val left = mergeSort(array, buffer, start, median, comparator)\n   val right = mergeSort(array, buffer, median + 1, end, comparator)\n\n   val target = if (left === buffer) array else buffer\n\n   // Merge.\n   var leftIndex = start\n   var rightIndex = median + 1\n   for (i in start..end) {\n   when {\n   leftIndex <= median && rightIndex <= end -> {\n   val leftValue = left[leftIndex]\n   val rightValue = right[rightIndex]\n\n   if (comparator.compare(leftValue, rightValue) <= 0) {\n   target[i] = leftValue\n   leftIndex++\n   } else {\n   target[i] = rightValue\n   rightIndex++\n   }\n   }\n   leftIndex <= median -> {\n   target[i] = left[leftIndex]\n   leftIndex++\n   }\n   else /* rightIndex <= end */ -> {\n   target[i] = right[rightIndex]\n   rightIndex++\n   Unit // TODO: Fix KT-31506\n   }\n   }\n   }\n\n   return target\n}","/*\n * Copyright 2010-2018 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin.collections\n\n\n@OptIn(ExperimentalUnsignedTypes::class)\n@SinceKotlin(\"1.3\")\n@kotlin.js.JsName(\"contentDeepHashCodeImpl\")\ninternal fun <T> Array<out T>?.contentDeepHashCodeImpl(): Int {\n   if (this == null) return 0\n   var result = 1\n   for (element in this) {\n   val elementHash = when {\n   element == null -> 0\n   isArrayish(element) -> (element.unsafeCast<Array<*>>()).contentDeepHashCodeImpl()\n\n   element is UByteArray   -> element.contentHashCode()\n   element is UShortArray -> element.contentHashCode()\n   element is UIntArray   -> element.contentHashCode()\n   element is ULongArray   -> element.contentHashCode()\n\n   else   -> element.hashCode()\n   }\n\n   result = 31 * result + elementHash\n   }\n   return result\n}","/*\n * Copyright 2010-2018 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin.collections\n\ninternal interface EqualityComparator {\n   /**\n   * Subclasses must override to return a value indicating\n   * whether or not two keys or values are equal.\n   */\n   abstract fun equals(value1: Any?, value2: Any?): Boolean\n\n   /**\n   * Subclasses must override to return the hash code of a given key.\n   */\n   abstract fun getHashCode(value: Any?): Int\n\n\n   object HashCode : EqualityComparator {\n   override fun equals(value1: Any?, value2: Any?): Boolean = value1 == value2\n\n   override fun getHashCode(value: Any?): Int = value?.hashCode() ?: 0\n   }\n}","/*\n * Copyright 2010-2020 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\n/*\n * Based on GWT AbstractHashMap\n * Copyright 2008 Google Inc.\n */\n\npackage kotlin.collections\n\nimport kotlin.collections.MutableMap.MutableEntry\n\n/**\n * Hash table based implementation of the [MutableMap] interface.\n *\n * This implementation makes no guarantees regarding the order of enumeration of [keys], [values] and [entries] collections.\n */\n// Classes that extend HashMap and implement `build()` (freezing) operation\n// have to make sure mutating methods check `checkIsMutable`.\npublic actual open class HashMap<K, V> : AbstractMutableMap<K, V>, MutableMap<K, V> {\n\n   private inner class EntrySet : AbstractEntrySet<MutableEntry<K, V>, K, V>() {\n\n   override fun add(element: MutableEntry<K, V>): Boolean = throw UnsupportedOperationException(\"Add is not supported on entries\")\n   override fun clear() {\n   this@HashMap.clear()\n   }\n\n   override fun containsEntry(element: Map.Entry<K, V>): Boolean = this@HashMap.containsEntry(element)\n\n   override operator fun iterator(): MutableIterator<MutableEntry<K, V>> = internalMap.iterator()\n\n   override fun removeEntry(element: Map.Entry<K, V>): Boolean {\n   if (contains(element)) {\n   this@HashMap.remove(element.key)\n   return true\n   }\n   return false\n   }\n\n   override val size: Int get() = this@HashMap.size\n   }\n\n\n   /**\n   * Internal implementation of the map: either string-based or hashcode-based.\n   */\n   private val internalMap: InternalMap<K, V>\n\n   private val equality: EqualityComparator\n\n   internal constructor(internalMap: InternalMap<K, V>) : super() {\n   this.internalMap = internalMap\n   this.equality = internalMap.equality\n   }\n\n   /**\n   * Constructs an empty [HashMap] instance.\n   */\n   actual constructor() : this(InternalHashCodeMap(EqualityComparator.HashCode))\n\n   /**\n   * Constructs an

empty [HashMap] instance.\n *\n * @param initialCapacity the initial capacity (ignored)\n * @param loadFactor the load factor (ignored)\n *\n * @throws IllegalArgumentException if the initial capacity or load factor are negative\n */\n actual constructor(initialCapacity: Int, loadFactor: Float) : this() {\n // This implementation of HashMap has no need of load factors or capacities.\n require(initialCapacity >= 0) { \"Negative initial capacity: $initialCapacity\" }\n require(loadFactor >= 0) { \"Non-positive load factor: $loadFactor\" }\n }\n\n actual constructor(initialCapacity: Int) : this(initialCapacity, 0.0f)\n\n\n /**\n * Constructs an instance of [HashMap] filled with the contents of the specified [original] map.\n */\n actual constructor(original: Map<out K, V>) : this() {\n this.putAll(original)\n }\n\n actual override fun clear() {\n internalMap.clear()\n// structureChanged(this)\n }\n\n actual override fun containsKey(key: K): Boolean = internalMap.contains(key)\n\n actual override fun containsValue(value: V): Boolean = internalMap.any { equality.equals(it.value, value) }\n\n private var _entries: MutableSet<MutableMap.MutableEntry<K, V>>? = null\n actual override val entries: MutableSet<MutableMap.MutableEntry<K, V>>\n get() {\n if (_entries == null) {\n _entries = createEntrySet()\n }\n return _entries!!\n }\n\n internal open fun createEntrySet(): MutableSet<MutableMap.MutableEntry<K, V>> = EntrySet()\n\n actual override operator fun get(key: K): V? = internalMap.get(key)\n\n actual override fun put(key: K, value: V): V? = internalMap.put(key, value)\n\n actual override fun remove(key: K): V? = internalMap.remove(key)\n\n actual override val size: Int get() = internalMap.size\n\n}\n\n/**\n * Constructs the specialized implementation of [HashMap] with [String] keys, which stores the keys as properties of\n * JS object without hashing them.\n */\npublic fun <V> stringMapOf(vararg pairs: Pair<String, V>): HashMap<String, V> {\n return HashMap<String, V>(InternalStringMap(EqualityComparator.HashCode)).apply { putAll(pairs) }\n}\n","/*\n * Copyright 2010-2018 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n/*\n * Based on GWT HashSet\n * Copyright 2008 Google Inc.\n */\n\npackage kotlin.collections\n\n/**\n * The implementation of the [MutableSet] interface, backed by a [HashMap] instance.\n */\n// Classes that extend HashSet and implement `build()` (freezing) operation\n// have to make sure mutating methods check `checkIsMutable`.\npublic actual open class HashSet<E> : AbstractMutableSet<E>, MutableSet<E> {\n\n internal val map: HashMap<E, Any>\n\n /**\n * Constructs a new empty [HashSet].\n */\n actual constructor() {\n map = HashMap<E, Any>()\n }\n\n /**\n * Constructs a new [HashSet] filled with the elements of the specified collection.\n */\n actual constructor(elements: Collection<E>) {\n map = HashMap<E, Any>(elements.size)\n addAll(elements)\n }\n\n /**\n * Constructs a new empty [HashSet].\n *\n * @param initialCapacity the initial capacity (ignored)\n * @param loadFactor the load factor (ignored)\n *\n * @throws IllegalArgumentException if the initial capacity or load factor are negative\n */\n actual constructor(initialCapacity: Int, loadFactor: Float) {\n map = HashMap<E, Any>(initialCapacity, loadFactor)\n }\n\n actual constructor(initialCapacity: Int) : this(initialCapacity, 0.0f)\n\n /**\n * Protected constructor to specify the underlying map. This is used by\n * LinkedHashSet.\n\n * @param map underlying map to use.\n */\n internal constructor(map: HashMap<E, Any>) {\n this.map = map\n }\n\n actual override fun add(element: E): Boolean {\n val old = map.put(element, this)\n return old == null\n }\n\n actual override fun clear() {\n map.clear()\n }\n\n// public override fun clone(): Any {\n// return HashSet<E>(this)\n// }\n\n actual override operator fun contains(element: E): Boolean = map.containsKey(element)\n\n actual override fun isEmpty(): Boolean = map.isEmpty()\n\n actual override fun iterator(): MutableIterator<E> = map.keys.iterator()\n\n actual override fun remove(element: E): Boolean = map.remove(element) != null\n\n actual override val size: Int get() = map.size\n\n}\n\n/**\n * Creates a new instance of the specialized implementation of [HashSet] with the specified [String] elements,\n * which elements the keys as properties of JS object without hashing them.\n */\npublic fun stringSetOf(vararg elements: String): HashSet<String> {\n return HashSet(stringMapOf<Any>()).apply { addAll(elements) }\n}\n","/*\n * Copyright 2010-2018 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n/*\n * Based on GWT InternalHashCodeMap\n * Copyright 2008 Google Inc.\n */\n\npackage kotlin.collections\n\nimport kotlin.collections.MutableMap.MutableEntry\nimport kotlin.collections.AbstractMutableMap.SimpleEntry\n\n/**\n * A simple wrapper around JavaScriptObject to provide [java.util.Map]-like semantics for any\n * key type.\n *\n *\n * Implementation notes:\n *\n *\n * A key's hashCode is the index in backingMap which should contain that key. Since several keys may\n * have the same hash, each value in hashCodeMap is actually an array containing all entries whose\n * keys share the same hash.\n */\ninternal class InternalHashCodeMap<K, V>(override val equality: EqualityComparator) : InternalMap<K, V> {\n\n   private var backingMap: dynamic = createJsMap()\n   override var size: Int = 0\n   private set\n\n   override fun put(key: K, value: V): V? {\n   val hashCode = equality.getHashCode(key)\n   val chainOrEntry = getChainOrEntryOrNull(hashCode)\n   if (chainOrEntry == null) {\n   // This is a new chain, put it to the map.\n   backingMap[hashCode] = SimpleEntry(key, value)\n   } else {\n   if (chainOrEntry !is Array<*>) {\n   // It is an entry\n   val entry: SimpleEntry<K, V> = chainOrEntry\n   if (equality.equals(entry.key, key)) {\n   return entry.setValue(value)\n   } else {\n   backingMap[hashCode] = arrayOf(entry, SimpleEntry(key, value))\n   size++\n   return null\n   }\n   } else {\n   // Chain already exists, perhaps key also exists.\n   val chain: Array<MutableEntry<K, V>> = chainOrEntry\n   val entry = chain.findEntryInChain(key)\n   if (entry != null) {\n   return entry.setValue(value)\n   }\n   chain.asDynamic().push(SimpleEntry(key, value))\n   }\n   }\n   size++\n//   structureChanged(host)\n   return null\n   }\n\n   override fun remove(key: K): V? {\n   val hashCode = equality.getHashCode(key)\n   val chainOrEntry = getChainOrEntryOrNull(hashCode) ?: return null\n   if (chainOrEntry !is Array<*>) {\n   val entry: MutableEntry<K, V> = chainOrEntry\n   if (equality.equals(entry.key, key)) {\n   jsDeleteProperty(backingMap, hashCode)\n   size--\n   return entry.value\n   } else {\n   return null\n   }\n   } else {\n   val chain: Array<MutableEntry<K, V>> = chainOrEntry\n   for (index in chain.indices) {\n   val entry = chain[index]\n   if (equality.equals(key, entry.key)) {\n   if (chain.size == 1) {\n   chain.asDynamic().length = 0\n   // remove the whole array\n   jsDeleteProperty(backingMap, hashCode)\n   } else {\n   // splice out the entry we're removing\n   chain.asDynamic().splice(index, 1)\n   }\n   size--\n//   structureChanged(host)\n   return entry.value\n   }\n   }\n   }\n   return null\n   }\n\n   override fun clear() {\n   backingMap = createJsMap()\n   size = 0\n   }\n\n   override fun contains(key: K): Boolean = getEntry(key) != null\n\n   override fun get(key: K): V? = getEntry(key)?.value\n\n   private fun getEntry(key: K): MutableEntry<K, V>? {\n   val chainOrEntry = getChainOrEntryOrNull(equality.getHashCode(key)) ?: return null\n   if (chainOrEntry !is Array<*>) {\n   val entry: MutableEntry<K, V> = chainOrEntry\n   if (equality.equals(entry.key, key)) {\n   return entry\n   } else {\n   return null\n   }\n   } else {\n   val chain: Array<MutableEntry<K, V>> = chainOrEntry\n   return chain.findEntryInChain(key)\n   }\n   }\n\n   private fun Array<MutableEntry<K, V>>.findEntryInChain(key: K): MutableEntry<K, V>? =\n   firstOrNull { entry -> equality.equals(entry.key, key) }\n\n   override fun iterator(): MutableIterator<MutableEntry<K, V>> {\n\n   return object : MutableIterator<MutableEntry<K, V>> {\n   var state = -1 // -1 not ready, 0 - ready, 1 - done\n\n   val keys: Array<String> = js(\"Object\").keys(backingMap)\n   var keyIndex = -1\n\n   var chainOrEntry: dynamic = null\n   var isChain = false\n   var itemIndex = -1\n   var lastEntry: MutableEntry<K, V>? = null\n\n   private fun computeNext(): Int {\n   if (chainOrEntry != null && isChain) {\n   val chainSize: Int = chainOrEntry.unsafeCast<Array<MutableEntry<K, V>>>().size\n   if (++itemIndex < chainSize)\n   return 0\n   }\n\n   if (++keyIndex < keys.size) {\n   chainOrEntry = backingMap[keys[keyIndex]]\n   isChain = chainOrEntry is Array<*>\n   itemIndex = 0\n   return 0\n   } else {\n   chainOrEntry = null\n   return 1\n   }\n   }\n\n   override fun hasNext(): Boolean {\n   if (state == -1)\n   state = computeNext()\n   return state == 0\n   }\n\n   override fun next(): MutableEntry<K, V> {\n   if (!hasNext()) throw NoSuchElementException()\n   val lastEntry = if (isChain) {\n   chainOrEntry.unsafeCast<Array<MutableEntry<K, V>>>()[itemIndex]\n   } else {\n   chainOrEntry.unsafeCast<MutableEntry<K, V>>()\n   }\n   this.lastEntry = lastEntry\n state = -1\n   return lastEntry\n   }\n\n   override fun remove() {\n   checkNotNull(lastEntry)\n   this@InternalHashCodeMap.remove(lastEntry!!.key)\n   lastEntry = null\n   // the chain being iterated just got modified by InternalHashCodeMap.remove\n   itemIndex--\n   }\n   }\n   }\n\n   private fun getChainOrEntryOrNull(hashCode: Int): dynamic {\n   val chainOrEntry = backingMap[hashCode]\n   return if (chainOrEntry === undefined) null else chainOrEntry\n   }\n\n}\n","/*\n * Copyright 2010-2018 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin.collections\n\n/**\n * The common interface of [InternalStringMap] and [InternalHashCodeMap].\n */\ninternal interface InternalMap<K, V> : MutableIterable<MutableMap.MutableEntry<K, V>> {\n   val equality: EqualityComparator\n   val size: Int\n   operator fun contains(key: K): Boolean\n   operator fun get(key: K): V?\n\n   fun put(key: K, value: V): V?\n   fun remove(key: K): V?\n   fun clear(): Unit\n\n   fun createJsMap(): dynamic {\n   val result = js(\"Object.create(null)\")\n   // force to switch object representation to dictionary mode\n   result[\"foo\"] = 1\n   jsDeleteProperty(result, \"foo\")\n   return result\n   }\n}\n","/*\n * Copyright 2010-2018 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n/*\n * Based on GWT InternalStringMap\n * Copyright 2008 Google Inc.\n */\npackage kotlin.collections\n\nimport kotlin.collections.MutableMap.MutableEntry\n\n/**\n * A simple wrapper around JavaScript Map for key type is string.\n *\n * Though this map is instantiated only with K=String, the K type is not fixed to String statically,\n * because we want to have it erased to Any? in order not to generate type-safe override bridges for\n * [get], [contains], [remove] etc, if they ever are generated.\n */\ninternal class InternalStringMap<K, V>(override val equality: EqualityComparator) : InternalMap<K, V> {\n\n   private var backingMap: dynamic = createJsMap()\n   override var size: Int = 0\n   private set\n\n//   /**\n//   * A mod count to track 'value' replacements in map to ensure that the 'value' that we have in the\n//   * iterator entry is guaranteed to be still correct.\n//   * This is to optimize for the common scenario where the values are not modified during\n//   * iterations where the entries are never stale.\n//   */\n//   private var valueMod: Int = 0\n\n   override operator fun contains(key: K): Boolean {\n   if (key !is String) return false\n   return backingMap[key] !== undefined\n   }\n\n   override operator fun get(key: K): V? {\n   if (key !is String) return null\n   val value = backingMap[key]\n   return if (value !== undefined) value.unsafeCast<V>() else null\n   }\n\n\n   override fun put(key: K, value: V): V? {\n   require(key is String)\n   val oldValue = backingMap[key]\n   backingMap[key] = value\n\n   if (oldValue === undefined) {\n   size++\n//   structureChanged(host)\n   return null\n   } else {\n//   valueMod++\n   return oldValue.unsafeCast<V>()\n   }\n   }\n\n   override fun remove(key: K): V? {\n   if (key !is String) return null\n   val value = backingMap[key]\n   if (value !== undefined) {\n   jsDeleteProperty(backingMap, key)\n   size--\n//   structureChanged(host)\n   return value.unsafeCast<V>()\n   } else {\n//   valueMod++\n   return null\n   }\n   }\n\n\n   override fun clear() {\n   backingMap = createJsMap()\n   size = 0\n   }\n\n\n   override fun iterator(): MutableIterator<MutableEntry<K, V>> {\n   return object : MutableIterator<MutableEntry<K, V>> {\n   private val keys: Array<String> = js(\"Object\").keys(backingMap)\n   private val iterator = keys.iterator()\n   private var lastKey: String? = null\n\n   override fun hasNext(): Boolean = iterator.hasNext()\n\n   override fun next(): MutableEntry<K, V> {\n   val key = iterator.next()\n   lastKey = key\n   @Suppress(\"UNCHECKED_CAST\")\n   return newMapEntry(key as K)\n   }\n\n   override fun remove() {\n   @Suppress(\"UNCHECKED_CAST\")\n   this@InternalStringMap.remove(checkNotNull(lastKey) as K)\n   }\n   }\n   }\n\n   private fun newMapEntry(key: K): MutableEntry<K, V> = object : MutableEntry<K, V> {\n   override val key: K get() = key\n   override val value: V get() = this@InternalStringMap[key].unsafeCast<V>()\n\n   override fun setValue(newValue: V): V = this@InternalStringMap.put(key, newValue).unsafeCast<V>()\n\n   override fun hashCode(): Int = AbstractMap.entryHashCode(this)\n   override fun toString(): String = AbstractMap.entryToString(this)\n   override fun equals(other: Any?): Boolean = AbstractMap.entryEquals(this, other)\n   }\n}\n","/*\n * Copyright 2010-2020 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\n/*\n * Based on GWT LinkedHashMap\n * Copyright 2008 Google Inc.\n */\npackage kotlin.collections\n\nimport kotlin.collections.MutableMap.MutableEntry\n\n/**\n * Hash table based implementation of the [MutableMap] interface, which additionally preserves the insertion order\n * of entries during the iteration.\n *\n * The insertion order is preserved by maintaining a doubly-linked list of all of its entries.\n */\npublic actual open class LinkedHashMap<K, V> : HashMap<K, V>, MutableMap<K, V> {\n\n   /**\n   * The entry we use includes next/prev pointers for a doubly-linked circular\n   * list with a head node. This reduces the special cases we have to deal with\n   * in the list operations.\n\n   * Note that we duplicate the key from the underlying hash map so we can find\n   * the eldest entry. The alternative would have been to modify HashMap so more\n   * of the code was directly usable here, but this would have added some\n   * overhead to HashMap, or to reimplement most of the HashMap code here with\n   * small modifications. Paying a small storage cost only if you use\n   * LinkedHashMap and minimizing code size seemed like a better tradeoff\n   */\n   private inner class ChainEntry<K, V>(key: K, value: V) : AbstractMutableMap.SimpleEntry<K, V>(key, value) {\n   internal var next: ChainEntry<K, V>? = null\n   internal var prev: ChainEntry<K, V>? = null\n\n   override fun setValue(newValue: V): V {\n   this@LinkedHashMap.checkIsMutable()\n   return super.setValue(newValue)\n   }\n   }\n\n   private inner class EntrySet : AbstractEntrySet<MutableEntry<K, V>, K, V>() {\n\n   private inner class EntryIterator : MutableIterator<MutableEntry<K, V>> {\n   // The last entry that was returned from this iterator.\n   private var last: ChainEntry<K, V>? = null\n\n   // The next entry to return from this iterator.\n   private var next: ChainEntry<K, V>? = null\n\n   init {\n   next = head\n//   recordLastKnownStructure(map, this)\n   }\n\n   override fun hasNext(): Boolean {\n   return next !== null\n   }\n\n   override fun next(): MutableEntry<K, V> {\n//   checkStructuralChange(map, this)\n   if (!hasNext()) throw NoSuchElementException()\n\n   val current = next!!\n   last = current\n   next = current.next.takeIf { it !== head }\n   return current\n   }\n\n   override fun remove() {\n   check(last != null)\n   this@EntrySet.checkIsMutable()\n//   checkStructuralChange(map, this)\n\n   last!!.remove()\n   map.remove(last!!.key)\n//   recordLastKnownStructure(map, this)\n   last = null\n   }\n   }\n\n   override fun add(element: MutableEntry<K, V>): Boolean = throw UnsupportedOperationException(\"Add is not supported on entries\")\n   override fun clear() {\n   this@LinkedHashMap.clear()\n   }\n\n   override fun containsEntry(element: Map.Entry<K, V>): Boolean = this@LinkedHashMap.containsEntry(element)\n\n   override operator fun iterator(): MutableIterator<MutableEntry<K, V>> = EntryIterator()\n\n   override fun removeEntry(element: Map.Entry<K, V>): Boolean {\n   checkIsMutable()\n   if (contains(element)) {\n   this@LinkedHashMap.remove(element.key)\n   return true\n   }\n   return false\n   }\n\n   override val size: Int get() = this@LinkedHashMap.size\n\n   override fun checkIsMutable(): Unit = this@LinkedHashMap.checkIsMutable()\n   }\n\n\n   /*\n   * The head of the insert order chain, which is a doubly-linked circular\n   * list.\n   *\n   * The most recently inserted node is at the end of the chain, ie.\n   * chain.prev.\n   */\n   private var head: ChainEntry<K, V>? = null\n\n   /**\n   * Add this node to the end of the chain.\n   */\n   private fun ChainEntry<K, V>.addToEnd() {\n   // This entry is not in the list.\n   check(next == null && prev == null)\n\n   val _head = head\n   if (_head == null) {\n   head = this\n   next = this\n   prev = this\n   } else {\n   // Chain is valid.\n   val _tail = checkNotNull(_head.prev)\n   // Update me.\n   prev = _tail\n   next = _head\n   // Update my new siblings: current head and old tail\n   _head.prev = this\n   _tail.next = this\n   }\n   }\n\n   /**\n   * Remove this node from the chain it is a part of.\n   */\n   private fun ChainEntry<K, V>.remove() {\n   if (this.next === this) {\n   // if this is single element, remove head\n   head = null\n   } else {\n   if (head === this) {\n   // if this is first element, move head to next\n   head = next\n   }\n   next!!.prev = prev\n   prev!!.next = next\n   }\n   next = null\n   prev = null\n   }\n\n   /*\n   * The hashmap that keeps track of our entries and the chain. Note that we\n   * duplicate the key here to eliminate changes to HashMap and minimize the\n   * code here, at the expense of additional space.\n */\n private val map: HashMap<K, ChainEntry<K, V>>\n\n private var isReadOnly: Boolean = false\n\n /**\n * Constructs an empty [LinkedHashMap] instance.\n */\n actual constructor() : super() {\n map = HashMap<K, ChainEntry<K, V>>()\n }\n\n internal constructor(backingMap: HashMap<K, Any>) : super() {\n @Suppress(\"UNCHECKED_CAST\") // expected to work due to erasure\n map = backingMap as HashMap<K, ChainEntry<K, V>>\n }\n\n /**\n * Constructs an empty [LinkedHashMap] instance.\n *\n * @param initialCapacity the initial capacity (ignored)\n * @param loadFactor the load factor (ignored)\n *\n * @throws IllegalArgumentException if the initial capacity or load factor are negative\n */\n actual constructor(initialCapacity: Int, loadFactor: Float) : super(initialCapacity, loadFactor) {\n map = HashMap<K, ChainEntry<K, V>>()\n }\n\n actual constructor(initialCapacity: Int) : this(initialCapacity, 0.0f)\n\n /**\n * Constructs an instance of [LinkedHashMap] filled with the contents of the specified [original] map.\n */\n actual constructor(original: Map<out K, V>) {\n map = HashMap<K, ChainEntry<K, V>>()\n this.putAll(original)\n }\n\n @PublishedApi\n internal fun build(): Map<K, V> {\n checkIsMutable()\n isReadOnly = true\n return this\n }\n\n actual override fun clear() {\n checkIsMutable()\n map.clear()\n head = null\n }\n\n\n// override fun clone(): Any {\n// return LinkedHashMap(this)\n// }\n\n\n actual override fun containsKey(key: K): Boolean = map.containsKey(key)\n\n actual override fun containsValue(value: V): Boolean {\n var node: ChainEntry<K, V> = head ?: return false\n do {\n if (node.value == value) {\n return true\n }\n node = node.next!!\n } while (node !== head)\n return false\n }\n\n\n internal override fun createEntrySet(): MutableSet<MutableMap.MutableEntry<K, V>> = EntrySet()\n\n actual override operator fun get(key: K): V? = map.get(key)?.value\n\n actual override fun put(key: K, value: V): V? {\n checkIsMutable()\n\n val old = map.get(key)\n if (old == null) {\n val newEntry = ChainEntry(key, value)\n map.put(key, newEntry)\n newEntry.addToEnd()\n return null\n } else {\n return old.setValue(value)\n }\n }\n\n actual override fun remove(key: K): V? {\n checkIsMutable()\n\n val entry = map.remove(key)\n if (entry != null) {\n entry.remove()\n return entry.value\n }\n return null\n }\n\n actual override val size: Int get() = map.size\n\n internal override fun checkIsMutable() {\n if (isReadOnly) throw UnsupportedOperationException()\n }\n}\n\n/**\n * Constructs the specialized implementation of [LinkedHashMap] with [String] keys, which stores the keys as properties of\n * JS object without hashing them.\n */\npublic fun <V> linkedStringMapOf(vararg pairs: Pair<String, V>): LinkedHashMap<String, V> {\n return LinkedHashMap<String, V>(stringMapOf<Any>()).apply { putAll(pairs) }\n}\n","/*\n * Copyright 2010-2018 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n/*\n * Based on GWT LinkedHashSet\n * Copyright 2008 Google Inc.\n */\n\npackage kotlin.collections\n\n/**\n * The implementation of the [MutableSet] interface, backed by a [LinkedHashMap] instance.\n *\n * This implementation preserves the insertion order of elements during the iteration.\n */\npublic actual open class LinkedHashSet<E> : HashSet<E>, MutableSet<E> {\n\n internal constructor(map: LinkedHashMap<E, Any>) : super(map)\n\n /**\n * Constructs a new empty [LinkedHashSet].\n */\n actual constructor() : super(LinkedHashMap<E, Any>())\n\n /**\n * Constructs a new [LinkedHashSet] filled with the elements of the specified collection.\n */\n actual constructor(elements: Collection<E>) : super(LinkedHashMap<E, Any>()) {\n addAll(elements)\n }\n\n /**\n * Constructs a new empty [LinkedHashSet].\n *\n * @param initialCapacity the initial capacity (ignored)\n * @param loadFactor the load factor (ignored)\n *\n * @throws IllegalArgumentException if the initial capacity or load factor are negative\n */\n actual constructor(initialCapacity: Int, loadFactor: Float) : super(LinkedHashMap<E, Any>(initialCapacity, loadFactor))\n\n actual constructor(initialCapacity: Int) : this(initialCapacity, 0.0f)\n\n @PublishedApi\n internal fun build(): Set<E> {\n (map as LinkedHashMap<E, Any>).build()\n return this\n }\n\n internal override fun checkIsMutable(): Unit = map.checkIsMutable()\n\n// public override fun clone(): Any {\n// return LinkedHashSet(this)\n// }\n\n}\n\n/**\n * Creates a new instance of the specialized implementation of [LinkedHashSet] with the specified [String] elements,\n * which elements the keys as properties of JS object without hashing them.\n */\npublic fun

linkedStringSetOf(vararg elements: String): LinkedHashSet<String> {\n   return LinkedHashSet(linkedStringMapOf<Any>()).apply { addAll(elements) }\n}\n","/*\n * Copyright 2010-2020 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin\n\nimport kotlin.contracts.*\n\n\n@DeprecatedSinceKotlin(warningSince = \"1.6\")\n@Deprecated(\"Synchronization on any object is not supported in Kotlin/JS\", ReplaceWith(\"run(block)\"))\n@kotlin.internal.InlineOnly\n@Suppress(\"UNUSED_PARAMETER\")\npublic inline fun <R> synchronized(lock: Any, block: () -> R): R {\n   contract {\n   callsInPlace(block, InvocationKind.EXACTLY_ONCE)\n   }\n   return block()\n}\n","/*\n * Copyright 2010-2018 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin.io\n\ninternal abstract class BaseOutput {\n   open fun println() {\n   print(\"\\n\")\n   }\n\n   open fun println(message: Any?) {\n   print(message)\n   println()\n   }\n\n   abstract fun print(message: Any?)\n\n   open fun flush() {}\n}\n\n/** JsName used to make the declaration available outside of module to test it */\n@JsName(\"NodeJsOutput\")\ninternal class NodeJsOutput(val outputStream: dynamic) : BaseOutput() {\n   override fun print(message: Any?) {\n   // TODO: Using local variable because of bug in block decomposition lowering in IR backend\n   val messageString = String(message)\n   outputStream.write(messageString)\n   }\n}\n\n/** JsName used to make the declaration available outside of module to test it */\n@JsName(\"OutputToConsoleLog\")\ninternal class OutputToConsoleLog : BaseOutput() {\n   override fun print(message: Any?) {\n   console.log(message)\n   }\n\n   override fun println(message: Any?) {\n   console.log(message)\n   }\n\n   override fun println() {\n   console.log(\"\")\n   }\n}\n\n/** JsName used to make the declaration available outside of module to test it and use at try.kotl.in */\n@JsName(\"BufferedOutput\")\ninternal open class BufferedOutput : BaseOutput() {\n   var buffer = \"\"\n\n   override fun print(message: Any?) {\n   buffer += String(message)\n   }\n\n   override fun flush() {\n   buffer = \"\"\n   }\n}\n\n/** JsName used to make the declaration available outside of module to test it */\n@JsName(\"BufferedOutputToConsoleLog\")\ninternal class BufferedOutputToConsoleLog : BufferedOutput() {\n   override fun print(message: Any?) {\n   var s = String(message)\n   val i = s.nativeLastIndexOf(\"\\n\", 0)\n   if (i >= 0) {\n   buffer += s.substring(0, i)\n   flush()\n   s = s.substring(i + 1)\n   }\n   buffer += s\n   }\n\n   override fun flush() {\n   console.log(buffer)\n   buffer = \"\"\n   }\n}\n\n/** JsName used to make the declaration available outside of module to test it and use at try.kotl.in */\n@JsName(\"output\")\ninternal var output = run {\n   val isNode: Boolean = js(\"typeof process !== 'undefined' && process.versions && !!process.versions.node\")\n   if (isNode) NodeJsOutput(js(\"process.stdout\")) else BufferedOutputToConsoleLog()\n}\n\n@kotlin.internal.InlineOnly\nprivate inline fun String(value: Any?): String = js(\"String\")(value)\n\n/** Prints the line separator to the standard output stream. */\npublic actual fun println() {\n   output.println()\n}\n\n/** Prints the given [message] and the line separator to the standard output stream. */\npublic actual fun println(message: Any?) {\n   output.println(message)\n}\n\n/** Prints the given [message] to the standard output stream. */\npublic actual fun print(message: Any?) {\n   output.print(message)\n}\n\n@SinceKotlin(\"1.6\")\npublic actual fun readln(): String = throw UnsupportedOperationException(\"readln is not supported in Kotlin/JS\")\n\n@SinceKotlin(\"1.6\")\npublic actual fun readlnOrNull(): String? = throw UnsupportedOperationException(\"readlnOrNull is not supported in Kotlin/JS\")","/*\n * Copyright 2010-2018 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin.coroutines\n\nimport kotlin.coroutines.intrinsics.CoroutineSingletons.*\nimport kotlin.coroutines.intrinsics.COROUTINE_SUSPENDED\n\n@PublishedApi\n@SinceKotlin(\"1.3\")\ninternal actual class SafeContinuation<in T>\ninternal actual constructor(\n   private val delegate: Continuation<T>,\n   initialResult: Any?\n) : Continuation<T> {\n   @PublishedApi\n   internal actual constructor(delegate: Continuation<T>) : this(delegate, UNDECIDED)\n\n   public actual override val context: CoroutineContext\n   get() = delegate.context\n\n   private var result: Any? = initialResult\n\n   public actual override fun resumeWith(result: Result<T>) {\n   val cur = this.result\n   when {\n   cur === UNDECIDED -> {\n

this.result = result.value\n }\n cur === COROUTINE_SUSPENDED -> {\n this.result = RESUMED\n delegate.resumeWith(result)\n }\n else -> throw IllegalStateException(\"Already resumed\")\n }\n }\n\n @PublishedApi\n internal actual fun getOrThrow(): Any? {\n if (result === UNDECIDED) {\n result = COROUTINE_SUSPENDED\n return COROUTINE_SUSPENDED\n }\n val result = this.result\n return when {\n result === RESUMED -> COROUTINE_SUSPENDED // already called continuation, indicate COROUTINE_SUSPENDED upstream\n result is Result.Failure -> throw result.exception\n else -> result // either COROUTINE_SUSPENDED or data\n }\n }\n}\n","/*\n * Copyright 2010-2020 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin.coroutines.cancellation\n\n\n@SinceKotlin(\"1.4\")\npublic actual open class CancellationException : IllegalStateException {\n actual constructor() : super()\n actual constructor(message: String?) : super(message)\n constructor(message: String?, cause: Throwable?) : super(message, cause)\n constructor(cause: Throwable?) : super(cause)\n}","/*\n * Copyright 2010-2018 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin.coroutines.js.internal\n\nimport kotlin.coroutines.Continuation\nimport kotlin.coroutines.EmptyCoroutineContext\n\n@PublishedApi\n@SinceKotlin(\"1.3\")\ninternal val EmptyContinuation = Continuation<Any?>(EmptyCoroutineContext) { result ->\n result.getOrThrow()\n}","/*\n * Copyright 2010-2018 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin.js\n\n/**\n * Exposes the [Date API](https://developer.mozilla.org/en-US/docs/Web/JavaScript/Reference/Global_Objects/Date) to Kotlin.\n */\n@Suppress(\"NOT_DOCUMENTED\")\npublic external class Date() {\n public constructor(milliseconds: Number)\n\n public constructor(dateString: String)\n\n public constructor(year: Int, month: Int)\n\n public constructor(year: Int, month: Int, day: Int)\n\n public constructor(year: Int, month: Int, day: Int, hour: Int)\n\n public constructor(year: Int, month: Int, day: Int, hour: Int, minute: Int)\n\n public constructor(year: Int, month: Int, day: Int, hour: Int, minute: Int, second: Int)\n\n public constructor(year: Int, month: Int, day: Int, hour: Int, minute: Int, second: Int, millisecond: Number)\n\n public fun getDate(): Int\n\n public fun getDay(): Int\n\n public fun getFullYear(): Int\n\n public fun getHours(): Int\n\n public fun getMilliseconds(): Int\n\n public fun getMinutes(): Int\n\n public fun getMonth(): Int\n\n public fun getSeconds(): Int\n\n public fun getTime(): Double\n\n public fun getTimezoneOffset(): Int\n\n public fun getUTCDate(): Int\n\n public fun getUTCDay(): Int\n\n public fun getUTCFullYear(): Int\n\n public fun getUTCHours(): Int\n\n public fun getUTCMilliseconds(): Int\n\n public fun getUTCMinutes(): Int\n\n public fun getUTCMonth(): Int\n\n public fun getUTCSeconds(): Int\n\n public fun toDateString(): String\n\n public fun toISOString(): String\n\n public fun toJSON(): Json\n\n public fun toLocaleDateString(locales: Array<String> = definedExternally, options: LocaleOptions = definedExternally): String\n\n public fun toLocaleDateString(locales: String, options: LocaleOptions = definedExternally): String\n\n public fun toLocaleString(locales: Array<String> = definedExternally, options: LocaleOptions = definedExternally): String\n\n public fun toLocaleString(locales: String, options: LocaleOptions = definedExternally): String\n\n public fun toLocaleTimeString(locales: Array<String> = definedExternally, options: LocaleOptions = definedExternally): String\n\n public fun toLocaleTimeString(locales: String, options: LocaleOptions = definedExternally): String\n\n public fun toTimeString(): String\n\n public fun toUTCString(): String\n\n public companion object {\n public fun now(): Double\n\n public fun parse(dateString: String): Double\n\n public fun UTC(year: Int, month: Int): Double\n\n public fun UTC(year: Int, month: Int, day: Int): Double\n\n public fun UTC(year: Int, month: Int, day: Int, hour: Int): Double\n\n public fun UTC(year: Int, month: Int, day: Int, hour: Int, minute: Int): Double\n\n public fun UTC(year: Int, month: Int, day: Int, hour: Int, minute: Int, second: Int): Double\n\n public fun UTC(year: Int, month: Int, day: Int, hour: Int, minute: Int, second: Int, millisecond: Number): Double\n }\n\n public interface LocaleOptions {\n public var localeMatcher: String?\n\n public var timeZone:

String?\n\n   public var hour12: Boolean?\n\n   public var formatMatcher: String?\n\n   public var weekday: String?\n\n   public var era: String?\n\n   public var year: String?\n\n   public var month: String?\n\n   public var day: String?\n\n   public var hour: String?\n\n   public var minute: String?\n\n   public var second: String?\n\n   public var timeZoneName: String?\n   }\n}\n\npublic inline fun dateLocaleOptions(init: Date.LocaleOptions.() -> Unit): Date.LocaleOptions {\n   val result = js(\"new Object()\").unsafeCast<Date.LocaleOptions>()\n   init(result)\n   return result\n}","/*\n * Copyright 2010-2020 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin.dom\n\nimport org.w3c.dom.Document\nimport org.w3c.dom.Element\nimport kotlin.internal.LowPriorityInOverloadResolution\nimport kotlinx.dom.appendElement as newAppendElement\nimport kotlinx.dom.createElement as newCreateElement\n\n/**\n * Creates a new element with the specified [name].\n *\n * The element is initialized with the specified [init] function.\n */\n@LowPriorityInOverloadResolution\n@Deprecated(\n   message = \"This API is moved to another package, use 'kotlinx.dom.createElement' instead.\",\n   replaceWith = ReplaceWith(\"this.createElement(name, init)\", \"kotlinx.dom.createElement\")\n)\n@DeprecatedSinceKotlin(warningSince = \"1.4\", errorSince = \"1.6\")\npublic inline fun Document.createElement(name: String, noinline init: Element.() -> Unit): Element = this.newCreateElement(name, init)\n\n/**\n * Appends a newly created element with the specified [name] to this element.\n *\n * The element is initialized with the specified [init] function.\n */\n@LowPriorityInOverloadResolution\n@Deprecated(\n   message = \"This API is moved to another package, use 'kotlinx.dom.appendElement' instead.\",\n   replaceWith = ReplaceWith(\"this.appendElement(name, init)\", \"kotlinx.dom.appendElement\")\n)\n@DeprecatedSinceKotlin(warningSince = \"1.4\", errorSince = \"1.6\")\npublic inline fun Element.appendElement(name: String, noinline init: Element.() -> Unit): Element = this.newAppendElement(name, init)\n\n","/*\n * Copyright 2010-2018 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin.dom\n\nimport org.w3c.dom.Element\nimport kotlin.internal.LowPriorityInOverloadResolution\nimport kotlinx.dom.addClass as newAddClass\nimport kotlinx.dom.hasClass as newHasClass\nimport kotlinx.dom.removeClass as newRemoveClass\n\n/** Returns true if the element has the given CSS class style in its 'class' attribute */\n@LowPriorityInOverloadResolution\n@Deprecated(\n   message = \"This API is moved to another package, use 'kotlinx.dom.hasClass' instead.\",\n   replaceWith = ReplaceWith(\"this.hasClass(cssClass)\", \"kotlinx.dom.hasClass\")\n)\n@DeprecatedSinceKotlin(warningSince = \"1.4\", errorSince = \"1.6\")\ninline fun Element.hasClass(cssClass: String): Boolean = this.newHasClass(cssClass)\n\n/**\n * Adds CSS class to element. Has no effect if all specified classes are already in class attribute of the element\n *\n * @return true if at least one class has been added\n */\n@LowPriorityInOverloadResolution\n@Deprecated(\n   message = \"This API is moved to another package, use 'kotlinx.dom.addClass' instead.\",\n   replaceWith = ReplaceWith(\"this.addClass(cssClasses)\", \"kotlinx.dom.addClass\")\n)\n@DeprecatedSinceKotlin(warningSince = \"1.4\", errorSince = \"1.6\")\ninline fun Element.addClass(vararg cssClasses: String): Boolean = this.newAddClass(*cssClasses)\n\n/**\n * Removes all [cssClasses] from element. Has no effect if all specified classes are missing in class attribute of the element\n *\n * @return true if at least one class has been removed\n */\n@LowPriorityInOverloadResolution\n@Deprecated(\n   message = \"This API is moved to another package, use 'kotlinx.dom.removeClass' instead.\",\n   replaceWith = ReplaceWith(\"this.removeClass(cssClasses)\", \"kotlinx.dom.removeClass\")\n)\n@DeprecatedSinceKotlin(warningSince = \"1.4\", errorSince = \"1.6\")\ninline fun Element.removeClass(vararg cssClasses: String): Boolean = this.newRemoveClass(*cssClasses)","/*\n * Copyright 2010-2018 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin.dom\n\nimport org.w3c.dom.Element\nimport org.w3c.dom.Node\nimport kotlin.internal.LowPriorityInOverloadResolution\nimport kotlinx.dom.isElement as newIsElement\nimport kotlinx.dom.isText as newIsText\n\n/**\n * Gets a value indicating whether this node is a TEXT_NODE or a

CDATA_SECTION_NODE.\n */\n@LowPriorityInOverloadResolution\n@Deprecated(\n   message = \"This API is moved to another package, use 'kotlinx.dom.isText' instead.\",\n   replaceWith = ReplaceWith(\"this.isText\", \"kotlinx.dom.isText\")\n)\n@DeprecatedSinceKotlin(warningSince = \"1.4\", errorSince = \"1.6\")\npublic val Node.isText: Boolean\n   inline get() = this.newIsText\n\n/**\n * Gets a value indicating whether this node is an [Element].\n */\n@LowPriorityInOverloadResolution\n@Deprecated(\n   message = \"This API is moved to another package, use 'kotlinx.dom.isElement' instead.\",\n   replaceWith = ReplaceWith(\"this.isElement\", \"kotlinx.dom.isElement\")\n)\n@DeprecatedSinceKotlin(warningSince = \"1.4\", errorSince = \"1.6\")\npublic val Node.isElement: Boolean\n   inline get() = this.newIsElement\n","/*\n * Copyright 2010-2018 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage org.w3c.dom.events\n\npublic fun EventListener(handler: (Event) -> Unit): EventListener = EventListenerHandler(handler)\n\nprivate class EventListenerHandler(private val handler: (Event) -> Unit) : EventListener {\n   public override fun handleEvent(event: Event) {\n   handler(event)\n   }\n\n   public override fun toString(): String = \"EventListenerHandler($handler)\"\n}\n","/*\n * Copyright 2010-2018 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage org.w3c.dom\n\npublic external interface ItemArrayLike<out T> {\n   val length: Int\n   fun item(index: Int): T?\n}\n\n/**\n * Returns the view of this `ItemArrayLike<T>` collection as `List<T>`\n */\npublic fun <T> ItemArrayLike<T>.asList(): List<T> = object : AbstractList<T>() {\n   override val size: Int get() = this@asList.length\n\n   override fun get(index: Int): T = when (index) {\n   in 0..lastIndex -> this@asList.item(index).unsafeCast<T>()\n   else -> throw IndexOutOfBoundsException(\"index $index is not in range [0..$lastIndex]\")\n   }\n}","/*\n * Copyright 2010-2018 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin.dom\n\nimport org.w3c.dom.Element\nimport org.w3c.dom.Node\nimport kotlin.internal.LowPriorityInOverloadResolution\nimport kotlinx.dom.appendText as newAppendText\nimport kotlinx.dom.clear as newClear\n\n/** Removes all the children from this node. */\n@LowPriorityInOverloadResolution\n@Deprecated(\n   message = \"This API is moved to another package, use 'kotlinx.dom.clear' instead.\",\n   replaceWith = ReplaceWith(\"this.clear()\", \"kotlinx.dom.clear\")\n)\n@DeprecatedSinceKotlin(warningSince = \"1.4\", errorSince = \"1.6\")\npublic inline fun Node.clear() = this.newClear()\n\n/**\n * Creates text node and append it to the element.\n *\n * @return this element\n */\n@LowPriorityInOverloadResolution\n@Deprecated(\n   message = \"This API is moved to another package, use 'kotlinx.dom.appendText' instead.\",\n   replaceWith = ReplaceWith(\"this.appendText(text)\", \"kotlinx.dom.appendText\")\n)\n@DeprecatedSinceKotlin(warningSince = \"1.4\", errorSince = \"1.6\")\ninline fun Element.appendText(text: String): Element = this.newAppendText(text)\n","/*\n * Copyright 2010-2018 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin.js\n\n/**\n * Reinterprets this value as a value of the [dynamic type](/docs/reference/dynamic-type.html).\n */\n@kotlin.internal.InlineOnly\npublic inline fun Any?.asDynamic(): dynamic = this\n\n/**\n * Reinterprets this value as a value of the specified type [T] without any actual type checking.\n */\n@kotlin.internal.InlineOnly\npublic inline fun <T> Any?.unsafeCast(): @kotlin.internal.NoInfer T = this.asDynamic()\n\n/**\n * Reinterprets this `dynamic` value as a value of the specified type [T] without any actual type checking.\n */\n@kotlin.internal.DynamicExtension\n@JsName(\"unsafeCastDynamic\")\n@kotlin.internal.InlineOnly\npublic inline fun <T> dynamic.unsafeCast(): @kotlin.internal.NoInfer T = this\n\n/**\n * Allows to iterate this `dynamic` object in the following cases:\n * - when it has an `iterator` function,\n * - when it is an array\n * - when it is an instance of [kotlin.collections.Iterable]\n */\n@kotlin.internal.DynamicExtension\npublic operator fun dynamic.iterator(): Iterator<dynamic> {\n   val r: Any? = this\n\n   return when {\n   this[\"iterator\"] != null ->\n   this[\"iterator\"]()\n   isArrayish(r) ->\n   r.unsafeCast<Array<*>>().iterator()\n\n   else ->\n   (r as Iterable<*>).iterator()\n   }\n}\n","/*\n * Copyright 2010-2018 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\n// a package is omitted to get declarations directly under the module\n\n@JsName(\"throwNPE\")\ninternal fun throwNPE(message: String) {\n   throw NullPointerException(message)\n}\n\n@JsName(\"throwCCE\")\ninternal fun throwCCE() {\n   throw ClassCastException(\"Illegal cast\")\n}\n\n@JsName(\"throwISE\")\ninternal fun throwISE(message: String) {\n throw IllegalStateException(message)\n}\n\n@JsName(\"throwUPAE\")\ninternal fun throwUPAE(propertyName: String) {\n   throw UninitializedPropertyAccessException(\"lateinit property ${propertyName} has not been initialized\")\n}\n","/*\n * Copyright 2010-2018 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\npackage kotlin.collections\n\n/**\n * Groups elements from the [Grouping] source by key and counts elements in each group.\n *\n * @return a [Map] associating the key of each group with the count of elements in the group.\n *\n * @sample samples.collections.Grouping.groupingByEachCount\n */\n@SinceKotlin(\"1.1\")\npublic actual fun <T, K> Grouping<T, K>.eachCount(): Map<K, Int> =\n   fold(0) { acc, _ -> acc + 1 }\n\n/*\n/**\n * Groups elements from the [Grouping] source by key and sums values provided by the [valueSelector] function for elements in each group.\n *\n * @return a [Map] associating the key of each group with the count of element in the group.\n */\n@SinceKotlin(\"1.1\")\npublic inline fun <T, K> Grouping<T, K>.eachSumOf(valueSelector: (T) -> Int): Map<K, Int> =\n   fold(0) { acc, e -> acc + valueSelector(e) }\n*/","/*\n * Copyright 2010-2018 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\n@file:kotlin.jvm.JvmName(\"GroupingKt\")\n@file:kotlin.jvm.JvmMultifileClass\n\npackage kotlin.collections\n\n/**\n * Represents a source of elements with a [keyOf] function, which can be applied to each element to get its key.\n *\n * A [Grouping] structure serves as an intermediate step in group-and-fold operations:\n * they group elements by their keys and then fold each group with some aggregating operation.\n *\n * It is created by attaching `keySelector: (T) -> K` function to a source of elements.\n * To get an instance of [Grouping] use one of `groupingBy` extension functions:\n * - [Iterable.groupingBy]\n * - [Sequence.groupingBy]\n * - [Array.groupingBy]\n * - [CharSequence.groupingBy]\n *\n * For the list of group-and-fold operations available, see the [extension functions](#extension-functions) for `Grouping`.\n */\n@SinceKotlin(\"1.1\")\npublic interface Grouping<T, out K> {\n   /** Returns an [Iterator] over the elements of the source of this grouping. */\n   fun sourceIterator(): Iterator<T>\n   /** Extracts the key of an [element]. */\n   fun keyOf(element: T): K\n}\n\n/**\n * Groups elements from the [Grouping] source by key and applies [operation] to the elements of each group sequentially,\n * passing the previously accumulated value and the current element as arguments, and stores the results in a new map.\n *\n * The key for each element is provided by the [Grouping.keyOf] function.\n *\n * @param operation function is invoked on each element with the following parameters:\n * - `key`: the key of the group this element belongs to;\n * - `accumulator`: the current value of the accumulator of the group, can be `null` if it's the first `element` encountered in the group;\n * - `element`: the element from the source being aggregated;\n * - `first`: indicates whether it's the first `element` encountered in the group.\n *\n * @return a [Map] associating the key of each group with the result of aggregation of the group elements.\n * @sample samples.collections.Grouping.aggregateByRadix\n */\n@SinceKotlin(\"1.1\")\npublic inline fun <T, K, R> Grouping<T, K>.aggregate(\n   operation: (key: K, accumulator: R?, element: T, first: Boolean) -> R\n): Map<K, R> {\n   return aggregateTo(mutableMapOf<K, R>(), operation)\n}\n\n/**\n * Groups elements from the [Grouping] source by key and applies [operation] to the elements of each group sequentially,\n * passing the previously accumulated value and the current element as arguments,\n * and stores the results in the given [destination] map.\n *\n * The key for each element is provided by the [Grouping.keyOf] function.\n *\n * @param operation a function that is invoked on each element with the following parameters:\n * - `key`: the key of the group this element belongs to;\n * - `accumulator`: the current value of the accumulator of the group, can be `null` if it's the first `element` encountered in the group;\n * - `element`: the element from the source being aggregated;\n * - `first`: indicates whether it's the first `element` encountered in the group.\n *\n * If the [destination] map already has a value corresponding to some key,\n * then the elements being aggregated for that key are never considered as `first`.\n *\n * @return the [destination] map associating the key of each group with the result of aggregation of the group elements.\n * @sample samples.collections.Grouping.aggregateByRadixTo\n */\n@SinceKotlin(\"1.1\")\npublic inline fun <T, K, R, M : MutableMap<in K, R>> Grouping<T, K>.aggregateTo(\n   destination: M,\n   operation: (key: K, accumulator: R?, element: T, first: Boolean) -> R\n): M {\n   for (e in this.sourceIterator()) {\n   val key = keyOf(e)\n   val accumulator = destination[key]\n destination[key] = operation(key, accumulator, e, accumulator == null && !destination.containsKey(key))\n   }\n return destination\n}\n\n/**\n * Groups elements from the [Grouping] source by key and applies [operation] to the elements of each group sequentially,\n * passing the previously accumulated value and the current element as arguments, and stores the results in a new map.\n * An initial value of accumulator is provided by [initialValueSelector] function.\n *\n * @param initialValueSelector a function that provides an initial value of accumulator for each group.\n * It's invoked with parameters:\n * - `key`: the key of the group;\n * - `element`: the first element being encountered in that group.\n *\n * @param operation a function that is invoked on each element with the following parameters:\n * - `key`: the key of the group this element belongs to;\n * - `accumulator`: the current value of the accumulator of the group;\n * - `element`: the element from the source being accumulated.\n *\n * @return a [Map] associating the key of each group with the result of accumulating the group elements.\n * @sample samples.collections.Grouping.foldByEvenLengthWithComputedInitialValue\n */\n@SinceKotlin(\"1.1\")\npublic inline fun <T, K, R> Grouping<T, K>.fold(\n   initialValueSelector: (key: K, element: T) -> R,\n   operation: (key: K, accumulator: R, element: T) -> R\n): Map<K, R> =\n @Suppress(\"UNCHECKED_CAST\")\n   aggregate { key, acc, e, first -> operation(key, if (first) initialValueSelector(key, e) else acc as R, e) }\n\n/**\n * Groups elements from the [Grouping] source by key and applies [operation] to the elements of each group sequentially,\n * passing the previously accumulated value and the current element as arguments,\n * and stores the results in the given [destination] map.\n * An initial value of accumulator is provided by [initialValueSelector] function.\n *\n * @param initialValueSelector a function that provides an initial value of accumulator for each group.\n * It's invoked with parameters:\n * - `key`: the key of the group;\n * - `element`: the first element being encountered in that group.\n *\n * If the [destination] map already has a value corresponding to some key, that value is used as an initial value of\n * the accumulator for that group and the [initialValueSelector] function is not called for that group.\n *\n * @param operation a function that is invoked on each element with the following parameters:\n * - `key`: the key of the group this element belongs to;\n * - `accumulator`: the current value of the accumulator of the group;\n * - `element`: the element from the source being accumulated.\n *\n * @return the [destination] map associating the key of each group with the result of accumulating the group elements.\n * @sample samples.collections.Grouping.foldByEvenLengthWithComputedInitialValueTo\n */\n@SinceKotlin(\"1.1\")\npublic inline fun <T, K, R, M : MutableMap<in K, R>> Grouping<T, K>.foldTo(\n   destination: M,\n initialValueSelector: (key: K, element: T) -> R,\n   operation: (key: K, accumulator: R, element: T) -> R\n): M =\n @Suppress(\"UNCHECKED_CAST\")\n   aggregateTo(destination) { key, acc, e, first -> operation(key, if (first) initialValueSelector(key, e) else acc as R, e) }\n\n\n/**\n * Groups elements from the [Grouping] source by key and applies [operation] to the elements of each group sequentially,\n * passing the previously accumulated value and the current element as arguments, and stores the results in a new map.\n * An initial value of accumulator is the same [initialValue] for each group.\n *\n * @param operation a function that is invoked on each element with the following parameters:\n * - `accumulator`: the current value of the accumulator of the group;\n * - `element`: the element from the source being accumulated.\n *\n * @return a [Map] associating the key of each group with the result of accumulating the group elements.\n * @sample samples.collections.Grouping.foldByEvenLengthWithConstantInitialValue\n */\n@SinceKotlin(\"1.1\")\npublic inline fun <T, K, R> Grouping<T, K>.fold(\n   initialValue: R,\n   operation: (accumulator: R, element: T) -> R\n): Map<K, R> =\n   @Suppress(\"UNCHECKED_CAST\")\n   aggregate { _, acc, e, first -> operation(if (first) initialValue else acc as R, e) }\n\n/**\n * Groups elements from the [Grouping] source by key and applies [operation] to the elements of each group sequentially,\n * passing the previously accumulated value and the current element as arguments,\n * and stores the results in the given [destination] map.\n * An initial value of accumulator is the same [initialValue] for each group.\n *\n * If the [destination] map already has a value corresponding to the key of some group,\n * that value is used as an initial value of the accumulator for that group.\n *\n * @param operation a function that is invoked on each element with the following parameters:\n * - `accumulator`: the current value of the accumulator of the group;\n * - `element`: the element from the source being accumulated.\n *\n * @return the [destination] map associating the key of each group with the result of accumulating the group elements.\n * @sample samples.collections.Grouping.foldByEvenLengthWithConstantInitialValueTo\n */\n@SinceKotlin(\"1.1\")\npublic inline fun <T, K, R, M : MutableMap<in K, R>> Grouping<T, K>.foldTo(\n destination: M,\n   initialValue: R,\n   operation: (accumulator: R, element: T) -> R\n): M =\n @Suppress(\"UNCHECKED_CAST\")\n   aggregateTo(destination) { _, acc, e, first -> operation(if (first) initialValue else acc as R, e) }\n\n\n/**\n * Groups elements from the [Grouping] source by key and applies the reducing [operation] to the elements of each group\n * sequentially starting from the second element of the group,\n * passing the previously accumulated value and the current element as arguments,\n * and stores the results in a new map.\n * An initial value of accumulator is the first element of the group.\n *\n * @param operation a function that is invoked on each subsequent element of the group with the following parameters:\n * - `key`: the key of the group this element belongs to;\n * - `accumulator`: the current value of the accumulator of the group;\n * - `element`: the element from the source being accumulated.\n *\n * @return a [Map] associating the key of each group with the result of accumulating the group elements.\n * @sample samples.collections.Grouping.reduceByMaxVowels\n */\n@SinceKotlin(\"1.1\")\npublic inline fun <S, T : S, K> Grouping<T, K>.reduce(\n   operation: (key: K, accumulator: S, element: T) -> S\n): Map<K, S> =\n   aggregate { key, acc, e, first ->\n @Suppress(\"UNCHECKED_CAST\")\n   if (first) e else operation(key, acc as S, e)\n   }\n\n/**\n * Groups elements from the [Grouping] source by key and applies the reducing [operation] to the elements of each group\n * sequentially starting from the second element of the group,\n * passing the previously accumulated value and the current element as arguments,\n * and stores the results in the given [destination] map.\n * An initial value of accumulator is the first element of the group.\n *\n * If the [destination] map already has a value corresponding to the key of some group,\n * that value is used as an initial value of the accumulator for that group and the first element of that group is also\n * subjected to the [operation].\n\n * @param operation a function that is invoked on each subsequent element of the group with the following parameters:\n * - `accumulator`: the current value of the accumulator of the group;\n * - `element`: the element from the source being folded;\n *\n * @return the [destination] map associating the key of each group with the result of accumulating the group elements.\n * @sample samples.collections.Grouping.reduceByMaxVowelsTo\n */\n@SinceKotlin(\"1.1\")\npublic inline fun <S, T : S, K, M : MutableMap<in K, S>> Grouping<T, K>.reduceTo(\n   destination: M,\n   operation: (key: K, accumulator: S, element: T) -> S\n): M =\n   aggregateTo(destination) { key, acc, e, first ->\n @Suppress(\"UNCHECKED_CAST\")\n   if (first) e else operation(key, acc as S, e)\n   }\n\n\n/**\n * Groups elements from the [Grouping] source by key and counts elements in each group to the given [destination] map.\n *\n * If the [destination] map already has a value corresponding to the key of some group,\n * that value is used as an initial value of the counter for that group.\n *\n * @return the [destination] map associating the key of each group with the count of elements in the group.\n *\n * @sample samples.collections.Grouping.groupingByEachCount\n */\n@SinceKotlin(\"1.1\")\npublic fun <T, K, M : MutableMap<in K, Int>> Grouping<T, K>.eachCountTo(destination: M): M =\n   foldTo(destination, 0) { acc, _ -> acc + 1 }\n\n/*\n/**\n * Groups elements from the [Grouping] source by key and sums values provided by the [valueSelector] function for elements in each group\n * to the given [destination] map.\n *\n *\n * If the [destination] map already has a value corresponding to the key of some group,\n * that value is used as an initial value of the sum for that group.\n *\n * @return the [destination] map associating the key of each group with the sum of elements in the group.\n */\n@SinceKotlin(\"1.1\")\npublic inline fun <T, K, M : MutableMap<in K, Int>> Grouping<T, K>.eachSumOfTo(destination: M, valueSelector: (T) -> Int): M =\n   foldTo(destination, 0) { acc, e -> acc + valueSelector(e)}\n*/\n\n\n/*\n// TODO: sum by long and by double overloads\n\npublic inline fun <T, K, M : MutableMap<in K, Long>> Grouping<T, K>.sumEachByLongTo(destination: M, valueSelector: (T) -> Long): M =\n   foldTo(destination, 0L) { acc, e -> acc + valueSelector(e)}\n\npublic inline fun <T, K> Grouping<T, K>.sumEachByLong(valueSelector: (T) -> Long): Map<K, Long> =\n   fold(0L) { acc, e -> acc +

valueSelector(e)}\n\npublic inline fun <T, K, M : MutableMap<in K, Double>> Grouping<T, K>.sumEachByDoubleTo(destination: M, valueSelector: (T) -> Double): M =\n   foldTo(destination, 0.0) { acc, e -> acc + valueSelector(e)}\n\npublic inline fun <T, K> Grouping<T, K>.sumEachByDouble(valueSelector: (T) -> Double): Map<K, Double> =\n   fold(0.0) { acc, e -> acc + valueSelector(e)}\n*/\n","/*\n * Copyright 2010-2021 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin.js\n\n@Retention(AnnotationRetention.BINARY)\n@Target(AnnotationTarget.FUNCTION, AnnotationTarget.PROPERTY)\ninternal annotation class JsPolyfill(val implementation: String)\n","/*\n * Copyright 2010-2018 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin.js\n\n/**\n * An interface for indexing access to a collection of key-value pairs, where type of key is [String] and type of value is [Any?][Any].\n */\npublic external interface Json {\n   /**\n   * Calls to the function will be translated to indexing operation (square brackets) on the receiver with [propertyName] as the argument.\n   *\n   * E.g. for next code:\n   * ```kotlin\n   * fun test(j: Json, p: String) = j[\"prop\"] + j.get(p)\n   * ```\n   *\n   * will be generated:\n   * ```js\n   * function test(j, p) {\n   *   return j[\"prop\"] + j[p];\n   * }\n   * ```\n   */\n   operator fun get(propertyName: String): Any?\n\n   /**\n   * Calls of the function will be translated to an assignment of [value] to the receiver indexed (with square brackets/index operation) with [propertyName].\n   *\n   * E.g. for the following code:\n   * ```kotlin\n   * fun test(j: Json, p: String, newValue: Any) {\n   *   j[\"prop\"] = 1\n   *   j.set(p, newValue)\n   * }\n   * ```\n   *\n   * will be generated:\n   * ```js\n   * function test(j, p, newValue) {\n   *   j[\"prop\"] = 1;\n   *   j[p] = newValue;\n   * }\n   * }\n   * ```\n   */\n   operator fun set(propertyName: String, value: Any?): Unit\n}\n\n/**\n * Returns a simple JavaScript object (as [Json]) using provided key-value pairs as names and values of its properties.\n */\npublic fun json(vararg pairs: Pair<String, Any?>): Json {\n   val res: dynamic = js(\"({})\")\n   for ((name, value) in pairs) {\n   res[name] = value\n   }\n   return res\n}\n\n/**\n * Adds key-value pairs from [other] to [this].\n * Returns the original receiver.\n */\npublic fun Json.add(other: Json): Json {\n   val keys: Array<String> = js(\"Object\").keys(other)\n   for (key in keys) {\n   if (other.asDynamic().hasOwnProperty(key)) {\n   this[key] = other[key];\n   }\n   }\n   return this\n}\n\n/**\n * Exposes the JavaScript [JSON object](https://developer.mozilla.org/en-US/docs/Web/JavaScript/Reference/Global_Objects/JSON) to Kotlin.\n */\n@Suppress(\"NOT_DOCUMENTED\")\npublic external object JSON {\n   public fun stringify(o: Any?): String\n   public fun stringify(o: Any?, replacer: ((key: String, value: Any?) -> Any?)): String\n   public fun stringify(o: Any?, replacer: ((key: String, value: Any?) -> Any?)? = definedExternally, space: Int): String\n   public fun stringify(o: Any?, replacer: ((key: String, value: Any?) -> Any?)? = definedExternally, space: String): String\n   public fun stringify(o: Any?, replacer: Array<String>): String\n   public fun stringify(o: Any?, replacer: Array<String>, space: Int): String\n   public fun stringify(o: Any?, replacer: Array<String>, space: String): String\n\n   public fun <T> parse(text: String): T\n   public fun <T> parse(text: String, reviver: ((key: String, value: Any?) -> Any?)): T\n}\n","/*\n * Copyright 2010-2021 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\npackage kotlin.math\n\n\nimport kotlin.internal.InlineOnly\nimport kotlin.js.JsMath as nativeMath\n\n\n// region ================ Double Math ==\n\n/** Computes the sine of the angle [x] given in radians.\n *\n * Special cases:\n *   - `sin(NaN|+Inf|-Inf)` is `NaN`\n */\n@SinceKotlin(\"1.2\")\n@InlineOnly\npublic actual inline fun sin(x: Double): Double = nativeMath.sin(x)\n\n/** Computes the cosine of the angle [x] given in radians.\n *\n * Special cases:\n *   - `cos(NaN|+Inf|-Inf)` is `NaN`\n */\n@SinceKotlin(\"1.2\")\n@InlineOnly\npublic actual inline fun cos(x: Double): Double = nativeMath.cos(x)\n\n/** Computes the tangent of the angle [x] given in radians.\n *\n * Special cases:\n *   - `tan(NaN|+Inf|-Inf)` is `NaN`\n */\n@SinceKotlin(\"1.2\")\n@InlineOnly\npublic actual inline fun tan(x: Double): Double = nativeMath.tan(x)\n\n/**\n * Computes the arc sine of the value [x];\n * the returned value is an angle in the range from `-PI/2` to `PI/2` radians.\n *\n * Special cases:\n *   - `asin(x)` is `NaN`, when `abs(x) > 1` or x is `NaN`\n */\n@SinceKotlin(\"1.2\")\n@InlineOnly\npublic actual inline fun asin(x: Double): Double = nativeMath.asin(x)\n\n/**\n * Computes the arc cosine of the value [x];\n * the returned value is an angle in the range from `0.0` to `PI` radians.\n *\n * Special cases:\n *   - `acos(x)` is `NaN`, when `abs(x) > 1` or x is `NaN`\n */\n@SinceKotlin(\"1.2\")\n@InlineOnly\npublic actual inline fun acos(x: Double): Double = nativeMath.acos(x)\n\n/**\n * Computes the arc tangent of the value [x];\n * the returned value is an angle in the range from `-PI/2` to `PI/2` radians.\n *\n * Special cases:\n *   - `atan(NaN)` is `NaN`\n */\n@SinceKotlin(\"1.2\")\n@InlineOnly\npublic actual inline fun atan(x: Double): Double = nativeMath.atan(x)\n\n/**\n * Returns the angle `theta` of the polar coordinates `(r, theta)` that correspond\n * to the rectangular coordinates `(x, y)` by computing the arc tangent of the value [y] / [x];\n * the returned value is an angle in the range from `-PI` to `PI` radians.\n *\n * Special cases:\n *   - `atan2(0.0, 0.0)` is `0.0`\n *   - `atan2(0.0, x)` is `0.0` for `x > 0` and `PI` for `x < 0`\n *   - `atan2(-0.0, x)` is `-0.0` for 'x > 0` and `-PI` for `x < 0`\n *   - `atan2(y, +Inf)` is `0.0` for `0 < y < +Inf` and `-0.0` for '-Inf < y < 0`\n *   - `atan2(y, -Inf)` is `PI` for `0 < y < +Inf` and `-PI` for `-Inf < y < 0`\n *   - `atan2(y, 0.0)` is `PI/2` for `y > 0` and `-PI/2` for `y < 0`\n *   - `atan2(+Inf, x)` is `PI/2` for finite `x`y\n *   - `atan2(-Inf, x)` is `-PI/2` for finite `x`\n *   - `atan2(NaN, x)` and `atan2(y, NaN)` is `NaN`\n */\n@SinceKotlin(\"1.2\")\n@InlineOnly\npublic actual inline fun atan2(y: Double, x: Double): Double = nativeMath.atan2(y, x)\n\n/**\n * Computes the hyperbolic sine of the value [x].\n *\n * Special cases:\n *   - `sinh(NaN)` is `NaN`\n *   - `sinh(+Inf)` is `+Inf`\n *   - `sinh(-Inf)` is `-Inf`\n */\n@SinceKotlin(\"1.2\")\n@InlineOnly\npublic actual inline fun sinh(x: Double): Double = nativeSinh(x)\n\n/**\n * Computes the hyperbolic cosine of the value [x].\n *\n * Special cases:\n *   - `cosh(NaN)` is `NaN`\n *   - `cosh(+Inf|-Inf)` is `+Inf`\n */\n@SinceKotlin(\"1.2\")\n@InlineOnly\npublic actual inline fun cosh(x: Double): Double = nativeCosh(x)\n\n/**\n * Computes the hyperbolic tangent of the value [x].\n *\n * Special cases:\n *   - `tanh(NaN)` is `NaN`\n *   - `tanh(+Inf)` is `1.0`\n *   - `tanh(-Inf)` is `-1.0`\n */\n@SinceKotlin(\"1.2\")\n@InlineOnly\npublic actual inline fun tanh(x: Double): Double = nativeTanh(x)\n\n/**\n * Computes the inverse hyperbolic sine of the value [x].\n *\n * The returned value is `y` such that `sinh(y) == x`.\n *\n * Special cases:\n *   - `asinh(NaN)` is `NaN`\n *   - `asinh(+Inf)` is `+Inf`\n *   - `asinh(-Inf)` is `-Inf`\n */\n@SinceKotlin(\"1.2\")\n@InlineOnly\npublic actual inline fun asinh(x: Double): Double = nativeAsinh(x)\n\n/**\n * Computes the inverse hyperbolic cosine of the value [x].\n *\n * The returned value is positive `y` such that `cosh(y) == x`.\n *\n * Special cases:\n *   - `acosh(NaN)` is `NaN`\n *   - `acosh(x)` is `NaN` when `x < 1`\n *   - `acosh(+Inf)` is `+Inf`\n */\n@SinceKotlin(\"1.2\")\n@InlineOnly\npublic actual inline fun acosh(x: Double): Double = nativeAcosh(x)\n\n/**\n * Computes the inverse hyperbolic tangent of the value [x].\n *\n * The returned value is `y` such that `tanh(y) == x`.\n *\n * Special cases:\n *   - `tanh(NaN)` is `NaN`\n *   - `tanh(x)` is `NaN` when `x > 1` or `x < -1`\n *   - `tanh(1.0)` is `+Inf`\n *   - `tanh(-1.0)` is `-Inf`\n */\n@SinceKotlin(\"1.2\")\n@InlineOnly\npublic actual inline fun atanh(x: Double): Double = nativeAtanh(x)\n\n/**\n * Computes `sqrt(x^2 + y^2)` without intermediate overflow or underflow.\n *\n * Special cases:\n *   - returns `+Inf` if any of arguments is infinite\n *   - returns `NaN` if any of arguments is `NaN` and the other is not infinite\n */\n@SinceKotlin(\"1.2\")\n@InlineOnly\npublic actual inline fun hypot(x: Double, y: Double): Double = nativeHypot(x, y)\n\n/**\n * Computes the positive square root of the value [x].\n *\n * Special cases:\n *   - `sqrt(x)` is `NaN` when `x < 0` or `x` is `NaN`\n */\n@SinceKotlin(\"1.2\")\n@InlineOnly\npublic actual inline fun sqrt(x: Double): Double = nativeMath.sqrt(x)\n\n/**\n * Computes Euler's number `e` raised to the power of the value [x].\n *\n * Special cases:\n *   - `exp(NaN)` is `NaN`\n *   - `exp(+Inf)` is `+Inf`\n *   - `exp(-Inf)` is `0.0`\n */\n@SinceKotlin(\"1.2\")\n@InlineOnly\npublic actual inline fun exp(x: Double): Double = nativeMath.exp(x)\n\n/**\n * Computes `exp(x) - 1`.\n *\n * This function can be implemented to produce more precise result for [x] near zero.\n *\n * Special cases:\n *   - `expm1(NaN)` is `NaN`\n *   - `expm1(+Inf)` is `+Inf`\n *   - `expm1(-Inf)` is `-1.0`\n *\n * @see [exp] function.\n */\n@SinceKotlin(\"1.2\")\n@InlineOnly\npublic actual inline fun expm1(x: Double): Double = nativeExpm1(x)\n\n/**\n * Computes the logarithm of the value [x] to the given [base].\n *\n * Special cases:\n *   - `log(x, b)` is `NaN` if either `x` or `b` are `NaN`\n *   - `log(x, b)` is `NaN` when `x < 0` or `b <= 0` or `b == 1.0`\n *   - `log(+Inf, +Inf)` is `NaN`\n *   - `log(+Inf, b)` is `+Inf` for `b > 1` and `-Inf` for `b < 1`\n *   - `log(0.0, b)` is `-Inf` for `b > 1` and `+Inf` for `b > 1`\n *\n * See also logarithm functions for common fixed bases: [ln], [log10] and [log2].\n */\n@SinceKotlin(\"1.2\")\npublic actual fun log(x: Double, base: Double): Double {\n   if (base <= 0.0 || base == 1.0) return Double.NaN\n   return nativeMath.log(x) / nativeMath.log(base)\n}\n\n/**\n * Computes the natural logarithm (base `E`) of the value [x].\n *\n * Special cases:\n *   - `ln(NaN)` is `NaN`\n *   - `ln(x)` is `NaN` when `x < 0.0`\n *   - `ln(+Inf)` is `+Inf`\n *   - `ln(0.0)` is `-Inf`\n */\n@SinceKotlin(\"1.2\")\n@InlineOnly\npublic actual inline fun ln(x: Double): Double = nativeMath.log(x)\n\n/**\n * Computes the common logarithm (base 10) of the value [x].\n *\n * @see [ln] function for special cases.\n */\n@SinceKotlin(\"1.2\")\n@InlineOnly\npublic actual inline fun log10(x: Double): Double = nativeLog10(x)\n\n/**\n * Computes the binary logarithm (base 2) of the value [x].\n *\n * @see [ln] function for special cases.\n */\n@SinceKotlin(\"1.2\")\n@InlineOnly\npublic actual inline fun log2(x: Double): Double = nativeLog2(x)\n\n/**\n * Computes `ln(x + 1)`.\n *\n * This function can be implemented to produce more precise result for [x] near zero.\n *\n * Special cases:\n *   - `ln1p(NaN)` is `NaN`\n *   - `ln1p(x)` is `NaN` where `x < -1.0`\n *   - `ln1p(-1.0)` is `-Inf`\n *   - `ln1p(+Inf)` is `+Inf`\n *\n * @see [ln] function\n * @see [expm1] function\n */\n@SinceKotlin(\"1.2\")\n@InlineOnly\npublic actual inline fun ln1p(x: Double): Double = nativeLog1p(x)\n\n/**\n * Rounds the given value [x] to an integer towards positive infinity.\n\n * @return the smallest double value that is greater than or equal to the given value [x] and is a mathematical integer.\n *\n * Special cases:\n *   - `ceil(x)` is `x` where `x` is `NaN` or `+Inf` or `-Inf` or already a mathematical integer.\n */\n@SinceKotlin(\"1.2\")\n@InlineOnly\npublic actual inline fun ceil(x: Double): Double = nativeMath.ceil(x)\n\n/**\n * Rounds the given value [x] to an integer towards negative infinity.\n\n * @return the largest double value that is smaller than or equal to the given value [x] and is a mathematical integer.\n *\n * Special cases:\n *   - `floor(x)` is `x` where `x` is `NaN` or `+Inf` or `-Inf` or already a mathematical integer.\n */\n@SinceKotlin(\"1.2\")\n@InlineOnly\npublic actual inline fun floor(x: Double): Double = nativeMath.floor(x)\n\n/**\n * Rounds the given value [x] to an integer towards zero.\n *\n * @return the value [x] having its fractional part truncated.\n *\n * Special cases:\n *   - `truncate(x)` is `x` where `x` is `NaN` or `+Inf` or `-Inf` or already a mathematical integer.\n */\n@SinceKotlin(\"1.2\")\n@InlineOnly\npublic actual inline fun truncate(x: Double): Double = nativeTrunc(x)\n\n/**\n * Rounds the given value [x] towards the closest integer with ties rounded towards even integer.\n *\n * Special cases:\n *   - `round(x)` is `x` where `x` is `NaN` or `+Inf` or `-Inf` or already a mathematical integer.\n */\n@SinceKotlin(\"1.2\")\npublic actual fun round(x: Double): Double {\n   if (x % 0.5 != 0.0) {\n   return nativeMath.round(x)\n   }\n   val floor = floor(x)\n   return if (floor % 2 == 0.0) floor else ceil(x)\n}\n\n/**\n * Returns the absolute value of the given value [x].\n *\n * Special cases:\n *   - `abs(NaN)` is `NaN`\n *\n * @see absoluteValue extension property for [Double]\n */\n@SinceKotlin(\"1.2\")\n@InlineOnly\npublic actual inline fun abs(x: Double): Double = nativeMath.abs(x)\n\n/**\n * Returns the sign of the given value [x]:\n *   - `-1.0` if the value is negative,\n *   - zero if the value is zero,\n *   - `1.0` if the value is positive\n *\n * Special case:\n *   - `sign(NaN)` is `NaN`\n */\n@SinceKotlin(\"1.2\")\n@InlineOnly\npublic actual inline fun sign(x: Double): Double = nativeSign(x)\n\n\n/**\n * Returns the smaller of two values.\n *\n * If either value is `NaN`, then the result is `NaN`.\n */\n@SinceKotlin(\"1.2\")\n@InlineOnly\npublic actual inline fun min(a: Double, b: Double): Double = nativeMath.min(a, b)\n\n/**\n * Returns the greater of two values.\n *\n * If either value is `NaN`, then the result is `NaN`.\n */\n@SinceKotlin(\"1.2\")\n@InlineOnly\npublic actual inline fun max(a: Double, b: Double): Double = nativeMath.max(a, b)\n\n\n/**\n * Returns the cube root of [x]. For any `x`, `cbrt(-x) == -cbrt(x)`;\n * that is, the cube root of a negative value is the negative of the cube root\n * of that value's magnitude. Special cases:\n *\n * Special cases:\n *   - If the argument is `NaN`, then the result is `NaN`.\n *   - If the argument is infinite, then the result is an infinity with the same sign as the argument.\n *   - If the argument is zero, then the result is a zero with the same sign as the argument.\n */\n@SinceKotlin(\"1.7\")\n@ExperimentalStdlibApi\n@InlineOnly\npublic actual inline fun cbrt(x: Double): Double = nativeMath.cbrt(x)\n\n\n// extensions\n\n/**\n * Raises this value to the power [x].\n *\n * Special cases:\n *   - `b.pow(0.0)` is `1.0`\n *   - `b.pow(1.0) == b`\n *   - `b.pow(NaN)` is `NaN`\n *   - `NaN.pow(x)` is `NaN` for `x != 0.0`\n *   - `b.pow(Inf)` is `NaN` for `abs(b) == 1.0`\n *   - `b.pow(x)` is `NaN` for `b < 0` and `x` is finite and not an integer\n */\n@SinceKotlin(\"1.2\")\n@InlineOnly\npublic actual inline fun Double.pow(x: Double): Double = nativeMath.pow(this, x)\n\n/**\n * Raises this value to the integer power [n].\n

*\n * See the other overload of [pow] for details.\n */\n@SinceKotlin(\"1.2\")\n@InlineOnly\npublic actual inline fun Double.pow(n: Int): Double = nativeMath.pow(this, n.toDouble())\n\n/**\n * Returns the absolute value of this value.\n *\n * Special cases:\n *   - `NaN.absoluteValue` is `NaN`\n *\n * @see abs function\n */\n@SinceKotlin(\"1.2\")\n@InlineOnly\npublic actual inline val Double.absoluteValue: Double get() = nativeMath.abs(this)\n\n/**\n * Returns the sign of this value:\n *   - `-1.0` if the value is negative,\n *   - zero if the value is zero,\n *   - `1.0` if the value is positive\n *\n * Special case:\n *   - `NaN.sign` is `NaN`\n */\n@SinceKotlin(\"1.2\")\n@InlineOnly\npublic actual inline val Double.sign: Double get() = nativeSign(this)\n\n/**\n * Returns this value with the sign bit same as of the [sign] value.\n */\n@SinceKotlin(\"1.2\")\n@InlineOnly\npublic actual inline fun Double.withSign(sign: Int): Double = this.withSign(sign.toDouble())\n\n/**\n * Returns the ulp (unit in the last place) of this value.\n *\n * An ulp is a positive distance between this value and the next nearest [Double] value larger in magnitude.\n *\n * Special Cases:\n *   - `NaN.ulp` is `NaN`\n *   - `x.ulp` is `+Inf` when `x` is `+Inf` or `-Inf`\n *   - `0.0.ulp` is `Double.MIN_VALUE`\n */\n@SinceKotlin(\"1.2\")\npublic actual val Double.ulp: Double get() = when {\n   this < 0 -> (-this).ulp\n   this.isNaN() || this == Double.POSITIVE_INFINITY -> this\n   this == Double.MAX_VALUE -> this - this.nextDown()\n   else -> this.nextUp() - this\n}\n\n/**\n * Returns the [Double] value nearest to this value in direction of positive infinity.\n */\n@SinceKotlin(\"1.2\")\npublic actual fun Double.nextUp(): Double = when {\n   this.isNaN() || this == Double.POSITIVE_INFINITY -> this\n   this == 0.0 -> Double.MIN_VALUE\n   else -> Double.fromBits(this.toRawBits() + if (this > 0) 1 else -1)\n}\n\n/**\n * Returns the [Double] value nearest to this value in direction of negative infinity.\n */\n@SinceKotlin(\"1.2\")\npublic actual fun Double.nextDown(): Double = when {\n   this.isNaN() || this == Double.NEGATIVE_INFINITY -> this\n   this == 0.0 -> -Double.MIN_VALUE\n   else -> Double.fromBits(this.toRawBits() + if (this > 0) -1 else 1)\n}\n\n\n/**\n * Returns the [Double] value nearest to this value in direction from this value towards the value [to].\n *\n * Special cases:\n *   - `x.nextTowards(y)` is `NaN` if either `x` or `y` are `NaN`\n *   - `x.nextTowards(x) == x`\n *\n */\n@SinceKotlin(\"1.2\")\npublic actual fun Double.nextTowards(to: Double): Double = when {\n   this.isNaN() || to.isNaN() -> Double.NaN\n   to == this -> to\n   to > this -> this.nextUp()\n   else /* to < this */ -> this.nextDown()\n}\n\n\n/**\n * Rounds this [Double] value to the nearest integer and converts the result to [Int].\n * Ties are rounded towards positive infinity.\n *\n * Special cases:\n *   - `x.roundToInt() == Int.MAX_VALUE` when `x > Int.MAX_VALUE`\n *   - `x.roundToInt() == Int.MIN_VALUE` when `x < Int.MIN_VALUE`\n *\n * @throws IllegalArgumentException when this value is `NaN`\n */\n@SinceKotlin(\"1.2\")\npublic actual fun Double.roundToInt(): Int = when {\n   isNaN() -> throw IllegalArgumentException(\"Cannot round NaN value.\")\n   this > Int.MAX_VALUE -> Int.MAX_VALUE\n   this < Int.MIN_VALUE -> Int.MIN_VALUE\n   else -> nativeMath.round(this).toInt()\n}\n\n/**\n * Rounds this [Double] value to the nearest integer and converts the result to [Long].\n * Ties are rounded towards positive infinity.\n *\n * Special cases:\n *   - `x.roundToLong() == Long.MAX_VALUE` when `x > Long.MAX_VALUE`\n *   - `x.roundToLong() == Long.MIN_VALUE` when `x < Long.MIN_VALUE`\n *\n * @throws IllegalArgumentException when this value is `NaN`\n */\n@SinceKotlin(\"1.2\")\npublic actual fun Double.roundToLong(): Long = when {\n   isNaN() -> throw IllegalArgumentException(\"Cannot round NaN value.\")\n   this > Long.MAX_VALUE -> Long.MAX_VALUE\n   this < Long.MIN_VALUE -> Long.MIN_VALUE\n   else -> nativeMath.round(this).toLong()\n}\n\n// endregion\n\n\n\n\n// region ================ Float Math ==\n\n/** Computes the sine of the angle [x] given in radians.\n *\n * Special cases:\n *   - `sin(NaN|+Inf|-Inf)` is `NaN`\n */\n@SinceKotlin(\"1.2\")\n@InlineOnly\npublic actual inline fun sin(x: Float): Float = nativeMath.sin(x.toDouble()).toFloat()\n\n/** Computes the cosine of the angle [x] given in radians.\n *\n * Special cases:\n *   - `cos(NaN|+Inf|-Inf)` is `NaN`\n */\n@SinceKotlin(\"1.2\")\n@InlineOnly\npublic actual inline fun cos(x: Float): Float = nativeMath.cos(x.toDouble()).toFloat()\n\n/** Computes the tangent of the angle [x] given in radians.\n *\n * Special cases:\n *   - `tan(NaN|+Inf|-Inf)` is `NaN`\n */\n@SinceKotlin(\"1.2\")\n@InlineOnly\npublic actual inline fun tan(x: Float): Float = nativeMath.tan(x.toDouble()).toFloat()\n\n/**\n * Computes the arc sine of the value [x];\n * the returned value is

an angle in the range from `-PI/2` to `PI/2` radians.\n *\n * Special cases:\n *   - `asin(x)` is `NaN`, when `abs(x) > 1` or x is `NaN`\n */\n@SinceKotlin(\"1.2\")\n@InlineOnly\npublic actual inline fun asin(x: Float): Float = nativeMath.asin(x.toDouble()).toFloat()\n\n/**\n * Computes the arc cosine of the value [x];\n * the returned value is an angle in the range from `0.0` to `PI` radians.\n *\n * Special cases:\n *   - `acos(x)` is `NaN`, when `abs(x) > 1` or x is `NaN`\n */\n@SinceKotlin(\"1.2\")\n@InlineOnly\npublic actual inline fun acos(x: Float): Float = nativeMath.acos(x.toDouble()).toFloat()\n\n/**\n * Computes the arc tangent of the value [x];\n * the returned value is an angle in the range from `-PI/2` to `PI/2` radians.\n *\n * Special cases:\n *   - `atan(NaN)` is `NaN`\n */\n@SinceKotlin(\"1.2\")\n@InlineOnly\npublic actual inline fun atan(x: Float): Float = nativeMath.atan(x.toDouble()).toFloat()\n\n/**\n * Returns the angle `theta` of the polar coordinates `(r, theta)` that correspond\n * to the rectangular coordinates `(x, y)` by computing the arc tangent of the value [y] / [x];\n * the returned value is an angle in the range from `-PI` to `PI` radians.\n *\n * Special cases:\n *   - `atan2(0.0, 0.0)` is `0.0`\n *   - `atan2(0.0, x)` is `0.0` for `x > 0` and `PI` for `x < 0`\n *   - `atan2(-0.0, x)` is `-0.0` for 'x > 0` and `-PI` for `x < 0`\n *   - `atan2(y, +Inf)` is `0.0` for `0 < y < +Inf` and `-0.0` for '-Inf < y < 0`\n *   - `atan2(y, -Inf)` is `PI` for `0 < y < +Inf` and `-PI` for `-Inf < y < 0`\n *   - `atan2(y, 0.0)` is `PI/2` for `y > 0` and `-PI/2` for `y < 0`\n *   - `atan2(+Inf, x)` is `PI/2` for finite `x`y\n *   - `atan2(-Inf, x)` is `-PI/2` for finite `x`\n *   - `atan2(NaN, x)` and `atan2(y, NaN)` is `NaN`\n */\n@SinceKotlin(\"1.2\")\n@InlineOnly\npublic actual inline fun atan2(y: Float, x: Float): Float = nativeMath.atan2(y.toDouble(), x.toDouble()).toFloat()\n\n/**\n * Computes the hyperbolic sine of the value [x].\n *\n * Special cases:\n *   - `sinh(NaN)` is `NaN`\n *   - `sinh(+Inf)` is `+Inf`\n *   - `sinh(-Inf)` is `-Inf`\n */\n@SinceKotlin(\"1.2\")\n@InlineOnly\npublic actual inline fun sinh(x: Float): Float = nativeSinh(x.toDouble()).toFloat()\n\n/**\n * Computes the hyperbolic cosine of the value [x].\n *\n * Special cases:\n *   - `cosh(NaN)` is `NaN`\n *   - `cosh(+Inf|-Inf)` is `+Inf`\n */\n@SinceKotlin(\"1.2\")\n@InlineOnly\npublic actual inline fun cosh(x: Float): Float = nativeCosh(x.toDouble()).toFloat()\n\n/**\n * Computes the hyperbolic tangent of the value [x].\n *\n * Special cases:\n *   - `tanh(NaN)` is `NaN`\n *   - `tanh(+Inf)` is `1.0`\n *   - `tanh(-Inf)` is `-1.0`\n */\n@SinceKotlin(\"1.2\")\n@InlineOnly\npublic actual inline fun tanh(x: Float): Float = nativeTanh(x.toDouble()).toFloat()\n\n/**\n * Computes the inverse hyperbolic sine of the value [x].\n *\n * The returned value is `y` such that `sinh(y) == x`.\n *\n * Special cases:\n *   - `asinh(NaN)` is `NaN`\n *   - `asinh(+Inf)` is `+Inf`\n *   - `asinh(-Inf)` is `-Inf`\n */\n@SinceKotlin(\"1.2\")\n@InlineOnly\npublic actual inline fun asinh(x: Float): Float = nativeAsinh(x.toDouble()).toFloat()\n\n/**\n * Computes the inverse hyperbolic cosine of the value [x].\n *\n * The returned value is positive `y` such that `cosh(y) == x`.\n *\n * Special cases:\n *   - `acosh(NaN)` is `NaN`\n *   - `acosh(x)` is `NaN` when `x < 1`\n *   - `acosh(+Inf)` is `+Inf`\n */\n@SinceKotlin(\"1.2\")\n@InlineOnly\npublic actual inline fun acosh(x: Float): Float = nativeAcosh(x.toDouble()).toFloat()\n\n/**\n * Computes the inverse hyperbolic tangent of the value [x].\n *\n * The returned value is `y` such that `tanh(y) == x`.\n *\n * Special cases:\n *   - `tanh(NaN)` is `NaN`\n *   - `tanh(x)` is `NaN` when `x > 1` or `x < -1`\n *   - `tanh(1.0)` is `+Inf`\n *   - `tanh(-1.0)` is `-Inf`\n */\n@SinceKotlin(\"1.2\")\n@InlineOnly\npublic actual inline fun atanh(x: Float): Float = nativeAtanh(x.toDouble()).toFloat()\n\n/**\n * Computes `sqrt(x^2 + y^2)` without intermediate overflow or underflow.\n *\n * Special cases:\n *   - returns `+Inf` if any of arguments is infinite\n *   - returns `NaN` if any of arguments is `NaN` and the other is not infinite\n */\n@SinceKotlin(\"1.2\")\n@InlineOnly\npublic actual inline fun hypot(x: Float, y: Float): Float = nativeHypot(x.toDouble(), y.toDouble()).toFloat()\n\n/**\n * Computes the positive square root of the value [x].\n *\n * Special cases:\n *   - `sqrt(x)` is `NaN` when `x < 0` or `x` is `NaN`\n */\n@SinceKotlin(\"1.2\")\n@InlineOnly\npublic actual inline fun sqrt(x: Float): Float = nativeMath.sqrt(x.toDouble()).toFloat()\n\n/**\n * Computes Euler's number `e` raised to the power of the value [x].\n *\n * Special cases:\n *   - `exp(NaN)` is `NaN`\n *   - `exp(+Inf)` is `+Inf`\n *   - `exp(-Inf)` is `0.0`\n */\n@SinceKotlin(\"1.2\")\n@InlineOnly\npublic actual inline fun exp(x: Float): Float = nativeMath.exp(x.toDouble()).toFloat()\n\n/**\n * Computes `exp(x) - 1`.\n *\n * This function can be implemented to produce more precise result for [x] near zero.\n *\n * Special cases:\n *   - `expm1(NaN)` is `NaN`\n *   - `expm1(+Inf)` is `+Inf`\n *   - `expm1(-Inf)` is `-1.0`\n *\n * @see [exp] function.\n

*/\n@SinceKotlin(\"1.2\")\n@InlineOnly\npublic actual inline fun expm1(x: Float): Float = nativeExpm1(x.toDouble()).toFloat()\n\n/**\n * Computes the logarithm of the value [x] to the given [base].\n *\n * Special cases:\n *   - `log(x, b)` is `NaN` if either `x` or `b` are `NaN`\n *   - `log(x, b)` is `NaN` when `x < 0` or `b <= 0` or `b == 1.0`\n *   - `log(+Inf, +Inf)` is `NaN`\n *   - `log(+Inf, b)` is `+Inf` for `b > 1` and `-Inf` for `b < 1`\n *   - `log(0.0, b)` is `-Inf` for `b > 1` and `+Inf` for `b > 1`\n *\n * See also logarithm functions for common fixed bases: [ln], [log10] and [log2].\n */\n@SinceKotlin(\"1.2\")\n@InlineOnly\npublic actual inline fun log(x: Float, base: Float): Float = log(x.toDouble(), base.toDouble()).toFloat()\n\n/**\n * Computes the natural logarithm (base `E`) of the value [x].\n *\n * Special cases:\n *   - `ln(NaN)` is `NaN`\n *   - `ln(x)` is `NaN` when `x < 0.0`\n *   - `ln(+Inf)` is `+Inf`\n *   - `ln(0.0)` is `-Inf`\n */\n@SinceKotlin(\"1.2\")\n@InlineOnly\npublic actual inline fun ln(x: Float): Float = nativeMath.log(x.toDouble()).toFloat()\n\n/**\n * Computes the common logarithm (base 10) of the value [x].\n *\n * @see [ln] function for special cases.\n */\n@SinceKotlin(\"1.2\")\n@InlineOnly\npublic actual inline fun log10(x: Float): Float = nativeLog10(x.toDouble()).toFloat()\n\n/**\n * Computes the binary logarithm (base 2) of the value [x].\n *\n * @see [ln] function for special cases.\n */\n@SinceKotlin(\"1.2\")\n@InlineOnly\npublic actual inline fun log2(x: Float): Float = nativeLog2(x.toDouble()).toFloat()\n\n/**\n * Computes `ln(a + 1)`.\n *\n * This function can be implemented to produce more precise result for [x] near zero.\n *\n * Special cases:\n *   - `ln1p(NaN)` is `NaN`\n *   - `ln1p(x)` is `NaN` where `x < -1.0`\n *   - `ln1p(-1.0)` is `-Inf`\n *   - `ln1p(+Inf)` is `+Inf`\n *\n * @see [ln] function\n * @see [expm1] function\n */\n@SinceKotlin(\"1.2\")\n@InlineOnly\npublic actual inline fun ln1p(x: Float): Float = nativeLog1p(x.toDouble()).toFloat()\n\n/**\n * Rounds the given value [x] to an integer towards positive infinity.\n\n * @return the smallest Float value that is greater than or equal to the given value [x] and is a mathematical integer.\n *\n * Special cases:\n *   - `ceil(x)` is `x` where `x` is `NaN` or `+Inf` or `-Inf` or already a mathematical integer.\n */\n@SinceKotlin(\"1.2\")\n@InlineOnly\npublic actual inline fun ceil(x: Float): Float = nativeMath.ceil(x.toDouble()).toFloat()\n\n/**\n * Rounds the given value [x] to an integer towards negative infinity.\n\n * @return the largest Float value that is smaller than or equal to the given value [x] and is a mathematical integer.\n *\n * Special cases:\n *   - `floor(x)` is `x` where `x` is `NaN` or `+Inf` or `-Inf` or already a mathematical integer.\n */\n@SinceKotlin(\"1.2\")\n@InlineOnly\npublic actual inline fun floor(x: Float): Float = nativeMath.floor(x.toDouble()).toFloat()\n\n/**\n * Rounds the given value [x] to an integer towards zero.\n *\n * @return the value [x] having its fractional part truncated.\n *\n * Special cases:\n *   - `truncate(x)` is `x` where `x` is `NaN` or `+Inf` or `-Inf` or already a mathematical integer.\n */\n@SinceKotlin(\"1.2\")\n@InlineOnly\npublic actual inline fun truncate(x: Float): Float = truncate(x.toDouble()).toFloat()\n\n/**\n * Rounds the given value [x] towards the closest integer with ties rounded towards even integer.\n *\n * Special cases:\n *   - `round(x)` is `x` where `x` is `NaN` or `+Inf` or `-Inf` or already a mathematical integer.\n */\n@SinceKotlin(\"1.2\")\n@InlineOnly\npublic actual inline fun round(x: Float): Float = round(x.toDouble()).toFloat()\n\n\n/**\n * Returns the absolute value of the given value [x].\n *\n * Special cases:\n *   - `abs(NaN)` is `NaN`\n *\n * @see absoluteValue extension property for [Float]\n */\n@SinceKotlin(\"1.2\")\n@InlineOnly\npublic actual inline fun abs(x: Float): Float = nativeMath.abs(x.toDouble()).toFloat()\n\n/**\n * Returns the sign of the given value [x]:\n *   - `-1.0` if the value is negative,\n *   - zero if the value is zero,\n *   - `1.0` if the value is positive\n *\n * Special case:\n *   - `sign(NaN)` is `NaN`\n */\n@SinceKotlin(\"1.2\")\n@InlineOnly\npublic actual inline fun sign(x: Float): Float = nativeSign(x.toDouble()).toFloat()\n\n\n\n/**\n * Returns the smaller of two values.\n *\n * If either value is `NaN`, then the result is `NaN`.\n */\n@SinceKotlin(\"1.2\")\n@InlineOnly\npublic actual inline fun min(a: Float, b: Float): Float = nativeMath.min(a, b)\n\n/**\n * Returns the greater of two values.\n *\n * If either value is `NaN`, then the result is `NaN`.\n */\n@SinceKotlin(\"1.2\")\n@InlineOnly\npublic actual inline fun max(a: Float, b: Float): Float = nativeMath.max(a, b)\n\n\n/**\n * Returns the cube root of [x]. For any `x`, `cbrt(-x) == -cbrt(x)`;\n * that is, the cube root of a negative value is the negative of the cube root\n * of that value's magnitude. Special cases:\n *\n * Special cases:\n *   - If the argument is `NaN`, then the result is `NaN`.\n *   - If the argument is infinite, then the result is an infinity with the same sign as the argument.\n *   - If the argument is zero, then the result is a zero with the same sign as the argument.\n */\n@SinceKotlin(\"1.7\")\n@ExperimentalStdlibApi\n@InlineOnly\npublic actual

inline fun cbrt(x: Float): Float = nativeMath.cbrt(x.toDouble()).toFloat()\n\n\n// extensions\n\n\n/**\n * Raises this value to the power [x].\n *\n * Special cases:\n *   - `b.pow(0.0)` is `1.0`\n *   - `b.pow(1.0) == b`\n *   - `b.pow(NaN)` is `NaN`\n *   - `NaN.pow(x)` is `NaN` for `x != 0.0`\n *   - `b.pow(Inf)` is `NaN` for `abs(b) == 1.0`\n *   - `b.pow(x)` is `NaN` for `b < 0` and `x` is finite and not an integer\n */\n@SinceKotlin(\"1.2\")\n@InlineOnly\npublic actual inline fun Float.pow(x: Float): Float = nativeMath.pow(this.toDouble(), x.toDouble()).toFloat()\n\n/**\n * Raises this value to the integer power [n].\n *\n * See the other overload of [pow] for details.\n */\n@SinceKotlin(\"1.2\")\n@InlineOnly\npublic actual inline fun Float.pow(n: Int): Float = nativeMath.pow(this.toDouble(), n.toDouble()).toFloat()\n\n/**\n * Returns the absolute value of this value.\n *\n * Special cases:\n *   - `NaN.absoluteValue` is `NaN`\n *\n * @see abs function\n */\n@SinceKotlin(\"1.2\")\n@InlineOnly\npublic actual inline val Float.absoluteValue: Float get() = nativeMath.abs(this.toDouble()).toFloat()\n\n/**\n * Returns the sign of this value:\n *   - `-1.0` if the value is negative,\n *   - zero if the value is zero,\n *   - `1.0` if the value is positive\n *\n * Special case:\n *   - `NaN.sign` is `NaN`\n */\n@SinceKotlin(\"1.2\")\n@InlineOnly\npublic actual inline val Float.sign: Float get() = nativeSign(this.toDouble()).toFloat()\n\n/**\n * Returns this value with the sign bit same as of the [sign] value.\n *\n * If [sign] is `NaN` the sign of the result is undefined.\n */\n@SinceKotlin(\"1.2\")\n@InlineOnly\npublic actual inline fun Float.withSign(sign: Float): Float = this.toDouble().withSign(sign.toDouble()).toFloat()\n\n/**\n * Returns this value with the sign bit same as of the [sign] value.\n */\n@SinceKotlin(\"1.2\")\n@InlineOnly\npublic actual inline fun Float.withSign(sign: Int): Float = this.toDouble().withSign(sign.toDouble()).toFloat()\n\n\n/**\n * Rounds this [Float] value to the nearest integer and converts the result to [Int].\n * Ties are rounded towards positive infinity.\n *\n * Special cases:\n *   - `x.roundToInt() == Int.MAX_VALUE` when `x > Int.MAX_VALUE`\n *   - `x.roundToInt() == Int.MIN_VALUE` when `x < Int.MIN_VALUE`\n *\n * @throws IllegalArgumentException when this value is `NaN`\n */\n@SinceKotlin(\"1.2\")\n@InlineOnly\npublic actual inline fun Float.roundToInt(): Int = toDouble().roundToInt()\n\n/**\n * Rounds this [Float] value to the nearest integer and converts the result to [Long].\n * Ties are rounded towards positive infinity.\n *\n * Special cases:\n *   - `x.roundToLong() == Long.MAX_VALUE` when `x > Long.MAX_VALUE`\n *   - `x.roundToLong() == Long.MIN_VALUE` when `x < Long.MIN_VALUE`\n *\n * @throws IllegalArgumentException when this value is `NaN`\n */\n@SinceKotlin(\"1.2\")\n@InlineOnly\npublic actual inline fun Float.roundToLong(): Long = toDouble().roundToLong()\n\n\n\n// endregion\n\n\n// region ================ Integer Math ==\n\n\n/**\n * Returns the absolute value of the given value [n].\n *\n * Special cases:\n *   - `abs(Int.MIN_VALUE)` is `Int.MIN_VALUE` due to an overflow\n *\n * @see absoluteValue extension property for [Int]\n */\n// TODO: remove manual 'or' when KT-19290 is fixed\n@SinceKotlin(\"1.2\")\npublic actual fun abs(n: Int): Int = if (n < 0) (-n or 0) else n\n\n/**\n * Returns the smaller of two values.\n */\n@SinceKotlin(\"1.2\")\n@InlineOnly\npublic actual inline fun min(a: Int, b: Int): Int = nativeMath.min(a, b)\n\n/**\n * Returns the greater of two values.\n */\n@SinceKotlin(\"1.2\")\n@InlineOnly\npublic actual inline fun max(a: Int, b: Int): Int = nativeMath.max(a, b)\n\n/**\n * Returns the absolute value of this value.\n *\n * Special cases:\n *   - `Int.MIN_VALUE.absoluteValue` is `Int.MIN_VALUE` due to an overflow\n *\n * @see abs function\n */\n@SinceKotlin(\"1.2\")\n@InlineOnly\npublic actual inline val Int.absoluteValue: Int get() = abs(this)\n\n/**\n * Returns the sign of this value:\n *   - `-1` if the value is negative,\n *   - `0` if the value is zero,\n *   - `1` if the value is positive\n */\n@SinceKotlin(\"1.2\")\npublic actual val Int.sign: Int get() = when {\n   this < 0 -> -1\n   this > 0 -> 1\n   else -> 0\n}\n\n\n\n/**\n * Returns the absolute value of the given value [n].\n *\n * Special cases:\n *   - `abs(Long.MIN_VALUE)` is `Long.MIN_VALUE` due to an overflow\n *\n * @see absoluteValue extension property for [Long]\n */\n@SinceKotlin(\"1.2\")\npublic actual fun abs(n: Long): Long = if (n < 0) -n else n\n\n/**\n * Returns the smaller of two values.\n */\n@SinceKotlin(\"1.2\")\n@Suppress(\"NOTHING_TO_INLINE\")\npublic actual inline fun min(a: Long, b: Long): Long = if (a <= b) a else b\n\n/**\n * Returns the greater of two values.\n */\n@SinceKotlin(\"1.2\")\n@Suppress(\"NOTHING_TO_INLINE\")\npublic actual inline fun max(a: Long, b: Long): Long = if (a >= b) a else b\n\n/**\n * Returns the absolute value of this value.\n *\n * Special cases:\n *   -

`Long.MIN_VALUE.absoluteValue` is `Long.MIN_VALUE` due to an overflow\n *\n * @see abs function\n */\n@SinceKotlin(\"1.2\")\n@InlineOnly\npublic actual inline val Long.absoluteValue: Long get() = abs(this)\n\n/**\n * Returns the sign of this value:\n *   - `-1` if the value is negative,\n *   - `0` if the value is zero,\n *   - `1` if the value is positive\n */\n@SinceKotlin(\"1.2\")\npublic actual val Long.sign: Int get() = when {\n   this < 0 -> -1\n   this > 0 -> 1\n   else -> 0\n}\n\n\n// endregion\n","/*\n * Copyright 2010-2021 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin\n\n/**\n * Returns `true` if the specified number is a\n * Not-a-Number (NaN) value, `false` otherwise.\n */\npublic actual fun Double.isNaN(): Boolean = this != this\n\n/**\n * Returns `true` if the specified number is a\n * Not-a-Number (NaN) value, `false` otherwise.\n */\npublic actual fun Float.isNaN(): Boolean = this != this\n\n/**\n * Returns `true` if this value is infinitely large in magnitude.\n */\npublic actual fun Double.isInfinite(): Boolean = this == Double.POSITIVE_INFINITY || this == Double.NEGATIVE_INFINITY\n\n/**\n * Returns `true` if this value is infinitely large in magnitude.\n */\npublic actual fun Float.isInfinite(): Boolean = this == Float.POSITIVE_INFINITY || this == Float.NEGATIVE_INFINITY\n\n/**\n * Returns `true` if the argument is a finite floating-point value; returns `false` otherwise (for `NaN` and infinity arguments).\n */\npublic actual fun Double.isFinite(): Boolean = !isInfinite() && !isNaN()\n\n/**\n * Returns `true` if the argument is a finite floating-point value; returns `false` otherwise (for `NaN` and infinity arguments).\n */\npublic actual fun Float.isFinite(): Boolean = !isInfinite() && !isNaN()\n\n\n/**\n * Counts the number of set bits in the binary representation of this [Int] number.\n */\n@SinceKotlin(\"1.4\")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic actual fun Int.countOneBits(): Int {\n   // Hacker's Delight 5-1 algorithm\n   var v = this\n   v = (v and 0x55555555) + (v.ushr(1) and 0x55555555)\n   v = (v and 0x33333333) + (v.ushr(2) and 0x33333333)\n   v = (v and 0x0F0F0F0F) + (v.ushr(4) and 0x0F0F0F0F)\n   v = (v and 0x00FF00FF) + (v.ushr(8) and 0x00FF00FF)\n   v = (v and 0x0000FFFF) + (v.ushr(16))\n   return v\n}\n\n/**\n * Counts the number of consecutive most significant bits that are zero in the binary representation of this [Int] number.\n */\n@SinceKotlin(\"1.4\")\n@WasExperimental(ExperimentalStdlibApi::class)\n@kotlin.internal.InlineOnly\npublic actual inline fun Int.countLeadingZeroBits(): Int = nativeClz32(this)\n\n/**\n * Counts the number of consecutive least significant bits that are zero in the binary representation of this [Int] number.\n */\n@SinceKotlin(\"1.4\")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic actual fun Int.countTrailingZeroBits(): Int =\n   // Hacker's Delight 5-4 algorithm for expressing countTrailingZeroBits with countLeadingZeroBits\n   Int.SIZE_BITS - (this or -this).inv().countLeadingZeroBits()\n\n/**\n * Returns a number having a single bit set in the position of the most significant set bit of this [Int] number,\n * or zero, if this number is zero.\n */\n@SinceKotlin(\"1.4\")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic actual fun Int.takeHighestOneBit(): Int =\n   if (this == 0) 0 else 1.shl(Int.SIZE_BITS - 1 - countLeadingZeroBits())\n\n/**\n * Returns a number having a single bit set in the position of the least significant set bit of this [Int] number,\n * or zero, if this number is zero.\n */\n@SinceKotlin(\"1.4\")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic actual fun Int.takeLowestOneBit(): Int =\n   // Hacker's Delight 2-1 algorithm for isolating rightmost 1-bit\n   this and -this\n\n/**\n * Rotates the binary representation of this [Int] number left by the specified [bitCount] number of bits.\n * The most significant bits pushed out from the left side reenter the number as the least significant bits on the right side.\n *\n * Rotating the number left by a negative bit count is the same as rotating it right by the negated bit count:\n * `number.rotateLeft(-n) == number.rotateRight(n)`\n *\n * Rotating by a multiple of [Int.SIZE_BITS] (32) returns the same number, or more generally\n * `number.rotateLeft(n) == number.rotateLeft(n % 32)`\n */\n@SinceKotlin(\"1.6\")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic actual fun Int.rotateLeft(bitCount: Int): Int =\n   shl(bitCount) or ushr(Int.SIZE_BITS - bitCount)\n\n\n/**\n * Rotates the binary representation of this [Int] number right by the specified [bitCount] number of bits.\n * The least significant bits pushed out from the right side reenter the number as the most significant bits on the left side.\n *\n * Rotating the number right by a negative bit count is the same as rotating it left by the negated bit count:\n * `number.rotateRight(-n) == number.rotateLeft(n)`\n *\n * Rotating by a multiple of [Int.SIZE_BITS] (32) returns

the same number, or more generally\n * `number.rotateRight(n) == number.rotateRight(n % 32)`\n */\n@SinceKotlin(\"1.6\")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic actual fun Int.rotateRight(bitCount: Int): Int =\n   shl(Int.SIZE_BITS - bitCount) or ushr(bitCount)\n\n\n/**\n * Counts the number of set bits in the binary representation of this [Long] number.\n */\n@SinceKotlin(\"1.4\")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic actual fun Long.countOneBits(): Int =\n   high.countOneBits() + low.countOneBits()\n\n/**\n * Counts the number of consecutive most significant bits that are zero in the binary representation of this [Long] number.\n */\n@SinceKotlin(\"1.4\")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic actual fun Long.countLeadingZeroBits(): Int =\n   when (val high = this.high) {\n   0 -> Int.SIZE_BITS + low.countLeadingZeroBits()\n   else -> high.countLeadingZeroBits()\n   }\n\n/**\n * Counts the number of consecutive least significant bits that are zero in the binary representation of this [Long] number.\n */\n@SinceKotlin(\"1.4\")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic actual fun Long.countTrailingZeroBits(): Int =\n   when (val low = this.low) {\n   0 -> Int.SIZE_BITS + high.countTrailingZeroBits()\n   else -> low.countTrailingZeroBits()\n   }\n\n/**\n * Returns a number having a single bit set in the position of the most significant set bit of this [Long] number,\n * or zero, if this number is zero.\n */\n@SinceKotlin(\"1.4\")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic actual fun Long.takeHighestOneBit(): Long =\n   when (val high = this.high) {\n   0 -> Long(low.takeHighestOneBit(), 0)\n   else -> Long(0, high.takeHighestOneBit())\n   }\n\n/**\n * Returns a number having a single bit set in the position of the least significant set bit of this [Long] number,\n * or zero, if this number is zero.\n */\n@SinceKotlin(\"1.4\")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic actual fun Long.takeLowestOneBit(): Long =\n   when (val low = this.low) {\n   0 -> Long(0, high.takeLowestOneBit())\n   else -> Long(low.takeLowestOneBit(), 0)\n   }\n\n/**\n * Rotates the binary representation of this [Long] number left by the specified [bitCount] number of bits.\n * The most significant bits pushed out from the left side reenter the number as the least significant bits on the right side.\n *\n * Rotating the number left by a negative bit count is the same as rotating it right by the negated bit count:\n * `number.rotateLeft(-n) == number.rotateRight(n)`\n *\n * Rotating by a multiple of [Long.SIZE_BITS] (64) returns the same number, or more generally\n * `number.rotateLeft(n) == number.rotateLeft(n % 64)`\n */\n@SinceKotlin(\"1.6\")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic actual fun Long.rotateLeft(bitCount: Int): Long {\n   if ((bitCount and 31) != 0) {\n   val low = this.low\n   val high = this.high\n   val newLow = low.shl(bitCount) or high.ushr(-bitCount)\n   val newHigh = high.shl(bitCount) or low.ushr(-bitCount)\n   return if ((bitCount and 32) == 0) Long(newLow, newHigh) else Long(newHigh, newLow)\n   } else {\n   return if ((bitCount and 32) == 0) this else Long(high, low)\n   }\n}\n\n\n/**\n * Rotates the binary representation of this [Long] number right by the specified [bitCount] number of bits.\n * The least significant bits pushed out from the right side reenter the number as the most significant bits on the left side.\n *\n * Rotating the number right by a negative bit count is the same as rotating it left by the negated bit count:\n * `number.rotateRight(-n) == number.rotateLeft(n)`\n *\n * Rotating by a multiple of [Long.SIZE_BITS] (64) returns the same number, or more generally\n * `number.rotateRight(n) == number.rotateRight(n % 64)`\n */\n@SinceKotlin(\"1.6\")\n@WasExperimental(ExperimentalStdlibApi::class)\n@kotlin.internal.InlineOnly\npublic actual inline fun Long.rotateRight(bitCount: Int): Long = rotateLeft(-bitCount)\n","/*\n * Copyright 2010-2018 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin.js\n\nimport kotlin.internal.LowPriorityInOverloadResolution\n\n/**\n * Exposes the JavaScript [Promise object](https://developer.mozilla.org/en/docs/Web/JavaScript/Reference/Global_Objects/Promise) to Kotlin.\n */\n@Suppress(\"NOT_DOCUMENTED\")\npublic open external class Promise<out T>(executor: (resolve: (T) -> Unit, reject: (Throwable) -> Unit) -> Unit) {\n   @LowPriorityInOverloadResolution\n   public open fun <S> then(onFulfilled: ((T) -> S)?): Promise<S>\n\n   @LowPriorityInOverloadResolution\n   public open fun <S> then(onFulfilled: ((T) -> S)?, onRejected: ((Throwable) -> S)?): Promise<S>\n\n   public open fun <S> catch(onRejected: (Throwable) -> S): Promise<S>\n\n   public open fun finally(onFinally: () -> Unit):

Promise<T>\n\n   companion object {\n   public fun <S> all(promise: Array<out Promise<S>>): Promise<Array<out S>>\n\n   public fun <S> race(promise: Array<out Promise<S>>): Promise<S>\n\n   public fun reject(e: Throwable): Promise<Nothing>\n\n   public fun <S> resolve(e: S): Promise<S>\n   public fun <S> resolve(e: Promise<S>): Promise<S>\n   }\n}\n\n// It's workaround for KT-19672 since we can fix it properly until KT-11265 isn't fixed.\ninline fun <T, S> Promise<Promise<T>>.then(\n   noinline onFulfilled: ((T) -> S)?\n): Promise<S> {\n   return this.unsafeCast<Promise<T>>().then(onFulfilled)\n}\n\ninline fun <T, S> Promise<Promise<T>>.then(\n   noinline onFulfilled: ((T) -> S)?,\n   noinline onRejected: ((Throwable) -> S)?\n): Promise<S> {\n   return this.unsafeCast<Promise<T>>().then(onFulfilled, onRejected)\n}\n","/*\n * Copyright 2010-2018 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin.random\n\nimport kotlin.math.pow\n\ninternal actual fun defaultPlatformRandom(): Random =\n   Random(js(\"(Math.random() * Math.pow(2, 32)) | 0\").unsafeCast<Int>())\n\n\nprivate val INV_2_26: Double = 2.0.pow(-26)\nprivate val INV_2_53: Double = 2.0.pow(-53)\ninternal actual fun doubleFromParts(hi26: Int, low27: Int): Double =\n   hi26 * INV_2_26 + low27 * INV_2_53","/*\n * Copyright 2010-2020 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin.reflect\n\nimport findAssociatedObject\n\n/**\n * The experimental marker for associated objects API.\n *\n * Any usage of a declaration annotated with `@ExperimentalAssociatedObjects` must be accepted either by\n * annotating that usage with the [OptIn] annotation, e.g. `@OptIn(ExperimentalAssociatedObjects::class)`,\n * or by using the compiler argument `-opt-in=kotlin.reflect.ExperimentalAssociatedObjects`.\n */\n@RequiresOptIn(level = RequiresOptIn.Level.ERROR)\n@Retention(value = AnnotationRetention.BINARY)\npublic annotation class ExperimentalAssociatedObjects\n\n/**\n * Makes the annotated annotation class an associated object key.\n *\n * An associated object key annotation should have single [KClass] parameter.\n * When applied to a class with reference to an object declaration as an argument, it binds\n * the object to the class, making this binding discoverable at runtime using [findAssociatedObject].\n */\n@ExperimentalAssociatedObjects\n@Retention(AnnotationRetention.BINARY)\n@Target(AnnotationTarget.ANNOTATION_CLASS)\npublic annotation class AssociatedObjectKey\n\n/**\n * If [T] is an @[AssociatedObjectKey]-annotated annotation class and [this] class is annotated with @[T] (`S::class`),\n * returns object `S`.\n *\n * Otherwise returns `null`.\n */\n@ExperimentalAssociatedObjects\npublic inline fun <reified T : Annotation> KClass<*>.findAssociatedObject(): Any? =\n   this.findAssociatedObject(T::class)","/*\n * Copyright 2010-2020 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin.js\n\nimport getKClass\nimport kotlin.reflect.KClass\nimport kotlin.reflect.js.internal.KClassImpl\n\n/**\n * Represents the constructor of a class. Instances of `JsClass` can be passed to JavaScript APIs that expect a constructor reference.\n */\nexternal interface JsClass<T : Any> {\n   /**\n   * Returns the unqualified name of the class represented by this instance.\n   */\n   val name: String\n}\n\n/**\n * Obtains a constructor reference for the given `KClass`.\n */\nval <T : Any> KClass<T>.js: JsClass<T>\n   get() = (this as KClassImpl<T>).jClass\n\n/**\n * Obtains a `KClass` instance for the given constructor reference.\n */\nval <T : Any> JsClass<T>.kotlin: KClass<T>\n   get() = getKClass(this)\n","/*\n * Copyright 2010-2020 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin.reflect.js.internal\n\nimport kotlin.reflect.*\n\ninternal abstract class KClassImpl<T : Any>(\n   internal open val jClass: JsClass<T>\n) : KClass<T> {\n\n   override val qualifiedName: String?\n   get() = TODO()\n\n   override fun equals(other: Any?): Boolean {\n   return other is KClassImpl<*> && jClass == other.jClass\n   }\n\n   // TODO: use FQN\n   override fun hashCode(): Int = simpleName?.hashCode() ?: 0\n\n   override fun toString(): String {\n   // TODO: use FQN\n   return \"class $simpleName\"\n   }\n}\n\ninternal class SimpleKClassImpl<T : Any>(jClass: JsClass<T>) : KClassImpl<T>(jClass) {\n   override val simpleName: String? = jClass.asDynamic().`$metadata$`?.simpleName.unsafeCast<String?>()\n\n   override fun isInstance(value: Any?):

Boolean {\n   return jsIsType(value, jClass)\n   }\n}\n\ninternal class PrimitiveKClassImpl<T : Any>(\n
jClass: JsClass<T>,\n   private val givenSimpleName: String,\n   private val isInstanceFunction: (Any?) ->
Boolean\n) : KClassImpl<T>(jClass) {\n   override fun equals(other: Any?): Boolean {\n   if (other !is
PrimitiveKClassImpl<*>) return false\n   return super.equals(other) && givenSimpleName ==
other.givenSimpleName\n   }\n\n   override val simpleName: String? get() = givenSimpleName\n\n   override fun
isInstance(value: Any?): Boolean {\n   return isInstanceFunction(value)\n   }\n}\n\ninternal object
NothingKClassImpl : KClassImpl<Nothing>(js(\"Object\")) {\n   override val simpleName: String =
\"Nothing\"\n\n   override fun isInstance(value: Any?): Boolean = false\n\n   override val jClass:
JsClass<Nothing>\n   get() = throw UnsupportedOperationException(\"There's no native JS class for Nothing
type\")\n\n   override fun equals(other: Any?): Boolean = other === this\n\n   override fun hashCode(): Int =
0\n}\n\ninternal class ErrorKClass : KClass<Nothing> {\n   override val simpleName: String? get() =
error(\"Unknown simpleName for ErrorKClass\")\n   override val qualifiedName: String? get() = error(\"Unknown
qualifiedName for ErrorKClass\")\n\n   override fun isInstance(value: Any?): Boolean = error(\"Can's check
isInstance on ErrorKClass\")\n\n   override fun equals(other: Any?): Boolean = other === this\n\n   override fun
hashCode(): Int = 0\n}","/*\n * Copyright 2010-2019 JetBrains s.r.o. and Kotlin Programming Language
contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the
license/LICENSE.txt file.\n */\n\npackage kotlin.reflect\n\ninternal actual inline val
KClass<*>.qualifiedOrSimpleName: String?\n   get() = simpleName","/*\n * Copyright 2010-2018 JetBrains s.r.o.
and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license
that can be found in the license/LICENSE.txt file.\n */\n\n// a package is omitted to get declarations directly under
the module\n\n// TODO: Remove once JsReflectionAPICallChecker supports more reflection
types\n@file:Suppress(\"Unsupported\")\n\nimport kotlin.reflect.*\nimport
kotlin.reflect.js.internal.*\n\n@JsName(\"createKType\")\ninternal fun createKType(\n   classifier: KClassifier,\n
arguments: Array<KTypeProjection>,\n   isMarkedNullable: Boolean\n) =\n   KTypeImpl(classifier,
arguments.asList(), isMarkedNullable)\n\n@JsName(\"createDynamicKType\")\ninternal fun
createDynamicKType(): KType = DynamicKType\n\n@JsName(\"markKTypeNullable\")\ninternal fun
markKTypeNullable(kType: KType) = KTypeImpl(kType.classifier!!, kType.arguments,
true)\n\n@JsName(\"createKTypeParameter\")\ninternal fun createKTypeParameter(\n   name: String,\n
upperBounds: Array<KType>,\n   variance: String\n): KTypeParameter {\n   val kVariance = when (variance) {\n
    \"in\" -> KVariance.IN\n   \"out\" -> KVariance.OUT\n   else -> KVariance.INVARIANT\n   }\n\n   return
KTypeParameterImpl(name, upperBounds.asList(), kVariance,
false)\n}\n\n@JsName(\"getStarKTypeProjection\")\ninternal fun getStarKTypeProjection(): KTypeProjection =\n
KTypeProjection.STAR\n\n@JsName(\"createCovariantKTypeProjection\")\ninternal fun
createCovariantKTypeProjection(type: KType): KTypeProjection =\n
KTypeProjection.covariant(type)\n\n@JsName(\"createInvariantKTypeProjection\")\ninternal fun
createInvariantKTypeProjection(type: KType): KTypeProjection =\n
KTypeProjection.invariant(type)\n\n@JsName(\"createContravariantKTypeProjection\")\ninternal fun
createContravariantKTypeProjection(type: KType): KTypeProjection =\n
KTypeProjection.contravariant(type)\n","/*\n * Copyright 2010-2019 JetBrains s.r.o. and Kotlin Programming
Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the
license/LICENSE.txt file.\n */\n\npackage kotlin.reflect.js.internal\n\nimport kotlin.reflect.*\n\ninternal class
KTypeImpl(\n   override val classifier: KClassifier,\n   override val arguments: List<KTypeProjection>,\n
override val isMarkedNullable: Boolean\n) : KType {\n   override fun equals(other: Any?): Boolean =\n   other
is KTypeImpl &&\n   classifier == other.classifier && arguments == other.arguments &&
isMarkedNullable == other.isMarkedNullable\n\n   override fun hashCode(): Int =\n   (classifier.hashCode() * 31
+ arguments.hashCode()) * 31 + isMarkedNullable.hashCode()\n\n   override fun toString(): String {\n   val
kClass = (classifier as? KClass<*>)\n   val classifierName = when {\n   kClass == null ->
classifier.toString()\n   kClass.simpleName != null -> kClass.simpleName\n   else -> \"(non-denotable

type)\"\n }\n\n val args =\n if (arguments.isEmpty()) \"\"\n else arguments.joinToString(\", \", \"<\", \">\")\n val nullable = if (isMarkedNullable) \"?\" else \"\"\n\n return classifierName + args + nullable\n }\n}\n\ninternal object DynamicKType : KType {\n override val classifier: KClassifier? = null\n override val arguments: List<KTypeProjection> = emptyList()\n override val isMarkedNullable: Boolean = false\n override fun toString(): String = \"dynamic\"\n}\n","/*\n * Copyright 2010-2019 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin.reflect.js.internal\n\nimport kotlin.reflect.*\n\ninternal data class KTypeParameterImpl(\n override val name: String,\n override val upperBounds: List<KType>,\n override val variance: KVariance,\n override val isReified: Boolean\n) : KTypeParameter {\n override fun toString(): String = name\n}","/*\n * Copyright 2010-2018 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin.reflect.js.internal\n\nimport kotlin.js.JsClass\n\n@JsName(\"PrimitiveClasses\")\ninternal object PrimitiveClasses {\n @JsName(\"anyClass\")\n val anyClass = PrimitiveKClassImpl(js(\"Object\").unsafeCast<JsClass<Any>>(), \"Any\", { it is Any })\n\n @JsName(\"numberClass\")\n val numberClass = PrimitiveKClassImpl(js(\"Number\").unsafeCast<JsClass<Number>>(), \"Number\", { it is Number })\n\n @JsName(\"nothingClass\")\n val nothingClass = NothingKClassImpl\n\n @JsName(\"booleanClass\")\n val booleanClass = PrimitiveKClassImpl(js(\"Boolean\").unsafeCast<JsClass<Boolean>>(), \"Boolean\", { it is Boolean })\n\n @JsName(\"byteClass\")\n val byteClass = PrimitiveKClassImpl(js(\"Number\").unsafeCast<JsClass<Byte>>(), \"Byte\", { it is Byte })\n\n @JsName(\"shortClass\")\n val shortClass = PrimitiveKClassImpl(js(\"Number\").unsafeCast<JsClass<Short>>(), \"Short\", { it is Short })\n\n @JsName(\"intClass\")\n val intClass = PrimitiveKClassImpl(js(\"Number\").unsafeCast<JsClass<Int>>(), \"Int\", { it is Int })\n\n @JsName(\"floatClass\")\n val floatClass = PrimitiveKClassImpl(js(\"Number\").unsafeCast<JsClass<Float>>(), \"Float\", { it is Float })\n\n @JsName(\"doubleClass\")\n val doubleClass = PrimitiveKClassImpl(js(\"Number\").unsafeCast<JsClass<Double>>(), \"Double\", { it is Double })\n\n @JsName(\"arrayClass\")\n val arrayClass = PrimitiveKClassImpl(js(\"Array\").unsafeCast<JsClass<Array<*>>>(), \"Array\", { it is Array<*> })\n\n @JsName(\"stringClass\")\n val stringClass = PrimitiveKClassImpl(js(\"String\").unsafeCast<JsClass<String>>(), \"String\", { it is String })\n\n @JsName(\"throwableClass\")\n val throwableClass = PrimitiveKClassImpl(js(\"Error\").unsafeCast<JsClass<Throwable>>(), \"Throwable\", { it is Throwable })\n\n @JsName(\"booleanArrayClass\")\n val booleanArrayClass = PrimitiveKClassImpl(js(\"Array\").unsafeCast<JsClass<BooleanArray>>(), \"BooleanArray\", { it is BooleanArray })\n\n @JsName(\"charArrayClass\")\n val charArrayClass = PrimitiveKClassImpl(js(\"Uint16Array\").unsafeCast<JsClass<CharArray>>(), \"CharArray\", { it is CharArray })\n\n @JsName(\"byteArrayClass\")\n val byteArrayClass = PrimitiveKClassImpl(js(\"Int8Array\").unsafeCast<JsClass<ByteArray>>(), \"ByteArray\", { it is ByteArray })\n\n @JsName(\"shortArrayClass\")\n val shortArrayClass = PrimitiveKClassImpl(js(\"Int16Array\").unsafeCast<JsClass<ShortArray>>(), \"ShortArray\", { it is ShortArray })\n\n @JsName(\"intArrayClass\")\n val intArrayClass = PrimitiveKClassImpl(js(\"Int32Array\").unsafeCast<JsClass<IntArray>>(), \"IntArray\", { it is IntArray })\n\n @JsName(\"longArrayClass\")\n val longArrayClass = PrimitiveKClassImpl(js(\"Array\").unsafeCast<JsClass<LongArray>>(), \"LongArray\", { it is LongArray })\n\n @JsName(\"floatArrayClass\")\n val floatArrayClass = PrimitiveKClassImpl(js(\"Float32Array\").unsafeCast<JsClass<FloatArray>>(), \"FloatArray\", { it is FloatArray })\n\n @JsName(\"doubleArrayClass\")\n val doubleArrayClass = PrimitiveKClassImpl(js(\"Float64Array\").unsafeCast<JsClass<DoubleArray>>(), \"DoubleArray\", { it is DoubleArray })\n\n @JsName(\"functionClass\")\n fun functionClass(arity: Int): KClassImpl<Any> {\n

return functionClasses.get(arity) ?: run {\n val result = PrimitiveKClassImpl(js(\"Function\").unsafeCast<JsClass<Any>>(), \"Function$arity\",\n { jsTypeOf(it) === \"function\" && it.asDynamic().length === arity })\n functionClasses.asDynamic()[arity] = result\n result\n }\n }\n}\n\nprivate val functionClasses = arrayOfNulls<KClassImpl<Any>>(0)","/*\n * Copyright 2010-2020 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\n// a package is omitted to get declarations directly under the module\n\nimport kotlin.reflect.*\nimport kotlin.reflect.js.internal.*\n\n@JsName(\"getKClass\")\ninternal fun <T : Any> getKClass(jClass: Any /* JsClass<T> | Array<JsClass<T>> */): KClass<T> {\n return if (js(\"Array\").isArray(jClass)) {\n getKClassM(jClass.unsafeCast<Array<JsClass<T>>>())\n } else {\n getKClass1(jClass.unsafeCast<JsClass<T>>())\n }\n}\n\n@JsName(\"getKClassM\")\ninternal fun <T : Any> getKClassM(jClasses: Array<JsClass<T>>): KClass<T> = when (jClasses.size) {\n 1 -> getKClass1(jClasses[0])\n 0 -> NothingKClassImpl.unsafeCast<KClass<T>>()\n else -> ErrorKClass().unsafeCast<KClass<T>>()\n}\n\n@JsName(\"getKClassFromExpression\")\ninternal fun <T : Any> getKClassFromExpression(e: T): KClass<T> =\n when (jsTypeOf(e)) {\n \"string\" -> PrimitiveClasses.stringClass\n \"number\" -> if (jsBitwiseOr(e, 0).asDynamic() === e) PrimitiveClasses.intClass else PrimitiveClasses.doubleClass\n \"boolean\" -> PrimitiveClasses.booleanClass\n \"function\" -> PrimitiveClasses.functionClass(e.asDynamic().length)\n else -> {\n when {\n e is BooleanArray -> PrimitiveClasses.booleanArrayClass\n e is CharArray -> PrimitiveClasses.charArrayClass\n e is ByteArray -> PrimitiveClasses.byteArrayClass\n e is ShortArray -> PrimitiveClasses.shortArrayClass\n e is IntArray -> PrimitiveClasses.intArrayClass\n e is LongArray -> PrimitiveClasses.longArrayClass\n e is FloatArray -> PrimitiveClasses.floatArrayClass\n e is DoubleArray -> PrimitiveClasses.doubleArrayClass\n e is KClass<*> -> KClass::class\n e is Array<*> -> PrimitiveClasses.arrayClass\n else -> {\n val constructor = js(\"Object\").getPrototypeOf(e).constructor\n when {\n constructor === js(\"Object\") -> PrimitiveClasses.anyClass\n constructor === js(\"Error\") -> PrimitiveClasses.throwableClass\n else -> {\n val jsClass: JsClass<T> = constructor\n getKClass1(jsClass)\n }\n }\n }\n }\n }\n }.unsafeCast<KClass<T>>()\n\n@JsName(\"getKClass1\")\ninternal fun <T : Any> getKClass1(jClass: JsClass<T>): KClass<T> {\n if (jClass === js(\"String\")) return PrimitiveClasses.stringClass.unsafeCast<KClass<T>>()\n\n val metadata = jClass.asDynamic().`$metadata$`\n\n return if (metadata != null) {\n if (metadata.`$kClass$` == null) {\n val kClass = SimpleKClassImpl(jClass)\n metadata.`$kClass$` = kClass\n kClass\n } else {\n metadata.`$kClass$`\n }\n } else {\n SimpleKClassImpl(jClass)\n }\n}","/*\n * Copyright 2010-2018 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin.js\n\n/**\n * Exposes the JavaScript [RegExp object](https://developer.mozilla.org/en/docs/Web/JavaScript/Reference/Global_Objects/RegExp) to Kotlin.\n */\n@Suppress(\"NOT_DOCUMENTED\")\npublic external class RegExp(pattern: String, flags: String? = definedExternally) {\n\n public fun test(str: String): Boolean\n\n public fun exec(str: String): RegExpMatch?\n\n public override fun toString(): String\n\n /**\n * The lastIndex is a read/write integer property of regular expressions that specifies the index at which to start the next match.\n */\n public var lastIndex: Int\n\n public val global: Boolean\n public val ignoreCase: Boolean\n public val multiline: Boolean\n}\n\n/**\n * Resets the regular expression so that subsequent [RegExp.test] and [RegExp.exec] calls will match starting with the beginning of the input string.\n */\npublic fun RegExp.reset() {\n lastIndex = 0\n}\n\n// TODO: Inherit from array or introduce asArray() extension\n/**\n * Represents the return value of [RegExp.exec].\n */\n@Suppress(\"NOT_DOCUMENTED\")\npublic external interface RegExpMatch {\n public val index: Int\n public val input: String\n public val length: Int\n}\n\n/**\n * Returns the entire text matched by [RegExp.exec] if the [index] parameter is 0, or the text matched by the capturing parenthesis\n * at the given index.\n */\npublic inline operator fun RegExpMatch.get(index: Int): String? = asDynamic()[index]\n\n/**\n * Converts the result of [RegExp.exec] to an array where the first element contains the entire matched text and each subsequent\n * element is the text matched by each capturing parenthesis.\n */\npublic inline fun RegExpMatch.asArray(): Array<out String?> = unsafeCast<Array<out String?>>()\n","/*\n * Copyright 2010-2018 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin.sequences\n\ninternal actual class ConstrainedOnceSequence<T> actual constructor(sequence: Sequence<T>) : Sequence<T> {\n   private var sequenceRef: Sequence<T>? = sequence\n\n   actual override fun iterator(): Iterator<T> {\n   val sequence = sequenceRef ?: throw IllegalStateException(\"This sequence can be consumed only once.\")\n   sequenceRef = null\n   return sequence.iterator()\n   }\n}\n","/*\n * Copyright 2010-2020 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin.text\n\n@SinceKotlin(\"1.5\")\npublic actual enum class CharCategory(internal val value: Int, public actual val code: String) {\n   /**\n   * General category \"Cn\" in the Unicode specification.\n   */\n   UNASSIGNED(0, \"Cn\"),\n\n   /**\n   * General category \"Lu\" in the Unicode specification.\n   */\n   UPPERCASE_LETTER(1, \"Lu\"),\n\n   /**\n   * General category \"Ll\" in the Unicode specification.\n   */\n   LOWERCASE_LETTER(2, \"Ll\"),\n\n   /**\n   * General category \"Lt\" in the Unicode specification.\n   */\n   TITLECASE_LETTER(3, \"Lt\"),\n\n   /**\n   * General category \"Lm\" in the Unicode specification.\n   */\n   MODIFIER_LETTER(4, \"Lm\"),\n\n   /**\n   * General category \"Lo\" in the Unicode specification.\n   */\n   OTHER_LETTER(5, \"Lo\"),\n\n   /**\n   * General category \"Mn\" in the Unicode specification.\n   */\n   NON_SPACING_MARK(6, \"Mn\"),\n\n   /**\n   * General category \"Me\" in the Unicode specification.\n   */\n   ENCLOSING_MARK(7, \"Me\"),\n\n   /**\n   * General category \"Mc\" in the Unicode specification.\n   */\n   COMBINING_SPACING_MARK(8, \"Mc\"),\n\n   /**\n   * General category \"Nd\" in the Unicode specification.\n   */\n   DECIMAL_DIGIT_NUMBER(9, \"Nd\"),\n\n   /**\n   * General category \"Nl\" in the Unicode specification.\n   */\n   LETTER_NUMBER(10, \"Nl\"),\n\n   /**\n   * General category \"No\" in the Unicode specification.\n   */\n   OTHER_NUMBER(11, \"No\"),\n\n   /**\n   * General category \"Zs\" in the Unicode specification.\n   */\n   SPACE_SEPARATOR(12, \"Zs\"),\n\n   /**\n   * General category \"Zl\" in the Unicode specification.\n   */\n   LINE_SEPARATOR(13, \"Zl\"),\n\n   /**\n   * General category \"Zp\" in the Unicode specification.\n   */\n   PARAGRAPH_SEPARATOR(14, \"Zp\"),\n\n   /**\n   * General category \"Cc\" in the Unicode specification.\n   */\n   CONTROL(15, \"Cc\"),\n\n   /**\n   * General category \"Cf\" in the Unicode specification.\n   */\n   FORMAT(16, \"Cf\"),\n\n   /**\n   * General category \"Co\" in the Unicode specification.\n   */\n   PRIVATE_USE(18, \"Co\"),\n\n   /**\n   * General category \"Cs\" in the Unicode specification.\n   */\n   SURROGATE(19, \"Cs\"),\n\n   /**\n   * General category \"Pd\" in the Unicode specification.\n   */\n   DASH_PUNCTUATION(20, \"Pd\"),\n\n   /**\n   * General category \"Ps\" in the Unicode specification.\n   */\n   START_PUNCTUATION(21, \"Ps\"),\n\n   /**\n   * General category \"Pe\" in the Unicode specification.\n   */\n   END_PUNCTUATION(22, \"Pe\"),\n\n   /**\n   * General category \"Pc\" in the Unicode specification.\n   */\n   CONNECTOR_PUNCTUATION(23, \"Pc\"),\n\n   /**\n   * General category \"Po\" in the Unicode specification.\n   */\n   OTHER_PUNCTUATION(24, \"Po\"),\n\n   /**\n   * General category \"Sm\" in the Unicode specification.\n   */\n   MATH_SYMBOL(25, \"Sm\"),\n\n   /**\n   * General category \"Sc\" in the Unicode specification.\n   */\n   CURRENCY_SYMBOL(26, \"Sc\"),\n\n   /**\n   * General category \"Sk\" in the Unicode specification.\n   */\n   MODIFIER_SYMBOL(27, \"Sk\"),\n\n   /**\n   * General category \"So\" in the Unicode specification.\n   */\n   OTHER_SYMBOL(28, \"So\"),\n\n   /**\n   * General category \"Pi\" in the Unicode specification.\n   */\n   INITIAL_QUOTE_PUNCTUATION(29, \"Pi\"),\n\n   /**\n   * General category \"Pf\" in the Unicode specification.\n   */\n   FINAL_QUOTE_PUNCTUATION(30, \"Pf\");\n\n   /**\n   * Returns `true` if [char] character belongs to this category.\n   */\n   public actual operator fun contains(char: Char): Boolean = char.getCategoryValue() == this.value\n\n   companion object {\n   internal fun valueOf(category: Int): CharCategory =\n   when (category) {\n   in 0..16 -> values()[category]\n   in 18..30 ->

values()[category - 1]\n   else -> throw IllegalArgumentException(\"Category #$category is not defined.\")\n   }\n   }\n}\n","/*\n * Copyright 2010-2019 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin.text\n\n/**\n * The exception thrown when a character encoding or decoding error occurs.\n */\n@SinceKotlin(\"1.4\")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic actual open class CharacterCodingException(message: String?) : Exception(message) {\n   actual constructor() : this(null)\n}\n","/*\n * Copyright 2010-2020 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin.text\n\n/**\n * A mutable sequence of characters.\n *\n * String builder can be used to efficiently perform multiple string manipulation operations.\n */\npublic actual class StringBuilder actual constructor(content: String) : Appendable, CharSequence {\n   /**\n   * Constructs an empty string builder with the specified initial [capacity].\n   *\n   * In Kotlin/JS implementation of StringBuilder the initial capacity has no effect on the further performance of operations.\n   */\n   actual constructor(capacity: Int) : this() {\n   }\n\n   /** Constructs a string builder that contains the same characters as the specified [content] char sequence. */\n   actual constructor(content: CharSequence) : this(content.toString()) {}\n\n   /** Constructs an empty string builder. */\n   actual constructor() : this(\"\")\n\n   private var string: String = if (content !== undefined) content else \"\"\n\n   actual override val length: Int\n   get() = string.asDynamic().length\n\n   actual override fun get(index: Int): Char =\n   string.getOrElse(index) { throw IndexOutOfBoundsException(\"index: $index, length: $length}\") }\n\n   actual override fun subSequence(startIndex: Int, endIndex: Int): CharSequence = string.substring(startIndex, endIndex)\n\n   actual override fun append(value: Char): StringBuilder {\n   string += value\n   return this\n   }\n\n   actual override fun append(value: CharSequence?): StringBuilder {\n   string += value.toString()\n   return this\n   }\n\n   actual override fun append(value: CharSequence?, startIndex: Int, endIndex: Int): StringBuilder =\n   this.appendRange(value ?: \"null\", startIndex, endIndex)\n\n   /**\n   * Reverses the contents of this string builder and returns this instance.\n   *\n   * Surrogate pairs included in this string builder are treated as single characters.\n   * Therefore, the order of the high-low surrogates is never reversed.\n   *\n   * Note that the reverse operation may produce new surrogate pairs that were unpaired low-surrogates and high-surrogates before the operation.\n   * For example, reversing `\"\\uDC00\\uD800\"` produces `\"\\uD800\\uDC00\"` which is a valid surrogate pair.\n   */\n   actual fun reverse(): StringBuilder {\n   var reversed = \"\"\n   var index = string.length - 1\n   while (index >= 0) {\n   val low = string[index--]\n   if (low.isLowSurrogate() && index >= 0) {\n   val high = string[index--]\n   if (high.isHighSurrogate()) {\n   reversed = reversed + high + low\n   } else {\n   reversed = reversed + low + high\n   }\n   } else {\n   reversed += low\n   }\n   }\n   string = reversed\n   return this\n   }\n\n   /**\n   * Appends the string representation of the specified object [value] to this string builder and returns this instance.\n   *\n   * The overall effect is exactly as if the [value] were converted to a string by the `value.toString()` method,\n   * and then that string was appended to this string builder.\n   */\n   actual fun append(value: Any?): StringBuilder {\n   string += value.toString()\n   return this\n   }\n\n   /**\n   * Appends the string representation of the specified boolean [value] to this string builder and returns this instance.\n   *\n   * The overall effect is exactly as if the [value] were converted to a string by the `value.toString()` method,\n   * and then that string was appended to this string builder.\n   */\n   @SinceKotlin(\"1.3\")\n   actual fun append(value: Boolean): StringBuilder {\n   string += value\n   return this\n   }\n\n   /**\n   * Appends characters in the specified character array [value] to this string builder and returns this instance.\n   *\n   * Characters are appended in order, starting at the index 0.\n   */\n   @SinceKotlin(\"1.4\")\n   @WasExperimental(ExperimentalStdlibApi::class)\n   actual fun append(value: CharArray): StringBuilder {\n   string += value.concatToString()\n   return this\n   }\n\n   @Deprecated(\"Provided for binary compatibility.\", level = DeprecationLevel.HIDDEN)\n   fun append(value: String): StringBuilder = append(value)\n\n   /**\n   * Appends the specified string [value] to this string builder and returns this instance.\n   *\n   * If [value] is `null`, then the four characters `\"null\"` are appended.\n   */\n   @SinceKotlin(\"1.3\")\n   actual fun append(value: String?): StringBuilder {\n   this.string += value ?: \"null\"\n   return this\n   }\n\n   /**\n   * Returns the current capacity of this string builder.\n   *\n   * The capacity is the maximum length this string builder can have before an allocation occurs.\n   *\n   * In Kotlin/JS implementation of StringBuilder the value returned from this method may not indicate the actual size of the backing storage.\n   */\n   @SinceKotlin(\"1.3\")\n//   @ExperimentalStdlibApi\n   @Deprecated(\"Obtaining StringBuilder capacity is not supported in JS and common code.\", level = DeprecationLevel.ERROR)\n   actual fun capacity(): Int = length\n\n   /**\n   * Ensures that the capacity of this string builder is at least equal to the specified [minimumCapacity].\n   *\n   * If the current capacity is less than the [minimumCapacity], a new backing storage is allocated with greater capacity.\n   * Otherwise, this method takes no action and simply returns.\n   *\n   * In Kotlin/JS implementation of StringBuilder the size of the backing storage is not extended to comply the given [minimumCapacity],\n   * thus calling this method has no effect on the further performance of operations.\n   */\n   @SinceKotlin(\"1.4\")\n   @WasExperimental(ExperimentalStdlibApi::class)\n   actual fun ensureCapacity(minimumCapacity: Int) {\n   }\n\n   /**\n   * Returns the index within this string builder of the first occurrence of the specified [string].\n   *\n   * Returns `-1` if the specified [string] does not occur in this string builder.\n   */\n   @SinceKotlin(\"1.4\")\n   @WasExperimental(ExperimentalStdlibApi::class)\n   actual fun indexOf(string: String): Int = this.string.asDynamic().indexOf(string)\n\n   /**\n   * Returns the index within this string builder of the first occurrence of the specified [string],\n   * starting at the specified [startIndex].\n   *\n   * Returns `-1` if the specified [string] does not occur in this string builder starting at the specified [startIndex].\n   */\n   @SinceKotlin(\"1.4\")\n   @WasExperimental(ExperimentalStdlibApi::class)\n   actual fun indexOf(string: String, startIndex: Int): Int = this.string.asDynamic().indexOf(string, startIndex)\n\n   /**\n   * Returns the index within this string builder of the last occurrence of the specified [string].\n   * The last occurrence of empty string `\"\"` is considered to be at the index equal to `this.length`.\n   *\n   * Returns `-1` if the specified [string] does not occur in this string builder.\n   */\n   @SinceKotlin(\"1.4\")\n   @WasExperimental(ExperimentalStdlibApi::class)\n   actual fun lastIndexOf(string: String): Int = this.string.asDynamic().lastIndexOf(string)\n\n   /**\n   * Returns the index within this string builder of the last occurrence of the specified [string],\n   * starting from the specified [startIndex] toward the beginning.\n   *\n   * Returns `-1` if the specified [string] does not occur in this string builder starting at the specified [startIndex].\n   */\n   @SinceKotlin(\"1.4\")\n   @WasExperimental(ExperimentalStdlibApi::class)\n   actual fun lastIndexOf(string: String, startIndex: Int): Int {\n   if (string.isEmpty() && startIndex < 0) return -1\n   return this.string.asDynamic().lastIndexOf(string, startIndex)\n   }\n\n   /**\n   * Inserts the string representation of the specified boolean [value] into this string builder at the specified [index] and returns this instance.\n   *\n   * The overall effect is exactly as if the [value] were converted to a string by the `value.toString()` method,\n   * and then that string was inserted into this string builder at the specified [index].\n   *\n   * @throws IndexOutOfBoundsException if [index] is less than zero or greater than the length of this string builder.\n   */\n   @SinceKotlin(\"1.4\")\n   @WasExperimental(ExperimentalStdlibApi::class)\n   actual fun insert(index: Int, value: Boolean): StringBuilder {\n   AbstractList.checkPositionIndex(index, length)\n\n   string = string.substring(0, index) + value + string.substring(index)\n   return this\n   }\n\n   /**\n   * Inserts the specified character [value] into this string builder at the specified [index] and returns this instance.\n   *\n   * @throws IndexOutOfBoundsException if [index] is less than zero or greater than the length of this string builder.\n   */\n   @SinceKotlin(\"1.4\")\n   @WasExperimental(ExperimentalStdlibApi::class)\n   actual fun insert(index: Int, value: Char): StringBuilder {\n   AbstractList.checkPositionIndex(index, length)\n\n   string = string.substring(0, index) + value + string.substring(index)\n   return this\n   }\n\n   /**\n   * Inserts characters in the specified character array [value] into this string builder at the specified [index] and returns this instance.\n   *\n   * The inserted characters go in same order as in the [value] character array, starting at [index].\n   *\n   * @throws IndexOutOfBoundsException if [index] is less than zero or greater than the length of this string builder.\n   */\n   @SinceKotlin(\"1.4\")\n   @WasExperimental(ExperimentalStdlibApi::class)\n   actual fun insert(index: Int, value: CharArray): StringBuilder {\n   AbstractList.checkPositionIndex(index, length)\n\n   string = string.substring(0, index) + value.concatToString() + string.substring(index)\n   return this\n   }\n\n   /**\n   * Inserts characters in the specified character sequence [value] into this string builder at the specified [index] and returns this instance.\n   *\n   * The inserted characters go in the same order as in the [value] character sequence, starting at [index].\n   *\n   * @param index the position in this string builder to insert at.\n   * @param value the character sequence from which characters are inserted. If [value] is `null`, then the four characters `\"null\"` are inserted.\n   *\n   * @throws IndexOutOfBoundsException if [index] is less than zero or greater than the length of this string builder.\n   */\n   @SinceKotlin(\"1.4\")\n   @WasExperimental(ExperimentalStdlibApi::class)\n   actual fun insert(index: Int, value: CharSequence?): StringBuilder {\n   AbstractList.checkPositionIndex(index, length)\n\n   string = string.substring(0, index) + value.toString() + string.substring(index)\n   return this\n   }\n\n   /**\n   * Inserts the string representation of the specified object [value] into this string builder at the specified [index] and returns this instance.\n   *\n   * The overall effect is exactly as if the [value] were converted to a string by the `value.toString()` method,\n   * and then that string was inserted into this string builder at the specified [index].\n   *\n   * @throws IndexOutOfBoundsException if [index] is less than zero or greater than the length of this string builder.\n   */\n   @SinceKotlin(\"1.4\")\n   @WasExperimental(ExperimentalStdlibApi::class)\n   actual fun insert(index: Int, value: Any?): StringBuilder {\n   AbstractList.checkPositionIndex(index, length)\n\n   string = string.substring(0, index) + value.toString() + string.substring(index)\n   return this\n   }\n\n   @Deprecated(\"Provided for binary compatibility.\", level = DeprecationLevel.HIDDEN)\n   fun insert(index: Int, value: String): StringBuilder = insert(index, value)\n\n   /**\n   * Inserts the string [value] into this string builder at the specified [index] and returns this instance.\n   *\n   * If [value] is `null`, then the four characters `\"null\"` are inserted.\n   *\n   * @throws IndexOutOfBoundsException if [index] is less than zero or greater than the length of this string builder.\n   */\n   @SinceKotlin(\"1.4\")\n   @WasExperimental(ExperimentalStdlibApi::class)\n   actual fun insert(index: Int, value: String?): StringBuilder {\n   AbstractList.checkPositionIndex(index, length)\n\n   val toInsert = value ?: \"null\"\n   this.string = this.string.substring(0, index) + toInsert + this.string.substring(index)\n   return this\n   }\n\n   /**\n   * Sets the length of this string builder to the specified [newLength].\n   *\n   * If the [newLength] is less than the current length, it is changed to the specified [newLength].\n   * Otherwise, null characters '\\u0000' are appended to this string builder until its length is less than the [newLength].\n   *\n   * Note that in Kotlin/JS [set] operator function has non-constant execution time complexity.\n   * Therefore, increasing length of this string builder and then updating each character by index may slow down your program.\n   *\n   * @throws IndexOutOfBoundsException or [IllegalArgumentException] if [newLength] is less than zero.\n   */\n   @SinceKotlin(\"1.4\")\n   @WasExperimental(ExperimentalStdlibApi::class)\n   actual fun setLength(newLength: Int) {\n   if (newLength < 0) {\n   throw IllegalArgumentException(\"Negative new length: $newLength.\")\n   }\n\n   if (newLength <= length) {\n   string = string.substring(0, newLength)\n   } else {\n   for (i in length until newLength) {\n   string += '\\u0000'\n   }\n   }\n   }\n\n   /**\n   * Returns a new [String] that contains characters in this string builder at [startIndex] (inclusive) and up to the [length] (exclusive).\n   *\n   * @throws IndexOutOfBoundsException if [startIndex] is less than zero or greater than the length of this string builder.\n   */\n   @SinceKotlin(\"1.4\")\n   @WasExperimental(ExperimentalStdlibApi::class)\n   actual fun substring(startIndex: Int): String {\n   AbstractList.checkPositionIndex(startIndex, length)\n\n   return string.substring(startIndex)\n   }\n\n   /**\n   * Returns a new [String] that contains characters in this string builder at [startIndex] (inclusive) and up to the [endIndex] (exclusive).\n   *\n   * @throws IndexOutOfBoundsException or [IllegalArgumentException] when [startIndex] or [endIndex] is out of range of this string builder indices or when `startIndex > endIndex`.\n   */\n   @SinceKotlin(\"1.4\")\n   @WasExperimental(ExperimentalStdlibApi::class)\n   actual fun substring(startIndex: Int, endIndex: Int): String {\n   AbstractList.checkBoundsIndexes(startIndex, endIndex, length)\n\n   return string.substring(startIndex, endIndex)\n   }\n\n   /**\n   * Attempts to reduce storage used for this string builder.\n   *\n   * If the backing storage of this string builder is larger than necessary to hold its current contents,\n   * then it may be resized to become more space efficient.\n   * Calling this method may, but is not required to, affect the value of the [capacity] property.\n   *\n   * In Kotlin/JS implementation of StringBuilder the size of the backing storage is always equal to the length of the string builder.\n   */\n   @SinceKotlin(\"1.4\")\n   @WasExperimental(ExperimentalStdlibApi::class)\n   actual fun trimToSize() {\n   }\n\n   override fun toString(): String = string\n\n   /**\n   * Clears the content of this string builder making it empty and returns this instance.\n

*\n   * @sample samples.text.Strings.clearStringBuilder\n   */\n   @SinceKotlin(\"1.3\")\n   public fun clear(): StringBuilder {\n   string = \"\"\n   return this\n   }\n\n   /**\n   * Sets the character at the specified [index] to the specified [value].\n   *\n   * @throws IndexOutOfBoundsException if [index] is out of bounds of this string builder.\n   */\n   @SinceKotlin(\"1.4\")\n   @WasExperimental(ExperimentalStdlibApi::class)\n   public operator fun set(index: Int, value: Char) {\n   AbstractList.checkElementIndex(index, length)\n\n   string = string.substring(0, index) + value + string.substring(index + 1)\n   }\n\n   /**\n   * Replaces characters in the specified range of this string builder with characters in the specified string [value] and returns this instance.\n   *\n   * @param startIndex the beginning (inclusive) of the range to replace.\n   * @param endIndex the end (exclusive) of the range to replace.\n   * @param value the string to replace with.\n   *\n   * @throws IndexOutOfBoundsException or [IllegalArgumentException] if [startIndex] is less than zero, greater than the length of this string builder, or `startIndex > endIndex`.\n   */\n   @SinceKotlin(\"1.4\")\n   @WasExperimental(ExperimentalStdlibApi::class)\n   public fun setRange(startIndex: Int, endIndex: Int, value: String): StringBuilder {\n   checkReplaceRange(startIndex, endIndex, length)\n\n   this.string = this.string.substring(0, startIndex) + value + this.string.substring(endIndex)\n   return this\n   }\n\n   private fun checkReplaceRange(startIndex: Int, endIndex: Int, length: Int) {\n   if (startIndex < 0 || startIndex > length) {\n   throw IndexOutOfBoundsException(\"startIndex: $startIndex, length: $length\")\n   }\n   if (startIndex > endIndex) {\n   throw IllegalArgumentException(\"startIndex($startIndex) > endIndex($endIndex)\")\n   }\n   }\n\n   /**\n   * Removes the character at the specified [index] from this string builder and returns this instance.\n   *\n   * If the `Char` at the specified [index] is part of a supplementary code point, this method does not remove the entire supplementary character.\n   *\n   * @param index the index of `Char` to remove.\n   *\n   * @throws IndexOutOfBoundsException if [index] is out of bounds of this string builder.\n   */\n   @SinceKotlin(\"1.4\")\n   @WasExperimental(ExperimentalStdlibApi::class)\n   public fun deleteAt(index: Int): StringBuilder {\n   AbstractList.checkElementIndex(index, length)\n\n   string = string.substring(0, index) + string.substring(index + 1)\n   return this\n   }\n\n   /**\n   * Removes characters in the specified range from this string builder and returns this instance.\n   *\n   * @param startIndex the beginning (inclusive) of the range to remove.\n   * @param endIndex the end (exclusive) of the range to remove.\n   *\n   * @throws IndexOutOfBoundsException or [IllegalArgumentException] when [startIndex] is out of range of this string builder indices or when `startIndex > endIndex`.\n   */\n   @SinceKotlin(\"1.4\")\n   @WasExperimental(ExperimentalStdlibApi::class)\n   public fun deleteRange(startIndex: Int, endIndex: Int): StringBuilder {\n   checkReplaceRange(startIndex, endIndex, length)\n\n   string = string.substring(0, startIndex) + string.substring(endIndex)\n   return this\n   }\n\n   /**\n   * Copies characters from this string builder into the [destination] character array.\n   *\n   * @param destination the array to copy to.\n   * @param destinationOffset the position in the array to copy to, 0 by default.\n   * @param startIndex the beginning (inclusive) of the range to copy, 0 by default.\n   * @param endIndex the end (exclusive) of the range to copy, length of this string builder by default.\n   *\n   * @throws IndexOutOfBoundsException or [IllegalArgumentException] when [startIndex] or [endIndex] is out of range of this string builder indices or when `startIndex > endIndex`.\n   * @throws IndexOutOfBoundsException when the subrange doesn't fit into the [destination] array starting at the specified [destinationOffset],\n   * or when that index is out of the [destination] array indices range.\n   */\n   @SinceKotlin(\"1.4\")\n   @WasExperimental(ExperimentalStdlibApi::class)\n   public fun toCharArray(destination: CharArray, destinationOffset: Int = 0, startIndex: Int = 0, endIndex: Int = this.length) {\n   AbstractList.checkBoundsIndexes(startIndex, endIndex, length)\n   AbstractList.checkBoundsIndexes(destinationOffset, destinationOffset + endIndex - startIndex, destination.size)\n\n   var dstIndex = destinationOffset\n   for (index in startIndex until endIndex) {\n   destination[dstIndex++] = string[index]\n   }\n   }\n\n   /**\n   * Appends characters in a subarray of the specified character array [value] to this string builder and returns this instance.\n   *\n   * Characters are appended in order, starting at specified [startIndex].\n   *\n   * @param value the array from which characters are appended.\n   * @param startIndex the beginning (inclusive) of the subarray to append.\n   * @param endIndex the end (exclusive) of the subarray to append.\n   *\n   * @throws IndexOutOfBoundsException or [IllegalArgumentException] when

[startIndex] or [endIndex] is out of range of the [value] array indices or when `startIndex > endIndex`.\n   */\n   @SinceKotlin(\"1.4\")\n   @WasExperimental(ExperimentalStdlibApi::class)\n   public fun appendRange(value: CharArray, startIndex: Int, endIndex: Int): StringBuilder {\n   string += value.concatToString(startIndex, endIndex)\n   return this\n   }\n\n   /**\n   * Appends a subsequence of the specified character sequence [value] to this string builder and returns this instance.\n   *\n   * @param value the character sequence from which a subsequence is appended.\n   * @param startIndex the beginning (inclusive) of the subsequence to append.\n   * @param endIndex the end (exclusive) of the subsequence to append.\n   *\n   * @throws IndexOutOfBoundsException or [IllegalArgumentException] when [startIndex] or [endIndex] is out of range of the [value] character sequence indices or when `startIndex > endIndex`.\n   */\n   @SinceKotlin(\"1.4\")\n   @WasExperimental(ExperimentalStdlibApi::class)\n   public fun appendRange(value: CharSequence, startIndex: Int, endIndex: Int): StringBuilder {\n   val stringCsq = value.toString()\n   AbstractList.checkBoundsIndexes(startIndex, endIndex, stringCsq.length)\n\n   string += stringCsq.substring(startIndex, endIndex)\n   return this\n   }\n\n   /**\n   * Inserts characters in a subarray of the specified character array [value] into this string builder at the specified [index] and returns this instance.\n   *\n   * The inserted characters go in same order as in the [value] array, starting at [index].\n   *\n   * @param index the position in this string builder to insert at.\n   * @param value the array from which characters are inserted.\n   * @param startIndex the beginning (inclusive) of the subarray to insert.\n   * @param endIndex the end (exclusive) of the subarray to insert.\n   *\n   * @throws IndexOutOfBoundsException or [IllegalArgumentException] when [startIndex] or [endIndex] is out of range of the [value] array indices or when `startIndex > endIndex`.\n   * @throws IndexOutOfBoundsException if [index] is less than zero or greater than the length of this string builder.\n   */\n   @SinceKotlin(\"1.4\")\n   @WasExperimental(ExperimentalStdlibApi::class)\n   public fun insertRange(index: Int, value: CharArray, startIndex: Int, endIndex: Int): StringBuilder {\n   AbstractList.checkPositionIndex(index, this.length)\n\n   string = string.substring(0, index) + value.concatToString(startIndex, endIndex) + string.substring(index)\n   return this\n   }\n\n   /**\n   * Inserts characters in a subsequence of the specified character sequence [value] into this string builder at the specified [index] and returns this instance.\n   *\n   * The inserted characters go in the same order as in the [value] character sequence, starting at [index].\n   *\n   * @param index the position in this string builder to insert at.\n   * @param value the character sequence from which a subsequence is inserted.\n   * @param startIndex the beginning (inclusive) of the subsequence to insert.\n   * @param endIndex the end (exclusive) of the subsequence to insert.\n   *\n   * @throws IndexOutOfBoundsException or [IllegalArgumentException] when [startIndex] or [endIndex] is out of range of the [value] character sequence indices or when `startIndex > endIndex`.\n   * @throws IndexOutOfBoundsException if [index] is less than zero or greater than the length of this string builder.\n   */\n   @SinceKotlin(\"1.4\")\n   @WasExperimental(ExperimentalStdlibApi::class)\n   public fun insertRange(index: Int, value: CharSequence, startIndex: Int, endIndex: Int): StringBuilder {\n   AbstractList.checkPositionIndex(index, length)\n\n   val stringCsq = value.toString()\n   AbstractList.checkBoundsIndexes(startIndex, endIndex, stringCsq.length)\n\n   string = string.substring(0, index) + stringCsq.substring(startIndex, endIndex) + string.substring(index)\n   return this\n   }\n}\n\n\n/**\n * Clears the content of this string builder making it empty and returns this instance.\n *\n * @sample samples.text.Strings.clearStringBuilder\n */\n@SinceKotlin(\"1.3\")\n@Suppress(\"EXTENSION_SHADOWED_BY_MEMBER\", \"NOTHING_TO_INLINE\")\npublic actual inline fun StringBuilder.clear(): StringBuilder = this.clear()\n\n/**\n * Sets the character at the specified [index] to the specified [value].\n *\n * @throws IndexOutOfBoundsException if [index] is out of bounds of this string builder.\n */\n@SinceKotlin(\"1.4\")\n@WasExperimental(ExperimentalStdlibApi::class)\n@Suppress(\"EXTENSION_SHADOWED_BY_MEMBER\", \"NOTHING_TO_INLINE\")\npublic actual inline operator fun StringBuilder.set(index: Int, value: Char) = this.set(index, value)\n\n/**\n * Replaces characters in the specified range of this string builder with characters in the specified string [value] and returns this instance.\n *\n * @param startIndex the beginning (inclusive) of the range to replace.\n * @param endIndex the end (exclusive) of the range to replace.\n * @param value the string to replace with.\n *\n * @throws IndexOutOfBoundsException or

[IllegalArgumentException] if [startIndex] is less than zero, greater than the length of this string builder, or `startIndex > endIndex`.\n */\n@SinceKotlin(\"1.4\")\n@WasExperimental(ExperimentalStdlibApi::class)\n@Suppress(\"EXTENSION_SHADOWED_BY_MEMBER\", \"NOTHING_TO_INLINE\")\npublic actual inline fun StringBuilder.setRange(startIndex: Int, endIndex: Int, value: String): StringBuilder =\n   this.setRange(startIndex, endIndex, value)\n\n/**\n * Removes the character at the specified [index] from this string builder and returns this instance.\n *\n * If the `Char` at the specified [index] is part of a supplementary code point, this method does not remove the entire supplementary character.\n *\n * @param index the index of `Char` to remove.\n *\n * @throws IndexOutOfBoundsException if [index] is out of bounds of this string builder.\n */\n@SinceKotlin(\"1.4\")\n@WasExperimental(ExperimentalStdlibApi::class)\n@Suppress(\"EXTENSION_SHADOWED_BY_MEMBER\", \"NOTHING_TO_INLINE\")\npublic actual inline fun StringBuilder.deleteAt(index: Int): StringBuilder = this.deleteAt(index)\n\n/**\n * Removes characters in the specified range from this string builder and returns this instance.\n *\n * @param startIndex the beginning (inclusive) of the range to remove.\n * @param endIndex the end (exclusive) of the range to remove.\n *\n * @throws IndexOutOfBoundsException or [IllegalArgumentException] when [startIndex] is out of range of this string builder indices or when `startIndex > endIndex`.\n */\n@SinceKotlin(\"1.4\")\n@WasExperimental(ExperimentalStdlibApi::class)\n@Suppress(\"EXTENSION_SHADOWED_BY_MEMBER\", \"NOTHING_TO_INLINE\")\npublic actual inline fun StringBuilder.deleteRange(startIndex: Int, endIndex: Int): StringBuilder = this.deleteRange(startIndex, endIndex)\n\n/**\n * Copies characters from this string builder into the [destination] character array.\n *\n * @param destination the array to copy to.\n * @param destinationOffset the position in the array to copy to, 0 by default.\n * @param startIndex the beginning (inclusive) of the range to copy, 0 by default.\n * @param endIndex the end (exclusive) of the range to copy, length of this string builder by default.\n *\n * @throws IndexOutOfBoundsException or [IllegalArgumentException] when [startIndex] or [endIndex] is out of range of this string builder indices or when `startIndex > endIndex`.\n * @throws IndexOutOfBoundsException when the subrange doesn't fit into the [destination] array starting at the specified [destinationOffset],\n * or when that index is out of the [destination] array indices range.\n */\n@SinceKotlin(\"1.4\")\n@WasExperimental(ExperimentalStdlibApi::class)\n@Suppress(\"EXTENSION_SHADOWED_BY_MEMBER\", \"NOTHING_TO_INLINE\", \"ACTUAL_FUNCTION_WITH_DEFAULT_ARGUMENTS\")\npublic actual inline fun StringBuilder.toCharArray(destination: CharArray, destinationOffset: Int = 0, startIndex: Int = 0, endIndex: Int = this.length) =\n   this.toCharArray(destination, destinationOffset, startIndex, endIndex)\n\n/**\n * Appends characters in a subarray of the specified character array [value] to this string builder and returns this instance.\n *\n * Characters are appended in order, starting at specified [startIndex].\n *\n * @param value the array from which characters are appended.\n * @param startIndex the beginning (inclusive) of the subarray to append.\n * @param endIndex the end (exclusive) of the subarray to append.\n *\n * @throws IndexOutOfBoundsException or [IllegalArgumentException] when [startIndex] or [endIndex] is out of range of the [value] array indices or when `startIndex > endIndex`.\n */\n@SinceKotlin(\"1.4\")\n@WasExperimental(ExperimentalStdlibApi::class)\n@Suppress(\"EXTENSION_SHADOWED_BY_MEMBER\", \"NOTHING_TO_INLINE\")\npublic actual inline fun StringBuilder.appendRange(value: CharArray, startIndex: Int, endIndex: Int): StringBuilder =\n this.appendRange(value, startIndex, endIndex)\n\n/**\n * Appends a subsequence of the specified character sequence [value] to this string builder and returns this instance.\n *\n * @param value the character sequence from which a subsequence is appended.\n * @param startIndex the beginning (inclusive) of the subsequence to append.\n * @param endIndex the end (exclusive) of the subsequence to append.\n *\n * @throws IndexOutOfBoundsException or [IllegalArgumentException] when [startIndex] or [endIndex] is out of range of the [value] character sequence indices or when `startIndex > endIndex`.\n */\n@SinceKotlin(\"1.4\")\n@WasExperimental(ExperimentalStdlibApi::class)\n@Suppress(\"EXTENSION_SHA

DOWED_BY_MEMBER\", \"NOTHING_TO_INLINE\")\npublic actual inline fun StringBuilder.appendRange(value: CharSequence, startIndex: Int, endIndex: Int): StringBuilder =\n this.appendRange(value, startIndex, endIndex)\n\n/**\n * Inserts characters in a subarray of the specified character array [value] into this string builder at the specified [index] and returns this instance.\n *\n * The inserted characters go in same order as in the [value] array, starting at [index].\n *\n * @param index the position in this string builder to insert at.\n * @param value the array from which characters are inserted.\n * @param startIndex the beginning (inclusive) of the subarray to insert.\n * @param endIndex the end (exclusive) of the subarray to insert.\n *\n * @throws IndexOutOfBoundsException or [IllegalArgumentException] when [startIndex] or [endIndex] is out of range of the [value] array indices or when `startIndex > endIndex`.\n * @throws IndexOutOfBoundsException if [index] is less than zero or greater than the length of this string builder.\n */\n@SinceKotlin(\"1.4\")\n@WasExperimental(ExperimentalStdlibApi::class)\n@Suppress(\"EXTENSION_SHADOWED_BY_MEMBER\", \"NOTHING_TO_INLINE\")\npublic actual inline fun StringBuilder.insertRange(index: Int, value: CharArray, startIndex: Int, endIndex: Int): StringBuilder =\n this.insertRange(index, value, startIndex, endIndex)\n\n/**\n * Inserts characters in a subsequence of the specified character sequence [value] into this string builder at the specified [index] and returns this instance.\n *\n * The inserted characters go in the same order as in the [value] character sequence, starting at [index].\n *\n * @param index the position in this string builder to insert at.\n * @param value the character sequence from which a subsequence is inserted.\n * @param startIndex the beginning (inclusive) of the subsequence to insert.\n * @param endIndex the end (exclusive) of the subsequence to insert.\n *\n * @throws IndexOutOfBoundsException or [IllegalArgumentException] when [startIndex] or [endIndex] is out of range of the [value] character sequence indices or when `startIndex > endIndex`.\n * @throws IndexOutOfBoundsException if [index] is less than zero or greater than the length of this string builder.\n */\n@SinceKotlin(\"1.4\")\n@WasExperimental(ExperimentalStdlibApi::class)\n@Suppress(\"EXTENSION_SHADOWED_BY_MEMBER\", \"NOTHING_TO_INLINE\")\npublic actual inline fun StringBuilder.insertRange(index: Int, value: CharSequence, startIndex: Int, endIndex: Int): StringBuilder =\n this.insertRange(index, value, startIndex, endIndex)\n","/*\n * Copyright 2010-2018 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin.text\n\n\n\n/**\n * Returns `true` if the content of this string is equal to the word \"true\", ignoring case, and `false` otherwise.\n */\n@Deprecated(\"Use Kotlin compiler 1.4 to avoid deprecation warning.\")\n@DeprecatedSinceKotlin(hiddenSince = \"1.4\")\n@kotlin.internal.InlineOnly\npublic actual inline fun String.toBoolean(): Boolean = this.toBoolean()\n\n/**\n * Returns `true` if this string is not `null` and its content is equal to the word \"true\", ignoring case, and `false` otherwise.\n *\n * There are also strict versions of the function available on non-nullable String, [toBooleanStrict] and [toBooleanStrictOrNull].\n */\n@SinceKotlin(\"1.4\")\npublic actual fun String?.toBoolean(): Boolean = this != null && this.lowercase() == \"true\"\n\n/**\n * Parses the string as a signed [Byte] number and returns the result.\n * @throws NumberFormatException if the string is not a valid representation of a number.\n */\npublic actual fun String.toByte(): Byte = toByteOrNull() ?: numberFormatError(this)\n\n/**\n * Parses the string as a signed [Byte] number and returns the result.\n * @throws NumberFormatException if the string is not a valid representation of a number.\n * @throws IllegalArgumentException when [radix] is not a valid radix for string to number conversion.\n */\npublic actual fun String.toByte(radix: Int): Byte = toByteOrNull(radix) ?: numberFormatError(this)\n\n\n/**\n * Parses the string as a [Short] number and returns the result.\n * @throws NumberFormatException if the string is not a valid representation of a number.\n */\npublic actual fun String.toShort(): Short = toShortOrNull() ?: numberFormatError(this)\n\n/**\n * Parses the string as a [Short] number and returns the result.\n * @throws NumberFormatException if the string is not a valid representation of a number.\n * @throws IllegalArgumentException when [radix] is not a valid radix for string to number conversion.\n */\npublic actual fun String.toShort(radix: Int): Short = toShortOrNull(radix) ?: numberFormatError(this)\n\n/**\n * Parses the string as an [Int] number and returns the result.\n * @throws NumberFormatException if the string is not a valid

representation of a number.\n */\npublic actual fun String.toInt(): Int = toIntOrNull() ?: numberFormatError(this)\n\n/**\n * Parses the string as an [Int] number and returns the result.\n * @throws NumberFormatException if the string is not a valid representation of a number.\n * @throws IllegalArgumentException when [radix] is not a valid radix for string to number conversion.\n */\npublic actual fun String.toInt(radix: Int): Int = toIntOrNull(radix) ?: numberFormatError(this)\n\n/**\n * Parses the string as a [Long] number and returns the result.\n * @throws NumberFormatException if the string is not a valid representation of a number.\n */\npublic actual fun String.toLong(): Long = toLongOrNull() ?: numberFormatError(this)\n\n/**\n * Parses the string as a [Long] number and returns the result.\n * @throws NumberFormatException if the string is not a valid representation of a number.\n * @throws IllegalArgumentException when [radix] is not a valid radix for string to number conversion.\n */\npublic actual fun String.toLong(radix: Int): Long = toLongOrNull(radix) ?: numberFormatError(this)\n\n/**\n * Parses the string as a [Double] number and returns the result.\n * @throws NumberFormatException if the string is not a valid representation of a number.\n */\npublic actual fun String.toDouble(): Double = (+(this.asDynamic())).unsafeCast<Double>().also {\n   if (it.isNaN() && !this.isNaN() || it == 0.0 && this.isBlank())\n   numberFormatError(this)\n}\n\n/**\n * Parses the string as a [Float] number and returns the result.\n * @throws NumberFormatException if the string is not a valid representation of a number.\n */\n@kotlin.internal.InlineOnly\npublic actual inline fun String.toFloat(): Float = toDouble().unsafeCast<Float>()\n\n/**\n * Parses the string as a [Double] number and returns the result\n * or `null` if the string is not a valid representation of a number.\n */\npublic actual fun String.toDoubleOrNull(): Double? = (+(this.asDynamic())).unsafeCast<Double>().takeIf {\n   !(it.isNaN() && !this.isNaN() || it == 0.0 && this.isBlank())\n}\n\n/**\n * Parses the string as a [Float] number and returns the result\n * or `null` if the string is not a valid representation of a number.\n */\n@kotlin.internal.InlineOnly\npublic actual inline fun String.toFloatOrNull(): Float? = toDoubleOrNull().unsafeCast<Float?>()\n\n/**\n * Returns a string representation of this [Byte] value in the specified [radix].\n *\n * @throws IllegalArgumentException when [radix] is not a valid radix for number to string conversion.\n */\n@SinceKotlin(\"1.2\")\n@kotlin.internal.InlineOnly\npublic actual inline fun Byte.toString(radix: Int): String = this.toInt().toString(radix)\n\n/**\n * Returns a string representation of this [Short] value in the specified [radix].\n *\n * @throws IllegalArgumentException when [radix] is not a valid radix for number to string conversion.\n */\n@SinceKotlin(\"1.2\")\n@kotlin.internal.InlineOnly\npublic actual inline fun Short.toString(radix: Int): String = this.toInt().toString(radix)\n\n/**\n * Returns a string representation of this [Int] value in the specified [radix].\n *\n * @throws IllegalArgumentException when [radix] is not a valid radix for number to string conversion.\n */\n@SinceKotlin(\"1.2\")\npublic actual fun Int.toString(radix: Int): String = asDynamic().toString(checkRadix(radix))\n\nprivate fun String.isNaN(): Boolean = when (this.lowercase()) {\n   \"nan\", \"+nan\", \"-nan\" -> true\n   else -> false\n}\n\n/**\n * Checks whether the given [radix] is valid radix for string to number and number to string conversion.\n */\n@PublishedApi\ninternal actual fun checkRadix(radix: Int): Int {\n   if (radix !in 2..36) {\n   throw IllegalArgumentException(\"radix $radix was not in valid range 2..36\")\n   }\n   return radix\n}\n\ninternal actual fun digitOf(char: Char, radix: Int): Int = when {\n   char >= '0' && char <= '9' -> char - '0'\n   char >= 'A' && char <= 'Z' -> char - 'A' + 10\n   char >= 'a' && char <= 'z' -> char - 'a' + 10\n   char < '\\u0080' -> -1\n   char >= '\\uFF21' && char <= '\\uFF3A' -> char - '\\uFF21' + 10 // full-width latin capital letter\n   char >= '\\uFF41' && char <= '\\uFF5A' -> char - '\\uFF41' + 10 // full-width latin small letter\n   else -> char.digitToIntImpl()\n}.let { if (it >= radix) -1 else it }\n","/*\n * Copyright 2010-2021 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin.text\n\nimport kotlin.js.RegExp\n\n/**\n * Provides enumeration values to use to set regular expression options.\n */\npublic actual enum class RegexOption(val value: String) {\n   /** Enables case-insensitive matching. */\n   IGNORE_CASE(\"i\"),\n   /** Enables multiline mode.\n   *\n   * In multiline mode the expressions `^` and `$` match just after or just before,\n   * respectively, a line terminator or the end of the input sequence. */\n   MULTILINE(\"m\")\n}\n\nprivate fun Iterable<RegexOption>.toFlags(prepend: String): String = joinToString(\"\", prefix = prepend) { it.value }\n\n\n/**\n * Represents the results from a single capturing group within a [MatchResult] of [Regex].\n *\n * @param value The value of captured group.\n */\npublic actual data class MatchGroup(actual val value:

String)\n\n\n/**\n * Returns a named group with the specified [name].\n *\n * @return An instance of [MatchGroup] if the group with the specified [name] was matched or `null` otherwise.\n * @throws IllegalArgumentException if there is no group with the specified [name] defined in the regex pattern.\n * @throws UnsupportedOperationException if this match group collection doesn't support getting match groups by name,\n * for example, when it's not supported by the current platform.\n */\n@SinceKotlin(\"1.7\")\npublic operator fun MatchGroupCollection.get(name: String): MatchGroup? {\n   val namedGroups = this as? MatchNamedGroupCollection\n   ?: throw UnsupportedOperationException(\"Retrieving groups by name is not supported on this platform.\")\n\n   return namedGroups[name]\n}\n\n\n/**\n * Represents a compiled regular expression.\n * Provides functions to match strings in text with a pattern, replace the found occurrences and split text around matches.\n *\n * For pattern syntax reference see [MDN RegExp](https://developer.mozilla.org/en-US/docs/Web/JavaScript/Reference/Global_Objects/RegExp#Special_characters_meaning_in_regular_expressions)\n * and [http://www.w3schools.com/jsref/jsref_obj_regexp.asp](https://www.w3schools.com/jsref/jsref_obj_regexp.asp).\n *\n * Note that `RegExp` objects under the hood are constructed with [the \"u\" flag](https://developer.mozilla.org/en-US/docs/Web/JavaScript/Reference/Global_Objects/RegExp/unicode)\n * that enables Unicode-related features in regular expressions. This also makes the pattern syntax more strict,\n * for example, prohibiting unnecessary escape sequences.\n *\n * @constructor Creates a regular expression from the specified [pattern] string and the specified set of [options].\n */\npublic actual class Regex actual constructor(pattern: String, options: Set<RegexOption>) {\n\n   /** Creates a regular expression from the specified [pattern] string and the specified single [option]. */\n   public actual constructor(pattern: String, option: RegexOption) : this(pattern, setOf(option))\n\n   /** Creates a regular expression from the specified [pattern] string and the default options. */\n   public actual constructor(pattern: String) : this(pattern, emptySet())\n\n\n   /** The pattern string of this regular expression. */\n   public actual val pattern: String = pattern\n   /** The set of options that were used to create this regular expression. */\n   public actual val options: Set<RegexOption> = options.toSet()\n   private val nativePattern: RegExp = RegExp(pattern, options.toFlags(\"gu\"))\n   private var nativeStickyPattern: RegExp? = null\n   private fun initStickyPattern(): RegExp =\n   nativeStickyPattern ?: RegExp(pattern, options.toFlags(\"yu\")).also { nativeStickyPattern = it }\n\n   private var nativeMatchesEntirePattern: RegExp? = null\n   private fun initMatchesEntirePattern(): RegExp =\n nativeMatchesEntirePattern ?: run {\n   if (pattern.startsWith('^') && pattern.endsWith('$'))\n nativePattern\n   else\n   return RegExp(\"^${pattern.trimStart('^').trimEnd('$')}$\", options.toFlags(\"gu\"))\n   }.also { nativeMatchesEntirePattern = it }\n\n\n   /** Indicates whether the regular expression matches the entire [input]. */\n   public actual infix fun matches(input: CharSequence): Boolean {\n nativePattern.reset()\n   val match = nativePattern.exec(input.toString())\n   return match != null && match.index == 0 && nativePattern.lastIndex == input.length\n   }\n\n   /** Indicates whether the regular expression can find at least one match in the specified [input]. */\n   public actual fun containsMatchIn(input: CharSequence): Boolean {\n   nativePattern.reset()\n   return nativePattern.test(input.toString())\n   }\n\n @SinceKotlin(\"1.7\")\n   @WasExperimental(ExperimentalStdlibApi::class)\n   public actual fun matchesAt(input: CharSequence, index: Int): Boolean {\n   if (index < 0 || index > input.length) {\n   throw IndexOutOfBoundsException(\"index out of bounds: $index, input length: ${input.length}\")\n   }\n   val pattern = initStickyPattern()\n   pattern.lastIndex = index\n   return pattern.test(input.toString())\n   }\n\n /**\n   * Returns the first match of a regular expression in the [input], beginning at the specified [startIndex].\n   *\n   * @param startIndex An index to start search with, by default 0. Must be not less than zero and not greater than `input.length()`\n   * @return An instance of [MatchResult] if match was found or `null` otherwise.\n   * @throws IndexOutOfBoundsException if [startIndex] is less than zero or greater than the length of the [input] char sequence.\n   * @sample samples.text.Regexps.find\n   */\n @Suppress(\"ACTUAL_FUNCTION_WITH_DEFAULT_ARGUMENTS\")\n   public actual fun find(input: CharSequence, startIndex: Int = 0): MatchResult? {\n   if (startIndex < 0 || startIndex > input.length) {\n throw IndexOutOfBoundsException(\"Start index out of bounds: $startIndex, input length: ${input.length}\")\n

}\n   return nativePattern.findNext(input.toString(), startIndex, nativePattern)\n   }\n\n   /**\n   * Returns a sequence of all occurrences of a regular expression within the [input] string, beginning at the specified [startIndex].\n   *\n   * @throws IndexOutOfBoundsException if [startIndex] is less than zero or greater than the length of the [input] char sequence.\n   *\n   * @sample samples.text.Regexps.findAll\n   */\n   @Suppress(\"ACTUAL_FUNCTION_WITH_DEFAULT_ARGUMENTS\")\n   public actual fun findAll(input: CharSequence, startIndex: Int = 0): Sequence<MatchResult> {\n   if (startIndex < 0 || startIndex > input.length) {\n   throw IndexOutOfBoundsException(\"Start index out of bounds: $startIndex, input length: ${input.length}\")\n   }\n   return generateSequence({ find(input, startIndex) }, { match -> match.next() })\n   }\n\n   /**\n   * Attempts to match the entire [input] CharSequence against the pattern.\n   *\n   * @return An instance of [MatchResult] if the entire input matches or `null` otherwise.\n   */\n   public actual fun matchEntire(input: CharSequence): MatchResult? =\n   initMatchesEntirePattern().findNext(input.toString(), 0, nativePattern)\n\n   @SinceKotlin(\"1.7\")\n   @WasExperimental(ExperimentalStdlibApi::class)\n   public actual fun matchAt(input: CharSequence, index: Int): MatchResult? {\n   if (index < 0 || index > input.length) {\n   throw IndexOutOfBoundsException(\"index out of bounds: $index, input length: ${input.length}\")\n   }\n   return initStickyPattern().findNext(input.toString(), index, nativePattern)\n   }\n\n\n   /**\n   * Replaces all occurrences of this regular expression in the specified [input] string with specified [replacement] expression.\n   *\n   * The replacement string may contain references to the captured groups during a match. Occurrences of `${name}` or `$index`\n   * in the replacement string will be substituted with the subsequences corresponding to the captured groups with the specified name or index.\n   * In case of `$index`, the first digit after '$' is always treated as a part of group reference. Subsequent digits are incorporated\n   * into `index` only if they would form a valid group reference. Only the digits '0'..'9' are considered as potential components\n   * of the group reference. Note that indexes of captured groups start from 1, and the group with index 0 is the whole match.\n   * In case of `${name}`, the `name` can consist of latin letters 'a'..'z' and 'A'..'Z', or digits '0'..'9'. The first character must be\n   * a letter.\n   *\n   * Backslash character '\\' can be used to include the succeeding character as a literal in the replacement string, e.g, `\\$` or `\\\\`.\n   * [Regex.escapeReplacement] can be used if [replacement] have to be treated as a literal string.\n   *\n   * @param input the char sequence to find matches of this regular expression in\n   * @param replacement the expression to replace found matches with\n   * @return the result of replacing each occurrence of this regular expression in [input] with the result of evaluating the [replacement] expression\n   * @throws RuntimeException if [replacement] expression is malformed, or capturing group with specified `name` or `index` does not exist\n   */\n   public actual fun replace(input: CharSequence, replacement: String): String {\n   if (!replacement.contains('\\\\') && !replacement.contains('$')) {\n   return input.toString().nativeReplace(nativePattern, replacement)\n   }\n   return replace(input) { substituteGroupRefs(it, replacement) }\n   }\n\n   /**\n   * Replaces all occurrences of this regular expression in the specified [input] string with the result of\n   * the given function [transform] that takes [MatchResult] and returns a string to be used as a\n   * replacement for that match.\n   */\n   public actual fun replace(input: CharSequence, transform: (MatchResult) -> CharSequence): String {\n   var match = find(input)\n   if (match == null) return input.toString()\n\n   var lastStart = 0\n   val length = input.length\n   val sb = StringBuilder(length)\n   do {\n   val foundMatch = match!!\n   sb.append(input, lastStart, foundMatch.range.start)\n   sb.append(transform(foundMatch))\n   lastStart = foundMatch.range.endInclusive + 1\n   match = foundMatch.next()\n   } while (lastStart < length && match != null)\n\n   if (lastStart < length) {\n   sb.append(input, lastStart, length)\n   }\n\n   return sb.toString()\n   }\n\n   /**\n   * Replaces the first occurrence of this regular expression in the specified [input] string with specified [replacement] expression.\n   *\n   * The replacement string may contain references to the captured groups during a match. Occurrences of `${name}` or `$index`\n   * in the replacement string will be substituted with the subsequences corresponding to the captured groups with the specified name or index.\n   * In case of `$index`, the first digit after '$' is always treated as a part of group reference. Subsequent digits are incorporated\n   * into `index` only if they would form a valid group reference. Only the digits '0'..'9' are considered as potential components\n   * of the group reference. Note that indexes of captured groups start from 1, and the group with index 0 is the whole match.\n   * In case of `${name}`, the `name` can consist of latin letters 'a'..'z' and 'A'..'Z', or digits '0'..'9'. The first character must be\n   * a letter.\n   *\n   * Backslash character '\\' can be used to include the succeeding character as a literal in the replacement string, e.g, `\\$` or `\\\\`.\n   * [Regex.escapeReplacement] can be used if [replacement] have to be treated as a literal string.\n   *\n   * @param input the char sequence to find a match of this regular expression in\n   * @param replacement the expression to replace the found match with\n   * @return the result of replacing the first occurrence of this regular expression in [input] with the result of evaluating the [replacement] expression\n   * @throws RuntimeException if [replacement] expression is malformed, or capturing group with specified `name` or `index` does not exist\n   */\n   public actual fun replaceFirst(input: CharSequence, replacement: String): String {\n   if (!replacement.contains('\\\\') && !replacement.contains('$')) {\n   val nonGlobalOptions = options.toFlags(\"u\")\n   return input.toString().nativeReplace(RegExp(pattern, nonGlobalOptions), replacement)\n   }\n\n   val match = find(input) ?: return input.toString()\n\n   return buildString {\n   append(input.substring(0, match.range.first))\n   append(substituteGroupRefs(match, replacement))\n   append(input.substring(match.range.last + 1, input.length))\n   }\n   }\n\n   /**\n   * Splits the [input] CharSequence to a list of strings around matches of this regular expression.\n   *\n   * @param limit Non-negative value specifying the maximum number of substrings the string can be split to.\n   * Zero by default means no limit is set.\n   */\n   @Suppress(\"ACTUAL_FUNCTION_WITH_DEFAULT_ARGUMENTS\")\n   public actual fun split(input: CharSequence, limit: Int = 0): List<String> {\n   requireNonNegativeLimit(limit)\n   val matches = findAll(input).let { if (limit == 0) it else it.take(limit - 1) }\n   val result = mutableListOf<String>()\n   var lastStart = 0\n\n   for (match in matches) {\n   result.add(input.subSequence(lastStart, match.range.start).toString())\n   lastStart = match.range.endInclusive + 1\n   }\n   result.add(input.subSequence(lastStart, input.length).toString())\n   return result\n   }\n\n   /**\n   * Splits the [input] CharSequence to a sequence of strings around matches of this regular expression.\n   *\n   * @param limit Non-negative value specifying the maximum number of substrings the string can be split to.\n   * Zero by default means no limit is set.\n   * @sample samples.text.Regexps.splitToSequence\n   */\n   @SinceKotlin(\"1.6\")\n   @WasExperimental(ExperimentalStdlibApi::class)\n   @Suppress(\"ACTUAL_FUNCTION_WITH_DEFAULT_ARGUMENTS\")\n   public actual fun splitToSequence(input: CharSequence, limit: Int = 0): Sequence<String> {\n   requireNonNegativeLimit(limit)\n\n   return sequence {\n   var match = find(input)\n   if (match == null || limit == 1) {\n   yield(input.toString())\n   return@sequence\n   }\n\n   var nextStart = 0\n   var splitCount = 0\n\n   do {\n   val foundMatch = match!!\n   yield(input.substring(nextStart, foundMatch.range.first))\n   nextStart = foundMatch.range.endInclusive + 1\n   match = foundMatch.next()\n   } while (++splitCount != limit - 1 && match != null)\n\n   yield(input.substring(nextStart, input.length))\n   }\n   }\n\n\n   /**\n   * Returns the string representation of this regular expression, namely the [pattern] of this regular expression.\n   *\n   * Note that another regular expression constructed from the same pattern string may have different [options]\n   * and may match strings differently.\n   */\n   public override fun toString(): String = nativePattern.toString()\n\n   actual companion object {\n   /**\n   * Returns a regular expression that matches the specified [literal] string literally.\n   * No characters of that string will have special meaning when searching for an occurrence of the regular expression.\n   */\n   public actual fun fromLiteral(literal: String): Regex = Regex(escape(literal))\n\n   /**\n   * Returns a regular expression pattern string that matches the specified [literal] string literally.\n   * No characters of that string will have special meaning when searching for an occurrence of the regular expression.\n   */\n   public actual fun escape(literal: String): String = literal.nativeReplace(patternEscape, \"\\\\$&\")\n\n   /**\n   * Returns a literal replacement expression for the specified [literal] string.\n   * No characters of that string will have special meaning when it is used as a replacement string in [Regex.replace] function.\n   */\n   public actual fun escapeReplacement(literal: String): String = literal.nativeReplace(replacementEscape, \"\\\\$&\")\n\n   private val patternEscape = RegExp(\"\"\"[\\\\^$*+?.()|[\]{}]\"\"\", \"g\")\n   private val replacementEscape = RegExp(\"\"\"[\\\\$]\"\"\", \"g\")\n\n   internal fun nativeEscapeReplacement(literal: String): String =

literal.nativeReplace(nativeReplacementEscape, \"$$$$\")\n private val nativeReplacementEscape = RegExp(\"\"\"\\$\"\"\", \"g\")\n }\n}\n\n\n\nprivate fun RegExp.findNext(input: String, from: Int, nextPattern: RegExp): MatchResult? {\n this.lastIndex = from\n val match = exec(input)\n if (match == null) return null\n val range = match.index..lastIndex - 1\n\n return object : MatchResult {\n override val range: IntRange = range\n override val value: String\n get() = match[0]!!\n\n override val groups: MatchGroupCollection = object : MatchNamedGroupCollection, AbstractCollection<MatchGroup?>() {\n override val size: Int get() = match.length\n override fun iterator(): Iterator<MatchGroup?> = indices.asSequence().map { this[it] }.iterator()\n override fun get(index: Int): MatchGroup? = match[index]?.let { MatchGroup(it) }\n\n override fun get(name: String): MatchGroup? {\n // An object of named capturing groups whose keys are the names and values are the capturing groups\n // or undefined if no named capturing groups were defined.\n val groups = match.asDynamic().groups\n ?: throw IllegalArgumentException(\"Capturing group with name {$name} does not exist. No named capturing group was defined in Regex\")\n\n // If the match was successful but the group specified failed to match any part of the input sequence,\n // the associated value is 'undefined'. Value for a non-existent key is also 'undefined'. Thus, explicitly check if the key exists.\n if (!hasOwnPrototypeProperty(groups, name))\n throw IllegalArgumentException(\"Capturing group with name {$name} does not exist\")\n\n val value = groups[name]\n return if (value == undefined) null else MatchGroup(value as String)\n }\n }\n\n private fun hasOwnPrototypeProperty(o: Any?, name: String): Boolean {\n return js(\"Object\").prototype.hasOwnProperty.call(o, name).unsafeCast<Boolean>()\n }\n\n\n private var groupValues_: List<String>? = null\n\n override val groupValues: List<String>\n get() {\n if (groupValues_ == null) {\n groupValues_ = object : AbstractList<String>() {\n override val size: Int get() = match.length\n override fun get(index: Int): String = match[index] ?: \"\"\n }\n }\n return groupValues_!!\n }\n\n override fun next(): MatchResult? =\n nextPattern.findNext(input, if (range.isEmpty()) advanceToNextCharacter(range.start) else range.endInclusive + 1, nextPattern)\n\n private fun advanceToNextCharacter(index: Int): Int {\n if (index < input.lastIndex) {\n val code1 = input.asDynamic().charCodeAt(index).unsafeCast<Int>()\n if (code1 in 0xD800..0xDBFF) {\n val code2 = input.asDynamic().charCodeAt(index + 1).unsafeCast<Int>()\n if (code2 in 0xDC00..0xDFFF) {\n return index + 2\n }\n }\n }\n return index + 1\n }\n }\n}\n\n// The same code from K/N Regex.kt\nprivate fun substituteGroupRefs(match: MatchResult, replacement: String): String {\n var index = 0\n val result = StringBuilder()\n\n while (index < replacement.length) {\n val char = replacement[index++]\n if (char == '\\\\') {\n if (index == replacement.length)\n throw IllegalArgumentException(\"The Char to be escaped is missing\")\n\n result.append(replacement[index++])\n } else if (char == '$') {\n if (index == replacement.length)\n throw IllegalArgumentException(\"Capturing group index is missing\")\n\n if (replacement[index] == '{') {\n val endIndex = replacement.readGroupName(++index)\n\n if (index == endIndex)\n throw IllegalArgumentException(\"Named capturing group reference should have a non-empty name\")\n if (endIndex == replacement.length || replacement[endIndex] != '}')\n throw IllegalArgumentException(\"Named capturing group reference is missing trailing '}'\")\n\n val groupName = replacement.substring(index, endIndex)\n\n result.append(match.groups[groupName]?.value ?: \"\")\n index = endIndex + 1 // skip past '}'\n } else {\n if (replacement[index] !in '0'..'9')\n throw IllegalArgumentException(\"Invalid capturing group reference\")\n\n val groups = match.groups\n val endIndex = replacement.readGroupIndex(index, groups.size)\n val groupIndex = replacement.substring(index, endIndex).toInt()\n\n if (groupIndex >= groups.size)\n throw IndexOutOfBoundsException(\"Group with index $groupIndex does not exist\")\n\n result.append(groups[groupIndex]?.value ?: \"\")\n index = endIndex\n }\n } else {\n result.append(char)\n }\n }\n return result.toString()\n}\n\n// The name must be a legal JavaScript identifier. See https://262.ecma-international.org/5.1/#sec-7.6\n// Don't try to validate the referenced group name as it may be time-consuming.\n// If the name is invalid, it won't be found in `match.groups` anyway and will throw.\n// Group names in the target Regex are validated at creation time.\nprivate fun String.readGroupName(startIndex: Int): Int {\n var index = startIndex\n while (index < length) {\n if (this[index] == '}') {\n break\n } else {\n index++\n }\n }\n return index\n}\n\nprivate fun String.readGroupIndex(startIndex: Int, groupCount: Int): Int {\n // at least one digit after '$' is always captured\n var index = startIndex + 1\n var groupIndex = this[startIndex] - '0'\n\n // capture the largest valid group index\n while (index < length && this[index] in '0'..'9') {\n val newGroupIndex = (groupIndex * 10) + (this[index] - '0')\n if (newGroupIndex in 0 until groupCount) {\n groupIndex = newGroupIndex\n index++\n } else {\n break\n }\n }\n return index\n}","/*\n * Copyright 2010-2020 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\n@file:kotlin.jvm.JvmMultifileClass\n@file:kotlin.jvm.JvmName(\"StringsKt\")\n@file:Suppress(\"EXTENSION_SHADOWED_BY_MEMBER\")\n\npackage kotlin.text\n\nimport kotlin.contracts.*\n\n/**\n * A mutable sequence of characters.\n *\n * String builder can be used to efficiently perform multiple string manipulation operations.\n */\nexpect class StringBuilder : Appendable, CharSequence {\n /** Constructs an empty string builder. */\n constructor()\n\n /** Constructs an empty string builder with the specified initial [capacity]. */\n constructor(capacity: Int)\n\n /** Constructs a string builder that contains the same characters as the specified [content] char sequence. */\n constructor(content: CharSequence)\n\n /** Constructs a string builder that contains the same characters as the specified [content] string. */\n @SinceKotlin(\"1.3\")\n// @ExperimentalStdlibApi\n constructor(content: String)\n\n override val length: Int\n\n override operator fun get(index: Int): Char\n\n override fun subSequence(startIndex: Int, endIndex: Int): CharSequence\n\n override fun append(value: Char): StringBuilder\n override fun append(value: CharSequence?): StringBuilder\n override fun append(value: CharSequence?, startIndex: Int, endIndex: Int): StringBuilder\n\n /**\n * Reverses the contents of this string builder and returns this instance.\n *\n * Surrogate pairs included in this string builder are treated as single characters.\n * Therefore, the order of the high-low surrogates is never reversed.\n *\n * Note that the reverse operation may produce new surrogate pairs that were unpaired low-surrogates and high-surrogates before the operation.\n * For example, reversing `\"\\uDC00\\uD800\"` produces `\"\\uD800\\uDC00\"` which is a valid surrogate pair.\n */\n fun reverse(): StringBuilder\n\n /**\n * Appends the string representation of the specified object [value] to this string builder and returns this instance.\n *\n * The overall effect is exactly as if the [value] were converted to a string by the `value.toString()` method,\n * and then that string was appended to this string builder.\n */\n fun append(value: Any?): StringBuilder\n\n /**\n * Appends the string representation of the specified boolean [value] to this string builder and returns this instance.\n *\n * The overall effect is exactly as if the [value] were converted to a string by the `value.toString()` method,\n * and then that string was appended to this string builder.\n */\n @SinceKotlin(\"1.3\")\n fun append(value: Boolean): StringBuilder\n\n /**\n * Appends characters in the specified character array [value] to this string builder and returns this instance.\n *\n * Characters are appended in order, starting at the index 0.\n */\n @SinceKotlin(\"1.4\")\n @WasExperimental(ExperimentalStdlibApi::class)\n fun append(value: CharArray): StringBuilder\n\n /**\n * Appends the specified string [value] to this string builder and returns this instance.\n *\n * If [value] is `null`, then the four characters `\"null\"` are appended.\n */\n @SinceKotlin(\"1.3\")\n fun append(value: String?): StringBuilder\n\n /**\n * Returns the current capacity of this string builder.\n *\n * The capacity is the maximum length this string builder can have before an allocation occurs.\n */\n @SinceKotlin(\"1.3\")\n// @ExperimentalStdlibApi\n @Deprecated(\"Obtaining StringBuilder capacity is not supported in JS and common code.\", level = DeprecationLevel.ERROR)\n fun capacity(): Int\n\n /**\n * Ensures that the capacity of this string builder is at least equal to the specified [minimumCapacity].\n *\n * If the current capacity is less than the [minimumCapacity], a new backing storage is allocated with greater capacity.\n * Otherwise, this method takes no action and simply returns.\n */\n @SinceKotlin(\"1.4\")\n @WasExperimental(ExperimentalStdlibApi::class)\n fun ensureCapacity(minimumCapacity: Int)\n\n /**\n * Returns the index within this string builder of the first occurrence of the specified [string].\n *\n * Returns `-1` if the specified [string] does not occur in this string builder.\n   */\n   @SinceKotlin(\"1.4\")\n   @WasExperimental(ExperimentalStdlibApi::class)\n   fun indexOf(string: String): Int\n\n   /**\n   * Returns the index within this string builder of the first occurrence of the specified [string],\n   * starting at the specified [startIndex].\n   *\n   * Returns `-1` if the specified [string] does not occur in this string builder starting at the specified [startIndex].\n   */\n   @SinceKotlin(\"1.4\")\n   @WasExperimental(ExperimentalStdlibApi::class)\n   fun indexOf(string: String, startIndex: Int): Int\n\n   /**\n   * Returns the index within this string builder of the last occurrence of the specified [string].\n   * The last occurrence of empty string `\"\"` is considered to be at the index equal to `this.length`.\n   *\n   * Returns `-1` if the specified [string] does not occur in this string builder.\n   */\n   @SinceKotlin(\"1.4\")\n   @WasExperimental(ExperimentalStdlibApi::class)\n   fun lastIndexOf(string: String): Int\n\n   /**\n   * Returns the index within this string builder of the last occurrence of the specified [string],\n   * starting from the specified [startIndex] toward the beginning.\n   *\n   * Returns `-1` if the specified [string] does not occur in this string builder starting at the specified [startIndex].\n   */\n   @SinceKotlin(\"1.4\")\n   @WasExperimental(ExperimentalStdlibApi::class)\n   fun lastIndexOf(string: String, startIndex: Int): Int\n\n   /**\n   * Inserts the string representation of the specified boolean [value] into this string builder at the specified [index] and returns this instance.\n   *\n   * The overall effect is exactly as if the [value] were converted to a string by the `value.toString()` method,\n   * and then that string was inserted into this string builder at the specified [index].\n   *\n   * @throws IndexOutOfBoundsException if [index] is less than zero or greater than the length of this string builder.\n   */\n   @SinceKotlin(\"1.4\")\n   @WasExperimental(ExperimentalStdlibApi::class)\n   fun insert(index: Int, value: Boolean): StringBuilder\n\n   /**\n   * Inserts the specified character [value] into this string builder at the specified [index] and returns this instance.\n   *\n   * @throws IndexOutOfBoundsException if [index] is less than zero or greater than the length of this string builder.\n   */\n   @SinceKotlin(\"1.4\")\n   @WasExperimental(ExperimentalStdlibApi::class)\n   fun insert(index: Int, value: Char): StringBuilder\n\n   /**\n   * Inserts characters in the specified character array [value] into this string builder at the specified [index] and returns this instance.\n   *\n   * The inserted characters go in same order as in the [value] character array, starting at [index].\n   *\n   * @throws IndexOutOfBoundsException if [index] is less than zero or greater than the length of this string builder.\n   */\n   @SinceKotlin(\"1.4\")\n   @WasExperimental(ExperimentalStdlibApi::class)\n   fun insert(index: Int, value: CharArray): StringBuilder\n\n   /**\n   * Inserts characters in the specified character sequence [value] into this string builder at the specified [index] and returns this instance.\n   *\n   * The inserted characters go in the same order as in the [value] character sequence, starting at [index].\n   *\n   * @param index the position in this string builder to insert at.\n   * @param value the character sequence from which characters are inserted. If [value] is `null`, then the four characters `\"null\"` are inserted.\n   *\n   * @throws IndexOutOfBoundsException if [index] is less than zero or greater than the length of this string builder.\n   */\n   @SinceKotlin(\"1.4\")\n   @WasExperimental(ExperimentalStdlibApi::class)\n   fun insert(index: Int, value: CharSequence?): StringBuilder\n\n   /**\n   * Inserts the string representation of the specified object [value] into this string builder at the specified [index] and returns this instance.\n   *\n   * The overall effect is exactly as if the [value] were converted to a string by the `value.toString()` method,\n   * and then that string was inserted into this string builder at the specified [index].\n   *\n   * @throws IndexOutOfBoundsException if [index] is less than zero or greater than the length of this string builder.\n   */\n   @SinceKotlin(\"1.4\")\n   @WasExperimental(ExperimentalStdlibApi::class)\n   fun insert(index: Int, value: Any?): StringBuilder\n\n   /**\n   * Inserts the string [value] into this string builder at the specified [index] and returns this instance.\n   *\n   * If [value] is `null`, then the four characters `\"null\"` are inserted.\n   *\n   * @throws IndexOutOfBoundsException if [index] is less than zero or greater than the length of this string builder.\n   */\n   @SinceKotlin(\"1.4\")\n   @WasExperimental(ExperimentalStdlibApi::class)\n   fun insert(index: Int, value: String?): StringBuilder\n\n   /**\n   * Sets the length of this string builder to the specified [newLength].\n   *\n   * If the [newLength] is less than the current length, it is changed to the specified [newLength].\n   * Otherwise, null characters '\\u0000' are appended to this string builder until its length is less than the [newLength].\n   *\n   * Note that in Kotlin/JS [set] operator function has non-constant execution time complexity.\n   * Therefore, increasing length of this string builder and then updating each character by index may slow down your program.\n   *\n   * @throws

IndexOutOfBoundsException or [IllegalArgumentException] if [newLength] is less than zero.\n */\n @SinceKotlin(\"1.4\")\n @WasExperimental(ExperimentalStdlibApi::class)\n fun setLength(newLength: Int)\n\n /**\n * Returns a new [String] that contains characters in this string builder at [startIndex] (inclusive) and up to the [length] (exclusive).\n *\n * @throws IndexOutOfBoundsException if [startIndex] is less than zero or greater than the length of this string builder.\n */\n @SinceKotlin(\"1.4\")\n @WasExperimental(ExperimentalStdlibApi::class)\n fun substring(startIndex: Int): String\n\n /**\n * Returns a new [String] that contains characters in this string builder at [startIndex] (inclusive) and up to the [endIndex] (exclusive).\n *\n * @throws IndexOutOfBoundsException or [IllegalArgumentException] when [startIndex] or [endIndex] is out of range of this string builder indices or when `startIndex > endIndex`.\n */\n @SinceKotlin(\"1.4\")\n @WasExperimental(ExperimentalStdlibApi::class)\n fun substring(startIndex: Int, endIndex: Int): String\n\n /**\n * Attempts to reduce storage used for this string builder.\n *\n * If the backing storage of this string builder is larger than necessary to hold its current contents,\n * then it may be resized to become more space efficient.\n * Calling this method may, but is not required to, affect the value of the [capacity] property.\n */\n @SinceKotlin(\"1.4\")\n @WasExperimental(ExperimentalStdlibApi::class)\n fun trimToSize()\n}\n\n\n/**\n * Clears the content of this string builder making it empty and returns this instance.\n *\n * @sample samples.text.Strings.clearStringBuilder\n */\n@SinceKotlin(\"1.3\")\npublic expect fun StringBuilder.clear(): StringBuilder\n\n/**\n * Sets the character at the specified [index] to the specified [value].\n *\n * @throws IndexOutOfBoundsException if [index] is out of bounds of this string builder.\n */\n@SinceKotlin(\"1.4\")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic expect operator fun StringBuilder.set(index: Int, value: Char)\n\n/**\n * Replaces characters in the specified range of this string builder with characters in the specified string [value] and returns this instance.\n *\n * @param startIndex the beginning (inclusive) of the range to replace.\n * @param endIndex the end (exclusive) of the range to replace.\n * @param value the string to replace with.\n *\n * @throws IndexOutOfBoundsException or [IllegalArgumentException] if [startIndex] is less than zero, greater than the length of this string builder, or `startIndex > endIndex`.\n */\n@SinceKotlin(\"1.4\")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic expect fun StringBuilder.setRange(startIndex: Int, endIndex: Int, value: String): StringBuilder\n\n/**\n * Removes the character at the specified [index] from this string builder and returns this instance.\n *\n * If the `Char` at the specified [index] is part of a supplementary code point, this method does not remove the entire supplementary character.\n *\n * @param index the index of `Char` to remove.\n *\n * @throws IndexOutOfBoundsException if [index] is out of bounds of this string builder.\n */\n@SinceKotlin(\"1.4\")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic expect fun StringBuilder.deleteAt(index: Int): StringBuilder\n\n/**\n * Removes characters in the specified range from this string builder and returns this instance.\n *\n * @param startIndex the beginning (inclusive) of the range to remove.\n * @param endIndex the end (exclusive) of the range to remove.\n *\n * @throws IndexOutOfBoundsException or [IllegalArgumentException] when [startIndex] is out of range of this string builder indices or when `startIndex > endIndex`.\n */\n@SinceKotlin(\"1.4\")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic expect fun StringBuilder.deleteRange(startIndex: Int, endIndex: Int): StringBuilder\n\n/**\n * Copies characters from this string builder into the [destination] character array.\n *\n * @param destination the array to copy to.\n * @param destinationOffset the position in the array to copy to, 0 by default.\n * @param startIndex the beginning (inclusive) of the range to copy, 0 by default.\n * @param endIndex the end (exclusive) of the range to copy, length of this string builder by default.\n *\n * @throws IndexOutOfBoundsException or [IllegalArgumentException] when [startIndex] or [endIndex] is out of range of this string builder indices or when `startIndex > endIndex`.\n * @throws IndexOutOfBoundsException when the subrange doesn't fit into the [destination] array starting at the specified [destinationOffset],\n * or when that index is out of the [destination] array indices range.\n */\n@SinceKotlin(\"1.4\")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic expect fun StringBuilder.toCharArray(destination: CharArray, destinationOffset: Int = 0, startIndex: Int = 0, endIndex: Int = this.length)\n\n/**\n * Appends characters in a subarray of the specified character array [value] to this string builder and returns this instance.\n *\n * Characters are appended in order, starting at specified [startIndex].\n *\n * @param value the array from which characters are appended.\n * @param startIndex the beginning (inclusive) of the subarray to append.\n * @param endIndex the end (exclusive) of the subarray to append.\n *\n * @throws IndexOutOfBoundsException or [IllegalArgumentException] when [startIndex] or [endIndex] is out of range of the [value] array indices or when `startIndex > endIndex`.\n */\n@SinceKotlin(\"1.4\")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic expect fun StringBuilder.appendRange(value: CharArray, startIndex: Int, endIndex: Int): StringBuilder\n\n/**\n * Appends a subsequence of the specified character sequence [value] to this string builder and returns this instance.\n *\n * @param value the character sequence from which a subsequence is appended.\n * @param startIndex the beginning (inclusive) of the subsequence to append.\n * @param endIndex the end (exclusive) of the subsequence to append.\n *\n * @throws IndexOutOfBoundsException or [IllegalArgumentException] when [startIndex] or [endIndex] is out of range of the [value] character sequence indices or when `startIndex > endIndex`.\n */\n@SinceKotlin(\"1.4\")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic expect fun StringBuilder.appendRange(value: CharSequence, startIndex: Int, endIndex: Int): StringBuilder\n\n/**\n * Inserts characters in a subarray of the specified character array [value] into this string builder at the specified [index] and returns this instance.\n *\n * The inserted characters go in same order as in the [value] array, starting at [index].\n *\n * @param index the position in this string builder to insert at.\n * @param value the array from which characters are inserted.\n * @param startIndex the beginning (inclusive) of the subarray to insert.\n * @param endIndex the end (exclusive) of the subarray to insert.\n *\n * @throws IndexOutOfBoundsException or [IllegalArgumentException] when [startIndex] or [endIndex] is out of range of the [value] array indices or when `startIndex > endIndex`.\n * @throws IndexOutOfBoundsException if [index] is less than zero or greater than the length of this string builder.\n */\n@SinceKotlin(\"1.4\")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic expect fun StringBuilder.insertRange(index: Int, value: CharArray, startIndex: Int, endIndex: Int): StringBuilder\n\n/**\n * Inserts characters in a subsequence of the specified character sequence [value] into this string builder at the specified [index] and returns this instance.\n *\n * The inserted characters go in the same order as in the [value] character sequence, starting at [index].\n *\n * @param index the position in this string builder to insert at.\n * @param value the character sequence from which a subsequence is inserted.\n * @param startIndex the beginning (inclusive) of the subsequence to insert.\n * @param endIndex the end (exclusive) of the subsequence to insert.\n *\n * @throws IndexOutOfBoundsException or [IllegalArgumentException] when [startIndex] or [endIndex] is out of range of the [value] character sequence indices or when `startIndex > endIndex`.\n * @throws IndexOutOfBoundsException if [index] is less than zero or greater than the length of this string builder.\n */\n@SinceKotlin(\"1.4\")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic expect fun StringBuilder.insertRange(index: Int, value: CharSequence, startIndex: Int, endIndex: Int): StringBuilder\n\n@Suppress(\"EXTENSION_SHADOWED_BY_MEMBER\")\n@Deprecated(\"Use append(value: Any?) instead\", ReplaceWith(\"append(value = obj)\"), DeprecationLevel.WARNING)\n@kotlin.internal.InlineOnly\npublic inline fun StringBuilder.append(obj: Any?): StringBuilder = this.append(obj)\n\n/**\n * Builds new string by populating newly created [StringBuilder] using provided [builderAction]\n * and then converting it to [String].\n */\n@kotlin.internal.InlineOnly\npublic inline fun buildString(builderAction: StringBuilder.() -> Unit): String {\n   contract { callsInPlace(builderAction, InvocationKind.EXACTLY_ONCE) }\n   return StringBuilder().apply(builderAction).toString()\n}\n\n/**\n * Builds new string by populating newly created [StringBuilder] initialized with the given [capacity]\n * using provided [builderAction] and then converting it to [String].\n */\n@SinceKotlin(\"1.1\")\n@kotlin.internal.InlineOnly\npublic inline fun buildString(capacity: Int, builderAction: StringBuilder.() -> Unit): String {\n   contract { callsInPlace(builderAction, InvocationKind.EXACTLY_ONCE) }\n   return StringBuilder(capacity).apply(builderAction).toString()\n}\n\n/**\n * Appends all arguments to the given StringBuilder.\n */\npublic fun StringBuilder.append(vararg value: String?): StringBuilder {\n   for (item in value)\n   append(item)\n   return this\n}\n\n/**\n * Appends all arguments to the given StringBuilder.\n

*/\npublic fun StringBuilder.append(vararg value: Any?): StringBuilder {\n   for (item in value)\n   append(item)\n   return this\n}\n\n/** Appends a line feed character (`\\n`) to this StringBuilder. */\n@SinceKotlin(\"1.4\")\n@kotlin.internal.InlineOnly\npublic inline fun StringBuilder.appendLine(): StringBuilder = append('\\n')\n\n/** Appends [value] to this [StringBuilder], followed by a line feed character (`\\n`). */\n@SinceKotlin(\"1.4\")\n@kotlin.internal.InlineOnly\npublic inline fun StringBuilder.appendLine(value: CharSequence?): StringBuilder = append(value).appendLine()\n\n/** Appends [value] to this [StringBuilder], followed by a line feed character (`\\n`). */\n@SinceKotlin(\"1.4\")\n@kotlin.internal.InlineOnly\npublic inline fun StringBuilder.appendLine(value: String?): StringBuilder = append(value).appendLine()\n\n/** Appends [value] to this [StringBuilder], followed by a line feed character (`\\n`). */\n@SinceKotlin(\"1.4\")\n@kotlin.internal.InlineOnly\npublic inline fun StringBuilder.appendLine(value: Any?): StringBuilder = append(value).appendLine()\n\n/** Appends [value] to this [StringBuilder], followed by a line feed character (`\\n`). */\n@SinceKotlin(\"1.4\")\n@kotlin.internal.InlineOnly\npublic inline fun StringBuilder.appendLine(value: CharArray): StringBuilder = append(value).appendLine()\n\n/** Appends [value] to this [StringBuilder], followed by a line feed character (`\\n`). */\n@SinceKotlin(\"1.4\")\n@kotlin.internal.InlineOnly\npublic inline fun StringBuilder.appendLine(value: Char): StringBuilder = append(value).appendLine()\n\n/** Appends [value] to this [StringBuilder], followed by a line feed character (`\\n`). */\n@SinceKotlin(\"1.4\")\n@kotlin.internal.InlineOnly\npublic inline fun StringBuilder.appendLine(value: Boolean): StringBuilder = append(value).appendLine()\n","/*\n * Copyright 2010-2021 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin.text\n\nimport kotlin.js.RegExp\n\n@kotlin.internal.InlineOnly\ninternal actual inline fun String.nativeIndexOf(ch: Char, fromIndex: Int): Int = nativeIndexOf(ch.toString(), fromIndex)\n\n@kotlin.internal.InlineOnly\ninternal actual inline fun String.nativeLastIndexOf(ch: Char, fromIndex: Int): Int = nativeLastIndexOf(ch.toString(), fromIndex)\n\n/**\n * Returns `true` if this string starts with the specified prefix.\n */\n@Suppress(\"ACTUAL_FUNCTION_WITH_DEFAULT_ARGUMENTS\")\npublic actual fun String.startsWith(prefix: String, ignoreCase: Boolean = false): Boolean {\n   if (!ignoreCase)\n   return nativeStartsWith(prefix, 0)\n   else\n   return regionMatches(0, prefix, 0, prefix.length, ignoreCase)\n}\n\n/**\n * Returns `true` if a substring of this string starting at the specified offset [startIndex] starts with the specified prefix.\n */\n@Suppress(\"ACTUAL_FUNCTION_WITH_DEFAULT_ARGUMENTS\")\npublic actual fun String.startsWith(prefix: String, startIndex: Int, ignoreCase: Boolean = false): Boolean {\n   if (!ignoreCase)\n   return nativeStartsWith(prefix, startIndex)\n   else\n   return regionMatches(startIndex, prefix, 0, prefix.length, ignoreCase)\n}\n\n/**\n * Returns `true` if this string ends with the specified suffix.\n */\n@Suppress(\"ACTUAL_FUNCTION_WITH_DEFAULT_ARGUMENTS\")\npublic actual fun String.endsWith(suffix: String, ignoreCase: Boolean = false): Boolean {\n   if (!ignoreCase)\n   return nativeEndsWith(suffix)\n   else\n   return regionMatches(length - suffix.length, suffix, 0, suffix.length, ignoreCase)\n}\n\n@Deprecated(\"Use Regex.matches() instead\", ReplaceWith(\"regex.toRegex().matches(this)\"))\n@DeprecatedSinceKotlin(warningSince = \"1.6\")\npublic fun String.matches(regex: String): Boolean {\n   @Suppress(\"DEPRECATION\")\n   val result = this.match(regex)\n   return result != null && result.size != 0\n}\n\n/**\n * Returns `true` if this string is empty or consists solely of whitespace characters.\n *\n * @sample samples.text.Strings.stringIsBlank\n */\npublic actual fun CharSequence.isBlank(): Boolean = length == 0 || indices.all { this[it].isWhitespace() }\n\n/**\n * Returns `true` if this string is equal to [other], optionally ignoring character case.\n *\n * Two strings are considered to be equal if they have the same length and the same character at the same index.\n * If [ignoreCase] is true, the result of `Char.uppercaseChar().lowercaseChar()` on each character is compared.\n *\n * @param ignoreCase `true` to ignore character case when comparing strings. By default `false`.\n */\n@Suppress(\"ACTUAL_FUNCTION_WITH_DEFAULT_ARGUMENTS\")\npublic actual fun String?.equals(other: String?, ignoreCase: Boolean = false): Boolean {\n   if (this == null) return other == null\n   if (other == null) return false\n   if (!ignoreCase) return this == other\n\n   if (this.length != other.length) return

false\n\n   for (index in 0 until this.length) {\n   val thisChar = this[index]\n   val otherChar = other[index]\n   if (!thisChar.equals(otherChar, ignoreCase)) {\n   return false\n   }\n   }\n\n   return true\n}\n\n\n@Suppress(\"ACTUAL_FUNCTION_WITH_DEFAULT_ARGUMENTS\")\npublic actual fun CharSequence.regionMatches(thisOffset: Int, other: CharSequence, otherOffset: Int, length: Int, ignoreCase: Boolean = false): Boolean =\n   regionMatchesImpl(thisOffset, other, otherOffset, length, ignoreCase)\n\n\n/**\n * Returns a copy of this string having its first letter titlecased using the rules of the default locale,\n * or the original string if it's empty or already starts with a title case letter.\n *\n * The title case of a character is usually the same as its upper case with several exceptions.\n * The particular list of characters with the special title case form depends on the underlying platform.\n *\n * @sample samples.text.Strings.capitalize\n */\n@Deprecated(\"Use replaceFirstChar instead.\", ReplaceWith(\"replaceFirstChar { if (it.isLowerCase()) it.titlecase() else it.toString() }\"))\n@DeprecatedSinceKotlin(warningSince = \"1.5\")\npublic actual fun String.capitalize(): String {\n   return if (isNotEmpty()) substring(0, 1).uppercase() + substring(1) else this\n}\n\n/**\n * Returns a copy of this string having its first letter lowercased using the rules of the default locale,\n * or the original string if it's empty or already starts with a lower case letter.\n *\n * @sample samples.text.Strings.decapitalize\n */\n@Deprecated(\"Use replaceFirstChar instead.\", ReplaceWith(\"replaceFirstChar { it.lowercase() }\"))\n@DeprecatedSinceKotlin(warningSince = \"1.5\")\npublic actual fun String.decapitalize(): String {\n   return if (isNotEmpty()) substring(0, 1).lowercase() + substring(1) else this\n}\n\n/**\n * Returns a string containing this char sequence repeated [n] times.\n * @throws [IllegalArgumentException] when n < 0.\n * @sample samples.text.Strings.repeat\n */\npublic actual fun CharSequence.repeat(n: Int): String {\n   require(n >= 0) { \"Count 'n' must be non-negative, but was $n.\" }\n   return when (n) {\n   0 -> \"\"\n   1 -> this.toString()\n   else -> {\n   var result = \"\"\n   if (!isEmpty()) {\n   var s = this.toString()\n   var count = n\n   while (true) {\n   if ((count and 1) == 1) {\n   result += s\n   }\n   count = count ushr 1\n   if (count == 0) {\n   break\n   }\n   s += s\n   }\n   }\n   return result\n   }\n   }\n}\n\n/**\n * Returns a new string obtained by replacing all occurrences of the [oldValue] substring in this string\n * with the specified [newValue] string.\n *\n * @sample samples.text.Strings.replace\n */\n@Suppress(\"ACTUAL_FUNCTION_WITH_DEFAULT_ARGUMENTS\")\npublic actual fun String.replace(oldValue: String, newValue: String, ignoreCase: Boolean = false): String =\n   nativeReplace(RegExp(Regex.escape(oldValue), if (ignoreCase) \"gui\" else \"gu\"), Regex.nativeEscapeReplacement(newValue))\n\n/**\n * Returns a new string with all occurrences of [oldChar] replaced with [newChar].\n *\n * @sample samples.text.Strings.replace\n */\n@Suppress(\"ACTUAL_FUNCTION_WITH_DEFAULT_ARGUMENTS\")\npublic actual fun String.replace(oldChar: Char, newChar: Char, ignoreCase: Boolean = false): String =\n   nativeReplace(RegExp(Regex.escape(oldChar.toString()), if (ignoreCase) \"gui\" else \"gu\"), newChar.toString())\n\n@Suppress(\"ACTUAL_FUNCTION_WITH_DEFAULT_ARGUMENTS\")\npublic actual fun String.replaceFirst(oldValue: String, newValue: String, ignoreCase: Boolean = false): String =\n   nativeReplace(RegExp(Regex.escape(oldValue), if (ignoreCase) \"ui\" else \"u\"), Regex.nativeEscapeReplacement(newValue))\n\n@Suppress(\"ACTUAL_FUNCTION_WITH_DEFAULT_ARGUMENTS\")\npublic actual fun String.replaceFirst(oldChar: Char, newChar: Char, ignoreCase: Boolean = false): String =\n   nativeReplace(RegExp(Regex.escape(oldChar.toString()), if (ignoreCase) \"ui\" else \"u\"), newChar.toString())\n","/*\n * Copyright 2010-2019 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin.text\n\n/** Returns the negative [size] if [throwOnMalformed] is false, throws [CharacterCodingException] otherwise. */\nprivate fun malformed(size: Int, index: Int, throwOnMalformed: Boolean): Int {\n   if (throwOnMalformed) throw CharacterCodingException(\"Malformed sequence starting at ${index - 1}\")\n   return -size\n}\n\n/**\n * Returns code point corresponding to UTF-16 surrogate pair,\n * where the first of the pair is the [high] and the second is in the [string] at the [index].\n * Returns zero if the pair is malformed and [throwOnMalformed] is false.\n *\n * @throws CharacterCodingException if the pair is malformed and [throwOnMalformed] is true.\n */\nprivate fun codePointFromSurrogate(string: String, high: Int, index: Int, endIndex: Int, throwOnMalformed: Boolean): Int {\n   if (high !in 0xD800..0xDBFF || index >= endIndex) {\n   return malformed(0, index, throwOnMalformed)\n   }\n   val low = string[index].code\n   if (low !in 0xDC00..0xDFFF) {\n   return malformed(0, index, throwOnMalformed)\n   }\n   return 0x10000 + ((high and 0x3FF) shl 10) or (low and 0x3FF)\n}\n\n/**\n * Returns code point corresponding to UTF-8 sequence of two bytes,\n * where the first byte of the sequence is the [byte1] and the second byte is in the [bytes] array at the [index].\n * Returns zero if the sequence is malformed and [throwOnMalformed] is false.\n *\n * @throws CharacterCodingException if the sequence of two bytes is malformed and [throwOnMalformed] is true.\n */\nprivate fun codePointFrom2(bytes: ByteArray, byte1: Int, index: Int, endIndex: Int, throwOnMalformed: Boolean): Int {\n   if (byte1 and 0x1E == 0 || index >= endIndex) {\n   return malformed(0, index, throwOnMalformed)\n   }\n   val byte2 = bytes[index].toInt()\n   if (byte2 and 0xC0 != 0x80) {\n   return malformed(0, index, throwOnMalformed)\n   }\n   return (byte1 shl 6) xor byte2 xor 0xF80\n}\n\n/**\n * Returns code point corresponding to UTF-8 sequence of three bytes,\n * where the first byte of the sequence is the [byte1] and the others are in the [bytes] array starting from the [index].\n * Returns a non-positive value indicating number of bytes from [bytes] included in malformed sequence\n * if the sequence is malformed and [throwOnMalformed] is false.\n *\n * @throws CharacterCodingException if the sequence of three bytes is malformed and [throwOnMalformed] is true.\n */\nprivate fun codePointFrom3(bytes: ByteArray, byte1: Int, index: Int, endIndex: Int, throwOnMalformed: Boolean): Int {\n   if (index >= endIndex) {\n   return malformed(0, index, throwOnMalformed)\n   }\n\n   val byte2 = bytes[index].toInt()\n   if (byte1 and 0xF == 0) {\n   if (byte2 and 0xE0 != 0xA0) {\n   // Non-shortest form\n   return malformed(0, index, throwOnMalformed)\n   }\n   } else if (byte1 and 0xF == 0xD) {\n   if (byte2 and 0xE0 != 0x80) {\n   // Surrogate code point\n   return malformed(0, index, throwOnMalformed)\n   }\n   } else if (byte2 and 0xC0 != 0x80) {\n   return malformed(0, index, throwOnMalformed)\n   }\n\n   if (index + 1 == endIndex) {\n   return malformed(1, index, throwOnMalformed)\n   }\n   val byte3 = bytes[index + 1].toInt()\n   if (byte3 and 0xC0 != 0x80) {\n   return malformed(1, index, throwOnMalformed)\n   }\n\n   return (byte1 shl 12) xor (byte2 shl 6) xor byte3 xor -0x1E080\n}\n\n/**\n * Returns code point corresponding to UTF-8 sequence of four bytes,\n * where the first byte of the sequence is the [byte1] and the others are in the [bytes] array starting from the [index].\n * Returns a non-positive value indicating number of bytes from [bytes] included in malformed sequence\n * if the sequence is malformed and [throwOnMalformed] is false.\n *\n * @throws CharacterCodingException if the sequence of four bytes is malformed and [throwOnMalformed] is true.\n */\nprivate fun codePointFrom4(bytes: ByteArray, byte1: Int, index: Int, endIndex: Int, throwOnMalformed: Boolean): Int {\n   if (index >= endIndex) {\n   malformed(0, index, throwOnMalformed)\n   }\n\n   val byte2 = bytes[index].toInt()\n   if (byte1 and 0xF == 0x0) {\n   if (byte2 and 0xF0 <= 0x80) {\n   // Non-shortest form\n   return malformed(0, index, throwOnMalformed)\n   }\n   } else if (byte1 and 0xF == 0x4) {\n   if (byte2 and 0xF0 != 0x80) {\n   // Out of Unicode code points domain (larger than U+10FFFF)\n   return malformed(0, index, throwOnMalformed)\n   }\n   } else if (byte1 and 0xF > 0x4) {\n   return malformed(0, index, throwOnMalformed)\n   } else if (byte2 and 0xC0 != 0x80) {\n   return malformed(0, index, throwOnMalformed)\n   }\n\n   if (index + 1 == endIndex) {\n   return malformed(1, index, throwOnMalformed)\n   }\n   val byte3 = bytes[index + 1].toInt()\n   if (byte3 and 0xC0 != 0x80) {\n   return malformed(1, index, throwOnMalformed)\n   }\n\n   if (index + 2 == endIndex) {\n   return malformed(2, index, throwOnMalformed)\n   }\n   val byte4 = bytes[index + 2].toInt()\n   if (byte4 and 0xC0 != 0x80) {\n   return malformed(2, index, throwOnMalformed)\n   }\n   return (byte1 shl 18) xor (byte2 shl 12) xor (byte3 shl 6) xor byte4 xor 0x381F80\n}\n\n/**\n * Maximum number of bytes needed to encode a single char.\n *\n * Code points in `0..0x7F` are encoded in a single byte.\n * Code points in `0x80..0x7FF` are encoded in two bytes.\n * Code points in `0x800..0xD7FF` or in `0xE000..0xFFFF` are encoded in three bytes.\n * Surrogate code points in `0xD800..0xDFFF` are not Unicode scalar values, therefore aren't encoded.\n * Code points in `0x10000..0x10FFFF` are represented by a pair of surrogate `Char`s and are encoded in four bytes.\n */\nprivate const val MAX_BYTES_PER_CHAR = 3\n\n/**\n * The byte sequence a malformed UTF-16 char sequence is replaced by.\n */\nprivate val REPLACEMENT_BYTE_SEQUENCE: ByteArray = byteArrayOf(0xEF.toByte(), 0xBF.toByte(), 0xBD.toByte())\n\n/**\n * Encodes the [string] using UTF-8 and returns the resulting [ByteArray].\n *\n * @param string the string to encode.\n * @param startIndex the start offset (inclusive) of the substring to encode.\n * @param endIndex the end offset (exclusive) of the substring to encode.\n * @param throwOnMalformed whether to throw on malformed char sequence or replace by the [REPLACEMENT_BYTE_SEQUENCE].\n *\n * @throws CharacterCodingException if the char sequence is malformed and [throwOnMalformed] is true.\n */\ninternal fun encodeUtf8(string: String, startIndex: Int, endIndex: Int, throwOnMalformed: Boolean): ByteArray {\n   require(startIndex >= 0 && endIndex <= string.length && startIndex <= endIndex)\n\n   val bytes = ByteArray((endIndex - startIndex) * MAX_BYTES_PER_CHAR)\n   var byteIndex = 0\n   var charIndex = startIndex\n\n   while (charIndex < endIndex) {\n   val code = string[charIndex++].code\n   when {\n   code < 0x80 ->\n   bytes[byteIndex++] = code.toByte()\n   code < 0x800 -> {\n   bytes[byteIndex++] = ((code shr 6) or 0xC0).toByte()\n   bytes[byteIndex++] = ((code and 0x3F) or 0x80).toByte()\n   }\n   code < 0xD800 || code >= 0xE000 -> {\n   bytes[byteIndex++] = ((code shr 12) or 0xE0).toByte()\n   bytes[byteIndex++] = (((code shr 6) and 0x3F) or 0x80).toByte()\n   bytes[byteIndex++] = ((code and 0x3F) or 0x80).toByte()\n   }\n   else -> { // Surrogate char value\n   val codePoint = codePointFromSurrogate(string, code, charIndex, endIndex, throwOnMalformed)\n   if (codePoint <= 0) {\n   bytes[byteIndex++] = REPLACEMENT_BYTE_SEQUENCE[0]\n   bytes[byteIndex++] = REPLACEMENT_BYTE_SEQUENCE[1]\n   bytes[byteIndex++] = REPLACEMENT_BYTE_SEQUENCE[2]\n   } else {\n   bytes[byteIndex++] = ((codePoint shr 18) or 0xF0).toByte()\n   bytes[byteIndex++] = (((codePoint shr 12) and 0x3F) or 0x80).toByte()\n   bytes[byteIndex++] = (((codePoint shr 6) and 0x3F) or 0x80).toByte()\n   bytes[byteIndex++] = ((codePoint and 0x3F) or 0x80).toByte()\n   charIndex++\n   }\n   }\n   }\n   }\n\n   return if (bytes.size == byteIndex) bytes else bytes.copyOf(byteIndex)\n}\n\n/**\n * The character a malformed UTF-8 byte sequence is replaced by.\n */\nprivate const val REPLACEMENT_CHAR = '\\uFFFD'\n\n/**\n * Decodes the UTF-8 [bytes] array and returns the resulting [String].\n *\n * @param bytes the byte array to decode.\n * @param startIndex the start offset (inclusive) of the array to be decoded.\n * @param endIndex the end offset (exclusive) of the array to be encoded.\n * @param throwOnMalformed whether to throw on malformed byte sequence or replace by the [REPLACEMENT_CHAR].\n *\n * @throws CharacterCodingException if the array is malformed UTF-8 byte sequence and [throwOnMalformed] is true.\n */\ninternal fun decodeUtf8(bytes: ByteArray, startIndex: Int, endIndex: Int, throwOnMalformed: Boolean): String {\n   require(startIndex >= 0 && endIndex <= bytes.size && startIndex <= endIndex)\n\n   var byteIndex = startIndex\n   val stringBuilder = StringBuilder()\n\n   while (byteIndex < endIndex) {\n   val byte = bytes[byteIndex++].toInt()\n   when {\n   byte >= 0 ->\n   stringBuilder.append(byte.toChar())\n   byte shr 5 == -2 -> {\n   val code = codePointFrom2(bytes, byte, byteIndex, endIndex, throwOnMalformed)\n   if (code <= 0) {\n   stringBuilder.append(REPLACEMENT_CHAR)\n   byteIndex += -code\n   } else {\n   stringBuilder.append(code.toChar())\n   byteIndex += 1\n   }\n   }\n   byte shr 4 == -2 -> {\n   val code = codePointFrom3(bytes, byte, byteIndex, endIndex, throwOnMalformed)\n   if (code <= 0) {\n   stringBuilder.append(REPLACEMENT_CHAR)\n   byteIndex += -code\n   } else {\n   stringBuilder.append(code.toChar())\n   byteIndex += 2\n   }\n   }\n   byte shr 3 == -2 -> {\n   val code = codePointFrom4(bytes, byte, byteIndex, endIndex, throwOnMalformed)\n   if (code <= 0) {\n   stringBuilder.append(REPLACEMENT_CHAR)\n   byteIndex += -code\n   } else {\n   val high = (code - 0x10000) shr 10 or 0xD800\n   val low = (code and 0x3FF) or 0xDC00\n   stringBuilder.append(high.toChar())\n   stringBuilder.append(low.toChar())\n   byteIndex += 3\n   }\n   }\n   else -> {\n   malformed(0, byteIndex, throwOnMalformed)\n   stringBuilder.append(REPLACEMENT_CHAR)\n   }\n   }\n   }\n\n   return stringBuilder.toString()\n}","/*\n * Copyright 2010-2020 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin\n\n/**\n * Returns the detailed description of this throwable with its stack trace.\n *\n * The detailed description includes:\n * - the short description (see [Throwable.toString]) of this throwable;\n * - the complete stack trace;\n * - detailed descriptions of the exceptions that were [suppressed][suppressedExceptions] in order to deliver this exception;\n * - the detailed description of each throwable in the [Throwable.cause] chain.\n */\n@SinceKotlin(\"1.4\")\npublic actual fun Throwable.stackTraceToString(): String = ExceptionTraceBuilder().buildFor(this)\n\n/**\n * Prints the [detailed description][Throwable.stackTraceToString] of this throwable to console error output.\n */\n@SinceKotlin(\"1.4\")\npublic actual fun Throwable.printStackTrace() {\n console.error(this.stackTraceToString())\n}\n\n/**\n * Adds the specified exception to the list of exceptions that were\n * suppressed in order to deliver this exception.\n */\n@SinceKotlin(\"1.4\")\npublic actual fun Throwable.addSuppressed(exception: Throwable) {\n if (this !== exception) {\n val suppressed = this.asDynamic()._suppressed.unsafeCast<MutableList<Throwable>?>()\n if (suppressed == null) {\n this.asDynamic()._suppressed = mutableListOf(exception)\n } else {\n suppressed.add(exception)\n }\n }\n}\n\n/**\n * Returns a list of all exceptions that were suppressed in order to deliver this exception.\n */\n@SinceKotlin(\"1.4\")\npublic actual val Throwable.suppressedExceptions: List<Throwable>\n get() {\n return this.asDynamic()._suppressed?.unsafeCast<List<Throwable>>() ?: emptyList()\n }\n\n\nprivate class ExceptionTraceBuilder {\n private val target = StringBuilder()\n private val visited = arrayOf<Throwable>()\n private var topStack: String = \"\"\n private var topStackStart: Int = 0\n\n fun buildFor(exception: Throwable): String {\n exception.dumpFullTrace(\"\", \"\")\n return target.toString()\n }\n\n private fun hasSeen(exception: Throwable): Boolean = visited.any { it === exception }\n\n private fun Throwable.dumpFullTrace(indent: String, qualifier: String) {\n this.dumpSelfTrace(indent, qualifier) || return\n\n var cause = this.cause\n while (cause != null) {\n cause.dumpSelfTrace(indent, \"Caused by: \") || return\n cause = cause.cause\n }\n }\n\n private fun Throwable.dumpSelfTrace(indent: String, qualifier: String): Boolean {\n target.append(indent).append(qualifier)\n val shortInfo = this.toString()\n if (hasSeen(this)) {\n target.append(\"[CIRCULAR REFERENCE, SEE ABOVE: \").append(shortInfo).append(\"]\\n\")\n return false\n }\n visited.asDynamic().push(this)\n\n var stack = this.asDynamic().stack as String?\n if (stack != null) {\n val stackStart = stack.indexOf(shortInfo).let { if (it < 0) 0 else it + shortInfo.length }\n if (stackStart == 0) target.append(shortInfo).append(\"\\n\")\n if (topStack.isEmpty()) {\n topStack = stack\n topStackStart = stackStart\n } else {\n stack = dropCommonFrames(stack, stackStart)\n }\n if (indent.isNotEmpty()) {\n // indent stack, but avoid indenting exception message lines\n val messageLines = if (stackStart == 0) 0 else 1 + shortInfo.count { c -> c == '\\n' }\n stack.lineSequence().forEachIndexed { index: Int, line: String ->\n if (index >= messageLines) target.append(indent)\n target.append(line).append(\"\\n\")\n }\n } else {\n target.append(stack).append(\"\\n\")\n }\n } else {\n target.append(shortInfo).append(\"\\n\")\n }\n\n val suppressed = suppressedExceptions\n if (suppressed.isNotEmpty()) {\n val suppressedIndent = indent + \" \"\n for (s in suppressed) {\n s.dumpFullTrace(suppressedIndent, \"Suppressed: \")\n }\n }\n return true\n }\n\n private fun dropCommonFrames(stack: String, stackStart: Int): String {\n var commonFrames: Int = 0\n var lastBreak: Int = 0\n var preLastBreak: Int = 0\n for (pos in 0 until minOf(topStack.length - topStackStart, stack.length - stackStart)) {\n val c = stack[stack.lastIndex - pos]\n if (c != topStack[topStack.lastIndex - pos]) break\n if (c == '\\n') {\n commonFrames += 1\n preLastBreak = lastBreak\n lastBreak = pos\n }\n }\n if (commonFrames <= 1) return stack\n while (preLastBreak > 0 && stack[stack.lastIndex - (preLastBreak - 1)] == ' ')\n preLastBreak -= 1\n\n // leave 1 common frame to ease matching with the top exception stack\n return stack.dropLast(preLastBreak) + \"... and ${commonFrames - 1} more common stack frames skipped\"\n }\n}","/*\n * Copyright 2010-2021 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin.time\n\nimport kotlin.js.json\nimport kotlin.math.*\n\ninternal actual inline val

durationAssertionsEnabled: Boolean get() = true\n\ninternal actual fun formatToExactDecimals(value: Double, decimals: Int): String {\n   val rounded = if (decimals == 0) {\n   value\n   } else {\n   val pow = 10.0.pow(decimals)\n   JsMath.round(abs(value) * pow) / pow * sign(value)\n   }\n   return if (abs(rounded) < 1e21) {\n   // toFixed switches to scientific format after 1e21\n   rounded.asDynamic().toFixed(decimals).unsafeCast<String>()\n   } else {\n   // toPrecision outputs the specified number of digits, but only for positive numbers\n   val positive = abs(rounded)\n   val positiveString = positive.asDynamic().toPrecision(ceil(log10(positive)) + decimals).unsafeCast<String>()\n   if (rounded < 0) \"-$positiveString\" else positiveString\n   }\n}\n\ninternal actual fun formatUpToDecimals(value: Double, decimals: Int): String {\n   return value.asDynamic().toLocaleString(\"en-us\", json(\"maximumFractionDigits\" to decimals)).unsafeCast<String>()\n}\n","/*\n * Copyright 2010-2021 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin.time\n\n\n@SinceKotlin(\"1.6\")\n@WasExperimental(ExperimentalTime::class)\npublic actual enum class DurationUnit(internal val scale: Double) {\n   /**\n   * Time unit representing one nanosecond, which is 1/1000 of a microsecond.\n   */\n   NANOSECONDS(1e0),\n   /**\n   * Time unit representing one microsecond, which is 1/1000 of a millisecond.\n   */\n   MICROSECONDS(1e3),\n   /**\n   * Time unit representing one millisecond, which is 1/1000 of a second.\n   */\n   MILLISECONDS(1e6),\n   /**\n   * Time unit representing one second.\n   */\n   SECONDS(1e9),\n   /**\n   * Time unit representing one minute.\n   */\n   MINUTES(60e9),\n   /**\n   * Time unit representing one hour.\n   */\n   HOURS(3600e9),\n   /**\n   * Time unit representing one day, which is always equal to 24 hours.\n   */\n   DAYS(86400e9);\n}\n\n@SinceKotlin(\"1.3\")\ninternal actual fun convertDurationUnit(value: Double, sourceUnit: DurationUnit, targetUnit: DurationUnit): Double {\n   val sourceCompareTarget = sourceUnit.scale.compareTo(targetUnit.scale)\n   return when {\n   sourceCompareTarget > 0 -> value * (sourceUnit.scale / targetUnit.scale)\n   sourceCompareTarget < 0 -> value / (targetUnit.scale / sourceUnit.scale)\n   else -> value\n   }\n}\n\n@SinceKotlin(\"1.5\")\ninternal actual fun convertDurationUnitOverflow(value: Long, sourceUnit: DurationUnit, targetUnit: DurationUnit): Long {\n   val sourceCompareTarget = sourceUnit.scale.compareTo(targetUnit.scale)\n   return when {\n   sourceCompareTarget > 0 -> value * (sourceUnit.scale / targetUnit.scale).toLong()\n   sourceCompareTarget < 0 -> value / (targetUnit.scale / sourceUnit.scale).toLong()\n   else -> value\n   }\n}\n\n@SinceKotlin(\"1.5\")\ninternal actual fun convertDurationUnit(value: Long, sourceUnit: DurationUnit, targetUnit: DurationUnit): Long {\n   val sourceCompareTarget = sourceUnit.scale.compareTo(targetUnit.scale)\n   return when {\n   sourceCompareTarget > 0 -> {\n   val scale = (sourceUnit.scale / targetUnit.scale).toLong()\n   val result = value * scale\n   when {\n   result / scale == value -> result\n   value > 0 -> Long.MAX_VALUE\n   else -> Long.MIN_VALUE\n   }\n   }\n   sourceCompareTarget < 0 -> value / (targetUnit.scale / sourceUnit.scale).toLong()\n   else -> value\n   }\n}\n\n\n","/*\n * Copyright 2010-2022 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin.time\n\nimport org.w3c.performance.GlobalPerformance\nimport org.w3c.performance.Performance\nimport kotlin.math.truncate\nimport kotlin.time.Duration.Companion.milliseconds\nimport kotlin.time.TimeSource.Monotonic.ValueTimeMark\n\n@Suppress(\"ACTUAL_WITHOUT_EXPECT\") // visibility\ninternal actual typealias ValueTimeMarkReading = Any\n\n@ExperimentalTime\ninternal interface DefaultTimeSource : TimeSource {\n   override fun markNow(): ValueTimeMark\n   fun elapsedFrom(timeMark: ValueTimeMark): Duration\n   fun adjustReading(timeMark: ValueTimeMark, duration: Duration): ValueTimeMark\n}\n\n@SinceKotlin(\"1.3\")\n@ExperimentalTime\ninternal actual object MonotonicTimeSource : DefaultTimeSource, TimeSource { // TODO: interface should not be required here\n\n   private val actualSource: DefaultTimeSource = run {\n   val isNode: Boolean = js(\"typeof process !== 'undefined' && process.versions && !!process.versions.node\")\n\n   if (isNode)\n   HrTimeSource(js(\"process\").unsafeCast<Process>())\n   else\n   js(\"typeof self !== 'undefined' ? self : globalThis\")\n

.unsafeCast<GlobalPerformance?>()\n   ?.performance\n   ?.let(::PerformanceTimeSource)\n ?: DateNowTimeSource\n   }\n\n   actual override fun markNow(): ValueTimeMark = actualSource.markNow()\n actual override fun elapsedFrom(timeMark: ValueTimeMark): Duration = actualSource.elapsedFrom(timeMark)\n actual override fun adjustReading(timeMark: ValueTimeMark, duration: Duration): ValueTimeMark =\n actualSource.adjustReading(timeMark, duration)\n}\n\ninternal external interface Process {\n   fun hrtime(time: Array<Double> = definedExternally): Array<Double>\n}\n\n@SinceKotlin(\"1.3\")\n@ExperimentalTime\ninternal class HrTimeSource(private val process: Process) : DefaultTimeSource {\n\n   override fun markNow(): ValueTimeMark = ValueTimeMark(process.hrtime())\n   override fun elapsedFrom(timeMark: ValueTimeMark): Duration =\n   @Suppress(\"UNCHECKED_CAST\")\n   process.hrtime(timeMark.reading as Array<Double>)\n   .let { (seconds, nanos) -> seconds.toDuration(DurationUnit.SECONDS) + nanos.toDuration(DurationUnit.NANOSECONDS) }\n\n   override fun adjustReading(timeMark: ValueTimeMark, duration: Duration): ValueTimeMark =\n   @Suppress(\"UNCHECKED_CAST\")\n   (timeMark.reading as Array<Double>).let { (seconds, nanos) ->\n   duration.toComponents { _, addNanos ->\n arrayOf<Double>(sumCheckNaN(seconds + truncate(duration.toDouble(DurationUnit.SECONDS))), nanos + addNanos)\n   }\n   }.let(TimeSource.Monotonic::ValueTimeMark)\n\n\n   override fun toString(): String = \"TimeSource(process.hrtime())\"\n}\n\n@SinceKotlin(\"1.3\")\n@ExperimentalTime\ninternal class PerformanceTimeSource(val performance: Performance) :\n   DefaultTimeSource { // AbstractDoubleTimeSource(unit = DurationUnit.MILLISECONDS) {\n   private fun read(): Double = performance.now()\n\n   override fun markNow(): ValueTimeMark = ValueTimeMark(read())\n   override fun elapsedFrom(timeMark: ValueTimeMark): Duration = (read() - timeMark.reading as Double).milliseconds\n override fun adjustReading(timeMark: ValueTimeMark, duration: Duration): ValueTimeMark =\n ValueTimeMark(sumCheckNaN(timeMark.reading as Double + duration.toDouble(DurationUnit.MILLISECONDS)))\n\n   override fun toString(): String = \"TimeSource(self.performance.now())\"\n}\n\n@SinceKotlin(\"1.3\")\n@ExperimentalTime\ninternal object DateNowTimeSource : DefaultTimeSource {\n   private fun read(): Double = kotlin.js.Date.now()\n\n   override fun markNow(): ValueTimeMark = ValueTimeMark(read())\n   override fun elapsedFrom(timeMark: ValueTimeMark): Duration = (read() - timeMark.reading as Double).milliseconds\n   override fun adjustReading(timeMark: ValueTimeMark, duration: Duration): ValueTimeMark =\n ValueTimeMark(sumCheckNaN(timeMark.reading as Double + duration.toDouble(DurationUnit.MILLISECONDS)))\n\n   override fun toString(): String = \"TimeSource(Date.now())\"\n}\n\nprivate fun sumCheckNaN(value: Double): Double = value.also { if (it.isNaN()) throw IllegalArgumentException(\"Summing infinities of different signs\") }","/*\n * Copyright 2010-2020 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlinx.dom\n\nimport org.w3c.dom.*\nimport kotlin.contracts.*\n\n/**\n * Creates a new element with the specified [name].\n *\n * The element is initialized with the specified [init] function.\n */\n@SinceKotlin(\"1.4\")\npublic fun Document.createElement(name: String, init: Element.() -> Unit): Element {\n   contract { callsInPlace(init, InvocationKind.EXACTLY_ONCE) }\n   return createElement(name).apply(init)\n}\n\n/**\n * Appends a newly created element with the specified [name] to this element.\n *\n * The element is initialized with the specified [init] function.\n */\n@SinceKotlin(\"1.4\")\npublic fun Element.appendElement(name: String, init: Element.() -> Unit): Element {\n   contract { callsInPlace(init, InvocationKind.EXACTLY_ONCE) }\n   return ownerDocument!!.createElement(name, init).also { appendChild(it) }\n}\n\n","/*\n * Copyright 2010-2018 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlinx.dom\n\nimport org.w3c.dom.*\n\n/** Returns true if the element has the given CSS class style in its 'class' attribute */\n@SinceKotlin(\"1.4\")\nfun Element.hasClass(cssClass: String): Boolean = className.matches(\"\"\"(^|.*\\s+)$cssClass($|\\s+.*)\"\"\".toRegex())\n\n/**\n * Adds CSS class to element. Has no effect if all specified classes are already in class attribute of the element\n *\n * @return true if at least one class has

been added\n */\n@SinceKotlin(\"1.4\")\nfun Element.addClass(vararg cssClasses: String): Boolean {\n   val missingClasses = cssClasses.filterNot { hasClass(it) }\n   if (missingClasses.isNotEmpty()) {\n   val presentClasses = className.trim()\n   className = buildString {\n   append(presentClasses)\n   if (!presentClasses.isEmpty()) {\n   append(\" \")\n   }\n   missingClasses.joinTo(this, \" \")\n   }\n   return true\n   }\n\n   return false\n}\n\n/**\n * Removes all [cssClasses] from element. Has no effect if all specified classes are missing in class attribute of the element\n *\n * @return true if at least one class has been removed\n */\n@SinceKotlin(\"1.4\")\nfun Element.removeClass(vararg cssClasses: String): Boolean {\n   if (cssClasses.any { hasClass(it) }) {\n   val toBeRemoved = cssClasses.toSet()\n   className = className.trim().split(\"\\\\s+\".toRegex()).filter { it !in toBeRemoved }.joinToString(\" \")\n   return true\n   }\n\n   return false\n}\n","/*\n * Copyright 2010-2018 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\n@file:kotlin.jvm.JvmMultifileClass\n@file:kotlin.jvm.JvmName(\"StringsKt\")\n\npackage kotlin.text\n\n/**\n * Converts the string into a regular expression [Regex] with the default options.\n */\n@kotlin.internal.InlineOnly\npublic inline fun String.toRegex(): Regex = Regex(this)\n\n/**\n * Converts the string into a regular expression [Regex] with the specified single [option].\n */\n@kotlin.internal.InlineOnly\npublic inline fun String.toRegex(option: RegexOption): Regex = Regex(this, option)\n\n/**\n * Converts the string into a regular expression [Regex] with the specified set of [options].\n */\n@kotlin.internal.InlineOnly\npublic inline fun String.toRegex(options: Set<RegexOption>): Regex = Regex(this, options)\n","/*\n * Copyright 2010-2018 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlinx.dom\n\nimport org.w3c.dom.*\n\n/**\n * Gets a value indicating whether this node is a TEXT_NODE or a CDATA_SECTION_NODE.\n */\n@SinceKotlin(\"1.4\")\npublic val Node.isText: Boolean\n   get() = nodeType == Node.TEXT_NODE || nodeType == Node.CDATA_SECTION_NODE\n\n/**\n * Gets a value indicating whether this node is an [Element].\n */\n@SinceKotlin(\"1.4\")\npublic val Node.isElement: Boolean\n   get() = nodeType == Node.ELEMENT_NODE\n","/*\n * Copyright 2010-2018 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlinx.dom\n\nimport org.w3c.dom.*\n\n/** Removes all the children from this node. */\n@SinceKotlin(\"1.4\")\npublic fun Node.clear() {\n   while (hasChildNodes()) {\n   removeChild(firstChild!!)\n   }\n}\n\n/**\n * Creates text node and append it to the element.\n *\n * @return this element\n */\n@SinceKotlin(\"1.4\")\nfun Element.appendText(text: String): Element {\n   appendChild(ownerDocument!!.createTextNode(text))\n   return this\n}\n","/*\n * Copyright 2010-2019 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage org.w3c.dom\n\n@Deprecated(\"Use UnionMessagePortOrWindowProxy instead.\", ReplaceWith(\"UnionMessagePortOrWindowProxy\"))\ntypealias UnionMessagePortOrWindow = UnionMessagePortOrWindowProxy\n\n@Deprecated(\"Use `as` instead.\", ReplaceWith(\"`as`\"))\nvar HTMLLinkElement.as_\n   get() = `as`\n   set(value) {\n   `as` = value\n   }\n\n@Deprecated(\"Use `is` instead.\", ReplaceWith(\"`is`\"))\nvar ElementCreationOptions.is_\n   get() = `is`\n   set(value) {\n   `is` = value\n   }","/*\n * Copyright 2010-2021 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\n// NOTE: THIS FILE IS AUTO-GENERATED, DO NOT EDIT!\n// See github.com/kotlin/dukat for details\n\npackage org.khronos.webgl\n\nimport kotlin.js.*\nimport org.w3c.dom.*\nimport org.w3c.dom.events.*\n\npublic external interface WebGLContextAttributes {\n   var alpha: Boolean? /* = true */\n   get() = definedExternally\n   set(value) = definedExternally\n   var depth: Boolean? /* = true */\n   get() = definedExternally\n   set(value) = definedExternally\n   var stencil: Boolean? /* = false */\n   get() = definedExternally\n   set(value) = definedExternally\n   var antialias: Boolean? /* = true */\n   get() = definedExternally\n   set(value) = definedExternally\n   var premultipliedAlpha: Boolean? /* = true */\n   get() = definedExternally\n   set(value) = definedExternally\n   var preserveDrawingBuffer:

Boolean? /* = false */\n   get() = definedExternally\n   set(value) = definedExternally\n   var preferLowPowerToHighPerformance: Boolean? /* = false */\n   get() = definedExternally\n   set(value) = definedExternally\n   var failIfMajorPerformanceCaveat: Boolean? /* = false */\n   get() = definedExternally\n   set(value) = definedExternally\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline fun WebGLContextAttributes(alpha: Boolean? = true, depth: Boolean? = true, stencil: Boolean? = false, antialias: Boolean? = true, premultipliedAlpha: Boolean? = true, preserveDrawingBuffer: Boolean? = false, preferLowPowerToHighPerformance: Boolean? = false, failIfMajorPerformanceCaveat: Boolean? = false): WebGLContextAttributes {\n   val o = js(\"({})\")\n   o[\"alpha\"] = alpha\n   o[\"depth\"] = depth\n   o[\"stencil\"] = stencil\n   o[\"antialias\"] = antialias\n   o[\"premultipliedAlpha\"] = premultipliedAlpha\n   o[\"preserveDrawingBuffer\"] = preserveDrawingBuffer\n   o[\"preferLowPowerToHighPerformance\"] = preferLowPowerToHighPerformance\n   o[\"failIfMajorPerformanceCaveat\"] = failIfMajorPerformanceCaveat\n   return o\n}\n\npublic external abstract class WebGLObject\n\n/**\n * Exposes the JavaScript [WebGLBuffer](https://developer.mozilla.org/en/docs/Web/API/WebGLBuffer) to Kotlin\n */\npublic external abstract class WebGLBuffer : WebGLObject\n\n/**\n * Exposes the JavaScript [WebGLFramebuffer](https://developer.mozilla.org/en/docs/Web/API/WebGLFramebuffer) to Kotlin\n */\npublic external abstract class WebGLFramebuffer : WebGLObject\n\n/**\n * Exposes the JavaScript [WebGLProgram](https://developer.mozilla.org/en/docs/Web/API/WebGLProgram) to Kotlin\n */\npublic external abstract class WebGLProgram : WebGLObject\n\n/**\n * Exposes the JavaScript [WebGLRenderbuffer](https://developer.mozilla.org/en/docs/Web/API/WebGLRenderbuffer) to Kotlin\n */\npublic external abstract class WebGLRenderbuffer : WebGLObject\n\n/**\n * Exposes the JavaScript [WebGLShader](https://developer.mozilla.org/en/docs/Web/API/WebGLShader) to Kotlin\n */\npublic external abstract class WebGLShader : WebGLObject\n\n/**\n * Exposes the JavaScript [WebGLTexture](https://developer.mozilla.org/en/docs/Web/API/WebGLTexture) to Kotlin\n */\npublic external abstract class WebGLTexture : WebGLObject\n\n/**\n * Exposes the JavaScript [WebGLUniformLocation](https://developer.mozilla.org/en/docs/Web/API/WebGLUniformLocation) to Kotlin\n */\npublic external abstract class WebGLUniformLocation\n\n/**\n * Exposes the JavaScript [WebGLActiveInfo](https://developer.mozilla.org/en/docs/Web/API/WebGLActiveInfo) to Kotlin\n */\npublic external abstract class WebGLActiveInfo {\n   open val size: Int\n   open val type: Int\n   open val name: String\n}\n\n/**\n * Exposes the JavaScript [WebGLShaderPrecisionFormat](https://developer.mozilla.org/en/docs/Web/API/WebGLShaderPrecisionFormat) to Kotlin\n */\npublic external abstract class WebGLShaderPrecisionFormat {\n   open val rangeMin: Int\n   open val rangeMax: Int\n   open val precision: Int\n}\n\n@Suppress(\"NESTED_CLASS_IN_EXTERNAL_INTERFACE\")\npublic external interface WebGLRenderingContextBase {\n   val canvas: HTMLCanvasElement\n   val drawingBufferWidth: Int\n   val drawingBufferHeight: Int\n   fun getContextAttributes(): WebGLContextAttributes?\n   fun isContextLost(): Boolean\n   fun getSupportedExtensions(): Array<String>?\n   fun getExtension(name: String): dynamic\n   fun activeTexture(texture: Int)\n   fun attachShader(program: WebGLProgram?, shader: WebGLShader?)\n   fun bindAttribLocation(program: WebGLProgram?, index: Int, name: String)\n   fun bindBuffer(target: Int, buffer: WebGLBuffer?)\n   fun bindFramebuffer(target: Int, framebuffer: WebGLFramebuffer?)\n   fun bindRenderbuffer(target: Int, renderbuffer: WebGLRenderbuffer?)\n   fun bindTexture(target: Int, texture: WebGLTexture?)\n   fun blendColor(red: Float, green: Float, blue: Float, alpha: Float)\n   fun blendEquation(mode: Int)\n   fun blendEquationSeparate(modeRGB: Int, modeAlpha: Int)\n   fun blendFunc(sfactor: Int, dfactor: Int)\n   fun blendFuncSeparate(srcRGB: Int, dstRGB: Int, srcAlpha: Int, dstAlpha: Int)\n   fun bufferData(target: Int, size: Int, usage: Int)\n   fun bufferData(target: Int, data: BufferDataSource?, usage: Int)\n   fun bufferSubData(target: Int, offset: Int, data: BufferDataSource?)\n   fun checkFramebufferStatus(target: Int): Int\n   fun clear(mask: Int)\n   fun clearColor(red: Float, green: Float, blue: Float, alpha: Float)\n   fun clearDepth(depth: Float)\n   fun clearStencil(s: Int)\n   fun colorMask(red: Boolean, green: Boolean, blue: Boolean, alpha: Boolean)\n   fun compileShader(shader: WebGLShader?)\n   fun compressedTexImage2D(target: Int, level: Int, internalformat: Int, width: Int, height: Int, border: Int, data: ArrayBufferView)\n   fun compressedTexSubImage2D(target: Int, level: Int, xoffset: Int, yoffset: Int, width: Int, height: Int, format: Int, data: ArrayBufferView)\n   fun copyTexImage2D(target: Int, level: Int, internalformat: Int, x: Int, y: Int, width: Int, height: Int, border: Int)\n   fun copyTexSubImage2D(target: Int, level: Int, xoffset: Int, yoffset: Int, x: Int, y: Int, width: Int, height: Int)\n   fun createBuffer(): WebGLBuffer?\n   fun createFramebuffer(): WebGLFramebuffer?\n   fun createProgram(): WebGLProgram?\n   fun createRenderbuffer(): WebGLRenderbuffer?\n   fun createShader(type: Int): WebGLShader?\n   fun createTexture(): WebGLTexture?\n   fun cullFace(mode: Int)\n   fun deleteBuffer(buffer: WebGLBuffer?)\n   fun deleteFramebuffer(framebuffer: WebGLFramebuffer?)\n   fun deleteProgram(program: WebGLProgram?)\n   fun deleteRenderbuffer(renderbuffer: WebGLRenderbuffer?)\n   fun deleteShader(shader: WebGLShader?)\n   fun deleteTexture(texture: WebGLTexture?)\n   fun depthFunc(func: Int)\n   fun depthMask(flag: Boolean)\n   fun depthRange(zNear: Float, zFar: Float)\n   fun detachShader(program: WebGLProgram?, shader: WebGLShader?)\n   fun disable(cap: Int)\n   fun disableVertexAttribArray(index: Int)\n   fun drawArrays(mode: Int, first: Int, count: Int)\n   fun drawElements(mode: Int, count: Int, type: Int, offset: Int)\n   fun enable(cap: Int)\n   fun enableVertexAttribArray(index: Int)\n   fun finish()\n   fun flush()\n   fun framebufferRenderbuffer(target: Int, attachment: Int, renderbuffertarget: Int, renderbuffer: WebGLRenderbuffer?)\n   fun framebufferTexture2D(target: Int, attachment: Int, textarget: Int, texture: WebGLTexture?, level: Int)\n   fun frontFace(mode: Int)\n   fun generateMipmap(target: Int)\n   fun getActiveAttrib(program: WebGLProgram?, index: Int): WebGLActiveInfo?\n   fun getActiveUniform(program: WebGLProgram?, index: Int): WebGLActiveInfo?\n   fun getAttachedShaders(program: WebGLProgram?): Array<WebGLShader>?\n   fun getAttribLocation(program: WebGLProgram?, name: String): Int\n   fun getBufferParameter(target: Int, pname: Int): Any?\n   fun getParameter(pname: Int): Any?\n   fun getError(): Int\n   fun getFramebufferAttachmentParameter(target: Int, attachment: Int, pname: Int): Any?\n   fun getProgramParameter(program: WebGLProgram?, pname: Int): Any?\n   fun getProgramInfoLog(program: WebGLProgram?): String?\n   fun getRenderbufferParameter(target: Int, pname: Int): Any?\n   fun getShaderParameter(shader: WebGLShader?, pname: Int): Any?\n   fun getShaderPrecisionFormat(shadertype: Int, precisiontype: Int): WebGLShaderPrecisionFormat?\n   fun getShaderInfoLog(shader: WebGLShader?): String?\n   fun getShaderSource(shader: WebGLShader?): String?\n   fun getTexParameter(target: Int, pname: Int): Any?\n   fun getUniform(program: WebGLProgram?, location: WebGLUniformLocation?): Any?\n   fun getUniformLocation(program: WebGLProgram?, name: String): WebGLUniformLocation?\n   fun getVertexAttrib(index: Int, pname: Int): Any?\n   fun getVertexAttribOffset(index: Int, pname: Int): Int\n   fun hint(target: Int, mode: Int)\n   fun isBuffer(buffer: WebGLBuffer?): Boolean\n   fun isEnabled(cap: Int): Boolean\n   fun isFramebuffer(framebuffer: WebGLFramebuffer?): Boolean\n   fun isProgram(program: WebGLProgram?): Boolean\n   fun isRenderbuffer(renderbuffer: WebGLRenderbuffer?): Boolean\n   fun isShader(shader: WebGLShader?): Boolean\n   fun isTexture(texture: WebGLTexture?): Boolean\n   fun lineWidth(width: Float)\n   fun linkProgram(program: WebGLProgram?)\n   fun pixelStorei(pname: Int, param: Int)\n   fun polygonOffset(factor: Float, units: Float)\n   fun readPixels(x: Int, y: Int, width: Int, height: Int, format: Int, type: Int, pixels: ArrayBufferView?)\n   fun renderbufferStorage(target: Int, internalformat: Int, width: Int, height: Int)\n   fun sampleCoverage(value: Float, invert: Boolean)\n   fun scissor(x: Int, y: Int, width: Int, height: Int)\n   fun shaderSource(shader: WebGLShader?, source: String)\n   fun stencilFunc(func: Int, ref: Int, mask: Int)\n   fun stencilFuncSeparate(face: Int, func: Int, ref: Int, mask: Int)\n   fun stencilMask(mask: Int)\n   fun stencilMaskSeparate(face: Int, mask: Int)\n   fun stencilOp(fail: Int, zfail: Int, zpass: Int)\n   fun stencilOpSeparate(face: Int, fail: Int, zfail: Int, zpass: Int)\n   fun texImage2D(target: Int, level: Int, internalformat: Int, width: Int, height: Int, border: Int, format: Int, type: Int, pixels: ArrayBufferView?)\n   fun texImage2D(target: Int, level: Int, internalformat: Int, format: Int, type: Int, source: TexImageSource?)\n   fun texParameterf(target: Int, pname: Int, param: Float)\n   fun texParameteri(target: Int, pname: Int, param: Int)\n   fun texSubImage2D(target: Int, level: Int, xoffset: Int, yoffset: Int, width: Int, height: Int, format: Int, type: Int, pixels: ArrayBufferView?)\n   fun texSubImage2D(target: Int, level: Int, xoffset: Int, yoffset:

Int, format: Int, type: Int, source: TexImageSource?)\n   fun uniform1f(location: WebGLUniformLocation?, x: Float)\n   fun uniform1fv(location: WebGLUniformLocation?, v: Float32Array)\n   fun uniform1fv(location: WebGLUniformLocation?, v: Array<Float>)\n   fun uniform1i(location: WebGLUniformLocation?, x: Int)\n   fun uniform1iv(location: WebGLUniformLocation?, v: Int32Array)\n   fun uniform1iv(location: WebGLUniformLocation?, v: Array<Int>)\n   fun uniform2f(location: WebGLUniformLocation?, x: Float, y: Float)\n   fun uniform2fv(location: WebGLUniformLocation?, v: Float32Array)\n   fun uniform2fv(location: WebGLUniformLocation?, v: Array<Float>)\n   fun uniform2i(location: WebGLUniformLocation?, x: Int, y: Int)\n   fun uniform2iv(location: WebGLUniformLocation?, v: Int32Array)\n   fun uniform2iv(location: WebGLUniformLocation?, v: Array<Int>)\n   fun uniform3f(location: WebGLUniformLocation?, x: Float, y: Float, z: Float)\n   fun uniform3fv(location: WebGLUniformLocation?, v: Float32Array)\n   fun uniform3fv(location: WebGLUniformLocation?, v: Array<Float>)\n   fun uniform3i(location: WebGLUniformLocation?, x: Int, y: Int, z: Int)\n   fun uniform3iv(location: WebGLUniformLocation?, v: Int32Array)\n   fun uniform3iv(location: WebGLUniformLocation?, v: Array<Int>)\n   fun uniform4f(location: WebGLUniformLocation?, x: Float, y: Float, z: Float, w: Float)\n   fun uniform4fv(location: WebGLUniformLocation?, v: Float32Array)\n   fun uniform4fv(location: WebGLUniformLocation?, v: Array<Float>)\n   fun uniform4i(location: WebGLUniformLocation?, x: Int, y: Int, z: Int, w: Int)\n   fun uniform4iv(location: WebGLUniformLocation?, v: Int32Array)\n   fun uniform4iv(location: WebGLUniformLocation?, v: Array<Int>)\n   fun uniformMatrix2fv(location: WebGLUniformLocation?, transpose: Boolean, value: Float32Array)\n   fun uniformMatrix2fv(location: WebGLUniformLocation?, transpose: Boolean, value: Array<Float>)\n   fun uniformMatrix3fv(location: WebGLUniformLocation?, transpose: Boolean, value: Float32Array)\n   fun uniformMatrix3fv(location: WebGLUniformLocation?, transpose: Boolean, value: Array<Float>)\n   fun uniformMatrix4fv(location: WebGLUniformLocation?, transpose: Boolean, value: Float32Array)\n   fun uniformMatrix4fv(location: WebGLUniformLocation?, transpose: Boolean, value: Array<Float>)\n   fun useProgram(program: WebGLProgram?)\n   fun validateProgram(program: WebGLProgram?)\n   fun vertexAttrib1f(index: Int, x: Float)\n   fun vertexAttrib1fv(index: Int, values: dynamic)\n   fun vertexAttrib2f(index: Int, x: Float, y: Float)\n   fun vertexAttrib2fv(index: Int, values: dynamic)\n   fun vertexAttrib3f(index: Int, x: Float, y: Float, z: Float)\n   fun vertexAttrib3fv(index: Int, values: dynamic)\n   fun vertexAttrib4f(index: Int, x: Float, y: Float, z: Float, w: Float)\n   fun vertexAttrib4fv(index: Int, values: dynamic)\n   fun vertexAttribPointer(index: Int, size: Int, type: Int, normalized: Boolean, stride: Int, offset: Int)\n   fun viewport(x: Int, y: Int, width: Int, height: Int)\n\n   companion object {\n   val DEPTH_BUFFER_BIT: Int\n   val STENCIL_BUFFER_BIT: Int\n   val COLOR_BUFFER_BIT: Int\n   val POINTS: Int\n   val LINES: Int\n   val LINE_LOOP: Int\n   val LINE_STRIP: Int\n   val TRIANGLES: Int\n   val TRIANGLE_STRIP: Int\n   val TRIANGLE_FAN: Int\n   val ZERO: Int\n   val ONE: Int\n   val SRC_COLOR: Int\n   val ONE_MINUS_SRC_COLOR: Int\n   val SRC_ALPHA: Int\n   val ONE_MINUS_SRC_ALPHA: Int\n   val DST_ALPHA: Int\n   val ONE_MINUS_DST_ALPHA: Int\n   val DST_COLOR: Int\n   val ONE_MINUS_DST_COLOR: Int\n   val SRC_ALPHA_SATURATE: Int\n   val FUNC_ADD: Int\n   val BLEND_EQUATION: Int\n   val BLEND_EQUATION_RGB: Int\n   val BLEND_EQUATION_ALPHA: Int\n   val FUNC_SUBTRACT: Int\n   val FUNC_REVERSE_SUBTRACT: Int\n   val BLEND_DST_RGB: Int\n   val BLEND_SRC_RGB: Int\n   val BLEND_DST_ALPHA: Int\n   val BLEND_SRC_ALPHA: Int\n   val CONSTANT_COLOR: Int\n   val ONE_MINUS_CONSTANT_COLOR: Int\n   val CONSTANT_ALPHA: Int\n   val ONE_MINUS_CONSTANT_ALPHA: Int\n   val BLEND_COLOR: Int\n   val ARRAY_BUFFER: Int\n   val ELEMENT_ARRAY_BUFFER: Int\n   val ARRAY_BUFFER_BINDING: Int\n   val ELEMENT_ARRAY_BUFFER_BINDING: Int\n   val STREAM_DRAW: Int\n   val STATIC_DRAW: Int\n   val DYNAMIC_DRAW: Int\n   val BUFFER_SIZE: Int\n   val BUFFER_USAGE: Int\n   val CURRENT_VERTEX_ATTRIB: Int\n   val FRONT: Int\n   val BACK: Int\n   val FRONT_AND_BACK: Int\n   val CULL_FACE: Int\n   val BLEND: Int\n   val DITHER: Int\n   val STENCIL_TEST: Int\n   val DEPTH_TEST: Int\n   val SCISSOR_TEST: Int\n   val POLYGON_OFFSET_FILL: Int\n   val

SAMPLE_ALPHA_TO_COVERAGE: Int\n val SAMPLE_COVERAGE: Int\n val NO_ERROR: Int\n val INVALID_ENUM: Int\n val INVALID_VALUE: Int\n val INVALID_OPERATION: Int\n val OUT_OF_MEMORY: Int\n val CW: Int\n val CCW: Int\n val LINE_WIDTH: Int\n val ALIASED_POINT_SIZE_RANGE: Int\n val ALIASED_LINE_WIDTH_RANGE: Int\n val CULL_FACE_MODE: Int\n val FRONT_FACE: Int\n val DEPTH_RANGE: Int\n val DEPTH_WRITEMASK: Int\n val DEPTH_CLEAR_VALUE: Int\n val DEPTH_FUNC: Int\n val STENCIL_CLEAR_VALUE: Int\n val STENCIL_FUNC: Int\n val STENCIL_FAIL: Int\n val STENCIL_PASS_DEPTH_FAIL: Int\n val STENCIL_PASS_DEPTH_PASS: Int\n val STENCIL_REF: Int\n val STENCIL_VALUE_MASK: Int\n val STENCIL_WRITEMASK: Int\n val STENCIL_BACK_FUNC: Int\n val STENCIL_BACK_FAIL: Int\n val STENCIL_BACK_PASS_DEPTH_FAIL: Int\n val STENCIL_BACK_PASS_DEPTH_PASS: Int\n val STENCIL_BACK_REF: Int\n val STENCIL_BACK_VALUE_MASK: Int\n val STENCIL_BACK_WRITEMASK: Int\n val VIEWPORT: Int\n val SCISSOR_BOX: Int\n val COLOR_CLEAR_VALUE: Int\n val COLOR_WRITEMASK: Int\n val UNPACK_ALIGNMENT: Int\n val PACK_ALIGNMENT: Int\n val MAX_TEXTURE_SIZE: Int\n val MAX_VIEWPORT_DIMS: Int\n val SUBPIXEL_BITS: Int\n val RED_BITS: Int\n val GREEN_BITS: Int\n val BLUE_BITS: Int\n val ALPHA_BITS: Int\n val DEPTH_BITS: Int\n val STENCIL_BITS: Int\n val POLYGON_OFFSET_UNITS: Int\n val POLYGON_OFFSET_FACTOR: Int\n val TEXTURE_BINDING_2D: Int\n val SAMPLE_BUFFERS: Int\n val SAMPLES: Int\n val SAMPLE_COVERAGE_VALUE: Int\n val SAMPLE_COVERAGE_INVERT: Int\n val COMPRESSED_TEXTURE_FORMATS: Int\n val DONT_CARE: Int\n val FASTEST: Int\n val NICEST: Int\n val GENERATE_MIPMAP_HINT: Int\n val BYTE: Int\n val UNSIGNED_BYTE: Int\n val SHORT: Int\n val UNSIGNED_SHORT: Int\n val INT: Int\n val UNSIGNED_INT: Int\n val FLOAT: Int\n val DEPTH_COMPONENT: Int\n val ALPHA: Int\n val RGB: Int\n val RGBA: Int\n val LUMINANCE: Int\n val LUMINANCE_ALPHA: Int\n val UNSIGNED_SHORT_4_4_4_4: Int\n val UNSIGNED_SHORT_5_5_5_1: Int\n val UNSIGNED_SHORT_5_6_5: Int\n val FRAGMENT_SHADER: Int\n val VERTEX_SHADER: Int\n val MAX_VERTEX_ATTRIBS: Int\n val MAX_VERTEX_UNIFORM_VECTORS: Int\n val MAX_VARYING_VECTORS: Int\n val MAX_COMBINED_TEXTURE_IMAGE_UNITS: Int\n val MAX_VERTEX_TEXTURE_IMAGE_UNITS: Int\n val MAX_TEXTURE_IMAGE_UNITS: Int\n val MAX_FRAGMENT_UNIFORM_VECTORS: Int\n val SHADER_TYPE: Int\n val DELETE_STATUS: Int\n val LINK_STATUS: Int\n val VALIDATE_STATUS: Int\n val ATTACHED_SHADERS: Int\n val ACTIVE_UNIFORMS: Int\n val ACTIVE_ATTRIBUTES: Int\n val SHADING_LANGUAGE_VERSION: Int\n val CURRENT_PROGRAM: Int\n val NEVER: Int\n val LESS: Int\n val EQUAL: Int\n val LEQUAL: Int\n val GREATER: Int\n val NOTEQUAL: Int\n val GEQUAL: Int\n val ALWAYS: Int\n val KEEP: Int\n val REPLACE: Int\n val INCR: Int\n val DECR: Int\n val INVERT: Int\n val INCR_WRAP: Int\n val DECR_WRAP: Int\n val VENDOR: Int\n val RENDERER: Int\n val VERSION: Int\n val NEAREST: Int\n val LINEAR: Int\n val NEAREST_MIPMAP_NEAREST: Int\n val LINEAR_MIPMAP_NEAREST: Int\n val NEAREST_MIPMAP_LINEAR: Int\n val LINEAR_MIPMAP_LINEAR: Int\n val TEXTURE_MAG_FILTER: Int\n val TEXTURE_MIN_FILTER: Int\n val TEXTURE_WRAP_S: Int\n val TEXTURE_WRAP_T: Int\n val TEXTURE_2D: Int\n val TEXTURE: Int\n val TEXTURE_CUBE_MAP: Int\n val TEXTURE_BINDING_CUBE_MAP: Int\n val TEXTURE_CUBE_MAP_POSITIVE_X: Int\n val TEXTURE_CUBE_MAP_NEGATIVE_X: Int\n val TEXTURE_CUBE_MAP_POSITIVE_Y: Int\n val TEXTURE_CUBE_MAP_NEGATIVE_Y: Int\n val TEXTURE_CUBE_MAP_POSITIVE_Z: Int\n val TEXTURE_CUBE_MAP_NEGATIVE_Z: Int\n val MAX_CUBE_MAP_TEXTURE_SIZE: Int\n val TEXTURE0: Int\n val TEXTURE1: Int\n val TEXTURE2: Int\n val TEXTURE3: Int\n val TEXTURE4: Int\n val TEXTURE5: Int\n val

TEXTURE6: Int\n val TEXTURE7: Int\n val TEXTURE8: Int\n val TEXTURE9: Int\n val TEXTURE10: Int\n val TEXTURE11: Int\n val TEXTURE12: Int\n val TEXTURE13: Int\n val TEXTURE14: Int\n val TEXTURE15: Int\n val TEXTURE16: Int\n val TEXTURE17: Int\n val TEXTURE18: Int\n val TEXTURE19: Int\n val TEXTURE20: Int\n val TEXTURE21: Int\n val TEXTURE22: Int\n val TEXTURE23: Int\n val TEXTURE24: Int\n val TEXTURE25: Int\n val TEXTURE26: Int\n val TEXTURE27: Int\n val TEXTURE28: Int\n val TEXTURE29: Int\n val TEXTURE30: Int\n val TEXTURE31: Int\n val ACTIVE_TEXTURE: Int\n val REPEAT: Int\n val CLAMP_TO_EDGE: Int\n val MIRRORED_REPEAT: Int\n val FLOAT_VEC2: Int\n val FLOAT_VEC3: Int\n val FLOAT_VEC4: Int\n val INT_VEC2: Int\n val INT_VEC3: Int\n val INT_VEC4: Int\n val BOOL: Int\n val BOOL_VEC2: Int\n val BOOL_VEC3: Int\n val BOOL_VEC4: Int\n val FLOAT_MAT2: Int\n val FLOAT_MAT3: Int\n val FLOAT_MAT4: Int\n val SAMPLER_2D: Int\n val SAMPLER_CUBE: Int\n val VERTEX_ATTRIB_ARRAY_ENABLED: Int\n val VERTEX_ATTRIB_ARRAY_SIZE: Int\n val VERTEX_ATTRIB_ARRAY_STRIDE: Int\n val VERTEX_ATTRIB_ARRAY_TYPE: Int\n val VERTEX_ATTRIB_ARRAY_NORMALIZED: Int\n val VERTEX_ATTRIB_ARRAY_POINTER: Int\n val VERTEX_ATTRIB_ARRAY_BUFFER_BINDING: Int\n val IMPLEMENTATION_COLOR_READ_TYPE: Int\n val IMPLEMENTATION_COLOR_READ_FORMAT: Int\n val COMPILE_STATUS: Int\n val LOW_FLOAT: Int\n val MEDIUM_FLOAT: Int\n val HIGH_FLOAT: Int\n val LOW_INT: Int\n val MEDIUM_INT: Int\n val HIGH_INT: Int\n val FRAMEBUFFER: Int\n val RENDERBUFFER: Int\n val RGBA4: Int\n val RGB5_A1: Int\n val RGB565: Int\n val DEPTH_COMPONENT16: Int\n val STENCIL_INDEX: Int\n val STENCIL_INDEX8: Int\n val DEPTH_STENCIL: Int\n val RENDERBUFFER_WIDTH: Int\n val RENDERBUFFER_HEIGHT: Int\n val RENDERBUFFER_INTERNAL_FORMAT: Int\n val RENDERBUFFER_RED_SIZE: Int\n val RENDERBUFFER_GREEN_SIZE: Int\n val RENDERBUFFER_BLUE_SIZE: Int\n val RENDERBUFFER_ALPHA_SIZE: Int\n val RENDERBUFFER_DEPTH_SIZE: Int\n val RENDERBUFFER_STENCIL_SIZE: Int\n val FRAMEBUFFER_ATTACHMENT_OBJECT_TYPE: Int\n val FRAMEBUFFER_ATTACHMENT_OBJECT_NAME: Int\n val FRAMEBUFFER_ATTACHMENT_TEXTURE_LEVEL: Int\n val FRAMEBUFFER_ATTACHMENT_TEXTURE_CUBE_MAP_FACE: Int\n val COLOR_ATTACHMENT0: Int\n val DEPTH_ATTACHMENT: Int\n val STENCIL_ATTACHMENT: Int\n val DEPTH_STENCIL_ATTACHMENT: Int\n val NONE: Int\n val FRAMEBUFFER_COMPLETE: Int\n val FRAMEBUFFER_INCOMPLETE_ATTACHMENT: Int\n val FRAMEBUFFER_INCOMPLETE_MISSING_ATTACHMENT: Int\n val FRAMEBUFFER_INCOMPLETE_DIMENSIONS: Int\n val FRAMEBUFFER_UNSUPPORTED: Int\n val FRAMEBUFFER_BINDING: Int\n val RENDERBUFFER_BINDING: Int\n val MAX_RENDERBUFFER_SIZE: Int\n val INVALID_FRAMEBUFFER_OPERATION: Int\n val UNPACK_FLIP_Y_WEBGL: Int\n val UNPACK_PREMULTIPLY_ALPHA_WEBGL: Int\n val CONTEXT_LOST_WEBGL: Int\n val UNPACK_COLORSPACE_CONVERSION_WEBGL: Int\n val BROWSER_DEFAULT_WEBGL: Int\n }\n}\n\n/**\n * Exposes the JavaScript [WebGLRenderingContext](https://developer.mozilla.org/en/docs/Web/API/WebGLRenderingContext) to Kotlin\n */\npublic external abstract class WebGLRenderingContext : WebGLRenderingContextBase, RenderingContext {\n companion object {\n val DEPTH_BUFFER_BIT: Int\n val STENCIL_BUFFER_BIT: Int\n val COLOR_BUFFER_BIT: Int\n val POINTS: Int\n val LINES: Int\n val LINE_LOOP: Int\n val LINE_STRIP: Int\n val TRIANGLES: Int\n val TRIANGLE_STRIP: Int\n val TRIANGLE_FAN: Int\n val ZERO: Int\n val ONE: Int\n val SRC_COLOR: Int\n val ONE_MINUS_SRC_COLOR: Int\n val SRC_ALPHA: Int\n val ONE_MINUS_SRC_ALPHA: Int\n val DST_ALPHA: Int\n val ONE_MINUS_DST_ALPHA: Int\n val DST_COLOR: Int\n val ONE_MINUS_DST_COLOR: Int\n val SRC_ALPHA_SATURATE: Int\n val FUNC_ADD: Int\n val BLEND_EQUATION: Int\n val

BLEND_EQUATION_RGB: Int\n val BLEND_EQUATION_ALPHA: Int\n val FUNC_SUBTRACT: Int\n val FUNC_REVERSE_SUBTRACT: Int\n val BLEND_DST_RGB: Int\n val BLEND_SRC_RGB: Int\n val BLEND_DST_ALPHA: Int\n val BLEND_SRC_ALPHA: Int\n val CONSTANT_COLOR: Int\n val ONE_MINUS_CONSTANT_COLOR: Int\n val CONSTANT_ALPHA: Int\n val ONE_MINUS_CONSTANT_ALPHA: Int\n val BLEND_COLOR: Int\n val ARRAY_BUFFER: Int\n val ELEMENT_ARRAY_BUFFER: Int\n val ARRAY_BUFFER_BINDING: Int\n val ELEMENT_ARRAY_BUFFER_BINDING: Int\n val STREAM_DRAW: Int\n val STATIC_DRAW: Int\n val DYNAMIC_DRAW: Int\n val BUFFER_SIZE: Int\n val BUFFER_USAGE: Int\n val CURRENT_VERTEX_ATTRIB: Int\n val FRONT: Int\n val BACK: Int\n val FRONT_AND_BACK: Int\n val CULL_FACE: Int\n val BLEND: Int\n val DITHER: Int\n val STENCIL_TEST: Int\n val DEPTH_TEST: Int\n val SCISSOR_TEST: Int\n val POLYGON_OFFSET_FILL: Int\n val SAMPLE_ALPHA_TO_COVERAGE: Int\n val SAMPLE_COVERAGE: Int\n val NO_ERROR: Int\n val INVALID_ENUM: Int\n val INVALID_VALUE: Int\n val INVALID_OPERATION: Int\n val OUT_OF_MEMORY: Int\n val CW: Int\n val CCW: Int\n val LINE_WIDTH: Int\n val ALIASED_POINT_SIZE_RANGE: Int\n val ALIASED_LINE_WIDTH_RANGE: Int\n val CULL_FACE_MODE: Int\n val FRONT_FACE: Int\n val DEPTH_RANGE: Int\n val DEPTH_WRITEMASK: Int\n val DEPTH_CLEAR_VALUE: Int\n val DEPTH_FUNC: Int\n val STENCIL_CLEAR_VALUE: Int\n val STENCIL_FUNC: Int\n val STENCIL_FAIL: Int\n val STENCIL_PASS_DEPTH_FAIL: Int\n val STENCIL_PASS_DEPTH_PASS: Int\n val STENCIL_REF: Int\n val STENCIL_VALUE_MASK: Int\n val STENCIL_WRITEMASK: Int\n val STENCIL_BACK_FUNC: Int\n val STENCIL_BACK_FAIL: Int\n val STENCIL_BACK_PASS_DEPTH_FAIL: Int\n val STENCIL_BACK_PASS_DEPTH_PASS: Int\n val STENCIL_BACK_REF: Int\n val STENCIL_BACK_VALUE_MASK: Int\n val STENCIL_BACK_WRITEMASK: Int\n val VIEWPORT: Int\n val SCISSOR_BOX: Int\n val COLOR_CLEAR_VALUE: Int\n val COLOR_WRITEMASK: Int\n val UNPACK_ALIGNMENT: Int\n val PACK_ALIGNMENT: Int\n val MAX_TEXTURE_SIZE: Int\n val MAX_VIEWPORT_DIMS: Int\n val SUBPIXEL_BITS: Int\n val RED_BITS: Int\n val GREEN_BITS: Int\n val BLUE_BITS: Int\n val ALPHA_BITS: Int\n val DEPTH_BITS: Int\n val STENCIL_BITS: Int\n val POLYGON_OFFSET_UNITS: Int\n val POLYGON_OFFSET_FACTOR: Int\n val TEXTURE_BINDING_2D: Int\n val SAMPLE_BUFFERS: Int\n val SAMPLES: Int\n val SAMPLE_COVERAGE_VALUE: Int\n val SAMPLE_COVERAGE_INVERT: Int\n val COMPRESSED_TEXTURE_FORMATS: Int\n val DONT_CARE: Int\n val FASTEST: Int\n val NICEST: Int\n val GENERATE_MIPMAP_HINT: Int\n val BYTE: Int\n val UNSIGNED_BYTE: Int\n val SHORT: Int\n val UNSIGNED_SHORT: Int\n val INT: Int\n val UNSIGNED_INT: Int\n val FLOAT: Int\n val DEPTH_COMPONENT: Int\n val ALPHA: Int\n val RGB: Int\n val RGBA: Int\n val LUMINANCE: Int\n val LUMINANCE_ALPHA: Int\n val UNSIGNED_SHORT_4_4_4_4: Int\n val UNSIGNED_SHORT_5_5_5_1: Int\n val UNSIGNED_SHORT_5_6_5: Int\n val FRAGMENT_SHADER: Int\n val VERTEX_SHADER: Int\n val MAX_VERTEX_ATTRIBS: Int\n val MAX_VERTEX_UNIFORM_VECTORS: Int\n val MAX_VARYING_VECTORS: Int\n val MAX_COMBINED_TEXTURE_IMAGE_UNITS: Int\n val MAX_VERTEX_TEXTURE_IMAGE_UNITS: Int\n val MAX_TEXTURE_IMAGE_UNITS: Int\n val MAX_FRAGMENT_UNIFORM_VECTORS: Int\n val SHADER_TYPE: Int\n val DELETE_STATUS: Int\n val LINK_STATUS: Int\n val VALIDATE_STATUS: Int\n val ATTACHED_SHADERS: Int\n val ACTIVE_UNIFORMS: Int\n val ACTIVE_ATTRIBUTES: Int\n val SHADING_LANGUAGE_VERSION: Int\n val CURRENT_PROGRAM: Int\n val NEVER: Int\n val LESS: Int\n val EQUAL: Int\n val LEQUAL: Int\n val GREATER: Int\n val NOTEQUAL: Int\n val GEQUAL: Int\n val ALWAYS: Int\n val KEEP: Int\n val REPLACE: Int\n val INCR: Int\n val DECR: Int\n val INVERT: Int\n val INCR_WRAP: Int\n val DECR_WRAP: Int\n val

VENDOR: Int\n   val RENDERER: Int\n   val VERSION: Int\n   val NEAREST: Int\n   val LINEAR: Int\n   val NEAREST_MIPMAP_NEAREST: Int\n   val LINEAR_MIPMAP_NEAREST: Int\n   val NEAREST_MIPMAP_LINEAR: Int\n   val LINEAR_MIPMAP_LINEAR: Int\n   val TEXTURE_MAG_FILTER: Int\n   val TEXTURE_MIN_FILTER: Int\n   val TEXTURE_WRAP_S: Int\n   val TEXTURE_WRAP_T: Int\n   val TEXTURE_2D: Int\n   val TEXTURE: Int\n   val TEXTURE_CUBE_MAP: Int\n   val TEXTURE_BINDING_CUBE_MAP: Int\n   val TEXTURE_CUBE_MAP_POSITIVE_X: Int\n   val TEXTURE_CUBE_MAP_NEGATIVE_X: Int\n   val TEXTURE_CUBE_MAP_POSITIVE_Y: Int\n   val TEXTURE_CUBE_MAP_NEGATIVE_Y: Int\n   val TEXTURE_CUBE_MAP_POSITIVE_Z: Int\n   val TEXTURE_CUBE_MAP_NEGATIVE_Z: Int\n   val MAX_CUBE_MAP_TEXTURE_SIZE: Int\n   val TEXTURE0: Int\n   val TEXTURE1: Int\n   val TEXTURE2: Int\n   val TEXTURE3: Int\n   val TEXTURE4: Int\n   val TEXTURE5: Int\n   val TEXTURE6: Int\n   val TEXTURE7: Int\n   val TEXTURE8: Int\n   val TEXTURE9: Int\n   val TEXTURE10: Int\n   val TEXTURE11: Int\n   val TEXTURE12: Int\n   val TEXTURE13: Int\n   val TEXTURE14: Int\n   val TEXTURE15: Int\n   val TEXTURE16: Int\n   val TEXTURE17: Int\n   val TEXTURE18: Int\n   val TEXTURE19: Int\n   val TEXTURE20: Int\n   val TEXTURE21: Int\n   val TEXTURE22: Int\n   val TEXTURE23: Int\n   val TEXTURE24: Int\n   val TEXTURE25: Int\n   val TEXTURE26: Int\n   val TEXTURE27: Int\n   val TEXTURE28: Int\n   val TEXTURE29: Int\n   val TEXTURE30: Int\n   val TEXTURE31: Int\n   val ACTIVE_TEXTURE: Int\n   val REPEAT: Int\n   val CLAMP_TO_EDGE: Int\n   val MIRRORED_REPEAT: Int\n   val FLOAT_VEC2: Int\n   val FLOAT_VEC3: Int\n   val FLOAT_VEC4: Int\n   val INT_VEC2: Int\n   val INT_VEC3: Int\n   val INT_VEC4: Int\n   val BOOL: Int\n   val BOOL_VEC2: Int\n   val BOOL_VEC3: Int\n   val BOOL_VEC4: Int\n   val FLOAT_MAT2: Int\n   val FLOAT_MAT3: Int\n   val FLOAT_MAT4: Int\n   val SAMPLER_2D: Int\n   val SAMPLER_CUBE: Int\n   val VERTEX_ATTRIB_ARRAY_ENABLED: Int\n   val VERTEX_ATTRIB_ARRAY_SIZE: Int\n   val VERTEX_ATTRIB_ARRAY_STRIDE: Int\n   val VERTEX_ATTRIB_ARRAY_TYPE: Int\n   val VERTEX_ATTRIB_ARRAY_NORMALIZED: Int\n   val VERTEX_ATTRIB_ARRAY_POINTER: Int\n   val VERTEX_ATTRIB_ARRAY_BUFFER_BINDING: Int\n   val IMPLEMENTATION_COLOR_READ_TYPE: Int\n   val IMPLEMENTATION_COLOR_READ_FORMAT: Int\n   val COMPILE_STATUS: Int\n   val LOW_FLOAT: Int\n   val MEDIUM_FLOAT: Int\n   val HIGH_FLOAT: Int\n   val LOW_INT: Int\n   val MEDIUM_INT: Int\n   val HIGH_INT: Int\n   val FRAMEBUFFER: Int\n   val RENDERBUFFER: Int\n   val RGBA4: Int\n   val RGB5_A1: Int\n   val RGB565: Int\n   val DEPTH_COMPONENT16: Int\n   val STENCIL_INDEX: Int\n   val STENCIL_INDEX8: Int\n   val DEPTH_STENCIL: Int\n   val RENDERBUFFER_WIDTH: Int\n   val RENDERBUFFER_HEIGHT: Int\n   val RENDERBUFFER_INTERNAL_FORMAT: Int\n   val RENDERBUFFER_RED_SIZE: Int\n   val RENDERBUFFER_GREEN_SIZE: Int\n   val RENDERBUFFER_BLUE_SIZE: Int\n   val RENDERBUFFER_ALPHA_SIZE: Int\n   val RENDERBUFFER_DEPTH_SIZE: Int\n   val RENDERBUFFER_STENCIL_SIZE: Int\n   val FRAMEBUFFER_ATTACHMENT_OBJECT_TYPE: Int\n   val FRAMEBUFFER_ATTACHMENT_OBJECT_NAME: Int\n   val FRAMEBUFFER_ATTACHMENT_TEXTURE_LEVEL: Int\n   val FRAMEBUFFER_ATTACHMENT_TEXTURE_CUBE_MAP_FACE: Int\n   val COLOR_ATTACHMENT0: Int\n   val DEPTH_ATTACHMENT: Int\n   val STENCIL_ATTACHMENT: Int\n   val DEPTH_STENCIL_ATTACHMENT: Int\n   val NONE: Int\n   val FRAMEBUFFER_COMPLETE: Int\n   val FRAMEBUFFER_INCOMPLETE_ATTACHMENT: Int\n   val FRAMEBUFFER_INCOMPLETE_MISSING_ATTACHMENT: Int\n   val FRAMEBUFFER_INCOMPLETE_DIMENSIONS: Int\n   val FRAMEBUFFER_UNSUPPORTED: Int\n   val FRAMEBUFFER_BINDING: Int\n   val RENDERBUFFER_BINDING: Int\n   val MAX_RENDERBUFFER_SIZE: Int\n   val INVALID_FRAMEBUFFER_OPERATION: Int\n   val UNPACK_FLIP_Y_WEBGL: Int\n   val UNPACK_PREMULTIPLY_ALPHA_WEBGL: Int\n   val

CONTEXT_LOST_WEBGL: Int\n   val UNPACK_COLORSPACE_CONVERSION_WEBGL: Int\n   val BROWSER_DEFAULT_WEBGL: Int\n   }\n}\n\n/**\n * Exposes the JavaScript [WebGLContextEvent](https://developer.mozilla.org/en/docs/Web/API/WebGLContextEvent) to Kotlin\n */\npublic external open class WebGLContextEvent(type: String, eventInit: WebGLContextEventInit = definedExternally) : Event {\n   open val statusMessage: String\n\n   companion object {\n   val NONE: Short\n   val CAPTURING_PHASE: Short\n   val AT_TARGET: Short\n   val BUBBLING_PHASE: Short\n   }\n}\n\npublic external interface WebGLContextEventInit : EventInit {\n   var statusMessage: String? /* = \"\" */\n   get() = definedExternally\n   set(value) = definedExternally\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline fun WebGLContextEventInit(statusMessage: String? = \"\", bubbles: Boolean? = false, cancelable: Boolean? = false, composed: Boolean? = false): WebGLContextEventInit {\n   val o = js(\"({})\")\n   o[\"statusMessage\"] = statusMessage\n   o[\"bubbles\"] = bubbles\n   o[\"cancelable\"] = cancelable\n   o[\"composed\"] = composed\n   return o\n}\n\n/**\n * Exposes the JavaScript [ArrayBuffer](https://developer.mozilla.org/en/docs/Web/API/ArrayBuffer) to Kotlin\n */\npublic external open class ArrayBuffer(length: Int) : BufferDataSource {\n   open val byteLength: Int\n   fun slice(begin: Int, end: Int = definedExternally): ArrayBuffer\n\n   companion object {\n   fun isView(value: Any?): Boolean\n   }\n}\n\n/**\n * Exposes the JavaScript [ArrayBufferView](https://developer.mozilla.org/en/docs/Web/API/ArrayBufferView) to Kotlin\n */\npublic external interface ArrayBufferView : BufferDataSource {\n   val buffer: ArrayBuffer\n   val byteOffset: Int\n   val byteLength: Int\n}\n\n/**\n * Exposes the JavaScript [Int8Array](https://developer.mozilla.org/en/docs/Web/API/Int8Array) to Kotlin\n */\npublic external open class Int8Array : ArrayBufferView {\n   constructor(length: Int)\n   constructor(array: Int8Array)\n   constructor(array: Array<Byte>)\n   constructor(buffer: ArrayBuffer, byteOffset: Int = definedExternally, length: Int = definedExternally)\n   open val length: Int\n   override val buffer: ArrayBuffer\n   override val byteOffset: Int\n   override val byteLength: Int\n   fun set(array: Int8Array, offset: Int = definedExternally)\n   fun set(array: Array<Byte>, offset: Int = definedExternally)\n   fun subarray(start: Int, end: Int): Int8Array\n\n   companion object {\n   val BYTES_PER_ELEMENT: Int\n   }\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline operator fun Int8Array.get(index: Int): Byte = asDynamic()[index]\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline operator fun Int8Array.set(index: Int, value: Byte) { asDynamic()[index] = value }\n\n/**\n * Exposes the JavaScript [Uint8Array](https://developer.mozilla.org/en/docs/Web/API/Uint8Array) to Kotlin\n */\npublic external open class Uint8Array : ArrayBufferView {\n   constructor(length: Int)\n   constructor(array: Uint8Array)\n   constructor(array: Array<Byte>)\n   constructor(buffer: ArrayBuffer, byteOffset: Int = definedExternally, length: Int = definedExternally)\n   open val length: Int\n   override val buffer: ArrayBuffer\n   override val byteOffset: Int\n   override val byteLength: Int\n   fun set(array: Uint8Array, offset: Int = definedExternally)\n   fun set(array: Array<Byte>, offset: Int = definedExternally)\n   fun subarray(start: Int, end: Int): Uint8Array\n\n   companion object {\n   val BYTES_PER_ELEMENT: Int\n   }\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline operator fun Uint8Array.get(index: Int): Byte = asDynamic()[index]\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline operator fun Uint8Array.set(index: Int, value: Byte) { asDynamic()[index] = value }\n\n/**\n * Exposes the JavaScript [Uint8ClampedArray](https://developer.mozilla.org/en/docs/Web/API/Uint8ClampedArray) to Kotlin\n */\npublic external open class Uint8ClampedArray : ArrayBufferView {\n   constructor(length: Int)\n   constructor(array: Uint8ClampedArray)\n   constructor(array: Array<Byte>)\n   constructor(buffer: ArrayBuffer, byteOffset: Int = definedExternally, length: Int = definedExternally)\n   open val length: Int\n   override val buffer: ArrayBuffer\n   override val byteOffset: Int\n   override val byteLength: Int\n   fun set(array: Uint8ClampedArray, offset: Int = definedExternally)\n   fun set(array: Array<Byte>, offset: Int = definedExternally)\n   fun subarray(start: Int, end:

Int): Uint8ClampedArray\n\n   companion object {\n   val BYTES_PER_ELEMENT: Int\n   }\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline operator fun Uint8ClampedArray.get(index: Int): Byte = asDynamic()[index]\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline operator fun Uint8ClampedArray.set(index: Int, value: Byte) { asDynamic()[index] = value }\n\n/**\n * Exposes the JavaScript [Int16Array](https://developer.mozilla.org/en/docs/Web/API/Int16Array) to Kotlin\n */\npublic external open class Int16Array : ArrayBufferView {\n   constructor(length: Int)\n   constructor(array: Int16Array)\n   constructor(array: Array<Short>)\n   constructor(buffer: ArrayBuffer, byteOffset: Int = definedExternally, length: Int = definedExternally)\n   open val length: Int\n   override val buffer: ArrayBuffer\n   override val byteOffset: Int\n   override val byteLength: Int\n   fun set(array: Int16Array, offset: Int = definedExternally)\n   fun set(array: Array<Short>, offset: Int = definedExternally)\n   fun subarray(start: Int, end: Int): Int16Array\n\n   companion object {\n   val BYTES_PER_ELEMENT: Int\n   }\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline operator fun Int16Array.get(index: Int): Short = asDynamic()[index]\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline operator fun Int16Array.set(index: Int, value: Short) { asDynamic()[index] = value }\n\n/**\n * Exposes the JavaScript [Uint16Array](https://developer.mozilla.org/en/docs/Web/API/Uint16Array) to Kotlin\n */\npublic external open class Uint16Array : ArrayBufferView {\n   constructor(length: Int)\n   constructor(array: Uint16Array)\n   constructor(array: Array<Short>)\n   constructor(buffer: ArrayBuffer, byteOffset: Int = definedExternally, length: Int = definedExternally)\n   open val length: Int\n   override val buffer: ArrayBuffer\n   override val byteOffset: Int\n   override val byteLength: Int\n   fun set(array: Uint16Array, offset: Int = definedExternally)\n   fun set(array: Array<Short>, offset: Int = definedExternally)\n   fun subarray(start: Int, end: Int): Uint16Array\n\n   companion object {\n   val BYTES_PER_ELEMENT: Int\n   }\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline operator fun Uint16Array.get(index: Int): Short = asDynamic()[index]\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline operator fun Uint16Array.set(index: Int, value: Short) { asDynamic()[index] = value }\n\n/**\n * Exposes the JavaScript [Int32Array](https://developer.mozilla.org/en/docs/Web/API/Int32Array) to Kotlin\n */\npublic external open class Int32Array : ArrayBufferView {\n   constructor(length: Int)\n   constructor(array: Int32Array)\n   constructor(array: Array<Int>)\n   constructor(buffer: ArrayBuffer, byteOffset: Int = definedExternally, length: Int = definedExternally)\n   open val length: Int\n   override val buffer: ArrayBuffer\n   override val byteOffset: Int\n   override val byteLength: Int\n   fun set(array: Int32Array, offset: Int = definedExternally)\n   fun set(array: Array<Int>, offset: Int = definedExternally)\n   fun subarray(start: Int, end: Int): Int32Array\n\n   companion object {\n   val BYTES_PER_ELEMENT: Int\n   }\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline operator fun Int32Array.get(index: Int): Int = asDynamic()[index]\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline operator fun Int32Array.set(index: Int, value: Int) { asDynamic()[index] = value }\n\n/**\n * Exposes the JavaScript [Uint32Array](https://developer.mozilla.org/en/docs/Web/API/Uint32Array) to Kotlin\n */\npublic external open class Uint32Array : ArrayBufferView {\n   constructor(length: Int)\n   constructor(array: Uint32Array)\n   constructor(array: Array<Int>)\n   constructor(buffer: ArrayBuffer, byteOffset: Int = definedExternally, length: Int = definedExternally)\n   open val length: Int\n   override val buffer: ArrayBuffer\n   override val byteOffset: Int\n   override val byteLength: Int\n   fun set(array: Uint32Array, offset: Int = definedExternally)\n   fun set(array: Array<Int>, offset: Int = definedExternally)\n   fun subarray(start: Int, end: Int): Uint32Array\n\n   companion object {\n   val BYTES_PER_ELEMENT: Int\n   }\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline operator fun Uint32Array.get(index: Int): Int = asDynamic()[index]\n\n@Suppress(\"INVISIBLE_REFERENCE\",

\"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline operator fun Uint32Array.set(index: Int, value: Int) { asDynamic()[index] = value }\n\n/**\n * Exposes the JavaScript [Float32Array](https://developer.mozilla.org/en/docs/Web/API/Float32Array) to Kotlin\n */\npublic external open class Float32Array : ArrayBufferView {\n   constructor(length: Int)\n   constructor(array: Float32Array)\n   constructor(array: Array<Float>)\n   constructor(buffer: ArrayBuffer, byteOffset: Int = definedExternally, length: Int = definedExternally)\n   open val length: Int\n   override val buffer: ArrayBuffer\n   override val byteOffset: Int\n   override val byteLength: Int\n   fun set(array: Float32Array, offset: Int = definedExternally)\n   fun set(array: Array<Float>, offset: Int = definedExternally)\n   fun subarray(start: Int, end: Int): Float32Array\n\n   companion object {\n   val BYTES_PER_ELEMENT: Int\n   }\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline operator fun Float32Array.get(index: Int): Float = asDynamic()[index]\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline operator fun Float32Array.set(index: Int, value: Float) { asDynamic()[index] = value }\n\n/**\n * Exposes the JavaScript [Float64Array](https://developer.mozilla.org/en/docs/Web/API/Float64Array) to Kotlin\n */\npublic external open class Float64Array : ArrayBufferView {\n   constructor(length: Int)\n   constructor(array: Float64Array)\n   constructor(array: Array<Double>)\n   constructor(buffer: ArrayBuffer, byteOffset: Int = definedExternally, length: Int = definedExternally)\n   open val length: Int\n   override val buffer: ArrayBuffer\n   override val byteOffset: Int\n   override val byteLength: Int\n   fun set(array: Float64Array, offset: Int = definedExternally)\n   fun set(array: Array<Double>, offset: Int = definedExternally)\n   fun subarray(start: Int, end: Int): Float64Array\n\n   companion object {\n   val BYTES_PER_ELEMENT: Int\n   }\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline operator fun Float64Array.get(index: Int): Double = asDynamic()[index]\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline operator fun Float64Array.set(index: Int, value: Double) { asDynamic()[index] = value }\n\n/**\n * Exposes the JavaScript [DataView](https://developer.mozilla.org/en/docs/Web/API/DataView) to Kotlin\n */\npublic external open class DataView(buffer: ArrayBuffer, byteOffset: Int = definedExternally, byteLength: Int = definedExternally) : ArrayBufferView {\n   override val buffer: ArrayBuffer\n   override val byteOffset: Int\n   override val byteLength: Int\n   fun getInt8(byteOffset: Int): Byte\n   fun getUint8(byteOffset: Int): Byte\n   fun getInt16(byteOffset: Int, littleEndian: Boolean = definedExternally): Short\n   fun getUint16(byteOffset: Int, littleEndian: Boolean = definedExternally): Short\n   fun getInt32(byteOffset: Int, littleEndian: Boolean = definedExternally): Int\n   fun getUint32(byteOffset: Int, littleEndian: Boolean = definedExternally): Int\n   fun getFloat32(byteOffset: Int, littleEndian: Boolean = definedExternally): Float\n   fun getFloat64(byteOffset: Int, littleEndian: Boolean = definedExternally): Double\n   fun setInt8(byteOffset: Int, value: Byte)\n   fun setUint8(byteOffset: Int, value: Byte)\n   fun setInt16(byteOffset: Int, value: Short, littleEndian: Boolean = definedExternally)\n   fun setUint16(byteOffset: Int, value: Short, littleEndian: Boolean = definedExternally)\n   fun setInt32(byteOffset: Int, value: Int, littleEndian: Boolean = definedExternally)\n   fun setUint32(byteOffset: Int, value: Int, littleEndian: Boolean = definedExternally)\n   fun setFloat32(byteOffset: Int, value: Float, littleEndian: Boolean = definedExternally)\n   fun setFloat64(byteOffset: Int, value: Double, littleEndian: Boolean = definedExternally)\n}\n\npublic external interface BufferDataSource\n\npublic external interface TexImageSource","/*\n * Copyright 2010-2021 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\n// NOTE: THIS FILE IS AUTO-GENERATED, DO NOT EDIT!\n// See github.com/kotlin/dukat for details\n\npackage org.w3c.dom.clipboard\n\nimport kotlin.js.*\nimport org.khronos.webgl.*\nimport org.w3c.dom.*\nimport org.w3c.dom.events.*\n\npublic external interface ClipboardEventInit : EventInit {\n   var clipboardData: DataTransfer? /* = null */\n   get() = definedExternally\n   set(value) = definedExternally\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\",

\"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline fun ClipboardEventInit(clipboardData: DataTransfer? = null, bubbles: Boolean? = false, cancelable: Boolean? = false, composed: Boolean? = false): ClipboardEventInit {\n   val o = js(\"({})\")\n   o[\"clipboardData\"] = clipboardData\n   o[\"bubbles\"] = bubbles\n   o[\"cancelable\"] = cancelable\n   o[\"composed\"] = composed\n   return o\n}\n\n/**\n * Exposes the JavaScript [ClipboardEvent](https://developer.mozilla.org/en/docs/Web/API/ClipboardEvent) to Kotlin\n */\npublic external open class ClipboardEvent(type: String, eventInitDict: ClipboardEventInit = definedExternally) : Event {\n   open val clipboardData: DataTransfer?\n\n   companion object {\n   val NONE: Short\n   val CAPTURING_PHASE: Short\n   val AT_TARGET: Short\n   val BUBBLING_PHASE: Short\n   }\n}\n\n/**\n * Exposes the JavaScript [Clipboard](https://developer.mozilla.org/en/docs/Web/API/Clipboard) to Kotlin\n */\npublic external abstract class Clipboard : EventTarget {\n   fun read(): Promise<DataTransfer>\n   fun readText(): Promise<String>\n   fun write(data: DataTransfer): Promise<Unit>\n   fun writeText(data: String): Promise<Unit>\n}\n\npublic external interface ClipboardPermissionDescriptor {\n   var allowWithoutGesture: Boolean? /* = false */\n   get() = definedExternally\n   set(value) = definedExternally\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline fun ClipboardPermissionDescriptor(allowWithoutGesture: Boolean? = false): ClipboardPermissionDescriptor {\n   val o = js(\"({})\")\n   o[\"allowWithoutGesture\"] = allowWithoutGesture\n   return o\n}","/*\n * Copyright 2010-2021 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\n// NOTE: THIS FILE IS AUTO-GENERATED, DO NOT EDIT!\n// See github.com/kotlin/dukat for details\n\npackage org.w3c.dom.css\n\nimport kotlin.js.*\nimport org.khronos.webgl.*\nimport org.w3c.dom.*\n\npublic external abstract class MediaList : ItemArrayLike<String> {\n   open var mediaText: String\n   fun appendMedium(medium: String)\n   fun deleteMedium(medium: String)\n   override fun item(index: Int): String?\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline operator fun MediaList.get(index: Int): String? = asDynamic()[index]\n\n/**\n * Exposes the JavaScript [StyleSheet](https://developer.mozilla.org/en/docs/Web/API/StyleSheet) to Kotlin\n */\npublic external abstract class StyleSheet {\n   open val type: String\n   open val href: String?\n   open val ownerNode: UnionElementOrProcessingInstruction?\n   open val parentStyleSheet: StyleSheet?\n   open val title: String?\n   open val media: MediaList\n   open var disabled: Boolean\n}\n\n/**\n * Exposes the JavaScript [CSSStyleSheet](https://developer.mozilla.org/en/docs/Web/API/CSSStyleSheet) to Kotlin\n */\npublic external abstract class CSSStyleSheet : StyleSheet {\n   open val ownerRule: CSSRule?\n   open val cssRules: CSSRuleList\n   fun insertRule(rule: String, index: Int): Int\n   fun deleteRule(index: Int)\n}\n\n/**\n * Exposes the JavaScript [StyleSheetList](https://developer.mozilla.org/en/docs/Web/API/StyleSheetList) to Kotlin\n */\npublic external abstract class StyleSheetList : ItemArrayLike<StyleSheet> {\n   override fun item(index: Int): StyleSheet?\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline operator fun StyleSheetList.get(index: Int): StyleSheet? = asDynamic()[index]\n\n/**\n * Exposes the JavaScript [LinkStyle](https://developer.mozilla.org/en/docs/Web/API/LinkStyle) to Kotlin\n */\npublic external interface LinkStyle {\n   val sheet: StyleSheet?\n   get() = definedExternally\n}\n\n/**\n * Exposes the JavaScript [CSSRuleList](https://developer.mozilla.org/en/docs/Web/API/CSSRuleList) to Kotlin\n */\npublic external abstract class CSSRuleList : ItemArrayLike<CSSRule> {\n   override fun item(index: Int): CSSRule?\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline operator fun CSSRuleList.get(index: Int): CSSRule? = asDynamic()[index]\n\n/**\n * Exposes the JavaScript [CSSRule](https://developer.mozilla.org/en/docs/Web/API/CSSRule) to Kotlin\n */\npublic external abstract class CSSRule {\n   open val type: Short\n   open var cssText: String\n   open val parentRule: CSSRule?\n   open val parentStyleSheet: CSSStyleSheet?\n\n   companion object {\n   val STYLE_RULE: Short\n   val

CHARSET_RULE: Short\n   val IMPORT_RULE: Short\n   val MEDIA_RULE: Short\n   val FONT_FACE_RULE: Short\n   val PAGE_RULE: Short\n   val MARGIN_RULE: Short\n   val NAMESPACE_RULE: Short\n   }\n}\n\n/**\n * Exposes the JavaScript [CSSStyleRule](https://developer.mozilla.org/en/docs/Web/API/CSSStyleRule) to Kotlin\n */\npublic external abstract class CSSStyleRule : CSSRule {\n   open var selectorText: String\n   open val style: CSSStyleDeclaration\n\n   companion object {\n   val STYLE_RULE: Short\n   val CHARSET_RULE: Short\n   val IMPORT_RULE: Short\n   val MEDIA_RULE: Short\n   val FONT_FACE_RULE: Short\n   val PAGE_RULE: Short\n   val MARGIN_RULE: Short\n   val NAMESPACE_RULE: Short\n   }\n}\n\npublic external abstract class CSSImportRule : CSSRule {\n   open val href: String\n   open val media: MediaList\n   open val styleSheet: CSSStyleSheet\n\n   companion object {\n   val STYLE_RULE: Short\n   val CHARSET_RULE: Short\n   val IMPORT_RULE: Short\n   val MEDIA_RULE: Short\n   val FONT_FACE_RULE: Short\n   val PAGE_RULE: Short\n   val MARGIN_RULE: Short\n   val NAMESPACE_RULE: Short\n   }\n}\n\n/**\n * Exposes the JavaScript [CSSGroupingRule](https://developer.mozilla.org/en/docs/Web/API/CSSGroupingRule) to Kotlin\n */\npublic external abstract class CSSGroupingRule : CSSRule {\n   open val cssRules: CSSRuleList\n   fun insertRule(rule: String, index: Int): Int\n   fun deleteRule(index: Int)\n\n   companion object {\n   val STYLE_RULE: Short\n   val CHARSET_RULE: Short\n   val IMPORT_RULE: Short\n   val MEDIA_RULE: Short\n   val FONT_FACE_RULE: Short\n   val PAGE_RULE: Short\n   val MARGIN_RULE: Short\n   val NAMESPACE_RULE: Short\n   }\n}\n\n/**\n * Exposes the JavaScript [CSSMediaRule](https://developer.mozilla.org/en/docs/Web/API/CSSMediaRule) to Kotlin\n */\npublic external abstract class CSSMediaRule : CSSGroupingRule {\n   open val media: MediaList\n\n   companion object {\n   val STYLE_RULE: Short\n   val CHARSET_RULE: Short\n   val IMPORT_RULE: Short\n   val MEDIA_RULE: Short\n   val FONT_FACE_RULE: Short\n   val PAGE_RULE: Short\n   val MARGIN_RULE: Short\n   val NAMESPACE_RULE: Short\n   }\n}\n\n/**\n * Exposes the JavaScript [CSSPageRule](https://developer.mozilla.org/en/docs/Web/API/CSSPageRule) to Kotlin\n */\npublic external abstract class CSSPageRule : CSSGroupingRule {\n   open var selectorText: String\n   open val style: CSSStyleDeclaration\n\n   companion object {\n   val STYLE_RULE: Short\n   val CHARSET_RULE: Short\n   val IMPORT_RULE: Short\n   val MEDIA_RULE: Short\n   val FONT_FACE_RULE: Short\n   val PAGE_RULE: Short\n   val MARGIN_RULE: Short\n   val NAMESPACE_RULE: Short\n   }\n}\n\npublic external abstract class CSSMarginRule : CSSRule {\n   open val name: String\n   open val style: CSSStyleDeclaration\n\n   companion object {\n   val STYLE_RULE: Short\n   val CHARSET_RULE: Short\n   val IMPORT_RULE: Short\n   val MEDIA_RULE: Short\n   val FONT_FACE_RULE: Short\n   val PAGE_RULE: Short\n   val MARGIN_RULE: Short\n   val NAMESPACE_RULE: Short\n   }\n}\n\n/**\n * Exposes the JavaScript [CSSNamespaceRule](https://developer.mozilla.org/en/docs/Web/API/CSSNamespaceRule) to Kotlin\n */\npublic external abstract class CSSNamespaceRule : CSSRule {\n   open val namespaceURI: String\n   open val prefix: String\n\n   companion object {\n   val STYLE_RULE: Short\n   val CHARSET_RULE: Short\n   val IMPORT_RULE: Short\n   val MEDIA_RULE: Short\n   val FONT_FACE_RULE: Short\n   val PAGE_RULE: Short\n   val MARGIN_RULE: Short\n   val NAMESPACE_RULE: Short\n   }\n}\n\n/**\n * Exposes the JavaScript [CSSStyleDeclaration](https://developer.mozilla.org/en/docs/Web/API/CSSStyleDeclaration) to Kotlin\n */\npublic external abstract class CSSStyleDeclaration : ItemArrayLike<String> {\n   open var cssText: String\n   open val parentRule: CSSRule?\n   open var cssFloat: String\n   open var alignContent: String\n   open var alignItems: String\n   open var alignSelf: String\n   open var animation: String\n   open var animationDelay: String\n   open var animationDirection: String\n   open var animationDuration: String\n   open var animationFillMode: String\n   open var animationIterationCount: String\n   open var animationName: String\n   open var animationPlayState: String\n   open var animationTimingFunction: String\n   open var backfaceVisibility: String\n   open var background: String\n   open var backgroundAttachment: String\n   open var backgroundClip: String\n   open var backgroundColor: String\n   open var backgroundImage: String\n   open var backgroundOrigin: String\n   open var backgroundPosition: String\n   open var backgroundRepeat: String\n   open var backgroundSize: String\n   open var border: String\n   open var borderBottom: String\n   open var borderBottomColor: String\n   open var borderBottomLeftRadius: String\n   open var borderBottomRightRadius: String\n   open var borderBottomStyle: String\n   open var borderBottomWidth: String\n   open var borderCollapse: String\n   open var borderColor: String\n   open var borderImage: String\n   open var borderImageOutset: String\n   open var borderImageRepeat: String\n   open var borderImageSlice: String\n   open var borderImageSource: String\n   open var borderImageWidth: String\n   open var borderLeft: String\n   open var borderLeftColor: String\n   open var borderLeftStyle: String\n   open var borderLeftWidth: String\n   open var borderRadius: String\n   open var borderRight: String\n   open var borderRightColor: String\n   open var borderRightStyle: String\n   open var borderRightWidth: String\n   open var borderSpacing: String\n   open var borderStyle: String\n   open var borderTop: String\n   open var borderTopColor: String\n   open var borderTopLeftRadius: String\n   open var borderTopRightRadius: String\n   open var borderTopStyle: String\n   open var borderTopWidth: String\n   open var borderWidth: String\n   open var bottom: String\n   open var boxDecorationBreak: String\n   open var boxShadow: String\n   open var boxSizing: String\n   open var breakAfter: String\n   open var breakBefore: String\n   open var breakInside: String\n   open var captionSide: String\n   open var clear: String\n   open var clip: String\n   open var color: String\n   open var columnCount: String\n   open var columnFill: String\n   open var columnGap: String\n   open var columnRule: String\n   open var columnRuleColor: String\n   open var columnRuleStyle: String\n   open var columnRuleWidth: String\n   open var columnSpan: String\n   open var columnWidth: String\n   open var columns: String\n   open var content: String\n   open var counterIncrement: String\n   open var counterReset: String\n   open var cursor: String\n   open var direction: String\n   open var display: String\n   open var emptyCells: String\n   open var filter: String\n   open var flex: String\n   open var flexBasis: String\n   open var flexDirection: String\n   open var flexFlow: String\n   open var flexGrow: String\n   open var flexShrink: String\n   open var flexWrap: String\n   open var font: String\n   open var fontFamily: String\n   open var fontFeatureSettings: String\n   open var fontKerning: String\n   open var fontLanguageOverride: String\n   open var fontSize: String\n   open var fontSizeAdjust: String\n   open var fontStretch: String\n   open var fontStyle: String\n   open var fontSynthesis: String\n   open var fontVariant: String\n   open var fontVariantAlternates: String\n   open var fontVariantCaps: String\n   open var fontVariantEastAsian: String\n   open var fontVariantLigatures: String\n   open var fontVariantNumeric: String\n   open var fontVariantPosition: String\n   open var fontWeight: String\n   open var hangingPunctuation: String\n   open var height: String\n   open var hyphens: String\n   open var imageOrientation: String\n   open var imageRendering: String\n   open var imageResolution: String\n   open var imeMode: String\n   open var justifyContent: String\n   open var left: String\n   open var letterSpacing: String\n   open var lineBreak: String\n   open var lineHeight: String\n   open var listStyle: String\n   open var listStyleImage: String\n   open var listStylePosition: String\n   open var listStyleType: String\n   open var margin: String\n   open var marginBottom: String\n   open var marginLeft: String\n   open var marginRight: String\n   open var marginTop: String\n   open var mark: String\n   open var markAfter: String\n   open var markBefore: String\n   open var marks: String\n   open var marqueeDirection: String\n   open var marqueePlayCount: String\n   open var marqueeSpeed: String\n   open var marqueeStyle: String\n   open var mask: String\n   open var maskType: String\n   open var maxHeight: String\n   open var maxWidth: String\n   open var minHeight: String\n   open var minWidth: String\n   open var navDown: String\n   open var navIndex: String\n   open var navLeft: String\n   open var navRight: String\n   open var navUp: String\n   open var objectFit: String\n   open var objectPosition: String\n   open var opacity: String\n   open var order: String\n   open var orphans: String\n   open var outline: String\n   open var outlineColor: String\n   open var outlineOffset: String\n   open var outlineStyle: String\n   open var outlineWidth: String\n   open var overflowWrap: String\n   open var overflowX: String\n   open var overflowY: String\n   open var padding: String\n   open var paddingBottom: String\n   open var paddingLeft: String\n   open var paddingRight: String\n   open var paddingTop: String\n   open var pageBreakAfter: String\n   open var pageBreakBefore: String\n   open var pageBreakInside: String\n   open var perspective: String\n   open var perspectiveOrigin: String\n   open var

phonemes: String\n   open var position: String\n   open var quotes: String\n   open var resize: String\n   open var rest: String\n   open var restAfter: String\n   open var restBefore: String\n   open var right: String\n   open var tabSize: String\n   open var tableLayout: String\n   open var textAlign: String\n   open var textAlignLast: String\n   open var textCombineUpright: String\n   open var textDecoration: String\n   open var textDecorationColor: String\n   open var textDecorationLine: String\n   open var textDecorationStyle: String\n   open var textIndent: String\n   open var textJustify: String\n   open var textOrientation: String\n   open var textOverflow: String\n   open var textShadow: String\n   open var textTransform: String\n   open var textUnderlinePosition: String\n   open var top: String\n   open var transform: String\n   open var transformOrigin: String\n   open var transformStyle: String\n   open var transition: String\n   open var transitionDelay: String\n   open var transitionDuration: String\n   open var transitionProperty: String\n   open var transitionTimingFunction: String\n   open var unicodeBidi: String\n   open var verticalAlign: String\n   open var visibility: String\n   open var voiceBalance: String\n   open var voiceDuration: String\n   open var voicePitch: String\n   open var voicePitchRange: String\n   open var voiceRate: String\n   open var voiceStress: String\n   open var voiceVolume: String\n   open var whiteSpace: String\n   open var widows: String\n   open var width: String\n   open var wordBreak: String\n   open var wordSpacing: String\n   open var wordWrap: String\n   open var writingMode: String\n   open var zIndex: String\n   open var _dashed_attribute: String\n   open var _camel_cased_attribute: String\n   open var _webkit_cased_attribute: String\n   fun getPropertyValue(property: String): String\n   fun getPropertyPriority(property: String): String\n   fun setProperty(property: String, value: String, priority: String = definedExternally)\n   fun setPropertyValue(property: String, value: String)\n   fun setPropertyPriority(property: String, priority: String)\n   fun removeProperty(property: String): String\n   override fun item(index: Int): String\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline operator fun CSSStyleDeclaration.get(index: Int): String? = asDynamic()[index]\n\npublic external interface ElementCSSInlineStyle {\n   val style: CSSStyleDeclaration\n}\n\n/**\n * Exposes the JavaScript [CSS](https://developer.mozilla.org/en/docs/Web/API/CSS) to Kotlin\n */\npublic external abstract class CSS {\n   companion object {\n   fun escape(ident: String): String\n   }\n}\n\npublic external interface UnionElementOrProcessingInstruction","/*\n * Copyright 2010-2021 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\n// NOTE: THIS FILE IS AUTO-GENERATED, DO NOT EDIT!\n// See github.com/kotlin/dukat for details\n\npackage org.w3c.dom.encryptedmedia\n\nimport kotlin.js.*\nimport org.khronos.webgl.*\nimport org.w3c.dom.*\nimport org.w3c.dom.events.*\n\n/**\n * Exposes the JavaScript [MediaKeySystemConfiguration](https://developer.mozilla.org/en/docs/Web/API/MediaKeySystemConfiguration) to Kotlin\n */\npublic external interface MediaKeySystemConfiguration {\n   var label: String? /* = \"\" */\n   get() = definedExternally\n   set(value) = definedExternally\n   var initDataTypes: Array<String>? /* = arrayOf() */\n   get() = definedExternally\n   set(value) = definedExternally\n   var audioCapabilities: Array<MediaKeySystemMediaCapability>? /* = arrayOf() */\n   get() = definedExternally\n   set(value) = definedExternally\n   var videoCapabilities: Array<MediaKeySystemMediaCapability>? /* = arrayOf() */\n   get() = definedExternally\n   set(value) = definedExternally\n   var distinctiveIdentifier: MediaKeysRequirement? /* = MediaKeysRequirement.OPTIONAL */\n   get() = definedExternally\n   set(value) = definedExternally\n   var persistentState: MediaKeysRequirement? /* = MediaKeysRequirement.OPTIONAL */\n   get() = definedExternally\n   set(value) = definedExternally\n   var sessionTypes: Array<String>?\n   get() = definedExternally\n   set(value) = definedExternally\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline fun MediaKeySystemConfiguration(label: String? = \"\", initDataTypes: Array<String>? = arrayOf(), audioCapabilities: Array<MediaKeySystemMediaCapability>? = arrayOf(), videoCapabilities: Array<MediaKeySystemMediaCapability>? = arrayOf(), distinctiveIdentifier: MediaKeysRequirement? = MediaKeysRequirement.OPTIONAL, persistentState: MediaKeysRequirement? =

MediaKeysRequirement.OPTIONAL, sessionTypes: Array<String>? = undefined): MediaKeySystemConfiguration {\n   val o = js(\"({})\")\n   o[\"label\"] = label\n   o[\"initDataTypes\"] = initDataTypes\n   o[\"audioCapabilities\"] = audioCapabilities\n   o[\"videoCapabilities\"] = videoCapabilities\n   o[\"distinctiveIdentifier\"] = distinctiveIdentifier\n   o[\"persistentState\"] = persistentState\n   o[\"sessionTypes\"] = sessionTypes\n   return o\n}\n\npublic external interface MediaKeySystemMediaCapability {\n   var contentType: String? /* = \"\" */\n   get() = definedExternally\n   set(value) = definedExternally\n   var robustness: String? /* = \"\" */\n   get() = definedExternally\n   set(value) = definedExternally\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline fun MediaKeySystemMediaCapability(contentType: String? = \"\", robustness: String? = \"\"): MediaKeySystemMediaCapability {\n   val o = js(\"({})\")\n   o[\"contentType\"] = contentType\n   o[\"robustness\"] = robustness\n   return o\n}\n\n/**\n * Exposes the JavaScript [MediaKeySystemAccess](https://developer.mozilla.org/en/docs/Web/API/MediaKeySystemAccess) to Kotlin\n */\npublic external abstract class MediaKeySystemAccess {\n   open val keySystem: String\n   fun getConfiguration(): MediaKeySystemConfiguration\n   fun createMediaKeys(): Promise<MediaKeys>\n}\n\n/**\n * Exposes the JavaScript [MediaKeys](https://developer.mozilla.org/en/docs/Web/API/MediaKeys) to Kotlin\n */\npublic external abstract class MediaKeys {\n   fun createSession(sessionType: MediaKeySessionType = definedExternally): MediaKeySession\n   fun setServerCertificate(serverCertificate: dynamic): Promise<Boolean>\n}\n\n/**\n * Exposes the JavaScript [MediaKeySession](https://developer.mozilla.org/en/docs/Web/API/MediaKeySession) to Kotlin\n */\npublic external abstract class MediaKeySession : EventTarget {\n   open val sessionId: String\n   open val expiration: Double\n   open val closed: Promise<Unit>\n   open val keyStatuses: MediaKeyStatusMap\n   open var onkeystatuseschange: ((Event) -> dynamic)?\n   open var onmessage: ((MessageEvent) -> dynamic)?\n   fun generateRequest(initDataType: String, initData: dynamic): Promise<Unit>\n   fun load(sessionId: String): Promise<Boolean>\n   fun update(response: dynamic): Promise<Unit>\n   fun close(): Promise<Unit>\n   fun remove(): Promise<Unit>\n}\n\n/**\n * Exposes the JavaScript [MediaKeyStatusMap](https://developer.mozilla.org/en/docs/Web/API/MediaKeyStatusMap) to Kotlin\n */\npublic external abstract class MediaKeyStatusMap {\n   open val size: Int\n   fun has(keyId: dynamic): Boolean\n   fun get(keyId: dynamic): Any?\n}\n\n/**\n * Exposes the JavaScript [MediaKeyMessageEvent](https://developer.mozilla.org/en/docs/Web/API/MediaKeyMessageEvent) to Kotlin\n */\npublic external open class MediaKeyMessageEvent(type: String, eventInitDict: MediaKeyMessageEventInit) : Event {\n   open val messageType: MediaKeyMessageType\n   open val message: ArrayBuffer\n\n   companion object {\n   val NONE: Short\n   val CAPTURING_PHASE: Short\n   val AT_TARGET: Short\n   val BUBBLING_PHASE: Short\n   }\n}\n\npublic external interface MediaKeyMessageEventInit : EventInit {\n   var messageType: MediaKeyMessageType?\n   var message: ArrayBuffer?\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline fun MediaKeyMessageEventInit(messageType: MediaKeyMessageType?, message: ArrayBuffer?, bubbles: Boolean? = false, cancelable: Boolean? = false, composed: Boolean? = false): MediaKeyMessageEventInit {\n   val o = js(\"({})\")\n   o[\"messageType\"] = messageType\n   o[\"message\"] = message\n   o[\"bubbles\"] = bubbles\n   o[\"cancelable\"] = cancelable\n   o[\"composed\"] = composed\n   return o\n}\n\npublic external open class MediaEncryptedEvent(type: String, eventInitDict: MediaEncryptedEventInit = definedExternally) : Event {\n   open val initDataType: String\n   open val initData: ArrayBuffer?\n\n   companion object {\n   val NONE: Short\n   val CAPTURING_PHASE: Short\n   val AT_TARGET: Short\n   val BUBBLING_PHASE: Short\n   }\n}\n\npublic external interface MediaEncryptedEventInit : EventInit {\n   var initDataType: String? /* = \"\" */\n   get() = definedExternally\n   set(value) = definedExternally\n   var initData: ArrayBuffer? /* = null */\n   get() = definedExternally\n   set(value) = definedExternally\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\",

\"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline fun MediaEncryptedEventInit(initDataType: String? = \"\", initData: ArrayBuffer? = null, bubbles: Boolean? = false, cancelable: Boolean? = false, composed: Boolean? = false): MediaEncryptedEventInit {\n   val o = js(\"({})\")\n   o[\"initDataType\"] = initDataType\n   o[\"initData\"] = initData\n   o[\"bubbles\"] = bubbles\n   o[\"cancelable\"] = cancelable\n   o[\"composed\"] = composed\n   return o\n}\n\n/* please, don't implement this interface! */\n@JsName(\"null\")\n@Suppress(\"NESTED_CLASS_IN_EXTERNAL_INTERFACE\")\npublic external interface MediaKeysRequirement {\n   companion object\n}\n\npublic inline val MediaKeysRequirement.Companion.REQUIRED: MediaKeysRequirement get() = \"required\".asDynamic().unsafeCast<MediaKeysRequirement>()\n\npublic inline val MediaKeysRequirement.Companion.OPTIONAL: MediaKeysRequirement get() = \"optional\".asDynamic().unsafeCast<MediaKeysRequirement>()\n\npublic inline val MediaKeysRequirement.Companion.NOT_ALLOWED: MediaKeysRequirement get() = \"not-allowed\".asDynamic().unsafeCast<MediaKeysRequirement>()\n\n/* please, don't implement this interface! */\n@JsName(\"null\")\n@Suppress(\"NESTED_CLASS_IN_EXTERNAL_INTERFACE\")\npublic external interface MediaKeySessionType {\n   companion object\n}\n\npublic inline val MediaKeySessionType.Companion.TEMPORARY: MediaKeySessionType get() = \"temporary\".asDynamic().unsafeCast<MediaKeySessionType>()\n\npublic inline val MediaKeySessionType.Companion.PERSISTENT_LICENSE: MediaKeySessionType get() = \"persistent-license\".asDynamic().unsafeCast<MediaKeySessionType>()\n\n/* please, don't implement this interface! */\n@JsName(\"null\")\n@Suppress(\"NESTED_CLASS_IN_EXTERNAL_INTERFACE\")\npublic external interface MediaKeyStatus {\n   companion object\n}\n\npublic inline val MediaKeyStatus.Companion.USABLE: MediaKeyStatus get() = \"usable\".asDynamic().unsafeCast<MediaKeyStatus>()\n\npublic inline val MediaKeyStatus.Companion.EXPIRED: MediaKeyStatus get() = \"expired\".asDynamic().unsafeCast<MediaKeyStatus>()\n\npublic inline val MediaKeyStatus.Companion.RELEASED: MediaKeyStatus get() = \"released\".asDynamic().unsafeCast<MediaKeyStatus>()\n\npublic inline val MediaKeyStatus.Companion.OUTPUT_RESTRICTED: MediaKeyStatus get() = \"output-restricted\".asDynamic().unsafeCast<MediaKeyStatus>()\n\npublic inline val MediaKeyStatus.Companion.OUTPUT_DOWNSCALED: MediaKeyStatus get() = \"output-downscaled\".asDynamic().unsafeCast<MediaKeyStatus>()\n\npublic inline val MediaKeyStatus.Companion.STATUS_PENDING: MediaKeyStatus get() = \"status-pending\".asDynamic().unsafeCast<MediaKeyStatus>()\n\npublic inline val MediaKeyStatus.Companion.INTERNAL_ERROR: MediaKeyStatus get() = \"internal-error\".asDynamic().unsafeCast<MediaKeyStatus>()\n\n/* please, don't implement this interface! */\n@JsName(\"null\")\n@Suppress(\"NESTED_CLASS_IN_EXTERNAL_INTERFACE\")\npublic external interface MediaKeyMessageType {\n   companion object\n}\n\npublic inline val MediaKeyMessageType.Companion.LICENSE_REQUEST: MediaKeyMessageType get() = \"license-request\".asDynamic().unsafeCast<MediaKeyMessageType>()\n\npublic inline val MediaKeyMessageType.Companion.LICENSE_RENEWAL: MediaKeyMessageType get() = \"license-renewal\".asDynamic().unsafeCast<MediaKeyMessageType>()\n\npublic inline val MediaKeyMessageType.Companion.LICENSE_RELEASE: MediaKeyMessageType get() = \"license-release\".asDynamic().unsafeCast<MediaKeyMessageType>()\n\npublic inline val MediaKeyMessageType.Companion.INDIVIDUALIZATION_REQUEST: MediaKeyMessageType get() = \"individualization-request\".asDynamic().unsafeCast<MediaKeyMessageType>()","/*\n * Copyright 2010-2021 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\n// NOTE: THIS FILE IS AUTO-GENERATED, DO NOT EDIT!\n// See github.com/kotlin/dukat for details\n\npackage org.w3c.dom.events\n\nimport kotlin.js.*\nimport org.khronos.webgl.*\nimport org.w3c.dom.*\n\n/**\n * Exposes

the JavaScript [UIEvent](https://developer.mozilla.org/en/docs/Web/API/UIEvent) to Kotlin\n */\npublic external open class UIEvent(type: String, eventInitDict: UIEventInit = definedExternally) : Event {\n   open val view: Window?\n   open val detail: Int\n\n   companion object {\n   val NONE: Short\n   val CAPTURING_PHASE: Short\n   val AT_TARGET: Short\n   val BUBBLING_PHASE: Short\n   }\n}\n\npublic external interface UIEventInit : EventInit {\n   var view: Window? /* = null */\n   get() = definedExternally\n   set(value) = definedExternally\n   var detail: Int? /* = 0 */\n   get() = definedExternally\n   set(value) = definedExternally\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline fun UIEventInit(view: Window? = null, detail: Int? = 0, bubbles: Boolean? = false, cancelable: Boolean? = false, composed: Boolean? = false): UIEventInit {\n   val o = js(\"({})\")\n   o[\"view\"] = view\n   o[\"detail\"] = detail\n   o[\"bubbles\"] = bubbles\n   o[\"cancelable\"] = cancelable\n   o[\"composed\"] = composed\n   return o\n}\n\n/**\n * Exposes the JavaScript [FocusEvent](https://developer.mozilla.org/en/docs/Web/API/FocusEvent) to Kotlin\n */\npublic external open class FocusEvent(type: String, eventInitDict: FocusEventInit = definedExternally) : UIEvent {\n   open val relatedTarget: EventTarget?\n\n   companion object {\n   val NONE: Short\n   val CAPTURING_PHASE: Short\n   val AT_TARGET: Short\n   val BUBBLING_PHASE: Short\n   }\n}\n\npublic external interface FocusEventInit : UIEventInit {\n   var relatedTarget: EventTarget? /* = null */\n   get() = definedExternally\n   set(value) = definedExternally\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline fun FocusEventInit(relatedTarget: EventTarget? = null, view: Window? = null, detail: Int? = 0, bubbles: Boolean? = false, cancelable: Boolean? = false, composed: Boolean? = false): FocusEventInit {\n   val o = js(\"({})\")\n   o[\"relatedTarget\"] = relatedTarget\n   o[\"view\"] = view\n   o[\"detail\"] = detail\n   o[\"bubbles\"] = bubbles\n   o[\"cancelable\"] = cancelable\n   o[\"composed\"] = composed\n   return o\n}\n\n/**\n * Exposes the JavaScript [MouseEvent](https://developer.mozilla.org/en/docs/Web/API/MouseEvent) to Kotlin\n */\npublic external open class MouseEvent(type: String, eventInitDict: MouseEventInit = definedExternally) : UIEvent, UnionElementOrMouseEvent {\n   open val screenX: Int\n   open val screenY: Int\n   open val clientX: Int\n   open val clientY: Int\n   open val ctrlKey: Boolean\n   open val shiftKey: Boolean\n   open val altKey: Boolean\n   open val metaKey: Boolean\n   open val button: Short\n   open val buttons: Short\n   open val relatedTarget: EventTarget?\n   open val region: String?\n   open val pageX: Double\n   open val pageY: Double\n   open val x: Double\n   open val y: Double\n   open val offsetX: Double\n   open val offsetY: Double\n   fun getModifierState(keyArg: String): Boolean\n\n   companion object {\n   val NONE: Short\n   val CAPTURING_PHASE: Short\n   val AT_TARGET: Short\n   val BUBBLING_PHASE: Short\n   }\n}\n\npublic external interface MouseEventInit : EventModifierInit {\n   var screenX: Int? /* = 0 */\n   get() = definedExternally\n   set(value) = definedExternally\n   var screenY: Int? /* = 0 */\n   get() = definedExternally\n   set(value) = definedExternally\n   var clientX: Int? /* = 0 */\n   get() = definedExternally\n   set(value) = definedExternally\n   var clientY: Int? /* = 0 */\n   get() = definedExternally\n   set(value) = definedExternally\n   var button: Short? /* = 0 */\n   get() = definedExternally\n   set(value) = definedExternally\n   var buttons: Short? /* = 0 */\n   get() = definedExternally\n   set(value) = definedExternally\n   var relatedTarget: EventTarget? /* = null */\n   get() = definedExternally\n   set(value) = definedExternally\n   var region: String? /* = null */\n   get() = definedExternally\n   set(value) = definedExternally\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline fun MouseEventInit(screenX: Int? = 0, screenY: Int? = 0, clientX: Int? = 0, clientY: Int? = 0, button: Short? = 0, buttons: Short? = 0, relatedTarget: EventTarget? = null, region: String? = null, ctrlKey: Boolean? = false, shiftKey: Boolean? = false, altKey: Boolean? = false, metaKey: Boolean? = false, modifierAltGraph: Boolean? = false, modifierCapsLock: Boolean? = false, modifierFn: Boolean? = false, modifierFnLock: Boolean? = false, modifierHyper: Boolean? = false, modifierNumLock: Boolean? = false, modifierScrollLock: Boolean? = false, modifierSuper: Boolean? = false, modifierSymbol: Boolean? = false, modifierSymbolLock: Boolean? = false, view: Window? = null, detail: Int? = 0, bubbles: Boolean? = false, cancelable: Boolean? = false, composed: Boolean? = false): MouseEventInit {\n   val o =

js(\"({})\")\n   o[\"screenX\"] = screenX\n   o[\"screenY\"] = screenY\n   o[\"clientX\"] = clientX\n   o[\"clientY\"] = clientY\n   o[\"button\"] = button\n   o[\"buttons\"] = buttons\n   o[\"relatedTarget\"] = relatedTarget\n   o[\"region\"] = region\n   o[\"ctrlKey\"] = ctrlKey\n   o[\"shiftKey\"] = shiftKey\n   o[\"altKey\"] = altKey\n   o[\"metaKey\"] = metaKey\n   o[\"modifierAltGraph\"] = modifierAltGraph\n   o[\"modifierCapsLock\"] = modifierCapsLock\n   o[\"modifierFn\"] = modifierFn\n   o[\"modifierFnLock\"] = modifierFnLock\n   o[\"modifierHyper\"] = modifierHyper\n   o[\"modifierNumLock\"] = modifierNumLock\n   o[\"modifierScrollLock\"] = modifierScrollLock\n   o[\"modifierSuper\"] = modifierSuper\n   o[\"modifierSymbol\"] = modifierSymbol\n   o[\"modifierSymbolLock\"] = modifierSymbolLock\n   o[\"view\"] = view\n   o[\"detail\"] = detail\n   o[\"bubbles\"] = bubbles\n   o[\"cancelable\"] = cancelable\n   o[\"composed\"] = composed\n   return o\n}\n\npublic external interface EventModifierInit : UIEventInit {\n   var ctrlKey: Boolean? /* = false */\n   get() = definedExternally\n   set(value) = definedExternally\n   var shiftKey: Boolean? /* = false */\n   get() = definedExternally\n   set(value) = definedExternally\n   var altKey: Boolean? /* = false */\n   get() = definedExternally\n   set(value) = definedExternally\n   var metaKey: Boolean? /* = false */\n   get() = definedExternally\n   set(value) = definedExternally\n   var modifierAltGraph: Boolean? /* = false */\n   get() = definedExternally\n   set(value) = definedExternally\n   var modifierCapsLock: Boolean? /* = false */\n   get() = definedExternally\n   set(value) = definedExternally\n   var modifierFn: Boolean? /* = false */\n   get() = definedExternally\n   set(value) = definedExternally\n   var modifierFnLock: Boolean? /* = false */\n   get() = definedExternally\n   set(value) = definedExternally\n   var modifierHyper: Boolean? /* = false */\n   get() = definedExternally\n   set(value) = definedExternally\n   var modifierNumLock: Boolean? /* = false */\n   get() = definedExternally\n   set(value) = definedExternally\n   var modifierScrollLock: Boolean? /* = false */\n   get() = definedExternally\n   set(value) = definedExternally\n   var modifierSuper: Boolean? /* = false */\n   get() = definedExternally\n   set(value) = definedExternally\n   var modifierSymbol: Boolean? /* = false */\n   get() = definedExternally\n   set(value) = definedExternally\n   var modifierSymbolLock: Boolean? /* = false */\n   get() = definedExternally\n   set(value) = definedExternally\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline fun EventModifierInit(ctrlKey: Boolean? = false, shiftKey: Boolean? = false, altKey: Boolean? = false, metaKey: Boolean? = false, modifierAltGraph: Boolean? = false, modifierCapsLock: Boolean? = false, modifierFn: Boolean? = false, modifierFnLock: Boolean? = false, modifierHyper: Boolean? = false, modifierNumLock: Boolean? = false, modifierScrollLock: Boolean? = false, modifierSuper: Boolean? = false, modifierSymbol: Boolean? = false, modifierSymbolLock: Boolean? = false, view: Window? = null, detail: Int? = 0, bubbles: Boolean? = false, cancelable: Boolean? = false, composed: Boolean? = false): EventModifierInit {\n   val o = js(\"({})\")\n   o[\"ctrlKey\"] = ctrlKey\n   o[\"shiftKey\"] = shiftKey\n   o[\"altKey\"] = altKey\n   o[\"metaKey\"] = metaKey\n   o[\"modifierAltGraph\"] = modifierAltGraph\n   o[\"modifierCapsLock\"] = modifierCapsLock\n   o[\"modifierFn\"] = modifierFn\n   o[\"modifierFnLock\"] = modifierFnLock\n   o[\"modifierHyper\"] = modifierHyper\n   o[\"modifierNumLock\"] = modifierNumLock\n   o[\"modifierScrollLock\"] = modifierScrollLock\n   o[\"modifierSuper\"] = modifierSuper\n   o[\"modifierSymbol\"] = modifierSymbol\n   o[\"modifierSymbolLock\"] = modifierSymbolLock\n   o[\"view\"] = view\n   o[\"detail\"] = detail\n   o[\"bubbles\"] = bubbles\n   o[\"cancelable\"] = cancelable\n   o[\"composed\"] = composed\n   return o\n}\n\n/**\n * Exposes the JavaScript [WheelEvent](https://developer.mozilla.org/en/docs/Web/API/WheelEvent) to Kotlin\n */\npublic external open class WheelEvent(type: String, eventInitDict: WheelEventInit = definedExternally) : MouseEvent {\n   open val deltaX: Double\n   open val deltaY: Double\n   open val deltaZ: Double\n   open val deltaMode: Int\n\n   companion object {\n   val DOM_DELTA_PIXEL: Int\n   val DOM_DELTA_LINE: Int\n   val DOM_DELTA_PAGE: Int\n   val NONE: Short\n   val CAPTURING_PHASE: Short\n   val AT_TARGET: Short\n   val BUBBLING_PHASE: Short\n   }\n}\n\npublic external interface WheelEventInit : MouseEventInit {\n   var deltaX: Double? /* = 0.0 */\n   get() = definedExternally\n   set(value) = definedExternally\n   var deltaY: Double? /* = 0.0 */\n   get() = definedExternally\n   set(value) = definedExternally\n   var deltaZ: Double? /* = 0.0 */\n   get() = definedExternally\n   set(value) =

definedExternally\n   var deltaMode: Int? /* = 0 */\n   get() = definedExternally\n   set(value) = definedExternally\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline fun WheelEventInit(deltaX: Double? = 0.0, deltaY: Double? = 0.0, deltaZ: Double? = 0.0, deltaMode: Int? = 0, screenX: Int? = 0, screenY: Int? = 0, clientX: Int? = 0, clientY: Int? = 0, button: Short? = 0, buttons: Short? = 0, relatedTarget: EventTarget? = null, region: String? = null, ctrlKey: Boolean? = false, shiftKey: Boolean? = false, altKey: Boolean? = false, metaKey: Boolean? = false, modifierAltGraph: Boolean? = false, modifierCapsLock: Boolean? = false, modifierFn: Boolean? = false, modifierFnLock: Boolean? = false, modifierHyper: Boolean? = false, modifierNumLock: Boolean? = false, modifierScrollLock: Boolean? = false, modifierSuper: Boolean? = false, modifierSymbol: Boolean? = false, modifierSymbolLock: Boolean? = false, view: Window? = null, detail: Int? = 0, bubbles: Boolean? = false, cancelable: Boolean? = false, composed: Boolean? = false): WheelEventInit {\n   val o = js(\"({})\")\n   o[\"deltaX\"] = deltaX\n   o[\"deltaY\"] = deltaY\n   o[\"deltaZ\"] = deltaZ\n   o[\"deltaMode\"] = deltaMode\n   o[\"screenX\"] = screenX\n   o[\"screenY\"] = screenY\n   o[\"clientX\"] = clientX\n   o[\"clientY\"] = clientY\n   o[\"button\"] = button\n   o[\"buttons\"] = buttons\n   o[\"relatedTarget\"] = relatedTarget\n   o[\"region\"] = region\n   o[\"ctrlKey\"] = ctrlKey\n   o[\"shiftKey\"] = shiftKey\n   o[\"altKey\"] = altKey\n   o[\"metaKey\"] = metaKey\n   o[\"modifierAltGraph\"] = modifierAltGraph\n   o[\"modifierCapsLock\"] = modifierCapsLock\n   o[\"modifierFn\"] = modifierFn\n   o[\"modifierFnLock\"] = modifierFnLock\n   o[\"modifierHyper\"] = modifierHyper\n   o[\"modifierNumLock\"] = modifierNumLock\n   o[\"modifierScrollLock\"] = modifierScrollLock\n   o[\"modifierSuper\"] = modifierSuper\n   o[\"modifierSymbol\"] = modifierSymbol\n   o[\"modifierSymbolLock\"] = modifierSymbolLock\n   o[\"view\"] = view\n   o[\"detail\"] = detail\n   o[\"bubbles\"] = bubbles\n   o[\"cancelable\"] = cancelable\n   o[\"composed\"] = composed\n   return o\n}\n\n/**\n * Exposes the JavaScript [InputEvent](https://developer.mozilla.org/en/docs/Web/API/InputEvent) to Kotlin\n */\npublic external open class InputEvent(type: String, eventInitDict: InputEventInit = definedExternally) : UIEvent {\n   open val data: String\n   open val isComposing: Boolean\n\n   companion object {\n   val NONE: Short\n   val CAPTURING_PHASE: Short\n   val AT_TARGET: Short\n   val BUBBLING_PHASE: Short\n   }\n}\n\npublic external interface InputEventInit : UIEventInit {\n   var data: String? /* = \"\" */\n   get() = definedExternally\n   set(value) = definedExternally\n   var isComposing: Boolean? /* = false */\n   get() = definedExternally\n   set(value) = definedExternally\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline fun InputEventInit(data: String? = \"\", isComposing: Boolean? = false, view: Window? = null, detail: Int? = 0, bubbles: Boolean? = false, cancelable: Boolean? = false, composed: Boolean? = false): InputEventInit {\n   val o = js(\"({})\")\n   o[\"data\"] = data\n   o[\"isComposing\"] = isComposing\n   o[\"view\"] = view\n   o[\"detail\"] = detail\n   o[\"bubbles\"] = bubbles\n   o[\"cancelable\"] = cancelable\n   o[\"composed\"] = composed\n   return o\n}\n\n/**\n * Exposes the JavaScript [KeyboardEvent](https://developer.mozilla.org/en/docs/Web/API/KeyboardEvent) to Kotlin\n */\npublic external open class KeyboardEvent(type: String, eventInitDict: KeyboardEventInit = definedExternally) : UIEvent {\n   open val key: String\n   open val code: String\n   open val location: Int\n   open val ctrlKey: Boolean\n   open val shiftKey: Boolean\n   open val altKey: Boolean\n   open val metaKey: Boolean\n   open val repeat: Boolean\n   open val isComposing: Boolean\n   open val charCode: Int\n   open val keyCode: Int\n   open val which: Int\n   fun getModifierState(keyArg: String): Boolean\n\n   companion object {\n   val DOM_KEY_LOCATION_STANDARD: Int\n   val DOM_KEY_LOCATION_LEFT: Int\n   val DOM_KEY_LOCATION_RIGHT: Int\n   val DOM_KEY_LOCATION_NUMPAD: Int\n   val NONE: Short\n   val CAPTURING_PHASE: Short\n   val AT_TARGET: Short\n   val BUBBLING_PHASE: Short\n   }\n}\n\npublic external interface KeyboardEventInit : EventModifierInit {\n   var key: String? /* = \"\" */\n   get() = definedExternally\n   set(value) = definedExternally\n   var code: String? /* = \"\" */\n   get() = definedExternally\n   set(value) = definedExternally\n   var location: Int? /* = 0 */\n   get() = definedExternally\n   set(value) = definedExternally\n   var repeat: Boolean? /* = false */\n   get() = definedExternally\n   set(value) = definedExternally\n   var isComposing: Boolean? /* = false */\n   get() = definedExternally\n   set(value) = definedExternally\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\",

\"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline fun KeyboardEventInit(key: String? = \"\", code: String? = \"\", location: Int? = 0, repeat: Boolean? = false, isComposing: Boolean? = false, ctrlKey: Boolean? = false, shiftKey: Boolean? = false, altKey: Boolean? = false, metaKey: Boolean? = false, modifierAltGraph: Boolean? = false, modifierCapsLock: Boolean? = false, modifierFn: Boolean? = false, modifierFnLock: Boolean? = false, modifierHyper: Boolean? = false, modifierNumLock: Boolean? = false, modifierScrollLock: Boolean? = false, modifierSuper: Boolean? = false, modifierSymbol: Boolean? = false, modifierSymbolLock: Boolean? = false, view: Window? = null, detail: Int? = 0, bubbles: Boolean? = false, cancelable: Boolean? = false, composed: Boolean? = false): KeyboardEventInit {\n   val o = js(\"({})\")\n   o[\"key\"] = key\n   o[\"code\"] = code\n   o[\"location\"] = location\n   o[\"repeat\"] = repeat\n   o[\"isComposing\"] = isComposing\n   o[\"ctrlKey\"] = ctrlKey\n   o[\"shiftKey\"] = shiftKey\n   o[\"altKey\"] = altKey\n   o[\"metaKey\"] = metaKey\n   o[\"modifierAltGraph\"] = modifierAltGraph\n   o[\"modifierCapsLock\"] = modifierCapsLock\n   o[\"modifierFn\"] = modifierFn\n   o[\"modifierFnLock\"] = modifierFnLock\n   o[\"modifierHyper\"] = modifierHyper\n   o[\"modifierNumLock\"] = modifierNumLock\n   o[\"modifierScrollLock\"] = modifierScrollLock\n   o[\"modifierSuper\"] = modifierSuper\n   o[\"modifierSymbol\"] = modifierSymbol\n   o[\"modifierSymbolLock\"] = modifierSymbolLock\n   o[\"view\"] = view\n   o[\"detail\"] = detail\n   o[\"bubbles\"] = bubbles\n   o[\"cancelable\"] = cancelable\n   o[\"composed\"] = composed\n   return o\n}\n\n/**\n * Exposes the JavaScript [CompositionEvent](https://developer.mozilla.org/en/docs/Web/API/CompositionEvent) to Kotlin\n */\npublic external open class CompositionEvent(type: String, eventInitDict: CompositionEventInit = definedExternally) : UIEvent {\n   open val data: String\n\n   companion object {\n   val NONE: Short\n   val CAPTURING_PHASE: Short\n   val AT_TARGET: Short\n   val BUBBLING_PHASE: Short\n   }\n}\n\npublic external interface CompositionEventInit : UIEventInit {\n   var data: String? /* = \"\" */\n   get() = definedExternally\n   set(value) = definedExternally\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline fun CompositionEventInit(data: String? = \"\", view: Window? = null, detail: Int? = 0, bubbles: Boolean? = false, cancelable: Boolean? = false, composed: Boolean? = false): CompositionEventInit {\n   val o = js(\"({})\")\n   o[\"data\"] = data\n   o[\"view\"] = view\n   o[\"detail\"] = detail\n   o[\"bubbles\"] = bubbles\n   o[\"cancelable\"] = cancelable\n   o[\"composed\"] = composed\n   return o\n}\n\n/**\n * Exposes the JavaScript [Event](https://developer.mozilla.org/en/docs/Web/API/Event) to Kotlin\n */\npublic external open class Event(type: String, eventInitDict: EventInit = definedExternally) {\n   open val type: String\n   open val target: EventTarget?\n   open val currentTarget: EventTarget?\n   open val eventPhase: Short\n   open val bubbles: Boolean\n   open val cancelable: Boolean\n   open val defaultPrevented: Boolean\n   open val composed: Boolean\n   open val isTrusted: Boolean\n   open val timeStamp: Number\n   fun composedPath(): Array<EventTarget>\n   fun stopPropagation()\n   fun stopImmediatePropagation()\n   fun preventDefault()\n   fun initEvent(type: String, bubbles: Boolean, cancelable: Boolean)\n\n   companion object {\n   val NONE: Short\n   val CAPTURING_PHASE: Short\n   val AT_TARGET: Short\n   val BUBBLING_PHASE: Short\n   }\n}\n\n/**\n * Exposes the JavaScript [EventTarget](https://developer.mozilla.org/en/docs/Web/API/EventTarget) to Kotlin\n */\npublic external abstract class EventTarget {\n   fun addEventListener(type: String, callback: EventListener?, options: dynamic = definedExternally)\n   fun addEventListener(type: String, callback: ((Event) -> Unit)?, options: dynamic = definedExternally)\n   fun removeEventListener(type: String, callback: EventListener?, options: dynamic = definedExternally)\n   fun removeEventListener(type: String, callback: ((Event) -> Unit)?, options: dynamic = definedExternally)\n   fun dispatchEvent(event: Event): Boolean\n}\n\n/**\n * Exposes the JavaScript [EventListener](https://developer.mozilla.org/en/docs/Web/API/EventListener) to Kotlin\n */\npublic external interface EventListener {\n   fun handleEvent(event: Event)\n}","/*\n * Copyright 2010-2021 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\n// NOTE: THIS FILE IS AUTO-GENERATED, DO NOT EDIT!\n// See github.com/kotlin/dukat for details\n\npackage org.w3c.dom\n\nimport kotlin.js.*\nimport org.khronos.webgl.*\nimport org.w3c.dom.clipboard.*\nimport org.w3c.dom.css.*\nimport

org.w3c.dom.encryptedmedia.*\nimport org.w3c.dom.events.*\nimport org.w3c.dom.mediacapture.*\nimport org.w3c.dom.mediasource.*\nimport org.w3c.dom.pointerevents.*\nimport org.w3c.dom.svg.*\nimport org.w3c.fetch.*\nimport org.w3c.files.*\nimport org.w3c.performance.*\nimport org.w3c.workers.*\nimport org.w3c.xhr.*\n\npublic external abstract class HTMLAllCollection {\n   open val length: Int\n   fun item(nameOrIndex: String = definedExternally): UnionElementOrHTMLCollection?\n   fun namedItem(name: String): UnionElementOrHTMLCollection?\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline operator fun HTMLAllCollection.get(index: Int): Element? = asDynamic()[index]\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline operator fun HTMLAllCollection.get(name: String): UnionElementOrHTMLCollection? = asDynamic()[name]\n\n/**\n * Exposes the JavaScript [HTMLFormControlsCollection](https://developer.mozilla.org/en/docs/Web/API/HTMLFormControlsCollection) to Kotlin\n */\npublic external abstract class HTMLFormControlsCollection : HTMLCollection\n\n/**\n * Exposes the JavaScript [RadioNodeList](https://developer.mozilla.org/en/docs/Web/API/RadioNodeList) to Kotlin\n */\npublic external abstract class RadioNodeList : NodeList, UnionElementOrRadioNodeList {\n   open var value: String\n}\n\n/**\n * Exposes the JavaScript [HTMLOptionsCollection](https://developer.mozilla.org/en/docs/Web/API/HTMLOptionsCollection) to Kotlin\n */\npublic external abstract class HTMLOptionsCollection : HTMLCollection {\n   override var length: Int\n   open var selectedIndex: Int\n   fun add(element: UnionHTMLOptGroupElementOrHTMLOptionElement, before: dynamic = definedExternally)\n   fun remove(index: Int)\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline operator fun HTMLOptionsCollection.set(index: Int, option: HTMLOptionElement?) { asDynamic()[index] = option }\n\n/**\n * Exposes the JavaScript [HTMLElement](https://developer.mozilla.org/en/docs/Web/API/HTMLElement) to Kotlin\n */\npublic external abstract class HTMLElement : Element, GlobalEventHandlers, DocumentAndElementEventHandlers, ElementContentEditable, ElementCSSInlineStyle {\n   open var title: String\n   open var lang: String\n   open var translate: Boolean\n   open var dir: String\n   open val dataset: DOMStringMap\n   open var hidden: Boolean\n   open var tabIndex: Int\n   open var accessKey: String\n   open val accessKeyLabel: String\n   open var draggable: Boolean\n   open val dropzone: DOMTokenList\n   open var contextMenu: HTMLMenuElement?\n   open var spellcheck: Boolean\n   open var innerText: String\n   open val offsetParent: Element?\n   open val offsetTop: Int\n   open val offsetLeft: Int\n   open val offsetWidth: Int\n   open val offsetHeight: Int\n   fun click()\n   fun focus()\n   fun blur()\n   fun forceSpellCheck()\n\n   companion object {\n   val ELEMENT_NODE: Short\n   val ATTRIBUTE_NODE: Short\n   val TEXT_NODE: Short\n   val CDATA_SECTION_NODE: Short\n   val ENTITY_REFERENCE_NODE: Short\n   val ENTITY_NODE: Short\n   val PROCESSING_INSTRUCTION_NODE: Short\n   val COMMENT_NODE: Short\n   val DOCUMENT_NODE: Short\n   val DOCUMENT_TYPE_NODE: Short\n   val DOCUMENT_FRAGMENT_NODE: Short\n   val NOTATION_NODE: Short\n   val DOCUMENT_POSITION_DISCONNECTED: Short\n   val DOCUMENT_POSITION_PRECEDING: Short\n   val DOCUMENT_POSITION_FOLLOWING: Short\n   val DOCUMENT_POSITION_CONTAINS: Short\n   val DOCUMENT_POSITION_CONTAINED_BY: Short\n   val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n   }\n}\n\n/**\n * Exposes the JavaScript [HTMLUnknownElement](https://developer.mozilla.org/en/docs/Web/API/HTMLUnknownElement) to Kotlin\n */\npublic external abstract class HTMLUnknownElement : HTMLElement {\n   companion object {\n   val ELEMENT_NODE: Short\n   val ATTRIBUTE_NODE: Short\n   val TEXT_NODE: Short\n   val CDATA_SECTION_NODE: Short\n   val ENTITY_REFERENCE_NODE: Short\n   val ENTITY_NODE: Short\n   val PROCESSING_INSTRUCTION_NODE: Short\n   val COMMENT_NODE: Short\n   val DOCUMENT_NODE: Short\n   val DOCUMENT_TYPE_NODE: Short\n   val DOCUMENT_FRAGMENT_NODE: Short\n   val NOTATION_NODE: Short\n   val

DOCUMENT_POSITION_DISCONNECTED: Short\n   val DOCUMENT_POSITION_PRECEDING: Short\n   val DOCUMENT_POSITION_FOLLOWING: Short\n   val DOCUMENT_POSITION_CONTAINS: Short\n   val DOCUMENT_POSITION_CONTAINED_BY: Short\n   val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n   }\n}\n\n/**\n * Exposes the JavaScript [DOMStringMap](https://developer.mozilla.org/en/docs/Web/API/DOMStringMap) to Kotlin\n */\npublic external abstract class DOMStringMap\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline operator fun DOMStringMap.get(name: String): String? = asDynamic()[name]\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline operator fun DOMStringMap.set(name: String, value: String) { asDynamic()[name] = value }\n\n/**\n * Exposes the JavaScript [HTMLHtmlElement](https://developer.mozilla.org/en/docs/Web/API/HTMLHtmlElement) to Kotlin\n */\npublic external abstract class HTMLHtmlElement : HTMLElement {\n   open var version: String\n\n   companion object {\n   val ELEMENT_NODE: Short\n   val ATTRIBUTE_NODE: Short\n   val TEXT_NODE: Short\n   val CDATA_SECTION_NODE: Short\n   val ENTITY_REFERENCE_NODE: Short\n   val ENTITY_NODE: Short\n   val PROCESSING_INSTRUCTION_NODE: Short\n   val COMMENT_NODE: Short\n   val DOCUMENT_NODE: Short\n   val DOCUMENT_TYPE_NODE: Short\n   val DOCUMENT_FRAGMENT_NODE: Short\n   val NOTATION_NODE: Short\n   val DOCUMENT_POSITION_DISCONNECTED: Short\n   val DOCUMENT_POSITION_PRECEDING: Short\n   val DOCUMENT_POSITION_FOLLOWING: Short\n   val DOCUMENT_POSITION_CONTAINS: Short\n   val DOCUMENT_POSITION_CONTAINED_BY: Short\n   val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n   }\n}\n\n/**\n * Exposes the JavaScript [HTMLHeadElement](https://developer.mozilla.org/en/docs/Web/API/HTMLHeadElement) to Kotlin\n */\npublic external abstract class HTMLHeadElement : HTMLElement {\n   companion object {\n   val ELEMENT_NODE: Short\n   val ATTRIBUTE_NODE: Short\n   val TEXT_NODE: Short\n   val CDATA_SECTION_NODE: Short\n   val ENTITY_REFERENCE_NODE: Short\n   val ENTITY_NODE: Short\n   val PROCESSING_INSTRUCTION_NODE: Short\n   val COMMENT_NODE: Short\n   val DOCUMENT_NODE: Short\n   val DOCUMENT_TYPE_NODE: Short\n   val DOCUMENT_FRAGMENT_NODE: Short\n   val NOTATION_NODE: Short\n   val DOCUMENT_POSITION_DISCONNECTED: Short\n   val DOCUMENT_POSITION_PRECEDING: Short\n   val DOCUMENT_POSITION_FOLLOWING: Short\n   val DOCUMENT_POSITION_CONTAINS: Short\n   val DOCUMENT_POSITION_CONTAINED_BY: Short\n   val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n   }\n}\n\n/**\n * Exposes the JavaScript [HTMLTitleElement](https://developer.mozilla.org/en/docs/Web/API/HTMLTitleElement) to Kotlin\n */\npublic external abstract class HTMLTitleElement : HTMLElement {\n   open var text: String\n\n   companion object {\n   val ELEMENT_NODE: Short\n   val ATTRIBUTE_NODE: Short\n   val TEXT_NODE: Short\n   val CDATA_SECTION_NODE: Short\n   val ENTITY_REFERENCE_NODE: Short\n   val ENTITY_NODE: Short\n   val PROCESSING_INSTRUCTION_NODE: Short\n   val COMMENT_NODE: Short\n   val DOCUMENT_NODE: Short\n   val DOCUMENT_TYPE_NODE: Short\n   val DOCUMENT_FRAGMENT_NODE: Short\n   val NOTATION_NODE: Short\n   val DOCUMENT_POSITION_DISCONNECTED: Short\n   val DOCUMENT_POSITION_PRECEDING: Short\n   val DOCUMENT_POSITION_FOLLOWING: Short\n   val DOCUMENT_POSITION_CONTAINS: Short\n   val DOCUMENT_POSITION_CONTAINED_BY: Short\n   val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n   }\n}\n\n/**\n * Exposes the JavaScript [HTMLBaseElement](https://developer.mozilla.org/en/docs/Web/API/HTMLBaseElement) to Kotlin\n */\npublic external abstract class HTMLBaseElement : HTMLElement {\n   open var href: String\n   open var target: String\n\n   companion object {\n   val ELEMENT_NODE: Short\n   val ATTRIBUTE_NODE: Short\n   val TEXT_NODE: Short\n   val CDATA_SECTION_NODE: Short\n   val ENTITY_REFERENCE_NODE: Short\n   val ENTITY_NODE: Short\n   val PROCESSING_INSTRUCTION_NODE: Short\n   val

COMMENT_NODE: Short\n   val DOCUMENT_NODE: Short\n   val DOCUMENT_TYPE_NODE: Short\n   val DOCUMENT_FRAGMENT_NODE: Short\n   val NOTATION_NODE: Short\n   val DOCUMENT_POSITION_DISCONNECTED: Short\n   val DOCUMENT_POSITION_PRECEDING: Short\n   val DOCUMENT_POSITION_FOLLOWING: Short\n   val DOCUMENT_POSITION_CONTAINS: Short\n   val DOCUMENT_POSITION_CONTAINED_BY: Short\n   val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n   }\n}\n\n/**\n * Exposes the JavaScript [HTMLLinkElement](https://developer.mozilla.org/en/docs/Web/API/HTMLLinkElement) to Kotlin\n */\npublic external abstract class HTMLLinkElement : HTMLElement, LinkStyle {\n   open var href: String\n   open var crossOrigin: String?\n   open var rel: String\n   open var `as`: RequestDestination\n   open val relList: DOMTokenList\n   open var media: String\n   open var nonce: String\n   open var hreflang: String\n   open var type: String\n   open val sizes: DOMTokenList\n   open var referrerPolicy: String\n   open var charset: String\n   open var rev: String\n   open var target: String\n   open var scope: String\n   open var workerType: WorkerType\n\n   companion object {\n   val ELEMENT_NODE: Short\n   val ATTRIBUTE_NODE: Short\n   val TEXT_NODE: Short\n   val CDATA_SECTION_NODE: Short\n   val ENTITY_REFERENCE_NODE: Short\n   val ENTITY_NODE: Short\n   val PROCESSING_INSTRUCTION_NODE: Short\n   val COMMENT_NODE: Short\n   val DOCUMENT_NODE: Short\n   val DOCUMENT_TYPE_NODE: Short\n   val DOCUMENT_FRAGMENT_NODE: Short\n   val NOTATION_NODE: Short\n   val DOCUMENT_POSITION_DISCONNECTED: Short\n   val DOCUMENT_POSITION_PRECEDING: Short\n   val DOCUMENT_POSITION_FOLLOWING: Short\n   val DOCUMENT_POSITION_CONTAINS: Short\n   val DOCUMENT_POSITION_CONTAINED_BY: Short\n   val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n   }\n}\n\n/**\n * Exposes the JavaScript [HTMLMetaElement](https://developer.mozilla.org/en/docs/Web/API/HTMLMetaElement) to Kotlin\n */\npublic external abstract class HTMLMetaElement : HTMLElement {\n   open var name: String\n   open var httpEquiv: String\n   open var content: String\n   open var scheme: String\n\n   companion object {\n   val ELEMENT_NODE: Short\n   val ATTRIBUTE_NODE: Short\n   val TEXT_NODE: Short\n   val CDATA_SECTION_NODE: Short\n   val ENTITY_REFERENCE_NODE: Short\n   val ENTITY_NODE: Short\n   val PROCESSING_INSTRUCTION_NODE: Short\n   val COMMENT_NODE: Short\n   val DOCUMENT_NODE: Short\n   val DOCUMENT_TYPE_NODE: Short\n   val DOCUMENT_FRAGMENT_NODE: Short\n   val NOTATION_NODE: Short\n   val DOCUMENT_POSITION_DISCONNECTED: Short\n   val DOCUMENT_POSITION_PRECEDING: Short\n   val DOCUMENT_POSITION_FOLLOWING: Short\n   val DOCUMENT_POSITION_CONTAINS: Short\n   val DOCUMENT_POSITION_CONTAINED_BY: Short\n   val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n   }\n}\n\n/**\n * Exposes the JavaScript [HTMLStyleElement](https://developer.mozilla.org/en/docs/Web/API/HTMLStyleElement) to Kotlin\n */\npublic external abstract class HTMLStyleElement : HTMLElement, LinkStyle {\n   open var media: String\n   open var nonce: String\n   open var type: String\n\n   companion object {\n   val ELEMENT_NODE: Short\n   val ATTRIBUTE_NODE: Short\n   val TEXT_NODE: Short\n   val CDATA_SECTION_NODE: Short\n   val ENTITY_REFERENCE_NODE: Short\n   val ENTITY_NODE: Short\n   val PROCESSING_INSTRUCTION_NODE: Short\n   val COMMENT_NODE: Short\n   val DOCUMENT_NODE: Short\n   val DOCUMENT_TYPE_NODE: Short\n   val DOCUMENT_FRAGMENT_NODE: Short\n   val NOTATION_NODE: Short\n   val DOCUMENT_POSITION_DISCONNECTED: Short\n   val DOCUMENT_POSITION_PRECEDING: Short\n   val DOCUMENT_POSITION_FOLLOWING: Short\n   val DOCUMENT_POSITION_CONTAINS: Short\n   val DOCUMENT_POSITION_CONTAINED_BY: Short\n   val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n   }\n}\n\n/**\n * Exposes the JavaScript [HTMLBodyElement](https://developer.mozilla.org/en/docs/Web/API/HTMLBodyElement) to Kotlin\n */\npublic external abstract class HTMLBodyElement : HTMLElement, WindowEventHandlers {\n   open var text: String\n open var link: String\n   open var vLink: String\n   open var aLink: String\n   open var bgColor: String\n   open var background: String\n\n   companion object {\n   val ELEMENT_NODE: Short\n   val ATTRIBUTE_NODE: Short\n   val TEXT_NODE: Short\n   val CDATA_SECTION_NODE: Short\n   val ENTITY_REFERENCE_NODE: Short\n   val ENTITY_NODE: Short\n   val PROCESSING_INSTRUCTION_NODE: Short\n   val COMMENT_NODE: Short\n   val DOCUMENT_NODE: Short\n   val DOCUMENT_TYPE_NODE: Short\n   val DOCUMENT_FRAGMENT_NODE: Short\n   val NOTATION_NODE: Short\n   val DOCUMENT_POSITION_DISCONNECTED: Short\n   val DOCUMENT_POSITION_PRECEDING: Short\n   val DOCUMENT_POSITION_FOLLOWING: Short\n   val DOCUMENT_POSITION_CONTAINS: Short\n   val DOCUMENT_POSITION_CONTAINED_BY: Short\n   val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n   }\n}\n\n/**\n * Exposes the JavaScript [HTMLHeadingElement](https://developer.mozilla.org/en/docs/Web/API/HTMLHeadingElement) to Kotlin\n */\npublic external abstract class HTMLHeadingElement : HTMLElement {\n   open var align: String\n\n   companion object {\n   val ELEMENT_NODE: Short\n   val ATTRIBUTE_NODE: Short\n   val TEXT_NODE: Short\n   val CDATA_SECTION_NODE: Short\n   val ENTITY_REFERENCE_NODE: Short\n   val ENTITY_NODE: Short\n   val PROCESSING_INSTRUCTION_NODE: Short\n   val COMMENT_NODE: Short\n   val DOCUMENT_NODE: Short\n   val DOCUMENT_TYPE_NODE: Short\n   val DOCUMENT_FRAGMENT_NODE: Short\n   val NOTATION_NODE: Short\n   val DOCUMENT_POSITION_DISCONNECTED: Short\n   val DOCUMENT_POSITION_PRECEDING: Short\n   val DOCUMENT_POSITION_FOLLOWING: Short\n   val DOCUMENT_POSITION_CONTAINS: Short\n   val DOCUMENT_POSITION_CONTAINED_BY: Short\n   val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n   }\n}\n\n/**\n * Exposes the JavaScript [HTMLParagraphElement](https://developer.mozilla.org/en/docs/Web/API/HTMLParagraphElement) to Kotlin\n */\npublic external abstract class HTMLParagraphElement : HTMLElement {\n   open var align: String\n\n   companion object {\n   val ELEMENT_NODE: Short\n   val ATTRIBUTE_NODE: Short\n   val TEXT_NODE: Short\n   val CDATA_SECTION_NODE: Short\n   val ENTITY_REFERENCE_NODE: Short\n   val ENTITY_NODE: Short\n   val PROCESSING_INSTRUCTION_NODE: Short\n   val COMMENT_NODE: Short\n   val DOCUMENT_NODE: Short\n   val DOCUMENT_TYPE_NODE: Short\n   val DOCUMENT_FRAGMENT_NODE: Short\n   val NOTATION_NODE: Short\n   val DOCUMENT_POSITION_DISCONNECTED: Short\n   val DOCUMENT_POSITION_PRECEDING: Short\n   val DOCUMENT_POSITION_FOLLOWING: Short\n   val DOCUMENT_POSITION_CONTAINS: Short\n   val DOCUMENT_POSITION_CONTAINED_BY: Short\n   val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n   }\n}\n\n/**\n * Exposes the JavaScript [HTMLHRElement](https://developer.mozilla.org/en/docs/Web/API/HTMLHRElement) to Kotlin\n */\npublic external abstract class HTMLHRElement : HTMLElement {\n   open var align: String\n   open var color: String\n   open var noShade: Boolean\n   open var size: String\n   open var width: String\n\n   companion object {\n   val ELEMENT_NODE: Short\n   val ATTRIBUTE_NODE: Short\n   val TEXT_NODE: Short\n   val CDATA_SECTION_NODE: Short\n   val ENTITY_REFERENCE_NODE: Short\n   val ENTITY_NODE: Short\n   val PROCESSING_INSTRUCTION_NODE: Short\n   val COMMENT_NODE: Short\n   val DOCUMENT_NODE: Short\n   val DOCUMENT_TYPE_NODE: Short\n   val DOCUMENT_FRAGMENT_NODE: Short\n   val NOTATION_NODE: Short\n   val DOCUMENT_POSITION_DISCONNECTED: Short\n   val DOCUMENT_POSITION_PRECEDING: Short\n   val DOCUMENT_POSITION_FOLLOWING: Short\n   val DOCUMENT_POSITION_CONTAINS: Short\n   val DOCUMENT_POSITION_CONTAINED_BY: Short\n   val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n   }\n}\n\n/**\n * Exposes the JavaScript [HTMLPreElement](https://developer.mozilla.org/en/docs/Web/API/HTMLPreElement) to Kotlin\n */\npublic external abstract class HTMLPreElement : HTMLElement {\n   open var width: Int\n\n   companion object {\n   val ELEMENT_NODE: Short\n   val ATTRIBUTE_NODE: Short\n   val TEXT_NODE: Short\n   val

CDATA_SECTION_NODE: Short\n   val ENTITY_REFERENCE_NODE: Short\n   val ENTITY_NODE: Short\n   val PROCESSING_INSTRUCTION_NODE: Short\n   val COMMENT_NODE: Short\n   val DOCUMENT_NODE: Short\n   val DOCUMENT_TYPE_NODE: Short\n   val DOCUMENT_FRAGMENT_NODE: Short\n   val NOTATION_NODE: Short\n   val DOCUMENT_POSITION_DISCONNECTED: Short\n   val DOCUMENT_POSITION_PRECEDING: Short\n   val DOCUMENT_POSITION_FOLLOWING: Short\n   val DOCUMENT_POSITION_CONTAINS: Short\n   val DOCUMENT_POSITION_CONTAINED_BY: Short\n   val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n   }\n}\n\n/**\n * Exposes the JavaScript [HTMLQuoteElement](https://developer.mozilla.org/en/docs/Web/API/HTMLQuoteElement) to Kotlin\n */\npublic external abstract class HTMLQuoteElement : HTMLElement {\n   open var cite: String\n\n   companion object {\n   val ELEMENT_NODE: Short\n   val ATTRIBUTE_NODE: Short\n   val TEXT_NODE: Short\n   val CDATA_SECTION_NODE: Short\n   val ENTITY_REFERENCE_NODE: Short\n   val ENTITY_NODE: Short\n   val PROCESSING_INSTRUCTION_NODE: Short\n   val COMMENT_NODE: Short\n   val DOCUMENT_NODE: Short\n   val DOCUMENT_TYPE_NODE: Short\n   val DOCUMENT_FRAGMENT_NODE: Short\n   val NOTATION_NODE: Short\n   val DOCUMENT_POSITION_DISCONNECTED: Short\n   val DOCUMENT_POSITION_PRECEDING: Short\n   val DOCUMENT_POSITION_FOLLOWING: Short\n   val DOCUMENT_POSITION_CONTAINS: Short\n   val DOCUMENT_POSITION_CONTAINED_BY: Short\n   val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n   }\n}\n\n/**\n * Exposes the JavaScript [HTMLOListElement](https://developer.mozilla.org/en/docs/Web/API/HTMLOListElement) to Kotlin\n */\npublic external abstract class HTMLOListElement : HTMLElement {\n   open var reversed: Boolean\n   open var start: Int\n   open var type: String\n   open var compact: Boolean\n\n   companion object {\n   val ELEMENT_NODE: Short\n   val ATTRIBUTE_NODE: Short\n   val TEXT_NODE: Short\n   val CDATA_SECTION_NODE: Short\n   val ENTITY_REFERENCE_NODE: Short\n   val ENTITY_NODE: Short\n   val PROCESSING_INSTRUCTION_NODE: Short\n   val COMMENT_NODE: Short\n   val DOCUMENT_NODE: Short\n   val DOCUMENT_TYPE_NODE: Short\n   val DOCUMENT_FRAGMENT_NODE: Short\n   val NOTATION_NODE: Short\n   val DOCUMENT_POSITION_DISCONNECTED: Short\n   val DOCUMENT_POSITION_PRECEDING: Short\n   val DOCUMENT_POSITION_FOLLOWING: Short\n   val DOCUMENT_POSITION_CONTAINS: Short\n   val DOCUMENT_POSITION_CONTAINED_BY: Short\n   val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n   }\n}\n\n/**\n * Exposes the JavaScript [HTMLUListElement](https://developer.mozilla.org/en/docs/Web/API/HTMLUListElement) to Kotlin\n */\npublic external abstract class HTMLUListElement : HTMLElement {\n   open var compact: Boolean\n   open var type: String\n\n   companion object {\n   val ELEMENT_NODE: Short\n   val ATTRIBUTE_NODE: Short\n   val TEXT_NODE: Short\n   val CDATA_SECTION_NODE: Short\n   val ENTITY_REFERENCE_NODE: Short\n   val ENTITY_NODE: Short\n   val PROCESSING_INSTRUCTION_NODE: Short\n   val COMMENT_NODE: Short\n   val DOCUMENT_NODE: Short\n   val DOCUMENT_TYPE_NODE: Short\n   val DOCUMENT_FRAGMENT_NODE: Short\n   val NOTATION_NODE: Short\n   val DOCUMENT_POSITION_DISCONNECTED: Short\n   val DOCUMENT_POSITION_PRECEDING: Short\n   val DOCUMENT_POSITION_FOLLOWING: Short\n   val DOCUMENT_POSITION_CONTAINS: Short\n   val DOCUMENT_POSITION_CONTAINED_BY: Short\n   val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n   }\n}\n\n/**\n * Exposes the JavaScript [HTMLLIElement](https://developer.mozilla.org/en/docs/Web/API/HTMLLIElement) to Kotlin\n */\npublic external abstract class HTMLLIElement : HTMLElement {\n   open var value: Int\n   open var type: String\n\n   companion object {\n   val ELEMENT_NODE: Short\n   val ATTRIBUTE_NODE: Short\n   val TEXT_NODE: Short\n   val CDATA_SECTION_NODE: Short\n   val ENTITY_REFERENCE_NODE: Short\n   val ENTITY_NODE: Short\n   val PROCESSING_INSTRUCTION_NODE: Short\n   val COMMENT_NODE: Short\n   val DOCUMENT_NODE: Short\n   val DOCUMENT_TYPE_NODE: Short\n val DOCUMENT_FRAGMENT_NODE: Short\n val NOTATION_NODE: Short\n val DOCUMENT_POSITION_DISCONNECTED: Short\n val DOCUMENT_POSITION_PRECEDING: Short\n val DOCUMENT_POSITION_FOLLOWING: Short\n val DOCUMENT_POSITION_CONTAINS: Short\n val DOCUMENT_POSITION_CONTAINED_BY: Short\n val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n }\n}\n\n/**\n * Exposes the JavaScript [HTMLDListElement](https://developer.mozilla.org/en/docs/Web/API/HTMLDListElement) to Kotlin\n */\npublic external abstract class HTMLDListElement : HTMLElement {\n open var compact: Boolean\n\n companion object {\n val ELEMENT_NODE: Short\n val ATTRIBUTE_NODE: Short\n val TEXT_NODE: Short\n val CDATA_SECTION_NODE: Short\n val ENTITY_REFERENCE_NODE: Short\n val ENTITY_NODE: Short\n val PROCESSING_INSTRUCTION_NODE: Short\n val COMMENT_NODE: Short\n val DOCUMENT_NODE: Short\n val DOCUMENT_TYPE_NODE: Short\n val DOCUMENT_FRAGMENT_NODE: Short\n val NOTATION_NODE: Short\n val DOCUMENT_POSITION_DISCONNECTED: Short\n val DOCUMENT_POSITION_PRECEDING: Short\n val DOCUMENT_POSITION_FOLLOWING: Short\n val DOCUMENT_POSITION_CONTAINS: Short\n val DOCUMENT_POSITION_CONTAINED_BY: Short\n val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n }\n}\n\n/**\n * Exposes the JavaScript [HTMLDivElement](https://developer.mozilla.org/en/docs/Web/API/HTMLDivElement) to Kotlin\n */\npublic external abstract class HTMLDivElement : HTMLElement {\n open var align: String\n\n companion object {\n val ELEMENT_NODE: Short\n val ATTRIBUTE_NODE: Short\n val TEXT_NODE: Short\n val CDATA_SECTION_NODE: Short\n val ENTITY_REFERENCE_NODE: Short\n val ENTITY_NODE: Short\n val PROCESSING_INSTRUCTION_NODE: Short\n val COMMENT_NODE: Short\n val DOCUMENT_NODE: Short\n val DOCUMENT_TYPE_NODE: Short\n val DOCUMENT_FRAGMENT_NODE: Short\n val NOTATION_NODE: Short\n val DOCUMENT_POSITION_DISCONNECTED: Short\n val DOCUMENT_POSITION_PRECEDING: Short\n val DOCUMENT_POSITION_FOLLOWING: Short\n val DOCUMENT_POSITION_CONTAINS: Short\n val DOCUMENT_POSITION_CONTAINED_BY: Short\n val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n }\n}\n\n/**\n * Exposes the JavaScript [HTMLAnchorElement](https://developer.mozilla.org/en/docs/Web/API/HTMLAnchorElement) to Kotlin\n */\npublic external abstract class HTMLAnchorElement : HTMLElement, HTMLHyperlinkElementUtils {\n open var target: String\n open var download: String\n open var ping: String\n open var rel: String\n open val relList: DOMTokenList\n open var hreflang: String\n open var type: String\n open var text: String\n open var referrerPolicy: String\n open var coords: String\n open var charset: String\n open var name: String\n open var rev: String\n open var shape: String\n\n companion object {\n val ELEMENT_NODE: Short\n val ATTRIBUTE_NODE: Short\n val TEXT_NODE: Short\n val CDATA_SECTION_NODE: Short\n val ENTITY_REFERENCE_NODE: Short\n val ENTITY_NODE: Short\n val PROCESSING_INSTRUCTION_NODE: Short\n val COMMENT_NODE: Short\n val DOCUMENT_NODE: Short\n val DOCUMENT_TYPE_NODE: Short\n val DOCUMENT_FRAGMENT_NODE: Short\n val NOTATION_NODE: Short\n val DOCUMENT_POSITION_DISCONNECTED: Short\n val DOCUMENT_POSITION_PRECEDING: Short\n val DOCUMENT_POSITION_FOLLOWING: Short\n val DOCUMENT_POSITION_CONTAINS: Short\n val DOCUMENT_POSITION_CONTAINED_BY: Short\n val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n }\n}\n\n/**\n * Exposes the JavaScript [HTMLDataElement](https://developer.mozilla.org/en/docs/Web/API/HTMLDataElement) to Kotlin\n */\npublic external abstract class HTMLDataElement : HTMLElement {\n open var value: String\n\n companion object {\n val ELEMENT_NODE: Short\n val ATTRIBUTE_NODE: Short\n val TEXT_NODE: Short\n val CDATA_SECTION_NODE: Short\n val ENTITY_REFERENCE_NODE: Short\n val ENTITY_NODE: Short\n val PROCESSING_INSTRUCTION_NODE: Short\n val COMMENT_NODE: Short\n val DOCUMENT_NODE: Short\n val DOCUMENT_TYPE_NODE: Short\n val

DOCUMENT_FRAGMENT_NODE: Short\n   val NOTATION_NODE: Short\n   val DOCUMENT_POSITION_DISCONNECTED: Short\n   val DOCUMENT_POSITION_PRECEDING: Short\n   val DOCUMENT_POSITION_FOLLOWING: Short\n   val DOCUMENT_POSITION_CONTAINS: Short\n   val DOCUMENT_POSITION_CONTAINED_BY: Short\n   val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n   }\n}\n\n/**\n * Exposes the JavaScript [HTMLTimeElement](https://developer.mozilla.org/en/docs/Web/API/HTMLTimeElement) to Kotlin\n */\npublic external abstract class HTMLTimeElement : HTMLElement {\n   open var dateTime: String\n\n   companion object {\n   val ELEMENT_NODE: Short\n   val ATTRIBUTE_NODE: Short\n   val TEXT_NODE: Short\n   val CDATA_SECTION_NODE: Short\n   val ENTITY_REFERENCE_NODE: Short\n   val ENTITY_NODE: Short\n   val PROCESSING_INSTRUCTION_NODE: Short\n   val COMMENT_NODE: Short\n   val DOCUMENT_NODE: Short\n   val DOCUMENT_TYPE_NODE: Short\n   val DOCUMENT_FRAGMENT_NODE: Short\n   val NOTATION_NODE: Short\n   val DOCUMENT_POSITION_DISCONNECTED: Short\n   val DOCUMENT_POSITION_PRECEDING: Short\n   val DOCUMENT_POSITION_FOLLOWING: Short\n   val DOCUMENT_POSITION_CONTAINS: Short\n   val DOCUMENT_POSITION_CONTAINED_BY: Short\n   val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n   }\n}\n\n/**\n * Exposes the JavaScript [HTMLSpanElement](https://developer.mozilla.org/en/docs/Web/API/HTMLSpanElement) to Kotlin\n */\npublic external abstract class HTMLSpanElement : HTMLElement {\n   companion object {\n   val ELEMENT_NODE: Short\n   val ATTRIBUTE_NODE: Short\n   val TEXT_NODE: Short\n   val CDATA_SECTION_NODE: Short\n   val ENTITY_REFERENCE_NODE: Short\n   val ENTITY_NODE: Short\n   val PROCESSING_INSTRUCTION_NODE: Short\n   val COMMENT_NODE: Short\n   val DOCUMENT_NODE: Short\n   val DOCUMENT_TYPE_NODE: Short\n   val DOCUMENT_FRAGMENT_NODE: Short\n   val NOTATION_NODE: Short\n   val DOCUMENT_POSITION_DISCONNECTED: Short\n   val DOCUMENT_POSITION_PRECEDING: Short\n   val DOCUMENT_POSITION_FOLLOWING: Short\n   val DOCUMENT_POSITION_CONTAINS: Short\n   val DOCUMENT_POSITION_CONTAINED_BY: Short\n   val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n   }\n}\n\n/**\n * Exposes the JavaScript [HTMLBRElement](https://developer.mozilla.org/en/docs/Web/API/HTMLBRElement) to Kotlin\n */\npublic external abstract class HTMLBRElement : HTMLElement {\n   open var clear: String\n\n   companion object {\n   val ELEMENT_NODE: Short\n   val ATTRIBUTE_NODE: Short\n   val TEXT_NODE: Short\n   val CDATA_SECTION_NODE: Short\n   val ENTITY_REFERENCE_NODE: Short\n   val ENTITY_NODE: Short\n   val PROCESSING_INSTRUCTION_NODE: Short\n   val COMMENT_NODE: Short\n   val DOCUMENT_NODE: Short\n   val DOCUMENT_TYPE_NODE: Short\n   val DOCUMENT_FRAGMENT_NODE: Short\n   val NOTATION_NODE: Short\n   val DOCUMENT_POSITION_DISCONNECTED: Short\n   val DOCUMENT_POSITION_PRECEDING: Short\n   val DOCUMENT_POSITION_FOLLOWING: Short\n   val DOCUMENT_POSITION_CONTAINS: Short\n   val DOCUMENT_POSITION_CONTAINED_BY: Short\n   val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n   }\n}\n\n/**\n * Exposes the JavaScript [HTMLHyperlinkElementUtils](https://developer.mozilla.org/en/docs/Web/API/HTMLHyperlinkElementUtils) to Kotlin\n */\npublic external interface HTMLHyperlinkElementUtils {\n   var href: String\n   val origin: String\n   var protocol: String\n   var username: String\n   var password: String\n   var host: String\n   var hostname: String\n   var port: String\n   var pathname: String\n   var search: String\n   var hash: String\n}\n\n/**\n * Exposes the JavaScript [HTMLModElement](https://developer.mozilla.org/en/docs/Web/API/HTMLModElement) to Kotlin\n */\npublic external abstract class HTMLModElement : HTMLElement {\n   open var cite: String\n   open var dateTime: String\n\n   companion object {\n   val ELEMENT_NODE: Short\n   val ATTRIBUTE_NODE: Short\n   val TEXT_NODE: Short\n   val CDATA_SECTION_NODE: Short\n   val ENTITY_REFERENCE_NODE: Short\n   val ENTITY_NODE: Short\n   val PROCESSING_INSTRUCTION_NODE: Short\n   val COMMENT_NODE: Short\n   val

DOCUMENT_NODE: Short\n   val DOCUMENT_TYPE_NODE: Short\n   val DOCUMENT_FRAGMENT_NODE: Short\n   val NOTATION_NODE: Short\n   val DOCUMENT_POSITION_DISCONNECTED: Short\n   val DOCUMENT_POSITION_PRECEDING: Short\n   val DOCUMENT_POSITION_FOLLOWING: Short\n   val DOCUMENT_POSITION_CONTAINS: Short\n   val DOCUMENT_POSITION_CONTAINED_BY: Short\n   val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n   }\n}\n\n/**\n * Exposes the JavaScript [HTMLPictureElement](https://developer.mozilla.org/en/docs/Web/API/HTMLPictureElement) to Kotlin\n */\npublic external abstract class HTMLPictureElement : HTMLElement {\n   companion object {\n   val ELEMENT_NODE: Short\n   val ATTRIBUTE_NODE: Short\n   val TEXT_NODE: Short\n   val CDATA_SECTION_NODE: Short\n   val ENTITY_REFERENCE_NODE: Short\n   val ENTITY_NODE: Short\n   val PROCESSING_INSTRUCTION_NODE: Short\n   val COMMENT_NODE: Short\n   val DOCUMENT_NODE: Short\n   val DOCUMENT_TYPE_NODE: Short\n   val DOCUMENT_FRAGMENT_NODE: Short\n   val NOTATION_NODE: Short\n   val DOCUMENT_POSITION_DISCONNECTED: Short\n   val DOCUMENT_POSITION_PRECEDING: Short\n   val DOCUMENT_POSITION_FOLLOWING: Short\n   val DOCUMENT_POSITION_CONTAINS: Short\n   val DOCUMENT_POSITION_CONTAINED_BY: Short\n   val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n   }\n}\n\n/**\n * Exposes the JavaScript [HTMLSourceElement](https://developer.mozilla.org/en/docs/Web/API/HTMLSourceElement) to Kotlin\n */\npublic external abstract class HTMLSourceElement : HTMLElement {\n   open var src: String\n   open var type: String\n   open var srcset: String\n   open var sizes: String\n   open var media: String\n\n   companion object {\n   val ELEMENT_NODE: Short\n   val ATTRIBUTE_NODE: Short\n   val TEXT_NODE: Short\n   val CDATA_SECTION_NODE: Short\n   val ENTITY_REFERENCE_NODE: Short\n   val ENTITY_NODE: Short\n   val PROCESSING_INSTRUCTION_NODE: Short\n   val COMMENT_NODE: Short\n   val DOCUMENT_NODE: Short\n   val DOCUMENT_TYPE_NODE: Short\n   val DOCUMENT_FRAGMENT_NODE: Short\n   val NOTATION_NODE: Short\n   val DOCUMENT_POSITION_DISCONNECTED: Short\n   val DOCUMENT_POSITION_PRECEDING: Short\n   val DOCUMENT_POSITION_FOLLOWING: Short\n   val DOCUMENT_POSITION_CONTAINS: Short\n   val DOCUMENT_POSITION_CONTAINED_BY: Short\n   val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n   }\n}\n\n/**\n * Exposes the JavaScript [HTMLImageElement](https://developer.mozilla.org/en/docs/Web/API/HTMLImageElement) to Kotlin\n */\npublic external abstract class HTMLImageElement : HTMLElement, HTMLOrSVGImageElement, TexImageSource {\n   open var alt: String\n   open var src: String\n   open var srcset: String\n   open var sizes: String\n   open var crossOrigin: String?\n   open var useMap: String\n   open var isMap: Boolean\n   open var width: Int\n   open var height: Int\n   open val naturalWidth: Int\n   open val naturalHeight: Int\n   open val complete: Boolean\n   open val currentSrc: String\n   open var referrerPolicy: String\n   open var name: String\n   open var lowsrc: String\n   open var align: String\n   open var hspace: Int\n   open var vspace: Int\n   open var longDesc: String\n   open var border: String\n   open val x: Int\n   open val y: Int\n\n   companion object {\n   val ELEMENT_NODE: Short\n   val ATTRIBUTE_NODE: Short\n   val TEXT_NODE: Short\n   val CDATA_SECTION_NODE: Short\n   val ENTITY_REFERENCE_NODE: Short\n   val ENTITY_NODE: Short\n   val PROCESSING_INSTRUCTION_NODE: Short\n   val COMMENT_NODE: Short\n   val DOCUMENT_NODE: Short\n   val DOCUMENT_TYPE_NODE: Short\n   val DOCUMENT_FRAGMENT_NODE: Short\n   val NOTATION_NODE: Short\n   val DOCUMENT_POSITION_DISCONNECTED: Short\n   val DOCUMENT_POSITION_PRECEDING: Short\n   val DOCUMENT_POSITION_FOLLOWING: Short\n   val DOCUMENT_POSITION_CONTAINS: Short\n   val DOCUMENT_POSITION_CONTAINED_BY: Short\n   val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n   }\n}\n\n/**\n * Exposes the JavaScript [HTMLIFrameElement](https://developer.mozilla.org/en/docs/Web/API/HTMLIFrameElement) to Kotlin\n */\npublic external abstract class HTMLIFrameElement : HTMLElement {\n   open var src: String\n   open var srcdoc: String\n   open var name: String\n   open val sandbox: DOMTokenList\n   open var allowFullscreen: Boolean\n   open var allowUserMedia: Boolean\n   open var width: String\n   open var height: String\n   open var referrerPolicy: String\n   open val contentDocument: Document?\n   open val contentWindow: Window?\n   open var align: String\n   open var scrolling: String\n   open var frameBorder: String\n   open var longDesc: String\n   open var marginHeight: String\n   open var marginWidth: String\n   fun getSVGDocument(): Document?\n\n   companion object {\n   val ELEMENT_NODE: Short\n   val ATTRIBUTE_NODE: Short\n   val TEXT_NODE: Short\n   val CDATA_SECTION_NODE: Short\n   val ENTITY_REFERENCE_NODE: Short\n   val ENTITY_NODE: Short\n   val PROCESSING_INSTRUCTION_NODE: Short\n   val COMMENT_NODE: Short\n   val DOCUMENT_NODE: Short\n   val DOCUMENT_TYPE_NODE: Short\n   val DOCUMENT_FRAGMENT_NODE: Short\n   val NOTATION_NODE: Short\n   val DOCUMENT_POSITION_DISCONNECTED: Short\n   val DOCUMENT_POSITION_PRECEDING: Short\n   val DOCUMENT_POSITION_FOLLOWING: Short\n   val DOCUMENT_POSITION_CONTAINS: Short\n   val DOCUMENT_POSITION_CONTAINED_BY: Short\n   val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n   }\n}\n\n/**\n * Exposes the JavaScript [HTMLEmbedElement](https://developer.mozilla.org/en/docs/Web/API/HTMLEmbedElement) to Kotlin\n */\npublic external abstract class HTMLEmbedElement : HTMLElement {\n   open var src: String\n   open var type: String\n   open var width: String\n   open var height: String\n   open var align: String\n   open var name: String\n   fun getSVGDocument(): Document?\n\n   companion object {\n   val ELEMENT_NODE: Short\n   val ATTRIBUTE_NODE: Short\n   val TEXT_NODE: Short\n   val CDATA_SECTION_NODE: Short\n   val ENTITY_REFERENCE_NODE: Short\n   val ENTITY_NODE: Short\n   val PROCESSING_INSTRUCTION_NODE: Short\n   val COMMENT_NODE: Short\n   val DOCUMENT_NODE: Short\n   val DOCUMENT_TYPE_NODE: Short\n   val DOCUMENT_FRAGMENT_NODE: Short\n   val NOTATION_NODE: Short\n   val DOCUMENT_POSITION_DISCONNECTED: Short\n   val DOCUMENT_POSITION_PRECEDING: Short\n   val DOCUMENT_POSITION_FOLLOWING: Short\n   val DOCUMENT_POSITION_CONTAINS: Short\n   val DOCUMENT_POSITION_CONTAINED_BY: Short\n   val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n   }\n}\n\n/**\n * Exposes the JavaScript [HTMLObjectElement](https://developer.mozilla.org/en/docs/Web/API/HTMLObjectElement) to Kotlin\n */\npublic external abstract class HTMLObjectElement : HTMLElement {\n   open var data: String\n   open var type: String\n   open var typeMustMatch: Boolean\n   open var name: String\n   open var useMap: String\n   open val form: HTMLFormElement?\n   open var width: String\n   open var height: String\n   open val contentDocument: Document?\n   open val contentWindow: Window?\n   open val willValidate: Boolean\n   open val validity: ValidityState\n   open val validationMessage: String\n   open var align: String\n   open var archive: String\n   open var code: String\n   open var declare: Boolean\n   open var hspace: Int\n   open var standby: String\n   open var vspace: Int\n   open var codeBase: String\n   open var codeType: String\n   open var border: String\n   fun getSVGDocument(): Document?\n   fun checkValidity(): Boolean\n   fun reportValidity(): Boolean\n   fun setCustomValidity(error: String)\n\n   companion object {\n   val ELEMENT_NODE: Short\n   val ATTRIBUTE_NODE: Short\n   val TEXT_NODE: Short\n   val CDATA_SECTION_NODE: Short\n   val ENTITY_REFERENCE_NODE: Short\n   val ENTITY_NODE: Short\n   val PROCESSING_INSTRUCTION_NODE: Short\n   val COMMENT_NODE: Short\n   val DOCUMENT_NODE: Short\n   val DOCUMENT_TYPE_NODE: Short\n   val DOCUMENT_FRAGMENT_NODE: Short\n   val NOTATION_NODE: Short\n   val DOCUMENT_POSITION_DISCONNECTED: Short\n   val DOCUMENT_POSITION_PRECEDING: Short\n   val DOCUMENT_POSITION_FOLLOWING: Short\n   val DOCUMENT_POSITION_CONTAINS: Short\n   val DOCUMENT_POSITION_CONTAINED_BY: Short\n   val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n   }\n}\n\n/**\n * Exposes the JavaScript [HTMLParamElement](https://developer.mozilla.org/en/docs/Web/API/HTMLParamElement) to Kotlin\n */\npublic external abstract class HTMLParamElement : HTMLElement {\n   open var name: String\n   open var value: String\n   open var type: String\n   open var valueType: String\n\n   companion object {\n   val ELEMENT_NODE: Short\n   val ATTRIBUTE_NODE: Short\n   val TEXT_NODE: Short\n   val CDATA_SECTION_NODE: Short\n   val ENTITY_REFERENCE_NODE: Short\n   val ENTITY_NODE: Short\n   val PROCESSING_INSTRUCTION_NODE: Short\n   val COMMENT_NODE: Short\n   val DOCUMENT_NODE: Short\n   val DOCUMENT_TYPE_NODE: Short\n   val DOCUMENT_FRAGMENT_NODE: Short\n   val NOTATION_NODE: Short\n   val DOCUMENT_POSITION_DISCONNECTED: Short\n   val DOCUMENT_POSITION_PRECEDING: Short\n   val DOCUMENT_POSITION_FOLLOWING: Short\n   val DOCUMENT_POSITION_CONTAINS: Short\n   val DOCUMENT_POSITION_CONTAINED_BY: Short\n   val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n   }\n}\n\n/**\n * Exposes the JavaScript [HTMLVideoElement](https://developer.mozilla.org/en/docs/Web/API/HTMLVideoElement) to Kotlin\n */\npublic external abstract class HTMLVideoElement : HTMLMediaElement, CanvasImageSource, TexImageSource {\n   open var width: Int\n   open var height: Int\n   open val videoWidth: Int\n   open val videoHeight: Int\n   open var poster: String\n   open var playsInline: Boolean\n\n   companion object {\n   val NETWORK_EMPTY: Short\n   val NETWORK_IDLE: Short\n   val NETWORK_LOADING: Short\n   val NETWORK_NO_SOURCE: Short\n   val HAVE_NOTHING: Short\n   val HAVE_METADATA: Short\n   val HAVE_CURRENT_DATA: Short\n   val HAVE_FUTURE_DATA: Short\n   val HAVE_ENOUGH_DATA: Short\n   val ELEMENT_NODE: Short\n   val ATTRIBUTE_NODE: Short\n   val TEXT_NODE: Short\n   val CDATA_SECTION_NODE: Short\n   val ENTITY_REFERENCE_NODE: Short\n   val ENTITY_NODE: Short\n   val PROCESSING_INSTRUCTION_NODE: Short\n   val COMMENT_NODE: Short\n   val DOCUMENT_NODE: Short\n   val DOCUMENT_TYPE_NODE: Short\n   val DOCUMENT_FRAGMENT_NODE: Short\n   val NOTATION_NODE: Short\n   val DOCUMENT_POSITION_DISCONNECTED: Short\n   val DOCUMENT_POSITION_PRECEDING: Short\n   val DOCUMENT_POSITION_FOLLOWING: Short\n   val DOCUMENT_POSITION_CONTAINS: Short\n   val DOCUMENT_POSITION_CONTAINED_BY: Short\n   val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n   }\n}\n\n/**\n * Exposes the JavaScript [HTMLAudioElement](https://developer.mozilla.org/en/docs/Web/API/HTMLAudioElement) to Kotlin\n */\npublic external abstract class HTMLAudioElement : HTMLMediaElement {\n   companion object {\n   val NETWORK_EMPTY: Short\n   val NETWORK_IDLE: Short\n   val NETWORK_LOADING: Short\n   val NETWORK_NO_SOURCE: Short\n   val HAVE_NOTHING: Short\n   val HAVE_METADATA: Short\n   val HAVE_CURRENT_DATA: Short\n   val HAVE_FUTURE_DATA: Short\n   val HAVE_ENOUGH_DATA: Short\n   val ELEMENT_NODE: Short\n   val ATTRIBUTE_NODE: Short\n   val TEXT_NODE: Short\n   val CDATA_SECTION_NODE: Short\n   val ENTITY_REFERENCE_NODE: Short\n   val ENTITY_NODE: Short\n   val PROCESSING_INSTRUCTION_NODE: Short\n   val COMMENT_NODE: Short\n   val DOCUMENT_NODE: Short\n   val DOCUMENT_TYPE_NODE: Short\n   val DOCUMENT_FRAGMENT_NODE: Short\n   val NOTATION_NODE: Short\n   val DOCUMENT_POSITION_DISCONNECTED: Short\n   val DOCUMENT_POSITION_PRECEDING: Short\n   val DOCUMENT_POSITION_FOLLOWING: Short\n   val DOCUMENT_POSITION_CONTAINS: Short\n   val DOCUMENT_POSITION_CONTAINED_BY: Short\n   val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n   }\n}\n\n/**\n * Exposes the JavaScript [HTMLTrackElement](https://developer.mozilla.org/en/docs/Web/API/HTMLTrackElement) to Kotlin\n */\npublic external abstract class HTMLTrackElement : HTMLElement {\n   open var kind: String\n   open var src: String\n   open var srclang: String\n   open var label: String\n   open var default: Boolean\n   open val readyState: Short\n   open val track: TextTrack\n\n   companion object {\n   val NONE: Short\n   val LOADING: Short\n   val LOADED: Short\n   val ERROR: Short\n   val ELEMENT_NODE: Short\n   val ATTRIBUTE_NODE: Short\n   val TEXT_NODE: Short\n   val CDATA_SECTION_NODE: Short\n   val ENTITY_REFERENCE_NODE: Short\n   val ENTITY_NODE: Short\n   val PROCESSING_INSTRUCTION_NODE: Short\n   val COMMENT_NODE: Short\n   val

DOCUMENT_NODE: Short\n val DOCUMENT_TYPE_NODE: Short\n val DOCUMENT_FRAGMENT_NODE: Short\n val NOTATION_NODE: Short\n val DOCUMENT_POSITION_DISCONNECTED: Short\n val DOCUMENT_POSITION_PRECEDING: Short\n val DOCUMENT_POSITION_FOLLOWING: Short\n val DOCUMENT_POSITION_CONTAINS: Short\n val DOCUMENT_POSITION_CONTAINED_BY: Short\n val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n }\n}\n\n/**\n * Exposes the JavaScript [HTMLMediaElement](https://developer.mozilla.org/en/docs/Web/API/HTMLMediaElement) to Kotlin\n */\npublic external abstract class HTMLMediaElement : HTMLElement {\n open val error: MediaError?\n open var src: String\n open var srcObject: MediaProvider?\n open val currentSrc: String\n open var crossOrigin: String?\n open val networkState: Short\n open var preload: String\n open val buffered: TimeRanges\n open val readyState: Short\n open val seeking: Boolean\n open var currentTime: Double\n open val duration: Double\n open val paused: Boolean\n open var defaultPlaybackRate: Double\n open var playbackRate: Double\n open val played: TimeRanges\n open val seekable: TimeRanges\n open val ended: Boolean\n open var autoplay: Boolean\n open var loop: Boolean\n open var controls: Boolean\n open var volume: Double\n open var muted: Boolean\n open var defaultMuted: Boolean\n open val audioTracks: AudioTrackList\n open val videoTracks: VideoTrackList\n open val textTracks: TextTrackList\n open val mediaKeys: MediaKeys?\n open var onencrypted: ((Event) -> dynamic)?\n open var onwaitingforkey: ((Event) -> dynamic)?\n fun load()\n fun canPlayType(type: String): CanPlayTypeResult\n fun fastSeek(time: Double)\n fun getStartDate(): dynamic\n fun play(): Promise<Unit>\n fun pause()\n fun addTextTrack(kind: TextTrackKind, label: String = definedExternally, language: String = definedExternally): TextTrack\n fun setMediaKeys(mediaKeys: MediaKeys?): Promise<Unit>\n\n companion object {\n val NETWORK_EMPTY: Short\n val NETWORK_IDLE: Short\n val NETWORK_LOADING: Short\n val NETWORK_NO_SOURCE: Short\n val HAVE_NOTHING: Short\n val HAVE_METADATA: Short\n val HAVE_CURRENT_DATA: Short\n val HAVE_FUTURE_DATA: Short\n val HAVE_ENOUGH_DATA: Short\n val ELEMENT_NODE: Short\n val ATTRIBUTE_NODE: Short\n val TEXT_NODE: Short\n val CDATA_SECTION_NODE: Short\n val ENTITY_REFERENCE_NODE: Short\n val ENTITY_NODE: Short\n val PROCESSING_INSTRUCTION_NODE: Short\n val COMMENT_NODE: Short\n val DOCUMENT_NODE: Short\n val DOCUMENT_TYPE_NODE: Short\n val DOCUMENT_FRAGMENT_NODE: Short\n val NOTATION_NODE: Short\n val DOCUMENT_POSITION_DISCONNECTED: Short\n val DOCUMENT_POSITION_PRECEDING: Short\n val DOCUMENT_POSITION_FOLLOWING: Short\n val DOCUMENT_POSITION_CONTAINS: Short\n val DOCUMENT_POSITION_CONTAINED_BY: Short\n val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n }\n}\n\n/**\n * Exposes the JavaScript [MediaError](https://developer.mozilla.org/en/docs/Web/API/MediaError) to Kotlin\n */\npublic external abstract class MediaError {\n open val code: Short\n\n companion object {\n val MEDIA_ERR_ABORTED: Short\n val MEDIA_ERR_NETWORK: Short\n val MEDIA_ERR_DECODE: Short\n val MEDIA_ERR_SRC_NOT_SUPPORTED: Short\n }\n}\n\n/**\n * Exposes the JavaScript [AudioTrackList](https://developer.mozilla.org/en/docs/Web/API/AudioTrackList) to Kotlin\n */\npublic external abstract class AudioTrackList : EventTarget {\n open val length: Int\n open var onchange: ((Event) -> dynamic)?\n open var onaddtrack: ((TrackEvent) -> dynamic)?\n open var onremovetrack: ((TrackEvent) -> dynamic)?\n fun getTrackById(id: String): AudioTrack?\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline operator fun AudioTrackList.get(index: Int): AudioTrack? = asDynamic()[index]\n\n/**\n * Exposes the JavaScript [AudioTrack](https://developer.mozilla.org/en/docs/Web/API/AudioTrack) to Kotlin\n */\npublic external abstract class AudioTrack : UnionAudioTrackOrTextTrackOrVideoTrack {\n open val id: String\n open val kind: String\n open val label: String\n open val language: String\n open var enabled: Boolean\n open val sourceBuffer: SourceBuffer?\n}\n\n/**\n * Exposes the JavaScript [VideoTrackList](https://developer.mozilla.org/en/docs/Web/API/VideoTrackList) to Kotlin\n */\npublic external abstract class VideoTrackList : EventTarget {\n   open val length: Int\n   open val selectedIndex: Int\n   open var onchange: ((Event) -> dynamic)?\n   open var onaddtrack: ((TrackEvent) -> dynamic)?\n   open var onremovetrack: ((TrackEvent) -> dynamic)?\n   fun getTrackById(id: String): VideoTrack?\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline operator fun VideoTrackList.get(index: Int): VideoTrack? = asDynamic()[index]\n\n/**\n * Exposes the JavaScript [VideoTrack](https://developer.mozilla.org/en/docs/Web/API/VideoTrack) to Kotlin\n */\npublic external abstract class VideoTrack : UnionAudioTrackOrTextTrackOrVideoTrack {\n   open val id: String\n   open val kind: String\n   open val label: String\n   open val language: String\n   open var selected: Boolean\n   open val sourceBuffer: SourceBuffer?\n}\n\npublic external abstract class TextTrackList : EventTarget {\n   open val length: Int\n   open var onchange: ((Event) -> dynamic)?\n   open var onaddtrack: ((TrackEvent) -> dynamic)?\n   open var onremovetrack: ((TrackEvent) -> dynamic)?\n   fun getTrackById(id: String): TextTrack?\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline operator fun TextTrackList.get(index: Int): TextTrack? = asDynamic()[index]\n\n/**\n * Exposes the JavaScript [TextTrack](https://developer.mozilla.org/en/docs/Web/API/TextTrack) to Kotlin\n */\npublic external abstract class TextTrack : EventTarget, UnionAudioTrackOrTextTrackOrVideoTrack {\n   open val kind: TextTrackKind\n   open val label: String\n   open val language: String\n   open val id: String\n   open val inBandMetadataTrackDispatchType: String\n   open var mode: TextTrackMode\n   open val cues: TextTrackCueList?\n   open val activeCues: TextTrackCueList?\n   open var oncuechange: ((Event) -> dynamic)?\n   open val sourceBuffer: SourceBuffer?\n   fun addCue(cue: TextTrackCue)\n   fun removeCue(cue: TextTrackCue)\n}\n\npublic external abstract class TextTrackCueList {\n   open val length: Int\n   fun getCueById(id: String): TextTrackCue?\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline operator fun TextTrackCueList.get(index: Int): TextTrackCue? = asDynamic()[index]\n\n/**\n * Exposes the JavaScript [TextTrackCue](https://developer.mozilla.org/en/docs/Web/API/TextTrackCue) to Kotlin\n */\npublic external abstract class TextTrackCue : EventTarget {\n   open val track: TextTrack?\n   open var id: String\n   open var startTime: Double\n   open var endTime: Double\n   open var pauseOnExit: Boolean\n   open var onenter: ((Event) -> dynamic)?\n   open var onexit: ((Event) -> dynamic)?\n}\n\n/**\n * Exposes the JavaScript [TimeRanges](https://developer.mozilla.org/en/docs/Web/API/TimeRanges) to Kotlin\n */\npublic external abstract class TimeRanges {\n   open val length: Int\n   fun start(index: Int): Double\n   fun end(index: Int): Double\n}\n\n/**\n * Exposes the JavaScript [TrackEvent](https://developer.mozilla.org/en/docs/Web/API/TrackEvent) to Kotlin\n */\npublic external open class TrackEvent(type: String, eventInitDict: TrackEventInit = definedExternally) : Event {\n   open val track: UnionAudioTrackOrTextTrackOrVideoTrack?\n\n   companion object {\n   val NONE: Short\n   val CAPTURING_PHASE: Short\n   val AT_TARGET: Short\n   val BUBBLING_PHASE: Short\n   }\n}\n\npublic external interface TrackEventInit : EventInit {\n   var track: UnionAudioTrackOrTextTrackOrVideoTrack? /* = null */\n   get() = definedExternally\n   set(value) = definedExternally\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline fun TrackEventInit(track: UnionAudioTrackOrTextTrackOrVideoTrack? = null, bubbles: Boolean? = false, cancelable: Boolean? = false, composed: Boolean? = false): TrackEventInit {\n   val o = js(\"({})\")\n   o[\"track\"] = track\n   o[\"bubbles\"] = bubbles\n   o[\"cancelable\"] = cancelable\n   o[\"composed\"] = composed\n   return o\n}\n\n/**\n * Exposes the JavaScript [HTMLMapElement](https://developer.mozilla.org/en/docs/Web/API/HTMLMapElement) to Kotlin\n */\npublic external abstract class HTMLMapElement : HTMLElement {\n   open var name: String\n   open val areas: HTMLCollection\n\n   companion object {\n   val ELEMENT_NODE: Short\n   val ATTRIBUTE_NODE: Short\n   val TEXT_NODE: Short\n   val CDATA_SECTION_NODE: Short\n   val ENTITY_REFERENCE_NODE: Short\n   val ENTITY_NODE: Short\n   val

PROCESSING_INSTRUCTION_NODE: Short\n   val COMMENT_NODE: Short\n   val DOCUMENT_NODE: Short\n   val DOCUMENT_TYPE_NODE: Short\n   val DOCUMENT_FRAGMENT_NODE: Short\n   val NOTATION_NODE: Short\n   val DOCUMENT_POSITION_DISCONNECTED: Short\n   val DOCUMENT_POSITION_PRECEDING: Short\n   val DOCUMENT_POSITION_FOLLOWING: Short\n   val DOCUMENT_POSITION_CONTAINS: Short\n   val DOCUMENT_POSITION_CONTAINED_BY: Short\n   val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n   }\n}\n\n/**\n * Exposes the JavaScript [HTMLAreaElement](https://developer.mozilla.org/en/docs/Web/API/HTMLAreaElement) to Kotlin\n */\npublic external abstract class HTMLAreaElement : HTMLElement, HTMLHyperlinkElementUtils {\n   open var alt: String\n   open var coords: String\n   open var shape: String\n   open var target: String\n   open var download: String\n   open var ping: String\n   open var rel: String\n   open val relList: DOMTokenList\n   open var referrerPolicy: String\n   open var noHref: Boolean\n\n   companion object {\n   val ELEMENT_NODE: Short\n   val ATTRIBUTE_NODE: Short\n   val TEXT_NODE: Short\n   val CDATA_SECTION_NODE: Short\n   val ENTITY_REFERENCE_NODE: Short\n   val ENTITY_NODE: Short\n   val PROCESSING_INSTRUCTION_NODE: Short\n   val COMMENT_NODE: Short\n   val DOCUMENT_NODE: Short\n   val DOCUMENT_TYPE_NODE: Short\n   val DOCUMENT_FRAGMENT_NODE: Short\n   val NOTATION_NODE: Short\n   val DOCUMENT_POSITION_DISCONNECTED: Short\n   val DOCUMENT_POSITION_PRECEDING: Short\n   val DOCUMENT_POSITION_FOLLOWING: Short\n   val DOCUMENT_POSITION_CONTAINS: Short\n   val DOCUMENT_POSITION_CONTAINED_BY: Short\n   val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n   }\n}\n\n/**\n * Exposes the JavaScript [HTMLTableElement](https://developer.mozilla.org/en/docs/Web/API/HTMLTableElement) to Kotlin\n */\npublic external abstract class HTMLTableElement : HTMLElement {\n   open var caption: HTMLTableCaptionElement?\n   open var tHead: HTMLTableSectionElement?\n   open var tFoot: HTMLTableSectionElement?\n   open val tBodies: HTMLCollection\n   open val rows: HTMLCollection\n   open var align: String\n   open var border: String\n   open var frame: String\n   open var rules: String\n   open var summary: String\n   open var width: String\n   open var bgColor: String\n   open var cellPadding: String\n   open var cellSpacing: String\n   fun createCaption(): HTMLTableCaptionElement\n   fun deleteCaption()\n   fun createTHead(): HTMLTableSectionElement\n   fun deleteTHead()\n   fun createTFoot(): HTMLTableSectionElement\n   fun deleteTFoot()\n   fun createTBody(): HTMLTableSectionElement\n   fun insertRow(index: Int = definedExternally): HTMLTableRowElement\n   fun deleteRow(index: Int)\n\n   companion object {\n   val ELEMENT_NODE: Short\n   val ATTRIBUTE_NODE: Short\n   val TEXT_NODE: Short\n   val CDATA_SECTION_NODE: Short\n   val ENTITY_REFERENCE_NODE: Short\n   val ENTITY_NODE: Short\n   val PROCESSING_INSTRUCTION_NODE: Short\n   val COMMENT_NODE: Short\n   val DOCUMENT_NODE: Short\n   val DOCUMENT_TYPE_NODE: Short\n   val DOCUMENT_FRAGMENT_NODE: Short\n   val NOTATION_NODE: Short\n   val DOCUMENT_POSITION_DISCONNECTED: Short\n   val DOCUMENT_POSITION_PRECEDING: Short\n   val DOCUMENT_POSITION_FOLLOWING: Short\n   val DOCUMENT_POSITION_CONTAINS: Short\n   val DOCUMENT_POSITION_CONTAINED_BY: Short\n   val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n   }\n}\n\n/**\n * Exposes the JavaScript [HTMLTableCaptionElement](https://developer.mozilla.org/en/docs/Web/API/HTMLTableCaptionElement) to Kotlin\n */\npublic external abstract class HTMLTableCaptionElement : HTMLElement {\n   open var align: String\n\n   companion object {\n   val ELEMENT_NODE: Short\n   val ATTRIBUTE_NODE: Short\n   val TEXT_NODE: Short\n   val CDATA_SECTION_NODE: Short\n   val ENTITY_REFERENCE_NODE: Short\n   val ENTITY_NODE: Short\n   val PROCESSING_INSTRUCTION_NODE: Short\n   val COMMENT_NODE: Short\n   val DOCUMENT_NODE: Short\n   val DOCUMENT_TYPE_NODE: Short\n   val DOCUMENT_FRAGMENT_NODE: Short\n   val NOTATION_NODE: Short\n   val DOCUMENT_POSITION_DISCONNECTED: Short\n   val DOCUMENT_POSITION_PRECEDING: Short\n val DOCUMENT_POSITION_FOLLOWING: Short\n   val DOCUMENT_POSITION_CONTAINS: Short\n   val DOCUMENT_POSITION_CONTAINED_BY: Short\n   val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n   }\n}\n\n/**\n * Exposes the JavaScript [HTMLTableColElement](https://developer.mozilla.org/en/docs/Web/API/HTMLTableColElement) to Kotlin\n */\npublic external abstract class HTMLTableColElement : HTMLElement {\n   open var span: Int\n   open var align: String\n   open var ch: String\n   open var chOff: String\n   open var vAlign: String\n   open var width: String\n\n   companion object {\n   val ELEMENT_NODE: Short\n   val ATTRIBUTE_NODE: Short\n   val TEXT_NODE: Short\n   val CDATA_SECTION_NODE: Short\n   val ENTITY_REFERENCE_NODE: Short\n   val ENTITY_NODE: Short\n   val PROCESSING_INSTRUCTION_NODE: Short\n   val COMMENT_NODE: Short\n   val DOCUMENT_NODE: Short\n   val DOCUMENT_TYPE_NODE: Short\n   val DOCUMENT_FRAGMENT_NODE: Short\n   val NOTATION_NODE: Short\n   val DOCUMENT_POSITION_DISCONNECTED: Short\n   val DOCUMENT_POSITION_PRECEDING: Short\n   val DOCUMENT_POSITION_FOLLOWING: Short\n   val DOCUMENT_POSITION_CONTAINS: Short\n   val DOCUMENT_POSITION_CONTAINED_BY: Short\n   val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n   }\n}\n\n/**\n * Exposes the JavaScript [HTMLTableSectionElement](https://developer.mozilla.org/en/docs/Web/API/HTMLTableSectionElement) to Kotlin\n */\npublic external abstract class HTMLTableSectionElement : HTMLElement {\n   open val rows: HTMLCollection\n   open var align: String\n   open var ch: String\n   open var chOff: String\n   open var vAlign: String\n   fun insertRow(index: Int = definedExternally): HTMLElement\n   fun deleteRow(index: Int)\n\n   companion object {\n   val ELEMENT_NODE: Short\n   val ATTRIBUTE_NODE: Short\n   val TEXT_NODE: Short\n   val CDATA_SECTION_NODE: Short\n   val ENTITY_REFERENCE_NODE: Short\n   val ENTITY_NODE: Short\n   val PROCESSING_INSTRUCTION_NODE: Short\n   val COMMENT_NODE: Short\n   val DOCUMENT_NODE: Short\n   val DOCUMENT_TYPE_NODE: Short\n   val DOCUMENT_FRAGMENT_NODE: Short\n   val NOTATION_NODE: Short\n   val DOCUMENT_POSITION_DISCONNECTED: Short\n   val DOCUMENT_POSITION_PRECEDING: Short\n   val DOCUMENT_POSITION_FOLLOWING: Short\n   val DOCUMENT_POSITION_CONTAINS: Short\n   val DOCUMENT_POSITION_CONTAINED_BY: Short\n   val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n   }\n}\n\n/**\n * Exposes the JavaScript [HTMLTableRowElement](https://developer.mozilla.org/en/docs/Web/API/HTMLTableRowElement) to Kotlin\n */\npublic external abstract class HTMLTableRowElement : HTMLElement {\n   open val rowIndex: Int\n   open val sectionRowIndex: Int\n   open val cells: HTMLCollection\n   open var align: String\n   open var ch: String\n   open var chOff: String\n   open var vAlign: String\n   open var bgColor: String\n   fun insertCell(index: Int = definedExternally): HTMLElement\n   fun deleteCell(index: Int)\n\n   companion object {\n   val ELEMENT_NODE: Short\n   val ATTRIBUTE_NODE: Short\n   val TEXT_NODE: Short\n   val CDATA_SECTION_NODE: Short\n   val ENTITY_REFERENCE_NODE: Short\n   val ENTITY_NODE: Short\n   val PROCESSING_INSTRUCTION_NODE: Short\n   val COMMENT_NODE: Short\n   val DOCUMENT_NODE: Short\n   val DOCUMENT_TYPE_NODE: Short\n   val DOCUMENT_FRAGMENT_NODE: Short\n   val NOTATION_NODE: Short\n   val DOCUMENT_POSITION_DISCONNECTED: Short\n   val DOCUMENT_POSITION_PRECEDING: Short\n   val DOCUMENT_POSITION_FOLLOWING: Short\n   val DOCUMENT_POSITION_CONTAINS: Short\n   val DOCUMENT_POSITION_CONTAINED_BY: Short\n   val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n   }\n}\n\n/**\n * Exposes the JavaScript [HTMLTableCellElement](https://developer.mozilla.org/en/docs/Web/API/HTMLTableCellElement) to Kotlin\n */\npublic external abstract class HTMLTableCellElement : HTMLElement {\n   open var colSpan: Int\n   open var rowSpan: Int\n   open var headers: String\n   open val cellIndex: Int\n   open var scope: String\n   open var abbr: String\n   open var align: String\n   open var axis: String\n   open var height: String\n   open var width: String\n   open var ch: String\n   open var chOff: String\n   open var noWrap: Boolean\n   open var vAlign: String\n   open var bgColor: String\n\n   companion object {\n   val ELEMENT_NODE: Short\n   val ATTRIBUTE_NODE:

Short\n   val TEXT_NODE: Short\n   val CDATA_SECTION_NODE: Short\n   val ENTITY_REFERENCE_NODE: Short\n   val ENTITY_NODE: Short\n   val PROCESSING_INSTRUCTION_NODE: Short\n   val COMMENT_NODE: Short\n   val DOCUMENT_NODE: Short\n   val DOCUMENT_TYPE_NODE: Short\n   val DOCUMENT_FRAGMENT_NODE: Short\n   val NOTATION_NODE: Short\n   val DOCUMENT_POSITION_DISCONNECTED: Short\n   val DOCUMENT_POSITION_PRECEDING: Short\n   val DOCUMENT_POSITION_FOLLOWING: Short\n   val DOCUMENT_POSITION_CONTAINS: Short\n   val DOCUMENT_POSITION_CONTAINED_BY: Short\n   val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n   }\n}\n\n/**\n * Exposes the JavaScript [HTMLFormElement](https://developer.mozilla.org/en/docs/Web/API/HTMLFormElement) to Kotlin\n */\npublic external abstract class HTMLFormElement : HTMLElement {\n   open var acceptCharset: String\n   open var action: String\n   open var autocomplete: String\n   open var enctype: String\n   open var encoding: String\n   open var method: String\n   open var name: String\n   open var noValidate: Boolean\n   open var target: String\n   open val elements: HTMLFormControlsCollection\n   open val length: Int\n   fun submit()\n   fun reset()\n   fun checkValidity(): Boolean\n   fun reportValidity(): Boolean\n\n   companion object {\n   val ELEMENT_NODE: Short\n   val ATTRIBUTE_NODE: Short\n   val TEXT_NODE: Short\n   val CDATA_SECTION_NODE: Short\n   val ENTITY_REFERENCE_NODE: Short\n   val ENTITY_NODE: Short\n   val PROCESSING_INSTRUCTION_NODE: Short\n   val COMMENT_NODE: Short\n   val DOCUMENT_NODE: Short\n   val DOCUMENT_TYPE_NODE: Short\n   val DOCUMENT_FRAGMENT_NODE: Short\n   val NOTATION_NODE: Short\n   val DOCUMENT_POSITION_DISCONNECTED: Short\n   val DOCUMENT_POSITION_PRECEDING: Short\n   val DOCUMENT_POSITION_FOLLOWING: Short\n   val DOCUMENT_POSITION_CONTAINS: Short\n   val DOCUMENT_POSITION_CONTAINED_BY: Short\n   val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n   }\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline operator fun HTMLFormElement.get(index: Int): Element? = asDynamic()[index]\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline operator fun HTMLFormElement.get(name: String): UnionElementOrRadioNodeList? = asDynamic()[name]\n\n/**\n * Exposes the JavaScript [HTMLLabelElement](https://developer.mozilla.org/en/docs/Web/API/HTMLLabelElement) to Kotlin\n */\npublic external abstract class HTMLLabelElement : HTMLElement {\n   open val form: HTMLFormElement?\n   open var htmlFor: String\n   open val control: HTMLElement?\n\n   companion object {\n   val ELEMENT_NODE: Short\n   val ATTRIBUTE_NODE: Short\n   val TEXT_NODE: Short\n   val CDATA_SECTION_NODE: Short\n   val ENTITY_REFERENCE_NODE: Short\n   val ENTITY_NODE: Short\n   val PROCESSING_INSTRUCTION_NODE: Short\n   val COMMENT_NODE: Short\n   val DOCUMENT_NODE: Short\n   val DOCUMENT_TYPE_NODE: Short\n   val DOCUMENT_FRAGMENT_NODE: Short\n   val NOTATION_NODE: Short\n   val DOCUMENT_POSITION_DISCONNECTED: Short\n   val DOCUMENT_POSITION_PRECEDING: Short\n   val DOCUMENT_POSITION_FOLLOWING: Short\n   val DOCUMENT_POSITION_CONTAINS: Short\n   val DOCUMENT_POSITION_CONTAINED_BY: Short\n   val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n   }\n}\n\n/**\n * Exposes the JavaScript [HTMLInputElement](https://developer.mozilla.org/en/docs/Web/API/HTMLInputElement) to Kotlin\n */\npublic external abstract class HTMLInputElement : HTMLElement {\n   open var accept: String\n   open var alt: String\n   open var autocomplete: String\n   open var autofocus: Boolean\n   open var defaultChecked: Boolean\n   open var checked: Boolean\n   open var dirName: String\n   open var disabled: Boolean\n   open val form: HTMLFormElement?\n   open val files: FileList?\n   open var formAction: String\n   open var formEnctype: String\n   open var formMethod: String\n   open var formNoValidate: Boolean\n   open var formTarget: String\n open var height: Int\n   open var indeterminate: Boolean\n   open var inputMode: String\n   open val list: HTMLElement?\n   open var max: String\n   open var maxLength: Int\n   open var min: String\n   open var minLength: Int\n   open var multiple: Boolean\n   open var name: String\n   open var pattern: String\n   open var placeholder: String\n   open var readOnly: Boolean\n   open var required: Boolean\n   open var size: Int\n   open var src: String\n   open var step: String\n   open var type: String\n   open var defaultValue: String\n   open var value: String\n   open var valueAsDate: dynamic\n   open var valueAsNumber: Double\n   open var width: Int\n   open val willValidate: Boolean\n   open val validity: ValidityState\n   open val validationMessage: String\n   open val labels: NodeList\n   open var selectionStart: Int?\n   open var selectionEnd: Int?\n   open var selectionDirection: String?\n   open var align: String\n   open var useMap: String\n   fun stepUp(n: Int = definedExternally)\n   fun stepDown(n: Int = definedExternally)\n   fun checkValidity(): Boolean\n   fun reportValidity(): Boolean\n   fun setCustomValidity(error: String)\n   fun select()\n   fun setRangeText(replacement: String)\n   fun setRangeText(replacement: String, start: Int, end: Int, selectionMode: SelectionMode = definedExternally)\n   fun setSelectionRange(start: Int, end: Int, direction: String = definedExternally)\n\n   companion object {\n   val ELEMENT_NODE: Short\n   val ATTRIBUTE_NODE: Short\n   val TEXT_NODE: Short\n   val CDATA_SECTION_NODE: Short\n   val ENTITY_REFERENCE_NODE: Short\n   val ENTITY_NODE: Short\n   val PROCESSING_INSTRUCTION_NODE: Short\n   val COMMENT_NODE: Short\n   val DOCUMENT_NODE: Short\n   val DOCUMENT_TYPE_NODE: Short\n   val DOCUMENT_FRAGMENT_NODE: Short\n   val NOTATION_NODE: Short\n   val DOCUMENT_POSITION_DISCONNECTED: Short\n   val DOCUMENT_POSITION_PRECEDING: Short\n   val DOCUMENT_POSITION_FOLLOWING: Short\n   val DOCUMENT_POSITION_CONTAINS: Short\n   val DOCUMENT_POSITION_CONTAINED_BY: Short\n   val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n   }\n}\n\n/**\n * Exposes the JavaScript [HTMLButtonElement](https://developer.mozilla.org/en/docs/Web/API/HTMLButtonElement) to Kotlin\n */\npublic external abstract class HTMLButtonElement : HTMLElement {\n   open var autofocus: Boolean\n   open var disabled: Boolean\n   open val form: HTMLFormElement?\n   open var formAction: String\n   open var formEnctype: String\n   open var formMethod: String\n   open var formNoValidate: Boolean\n   open var formTarget: String\n   open var name: String\n   open var type: String\n   open var value: String\n   open var menu: HTMLMenuElement?\n   open val willValidate: Boolean\n   open val validity: ValidityState\n   open val validationMessage: String\n   open val labels: NodeList\n   fun checkValidity(): Boolean\n   fun reportValidity(): Boolean\n   fun setCustomValidity(error: String)\n\n   companion object {\n   val ELEMENT_NODE: Short\n   val ATTRIBUTE_NODE: Short\n   val TEXT_NODE: Short\n   val CDATA_SECTION_NODE: Short\n   val ENTITY_REFERENCE_NODE: Short\n   val ENTITY_NODE: Short\n   val PROCESSING_INSTRUCTION_NODE: Short\n   val COMMENT_NODE: Short\n   val DOCUMENT_NODE: Short\n   val DOCUMENT_TYPE_NODE: Short\n   val DOCUMENT_FRAGMENT_NODE: Short\n   val NOTATION_NODE: Short\n   val DOCUMENT_POSITION_DISCONNECTED: Short\n   val DOCUMENT_POSITION_PRECEDING: Short\n   val DOCUMENT_POSITION_FOLLOWING: Short\n   val DOCUMENT_POSITION_CONTAINS: Short\n   val DOCUMENT_POSITION_CONTAINED_BY: Short\n   val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n   }\n}\n\n/**\n * Exposes the JavaScript [HTMLSelectElement](https://developer.mozilla.org/en/docs/Web/API/HTMLSelectElement) to Kotlin\n */\npublic external abstract class HTMLSelectElement : HTMLElement, ItemArrayLike<Element> {\n   open var autocomplete: String\n   open var autofocus: Boolean\n   open var disabled: Boolean\n   open val form: HTMLFormElement?\n   open var multiple: Boolean\n   open var name: String\n   open var required: Boolean\n   open var size: Int\n   open val type: String\n   open val options: HTMLOptionsCollection\n   override var length: Int\n   open val selectedOptions: HTMLCollection\n   open var selectedIndex: Int\n   open var value: String\n   open val willValidate: Boolean\n   open val validity: ValidityState\n   open val validationMessage: String\n   open val labels: NodeList\n   fun namedItem(name: String): HTMLOptionElement?\n   fun add(element:

UnionHTMLOptGroupElementOrHTMLOptionElement, before: dynamic = definedExternally)\n   fun remove(index: Int)\n   fun checkValidity(): Boolean\n   fun reportValidity(): Boolean\n   fun setCustomValidity(error: String)\n   override fun item(index: Int): Element?\n\n   companion object {\n   val ELEMENT_NODE: Short\n   val ATTRIBUTE_NODE: Short\n   val TEXT_NODE: Short\n   val CDATA_SECTION_NODE: Short\n   val ENTITY_REFERENCE_NODE: Short\n   val ENTITY_NODE: Short\n   val PROCESSING_INSTRUCTION_NODE: Short\n   val COMMENT_NODE: Short\n   val DOCUMENT_NODE: Short\n   val DOCUMENT_TYPE_NODE: Short\n   val DOCUMENT_FRAGMENT_NODE: Short\n   val NOTATION_NODE: Short\n   val DOCUMENT_POSITION_DISCONNECTED: Short\n   val DOCUMENT_POSITION_PRECEDING: Short\n   val DOCUMENT_POSITION_FOLLOWING: Short\n   val DOCUMENT_POSITION_CONTAINS: Short\n   val DOCUMENT_POSITION_CONTAINED_BY: Short\n   val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n   }\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline operator fun HTMLSelectElement.get(index: Int): Element? = asDynamic()[index]\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline operator fun HTMLSelectElement.set(index: Int, option: HTMLOptionElement?) { asDynamic()[index] = option }\n\n/**\n * Exposes the JavaScript [HTMLDataListElement](https://developer.mozilla.org/en/docs/Web/API/HTMLDataListElement) to Kotlin\n */\npublic external abstract class HTMLDataListElement : HTMLElement {\n   open val options: HTMLCollection\n\n   companion object {\n   val ELEMENT_NODE: Short\n   val ATTRIBUTE_NODE: Short\n   val TEXT_NODE: Short\n   val CDATA_SECTION_NODE: Short\n   val ENTITY_REFERENCE_NODE: Short\n   val ENTITY_NODE: Short\n   val PROCESSING_INSTRUCTION_NODE: Short\n   val COMMENT_NODE: Short\n   val DOCUMENT_NODE: Short\n   val DOCUMENT_TYPE_NODE: Short\n   val DOCUMENT_FRAGMENT_NODE: Short\n   val NOTATION_NODE: Short\n   val DOCUMENT_POSITION_DISCONNECTED: Short\n   val DOCUMENT_POSITION_PRECEDING: Short\n   val DOCUMENT_POSITION_FOLLOWING: Short\n   val DOCUMENT_POSITION_CONTAINS: Short\n   val DOCUMENT_POSITION_CONTAINED_BY: Short\n   val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n   }\n}\n\n/**\n * Exposes the JavaScript [HTMLOptGroupElement](https://developer.mozilla.org/en/docs/Web/API/HTMLOptGroupElement) to Kotlin\n */\npublic external abstract class HTMLOptGroupElement : HTMLElement, UnionHTMLOptGroupElementOrHTMLOptionElement {\n   open var disabled: Boolean\n   open var label: String\n\n   companion object {\n   val ELEMENT_NODE: Short\n   val ATTRIBUTE_NODE: Short\n   val TEXT_NODE: Short\n   val CDATA_SECTION_NODE: Short\n   val ENTITY_REFERENCE_NODE: Short\n   val ENTITY_NODE: Short\n   val PROCESSING_INSTRUCTION_NODE: Short\n   val COMMENT_NODE: Short\n   val DOCUMENT_NODE: Short\n   val DOCUMENT_TYPE_NODE: Short\n   val DOCUMENT_FRAGMENT_NODE: Short\n   val NOTATION_NODE: Short\n   val DOCUMENT_POSITION_DISCONNECTED: Short\n   val DOCUMENT_POSITION_PRECEDING: Short\n   val DOCUMENT_POSITION_FOLLOWING: Short\n   val DOCUMENT_POSITION_CONTAINS: Short\n   val DOCUMENT_POSITION_CONTAINED_BY: Short\n   val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n   }\n}\n\n/**\n * Exposes the JavaScript [HTMLOptionElement](https://developer.mozilla.org/en/docs/Web/API/HTMLOptionElement) to Kotlin\n */\npublic external abstract class HTMLOptionElement : HTMLElement, UnionHTMLOptGroupElementOrHTMLOptionElement {\n   open var disabled: Boolean\n   open val form: HTMLFormElement?\n   open var label: String\n   open var defaultSelected: Boolean\n   open var selected: Boolean\n   open var value: String\n   open var text: String\n   open val index: Int\n\n   companion object {\n val ELEMENT_NODE: Short\n val ATTRIBUTE_NODE: Short\n val TEXT_NODE: Short\n val CDATA_SECTION_NODE: Short\n val ENTITY_REFERENCE_NODE: Short\n val ENTITY_NODE: Short\n val PROCESSING_INSTRUCTION_NODE: Short\n val COMMENT_NODE: Short\n val DOCUMENT_NODE: Short\n val DOCUMENT_TYPE_NODE: Short\n val DOCUMENT_FRAGMENT_NODE: Short\n val NOTATION_NODE: Short\n val DOCUMENT_POSITION_DISCONNECTED: Short\n val DOCUMENT_POSITION_PRECEDING: Short\n val DOCUMENT_POSITION_FOLLOWING: Short\n val DOCUMENT_POSITION_CONTAINS: Short\n val DOCUMENT_POSITION_CONTAINED_BY: Short\n val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n }\n}\n\n/**\n * Exposes the JavaScript [HTMLTextAreaElement](https://developer.mozilla.org/en/docs/Web/API/HTMLTextAreaElement) to Kotlin\n */\npublic external abstract class HTMLTextAreaElement : HTMLElement {\n open var autocomplete: String\n open var autofocus: Boolean\n open var cols: Int\n open var dirName: String\n open var disabled: Boolean\n open val form: HTMLFormElement?\n open var inputMode: String\n open var maxLength: Int\n open var minLength: Int\n open var name: String\n open var placeholder: String\n open var readOnly: Boolean\n open var required: Boolean\n open var rows: Int\n open var wrap: String\n open val type: String\n open var defaultValue: String\n open var value: String\n open val textLength: Int\n open val willValidate: Boolean\n open val validity: ValidityState\n open val validationMessage: String\n open val labels: NodeList\n open var selectionStart: Int?\n open var selectionEnd: Int?\n open var selectionDirection: String?\n fun checkValidity(): Boolean\n fun reportValidity(): Boolean\n fun setCustomValidity(error: String)\n fun select()\n fun setRangeText(replacement: String)\n fun setRangeText(replacement: String, start: Int, end: Int, selectionMode: SelectionMode = definedExternally)\n fun setSelectionRange(start: Int, end: Int, direction: String = definedExternally)\n\n companion object {\n val ELEMENT_NODE: Short\n val ATTRIBUTE_NODE: Short\n val TEXT_NODE: Short\n val CDATA_SECTION_NODE: Short\n val ENTITY_REFERENCE_NODE: Short\n val ENTITY_NODE: Short\n val PROCESSING_INSTRUCTION_NODE: Short\n val COMMENT_NODE: Short\n val DOCUMENT_NODE: Short\n val DOCUMENT_TYPE_NODE: Short\n val DOCUMENT_FRAGMENT_NODE: Short\n val NOTATION_NODE: Short\n val DOCUMENT_POSITION_DISCONNECTED: Short\n val DOCUMENT_POSITION_PRECEDING: Short\n val DOCUMENT_POSITION_FOLLOWING: Short\n val DOCUMENT_POSITION_CONTAINS: Short\n val DOCUMENT_POSITION_CONTAINED_BY: Short\n val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n }\n}\n\n/**\n * Exposes the JavaScript [HTMLKeygenElement](https://developer.mozilla.org/en/docs/Web/API/HTMLKeygenElement) to Kotlin\n */\npublic external abstract class HTMLKeygenElement : HTMLElement {\n open var autofocus: Boolean\n open var challenge: String\n open var disabled: Boolean\n open val form: HTMLFormElement?\n open var keytype: String\n open var name: String\n open val type: String\n open val willValidate: Boolean\n open val validity: ValidityState\n open val validationMessage: String\n open val labels: NodeList\n fun checkValidity(): Boolean\n fun reportValidity(): Boolean\n fun setCustomValidity(error: String)\n\n companion object {\n val ELEMENT_NODE: Short\n val ATTRIBUTE_NODE: Short\n val TEXT_NODE: Short\n val CDATA_SECTION_NODE: Short\n val ENTITY_REFERENCE_NODE: Short\n val ENTITY_NODE: Short\n val PROCESSING_INSTRUCTION_NODE: Short\n val COMMENT_NODE: Short\n val DOCUMENT_NODE: Short\n val DOCUMENT_TYPE_NODE: Short\n val DOCUMENT_FRAGMENT_NODE: Short\n val NOTATION_NODE: Short\n val DOCUMENT_POSITION_DISCONNECTED: Short\n val DOCUMENT_POSITION_PRECEDING: Short\n val DOCUMENT_POSITION_FOLLOWING: Short\n val DOCUMENT_POSITION_CONTAINS: Short\n val DOCUMENT_POSITION_CONTAINED_BY: Short\n val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n }\n}\n\n/**\n * Exposes the JavaScript [HTMLOutputElement](https://developer.mozilla.org/en/docs/Web/API/HTMLOutputElement) to Kotlin\n */\npublic external abstract class HTMLOutputElement : HTMLElement {\n open val htmlFor: DOMTokenList\n open val form: HTMLFormElement?\n   open var name: String\n   open val type: String\n   open var defaultValue: String\n   open var value: String\n   open val willValidate: Boolean\n   open val validity: ValidityState\n   open val validationMessage: String\n   open val labels: NodeList\n   fun checkValidity(): Boolean\n   fun reportValidity(): Boolean\n   fun setCustomValidity(error: String)\n\n   companion object {\n   val ELEMENT_NODE: Short\n   val ATTRIBUTE_NODE: Short\n   val TEXT_NODE: Short\n   val CDATA_SECTION_NODE: Short\n   val ENTITY_REFERENCE_NODE: Short\n   val ENTITY_NODE: Short\n   val PROCESSING_INSTRUCTION_NODE: Short\n   val COMMENT_NODE: Short\n   val DOCUMENT_NODE: Short\n   val DOCUMENT_TYPE_NODE: Short\n   val DOCUMENT_FRAGMENT_NODE: Short\n   val NOTATION_NODE: Short\n   val DOCUMENT_POSITION_DISCONNECTED: Short\n   val DOCUMENT_POSITION_PRECEDING: Short\n   val DOCUMENT_POSITION_FOLLOWING: Short\n   val DOCUMENT_POSITION_CONTAINS: Short\n   val DOCUMENT_POSITION_CONTAINED_BY: Short\n   val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n   }\n}\n\n/**\n * Exposes the JavaScript [HTMLProgressElement](https://developer.mozilla.org/en/docs/Web/API/HTMLProgressElement) to Kotlin\n */\npublic external abstract class HTMLProgressElement : HTMLElement {\n   open var value: Double\n   open var max: Double\n   open val position: Double\n   open val labels: NodeList\n\n   companion object {\n   val ELEMENT_NODE: Short\n   val ATTRIBUTE_NODE: Short\n   val TEXT_NODE: Short\n   val CDATA_SECTION_NODE: Short\n   val ENTITY_REFERENCE_NODE: Short\n   val ENTITY_NODE: Short\n   val PROCESSING_INSTRUCTION_NODE: Short\n   val COMMENT_NODE: Short\n   val DOCUMENT_NODE: Short\n   val DOCUMENT_TYPE_NODE: Short\n   val DOCUMENT_FRAGMENT_NODE: Short\n   val NOTATION_NODE: Short\n   val DOCUMENT_POSITION_DISCONNECTED: Short\n   val DOCUMENT_POSITION_PRECEDING: Short\n   val DOCUMENT_POSITION_FOLLOWING: Short\n   val DOCUMENT_POSITION_CONTAINS: Short\n   val DOCUMENT_POSITION_CONTAINED_BY: Short\n   val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n   }\n}\n\n/**\n * Exposes the JavaScript [HTMLMeterElement](https://developer.mozilla.org/en/docs/Web/API/HTMLMeterElement) to Kotlin\n */\npublic external abstract class HTMLMeterElement : HTMLElement {\n   open var value: Double\n   open var min: Double\n   open var max: Double\n   open var low: Double\n   open var high: Double\n   open var optimum: Double\n   open val labels: NodeList\n\n   companion object {\n   val ELEMENT_NODE: Short\n   val ATTRIBUTE_NODE: Short\n   val TEXT_NODE: Short\n   val CDATA_SECTION_NODE: Short\n   val ENTITY_REFERENCE_NODE: Short\n   val ENTITY_NODE: Short\n   val PROCESSING_INSTRUCTION_NODE: Short\n   val COMMENT_NODE: Short\n   val DOCUMENT_NODE: Short\n   val DOCUMENT_TYPE_NODE: Short\n   val DOCUMENT_FRAGMENT_NODE: Short\n   val NOTATION_NODE: Short\n   val DOCUMENT_POSITION_DISCONNECTED: Short\n   val DOCUMENT_POSITION_PRECEDING: Short\n   val DOCUMENT_POSITION_FOLLOWING: Short\n   val DOCUMENT_POSITION_CONTAINS: Short\n   val DOCUMENT_POSITION_CONTAINED_BY: Short\n   val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n   }\n}\n\n/**\n * Exposes the JavaScript [HTMLFieldSetElement](https://developer.mozilla.org/en/docs/Web/API/HTMLFieldSetElement) to Kotlin\n */\npublic external abstract class HTMLFieldSetElement : HTMLElement {\n   open var disabled: Boolean\n   open val form: HTMLFormElement?\n   open var name: String\n   open val type: String\n   open val elements: HTMLCollection\n   open val willValidate: Boolean\n   open val validity: ValidityState\n   open val validationMessage: String\n   fun checkValidity(): Boolean\n   fun reportValidity(): Boolean\n   fun setCustomValidity(error: String)\n\n   companion object {\n   val ELEMENT_NODE: Short\n   val ATTRIBUTE_NODE: Short\n   val TEXT_NODE: Short\n   val CDATA_SECTION_NODE: Short\n   val ENTITY_REFERENCE_NODE: Short\n   val ENTITY_NODE: Short\n   val PROCESSING_INSTRUCTION_NODE: Short\n   val COMMENT_NODE: Short\n   val DOCUMENT_NODE: Short\n   val DOCUMENT_TYPE_NODE: Short\n   val

DOCUMENT_FRAGMENT_NODE: Short\n val NOTATION_NODE: Short\n val DOCUMENT_POSITION_DISCONNECTED: Short\n val DOCUMENT_POSITION_PRECEDING: Short\n val DOCUMENT_POSITION_FOLLOWING: Short\n val DOCUMENT_POSITION_CONTAINS: Short\n val DOCUMENT_POSITION_CONTAINED_BY: Short\n val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n }\n}\n\n/**\n * Exposes the JavaScript [HTMLLegendElement](https://developer.mozilla.org/en/docs/Web/API/HTMLLegendElement) to Kotlin\n */\npublic external abstract class HTMLLegendElement : HTMLElement {\n open val form: HTMLFormElement?\n open var align: String\n\n companion object {\n val ELEMENT_NODE: Short\n val ATTRIBUTE_NODE: Short\n val TEXT_NODE: Short\n val CDATA_SECTION_NODE: Short\n val ENTITY_REFERENCE_NODE: Short\n val ENTITY_NODE: Short\n val PROCESSING_INSTRUCTION_NODE: Short\n val COMMENT_NODE: Short\n val DOCUMENT_NODE: Short\n val DOCUMENT_TYPE_NODE: Short\n val DOCUMENT_FRAGMENT_NODE: Short\n val NOTATION_NODE: Short\n val DOCUMENT_POSITION_DISCONNECTED: Short\n val DOCUMENT_POSITION_PRECEDING: Short\n val DOCUMENT_POSITION_FOLLOWING: Short\n val DOCUMENT_POSITION_CONTAINS: Short\n val DOCUMENT_POSITION_CONTAINED_BY: Short\n val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n }\n}\n\n/**\n * Exposes the JavaScript [ValidityState](https://developer.mozilla.org/en/docs/Web/API/ValidityState) to Kotlin\n */\npublic external abstract class ValidityState {\n open val valueMissing: Boolean\n open val typeMismatch: Boolean\n open val patternMismatch: Boolean\n open val tooLong: Boolean\n open val tooShort: Boolean\n open val rangeUnderflow: Boolean\n open val rangeOverflow: Boolean\n open val stepMismatch: Boolean\n open val badInput: Boolean\n open val customError: Boolean\n open val valid: Boolean\n}\n\n/**\n * Exposes the JavaScript [HTMLDetailsElement](https://developer.mozilla.org/en/docs/Web/API/HTMLDetailsElement) to Kotlin\n */\npublic external abstract class HTMLDetailsElement : HTMLElement {\n open var open: Boolean\n\n companion object {\n val ELEMENT_NODE: Short\n val ATTRIBUTE_NODE: Short\n val TEXT_NODE: Short\n val CDATA_SECTION_NODE: Short\n val ENTITY_REFERENCE_NODE: Short\n val ENTITY_NODE: Short\n val PROCESSING_INSTRUCTION_NODE: Short\n val COMMENT_NODE: Short\n val DOCUMENT_NODE: Short\n val DOCUMENT_TYPE_NODE: Short\n val DOCUMENT_FRAGMENT_NODE: Short\n val NOTATION_NODE: Short\n val DOCUMENT_POSITION_DISCONNECTED: Short\n val DOCUMENT_POSITION_PRECEDING: Short\n val DOCUMENT_POSITION_FOLLOWING: Short\n val DOCUMENT_POSITION_CONTAINS: Short\n val DOCUMENT_POSITION_CONTAINED_BY: Short\n val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n }\n}\n\npublic external abstract class HTMLMenuElement : HTMLElement {\n open var type: String\n open var label: String\n open var compact: Boolean\n\n companion object {\n val ELEMENT_NODE: Short\n val ATTRIBUTE_NODE: Short\n val TEXT_NODE: Short\n val CDATA_SECTION_NODE: Short\n val ENTITY_REFERENCE_NODE: Short\n val ENTITY_NODE: Short\n val PROCESSING_INSTRUCTION_NODE: Short\n val COMMENT_NODE: Short\n val DOCUMENT_NODE: Short\n val DOCUMENT_TYPE_NODE: Short\n val DOCUMENT_FRAGMENT_NODE: Short\n val NOTATION_NODE: Short\n val DOCUMENT_POSITION_DISCONNECTED: Short\n val DOCUMENT_POSITION_PRECEDING: Short\n val DOCUMENT_POSITION_FOLLOWING: Short\n val DOCUMENT_POSITION_CONTAINS: Short\n val DOCUMENT_POSITION_CONTAINED_BY: Short\n val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n }\n}\n\npublic external abstract class HTMLMenuItemElement : HTMLElement {\n open var type: String\n open var label: String\n open var icon: String\n open var disabled: Boolean\n open var checked: Boolean\n open var radiogroup: String\n open var default: Boolean\n\n companion object {\n val ELEMENT_NODE: Short\n val ATTRIBUTE_NODE: Short\n val TEXT_NODE: Short\n val CDATA_SECTION_NODE: Short\n val ENTITY_REFERENCE_NODE: Short\n val ENTITY_NODE: Short\n val

PROCESSING_INSTRUCTION_NODE: Short\n   val COMMENT_NODE: Short\n   val DOCUMENT_NODE: Short\n   val DOCUMENT_TYPE_NODE: Short\n   val DOCUMENT_FRAGMENT_NODE: Short\n   val NOTATION_NODE: Short\n   val DOCUMENT_POSITION_DISCONNECTED: Short\n   val DOCUMENT_POSITION_PRECEDING: Short\n   val DOCUMENT_POSITION_FOLLOWING: Short\n   val DOCUMENT_POSITION_CONTAINS: Short\n   val DOCUMENT_POSITION_CONTAINED_BY: Short\n   val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n   }\n}\n\npublic external open class RelatedEvent(type: String, eventInitDict: RelatedEventInit = definedExternally) : Event {\n   open val relatedTarget: EventTarget?\n\n   companion object {\n   val NONE: Short\n   val CAPTURING_PHASE: Short\n   val AT_TARGET: Short\n   val BUBBLING_PHASE: Short\n   }\n}\n\npublic external interface RelatedEventInit : EventInit {\n   var relatedTarget: EventTarget? /* = null */\n   get() = definedExternally\n set(value) = definedExternally\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline fun RelatedEventInit(relatedTarget: EventTarget? = null, bubbles: Boolean? = false, cancelable: Boolean? = false, composed: Boolean? = false): RelatedEventInit {\n   val o = js(\"({})\")\n   o[\"relatedTarget\"] = relatedTarget\n   o[\"bubbles\"] = bubbles\n o[\"cancelable\"] = cancelable\n   o[\"composed\"] = composed\n   return o\n}\n\n/**\n * Exposes the JavaScript [HTMLDialogElement](https://developer.mozilla.org/en/docs/Web/API/HTMLDialogElement) to Kotlin\n */\npublic external abstract class HTMLDialogElement : HTMLElement {\n   open var open: Boolean\n   open var returnValue: String\n   fun show(anchor: UnionElementOrMouseEvent = definedExternally)\n   fun showModal(anchor: UnionElementOrMouseEvent = definedExternally)\n   fun close(returnValue: String = definedExternally)\n\n   companion object {\n   val ELEMENT_NODE: Short\n   val ATTRIBUTE_NODE: Short\n   val TEXT_NODE: Short\n   val CDATA_SECTION_NODE: Short\n   val ENTITY_REFERENCE_NODE: Short\n   val ENTITY_NODE: Short\n   val PROCESSING_INSTRUCTION_NODE: Short\n   val COMMENT_NODE: Short\n   val DOCUMENT_NODE: Short\n   val DOCUMENT_TYPE_NODE: Short\n   val DOCUMENT_FRAGMENT_NODE: Short\n   val NOTATION_NODE: Short\n   val DOCUMENT_POSITION_DISCONNECTED: Short\n   val DOCUMENT_POSITION_PRECEDING: Short\n   val DOCUMENT_POSITION_FOLLOWING: Short\n   val DOCUMENT_POSITION_CONTAINS: Short\n   val DOCUMENT_POSITION_CONTAINED_BY: Short\n   val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n   }\n}\n\n/**\n * Exposes the JavaScript [HTMLScriptElement](https://developer.mozilla.org/en/docs/Web/API/HTMLScriptElement) to Kotlin\n */\npublic external abstract class HTMLScriptElement : HTMLElement, HTMLOrSVGScriptElement {\n   open var src: String\n   open var type: String\n   open var charset: String\n   open var async: Boolean\n   open var defer: Boolean\n   open var crossOrigin: String?\n   open var text: String\n   open var nonce: String\n   open var event: String\n   open var htmlFor: String\n\n   companion object {\n   val ELEMENT_NODE: Short\n   val ATTRIBUTE_NODE: Short\n   val TEXT_NODE: Short\n   val CDATA_SECTION_NODE: Short\n   val ENTITY_REFERENCE_NODE: Short\n   val ENTITY_NODE: Short\n   val PROCESSING_INSTRUCTION_NODE: Short\n   val COMMENT_NODE: Short\n   val DOCUMENT_NODE: Short\n   val DOCUMENT_TYPE_NODE: Short\n   val DOCUMENT_FRAGMENT_NODE: Short\n   val NOTATION_NODE: Short\n   val DOCUMENT_POSITION_DISCONNECTED: Short\n   val DOCUMENT_POSITION_PRECEDING: Short\n   val DOCUMENT_POSITION_FOLLOWING: Short\n   val DOCUMENT_POSITION_CONTAINS: Short\n   val DOCUMENT_POSITION_CONTAINED_BY: Short\n   val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n   }\n}\n\n/**\n * Exposes the JavaScript [HTMLTemplateElement](https://developer.mozilla.org/en/docs/Web/API/HTMLTemplateElement) to Kotlin\n */\npublic external abstract class HTMLTemplateElement : HTMLElement {\n   open val content: DocumentFragment\n\n   companion object {\n   val ELEMENT_NODE: Short\n   val ATTRIBUTE_NODE: Short\n   val TEXT_NODE: Short\n   val CDATA_SECTION_NODE: Short\n   val

ENTITY_REFERENCE_NODE: Short\n val ENTITY_NODE: Short\n val PROCESSING_INSTRUCTION_NODE: Short\n val COMMENT_NODE: Short\n val DOCUMENT_NODE: Short\n val DOCUMENT_TYPE_NODE: Short\n val DOCUMENT_FRAGMENT_NODE: Short\n val NOTATION_NODE: Short\n val DOCUMENT_POSITION_DISCONNECTED: Short\n val DOCUMENT_POSITION_PRECEDING: Short\n val DOCUMENT_POSITION_FOLLOWING: Short\n val DOCUMENT_POSITION_CONTAINS: Short\n val DOCUMENT_POSITION_CONTAINED_BY: Short\n val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n }\n}\n\n/**\n * Exposes the JavaScript [HTMLSlotElement](https://developer.mozilla.org/en/docs/Web/API/HTMLSlotElement) to Kotlin\n */\npublic external abstract class HTMLSlotElement : HTMLElement {\n open var name: String\n fun assignedNodes(options: AssignedNodesOptions = definedExternally): Array<Node>\n\n companion object {\n val ELEMENT_NODE: Short\n val ATTRIBUTE_NODE: Short\n val TEXT_NODE: Short\n val CDATA_SECTION_NODE: Short\n val ENTITY_REFERENCE_NODE: Short\n val ENTITY_NODE: Short\n val PROCESSING_INSTRUCTION_NODE: Short\n val COMMENT_NODE: Short\n val DOCUMENT_NODE: Short\n val DOCUMENT_TYPE_NODE: Short\n val DOCUMENT_FRAGMENT_NODE: Short\n val NOTATION_NODE: Short\n val DOCUMENT_POSITION_DISCONNECTED: Short\n val DOCUMENT_POSITION_PRECEDING: Short\n val DOCUMENT_POSITION_FOLLOWING: Short\n val DOCUMENT_POSITION_CONTAINS: Short\n val DOCUMENT_POSITION_CONTAINED_BY: Short\n val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n }\n}\n\npublic external interface AssignedNodesOptions {\n var flatten: Boolean? /* = false */\n get() = definedExternally\n set(value) = definedExternally\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline fun AssignedNodesOptions(flatten: Boolean? = false): AssignedNodesOptions {\n val o = js(\"({})\")\n o[\"flatten\"] = flatten\n return o\n}\n\n/**\n * Exposes the JavaScript [HTMLCanvasElement](https://developer.mozilla.org/en/docs/Web/API/HTMLCanvasElement) to Kotlin\n */\npublic external abstract class HTMLCanvasElement : HTMLElement, CanvasImageSource, TexImageSource {\n open var width: Int\n open var height: Int\n fun getContext(contextId: String, vararg arguments: Any?): RenderingContext?\n fun toDataURL(type: String = definedExternally, quality: Any? = definedExternally): String\n fun toBlob(_callback: (Blob?) -> Unit, type: String = definedExternally, quality: Any? = definedExternally)\n\n companion object {\n val ELEMENT_NODE: Short\n val ATTRIBUTE_NODE: Short\n val TEXT_NODE: Short\n val CDATA_SECTION_NODE: Short\n val ENTITY_REFERENCE_NODE: Short\n val ENTITY_NODE: Short\n val PROCESSING_INSTRUCTION_NODE: Short\n val COMMENT_NODE: Short\n val DOCUMENT_NODE: Short\n val DOCUMENT_TYPE_NODE: Short\n val DOCUMENT_FRAGMENT_NODE: Short\n val NOTATION_NODE: Short\n val DOCUMENT_POSITION_DISCONNECTED: Short\n val DOCUMENT_POSITION_PRECEDING: Short\n val DOCUMENT_POSITION_FOLLOWING: Short\n val DOCUMENT_POSITION_CONTAINS: Short\n val DOCUMENT_POSITION_CONTAINED_BY: Short\n val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n }\n}\n\npublic external interface CanvasRenderingContext2DSettings {\n var alpha: Boolean? /* = true */\n get() = definedExternally\n set(value) = definedExternally\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline fun CanvasRenderingContext2DSettings(alpha: Boolean? = true): CanvasRenderingContext2DSettings {\n val o = js(\"({})\")\n o[\"alpha\"] = alpha\n return o\n}\n\n/**\n * Exposes the JavaScript [CanvasRenderingContext2D](https://developer.mozilla.org/en/docs/Web/API/CanvasRenderingContext2D) to Kotlin\n */\npublic external abstract class CanvasRenderingContext2D : CanvasState, CanvasTransform, CanvasCompositing, CanvasImageSmoothing, CanvasFillStrokeStyles, CanvasShadowStyles, CanvasFilters, CanvasRect, CanvasDrawPath, CanvasUserInterface, CanvasText, CanvasDrawImage, CanvasHitRegion, CanvasImageData, CanvasPathDrawingStyles, CanvasTextDrawingStyles, CanvasPath, RenderingContext {\n open val canvas: HTMLCanvasElement\n}\n\npublic external interface CanvasState {\n fun save()\n fun restore()\n}\n\npublic external interface CanvasTransform {\n fun scale(x: Double, y: Double)\n fun rotate(angle: Double)\n fun translate(x: Double, y: Double)\n fun transform(a: Double, b: Double, c: Double, d: Double, e: Double, f: Double)\n fun getTransform(): DOMMatrix\n fun setTransform(a: Double, b: Double, c: Double, d: Double, e: Double, f: Double)\n fun setTransform(transform: dynamic = definedExternally)\n fun resetTransform()\n}\n\npublic external interface CanvasCompositing {\n var globalAlpha: Double\n var globalCompositeOperation: String\n}\n\npublic external interface CanvasImageSmoothing {\n var imageSmoothingEnabled: Boolean\n var imageSmoothingQuality: ImageSmoothingQuality\n}\n\npublic external interface CanvasFillStrokeStyles {\n var strokeStyle: dynamic\n get() = definedExternally\n set(value) = definedExternally\n var fillStyle: dynamic\n get() = definedExternally\n set(value) = definedExternally\n fun createLinearGradient(x0: Double, y0: Double, x1: Double, y1: Double): CanvasGradient\n fun createRadialGradient(x0: Double, y0: Double, r0: Double, x1: Double, y1: Double, r1: Double): CanvasGradient\n fun createPattern(image: CanvasImageSource, repetition: String): CanvasPattern?\n}\n\npublic external interface CanvasShadowStyles {\n var shadowOffsetX: Double\n var shadowOffsetY: Double\n var shadowBlur: Double\n var shadowColor: String\n}\n\npublic external interface CanvasFilters {\n var filter: String\n}\n\npublic external interface CanvasRect {\n fun clearRect(x: Double, y: Double, w: Double, h: Double)\n fun fillRect(x: Double, y: Double, w: Double, h: Double)\n fun strokeRect(x: Double, y: Double, w: Double, h: Double)\n}\n\npublic external interface CanvasDrawPath {\n fun beginPath()\n fun fill(fillRule: CanvasFillRule = definedExternally)\n fun fill(path: Path2D, fillRule: CanvasFillRule = definedExternally)\n fun stroke()\n fun stroke(path: Path2D)\n fun clip(fillRule: CanvasFillRule = definedExternally)\n fun clip(path: Path2D, fillRule: CanvasFillRule = definedExternally)\n fun resetClip()\n fun isPointInPath(x: Double, y: Double, fillRule: CanvasFillRule = definedExternally): Boolean\n fun isPointInPath(path: Path2D, x: Double, y: Double, fillRule: CanvasFillRule = definedExternally): Boolean\n fun isPointInStroke(x: Double, y: Double): Boolean\n fun isPointInStroke(path: Path2D, x: Double, y: Double): Boolean\n}\n\npublic external interface CanvasUserInterface {\n fun drawFocusIfNeeded(element: Element)\n fun drawFocusIfNeeded(path: Path2D, element: Element)\n fun scrollPathIntoView()\n fun scrollPathIntoView(path: Path2D)\n}\n\npublic external interface CanvasText {\n fun fillText(text: String, x: Double, y: Double, maxWidth: Double = definedExternally)\n fun strokeText(text: String, x: Double, y: Double, maxWidth: Double = definedExternally)\n fun measureText(text: String): TextMetrics\n}\n\npublic external interface CanvasDrawImage {\n fun drawImage(image: CanvasImageSource, dx: Double, dy: Double)\n fun drawImage(image: CanvasImageSource, dx: Double, dy: Double, dw: Double, dh: Double)\n fun drawImage(image: CanvasImageSource, sx: Double, sy: Double, sw: Double, sh: Double, dx: Double, dy: Double, dw: Double, dh: Double)\n}\n\npublic external interface CanvasHitRegion {\n fun addHitRegion(options: HitRegionOptions = definedExternally)\n fun removeHitRegion(id: String)\n fun clearHitRegions()\n}\n\npublic external interface CanvasImageData {\n fun createImageData(sw: Double, sh: Double): ImageData\n fun createImageData(imagedata: ImageData): ImageData\n fun getImageData(sx: Double, sy: Double, sw: Double, sh: Double): ImageData\n fun putImageData(imagedata: ImageData, dx: Double, dy: Double)\n fun putImageData(imagedata: ImageData, dx: Double, dy: Double, dirtyX: Double, dirtyY: Double, dirtyWidth: Double, dirtyHeight: Double)\n}\n\npublic external interface CanvasPathDrawingStyles {\n var lineWidth: Double\n var lineCap: CanvasLineCap\n var lineJoin: CanvasLineJoin\n var miterLimit: Double\n var lineDashOffset: Double\n fun setLineDash(segments: Array<Double>)\n fun getLineDash(): Array<Double>\n}\n\npublic external interface CanvasTextDrawingStyles {\n var font: String\n var textAlign: CanvasTextAlign\n var textBaseline: CanvasTextBaseline\n var direction: CanvasDirection\n}\n\npublic external interface CanvasPath {\n fun closePath()\n fun moveTo(x: Double, y: Double)\n fun lineTo(x: Double, y: Double)\n fun quadraticCurveTo(cpx: Double, cpy: Double, x: Double, y: Double)\n fun bezierCurveTo(cp1x: Double, cp1y: Double, cp2x: Double, cp2y: Double, x: Double, y: Double)\n fun arcTo(x1: Double, y1: Double, x2: Double, y2: Double, radius: Double)\n fun arcTo(x1: Double, y1: Double, x2: Double, y2: Double, radiusX: Double, radiusY: Double, rotation: Double)\n fun rect(x: Double, y: Double, w: Double, h: Double)\n fun arc(x: Double, y: Double, radius: Double, startAngle: Double, endAngle: Double, anticlockwise: Boolean = definedExternally)\n fun ellipse(x: Double, y: Double, radiusX: Double, radiusY: Double, rotation: Double, startAngle: Double, endAngle: Double, anticlockwise: Boolean = definedExternally)\n}\n\n/**\n * Exposes the JavaScript [CanvasGradient](https://developer.mozilla.org/en/docs/Web/API/CanvasGradient) to Kotlin\n */\npublic external abstract class CanvasGradient {\n fun addColorStop(offset: Double, color: String)\n}\n\n/**\n * Exposes the JavaScript [CanvasPattern](https://developer.mozilla.org/en/docs/Web/API/CanvasPattern) to Kotlin\n */\npublic external abstract class CanvasPattern {\n fun setTransform(transform: dynamic = definedExternally)\n}\n\n/**\n * Exposes the JavaScript [TextMetrics](https://developer.mozilla.org/en/docs/Web/API/TextMetrics) to Kotlin\n */\npublic external abstract class TextMetrics {\n open val width: Double\n open val actualBoundingBoxLeft: Double\n open val actualBoundingBoxRight: Double\n open val fontBoundingBoxAscent: Double\n open val fontBoundingBoxDescent: Double\n open val actualBoundingBoxAscent: Double\n open val actualBoundingBoxDescent: Double\n open val emHeightAscent: Double\n open val emHeightDescent: Double\n open val hangingBaseline: Double\n open val alphabeticBaseline: Double\n open val ideographicBaseline: Double\n}\n\npublic external interface HitRegionOptions {\n var path: Path2D? /* = null */\n get() = definedExternally\n set(value) = definedExternally\n var fillRule: CanvasFillRule? /* = CanvasFillRule.NONZERO */\n get() = definedExternally\n set(value) = definedExternally\n var id: String? /* = \"\" */\n get() = definedExternally\n set(value) = definedExternally\n var parentID: String? /* = null */\n get() = definedExternally\n set(value) = definedExternally\n var cursor: String? /* = \"inherit\" */\n get() = definedExternally\n set(value) = definedExternally\n var control: Element? /* = null */\n get() = definedExternally\n set(value) = definedExternally\n var label: String? /* = null */\n get() = definedExternally\n set(value) = definedExternally\n var role: String? /* = null */\n get() = definedExternally\n set(value) = definedExternally\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline fun HitRegionOptions(path: Path2D? = null, fillRule: CanvasFillRule? = CanvasFillRule.NONZERO, id: String? = \"\", parentID: String? = null, cursor: String? = \"inherit\", control: Element? = null, label: String? = null, role: String? = null): HitRegionOptions {\n val o = js(\"({})\")\n o[\"path\"] = path\n o[\"fillRule\"] = fillRule\n o[\"id\"] = id\n o[\"parentID\"] = parentID\n o[\"cursor\"] = cursor\n o[\"control\"] = control\n o[\"label\"] = label\n o[\"role\"] = role\n return o\n}\n\n/**\n * Exposes the JavaScript [ImageData](https://developer.mozilla.org/en/docs/Web/API/ImageData) to Kotlin\n */\npublic external open class ImageData : ImageBitmapSource, TexImageSource {\n constructor(sw: Int, sh: Int)\n constructor(data: Uint8ClampedArray, sw: Int, sh: Int = definedExternally)\n open val width: Int\n open val height: Int\n open val data: Uint8ClampedArray\n}\n\n/**\n * Exposes the JavaScript [Path2D](https://developer.mozilla.org/en/docs/Web/API/Path2D) to Kotlin\n */\npublic external open class Path2D() : CanvasPath {\n constructor(path: Path2D)\n constructor(paths: Array<Path2D>, fillRule: CanvasFillRule = definedExternally)\n constructor(d: String)\n fun addPath(path: Path2D, transform: dynamic = definedExternally)\n override fun closePath()\n override fun moveTo(x: Double, y: Double)\n override fun lineTo(x: Double, y: Double)\n override fun quadraticCurveTo(cpx: Double, cpy: Double, x: Double, y: Double)\n override fun bezierCurveTo(cp1x: Double, cp1y: Double, cp2x: Double, cp2y: Double, x: Double, y: Double)\n override fun arcTo(x1: Double, y1: Double, x2: Double, y2: Double, radius: Double)\n override fun arcTo(x1: Double, y1: Double, x2: Double, y2: Double, radiusX: Double, radiusY: Double, rotation: Double)\n override fun rect(x: Double, y: Double, w: Double, h: Double)\n override fun arc(x: Double, y: Double, radius: Double, startAngle: Double, endAngle: Double, anticlockwise: Boolean /* = definedExternally */)\n override fun ellipse(x: Double, y: Double, radiusX: Double, radiusY: Double, rotation: Double, startAngle: Double, endAngle: Double, anticlockwise: Boolean /* = definedExternally */)\n}\n\n/**\n * Exposes the JavaScript [ImageBitmapRenderingContext](https://developer.mozilla.org/en/docs/Web/API/ImageBitmapRenderingContext) to Kotlin\n */\npublic external abstract class ImageBitmapRenderingContext {\n open val canvas: HTMLCanvasElement\n fun transferFromImageBitmap(bitmap: ImageBitmap?)\n}\n\npublic external interface

ImageBitmapRenderingContextSettings {\n   var alpha: Boolean? /* = true */\n   get() = definedExternally\n set(value) = definedExternally\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline fun ImageBitmapRenderingContextSettings(alpha: Boolean? = true): ImageBitmapRenderingContextSettings {\n   val o = js(\"({})\")\n   o[\"alpha\"] = alpha\n   return o\n}\n\n/**\n * Exposes the JavaScript [CustomElementRegistry](https://developer.mozilla.org/en/docs/Web/API/CustomElementRegistry) to Kotlin\n */\npublic external abstract class CustomElementRegistry {\n   fun define(name: String, constructor: () -> dynamic, options: ElementDefinitionOptions = definedExternally)\n   fun get(name: String): Any?\n   fun whenDefined(name: String): Promise<Unit>\n}\n\npublic external interface ElementDefinitionOptions {\n   var extends: String?\n   get() = definedExternally\n   set(value) = definedExternally\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline fun ElementDefinitionOptions(extends: String? = undefined): ElementDefinitionOptions {\n   val o = js(\"({})\")\n   o[\"extends\"] = extends\n   return o\n}\n\npublic external interface ElementContentEditable {\n   var contentEditable: String\n   val isContentEditable: Boolean\n}\n\n/**\n * Exposes the JavaScript [DataTransfer](https://developer.mozilla.org/en/docs/Web/API/DataTransfer) to Kotlin\n */\npublic external abstract class DataTransfer {\n   open var dropEffect: String\n   open var effectAllowed: String\n   open val items: DataTransferItemList\n   open val types: Array<out String>\n   open val files: FileList\n   fun setDragImage(image: Element, x: Int, y: Int)\n   fun getData(format: String): String\n   fun setData(format: String, data: String)\n   fun clearData(format: String = definedExternally)\n}\n\n/**\n * Exposes the JavaScript [DataTransferItemList](https://developer.mozilla.org/en/docs/Web/API/DataTransferItemList) to Kotlin\n */\npublic external abstract class DataTransferItemList {\n   open val length: Int\n   fun add(data: String, type: String): DataTransferItem?\n   fun add(data: File): DataTransferItem?\n   fun remove(index: Int)\n   fun clear()\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline operator fun DataTransferItemList.get(index: Int): DataTransferItem? = asDynamic()[index]\n\n/**\n * Exposes the JavaScript [DataTransferItem](https://developer.mozilla.org/en/docs/Web/API/DataTransferItem) to Kotlin\n */\npublic external abstract class DataTransferItem {\n   open val kind: String\n   open val type: String\n   fun getAsString(_callback: ((String) -> Unit)?)\n   fun getAsFile(): File?\n}\n\n/**\n * Exposes the JavaScript [DragEvent](https://developer.mozilla.org/en/docs/Web/API/DragEvent) to Kotlin\n */\npublic external open class DragEvent(type: String, eventInitDict: DragEventInit = definedExternally) : MouseEvent {\n   open val dataTransfer: DataTransfer?\n\n   companion object {\n   val NONE: Short\n   val CAPTURING_PHASE: Short\n   val AT_TARGET: Short\n   val BUBBLING_PHASE: Short\n   }\n}\n\npublic external interface DragEventInit : MouseEventInit {\n   var dataTransfer: DataTransfer? /* = null */\n   get() = definedExternally\n   set(value) = definedExternally\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline fun DragEventInit(dataTransfer: DataTransfer? = null, screenX: Int? = 0, screenY: Int? = 0, clientX: Int? = 0, clientY: Int? = 0, button: Short? = 0, buttons: Short? = 0, relatedTarget: EventTarget? = null, region: String? = null, ctrlKey: Boolean? = false, shiftKey: Boolean? = false, altKey: Boolean? = false, metaKey: Boolean? = false, modifierAltGraph: Boolean? = false, modifierCapsLock: Boolean? = false, modifierFn: Boolean? = false, modifierFnLock: Boolean? = false, modifierHyper: Boolean? = false, modifierNumLock: Boolean? = false, modifierScrollLock: Boolean? = false, modifierSuper: Boolean? = false, modifierSymbol: Boolean? = false, modifierSymbolLock: Boolean? = false, view: Window? = null, detail: Int? = 0, bubbles: Boolean? = false, cancelable: Boolean? = false, composed: Boolean? = false): DragEventInit {\n   val o = js(\"({})\")\n   o[\"dataTransfer\"] = dataTransfer\n   o[\"screenX\"] = screenX\n   o[\"screenY\"] = screenY\n   o[\"clientX\"] = clientX\n   o[\"clientY\"] = clientY\n   o[\"button\"] = button\n   o[\"buttons\"] = buttons\n   o[\"relatedTarget\"] = relatedTarget\n   o[\"region\"] = region\n   o[\"ctrlKey\"] = ctrlKey\n   o[\"shiftKey\"] = shiftKey\n   o[\"altKey\"] = altKey\n   o[\"metaKey\"] = metaKey\n   o[\"modifierAltGraph\"] = modifierAltGraph\n   o[\"modifierCapsLock\"] = modifierCapsLock\n o[\"modifierFn\"] = modifierFn\n   o[\"modifierFnLock\"] = modifierFnLock\n   o[\"modifierHyper\"] = modifierHyper\n   o[\"modifierNumLock\"] = modifierNumLock\n   o[\"modifierScrollLock\"] = modifierScrollLock\n   o[\"modifierSuper\"] = modifierSuper\n   o[\"modifierSymbol\"] = modifierSymbol\n o[\"modifierSymbolLock\"] = modifierSymbolLock\n   o[\"view\"] = view\n   o[\"detail\"] = detail\n o[\"bubbles\"] = bubbles\n   o[\"cancelable\"] = cancelable\n   o[\"composed\"] = composed\n   return o\n}\n\n/**\n * Exposes the JavaScript [Window](https://developer.mozilla.org/en/docs/Web/API/Window) to Kotlin\n */\npublic external abstract class Window : EventTarget, GlobalEventHandlers, WindowEventHandlers, WindowOrWorkerGlobalScope, WindowSessionStorage, WindowLocalStorage, GlobalPerformance, UnionMessagePortOrWindowProxy {\n   open val window: Window\n   open val self: Window\n   open val document: Document\n   open var name: String\n   open val location: Location\n   open val history: History\n open val customElements: CustomElementRegistry\n   open val locationbar: BarProp\n   open val menubar: BarProp\n   open val personalbar: BarProp\n   open val scrollbars: BarProp\n   open val statusbar: BarProp\n open val toolbar: BarProp\n   open var status: String\n   open val closed: Boolean\n   open val frames: Window\n open val length: Int\n   open val top: Window\n   open var opener: Any?\n   open val parent: Window\n   open val frameElement: Element?\n   open val navigator: Navigator\n   open val applicationCache: ApplicationCache\n open val external: External\n   open val screen: Screen\n   open val innerWidth: Int\n   open val innerHeight: Int\n open val scrollX: Double\n   open val pageXOffset: Double\n   open val scrollY: Double\n   open val pageYOffset: Double\n   open val screenX: Int\n   open val screenY: Int\n   open val outerWidth: Int\n   open val outerHeight: Int\n   open val devicePixelRatio: Double\n   fun close()\n   fun stop()\n   fun focus()\n   fun blur()\n fun open(url: String = definedExternally, target: String = definedExternally, features: String = definedExternally): Window?\n   fun alert()\n   fun alert(message: String)\n   fun confirm(message: String = definedExternally): Boolean\n   fun prompt(message: String = definedExternally, default: String = definedExternally): String?\n   fun print()\n   fun requestAnimationFrame(callback: (Double) -> Unit): Int\n   fun cancelAnimationFrame(handle: Int)\n   fun postMessage(message: Any?, targetOrigin: String, transfer: Array<dynamic> = definedExternally)\n fun captureEvents()\n   fun releaseEvents()\n   fun matchMedia(query: String): MediaQueryList\n   fun moveTo(x: Int, y: Int)\n   fun moveBy(x: Int, y: Int)\n   fun resizeTo(x: Int, y: Int)\n   fun resizeBy(x: Int, y: Int)\n   fun scroll(options: ScrollToOptions = definedExternally)\n   fun scroll(x: Double, y: Double)\n   fun scrollTo(options: ScrollToOptions = definedExternally)\n   fun scrollTo(x: Double, y: Double)\n   fun scrollBy(options: ScrollToOptions = definedExternally)\n   fun scrollBy(x: Double, y: Double)\n   fun getComputedStyle(elt: Element, pseudoElt: String? = definedExternally): CSSStyleDeclaration\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline operator fun Window.get(name: String): dynamic = asDynamic()[name]\n\npublic external abstract class BarProp {\n   open val visible: Boolean\n}\n\n/**\n * Exposes the JavaScript [History](https://developer.mozilla.org/en/docs/Web/API/History) to Kotlin\n */\npublic external abstract class History {\n   open val length: Int\n   open var scrollRestoration: ScrollRestoration\n   open val state: Any?\n   fun go(delta: Int = definedExternally)\n   fun back()\n   fun forward()\n   fun pushState(data: Any?, title: String, url: String? = definedExternally)\n   fun replaceState(data: Any?, title: String, url: String? = definedExternally)\n}\n\n/**\n * Exposes the JavaScript [Location](https://developer.mozilla.org/en/docs/Web/API/Location) to Kotlin\n */\npublic external abstract class Location {\n   open var href: String\n   open val origin: String\n   open var protocol: String\n   open var host: String\n   open var hostname: String\n   open var port: String\n   open var pathname: String\n   open var search: String\n   open var hash: String\n   open val ancestorOrigins: Array<out String>\n   fun assign(url: String)\n   fun replace(url: String)\n   fun reload()\n}\n\n/**\n * Exposes the JavaScript [PopStateEvent](https://developer.mozilla.org/en/docs/Web/API/PopStateEvent) to Kotlin\n */\npublic external open class PopStateEvent(type: String, eventInitDict: PopStateEventInit = definedExternally) : Event {\n   open val state: Any?\n\n   companion object {\n   val NONE: Short\n   val CAPTURING_PHASE: Short\n   val AT_TARGET: Short\n   val BUBBLING_PHASE: Short\n   }\n}\n\npublic external interface PopStateEventInit : EventInit {\n   var state: Any? /* = null */\n   get() = definedExternally\n   set(value) =

definedExternally\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline fun PopStateEventInit(state: Any? = null, bubbles: Boolean? = false, cancelable: Boolean? = false, composed: Boolean? = false): PopStateEventInit {\n   val o = js(\"({})\")\n   o[\"state\"] = state\n   o[\"bubbles\"] = bubbles\n   o[\"cancelable\"] = cancelable\n   o[\"composed\"] = composed\n   return o\n}\n\n/**\n * Exposes the JavaScript [HashChangeEvent](https://developer.mozilla.org/en/docs/Web/API/HashChangeEvent) to Kotlin\n */\npublic external open class HashChangeEvent(type: String, eventInitDict: HashChangeEventInit = definedExternally) : Event {\n   open val oldURL: String\n   open val newURL: String\n\n   companion object {\n   val NONE: Short\n   val CAPTURING_PHASE: Short\n   val AT_TARGET: Short\n   val BUBBLING_PHASE: Short\n   }\n}\n\npublic external interface HashChangeEventInit : EventInit {\n   var oldURL: String? /* = \"\" */\n   get() = definedExternally\n   set(value) = definedExternally\n   var newURL: String? /* = \"\" */\n   get() = definedExternally\n   set(value) = definedExternally\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline fun HashChangeEventInit(oldURL: String? = \"\", newURL: String? = \"\", bubbles: Boolean? = false, cancelable: Boolean? = false, composed: Boolean? = false): HashChangeEventInit {\n   val o = js(\"({})\")\n   o[\"oldURL\"] = oldURL\n   o[\"newURL\"] = newURL\n   o[\"bubbles\"] = bubbles\n   o[\"cancelable\"] = cancelable\n   o[\"composed\"] = composed\n   return o\n}\n\n/**\n * Exposes the JavaScript [PageTransitionEvent](https://developer.mozilla.org/en/docs/Web/API/PageTransitionEvent) to Kotlin\n */\npublic external open class PageTransitionEvent(type: String, eventInitDict: PageTransitionEventInit = definedExternally) : Event {\n   open val persisted: Boolean\n\n   companion object {\n   val NONE: Short\n   val CAPTURING_PHASE: Short\n   val AT_TARGET: Short\n   val BUBBLING_PHASE: Short\n   }\n}\n\npublic external interface PageTransitionEventInit : EventInit {\n   var persisted: Boolean? /* = false */\n   get() = definedExternally\n   set(value) = definedExternally\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline fun PageTransitionEventInit(persisted: Boolean? = false, bubbles: Boolean? = false, cancelable: Boolean? = false, composed: Boolean? = false): PageTransitionEventInit {\n   val o = js(\"({})\")\n   o[\"persisted\"] = persisted\n   o[\"bubbles\"] = bubbles\n   o[\"cancelable\"] = cancelable\n   o[\"composed\"] = composed\n   return o\n}\n\n/**\n * Exposes the JavaScript [BeforeUnloadEvent](https://developer.mozilla.org/en/docs/Web/API/BeforeUnloadEvent) to Kotlin\n */\npublic external open class BeforeUnloadEvent : Event {\n   var returnValue: String\n\n   companion object {\n   val NONE: Short\n   val CAPTURING_PHASE: Short\n   val AT_TARGET: Short\n   val BUBBLING_PHASE: Short\n   }\n}\n\npublic external abstract class ApplicationCache : EventTarget {\n   open val status: Short\n   open var onchecking: ((Event) -> dynamic)?\n   open var onerror: ((Event) -> dynamic)?\n   open var onnoupdate: ((Event) -> dynamic)?\n   open var ondownloading: ((Event) -> dynamic)?\n   open var onprogress: ((ProgressEvent) -> dynamic)?\n   open var onupdateready: ((Event) -> dynamic)?\n   open var oncached: ((Event) -> dynamic)?\n   open var onobsolete: ((Event) -> dynamic)?\n   fun update()\n   fun abort()\n   fun swapCache()\n\n   companion object {\n   val UNCACHED: Short\n   val IDLE: Short\n   val CHECKING: Short\n   val DOWNLOADING: Short\n   val UPDATEREADY: Short\n   val OBSOLETE: Short\n   }\n}\n\n/**\n * Exposes the JavaScript [NavigatorOnLine](https://developer.mozilla.org/en/docs/Web/API/NavigatorOnLine) to Kotlin\n */\npublic external interface NavigatorOnLine {\n   val onLine: Boolean\n}\n\n/**\n * Exposes the JavaScript [ErrorEvent](https://developer.mozilla.org/en/docs/Web/API/ErrorEvent) to Kotlin\n */\npublic external open class ErrorEvent(type: String, eventInitDict: ErrorEventInit = definedExternally) : Event {\n   open val message: String\n   open val filename: String\n   open val lineno: Int\n   open val colno: Int\n   open val error: Any?\n\n   companion object {\n   val NONE: Short\n   val CAPTURING_PHASE: Short\n   val AT_TARGET: Short\n   val BUBBLING_PHASE: Short\n   }\n}\n\npublic external interface ErrorEventInit : EventInit {\n   var message: String? /* = \"\" */\n   get() = definedExternally\n   set(value) = definedExternally\n   var filename: String? /* = \"\" */\n   get() = definedExternally\n   set(value) = definedExternally\n   var lineno: Int? /* = 0 */\n   get() = definedExternally\n   set(value) = definedExternally\n   var colno: Int? /* = 0 */\n   get() =

definedExternally\n   set(value) = definedExternally\n   var error: Any? /* = null */\n   get() = definedExternally\n   set(value) = definedExternally\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline fun ErrorEventInit(message: String? = \"\", filename: String? = \"\", lineno: Int? = 0, colno: Int? = 0, error: Any? = null, bubbles: Boolean? = false, cancelable: Boolean? = false, composed: Boolean? = false): ErrorEventInit {\n   val o = js(\"({})\")\n   o[\"message\"] = message\n   o[\"filename\"] = filename\n   o[\"lineno\"] = lineno\n   o[\"colno\"] = colno\n   o[\"error\"] = error\n   o[\"bubbles\"] = bubbles\n   o[\"cancelable\"] = cancelable\n   o[\"composed\"] = composed\n   return o\n}\n\n/**\n * Exposes the JavaScript [PromiseRejectionEvent](https://developer.mozilla.org/en/docs/Web/API/PromiseRejectionEvent) to Kotlin\n */\npublic external open class PromiseRejectionEvent(type: String, eventInitDict: PromiseRejectionEventInit) : Event {\n   open val promise: Promise<Any?>\n   open val reason: Any?\n\n   companion object {\n   val NONE: Short\n   val CAPTURING_PHASE: Short\n   val AT_TARGET: Short\n   val BUBBLING_PHASE: Short\n   }\n}\n\npublic external interface PromiseRejectionEventInit : EventInit {\n   var promise: Promise<Any?>?\n   var reason: Any?\n   get() = definedExternally\n   set(value) = definedExternally\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline fun PromiseRejectionEventInit(promise: Promise<Any?>?, reason: Any? = undefined, bubbles: Boolean? = false, cancelable: Boolean? = false, composed: Boolean? = false): PromiseRejectionEventInit {\n   val o = js(\"({})\")\n   o[\"promise\"] = promise\n   o[\"reason\"] = reason\n   o[\"bubbles\"] = bubbles\n   o[\"cancelable\"] = cancelable\n   o[\"composed\"] = composed\n   return o\n}\n\n/**\n * Exposes the JavaScript [GlobalEventHandlers](https://developer.mozilla.org/en/docs/Web/API/GlobalEventHandlers) to Kotlin\n */\npublic external interface GlobalEventHandlers {\n   var onabort: ((Event) -> dynamic)?\n   get() = definedExternally\n   set(value) = definedExternally\n   var onblur: ((FocusEvent) -> dynamic)?\n   get() = definedExternally\n   set(value) = definedExternally\n   var oncancel: ((Event) -> dynamic)?\n   get() = definedExternally\n   set(value) = definedExternally\n   var oncanplay: ((Event) -> dynamic)?\n   get() = definedExternally\n   set(value) = definedExternally\n   var oncanplaythrough: ((Event) -> dynamic)?\n   get() = definedExternally\n   set(value) = definedExternally\n   var onchange: ((Event) -> dynamic)?\n   get() = definedExternally\n   set(value) = definedExternally\n   var onclick: ((MouseEvent) -> dynamic)?\n   get() = definedExternally\n   set(value) = definedExternally\n   var onclose: ((Event) -> dynamic)?\n   get() = definedExternally\n   set(value) = definedExternally\n   var oncontextmenu: ((MouseEvent) -> dynamic)?\n   get() = definedExternally\n   set(value) = definedExternally\n   var oncuechange: ((Event) -> dynamic)?\n   get() = definedExternally\n   set(value) = definedExternally\n   var ondblclick: ((MouseEvent) -> dynamic)?\n   get() = definedExternally\n   set(value) = definedExternally\n   var ondrag: ((DragEvent) -> dynamic)?\n   get() = definedExternally\n   set(value) = definedExternally\n   var ondragend: ((DragEvent) -> dynamic)?\n   get() = definedExternally\n   set(value) = definedExternally\n   var ondragenter: ((DragEvent) -> dynamic)?\n   get() = definedExternally\n   set(value) = definedExternally\n   var ondragexit: ((DragEvent) -> dynamic)?\n   get() = definedExternally\n   set(value) = definedExternally\n   var ondragleave: ((DragEvent) -> dynamic)?\n   get() = definedExternally\n   set(value) = definedExternally\n   var ondragover: ((DragEvent) -> dynamic)?\n   get() = definedExternally\n   set(value) = definedExternally\n   var ondragstart: ((DragEvent) -> dynamic)?\n   get() = definedExternally\n   set(value) = definedExternally\n   var ondrop: ((DragEvent) -> dynamic)?\n   get() = definedExternally\n   set(value) = definedExternally\n   var ondurationchange: ((Event) -> dynamic)?\n   get() = definedExternally\n   set(value) = definedExternally\n   var onemptied: ((Event) -> dynamic)?\n   get() = definedExternally\n   set(value) = definedExternally\n   var onended: ((Event) -> dynamic)?\n   get() = definedExternally\n   set(value) = definedExternally\n   var onerror: ((dynamic, String, Int, Int, Any?) -> dynamic)?\n   get() = definedExternally\n   set(value) = definedExternally\n   var onfocus: ((FocusEvent) -> dynamic)?\n   get() = definedExternally\n   set(value) = definedExternally\n   var oninput: ((InputEvent) -> dynamic)?\n   get() = definedExternally\n   set(value) = definedExternally\n   var oninvalid: ((Event) -> dynamic)?\n   get() = definedExternally\n   set(value) = definedExternally\n   var onkeydown:

((KeyboardEvent) -> dynamic)?\n   get() = definedExternally\n   set(value) = definedExternally\n   var onkeypress: ((KeyboardEvent) -> dynamic)?\n   get() = definedExternally\n   set(value) = definedExternally\n   var onkeyup: ((KeyboardEvent) -> dynamic)?\n   get() = definedExternally\n   set(value) = definedExternally\n   var onload: ((Event) -> dynamic)?\n   get() = definedExternally\n   set(value) = definedExternally\n   var onloadeddata: ((Event) -> dynamic)?\n   get() = definedExternally\n   set(value) = definedExternally\n   var onloadedmetadata: ((Event) -> dynamic)?\n   get() = definedExternally\n   set(value) = definedExternally\n   var onloadend: ((Event) -> dynamic)?\n   get() = definedExternally\n   set(value) = definedExternally\n   var onloadstart: ((ProgressEvent) -> dynamic)?\n   get() = definedExternally\n   set(value) = definedExternally\n   var onmousedown: ((MouseEvent) -> dynamic)?\n   get() = definedExternally\n   set(value) = definedExternally\n   var onmouseenter: ((MouseEvent) -> dynamic)?\n   get() = definedExternally\n   set(value) = definedExternally\n   var onmouseleave: ((MouseEvent) -> dynamic)?\n   get() = definedExternally\n   set(value) = definedExternally\n   var onmousemove: ((MouseEvent) -> dynamic)?\n   get() = definedExternally\n   set(value) = definedExternally\n   var onmouseout: ((MouseEvent) -> dynamic)?\n   get() = definedExternally\n   set(value) = definedExternally\n   var onmouseover: ((MouseEvent) -> dynamic)?\n   get() = definedExternally\n   set(value) = definedExternally\n   var onmouseup: ((MouseEvent) -> dynamic)?\n   get() = definedExternally\n   set(value) = definedExternally\n   var onwheel: ((WheelEvent) -> dynamic)?\n   get() = definedExternally\n   set(value) = definedExternally\n   var onpause: ((Event) -> dynamic)?\n   get() = definedExternally\n   set(value) = definedExternally\n   var onplay: ((Event) -> dynamic)?\n   get() = definedExternally\n   set(value) = definedExternally\n   var onplaying: ((Event) -> dynamic)?\n   get() = definedExternally\n   set(value) = definedExternally\n   var onprogress: ((ProgressEvent) -> dynamic)?\n   get() = definedExternally\n   set(value) = definedExternally\n   var onratechange: ((Event) -> dynamic)?\n   get() = definedExternally\n   set(value) = definedExternally\n   var onreset: ((Event) -> dynamic)?\n   get() = definedExternally\n   set(value) = definedExternally\n   var onresize: ((Event) -> dynamic)?\n   get() = definedExternally\n   set(value) = definedExternally\n   var onscroll: ((Event) -> dynamic)?\n   get() = definedExternally\n   set(value) = definedExternally\n   var onseeked: ((Event) -> dynamic)?\n   get() = definedExternally\n   set(value) = definedExternally\n   var onseeking: ((Event) -> dynamic)?\n   get() = definedExternally\n   set(value) = definedExternally\n   var onselect: ((Event) -> dynamic)?\n   get() = definedExternally\n   set(value) = definedExternally\n   var onshow: ((Event) -> dynamic)?\n   get() = definedExternally\n   set(value) = definedExternally\n   var onstalled: ((Event) -> dynamic)?\n   get() = definedExternally\n   set(value) = definedExternally\n   var onsubmit: ((Event) -> dynamic)?\n   get() = definedExternally\n   set(value) = definedExternally\n   var onsuspend: ((Event) -> dynamic)?\n   get() = definedExternally\n   set(value) = definedExternally\n   var ontimeupdate: ((Event) -> dynamic)?\n   get() = definedExternally\n   set(value) = definedExternally\n   var ontoggle: ((Event) -> dynamic)?\n   get() = definedExternally\n   set(value) = definedExternally\n   var onvolumechange: ((Event) -> dynamic)?\n   get() = definedExternally\n   set(value) = definedExternally\n   var onwaiting: ((Event) -> dynamic)?\n   get() = definedExternally\n   set(value) = definedExternally\n   var ongotpointercapture: ((PointerEvent) -> dynamic)?\n   get() = definedExternally\n   set(value) = definedExternally\n   var onlostpointercapture: ((PointerEvent) -> dynamic)?\n   get() = definedExternally\n   set(value) = definedExternally\n   var onpointerdown: ((PointerEvent) -> dynamic)?\n   get() = definedExternally\n   set(value) = definedExternally\n   var onpointermove: ((PointerEvent) -> dynamic)?\n   get() = definedExternally\n   set(value) = definedExternally\n   var onpointerup: ((PointerEvent) -> dynamic)?\n   get() = definedExternally\n   set(value) = definedExternally\n   var onpointercancel: ((PointerEvent) -> dynamic)?\n   get() = definedExternally\n   set(value) = definedExternally\n   var onpointerover: ((PointerEvent) -> dynamic)?\n   get() = definedExternally\n   set(value) = definedExternally\n   var onpointerout: ((PointerEvent) -> dynamic)?\n   get() = definedExternally\n   set(value) = definedExternally\n   var onpointerenter: ((PointerEvent) -> dynamic)?\n   get() = definedExternally\n   set(value) = definedExternally\n   var onpointerleave: ((PointerEvent) -> dynamic)?\n   get() = definedExternally\n   set(value) = definedExternally\n}\n\n/**\n * Exposes the JavaScript

[WindowEventHandlers](https://developer.mozilla.org/en/docs/Web/API/WindowEventHandlers) to Kotlin\n */\npublic external interface WindowEventHandlers {\n   var onafterprint: ((Event) -> dynamic)?\n   get() = definedExternally\n   set(value) = definedExternally\n   var onbeforeprint: ((Event) -> dynamic)?\n   get() = definedExternally\n   set(value) = definedExternally\n   var onbeforeunload: ((BeforeUnloadEvent) -> String?)?\n   get() = definedExternally\n   set(value) = definedExternally\n   var onhashchange: ((HashChangeEvent) -> dynamic)?\n   get() = definedExternally\n   set(value) = definedExternally\n   var onlanguagechange: ((Event) -> dynamic)?\n   get() = definedExternally\n   set(value) = definedExternally\n   var onmessage: ((MessageEvent) -> dynamic)?\n   get() = definedExternally\n   set(value) = definedExternally\n   var onoffline: ((Event) -> dynamic)?\n   get() = definedExternally\n   set(value) = definedExternally\n   var ononline: ((Event) -> dynamic)?\n   get() = definedExternally\n   set(value) = definedExternally\n   var onpagehide: ((PageTransitionEvent) -> dynamic)?\n   get() = definedExternally\n   set(value) = definedExternally\n   var onpageshow: ((PageTransitionEvent) -> dynamic)?\n   get() = definedExternally\n   set(value) = definedExternally\n   var onpopstate: ((PopStateEvent) -> dynamic)?\n   get() = definedExternally\n   set(value) = definedExternally\n   var onrejectionhandled: ((Event) -> dynamic)?\n   get() = definedExternally\n   set(value) = definedExternally\n   var onstorage: ((StorageEvent) -> dynamic)?\n   get() = definedExternally\n   set(value) = definedExternally\n   var onunhandledrejection: ((PromiseRejectionEvent) -> dynamic)?\n   get() = definedExternally\n   set(value) = definedExternally\n   var onunload: ((Event) -> dynamic)?\n   get() = definedExternally\n   set(value) = definedExternally\n}\n\npublic external interface DocumentAndElementEventHandlers {\n   var oncopy: ((ClipboardEvent) -> dynamic)?\n   get() = definedExternally\n   set(value) = definedExternally\n   var oncut: ((ClipboardEvent) -> dynamic)?\n   get() = definedExternally\n   set(value) = definedExternally\n   var onpaste: ((ClipboardEvent) -> dynamic)?\n   get() = definedExternally\n   set(value) = definedExternally\n}\n\n/**\n * Exposes the JavaScript [WindowOrWorkerGlobalScope](https://developer.mozilla.org/en/docs/Web/API/WindowOrWorkerGlobalScope) to Kotlin\n */\npublic external interface WindowOrWorkerGlobalScope {\n   val origin: String\n   val caches: CacheStorage\n   fun btoa(data: String): String\n   fun atob(data: String): String\n   fun setTimeout(handler: dynamic, timeout: Int = definedExternally, vararg arguments: Any?): Int\n   fun clearTimeout(handle: Int = definedExternally)\n   fun setInterval(handler: dynamic, timeout: Int = definedExternally, vararg arguments: Any?): Int\n   fun clearInterval(handle: Int = definedExternally)\n   fun createImageBitmap(image: ImageBitmapSource, options: ImageBitmapOptions = definedExternally): Promise<ImageBitmap>\n   fun createImageBitmap(image: ImageBitmapSource, sx: Int, sy: Int, sw: Int, sh: Int, options: ImageBitmapOptions = definedExternally): Promise<ImageBitmap>\n   fun fetch(input: dynamic, init: RequestInit = definedExternally): Promise<Response>\n}\n\n/**\n * Exposes the JavaScript [Navigator](https://developer.mozilla.org/en/docs/Web/API/Navigator) to Kotlin\n */\npublic external abstract class Navigator : NavigatorID, NavigatorLanguage, NavigatorOnLine, NavigatorContentUtils, NavigatorCookies, NavigatorPlugins, NavigatorConcurrentHardware {\n   open val clipboard: Clipboard\n   open val mediaDevices: MediaDevices\n   open val maxTouchPoints: Int\n   open val serviceWorker: ServiceWorkerContainer\n   fun requestMediaKeySystemAccess(keySystem: String, supportedConfigurations: Array<MediaKeySystemConfiguration>): Promise<MediaKeySystemAccess>\n   fun getUserMedia(constraints: MediaStreamConstraints, successCallback: (MediaStream) -> Unit, errorCallback: (dynamic) -> Unit)\n   fun vibrate(pattern: dynamic): Boolean\n}\n\n/**\n * Exposes the JavaScript [NavigatorID](https://developer.mozilla.org/en/docs/Web/API/NavigatorID) to Kotlin\n */\npublic external interface NavigatorID {\n   val appCodeName: String\n   val appName: String\n   val appVersion: String\n   val platform: String\n   val product: String\n   val productSub: String\n   val userAgent: String\n   val vendor: String\n   val vendorSub: String\n   val oscpu: String\n   fun taintEnabled(): Boolean\n}\n\n/**\n * Exposes the JavaScript [NavigatorLanguage](https://developer.mozilla.org/en/docs/Web/API/NavigatorLanguage) to Kotlin\n */\npublic external interface NavigatorLanguage {\n   val language: String\n   val languages: Array<out String>\n}\n\npublic external interface NavigatorContentUtils {\n   fun registerProtocolHandler(scheme: String, url: String, title:

String)\n fun registerContentHandler(mimeType: String, url: String, title: String)\n fun isProtocolHandlerRegistered(scheme: String, url: String): String\n fun isContentHandlerRegistered(mimeType: String, url: String): String\n fun unregisterProtocolHandler(scheme: String, url: String)\n fun unregisterContentHandler(mimeType: String, url: String)\n}\n\npublic external interface NavigatorCookies {\n val cookieEnabled: Boolean\n}\n\n/**\n * Exposes the JavaScript [NavigatorPlugins](https://developer.mozilla.org/en/docs/Web/API/NavigatorPlugins) to Kotlin\n */\npublic external interface NavigatorPlugins {\n val plugins: PluginArray\n val mimeTypes: MimeTypeArray\n fun javaEnabled(): Boolean\n}\n\n/**\n * Exposes the JavaScript [PluginArray](https://developer.mozilla.org/en/docs/Web/API/PluginArray) to Kotlin\n */\npublic external abstract class PluginArray : ItemArrayLike<Plugin> {\n fun refresh(reload: Boolean = definedExternally)\n override fun item(index: Int): Plugin?\n fun namedItem(name: String): Plugin?\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline operator fun PluginArray.get(index: Int): Plugin? = asDynamic()[index]\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline operator fun PluginArray.get(name: String): Plugin? = asDynamic()[name]\n\n/**\n * Exposes the JavaScript [MimeTypeArray](https://developer.mozilla.org/en/docs/Web/API/MimeTypeArray) to Kotlin\n */\npublic external abstract class MimeTypeArray : ItemArrayLike<MimeType> {\n override fun item(index: Int): MimeType?\n fun namedItem(name: String): MimeType?\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline operator fun MimeTypeArray.get(index: Int): MimeType? = asDynamic()[index]\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline operator fun MimeTypeArray.get(name: String): MimeType? = asDynamic()[name]\n\n/**\n * Exposes the JavaScript [Plugin](https://developer.mozilla.org/en/docs/Web/API/Plugin) to Kotlin\n */\npublic external abstract class Plugin : ItemArrayLike<MimeType> {\n open val name: String\n open val description: String\n open val filename: String\n override fun item(index: Int): MimeType?\n fun namedItem(name: String): MimeType?\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline operator fun Plugin.get(index: Int): MimeType? = asDynamic()[index]\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline operator fun Plugin.get(name: String): MimeType? = asDynamic()[name]\n\n/**\n * Exposes the JavaScript [MimeType](https://developer.mozilla.org/en/docs/Web/API/MimeType) to Kotlin\n */\npublic external abstract class MimeType {\n open val type: String\n open val description: String\n open val suffixes: String\n open val enabledPlugin: Plugin\n}\n\n/**\n * Exposes the JavaScript [ImageBitmap](https://developer.mozilla.org/en/docs/Web/API/ImageBitmap) to Kotlin\n */\npublic external abstract class ImageBitmap : CanvasImageSource, TexImageSource {\n open val width: Int\n open val height: Int\n fun close()\n}\n\npublic external interface ImageBitmapOptions {\n var imageOrientation: ImageOrientation? /* = ImageOrientation.NONE */\n get() = definedExternally\n set(value) = definedExternally\n var premultiplyAlpha: PremultiplyAlpha? /* = PremultiplyAlpha.DEFAULT */\n get() = definedExternally\n set(value) = definedExternally\n var colorSpaceConversion: ColorSpaceConversion? /* = ColorSpaceConversion.DEFAULT */\n get() = definedExternally\n set(value) = definedExternally\n var resizeWidth: Int?\n get() = definedExternally\n set(value) = definedExternally\n var resizeHeight: Int?\n get() = definedExternally\n set(value) = definedExternally\n var resizeQuality: ResizeQuality? /* = ResizeQuality.LOW */\n get() = definedExternally\n set(value) = definedExternally\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline fun ImageBitmapOptions(imageOrientation: ImageOrientation? = ImageOrientation.NONE, premultiplyAlpha: PremultiplyAlpha? = PremultiplyAlpha.DEFAULT, colorSpaceConversion: ColorSpaceConversion? =

ColorSpaceConversion.DEFAULT, resizeWidth: Int? = undefined, resizeHeight: Int? = undefined, resizeQuality: ResizeQuality? = ResizeQuality.LOW): ImageBitmapOptions {\n   val o = js(\"({})\")\n   o[\"imageOrientation\"] = imageOrientation\n   o[\"premultiplyAlpha\"] = premultiplyAlpha\n   o[\"colorSpaceConversion\"] = colorSpaceConversion\n   o[\"resizeWidth\"] = resizeWidth\n   o[\"resizeHeight\"] = resizeHeight\n   o[\"resizeQuality\"] = resizeQuality\n   return o\n}\n\n/**\n * Exposes the JavaScript [MessageEvent](https://developer.mozilla.org/en/docs/Web/API/MessageEvent) to Kotlin\n */\npublic external open class MessageEvent(type: String, eventInitDict: MessageEventInit = definedExternally) : Event {\n   open val data: Any?\n   open val origin: String\n   open val lastEventId: String\n   open val source: UnionMessagePortOrWindowProxy?\n   open val ports: Array<out MessagePort>\n   fun initMessageEvent(type: String, bubbles: Boolean, cancelable: Boolean, data: Any?, origin: String, lastEventId: String, source: UnionMessagePortOrWindowProxy?, ports: Array<MessagePort>)\n\n   companion object {\n   val NONE: Short\n   val CAPTURING_PHASE: Short\n   val AT_TARGET: Short\n   val BUBBLING_PHASE: Short\n   }\n}\n\npublic external interface MessageEventInit : EventInit {\n   var data: Any? /* = null */\n   get() = definedExternally\n   set(value) = definedExternally\n   var origin: String? /* = \"\" */\n   get() = definedExternally\n   set(value) = definedExternally\n   var lastEventId: String? /* = \"\" */\n   get() = definedExternally\n   set(value) = definedExternally\n   var source: UnionMessagePortOrWindowProxy? /* = null */\n   get() = definedExternally\n   set(value) = definedExternally\n   var ports: Array<MessagePort>? /* = arrayOf() */\n   get() = definedExternally\n   set(value) = definedExternally\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline fun MessageEventInit(data: Any? = null, origin: String? = \"\", lastEventId: String? = \"\", source: UnionMessagePortOrWindowProxy? = null, ports: Array<MessagePort>? = arrayOf(), bubbles: Boolean? = false, cancelable: Boolean? = false, composed: Boolean? = false): MessageEventInit {\n   val o = js(\"({})\")\n   o[\"data\"] = data\n   o[\"origin\"] = origin\n   o[\"lastEventId\"] = lastEventId\n   o[\"source\"] = source\n   o[\"ports\"] = ports\n   o[\"bubbles\"] = bubbles\n   o[\"cancelable\"] = cancelable\n   o[\"composed\"] = composed\n   return o\n}\n\n/**\n * Exposes the JavaScript [EventSource](https://developer.mozilla.org/en/docs/Web/API/EventSource) to Kotlin\n */\npublic external open class EventSource(url: String, eventSourceInitDict: EventSourceInit = definedExternally) : EventTarget {\n   open val url: String\n   open val withCredentials: Boolean\n   open val readyState: Short\n   var onopen: ((Event) -> dynamic)?\n   var onmessage: ((MessageEvent) -> dynamic)?\n   var onerror: ((Event) -> dynamic)?\n   fun close()\n\n   companion object {\n   val CONNECTING: Short\n   val OPEN: Short\n   val CLOSED: Short\n   }\n}\n\npublic external interface EventSourceInit {\n   var withCredentials: Boolean? /* = false */\n   get() = definedExternally\n   set(value) = definedExternally\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline fun EventSourceInit(withCredentials: Boolean? = false): EventSourceInit {\n   val o = js(\"({})\")\n   o[\"withCredentials\"] = withCredentials\n   return o\n}\n\n/**\n * Exposes the JavaScript [WebSocket](https://developer.mozilla.org/en/docs/Web/API/WebSocket) to Kotlin\n */\npublic external open class WebSocket(url: String, protocols: dynamic = definedExternally) : EventTarget {\n   open val url: String\n   open val readyState: Short\n   open val bufferedAmount: Number\n   var onopen: ((Event) -> dynamic)?\n   var onerror: ((Event) -> dynamic)?\n   var onclose: ((Event) -> dynamic)?\n   open val extensions: String\n   open val protocol: String\n   var onmessage: ((MessageEvent) -> dynamic)?\n   var binaryType: BinaryType\n   fun close(code: Short = definedExternally, reason: String = definedExternally)\n   fun send(data: String)\n   fun send(data: Blob)\n   fun send(data: ArrayBuffer)\n   fun send(data: ArrayBufferView)\n\n   companion object {\n   val CONNECTING: Short\n   val OPEN: Short\n   val CLOSING: Short\n   val CLOSED: Short\n   }\n}\n\n/**\n * Exposes the JavaScript [CloseEvent](https://developer.mozilla.org/en/docs/Web/API/CloseEvent) to Kotlin\n */\npublic external open class CloseEvent(type: String, eventInitDict: CloseEventInit = definedExternally) : Event {\n   open val wasClean: Boolean\n   open val code: Short\n   open val reason: String\n\n   companion object {\n   val NONE: Short\n   val CAPTURING_PHASE: Short\n   val AT_TARGET: Short\n   val BUBBLING_PHASE: Short\n   }\n}\n\npublic external interface CloseEventInit : EventInit {\n   var wasClean: Boolean? /* = false */\n   get() =

definedExternally\n   set(value) = definedExternally\n   var code: Short? /* = 0 */\n   get() = definedExternally\n   set(value) = definedExternally\n   var reason: String? /* = \"\" */\n   get() = definedExternally\n   set(value) = definedExternally\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline fun CloseEventInit(wasClean: Boolean? = false, code: Short? = 0, reason: String? = \"\", bubbles: Boolean? = false, cancelable: Boolean? = false, composed: Boolean? = false): CloseEventInit {\n   val o = js(\"({})\")\n   o[\"wasClean\"] = wasClean\n   o[\"code\"] = code\n   o[\"reason\"] = reason\n   o[\"bubbles\"] = bubbles\n   o[\"cancelable\"] = cancelable\n   o[\"composed\"] = composed\n   return o\n}\n\n/**\n * Exposes the JavaScript [MessageChannel](https://developer.mozilla.org/en/docs/Web/API/MessageChannel) to Kotlin\n */\npublic external open class MessageChannel {\n   open val port1: MessagePort\n   open val port2: MessagePort\n}\n\n/**\n * Exposes the JavaScript [MessagePort](https://developer.mozilla.org/en/docs/Web/API/MessagePort) to Kotlin\n */\npublic external abstract class MessagePort : EventTarget, UnionMessagePortOrWindowProxy, UnionMessagePortOrServiceWorker, UnionClientOrMessagePortOrServiceWorker {\n   open var onmessage: ((MessageEvent) -> dynamic)?\n   fun postMessage(message: Any?, transfer: Array<dynamic> = definedExternally)\n   fun start()\n   fun close()\n}\n\n/**\n * Exposes the JavaScript [BroadcastChannel](https://developer.mozilla.org/en/docs/Web/API/BroadcastChannel) to Kotlin\n */\npublic external open class BroadcastChannel(name: String) : EventTarget {\n   open val name: String\n   var onmessage: ((MessageEvent) -> dynamic)?\n   fun postMessage(message: Any?)\n   fun close()\n}\n\n/**\n * Exposes the JavaScript [WorkerGlobalScope](https://developer.mozilla.org/en/docs/Web/API/WorkerGlobalScope) to Kotlin\n */\npublic external abstract class WorkerGlobalScope : EventTarget, WindowOrWorkerGlobalScope, GlobalPerformance {\n   open val self: WorkerGlobalScope\n   open val location: WorkerLocation\n   open val navigator: WorkerNavigator\n   open var onerror: ((dynamic, String, Int, Int, Any?) -> dynamic)?\n   open var onlanguagechange: ((Event) -> dynamic)?\n   open var onoffline: ((Event) -> dynamic)?\n   open var ononline: ((Event) -> dynamic)?\n   open var onrejectionhandled: ((Event) -> dynamic)?\n   open var onunhandledrejection: ((PromiseRejectionEvent) -> dynamic)?\n   fun importScripts(vararg urls: String)\n}\n\n/**\n * Exposes the JavaScript [DedicatedWorkerGlobalScope](https://developer.mozilla.org/en/docs/Web/API/DedicatedWorkerGlobalScope) to Kotlin\n */\npublic external abstract class DedicatedWorkerGlobalScope : WorkerGlobalScope {\n   open var onmessage: ((MessageEvent) -> dynamic)?\n   fun postMessage(message: Any?, transfer: Array<dynamic> = definedExternally)\n   fun close()\n}\n\n/**\n * Exposes the JavaScript [SharedWorkerGlobalScope](https://developer.mozilla.org/en/docs/Web/API/SharedWorkerGlobalScope) to Kotlin\n */\npublic external abstract class SharedWorkerGlobalScope : WorkerGlobalScope {\n   open val name: String\n   open val applicationCache: ApplicationCache\n   open var onconnect: ((Event) -> dynamic)?\n   fun close()\n}\n\n/**\n * Exposes the JavaScript [AbstractWorker](https://developer.mozilla.org/en/docs/Web/API/AbstractWorker) to Kotlin\n */\npublic external interface AbstractWorker {\n   var onerror: ((Event) -> dynamic)?\n   get() = definedExternally\n   set(value) = definedExternally\n}\n\n/**\n * Exposes the JavaScript [Worker](https://developer.mozilla.org/en/docs/Web/API/Worker) to Kotlin\n */\npublic external open class Worker(scriptURL: String, options: WorkerOptions = definedExternally) : EventTarget, AbstractWorker {\n   var onmessage: ((MessageEvent) -> dynamic)?\n   override var onerror: ((Event) -> dynamic)?\n   fun terminate()\n   fun postMessage(message: Any?, transfer: Array<dynamic> = definedExternally)\n}\n\npublic external interface WorkerOptions {\n   var type: WorkerType? /* = WorkerType.CLASSIC */\n   get() = definedExternally\n   set(value) = definedExternally\n   var credentials: RequestCredentials? /* = RequestCredentials.OMIT */\n   get() = definedExternally\n   set(value) = definedExternally\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline fun WorkerOptions(type: WorkerType? = WorkerType.CLASSIC, credentials: RequestCredentials? = RequestCredentials.OMIT): WorkerOptions {\n   val o = js(\"({})\")\n   o[\"type\"] = type\n   o[\"credentials\"] = credentials\n   return o\n}\n\n/**\n * Exposes the JavaScript [SharedWorker](https://developer.mozilla.org/en/docs/Web/API/SharedWorker) to Kotlin\n */\npublic external open class SharedWorker(scriptURL: String, name: String = definedExternally, options: WorkerOptions = definedExternally) : EventTarget, AbstractWorker {\n   open val port: MessagePort\n   override var onerror: ((Event) -> dynamic)?\n}\n\n/**\n * Exposes the JavaScript [NavigatorConcurrentHardware](https://developer.mozilla.org/en/docs/Web/API/NavigatorConcurrentHardware) to Kotlin\n */\npublic external interface NavigatorConcurrentHardware {\n   val hardwareConcurrency: Number\n}\n\n/**\n * Exposes the JavaScript [WorkerNavigator](https://developer.mozilla.org/en/docs/Web/API/WorkerNavigator) to Kotlin\n */\npublic external abstract class WorkerNavigator : NavigatorID, NavigatorLanguage, NavigatorOnLine, NavigatorConcurrentHardware {\n   open val serviceWorker: ServiceWorkerContainer\n}\n\n/**\n * Exposes the JavaScript [WorkerLocation](https://developer.mozilla.org/en/docs/Web/API/WorkerLocation) to Kotlin\n */\npublic external abstract class WorkerLocation {\n   open val href: String\n   open val origin: String\n   open val protocol: String\n   open val host: String\n   open val hostname: String\n   open val port: String\n   open val pathname: String\n   open val search: String\n   open val hash: String\n}\n\n/**\n * Exposes the JavaScript [Storage](https://developer.mozilla.org/en/docs/Web/API/Storage) to Kotlin\n */\npublic external abstract class Storage {\n   open val length: Int\n   fun key(index: Int): String?\n   fun removeItem(key: String)\n   fun clear()\n   fun getItem(key: String): String?\n   fun setItem(key: String, value: String)\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline operator fun Storage.get(key: String): String? = asDynamic()[key]\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline operator fun Storage.set(key: String, value: String) { asDynamic()[key] = value }\n\n/**\n * Exposes the JavaScript [WindowSessionStorage](https://developer.mozilla.org/en/docs/Web/API/WindowSessionStorage) to Kotlin\n */\npublic external interface WindowSessionStorage {\n   val sessionStorage: Storage\n}\n\n/**\n * Exposes the JavaScript [WindowLocalStorage](https://developer.mozilla.org/en/docs/Web/API/WindowLocalStorage) to Kotlin\n */\npublic external interface WindowLocalStorage {\n   val localStorage: Storage\n}\n\n/**\n * Exposes the JavaScript [StorageEvent](https://developer.mozilla.org/en/docs/Web/API/StorageEvent) to Kotlin\n */\npublic external open class StorageEvent(type: String, eventInitDict: StorageEventInit = definedExternally) : Event {\n   open val key: String?\n   open val oldValue: String?\n   open val newValue: String?\n   open val url: String\n   open val storageArea: Storage?\n\n   companion object {\n   val NONE: Short\n   val CAPTURING_PHASE: Short\n   val AT_TARGET: Short\n   val BUBBLING_PHASE: Short\n   }\n}\n\npublic external interface StorageEventInit : EventInit {\n   var key: String? /* = null */\n   get() = definedExternally\n   set(value) = definedExternally\n   var oldValue: String? /* = null */\n   get() = definedExternally\n   set(value) = definedExternally\n   var newValue: String? /* = null */\n   get() = definedExternally\n   set(value) = definedExternally\n   var url: String? /* = \"\" */\n   get() = definedExternally\n   set(value) = definedExternally\n   var storageArea: Storage? /* = null */\n   get() = definedExternally\n   set(value) = definedExternally\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline fun StorageEventInit(key: String? = null, oldValue: String? = null, newValue: String? = null, url: String? = \"\", storageArea: Storage? = null, bubbles: Boolean? = false, cancelable: Boolean? = false, composed: Boolean? = false): StorageEventInit {\n   val o = js(\"({})\")\n   o[\"key\"] = key\n   o[\"oldValue\"] = oldValue\n   o[\"newValue\"] = newValue\n   o[\"url\"] = url\n   o[\"storageArea\"] = storageArea\n   o[\"bubbles\"] = bubbles\n   o[\"cancelable\"] = cancelable\n   o[\"composed\"] = composed\n   return o\n}\n\npublic external abstract class HTMLAppletElement : HTMLElement {\n   open var align: String\n   open var alt: String\n   open var archive: String\n   open var code: String\n   open var codeBase: String\n   open var height: String\n   open var hspace: Int\n   open var name: String\n   open var _object: String\n   open var vspace: Int\n   open var width: String\n\n   companion object {\n   val ELEMENT_NODE: Short\n   val ATTRIBUTE_NODE: Short\n   val TEXT_NODE: Short\n   val CDATA_SECTION_NODE: Short\n   val ENTITY_REFERENCE_NODE: Short\n   val ENTITY_NODE: Short\n   val PROCESSING_INSTRUCTION_NODE: Short\n   val COMMENT_NODE: Short\n   val

DOCUMENT_NODE: Short\n   val DOCUMENT_TYPE_NODE: Short\n   val DOCUMENT_FRAGMENT_NODE: Short\n   val NOTATION_NODE: Short\n   val DOCUMENT_POSITION_DISCONNECTED: Short\n   val DOCUMENT_POSITION_PRECEDING: Short\n   val DOCUMENT_POSITION_FOLLOWING: Short\n   val DOCUMENT_POSITION_CONTAINS: Short\n   val DOCUMENT_POSITION_CONTAINED_BY: Short\n   val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n   }\n}\n\n/**\n * Exposes the JavaScript [HTMLMarqueeElement](https://developer.mozilla.org/en/docs/Web/API/HTMLMarqueeElement) to Kotlin\n */\npublic external abstract class HTMLMarqueeElement : HTMLElement {\n   open var behavior: String\n   open var bgColor: String\n   open var direction: String\n   open var height: String\n   open var hspace: Int\n   open var loop: Int\n   open var scrollAmount: Int\n   open var scrollDelay: Int\n   open var trueSpeed: Boolean\n   open var vspace: Int\n   open var width: String\n   open var onbounce: ((Event) -> dynamic)?\n   open var onfinish: ((Event) -> dynamic)?\n   open var onstart: ((Event) -> dynamic)?\n   fun start()\n   fun stop()\n\n   companion object {\n   val ELEMENT_NODE: Short\n   val ATTRIBUTE_NODE: Short\n   val TEXT_NODE: Short\n   val CDATA_SECTION_NODE: Short\n   val ENTITY_REFERENCE_NODE: Short\n   val ENTITY_NODE: Short\n   val PROCESSING_INSTRUCTION_NODE: Short\n   val COMMENT_NODE: Short\n   val DOCUMENT_NODE: Short\n   val DOCUMENT_TYPE_NODE: Short\n   val DOCUMENT_FRAGMENT_NODE: Short\n   val NOTATION_NODE: Short\n   val DOCUMENT_POSITION_DISCONNECTED: Short\n   val DOCUMENT_POSITION_PRECEDING: Short\n   val DOCUMENT_POSITION_FOLLOWING: Short\n   val DOCUMENT_POSITION_CONTAINS: Short\n   val DOCUMENT_POSITION_CONTAINED_BY: Short\n   val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n   }\n}\n\n/**\n * Exposes the JavaScript [HTMLFrameSetElement](https://developer.mozilla.org/en/docs/Web/API/HTMLFrameSetElement) to Kotlin\n */\npublic external abstract class HTMLFrameSetElement : HTMLElement, WindowEventHandlers {\n   open var cols: String\n   open var rows: String\n\n   companion object {\n   val ELEMENT_NODE: Short\n   val ATTRIBUTE_NODE: Short\n   val TEXT_NODE: Short\n   val CDATA_SECTION_NODE: Short\n   val ENTITY_REFERENCE_NODE: Short\n   val ENTITY_NODE: Short\n   val PROCESSING_INSTRUCTION_NODE: Short\n   val COMMENT_NODE: Short\n   val DOCUMENT_NODE: Short\n   val DOCUMENT_TYPE_NODE: Short\n   val DOCUMENT_FRAGMENT_NODE: Short\n   val NOTATION_NODE: Short\n   val DOCUMENT_POSITION_DISCONNECTED: Short\n   val DOCUMENT_POSITION_PRECEDING: Short\n   val DOCUMENT_POSITION_FOLLOWING: Short\n   val DOCUMENT_POSITION_CONTAINS: Short\n   val DOCUMENT_POSITION_CONTAINED_BY: Short\n   val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n   }\n}\n\npublic external abstract class HTMLFrameElement : HTMLElement {\n   open var name: String\n   open var scrolling: String\n   open var src: String\n   open var frameBorder: String\n   open var longDesc: String\n   open var noResize: Boolean\n   open val contentDocument: Document?\n   open val contentWindow: Window?\n   open var marginHeight: String\n   open var marginWidth: String\n\n   companion object {\n   val ELEMENT_NODE: Short\n   val ATTRIBUTE_NODE: Short\n   val TEXT_NODE: Short\n   val CDATA_SECTION_NODE: Short\n   val ENTITY_REFERENCE_NODE: Short\n   val ENTITY_NODE: Short\n   val PROCESSING_INSTRUCTION_NODE: Short\n   val COMMENT_NODE: Short\n   val DOCUMENT_NODE: Short\n   val DOCUMENT_TYPE_NODE: Short\n   val DOCUMENT_FRAGMENT_NODE: Short\n   val NOTATION_NODE: Short\n   val DOCUMENT_POSITION_DISCONNECTED: Short\n   val DOCUMENT_POSITION_PRECEDING: Short\n   val DOCUMENT_POSITION_FOLLOWING: Short\n   val DOCUMENT_POSITION_CONTAINS: Short\n   val DOCUMENT_POSITION_CONTAINED_BY: Short\n   val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n   }\n}\n\npublic external abstract class HTMLDirectoryElement : HTMLElement {\n   open var compact: Boolean\n\n   companion object {\n   val ELEMENT_NODE: Short\n   val ATTRIBUTE_NODE: Short\n   val TEXT_NODE: Short\n   val

CDATA_SECTION_NODE: Short\n   val ENTITY_REFERENCE_NODE: Short\n   val ENTITY_NODE: Short\n   val PROCESSING_INSTRUCTION_NODE: Short\n   val COMMENT_NODE: Short\n   val DOCUMENT_NODE: Short\n   val DOCUMENT_TYPE_NODE: Short\n   val DOCUMENT_FRAGMENT_NODE: Short\n   val NOTATION_NODE: Short\n   val DOCUMENT_POSITION_DISCONNECTED: Short\n   val DOCUMENT_POSITION_PRECEDING: Short\n   val DOCUMENT_POSITION_FOLLOWING: Short\n   val DOCUMENT_POSITION_CONTAINS: Short\n   val DOCUMENT_POSITION_CONTAINED_BY: Short\n   val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n   }\n}\n\n/**\n * Exposes the JavaScript [HTMLFontElement](https://developer.mozilla.org/en/docs/Web/API/HTMLFontElement) to Kotlin\n */\npublic external abstract class HTMLFontElement : HTMLElement {\n   open var color: String\n   open var face: String\n   open var size: String\n\n   companion object {\n   val ELEMENT_NODE: Short\n   val ATTRIBUTE_NODE: Short\n   val TEXT_NODE: Short\n   val CDATA_SECTION_NODE: Short\n   val ENTITY_REFERENCE_NODE: Short\n   val ENTITY_NODE: Short\n   val PROCESSING_INSTRUCTION_NODE: Short\n   val COMMENT_NODE: Short\n   val DOCUMENT_NODE: Short\n   val DOCUMENT_TYPE_NODE: Short\n   val DOCUMENT_FRAGMENT_NODE: Short\n   val NOTATION_NODE: Short\n   val DOCUMENT_POSITION_DISCONNECTED: Short\n   val DOCUMENT_POSITION_PRECEDING: Short\n   val DOCUMENT_POSITION_FOLLOWING: Short\n   val DOCUMENT_POSITION_CONTAINS: Short\n   val DOCUMENT_POSITION_CONTAINED_BY: Short\n   val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n   }\n}\n\npublic external interface External {\n   fun AddSearchProvider()\n   fun IsSearchProviderInstalled()\n}\n\npublic external interface EventInit {\n   var bubbles: Boolean? /* = false */\n   get() = definedExternally\n   set(value) = definedExternally\n   var cancelable: Boolean? /* = false */\n   get() = definedExternally\n   set(value) = definedExternally\n   var composed: Boolean? /* = false */\n   get() = definedExternally\n   set(value) = definedExternally\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline fun EventInit(bubbles: Boolean? = false, cancelable: Boolean? = false, composed: Boolean? = false): EventInit {\n   val o = js(\"({})\")\n   o[\"bubbles\"] = bubbles\n   o[\"cancelable\"] = cancelable\n   o[\"composed\"] = composed\n   return o\n}\n\n/**\n * Exposes the JavaScript [CustomEvent](https://developer.mozilla.org/en/docs/Web/API/CustomEvent) to Kotlin\n */\npublic external open class CustomEvent(type: String, eventInitDict: CustomEventInit = definedExternally) : Event {\n   open val detail: Any?\n   fun initCustomEvent(type: String, bubbles: Boolean, cancelable: Boolean, detail: Any?)\n\n   companion object {\n   val NONE: Short\n   val CAPTURING_PHASE: Short\n   val AT_TARGET: Short\n   val BUBBLING_PHASE: Short\n   }\n}\n\npublic external interface CustomEventInit : EventInit {\n   var detail: Any? /* = null */\n   get() = definedExternally\n   set(value) = definedExternally\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline fun CustomEventInit(detail: Any? = null, bubbles: Boolean? = false, cancelable: Boolean? = false, composed: Boolean? = false): CustomEventInit {\n   val o = js(\"({})\")\n   o[\"detail\"] = detail\n   o[\"bubbles\"] = bubbles\n   o[\"cancelable\"] = cancelable\n   o[\"composed\"] = composed\n   return o\n}\n\npublic external interface EventListenerOptions {\n   var capture: Boolean? /* = false */\n   get() = definedExternally\n   set(value) = definedExternally\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline fun EventListenerOptions(capture: Boolean? = false): EventListenerOptions {\n   val o = js(\"({})\")\n   o[\"capture\"] = capture\n   return o\n}\n\npublic external interface AddEventListenerOptions : EventListenerOptions {\n   var passive: Boolean? /* = false */\n   get() = definedExternally\n   set(value) = definedExternally\n   var once: Boolean? /* = false */\n   get() = definedExternally\n   set(value) = definedExternally\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline fun AddEventListenerOptions(passive: Boolean? = false, once: Boolean? = false, capture: Boolean? = false): AddEventListenerOptions {\n   val o =

js(\"({})\")\n   o[\"passive\"] = passive\n   o[\"once\"] = once\n   o[\"capture\"] = capture\n   return o\n}\n\npublic external interface NonElementParentNode {\n   fun getElementById(elementId: String): Element?\n}\n\n/**\n * Exposes the JavaScript [DocumentOrShadowRoot](https://developer.mozilla.org/en/docs/Web/API/DocumentOrShadowRoot) to Kotlin\n */\npublic external interface DocumentOrShadowRoot {\n   val fullscreenElement: Element?\n   get() = definedExternally\n}\n\n/**\n * Exposes the JavaScript [ParentNode](https://developer.mozilla.org/en/docs/Web/API/ParentNode) to Kotlin\n */\npublic external interface ParentNode {\n   val children: HTMLCollection\n   val firstElementChild: Element?\n   get() = definedExternally\n   val lastElementChild: Element?\n   get() = definedExternally\n   val childElementCount: Int\n   fun prepend(vararg nodes: dynamic)\n   fun append(vararg nodes: dynamic)\n   fun querySelector(selectors: String): Element?\n   fun querySelectorAll(selectors: String): NodeList\n}\n\n/**\n * Exposes the JavaScript [NonDocumentTypeChildNode](https://developer.mozilla.org/en/docs/Web/API/NonDocumentTypeChildNode) to Kotlin\n */\npublic external interface NonDocumentTypeChildNode {\n   val previousElementSibling: Element?\n   get() = definedExternally\n   val nextElementSibling: Element?\n   get() = definedExternally\n}\n\n/**\n * Exposes the JavaScript [ChildNode](https://developer.mozilla.org/en/docs/Web/API/ChildNode) to Kotlin\n */\npublic external interface ChildNode {\n   fun before(vararg nodes: dynamic)\n   fun after(vararg nodes: dynamic)\n   fun replaceWith(vararg nodes: dynamic)\n   fun remove()\n}\n\n/**\n * Exposes the JavaScript [Slotable](https://developer.mozilla.org/en/docs/Web/API/Slotable) to Kotlin\n */\npublic external interface Slotable {\n   val assignedSlot: HTMLSlotElement?\n   get() = definedExternally\n}\n\n/**\n * Exposes the JavaScript [NodeList](https://developer.mozilla.org/en/docs/Web/API/NodeList) to Kotlin\n */\npublic external abstract class NodeList : ItemArrayLike<Node> {\n   override fun item(index: Int): Node?\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline operator fun NodeList.get(index: Int): Node? = asDynamic()[index]\n\n/**\n * Exposes the JavaScript [HTMLCollection](https://developer.mozilla.org/en/docs/Web/API/HTMLCollection) to Kotlin\n */\npublic external abstract class HTMLCollection : ItemArrayLike<Element>, UnionElementOrHTMLCollection {\n   override fun item(index: Int): Element?\n   fun namedItem(name: String): Element?\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline operator fun HTMLCollection.get(index: Int): Element? = asDynamic()[index]\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline operator fun HTMLCollection.get(name: String): Element? = asDynamic()[name]\n\n/**\n * Exposes the JavaScript [MutationObserver](https://developer.mozilla.org/en/docs/Web/API/MutationObserver) to Kotlin\n */\npublic external open class MutationObserver(callback: (Array<MutationRecord>, MutationObserver) -> Unit) {\n   fun observe(target: Node, options: MutationObserverInit = definedExternally)\n   fun disconnect()\n   fun takeRecords(): Array<MutationRecord>\n}\n\n/**\n * Exposes the JavaScript [MutationObserverInit](https://developer.mozilla.org/en/docs/Web/API/MutationObserverInit) to Kotlin\n */\npublic external interface MutationObserverInit {\n   var childList: Boolean? /* = false */\n   get() = definedExternally\n   set(value) = definedExternally\n   var attributes: Boolean?\n   get() = definedExternally\n   set(value) = definedExternally\n   var characterData: Boolean?\n   get() = definedExternally\n   set(value) = definedExternally\n   var subtree: Boolean? /* = false */\n   get() = definedExternally\n   set(value) = definedExternally\n   var attributeOldValue: Boolean?\n   get() = definedExternally\n   set(value) = definedExternally\n   var characterDataOldValue: Boolean?\n   get() = definedExternally\n   set(value) = definedExternally\n   var attributeFilter: Array<String>?\n   get() = definedExternally\n   set(value) = definedExternally\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline fun MutationObserverInit(childList: Boolean? = false, attributes: Boolean? = undefined, characterData: Boolean? = undefined, subtree: Boolean? = false, attributeOldValue: Boolean? = undefined, characterDataOldValue: Boolean? = undefined, attributeFilter:

Array<String>? = undefined): MutationObserverInit {\n   val o = js(\"({})\")\n   o[\"childList\"] = childList\n   o[\"attributes\"] = attributes\n   o[\"characterData\"] = characterData\n   o[\"subtree\"] = subtree\n   o[\"attributeOldValue\"] = attributeOldValue\n   o[\"characterDataOldValue\"] = characterDataOldValue\n   o[\"attributeFilter\"] = attributeFilter\n   return o\n}\n\n/**\n * Exposes the JavaScript [MutationRecord](https://developer.mozilla.org/en/docs/Web/API/MutationRecord) to Kotlin\n */\npublic external abstract class MutationRecord {\n   open val type: String\n   open val target: Node\n   open val addedNodes: NodeList\n   open val removedNodes: NodeList\n   open val previousSibling: Node?\n   open val nextSibling: Node?\n   open val attributeName: String?\n   open val attributeNamespace: String?\n   open val oldValue: String?\n}\n\n/**\n * Exposes the JavaScript [Node](https://developer.mozilla.org/en/docs/Web/API/Node) to Kotlin\n */\npublic external abstract class Node : EventTarget {\n   open val nodeType: Short\n   open val nodeName: String\n   open val baseURI: String\n   open val isConnected: Boolean\n   open val ownerDocument: Document?\n   open val parentNode: Node?\n   open val parentElement: Element?\n   open val childNodes: NodeList\n   open val firstChild: Node?\n   open val lastChild: Node?\n   open val previousSibling: Node?\n   open val nextSibling: Node?\n   open var nodeValue: String?\n   open var textContent: String?\n   fun getRootNode(options: GetRootNodeOptions = definedExternally): Node\n   fun hasChildNodes(): Boolean\n   fun normalize()\n   fun cloneNode(deep: Boolean = definedExternally): Node\n   fun isEqualNode(otherNode: Node?): Boolean\n   fun isSameNode(otherNode: Node?): Boolean\n   fun compareDocumentPosition(other: Node): Short\n   fun contains(other: Node?): Boolean\n   fun lookupPrefix(namespace: String?): String?\n   fun lookupNamespaceURI(prefix: String?): String?\n   fun isDefaultNamespace(namespace: String?): Boolean\n   fun insertBefore(node: Node, child: Node?): Node\n   fun appendChild(node: Node): Node\n   fun replaceChild(node: Node, child: Node): Node\n   fun removeChild(child: Node): Node\n\n   companion object {\n   val ELEMENT_NODE: Short\n   val ATTRIBUTE_NODE: Short\n   val TEXT_NODE: Short\n   val CDATA_SECTION_NODE: Short\n   val ENTITY_REFERENCE_NODE: Short\n   val ENTITY_NODE: Short\n   val PROCESSING_INSTRUCTION_NODE: Short\n   val COMMENT_NODE: Short\n   val DOCUMENT_NODE: Short\n   val DOCUMENT_TYPE_NODE: Short\n   val DOCUMENT_FRAGMENT_NODE: Short\n   val NOTATION_NODE: Short\n   val DOCUMENT_POSITION_DISCONNECTED: Short\n   val DOCUMENT_POSITION_PRECEDING: Short\n   val DOCUMENT_POSITION_FOLLOWING: Short\n   val DOCUMENT_POSITION_CONTAINS: Short\n   val DOCUMENT_POSITION_CONTAINED_BY: Short\n   val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n   }\n}\n\npublic external interface GetRootNodeOptions {\n   var composed: Boolean? /* = false */\n   get() = definedExternally\n   set(value) = definedExternally\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline fun GetRootNodeOptions(composed: Boolean? = false): GetRootNodeOptions {\n   val o = js(\"({})\")\n   o[\"composed\"] = composed\n   return o\n}\n\n/**\n * Exposes the JavaScript [Document](https://developer.mozilla.org/en/docs/Web/API/Document) to Kotlin\n */\npublic external open class Document : Node, GlobalEventHandlers, DocumentAndElementEventHandlers, NonElementParentNode, DocumentOrShadowRoot, ParentNode, GeometryUtils {\n   open val implementation: DOMImplementation\n   open val URL: String\n   open val documentURI: String\n   open val origin: String\n   open val compatMode: String\n   open val characterSet: String\n   open val charset: String\n   open val inputEncoding: String\n   open val contentType: String\n   open val doctype: DocumentType?\n   open val documentElement: Element?\n   open val location: Location?\n   var domain: String\n   open val referrer: String\n   var cookie: String\n   open val lastModified: String\n   open val readyState: DocumentReadyState\n   var title: String\n   var dir: String\n   var body: HTMLElement?\n   open val head: HTMLHeadElement?\n   open val images: HTMLCollection\n   open val embeds: HTMLCollection\n   open val plugins: HTMLCollection\n   open val links: HTMLCollection\n   open val forms: HTMLCollection\n   open val scripts: HTMLCollection\n   open val currentScript: HTMLOrSVGScriptElement?\n   open val defaultView: Window?\n   open val activeElement: Element?\n   var designMode: String\n   var onreadystatechange: ((Event) -> dynamic)?\n   var fgColor: String\n   var linkColor: String\n   var vlinkColor: String\n   var alinkColor: String\n

var bgColor: String\n   open val anchors: HTMLCollection\n   open val applets: HTMLCollection\n   open val all: HTMLAllCollection\n   open val scrollingElement: Element?\n   open val styleSheets: StyleSheetList\n   open val rootElement: SVGSVGElement?\n   open val fullscreenEnabled: Boolean\n   open val fullscreen: Boolean\n   var onfullscreenchange: ((Event) -> dynamic)?\n   var onfullscreenerror: ((Event) -> dynamic)?\n   override var onabort: ((Event) -> dynamic)?\n   override var onblur: ((FocusEvent) -> dynamic)?\n   override var oncancel: ((Event) -> dynamic)?\n   override var oncanplay: ((Event) -> dynamic)?\n   override var oncanplaythrough: ((Event) -> dynamic)?\n   override var onchange: ((Event) -> dynamic)?\n   override var onclick: ((MouseEvent) -> dynamic)?\n   override var onclose: ((Event) -> dynamic)?\n   override var oncontextmenu: ((MouseEvent) -> dynamic)?\n   override var oncuechange: ((Event) -> dynamic)?\n   override var ondblclick: ((MouseEvent) -> dynamic)?\n   override var ondrag: ((DragEvent) -> dynamic)?\n   override var ondragend: ((DragEvent) -> dynamic)?\n   override var ondragenter: ((DragEvent) -> dynamic)?\n   override var ondragexit: ((DragEvent) -> dynamic)?\n   override var ondragleave: ((DragEvent) -> dynamic)?\n   override var ondragover: ((DragEvent) -> dynamic)?\n   override var ondragstart: ((DragEvent) -> dynamic)?\n   override var ondrop: ((DragEvent) -> dynamic)?\n   override var ondurationchange: ((Event) -> dynamic)?\n   override var onemptied: ((Event) -> dynamic)?\n   override var onended: ((Event) -> dynamic)?\n   override var onerror: ((dynamic, String, Int, Int, Any?) -> dynamic)?\n   override var onfocus: ((FocusEvent) -> dynamic)?\n   override var oninput: ((InputEvent) -> dynamic)?\n   override var oninvalid: ((Event) -> dynamic)?\n   override var onkeydown: ((KeyboardEvent) -> dynamic)?\n   override var onkeypress: ((KeyboardEvent) -> dynamic)?\n   override var onkeyup: ((KeyboardEvent) -> dynamic)?\n   override var onload: ((Event) -> dynamic)?\n   override var onloadeddata: ((Event) -> dynamic)?\n   override var onloadedmetadata: ((Event) -> dynamic)?\n   override var onloadend: ((Event) -> dynamic)?\n   override var onloadstart: ((ProgressEvent) -> dynamic)?\n   override var onmousedown: ((MouseEvent) -> dynamic)?\n   override var onmouseenter: ((MouseEvent) -> dynamic)?\n   override var onmouseleave: ((MouseEvent) -> dynamic)?\n   override var onmousemove: ((MouseEvent) -> dynamic)?\n   override var onmouseout: ((MouseEvent) -> dynamic)?\n   override var onmouseover: ((MouseEvent) -> dynamic)?\n   override var onmouseup: ((MouseEvent) -> dynamic)?\n   override var onwheel: ((WheelEvent) -> dynamic)?\n   override var onpause: ((Event) -> dynamic)?\n   override var onplay: ((Event) -> dynamic)?\n   override var onplaying: ((Event) -> dynamic)?\n   override var onprogress: ((ProgressEvent) -> dynamic)?\n   override var onratechange: ((Event) -> dynamic)?\n   override var onreset: ((Event) -> dynamic)?\n   override var onresize: ((Event) -> dynamic)?\n   override var onscroll: ((Event) -> dynamic)?\n   override var onseeked: ((Event) -> dynamic)?\n   override var onseeking: ((Event) -> dynamic)?\n   override var onselect: ((Event) -> dynamic)?\n   override var onshow: ((Event) -> dynamic)?\n   override var onstalled: ((Event) -> dynamic)?\n   override var onsubmit: ((Event) -> dynamic)?\n   override var onsuspend: ((Event) -> dynamic)?\n   override var ontimeupdate: ((Event) -> dynamic)?\n   override var ontoggle: ((Event) -> dynamic)?\n   override var onvolumechange: ((Event) -> dynamic)?\n   override var onwaiting: ((Event) -> dynamic)?\n   override var ongotpointercapture: ((PointerEvent) -> dynamic)?\n   override var onlostpointercapture: ((PointerEvent) -> dynamic)?\n   override var onpointerdown: ((PointerEvent) -> dynamic)?\n   override var onpointermove: ((PointerEvent) -> dynamic)?\n   override var onpointerup: ((PointerEvent) -> dynamic)?\n   override var onpointercancel: ((PointerEvent) -> dynamic)?\n   override var onpointerover: ((PointerEvent) -> dynamic)?\n   override var onpointerout: ((PointerEvent) -> dynamic)?\n   override var onpointerenter: ((PointerEvent) -> dynamic)?\n   override var onpointerleave: ((PointerEvent) -> dynamic)?\n   override var oncopy: ((ClipboardEvent) -> dynamic)?\n   override var oncut: ((ClipboardEvent) -> dynamic)?\n   override var onpaste: ((ClipboardEvent) -> dynamic)?\n   override val fullscreenElement: Element?\n   override val children: HTMLCollection\n   override val firstElementChild: Element?\n   override val lastElementChild: Element?\n   override val childElementCount: Int\n   fun getElementsByTagName(qualifiedName: String): HTMLCollection\n   fun getElementsByTagNameNS(namespace: String?, localName: String): HTMLCollection\n   fun getElementsByClassName(classNames: String): HTMLCollection\n   fun createElement(localName: String, options: ElementCreationOptions = definedExternally): Element\n   fun createElementNS(namespace: String?, qualifiedName: String, options: ElementCreationOptions = definedExternally): Element\n   fun createDocumentFragment(): DocumentFragment\n   fun createTextNode(data: String): Text\n   fun createCDATASection(data: String): CDATASection\n   fun createComment(data: String): Comment\n   fun createProcessingInstruction(target: String, data: String): ProcessingInstruction\n   fun importNode(node: Node, deep: Boolean = definedExternally): Node\n   fun adoptNode(node: Node): Node\n   fun createAttribute(localName: String): Attr\n   fun createAttributeNS(namespace: String?, qualifiedName: String): Attr\n   fun createEvent(`interface`: String): Event\n   fun createRange(): Range\n   fun createNodeIterator(root: Node, whatToShow: Int = definedExternally, filter: NodeFilter? = definedExternally): NodeIterator\n   fun createNodeIterator(root: Node, whatToShow: Int = definedExternally, filter: ((Node) -> Short)? = definedExternally): NodeIterator\n   fun createTreeWalker(root: Node, whatToShow: Int = definedExternally, filter: NodeFilter? = definedExternally): TreeWalker\n   fun createTreeWalker(root: Node, whatToShow: Int = definedExternally, filter: ((Node) -> Short)? = definedExternally): TreeWalker\n   fun getElementsByName(elementName: String): NodeList\n   fun open(type: String = definedExternally, replace: String = definedExternally): Document\n   fun open(url: String, name: String, features: String): Window\n   fun close()\n   fun write(vararg text: String)\n   fun writeln(vararg text: String)\n   fun hasFocus(): Boolean\n   fun execCommand(commandId: String, showUI: Boolean = definedExternally, value: String = definedExternally): Boolean\n   fun queryCommandEnabled(commandId: String): Boolean\n   fun queryCommandIndeterm(commandId: String): Boolean\n   fun queryCommandState(commandId: String): Boolean\n   fun queryCommandSupported(commandId: String): Boolean\n   fun queryCommandValue(commandId: String): String\n   fun clear()\n   fun captureEvents()\n   fun releaseEvents()\n   fun elementFromPoint(x: Double, y: Double): Element?\n   fun elementsFromPoint(x: Double, y: Double): Array<Element>\n   fun caretPositionFromPoint(x: Double, y: Double): CaretPosition?\n   fun createTouch(view: Window, target: EventTarget, identifier: Int, pageX: Int, pageY: Int, screenX: Int, screenY: Int): Touch\n   fun createTouchList(vararg touches: Touch): TouchList\n   fun exitFullscreen(): Promise<Unit>\n   override fun getElementById(elementId: String): Element?\n   override fun prepend(vararg nodes: dynamic)\n   override fun append(vararg nodes: dynamic)\n   override fun querySelector(selectors: String): Element?\n   override fun querySelectorAll(selectors: String): NodeList\n   override fun getBoxQuads(options: BoxQuadOptions /* = definedExternally */): Array<DOMQuad>\n   override fun convertQuadFromNode(quad: dynamic, from: dynamic, options: ConvertCoordinateOptions /* = definedExternally */): DOMQuad\n   override fun convertRectFromNode(rect: DOMRectReadOnly, from: dynamic, options: ConvertCoordinateOptions /* = definedExternally */): DOMQuad\n   override fun convertPointFromNode(point: DOMPointInit, from: dynamic, options: ConvertCoordinateOptions /* = definedExternally */): DOMPoint\n\n   companion object {\n   val ELEMENT_NODE: Short\n   val ATTRIBUTE_NODE: Short\n   val TEXT_NODE: Short\n   val CDATA_SECTION_NODE: Short\n   val ENTITY_REFERENCE_NODE: Short\n   val ENTITY_NODE: Short\n   val PROCESSING_INSTRUCTION_NODE: Short\n   val COMMENT_NODE: Short\n   val DOCUMENT_NODE: Short\n   val DOCUMENT_TYPE_NODE: Short\n   val DOCUMENT_FRAGMENT_NODE: Short\n   val NOTATION_NODE: Short\n   val DOCUMENT_POSITION_DISCONNECTED: Short\n   val DOCUMENT_POSITION_PRECEDING: Short\n   val DOCUMENT_POSITION_FOLLOWING: Short\n   val DOCUMENT_POSITION_CONTAINS: Short\n   val DOCUMENT_POSITION_CONTAINED_BY: Short\n   val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n   }\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline operator fun Document.get(name: String): dynamic = asDynamic()[name]\n\n/**\n * Exposes the JavaScript [XMLDocument](https://developer.mozilla.org/en/docs/Web/API/XMLDocument) to Kotlin\n */\npublic external open class XMLDocument : Document {\n   companion object {\n   val ELEMENT_NODE: Short\n   val ATTRIBUTE_NODE: Short\n   val TEXT_NODE: Short\n   val CDATA_SECTION_NODE: Short\n   val ENTITY_REFERENCE_NODE: Short\n   val ENTITY_NODE: Short\n   val PROCESSING_INSTRUCTION_NODE: Short\n   val COMMENT_NODE: Short\n   val

DOCUMENT_NODE: Short\n   val DOCUMENT_TYPE_NODE: Short\n   val DOCUMENT_FRAGMENT_NODE: Short\n   val NOTATION_NODE: Short\n   val DOCUMENT_POSITION_DISCONNECTED: Short\n   val DOCUMENT_POSITION_PRECEDING: Short\n   val DOCUMENT_POSITION_FOLLOWING: Short\n   val DOCUMENT_POSITION_CONTAINS: Short\n   val DOCUMENT_POSITION_CONTAINED_BY: Short\n   val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n   }\n}\n\npublic external interface ElementCreationOptions {\n   var `is`: String?\n   get() = definedExternally\n   set(value) = definedExternally\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline fun ElementCreationOptions(`is`: String? = undefined): ElementCreationOptions {\n   val o = js(\"({})\")\n   o[\"is\"] = `is`\n   return o\n}\n\n/**\n * Exposes the JavaScript [DOMImplementation](https://developer.mozilla.org/en/docs/Web/API/DOMImplementation) to Kotlin\n */\npublic external abstract class DOMImplementation {\n   fun createDocumentType(qualifiedName: String, publicId: String, systemId: String): DocumentType\n   fun createDocument(namespace: String?, qualifiedName: String, doctype: DocumentType? = definedExternally): XMLDocument\n   fun createHTMLDocument(title: String = definedExternally): Document\n   fun hasFeature(): Boolean\n}\n\n/**\n * Exposes the JavaScript [DocumentType](https://developer.mozilla.org/en/docs/Web/API/DocumentType) to Kotlin\n */\npublic external abstract class DocumentType : Node, ChildNode {\n   open val name: String\n   open val publicId: String\n   open val systemId: String\n\n   companion object {\n   val ELEMENT_NODE: Short\n   val ATTRIBUTE_NODE: Short\n   val TEXT_NODE: Short\n   val CDATA_SECTION_NODE: Short\n   val ENTITY_REFERENCE_NODE: Short\n   val ENTITY_NODE: Short\n   val PROCESSING_INSTRUCTION_NODE: Short\n   val COMMENT_NODE: Short\n   val DOCUMENT_NODE: Short\n   val DOCUMENT_TYPE_NODE: Short\n   val DOCUMENT_FRAGMENT_NODE: Short\n   val NOTATION_NODE: Short\n   val DOCUMENT_POSITION_DISCONNECTED: Short\n   val DOCUMENT_POSITION_PRECEDING: Short\n   val DOCUMENT_POSITION_FOLLOWING: Short\n   val DOCUMENT_POSITION_CONTAINS: Short\n   val DOCUMENT_POSITION_CONTAINED_BY: Short\n   val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n   }\n}\n\n/**\n * Exposes the JavaScript [DocumentFragment](https://developer.mozilla.org/en/docs/Web/API/DocumentFragment) to Kotlin\n */\npublic external open class DocumentFragment : Node, NonElementParentNode, ParentNode {\n   override val children: HTMLCollection\n   override val firstElementChild: Element?\n   override val lastElementChild: Element?\n   override val childElementCount: Int\n   override fun getElementById(elementId: String): Element?\n   override fun prepend(vararg nodes: dynamic)\n   override fun append(vararg nodes: dynamic)\n   override fun querySelector(selectors: String): Element?\n   override fun querySelectorAll(selectors: String): NodeList\n\n   companion object {\n   val ELEMENT_NODE: Short\n   val ATTRIBUTE_NODE: Short\n   val TEXT_NODE: Short\n   val CDATA_SECTION_NODE: Short\n   val ENTITY_REFERENCE_NODE: Short\n   val ENTITY_NODE: Short\n   val PROCESSING_INSTRUCTION_NODE: Short\n   val COMMENT_NODE: Short\n   val DOCUMENT_NODE: Short\n   val DOCUMENT_TYPE_NODE: Short\n   val DOCUMENT_FRAGMENT_NODE: Short\n   val NOTATION_NODE: Short\n   val DOCUMENT_POSITION_DISCONNECTED: Short\n   val DOCUMENT_POSITION_PRECEDING: Short\n   val DOCUMENT_POSITION_FOLLOWING: Short\n   val DOCUMENT_POSITION_CONTAINS: Short\n   val DOCUMENT_POSITION_CONTAINED_BY: Short\n   val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n   }\n}\n\n/**\n * Exposes the JavaScript [ShadowRoot](https://developer.mozilla.org/en/docs/Web/API/ShadowRoot) to Kotlin\n */\npublic external open class ShadowRoot : DocumentFragment, DocumentOrShadowRoot {\n   open val mode: ShadowRootMode\n   open val host: Element\n   override val fullscreenElement: Element?\n\n   companion object {\n   val ELEMENT_NODE: Short\n   val ATTRIBUTE_NODE: Short\n   val TEXT_NODE: Short\n   val CDATA_SECTION_NODE: Short\n   val ENTITY_REFERENCE_NODE: Short\n   val ENTITY_NODE:

Short\n   val PROCESSING_INSTRUCTION_NODE: Short\n   val COMMENT_NODE: Short\n   val DOCUMENT_NODE: Short\n   val DOCUMENT_TYPE_NODE: Short\n   val DOCUMENT_FRAGMENT_NODE: Short\n   val NOTATION_NODE: Short\n   val DOCUMENT_POSITION_DISCONNECTED: Short\n   val DOCUMENT_POSITION_PRECEDING: Short\n   val DOCUMENT_POSITION_FOLLOWING: Short\n   val DOCUMENT_POSITION_CONTAINS: Short\n   val DOCUMENT_POSITION_CONTAINED_BY: Short\n   val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n   }\n}\n\n/**\n * Exposes the JavaScript [Element](https://developer.mozilla.org/en/docs/Web/API/Element) to Kotlin\n */\npublic external abstract class Element : Node, ParentNode, NonDocumentTypeChildNode, ChildNode, Slotable, GeometryUtils, UnionElementOrHTMLCollection, UnionElementOrRadioNodeList, UnionElementOrMouseEvent, UnionElementOrProcessingInstruction {\n   open val namespaceURI: String?\n   open val prefix: String?\n   open val localName: String\n   open val tagName: String\n   open var id: String\n   open var className: String\n   open val classList: DOMTokenList\n   open var slot: String\n   open val attributes: NamedNodeMap\n   open val shadowRoot: ShadowRoot?\n   open var scrollTop: Double\n   open var scrollLeft: Double\n   open val scrollWidth: Int\n   open val scrollHeight: Int\n   open val clientTop: Int\n   open val clientLeft: Int\n   open val clientWidth: Int\n   open val clientHeight: Int\n   open var innerHTML: String\n   open var outerHTML: String\n   fun hasAttributes(): Boolean\n   fun getAttributeNames(): Array<String>\n   fun getAttribute(qualifiedName: String): String?\n   fun getAttributeNS(namespace: String?, localName: String): String?\n   fun setAttribute(qualifiedName: String, value: String)\n   fun setAttributeNS(namespace: String?, qualifiedName: String, value: String)\n   fun removeAttribute(qualifiedName: String)\n   fun removeAttributeNS(namespace: String?, localName: String)\n   fun hasAttribute(qualifiedName: String): Boolean\n   fun hasAttributeNS(namespace: String?, localName: String): Boolean\n   fun getAttributeNode(qualifiedName: String): Attr?\n   fun getAttributeNodeNS(namespace: String?, localName: String): Attr?\n   fun setAttributeNode(attr: Attr): Attr?\n   fun setAttributeNodeNS(attr: Attr): Attr?\n   fun removeAttributeNode(attr: Attr): Attr\n   fun attachShadow(init: ShadowRootInit): ShadowRoot\n   fun closest(selectors: String): Element?\n   fun matches(selectors: String): Boolean\n   fun webkitMatchesSelector(selectors: String): Boolean\n   fun getElementsByTagName(qualifiedName: String): HTMLCollection\n   fun getElementsByTagNameNS(namespace: String?, localName: String): HTMLCollection\n   fun getElementsByClassName(classNames: String): HTMLCollection\n   fun insertAdjacentElement(where: String, element: Element): Element?\n   fun insertAdjacentText(where: String, data: String)\n   fun getClientRects(): Array<DOMRect>\n   fun getBoundingClientRect(): DOMRect\n   fun scrollIntoView()\n   fun scrollIntoView(arg: dynamic)\n   fun scroll(options: ScrollToOptions = definedExternally)\n   fun scroll(x: Double, y: Double)\n   fun scrollTo(options: ScrollToOptions = definedExternally)\n   fun scrollTo(x: Double, y: Double)\n   fun scrollBy(options: ScrollToOptions = definedExternally)\n   fun scrollBy(x: Double, y: Double)\n   fun insertAdjacentHTML(position: String, text: String)\n   fun setPointerCapture(pointerId: Int)\n   fun releasePointerCapture(pointerId: Int)\n   fun hasPointerCapture(pointerId: Int): Boolean\n   fun requestFullscreen(): Promise<Unit>\n\n   companion object {\n   val ELEMENT_NODE: Short\n   val ATTRIBUTE_NODE: Short\n   val TEXT_NODE: Short\n   val CDATA_SECTION_NODE: Short\n   val ENTITY_REFERENCE_NODE: Short\n   val ENTITY_NODE: Short\n   val PROCESSING_INSTRUCTION_NODE: Short\n   val COMMENT_NODE: Short\n   val DOCUMENT_NODE: Short\n   val DOCUMENT_TYPE_NODE: Short\n   val DOCUMENT_FRAGMENT_NODE: Short\n   val NOTATION_NODE: Short\n   val DOCUMENT_POSITION_DISCONNECTED: Short\n   val DOCUMENT_POSITION_PRECEDING: Short\n   val DOCUMENT_POSITION_FOLLOWING: Short\n   val DOCUMENT_POSITION_CONTAINS: Short\n   val DOCUMENT_POSITION_CONTAINED_BY: Short\n   val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n   }\n}\n\npublic external interface ShadowRootInit {\n   var mode: ShadowRootMode?\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline fun ShadowRootInit(mode:

ShadowRootMode?): ShadowRootInit {\n   val o = js(\"({})\")\n   o[\"mode\"] = mode\n   return o\n}\n\n/**\n * Exposes the JavaScript [NamedNodeMap](https://developer.mozilla.org/en/docs/Web/API/NamedNodeMap) to Kotlin\n */\npublic external abstract class NamedNodeMap : ItemArrayLike<Attr> {\n   fun getNamedItemNS(namespace: String?, localName: String): Attr?\n   fun setNamedItem(attr: Attr): Attr?\n   fun setNamedItemNS(attr: Attr): Attr?\n   fun removeNamedItem(qualifiedName: String): Attr\n   fun removeNamedItemNS(namespace: String?, localName: String): Attr\n   override fun item(index: Int): Attr?\n   fun getNamedItem(qualifiedName: String): Attr?\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline operator fun NamedNodeMap.get(index: Int): Attr? = asDynamic()[index]\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline operator fun NamedNodeMap.get(qualifiedName: String): Attr? = asDynamic()[qualifiedName]\n\n/**\n * Exposes the JavaScript [Attr](https://developer.mozilla.org/en/docs/Web/API/Attr) to Kotlin\n */\npublic external abstract class Attr : Node {\n   open val namespaceURI: String?\n   open val prefix: String?\n   open val localName: String\n   open val name: String\n   open var value: String\n   open val ownerElement: Element?\n   open val specified: Boolean\n\n   companion object {\n   val ELEMENT_NODE: Short\n   val ATTRIBUTE_NODE: Short\n   val TEXT_NODE: Short\n   val CDATA_SECTION_NODE: Short\n   val ENTITY_REFERENCE_NODE: Short\n   val ENTITY_NODE: Short\n   val PROCESSING_INSTRUCTION_NODE: Short\n   val COMMENT_NODE: Short\n   val DOCUMENT_NODE: Short\n   val DOCUMENT_TYPE_NODE: Short\n   val DOCUMENT_FRAGMENT_NODE: Short\n   val NOTATION_NODE: Short\n   val DOCUMENT_POSITION_DISCONNECTED: Short\n   val DOCUMENT_POSITION_PRECEDING: Short\n   val DOCUMENT_POSITION_FOLLOWING: Short\n   val DOCUMENT_POSITION_CONTAINS: Short\n   val DOCUMENT_POSITION_CONTAINED_BY: Short\n   val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n   }\n}\n\n/**\n * Exposes the JavaScript [CharacterData](https://developer.mozilla.org/en/docs/Web/API/CharacterData) to Kotlin\n */\npublic external abstract class CharacterData : Node, NonDocumentTypeChildNode, ChildNode {\n   open var data: String\n   open val length: Int\n   fun substringData(offset: Int, count: Int): String\n   fun appendData(data: String)\n   fun insertData(offset: Int, data: String)\n   fun deleteData(offset: Int, count: Int)\n   fun replaceData(offset: Int, count: Int, data: String)\n\n   companion object {\n   val ELEMENT_NODE: Short\n   val ATTRIBUTE_NODE: Short\n   val TEXT_NODE: Short\n   val CDATA_SECTION_NODE: Short\n   val ENTITY_REFERENCE_NODE: Short\n   val ENTITY_NODE: Short\n   val PROCESSING_INSTRUCTION_NODE: Short\n   val COMMENT_NODE: Short\n   val DOCUMENT_NODE: Short\n   val DOCUMENT_TYPE_NODE: Short\n   val DOCUMENT_FRAGMENT_NODE: Short\n   val NOTATION_NODE: Short\n   val DOCUMENT_POSITION_DISCONNECTED: Short\n   val DOCUMENT_POSITION_PRECEDING: Short\n   val DOCUMENT_POSITION_FOLLOWING: Short\n   val DOCUMENT_POSITION_CONTAINS: Short\n   val DOCUMENT_POSITION_CONTAINED_BY: Short\n   val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n   }\n}\n\n/**\n * Exposes the JavaScript [Text](https://developer.mozilla.org/en/docs/Web/API/Text) to Kotlin\n */\npublic external open class Text(data: String = definedExternally) : CharacterData, Slotable, GeometryUtils {\n   open val wholeText: String\n   override val assignedSlot: HTMLSlotElement?\n   override val previousElementSibling: Element?\n   override val nextElementSibling: Element?\n   fun splitText(offset: Int): Text\n   override fun getBoxQuads(options: BoxQuadOptions /* = definedExternally */): Array<DOMQuad>\n   override fun convertQuadFromNode(quad: dynamic, from: dynamic, options: ConvertCoordinateOptions /* = definedExternally */): DOMQuad\n   override fun convertRectFromNode(rect: DOMRectReadOnly, from: dynamic, options: ConvertCoordinateOptions /* = definedExternally */): DOMQuad\n   override fun convertPointFromNode(point: DOMPointInit, from: dynamic, options: ConvertCoordinateOptions /* = definedExternally */): DOMPoint\n   override fun before(vararg nodes: dynamic)\n   override fun after(vararg nodes: dynamic)\n   override fun replaceWith(vararg nodes: dynamic)\n   override fun remove()\n\n   companion object {\n   val ELEMENT_NODE: Short\n   val

ATTRIBUTE_NODE: Short\n   val TEXT_NODE: Short\n   val CDATA_SECTION_NODE: Short\n   val ENTITY_REFERENCE_NODE: Short\n   val ENTITY_NODE: Short\n   val PROCESSING_INSTRUCTION_NODE: Short\n   val COMMENT_NODE: Short\n   val DOCUMENT_NODE: Short\n   val DOCUMENT_TYPE_NODE: Short\n   val DOCUMENT_FRAGMENT_NODE: Short\n   val NOTATION_NODE: Short\n   val DOCUMENT_POSITION_DISCONNECTED: Short\n   val DOCUMENT_POSITION_PRECEDING: Short\n   val DOCUMENT_POSITION_FOLLOWING: Short\n   val DOCUMENT_POSITION_CONTAINS: Short\n   val DOCUMENT_POSITION_CONTAINED_BY: Short\n   val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n   }\n}\n\n/**\n * Exposes the JavaScript [CDATASection](https://developer.mozilla.org/en/docs/Web/API/CDATASection) to Kotlin\n */\npublic external open class CDATASection : Text {\n   companion object {\n   val ELEMENT_NODE: Short\n   val ATTRIBUTE_NODE: Short\n   val TEXT_NODE: Short\n   val CDATA_SECTION_NODE: Short\n   val ENTITY_REFERENCE_NODE: Short\n   val ENTITY_NODE: Short\n   val PROCESSING_INSTRUCTION_NODE: Short\n   val COMMENT_NODE: Short\n   val DOCUMENT_NODE: Short\n   val DOCUMENT_TYPE_NODE: Short\n   val DOCUMENT_FRAGMENT_NODE: Short\n   val NOTATION_NODE: Short\n   val DOCUMENT_POSITION_DISCONNECTED: Short\n   val DOCUMENT_POSITION_PRECEDING: Short\n   val DOCUMENT_POSITION_FOLLOWING: Short\n   val DOCUMENT_POSITION_CONTAINS: Short\n   val DOCUMENT_POSITION_CONTAINED_BY: Short\n   val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n   }\n}\n\n/**\n * Exposes the JavaScript [ProcessingInstruction](https://developer.mozilla.org/en/docs/Web/API/ProcessingInstruction) to Kotlin\n */\npublic external abstract class ProcessingInstruction : CharacterData, LinkStyle, UnionElementOrProcessingInstruction {\n   open val target: String\n\n   companion object {\n   val ELEMENT_NODE: Short\n   val ATTRIBUTE_NODE: Short\n   val TEXT_NODE: Short\n   val CDATA_SECTION_NODE: Short\n   val ENTITY_REFERENCE_NODE: Short\n   val ENTITY_NODE: Short\n   val PROCESSING_INSTRUCTION_NODE: Short\n   val COMMENT_NODE: Short\n   val DOCUMENT_NODE: Short\n   val DOCUMENT_TYPE_NODE: Short\n   val DOCUMENT_FRAGMENT_NODE: Short\n   val NOTATION_NODE: Short\n   val DOCUMENT_POSITION_DISCONNECTED: Short\n   val DOCUMENT_POSITION_PRECEDING: Short\n   val DOCUMENT_POSITION_FOLLOWING: Short\n   val DOCUMENT_POSITION_CONTAINS: Short\n   val DOCUMENT_POSITION_CONTAINED_BY: Short\n   val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n   }\n}\n\n/**\n * Exposes the JavaScript [Comment](https://developer.mozilla.org/en/docs/Web/API/Comment) to Kotlin\n */\npublic external open class Comment(data: String = definedExternally) : CharacterData {\n   override val previousElementSibling: Element?\n   override val nextElementSibling: Element?\n   override fun before(vararg nodes: dynamic)\n   override fun after(vararg nodes: dynamic)\n   override fun replaceWith(vararg nodes: dynamic)\n   override fun remove()\n\n   companion object {\n   val ELEMENT_NODE: Short\n   val ATTRIBUTE_NODE: Short\n   val TEXT_NODE: Short\n   val CDATA_SECTION_NODE: Short\n   val ENTITY_REFERENCE_NODE: Short\n   val ENTITY_NODE: Short\n   val PROCESSING_INSTRUCTION_NODE: Short\n   val COMMENT_NODE: Short\n   val DOCUMENT_NODE: Short\n   val DOCUMENT_TYPE_NODE: Short\n   val DOCUMENT_FRAGMENT_NODE: Short\n   val NOTATION_NODE: Short\n   val DOCUMENT_POSITION_DISCONNECTED: Short\n   val DOCUMENT_POSITION_PRECEDING: Short\n   val DOCUMENT_POSITION_FOLLOWING: Short\n   val DOCUMENT_POSITION_CONTAINS: Short\n   val DOCUMENT_POSITION_CONTAINED_BY: Short\n   val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n   }\n}\n\n/**\n * Exposes the JavaScript [Range](https://developer.mozilla.org/en/docs/Web/API/Range) to Kotlin\n */\npublic external open class Range {\n   open val startContainer: Node\n   open val startOffset: Int\n   open val endContainer: Node\n   open val endOffset: Int\n   open val collapsed: Boolean\n   open val commonAncestorContainer: Node\n   fun setStart(node:

Node, offset: Int)\n   fun setEnd(node: Node, offset: Int)\n   fun setStartBefore(node: Node)\n   fun setStartAfter(node: Node)\n   fun setEndBefore(node: Node)\n   fun setEndAfter(node: Node)\n   fun collapse(toStart: Boolean = definedExternally)\n   fun selectNode(node: Node)\n   fun selectNodeContents(node: Node)\n   fun compareBoundaryPoints(how: Short, sourceRange: Range): Short\n   fun deleteContents()\n   fun extractContents(): DocumentFragment\n   fun cloneContents(): DocumentFragment\n   fun insertNode(node: Node)\n   fun surroundContents(newParent: Node)\n   fun cloneRange(): Range\n   fun detach()\n   fun isPointInRange(node: Node, offset: Int): Boolean\n   fun comparePoint(node: Node, offset: Int): Short\n   fun intersectsNode(node: Node): Boolean\n   fun getClientRects(): Array<DOMRect>\n   fun getBoundingClientRect(): DOMRect\n   fun createContextualFragment(fragment: String): DocumentFragment\n\n   companion object {\n   val START_TO_START: Short\n   val START_TO_END: Short\n   val END_TO_END: Short\n   val END_TO_START: Short\n   }\n}\n\n/**\n * Exposes the JavaScript [NodeIterator](https://developer.mozilla.org/en/docs/Web/API/NodeIterator) to Kotlin\n */\npublic external abstract class NodeIterator {\n   open val root: Node\n   open val referenceNode: Node\n   open val pointerBeforeReferenceNode: Boolean\n   open val whatToShow: Int\n   open val filter: NodeFilter?\n   fun nextNode(): Node?\n   fun previousNode(): Node?\n   fun detach()\n}\n\n/**\n * Exposes the JavaScript [TreeWalker](https://developer.mozilla.org/en/docs/Web/API/TreeWalker) to Kotlin\n */\npublic external abstract class TreeWalker {\n   open val root: Node\n   open val whatToShow: Int\n   open val filter: NodeFilter?\n   open var currentNode: Node\n   fun parentNode(): Node?\n   fun firstChild(): Node?\n   fun lastChild(): Node?\n   fun previousSibling(): Node?\n   fun nextSibling(): Node?\n   fun previousNode(): Node?\n   fun nextNode(): Node?\n}\n\n/**\n * Exposes the JavaScript [NodeFilter](https://developer.mozilla.org/en/docs/Web/API/NodeFilter) to Kotlin\n */\n@Suppress(\"NESTED_CLASS_IN_EXTERNAL_INTERFACE\")\npublic external interface NodeFilter {\n   fun acceptNode(node: Node): Short\n\n   companion object {\n   val FILTER_ACCEPT: Short\n   val FILTER_REJECT: Short\n   val FILTER_SKIP: Short\n   val SHOW_ALL: Int\n   val SHOW_ELEMENT: Int\n   val SHOW_ATTRIBUTE: Int\n   val SHOW_TEXT: Int\n   val SHOW_CDATA_SECTION: Int\n   val SHOW_ENTITY_REFERENCE: Int\n   val SHOW_ENTITY: Int\n   val SHOW_PROCESSING_INSTRUCTION: Int\n   val SHOW_COMMENT: Int\n   val SHOW_DOCUMENT: Int\n   val SHOW_DOCUMENT_TYPE: Int\n   val SHOW_DOCUMENT_FRAGMENT: Int\n   val SHOW_NOTATION: Int\n   }\n}\n\n/**\n * Exposes the JavaScript [DOMTokenList](https://developer.mozilla.org/en/docs/Web/API/DOMTokenList) to Kotlin\n */\npublic external abstract class DOMTokenList : ItemArrayLike<String> {\n   open var value: String\n   fun contains(token: String): Boolean\n   fun add(vararg tokens: String)\n   fun remove(vararg tokens: String)\n   fun toggle(token: String, force: Boolean = definedExternally): Boolean\n   fun replace(token: String, newToken: String)\n   fun supports(token: String): Boolean\n   override fun item(index: Int): String?\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline operator fun DOMTokenList.get(index: Int): String? = asDynamic()[index]\n\n/**\n * Exposes the JavaScript [DOMPointReadOnly](https://developer.mozilla.org/en/docs/Web/API/DOMPointReadOnly) to Kotlin\n */\npublic external open class DOMPointReadOnly(x: Double, y: Double, z: Double, w: Double) {\n   open val x: Double\n   open val y: Double\n   open val z: Double\n   open val w: Double\n   fun matrixTransform(matrix: DOMMatrixReadOnly): DOMPoint\n}\n\n/**\n * Exposes the JavaScript [DOMPoint](https://developer.mozilla.org/en/docs/Web/API/DOMPoint) to Kotlin\n */\npublic external open class DOMPoint : DOMPointReadOnly {\n   constructor(point: DOMPointInit)\n   constructor(x: Double = definedExternally, y: Double = definedExternally, z: Double = definedExternally, w: Double = definedExternally)\n   override var x: Double\n   override var y: Double\n   override var z: Double\n   override var w: Double\n}\n\n/**\n * Exposes the JavaScript [DOMPointInit](https://developer.mozilla.org/en/docs/Web/API/DOMPointInit) to Kotlin\n */\npublic external interface DOMPointInit {\n   var x: Double? /* = 0.0 */\n   get() = definedExternally\n   set(value) =

definedExternally\n   var y: Double? /* = 0.0 */\n   get() = definedExternally\n   set(value) = definedExternally\n   var z: Double? /* = 0.0 */\n   get() = definedExternally\n   set(value) = definedExternally\n   var w: Double? /* = 1.0 */\n   get() = definedExternally\n   set(value) = definedExternally\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline fun DOMPointInit(x: Double? = 0.0, y: Double? = 0.0, z: Double? = 0.0, w: Double? = 1.0): DOMPointInit {\n   val o = js(\"({})\")\n   o[\"x\"] = x\n   o[\"y\"] = y\n   o[\"z\"] = z\n   o[\"w\"] = w\n   return o\n}\n\n/**\n * Exposes the JavaScript [DOMRect](https://developer.mozilla.org/en/docs/Web/API/DOMRect) to Kotlin\n */\npublic external open class DOMRect(x: Double = definedExternally, y: Double = definedExternally, width: Double = definedExternally, height: Double = definedExternally) : DOMRectReadOnly {\n   override var x: Double\n   override var y: Double\n   override var width: Double\n   override var height: Double\n}\n\n/**\n * Exposes the JavaScript [DOMRectReadOnly](https://developer.mozilla.org/en/docs/Web/API/DOMRectReadOnly) to Kotlin\n */\npublic external open class DOMRectReadOnly(x: Double, y: Double, width: Double, height: Double) {\n   open val x: Double\n   open val y: Double\n   open val width: Double\n   open val height: Double\n   open val top: Double\n   open val right: Double\n   open val bottom: Double\n   open val left: Double\n}\n\npublic external interface DOMRectInit {\n   var x: Double? /* = 0.0 */\n   get() = definedExternally\n   set(value) = definedExternally\n   var y: Double? /* = 0.0 */\n   get() = definedExternally\n   set(value) = definedExternally\n   var width: Double? /* = 0.0 */\n   get() = definedExternally\n   set(value) = definedExternally\n   var height: Double? /* = 0.0 */\n   get() = definedExternally\n   set(value) = definedExternally\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline fun DOMRectInit(x: Double? = 0.0, y: Double? = 0.0, width: Double? = 0.0, height: Double? = 0.0): DOMRectInit {\n   val o = js(\"({})\")\n   o[\"x\"] = x\n   o[\"y\"] = y\n   o[\"width\"] = width\n   o[\"height\"] = height\n   return o\n}\n\npublic external interface DOMRectList : ItemArrayLike<DOMRect> {\n   override fun item(index: Int): DOMRect?\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline operator fun DOMRectList.get(index: Int): DOMRect? = asDynamic()[index]\n\n/**\n * Exposes the JavaScript [DOMQuad](https://developer.mozilla.org/en/docs/Web/API/DOMQuad) to Kotlin\n */\npublic external open class DOMQuad {\n   constructor(p1: DOMPointInit = definedExternally, p2: DOMPointInit = definedExternally, p3: DOMPointInit = definedExternally, p4: DOMPointInit = definedExternally)\n   constructor(rect: DOMRectInit)\n   open val p1: DOMPoint\n   open val p2: DOMPoint\n   open val p3: DOMPoint\n   open val p4: DOMPoint\n   open val bounds: DOMRectReadOnly\n}\n\n/**\n * Exposes the JavaScript [DOMMatrixReadOnly](https://developer.mozilla.org/en/docs/Web/API/DOMMatrixReadOnly) to Kotlin\n */\npublic external open class DOMMatrixReadOnly(numberSequence: Array<Double>) {\n   open val a: Double\n   open val b: Double\n   open val c: Double\n   open val d: Double\n   open val e: Double\n   open val f: Double\n   open val m11: Double\n   open val m12: Double\n   open val m13: Double\n   open val m14: Double\n   open val m21: Double\n   open val m22: Double\n   open val m23: Double\n   open val m24: Double\n   open val m31: Double\n   open val m32: Double\n   open val m33: Double\n   open val m34: Double\n   open val m41: Double\n   open val m42: Double\n   open val m43: Double\n   open val m44: Double\n   open val is2D: Boolean\n   open val isIdentity: Boolean\n   fun translate(tx: Double, ty: Double, tz: Double = definedExternally): DOMMatrix\n   fun scale(scale: Double, originX: Double = definedExternally, originY: Double = definedExternally): DOMMatrix\n   fun scale3d(scale: Double, originX: Double = definedExternally, originY: Double = definedExternally, originZ: Double = definedExternally): DOMMatrix\n   fun scaleNonUniform(scaleX: Double, scaleY: Double = definedExternally, scaleZ: Double = definedExternally, originX: Double = definedExternally, originY: Double = definedExternally, originZ: Double = definedExternally): DOMMatrix\n   fun rotate(angle: Double, originX: Double = definedExternally, originY: Double = definedExternally): DOMMatrix\n   fun rotateFromVector(x: Double, y: Double): DOMMatrix\n   fun rotateAxisAngle(x: Double, y: Double, z: Double, angle: Double): DOMMatrix\n   fun skewX(sx: Double): DOMMatrix\n   fun skewY(sy: Double): DOMMatrix\n   fun multiply(other: DOMMatrix): DOMMatrix\n   fun flipX(): DOMMatrix\n   fun flipY(): DOMMatrix\n   fun inverse(): DOMMatrix\n   fun transformPoint(point: DOMPointInit = definedExternally): DOMPoint\n   fun toFloat32Array(): Float32Array\n   fun toFloat64Array(): Float64Array\n}\n\n/**\n * Exposes the JavaScript [DOMMatrix](https://developer.mozilla.org/en/docs/Web/API/DOMMatrix) to Kotlin\n */\npublic external open class DOMMatrix() : DOMMatrixReadOnly {\n   constructor(transformList: String)\n   constructor(other: DOMMatrixReadOnly)\n   constructor(array32: Float32Array)\n   constructor(array64: Float64Array)\n   constructor(numberSequence: Array<Double>)\n   override var a: Double\n   override var b: Double\n   override var c: Double\n   override var d: Double\n   override var e: Double\n   override var f: Double\n   override var m11: Double\n   override var m12: Double\n   override var m13: Double\n   override var m14: Double\n   override var m21: Double\n   override var m22: Double\n   override var m23: Double\n   override var m24: Double\n   override var m31: Double\n   override var m32: Double\n   override var m33: Double\n   override var m34: Double\n   override var m41: Double\n   override var m42: Double\n   override var m43: Double\n   override var m44: Double\n   fun multiplySelf(other: DOMMatrix): DOMMatrix\n   fun preMultiplySelf(other: DOMMatrix): DOMMatrix\n   fun translateSelf(tx: Double, ty: Double, tz: Double = definedExternally): DOMMatrix\n   fun scaleSelf(scale: Double, originX: Double = definedExternally, originY: Double = definedExternally): DOMMatrix\n   fun scale3dSelf(scale: Double, originX: Double = definedExternally, originY: Double = definedExternally, originZ: Double = definedExternally): DOMMatrix\n   fun scaleNonUniformSelf(scaleX: Double, scaleY: Double = definedExternally, scaleZ: Double = definedExternally, originX: Double = definedExternally, originY: Double = definedExternally, originZ: Double = definedExternally): DOMMatrix\n   fun rotateSelf(angle: Double, originX: Double = definedExternally, originY: Double = definedExternally): DOMMatrix\n   fun rotateFromVectorSelf(x: Double, y: Double): DOMMatrix\n   fun rotateAxisAngleSelf(x: Double, y: Double, z: Double, angle: Double): DOMMatrix\n   fun skewXSelf(sx: Double): DOMMatrix\n   fun skewYSelf(sy: Double): DOMMatrix\n   fun invertSelf(): DOMMatrix\n   fun setMatrixValue(transformList: String): DOMMatrix\n}\n\npublic external interface ScrollOptions {\n   var behavior: ScrollBehavior? /* = ScrollBehavior.AUTO */\n   get() = definedExternally\n   set(value) = definedExternally\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline fun ScrollOptions(behavior: ScrollBehavior? = ScrollBehavior.AUTO): ScrollOptions {\n   val o = js(\"({})\")\n   o[\"behavior\"] = behavior\n   return o\n}\n\n/**\n * Exposes the JavaScript [ScrollToOptions](https://developer.mozilla.org/en/docs/Web/API/ScrollToOptions) to Kotlin\n */\npublic external interface ScrollToOptions : ScrollOptions {\n   var left: Double?\n   get() = definedExternally\n   set(value) = definedExternally\n   var top: Double?\n   get() = definedExternally\n   set(value) = definedExternally\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline fun ScrollToOptions(left: Double? = undefined, top: Double? = undefined, behavior: ScrollBehavior? = ScrollBehavior.AUTO): ScrollToOptions {\n   val o = js(\"({})\")\n   o[\"left\"] = left\n   o[\"top\"] = top\n   o[\"behavior\"] = behavior\n   return o\n}\n\n/**\n * Exposes the JavaScript [MediaQueryList](https://developer.mozilla.org/en/docs/Web/API/MediaQueryList) to Kotlin\n */\npublic external abstract class MediaQueryList : EventTarget {\n   open val media: String\n   open val matches: Boolean\n   open var onchange: ((Event) -> dynamic)?\n   fun addListener(listener: EventListener?)\n   fun addListener(listener: ((Event) -> Unit)?)\n   fun removeListener(listener: EventListener?)\n   fun removeListener(listener: ((Event) -> Unit)?)\n}\n\n/**\n * Exposes the JavaScript [MediaQueryListEvent](https://developer.mozilla.org/en/docs/Web/API/MediaQueryListEvent) to Kotlin\n */\npublic external open class MediaQueryListEvent(type: String, eventInitDict: MediaQueryListEventInit = definedExternally) : Event {\n   open val media: String\n   open val matches: Boolean\n\n   companion object {\n   val NONE: Short\n   val CAPTURING_PHASE: Short\n   val AT_TARGET: Short\n   val BUBBLING_PHASE: Short\n   }\n}\n\npublic external interface MediaQueryListEventInit : EventInit {\n   var media: String? /* = \"\" */\n   get() = definedExternally\n   set(value) = definedExternally\n   var matches: Boolean? /* = false */\n   get() = definedExternally\n   set(value) = definedExternally\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\",

\"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline fun MediaQueryListEventInit(media: String? = \"\", matches: Boolean? = false, bubbles: Boolean? = false, cancelable: Boolean? = false, composed: Boolean? = false): MediaQueryListEventInit {\n   val o = js(\"({})\")\n   o[\"media\"] = media\n   o[\"matches\"] = matches\n   o[\"bubbles\"] = bubbles\n   o[\"cancelable\"] = cancelable\n   o[\"composed\"] = composed\n   return o\n}\n\n/**\n * Exposes the JavaScript [Screen](https://developer.mozilla.org/en/docs/Web/API/Screen) to Kotlin\n */\npublic external abstract class Screen {\n   open val availWidth: Int\n   open val availHeight: Int\n   open val width: Int\n   open val height: Int\n   open val colorDepth: Int\n   open val pixelDepth: Int\n}\n\n/**\n * Exposes the JavaScript [CaretPosition](https://developer.mozilla.org/en/docs/Web/API/CaretPosition) to Kotlin\n */\npublic external abstract class CaretPosition {\n   open val offsetNode: Node\n   open val offset: Int\n   fun getClientRect(): DOMRect?\n}\n\npublic external interface ScrollIntoViewOptions : ScrollOptions {\n   var block: ScrollLogicalPosition? /* = ScrollLogicalPosition.CENTER */\n   get() = definedExternally\n   set(value) = definedExternally\n   var inline: ScrollLogicalPosition? /* = ScrollLogicalPosition.CENTER */\n   get() = definedExternally\n   set(value) = definedExternally\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline fun ScrollIntoViewOptions(block: ScrollLogicalPosition? = ScrollLogicalPosition.CENTER, inline: ScrollLogicalPosition? = ScrollLogicalPosition.CENTER, behavior: ScrollBehavior? = ScrollBehavior.AUTO): ScrollIntoViewOptions {\n   val o = js(\"({})\")\n   o[\"block\"] = block\n   o[\"inline\"] = inline\n   o[\"behavior\"] = behavior\n   return o\n}\n\npublic external interface BoxQuadOptions {\n   var box: CSSBoxType? /* = CSSBoxType.BORDER */\n   get() = definedExternally\n   set(value) = definedExternally\n   var relativeTo: dynamic\n   get() = definedExternally\n   set(value) = definedExternally\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline fun BoxQuadOptions(box: CSSBoxType? = CSSBoxType.BORDER, relativeTo: dynamic = undefined): BoxQuadOptions {\n   val o = js(\"({})\")\n   o[\"box\"] = box\n   o[\"relativeTo\"] = relativeTo\n   return o\n}\n\npublic external interface ConvertCoordinateOptions {\n   var fromBox: CSSBoxType? /* = CSSBoxType.BORDER */\n   get() = definedExternally\n   set(value) = definedExternally\n   var toBox: CSSBoxType? /* = CSSBoxType.BORDER */\n   get() = definedExternally\n   set(value) = definedExternally\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline fun ConvertCoordinateOptions(fromBox: CSSBoxType? = CSSBoxType.BORDER, toBox: CSSBoxType? = CSSBoxType.BORDER): ConvertCoordinateOptions {\n   val o = js(\"({})\")\n   o[\"fromBox\"] = fromBox\n   o[\"toBox\"] = toBox\n   return o\n}\n\n/**\n * Exposes the JavaScript [GeometryUtils](https://developer.mozilla.org/en/docs/Web/API/GeometryUtils) to Kotlin\n */\npublic external interface GeometryUtils {\n   fun getBoxQuads(options: BoxQuadOptions = definedExternally): Array<DOMQuad>\n   fun convertQuadFromNode(quad: dynamic, from: dynamic, options: ConvertCoordinateOptions = definedExternally): DOMQuad\n   fun convertRectFromNode(rect: DOMRectReadOnly, from: dynamic, options: ConvertCoordinateOptions = definedExternally): DOMQuad\n   fun convertPointFromNode(point: DOMPointInit, from: dynamic, options: ConvertCoordinateOptions = definedExternally): DOMPoint\n}\n\n/**\n * Exposes the JavaScript [Touch](https://developer.mozilla.org/en/docs/Web/API/Touch) to Kotlin\n */\npublic external abstract class Touch {\n   open val identifier: Int\n   open val target: EventTarget\n   open val screenX: Int\n   open val screenY: Int\n   open val clientX: Int\n   open val clientY: Int\n   open val pageX: Int\n   open val pageY: Int\n   open val region: String?\n}\n\npublic external abstract class TouchList : ItemArrayLike<Touch> {\n   override fun item(index: Int): Touch?\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline operator fun TouchList.get(index: Int): Touch? = asDynamic()[index]\n\npublic external open class TouchEvent : UIEvent {\n   open val touches: TouchList\n   open val targetTouches: TouchList\n   open val changedTouches: TouchList\n   open val altKey: Boolean\n   open val metaKey: Boolean\n   open val ctrlKey: Boolean\n   open val shiftKey: Boolean\n\n   companion object {\n   val NONE: Short\n   val CAPTURING_PHASE: Short\n   val AT_TARGET:

Short\n   val BUBBLING_PHASE: Short\n   }\n}\n\n/**\n * Exposes the JavaScript [Image](https://developer.mozilla.org/en/docs/Web/API/Image) to Kotlin\n */\npublic external open class Image(width: Int = definedExternally, height: Int = definedExternally) : HTMLImageElement {\n   override var onabort: ((Event) -> dynamic)?\n   override var onblur: ((FocusEvent) -> dynamic)?\n   override var oncancel: ((Event) -> dynamic)?\n   override var oncanplay: ((Event) -> dynamic)?\n   override var oncanplaythrough: ((Event) -> dynamic)?\n   override var onchange: ((Event) -> dynamic)?\n   override var onclick: ((MouseEvent) -> dynamic)?\n   override var onclose: ((Event) -> dynamic)?\n   override var oncontextmenu: ((MouseEvent) -> dynamic)?\n   override var oncuechange: ((Event) -> dynamic)?\n   override var ondblclick: ((MouseEvent) -> dynamic)?\n   override var ondrag: ((DragEvent) -> dynamic)?\n   override var ondragend: ((DragEvent) -> dynamic)?\n   override var ondragenter: ((DragEvent) -> dynamic)?\n   override var ondragexit: ((DragEvent) -> dynamic)?\n   override var ondragleave: ((DragEvent) -> dynamic)?\n   override var ondragover: ((DragEvent) -> dynamic)?\n   override var ondragstart: ((DragEvent) -> dynamic)?\n   override var ondrop: ((DragEvent) -> dynamic)?\n   override var ondurationchange: ((Event) -> dynamic)?\n   override var onemptied: ((Event) -> dynamic)?\n   override var onended: ((Event) -> dynamic)?\n   override var onerror: ((dynamic, String, Int, Int, Any?) -> dynamic)?\n   override var onfocus: ((FocusEvent) -> dynamic)?\n   override var oninput: ((InputEvent) -> dynamic)?\n   override var oninvalid: ((Event) -> dynamic)?\n   override var onkeydown: ((KeyboardEvent) -> dynamic)?\n   override var onkeypress: ((KeyboardEvent) -> dynamic)?\n   override var onkeyup: ((KeyboardEvent) -> dynamic)?\n   override var onload: ((Event) -> dynamic)?\n   override var onloadeddata: ((Event) -> dynamic)?\n   override var onloadedmetadata: ((Event) -> dynamic)?\n   override var onloadend: ((Event) -> dynamic)?\n   override var onloadstart: ((ProgressEvent) -> dynamic)?\n   override var onmousedown: ((MouseEvent) -> dynamic)?\n   override var onmouseenter: ((MouseEvent) -> dynamic)?\n   override var onmouseleave: ((MouseEvent) -> dynamic)?\n   override var onmousemove: ((MouseEvent) -> dynamic)?\n   override var onmouseout: ((MouseEvent) -> dynamic)?\n   override var onmouseover: ((MouseEvent) -> dynamic)?\n   override var onmouseup: ((MouseEvent) -> dynamic)?\n   override var onwheel: ((WheelEvent) -> dynamic)?\n   override var onpause: ((Event) -> dynamic)?\n   override var onplay: ((Event) -> dynamic)?\n   override var onplaying: ((Event) -> dynamic)?\n   override var onprogress: ((ProgressEvent) -> dynamic)?\n   override var onratechange: ((Event) -> dynamic)?\n   override var onreset: ((Event) -> dynamic)?\n   override var onresize: ((Event) -> dynamic)?\n   override var onscroll: ((Event) -> dynamic)?\n   override var onseeked: ((Event) -> dynamic)?\n   override var onseeking: ((Event) -> dynamic)?\n   override var onselect: ((Event) -> dynamic)?\n   override var onshow: ((Event) -> dynamic)?\n   override var onstalled: ((Event) -> dynamic)?\n   override var onsubmit: ((Event) -> dynamic)?\n   override var onsuspend: ((Event) -> dynamic)?\n   override var ontimeupdate: ((Event) -> dynamic)?\n   override var ontoggle: ((Event) -> dynamic)?\n   override var onvolumechange: ((Event) -> dynamic)?\n   override var onwaiting: ((Event) -> dynamic)?\n   override var ongotpointercapture: ((PointerEvent) -> dynamic)?\n   override var onlostpointercapture: ((PointerEvent) -> dynamic)?\n   override var onpointerdown: ((PointerEvent) -> dynamic)?\n   override var onpointermove: ((PointerEvent) -> dynamic)?\n   override var onpointerup: ((PointerEvent) -> dynamic)?\n   override var onpointercancel: ((PointerEvent) -> dynamic)?\n   override var onpointerover: ((PointerEvent) -> dynamic)?\n   override var onpointerout: ((PointerEvent) -> dynamic)?\n   override var onpointerenter: ((PointerEvent) -> dynamic)?\n   override var onpointerleave: ((PointerEvent) -> dynamic)?\n   override var oncopy: ((ClipboardEvent) -> dynamic)?\n   override var oncut: ((ClipboardEvent) -> dynamic)?\n   override var onpaste: ((ClipboardEvent) -> dynamic)?\n   override var contentEditable: String\n   override val isContentEditable: Boolean\n   override val style: CSSStyleDeclaration\n   override val children: HTMLCollection\n   override val firstElementChild: Element?\n   override val lastElementChild: Element?\n   override val childElementCount: Int\n   override val previousElementSibling: Element?\n   override val nextElementSibling: Element?\n   override val assignedSlot: HTMLSlotElement?\n   override fun prepend(vararg nodes: dynamic)\n   override fun append(vararg nodes: dynamic)\n   override fun querySelector(selectors: String): Element?\n   override fun querySelectorAll(selectors: String): NodeList\n   override fun before(vararg nodes: dynamic)\n   override fun after(vararg nodes: dynamic)\n   override fun replaceWith(vararg nodes: dynamic)\n   override fun remove()\n override fun getBoxQuads(options: BoxQuadOptions /* = definedExternally */): Array<DOMQuad>\n override fun convertQuadFromNode(quad: dynamic, from: dynamic, options: ConvertCoordinateOptions /* = definedExternally */): DOMQuad\n override fun convertRectFromNode(rect: DOMRectReadOnly, from: dynamic, options: ConvertCoordinateOptions /* = definedExternally */): DOMQuad\n override fun convertPointFromNode(point: DOMPointInit, from: dynamic, options: ConvertCoordinateOptions /* = definedExternally */): DOMPoint\n\n companion object {\n val ELEMENT_NODE: Short\n val ATTRIBUTE_NODE: Short\n val TEXT_NODE: Short\n val CDATA_SECTION_NODE: Short\n val ENTITY_REFERENCE_NODE: Short\n val ENTITY_NODE: Short\n val PROCESSING_INSTRUCTION_NODE: Short\n val COMMENT_NODE: Short\n val DOCUMENT_NODE: Short\n val DOCUMENT_TYPE_NODE: Short\n val DOCUMENT_FRAGMENT_NODE: Short\n val NOTATION_NODE: Short\n val DOCUMENT_POSITION_DISCONNECTED: Short\n val DOCUMENT_POSITION_PRECEDING: Short\n val DOCUMENT_POSITION_FOLLOWING: Short\n val DOCUMENT_POSITION_CONTAINS: Short\n val DOCUMENT_POSITION_CONTAINED_BY: Short\n val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n }\n}\n\npublic external open class Audio(src: String = definedExternally) : HTMLAudioElement {\n override var onabort: ((Event) -> dynamic)?\n override var onblur: ((FocusEvent) -> dynamic)?\n override var oncancel: ((Event) -> dynamic)?\n override var oncanplay: ((Event) -> dynamic)?\n override var oncanplaythrough: ((Event) -> dynamic)?\n override var onchange: ((Event) -> dynamic)?\n override var onclick: ((MouseEvent) -> dynamic)?\n override var onclose: ((Event) -> dynamic)?\n override var oncontextmenu: ((MouseEvent) -> dynamic)?\n override var oncuechange: ((Event) -> dynamic)?\n override var ondblclick: ((MouseEvent) -> dynamic)?\n override var ondrag: ((DragEvent) -> dynamic)?\n override var ondragend: ((DragEvent) -> dynamic)?\n override var ondragenter: ((DragEvent) -> dynamic)?\n override var ondragexit: ((DragEvent) -> dynamic)?\n override var ondragleave: ((DragEvent) -> dynamic)?\n override var ondragover: ((DragEvent) -> dynamic)?\n override var ondragstart: ((DragEvent) -> dynamic)?\n override var ondrop: ((DragEvent) -> dynamic)?\n override var ondurationchange: ((Event) -> dynamic)?\n override var onemptied: ((Event) -> dynamic)?\n override var onended: ((Event) -> dynamic)?\n override var onerror: ((dynamic, String, Int, Int, Any?) -> dynamic)?\n override var onfocus: ((FocusEvent) -> dynamic)?\n override var oninput: ((InputEvent) -> dynamic)?\n override var oninvalid: ((Event) -> dynamic)?\n override var onkeydown: ((KeyboardEvent) -> dynamic)?\n override var onkeypress: ((KeyboardEvent) -> dynamic)?\n override var onkeyup: ((KeyboardEvent) -> dynamic)?\n override var onload: ((Event) -> dynamic)?\n override var onloadeddata: ((Event) -> dynamic)?\n override var onloadedmetadata: ((Event) -> dynamic)?\n override var onloadend: ((Event) -> dynamic)?\n override var onloadstart: ((ProgressEvent) -> dynamic)?\n override var onmousedown: ((MouseEvent) -> dynamic)?\n override var onmouseenter: ((MouseEvent) -> dynamic)?\n override var onmouseleave: ((MouseEvent) -> dynamic)?\n override var onmousemove: ((MouseEvent) -> dynamic)?\n override var onmouseout: ((MouseEvent) -> dynamic)?\n override var onmouseover: ((MouseEvent) -> dynamic)?\n override var onmouseup: ((MouseEvent) -> dynamic)?\n override var onwheel: ((WheelEvent) -> dynamic)?\n override var onpause: ((Event) -> dynamic)?\n override var onplay: ((Event) -> dynamic)?\n override var onplaying: ((Event) -> dynamic)?\n override var onprogress: ((ProgressEvent) -> dynamic)?\n override var onratechange: ((Event) -> dynamic)?\n override var onreset: ((Event) -> dynamic)?\n override var onresize: ((Event) -> dynamic)?\n override var onscroll: ((Event) -> dynamic)?\n override var onseeked: ((Event) -> dynamic)?\n override var onseeking: ((Event) -> dynamic)?\n override var onselect: ((Event) -> dynamic)?\n override var onshow: ((Event) -> dynamic)?\n override var onstalled: ((Event) -> dynamic)?\n override var onsubmit: ((Event) -> dynamic)?\n override var onsuspend: ((Event) -> dynamic)?\n override var ontimeupdate: ((Event) -> dynamic)?\n override var ontoggle: ((Event) -> dynamic)?\n override var onvolumechange: ((Event) -> dynamic)?\n override var onwaiting: ((Event) -> dynamic)?\n override var ongotpointercapture: ((PointerEvent) -> dynamic)?\n override var onlostpointercapture: ((PointerEvent) -> dynamic)?\n override var onpointerdown: ((PointerEvent) -> dynamic)?\n override var onpointermove: ((PointerEvent) -> dynamic)?\n override var onpointerup:

((PointerEvent) -> dynamic)?\n   override var onpointercancel: ((PointerEvent) -> dynamic)?\n   override var onpointerover: ((PointerEvent) -> dynamic)?\n   override var onpointerout: ((PointerEvent) -> dynamic)?\n   override var onpointerenter: ((PointerEvent) -> dynamic)?\n   override var onpointerleave: ((PointerEvent) -> dynamic)?\n   override var oncopy: ((ClipboardEvent) -> dynamic)?\n   override var oncut: ((ClipboardEvent) -> dynamic)?\n   override var onpaste: ((ClipboardEvent) -> dynamic)?\n   override var contentEditable: String\n   override val isContentEditable: Boolean\n   override val style: CSSStyleDeclaration\n   override val children: HTMLCollection\n   override val firstElementChild: Element?\n   override val lastElementChild: Element?\n   override val childElementCount: Int\n   override val previousElementSibling: Element?\n   override val nextElementSibling: Element?\n   override val assignedSlot: HTMLSlotElement?\n   override fun prepend(vararg nodes: dynamic)\n   override fun append(vararg nodes: dynamic)\n   override fun querySelector(selectors: String): Element?\n   override fun querySelectorAll(selectors: String): NodeList\n   override fun before(vararg nodes: dynamic)\n   override fun after(vararg nodes: dynamic)\n   override fun replaceWith(vararg nodes: dynamic)\n   override fun remove()\n   override fun getBoxQuads(options: BoxQuadOptions /* = definedExternally */): Array<DOMQuad>\n   override fun convertQuadFromNode(quad: dynamic, from: dynamic, options: ConvertCoordinateOptions /* = definedExternally */): DOMQuad\n   override fun convertRectFromNode(rect: DOMRectReadOnly, from: dynamic, options: ConvertCoordinateOptions /* = definedExternally */): DOMQuad\n   override fun convertPointFromNode(point: DOMPointInit, from: dynamic, options: ConvertCoordinateOptions /* = definedExternally */): DOMPoint\n\n   companion object {\n   val NETWORK_EMPTY: Short\n   val NETWORK_IDLE: Short\n   val NETWORK_LOADING: Short\n   val NETWORK_NO_SOURCE: Short\n   val HAVE_NOTHING: Short\n   val HAVE_METADATA: Short\n   val HAVE_CURRENT_DATA: Short\n   val HAVE_FUTURE_DATA: Short\n   val HAVE_ENOUGH_DATA: Short\n   val ELEMENT_NODE: Short\n   val ATTRIBUTE_NODE: Short\n   val TEXT_NODE: Short\n   val CDATA_SECTION_NODE: Short\n   val ENTITY_REFERENCE_NODE: Short\n   val ENTITY_NODE: Short\n   val PROCESSING_INSTRUCTION_NODE: Short\n   val COMMENT_NODE: Short\n   val DOCUMENT_NODE: Short\n   val DOCUMENT_TYPE_NODE: Short\n   val DOCUMENT_FRAGMENT_NODE: Short\n   val NOTATION_NODE: Short\n   val DOCUMENT_POSITION_DISCONNECTED: Short\n   val DOCUMENT_POSITION_PRECEDING: Short\n   val DOCUMENT_POSITION_FOLLOWING: Short\n   val DOCUMENT_POSITION_CONTAINS: Short\n   val DOCUMENT_POSITION_CONTAINED_BY: Short\n   val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n   }\n}\n\n/**\n * Exposes the JavaScript [Option](https://developer.mozilla.org/en/docs/Web/API/Option) to Kotlin\n */\npublic external open class Option(text: String = definedExternally, value: String = definedExternally, defaultSelected: Boolean = definedExternally, selected: Boolean = definedExternally) : HTMLOptionElement {\n   override var onabort: ((Event) -> dynamic)?\n   override var onblur: ((FocusEvent) -> dynamic)?\n   override var oncancel: ((Event) -> dynamic)?\n   override var oncanplay: ((Event) -> dynamic)?\n   override var oncanplaythrough: ((Event) -> dynamic)?\n   override var onchange: ((Event) -> dynamic)?\n   override var onclick: ((MouseEvent) -> dynamic)?\n   override var onclose: ((Event) -> dynamic)?\n   override var oncontextmenu: ((MouseEvent) -> dynamic)?\n   override var oncuechange: ((Event) -> dynamic)?\n   override var ondblclick: ((MouseEvent) -> dynamic)?\n   override var ondrag: ((DragEvent) -> dynamic)?\n   override var ondragend: ((DragEvent) -> dynamic)?\n   override var ondragenter: ((DragEvent) -> dynamic)?\n   override var ondragexit: ((DragEvent) -> dynamic)?\n   override var ondragleave: ((DragEvent) -> dynamic)?\n   override var ondragover: ((DragEvent) -> dynamic)?\n   override var ondragstart: ((DragEvent) -> dynamic)?\n   override var ondrop: ((DragEvent) -> dynamic)?\n   override var ondurationchange: ((Event) -> dynamic)?\n   override var onemptied: ((Event) -> dynamic)?\n   override var onended: ((Event) -> dynamic)?\n   override var onerror: ((dynamic, String, Int, Int, Any?) -> dynamic)?\n   override var onfocus: ((FocusEvent) -> dynamic)?\n   override var oninput: ((InputEvent) -> dynamic)?\n   override var oninvalid: ((Event) -> dynamic)?\n   override var onkeydown: ((KeyboardEvent) -> dynamic)?\n   override var onkeypress: ((KeyboardEvent) -> dynamic)?\n   override var onkeyup: ((KeyboardEvent) -> dynamic)?\n   override var onload: ((Event) -> dynamic)?\n   override var onloadeddata:

((Event) -> dynamic)?\n   override var onloadedmetadata: ((Event) -> dynamic)?\n   override var onloadend: ((Event) -> dynamic)?\n   override var onloadstart: ((ProgressEvent) -> dynamic)?\n   override var onmousedown: ((MouseEvent) -> dynamic)?\n   override var onmouseenter: ((MouseEvent) -> dynamic)?\n   override var onmouseleave: ((MouseEvent) -> dynamic)?\n   override var onmousemove: ((MouseEvent) -> dynamic)?\n   override var onmouseout: ((MouseEvent) -> dynamic)?\n   override var onmouseover: ((MouseEvent) -> dynamic)?\n   override var onmouseup: ((MouseEvent) -> dynamic)?\n   override var onwheel: ((WheelEvent) -> dynamic)?\n   override var onpause: ((Event) -> dynamic)?\n   override var onplay: ((Event) -> dynamic)?\n   override var onplaying: ((Event) -> dynamic)?\n   override var onprogress: ((ProgressEvent) -> dynamic)?\n   override var onratechange: ((Event) -> dynamic)?\n   override var onreset: ((Event) -> dynamic)?\n   override var onresize: ((Event) -> dynamic)?\n   override var onscroll: ((Event) -> dynamic)?\n   override var onseeked: ((Event) -> dynamic)?\n   override var onseeking: ((Event) -> dynamic)?\n   override var onselect: ((Event) -> dynamic)?\n   override var onshow: ((Event) -> dynamic)?\n   override var onstalled: ((Event) -> dynamic)?\n   override var onsubmit: ((Event) -> dynamic)?\n   override var onsuspend: ((Event) -> dynamic)?\n   override var ontimeupdate: ((Event) -> dynamic)?\n   override var ontoggle: ((Event) -> dynamic)?\n   override var onvolumechange: ((Event) -> dynamic)?\n   override var onwaiting: ((Event) -> dynamic)?\n   override var ongotpointercapture: ((PointerEvent) -> dynamic)?\n   override var onlostpointercapture: ((PointerEvent) -> dynamic)?\n   override var onpointerdown: ((PointerEvent) -> dynamic)?\n   override var onpointermove: ((PointerEvent) -> dynamic)?\n   override var onpointerup: ((PointerEvent) -> dynamic)?\n   override var onpointercancel: ((PointerEvent) -> dynamic)?\n   override var onpointerover: ((PointerEvent) -> dynamic)?\n   override var onpointerout: ((PointerEvent) -> dynamic)?\n   override var onpointerenter: ((PointerEvent) -> dynamic)?\n   override var onpointerleave: ((PointerEvent) -> dynamic)?\n   override var oncopy: ((ClipboardEvent) -> dynamic)?\n   override var oncut: ((ClipboardEvent) -> dynamic)?\n   override var onpaste: ((ClipboardEvent) -> dynamic)?\n   override var contentEditable: String\n   override val isContentEditable: Boolean\n   override val style: CSSStyleDeclaration\n   override val children: HTMLCollection\n   override val firstElementChild: Element?\n   override val lastElementChild: Element?\n   override val childElementCount: Int\n   override val previousElementSibling: Element?\n   override val nextElementSibling: Element?\n   override val assignedSlot: HTMLSlotElement?\n   override fun prepend(vararg nodes: dynamic)\n   override fun append(vararg nodes: dynamic)\n   override fun querySelector(selectors: String): Element?\n   override fun querySelectorAll(selectors: String): NodeList\n   override fun before(vararg nodes: dynamic)\n   override fun after(vararg nodes: dynamic)\n   override fun replaceWith(vararg nodes: dynamic)\n   override fun remove()\n   override fun getBoxQuads(options: BoxQuadOptions /* = definedExternally */): Array<DOMQuad>\n   override fun convertQuadFromNode(quad: dynamic, from: dynamic, options: ConvertCoordinateOptions /* = definedExternally */): DOMQuad\n   override fun convertRectFromNode(rect: DOMRectReadOnly, from: dynamic, options: ConvertCoordinateOptions /* = definedExternally */): DOMQuad\n   override fun convertPointFromNode(point: DOMPointInit, from: dynamic, options: ConvertCoordinateOptions /* = definedExternally */): DOMPoint\n\n   companion object {\n   val ELEMENT_NODE: Short\n   val ATTRIBUTE_NODE: Short\n   val TEXT_NODE: Short\n   val CDATA_SECTION_NODE: Short\n   val ENTITY_REFERENCE_NODE: Short\n   val ENTITY_NODE: Short\n   val PROCESSING_INSTRUCTION_NODE: Short\n   val COMMENT_NODE: Short\n   val DOCUMENT_NODE: Short\n   val DOCUMENT_TYPE_NODE: Short\n   val DOCUMENT_FRAGMENT_NODE: Short\n   val NOTATION_NODE: Short\n   val DOCUMENT_POSITION_DISCONNECTED: Short\n   val DOCUMENT_POSITION_PRECEDING: Short\n   val DOCUMENT_POSITION_FOLLOWING: Short\n   val DOCUMENT_POSITION_CONTAINS: Short\n   val DOCUMENT_POSITION_CONTAINED_BY: Short\n   val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n   }\n}\n\npublic external interface UnionElementOrHTMLCollection\n\npublic external interface UnionElementOrRadioNodeList\n\npublic external interface UnionHTMLOptGroupElementOrHTMLOptionElement\n\npublic external interface UnionAudioTrackOrTextTrackOrVideoTrack\n\npublic external interface UnionElementOrMouseEvent\n\npublic

external interface UnionMessagePortOrWindowProxy\n\npublic external interface MediaProvider\n\npublic external interface RenderingContext\n\npublic external interface HTMLOrSVGImageElement : CanvasImageSource\n\npublic external interface CanvasImageSource : ImageBitmapSource\n\npublic external interface ImageBitmapSource\n\npublic external interface HTMLOrSVGScriptElement\n\n/* please, don't implement this interface!
/\n@JsName(\"null\")\n@Suppress(\"NESTED_CLASS_IN_EXTERNAL_INTERFACE\")\npublic external interface DocumentReadyState {\n   companion object\n}\n\npublic inline val DocumentReadyState.Companion.LOADING: DocumentReadyState get() = \"loading\".asDynamic().unsafeCast<DocumentReadyState>()\n\npublic inline val DocumentReadyState.Companion.INTERACTIVE: DocumentReadyState get() = \"interactive\".asDynamic().unsafeCast<DocumentReadyState>()\n\npublic inline val DocumentReadyState.Companion.COMPLETE: DocumentReadyState get() = \"complete\".asDynamic().unsafeCast<DocumentReadyState>()\n\n/ please, don't implement this interface!
/\n@JsName(\"null\")\n@Suppress(\"NESTED_CLASS_IN_EXTERNAL_INTERFACE\")\npublic external interface CanPlayTypeResult {\n   companion object\n}\n\npublic inline val CanPlayTypeResult.Companion.EMPTY: CanPlayTypeResult get() = \"\".asDynamic().unsafeCast<CanPlayTypeResult>()\n\npublic inline val CanPlayTypeResult.Companion.MAYBE: CanPlayTypeResult get() = \"maybe\".asDynamic().unsafeCast<CanPlayTypeResult>()\n\npublic inline val CanPlayTypeResult.Companion.PROBABLY: CanPlayTypeResult get() = \"probably\".asDynamic().unsafeCast<CanPlayTypeResult>()\n\n/ please, don't implement this interface!
/\n@JsName(\"null\")\n@Suppress(\"NESTED_CLASS_IN_EXTERNAL_INTERFACE\")\npublic external interface TextTrackMode {\n   companion object\n}\n\npublic inline val TextTrackMode.Companion.DISABLED: TextTrackMode get() = \"disabled\".asDynamic().unsafeCast<TextTrackMode>()\n\npublic inline val TextTrackMode.Companion.HIDDEN: TextTrackMode get() = \"hidden\".asDynamic().unsafeCast<TextTrackMode>()\n\npublic inline val TextTrackMode.Companion.SHOWING: TextTrackMode get() = \"showing\".asDynamic().unsafeCast<TextTrackMode>()\n\n/ please, don't implement this interface!
/\n@JsName(\"null\")\n@Suppress(\"NESTED_CLASS_IN_EXTERNAL_INTERFACE\")\npublic external interface TextTrackKind {\n   companion object\n}\n\npublic inline val TextTrackKind.Companion.SUBTITLES: TextTrackKind get() = \"subtitles\".asDynamic().unsafeCast<TextTrackKind>()\n\npublic inline val TextTrackKind.Companion.CAPTIONS: TextTrackKind get() = \"captions\".asDynamic().unsafeCast<TextTrackKind>()\n\npublic inline val TextTrackKind.Companion.DESCRIPTIONS: TextTrackKind get() = \"descriptions\".asDynamic().unsafeCast<TextTrackKind>()\n\npublic inline val TextTrackKind.Companion.CHAPTERS: TextTrackKind get() = \"chapters\".asDynamic().unsafeCast<TextTrackKind>()\n\npublic inline val TextTrackKind.Companion.METADATA: TextTrackKind get() = \"metadata\".asDynamic().unsafeCast<TextTrackKind>()\n\n/ please, don't implement this interface!
/\n@JsName(\"null\")\n@Suppress(\"NESTED_CLASS_IN_EXTERNAL_INTERFACE\")\npublic external interface SelectionMode {\n   companion object\n}\n\npublic inline val SelectionMode.Companion.SELECT: SelectionMode get() = \"select\".asDynamic().unsafeCast<SelectionMode>()\n\npublic inline val SelectionMode.Companion.START: SelectionMode get() = \"start\".asDynamic().unsafeCast<SelectionMode>()\n\npublic inline val SelectionMode.Companion.END: SelectionMode get() = \"end\".asDynamic().unsafeCast<SelectionMode>()\n\npublic inline val SelectionMode.Companion.PRESERVE: SelectionMode get() = \"preserve\".asDynamic().unsafeCast<SelectionMode>()\n\n/ please, don't implement this interface!
*/\n@JsName(\"null\")\n@Suppress(\"NESTED_CLASS_IN_EXTERNAL_INTERFACE\")\npublic external interface CanvasFillRule {\n   companion object\n}\n\npublic inline val CanvasFillRule.Companion.NONZERO:

CanvasFillRule get() = \"nonzero\".asDynamic().unsafeCast<CanvasFillRule>()\n\npublic inline val CanvasFillRule.Companion.EVENODD: CanvasFillRule get() = \"evenodd\".asDynamic().unsafeCast<CanvasFillRule>()\n\n/* please, don't implement this interface! */\n@JsName(\"null\")\n@Suppress(\"NESTED_CLASS_IN_EXTERNAL_INTERFACE\")\npublic external interface ImageSmoothingQuality {\n   companion object\n}\n\npublic inline val ImageSmoothingQuality.Companion.LOW: ImageSmoothingQuality get() = \"low\".asDynamic().unsafeCast<ImageSmoothingQuality>()\n\npublic inline val ImageSmoothingQuality.Companion.MEDIUM: ImageSmoothingQuality get() = \"medium\".asDynamic().unsafeCast<ImageSmoothingQuality>()\n\npublic inline val ImageSmoothingQuality.Companion.HIGH: ImageSmoothingQuality get() = \"high\".asDynamic().unsafeCast<ImageSmoothingQuality>()\n\n/* please, don't implement this interface! */\n@JsName(\"null\")\n@Suppress(\"NESTED_CLASS_IN_EXTERNAL_INTERFACE\")\npublic external interface CanvasLineCap {\n   companion object\n}\n\npublic inline val CanvasLineCap.Companion.BUTT: CanvasLineCap get() = \"butt\".asDynamic().unsafeCast<CanvasLineCap>()\n\npublic inline val CanvasLineCap.Companion.ROUND: CanvasLineCap get() = \"round\".asDynamic().unsafeCast<CanvasLineCap>()\n\npublic inline val CanvasLineCap.Companion.SQUARE: CanvasLineCap get() = \"square\".asDynamic().unsafeCast<CanvasLineCap>()\n\n/* please, don't implement this interface! */\n@JsName(\"null\")\n@Suppress(\"NESTED_CLASS_IN_EXTERNAL_INTERFACE\")\npublic external interface CanvasLineJoin {\n   companion object\n}\n\npublic inline val CanvasLineJoin.Companion.ROUND: CanvasLineJoin get() = \"round\".asDynamic().unsafeCast<CanvasLineJoin>()\n\npublic inline val CanvasLineJoin.Companion.BEVEL: CanvasLineJoin get() = \"bevel\".asDynamic().unsafeCast<CanvasLineJoin>()\n\npublic inline val CanvasLineJoin.Companion.MITER: CanvasLineJoin get() = \"miter\".asDynamic().unsafeCast<CanvasLineJoin>()\n\n/* please, don't implement this interface! */\n@JsName(\"null\")\n@Suppress(\"NESTED_CLASS_IN_EXTERNAL_INTERFACE\")\npublic external interface CanvasTextAlign {\n   companion object\n}\n\npublic inline val CanvasTextAlign.Companion.START: CanvasTextAlign get() = \"start\".asDynamic().unsafeCast<CanvasTextAlign>()\n\npublic inline val CanvasTextAlign.Companion.END: CanvasTextAlign get() = \"end\".asDynamic().unsafeCast<CanvasTextAlign>()\n\npublic inline val CanvasTextAlign.Companion.LEFT: CanvasTextAlign get() = \"left\".asDynamic().unsafeCast<CanvasTextAlign>()\n\npublic inline val CanvasTextAlign.Companion.RIGHT: CanvasTextAlign get() = \"right\".asDynamic().unsafeCast<CanvasTextAlign>()\n\npublic inline val CanvasTextAlign.Companion.CENTER: CanvasTextAlign get() = \"center\".asDynamic().unsafeCast<CanvasTextAlign>()\n\n/* please, don't implement this interface! */\n@JsName(\"null\")\n@Suppress(\"NESTED_CLASS_IN_EXTERNAL_INTERFACE\")\npublic external interface CanvasTextBaseline {\n   companion object\n}\n\npublic inline val CanvasTextBaseline.Companion.TOP: CanvasTextBaseline get() = \"top\".asDynamic().unsafeCast<CanvasTextBaseline>()\n\npublic inline val CanvasTextBaseline.Companion.HANGING: CanvasTextBaseline get() = \"hanging\".asDynamic().unsafeCast<CanvasTextBaseline>()\n\npublic inline val CanvasTextBaseline.Companion.MIDDLE: CanvasTextBaseline get() = \"middle\".asDynamic().unsafeCast<CanvasTextBaseline>()\n\npublic inline val CanvasTextBaseline.Companion.ALPHABETIC: CanvasTextBaseline get() = \"alphabetic\".asDynamic().unsafeCast<CanvasTextBaseline>()\n\npublic inline val CanvasTextBaseline.Companion.IDEOGRAPHIC: CanvasTextBaseline get() = \"ideographic\".asDynamic().unsafeCast<CanvasTextBaseline>()\n\npublic inline val CanvasTextBaseline.Companion.BOTTOM: CanvasTextBaseline get() = \"bottom\".asDynamic().unsafeCast<CanvasTextBaseline>()\n\n/* please, don't implement this interface! */\n@JsName(\"null\")\n@Suppress(\"NESTED_CLASS_IN_EXTERNAL_INTERFACE\")\npublic external interface CanvasDirection {\n   companion object\n}\n\npublic inline val CanvasDirection.Companion.LTR: CanvasDirection get() = \"ltr\".asDynamic().unsafeCast<CanvasDirection>()\n\npublic inline val CanvasDirection.Companion.RTL: CanvasDirection get() = \"rtl\".asDynamic().unsafeCast<CanvasDirection>()\n\npublic inline val CanvasDirection.Companion.INHERIT: CanvasDirection get() = \"inherit\".asDynamic().unsafeCast<CanvasDirection>()\n\n/* please, don't implement this interface! */\n@JsName(\"null\")\n@Suppress(\"NESTED_CLASS_IN_EXTERNAL_INTERFACE\")\npublic external interface ScrollRestoration {\n   companion object\n}\n\npublic inline val ScrollRestoration.Companion.AUTO: ScrollRestoration get() = \"auto\".asDynamic().unsafeCast<ScrollRestoration>()\n\npublic inline val ScrollRestoration.Companion.MANUAL: ScrollRestoration get() = \"manual\".asDynamic().unsafeCast<ScrollRestoration>()\n\n/* please, don't implement this interface! */\n@JsName(\"null\")\n@Suppress(\"NESTED_CLASS_IN_EXTERNAL_INTERFACE\")\npublic external interface ImageOrientation {\n   companion object\n}\n\npublic inline val ImageOrientation.Companion.NONE: ImageOrientation get() = \"none\".asDynamic().unsafeCast<ImageOrientation>()\n\npublic inline val ImageOrientation.Companion.FLIPY: ImageOrientation get() = \"flipY\".asDynamic().unsafeCast<ImageOrientation>()\n\n/* please, don't implement this interface! */\n@JsName(\"null\")\n@Suppress(\"NESTED_CLASS_IN_EXTERNAL_INTERFACE\")\npublic external interface PremultiplyAlpha {\n   companion object\n}\n\npublic inline val PremultiplyAlpha.Companion.NONE: PremultiplyAlpha get() = \"none\".asDynamic().unsafeCast<PremultiplyAlpha>()\n\npublic inline val PremultiplyAlpha.Companion.PREMULTIPLY: PremultiplyAlpha get() = \"premultiply\".asDynamic().unsafeCast<PremultiplyAlpha>()\n\npublic inline val PremultiplyAlpha.Companion.DEFAULT: PremultiplyAlpha get() = \"default\".asDynamic().unsafeCast<PremultiplyAlpha>()\n\n/* please, don't implement this interface! */\n@JsName(\"null\")\n@Suppress(\"NESTED_CLASS_IN_EXTERNAL_INTERFACE\")\npublic external interface ColorSpaceConversion {\n   companion object\n}\n\npublic inline val ColorSpaceConversion.Companion.NONE: ColorSpaceConversion get() = \"none\".asDynamic().unsafeCast<ColorSpaceConversion>()\n\npublic inline val ColorSpaceConversion.Companion.DEFAULT: ColorSpaceConversion get() = \"default\".asDynamic().unsafeCast<ColorSpaceConversion>()\n\n/* please, don't implement this interface! */\n@JsName(\"null\")\n@Suppress(\"NESTED_CLASS_IN_EXTERNAL_INTERFACE\")\npublic external interface ResizeQuality {\n   companion object\n}\n\npublic inline val ResizeQuality.Companion.PIXELATED: ResizeQuality get() = \"pixelated\".asDynamic().unsafeCast<ResizeQuality>()\n\npublic inline val ResizeQuality.Companion.LOW: ResizeQuality get() = \"low\".asDynamic().unsafeCast<ResizeQuality>()\n\npublic inline val ResizeQuality.Companion.MEDIUM: ResizeQuality get() = \"medium\".asDynamic().unsafeCast<ResizeQuality>()\n\npublic inline val ResizeQuality.Companion.HIGH: ResizeQuality get() = \"high\".asDynamic().unsafeCast<ResizeQuality>()\n\n/* please, don't implement this interface! */\n@JsName(\"null\")\n@Suppress(\"NESTED_CLASS_IN_EXTERNAL_INTERFACE\")\npublic external interface BinaryType {\n   companion object\n}\n\npublic inline val BinaryType.Companion.BLOB: BinaryType get() = \"blob\".asDynamic().unsafeCast<BinaryType>()\n\npublic inline val BinaryType.Companion.ARRAYBUFFER: BinaryType get() = \"arraybuffer\".asDynamic().unsafeCast<BinaryType>()\n\n/* please, don't implement this interface! */\n@JsName(\"null\")\n@Suppress(\"NESTED_CLASS_IN_EXTERNAL_INTERFACE\")\npublic external interface WorkerType {\n   companion object\n}\n\npublic inline val WorkerType.Companion.CLASSIC: WorkerType get() = \"classic\".asDynamic().unsafeCast<WorkerType>()\n\npublic inline val WorkerType.Companion.MODULE: WorkerType get() = \"module\".asDynamic().unsafeCast<WorkerType>()\n\n/* please, don't implement this interface! */\n@JsName(\"null\")\n@Suppress(\"NESTED_CLASS_IN_EXTERNAL_INTERFACE\")\npublic external interface ShadowRootMode {\n   companion object\n}\n\npublic inline val ShadowRootMode.Companion.OPEN: ShadowRootMode get() = \"open\".asDynamic().unsafeCast<ShadowRootMode>()\n\npublic inline val ShadowRootMode.Companion.CLOSED: ShadowRootMode get() = \"closed\".asDynamic().unsafeCast<ShadowRootMode>()\n\n/* please, don't implement this interface! */\n@JsName(\"null\")\n@Suppress(\"NESTED_CLASS_IN_EXTERNAL_INTERFACE\")\npublic external interface ScrollBehavior {\n   companion object\n}\n\npublic inline val ScrollBehavior.Companion.AUTO: ScrollBehavior get() = \"auto\".asDynamic().unsafeCast<ScrollBehavior>()\n\npublic inline val ScrollBehavior.Companion.INSTANT: ScrollBehavior get() = \"instant\".asDynamic().unsafeCast<ScrollBehavior>()\n\npublic inline val ScrollBehavior.Companion.SMOOTH: ScrollBehavior get() = \"smooth\".asDynamic().unsafeCast<ScrollBehavior>()\n\n/* please, don't implement this interface! */\n@JsName(\"null\")\n@Suppress(\"NESTED_CLASS_IN_EXTERNAL_INTERFACE\")\npublic external interface ScrollLogicalPosition {\n   companion object\n}\n\npublic inline val ScrollLogicalPosition.Companion.START: ScrollLogicalPosition get() = \"start\".asDynamic().unsafeCast<ScrollLogicalPosition>()\n\npublic inline val ScrollLogicalPosition.Companion.CENTER: ScrollLogicalPosition get() = \"center\".asDynamic().unsafeCast<ScrollLogicalPosition>()\n\npublic inline val ScrollLogicalPosition.Companion.END: ScrollLogicalPosition get() = \"end\".asDynamic().unsafeCast<ScrollLogicalPosition>()\n\npublic inline val ScrollLogicalPosition.Companion.NEAREST: ScrollLogicalPosition get() = \"nearest\".asDynamic().unsafeCast<ScrollLogicalPosition>()\n\n/* please, don't implement this interface! */\n@JsName(\"null\")\n@Suppress(\"NESTED_CLASS_IN_EXTERNAL_INTERFACE\")\npublic external interface CSSBoxType {\n   companion object\n}\n\npublic inline val CSSBoxType.Companion.MARGIN: CSSBoxType get() = \"margin\".asDynamic().unsafeCast<CSSBoxType>()\n\npublic inline val CSSBoxType.Companion.BORDER: CSSBoxType get() = \"border\".asDynamic().unsafeCast<CSSBoxType>()\n\npublic inline val CSSBoxType.Companion.PADDING: CSSBoxType get() = \"padding\".asDynamic().unsafeCast<CSSBoxType>()\n\npublic inline val CSSBoxType.Companion.CONTENT: CSSBoxType get() = \"content\".asDynamic().unsafeCast<CSSBoxType>()","/*\n * Copyright 2010-2021 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\n// NOTE: THIS FILE IS AUTO-GENERATED, DO NOT EDIT!\n// See github.com/kotlin/dukat for details\n\npackage org.w3c.fetch\n\nimport kotlin.js.*\nimport org.khronos.webgl.*\nimport org.w3c.files.*\nimport org.w3c.xhr.*\n\n/**\n * Exposes the JavaScript [Headers](https://developer.mozilla.org/en/docs/Web/API/Headers) to Kotlin\n */\npublic external open class Headers(init: dynamic = definedExternally) {\n   fun append(name: String, value: String)\n   fun delete(name: String)\n   fun get(name: String): String?\n   fun has(name: String): Boolean\n   fun set(name: String, value: String)\n}\n\n/**\n * Exposes the JavaScript [Body](https://developer.mozilla.org/en/docs/Web/API/Body) to Kotlin\n */\npublic external interface Body {\n   val bodyUsed: Boolean\n   fun arrayBuffer(): Promise<ArrayBuffer>\n   fun blob(): Promise<Blob>\n   fun formData(): Promise<FormData>\n   fun json(): Promise<Any?>\n   fun text(): Promise<String>\n}\n\n/**\n * Exposes the JavaScript [Request](https://developer.mozilla.org/en/docs/Web/API/Request) to Kotlin\n */\npublic external open class Request(input: dynamic, init: RequestInit = definedExternally) : Body {\n   open val method: String\n   open val url: String\n   open val headers: Headers\n   open val type: RequestType\n   open val destination: RequestDestination\n   open val referrer: String\n   open val referrerPolicy: dynamic\n   open val mode: RequestMode\n   open val credentials: RequestCredentials\n   open val cache: RequestCache\n   open val redirect: RequestRedirect\n   open val integrity: String\n   open val keepalive: Boolean\n   override val bodyUsed: Boolean\n   fun clone(): Request\n   override fun arrayBuffer(): Promise<ArrayBuffer>\n   override fun blob(): Promise<Blob>\n   override fun formData(): Promise<FormData>\n   override fun json(): Promise<Any?>\n   override fun text(): Promise<String>\n}\n\npublic external interface RequestInit {\n   var method: String?\n get() = definedExternally\n   set(value) = definedExternally\n   var headers: dynamic\n   get() = definedExternally\n   set(value) = definedExternally\n   var body: dynamic\n   get() = definedExternally\n set(value) = definedExternally\n   var referrer: String?\n   get() = definedExternally\n   set(value) = definedExternally\n   var referrerPolicy: dynamic\n   get() = definedExternally\n   set(value) = definedExternally\n   var mode: RequestMode?\n   get() = definedExternally\n   set(value) = definedExternally\n   var credentials: RequestCredentials?\n   get() = definedExternally\n   set(value) = definedExternally\n   var cache: RequestCache?\n   get() = definedExternally\n   set(value) = definedExternally\n   var redirect: RequestRedirect?\n   get() = definedExternally\n   set(value) = definedExternally\n   var integrity: String?\n   get() = definedExternally\n   set(value) = definedExternally\n var keepalive: Boolean?\n   get() = definedExternally\n   set(value) = definedExternally\n   var window: Any?\n   get() = definedExternally\n   set(value) = definedExternally\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline fun RequestInit(method: String? = undefined, headers: dynamic = undefined, body: dynamic = undefined, referrer: String? = undefined, referrerPolicy: dynamic = undefined, mode: RequestMode? = undefined, credentials: RequestCredentials? = undefined, cache: RequestCache? = undefined, redirect: RequestRedirect? = undefined, integrity: String? = undefined, keepalive: Boolean? = undefined, window: Any? = undefined): RequestInit {\n   val o = js(\"({})\")\n   o[\"method\"] = method\n   o[\"headers\"] = headers\n   o[\"body\"] = body\n   o[\"referrer\"] = referrer\n   o[\"referrerPolicy\"] = referrerPolicy\n   o[\"mode\"] = mode\n   o[\"credentials\"] = credentials\n   o[\"cache\"] = cache\n   o[\"redirect\"] = redirect\n   o[\"integrity\"] = integrity\n   o[\"keepalive\"] = keepalive\n   o[\"window\"] = window\n   return o\n}\n\n/**\n * Exposes the JavaScript [Response](https://developer.mozilla.org/en/docs/Web/API/Response) to Kotlin\n */\npublic external open class Response(body: dynamic = definedExternally, init: ResponseInit = definedExternally) : Body {\n   open val type: ResponseType\n   open val url: String\n   open val redirected: Boolean\n   open val status: Short\n   open val ok: Boolean\n   open val statusText: String\n   open val headers: Headers\n   open val body: dynamic\n   open val trailer: Promise<Headers>\n   override val bodyUsed: Boolean\n fun clone(): Response\n   override fun arrayBuffer(): Promise<ArrayBuffer>\n   override fun blob(): Promise<Blob>\n   override fun formData(): Promise<FormData>\n   override fun json(): Promise<Any?>\n override fun text(): Promise<String>\n\n   companion object {\n   fun error(): Response\n   fun redirect(url: String, status: Short = definedExternally): Response\n   }\n}\n\npublic external interface ResponseInit {\n   var status: Short? /* = 200 */\n   get() = definedExternally\n   set(value) = definedExternally\n   var statusText: String? /* = \"OK\" */\n   get() = definedExternally\n   set(value) = definedExternally\n   var headers: dynamic\n   get() = definedExternally\n   set(value) = definedExternally\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline fun ResponseInit(status: Short? = 200, statusText: String? = \"OK\", headers: dynamic = undefined): ResponseInit {\n   val o = js(\"({})\")\n   o[\"status\"] = status\n   o[\"statusText\"] = statusText\n   o[\"headers\"] = headers\n   return o\n}\n\n/* please, don't implement this interface! */\n@JsName(\"null\")\n@Suppress(\"NESTED_CLASS_IN_EXTERNAL_INTERFACE\")\npublic external interface RequestType {\n   companion object\n}\n\npublic inline val RequestType.Companion.EMPTY: RequestType get() = \"\".asDynamic().unsafeCast<RequestType>()\n\npublic inline val RequestType.Companion.AUDIO: RequestType get() = \"audio\".asDynamic().unsafeCast<RequestType>()\n\npublic inline val RequestType.Companion.FONT: RequestType get() = \"font\".asDynamic().unsafeCast<RequestType>()\n\npublic inline val RequestType.Companion.IMAGE: RequestType get() = \"image\".asDynamic().unsafeCast<RequestType>()\n\npublic inline val RequestType.Companion.SCRIPT: RequestType get() = \"script\".asDynamic().unsafeCast<RequestType>()\n\npublic inline val RequestType.Companion.STYLE: RequestType get() = \"style\".asDynamic().unsafeCast<RequestType>()\n\npublic inline val RequestType.Companion.TRACK: RequestType get() = \"track\".asDynamic().unsafeCast<RequestType>()\n\npublic inline val

RequestType.Companion.VIDEO: RequestType get() = \"video\".asDynamic().unsafeCast<RequestType>()\n\n/* please, don't implement this interface! */\n@JsName(\"null\")\n@Suppress(\"NESTED_CLASS_IN_EXTERNAL_INTERFACE\")\npublic external interface RequestDestination {\n   companion object\n}\n\npublic inline val RequestDestination.Companion.EMPTY: RequestDestination get() = \"\".asDynamic().unsafeCast<RequestDestination>()\n\npublic inline val RequestDestination.Companion.DOCUMENT: RequestDestination get() = \"document\".asDynamic().unsafeCast<RequestDestination>()\n\npublic inline val RequestDestination.Companion.EMBED: RequestDestination get() = \"embed\".asDynamic().unsafeCast<RequestDestination>()\n\npublic inline val RequestDestination.Companion.FONT: RequestDestination get() = \"font\".asDynamic().unsafeCast<RequestDestination>()\n\npublic inline val RequestDestination.Companion.IMAGE: RequestDestination get() = \"image\".asDynamic().unsafeCast<RequestDestination>()\n\npublic inline val RequestDestination.Companion.MANIFEST: RequestDestination get() = \"manifest\".asDynamic().unsafeCast<RequestDestination>()\n\npublic inline val RequestDestination.Companion.MEDIA: RequestDestination get() = \"media\".asDynamic().unsafeCast<RequestDestination>()\n\npublic inline val RequestDestination.Companion.OBJECT: RequestDestination get() = \"object\".asDynamic().unsafeCast<RequestDestination>()\n\npublic inline val RequestDestination.Companion.REPORT: RequestDestination get() = \"report\".asDynamic().unsafeCast<RequestDestination>()\n\npublic inline val RequestDestination.Companion.SCRIPT: RequestDestination get() = \"script\".asDynamic().unsafeCast<RequestDestination>()\n\npublic inline val RequestDestination.Companion.SERVICEWORKER: RequestDestination get() = \"serviceworker\".asDynamic().unsafeCast<RequestDestination>()\n\npublic inline val RequestDestination.Companion.SHAREDWORKER: RequestDestination get() = \"sharedworker\".asDynamic().unsafeCast<RequestDestination>()\n\npublic inline val RequestDestination.Companion.STYLE: RequestDestination get() = \"style\".asDynamic().unsafeCast<RequestDestination>()\n\npublic inline val RequestDestination.Companion.WORKER: RequestDestination get() = \"worker\".asDynamic().unsafeCast<RequestDestination>()\n\npublic inline val RequestDestination.Companion.XSLT: RequestDestination get() = \"xslt\".asDynamic().unsafeCast<RequestDestination>()\n\n/* please, don't implement this interface! */\n@JsName(\"null\")\n@Suppress(\"NESTED_CLASS_IN_EXTERNAL_INTERFACE\")\npublic external interface RequestMode {\n   companion object\n}\n\npublic inline val RequestMode.Companion.NAVIGATE: RequestMode get() = \"navigate\".asDynamic().unsafeCast<RequestMode>()\n\npublic inline val RequestMode.Companion.SAME_ORIGIN: RequestMode get() = \"same-origin\".asDynamic().unsafeCast<RequestMode>()\n\npublic inline val RequestMode.Companion.NO_CORS: RequestMode get() = \"no-cors\".asDynamic().unsafeCast<RequestMode>()\n\npublic inline val RequestMode.Companion.CORS: RequestMode get() = \"cors\".asDynamic().unsafeCast<RequestMode>()\n\n/* please, don't implement this interface! */\n@JsName(\"null\")\n@Suppress(\"NESTED_CLASS_IN_EXTERNAL_INTERFACE\")\npublic external interface RequestCredentials {\n   companion object\n}\n\npublic inline val RequestCredentials.Companion.OMIT: RequestCredentials get() = \"omit\".asDynamic().unsafeCast<RequestCredentials>()\n\npublic inline val RequestCredentials.Companion.SAME_ORIGIN: RequestCredentials get() = \"same-origin\".asDynamic().unsafeCast<RequestCredentials>()\n\npublic inline val RequestCredentials.Companion.INCLUDE: RequestCredentials get() =

\"include\".asDynamic().unsafeCast<RequestCredentials>()\n\n/* please, don't implement this interface! */\n@JsName(\"null\")\n@Suppress(\"NESTED_CLASS_IN_EXTERNAL_INTERFACE\")\npublic external interface RequestCache {\n   companion object\n}\n\npublic inline val RequestCache.Companion.DEFAULT: RequestCache get() = \"default\".asDynamic().unsafeCast<RequestCache>()\n\npublic inline val RequestCache.Companion.NO_STORE: RequestCache get() = \"no-store\".asDynamic().unsafeCast<RequestCache>()\n\npublic inline val RequestCache.Companion.RELOAD: RequestCache get() = \"reload\".asDynamic().unsafeCast<RequestCache>()\n\npublic inline val RequestCache.Companion.NO_CACHE: RequestCache get() = \"no-cache\".asDynamic().unsafeCast<RequestCache>()\n\npublic inline val RequestCache.Companion.FORCE_CACHE: RequestCache get() = \"force-cache\".asDynamic().unsafeCast<RequestCache>()\n\npublic inline val RequestCache.Companion.ONLY_IF_CACHED: RequestCache get() = \"only-if-cached\".asDynamic().unsafeCast<RequestCache>()\n\n/* please, don't implement this interface! */\n@JsName(\"null\")\n@Suppress(\"NESTED_CLASS_IN_EXTERNAL_INTERFACE\")\npublic external interface RequestRedirect {\n   companion object\n}\n\npublic inline val RequestRedirect.Companion.FOLLOW: RequestRedirect get() = \"follow\".asDynamic().unsafeCast<RequestRedirect>()\n\npublic inline val RequestRedirect.Companion.ERROR: RequestRedirect get() = \"error\".asDynamic().unsafeCast<RequestRedirect>()\n\npublic inline val RequestRedirect.Companion.MANUAL: RequestRedirect get() = \"manual\".asDynamic().unsafeCast<RequestRedirect>()\n\n/* please, don't implement this interface! */\n@JsName(\"null\")\n@Suppress(\"NESTED_CLASS_IN_EXTERNAL_INTERFACE\")\npublic external interface ResponseType {\n   companion object\n}\n\npublic inline val ResponseType.Companion.BASIC: ResponseType get() = \"basic\".asDynamic().unsafeCast<ResponseType>()\n\npublic inline val ResponseType.Companion.CORS: ResponseType get() = \"cors\".asDynamic().unsafeCast<ResponseType>()\n\npublic inline val ResponseType.Companion.DEFAULT: ResponseType get() = \"default\".asDynamic().unsafeCast<ResponseType>()\n\npublic inline val ResponseType.Companion.ERROR: ResponseType get() = \"error\".asDynamic().unsafeCast<ResponseType>()\n\npublic inline val ResponseType.Companion.OPAQUE: ResponseType get() = \"opaque\".asDynamic().unsafeCast<ResponseType>()\n\npublic inline val ResponseType.Companion.OPAQUEREDIRECT: ResponseType get() = \"opaqueredirect\".asDynamic().unsafeCast<ResponseType>()","/*\n * Copyright 2010-2021 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\n// NOTE: THIS FILE IS AUTO-GENERATED, DO NOT EDIT!\n// See github.com/kotlin/dukat for details\n\npackage org.w3c.dom.mediacapture\n\nimport kotlin.js.*\nimport org.khronos.webgl.*\nimport org.w3c.dom.*\nimport org.w3c.dom.events.*\n\n/**\n * Exposes the JavaScript [MediaStream](https://developer.mozilla.org/en/docs/Web/API/MediaStream) to Kotlin\n */\npublic external open class MediaStream() : EventTarget, MediaProvider {\n   constructor(stream: MediaStream)\n   constructor(tracks: Array<MediaStreamTrack>)\n   open val id: String\n   open val active: Boolean\n   var onaddtrack: ((MediaStreamTrackEvent) -> dynamic)?\n   var onremovetrack: ((MediaStreamTrackEvent) -> dynamic)?\n   fun getAudioTracks(): Array<MediaStreamTrack>\n   fun getVideoTracks(): Array<MediaStreamTrack>\n   fun getTracks(): Array<MediaStreamTrack>\n   fun getTrackById(trackId: String): MediaStreamTrack?\n   fun addTrack(track: MediaStreamTrack)\n   fun removeTrack(track: MediaStreamTrack)\n   fun clone(): MediaStream\n}\n\n/**\n * Exposes the JavaScript [MediaStreamTrack](https://developer.mozilla.org/en/docs/Web/API/MediaStreamTrack) to Kotlin\n */\npublic external abstract class MediaStreamTrack : EventTarget {\n   open val kind: String\n   open val id: String\n   open val label: String\n   open var enabled: Boolean\n   open val muted: Boolean\n   open var onmute: ((Event) -> dynamic)?\n   open var onunmute: ((Event) -> dynamic)?\n   open val readyState: MediaStreamTrackState\n   open var onended: ((Event) -> dynamic)?\n   open var onoverconstrained: ((Event) -> dynamic)?\n   fun clone(): MediaStreamTrack\n   fun stop()\n   fun getCapabilities(): MediaTrackCapabilities\n   fun getConstraints():

MediaTrackConstraints\n   fun getSettings(): MediaTrackSettings\n   fun applyConstraints(constraints: MediaTrackConstraints = definedExternally): Promise<Unit>\n}\n\n/**\n * Exposes the JavaScript [MediaTrackSupportedConstraints](https://developer.mozilla.org/en/docs/Web/API/MediaTrackSupportedConstraints) to Kotlin\n */\npublic external interface MediaTrackSupportedConstraints {\n   var width: Boolean? /* = true */\n   get() = definedExternally\n   set(value) = definedExternally\n   var height: Boolean? /* = true */\n   get() = definedExternally\n   set(value) = definedExternally\n   var aspectRatio: Boolean? /* = true */\n   get() = definedExternally\n   set(value) = definedExternally\n   var frameRate: Boolean? /* = true */\n   get() = definedExternally\n   set(value) = definedExternally\n   var facingMode: Boolean? /* = true */\n   get() = definedExternally\n   set(value) = definedExternally\n   var resizeMode: Boolean? /* = true */\n   get() = definedExternally\n   set(value) = definedExternally\n   var volume: Boolean? /* = true */\n   get() = definedExternally\n   set(value) = definedExternally\n   var sampleRate: Boolean? /* = true */\n   get() = definedExternally\n   set(value) = definedExternally\n   var sampleSize: Boolean? /* = true */\n   get() = definedExternally\n   set(value) = definedExternally\n   var echoCancellation: Boolean? /* = true */\n   get() = definedExternally\n   set(value) = definedExternally\n   var autoGainControl: Boolean? /* = true */\n   get() = definedExternally\n   set(value) = definedExternally\n   var noiseSuppression: Boolean? /* = true */\n   get() = definedExternally\n   set(value) = definedExternally\n   var latency: Boolean? /* = true */\n   get() = definedExternally\n   set(value) = definedExternally\n   var channelCount: Boolean? /* = true */\n   get() = definedExternally\n   set(value) = definedExternally\n   var deviceId: Boolean? /* = true */\n   get() = definedExternally\n   set(value) = definedExternally\n   var groupId: Boolean? /* = true */\n   get() = definedExternally\n   set(value) = definedExternally\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline fun MediaTrackSupportedConstraints(width: Boolean? = true, height: Boolean? = true, aspectRatio: Boolean? = true, frameRate: Boolean? = true, facingMode: Boolean? = true, resizeMode: Boolean? = true, volume: Boolean? = true, sampleRate: Boolean? = true, sampleSize: Boolean? = true, echoCancellation: Boolean? = true, autoGainControl: Boolean? = true, noiseSuppression: Boolean? = true, latency: Boolean? = true, channelCount: Boolean? = true, deviceId: Boolean? = true, groupId: Boolean? = true): MediaTrackSupportedConstraints {\n   val o = js(\"({})\")\n   o[\"width\"] = width\n   o[\"height\"] = height\n   o[\"aspectRatio\"] = aspectRatio\n   o[\"frameRate\"] = frameRate\n   o[\"facingMode\"] = facingMode\n   o[\"resizeMode\"] = resizeMode\n   o[\"volume\"] = volume\n   o[\"sampleRate\"] = sampleRate\n   o[\"sampleSize\"] = sampleSize\n   o[\"echoCancellation\"] = echoCancellation\n   o[\"autoGainControl\"] = autoGainControl\n   o[\"noiseSuppression\"] = noiseSuppression\n   o[\"latency\"] = latency\n   o[\"channelCount\"] = channelCount\n   o[\"deviceId\"] = deviceId\n   o[\"groupId\"] = groupId\n   return o\n}\n\npublic external interface MediaTrackCapabilities {\n   var width: ULongRange?\n   get() = definedExternally\n   set(value) = definedExternally\n   var height: ULongRange?\n   get() = definedExternally\n   set(value) = definedExternally\n   var aspectRatio: DoubleRange?\n   get() = definedExternally\n   set(value) = definedExternally\n   var frameRate: DoubleRange?\n   get() = definedExternally\n   set(value) = definedExternally\n   var facingMode: Array<String>?\n   get() = definedExternally\n   set(value) = definedExternally\n   var resizeMode: Array<String>?\n   get() = definedExternally\n   set(value) = definedExternally\n   var volume: DoubleRange?\n   get() = definedExternally\n   set(value) = definedExternally\n   var sampleRate: ULongRange?\n   get() = definedExternally\n   set(value) = definedExternally\n   var sampleSize: ULongRange?\n   get() = definedExternally\n   set(value) = definedExternally\n   var echoCancellation: Array<Boolean>?\n   get() = definedExternally\n   set(value) = definedExternally\n   var autoGainControl: Array<Boolean>?\n   get() = definedExternally\n   set(value) = definedExternally\n   var noiseSuppression: Array<Boolean>?\n   get() = definedExternally\n   set(value) = definedExternally\n   var latency: DoubleRange?\n   get() = definedExternally\n   set(value) = definedExternally\n   var channelCount: ULongRange?\n   get() = definedExternally\n   set(value) = definedExternally\n   var deviceId: String?\n   get() = definedExternally\n   set(value) = definedExternally\n   var groupId: String?\n   get() = definedExternally\n   set(value) = definedExternally\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\",

\"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline fun MediaTrackCapabilities(width: ULongRange? = undefined, height: ULongRange? = undefined, aspectRatio: DoubleRange? = undefined, frameRate: DoubleRange? = undefined, facingMode: Array<String>? = undefined, resizeMode: Array<String>? = undefined, volume: DoubleRange? = undefined, sampleRate: ULongRange? = undefined, sampleSize: ULongRange? = undefined, echoCancellation: Array<Boolean>? = undefined, autoGainControl: Array<Boolean>? = undefined, noiseSuppression: Array<Boolean>? = undefined, latency: DoubleRange? = undefined, channelCount: ULongRange? = undefined, deviceId: String? = undefined, groupId: String? = undefined): MediaTrackCapabilities {\n   val o = js(\"({})\")\n   o[\"width\"] = width\n   o[\"height\"] = height\n   o[\"aspectRatio\"] = aspectRatio\n   o[\"frameRate\"] = frameRate\n   o[\"facingMode\"] = facingMode\n   o[\"resizeMode\"] = resizeMode\n   o[\"volume\"] = volume\n   o[\"sampleRate\"] = sampleRate\n   o[\"sampleSize\"] = sampleSize\n   o[\"echoCancellation\"] = echoCancellation\n   o[\"autoGainControl\"] = autoGainControl\n   o[\"noiseSuppression\"] = noiseSuppression\n   o[\"latency\"] = latency\n   o[\"channelCount\"] = channelCount\n   o[\"deviceId\"] = deviceId\n   o[\"groupId\"] = groupId\n   return o\n}\n\n/**\n * Exposes the JavaScript [MediaTrackConstraints](https://developer.mozilla.org/en/docs/Web/API/MediaTrackConstraints) to Kotlin\n */\npublic external interface MediaTrackConstraints : MediaTrackConstraintSet {\n   var advanced: Array<MediaTrackConstraintSet>?\n   get() = definedExternally\n   set(value) = definedExternally\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline fun MediaTrackConstraints(advanced: Array<MediaTrackConstraintSet>? = undefined, width: dynamic = undefined, height: dynamic = undefined, aspectRatio: dynamic = undefined, frameRate: dynamic = undefined, facingMode: dynamic = undefined, resizeMode: dynamic = undefined, volume: dynamic = undefined, sampleRate: dynamic = undefined, sampleSize: dynamic = undefined, echoCancellation: dynamic = undefined, autoGainControl: dynamic = undefined, noiseSuppression: dynamic = undefined, latency: dynamic = undefined, channelCount: dynamic = undefined, deviceId: dynamic = undefined, groupId: dynamic = undefined): MediaTrackConstraints {\n   val o = js(\"({})\")\n   o[\"advanced\"] = advanced\n   o[\"width\"] = width\n   o[\"height\"] = height\n   o[\"aspectRatio\"] = aspectRatio\n   o[\"frameRate\"] = frameRate\n   o[\"facingMode\"] = facingMode\n   o[\"resizeMode\"] = resizeMode\n   o[\"volume\"] = volume\n   o[\"sampleRate\"] = sampleRate\n   o[\"sampleSize\"] = sampleSize\n   o[\"echoCancellation\"] = echoCancellation\n   o[\"autoGainControl\"] = autoGainControl\n   o[\"noiseSuppression\"] = noiseSuppression\n   o[\"latency\"] = latency\n   o[\"channelCount\"] = channelCount\n   o[\"deviceId\"] = deviceId\n   o[\"groupId\"] = groupId\n   return o\n}\n\npublic external interface MediaTrackConstraintSet {\n   var width: dynamic\n   get() = definedExternally\n   set(value) = definedExternally\n   var height: dynamic\n   get() = definedExternally\n   set(value) = definedExternally\n   var aspectRatio: dynamic\n   get() = definedExternally\n   set(value) = definedExternally\n   var frameRate: dynamic\n   get() = definedExternally\n   set(value) = definedExternally\n   var facingMode: dynamic\n   get() = definedExternally\n   set(value) = definedExternally\n   var resizeMode: dynamic\n   get() = definedExternally\n   set(value) = definedExternally\n   var volume: dynamic\n   get() = definedExternally\n   set(value) = definedExternally\n   var sampleRate: dynamic\n   get() = definedExternally\n   set(value) = definedExternally\n   var sampleSize: dynamic\n   get() = definedExternally\n   set(value) = definedExternally\n   var echoCancellation: dynamic\n   get() = definedExternally\n   set(value) = definedExternally\n   var autoGainControl: dynamic\n   get() = definedExternally\n   set(value) = definedExternally\n   var noiseSuppression: dynamic\n   get() = definedExternally\n   set(value) = definedExternally\n   var latency: dynamic\n   get() = definedExternally\n   set(value) = definedExternally\n   var channelCount: dynamic\n   get() = definedExternally\n   set(value) = definedExternally\n   var deviceId: dynamic\n   get() = definedExternally\n   set(value) = definedExternally\n   var groupId: dynamic\n   get() = definedExternally\n   set(value) = definedExternally\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline fun MediaTrackConstraintSet(width: dynamic = undefined, height: dynamic = undefined, aspectRatio: dynamic = undefined, frameRate: dynamic = undefined, facingMode: dynamic = undefined, resizeMode: dynamic = undefined, volume: dynamic = undefined, sampleRate: dynamic = undefined, sampleSize: dynamic = undefined, echoCancellation: dynamic = undefined, autoGainControl: dynamic = undefined, noiseSuppression: dynamic = undefined, latency: dynamic = undefined, channelCount: dynamic = undefined, deviceId: dynamic = undefined, groupId: dynamic = undefined): MediaTrackConstraintSet {\n   val o = js(\"({})\")\n   o[\"width\"] = width\n   o[\"height\"] = height\n   o[\"aspectRatio\"] = aspectRatio\n   o[\"frameRate\"] = frameRate\n   o[\"facingMode\"] = facingMode\n   o[\"resizeMode\"] = resizeMode\n   o[\"volume\"] = volume\n   o[\"sampleRate\"] = sampleRate\n   o[\"sampleSize\"] = sampleSize\n   o[\"echoCancellation\"] = echoCancellation\n   o[\"autoGainControl\"] = autoGainControl\n   o[\"noiseSuppression\"] = noiseSuppression\n   o[\"latency\"] = latency\n   o[\"channelCount\"] = channelCount\n   o[\"deviceId\"] = deviceId\n   o[\"groupId\"] = groupId\n   return o\n}\n\n/**\n * Exposes the JavaScript [MediaTrackSettings](https://developer.mozilla.org/en/docs/Web/API/MediaTrackSettings) to Kotlin\n */\npublic external interface MediaTrackSettings {\n   var width: Int?\n   get() = definedExternally\n   set(value) = definedExternally\n   var height: Int?\n   get() = definedExternally\n   set(value) = definedExternally\n   var aspectRatio: Double?\n   get() = definedExternally\n   set(value) = definedExternally\n   var frameRate: Double?\n   get() = definedExternally\n   set(value) = definedExternally\n   var facingMode: String?\n   get() = definedExternally\n   set(value) = definedExternally\n   var resizeMode: String?\n   get() = definedExternally\n   set(value) = definedExternally\n   var volume: Double?\n   get() = definedExternally\n   set(value) = definedExternally\n   var sampleRate: Int?\n   get() = definedExternally\n   set(value) = definedExternally\n   var sampleSize: Int?\n   get() = definedExternally\n   set(value) = definedExternally\n   var echoCancellation: Boolean?\n   get() = definedExternally\n   set(value) = definedExternally\n   var autoGainControl: Boolean?\n   get() = definedExternally\n   set(value) = definedExternally\n   var noiseSuppression: Boolean?\n   get() = definedExternally\n   set(value) = definedExternally\n   var latency: Double?\n   get() = definedExternally\n   set(value) = definedExternally\n   var channelCount: Int?\n   get() = definedExternally\n   set(value) = definedExternally\n   var deviceId: String?\n   get() = definedExternally\n   set(value) = definedExternally\n   var groupId: String?\n   get() = definedExternally\n   set(value) = definedExternally\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline fun MediaTrackSettings(width: Int? = undefined, height: Int? = undefined, aspectRatio: Double? = undefined, frameRate: Double? = undefined, facingMode: String? = undefined, resizeMode: String? = undefined, volume: Double? = undefined, sampleRate: Int? = undefined, sampleSize: Int? = undefined, echoCancellation: Boolean? = undefined, autoGainControl: Boolean? = undefined, noiseSuppression: Boolean? = undefined, latency: Double? = undefined, channelCount: Int? = undefined, deviceId: String? = undefined, groupId: String? = undefined): MediaTrackSettings {\n   val o = js(\"({})\")\n   o[\"width\"] = width\n   o[\"height\"] = height\n   o[\"aspectRatio\"] = aspectRatio\n   o[\"frameRate\"] = frameRate\n   o[\"facingMode\"] = facingMode\n   o[\"resizeMode\"] = resizeMode\n   o[\"volume\"] = volume\n   o[\"sampleRate\"] = sampleRate\n   o[\"sampleSize\"] = sampleSize\n   o[\"echoCancellation\"] = echoCancellation\n   o[\"autoGainControl\"] = autoGainControl\n   o[\"noiseSuppression\"] = noiseSuppression\n   o[\"latency\"] = latency\n   o[\"channelCount\"] = channelCount\n   o[\"deviceId\"] = deviceId\n   o[\"groupId\"] = groupId\n   return o\n}\n\n/**\n * Exposes the JavaScript [MediaStreamTrackEvent](https://developer.mozilla.org/en/docs/Web/API/MediaStreamTrackEvent) to Kotlin\n */\npublic external open class MediaStreamTrackEvent(type: String, eventInitDict: MediaStreamTrackEventInit) : Event {\n   open val track: MediaStreamTrack\n\n   companion object {\n   val NONE: Short\n   val CAPTURING_PHASE: Short\n   val AT_TARGET: Short\n   val BUBBLING_PHASE: Short\n   }\n}\n\npublic external interface MediaStreamTrackEventInit : EventInit {\n   var track: MediaStreamTrack?\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline fun MediaStreamTrackEventInit(track: MediaStreamTrack?, bubbles: Boolean? = false, cancelable: Boolean? = false, composed: Boolean? = false): MediaStreamTrackEventInit {\n   val o = js(\"({})\")\n   o[\"track\"] = track\n   o[\"bubbles\"] = bubbles\n   o[\"cancelable\"] = cancelable\n   o[\"composed\"] = composed\n   return o\n}\n\npublic external open class

OverconstrainedErrorEvent(type: String, eventInitDict: OverconstrainedErrorEventInit) : Event {\n   open val error: dynamic\n\n   companion object {\n   val NONE: Short\n   val CAPTURING_PHASE: Short\n   val AT_TARGET: Short\n   val BUBBLING_PHASE: Short\n   }\n}\n\npublic external interface OverconstrainedErrorEventInit : EventInit {\n   var error: dynamic /* = null */\n   get() = definedExternally\n set(value) = definedExternally\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline fun OverconstrainedErrorEventInit(error: dynamic = null, bubbles: Boolean? = false, cancelable: Boolean? = false, composed: Boolean? = false): OverconstrainedErrorEventInit {\n   val o = js(\"({})\")\n   o[\"error\"] = error\n   o[\"bubbles\"] = bubbles\n o[\"cancelable\"] = cancelable\n   o[\"composed\"] = composed\n   return o\n}\n\n/**\n * Exposes the JavaScript [MediaDevices](https://developer.mozilla.org/en/docs/Web/API/MediaDevices) to Kotlin\n */\npublic external abstract class MediaDevices : EventTarget {\n   open var ondevicechange: ((Event) -> dynamic)?\n   fun enumerateDevices(): Promise<Array<MediaDeviceInfo>>\n   fun getSupportedConstraints(): MediaTrackSupportedConstraints\n   fun getUserMedia(constraints: MediaStreamConstraints = definedExternally): Promise<MediaStream>\n}\n\n/**\n * Exposes the JavaScript [MediaDeviceInfo](https://developer.mozilla.org/en/docs/Web/API/MediaDeviceInfo) to Kotlin\n */\npublic external abstract class MediaDeviceInfo {\n   open val deviceId: String\n   open val kind: MediaDeviceKind\n open val label: String\n   open val groupId: String\n   fun toJSON(): dynamic\n}\n\npublic external abstract class InputDeviceInfo : MediaDeviceInfo {\n   fun getCapabilities(): MediaTrackCapabilities\n}\n\n/**\n * Exposes the JavaScript [MediaStreamConstraints](https://developer.mozilla.org/en/docs/Web/API/MediaStreamConstraints) to Kotlin\n */\npublic external interface MediaStreamConstraints {\n   var video: dynamic /* = false */\n   get() = definedExternally\n   set(value) = definedExternally\n   var audio: dynamic /* = false */\n   get() = definedExternally\n   set(value) = definedExternally\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline fun MediaStreamConstraints(video: dynamic = false, audio: dynamic = false): MediaStreamConstraints {\n   val o = js(\"({})\")\n   o[\"video\"] = video\n   o[\"audio\"] = audio\n   return o\n}\n\npublic external interface ConstrainablePattern {\n   var onoverconstrained: ((Event) -> dynamic)?\n   get() = definedExternally\n   set(value) = definedExternally\n fun getCapabilities(): Capabilities\n   fun getConstraints(): Constraints\n   fun getSettings(): Settings\n   fun applyConstraints(constraints: Constraints = definedExternally): Promise<Unit>\n}\n\n/**\n * Exposes the JavaScript [DoubleRange](https://developer.mozilla.org/en/docs/Web/API/DoubleRange) to Kotlin\n */\npublic external interface DoubleRange {\n   var max: Double?\n   get() = definedExternally\n   set(value) = definedExternally\n   var min: Double?\n   get() = definedExternally\n   set(value) = definedExternally\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline fun DoubleRange(max: Double? = undefined, min: Double? = undefined): DoubleRange {\n   val o = js(\"({})\")\n   o[\"max\"] = max\n   o[\"min\"] = min\n   return o\n}\n\npublic external interface ConstrainDoubleRange : DoubleRange {\n   var exact: Double?\n get() = definedExternally\n   set(value) = definedExternally\n   var ideal: Double?\n   get() = definedExternally\n   set(value) = definedExternally\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline fun ConstrainDoubleRange(exact: Double? = undefined, ideal: Double? = undefined, max: Double? = undefined, min: Double? = undefined): ConstrainDoubleRange {\n   val o = js(\"({})\")\n   o[\"exact\"] = exact\n   o[\"ideal\"] = ideal\n   o[\"max\"] = max\n   o[\"min\"] = min\n   return o\n}\n\npublic external interface ULongRange {\n   var max: Int?\n   get() = definedExternally\n   set(value) = definedExternally\n   var min: Int?\n   get() = definedExternally\n set(value) = definedExternally\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline fun ULongRange(max: Int? = undefined, min: Int? = undefined): ULongRange {\n   val o = js(\"({})\")\n   o[\"max\"] = max\n   o[\"min\"] = min\n   return o\n}\n\npublic external interface ConstrainULongRange : ULongRange {\n   var exact: Int?\n   get() = definedExternally\n   set(value) = definedExternally\n   var ideal: Int?\n   get() = definedExternally\n set(value) = definedExternally\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\",

\"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline fun ConstrainULongRange(exact: Int? = undefined, ideal: Int? = undefined, max: Int? = undefined, min: Int? = undefined): ConstrainULongRange {\n   val o = js(\"({})\")\n   o[\"exact\"] = exact\n   o[\"ideal\"] = ideal\n   o[\"max\"] = max\n   o[\"min\"] = min\n   return o\n}\n\n/**\n * Exposes the JavaScript [ConstrainBooleanParameters](https://developer.mozilla.org/en/docs/Web/API/ConstrainBooleanParameters) to Kotlin\n */\npublic external interface ConstrainBooleanParameters {\n   var exact: Boolean?\n   get() = definedExternally\n   set(value) = definedExternally\n   var ideal: Boolean?\n   get() = definedExternally\n   set(value) = definedExternally\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline fun ConstrainBooleanParameters(exact: Boolean? = undefined, ideal: Boolean? = undefined): ConstrainBooleanParameters {\n   val o = js(\"({})\")\n   o[\"exact\"] = exact\n   o[\"ideal\"] = ideal\n   return o\n}\n\n/**\n * Exposes the JavaScript [ConstrainDOMStringParameters](https://developer.mozilla.org/en/docs/Web/API/ConstrainDOMStringParameters) to Kotlin\n */\npublic external interface ConstrainDOMStringParameters {\n   var exact: dynamic\n   get() = definedExternally\n   set(value) = definedExternally\n   var ideal: dynamic\n   get() = definedExternally\n   set(value) = definedExternally\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline fun ConstrainDOMStringParameters(exact: dynamic = undefined, ideal: dynamic = undefined): ConstrainDOMStringParameters {\n   val o = js(\"({})\")\n   o[\"exact\"] = exact\n   o[\"ideal\"] = ideal\n   return o\n}\n\npublic external interface Capabilities\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline fun Capabilities(): Capabilities {\n   val o = js(\"({})\")\n   return o\n}\n\npublic external interface Settings\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline fun Settings(): Settings {\n   val o = js(\"({})\")\n   return o\n}\n\npublic external interface ConstraintSet\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline fun ConstraintSet(): ConstraintSet {\n   val o = js(\"({})\")\n   return o\n}\n\npublic external interface Constraints : ConstraintSet {\n   var advanced: Array<ConstraintSet>?\n   get() = definedExternally\n   set(value) = definedExternally\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline fun Constraints(advanced: Array<ConstraintSet>? = undefined): Constraints {\n   val o = js(\"({})\")\n   o[\"advanced\"] = advanced\n   return o\n}\n\n/* please, don't implement this interface! */\n@JsName(\"null\")\n@Suppress(\"NESTED_CLASS_IN_EXTERNAL_INTERFACE\")\npublic external interface MediaStreamTrackState {\n   companion object\n}\n\npublic inline val MediaStreamTrackState.Companion.LIVE: MediaStreamTrackState get() = \"live\".asDynamic().unsafeCast<MediaStreamTrackState>()\n\npublic inline val MediaStreamTrackState.Companion.ENDED: MediaStreamTrackState get() = \"ended\".asDynamic().unsafeCast<MediaStreamTrackState>()\n\n/* please, don't implement this interface! */\n@JsName(\"null\")\n@Suppress(\"NESTED_CLASS_IN_EXTERNAL_INTERFACE\")\npublic external interface VideoFacingModeEnum {\n   companion object\n}\n\npublic inline val VideoFacingModeEnum.Companion.USER: VideoFacingModeEnum get() = \"user\".asDynamic().unsafeCast<VideoFacingModeEnum>()\n\npublic inline val VideoFacingModeEnum.Companion.ENVIRONMENT: VideoFacingModeEnum get() = \"environment\".asDynamic().unsafeCast<VideoFacingModeEnum>()\n\npublic inline val VideoFacingModeEnum.Companion.LEFT: VideoFacingModeEnum get() = \"left\".asDynamic().unsafeCast<VideoFacingModeEnum>()\n\npublic inline val VideoFacingModeEnum.Companion.RIGHT: VideoFacingModeEnum get() = \"right\".asDynamic().unsafeCast<VideoFacingModeEnum>()\n\n/* please, don't implement this interface! */\n@JsName(\"null\")\n@Suppress(\"NESTED_CLASS_IN_EXTERNAL_INTERFACE\")\npublic external interface VideoResizeModeEnum {\n   companion object\n}\n\npublic inline val

VideoResizeModeEnum.Companion.NONE: VideoResizeModeEnum get() =
\"none\".asDynamic().unsafeCast<VideoResizeModeEnum>()\n\npublic inline val
VideoResizeModeEnum.Companion.CROP_AND_SCALE: VideoResizeModeEnum get() = \"crop-and-
scale\".asDynamic().unsafeCast<VideoResizeModeEnum>()\n\n/* please, don't implement this interface!
*/\n@JsName(\"null\")\n@Suppress(\"NESTED_CLASS_IN_EXTERNAL_INTERFACE\")\npublic external
interface MediaDeviceKind {\n   companion object\n}\n\npublic inline val
MediaDeviceKind.Companion.AUDIOINPUT: MediaDeviceKind get() =
\"audioinput\".asDynamic().unsafeCast<MediaDeviceKind>()\n\npublic inline val
MediaDeviceKind.Companion.AUDIOOUTPUT: MediaDeviceKind get() =
\"audiooutput\".asDynamic().unsafeCast<MediaDeviceKind>()\n\npublic inline val
MediaDeviceKind.Companion.VIDEOINPUT: MediaDeviceKind get() =
\"videoinput\".asDynamic().unsafeCast<MediaDeviceKind>()","/*\n * Copyright 2010-2021 JetBrains s.r.o. and
Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that
can be found in the license/LICENSE.txt file.\n */\n\n// NOTE: THIS FILE IS AUTO-GENERATED, DO NOT
EDIT!\n// See github.com/kotlin/dukat for details\n\npackage org.w3c.dom.mediasource\n\nimport
kotlin.js.*\nimport org.khronos.webgl.*\nimport org.w3c.dom.*\nimport org.w3c.dom.events.*\n\n/**\n * Exposes
the JavaScript [MediaSource](https://developer.mozilla.org/en/docs/Web/API/MediaSource) to Kotlin\n */\npublic
external open class MediaSource : EventTarget, MediaProvider {\n   open val sourceBuffers: SourceBufferList\n
open val activeSourceBuffers: SourceBufferList\n   open val readyState: ReadyState\n   var duration: Double\n
var onsourceopen: ((Event) -> dynamic)?\n   var onsourceended: ((Event) -> dynamic)?\n   var onsourceclose:
((Event) -> dynamic)?\n   fun addSourceBuffer(type: String): SourceBuffer\n   fun
removeSourceBuffer(sourceBuffer: SourceBuffer)\n   fun endOfStream(error: EndOfStreamError =
definedExternally)\n   fun setLiveSeekableRange(start: Double, end: Double)\n   fun clearLiveSeekableRange()\n\n
  companion object {\n   fun isTypeSupported(type: String): Boolean\n   }\n}\n\n/**\n * Exposes the JavaScript
[SourceBuffer](https://developer.mozilla.org/en/docs/Web/API/SourceBuffer) to Kotlin\n */\npublic external
abstract class SourceBuffer : EventTarget {\n   open var mode: AppendMode\n   open val updating: Boolean\n
open val buffered: TimeRanges\n   open var timestampOffset: Double\n   open val audioTracks: AudioTrackList\n
 open val videoTracks: VideoTrackList\n   open val textTracks: TextTrackList\n   open var appendWindowStart:
Double\n   open var appendWindowEnd: Double\n   open var onupdatestart: ((Event) -> dynamic)?\n   open var
onupdate: ((Event) -> dynamic)?\n   open var onupdateend: ((Event) -> dynamic)?\n   open var onerror: ((Event) ->
dynamic)?\n   open var onabort: ((Event) -> dynamic)?\n   fun appendBuffer(data: dynamic)\n   fun abort()\n   fun
remove(start: Double, end: Double)\n}\n\n/**\n * Exposes the JavaScript
[SourceBufferList](https://developer.mozilla.org/en/docs/Web/API/SourceBufferList) to Kotlin\n */\npublic
external abstract class SourceBufferList : EventTarget {\n   open val length: Int\n   open var onaddsourcebuffer:
((Event) -> dynamic)?\n   open var onremovesourcebuffer: ((Event) ->
dynamic)?\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\",
\"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline operator fun SourceBufferList.get(index:
Int): SourceBuffer? = asDynamic()[index]\n\n/* please, don't implement this interface!
*/\n@JsName(\"null\")\n@Suppress(\"NESTED_CLASS_IN_EXTERNAL_INTERFACE\")\npublic external
interface ReadyState {\n   companion object\n}\n\npublic inline val ReadyState.Companion.CLOSED: ReadyState
get() = \"closed\".asDynamic().unsafeCast<ReadyState>()\n\npublic inline val ReadyState.Companion.OPEN:
ReadyState get() = \"open\".asDynamic().unsafeCast<ReadyState>()\n\npublic inline val
ReadyState.Companion.ENDED: ReadyState get() = \"ended\".asDynamic().unsafeCast<ReadyState>()\n\n/*
please, don't implement this interface!
*/\n@JsName(\"null\")\n@Suppress(\"NESTED_CLASS_IN_EXTERNAL_INTERFACE\")\npublic external
interface EndOfStreamError {\n   companion object\n}\n\npublic inline val
EndOfStreamError.Companion.NETWORK: EndOfStreamError get() =
\"network\".asDynamic().unsafeCast<EndOfStreamError>()\n\npublic inline val

EndOfStreamError.Companion.DECODE: EndOfStreamError get() = \"decode\".asDynamic().unsafeCast<EndOfStreamError>()\n\n/* please, don't implement this interface! */\n@JsName(\"null\")\n@Suppress(\"NESTED_CLASS_IN_EXTERNAL_INTERFACE\")\npublic external interface AppendMode {\n   companion object\n}\n\npublic inline val AppendMode.Companion.SEGMENTS: AppendMode get() = \"segments\".asDynamic().unsafeCast<AppendMode>()\n\npublic inline val AppendMode.Companion.SEQUENCE: AppendMode get() = \"sequence\".asDynamic().unsafeCast<AppendMode>()","/*\n * Copyright 2010-2021 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\n// NOTE: THIS FILE IS AUTO-GENERATED, DO NOT EDIT!\n// See github.com/kotlin/dukat for details\n\npackage org.w3c.dom.pointerevents\n\nimport kotlin.js.*\nimport org.khronos.webgl.*\nimport org.w3c.dom.*\nimport org.w3c.dom.events.*\n\npublic external interface PointerEventInit : MouseEventInit {\n   var pointerId: Int? /* = 0 */\n   get() = definedExternally\n   set(value) = definedExternally\n   var width: Double? /* = 1.0 */\n   get() = definedExternally\n   set(value) = definedExternally\n   var height: Double? /* = 1.0 */\n   get() = definedExternally\n   set(value) = definedExternally\n   var pressure: Float? /* = 0f */\n   get() = definedExternally\n   set(value) = definedExternally\n   var tangentialPressure: Float? /* = 0f */\n   get() = definedExternally\n   set(value) = definedExternally\n   var tiltX: Int? /* = 0 */\n   get() = definedExternally\n   set(value) = definedExternally\n   var tiltY: Int? /* = 0 */\n   get() = definedExternally\n   set(value) = definedExternally\n   var twist: Int? /* = 0 */\n   get() = definedExternally\n   set(value) = definedExternally\n   var pointerType: String? /* = \"\" */\n   get() = definedExternally\n   set(value) = definedExternally\n   var isPrimary: Boolean? /* = false */\n   get() = definedExternally\n   set(value) = definedExternally\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline fun PointerEventInit(pointerId: Int? = 0, width: Double? = 1.0, height: Double? = 1.0, pressure: Float? = 0f, tangentialPressure: Float? = 0f, tiltX: Int? = 0, tiltY: Int? = 0, twist: Int? = 0, pointerType: String? = \"\", isPrimary: Boolean? = false, screenX: Int? = 0, screenY: Int? = 0, clientX: Int? = 0, clientY: Int? = 0, button: Short? = 0, buttons: Short? = 0, relatedTarget: EventTarget? = null, region: String? = null, ctrlKey: Boolean? = false, shiftKey: Boolean? = false, altKey: Boolean? = false, metaKey: Boolean? = false, modifierAltGraph: Boolean? = false, modifierCapsLock: Boolean? = false, modifierFn: Boolean? = false, modifierFnLock: Boolean? = false, modifierHyper: Boolean? = false, modifierNumLock: Boolean? = false, modifierScrollLock: Boolean? = false, modifierSuper: Boolean? = false, modifierSymbol: Boolean? = false, modifierSymbolLock: Boolean? = false, view: Window? = null, detail: Int? = 0, bubbles: Boolean? = false, cancelable: Boolean? = false, composed: Boolean? = false): PointerEventInit {\n   val o = js(\"({})\")\n   o[\"pointerId\"] = pointerId\n   o[\"width\"] = width\n   o[\"height\"] = height\n   o[\"pressure\"] = pressure\n   o[\"tangentialPressure\"] = tangentialPressure\n   o[\"tiltX\"] = tiltX\n   o[\"tiltY\"] = tiltY\n   o[\"twist\"] = twist\n   o[\"pointerType\"] = pointerType\n   o[\"isPrimary\"] = isPrimary\n   o[\"screenX\"] = screenX\n   o[\"screenY\"] = screenY\n   o[\"clientX\"] = clientX\n   o[\"clientY\"] = clientY\n   o[\"button\"] = button\n   o[\"buttons\"] = buttons\n   o[\"relatedTarget\"] = relatedTarget\n   o[\"region\"] = region\n   o[\"ctrlKey\"] = ctrlKey\n   o[\"shiftKey\"] = shiftKey\n   o[\"altKey\"] = altKey\n   o[\"metaKey\"] = metaKey\n   o[\"modifierAltGraph\"] = modifierAltGraph\n   o[\"modifierCapsLock\"] = modifierCapsLock\n   o[\"modifierFn\"] = modifierFn\n   o[\"modifierFnLock\"] = modifierFnLock\n   o[\"modifierHyper\"] = modifierHyper\n   o[\"modifierNumLock\"] = modifierNumLock\n   o[\"modifierScrollLock\"] = modifierScrollLock\n   o[\"modifierSuper\"] = modifierSuper\n   o[\"modifierSymbol\"] = modifierSymbol\n   o[\"modifierSymbolLock\"] = modifierSymbolLock\n   o[\"view\"] = view\n   o[\"detail\"] = detail\n   o[\"bubbles\"] = bubbles\n   o[\"cancelable\"] = cancelable\n   o[\"composed\"] = composed\n   return o\n}\n\n/**\n * Exposes the JavaScript [PointerEvent](https://developer.mozilla.org/en/docs/Web/API/PointerEvent) to Kotlin\n */\npublic external open class PointerEvent(type: String, eventInitDict: PointerEventInit = definedExternally) : MouseEvent {\n   open val pointerId: Int\n   open val width: Double\n   open val height: Double\n   open val pressure: Float\n   open val tangentialPressure: Float\n   open val tiltX: Int\n   open val tiltY: Int\n   open val twist: Int\n   open val pointerType: String\n   open val isPrimary: Boolean\n\n   companion object {\n   val NONE: Short\n   val CAPTURING_PHASE: Short\n   val AT_TARGET: Short\n   val BUBBLING_PHASE: Short\n   }\n}","/*\n * Copyright 2010-2021 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\n// NOTE: THIS FILE IS AUTO-GENERATED, DO NOT EDIT!\n// See github.com/kotlin/dukat for details\n\npackage org.w3c.dom.svg\n\nimport kotlin.js.*\nimport org.khronos.webgl.*\nimport org.w3c.dom.*\nimport org.w3c.dom.css.*\n\n/**\n * Exposes the JavaScript [SVGElement](https://developer.mozilla.org/en/docs/Web/API/SVGElement) to Kotlin\n */\npublic external abstract class SVGElement : Element, ElementCSSInlineStyle, GlobalEventHandlers, SVGElementInstance {\n   open val dataset: DOMStringMap\n   open val ownerSVGElement: SVGSVGElement?\n   open val viewportElement: SVGElement?\n   open var tabIndex: Int\n   fun focus()\n   fun blur()\n\n   companion object {\n   val ELEMENT_NODE: Short\n   val ATTRIBUTE_NODE: Short\n   val TEXT_NODE: Short\n   val CDATA_SECTION_NODE: Short\n   val ENTITY_REFERENCE_NODE: Short\n   val ENTITY_NODE: Short\n   val PROCESSING_INSTRUCTION_NODE: Short\n   val COMMENT_NODE: Short\n   val DOCUMENT_NODE: Short\n   val DOCUMENT_TYPE_NODE: Short\n   val DOCUMENT_FRAGMENT_NODE: Short\n   val NOTATION_NODE: Short\n   val DOCUMENT_POSITION_DISCONNECTED: Short\n   val DOCUMENT_POSITION_PRECEDING: Short\n   val DOCUMENT_POSITION_FOLLOWING: Short\n   val DOCUMENT_POSITION_CONTAINS: Short\n   val DOCUMENT_POSITION_CONTAINED_BY: Short\n   val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n   }\n}\n\npublic external interface SVGBoundingBoxOptions {\n   var fill: Boolean? /* = true */\n   get() = definedExternally\n   set(value) = definedExternally\n   var stroke: Boolean? /* = false */\n   get() = definedExternally\n   set(value) = definedExternally\n   var markers: Boolean? /* = false */\n   get() = definedExternally\n   set(value) = definedExternally\n   var clipped: Boolean? /* = false */\n   get() = definedExternally\n   set(value) = definedExternally\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline fun SVGBoundingBoxOptions(fill: Boolean? = true, stroke: Boolean? = false, markers: Boolean? = false, clipped: Boolean? = false): SVGBoundingBoxOptions {\n   val o = js(\"({})\")\n   o[\"fill\"] = fill\n   o[\"stroke\"] = stroke\n   o[\"markers\"] = markers\n   o[\"clipped\"] = clipped\n   return o\n}\n\n/**\n * Exposes the JavaScript [SVGGraphicsElement](https://developer.mozilla.org/en/docs/Web/API/SVGGraphicsElement) to Kotlin\n */\npublic external abstract class SVGGraphicsElement : SVGElement, SVGTests {\n   open val transform: SVGAnimatedTransformList\n   fun getBBox(options: SVGBoundingBoxOptions = definedExternally): DOMRect\n   fun getCTM(): DOMMatrix?\n   fun getScreenCTM(): DOMMatrix?\n\n   companion object {\n   val ELEMENT_NODE: Short\n   val ATTRIBUTE_NODE: Short\n   val TEXT_NODE: Short\n   val CDATA_SECTION_NODE: Short\n   val ENTITY_REFERENCE_NODE: Short\n   val ENTITY_NODE: Short\n   val PROCESSING_INSTRUCTION_NODE: Short\n   val COMMENT_NODE: Short\n   val DOCUMENT_NODE: Short\n   val DOCUMENT_TYPE_NODE: Short\n   val DOCUMENT_FRAGMENT_NODE: Short\n   val NOTATION_NODE: Short\n   val DOCUMENT_POSITION_DISCONNECTED: Short\n   val DOCUMENT_POSITION_PRECEDING: Short\n   val DOCUMENT_POSITION_FOLLOWING: Short\n   val DOCUMENT_POSITION_CONTAINS: Short\n   val DOCUMENT_POSITION_CONTAINED_BY: Short\n   val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n   }\n}\n\n/**\n * Exposes the JavaScript [SVGGeometryElement](https://developer.mozilla.org/en/docs/Web/API/SVGGeometryElement) to Kotlin\n */\npublic external abstract class SVGGeometryElement : SVGGraphicsElement {\n   open val pathLength: SVGAnimatedNumber\n   fun isPointInFill(point: DOMPoint): Boolean\n   fun isPointInStroke(point: DOMPoint): Boolean\n   fun getTotalLength(): Float\n   fun getPointAtLength(distance: Float): DOMPoint\n\n   companion object {\n   val ELEMENT_NODE: Short\n   val ATTRIBUTE_NODE: Short\n   val TEXT_NODE: Short\n   val CDATA_SECTION_NODE: Short\n   val ENTITY_REFERENCE_NODE: Short\n   val

ENTITY_NODE: Short\n   val PROCESSING_INSTRUCTION_NODE: Short\n   val COMMENT_NODE: Short\n   val DOCUMENT_NODE: Short\n   val DOCUMENT_TYPE_NODE: Short\n   val DOCUMENT_FRAGMENT_NODE: Short\n   val NOTATION_NODE: Short\n   val DOCUMENT_POSITION_DISCONNECTED: Short\n   val DOCUMENT_POSITION_PRECEDING: Short\n   val DOCUMENT_POSITION_FOLLOWING: Short\n   val DOCUMENT_POSITION_CONTAINS: Short\n   val DOCUMENT_POSITION_CONTAINED_BY: Short\n   val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n   }\n}\n\n/**\n * Exposes the JavaScript [SVGNumber](https://developer.mozilla.org/en/docs/Web/API/SVGNumber) to Kotlin\n */\npublic external abstract class SVGNumber {\n   open var value: Float\n}\n\n/**\n * Exposes the JavaScript [SVGLength](https://developer.mozilla.org/en/docs/Web/API/SVGLength) to Kotlin\n */\npublic external abstract class SVGLength {\n   open val unitType: Short\n   open var value: Float\n   open var valueInSpecifiedUnits: Float\n   open var valueAsString: String\n   fun newValueSpecifiedUnits(unitType: Short, valueInSpecifiedUnits: Float)\n   fun convertToSpecifiedUnits(unitType: Short)\n\n   companion object {\n   val SVG_LENGTHTYPE_UNKNOWN: Short\n   val SVG_LENGTHTYPE_NUMBER: Short\n   val SVG_LENGTHTYPE_PERCENTAGE: Short\n   val SVG_LENGTHTYPE_EMS: Short\n   val SVG_LENGTHTYPE_EXS: Short\n   val SVG_LENGTHTYPE_PX: Short\n   val SVG_LENGTHTYPE_CM: Short\n   val SVG_LENGTHTYPE_MM: Short\n   val SVG_LENGTHTYPE_IN: Short\n   val SVG_LENGTHTYPE_PT: Short\n   val SVG_LENGTHTYPE_PC: Short\n   }\n}\n\n/**\n * Exposes the JavaScript [SVGAngle](https://developer.mozilla.org/en/docs/Web/API/SVGAngle) to Kotlin\n */\npublic external abstract class SVGAngle {\n   open val unitType: Short\n   open var value: Float\n   open var valueInSpecifiedUnits: Float\n   open var valueAsString: String\n   fun newValueSpecifiedUnits(unitType: Short, valueInSpecifiedUnits: Float)\n   fun convertToSpecifiedUnits(unitType: Short)\n\n   companion object {\n   val SVG_ANGLETYPE_UNKNOWN: Short\n   val SVG_ANGLETYPE_UNSPECIFIED: Short\n   val SVG_ANGLETYPE_DEG: Short\n   val SVG_ANGLETYPE_RAD: Short\n   val SVG_ANGLETYPE_GRAD: Short\n   }\n}\n\npublic external abstract class SVGNameList {\n   open val length: Int\n   open val numberOfItems: Int\n   fun clear()\n   fun initialize(newItem: dynamic): dynamic\n   fun insertItemBefore(newItem: dynamic, index: Int): dynamic\n   fun replaceItem(newItem: dynamic, index: Int): dynamic\n   fun removeItem(index: Int): dynamic\n   fun appendItem(newItem: dynamic): dynamic\n   fun getItem(index: Int): dynamic\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline operator fun SVGNameList.get(index: Int): dynamic = asDynamic()[index]\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline operator fun SVGNameList.set(index: Int, newItem: dynamic) { asDynamic()[index] = newItem }\n\n/**\n * Exposes the JavaScript [SVGNumberList](https://developer.mozilla.org/en/docs/Web/API/SVGNumberList) to Kotlin\n */\npublic external abstract class SVGNumberList {\n   open val length: Int\n   open val numberOfItems: Int\n   fun clear()\n   fun initialize(newItem: SVGNumber): SVGNumber\n   fun insertItemBefore(newItem: SVGNumber, index: Int): SVGNumber\n   fun replaceItem(newItem: SVGNumber, index: Int): SVGNumber\n   fun removeItem(index: Int): SVGNumber\n   fun appendItem(newItem: SVGNumber): SVGNumber\n   fun getItem(index: Int): SVGNumber\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline operator fun SVGNumberList.get(index: Int): SVGNumber? = asDynamic()[index]\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline operator fun SVGNumberList.set(index: Int, newItem: SVGNumber) { asDynamic()[index] = newItem }\n\n/**\n * Exposes the JavaScript [SVGLengthList](https://developer.mozilla.org/en/docs/Web/API/SVGLengthList) to Kotlin\n */\npublic external abstract class SVGLengthList {\n   open val length: Int\n   open val numberOfItems: Int\n   fun clear()\n   fun initialize(newItem: SVGLength): SVGLength\n   fun insertItemBefore(newItem: SVGLength, index: Int): SVGLength\n   fun replaceItem(newItem: SVGLength, index: Int): SVGLength\n   fun removeItem(index: Int):

SVGLength\n   fun appendItem(newItem: SVGLength): SVGLength\n   fun getItem(index: Int): SVGLength\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline operator fun SVGLengthList.get(index: Int): SVGLength? = asDynamic()[index]\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline operator fun SVGLengthList.set(index: Int, newItem: SVGLength) { asDynamic()[index] = newItem }\n\n/**\n * Exposes the JavaScript [SVGAnimatedBoolean](https://developer.mozilla.org/en/docs/Web/API/SVGAnimatedBoolean) to Kotlin\n */\npublic external abstract class SVGAnimatedBoolean {\n   open var baseVal: Boolean\n   open val animVal: Boolean\n}\n\n/**\n * Exposes the JavaScript [SVGAnimatedEnumeration](https://developer.mozilla.org/en/docs/Web/API/SVGAnimatedEnumeration) to Kotlin\n */\npublic external abstract class SVGAnimatedEnumeration {\n   open var baseVal: Short\n   open val animVal: Short\n}\n\n/**\n * Exposes the JavaScript [SVGAnimatedInteger](https://developer.mozilla.org/en/docs/Web/API/SVGAnimatedInteger) to Kotlin\n */\npublic external abstract class SVGAnimatedInteger {\n   open var baseVal: Int\n   open val animVal: Int\n}\n\n/**\n * Exposes the JavaScript [SVGAnimatedNumber](https://developer.mozilla.org/en/docs/Web/API/SVGAnimatedNumber) to Kotlin\n */\npublic external abstract class SVGAnimatedNumber {\n   open var baseVal: Float\n   open val animVal: Float\n}\n\n/**\n * Exposes the JavaScript [SVGAnimatedLength](https://developer.mozilla.org/en/docs/Web/API/SVGAnimatedLength) to Kotlin\n */\npublic external abstract class SVGAnimatedLength {\n   open val baseVal: SVGLength\n   open val animVal: SVGLength\n}\n\n/**\n * Exposes the JavaScript [SVGAnimatedAngle](https://developer.mozilla.org/en/docs/Web/API/SVGAnimatedAngle) to Kotlin\n */\npublic external abstract class SVGAnimatedAngle {\n   open val baseVal: SVGAngle\n   open val animVal: SVGAngle\n}\n\n/**\n * Exposes the JavaScript [SVGAnimatedString](https://developer.mozilla.org/en/docs/Web/API/SVGAnimatedString) to Kotlin\n */\npublic external abstract class SVGAnimatedString {\n   open var baseVal: String\n   open val animVal: String\n}\n\n/**\n * Exposes the JavaScript [SVGAnimatedRect](https://developer.mozilla.org/en/docs/Web/API/SVGAnimatedRect) to Kotlin\n */\npublic external abstract class SVGAnimatedRect {\n   open val baseVal: DOMRect\n   open val animVal: DOMRectReadOnly\n}\n\n/**\n * Exposes the JavaScript [SVGAnimatedNumberList](https://developer.mozilla.org/en/docs/Web/API/SVGAnimatedNumberList) to Kotlin\n */\npublic external abstract class SVGAnimatedNumberList {\n   open val baseVal: SVGNumberList\n   open val animVal: SVGNumberList\n}\n\n/**\n * Exposes the JavaScript [SVGAnimatedLengthList](https://developer.mozilla.org/en/docs/Web/API/SVGAnimatedLengthList) to Kotlin\n */\npublic external abstract class SVGAnimatedLengthList {\n   open val baseVal: SVGLengthList\n   open val animVal: SVGLengthList\n}\n\n/**\n * Exposes the JavaScript [SVGStringList](https://developer.mozilla.org/en/docs/Web/API/SVGStringList) to Kotlin\n */\npublic external abstract class SVGStringList {\n   open val length: Int\n   open val numberOfItems: Int\n   fun clear()\n   fun initialize(newItem: String): String\n   fun insertItemBefore(newItem: String, index: Int): String\n   fun replaceItem(newItem: String, index: Int): String\n   fun removeItem(index: Int): String\n   fun appendItem(newItem: String): String\n   fun getItem(index: Int): String\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline operator fun SVGStringList.get(index: Int): String? = asDynamic()[index]\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline operator fun SVGStringList.set(index: Int, newItem: String) { asDynamic()[index] = newItem }\n\n/**\n * Exposes the JavaScript [SVGUnitTypes](https://developer.mozilla.org/en/docs/Web/API/SVGUnitTypes) to Kotlin\n */\n@Suppress(\"NESTED_CLASS_IN_EXTERNAL_INTERFACE\")\npublic external interface SVGUnitTypes {\n   companion object {\n   val SVG_UNIT_TYPE_UNKNOWN: Short\n   val

SVG_UNIT_TYPE_USERSPACEONUSE: Short\n   val SVG_UNIT_TYPE_OBJECTBOUNDINGBOX: Short\n   }\n}\n\n/**\n * Exposes the JavaScript [SVGTests](https://developer.mozilla.org/en/docs/Web/API/SVGTests) to Kotlin\n */\npublic external interface SVGTests {\n   val requiredExtensions: SVGStringList\n   val systemLanguage: SVGStringList\n}\n\npublic external interface SVGFitToViewBox {\n   val viewBox: SVGAnimatedRect\n   val preserveAspectRatio: SVGAnimatedPreserveAspectRatio\n}\n\n/**\n * Exposes the JavaScript [SVGZoomAndPan](https://developer.mozilla.org/en/docs/Web/API/SVGZoomAndPan) to Kotlin\n */\n@Suppress(\"NESTED_CLASS_IN_EXTERNAL_INTERFACE\")\npublic external interface SVGZoomAndPan {\n   var zoomAndPan: Short\n\n   companion object {\n   val SVG_ZOOMANDPAN_UNKNOWN: Short\n   val SVG_ZOOMANDPAN_DISABLE: Short\n   val SVG_ZOOMANDPAN_MAGNIFY: Short\n   }\n}\n\n/**\n * Exposes the JavaScript [SVGURIReference](https://developer.mozilla.org/en/docs/Web/API/SVGURIReference) to Kotlin\n */\npublic external interface SVGURIReference {\n   val href: SVGAnimatedString\n}\n\n/**\n * Exposes the JavaScript [SVGSVGElement](https://developer.mozilla.org/en/docs/Web/API/SVGSVGElement) to Kotlin\n */\npublic external abstract class SVGSVGElement : SVGGraphicsElement, SVGFitToViewBox, SVGZoomAndPan, WindowEventHandlers {\n   open val x: SVGAnimatedLength\n   open val y: SVGAnimatedLength\n   open val width: SVGAnimatedLength\n   open val height: SVGAnimatedLength\n   open var currentScale: Float\n   open val currentTranslate: DOMPointReadOnly\n   fun getIntersectionList(rect: DOMRectReadOnly, referenceElement: SVGElement?): NodeList\n   fun getEnclosureList(rect: DOMRectReadOnly, referenceElement: SVGElement?): NodeList\n   fun checkIntersection(element: SVGElement, rect: DOMRectReadOnly): Boolean\n   fun checkEnclosure(element: SVGElement, rect: DOMRectReadOnly): Boolean\n   fun deselectAll()\n   fun createSVGNumber(): SVGNumber\n   fun createSVGLength(): SVGLength\n   fun createSVGAngle(): SVGAngle\n   fun createSVGPoint(): DOMPoint\n   fun createSVGMatrix(): DOMMatrix\n   fun createSVGRect(): DOMRect\n   fun createSVGTransform(): SVGTransform\n   fun createSVGTransformFromMatrix(matrix: DOMMatrixReadOnly): SVGTransform\n   fun getElementById(elementId: String): Element\n   fun suspendRedraw(maxWaitMilliseconds: Int): Int\n   fun unsuspendRedraw(suspendHandleID: Int)\n   fun unsuspendRedrawAll()\n   fun forceRedraw()\n\n   companion object {\n   val SVG_ZOOMANDPAN_UNKNOWN: Short\n   val SVG_ZOOMANDPAN_DISABLE: Short\n   val SVG_ZOOMANDPAN_MAGNIFY: Short\n   val ELEMENT_NODE: Short\n   val ATTRIBUTE_NODE: Short\n   val TEXT_NODE: Short\n   val CDATA_SECTION_NODE: Short\n   val ENTITY_REFERENCE_NODE: Short\n   val ENTITY_NODE: Short\n   val PROCESSING_INSTRUCTION_NODE: Short\n   val COMMENT_NODE: Short\n   val DOCUMENT_NODE: Short\n   val DOCUMENT_TYPE_NODE: Short\n   val DOCUMENT_FRAGMENT_NODE: Short\n   val NOTATION_NODE: Short\n   val DOCUMENT_POSITION_DISCONNECTED: Short\n   val DOCUMENT_POSITION_PRECEDING: Short\n   val DOCUMENT_POSITION_FOLLOWING: Short\n   val DOCUMENT_POSITION_CONTAINS: Short\n   val DOCUMENT_POSITION_CONTAINED_BY: Short\n   val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n   }\n}\n\n/**\n * Exposes the JavaScript [SVGGElement](https://developer.mozilla.org/en/docs/Web/API/SVGGElement) to Kotlin\n */\npublic external abstract class SVGGElement : SVGGraphicsElement {\n   companion object {\n   val ELEMENT_NODE: Short\n   val ATTRIBUTE_NODE: Short\n   val TEXT_NODE: Short\n   val CDATA_SECTION_NODE: Short\n   val ENTITY_REFERENCE_NODE: Short\n   val ENTITY_NODE: Short\n   val PROCESSING_INSTRUCTION_NODE: Short\n   val COMMENT_NODE: Short\n   val DOCUMENT_NODE: Short\n   val DOCUMENT_TYPE_NODE: Short\n   val DOCUMENT_FRAGMENT_NODE: Short\n   val NOTATION_NODE: Short\n   val DOCUMENT_POSITION_DISCONNECTED: Short\n   val DOCUMENT_POSITION_PRECEDING: Short\n   val DOCUMENT_POSITION_FOLLOWING: Short\n   val DOCUMENT_POSITION_CONTAINS: Short\n   val DOCUMENT_POSITION_CONTAINED_BY: Short\n   val

DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n   }\n}\n\npublic external abstract class SVGUnknownElement : SVGGraphicsElement {\n   companion object {\n   val ELEMENT_NODE: Short\n   val ATTRIBUTE_NODE: Short\n   val TEXT_NODE: Short\n   val CDATA_SECTION_NODE: Short\n   val ENTITY_REFERENCE_NODE: Short\n   val ENTITY_NODE: Short\n   val PROCESSING_INSTRUCTION_NODE: Short\n   val COMMENT_NODE: Short\n   val DOCUMENT_NODE: Short\n   val DOCUMENT_TYPE_NODE: Short\n   val DOCUMENT_FRAGMENT_NODE: Short\n   val NOTATION_NODE: Short\n   val DOCUMENT_POSITION_DISCONNECTED: Short\n   val DOCUMENT_POSITION_PRECEDING: Short\n   val DOCUMENT_POSITION_FOLLOWING: Short\n   val DOCUMENT_POSITION_CONTAINS: Short\n   val DOCUMENT_POSITION_CONTAINED_BY: Short\n   val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n   }\n}\n\n/**\n * Exposes the JavaScript [SVGDefsElement](https://developer.mozilla.org/en/docs/Web/API/SVGDefsElement) to Kotlin\n */\npublic external abstract class SVGDefsElement : SVGGraphicsElement {\n   companion object {\n   val ELEMENT_NODE: Short\n   val ATTRIBUTE_NODE: Short\n   val TEXT_NODE: Short\n   val CDATA_SECTION_NODE: Short\n   val ENTITY_REFERENCE_NODE: Short\n   val ENTITY_NODE: Short\n   val PROCESSING_INSTRUCTION_NODE: Short\n   val COMMENT_NODE: Short\n   val DOCUMENT_NODE: Short\n   val DOCUMENT_TYPE_NODE: Short\n   val DOCUMENT_FRAGMENT_NODE: Short\n   val NOTATION_NODE: Short\n   val DOCUMENT_POSITION_DISCONNECTED: Short\n   val DOCUMENT_POSITION_PRECEDING: Short\n   val DOCUMENT_POSITION_FOLLOWING: Short\n   val DOCUMENT_POSITION_CONTAINS: Short\n   val DOCUMENT_POSITION_CONTAINED_BY: Short\n   val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n   }\n}\n\n/**\n * Exposes the JavaScript [SVGDescElement](https://developer.mozilla.org/en/docs/Web/API/SVGDescElement) to Kotlin\n */\npublic external abstract class SVGDescElement : SVGElement {\n   companion object {\n   val ELEMENT_NODE: Short\n   val ATTRIBUTE_NODE: Short\n   val TEXT_NODE: Short\n   val CDATA_SECTION_NODE: Short\n   val ENTITY_REFERENCE_NODE: Short\n   val ENTITY_NODE: Short\n   val PROCESSING_INSTRUCTION_NODE: Short\n   val COMMENT_NODE: Short\n   val DOCUMENT_NODE: Short\n   val DOCUMENT_TYPE_NODE: Short\n   val DOCUMENT_FRAGMENT_NODE: Short\n   val NOTATION_NODE: Short\n   val DOCUMENT_POSITION_DISCONNECTED: Short\n   val DOCUMENT_POSITION_PRECEDING: Short\n   val DOCUMENT_POSITION_FOLLOWING: Short\n   val DOCUMENT_POSITION_CONTAINS: Short\n   val DOCUMENT_POSITION_CONTAINED_BY: Short\n   val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n   }\n}\n\n/**\n * Exposes the JavaScript [SVGMetadataElement](https://developer.mozilla.org/en/docs/Web/API/SVGMetadataElement) to Kotlin\n */\npublic external abstract class SVGMetadataElement : SVGElement {\n   companion object {\n   val ELEMENT_NODE: Short\n   val ATTRIBUTE_NODE: Short\n   val TEXT_NODE: Short\n   val CDATA_SECTION_NODE: Short\n   val ENTITY_REFERENCE_NODE: Short\n   val ENTITY_NODE: Short\n   val PROCESSING_INSTRUCTION_NODE: Short\n   val COMMENT_NODE: Short\n   val DOCUMENT_NODE: Short\n   val DOCUMENT_TYPE_NODE: Short\n   val DOCUMENT_FRAGMENT_NODE: Short\n   val NOTATION_NODE: Short\n   val DOCUMENT_POSITION_DISCONNECTED: Short\n   val DOCUMENT_POSITION_PRECEDING: Short\n   val DOCUMENT_POSITION_FOLLOWING: Short\n   val DOCUMENT_POSITION_CONTAINS: Short\n   val DOCUMENT_POSITION_CONTAINED_BY: Short\n   val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n   }\n}\n\n/**\n * Exposes the JavaScript [SVGTitleElement](https://developer.mozilla.org/en/docs/Web/API/SVGTitleElement) to Kotlin\n */\npublic external abstract class SVGTitleElement : SVGElement {\n   companion object {\n   val ELEMENT_NODE: Short\n   val ATTRIBUTE_NODE: Short\n   val TEXT_NODE: Short\n   val CDATA_SECTION_NODE: Short\n   val ENTITY_REFERENCE_NODE: Short\n   val ENTITY_NODE: Short\n   val

PROCESSING_INSTRUCTION_NODE: Short\n val COMMENT_NODE: Short\n val DOCUMENT_NODE: Short\n val DOCUMENT_TYPE_NODE: Short\n val DOCUMENT_FRAGMENT_NODE: Short\n val NOTATION_NODE: Short\n val DOCUMENT_POSITION_DISCONNECTED: Short\n val DOCUMENT_POSITION_PRECEDING: Short\n val DOCUMENT_POSITION_FOLLOWING: Short\n val DOCUMENT_POSITION_CONTAINS: Short\n val DOCUMENT_POSITION_CONTAINED_BY: Short\n val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n }\n}\n\n/**\n * Exposes the JavaScript [SVGSymbolElement](https://developer.mozilla.org/en/docs/Web/API/SVGSymbolElement) to Kotlin\n */\npublic external abstract class SVGSymbolElement : SVGGraphicsElement, SVGFitToViewBox {\n companion object {\n val ELEMENT_NODE: Short\n val ATTRIBUTE_NODE: Short\n val TEXT_NODE: Short\n val CDATA_SECTION_NODE: Short\n val ENTITY_REFERENCE_NODE: Short\n val ENTITY_NODE: Short\n val PROCESSING_INSTRUCTION_NODE: Short\n val COMMENT_NODE: Short\n val DOCUMENT_NODE: Short\n val DOCUMENT_TYPE_NODE: Short\n val DOCUMENT_FRAGMENT_NODE: Short\n val NOTATION_NODE: Short\n val DOCUMENT_POSITION_DISCONNECTED: Short\n val DOCUMENT_POSITION_PRECEDING: Short\n val DOCUMENT_POSITION_FOLLOWING: Short\n val DOCUMENT_POSITION_CONTAINS: Short\n val DOCUMENT_POSITION_CONTAINED_BY: Short\n val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n }\n}\n\n/**\n * Exposes the JavaScript [SVGUseElement](https://developer.mozilla.org/en/docs/Web/API/SVGUseElement) to Kotlin\n */\npublic external abstract class SVGUseElement : SVGGraphicsElement, SVGURIReference {\n open val x: SVGAnimatedLength\n open val y: SVGAnimatedLength\n open val width: SVGAnimatedLength\n open val height: SVGAnimatedLength\n open val instanceRoot: SVGElement?\n open val animatedInstanceRoot: SVGElement?\n\n companion object {\n val ELEMENT_NODE: Short\n val ATTRIBUTE_NODE: Short\n val TEXT_NODE: Short\n val CDATA_SECTION_NODE: Short\n val ENTITY_REFERENCE_NODE: Short\n val ENTITY_NODE: Short\n val PROCESSING_INSTRUCTION_NODE: Short\n val COMMENT_NODE: Short\n val DOCUMENT_NODE: Short\n val DOCUMENT_TYPE_NODE: Short\n val DOCUMENT_FRAGMENT_NODE: Short\n val NOTATION_NODE: Short\n val DOCUMENT_POSITION_DISCONNECTED: Short\n val DOCUMENT_POSITION_PRECEDING: Short\n val DOCUMENT_POSITION_FOLLOWING: Short\n val DOCUMENT_POSITION_CONTAINS: Short\n val DOCUMENT_POSITION_CONTAINED_BY: Short\n val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n }\n}\n\npublic external open class SVGUseElementShadowRoot : ShadowRoot {\n companion object {\n val ELEMENT_NODE: Short\n val ATTRIBUTE_NODE: Short\n val TEXT_NODE: Short\n val CDATA_SECTION_NODE: Short\n val ENTITY_REFERENCE_NODE: Short\n val ENTITY_NODE: Short\n val PROCESSING_INSTRUCTION_NODE: Short\n val COMMENT_NODE: Short\n val DOCUMENT_NODE: Short\n val DOCUMENT_TYPE_NODE: Short\n val DOCUMENT_FRAGMENT_NODE: Short\n val NOTATION_NODE: Short\n val DOCUMENT_POSITION_DISCONNECTED: Short\n val DOCUMENT_POSITION_PRECEDING: Short\n val DOCUMENT_POSITION_FOLLOWING: Short\n val DOCUMENT_POSITION_CONTAINS: Short\n val DOCUMENT_POSITION_CONTAINED_BY: Short\n val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n }\n}\n\npublic external interface SVGElementInstance {\n val correspondingElement: SVGElement?\n get() = definedExternally\n val correspondingUseElement: SVGUseElement?\n get() = definedExternally\n}\n\npublic external open class ShadowAnimation(source: dynamic, newTarget: dynamic) {\n open val sourceAnimation: dynamic\n}\n\n/**\n * Exposes the JavaScript [SVGSwitchElement](https://developer.mozilla.org/en/docs/Web/API/SVGSwitchElement) to Kotlin\n */\npublic external abstract class SVGSwitchElement : SVGGraphicsElement {\n companion object {\n val ELEMENT_NODE: Short\n val ATTRIBUTE_NODE: Short\n val TEXT_NODE: Short\n val CDATA_SECTION_NODE: Short\n   val ENTITY_REFERENCE_NODE: Short\n   val ENTITY_NODE: Short\n   val PROCESSING_INSTRUCTION_NODE: Short\n   val COMMENT_NODE: Short\n   val DOCUMENT_NODE: Short\n   val DOCUMENT_TYPE_NODE: Short\n   val DOCUMENT_FRAGMENT_NODE: Short\n   val NOTATION_NODE: Short\n   val DOCUMENT_POSITION_DISCONNECTED: Short\n   val DOCUMENT_POSITION_PRECEDING: Short\n   val DOCUMENT_POSITION_FOLLOWING: Short\n   val DOCUMENT_POSITION_CONTAINS: Short\n   val DOCUMENT_POSITION_CONTAINED_BY: Short\n   val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n   }\n}\n\npublic external interface GetSVGDocument {\n   fun getSVGDocument(): Document\n}\n\n/**\n * Exposes the JavaScript [SVGStyleElement](https://developer.mozilla.org/en/docs/Web/API/SVGStyleElement) to Kotlin\n */\npublic external abstract class SVGStyleElement : SVGElement, LinkStyle {\n   open var type: String\n   open var media: String\n   open var title: String\n\n   companion object {\n   val ELEMENT_NODE: Short\n   val ATTRIBUTE_NODE: Short\n   val TEXT_NODE: Short\n   val CDATA_SECTION_NODE: Short\n   val ENTITY_REFERENCE_NODE: Short\n   val ENTITY_NODE: Short\n   val PROCESSING_INSTRUCTION_NODE: Short\n   val COMMENT_NODE: Short\n   val DOCUMENT_NODE: Short\n   val DOCUMENT_TYPE_NODE: Short\n   val DOCUMENT_FRAGMENT_NODE: Short\n   val NOTATION_NODE: Short\n   val DOCUMENT_POSITION_DISCONNECTED: Short\n   val DOCUMENT_POSITION_PRECEDING: Short\n   val DOCUMENT_POSITION_FOLLOWING: Short\n   val DOCUMENT_POSITION_CONTAINS: Short\n   val DOCUMENT_POSITION_CONTAINED_BY: Short\n   val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n   }\n}\n\n/**\n * Exposes the JavaScript [SVGTransform](https://developer.mozilla.org/en/docs/Web/API/SVGTransform) to Kotlin\n */\npublic external abstract class SVGTransform {\n   open val type: Short\n   open val matrix: DOMMatrix\n   open val angle: Float\n   fun setMatrix(matrix: DOMMatrixReadOnly)\n   fun setTranslate(tx: Float, ty: Float)\n   fun setScale(sx: Float, sy: Float)\n   fun setRotate(angle: Float, cx: Float, cy: Float)\n   fun setSkewX(angle: Float)\n   fun setSkewY(angle: Float)\n\n   companion object {\n   val SVG_TRANSFORM_UNKNOWN: Short\n   val SVG_TRANSFORM_MATRIX: Short\n   val SVG_TRANSFORM_TRANSLATE: Short\n   val SVG_TRANSFORM_SCALE: Short\n   val SVG_TRANSFORM_ROTATE: Short\n   val SVG_TRANSFORM_SKEWX: Short\n   val SVG_TRANSFORM_SKEWY: Short\n   }\n}\n\n/**\n * Exposes the JavaScript [SVGTransformList](https://developer.mozilla.org/en/docs/Web/API/SVGTransformList) to Kotlin\n */\npublic external abstract class SVGTransformList {\n   open val length: Int\n   open val numberOfItems: Int\n   fun clear()\n   fun initialize(newItem: SVGTransform): SVGTransform\n   fun insertItemBefore(newItem: SVGTransform, index: Int): SVGTransform\n   fun replaceItem(newItem: SVGTransform, index: Int): SVGTransform\n   fun removeItem(index: Int): SVGTransform\n   fun appendItem(newItem: SVGTransform): SVGTransform\n   fun createSVGTransformFromMatrix(matrix: DOMMatrixReadOnly): SVGTransform\n   fun consolidate(): SVGTransform?\n   fun getItem(index: Int): SVGTransform\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline operator fun SVGTransformList.get(index: Int): SVGTransform? = asDynamic()[index]\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline operator fun SVGTransformList.set(index: Int, newItem: SVGTransform) { asDynamic()[index] = newItem }\n\n/**\n * Exposes the JavaScript [SVGAnimatedTransformList](https://developer.mozilla.org/en/docs/Web/API/SVGAnimatedTransformList) to Kotlin\n */\npublic external abstract class SVGAnimatedTransformList {\n   open val baseVal: SVGTransformList\n   open val animVal: SVGTransformList\n}\n\n/**\n * Exposes the JavaScript [SVGPreserveAspectRatio](https://developer.mozilla.org/en/docs/Web/API/SVGPreserveAspectRatio) to Kotlin\n */\npublic external abstract class SVGPreserveAspectRatio {\n   open var align: Short\n   open var meetOrSlice: Short\n\n   companion object {\n   val SVG_PRESERVEASPECTRATIO_UNKNOWN: Short\n   val SVG_PRESERVEASPECTRATIO_NONE: Short\n   val SVG_PRESERVEASPECTRATIO_XMINYMIN:

Short\n   val SVG_PRESERVEASPECTRATIO_XMIDYMIN: Short\n   val SVG_PRESERVEASPECTRATIO_XMAXYMIN: Short\n   val SVG_PRESERVEASPECTRATIO_XMINYMID: Short\n   val SVG_PRESERVEASPECTRATIO_XMIDYMID: Short\n   val SVG_PRESERVEASPECTRATIO_XMAXYMID: Short\n   val SVG_PRESERVEASPECTRATIO_XMINYMAX: Short\n   val SVG_PRESERVEASPECTRATIO_XMIDYMAX: Short\n   val SVG_PRESERVEASPECTRATIO_XMAXYMAX: Short\n   val SVG_MEETORSLICE_UNKNOWN: Short\n   val SVG_MEETORSLICE_MEET: Short\n   val SVG_MEETORSLICE_SLICE: Short\n   }\n}\n\n/**\n * Exposes the JavaScript [SVGAnimatedPreserveAspectRatio](https://developer.mozilla.org/en/docs/Web/API/SVGAnimatedPreserveAspectRatio) to Kotlin\n */\npublic external abstract class SVGAnimatedPreserveAspectRatio {\n   open val baseVal: SVGPreserveAspectRatio\n   open val animVal: SVGPreserveAspectRatio\n}\n\n/**\n * Exposes the JavaScript [SVGPathElement](https://developer.mozilla.org/en/docs/Web/API/SVGPathElement) to Kotlin\n */\npublic external abstract class SVGPathElement : SVGGeometryElement {\n   companion object {\n   val ELEMENT_NODE: Short\n   val ATTRIBUTE_NODE: Short\n   val TEXT_NODE: Short\n   val CDATA_SECTION_NODE: Short\n   val ENTITY_REFERENCE_NODE: Short\n   val ENTITY_NODE: Short\n   val PROCESSING_INSTRUCTION_NODE: Short\n   val COMMENT_NODE: Short\n   val DOCUMENT_NODE: Short\n   val DOCUMENT_TYPE_NODE: Short\n   val DOCUMENT_FRAGMENT_NODE: Short\n   val NOTATION_NODE: Short\n   val DOCUMENT_POSITION_DISCONNECTED: Short\n   val DOCUMENT_POSITION_PRECEDING: Short\n   val DOCUMENT_POSITION_FOLLOWING: Short\n   val DOCUMENT_POSITION_CONTAINS: Short\n   val DOCUMENT_POSITION_CONTAINED_BY: Short\n   val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n   }\n}\n\n/**\n * Exposes the JavaScript [SVGRectElement](https://developer.mozilla.org/en/docs/Web/API/SVGRectElement) to Kotlin\n */\npublic external abstract class SVGRectElement : SVGGeometryElement {\n   open val x: SVGAnimatedLength\n   open val y: SVGAnimatedLength\n   open val width: SVGAnimatedLength\n   open val height: SVGAnimatedLength\n   open val rx: SVGAnimatedLength\n   open val ry: SVGAnimatedLength\n\n   companion object {\n   val ELEMENT_NODE: Short\n   val ATTRIBUTE_NODE: Short\n   val TEXT_NODE: Short\n   val CDATA_SECTION_NODE: Short\n   val ENTITY_REFERENCE_NODE: Short\n   val ENTITY_NODE: Short\n   val PROCESSING_INSTRUCTION_NODE: Short\n   val COMMENT_NODE: Short\n   val DOCUMENT_NODE: Short\n   val DOCUMENT_TYPE_NODE: Short\n   val DOCUMENT_FRAGMENT_NODE: Short\n   val NOTATION_NODE: Short\n   val DOCUMENT_POSITION_DISCONNECTED: Short\n   val DOCUMENT_POSITION_PRECEDING: Short\n   val DOCUMENT_POSITION_FOLLOWING: Short\n   val DOCUMENT_POSITION_CONTAINS: Short\n   val DOCUMENT_POSITION_CONTAINED_BY: Short\n   val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n   }\n}\n\n/**\n * Exposes the JavaScript [SVGCircleElement](https://developer.mozilla.org/en/docs/Web/API/SVGCircleElement) to Kotlin\n */\npublic external abstract class SVGCircleElement : SVGGeometryElement {\n   open val cx: SVGAnimatedLength\n   open val cy: SVGAnimatedLength\n   open val r: SVGAnimatedLength\n\n   companion object {\n   val ELEMENT_NODE: Short\n   val ATTRIBUTE_NODE: Short\n   val TEXT_NODE: Short\n   val CDATA_SECTION_NODE: Short\n   val ENTITY_REFERENCE_NODE: Short\n   val ENTITY_NODE: Short\n   val PROCESSING_INSTRUCTION_NODE: Short\n   val COMMENT_NODE: Short\n   val DOCUMENT_NODE: Short\n   val DOCUMENT_TYPE_NODE: Short\n   val DOCUMENT_FRAGMENT_NODE: Short\n   val NOTATION_NODE: Short\n   val DOCUMENT_POSITION_DISCONNECTED: Short\n   val DOCUMENT_POSITION_PRECEDING: Short\n   val DOCUMENT_POSITION_FOLLOWING: Short\n   val DOCUMENT_POSITION_CONTAINS: Short\n   val DOCUMENT_POSITION_CONTAINED_BY: Short\n   val

DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n   }\n}\n\n/**\n * Exposes the JavaScript [SVGEllipseElement](https://developer.mozilla.org/en/docs/Web/API/SVGEllipseElement) to Kotlin\n */\npublic external abstract class SVGEllipseElement : SVGGeometryElement {\n   open val cx: SVGAnimatedLength\n   open val cy: SVGAnimatedLength\n   open val rx: SVGAnimatedLength\n   open val ry: SVGAnimatedLength\n\n   companion object {\n   val ELEMENT_NODE: Short\n   val ATTRIBUTE_NODE: Short\n   val TEXT_NODE: Short\n   val CDATA_SECTION_NODE: Short\n   val ENTITY_REFERENCE_NODE: Short\n   val ENTITY_NODE: Short\n   val PROCESSING_INSTRUCTION_NODE: Short\n   val COMMENT_NODE: Short\n   val DOCUMENT_NODE: Short\n   val DOCUMENT_TYPE_NODE: Short\n   val DOCUMENT_FRAGMENT_NODE: Short\n   val NOTATION_NODE: Short\n   val DOCUMENT_POSITION_DISCONNECTED: Short\n   val DOCUMENT_POSITION_PRECEDING: Short\n   val DOCUMENT_POSITION_FOLLOWING: Short\n   val DOCUMENT_POSITION_CONTAINS: Short\n   val DOCUMENT_POSITION_CONTAINED_BY: Short\n   val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n   }\n}\n\n/**\n * Exposes the JavaScript [SVGLineElement](https://developer.mozilla.org/en/docs/Web/API/SVGLineElement) to Kotlin\n */\npublic external abstract class SVGLineElement : SVGGeometryElement {\n   open val x1: SVGAnimatedLength\n   open val y1: SVGAnimatedLength\n   open val x2: SVGAnimatedLength\n   open val y2: SVGAnimatedLength\n\n   companion object {\n   val ELEMENT_NODE: Short\n   val ATTRIBUTE_NODE: Short\n   val TEXT_NODE: Short\n   val CDATA_SECTION_NODE: Short\n   val ENTITY_REFERENCE_NODE: Short\n   val ENTITY_NODE: Short\n   val PROCESSING_INSTRUCTION_NODE: Short\n   val COMMENT_NODE: Short\n   val DOCUMENT_NODE: Short\n   val DOCUMENT_TYPE_NODE: Short\n   val DOCUMENT_FRAGMENT_NODE: Short\n   val NOTATION_NODE: Short\n   val DOCUMENT_POSITION_DISCONNECTED: Short\n   val DOCUMENT_POSITION_PRECEDING: Short\n   val DOCUMENT_POSITION_FOLLOWING: Short\n   val DOCUMENT_POSITION_CONTAINS: Short\n   val DOCUMENT_POSITION_CONTAINED_BY: Short\n   val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n   }\n}\n\n/**\n * Exposes the JavaScript [SVGMeshElement](https://developer.mozilla.org/en/docs/Web/API/SVGMeshElement) to Kotlin\n */\npublic external abstract class SVGMeshElement : SVGGeometryElement, SVGURIReference {\n   companion object {\n   val ELEMENT_NODE: Short\n   val ATTRIBUTE_NODE: Short\n   val TEXT_NODE: Short\n   val CDATA_SECTION_NODE: Short\n   val ENTITY_REFERENCE_NODE: Short\n   val ENTITY_NODE: Short\n   val PROCESSING_INSTRUCTION_NODE: Short\n   val COMMENT_NODE: Short\n   val DOCUMENT_NODE: Short\n   val DOCUMENT_TYPE_NODE: Short\n   val DOCUMENT_FRAGMENT_NODE: Short\n   val NOTATION_NODE: Short\n   val DOCUMENT_POSITION_DISCONNECTED: Short\n   val DOCUMENT_POSITION_PRECEDING: Short\n   val DOCUMENT_POSITION_FOLLOWING: Short\n   val DOCUMENT_POSITION_CONTAINS: Short\n   val DOCUMENT_POSITION_CONTAINED_BY: Short\n   val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n   }\n}\n\n/**\n * Exposes the JavaScript [SVGAnimatedPoints](https://developer.mozilla.org/en/docs/Web/API/SVGAnimatedPoints) to Kotlin\n */\npublic external interface SVGAnimatedPoints {\n   val points: SVGPointList\n   val animatedPoints: SVGPointList\n}\n\npublic external abstract class SVGPointList {\n   open val length: Int\n   open val numberOfItems: Int\n   fun clear()\n   fun initialize(newItem: DOMPoint): DOMPoint\n   fun insertItemBefore(newItem: DOMPoint, index: Int): DOMPoint\n   fun replaceItem(newItem: DOMPoint, index: Int): DOMPoint\n   fun removeItem(index: Int): DOMPoint\n   fun appendItem(newItem: DOMPoint): DOMPoint\n   fun getItem(index: Int): DOMPoint\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline operator fun SVGPointList.get(index: Int): DOMPoint? = asDynamic()[index]\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline operator fun SVGPointList.set(index: Int, newItem: DOMPoint) { asDynamic()[index] = newItem }\n\n/**\n * Exposes the JavaScript [SVGPolylineElement](https://developer.mozilla.org/en/docs/Web/API/SVGPolylineElement) to Kotlin\n

*/\npublic external abstract class SVGPolylineElement : SVGGeometryElement, SVGAnimatedPoints {\n companion object {\n val ELEMENT_NODE: Short\n val ATTRIBUTE_NODE: Short\n val TEXT_NODE: Short\n val CDATA_SECTION_NODE: Short\n val ENTITY_REFERENCE_NODE: Short\n val ENTITY_NODE: Short\n val PROCESSING_INSTRUCTION_NODE: Short\n val COMMENT_NODE: Short\n val DOCUMENT_NODE: Short\n val DOCUMENT_TYPE_NODE: Short\n val DOCUMENT_FRAGMENT_NODE: Short\n val NOTATION_NODE: Short\n val DOCUMENT_POSITION_DISCONNECTED: Short\n val DOCUMENT_POSITION_PRECEDING: Short\n val DOCUMENT_POSITION_FOLLOWING: Short\n val DOCUMENT_POSITION_CONTAINS: Short\n val DOCUMENT_POSITION_CONTAINED_BY: Short\n val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n }\n}\n\n/**\n * Exposes the JavaScript [SVGPolygonElement](https://developer.mozilla.org/en/docs/Web/API/SVGPolygonElement) to Kotlin\n */\npublic external abstract class SVGPolygonElement : SVGGeometryElement, SVGAnimatedPoints {\n companion object {\n val ELEMENT_NODE: Short\n val ATTRIBUTE_NODE: Short\n val TEXT_NODE: Short\n val CDATA_SECTION_NODE: Short\n val ENTITY_REFERENCE_NODE: Short\n val ENTITY_NODE: Short\n val PROCESSING_INSTRUCTION_NODE: Short\n val COMMENT_NODE: Short\n val DOCUMENT_NODE: Short\n val DOCUMENT_TYPE_NODE: Short\n val DOCUMENT_FRAGMENT_NODE: Short\n val NOTATION_NODE: Short\n val DOCUMENT_POSITION_DISCONNECTED: Short\n val DOCUMENT_POSITION_PRECEDING: Short\n val DOCUMENT_POSITION_FOLLOWING: Short\n val DOCUMENT_POSITION_CONTAINS: Short\n val DOCUMENT_POSITION_CONTAINED_BY: Short\n val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n }\n}\n\n/**\n * Exposes the JavaScript [SVGTextContentElement](https://developer.mozilla.org/en/docs/Web/API/SVGTextContentElement) to Kotlin\n */\npublic external abstract class SVGTextContentElement : SVGGraphicsElement {\n open val textLength: SVGAnimatedLength\n open val lengthAdjust: SVGAnimatedEnumeration\n fun getNumberOfChars(): Int\n fun getComputedTextLength(): Float\n fun getSubStringLength(charnum: Int, nchars: Int): Float\n fun getStartPositionOfChar(charnum: Int): DOMPoint\n fun getEndPositionOfChar(charnum: Int): DOMPoint\n fun getExtentOfChar(charnum: Int): DOMRect\n fun getRotationOfChar(charnum: Int): Float\n fun getCharNumAtPosition(point: DOMPoint): Int\n fun selectSubString(charnum: Int, nchars: Int)\n\n companion object {\n val LENGTHADJUST_UNKNOWN: Short\n val LENGTHADJUST_SPACING: Short\n val LENGTHADJUST_SPACINGANDGLYPHS: Short\n val ELEMENT_NODE: Short\n val ATTRIBUTE_NODE: Short\n val TEXT_NODE: Short\n val CDATA_SECTION_NODE: Short\n val ENTITY_REFERENCE_NODE: Short\n val ENTITY_NODE: Short\n val PROCESSING_INSTRUCTION_NODE: Short\n val COMMENT_NODE: Short\n val DOCUMENT_NODE: Short\n val DOCUMENT_TYPE_NODE: Short\n val DOCUMENT_FRAGMENT_NODE: Short\n val NOTATION_NODE: Short\n val DOCUMENT_POSITION_DISCONNECTED: Short\n val DOCUMENT_POSITION_PRECEDING: Short\n val DOCUMENT_POSITION_FOLLOWING: Short\n val DOCUMENT_POSITION_CONTAINS: Short\n val DOCUMENT_POSITION_CONTAINED_BY: Short\n val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n }\n}\n\n/**\n * Exposes the JavaScript [SVGTextPositioningElement](https://developer.mozilla.org/en/docs/Web/API/SVGTextPositioningElement) to Kotlin\n */\npublic external abstract class SVGTextPositioningElement : SVGTextContentElement {\n open val x: SVGAnimatedLengthList\n open val y: SVGAnimatedLengthList\n open val dx: SVGAnimatedLengthList\n open val dy: SVGAnimatedLengthList\n open val rotate: SVGAnimatedNumberList\n\n companion object {\n val LENGTHADJUST_UNKNOWN: Short\n val LENGTHADJUST_SPACING: Short\n val LENGTHADJUST_SPACINGANDGLYPHS: Short\n val ELEMENT_NODE: Short\n val ATTRIBUTE_NODE: Short\n val TEXT_NODE: Short\n val CDATA_SECTION_NODE: Short\n val ENTITY_REFERENCE_NODE: Short\n val ENTITY_NODE: Short\n val PROCESSING_INSTRUCTION_NODE: Short\n val COMMENT_NODE: Short\n val

DOCUMENT_NODE: Short\n val DOCUMENT_TYPE_NODE: Short\n val DOCUMENT_FRAGMENT_NODE: Short\n val NOTATION_NODE: Short\n val DOCUMENT_POSITION_DISCONNECTED: Short\n val DOCUMENT_POSITION_PRECEDING: Short\n val DOCUMENT_POSITION_FOLLOWING: Short\n val DOCUMENT_POSITION_CONTAINS: Short\n val DOCUMENT_POSITION_CONTAINED_BY: Short\n val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n }\n}\n\n/**\n * Exposes the JavaScript [SVGTextElement](https://developer.mozilla.org/en/docs/Web/API/SVGTextElement) to Kotlin\n */\npublic external abstract class SVGTextElement : SVGTextPositioningElement {\n companion object {\n val LENGTHADJUST_UNKNOWN: Short\n val LENGTHADJUST_SPACING: Short\n val LENGTHADJUST_SPACINGANDGLYPHS: Short\n val ELEMENT_NODE: Short\n val ATTRIBUTE_NODE: Short\n val TEXT_NODE: Short\n val CDATA_SECTION_NODE: Short\n val ENTITY_REFERENCE_NODE: Short\n val ENTITY_NODE: Short\n val PROCESSING_INSTRUCTION_NODE: Short\n val COMMENT_NODE: Short\n val DOCUMENT_NODE: Short\n val DOCUMENT_TYPE_NODE: Short\n val DOCUMENT_FRAGMENT_NODE: Short\n val NOTATION_NODE: Short\n val DOCUMENT_POSITION_DISCONNECTED: Short\n val DOCUMENT_POSITION_PRECEDING: Short\n val DOCUMENT_POSITION_FOLLOWING: Short\n val DOCUMENT_POSITION_CONTAINS: Short\n val DOCUMENT_POSITION_CONTAINED_BY: Short\n val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n }\n}\n\n/**\n * Exposes the JavaScript [SVGTSpanElement](https://developer.mozilla.org/en/docs/Web/API/SVGTSpanElement) to Kotlin\n */\npublic external abstract class SVGTSpanElement : SVGTextPositioningElement {\n companion object {\n val LENGTHADJUST_UNKNOWN: Short\n val LENGTHADJUST_SPACING: Short\n val LENGTHADJUST_SPACINGANDGLYPHS: Short\n val ELEMENT_NODE: Short\n val ATTRIBUTE_NODE: Short\n val TEXT_NODE: Short\n val CDATA_SECTION_NODE: Short\n val ENTITY_REFERENCE_NODE: Short\n val ENTITY_NODE: Short\n val PROCESSING_INSTRUCTION_NODE: Short\n val COMMENT_NODE: Short\n val DOCUMENT_NODE: Short\n val DOCUMENT_TYPE_NODE: Short\n val DOCUMENT_FRAGMENT_NODE: Short\n val NOTATION_NODE: Short\n val DOCUMENT_POSITION_DISCONNECTED: Short\n val DOCUMENT_POSITION_PRECEDING: Short\n val DOCUMENT_POSITION_FOLLOWING: Short\n val DOCUMENT_POSITION_CONTAINS: Short\n val DOCUMENT_POSITION_CONTAINED_BY: Short\n val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n }\n}\n\n/**\n * Exposes the JavaScript [SVGTextPathElement](https://developer.mozilla.org/en/docs/Web/API/SVGTextPathElement) to Kotlin\n */\npublic external abstract class SVGTextPathElement : SVGTextContentElement, SVGURIReference {\n open val startOffset: SVGAnimatedLength\n open val method: SVGAnimatedEnumeration\n open val spacing: SVGAnimatedEnumeration\n\n companion object {\n val TEXTPATH_METHODTYPE_UNKNOWN: Short\n val TEXTPATH_METHODTYPE_ALIGN: Short\n val TEXTPATH_METHODTYPE_STRETCH: Short\n val TEXTPATH_SPACINGTYPE_UNKNOWN: Short\n val TEXTPATH_SPACINGTYPE_AUTO: Short\n val TEXTPATH_SPACINGTYPE_EXACT: Short\n val LENGTHADJUST_UNKNOWN: Short\n val LENGTHADJUST_SPACING: Short\n val LENGTHADJUST_SPACINGANDGLYPHS: Short\n val ELEMENT_NODE: Short\n val ATTRIBUTE_NODE: Short\n val TEXT_NODE: Short\n val CDATA_SECTION_NODE: Short\n val ENTITY_REFERENCE_NODE: Short\n val ENTITY_NODE: Short\n val PROCESSING_INSTRUCTION_NODE: Short\n val COMMENT_NODE: Short\n val DOCUMENT_NODE: Short\n val DOCUMENT_TYPE_NODE: Short\n val DOCUMENT_FRAGMENT_NODE: Short\n val NOTATION_NODE: Short\n val DOCUMENT_POSITION_DISCONNECTED: Short\n val DOCUMENT_POSITION_PRECEDING: Short\n val DOCUMENT_POSITION_FOLLOWING: Short\n val DOCUMENT_POSITION_CONTAINS: Short\n val DOCUMENT_POSITION_CONTAINED_BY: Short\n   val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n   }\n}\n\n/**\n * Exposes the JavaScript [SVGImageElement](https://developer.mozilla.org/en/docs/Web/API/SVGImageElement) to Kotlin\n */\npublic external abstract class SVGImageElement : SVGGraphicsElement, SVGURIReference, HTMLOrSVGImageElement {\n   open val x: SVGAnimatedLength\n   open val y: SVGAnimatedLength\n   open val width: SVGAnimatedLength\n   open val height: SVGAnimatedLength\n   open val preserveAspectRatio: SVGAnimatedPreserveAspectRatio\n   open var crossOrigin: String?\n\n   companion object {\n   val ELEMENT_NODE: Short\n   val ATTRIBUTE_NODE: Short\n   val TEXT_NODE: Short\n   val CDATA_SECTION_NODE: Short\n   val ENTITY_REFERENCE_NODE: Short\n   val ENTITY_NODE: Short\n   val PROCESSING_INSTRUCTION_NODE: Short\n   val COMMENT_NODE: Short\n   val DOCUMENT_NODE: Short\n   val DOCUMENT_TYPE_NODE: Short\n   val DOCUMENT_FRAGMENT_NODE: Short\n   val NOTATION_NODE: Short\n   val DOCUMENT_POSITION_DISCONNECTED: Short\n   val DOCUMENT_POSITION_PRECEDING: Short\n   val DOCUMENT_POSITION_FOLLOWING: Short\n   val DOCUMENT_POSITION_CONTAINS: Short\n   val DOCUMENT_POSITION_CONTAINED_BY: Short\n   val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n   }\n}\n\n/**\n * Exposes the JavaScript [SVGForeignObjectElement](https://developer.mozilla.org/en/docs/Web/API/SVGForeignObjectElement) to Kotlin\n */\npublic external abstract class SVGForeignObjectElement : SVGGraphicsElement {\n   open val x: SVGAnimatedLength\n   open val y: SVGAnimatedLength\n   open val width: SVGAnimatedLength\n   open val height: SVGAnimatedLength\n\n   companion object {\n   val ELEMENT_NODE: Short\n   val ATTRIBUTE_NODE: Short\n   val TEXT_NODE: Short\n   val CDATA_SECTION_NODE: Short\n   val ENTITY_REFERENCE_NODE: Short\n   val ENTITY_NODE: Short\n   val PROCESSING_INSTRUCTION_NODE: Short\n   val COMMENT_NODE: Short\n   val DOCUMENT_NODE: Short\n   val DOCUMENT_TYPE_NODE: Short\n   val DOCUMENT_FRAGMENT_NODE: Short\n   val NOTATION_NODE: Short\n   val DOCUMENT_POSITION_DISCONNECTED: Short\n   val DOCUMENT_POSITION_PRECEDING: Short\n   val DOCUMENT_POSITION_FOLLOWING: Short\n   val DOCUMENT_POSITION_CONTAINS: Short\n   val DOCUMENT_POSITION_CONTAINED_BY: Short\n   val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n   }\n}\n\npublic external abstract class SVGMarkerElement : SVGElement, SVGFitToViewBox {\n   open val refX: SVGAnimatedLength\n   open val refY: SVGAnimatedLength\n   open val markerUnits: SVGAnimatedEnumeration\n   open val markerWidth: SVGAnimatedLength\n   open val markerHeight: SVGAnimatedLength\n   open val orientType: SVGAnimatedEnumeration\n   open val orientAngle: SVGAnimatedAngle\n   open var orient: String\n   fun setOrientToAuto()\n   fun setOrientToAngle(angle: SVGAngle)\n\n   companion object {\n   val SVG_MARKERUNITS_UNKNOWN: Short\n   val SVG_MARKERUNITS_USERSPACEONUSE: Short\n   val SVG_MARKERUNITS_STROKEWIDTH: Short\n   val SVG_MARKER_ORIENT_UNKNOWN: Short\n   val SVG_MARKER_ORIENT_AUTO: Short\n   val SVG_MARKER_ORIENT_ANGLE: Short\n   val ELEMENT_NODE: Short\n   val ATTRIBUTE_NODE: Short\n   val TEXT_NODE: Short\n   val CDATA_SECTION_NODE: Short\n   val ENTITY_REFERENCE_NODE: Short\n   val ENTITY_NODE: Short\n   val PROCESSING_INSTRUCTION_NODE: Short\n   val COMMENT_NODE: Short\n   val DOCUMENT_NODE: Short\n   val DOCUMENT_TYPE_NODE: Short\n   val DOCUMENT_FRAGMENT_NODE: Short\n   val NOTATION_NODE: Short\n   val DOCUMENT_POSITION_DISCONNECTED: Short\n   val DOCUMENT_POSITION_PRECEDING: Short\n   val DOCUMENT_POSITION_FOLLOWING: Short\n   val DOCUMENT_POSITION_CONTAINS: Short\n   val DOCUMENT_POSITION_CONTAINED_BY: Short\n   val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n   }\n}\n\n/**\n * Exposes the JavaScript [SVGSolidcolorElement](https://developer.mozilla.org/en/docs/Web/API/SVGSolidcolorElement) to Kotlin\n */\npublic external abstract class SVGSolidcolorElement : SVGElement {\n   companion object {\n   val

ELEMENT_NODE: Short\n   val ATTRIBUTE_NODE: Short\n   val TEXT_NODE: Short\n   val CDATA_SECTION_NODE: Short\n   val ENTITY_REFERENCE_NODE: Short\n   val ENTITY_NODE: Short\n   val PROCESSING_INSTRUCTION_NODE: Short\n   val COMMENT_NODE: Short\n   val DOCUMENT_NODE: Short\n   val DOCUMENT_TYPE_NODE: Short\n   val DOCUMENT_FRAGMENT_NODE: Short\n   val NOTATION_NODE: Short\n   val DOCUMENT_POSITION_DISCONNECTED: Short\n   val DOCUMENT_POSITION_PRECEDING: Short\n   val DOCUMENT_POSITION_FOLLOWING: Short\n   val DOCUMENT_POSITION_CONTAINS: Short\n   val DOCUMENT_POSITION_CONTAINED_BY: Short\n   val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n }\n}\n\n/**\n * Exposes the JavaScript [SVGGradientElement](https://developer.mozilla.org/en/docs/Web/API/SVGGradientElement) to Kotlin\n */\npublic external abstract class SVGGradientElement : SVGElement, SVGURIReference, SVGUnitTypes {\n open val gradientUnits: SVGAnimatedEnumeration\n open val gradientTransform: SVGAnimatedTransformList\n open val spreadMethod: SVGAnimatedEnumeration\n\n companion object {\n   val SVG_SPREADMETHOD_UNKNOWN: Short\n   val SVG_SPREADMETHOD_PAD: Short\n   val SVG_SPREADMETHOD_REFLECT: Short\n   val SVG_SPREADMETHOD_REPEAT: Short\n   val SVG_UNIT_TYPE_UNKNOWN: Short\n   val SVG_UNIT_TYPE_USERSPACEONUSE: Short\n   val SVG_UNIT_TYPE_OBJECTBOUNDINGBOX: Short\n   val ELEMENT_NODE: Short\n   val ATTRIBUTE_NODE: Short\n   val TEXT_NODE: Short\n   val CDATA_SECTION_NODE: Short\n   val ENTITY_REFERENCE_NODE: Short\n   val ENTITY_NODE: Short\n   val PROCESSING_INSTRUCTION_NODE: Short\n   val COMMENT_NODE: Short\n   val DOCUMENT_NODE: Short\n   val DOCUMENT_TYPE_NODE: Short\n   val DOCUMENT_FRAGMENT_NODE: Short\n   val NOTATION_NODE: Short\n   val DOCUMENT_POSITION_DISCONNECTED: Short\n   val DOCUMENT_POSITION_PRECEDING: Short\n   val DOCUMENT_POSITION_FOLLOWING: Short\n   val DOCUMENT_POSITION_CONTAINS: Short\n   val DOCUMENT_POSITION_CONTAINED_BY: Short\n   val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n }\n}\n\n/**\n * Exposes the JavaScript [SVGLinearGradientElement](https://developer.mozilla.org/en/docs/Web/API/SVGLinearGradientElement) to Kotlin\n */\npublic external abstract class SVGLinearGradientElement : SVGGradientElement {\n open val x1: SVGAnimatedLength\n open val y1: SVGAnimatedLength\n open val x2: SVGAnimatedLength\n open val y2: SVGAnimatedLength\n\n companion object {\n   val SVG_SPREADMETHOD_UNKNOWN: Short\n   val SVG_SPREADMETHOD_PAD: Short\n   val SVG_SPREADMETHOD_REFLECT: Short\n   val SVG_SPREADMETHOD_REPEAT: Short\n   val SVG_UNIT_TYPE_UNKNOWN: Short\n   val SVG_UNIT_TYPE_USERSPACEONUSE: Short\n   val SVG_UNIT_TYPE_OBJECTBOUNDINGBOX: Short\n   val ELEMENT_NODE: Short\n   val ATTRIBUTE_NODE: Short\n   val TEXT_NODE: Short\n   val CDATA_SECTION_NODE: Short\n   val ENTITY_REFERENCE_NODE: Short\n   val ENTITY_NODE: Short\n   val PROCESSING_INSTRUCTION_NODE: Short\n   val COMMENT_NODE: Short\n   val DOCUMENT_NODE: Short\n   val DOCUMENT_TYPE_NODE: Short\n   val DOCUMENT_FRAGMENT_NODE: Short\n   val NOTATION_NODE: Short\n   val DOCUMENT_POSITION_DISCONNECTED: Short\n   val DOCUMENT_POSITION_PRECEDING: Short\n   val DOCUMENT_POSITION_FOLLOWING: Short\n   val DOCUMENT_POSITION_CONTAINS: Short\n   val DOCUMENT_POSITION_CONTAINED_BY: Short\n   val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n }\n}\n\n/**\n * Exposes the JavaScript [SVGRadialGradientElement](https://developer.mozilla.org/en/docs/Web/API/SVGRadialGradientElement) to Kotlin\n */\npublic external abstract class SVGRadialGradientElement : SVGGradientElement {\n open val cx: SVGAnimatedLength\n open val cy: SVGAnimatedLength\n open val r: SVGAnimatedLength\n open val fx: SVGAnimatedLength\n open val fy: SVGAnimatedLength\n open val fr: SVGAnimatedLength\n\n companion object {\n   val SVG_SPREADMETHOD_UNKNOWN: Short\n   val SVG_SPREADMETHOD_PAD: Short\n   val SVG_SPREADMETHOD_REFLECT: Short\n   val SVG_SPREADMETHOD_REPEAT:

Short\n   val SVG_UNIT_TYPE_UNKNOWN: Short\n   val SVG_UNIT_TYPE_USERSPACEONUSE: Short\n   val SVG_UNIT_TYPE_OBJECTBOUNDINGBOX: Short\n   val ELEMENT_NODE: Short\n   val ATTRIBUTE_NODE: Short\n   val TEXT_NODE: Short\n   val CDATA_SECTION_NODE: Short\n   val ENTITY_REFERENCE_NODE: Short\n   val ENTITY_NODE: Short\n   val PROCESSING_INSTRUCTION_NODE: Short\n   val COMMENT_NODE: Short\n   val DOCUMENT_NODE: Short\n   val DOCUMENT_TYPE_NODE: Short\n   val DOCUMENT_FRAGMENT_NODE: Short\n   val NOTATION_NODE: Short\n   val DOCUMENT_POSITION_DISCONNECTED: Short\n   val DOCUMENT_POSITION_PRECEDING: Short\n   val DOCUMENT_POSITION_FOLLOWING: Short\n   val DOCUMENT_POSITION_CONTAINS: Short\n   val DOCUMENT_POSITION_CONTAINED_BY: Short\n   val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n   }\n}\n\npublic external abstract class SVGMeshGradientElement : SVGGradientElement {\n   companion object {\n   val SVG_SPREADMETHOD_UNKNOWN: Short\n   val SVG_SPREADMETHOD_PAD: Short\n   val SVG_SPREADMETHOD_REFLECT: Short\n   val SVG_SPREADMETHOD_REPEAT: Short\n   val SVG_UNIT_TYPE_UNKNOWN: Short\n   val SVG_UNIT_TYPE_USERSPACEONUSE: Short\n   val SVG_UNIT_TYPE_OBJECTBOUNDINGBOX: Short\n   val ELEMENT_NODE: Short\n   val ATTRIBUTE_NODE: Short\n   val TEXT_NODE: Short\n   val CDATA_SECTION_NODE: Short\n   val ENTITY_REFERENCE_NODE: Short\n   val ENTITY_NODE: Short\n   val PROCESSING_INSTRUCTION_NODE: Short\n   val COMMENT_NODE: Short\n   val DOCUMENT_NODE: Short\n   val DOCUMENT_TYPE_NODE: Short\n   val DOCUMENT_FRAGMENT_NODE: Short\n   val NOTATION_NODE: Short\n   val DOCUMENT_POSITION_DISCONNECTED: Short\n   val DOCUMENT_POSITION_PRECEDING: Short\n   val DOCUMENT_POSITION_FOLLOWING: Short\n   val DOCUMENT_POSITION_CONTAINS: Short\n   val DOCUMENT_POSITION_CONTAINED_BY: Short\n   val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n   }\n}\n\npublic external abstract class SVGMeshrowElement : SVGElement {\n   companion object {\n   val ELEMENT_NODE: Short\n   val ATTRIBUTE_NODE: Short\n   val TEXT_NODE: Short\n   val CDATA_SECTION_NODE: Short\n   val ENTITY_REFERENCE_NODE: Short\n   val ENTITY_NODE: Short\n   val PROCESSING_INSTRUCTION_NODE: Short\n   val COMMENT_NODE: Short\n   val DOCUMENT_NODE: Short\n   val DOCUMENT_TYPE_NODE: Short\n   val DOCUMENT_FRAGMENT_NODE: Short\n   val NOTATION_NODE: Short\n   val DOCUMENT_POSITION_DISCONNECTED: Short\n   val DOCUMENT_POSITION_PRECEDING: Short\n   val DOCUMENT_POSITION_FOLLOWING: Short\n   val DOCUMENT_POSITION_CONTAINS: Short\n   val DOCUMENT_POSITION_CONTAINED_BY: Short\n   val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n   }\n}\n\npublic external abstract class SVGMeshpatchElement : SVGElement {\n   companion object {\n   val ELEMENT_NODE: Short\n   val ATTRIBUTE_NODE: Short\n   val TEXT_NODE: Short\n   val CDATA_SECTION_NODE: Short\n   val ENTITY_REFERENCE_NODE: Short\n   val ENTITY_NODE: Short\n   val PROCESSING_INSTRUCTION_NODE: Short\n   val COMMENT_NODE: Short\n   val DOCUMENT_NODE: Short\n   val DOCUMENT_TYPE_NODE: Short\n   val DOCUMENT_FRAGMENT_NODE: Short\n   val NOTATION_NODE: Short\n   val DOCUMENT_POSITION_DISCONNECTED: Short\n   val DOCUMENT_POSITION_PRECEDING: Short\n   val DOCUMENT_POSITION_FOLLOWING: Short\n   val DOCUMENT_POSITION_CONTAINS: Short\n   val DOCUMENT_POSITION_CONTAINED_BY: Short\n   val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n   }\n}\n\n/**\n * Exposes the JavaScript [SVGStopElement](https://developer.mozilla.org/en/docs/Web/API/SVGStopElement) to Kotlin\n */\npublic external abstract class SVGStopElement : SVGElement {\n   open val offset: SVGAnimatedNumber\n\n   companion object {\n   val ELEMENT_NODE: Short\n   val ATTRIBUTE_NODE: Short\n   val

TEXT_NODE: Short\n   val CDATA_SECTION_NODE: Short\n   val ENTITY_REFERENCE_NODE: Short\n   val ENTITY_NODE: Short\n   val PROCESSING_INSTRUCTION_NODE: Short\n   val COMMENT_NODE: Short\n   val DOCUMENT_NODE: Short\n   val DOCUMENT_TYPE_NODE: Short\n   val DOCUMENT_FRAGMENT_NODE: Short\n   val NOTATION_NODE: Short\n   val DOCUMENT_POSITION_DISCONNECTED: Short\n   val DOCUMENT_POSITION_PRECEDING: Short\n   val DOCUMENT_POSITION_FOLLOWING: Short\n   val DOCUMENT_POSITION_CONTAINS: Short\n   val DOCUMENT_POSITION_CONTAINED_BY: Short\n   val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n   }\n}\n\n/**\n * Exposes the JavaScript [SVGPatternElement](https://developer.mozilla.org/en/docs/Web/API/SVGPatternElement) to Kotlin\n */\npublic external abstract class SVGPatternElement : SVGElement, SVGFitToViewBox, SVGURIReference, SVGUnitTypes {\n   open val patternUnits: SVGAnimatedEnumeration\n   open val patternContentUnits: SVGAnimatedEnumeration\n   open val patternTransform: SVGAnimatedTransformList\n   open val x: SVGAnimatedLength\n   open val y: SVGAnimatedLength\n   open val width: SVGAnimatedLength\n   open val height: SVGAnimatedLength\n\n   companion object {\n   val SVG_UNIT_TYPE_UNKNOWN: Short\n   val SVG_UNIT_TYPE_USERSPACEONUSE: Short\n   val SVG_UNIT_TYPE_OBJECTBOUNDINGBOX: Short\n   val ELEMENT_NODE: Short\n   val ATTRIBUTE_NODE: Short\n   val TEXT_NODE: Short\n   val CDATA_SECTION_NODE: Short\n   val ENTITY_REFERENCE_NODE: Short\n   val ENTITY_NODE: Short\n   val PROCESSING_INSTRUCTION_NODE: Short\n   val COMMENT_NODE: Short\n   val DOCUMENT_NODE: Short\n   val DOCUMENT_TYPE_NODE: Short\n   val DOCUMENT_FRAGMENT_NODE: Short\n   val NOTATION_NODE: Short\n   val DOCUMENT_POSITION_DISCONNECTED: Short\n   val DOCUMENT_POSITION_PRECEDING: Short\n   val DOCUMENT_POSITION_FOLLOWING: Short\n   val DOCUMENT_POSITION_CONTAINS: Short\n   val DOCUMENT_POSITION_CONTAINED_BY: Short\n   val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n   }\n}\n\npublic external abstract class SVGHatchElement : SVGElement {\n   companion object {\n   val ELEMENT_NODE: Short\n   val ATTRIBUTE_NODE: Short\n   val TEXT_NODE: Short\n   val CDATA_SECTION_NODE: Short\n   val ENTITY_REFERENCE_NODE: Short\n   val ENTITY_NODE: Short\n   val PROCESSING_INSTRUCTION_NODE: Short\n   val COMMENT_NODE: Short\n   val DOCUMENT_NODE: Short\n   val DOCUMENT_TYPE_NODE: Short\n   val DOCUMENT_FRAGMENT_NODE: Short\n   val NOTATION_NODE: Short\n   val DOCUMENT_POSITION_DISCONNECTED: Short\n   val DOCUMENT_POSITION_PRECEDING: Short\n   val DOCUMENT_POSITION_FOLLOWING: Short\n   val DOCUMENT_POSITION_CONTAINS: Short\n   val DOCUMENT_POSITION_CONTAINED_BY: Short\n   val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n   }\n}\n\npublic external abstract class SVGHatchpathElement : SVGElement {\n   companion object {\n   val ELEMENT_NODE: Short\n   val ATTRIBUTE_NODE: Short\n   val TEXT_NODE: Short\n   val CDATA_SECTION_NODE: Short\n   val ENTITY_REFERENCE_NODE: Short\n   val ENTITY_NODE: Short\n   val PROCESSING_INSTRUCTION_NODE: Short\n   val COMMENT_NODE: Short\n   val DOCUMENT_NODE: Short\n   val DOCUMENT_TYPE_NODE: Short\n   val DOCUMENT_FRAGMENT_NODE: Short\n   val NOTATION_NODE: Short\n   val DOCUMENT_POSITION_DISCONNECTED: Short\n   val DOCUMENT_POSITION_PRECEDING: Short\n   val DOCUMENT_POSITION_FOLLOWING: Short\n   val DOCUMENT_POSITION_CONTAINS: Short\n   val DOCUMENT_POSITION_CONTAINED_BY: Short\n   val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n   }\n}\n\n/**\n * Exposes the JavaScript [SVGCursorElement](https://developer.mozilla.org/en/docs/Web/API/SVGCursorElement) to Kotlin\n */\npublic external abstract class SVGCursorElement : SVGElement, SVGURIReference {\n   open val x: SVGAnimatedLength\n   open val y: SVGAnimatedLength\n\n   companion object {\n   val ELEMENT_NODE: Short\n   val ATTRIBUTE_NODE: Short\n   val TEXT_NODE: Short\n   val

CDATA_SECTION_NODE: Short\n   val ENTITY_REFERENCE_NODE: Short\n   val ENTITY_NODE: Short\n   val PROCESSING_INSTRUCTION_NODE: Short\n   val COMMENT_NODE: Short\n   val DOCUMENT_NODE: Short\n   val DOCUMENT_TYPE_NODE: Short\n   val DOCUMENT_FRAGMENT_NODE: Short\n   val NOTATION_NODE: Short\n   val DOCUMENT_POSITION_DISCONNECTED: Short\n   val DOCUMENT_POSITION_PRECEDING: Short\n   val DOCUMENT_POSITION_FOLLOWING: Short\n   val DOCUMENT_POSITION_CONTAINS: Short\n   val DOCUMENT_POSITION_CONTAINED_BY: Short\n   val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n   }\n}\n\n/**\n * Exposes the JavaScript [SVGScriptElement](https://developer.mozilla.org/en/docs/Web/API/SVGScriptElement) to Kotlin\n */\npublic external abstract class SVGScriptElement : SVGElement, SVGURIReference, HTMLOrSVGScriptElement {\n   open var type: String\n   open var crossOrigin: String?\n\n   companion object {\n   val ELEMENT_NODE: Short\n   val ATTRIBUTE_NODE: Short\n   val TEXT_NODE: Short\n   val CDATA_SECTION_NODE: Short\n   val ENTITY_REFERENCE_NODE: Short\n   val ENTITY_NODE: Short\n   val PROCESSING_INSTRUCTION_NODE: Short\n   val COMMENT_NODE: Short\n   val DOCUMENT_NODE: Short\n   val DOCUMENT_TYPE_NODE: Short\n   val DOCUMENT_FRAGMENT_NODE: Short\n   val NOTATION_NODE: Short\n   val DOCUMENT_POSITION_DISCONNECTED: Short\n   val DOCUMENT_POSITION_PRECEDING: Short\n   val DOCUMENT_POSITION_FOLLOWING: Short\n   val DOCUMENT_POSITION_CONTAINS: Short\n   val DOCUMENT_POSITION_CONTAINED_BY: Short\n   val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n   }\n}\n\n/**\n * Exposes the JavaScript [SVGAElement](https://developer.mozilla.org/en/docs/Web/API/SVGAElement) to Kotlin\n */\npublic external abstract class SVGAElement : SVGGraphicsElement, SVGURIReference {\n   open val target: SVGAnimatedString\n   open val download: SVGAnimatedString\n   open val rel: SVGAnimatedString\n   open val relList: SVGAnimatedString\n   open val hreflang: SVGAnimatedString\n   open val type: SVGAnimatedString\n\n   companion object {\n   val ELEMENT_NODE: Short\n   val ATTRIBUTE_NODE: Short\n   val TEXT_NODE: Short\n   val CDATA_SECTION_NODE: Short\n   val ENTITY_REFERENCE_NODE: Short\n   val ENTITY_NODE: Short\n   val PROCESSING_INSTRUCTION_NODE: Short\n   val COMMENT_NODE: Short\n   val DOCUMENT_NODE: Short\n   val DOCUMENT_TYPE_NODE: Short\n   val DOCUMENT_FRAGMENT_NODE: Short\n   val NOTATION_NODE: Short\n   val DOCUMENT_POSITION_DISCONNECTED: Short\n   val DOCUMENT_POSITION_PRECEDING: Short\n   val DOCUMENT_POSITION_FOLLOWING: Short\n   val DOCUMENT_POSITION_CONTAINS: Short\n   val DOCUMENT_POSITION_CONTAINED_BY: Short\n   val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n   }\n}\n\n/**\n * Exposes the JavaScript [SVGViewElement](https://developer.mozilla.org/en/docs/Web/API/SVGViewElement) to Kotlin\n */\npublic external abstract class SVGViewElement : SVGElement, SVGFitToViewBox, SVGZoomAndPan {\n   companion object {\n   val SVG_ZOOMANDPAN_UNKNOWN: Short\n   val SVG_ZOOMANDPAN_DISABLE: Short\n   val SVG_ZOOMANDPAN_MAGNIFY: Short\n   val ELEMENT_NODE: Short\n   val ATTRIBUTE_NODE: Short\n   val TEXT_NODE: Short\n   val CDATA_SECTION_NODE: Short\n   val ENTITY_REFERENCE_NODE: Short\n   val ENTITY_NODE: Short\n   val PROCESSING_INSTRUCTION_NODE: Short\n   val COMMENT_NODE: Short\n   val DOCUMENT_NODE: Short\n   val DOCUMENT_TYPE_NODE: Short\n   val DOCUMENT_FRAGMENT_NODE: Short\n   val NOTATION_NODE: Short\n   val DOCUMENT_POSITION_DISCONNECTED: Short\n   val DOCUMENT_POSITION_PRECEDING: Short\n   val DOCUMENT_POSITION_FOLLOWING: Short\n   val DOCUMENT_POSITION_CONTAINS: Short\n   val DOCUMENT_POSITION_CONTAINED_BY: Short\n   val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n   }\n}","/*\n * Copyright 2010-2021 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the

Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\n// NOTE: THIS FILE IS AUTO-GENERATED, DO NOT EDIT!\n// See github.com/kotlin/dukat for details\n\npackage org.w3c.files\n\nimport kotlin.js.*\nimport org.khronos.webgl.*\nimport org.w3c.dom.*\nimport org.w3c.dom.events.*\nimport org.w3c.xhr.*\n\n/**\n * Exposes the JavaScript [Blob](https://developer.mozilla.org/en/docs/Web/API/Blob) to Kotlin\n */\npublic external open class Blob(blobParts: Array<dynamic> = definedExternally, options: BlobPropertyBag = definedExternally) : MediaProvider, ImageBitmapSource {\n   open val size: Number\n   open val type: String\n   open val isClosed: Boolean\n   fun slice(start: Int = definedExternally, end: Int = definedExternally, contentType: String = definedExternally): Blob\n   fun close()\n}\n\npublic external interface BlobPropertyBag {\n   var type: String? /* = \"\" */\n   get() = definedExternally\n   set(value) = definedExternally\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline fun BlobPropertyBag(type: String? = \"\"): BlobPropertyBag {\n   val o = js(\"({})\")\n   o[\"type\"] = type\n   return o\n}\n\n/**\n * Exposes the JavaScript [File](https://developer.mozilla.org/en/docs/Web/API/File) to Kotlin\n */\npublic external open class File(fileBits: Array<dynamic>, fileName: String, options: FilePropertyBag = definedExternally) : Blob {\n   open val name: String\n   open val lastModified: Int\n}\n\npublic external interface FilePropertyBag : BlobPropertyBag {\n   var lastModified: Int?\n   get() = definedExternally\n   set(value) = definedExternally\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline fun FilePropertyBag(lastModified: Int? = undefined, type: String? = \"\"): FilePropertyBag {\n   val o = js(\"({})\")\n   o[\"lastModified\"] = lastModified\n   o[\"type\"] = type\n   return o\n}\n\n/**\n * Exposes the JavaScript [FileList](https://developer.mozilla.org/en/docs/Web/API/FileList) to Kotlin\n */\npublic external abstract class FileList : ItemArrayLike<File> {\n   override fun item(index: Int): File?\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline operator fun FileList.get(index: Int): File? = asDynamic()[index]\n\n/**\n * Exposes the JavaScript [FileReader](https://developer.mozilla.org/en/docs/Web/API/FileReader) to Kotlin\n */\npublic external open class FileReader : EventTarget {\n   open val readyState: Short\n   open val result: dynamic\n   open val error: dynamic\n   var onloadstart: ((ProgressEvent) -> dynamic)?\n   var onprogress: ((ProgressEvent) -> dynamic)?\n   var onload: ((Event) -> dynamic)?\n   var onabort: ((Event) -> dynamic)?\n   var onerror: ((Event) -> dynamic)?\n   var onloadend: ((Event) -> dynamic)?\n   fun readAsArrayBuffer(blob: Blob)\n   fun readAsBinaryString(blob: Blob)\n   fun readAsText(blob: Blob, label: String = definedExternally)\n   fun readAsDataURL(blob: Blob)\n   fun abort()\n\n   companion object {\n   val EMPTY: Short\n   val LOADING: Short\n   val DONE: Short\n   }\n}\n\n/**\n * Exposes the JavaScript [FileReaderSync](https://developer.mozilla.org/en/docs/Web/API/FileReaderSync) to Kotlin\n */\npublic external open class FileReaderSync {\n   fun readAsArrayBuffer(blob: Blob): ArrayBuffer\n   fun readAsBinaryString(blob: Blob): String\n   fun readAsText(blob: Blob, label: String = definedExternally): String\n   fun readAsDataURL(blob: Blob): String\n}","/*\n * Copyright 2010-2021 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\n// NOTE: THIS FILE IS AUTO-GENERATED, DO NOT EDIT!\n// See github.com/kotlin/dukat for details\n\npackage org.w3c.notifications\n\nimport kotlin.js.*\nimport org.khronos.webgl.*\nimport org.w3c.dom.events.*\nimport org.w3c.workers.*\n\n/**\n * Exposes the JavaScript [Notification](https://developer.mozilla.org/en/docs/Web/API/Notification) to Kotlin\n */\npublic external open class Notification(title: String, options: NotificationOptions = definedExternally) : EventTarget {\n   var onclick: ((MouseEvent) -> dynamic)?\n   var onerror: ((Event) -> dynamic)?\n   open val title: String\n   open val dir: NotificationDirection\n   open val lang: String\n   open val body: String\n   open val tag: String\n   open val image: String\n   open val icon: String\n   open val badge: String\n   open val sound: String\n   open val vibrate: Array<out Int>\n   open val timestamp: Number\n   open val renotify: Boolean\n   open val silent: Boolean\n   open val noscreen: Boolean\n   open val requireInteraction: Boolean\n   open val sticky: Boolean\n   open val data:

Any?\n   open val actions: Array<out NotificationAction>\n   fun close()\n\n   companion object {\n   val permission: NotificationPermission\n   val maxActions: Int\n   fun requestPermission(deprecatedCallback: (NotificationPermission) -> Unit = definedExternally): Promise<NotificationPermission>\n   }\n}\n\npublic external interface NotificationOptions {\n   var dir: NotificationDirection? /* = NotificationDirection.AUTO */\n   get() = definedExternally\n   set(value) = definedExternally\n   var lang: String? /* = \"\" */\n   get() = definedExternally\n   set(value) = definedExternally\n   var body: String? /* = \"\" */\n   get() = definedExternally\n   set(value) = definedExternally\n   var tag: String? /* = \"\" */\n   get() = definedExternally\n   set(value) = definedExternally\n   var image: String?\n   get() = definedExternally\n   set(value) = definedExternally\n   var icon: String?\n   get() = definedExternally\n   set(value) = definedExternally\n   var badge: String?\n   get() = definedExternally\n   set(value) = definedExternally\n   var sound: String?\n   get() = definedExternally\n   set(value) = definedExternally\n   var vibrate: dynamic\n   get() = definedExternally\n   set(value) = definedExternally\n   var timestamp: Number?\n   get() = definedExternally\n   set(value) = definedExternally\n   var renotify: Boolean? /* = false */\n   get() = definedExternally\n   set(value) = definedExternally\n   var silent: Boolean? /* = false */\n   get() = definedExternally\n   set(value) = definedExternally\n   var noscreen: Boolean? /* = false */\n   get() = definedExternally\n   set(value) = definedExternally\n   var requireInteraction: Boolean? /* = false */\n   get() = definedExternally\n   set(value) = definedExternally\n   var sticky: Boolean? /* = false */\n   get() = definedExternally\n   set(value) = definedExternally\n   var data: Any? /* = null */\n   get() = definedExternally\n   set(value) = definedExternally\n   var actions: Array<NotificationAction>? /* = arrayOf() */\n   get() = definedExternally\n   set(value) = definedExternally\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline fun NotificationOptions(dir: NotificationDirection? = NotificationDirection.AUTO, lang: String? = \"\", body: String? = \"\", tag: String? = \"\", image: String? = undefined, icon: String? = undefined, badge: String? = undefined, sound: String? = undefined, vibrate: dynamic = undefined, timestamp: Number? = undefined, renotify: Boolean? = false, silent: Boolean? = false, noscreen: Boolean? = false, requireInteraction: Boolean? = false, sticky: Boolean? = false, data: Any? = null, actions: Array<NotificationAction>? = arrayOf()): NotificationOptions {\n   val o = js(\"({})\")\n   o[\"dir\"] = dir\n   o[\"lang\"] = lang\n   o[\"body\"] = body\n   o[\"tag\"] = tag\n   o[\"image\"] = image\n   o[\"icon\"] = icon\n   o[\"badge\"] = badge\n   o[\"sound\"] = sound\n   o[\"vibrate\"] = vibrate\n   o[\"timestamp\"] = timestamp\n   o[\"renotify\"] = renotify\n   o[\"silent\"] = silent\n   o[\"noscreen\"] = noscreen\n   o[\"requireInteraction\"] = requireInteraction\n   o[\"sticky\"] = sticky\n   o[\"data\"] = data\n   o[\"actions\"] = actions\n   return o\n}\n\npublic external interface NotificationAction {\n   var action: String?\n   var title: String?\n   var icon: String?\n   get() = definedExternally\n   set(value) = definedExternally\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline fun NotificationAction(action: String?, title: String?, icon: String? = undefined): NotificationAction {\n   val o = js(\"({})\")\n   o[\"action\"] = action\n   o[\"title\"] = title\n   o[\"icon\"] = icon\n   return o\n}\n\npublic external interface GetNotificationOptions {\n   var tag: String? /* = \"\" */\n   get() = definedExternally\n   set(value) = definedExternally\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline fun GetNotificationOptions(tag: String? = \"\"): GetNotificationOptions {\n   val o = js(\"({})\")\n   o[\"tag\"] = tag\n   return o\n}\n\n/**\n * Exposes the JavaScript [NotificationEvent](https://developer.mozilla.org/en/docs/Web/API/NotificationEvent) to Kotlin\n */\npublic external open class NotificationEvent(type: String, eventInitDict: NotificationEventInit) : ExtendableEvent {\n   open val notification: Notification\n   open val action: String\n\n   companion object {\n   val NONE: Short\n   val CAPTURING_PHASE: Short\n   val AT_TARGET: Short\n   val BUBBLING_PHASE: Short\n   }\n}\n\npublic external interface NotificationEventInit : ExtendableEventInit {\n   var notification: Notification?\n   var action: String? /* = \"\" */\n   get() = definedExternally\n   set(value) = definedExternally\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\",

\"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline fun NotificationEventInit(notification: Notification?, action: String? = \"\", bubbles: Boolean? = false, cancelable: Boolean? = false, composed: Boolean? = false): NotificationEventInit {\n   val o = js(\"({})\")\n   o[\"notification\"] = notification\n   o[\"action\"] = action\n   o[\"bubbles\"] = bubbles\n   o[\"cancelable\"] = cancelable\n   o[\"composed\"] = composed\n   return o\n}\n\n/* please, don't implement this interface! */\n@JsName(\"null\")\n@Suppress(\"NESTED_CLASS_IN_EXTERNAL_INTERFACE\")\npublic external interface NotificationPermission {\n   companion object\n}\n\npublic inline val NotificationPermission.Companion.DEFAULT: NotificationPermission get() = \"default\".asDynamic().unsafeCast<NotificationPermission>()\n\npublic inline val NotificationPermission.Companion.DENIED: NotificationPermission get() = \"denied\".asDynamic().unsafeCast<NotificationPermission>()\n\npublic inline val NotificationPermission.Companion.GRANTED: NotificationPermission get() = \"granted\".asDynamic().unsafeCast<NotificationPermission>()\n\n/* please, don't implement this interface! */\n@JsName(\"null\")\n@Suppress(\"NESTED_CLASS_IN_EXTERNAL_INTERFACE\")\npublic external interface NotificationDirection {\n   companion object\n}\n\npublic inline val NotificationDirection.Companion.AUTO: NotificationDirection get() = \"auto\".asDynamic().unsafeCast<NotificationDirection>()\n\npublic inline val NotificationDirection.Companion.LTR: NotificationDirection get() = \"ltr\".asDynamic().unsafeCast<NotificationDirection>()\n\npublic inline val NotificationDirection.Companion.RTL: NotificationDirection get() = \"rtl\".asDynamic().unsafeCast<NotificationDirection>()","/*\n * Copyright 2010-2021 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\n// NOTE: THIS FILE IS AUTO-GENERATED, DO NOT EDIT!\n// See github.com/kotlin/dukat for details\n\npackage org.w3c.workers\n\nimport kotlin.js.*\nimport org.khronos.webgl.*\nimport org.w3c.dom.*\nimport org.w3c.dom.events.*\nimport org.w3c.fetch.*\nimport org.w3c.notifications.*\n\n/**\n * Exposes the JavaScript [ServiceWorker](https://developer.mozilla.org/en/docs/Web/API/ServiceWorker) to Kotlin\n */\npublic external abstract class ServiceWorker : EventTarget, AbstractWorker, UnionMessagePortOrServiceWorker, UnionClientOrMessagePortOrServiceWorker {\n   open val scriptURL: String\n   open val state: ServiceWorkerState\n   open var onstatechange: ((Event) -> dynamic)?\n   fun postMessage(message: Any?, transfer: Array<dynamic> = definedExternally)\n}\n\n/**\n * Exposes the JavaScript [ServiceWorkerRegistration](https://developer.mozilla.org/en/docs/Web/API/ServiceWorkerRegistration) to Kotlin\n */\npublic external abstract class ServiceWorkerRegistration : EventTarget {\n   open val installing: ServiceWorker?\n   open val waiting: ServiceWorker?\n   open val active: ServiceWorker?\n   open val scope: String\n   open var onupdatefound: ((Event) -> dynamic)?\n   open val APISpace: dynamic\n   fun update(): Promise<Unit>\n   fun unregister(): Promise<Boolean>\n   fun showNotification(title: String, options: NotificationOptions = definedExternally): Promise<Unit>\n   fun getNotifications(filter: GetNotificationOptions = definedExternally): Promise<Array<Notification>>\n   fun methodName(): Promise<dynamic>\n}\n\n/**\n * Exposes the JavaScript [ServiceWorkerContainer](https://developer.mozilla.org/en/docs/Web/API/ServiceWorkerContainer) to Kotlin\n */\npublic external abstract class ServiceWorkerContainer : EventTarget {\n   open val controller: ServiceWorker?\n   open val ready: Promise<ServiceWorkerRegistration>\n   open var oncontrollerchange: ((Event) -> dynamic)?\n   open var onmessage: ((MessageEvent) -> dynamic)?\n   fun register(scriptURL: String, options: RegistrationOptions = definedExternally): Promise<ServiceWorkerRegistration>\n   fun getRegistration(clientURL: String = definedExternally): Promise<Any?>\n   fun getRegistrations(): Promise<Array<ServiceWorkerRegistration>>\n   fun startMessages()\n}\n\npublic external interface RegistrationOptions {\n   var scope: String?\n   get() = definedExternally\n   set(value) = definedExternally\n   var type: WorkerType? /* = WorkerType.CLASSIC */\n   get() = definedExternally\n   set(value) =

definedExternally\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline fun RegistrationOptions(scope: String? = undefined, type: WorkerType? = WorkerType.CLASSIC): RegistrationOptions {\n   val o = js(\"({})\")\n   o[\"scope\"] = scope\n   o[\"type\"] = type\n   return o\n}\n\n/**\n * Exposes the JavaScript [ServiceWorkerMessageEvent](https://developer.mozilla.org/en/docs/Web/API/ServiceWorkerMessageEvent) to Kotlin\n */\npublic external open class ServiceWorkerMessageEvent(type: String, eventInitDict: ServiceWorkerMessageEventInit = definedExternally) : Event {\n   open val data: Any?\n   open val origin: String\n   open val lastEventId: String\n   open val source: UnionMessagePortOrServiceWorker?\n   open val ports: Array<out MessagePort>?\n\n   companion object {\n   val NONE: Short\n   val CAPTURING_PHASE: Short\n   val AT_TARGET: Short\n   val BUBBLING_PHASE: Short\n   }\n}\n\npublic external interface ServiceWorkerMessageEventInit : EventInit {\n   var data: Any?\n   get() = definedExternally\n   set(value) = definedExternally\n   var origin: String?\n   get() = definedExternally\n   set(value) = definedExternally\n   var lastEventId: String?\n   get() = definedExternally\n   set(value) = definedExternally\n   var source: UnionMessagePortOrServiceWorker?\n   get() = definedExternally\n   set(value) = definedExternally\n   var ports: Array<MessagePort>?\n   get() = definedExternally\n   set(value) = definedExternally\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline fun ServiceWorkerMessageEventInit(data: Any? = undefined, origin: String? = undefined, lastEventId: String? = undefined, source: UnionMessagePortOrServiceWorker? = undefined, ports: Array<MessagePort>? = undefined, bubbles: Boolean? = false, cancelable: Boolean? = false, composed: Boolean? = false): ServiceWorkerMessageEventInit {\n   val o = js(\"({})\")\n   o[\"data\"] = data\n   o[\"origin\"] = origin\n   o[\"lastEventId\"] = lastEventId\n   o[\"source\"] = source\n   o[\"ports\"] = ports\n   o[\"bubbles\"] = bubbles\n   o[\"cancelable\"] = cancelable\n   o[\"composed\"] = composed\n   return o\n}\n\n/**\n * Exposes the JavaScript [ServiceWorkerGlobalScope](https://developer.mozilla.org/en/docs/Web/API/ServiceWorkerGlobalScope) to Kotlin\n */\npublic external abstract class ServiceWorkerGlobalScope : WorkerGlobalScope {\n   open val clients: Clients\n   open val registration: ServiceWorkerRegistration\n   open var oninstall: ((Event) -> dynamic)?\n   open var onactivate: ((Event) -> dynamic)?\n   open var onfetch: ((FetchEvent) -> dynamic)?\n   open var onforeignfetch: ((Event) -> dynamic)?\n   open var onmessage: ((MessageEvent) -> dynamic)?\n   open var onnotificationclick: ((NotificationEvent) -> dynamic)?\n   open var onnotificationclose: ((NotificationEvent) -> dynamic)?\n   open var onfunctionalevent: ((Event) -> dynamic)?\n   fun skipWaiting(): Promise<Unit>\n}\n\n/**\n * Exposes the JavaScript [Client](https://developer.mozilla.org/en/docs/Web/API/Client) to Kotlin\n */\npublic external abstract class Client : UnionClientOrMessagePortOrServiceWorker {\n   open val url: String\n   open val frameType: FrameType\n   open val id: String\n   fun postMessage(message: Any?, transfer: Array<dynamic> = definedExternally)\n}\n\n/**\n * Exposes the JavaScript [WindowClient](https://developer.mozilla.org/en/docs/Web/API/WindowClient) to Kotlin\n */\npublic external abstract class WindowClient : Client {\n   open val visibilityState: dynamic\n   open val focused: Boolean\n   fun focus(): Promise<WindowClient>\n   fun navigate(url: String): Promise<WindowClient>\n}\n\n/**\n * Exposes the JavaScript [Clients](https://developer.mozilla.org/en/docs/Web/API/Clients) to Kotlin\n */\npublic external abstract class Clients {\n   fun get(id: String): Promise<Any?>\n   fun matchAll(options: ClientQueryOptions = definedExternally): Promise<Array<Client>>\n   fun openWindow(url: String): Promise<WindowClient?>\n   fun claim(): Promise<Unit>\n}\n\npublic external interface ClientQueryOptions {\n   var includeUncontrolled: Boolean? /* = false */\n   get() = definedExternally\n   set(value) = definedExternally\n   var type: ClientType? /* = ClientType.WINDOW */\n   get() = definedExternally\n   set(value) = definedExternally\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline fun ClientQueryOptions(includeUncontrolled: Boolean? = false, type: ClientType? = ClientType.WINDOW): ClientQueryOptions {\n   val o = js(\"({})\")\n   o[\"includeUncontrolled\"] = includeUncontrolled\n   o[\"type\"] =

type\n   return o\n}\n\n/**\n * Exposes the JavaScript [ExtendableEvent](https://developer.mozilla.org/en/docs/Web/API/ExtendableEvent) to Kotlin\n */\npublic external open class ExtendableEvent(type: String, eventInitDict: ExtendableEventInit = definedExternally) : Event {\n   fun waitUntil(f: Promise<Any?>)\n\n   companion object {\n   val NONE: Short\n   val CAPTURING_PHASE: Short\n   val AT_TARGET: Short\n   val BUBBLING_PHASE: Short\n   }\n}\n\npublic external interface ExtendableEventInit : EventInit\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline fun ExtendableEventInit(bubbles: Boolean? = false, cancelable: Boolean? = false, composed: Boolean? = false): ExtendableEventInit {\n   val o = js(\"({})\")\n   o[\"bubbles\"] = bubbles\n   o[\"cancelable\"] = cancelable\n   o[\"composed\"] = composed\n   return o\n}\n\n/**\n * Exposes the JavaScript [InstallEvent](https://developer.mozilla.org/en/docs/Web/API/InstallEvent) to Kotlin\n */\npublic external open class InstallEvent(type: String, eventInitDict: ExtendableEventInit = definedExternally) : ExtendableEvent {\n   fun registerForeignFetch(options: ForeignFetchOptions)\n\n   companion object {\n   val NONE: Short\n   val CAPTURING_PHASE: Short\n   val AT_TARGET: Short\n   val BUBBLING_PHASE: Short\n   }\n}\n\npublic external interface ForeignFetchOptions {\n   var scopes: Array<String>?\n   var origins: Array<String>?\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline fun ForeignFetchOptions(scopes: Array<String>?, origins: Array<String>?): ForeignFetchOptions {\n   val o = js(\"({})\")\n   o[\"scopes\"] = scopes\n   o[\"origins\"] = origins\n   return o\n}\n\n/**\n * Exposes the JavaScript [FetchEvent](https://developer.mozilla.org/en/docs/Web/API/FetchEvent) to Kotlin\n */\npublic external open class FetchEvent(type: String, eventInitDict: FetchEventInit) : ExtendableEvent {\n   open val request: Request\n   open val clientId: String?\n   open val isReload: Boolean\n   fun respondWith(r: Promise<Response>)\n\n   companion object {\n   val NONE: Short\n   val CAPTURING_PHASE: Short\n   val AT_TARGET: Short\n   val BUBBLING_PHASE: Short\n   }\n}\n\npublic external interface FetchEventInit : ExtendableEventInit {\n   var request: Request?\n   var clientId: String? /* = null */\n   get() = definedExternally\n   set(value) = definedExternally\n   var isReload: Boolean? /* = false */\n   get() = definedExternally\n   set(value) = definedExternally\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline fun FetchEventInit(request: Request?, clientId: String? = null, isReload: Boolean? = false, bubbles: Boolean? = false, cancelable: Boolean? = false, composed: Boolean? = false): FetchEventInit {\n   val o = js(\"({})\")\n   o[\"request\"] = request\n   o[\"clientId\"] = clientId\n   o[\"isReload\"] = isReload\n   o[\"bubbles\"] = bubbles\n   o[\"cancelable\"] = cancelable\n   o[\"composed\"] = composed\n   return o\n}\n\npublic external open class ForeignFetchEvent(type: String, eventInitDict: ForeignFetchEventInit) : ExtendableEvent {\n   open val request: Request\n   open val origin: String\n   fun respondWith(r: Promise<ForeignFetchResponse>)\n\n   companion object {\n   val NONE: Short\n   val CAPTURING_PHASE: Short\n   val AT_TARGET: Short\n   val BUBBLING_PHASE: Short\n   }\n}\n\npublic external interface ForeignFetchEventInit : ExtendableEventInit {\n   var request: Request?\n   var origin: String? /* = \"null\" */\n   get() = definedExternally\n   set(value) = definedExternally\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline fun ForeignFetchEventInit(request: Request?, origin: String? = \"null\", bubbles: Boolean? = false, cancelable: Boolean? = false, composed: Boolean? = false): ForeignFetchEventInit {\n   val o = js(\"({})\")\n   o[\"request\"] = request\n   o[\"origin\"] = origin\n   o[\"bubbles\"] = bubbles\n   o[\"cancelable\"] = cancelable\n   o[\"composed\"] = composed\n   return o\n}\n\npublic external interface ForeignFetchResponse {\n   var response: Response?\n   var origin: String?\n   get() = definedExternally\n   set(value) = definedExternally\n   var headers: Array<String>?\n   get() = definedExternally\n   set(value) = definedExternally\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline fun ForeignFetchResponse(response: Response?, origin: String? = undefined, headers: Array<String>? = undefined): ForeignFetchResponse {\n   val o = js(\"({})\")\n   o[\"response\"] = response\n   o[\"origin\"] = origin\n   o[\"headers\"] = headers\n   return o\n}\n\n/**\n * Exposes the JavaScript [ExtendableMessageEvent](https://developer.mozilla.org/en/docs/Web/API/ExtendableMessageEvent) to Kotlin\n */\npublic external open class ExtendableMessageEvent(type: String, eventInitDict: ExtendableMessageEventInit = definedExternally) : ExtendableEvent {\n   open val data: Any?\n   open val origin: String\n   open val lastEventId: String\n   open val source: UnionClientOrMessagePortOrServiceWorker?\n   open val ports: Array<out MessagePort>?\n\n   companion object {\n   val NONE: Short\n   val CAPTURING_PHASE: Short\n   val AT_TARGET: Short\n   val BUBBLING_PHASE: Short\n   }\n}\n\npublic external interface ExtendableMessageEventInit : ExtendableEventInit {\n   var data: Any?\n   get() = definedExternally\n   set(value) = definedExternally\n   var origin: String?\n   get() = definedExternally\n   set(value) = definedExternally\n   var lastEventId: String?\n   get() = definedExternally\n   set(value) = definedExternally\n   var source: UnionClientOrMessagePortOrServiceWorker?\n   get() = definedExternally\n   set(value) = definedExternally\n   var ports: Array<MessagePort>?\n   get() = definedExternally\n   set(value) = definedExternally\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline fun ExtendableMessageEventInit(data: Any? = undefined, origin: String? = undefined, lastEventId: String? = undefined, source: UnionClientOrMessagePortOrServiceWorker? = undefined, ports: Array<MessagePort>? = undefined, bubbles: Boolean? = false, cancelable: Boolean? = false, composed: Boolean? = false): ExtendableMessageEventInit {\n   val o = js(\"({})\")\n   o[\"data\"] = data\n   o[\"origin\"] = origin\n   o[\"lastEventId\"] = lastEventId\n   o[\"source\"] = source\n   o[\"ports\"] = ports\n   o[\"bubbles\"] = bubbles\n   o[\"cancelable\"] = cancelable\n   o[\"composed\"] = composed\n   return o\n}\n\n/**\n * Exposes the JavaScript [Cache](https://developer.mozilla.org/en/docs/Web/API/Cache) to Kotlin\n */\npublic external abstract class Cache {\n   fun match(request: dynamic, options: CacheQueryOptions = definedExternally): Promise<Any?>\n   fun matchAll(request: dynamic = definedExternally, options: CacheQueryOptions = definedExternally): Promise<Array<Response>>\n   fun add(request: dynamic): Promise<Unit>\n   fun addAll(requests: Array<dynamic>): Promise<Unit>\n   fun put(request: dynamic, response: Response): Promise<Unit>\n   fun delete(request: dynamic, options: CacheQueryOptions = definedExternally): Promise<Boolean>\n   fun keys(request: dynamic = definedExternally, options: CacheQueryOptions = definedExternally): Promise<Array<Request>>\n}\n\npublic external interface CacheQueryOptions {\n   var ignoreSearch: Boolean? /* = false */\n   get() = definedExternally\n   set(value) = definedExternally\n   var ignoreMethod: Boolean? /* = false */\n   get() = definedExternally\n   set(value) = definedExternally\n   var ignoreVary: Boolean? /* = false */\n   get() = definedExternally\n   set(value) = definedExternally\n   var cacheName: String?\n   get() = definedExternally\n   set(value) = definedExternally\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline fun CacheQueryOptions(ignoreSearch: Boolean? = false, ignoreMethod: Boolean? = false, ignoreVary: Boolean? = false, cacheName: String? = undefined): CacheQueryOptions {\n   val o = js(\"({})\")\n   o[\"ignoreSearch\"] = ignoreSearch\n   o[\"ignoreMethod\"] = ignoreMethod\n   o[\"ignoreVary\"] = ignoreVary\n   o[\"cacheName\"] = cacheName\n   return o\n}\n\npublic external interface CacheBatchOperation {\n   var type: String?\n   get() = definedExternally\n   set(value) = definedExternally\n   var request: Request?\n   get() = definedExternally\n   set(value) = definedExternally\n   var response: Response?\n   get() = definedExternally\n   set(value) = definedExternally\n   var options: CacheQueryOptions?\n   get() = definedExternally\n   set(value) = definedExternally\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline fun CacheBatchOperation(type: String? = undefined, request: Request? = undefined, response: Response? = undefined, options: CacheQueryOptions? = undefined): CacheBatchOperation {\n   val o = js(\"({})\")\n   o[\"type\"] = type\n   o[\"request\"] = request\n   o[\"response\"] = response\n   o[\"options\"] = options\n   return o\n}\n\n/**\n * Exposes the JavaScript [CacheStorage](https://developer.mozilla.org/en/docs/Web/API/CacheStorage) to Kotlin\n */\npublic external abstract class CacheStorage {\n   fun match(request: dynamic, options: CacheQueryOptions = definedExternally): Promise<Any?>\n   fun has(cacheName: String): Promise<Boolean>\n   fun open(cacheName: String):

Promise<Cache>\n   fun delete(cacheName: String): Promise<Boolean>\n   fun keys(): Promise<Array<String>>\n}\n\npublic external open class FunctionalEvent : ExtendableEvent {\n   companion object {\n   val NONE: Short\n   val CAPTURING_PHASE: Short\n   val AT_TARGET: Short\n   val BUBBLING_PHASE: Short\n   }\n}\n\npublic external interface UnionMessagePortOrServiceWorker\n\npublic external interface UnionClientOrMessagePortOrServiceWorker\n\n/* please, don't implement this interface! */\n@JsName(\"null\")\n@Suppress(\"NESTED_CLASS_IN_EXTERNAL_INTERFACE\")\npublic external interface ServiceWorkerState {\n   companion object\n}\n\npublic inline val ServiceWorkerState.Companion.INSTALLING: ServiceWorkerState get() = \"installing\".asDynamic().unsafeCast<ServiceWorkerState>()\n\npublic inline val ServiceWorkerState.Companion.INSTALLED: ServiceWorkerState get() = \"installed\".asDynamic().unsafeCast<ServiceWorkerState>()\n\npublic inline val ServiceWorkerState.Companion.ACTIVATING: ServiceWorkerState get() = \"activating\".asDynamic().unsafeCast<ServiceWorkerState>()\n\npublic inline val ServiceWorkerState.Companion.ACTIVATED: ServiceWorkerState get() = \"activated\".asDynamic().unsafeCast<ServiceWorkerState>()\n\npublic inline val ServiceWorkerState.Companion.REDUNDANT: ServiceWorkerState get() = \"redundant\".asDynamic().unsafeCast<ServiceWorkerState>()\n\n/* please, don't implement this interface! */\n@JsName(\"null\")\n@Suppress(\"NESTED_CLASS_IN_EXTERNAL_INTERFACE\")\npublic external interface FrameType {\n   companion object\n}\n\npublic inline val FrameType.Companion.AUXILIARY: FrameType get() = \"auxiliary\".asDynamic().unsafeCast<FrameType>()\n\npublic inline val FrameType.Companion.TOP_LEVEL: FrameType get() = \"top-level\".asDynamic().unsafeCast<FrameType>()\n\npublic inline val FrameType.Companion.NESTED: FrameType get() = \"nested\".asDynamic().unsafeCast<FrameType>()\n\npublic inline val FrameType.Companion.NONE: FrameType get() = \"none\".asDynamic().unsafeCast<FrameType>()\n\n/* please, don't implement this interface! */\n@JsName(\"null\")\n@Suppress(\"NESTED_CLASS_IN_EXTERNAL_INTERFACE\")\npublic external interface ClientType {\n   companion object\n}\n\npublic inline val ClientType.Companion.WINDOW: ClientType get() = \"window\".asDynamic().unsafeCast<ClientType>()\n\npublic inline val ClientType.Companion.WORKER: ClientType get() = \"worker\".asDynamic().unsafeCast<ClientType>()\n\npublic inline val ClientType.Companion.SHAREDWORKER: ClientType get() = \"sharedworker\".asDynamic().unsafeCast<ClientType>()\n\npublic inline val ClientType.Companion.ALL: ClientType get() = \"all\".asDynamic().unsafeCast<ClientType>()","/*\n * Copyright 2010-2021 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\n// NOTE: THIS FILE IS AUTO-GENERATED, DO NOT EDIT!\n// See github.com/kotlin/dukat for details\n\npackage org.w3c.xhr\n\nimport kotlin.js.*\nimport org.khronos.webgl.*\nimport org.w3c.dom.*\nimport org.w3c.dom.events.*\nimport org.w3c.files.*\n\n/**\n * Exposes the JavaScript [XMLHttpRequestEventTarget](https://developer.mozilla.org/en/docs/Web/API/XMLHttpRequestEventTarget) to Kotlin\n */\npublic external abstract class XMLHttpRequestEventTarget : EventTarget {\n   open var onloadstart: ((ProgressEvent) -> dynamic)?\n   open var onprogress: ((ProgressEvent) -> dynamic)?\n   open var onabort: ((Event) -> dynamic)?\n   open var onerror: ((Event) -> dynamic)?\n   open var onload: ((Event) -> dynamic)?\n   open var ontimeout: ((Event) -> dynamic)?\n   open var onloadend: ((Event) -> dynamic)?\n}\n\npublic external abstract class XMLHttpRequestUpload : XMLHttpRequestEventTarget\n\n/**\n * Exposes the JavaScript [XMLHttpRequest](https://developer.mozilla.org/en/docs/Web/API/XMLHttpRequest) to Kotlin\n */\npublic external open class XMLHttpRequest : XMLHttpRequestEventTarget {\n   var onreadystatechange: ((Event) -> dynamic)?\n   open val readyState: Short\n   var timeout: Int\n   var withCredentials: Boolean\n   open val upload: XMLHttpRequestUpload\n   open val responseURL: String\n   open val status: Short\n   open val statusText: String\n   var responseType: XMLHttpRequestResponseType\n   open val response: Any?\n   open val responseText: String\n   open val responseXML: Document?\n   fun open(method: String, url: String)\n   fun open(method: String, url: String, async: Boolean, username: String? = definedExternally, password: String? = definedExternally)\n   fun setRequestHeader(name: String, value: String)\n   fun send(body: dynamic = definedExternally)\n   fun abort()\n   fun getResponseHeader(name: String): String?\n   fun getAllResponseHeaders(): String\n   fun overrideMimeType(mime: String)\n\n   companion object {\n   val UNSENT: Short\n   val OPENED: Short\n   val HEADERS_RECEIVED: Short\n   val LOADING: Short\n   val DONE: Short\n   }\n}\n\n/**\n * Exposes the JavaScript [FormData](https://developer.mozilla.org/en/docs/Web/API/FormData) to Kotlin\n */\npublic external open class FormData(form: HTMLFormElement = definedExternally) {\n   fun append(name: String, value: String)\n   fun append(name: String, value: Blob, filename: String = definedExternally)\n   fun delete(name: String)\n   fun get(name: String): dynamic\n   fun getAll(name: String): Array<dynamic>\n   fun has(name: String): Boolean\n fun set(name: String, value: String)\n   fun set(name: String, value: Blob, filename: String = definedExternally)\n}\n\n/**\n * Exposes the JavaScript [ProgressEvent](https://developer.mozilla.org/en/docs/Web/API/ProgressEvent) to Kotlin\n */\npublic external open class ProgressEvent(type: String, eventInitDict: ProgressEventInit = definedExternally) : Event {\n   open val lengthComputable: Boolean\n   open val loaded: Number\n   open val total: Number\n\n   companion object {\n   val NONE: Short\n   val CAPTURING_PHASE: Short\n   val AT_TARGET: Short\n   val BUBBLING_PHASE: Short\n   }\n}\n\npublic external interface ProgressEventInit : EventInit {\n   var lengthComputable: Boolean? /* = false */\n   get() = definedExternally\n   set(value) = definedExternally\n   var loaded: Number? /* = 0 */\n   get() = definedExternally\n   set(value) = definedExternally\n   var total: Number? /* = 0 */\n   get() = definedExternally\n   set(value) = definedExternally\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline fun ProgressEventInit(lengthComputable: Boolean? = false, loaded: Number? = 0, total: Number? = 0, bubbles: Boolean? = false, cancelable: Boolean? = false, composed: Boolean? = false): ProgressEventInit {\n   val o = js(\"({})\")\n   o[\"lengthComputable\"] = lengthComputable\n   o[\"loaded\"] = loaded\n   o[\"total\"] = total\n   o[\"bubbles\"] = bubbles\n   o[\"cancelable\"] = cancelable\n   o[\"composed\"] = composed\n   return o\n}\n\n/* please, don't implement this interface! */\n@JsName(\"null\")\n@Suppress(\"NESTED_CLASS_IN_EXTERNAL_INTERFACE\")\npublic external interface XMLHttpRequestResponseType {\n   companion object\n}\n\npublic inline val XMLHttpRequestResponseType.Companion.EMPTY: XMLHttpRequestResponseType get() = \"\".asDynamic().unsafeCast<XMLHttpRequestResponseType>()\n\npublic inline val XMLHttpRequestResponseType.Companion.ARRAYBUFFER: XMLHttpRequestResponseType get() = \"arraybuffer\".asDynamic().unsafeCast<XMLHttpRequestResponseType>()\n\npublic inline val XMLHttpRequestResponseType.Companion.BLOB: XMLHttpRequestResponseType get() = \"blob\".asDynamic().unsafeCast<XMLHttpRequestResponseType>()\n\npublic inline val XMLHttpRequestResponseType.Companion.DOCUMENT: XMLHttpRequestResponseType get() = \"document\".asDynamic().unsafeCast<XMLHttpRequestResponseType>()\n\npublic inline val XMLHttpRequestResponseType.Companion.JSON: XMLHttpRequestResponseType get() = \"json\".asDynamic().unsafeCast<XMLHttpRequestResponseType>()\n\npublic inline val XMLHttpRequestResponseType.Companion.TEXT: XMLHttpRequestResponseType get() = \"text\".asDynamic().unsafeCast<XMLHttpRequestResponseType>()","/*\n * Copyright 2010-2018 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin\n\nimport kotlin.annotation.AnnotationRetention.BINARY\nimport kotlin.annotation.AnnotationRetention.SOURCE\nimport kotlin.annotation.AnnotationTarget.*\nimport kotlin.internal.RequireKotlin\nimport kotlin.internal.RequireKotlinVersionKind\nimport kotlin.reflect.KClass\n\n/**\n * Signals that the annotated annotation class is a marker of an experimental API.\n *\n * Any declaration annotated with that marker is considered an experimental declaration\n * and its call sites should accept the experimental aspect of it either by using [UseExperimental],\n * or by being annotated with that marker themselves, effectively causing further

propagation of that experimental aspect.\n *\n * This class is deprecated in favor of a more general approach provided by [RequiresOptIn]/[OptIn].\n */\n@Target(ANNOTATION_CLASS)\n@Retention(BINARY)\n@SinceKotlin(\"1.2\")\n@DeprecatedSinceKotlin(warningSince = \"1.4\", errorSince = \"1.6\")\n@Deprecated(\"Please use RequiresOptIn instead.\")\npublic annotation class Experimental(val level: Level = Level.ERROR) {\n /**\n * Severity of the diagnostic that should be reported on usages of experimental API which did not explicitly accept the experimental aspect\n * of that API either by using [UseExperimental] or by being annotated with the corresponding marker annotation.\n */\n public enum class Level {\n /** Specifies that a warning should be reported on incorrect usages of this experimental API. */\n WARNING,\n /** Specifies that an error should be reported on incorrect usages of this experimental API. */\n ERROR,\n }\n}\n\n/**\n * Allows to use experimental API denoted by the given markers in the annotated file, declaration, or expression.\n * If a declaration is annotated with [UseExperimental], its usages are **not** required to opt-in to that experimental API.\n *\n * This class is deprecated in favor of a more general approach provided by [RequiresOptIn]/[OptIn].\n */\n@Target(\n CLASS, PROPERTY, LOCAL_VARIABLE, VALUE_PARAMETER, CONSTRUCTOR, FUNCTION, PROPERTY_GETTER, PROPERTY_SETTER, EXPRESSION, FILE, TYPEALIAS\n)\n@Retention(SOURCE)\n@SinceKotlin(\"1.2\")\n@DeprecatedSinceKotlin(warningSince = \"1.4\", errorSince = \"1.6\")\n@Deprecated(\"Please use OptIn instead.\", ReplaceWith(\"OptIn(*markerClass)\", \"kotlin.OptIn\"))\npublic annotation class UseExperimental(\n vararg val markerClass: KClass<out Annotation>\n)\n\n\n@Target(CLASS, PROPERTY, CONSTRUCTOR, FUNCTION, TYPEALIAS)\n@Retention(BINARY)\ninternal annotation class WasExperimental(\n vararg val markerClass: KClass<out Annotation>\n)\n","package kotlin\n\nimport kotlin.annotation.AnnotationTarget.*\n\n/**\n * This annotation marks the standard library API that is considered experimental and is not subject to the\n * [general compatibility guarantees](https://kotlinlang.org/docs/reference/evolution/components-stability.html) given for the standard library:\n * the behavior of such API may be changed or the API may be removed completely in any further release.\n *\n * > Beware using the annotated API especially if you're developing a library, since your library might become binary incompatible\n * with the future versions of the standard library.\n *\n * Any usage of a declaration annotated with `@ExperimentalStdlibApi` must be accepted either by\n * annotating that usage with the [OptIn] annotation, e.g. `@OptIn(ExperimentalStdlibApi::class)`,\n * or by using the compiler argument `-opt-in=kotlin.ExperimentalStdlibApi`.\n */\n@RequiresOptIn(level = RequiresOptIn.Level.ERROR)\n@Retention(AnnotationRetention.BINARY)\n@Target(\n CLASS,\n ANNOTATION_CLASS,\n PROPERTY,\n FIELD,\n LOCAL_VARIABLE,\n VALUE_PARAMETER,\n CONSTRUCTOR,\n FUNCTION,\n PROPERTY_GETTER,\n PROPERTY_SETTER,\n TYPEALIAS\n)\n@MustBeDocumented\n@SinceKotlin(\"1.3\")\npublic annotation class ExperimentalStdlibApi\n","/*\n * Copyright 2010-2020 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin\n\nimport kotlin.annotation.AnnotationTarget.*\nimport kotlin.experimental.ExperimentalTypeInference\n\n/**\n * Allows to infer generic type arguments of a function from the calls in the annotated function parameter of that function.\n *\n * When this annotation is placed on a generic function parameter of a function,\n * it enables to infer the type arguments of that generic function from the lambda body passed to that parameter.\n *\n * The calls that affect inference are either members of the receiver type of an annotated function parameter or\n * extensions for that type. The extensions must be themselves annotated with `@BuilderInference`.\n *\n * Example: we declare\n * ```\n * fun <T> sequence(@BuilderInference block: suspend SequenceScope<T>.() -> Unit): Sequence<T>\n * ```\n * and use it like\n * ```\n * val result = sequence { yield(\"result\") }\n * ```\n * Here the type argument of the resulting sequence is inferred to `String` from\n * the argument of the [SequenceScope.yield] function, that is called inside the lambda passed to [sequence].\n *\n * Note: this annotation is experimental, see [ExperimentalTypeInference] on how to opt-in for it.\n */\n@Target(VALUE_PARAMETER, FUNCTION, PROPERTY)\n@Retention(AnnotationRetention.BINARY)\n@SinceKotlin(\"1.3\")\n@ExperimentalTypeInferenc

e\npublic annotation class BuilderInference\n\n\n/**\n * Enables overload selection based on the type of the value returned from lambda argument.\n *\n * When two or more function overloads have otherwise the same parameter lists that differ only in the return type\n * of a functional parameter, this annotation enables overload selection by the type of the value returned from\n * the lambda function passed to this functional parameter.\n *\n * Example:\n * ```\n * @OverloadResolutionByLambdaReturnType\n * fun create(intProducer: () -> Int): Int\n *\n * fun create(doubleProducer: () -> Double): Double\n *\n * val newValue = create { 3.14 }\n * ```\n *\n * The annotation being applied to one of overloads allows to resolve this ambiguity by analyzing what value is returned\n * from the lambda function.\n *\n * This annotation is also used to discriminate the annotated overloads in case if overload selection still cannot\n * choose one of them even taking in account the result of lambda parameter analysis. In that case a warning is reported.\n *\n * Note: this annotation is experimental, see [ExperimentalTypeInference] on how to opt-in for it.\n */\n@Target(FUNCTION)\n@Retention(AnnotationRetention.BINARY)\n@SinceKotlin(\"1.4\")\n@ExperimentalTypeInference\npublic annotation class OverloadResolutionByLambdaReturnType","/*\n * Copyright 2010-2018 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin\n\nimport kotlin.annotation.AnnotationTarget.*\nimport kotlin.internal.RequireKotlin\nimport kotlin.internal.RequireKotlinVersionKind\n\n/**\n * The experimental multiplatform support API marker.\n *\n * Any usage of a declaration annotated with `@ExperimentalMultiplatform` must be accepted either by\n * annotating that usage with the [OptIn] annotation, e.g. `@OptIn(ExperimentalMultiplatform::class)`,\n * or by using the compiler argument `-opt-in=kotlin.ExperimentalMultiplatform`.\n */\n@RequiresOptIn\n@MustBeDocumented\n@Target(\n   CLASS,\n   ANNOTATION_CLASS,\n   PROPERTY,\n   FIELD,\n   LOCAL_VARIABLE,\n   VALUE_PARAMETER,\n   CONSTRUCTOR,\n   FUNCTION,\n   PROPERTY_GETTER,\n   PROPERTY_SETTER,\n   TYPEALIAS\n)\n@Retention(AnnotationRetention.BINARY)\npublic annotation class ExperimentalMultiplatform\n\n/**\n * Marks an expected annotation class that it isn't required to have actual counterparts in all platforms.\n *\n * This annotation is only applicable to `expect` annotation classes in multi-platform projects and marks that class as \"optional\".\n * Optional expected class is allowed to have no corresponding actual class on the platform. Optional annotations can only be used\n * to annotate something, not as types in signatures. If an optional annotation has no corresponding actual class on a platform,\n * the annotation entries where it's used are simply erased when compiling code on that platform.\n *\n * Note: this annotation is experimental, see [ExperimentalMultiplatform] on how to opt-in for it.\n */\n@Target(ANNOTATION_CLASS)\n@Retention(AnnotationRetention.BINARY)\n@ExperimentalMultiplatform\npublic annotation class OptionalExpectation\n","/*\n * Copyright 2010-2018 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin\n\nimport kotlin.annotation.AnnotationRetention.BINARY\nimport kotlin.annotation.AnnotationRetention.SOURCE\nimport kotlin.annotation.AnnotationTarget.*\nimport kotlin.internal.RequireKotlin\nimport kotlin.internal.RequireKotlinVersionKind\nimport kotlin.reflect.KClass\n\n/**\n * Signals that the annotated annotation class is a marker of an API that requires an explicit opt-in.\n *\n * Call sites of any declaration annotated with that marker should opt in to the API either by using [OptIn],\n * or by being annotated with that marker themselves, effectively causing further propagation of the opt-in requirement.\n *\n * @property message message to be reported on usages of API without an explicit opt-in, or empty string for the default message.\n * The default message is: \"This declaration is experimental and its usage should be marked with 'Marker'\n * or '@OptIn(Marker::class)'\", where `Marker` is the opt-in requirement marker.\n * @property level specifies how usages of API without an explicit opt-in are reported in code.\n */\n@Target(ANNOTATION_CLASS)\n@Retention(BINARY)\n@SinceKotlin(\"1.3\")\npublic annotation class RequiresOptIn(\n   val message: String = \"\",\n   val level: Level = Level.ERROR\n) {\n   /**\n   * Severity of the diagnostic that should be reported on usages which did not explicitly opted into\n   * the API either by using

[OptIn] or by being annotated with the corresponding marker annotation.\n */\n public enum class Level {\n /** Specifies that a warning should be reported on incorrect usages of this API. */\n WARNING,\n\n /** Specifies that an error should be reported on incorrect usages of this API. */\n ERROR,\n }\n}\n\n/**\n * Allows to use the API denoted by the given markers in the annotated file, declaration, or expression.\n * If a declaration is annotated with [OptIn], its usages are **not** required to opt in to that API.\n */\n@Target(\n CLASS, PROPERTY, LOCAL_VARIABLE, VALUE_PARAMETER, CONSTRUCTOR, FUNCTION, PROPERTY_GETTER, PROPERTY_SETTER, EXPRESSION, FILE, TYPEALIAS\n)\n@Retention(SOURCE)\n@SinceKotlin(\"1.3\")\npublic annotation class OptIn(\n vararg val markerClass: KClass<out Annotation>\n)\n","/*\n * Copyright 2010-2020 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\npackage kotlin.collections\n\nimport kotlin.js.JsName\n\n/**\n * Provides a skeletal implementation of the read-only [Collection] interface.\n *\n * @param E the type of elements contained in the collection. The collection is covariant in its element type.\n */\n@SinceKotlin(\"1.1\")\npublic abstract class AbstractCollection<out E> protected constructor() : Collection<E> {\n abstract override val size: Int\n abstract override fun iterator(): Iterator<E>\n\n override fun contains(element: @UnsafeVariance E): Boolean = any { it == element }\n\n override fun containsAll(elements: Collection<@UnsafeVariance E>): Boolean =\n elements.all { contains(it) } // use when js will support bound refs: elements.all(this::contains)\n\n override fun isEmpty(): Boolean = size == 0\n\n override fun toString(): String = joinToString(\", \", \"[\", \"]\") {\n if (it === this) \"(this Collection)\" else it.toString()\n }\n\n /**\n * Returns new array of type `Array<Any?>` with the elements of this collection.\n */\n @JsName(\"toArray\")\n protected open fun toArray(): Array<Any?> = copyToArrayImpl(this)\n\n /**\n * Fills the provided [array] or creates new array of the same type\n * and fills it with the elements of this collection.\n */\n protected open fun <T> toArray(array: Array<T>): Array<T> = copyToArrayImpl(this, array)\n}\n","/*\n * Copyright 2010-2018 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin.collections\n\n\nprivate enum class State {\n Ready,\n NotReady,\n Done,\n Failed\n}\n\n/**\n * A base class to simplify implementing iterators so that implementations only have to implement [computeNext]\n * to implement the iterator, calling [done] when the iteration is complete.\n */\npublic abstract class AbstractIterator<T> : Iterator<T> {\n private var state = State.NotReady\n private var nextValue: T? = null\n\n override fun hasNext(): Boolean {\n require(state != State.Failed)\n return when (state) {\n State.Done -> false\n State.Ready -> true\n else -> tryToComputeNext()\n }\n }\n\n override fun next(): T {\n if (!hasNext()) throw NoSuchElementException()\n state = State.NotReady\n @Suppress(\"UNCHECKED_CAST\")\n return nextValue as T\n }\n\n private fun tryToComputeNext(): Boolean {\n state = State.Failed\n computeNext()\n return state == State.Ready\n }\n\n /**\n * Computes the next item in the iterator.\n *\n * This callback method should call one of these two methods:\n *\n * * [setNext] with the next value of the iteration\n * * [done] to indicate there are no more elements\n *\n * Failure to call either method will result in the iteration terminating with a failed state\n */\n abstract protected fun computeNext(): Unit\n\n /**\n * Sets the next value in the iteration, called from the [computeNext] function\n */\n protected fun setNext(value: T): Unit {\n nextValue = value\n state = State.Ready\n }\n\n /**\n * Sets the state to done so that the iteration terminates.\n */\n protected fun done() {\n state = State.Done\n }\n}\n\n\n","/*\n * Copyright 2010-2020 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\n/*\n * Based on GWT AbstractList\n * Copyright 2007 Google Inc.\n*/\n\npackage kotlin.collections\n\n/**\n * Provides a skeletal implementation of the read-only [List] interface.\n *\n * This class is intended to help implementing read-only lists so it doesn't support concurrent modification tracking.\n *\n * @param E the type of elements contained in the list. The list is covariant in its element type.\n */\n@SinceKotlin(\"1.1\")\npublic abstract class AbstractList<out E> protected constructor() : AbstractCollection<E>(), List<E> {\n abstract override val size: Int\n abstract override fun get(index: Int): E\n\n override fun iterator(): Iterator<E> = IteratorImpl()\n\n override fun indexOf(element:

@UnsafeVariance E): Int = indexOfFirst { it == element }\n\n   override fun lastIndexOf(element: @UnsafeVariance E): Int = indexOfLast { it == element }\n\n   override fun listIterator(): ListIterator<E> = ListIteratorImpl(0)\n\n   override fun listIterator(index: Int): ListIterator<E> = ListIteratorImpl(index)\n\n   override fun subList(fromIndex: Int, toIndex: Int): List<E> = SubList(this, fromIndex, toIndex)\n\n   private class SubList<out E>(private val list: AbstractList<E>, private val fromIndex: Int, toIndex: Int) : AbstractList<E>(), RandomAccess {\n   private var _size: Int = 0\n\n   init {\n   checkRangeIndexes(fromIndex, toIndex, list.size)\n   this._size = toIndex - fromIndex\n   }\n\n   override fun get(index: Int): E {\n   checkElementIndex(index, _size)\n\n   return list[fromIndex + index]\n   }\n\n   override val size: Int get() = _size\n   }\n\n   /**\n   * Compares this list with other list instance with the ordered structural equality.\n   *\n   * @return true, if [other] instance is a [List] of the same size, which contains the same elements in the same order.\n   */\n   override fun equals(other: Any?): Boolean {\n   if (other === this) return true\n   if (other !is List<*>) return false\n\n   return orderedEquals(this, other)\n   }\n\n   /**\n   * Returns the hash code value for this list.\n   */\n   override fun hashCode(): Int = orderedHashCode(this)\n\n   private open inner class IteratorImpl : Iterator<E> {\n   /** the index of the item that will be returned on the next call to [next]`()` */\n   protected var index = 0\n\n   override fun hasNext(): Boolean = index < size\n\n   override fun next(): E {\n   if (!hasNext()) throw NoSuchElementException()\n   return get(index++)\n   }\n   }\n\n   /**\n   * Implementation of [ListIterator] for abstract lists.\n   */\n   private open inner class ListIteratorImpl(index: Int) : IteratorImpl(), ListIterator<E> {\n\n   init {\n   checkPositionIndex(index, this@AbstractList.size)\n   this.index = index\n   }\n\n   override fun hasPrevious(): Boolean = index > 0\n\n   override fun nextIndex(): Int = index\n\n   override fun previous(): E {\n   if (!hasPrevious()) throw NoSuchElementException()\n   return get(--index)\n   }\n\n   override fun previousIndex(): Int = index - 1\n   }\n\n   internal companion object {\n   internal fun checkElementIndex(index: Int, size: Int) {\n   if (index < 0 || index >= size) {\n   throw IndexOutOfBoundsException(\"index: $index, size: $size\")\n   }\n   }\n\n   internal fun checkPositionIndex(index: Int, size: Int) {\n   if (index < 0 || index > size) {\n   throw IndexOutOfBoundsException(\"index: $index, size: $size\")\n   }\n   }\n\n   internal fun checkRangeIndexes(fromIndex: Int, toIndex: Int, size: Int) {\n   if (fromIndex < 0 || toIndex > size) {\n   throw IndexOutOfBoundsException(\"fromIndex: $fromIndex, toIndex: $toIndex, size: $size\")\n   }\n   if (fromIndex > toIndex) {\n   throw IllegalArgumentException(\"fromIndex: $fromIndex > toIndex: $toIndex\")\n   }\n   }\n\n   internal fun checkBoundsIndexes(startIndex: Int, endIndex: Int, size: Int) {\n   if (startIndex < 0 || endIndex > size) {\n   throw IndexOutOfBoundsException(\"startIndex: $startIndex, endIndex: $endIndex, size: $size\")\n   }\n   if (startIndex > endIndex) {\n   throw IllegalArgumentException(\"startIndex: $startIndex > endIndex: $endIndex\")\n   }\n   }\n\n   internal fun orderedHashCode(c: Collection<*>): Int {\n   var hashCode = 1\n   for (e in c) {\n   hashCode = 31 * hashCode + (e?.hashCode() ?: 0)\n   }\n   return hashCode\n   }\n\n   internal fun orderedEquals(c: Collection<*>, other: Collection<*>): Boolean {\n   if (c.size != other.size) return false\n\n   val otherIterator = other.iterator()\n   for (elem in c) {\n   val elemOther = otherIterator.next()\n   if (elem != elemOther) {\n   return false\n   }\n   }\n   return true\n   }\n   }\n}","/*\n * Copyright 2010-2020 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\n/*\n * Based on GWT AbstractMap\n * Copyright 2007 Google Inc.\n */\n\npackage kotlin.collections\n\n/**\n * Provides a skeletal implementation of the read-only [Map] interface.\n *\n * The implementor is required to implement [entries] property, which should return read-only set of map entries.\n *\n * @param K the type of map keys. The map is invariant in its key type.\n * @param V the type of map values. The map is covariant in its value type.\n */\n@SinceKotlin(\"1.1\")\npublic abstract class AbstractMap<K, out V> protected constructor() : Map<K, V> {\n\n   override fun containsKey(key: K): Boolean {\n   return implFindEntry(key) != null\n   }\n\n   override fun containsValue(value: @UnsafeVariance V): Boolean = entries.any { it.value == value }\n\n   internal fun containsEntry(entry: Map.Entry<*, *>?): Boolean {\n   // since entry comes from @UnsafeVariance parameters it can be virtually anything\n   if (entry !is Map.Entry<*, *>) return false\n   val key = entry.key\n   val value

= entry.value\n val ourValue = get(key)\n\n if (value != ourValue) {\n return false\n }\n\n // Perhaps it was null and we don't contain the key?\n if (ourValue == null && !containsKey(key)) {\n return false\n }\n\n return true\n }\n\n\n /**\n * Compares this map with other instance with the ordered structural equality.\n *\n * @return true, if [other] instance is a [Map] of the same size, all entries of which are contained in the [entries] set of this map.\n */\n override fun equals(other: Any?): Boolean {\n if (other === this) return true\n if (other !is Map<*, *>) return false\n if (size != other.size) return false\n\n return other.entries.all { containsEntry(it) }\n }\n\n override operator fun get(key: K): V? = implFindEntry(key)?.value\n\n\n /**\n * Returns the hash code value for this map.\n *\n * It is the same as the hashCode of [entries] set.\n */\n override fun hashCode(): Int = entries.hashCode()\n\n override fun isEmpty(): Boolean = size == 0\n override val size: Int get() = entries.size\n\n /**\n * Returns a read-only [Set] of all keys in this map.\n *\n * Accessing this property first time creates a keys view from [entries].\n * All subsequent accesses just return the created instance.\n */\n override val keys: Set<K>\n get() {\n if (_keys == null) {\n _keys = object : AbstractSet<K>() {\n override operator fun contains(element: K): Boolean = containsKey(element)\n\n override operator fun iterator(): Iterator<K> {\n val entryIterator = entries.iterator()\n return object : Iterator<K> {\n override fun hasNext(): Boolean = entryIterator.hasNext()\n override fun next(): K = entryIterator.next().key\n }\n }\n\n override val size: Int get() = this@AbstractMap.size\n }\n }\n return _keys!!\n }\n\n @kotlin.jvm.Volatile\n private var _keys: Set<K>? = null\n\n\n override fun toString(): String = entries.joinToString(\", \", \"{\", \"}\") { toString(it) }\n\n private fun toString(entry: Map.Entry<K, V>): String = toString(entry.key) + \"=\" + toString(entry.value)\n\n private fun toString(o: Any?): String = if (o === this) \"(this Map)\" else o.toString()\n\n /**\n * Returns a read-only [Collection] of all values in this map.\n *\n * Accessing this property first time creates a values view from [entries].\n * All subsequent accesses just return the created instance.\n */\n override val values: Collection<V>\n get() {\n if (_values == null) {\n _values = object : AbstractCollection<V>() {\n override operator fun contains(element: @UnsafeVariance V): Boolean = containsValue(element)\n\n override operator fun iterator(): Iterator<V> {\n val entryIterator = entries.iterator()\n return object : Iterator<V> {\n override fun hasNext(): Boolean = entryIterator.hasNext()\n override fun next(): V = entryIterator.next().value\n }\n }\n\n override val size: Int get() = this@AbstractMap.size\n }\n }\n return _values!!\n }\n\n @kotlin.jvm.Volatile\n private var _values: Collection<V>? = null\n\n private fun implFindEntry(key: K): Map.Entry<K, V>? = entries.firstOrNull { it.key == key }\n\n internal companion object {\n\n internal fun entryHashCode(e: Map.Entry<*, *>): Int = with(e) { (key?.hashCode() ?: 0) xor (value?.hashCode() ?: 0) }\n internal fun entryToString(e: Map.Entry<*, *>): String = with(e) { \"$key=$value\" }\n internal fun entryEquals(e: Map.Entry<*, *>, other: Any?): Boolean {\n if (other !is Map.Entry<*, *>) return false\n return e.key == other.key && e.value == other.value\n }\n }\n}\n","/*\n * Copyright 2010-2020 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\npackage kotlin.collections\n\n/**\n * Provides a skeletal implementation of the read-only [Set] interface.\n *\n * This class is intended to help implementing read-only sets so it doesn't support concurrent modification tracking.\n *\n * @param E the type of elements contained in the set. The set is covariant in its element type.\n */\n@SinceKotlin(\"1.1\")\npublic abstract class AbstractSet<out E> protected constructor() : AbstractCollection<E>(), Set<E> {\n\n /**\n * Compares this set with other set instance with the unordered structural equality.\n *\n * @return true, if [other] instance is a [Set] of the same size, all elements of which are contained in this set.\n */\n override fun equals(other: Any?): Boolean {\n if (other === this) return true\n if (other !is Set<*>) return false\n return setEquals(this, other)\n }\n\n /**\n * Returns the hash code value for this set.\n */\n override fun hashCode(): Int = unorderedHashCode(this)\n\n internal companion object {\n internal fun unorderedHashCode(c: Collection<*>): Int {\n var hashCode = 0\n for (element in c) {\n hashCode += (element?.hashCode() ?: 0)\n }\n return hashCode\n

}\n\n internal fun setEquals(c: Set<*>, other: Set<*>): Boolean {\n if (c.size != other.size) return false\n return c.containsAll(other)\n }\n }\n\n}","/*\n * Copyright 2010-2019 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin.collections\n\n/**\n * Resizable-array implementation of the deque data structure.\n *\n * The name deque is short for \"double ended queue\" and is usually pronounced \"deck\".\n *\n * The collection provide methods for convenient access to the both ends.\n * It also implements [MutableList] interface and supports efficient get/set operations by index.\n */\n@SinceKotlin(\"1.4\")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic class ArrayDeque<E> : AbstractMutableList<E> {\n private var head: Int = 0\n private var elementData: Array<Any?>\n\n override var size: Int = 0\n private set\n\n /**\n * Constructs an empty deque with specified [initialCapacity], or throws [IllegalArgumentException] if [initialCapacity] is negative.\n */\n public constructor(initialCapacity: Int) {\n elementData = when {\n initialCapacity == 0 -> emptyElementData\n initialCapacity > 0 -> arrayOfNulls(initialCapacity)\n else -> throw IllegalArgumentException(\"Illegal Capacity: $initialCapacity\")\n }\n }\n\n /**\n * Constructs an empty deque.\n */\n public constructor() {\n elementData = emptyElementData\n }\n\n /**\n * Constructs a deque that contains the same elements as the specified [elements] collection in the same order.\n */\n public constructor(elements: Collection<E>) {\n elementData = elements.toTypedArray()\n size = elementData.size\n if (elementData.isEmpty()) elementData = emptyElementData\n }\n\n /**\n * Ensures that the capacity of this deque is at least equal to the specified [minCapacity].\n *\n * If the current capacity is less than the [minCapacity], a new backing storage is allocated with greater capacity.\n * Otherwise, this method takes no action and simply returns.\n */\n private fun ensureCapacity(minCapacity: Int) {\n if (minCapacity < 0) throw IllegalStateException(\"Deque is too big.\") // overflow\n if (minCapacity <= elementData.size) return\n if (elementData === emptyElementData) {\n elementData = arrayOfNulls(minCapacity.coerceAtLeast(defaultMinCapacity))\n return\n }\n\n val newCapacity = newCapacity(elementData.size, minCapacity)\n copyElements(newCapacity)\n }\n\n /**\n * Creates a new array with the specified [newCapacity] size and copies elements in the [elementData] array to it.\n */\n private fun copyElements(newCapacity: Int) {\n val newElements = arrayOfNulls<Any?>(newCapacity)\n elementData.copyInto(newElements, 0, head, elementData.size)\n elementData.copyInto(newElements, elementData.size - head, 0, head)\n head = 0\n elementData = newElements\n }\n\n @kotlin.internal.InlineOnly\n private inline fun internalGet(internalIndex: Int): E {\n @Suppress(\"UNCHECKED_CAST\")\n return elementData[internalIndex] as E\n }\n\n private fun positiveMod(index: Int): Int = if (index >= elementData.size) index - elementData.size else index\n\n private fun negativeMod(index: Int): Int = if (index < 0) index + elementData.size else index\n\n @kotlin.internal.InlineOnly\n private inline fun internalIndex(index: Int): Int = positiveMod(head + index)\n\n private fun incremented(index: Int): Int = if (index == elementData.lastIndex) 0 else index + 1\n\n private fun decremented(index: Int): Int = if (index == 0) elementData.lastIndex else index - 1\n\n override fun isEmpty(): Boolean = size == 0\n\n /**\n * Returns the first element, or throws [NoSuchElementException] if this deque is empty.\n */\n public fun first(): E = if (isEmpty()) throw NoSuchElementException(\"ArrayDeque is empty.\") else internalGet(head)\n\n /**\n * Returns the first element, or `null` if this deque is empty.\n */\n public fun firstOrNull(): E? = if (isEmpty()) null else internalGet(head)\n\n /**\n * Returns the last element, or throws [NoSuchElementException] if this deque is empty.\n */\n public fun last(): E = if (isEmpty()) throw NoSuchElementException(\"ArrayDeque is empty.\") else internalGet(internalIndex(lastIndex))\n\n /**\n * Returns the last element, or `null` if this deque is empty.\n */\n public fun lastOrNull(): E? = if (isEmpty()) null else internalGet(internalIndex(lastIndex))\n\n /**\n * Prepends the specified [element] to this deque.\n */\n public fun addFirst(element: E) {\n ensureCapacity(size + 1)\n\n head = decremented(head)\n elementData[head] = element\n size += 1\n }\n\n /**\n * Appends the specified [element] to this deque.\n */\n public fun addLast(element: E) {\n ensureCapacity(size + 1)\n\n elementData[internalIndex(size)] = element\n size += 1\n }\n\n /**\n * Removes the first element from this deque and returns that removed element, or throws [NoSuchElementException]

if this deque is empty.\n   */\n   public fun removeFirst(): E {\n   if (isEmpty()) throw NoSuchElementException(\"ArrayDeque is empty.\")\n\n   val element = internalGet(head)\n   elementData[head] = null\n   head = incremented(head)\n   size -= 1\n   return element\n   }\n\n   /**\n   * Removes the first element from this deque and returns that removed element, or returns `null` if this deque is empty.\n   */\n   public fun removeFirstOrNull(): E? = if (isEmpty()) null else removeFirst()\n\n   /**\n   * Removes the last element from this deque and returns that removed element, or throws [NoSuchElementException] if this deque is empty.\n   */\n   public fun removeLast(): E {\n   if (isEmpty()) throw NoSuchElementException(\"ArrayDeque is empty.\")\n\n   val internalLastIndex = internalIndex(lastIndex)\n   val element = internalGet(internalLastIndex)\n   elementData[internalLastIndex] = null\n   size -= 1\n   return element\n   }\n\n   /**\n   * Removes the last element from this deque and returns that removed element, or returns `null` if this deque is empty.\n   */\n   public fun removeLastOrNull(): E? = if (isEmpty()) null else removeLast()\n\n   // MutableList, MutableCollection\n   public override fun add(element: E): Boolean {\n   addLast(element)\n   return true\n   }\n\n   public override fun add(index: Int, element: E) {\n   AbstractList.checkPositionIndex(index, size)\n\n   if (index == size) {\n   addLast(element)\n   return\n   } else if (index == 0) {\n   addFirst(element)\n   return\n   }\n\n   ensureCapacity(size + 1)\n\n   // Elements in circular array lay in 2 ways:\n   //   1. `head` is less than `tail`:   [#, #, e1, e2, e3, #]\n   //   2. `head` is greater than `tail`:   [e3, #, #, #, e1, e2]\n   // where head is the index of the first element in the circular array,\n   // and tail is the index following the last element.\n   //\n   // At this point the insertion index is not equal to head or tail.\n   // Also the circular array can store at least one more element.\n   //\n   // Depending on where the given element must be inserted the preceding or the succeeding\n   // elements will be shifted to make room for the element to be inserted.\n   //\n   // In case the preceding elements are shifted:\n   //   * if the insertion index is greater than the head (regardless of circular array form)\n   //   -> shift the preceding elements\n   //   * otherwise, the circular array has (2) form and the insertion index is less than tail\n   //   -> shift all elements in the back of the array\n   //   -> shift preceding elements in the front of the array\n   // In case the succeeding elements are shifted:\n   //   * if the insertion index is less than the tail (regardless of circular array form)\n   //   -> shift the succeeding elements\n   //   * otherwise, the circular array has (2) form and the insertion index is greater than head\n   //   -> shift all elements in the front of the array\n   //   -> shift succeeding elements in the back of the array\n\n   val internalIndex = internalIndex(index)\n\n   if (index < (size + 1) shr 1) {\n   // closer to the first element -> shift preceding elements\n   val decrementedInternalIndex = decremented(internalIndex)\n   val decrementedHead = decremented(head)\n\n   if (decrementedInternalIndex >= head) {\n   elementData[decrementedHead] = elementData[head] // head can be zero\n   elementData.copyInto(elementData, head, head + 1, decrementedInternalIndex + 1)\n   } else { // head > tail\n   elementData.copyInto(elementData, head - 1, head, elementData.size) // head can't be zero\n   elementData[elementData.size - 1] = elementData[0]\n   elementData.copyInto(elementData, 0, 1, decrementedInternalIndex + 1)\n   }\n\n   elementData[decrementedInternalIndex] = element\n   head = decrementedHead\n   } else {\n   // closer to the last element -> shift succeeding elements\n   val tail = internalIndex(size)\n\n   if (internalIndex < tail) {\n   elementData.copyInto(elementData, internalIndex + 1, internalIndex, tail)\n   } else { // head > tail\n   elementData.copyInto(elementData, 1, 0, tail)\n   elementData[0] = elementData[elementData.size - 1]\n   elementData.copyInto(elementData, internalIndex + 1, internalIndex, elementData.size - 1)\n   }\n\n   elementData[internalIndex] = element\n   }\n   size += 1\n   }\n\n   private fun copyCollectionElements(internalIndex: Int, elements: Collection<E>) {\n   val iterator = elements.iterator()\n\n   for (index in internalIndex until elementData.size) {\n   if (!iterator.hasNext()) break\n   elementData[index] = iterator.next()\n   }\n   for (index in 0 until head) {\n   if (!iterator.hasNext()) break\n   elementData[index] = iterator.next()\n   }\n\n   size += elements.size\n   }\n\n   public override fun addAll(elements: Collection<E>): Boolean {\n   if (elements.isEmpty()) return false\n   ensureCapacity(this.size + elements.size)\n   copyCollectionElements(internalIndex(size), elements)\n   return true\n   }\n\n   public override fun addAll(index: Int, elements: Collection<E>): Boolean {\n

AbstractList.checkPositionIndex(index, size)\n\n if (elements.isEmpty()) {\n return false\n } else if (index == size) {\n return addAll(elements)\n }\n\n ensureCapacity(this.size + elements.size)\n\n val tail = internalIndex(size)\n val internalIndex = internalIndex(index)\n val elementsSize = elements.size\n\n if (index < (size + 1) shr 1) {\n // closer to the first element -> shift preceding elements\n\n var shiftedHead = head - elementsSize\n\n if (internalIndex >= head) {\n if (shiftedHead >= 0) {\n elementData.copyInto(elementData, shiftedHead, head, internalIndex)\n } else { // head < tail, insertion leads to head >= tail\n shiftedHead += elementData.size\n val elementsToShift = internalIndex - head\n val shiftToBack = elementData.size - shiftedHead\n\n if (shiftToBack >= elementsToShift) {\n elementData.copyInto(elementData, shiftedHead, head, internalIndex)\n } else {\n elementData.copyInto(elementData, shiftedHead, head, head + shiftToBack)\n elementData.copyInto(elementData, 0, head + shiftToBack, internalIndex)\n }\n }\n } else { // head > tail, internalIndex < tail\n elementData.copyInto(elementData, shiftedHead, head, elementData.size)\n if (elementsSize >= internalIndex) {\n elementData.copyInto(elementData, elementData.size - elementsSize, 0, internalIndex)\n } else {\n elementData.copyInto(elementData, elementData.size - elementsSize, 0, elementsSize)\n elementData.copyInto(elementData, 0, elementsSize, internalIndex)\n }\n }\n head = shiftedHead\n copyCollectionElements(negativeMod(internalIndex - elementsSize), elements)\n } else {\n // closer to the last element -> shift succeeding elements\n\n val shiftedInternalIndex = internalIndex + elementsSize\n\n if (internalIndex < tail) {\n if (tail + elementsSize <= elementData.size) {\n elementData.copyInto(elementData, shiftedInternalIndex, internalIndex, tail)\n } else { // head < tail, insertion leads to head >= tail\n if (shiftedInternalIndex >= elementData.size) {\n elementData.copyInto(elementData, shiftedInternalIndex - elementData.size, internalIndex, tail)\n } else {\n val shiftToFront = tail + elementsSize - elementData.size\n elementData.copyInto(elementData, 0, tail - shiftToFront, tail)\n elementData.copyInto(elementData, shiftedInternalIndex, internalIndex, tail - shiftToFront)\n }\n }\n } else { // head > tail, internalIndex > head\n elementData.copyInto(elementData, elementsSize, 0, tail)\n if (shiftedInternalIndex >= elementData.size) {\n elementData.copyInto(elementData, shiftedInternalIndex - elementData.size, internalIndex, elementData.size)\n } else {\n elementData.copyInto(elementData, 0, elementData.size - elementsSize, elementData.size)\n elementData.copyInto(elementData, shiftedInternalIndex, internalIndex, elementData.size - elementsSize)\n }\n }\n copyCollectionElements(internalIndex, elements)\n }\n\n return true\n }\n\n public override fun get(index: Int): E {\n AbstractList.checkElementIndex(index, size)\n\n return internalGet(internalIndex(index))\n }\n\n public override fun set(index: Int, element: E): E {\n AbstractList.checkElementIndex(index, size)\n\n val internalIndex = internalIndex(index)\n val oldElement = internalGet(internalIndex)\n elementData[internalIndex] = element\n\n return oldElement\n }\n\n public override fun contains(element: E): Boolean = indexOf(element) != -1\n\n public override fun indexOf(element: E): Int {\n val tail = internalIndex(size)\n\n if (head < tail) {\n for (index in head until tail) {\n if (element == elementData[index]) return index - head\n }\n } else if (head >= tail) {\n for (index in head until elementData.size) {\n if (element == elementData[index]) return index - head\n }\n for (index in 0 until tail) {\n if (element == elementData[index]) return index + elementData.size - head\n }\n }\n\n return -1\n }\n\n public override fun lastIndexOf(element: E): Int {\n val tail = internalIndex(size)\n\n if (head < tail) {\n for (index in tail - 1 downTo head) {\n if (element == elementData[index]) return index - head\n }\n } else if (head > tail) {\n for (index in tail - 1 downTo 0) {\n if (element == elementData[index]) return index + elementData.size - head\n }\n for (index in elementData.lastIndex downTo head) {\n if (element == elementData[index]) return index - head\n }\n }\n\n return -1\n }\n\n public override fun remove(element: E): Boolean {\n val index = indexOf(element)\n if (index == -1) return false\n removeAt(index)\n return true\n }\n\n public override fun removeAt(index: Int): E {\n

AbstractList.checkElementIndex(index, size)\n\n if (index == lastIndex) {\n return removeLast()\n }
else if (index == 0) {\n return removeFirst()\n }\n\n val internalIndex = internalIndex(index)\n
val element = internalGet(internalIndex)\n\n if (index < size shr 1) {\n // closer to the first element ->
shift preceding elements\n if (internalIndex >= head) {\n elementData.copyInto(elementData, head
+ 1, head, internalIndex)\n } else { // head > tail, internalIndex < head\n
elementData.copyInto(elementData, 1, 0, internalIndex)\n elementData[0] = elementData[elementData.size
- 1]\n elementData.copyInto(elementData, head + 1, head, elementData.size - 1)\n }\n\n
elementData[head] = null\n head = incremented(head)\n } else {\n // closer to the last element ->
shift succeeding elements\n val internalLastIndex = internalIndex(lastIndex)\n\n if (internalIndex <=
internalLastIndex) {\n elementData.copyInto(elementData, internalIndex, internalIndex + 1,
internalLastIndex + 1)\n } else { // head > tail, internalIndex > head\n
elementData.copyInto(elementData, internalIndex, internalIndex + 1, elementData.size)\n
elementData[elementData.size - 1] = elementData[0]\n elementData.copyInto(elementData, 0, 1,
internalLastIndex + 1)\n }\n\n elementData[internalLastIndex] = null\n }\n size -= 1\n\n
return element\n }\n\n public override fun removeAll(elements: Collection<E>): Boolean = filterInPlace {
!elements.contains(it) }\n\n public override fun retainAll(elements: Collection<E>): Boolean = filterInPlace {
elements.contains(it) }\n\n private inline fun filterInPlace(predicate: (E) -> Boolean): Boolean {\n if
(this.isEmpty() || elementData.isEmpty())\n return false\n\n val tail = internalIndex(size)\n var
newTail = head\n var modified = false\n\n if (head < tail) {\n for (index in head until tail) {\n
val element = elementData[index]\n\n @Suppress(\"UNCHECKED_CAST\")\n if
(predicate(element as E))\n elementData[newTail++] = element\n else\n modified =
true\n }\n\n elementData.fill(null, newTail, tail)\n\n } else {\n for (index in head until
elementData.size) {\n val element = elementData[index]\n elementData[index] = null\n\n
@Suppress(\"UNCHECKED_CAST\")\n if (predicate(element as E))\n
elementData[newTail++] = element\n else\n modified = true\n }\n\n newTail =
positiveMod(newTail)\n\n for (index in 0 until tail) {\n val element = elementData[index]\n
elementData[index] = null\n\n @Suppress(\"UNCHECKED_CAST\")\n if (predicate(element as
E)) {\n elementData[newTail] = element\n newTail = incremented(newTail)\n }
else {\n modified = true\n }\n }\n }\n if (modified)\n size =
negativeMod(newTail - head)\n\n return modified\n }\n\n public override fun clear() {\n val tail =
internalIndex(size)\n if (head < tail) {\n elementData.fill(null, head, tail)\n } else if (isNotEmpty())
{\n elementData.fill(null, head, elementData.size)\n elementData.fill(null, 0, tail)\n }\n head =
0\n size = 0\n }\n\n @Suppress(\"NOTHING_TO_OVERRIDE\")\n override fun <T> toArray(array:
Array<T>): Array<T> {\n @Suppress(\"UNCHECKED_CAST\")\n val dest = (if (array.size >= size) array
else arrayOfNulls(array, size)) as Array<Any?>\n\n val tail = internalIndex(size)\n if (head < tail) {\n
elementData.copyInto(dest, startIndex = head, endIndex = tail)\n } else if (isNotEmpty()) {\n
elementData.copyInto(dest, destinationOffset = 0, startIndex = head, endIndex = elementData.size)\n
elementData.copyInto(dest, destinationOffset = elementData.size - head, startIndex = 0, endIndex = tail)\n }\n
if (dest.size > size) {\n dest[size] = null // null-terminate\n }\n\n
@Suppress(\"UNCHECKED_CAST\")\n return dest as Array<T>\n }\n\n
@Suppress(\"NOTHING_TO_OVERRIDE\")\n override fun toArray(): Array<Any?> {\n return
toArray(arrayOfNulls<Any?>(size))\n }\n\n // for testing\n internal fun <T> testToArray(array: Array<T>):
Array<T> = toArray(array)\n internal fun testToArray(): Array<Any?> = toArray()\n\n internal companion
object {\n private val emptyElementData = emptyArray<Any?>()\n private const val maxArraySize =
Int.MAX_VALUE - 8\n private const val defaultMinCapacity = 10\n\n internal fun
newCapacity(oldCapacity: Int, minCapacity: Int): Int {\n // overflow-conscious\n var newCapacity =
oldCapacity + (oldCapacity shr 1)\n if (newCapacity - minCapacity < 0)\n newCapacity =
minCapacity\n if (newCapacity - maxArraySize > 0)\n newCapacity = if (minCapacity >

maxArraySize) Int.MAX_VALUE else maxArraySize\n   return newCapacity\n   }\n   }\n\n   // For testing only\n   internal fun internalStructure(structure: (head: Int, elements: Array<Any?>) -> Unit) {\n   val tail = internalIndex(size)\n   val head = if (isEmpty() || head < tail) head else head - elementData.size\n structure(head, toArray())\n   }\n}","/*\n * Copyright 2010-2018 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\n@file:kotlin.jvm.JvmMultifileClass\n@file:kotlin.jvm.JvmName(\"ArraysKt\")\n\n\npackage kotlin.collections\n\nimport kotlin.contracts.*\n\n\n/**\n * Returns a single list of all elements from all arrays in the given array.\n * @sample samples.collections.Arrays.Transformations.flattenArray\n */\npublic fun <T> Array<out Array<out T>>.flatten(): List<T> {\n   val result = ArrayList<T>(sumOf { it.size })\n   for (element in this) {\n result.addAll(element)\n   }\n   return result\n}\n\n/**\n * Returns a pair of lists, where\n * *first* list is built from the first values of each pair from this array,\n * *second* list is built from the second values of each pair from this array.\n * @sample samples.collections.Arrays.Transformations.unzipArray\n */\npublic fun <T, R> Array<out Pair<T, R>>.unzip(): Pair<List<T>, List<R>> {\n   val listT = ArrayList<T>(size)\n   val listR = ArrayList<R>(size)\n   for (pair in this) {\n   listT.add(pair.first)\n   listR.add(pair.second)\n   }\n   return listT to listR\n}\n\n/**\n * Returns `true` if this nullable array is either null or empty.\n * @sample samples.collections.Arrays.Usage.arrayIsNullOrEmpty\n */\n@SinceKotlin(\"1.3\")\n@kotlin.internal.InlineOnly\npublic inline fun Array<*>?.isNullOrEmpty(): Boolean {\n   contract {\n   returns(false) implies (this@isNullOrEmpty != null)\n   }\n\n   return this == null || this.isEmpty()\n}\n\n/**\n * Returns this array if it's not empty\n * or the result of calling [defaultValue] function if the array is empty.\n *\n * @sample samples.collections.Arrays.Usage.arrayIfEmpty\n */\n@SinceKotlin(\"1.3\")\n@kotlin.internal.InlineOnly\n@Suppress(\"UPPER_BOUND_CANNOT_BE_ARRAY\")\npublic inline fun <C, R> C.ifEmpty(defaultValue: () -> R): R where C : Array<*>, C : R =\n   if (isEmpty()) defaultValue() else this\n\n\n@OptIn(ExperimentalUnsignedTypes::class)\n@SinceKotlin(\"1.3\")\n@PublishedApi\n@kotlin.jvm.JvmName(\"contentDeepEquals\")\n@kotlin.js.JsName(\"contentDeepEqualsImpl\")\ninternal fun <T> Array<out T>?.contentDeepEqualsImpl(other: Array<out T>?): Boolean {\n   if (this === other) return true\n   if (this == null || other == null || this.size != other.size) return false\n\n   for (i in indices) {\n   val v1 = this[i]\n   val v2 = other[i]\n\n   if (v1 === v2) {\n   continue\n   } else if (v1 == null || v2 == null) {\n   return false\n   }\n\n   when {\n   v1 is Array<*>   && v2 is Array<*>   -> if (!v1.contentDeepEquals(v2)) return false\n   v1 is ByteArray   && v2 is ByteArray   -> if (!v1.contentEquals(v2)) return false\n   v1 is ShortArray   && v2 is ShortArray   -> if (!v1.contentEquals(v2)) return false\n   v1 is IntArray   && v2 is IntArray   -> if (!v1.contentEquals(v2)) return false\n   v1 is LongArray   && v2 is LongArray   -> if (!v1.contentEquals(v2)) return false\n   v1 is FloatArray   && v2 is FloatArray   -> if (!v1.contentEquals(v2)) return false\n   v1 is DoubleArray && v2 is DoubleArray -> if (!v1.contentEquals(v2)) return false\n v1 is CharArray   && v2 is CharArray   -> if (!v1.contentEquals(v2)) return false\n   v1 is BooleanArray && v2 is BooleanArray -> if (!v1.contentEquals(v2)) return false\n\n   v1 is UByteArray   && v2 is UByteArray   -> if (!v1.contentEquals(v2)) return false\n   v1 is UShortArray && v2 is UShortArray -> if (!v1.contentEquals(v2)) return false\n   v1 is UIntArray   && v2 is UIntArray   -> if (!v1.contentEquals(v2)) return false\n   v1 is ULongArray   && v2 is ULongArray   -> if (!v1.contentEquals(v2)) return false\n\n else -> if (v1 != v2) return false\n   }\n\n   }\n   return true\n}\n\n@SinceKotlin(\"1.3\")\n@PublishedApi\n@kotlin.jvm.JvmName(\"contentDeepToString\")\n@kotlin.js.JsName(\"contentDeepToStringImpl\")\ninternal fun <T> Array<out T>?.contentDeepToStringImpl(): String {\n if (this == null) return \"null\"\n   val length = size.coerceAtMost((Int.MAX_VALUE - 2) / 5) * 5 + 2 // in order not to overflow Int.MAX_VALUE\n   return buildString(length) {\n   contentDeepToStringInternal(this, mutableListOf())\n   }\n}\n\n@OptIn(ExperimentalUnsignedTypes::class)\nprivate fun <T> Array<out T>.contentDeepToStringInternal(result: StringBuilder, processed: MutableList<Array<*>>) {\n   if (this in processed) {\n   result.append(\"[...]\")\n   return\n   }\n   processed.add(this)\n   result.append('[')\n\n   for (i in indices) {\n   if (i != 0) {\n   result.append(\", \")\n   }\n   val element = this[i]\n   when (element) {\n   null   -> result.append(\"null\")\n   is Array<*>   -> element.contentDeepToStringInternal(result, processed)\n   is ByteArray   -> result.append(element.contentToString())\n   is ShortArray   -> result.append(element.contentToString())\n   is IntArray   -> result.append(element.contentToString())\n   is LongArray   -> result.append(element.contentToString())\n   is FloatArray   -> result.append(element.contentToString())\n   is DoubleArray -> result.append(element.contentToString())\n   is CharArray   -> result.append(element.contentToString())\n   is BooleanArray -> result.append(element.contentToString())\n\n   is UByteArray   -> result.append(element.contentToString())\n   is UShortArray -> result.append(element.contentToString())\n   is UIntArray   -> result.append(element.contentToString())\n   is ULongArray   -> result.append(element.contentToString())\n\n   else   -> result.append(element.toString())\n   }\n   }\n\n   result.append(']')\n   processed.removeAt(processed.lastIndex)\n}","/*\n * Copyright 2010-2021 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin.collections\n\n\n/** Returns true if the brittle contains optimization is enabled. See KT-45438. */\ninternal expect fun brittleContainsOptimizationEnabled(): Boolean\n\n/**\n * Returns true if [brittleContainsOptimizationEnabled] is true\n * and it's safe to convert this collection to a set without changing contains method behavior.\n */\nprivate fun <T> Collection<T>.safeToConvertToSet() = brittleContainsOptimizationEnabled() && size > 2 && this is ArrayList\n\n/**\n * When [brittleContainsOptimizationEnabled] is true:\n * - Converts this [Iterable] to a set if it is not a [Collection].\n * - Converts this [Collection] to a set, when it's worth so and it doesn't change contains method behavior.\n * - Otherwise returns this.\n * When [brittleContainsOptimizationEnabled] is false:\n * - Converts this [Iterable] to a list if it is not a [Collection].\n * - Otherwise returns this.\n */\ninternal fun <T> Iterable<T>.convertToSetForSetOperationWith(source: Iterable<T>): Collection<T> =\n   when (this) {\n   is Set -> this\n   is Collection ->\n   when {\n   source is Collection && source.size < 2 -> this\n   else -> if (this.safeToConvertToSet()) toHashSet() else this\n   }\n   else -> if (brittleContainsOptimizationEnabled()) toHashSet() else toList()\n   }\n\n/**\n * When [brittleContainsOptimizationEnabled] is true:\n * - Converts this [Iterable] to a set if it is not a [Collection].\n * - Converts this [Collection] to a set, when it's worth so and it doesn't change contains method behavior.\n * - Otherwise returns this.\n * When [brittleContainsOptimizationEnabled] is false:\n * - Converts this [Iterable] to a list if it is not a [Collection].\n * - Otherwise returns this.\n */\ninternal fun <T> Iterable<T>.convertToSetForSetOperation(): Collection<T> =\n   when (this) {\n   is Set -> this\n   is Collection -> if (this.safeToConvertToSet()) toHashSet() else this\n   else -> if (brittleContainsOptimizationEnabled()) toHashSet() else toList()\n   }\n\n/**\n * Converts this sequence to a set if [brittleContainsOptimizationEnabled] is true,\n * otherwise converts it to a list.\n */\ninternal fun <T> Sequence<T>.convertToSetForSetOperation(): Collection<T> =\n   if (brittleContainsOptimizationEnabled()) toHashSet() else toList()\n\n/**\n * Converts this array to a set if [brittleContainsOptimizationEnabled] is true,\n * otherwise converts it to a list.\n */\ninternal fun <T> Array<T>.convertToSetForSetOperation(): Collection<T> =\n   if (brittleContainsOptimizationEnabled()) toHashSet() else asList()","/*\n * Copyright 2010-2018 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin.collections\n\n/**\n * Data class representing a value from a collection or sequence, along with its index in that collection or sequence.\n *\n * @property value the underlying value.\n * @property index the index of the value in the collection or sequence.\n */\npublic data class IndexedValue<out T>(public val index: Int, public val value: T)\n","/*\n * Copyright 2010-2020 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\n@file:kotlin.jvm.JvmName(\"MapAccessorsKt\")\n\npackage kotlin.collections\n\nimport kotlin.reflect.KProperty\nimport kotlin.internal.Exact\n\n/**\n * Returns the value of the property for the given object from this read-only map.\n * @param thisRef the object for which the value is requested (not used).\n * @param property the metadata for the property, used to get the name of property and lookup the value corresponding to this name in the map.\n * @return the property value.\n *\n * @throws NoSuchElementException when the map doesn't contain value for the property name and doesn't provide an implicit default (see [withDefault]).\n */\n@kotlin.internal.InlineOnly\npublic inline operator fun <V, V1 : V> Map<in String, @Exact V>.getValue(thisRef: Any?, property: KProperty<*>): V1 =\n   @Suppress(\"UNCHECKED_CAST\") (getOrImplicitDefault(property.name) as V1)\n\n/**\n * Returns the value of the property for the given object from this mutable map.\n * @param thisRef the object for which the value is requested (not used).\n * @param property the metadata for the property, used to get the name of property and lookup the value corresponding to this name in the map.\n * @return the property value.\n *\n * @throws NoSuchElementException when the map doesn't contain value for the property name and doesn't provide an implicit default (see [withDefault]).\n */\n@kotlin.jvm.JvmName(\"getVar\")\n@kotlin.internal.InlineOnly\npublic inline operator fun <V, V1 : V> MutableMap<in String, out @Exact V>.getValue(thisRef: Any?, property: KProperty<*>): V1 =\n @Suppress(\"UNCHECKED_CAST\") (getOrImplicitDefault(property.name) as V1)\n\n/**\n * Stores the value of the property for the given object in this mutable map.\n * @param thisRef the object for which the value is requested (not used).\n * @param property the metadata for the property, used to get the name of property and store the value associated with that name in the map.\n * @param value the value to set.\n */\n@kotlin.internal.InlineOnly\npublic inline operator fun <V> MutableMap<in String, in V>.setValue(thisRef: Any?, property: KProperty<*>, value: V) {\n   this.put(property.name, value)\n}\n","/*\n * Copyright 2010-2018 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\n@file:kotlin.jvm.JvmMultifileClass\n@file:kotlin.jvm.JvmName(\"MapsKt\")\n\npackage kotlin.collections\n\n/**\n * Returns the value for the given key, or the implicit default value for this map.\n * By default no implicit value is provided for maps and a [NoSuchElementException] is thrown.\n * To create a map with implicit default value use [withDefault] method.\n *\n * @throws NoSuchElementException when the map doesn't contain a value for the specified key and no implicit default was provided for that map.\n */\n@kotlin.jvm.JvmName(\"getOrImplicitDefaultNullable\")\n@PublishedApi\ninternal fun <K, V> Map<K, V>.getOrImplicitDefault(key: K): V {\n   if (this is MapWithDefault)\n   return this.getOrImplicitDefault(key)\n\n   return getOrElseNullable(key, { throw NoSuchElementException(\"Key $key is missing in the map.\") })\n}\n\n/**\n * Returns a wrapper of this read-only map, having the implicit default value provided with the specified function [defaultValue].\n *\n * This implicit default value is used when the original map doesn't contain a value for the key specified\n * and a value is obtained with [Map.getValue] function, for example when properties are delegated to the map.\n *\n * When this map already has an implicit default value provided with a former call to [withDefault], it is being replaced by this call.\n */\npublic fun <K, V> Map<K, V>.withDefault(defaultValue: (key: K) -> V): Map<K, V> =\n   when (this) {\n   is MapWithDefault -> this.map.withDefault(defaultValue)\n   else -> MapWithDefaultImpl(this, defaultValue)\n   }\n\n/**\n * Returns a wrapper of this mutable map, having the implicit default value provided with the specified function [defaultValue].\n *\n * This implicit default value is used when the original map doesn't contain a value for the key specified\n * and a value is obtained with [Map.getValue] function, for example when properties are delegated to the map.\n *\n * When this map already has an implicit default value provided with a former call to [withDefault], it is being replaced by this call.\n */\n@kotlin.jvm.JvmName(\"withDefaultMutable\")\npublic fun <K, V> MutableMap<K, V>.withDefault(defaultValue: (key: K) -> V): MutableMap<K, V> =\n   when (this) {\n   is MutableMapWithDefault -> this.map.withDefault(defaultValue)\n   else -> MutableMapWithDefaultImpl(this, defaultValue)\n   }\n\n\n\nprivate interface MapWithDefault<K, out V> : Map<K, V> {\n   public val map: Map<K, V>\n   public fun getOrImplicitDefault(key: K): V\n}\n\nprivate interface MutableMapWithDefault<K, V> : MutableMap<K, V>, MapWithDefault<K, V> {\n   public override val map: MutableMap<K, V>\n}\n\n\nprivate class MapWithDefaultImpl<K, out V>(public override val map: Map<K, V>, private val default: (key: K) -> V) : MapWithDefault<K, V> {\n   override fun equals(other: Any?): Boolean = map.equals(other)\n   override fun hashCode(): Int = map.hashCode()\n   override fun toString(): String = map.toString()\n   override val size: Int get() = map.size\n   override fun isEmpty(): Boolean = map.isEmpty()\n   override fun containsKey(key: K): Boolean = map.containsKey(key)\n   override fun containsValue(value: @UnsafeVariance V): Boolean = map.containsValue(value)\n   override fun get(key: K): V? = map.get(key)\n   override val keys: Set<K> get() = map.keys\n   override val values: Collection<V> get() = map.values\n   override val entries: Set<Map.Entry<K, V>> get() = map.entries\n\n   override fun getOrImplicitDefault(key: K): V = map.getOrElseNullable(key, { default(key) })\n}\n\nprivate class MutableMapWithDefaultImpl<K, V>(public override val map: MutableMap<K, V>, private val default: (key: K) -> V) : MutableMapWithDefault<K, V> {\n   override fun equals(other: Any?): Boolean = map.equals(other)\n   override fun hashCode(): Int = map.hashCode()\n   override fun toString(): String = map.toString()\n   override val size: Int get() = map.size\n   override fun isEmpty(): Boolean = map.isEmpty()\n override fun containsKey(key: K): Boolean = map.containsKey(key)\n   override fun containsValue(value: @UnsafeVariance V): Boolean = map.containsValue(value)\n   override fun get(key: K): V? = map.get(key)\n override val keys: MutableSet<K> get() = map.keys\n   override val values: MutableCollection<V> get() = map.values\n   override val entries: MutableSet<MutableMap.MutableEntry<K, V>> get() = map.entries\n\n override fun put(key: K, value: V): V? = map.put(key, value)\n   override fun remove(key: K): V? = map.remove(key)\n   override fun putAll(from: Map<out K, V>) = map.putAll(from)\n   override fun clear() = map.clear()\n\n   override fun getOrImplicitDefault(key: K): V = map.getOrElseNullable(key, { default(key) })\n}\n\n","/*\n * Copyright 2010-2020 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\n@file:kotlin.jvm.JvmMultifileClass\n@file:kotlin.jvm.JvmName(\"CollectionsKt\")\n\npackage kotlin.collections\n\nimport kotlin.random.Random\n\n/**\n * Removes a single instance of the specified element from this\n * collection, if it is present.\n *\n * Allows to overcome type-safety restriction of `remove` that requires to pass an element of type `E`.\n *\n * @return `true` if the element has been successfully removed; `false` if it was not present in the collection.\n */\n@kotlin.internal.InlineOnly\npublic inline fun <@kotlin.internal.OnlyInputTypes T> MutableCollection<out T>.remove(element: T): Boolean =\n   @Suppress(\"UNCHECKED_CAST\") (this as MutableCollection<T>).remove(element)\n\n/**\n * Removes all of this collection's elements that are also contained in the specified collection.\n\n * Allows to overcome type-safety restriction of `removeAll` that requires to pass a collection of type `Collection<E>`.\n *\n * @return `true` if any of the specified elements was removed from the collection, `false` if the collection was not modified.\n */\n@kotlin.internal.InlineOnly\npublic inline fun <@kotlin.internal.OnlyInputTypes T> MutableCollection<out T>.removeAll(elements: Collection<T>): Boolean =\n   @Suppress(\"UNCHECKED_CAST\") (this as MutableCollection<T>).removeAll(elements)\n\n/**\n * Retains only the elements in this collection that are contained in the specified collection.\n *\n * Allows to overcome type-safety restriction of `retainAll` that requires to pass a collection of type `Collection<E>`.\n *\n * @return `true` if any element was removed from the collection, `false` if the collection was not modified.\n */\n@kotlin.internal.InlineOnly\npublic inline fun <@kotlin.internal.OnlyInputTypes T> MutableCollection<out T>.retainAll(elements: Collection<T>): Boolean =\n   @Suppress(\"UNCHECKED_CAST\") (this as MutableCollection<T>).retainAll(elements)\n\n/**\n * Adds the specified [element] to this mutable collection.\n */\n@kotlin.internal.InlineOnly\npublic inline operator fun <T> MutableCollection<in T>.plusAssign(element: T) {\n   this.add(element)\n}\n\n/**\n * Adds all elements of the given [elements] collection to this mutable collection.\n */\n@kotlin.internal.InlineOnly\npublic inline operator fun <T> MutableCollection<in T>.plusAssign(elements: Iterable<T>) {\n   this.addAll(elements)\n}\n\n/**\n * Adds all elements of the given [elements] array to this mutable collection.\n */\n@kotlin.internal.InlineOnly\npublic inline operator fun <T> MutableCollection<in T>.plusAssign(elements: Array<T>) {\n   this.addAll(elements)\n}\n\n/**\n * Adds all elements of the given [elements] sequence to this mutable collection.\n */\n@kotlin.internal.InlineOnly\npublic inline operator fun <T> MutableCollection<in T>.plusAssign(elements: Sequence<T>) {\n this.addAll(elements)\n}\n\n/**\n * Removes a single instance of the specified [element] from this mutable collection.\n */\n@kotlin.internal.InlineOnly\npublic inline operator fun <T> MutableCollection<in T>.minusAssign(element: T) {\n   this.remove(element)\n}\n\n/**\n * Removes all elements contained in the given [elements] collection from this mutable collection.\n */\n@kotlin.internal.InlineOnly\npublic inline operator fun <T> MutableCollection<in T>.minusAssign(elements: Iterable<T>) {\n   this.removeAll(elements)\n}\n\n/**\n * Removes all elements contained in the given [elements] array from this mutable collection.\n */\n@kotlin.internal.InlineOnly\npublic inline operator fun <T> MutableCollection<in T>.minusAssign(elements: Array<T>) {\n   this.removeAll(elements)\n}\n\n/**\n * Removes all elements contained in the given [elements] sequence from this mutable collection.\n */\n@kotlin.internal.InlineOnly\npublic inline operator fun <T> MutableCollection<in T>.minusAssign(elements: Sequence<T>) {\n   this.removeAll(elements)\n}\n\n/**\n * Adds all elements of the given [elements] collection to this [MutableCollection].\n */\npublic fun <T> MutableCollection<in T>.addAll(elements: Iterable<T>): Boolean {\n   when (elements) {\n   is Collection -> return addAll(elements)\n   else -> {\n   var result: Boolean = false\n   for (item in elements)\n   if (add(item)) result = true\n   return result\n   }\n   }\n}\n\n/**\n * Adds all elements of the given [elements] sequence to this [MutableCollection].\n */\npublic fun <T> MutableCollection<in T>.addAll(elements: Sequence<T>): Boolean {\n   var result: Boolean = false\n   for (item in elements) {\n   if (add(item)) result = true\n   }\n   return result\n}\n\n/**\n * Adds all elements of the given [elements] array to this [MutableCollection].\n */\npublic fun <T> MutableCollection<in T>.addAll(elements: Array<out T>): Boolean {\n   return addAll(elements.asList())\n}\n\n/**\n * Removes all elements from this [MutableCollection] that are also contained in the given [elements] collection.\n */\npublic fun <T> MutableCollection<in T>.removeAll(elements: Iterable<T>): Boolean {\n   return removeAll(elements.convertToSetForSetOperationWith(this))\n}\n\n/**\n * Removes all elements from this [MutableCollection] that are also contained in the given [elements] sequence.\n */\npublic fun <T> MutableCollection<in T>.removeAll(elements: Sequence<T>): Boolean {\n   val set = elements.convertToSetForSetOperation()\n   return set.isNotEmpty() && removeAll(set)\n}\n\n/**\n * Removes all elements from this [MutableCollection] that are also contained in the given [elements] array.\n */\npublic fun <T> MutableCollection<in T>.removeAll(elements: Array<out T>): Boolean {\n   return elements.isNotEmpty() && removeAll(elements.convertToSetForSetOperation())\n}\n\n/**\n * Retains only elements of this [MutableCollection] that are contained in the given [elements] collection.\n */\npublic fun <T> MutableCollection<in T>.retainAll(elements: Iterable<T>): Boolean {\n   return retainAll(elements.convertToSetForSetOperationWith(this))\n}\n\n/**\n * Retains only elements of this [MutableCollection] that are contained in the given [elements] array.\n */\npublic fun <T> MutableCollection<in T>.retainAll(elements: Array<out T>): Boolean {\n   if (elements.isNotEmpty())\n   return retainAll(elements.convertToSetForSetOperation())\n   else\n   return retainNothing()\n}\n\n/**\n * Retains only elements of this [MutableCollection] that are contained in the given [elements] sequence.\n */\npublic fun <T> MutableCollection<in T>.retainAll(elements: Sequence<T>): Boolean {\n   val set = elements.convertToSetForSetOperation()\n   if (set.isNotEmpty())\n   return retainAll(set)\n   else\n   return retainNothing()\n}\n\nprivate fun MutableCollection<*>.retainNothing(): Boolean {\n   val result = isNotEmpty()\n   clear()\n   return result\n}\n\n\n/**\n * Removes all elements from this [MutableIterable] that match the given [predicate].\n *\n * @return `true` if any element was removed from this collection, or `false` when no elements were removed and collection was not modified.\n */\npublic fun <T> MutableIterable<T>.removeAll(predicate: (T) -> Boolean): Boolean = filterInPlace(predicate, true)\n\n/**\n * Retains only elements of this [MutableIterable] that match the given [predicate].\n *\n * @return `true` if any element was removed from this collection, or `false` when all elements were retained and collection was not modified.\n */\npublic fun <T> MutableIterable<T>.retainAll(predicate: (T) -> Boolean): Boolean = filterInPlace(predicate, false)\n\nprivate fun <T> MutableIterable<T>.filterInPlace(predicate: (T) -> Boolean, predicateResultToRemove: Boolean): Boolean {\n   var result = false\n   with(iterator()) {\n   while (hasNext())\n   if (predicate(next()) == predicateResultToRemove) {\n   remove()\n   result = true\n   }\n   }\n   return result\n}\n\n\n/**\n * Removes the element at the specified [index] from this list.\n * In Kotlin one should use the [MutableList.removeAt] function instead.\n */\n@Deprecated(\"Use removeAt(index) instead.\", ReplaceWith(\"removeAt(index)\"), level = DeprecationLevel.ERROR)\n@kotlin.internal.InlineOnly\npublic inline fun <T> MutableList<T>.remove(index: Int): T = removeAt(index)\n\n/**\n * Removes the first element from this

mutable list and returns that removed element, or throws [NoSuchElementException] if this list is empty.\n
*/\n@SinceKotlin(\"1.4\")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic fun <T>
MutableList<T>.removeFirst(): T = if (isEmpty()) throw NoSuchElementException(\"List is empty.\") else
removeAt(0)\n\n/**\n * Removes the first element from this mutable list and returns that removed element, or
returns `null` if this list is empty.\n
*/\n@SinceKotlin(\"1.4\")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic fun <T>
MutableList<T>.removeFirstOrNull(): T? = if (isEmpty()) null else removeAt(0)\n\n/**\n * Removes the last
element from this mutable list and returns that removed element, or throws [NoSuchElementException] if this list is
empty.\n */\n@SinceKotlin(\"1.4\")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic fun <T>
MutableList<T>.removeLast(): T = if (isEmpty()) throw NoSuchElementException(\"List is empty.\") else
removeAt(lastIndex)\n\n/**\n * Removes the last element from this mutable list and returns that removed element,
or returns `null` if this list is empty.\n
*/\n@SinceKotlin(\"1.4\")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic fun <T>
MutableList<T>.removeLastOrNull(): T? = if (isEmpty()) null else removeAt(lastIndex)\n\n/**\n * Removes all
elements from this [MutableList] that match the given [predicate].\n *\n * @return `true` if any element was
removed from this collection, or `false` when no elements were removed and collection was not modified.\n
*/\npublic fun <T> MutableList<T>.removeAll(predicate: (T) -> Boolean): Boolean = filterInPlace(predicate,
true)\n\n/**\n * Retains only elements of this [MutableList] that match the given [predicate].\n *\n * @return `true`
if any element was removed from this collection, or `false` when all elements were retained and collection was not
modified.\n */\npublic fun <T> MutableList<T>.retainAll(predicate: (T) -> Boolean): Boolean =
filterInPlace(predicate, false)\n\nprivate fun <T> MutableList<T>.filterInPlace(predicate: (T) -> Boolean,
predicateResultToRemove: Boolean): Boolean {\n   if (this !is RandomAccess)\n   return (this as
MutableIterable<T>).filterInPlace(predicate, predicateResultToRemove)\n\n   var writeIndex: Int = 0\n   for
(readIndex in 0..lastIndex) {\n   val element = this[readIndex]\n   if (predicate(element) ==
predicateResultToRemove)\n   continue\n\n   if (writeIndex != readIndex)\n   this[writeIndex] =
element\n\n   writeIndex++\n   }\n   if (writeIndex < size) {\n   for (removeIndex in lastIndex downTo
writeIndex)\n   removeAt(removeIndex)\n\n   return true\n   } else {\n   return false\n   }\n}\n","/*\n *
Copyright 2010-2022 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is
governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\n// Auto-generated file.
DO NOT EDIT!\n\npackage kotlin.collections\n\n/** An iterator over a sequence of values of type `Byte`.
*/\npublic abstract class ByteIterator : Iterator<Byte> {\n   override final fun next() = nextByte()\n\n   /** Returns
the next value in the sequence without boxing. */\n   public abstract fun nextByte(): Byte\n}\n\n/** An iterator over
a sequence of values of type `Char`. */\npublic abstract class CharIterator : Iterator<Char> {\n   override final fun
next() = nextChar()\n\n   /** Returns the next value in the sequence without boxing. */\n   public abstract fun
nextChar(): Char\n}\n\n/** An iterator over a sequence of values of type `Short`. */\npublic abstract class
ShortIterator : Iterator<Short> {\n   override final fun next() = nextShort()\n\n   /** Returns the next value in the
sequence without boxing. */\n   public abstract fun nextShort(): Short\n}\n\n/** An iterator over a sequence of
values of type `Int`. */\npublic abstract class IntIterator : Iterator<Int> {\n   override final fun next() = nextInt()\n\n
/** Returns the next value in the sequence without boxing. */\n   public abstract fun nextInt(): Int\n}\n\n/** An
iterator over a sequence of values of type `Long`. */\npublic abstract class LongIterator : Iterator<Long> {\n
override final fun next() = nextLong()\n\n   /** Returns the next value in the sequence without boxing. */\n   public
abstract fun nextLong(): Long\n}\n\n/** An iterator over a sequence of values of type `Float`. */\npublic abstract
class FloatIterator : Iterator<Float> {\n   override final fun next() = nextFloat()\n\n   /** Returns the next value in
the sequence without boxing. */\n   public abstract fun nextFloat(): Float\n}\n\n/** An iterator over a sequence of
values of type `Double`. */\npublic abstract class DoubleIterator : Iterator<Double> {\n   override final fun next() =
nextDouble()\n\n   /** Returns the next value in the sequence without boxing. */\n   public abstract fun
nextDouble(): Double\n}\n\n/** An iterator over a sequence of values of type `Boolean`. */\npublic abstract class
BooleanIterator : Iterator<Boolean> {\n   override final fun next() = nextBoolean()\n\n   /** Returns the next value

in the sequence without boxing. */\n   public abstract fun nextBoolean(): Boolean\n}\n\n","/*\n * Copyright 2010-2018 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\n@file:kotlin.jvm.JvmMultifileClass\n@file:kotlin.jvm.JvmName(\"CollectionsKt\")\n\npackage kotlin.collections\n\nprivate open class ReversedListReadOnly<out T>(private val delegate: List<T>) : AbstractList<T>() {\n   override val size: Int get() = delegate.size\n   override fun get(index: Int): T = delegate[reverseElementIndex(index)]\n}\n\nprivate class ReversedList<T>(private val delegate: MutableList<T>) : AbstractMutableList<T>() {\n   override val size: Int get() = delegate.size\n   override fun get(index: Int): T = delegate[reverseElementIndex(index)]\n\n   override fun clear() = delegate.clear()\n   override fun removeAt(index: Int): T = delegate.removeAt(reverseElementIndex(index))\n\n   override fun set(index: Int, element: T): T = delegate.set(reverseElementIndex(index), element)\n   override fun add(index: Int, element: T) {\n delegate.add(reversePositionIndex(index), element)\n   }\n}\n\nprivate fun List<*>.reverseElementIndex(index: Int) =\n   if (index in 0..lastIndex) lastIndex - index else throw IndexOutOfBoundsException(\"Element index $index must be in range [${0..lastIndex}].\")\n\nprivate fun List<*>.reversePositionIndex(index: Int) =\n   if (index in 0..size) size - index else throw IndexOutOfBoundsException(\"Position index $index must be in range [${0..size}].\")\n\n\n/**\n * Returns a reversed read-only view of the original List.\n * All changes made in the original list will be reflected in the reversed one.\n * @sample samples.collections.ReversedViews.asReversedList\n */\npublic fun <T> List<T>.asReversed(): List<T> = ReversedListReadOnly(this)\n\n/**\n * Returns a reversed mutable view of the original mutable List.\n * All changes made in the original list will be reflected in the reversed one and vice versa.\n * @sample samples.collections.ReversedViews.asReversedMutableList\n */\n@kotlin.jvm.JvmName(\"asReversedMutable\")\npublic fun <T> MutableList<T>.asReversed(): MutableList<T> = ReversedList(this)\n\n","/*\n * Copyright 2010-2018 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\n@file:kotlin.jvm.JvmMultifileClass\n@file:kotlin.jvm.JvmName(\"SequencesKt\")\n@file:OptIn(ExperimentalTypeInference::class)\n\npackage kotlin.sequences\n\nimport kotlin.coroutines.*\nimport kotlin.coroutines.intrinsics.*\nimport kotlin.experimental.ExperimentalTypeInference\n\n/**\n * Builds a [Sequence] lazily yielding values one by one.\n *\n * @see kotlin.sequences.generateSequence\n *\n * @sample samples.collections.Sequences.Building.buildSequenceYieldAll\n * @sample samples.collections.Sequences.Building.buildFibonacciSequence\n */\n@SinceKotlin(\"1.3\")\n@Suppress(\"DEPRECATION\")\npublic fun <T> sequence(@BuilderInference block: suspend SequenceScope<T>.() -> Unit): Sequence<T> = Sequence { iterator(block) }\n\n/**\n * Builds an [Iterator] lazily yielding values one by one.\n *\n * @sample samples.collections.Sequences.Building.buildIterator\n * @sample samples.collections.Iterables.Building.iterable\n */\n@SinceKotlin(\"1.3\")\n@Suppress(\"DEPRECATION\")\npublic fun <T> iterator(@BuilderInference block: suspend SequenceScope<T>.() -> Unit): Iterator<T> {\n   val iterator = SequenceBuilderIterator<T>()\n iterator.nextStep = block.createCoroutineUnintercepted(receiver = iterator, completion = iterator)\n   return iterator\n}\n\n/**\n * The scope for yielding values of a [Sequence] or an [Iterator], provides [yield] and [yieldAll] suspension functions.\n *\n * @see sequence\n * @see iterator\n *\n * @sample samples.collections.Sequences.Building.buildSequenceYieldAll\n * @sample samples.collections.Sequences.Building.buildFibonacciSequence\n */\n@RestrictsSuspension\n@SinceKotlin(\"1.3\")\npublic abstract class SequenceScope<in T> internal constructor() {\n   /**\n   * Yields a value to the [Iterator] being built and suspends\n   * until the next value is requested.\n   *\n   * @sample samples.collections.Sequences.Building.buildSequenceYieldAll\n   * @sample samples.collections.Sequences.Building.buildFibonacciSequence\n   */\n   public abstract suspend fun yield(value: T)\n\n   /**\n   * Yields all values from the `iterator` to the [Iterator] being built\n   * and suspends until all these values are iterated and the next one is requested.\n   *\n   * The sequence of values returned by the given iterator can be potentially infinite.\n   *\n   * @sample samples.collections.Sequences.Building.buildSequenceYieldAll\n

*/\n   public abstract suspend fun yieldAll(iterator: Iterator<T>)\n\n   /**\n   * Yields a collections of values to the [Iterator] being built\n   * and suspends until all these values are iterated and the next one is requested.\n   *\n   * @sample samples.collections.Sequences.Building.buildSequenceYieldAll\n   */\n   public suspend fun yieldAll(elements: Iterable<T>) {\n   if (elements is Collection && elements.isEmpty()) return\n   return yieldAll(elements.iterator())\n   }\n\n   /**\n   * Yields potentially infinite sequence of values to the [Iterator] being built\n   * and suspends until all these values are iterated and the next one is requested.\n   *\n   * The sequence can be potentially infinite.\n   *\n   * @sample samples.collections.Sequences.Building.buildSequenceYieldAll\n   */\n   public suspend fun yieldAll(sequence: Sequence<T>) = yieldAll(sequence.iterator())\n}\n\nprivate typealias State = Int\n\nprivate const val State_NotReady: State = 0\nprivate const val State_ManyNotReady: State = 1\nprivate const val State_ManyReady: State = 2\nprivate const val State_Ready: State = 3\nprivate const val State_Done: State = 4\nprivate const val State_Failed: State = 5\n\nprivate class SequenceBuilderIterator<T> : SequenceScope<T>(), Iterator<T>, Continuation<Unit> {\n   private var state = State_NotReady\n   private var nextValue: T? = null\n   private var nextIterator: Iterator<T>? = null\n   var nextStep: Continuation<Unit>? = null\n\n   override fun hasNext(): Boolean {\n   while (true) {\n   when (state) {\n   State_NotReady -> {}\n   State_ManyNotReady ->\n   if (nextIterator!!.hasNext()) {\n   state = State_ManyReady\n   return true\n   } else {\n   nextIterator = null\n   }\n   State_Done -> return false\n   State_Ready, State_ManyReady -> return true\n   else -> throw exceptionalState()\n   }\n\n   state = State_Failed\n   val step = nextStep!!\n   nextStep = null\n   step.resume(Unit)\n   }\n   }\n\n   override fun next(): T {\n   when (state) {\n   State_NotReady, State_ManyNotReady -> return nextNotReady()\n   State_ManyReady -> {\n   state = State_ManyNotReady\n   return nextIterator!!.next()\n   }\n   State_Ready -> {\n   state = State_NotReady\n   @Suppress(\"UNCHECKED_CAST\")\n   val result = nextValue as T\n   nextValue = null\n   return result\n   }\n   else -> throw exceptionalState()\n   }\n   }\n\n   private fun nextNotReady(): T {\n   if (!hasNext()) throw NoSuchElementException() else return next()\n   }\n\n   private fun exceptionalState(): Throwable = when (state) {\n   State_Done -> NoSuchElementException()\n   State_Failed -> IllegalStateException(\"Iterator has failed.\")\n   else -> IllegalStateException(\"Unexpected state of the iterator: $state\")\n   }\n\n\n   override suspend fun yield(value: T) {\n   nextValue = value\n   state = State_Ready\n   return suspendCoroutineUninterceptedOrReturn { c ->\n   nextStep = c\n   COROUTINE_SUSPENDED\n   }\n   }\n\n   override suspend fun yieldAll(iterator: Iterator<T>) {\n   if (!iterator.hasNext()) return\n   nextIterator = iterator\n   state = State_ManyReady\n   return suspendCoroutineUninterceptedOrReturn { c ->\n   nextStep = c\n   COROUTINE_SUSPENDED\n   }\n   }\n\n   // Completion continuation implementation\n   override fun resumeWith(result: Result<Unit>) {\n   result.getOrThrow() // just rethrow exception if it is there\n   state = State_Done\n   }\n\n   override val context: CoroutineContext\n   get() = EmptyCoroutineContext\n}\n","/*\n * Copyright 2010-2018 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin.collections\n\ninternal fun checkWindowSizeStep(size: Int, step: Int) {\n   require(size > 0 && step > 0) {\n   if (size != step)\n   \"Both size $size and step $step must be greater than zero.\"\n   else\n   \"size $size must be greater than zero.\"\n   }\n}\n\ninternal fun <T> Sequence<T>.windowedSequence(size: Int, step: Int, partialWindows: Boolean, reuseBuffer: Boolean): Sequence<List<T>> {\n   checkWindowSizeStep(size, step)\n   return Sequence { windowedIterator(iterator(), size, step, partialWindows, reuseBuffer) }\n}\n\ninternal fun <T> windowedIterator(iterator: Iterator<T>, size: Int, step: Int, partialWindows: Boolean, reuseBuffer: Boolean): Iterator<List<T>> {\n   if (!iterator.hasNext()) return EmptyIterator\n   return iterator<List<T>> {\n   val bufferInitialCapacity = size.coerceAtMost(1024)\n   val gap = step - size\n   if (gap >= 0) {\n   var buffer = ArrayList<T>(bufferInitialCapacity)\n   var skip = 0\n   for (e in iterator) {\n   if (skip > 0) { skip -= 1; continue }\n   buffer.add(e)\n   if (buffer.size == size) {\n   yield(buffer)\n   if (reuseBuffer) buffer.clear() else buffer = ArrayList(size)\n   skip = gap\n   }\n   }\n

if (buffer.isNotEmpty()) {\n if (partialWindows || buffer.size == size) yield(buffer)\n }\n } else {\n var buffer = RingBuffer<T>(bufferInitialCapacity)\n for (e in iterator) {\n buffer.add(e)\n if (buffer.isFull()) {\n if (buffer.size < size) { buffer = buffer.expanded(maxCapacity = size); continue }\n\n yield(if (reuseBuffer) buffer else ArrayList(buffer))\n buffer.removeFirst(step)\n }\n }\n if (partialWindows) {\n while (buffer.size > step) {\n yield(if (reuseBuffer) buffer else ArrayList(buffer))\n buffer.removeFirst(step)\n }\n if (buffer.isNotEmpty()) yield(buffer)\n }\n }\n}\n\ninternal class MovingSubList<out E>(private val list: List<E>) : AbstractList<E>(), RandomAccess {\n private var fromIndex: Int = 0\n private var _size: Int = 0\n\n fun move(fromIndex: Int, toIndex: Int) {\n checkRangeIndexes(fromIndex, toIndex, list.size)\n this.fromIndex = fromIndex\n this._size = toIndex - fromIndex\n }\n\n override fun get(index: Int): E {\n checkElementIndex(index, _size)\n\n return list[fromIndex + index]\n }\n\n override val size: Int get() = _size\n}\n\n\n/**\n * Provides ring buffer implementation.\n *\n * Buffer overflow is not allowed so [add] doesn't overwrite tail but raises an exception.\n */\nprivate class RingBuffer<T>(private val buffer: Array<Any?>, filledSize: Int) : AbstractList<T>(), RandomAccess {\n init {\n require(filledSize >= 0) { \"ring buffer filled size should not be negative but it is $filledSize\" }\n require(filledSize <= buffer.size) { \"ring buffer filled size: $filledSize cannot be larger than the buffer size: ${buffer.size}\" }\n }\n\n constructor(capacity: Int) : this(arrayOfNulls<Any?>(capacity), 0)\n\n private val capacity = buffer.size\n private var startIndex: Int = 0\n\n override var size: Int = filledSize\n private set\n\n override fun get(index: Int): T {\n checkElementIndex(index, size)\n @Suppress(\"UNCHECKED_CAST\")\n return buffer[startIndex.forward(index)] as T\n }\n\n fun isFull() = size == capacity\n\n override fun iterator(): Iterator<T> = object : AbstractIterator<T>() {\n private var count = size\n private var index = startIndex\n\n override fun computeNext() {\n if (count == 0) {\n done()\n } else {\n @Suppress(\"UNCHECKED_CAST\")\n setNext(buffer[index] as T)\n index = index.forward(1)\n count--\n }\n }\n }\n\n @Suppress(\"UNCHECKED_CAST\")\n override fun <T> toArray(array: Array<T>): Array<T> {\n val result: Array<T?> =\n if (array.size < this.size) array.copyOf(this.size) else array as Array<T?>\n\n val size = this.size\n\n var widx = 0\n var idx = startIndex\n\n while (widx < size && idx < capacity) {\n result[widx] = buffer[idx] as T\n widx++\n idx++\n }\n\n idx = 0\n while (widx < size) {\n result[widx] = buffer[idx] as T\n widx++\n idx++\n }\n if (result.size > this.size) result[this.size] = null\n\n return result as Array<T>\n }\n\n override fun toArray(): Array<Any?> {\n return toArray(arrayOfNulls(size))\n }\n\n /**\n * Creates a new ring buffer with the capacity equal to the minimum of [maxCapacity] and 1.5 * [capacity].\n * The returned ring buffer contains the same elements as this ring buffer.\n */\n fun expanded(maxCapacity: Int): RingBuffer<T> {\n val newCapacity = (capacity + (capacity shr 1) + 1).coerceAtMost(maxCapacity)\n val newBuffer = if (startIndex == 0) buffer.copyOf(newCapacity) else toArray(arrayOfNulls(newCapacity))\n return RingBuffer(newBuffer, size)\n }\n\n /**\n * Add [element] to the buffer or fail with [IllegalStateException] if no free space available in the buffer\n */\n fun add(element: T) {\n if (isFull()) {\n throw IllegalStateException(\"ring buffer is full\")\n }\n\n buffer[startIndex.forward(size)] = element\n size++\n }\n\n /**\n * Removes [n] first elements from the buffer or fails with [IllegalArgumentException] if not enough elements in the buffer to remove\n */\n fun removeFirst(n: Int) {\n require(n >= 0) { \"n shouldn't be negative but it is $n\" }\n require(n <= size) { \"n shouldn't be greater than the buffer size: n = $n, size = $size\" }\n\n if (n > 0) {\n val start = startIndex\n val end = start.forward(n)\n\n if (start > end) {\n buffer.fill(null, start, capacity)\n buffer.fill(null, 0, end)\n } else {\n buffer.fill(null, start, end)\n }\n\n startIndex = end\n size -= n\n }\n }\n\n\n @Suppress(\"NOTHING_TO_INLINE\")\n private inline fun Int.forward(n: Int): Int = (this + n) % capacity\n}\n","/*\n * Copyright 2010-2019 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin.collections\n\n// UByteArray ===\n@Exp

erimentalUnsignedTypes\nprivate fun partition(\n   array: UByteArray, left: Int, right: Int): Int {\n   var i = left\n   var j = right\n   val pivot = array[(left + right) / 2]\n   while (i <= j) {\n   while (array[i] < pivot)\n   i++\n   while (array[j] > pivot)\n   j--\n   if (i <= j) {\n   val tmp = array[i]\n   array[i] = array[j]\n   array[j] = tmp\n   i++\n   j--\n   }\n   }\n   return i\n}\n\n@ExperimentalUnsignedTypes\nprivate fun quickSort(\n   array: UByteArray, left: Int, right: Int) {\n   val index = partition(array, left, right)\n   if (left < index - 1)\n   quickSort(array, left, index - 1)\n   if (index < right)\n   quickSort(array, index, right)\n}\n\n// UShortArray ===\n@ExperimentalUnsignedTypes\nprivate fun partition(\n   array: UShortArray, left: Int, right: Int): Int {\n   var i = left\n   var j = right\n   val pivot = array[(left + right) / 2]\n   while (i <= j) {\n   while (array[i] < pivot)\n   i++\n   while (array[j] > pivot)\n   j--\n   if (i <= j) {\n   val tmp = array[i]\n   array[i] = array[j]\n   array[j] = tmp\n   i++\n   j--\n   }\n   }\n   return i\n}\n\n@ExperimentalUnsignedTypes\nprivate fun quickSort(\n   array: UShortArray, left: Int, right: Int) {\n   val index = partition(array, left, right)\n   if (left < index - 1)\n   quickSort(array, left, index - 1)\n   if (index < right)\n   quickSort(array, index, right)\n}\n\n// UIntArray ===\n@ExperimentalUnsignedTypes\nprivate fun partition(\n   array: UIntArray, left: Int, right: Int): Int {\n   var i = left\n   var j = right\n   val pivot = array[(left + right) / 2]\n   while (i <= j) {\n   while (array[i] < pivot)\n   i++\n   while (array[j] > pivot)\n   j--\n   if (i <= j) {\n   val tmp = array[i]\n   array[i] = array[j]\n   array[j] = tmp\n   i++\n   j--\n   }\n   }\n   return i\n}\n\n@ExperimentalUnsignedTypes\nprivate fun quickSort(\n   array: UIntArray, left: Int, right: Int) {\n   val index = partition(array, left, right)\n   if (left < index - 1)\n   quickSort(array, left, index - 1)\n   if (index < right)\n   quickSort(array, index, right)\n}\n\n// ULongArray ===\n@ExperimentalUnsignedTypes\nprivate fun partition(\n   array: ULongArray, left: Int, right: Int): Int {\n   var i = left\n   var j = right\n   val pivot = array[(left + right) / 2]\n   while (i <= j) {\n   while (array[i] < pivot)\n   i++\n   while (array[j] > pivot)\n   j--\n   if (i <= j) {\n   val tmp = array[i]\n   array[i] = array[j]\n   array[j] = tmp\n   i++\n   j--\n   }\n   }\n   return i\n}\n\n@ExperimentalUnsignedTypes\nprivate fun quickSort(\n   array: ULongArray, left: Int, right: Int) {\n   val index = partition(array, left, right)\n   if (left < index - 1)\n   quickSort(array, left, index - 1)\n   if (index < right)\n   quickSort(array, index, right)\n}\n\n\n// Interfaces ===\n/**\n * Sorts the given array using qsort algorithm.\n */\n@ExperimentalUnsignedTypes\ninternal fun sortArray(array: UByteArray, fromIndex: Int, toIndex: Int)   = quickSort(array, fromIndex, toIndex - 1)\n@ExperimentalUnsignedTypes\ninternal fun sortArray(array: UShortArray, fromIndex: Int, toIndex: Int)   = quickSort(array, fromIndex, toIndex - 1)\n@ExperimentalUnsignedTypes\ninternal fun sortArray(array: UIntArray, fromIndex: Int, toIndex: Int)   = quickSort(array, fromIndex, toIndex - 1)\n@ExperimentalUnsignedTypes\ninternal fun sortArray(array: ULongArray, fromIndex: Int, toIndex: Int)   = quickSort(array, fromIndex, toIndex - 1)","/*\n * Copyright 2010-2021 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin\n\nimport kotlin.internal.InlineOnly\n\n/**\n * Compares this object with the specified object for order. Returns zero if this object is equal\n * to the specified [other] object, a negative number if it's less than [other], or a positive number\n * if it's greater than [other].\n *\n * This function delegates to [Comparable.compareTo] and allows to call it in infix form.\n */\n@InlineOnly\n@SinceKotlin(\"1.6\")\npublic inline infix fun <T> Comparable<T>.compareTo(other: T): Int =\n   this.compareTo(other)\n","/*\n * Copyright 2010-2018 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin.contracts\n\nimport kotlin.internal.ContractsDsl\nimport kotlin.internal.InlineOnly\n\n/**\n * This marker distinguishes the experimental contract declaration API and is used to opt-in for that feature\n * when declaring contracts of user functions.\n *\n * Any usage of a declaration annotated with `@ExperimentalContracts` must be accepted either by\n * annotating that usage with the [OptIn] annotation, e.g. `@OptIn(ExperimentalContracts::class)`,\n * or by using the compiler argument `-opt-in=kotlin.contracts.ExperimentalContracts`.\n */\n@Retention(AnnotationRetention.BINARY)\n@SinceKotlin(\"1.3\")\n@RequiresOptIn\n@MustBeDocumented\npublic annotation class ExperimentalContracts\n\n/**\n * Provides a scope, where the functions of the contract DSL, such as [returns], [callsInPlace], etc.,\n * can be used to describe the contract of a function.\n *\n * This type is used as a receiver type of the lambda function passed to the [contract] function.\n *\n * @see contract\n */\n@ContractsDsl\n@ExperimentalContracts\n@SinceKotlin(\"1.3\")\npublic interface ContractBuilder {\n /**\n * Describes a situation when a function returns normally, without any exceptions thrown.\n *\n * Use [SimpleEffect.implies] function to describe a conditional effect that happens in such case.\n *\n */\n // @sample samples.contracts.returnsContract\n @ContractsDsl public fun returns(): Returns\n\n /**\n * Describes a situation when a function returns normally with the specified return [value].\n *\n * The possible values of [value] are limited to `true`, `false` or `null`.\n *\n * Use [SimpleEffect.implies] function to describe a conditional effect that happens in such case.\n *\n */\n // @sample samples.contracts.returnsTrueContract\n // @sample samples.contracts.returnsFalseContract\n // @sample samples.contracts.returnsNullContract\n @ContractsDsl public fun returns(value: Any?): Returns\n\n /**\n * Describes a situation when a function returns normally with any value that is not `null`.\n *\n * Use [SimpleEffect.implies] function to describe a conditional effect that happens in such case.\n *\n */\n // @sample samples.contracts.returnsNotNullContract\n @ContractsDsl public fun returnsNotNull(): ReturnsNotNull\n\n /**\n * Specifies that the function parameter [lambda] is invoked in place.\n *\n * This contract specifies that:\n * 1. the function [lambda] can only be invoked during the call of the owner function,\n * and it won't be invoked after that owner function call is completed;\n * 2. _(optionally)_ the function [lambda] is invoked the amount of times specified by the [kind] parameter,\n * see the [InvocationKind] enum for possible values.\n *\n * A function declaring the `callsInPlace` effect must be _inline_.\n *\n */\n /* @sample samples.contracts.callsInPlaceAtMostOnceContract\n * @sample samples.contracts.callsInPlaceAtLeastOnceContract\n * @sample samples.contracts.callsInPlaceExactlyOnceContract\n * @sample samples.contracts.callsInPlaceUnknownContract\n */\n @ContractsDsl public fun <R> callsInPlace(lambda: Function<R>, kind: InvocationKind = InvocationKind.UNKNOWN): CallsInPlace\n}\n\n/**\n * Specifies how many times a function invokes its function parameter in place.\n *\n * See [ContractBuilder.callsInPlace] for the details of the call-in-place function contract.\n */\n@ContractsDsl\n@ExperimentalContracts\n@SinceKotlin(\"1.3\")\npublic enum class InvocationKind {\n /**\n * A function parameter will be invoked one time or not invoked at all.\n */\n // @sample samples.contracts.callsInPlaceAtMostOnceContract\n @ContractsDsl AT_MOST_ONCE,\n\n /**\n * A function parameter will be invoked one or more times.\n *\n */\n // @sample samples.contracts.callsInPlaceAtLeastOnceContract\n @ContractsDsl AT_LEAST_ONCE,\n\n /**\n * A function parameter will be invoked exactly one time.\n *\n */\n // @sample samples.contracts.callsInPlaceExactlyOnceContract\n @ContractsDsl EXACTLY_ONCE,\n\n /**\n * A function parameter is called in place, but it's unknown how many times it can be called.\n *\n */\n // @sample samples.contracts.callsInPlaceUnknownContract\n @ContractsDsl UNKNOWN\n}\n\n/**\n * Specifies the contract of a function.\n *\n * The contract description must be at the beginning of a function and have at least one effect.\n *\n * Only the top-level functions can have a contract for now.\n *\n * @param builder the lambda where the contract of a function is described with the help of the [ContractBuilder] members.\n *\n */\n/* @sample samples.contracts.returnsContract\n* @sample samples.contracts.returnsTrueContract\n* @sample samples.contracts.returnsFalseContract\n* @sample samples.contracts.returnsNullContract\n* @sample samples.contracts.returnsNotNullContract\n* @sample samples.contracts.callsInPlaceAtMostOnceContract\n*

@sample samples.contracts.callsInPlaceAtLeastOnceContract\n* @sample samples.contracts.callsInPlaceExactlyOnceContract\n* @sample samples.contracts.callsInPlaceUnknownContract\n*/\n@ContractsDsl\n@ExperimentalContracts\n@InlineOnly\n@SinceKotlin(\"1.3\")\n@Suppress(\"UNUSED_PARAMETER\")\npublic inline fun contract(builder: ContractBuilder.() -> Unit) { }\n","/*\n * Copyright 2010-2018 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin.coroutines\n\n/**\n * Marks coroutine context element that intercepts coroutine continuations.\n * The coroutines framework uses [ContinuationInterceptor.Key] to retrieve the interceptor and\n * intercepts all coroutine continuations with [interceptContinuation] invocations.\n *\n * [ContinuationInterceptor] behaves like a [polymorphic element][AbstractCoroutineContextKey], meaning that\n * its implementation delegates [get][CoroutineContext.Element.get] and [minusKey][CoroutineContext.Element.minusKey]\n * to [getPolymorphicElement] and [minusPolymorphicKey] respectively.\n * [ContinuationInterceptor] subtypes can be extracted from the coroutine context using either [ContinuationInterceptor.Key]\n * or subtype key if it extends [AbstractCoroutineContextKey].\n */\n@SinceKotlin(\"1.3\")\npublic interface ContinuationInterceptor : CoroutineContext.Element {\n   /**\n   * The key that defines *the* context interceptor.\n   */\n   companion object Key : CoroutineContext.Key<ContinuationInterceptor>\n\n   /**\n   * Returns continuation that wraps the original [continuation], thus intercepting all resumptions.\n   * This function is invoked by coroutines framework when needed and the resulting continuations are\n   * cached internally per each instance of the original [continuation].\n   *\n   * This function may simply return original [continuation] if it does not want to intercept this particular continuation.\n   *\n   * When the original [continuation] completes, coroutine framework invokes [releaseInterceptedContinuation]\n   * with the resulting continuation if it was intercepted, that is if `interceptContinuation` had previously\n   * returned a different continuation instance.\n   */\n   public fun <T> interceptContinuation(continuation: Continuation<T>): Continuation<T>\n\n   /**\n   * Invoked for the continuation instance returned by [interceptContinuation] when the original\n   * continuation completes and will not be used anymore. This function is invoked only if [interceptContinuation]\n   * had returned a different continuation instance from the one it was invoked with.\n   *\n   * Default implementation does nothing.\n   *\n   * @param continuation Continuation instance returned by this interceptor's [interceptContinuation] invocation.\n   */\n   public fun releaseInterceptedContinuation(continuation: Continuation<*>) {\n   /* do nothing by default */\n   }\n\n   public override operator fun <E : CoroutineContext.Element> get(key: CoroutineContext.Key<E>): E? {\n   // getPolymorphicKey specialized for ContinuationInterceptor key\n   @OptIn(ExperimentalStdlibApi::class)\n   if (key is AbstractCoroutineContextKey<*, *>) {\n   @Suppress(\"UNCHECKED_CAST\")\n   return if (key.isSubKey(this.key)) key.tryCast(this) as? E else null\n   }\n   @Suppress(\"UNCHECKED_CAST\")\n   return if (ContinuationInterceptor === key) this as E else null\n   }\n\n\n   public override fun minusKey(key: CoroutineContext.Key<*>): CoroutineContext {\n   // minusPolymorphicKey specialized for ContinuationInterceptor key\n   @OptIn(ExperimentalStdlibApi::class)\n   if (key is AbstractCoroutineContextKey<*, *>) {\n   return if (key.isSubKey(this.key) && key.tryCast(this) != null) EmptyCoroutineContext else this\n   }\n   return if (ContinuationInterceptor === key) EmptyCoroutineContext else this\n   }\n}\n","/*\n * Copyright 2010-2018 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin.coroutines\n\n/**\n * Persistent context for the coroutine. It is an indexed set of [Element] instances.\n * An indexed set is a mix between a set and a map.\n * Every element in this set has a unique [Key].\n */\n@SinceKotlin(\"1.3\")\npublic interface CoroutineContext {\n   /**\n   * Returns the element with the given [key] from this context or `null`.\n   */\n   public operator fun <E : Element> get(key: Key<E>): E?\n\n   /**\n   * Accumulates entries of this context starting with [initial] value and applying [operation]\n   * from left to right to current accumulator value and each element of this context.\n   */\n   public fun <R> fold(initial: R, operation: (R, Element) -> R): R\n\n   /**\n   * Returns a context containing elements from this context and elements from other [context].\n   * The elements from this context with the same key as in the other one are dropped.\n */\n public operator fun plus(context: CoroutineContext): CoroutineContext =\n if (context === EmptyCoroutineContext) this else // fast path -- avoid lambda creation\n context.fold(this) { acc, element ->\n val removed = acc.minusKey(element.key)\n if (removed === EmptyCoroutineContext) element else {\n // make sure interceptor is always last in the context (and thus is fast to get when present)\n val interceptor = removed[ContinuationInterceptor]\n if (interceptor == null) CombinedContext(removed, element) else {\n val left = removed.minusKey(ContinuationInterceptor)\n if (left === EmptyCoroutineContext) CombinedContext(element, interceptor) else\n CombinedContext(CombinedContext(left, element), interceptor)\n }\n }\n }\n\n /**\n * Returns a context containing elements from this context, but without an element with\n * the specified [key].\n */\n public fun minusKey(key: Key<*>): CoroutineContext\n\n /**\n * Key for the elements of [CoroutineContext]. [E] is a type of element with this key.\n */\n public interface Key<E : Element>\n\n /**\n * An element of the [CoroutineContext]. An element of the coroutine context is a singleton context by itself.\n */\n public interface Element : CoroutineContext {\n /**\n * A key of this coroutine context element.\n */\n public val key: Key<*>\n\n public override operator fun <E : Element> get(key: Key<E>): E? =\n @Suppress(\"UNCHECKED_CAST\")\n if (this.key == key) this as E else null\n\n public override fun <R> fold(initial: R, operation: (R, Element) -> R): R =\n operation(initial, this)\n\n public override fun minusKey(key: Key<*>): CoroutineContext =\n if (this.key == key) EmptyCoroutineContext else this\n }\n}\n","/*\n * Copyright 2010-2020 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin.coroutines\n\nimport kotlin.coroutines.CoroutineContext.Element\nimport kotlin.coroutines.CoroutineContext.Key\n\n/**\n * Base class for [CoroutineContext.Element] implementations.\n */\n@SinceKotlin(\"1.3\")\npublic abstract class AbstractCoroutineContextElement(public override val key: Key<*>) : Element\n\n/**\n * Base class for [CoroutineContext.Key] associated with polymorphic [CoroutineContext.Element] implementation.\n * Polymorphic element implementation implies delegating its [get][Element.get] and [minusKey][Element.minusKey]\n * to [getPolymorphicElement] and [minusPolymorphicKey] respectively.\n *\n * Polymorphic elements can be extracted from the coroutine context using both element key and its supertype key.\n * Example of polymorphic elements:\n * ```\n * open class BaseElement : CoroutineContext.Element {\n * companion object Key : CoroutineContext.Key<BaseElement>\n * override val key: CoroutineContext.Key<*> get() = Key\n * // It is important to use getPolymorphicKey and minusPolymorphicKey\n * override fun <E : CoroutineContext.Element> get(key: CoroutineContext.Key<E>): E? = getPolymorphicElement(key)\n * override fun minusKey(key: CoroutineContext.Key<*>): CoroutineContext = minusPolymorphicKey(key)\n * }\n *\n * class DerivedElement : BaseElement() {\n * companion object Key : AbstractCoroutineContextKey<BaseElement, DerivedElement>(BaseElement, { it as? DerivedElement })\n * }\n * // Now it is possible to query both `BaseElement` and `DerivedElement`\n * someContext[BaseElement] // Returns BaseElement?, non-null both for BaseElement and DerivedElement instances\n * someContext[DerivedElement] // Returns DerivedElement?, non-null only for DerivedElement instance\n * ```\n * @param B base class of a polymorphic element\n * @param baseKey an instance of base key\n * @param E element type associated with the current key\n * @param safeCast a function that can safely cast abstract [CoroutineContext.Element] to the concrete [E] type\n * and return the element if it is a subtype of [E] or `null` otherwise.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalStdlibApi\npublic abstract class AbstractCoroutineContextKey<B : Element, E : B>(\n baseKey: Key<B>,\n private val safeCast: (element: Element) -> E?\n) : Key<E> {\n private val topmostKey: Key<*> = if (baseKey is AbstractCoroutineContextKey<*, *>) baseKey.topmostKey else baseKey\n\n internal fun tryCast(element: Element): E? = safeCast(element)\n internal fun isSubKey(key: Key<*>): Boolean = key === this || topmostKey === key\n}\n\n/**\n * Returns the current element if it is associated with the given [key] in a polymorphic manner or `null` otherwise.\n * This method returns non-null value if either [Element.key] is equal to the given [key] or if the [key] is associated\n * with [Element.key] via [AbstractCoroutineContextKey].\n * See

[AbstractCoroutineContextKey] for the example of usage.\n
*/\n@SinceKotlin(\"1.3\")\n@ExperimentalStdlibApi\npublic fun <E : Element>
Element.getPolymorphicElement(key: Key<E>): E? {\n   if (key is AbstractCoroutineContextKey<*, *>) {\n
@Suppress(\"UNCHECKED_CAST\")\n   return if (key.isSubKey(this.key)) key.tryCast(this) as? E else null\n
}\n   @Suppress(\"UNCHECKED_CAST\")\n   return if (this.key === key) this as E else null\n}\n\n/**\n *
Returns empty coroutine context if the element is associated with the given [key] in a polymorphic manner\n * or
`null` otherwise.\n * This method returns empty context if either [Element.key] is equal to the given [key] or if the
[key] is associated\n * with [Element.key] via [AbstractCoroutineContextKey].\n * See
[AbstractCoroutineContextKey] for the example of usage.\n
/\n@SinceKotlin(\"1.3\")\n@ExperimentalStdlibApi\npublic fun Element.minusPolymorphicKey(key: Key<>):
CoroutineContext {\n   if (key is AbstractCoroutineContextKey<*, *>) {\n   return if (key.isSubKey(this.key)
&& key.tryCast(this) != null) EmptyCoroutineContext else this\n   }\n   return if (this.key === key)
EmptyCoroutineContext else this\n}\n\n/**\n * An empty coroutine context.\n */\n@SinceKotlin(\"1.3\")\npublic
object EmptyCoroutineContext : CoroutineContext, Serializable {\n   private const val serialVersionUID: Long =
0\n   private fun readResolve(): Any = EmptyCoroutineContext\n\n   public override fun <E : Element> get(key:
Key<E>): E? = null\n   public override fun <R> fold(initial: R, operation: (R, Element) -> R): R = initial\n   public
override fun plus(context: CoroutineContext): CoroutineContext = context\n   public override fun minusKey(key:
Key<*>): CoroutineContext = this\n   public override fun hashCode(): Int = 0\n   public override fun toString():
String = \"EmptyCoroutineContext\"\n}\n\n//--------------------- internal impl ---------------------\n\n// this class is not
exposed, but is hidden inside implementations\n// this is a left-biased list, so that `plus` works
naturally\n@SinceKotlin(\"1.3\")\ninternal class CombinedContext(\n   private val left: CoroutineContext,\n
private val element: Element\n) : CoroutineContext, Serializable {\n\n   override fun <E : Element> get(key:
Key<E>): E? {\n   var cur = this\n   while (true) {\n   cur.element[key]?.let { return it }\n   val next
= cur.left\n   if (next is CombinedContext) {\n   cur = next\n   } else {\n   return
next[key]\n   }\n   }\n   }\n\n   public override fun <R> fold(initial: R, operation: (R, Element) -> R): R =\n
        operation(left.fold(initial, operation), element)\n\n   public override fun minusKey(key: Key<*>):
CoroutineContext {\n   element[key]?.let { return left }\n   val newLeft = left.minusKey(key)\n   return
when {\n   newLeft === left -> this\n   newLeft === EmptyCoroutineContext -> element\n   else ->
CombinedContext(newLeft, element)\n   }\n   }\n\n   private fun size(): Int {\n   var cur = this\n   var size
= 2\n   while (true) {\n   cur = cur.left as? CombinedContext ?: return size\n   size++\n   }\n   }\n\n
  private fun contains(element: Element): Boolean =\n   get(element.key) == element\n\n   private fun
containsAll(context: CombinedContext): Boolean {\n   var cur = context\n   while (true) {\n   if
(!contains(cur.element)) return false\n   val next = cur.left\n   if (next is CombinedContext) {\n
cur = next\n   } else {\n   return contains(next as Element)\n   }\n   }\n   }\n\n   override fun
equals(other: Any?): Boolean =\n   this === other || other is CombinedContext && other.size() == size() &&
other.containsAll(this)\n\n   override fun hashCode(): Int = left.hashCode() + element.hashCode()\n\n   override
fun toString(): String =\n   \"[\" + fold(\"\") { acc, element ->\n   if (acc.isEmpty()) element.toString() else
\"$acc, $element\"\n   } + \"]\"\n\n   private fun writeReplace(): Any {\n   val n = size()\n   val elements =
arrayOfNulls<CoroutineContext>(n)\n   var index = 0\n   fold(Unit) { _, element -> elements[index++] =
element }\n   check(index == n)\n   @Suppress(\"UNCHECKED_CAST\")\n   return Serialized(elements
as Array<CoroutineContext>)\n   }\n\n   private class Serialized(val elements: Array<CoroutineContext>) :
Serializable {\n   companion object {\n   private const val serialVersionUID: Long = 0L\n   }\n\n
private fun readResolve(): Any = elements.fold(EmptyCoroutineContext, CoroutineContext::plus)\n   }\n}\n","/*\n
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is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n
*/\n\n@file:kotlin.jvm.JvmName(\"IntrinsicsKt\")\n@file:kotlin.jvm.JvmMultifileClass\n\npackage
kotlin.coroutines.intrinsics\n\nimport kotlin.contracts.*\nimport kotlin.coroutines.*\nimport
kotlin.internal.InlineOnly\n\n/**\n * Obtains the current continuation instance inside suspend functions and either

suspends\n * currently running coroutine or returns result immediately without suspension.\n *\n * If the [block] returns the special [COROUTINE_SUSPENDED] value, it means that suspend function did suspend the execution and will\n * not return any result immediately. In this case, the [Continuation] provided to the [block] shall be\n * resumed by invoking [Continuation.resumeWith] at some moment in the\n * future when the result becomes available to resume the computation.\n *\n * Otherwise, the return value of the [block] must have a type assignable to [T] and represents the result of this suspend function.\n * It means that the execution was not suspended and the [Continuation] provided to the [block] shall not be invoked.\n * As the result type of the [block] is declared as `Any?` and cannot be correctly type-checked,\n * its proper return type remains on the conscience of the suspend function's author.\n *\n * Invocation of [Continuation.resumeWith] resumes coroutine directly in the invoker's thread without going through the\n * [ContinuationInterceptor] that might be present in the coroutine's [CoroutineContext].\n * It is the invoker's responsibility to ensure that a proper invocation context is established.\n * [Continuation.intercepted] can be used to acquire the intercepted continuation.\n *\n * Note that it is not recommended to call either [Continuation.resume] nor [Continuation.resumeWithException] functions synchronously\n * in the same stackframe where suspension function is run. Use [suspendCoroutine] as a safer way to obtain current\n * continuation instance.\n */\n@SinceKotlin(\"1.3\")\n@InlineOnly\n@Suppress(\"UNUSED_PARAMETER\", \"RedundantSuspendModifier\")\npublic suspend inline fun <T> suspendCoroutineUninterceptedOrReturn(crossinline block: (Continuation<T>) -> Any?): T {\n   contract { callsInPlace(block, InvocationKind.EXACTLY_ONCE) }\n   throw NotImplementedError(\"Implementation of suspendCoroutineUninterceptedOrReturn is intrinsic\")\n}\n\n/**\n * This value is used as a return value of [suspendCoroutineUninterceptedOrReturn] `block` argument to state that\n * the execution was suspended and will not return any result immediately.\n *\n * **Note: this value should not be used in general code.** Using it outside of the context of\n * `suspendCoroutineUninterceptedOrReturn` function return value (including, but not limited to,\n * storing this value in other properties, returning it from other functions, etc)\n * can lead to unspecified behavior of the code.\n */\n// It is implemented as property with getter to avoid ProGuard <clinit> problem with multifile IntrinsicsKt class\n@SinceKotlin(\"1.3\")\npublic val COROUTINE_SUSPENDED: Any get() = CoroutineSingletons.COROUTINE_SUSPENDED\n\n// Using enum here ensures two important properties:\n// 1. It makes SafeContinuation serializable with all kinds of serialization frameworks (since all of them natively support enums)\n// 2. It improves debugging experience, since you clearly see toString() value of those objects and what package they come from\n@SinceKotlin(\"1.3\")\n@PublishedApi // This class is Published API via serialized representation of SafeContinuation, don't rename/move\ninternal enum class CoroutineSingletons { COROUTINE_SUSPENDED, UNDECIDED, RESUMED }\n","/*\n * Copyright 2010-2018 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin.experimental\n\n/** Performs a bitwise AND operation between the two values. */\n@SinceKotlin(\"1.1\")\n@kotlin.internal.InlineOnly\npublic inline infix fun Byte.and(other: Byte): Byte = (this.toInt() and other.toInt()).toByte()\n\n/** Performs a bitwise OR operation between the two values. */\n@SinceKotlin(\"1.1\")\n@kotlin.internal.InlineOnly\npublic inline infix fun Byte.or(other: Byte): Byte = (this.toInt() or other.toInt()).toByte()\n\n/** Performs a bitwise XOR operation between the two values. */\n@SinceKotlin(\"1.1\")\n@kotlin.internal.InlineOnly\npublic inline infix fun Byte.xor(other: Byte): Byte = (this.toInt() xor other.toInt()).toByte()\n\n/** Inverts the bits in this value. */\n@SinceKotlin(\"1.1\")\n@kotlin.internal.InlineOnly\npublic inline fun Byte.inv(): Byte = (this.toInt().inv()).toByte()\n\n\n\n/** Performs a bitwise AND operation between the two values. */\n@SinceKotlin(\"1.1\")\n@kotlin.internal.InlineOnly\npublic inline infix fun Short.and(other: Short): Short = (this.toInt() and other.toInt()).toShort()\n\n/** Performs a bitwise OR operation between the two values. */\n@SinceKotlin(\"1.1\")\n@kotlin.internal.InlineOnly\npublic inline infix fun Short.or(other: Short): Short = (this.toInt() or other.toInt()).toShort()\n\n/** Performs a bitwise XOR operation between the two values. */\n@SinceKotlin(\"1.1\")\n@kotlin.internal.InlineOnly\npublic inline infix fun Short.xor(other: Short): Short = (this.toInt() xor other.toInt()).toShort()\n\n/** Inverts the bits in this value.

/\n@SinceKotlin(\"1.1\")\n@kotlin.internal.InlineOnly\npublic inline fun Short.inv(): Short = (this.toInt().inv()).toShort()\n\n\n","/\n * Copyright 2010-2018 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin.experimental\n\n/**\n * The experimental marker for type inference augmenting annotations.\n *\n * Any usage of a declaration annotated with `@ExperimentalTypeInference` must be accepted either by\n * annotating that usage with the [OptIn] annotation, e.g. `@OptIn(ExperimentalTypeInference::class)`,\n * or by using the compiler argument `-opt-in=kotlin.experimental.ExperimentalTypeInference`.\n */\n@RequiresOptIn(level = RequiresOptIn.Level.ERROR)\n@MustBeDocumented\n@Retention(AnnotationRetention.BINARY)\n@Target(AnnotationTarget.ANNOTATION_CLASS)\n@SinceKotlin(\"1.3\")\npublic annotation class ExperimentalTypeInference\n","/*\n * Copyright 2010-2018 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin.internal\n\n/**\n * Specifies that the corresponding type should be ignored during type inference.\n */\n@Target(AnnotationTarget.TYPE)\n@Retention(AnnotationRetention.BINARY)\ninternal annotation class NoInfer\n\n/**\n * Specifies that the constraint built for the type during type inference should be an equality one.\n */\n@Target(AnnotationTarget.TYPE)\n@Retention(AnnotationRetention.BINARY)\ninternal annotation class Exact\n\n/**\n * Specifies that a corresponding member has the lowest priority in overload resolution.\n */\n@Target(AnnotationTarget.FUNCTION, AnnotationTarget.PROPERTY, AnnotationTarget.CONSTRUCTOR)\n@Retention(AnnotationRetention.BINARY)\ninternal annotation class LowPriorityInOverloadResolution\n\n/**\n * Specifies that the corresponding member has the highest priority in overload resolution. Effectively this means that\n * an extension annotated with this annotation will win in overload resolution over a member with the same signature.\n */\n@Target(AnnotationTarget.FUNCTION, AnnotationTarget.PROPERTY)\n@Retention(AnnotationRetention.BINARY)\ninternal annotation class HidesMembers\n\n/**\n * The value of this type parameter should be mentioned in input types (argument types, receiver type or expected type).\n */\n@Target(AnnotationTarget.TYPE_PARAMETER)\n@Retention(AnnotationRetention.BINARY)\ninternal annotation class OnlyInputTypes\n\n/**\n * Specifies that this function should not be called directly without inlining\n */\n@Target(AnnotationTarget.FUNCTION, AnnotationTarget.PROPERTY, AnnotationTarget.PROPERTY_GETTER, AnnotationTarget.PROPERTY_SETTER)\n@Retention(AnnotationRetention.BINARY)\ninternal annotation class InlineOnly\n\n/**\n * Specifies that this declaration can have dynamic receiver type.\n */\n@Target(AnnotationTarget.FUNCTION, AnnotationTarget.PROPERTY)\n@Retention(AnnotationRetention.BINARY)\ninternal annotation class DynamicExtension\n\n/**\n * The value of this parameter should be a property reference expression (`this::foo`), referencing a `lateinit` property,\n * the backing field of which is accessible at the point where the corresponding argument is passed.\n */\n@Target(AnnotationTarget.VALUE_PARAMETER)\n@Retention(AnnotationRetention.BINARY)\n@SinceKotlin(\"1.2\")\ninternal annotation class AccessibleLateinitPropertyLiteral\n\n/**\n * Specifies that this declaration is only completely supported since the specified version.\n *\n * The Kotlin compiler of an earlier version is going to report a diagnostic on usages of this declaration.\n * The diagnostic message can be specified with [message], or via [errorCode] (takes less space, but might not be immediately clear\n * to the user). The diagnostic severity can be specified with [level]: WARNING/ERROR mean that either a warning or an error\n * is going to be reported, HIDDEN means that the declaration is going to be removed from resolution completely.\n *\n * [versionKind] specifies which version should be compared with the [version] value, when compiling the usage of the annotated declaration.\n * Note that prior to 1.2, only [RequireKotlinVersionKind.LANGUAGE_VERSION] was supported, so the Kotlin compiler before 1.2 is going to\n * treat any [RequireKotlin] as if it requires the language version. Since 1.2, the Kotlin compiler supports\n * [RequireKotlinVersionKind.LANGUAGE_VERSION],

[RequireKotlinVersionKind.COMPILER_VERSION] and [RequireKotlinVersionKind.API_VERSION].\n * If the actual value of [versionKind] is something different (e.g. a new version kind, added in future versions of Kotlin),\n * Kotlin 1.2 is going to ignore this [RequireKotlin] altogether, where as Kotlin before 1.2 is going to treat this as a requirement\n * on the language version.\n *\n * This annotation is erased at compile time; its arguments are stored in a more compact form in the Kotlin metadata.\n */\n@Target(AnnotationTarget.CLASS, AnnotationTarget.FUNCTION, AnnotationTarget.PROPERTY, AnnotationTarget.CONSTRUCTOR, AnnotationTarget.TYPEALIAS)\n@Retention(AnnotationRetention.SOURCE)\n@Repeatable\n@SinceKotlin(\"1.2\")\ninternal annotation class RequireKotlin(\n   val version: String,\n   val message: String = \"\",\n   val level: DeprecationLevel = DeprecationLevel.ERROR,\n   val versionKind: RequireKotlinVersionKind = RequireKotlinVersionKind.LANGUAGE_VERSION,\n   val errorCode: Int = -1\n)\n\n/**\n * The kind of the version that is required by [RequireKotlin].\n */\n@SinceKotlin(\"1.2\")\ninternal enum class RequireKotlinVersionKind {\n   LANGUAGE_VERSION,\n   COMPILER_VERSION,\n API_VERSION,\n}\n\n/**\n * Specifies that this declaration is a part of special DSL, used for constructing function's contract.\n */\n@Retention(AnnotationRetention.BINARY)\n@SinceKotlin(\"1.2\")\ninternal annotation class ContractsDsl\n","/*\n * Copyright 2010-2018 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin.internal\n\n// a mod b (in arithmetical sense)\nprivate fun mod(a: Int, b: Int): Int {\n   val mod = a % b\n   return if (mod >= 0) mod else mod + b\n}\n\nprivate fun mod(a: Long, b: Long): Long {\n   val mod = a % b\n   return if (mod >= 0) mod else mod + b\n}\n\n// (a - b) mod c\nprivate fun differenceModulo(a: Int, b: Int, c: Int): Int {\n   return mod(mod(a, c) - mod(b, c), c)\n}\n\nprivate fun differenceModulo(a: Long, b: Long, c: Long): Long {\n   return mod(mod(a, c) - mod(b, c), c)\n}\n\n/**\n * Calculates the final element of a bounded arithmetic progression, i.e. the last element of the progression which is in the range\n * from [start] to [end] in case of a positive [step], or from [end] to [start] in case of a negative\n * [step].\n *\n * No validation on passed parameters is performed. The given parameters should satisfy the condition:\n *\n * - either `step > 0` and `start <= end`,\n * - or `step < 0` and `start >= end`.\n *\n * @param start first element of the progression\n * @param end ending bound for the progression\n * @param step increment, or difference of successive elements in the progression\n * @return the final element of the progression\n * @suppress\n */\n@PublishedApi\ninternal fun getProgressionLastElement(start: Int, end: Int, step: Int): Int = when {\n   step > 0 -> if (start >= end) end else end - differenceModulo(end, start, step)\n   step < 0 -> if (start <= end) end else end + differenceModulo(start, end, -step)\n   else -> throw kotlin.IllegalArgumentException(\"Step is zero.\")\n}\n\n/**\n * Calculates the final element of a bounded arithmetic progression, i.e. the last element of the progression which is in the range\n * from [start] to [end] in case of a positive [step], or from [end] to [start] in case of a negative\n * [step].\n *\n * No validation on passed parameters is performed. The given parameters should satisfy the condition:\n *\n * - either `step > 0` and `start <= end`,\n * - or `step < 0` and `start >= end`.\n *\n * @param start first element of the progression\n * @param end ending bound for the progression\n * @param step increment, or difference of successive elements in the progression\n * @return the final element of the progression\n * @suppress\n */\n@PublishedApi\ninternal fun getProgressionLastElement(start: Long, end: Long, step: Long): Long = when {\n   step > 0 -> if (start >= end) end else end - differenceModulo(end, start, step)\n   step < 0 -> if (start <= end) end else end + differenceModulo(start, end, -step)\n   else -> throw kotlin.IllegalArgumentException(\"Step is zero.\")\n}\n","/*\n * Copyright 2010-2018 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin.properties\n\nimport kotlin.reflect.KProperty\n\n/**\n * Standard property delegates.\n */\npublic object Delegates {\n   /**\n   * Returns a property delegate for a read/write property with a non-`null` value that is initialized not during\n   * object construction time but at a later time. Trying to read the property before the initial value has been\n   * assigned results in an exception.\n   *\n   * @sample samples.properties.Delegates.notNullDelegate\n   */\n   public fun <T : Any> notNull(): ReadWriteProperty<Any?, T> = NotNullVar()\n\n   /**\n   * Returns a property delegate for a read/write property that calls a specified callback function when changed.\n   * @param initialValue the initial value of the property.\n

* @param onChange the callback which is called after the change of the property is made. The value of the property\n   * has already been changed when this callback is invoked.\n   *\n   * @sample samples.properties.Delegates.observableDelegate\n   */\n   public inline fun <T> observable(initialValue: T, crossinline onChange: (property: KProperty<*>, oldValue: T, newValue: T) -> Unit):\n   ReadWriteProperty<Any?, T> =\n   object : ObservableProperty<T>(initialValue) {\n   override fun afterChange(property: KProperty<*>, oldValue: T, newValue: T) = onChange(property, oldValue, newValue)\n   }\n\n   /**\n   * Returns a property delegate for a read/write property that calls a specified callback function when changed,\n   * allowing the callback to veto the modification.\n   * @param initialValue the initial value of the property.\n   * @param onChange the callback which is called before a change to the property value is attempted.\n   * The value of the property hasn't been changed yet, when this callback is invoked.\n   * If the callback returns `true` the value of the property is being set to the new value,\n   * and if the callback returns `false` the new value is discarded and the property remains its old value.\n   *\n   * @sample samples.properties.Delegates.vetoableDelegate\n   * @sample samples.properties.Delegates.throwVetoableDelegate\n   */\n   public inline fun <T> vetoable(initialValue: T, crossinline onChange: (property: KProperty<*>, oldValue: T, newValue: T) -> Boolean):\n   ReadWriteProperty<Any?, T> =\n   object : ObservableProperty<T>(initialValue) {\n   override fun beforeChange(property: KProperty<*>, oldValue: T, newValue: T): Boolean = onChange(property, oldValue, newValue)\n   }\n\n}\n\n\nprivate class NotNullVar<T : Any>() : ReadWriteProperty<Any?, T> {\n   private var value: T? = null\n\n   public override fun getValue(thisRef: Any?, property: KProperty<*>): T {\n   return value ?: throw IllegalStateException(\"Property ${property.name} should be initialized before get.\")\n   }\n\n   public override fun setValue(thisRef: Any?, property: KProperty<*>, value: T) {\n   this.value = value\n   }\n}\n\n","/*\n * Copyright 2010-2020 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin.properties\n\nimport kotlin.reflect.KProperty\n\n/**\n * Base interface that can be used for implementing property delegates of read-only properties.\n *\n * This is provided only for convenience; you don't have to extend this interface\n * as long as your property delegate has methods with the same signatures.\n *\n * @param T the type of object which owns the delegated property.\n * @param V the type of the property value.\n */\npublic fun interface ReadOnlyProperty<in T, out V> {\n   /**\n   * Returns the value of the property for the given object.\n   * @param thisRef the object for which the value is requested.\n   * @param property the metadata for the property.\n   * @return the property value.\n   */\n   public operator fun getValue(thisRef: T, property: KProperty<*>): V\n}\n\n/**\n * Base interface that can be used for implementing property delegates of read-write properties.\n *\n * This is provided only for convenience; you don't have to extend this interface\n * as long as your property delegate has methods with the same signatures.\n *\n * @param T the type of object which owns the delegated property.\n * @param V the type of the property value.\n */\npublic interface ReadWriteProperty<in T, V> : ReadOnlyProperty<T, V> {\n   /**\n   * Returns the value of the property for the given object.\n   * @param thisRef the object for which the value is requested.\n   * @param property the metadata for the property.\n   * @return the property value.\n   */\n   public override operator fun getValue(thisRef: T, property: KProperty<*>): V\n\n   /**\n   * Sets the value of the property for the given object.\n   * @param thisRef the object for which the value is requested.\n   * @param property the metadata for the property.\n   * @param value the value to set.\n   */\n   public operator fun setValue(thisRef: T, property: KProperty<*>, value: V)\n}\n\n/**\n * Base interface that can be used for implementing property delegate providers.\n *\n * This is provided only for convenience; you don't have to extend this interface\n * as long as your delegate provider has a method with the same signature.\n *\n * @param T the type of object which owns the delegated property.\n * @param D the type of property delegates this provider provides.\n */\n@SinceKotlin(\"1.4\")\npublic fun interface PropertyDelegateProvider<in T, out D> {\n   /**\n   * Returns the delegate of the property for the given object.\n   *\n   * This function can be used to extend the logic of creating the object (e.g. perform validation checks)\n   * to which the property implementation is delegated.\n   *\n   * @param thisRef the object for which property delegate is requested.\n   * @param property the metadata for the

property.\n   * @return the property delegate.\n   */\n   public operator fun provideDelegate(thisRef: T, property: KProperty<*>): D\n}\n","/*\n * Copyright 2010-2018 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin.properties\n\nimport kotlin.reflect.KProperty\n\n/**\n * Implements the core logic of a property delegate for a read/write property that calls callback functions when changed.\n * @param initialValue the initial value of the property.\n */\npublic abstract class ObservableProperty<V>(initialValue: V) : ReadWriteProperty<Any?, V> {\n   private var value = initialValue\n\n   /**\n   * The callback which is called before a change to the property value is attempted.\n   * The value of the property hasn't been changed yet, when this callback is invoked.\n   * If the callback returns `true` the value of the property is being set to the new value,\n   * and if the callback returns `false` the new value is discarded and the property remains its old value.\n   */\n   protected open fun beforeChange(property: KProperty<*>, oldValue: V, newValue: V): Boolean = true\n\n   /**\n   * The callback which is called after the change of the property is made. The value of the property\n   * has already been changed when this callback is invoked.\n   */\n   protected open fun afterChange(property: KProperty<*>, oldValue: V, newValue: V): Unit {}\n\n   public override fun getValue(thisRef: Any?, property: KProperty<*>): V {\n   return value\n   }\n\n   public override fun setValue(thisRef: Any?, property: KProperty<*>, value: V) {\n   val oldValue = this.value\n   if (!beforeChange(property, oldValue, value)) {\n   return\n   }\n   this.value = value\n   afterChange(property, oldValue, value)\n   }\n}","/*\n * Copyright 2010-2020 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\n@file:Suppress(\"PackageDirectoryMismatch\")\npackage kotlin\n\nimport kotlin.reflect.*\n\n/**\n * An extension operator that allows delegating a read-only property of type [V]\n * to a property reference to a property of type [V] or its subtype.\n *\n * @receiver A property reference to a read-only or mutable property of type [V] or its subtype.\n * The reference is without a receiver, i.e. it either references a top-level property or\n * has the receiver bound to it.\n *\n * Example:\n *\n * ```\n * class Login(val username: String)\n * val defaultLogin = Login(\"Admin\")\n * val defaultUsername by defaultLogin::username\n * // equivalent to\n * val defaultUserName get() = defaultLogin.username\n * ```\n */\n@SinceKotlin(\"1.4\")\n@kotlin.internal.InlineOnly\npublic inline operator fun <V> KProperty0<V>.getValue(thisRef: Any?, property: KProperty<*>): V {\n   return get()\n}\n\n/**\n * An extension operator that allows delegating a mutable property of type [V]\n * to a property reference to a mutable property of the same type [V].\n *\n * @receiver A property reference to a mutable property of type [V].\n * The reference is without a receiver, i.e. it either references a top-level property or\n * has the receiver bound to it.\n *\n * Example:\n *\n * ```\n * class Login(val username: String, var incorrectAttemptCounter: Int = 0)\n * val defaultLogin = Login(\"Admin\")\n * var defaultLoginAttempts by defaultLogin::incorrectAttemptCounter\n * // equivalent to\n * var defaultLoginAttempts: Int\n *   get() = defaultLogin.incorrectAttemptCounter\n *   set(value) { defaultLogin.incorrectAttemptCounter = value }\n * ```\n */\n@SinceKotlin(\"1.4\")\n@kotlin.internal.InlineOnly\npublic inline operator fun <V> KMutableProperty0<V>.setValue(thisRef: Any?, property: KProperty<*>, value: V) {\n   set(value)\n}\n\n\n/**\n * An extension operator that allows delegating a read-only member or extension property of type [V]\n * to a property reference to a member or extension property of type [V] or its subtype.\n *\n * @receiver A property reference to a read-only or mutable property of type [V] or its subtype.\n * The reference has an unbound receiver of type [T].\n *\n * Example:\n *\n * ```\n * class Login(val username: String)\n * val Login.user by Login::username\n * // equivalent to\n * val Login.user get() = this.username\n * ```\n */\n@SinceKotlin(\"1.4\")\n@kotlin.internal.InlineOnly\npublic inline operator fun <T, V> KProperty1<T, V>.getValue(thisRef: T, property: KProperty<*>): V {\n   return get(thisRef)\n}\n\n/**\n * An extension operator that allows delegating a mutable member or extension property of type [V]\n * to a property reference to a member or extension mutable property of the same type [V].\n *\n * @receiver A property reference to a read-only or mutable property of type [V] or its subtype.\n * The reference has an unbound receiver of type [T].\n *\n * Example:\n *\n * ```\n * class Login(val username: String, var incorrectAttemptCounter: Int)\n * var Login.attempts by Login::incorrectAttemptCounter\n * // equivalent to\n * var Login.attempts: Int\n * get() = this.incorrectAttemptCounter\n * set(value) { this.incorrectAttemptCounter = value }\n * ```\n */\n@SinceKotlin(\"1.4\")\n@kotlin.internal.InlineOnly\npublic inline operator fun <T, V> KMutableProperty1<T, V>.setValue(thisRef: T, property: KProperty<*>, value: V) {\n set(thisRef, value)\n}","/*\n * Copyright 2010-2021 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin.random\n\nimport kotlin.math.nextDown\n\n/**\n * An abstract class that is implemented by random number generator algorithms.\n *\n * The companion object [Random.Default] is the default instance of [Random].\n *\n * To get a seeded instance of random generator use [Random] function.\n *\n * @sample samples.random.Randoms.defaultRandom\n */\n@SinceKotlin(\"1.3\")\npublic abstract class Random {\n\n /**\n * Gets the next random [bitCount] number of bits.\n *\n * Generates an `Int` whose lower [bitCount] bits are filled with random values and the remaining upper bits are zero.\n *\n * @param bitCount number of bits to generate, must be in range 0..32, otherwise the behavior is unspecified.\n *\n * @sample samples.random.Randoms.nextBits\n */\n public abstract fun nextBits(bitCount: Int): Int\n\n /**\n * Gets the next random `Int` from the random number generator.\n *\n * Generates an `Int` random value uniformly distributed between `Int.MIN_VALUE` and `Int.MAX_VALUE` (inclusive).\n *\n * @sample samples.random.Randoms.nextInt\n */\n public open fun nextInt(): Int = nextBits(32)\n\n /**\n * Gets the next random non-negative `Int` from the random number generator less than the specified [until] bound.\n *\n * Generates an `Int` random value uniformly distributed between `0` (inclusive) and the specified [until] bound (exclusive).\n *\n * @param until must be positive.\n *\n * @throws IllegalArgumentException if [until] is negative or zero.\n *\n * @sample samples.random.Randoms.nextIntFromUntil\n */\n public open fun nextInt(until: Int): Int = nextInt(0, until)\n\n /**\n * Gets the next random `Int` from the random number generator in the specified range.\n *\n * Generates an `Int` random value uniformly distributed between the specified [from] (inclusive) and [until] (exclusive) bounds.\n *\n * @throws IllegalArgumentException if [from] is greater than or equal to [until].\n *\n * @sample samples.random.Randoms.nextIntFromUntil\n */\n public open fun nextInt(from: Int, until: Int): Int {\n checkRangeBounds(from, until)\n val n = until - from\n if (n > 0 || n == Int.MIN_VALUE) {\n val rnd = if (n and -n == n) {\n val bitCount = fastLog2(n)\n nextBits(bitCount)\n } else {\n var v: Int\n do {\n val bits = nextInt().ushr(1)\n v = bits % n\n } while (bits - v + (n - 1) < 0)\n v\n }\n return from + rnd\n } else {\n while (true) {\n val rnd = nextInt()\n if (rnd in from until until) return rnd\n }\n }\n }\n\n /**\n * Gets the next random `Long` from the random number generator.\n *\n * Generates a `Long` random value uniformly distributed between `Long.MIN_VALUE` and `Long.MAX_VALUE` (inclusive).\n *\n * @sample samples.random.Randoms.nextLong\n */\n public open fun nextLong(): Long = nextInt().toLong().shl(32) + nextInt()\n\n /**\n * Gets the next random non-negative `Long` from the random number generator less than the specified [until] bound.\n *\n * Generates a `Long` random value uniformly distributed between `0` (inclusive) and the specified [until] bound (exclusive).\n *\n * @param until must be positive.\n *\n * @throws IllegalArgumentException if [until] is negative or zero.\n *\n * @sample samples.random.Randoms.nextLongFromUntil\n */\n public open fun nextLong(until: Long): Long = nextLong(0, until)\n\n /**\n * Gets the next random `Long` from the random number generator in the specified range.\n *\n * Generates a `Long` random value uniformly distributed between the specified [from] (inclusive) and [until] (exclusive) bounds.\n *\n * @throws IllegalArgumentException if [from] is greater than or equal to [until].\n *\n * @sample samples.random.Randoms.nextLongFromUntil\n */\n public open fun nextLong(from: Long, until: Long): Long {\n checkRangeBounds(from, until)\n val n = until - from\n if (n > 0) {\n val rnd: Long\n if (n and -n == n) {\n val nLow = n.toInt()\n val nHigh = (n ushr 32).toInt()\n rnd = when {\n nLow != 0 -> {\n val bitCount = fastLog2(nLow)\n // toUInt().toLong()\n nextBits(bitCount).toLong() and 0xFFFF_FFFF\n }\n nHigh == 1 ->\n // toUInt().toLong()\n nextInt().toLong() and 0xFFFF_FFFF\n else -> {\n val bitCount = fastLog2(nHigh)\n nextBits(bitCount).toLong().shl(32) + (nextInt().toLong() and 0xFFFF_FFFF)\n }\n }\n } else {\n var v: Long\n do {\n val bits = nextLong().ushr(1)\n v = bits % n\n } while (bits - v + (n - 1) < 0)\n rnd = v\n }\n return from + rnd\n } else {\n while (true) {\n val rnd = nextLong()\n if (rnd in from until until) return rnd\n }\n }\n }\n\n /**\n * Gets the next random [Boolean] value.\n *\n * @sample samples.random.Randoms.nextBoolean\n */\n public open fun nextBoolean(): Boolean = nextBits(1) != 0\n\n /**\n * Gets the next random [Double] value uniformly distributed between 0 (inclusive) and 1 (exclusive).\n *\n * @sample samples.random.Randoms.nextDouble\n */\n public open fun nextDouble(): Double = doubleFromParts(nextBits(26), nextBits(27))\n\n /**\n * Gets the next random non-negative `Double` from the random number generator less than the specified [until] bound.\n *\n * Generates a `Double` random value uniformly distributed between 0 (inclusive) and [until] (exclusive).\n *\n * @throws IllegalArgumentException if [until] is negative or zero.\n *\n * @sample samples.random.Randoms.nextDoubleFromUntil\n */\n public open fun nextDouble(until: Double): Double = nextDouble(0.0, until)\n\n /**\n * Gets the next random `Double` from the random number generator in the specified range.\n *\n * Generates a `Double` random value uniformly distributed between the specified [from] (inclusive) and [until] (exclusive) bounds.\n *\n * [from] and [until] must be finite otherwise the behavior is unspecified.\n *\n * @throws IllegalArgumentException if [from] is greater than or equal to [until].\n *\n * @sample samples.random.Randoms.nextDoubleFromUntil\n */\n public open fun nextDouble(from: Double, until: Double): Double {\n checkRangeBounds(from, until)\n val size = until - from\n val r = if (size.isInfinite() && from.isFinite() && until.isFinite()) {\n val r1 = nextDouble() * (until / 2 - from / 2)\n from + r1 + r1\n } else {\n from + nextDouble() * size\n }\n return if (r >= until) until.nextDown() else r\n }\n\n /**\n * Gets the next random [Float] value uniformly distributed between 0 (inclusive) and 1 (exclusive).\n *\n * @sample samples.random.Randoms.nextFloat\n */\n public open fun nextFloat(): Float = nextBits(24) / (1 shl 24).toFloat()\n\n /**\n * Fills a subrange of the specified byte [array] starting from [fromIndex] inclusive and ending [toIndex] exclusive\n * with random bytes.\n *\n * @return [array] with the subrange filled with random bytes.\n *\n * @sample samples.random.Randoms.nextBytes\n */\n public open fun nextBytes(array: ByteArray, fromIndex: Int = 0, toIndex: Int = array.size): ByteArray {\n require(fromIndex in 0..array.size && toIndex in 0..array.size) { \"fromIndex ($fromIndex) or toIndex ($toIndex) are out of range: 0..${array.size}.\" }\n require(fromIndex <= toIndex) { \"fromIndex ($fromIndex) must be not greater than toIndex ($toIndex).\" }\n\n val steps = (toIndex - fromIndex) / 4\n\n var position = fromIndex\n repeat(steps) {\n val v = nextInt()\n array[position] = v.toByte()\n array[position + 1] = v.ushr(8).toByte()\n array[position + 2] = v.ushr(16).toByte()\n array[position + 3] = v.ushr(24).toByte()\n position += 4\n }\n\n val remainder = toIndex - position\n val vr = nextBits(remainder * 8)\n for (i in 0 until remainder) {\n array[position + i] = vr.ushr(i * 8).toByte()\n }\n\n return array\n }\n\n /**\n * Fills the specified byte [array] with random bytes and returns it.\n *\n * @return [array] filled with random bytes.\n *\n * @sample samples.random.Randoms.nextBytes\n */\n public open fun nextBytes(array: ByteArray): ByteArray = nextBytes(array, 0, array.size)\n\n /**\n * Creates a byte array of the specified [size], filled with random bytes.\n *\n * @sample samples.random.Randoms.nextBytes\n */\n public open fun nextBytes(size: Int): ByteArray = nextBytes(ByteArray(size))\n\n\n /**\n * The default random number generator.\n *\n * On JVM this generator is thread-safe, its methods can be invoked from multiple threads.\n *\n * @sample samples.random.Randoms.defaultRandom\n */\n companion object Default : Random(), Serializable {\n private val defaultRandom: Random = defaultPlatformRandom()\n\n private object Serialized : Serializable {\n private const val serialVersionUID = 0L\n\n private fun readResolve(): Any = Random\n }\n\n private fun writeReplace(): Any = Serialized\n\n override fun nextBits(bitCount: Int): Int = defaultRandom.nextBits(bitCount)\n override fun nextInt(): Int = defaultRandom.nextInt()\n override fun nextInt(until: Int): Int = defaultRandom.nextInt(until)\n override fun nextInt(from: Int, until: Int): Int = defaultRandom.nextInt(from, until)\n\n override fun nextLong(): Long = defaultRandom.nextLong()\n override fun nextLong(until: Long): Long = defaultRandom.nextLong(until)\n   override fun nextLong(from: Long, until: Long): Long = defaultRandom.nextLong(from, until)\n\n   override fun nextBoolean(): Boolean = defaultRandom.nextBoolean()\n\n   override fun nextDouble(): Double = defaultRandom.nextDouble()\n   override fun nextDouble(until: Double): Double = defaultRandom.nextDouble(until)\n   override fun nextDouble(from: Double, until: Double): Double = defaultRandom.nextDouble(from, until)\n\n   override fun nextFloat(): Float = defaultRandom.nextFloat()\n\n   override fun nextBytes(array: ByteArray): ByteArray = defaultRandom.nextBytes(array)\n   override fun nextBytes(size: Int): ByteArray = defaultRandom.nextBytes(size)\n   override fun nextBytes(array: ByteArray, fromIndex: Int, toIndex: Int): ByteArray =\n   defaultRandom.nextBytes(array, fromIndex, toIndex)\n   }\n}\n\n/**\n * Returns a repeatable random number generator seeded with the given [seed] `Int` value.\n *\n * Two generators with the same seed produce the same sequence of values within the same version of Kotlin runtime.\n *\n * *Note:* Future versions of Kotlin may change the algorithm of this seeded number generator so that it will return\n * a sequence of values different from the current one for a given seed.\n *\n * On JVM the returned generator is NOT thread-safe. Do not invoke it from multiple threads without proper synchronization.\n *\n * @sample samples.random.Randoms.seededRandom\n */\n@SinceKotlin(\"1.3\")\npublic fun Random(seed: Int): Random = XorWowRandom(seed, seed.shr(31))\n\n/**\n * Returns a repeatable random number generator seeded with the given [seed] `Long` value.\n *\n * Two generators with the same seed produce the same sequence of values within the same version of Kotlin runtime.\n *\n * *Note:* Future versions of Kotlin may change the algorithm of this seeded number generator so that it will return\n * a sequence of values different from the current one for a given seed.\n *\n * On JVM the returned generator is NOT thread-safe. Do not invoke it from multiple threads without proper synchronization.\n *\n * @sample samples.random.Randoms.seededRandom\n */\n@SinceKotlin(\"1.3\")\npublic fun Random(seed: Long): Random = XorWowRandom(seed.toInt(), seed.shr(32).toInt())\n\n\n/**\n * Gets the next random `Int` from the random number generator in the specified [range].\n *\n * Generates an `Int` random value uniformly distributed in the specified [range]:\n * from `range.start` inclusive to `range.endInclusive` inclusive.\n *\n * @throws IllegalArgumentException if [range] is empty.\n */\n@SinceKotlin(\"1.3\")\npublic fun Random.nextInt(range: IntRange): Int = when {\n   range.isEmpty() -> throw IllegalArgumentException(\"Cannot get random in empty range: $range\")\n   range.last < Int.MAX_VALUE -> nextInt(range.first, range.last + 1)\n   range.first > Int.MIN_VALUE -> nextInt(range.first - 1, range.last) + 1\n   else -> nextInt()\n}\n\n/**\n * Gets the next random `Long` from the random number generator in the specified [range].\n *\n * Generates a `Long` random value uniformly distributed in the specified [range]:\n * from `range.start` inclusive to `range.endInclusive` inclusive.\n *\n * @throws IllegalArgumentException if [range] is empty.\n */\n@SinceKotlin(\"1.3\")\npublic fun Random.nextLong(range: LongRange): Long = when {\n   range.isEmpty() -> throw IllegalArgumentException(\"Cannot get random in empty range: $range\")\n   range.last < Long.MAX_VALUE -> nextLong(range.first, range.last + 1)\n   range.first > Long.MIN_VALUE -> nextLong(range.first - 1, range.last) + 1\n   else -> nextLong()\n}\n\n\ninternal expect fun defaultPlatformRandom(): Random\ninternal expect fun doubleFromParts(hi26: Int, low27: Int): Double\n\ninternal fun fastLog2(value: Int): Int = 31 - value.countLeadingZeroBits()\n\n/** Takes upper [bitCount] bits (0..32) from this number. */\ninternal fun Int.takeUpperBits(bitCount: Int): Int =\n   this.ushr(32 - bitCount) and (-bitCount).shr(31)\n\ninternal fun checkRangeBounds(from: Int, until: Int) = require(until > from) { boundsErrorMessage(from, until) }\ninternal fun checkRangeBounds(from: Long, until: Long) = require(until > from) { boundsErrorMessage(from, until) }\ninternal fun checkRangeBounds(from: Double, until: Double) = require(until > from) { boundsErrorMessage(from, until) }\n\ninternal fun boundsErrorMessage(from: Any, until: Any) = \"Random range is empty: [$from, $until).\"\n","/*\n * Copyright 2010-2021 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin.random\n\n\n/**\n * Gets the next random [UInt] from the random number generator.\n *\n * Generates a [UInt] random value uniformly distributed between [UInt.MIN_VALUE] and [UInt.MAX_VALUE] (inclusive).\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic fun

Random.nextUInt(): UInt = nextInt().toUInt()\n\n/**\n * Gets the next random [UInt] from the random number generator less than the specified [until] bound.\n *\n * Generates a [UInt] random value uniformly distributed between `0` (inclusive) and the specified [until] bound (exclusive).\n *\n * @throws IllegalArgumentException if [until] is zero.\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic fun Random.nextUInt(until: UInt): UInt = nextUInt(0u, until)\n\n/**\n * Gets the next random [UInt] from the random number generator in the specified range.\n *\n * Generates a [UInt] random value uniformly distributed between the specified [from] (inclusive) and [until] (exclusive) bounds.\n *\n * @throws IllegalArgumentException if [from] is greater than or equal to [until].\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic fun Random.nextUInt(from: UInt, until: UInt): UInt {\n   checkUIntRangeBounds(from, until)\n\n   val signedFrom = from.toInt() xor Int.MIN_VALUE\n   val signedUntil = until.toInt() xor Int.MIN_VALUE\n\n   val signedResult = nextInt(signedFrom, signedUntil) xor Int.MIN_VALUE\n   return signedResult.toUInt()\n}\n\n/**\n * Gets the next random [UInt] from the random number generator in the specified [range].\n *\n * Generates a [UInt] random value uniformly distributed in the specified [range]:\n * from `range.start` inclusive to `range.endInclusive` inclusive.\n *\n * @throws IllegalArgumentException if [range] is empty.\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic fun Random.nextUInt(range: UIntRange): UInt = when {\n   range.isEmpty() -> throw IllegalArgumentException(\"Cannot get random in empty range: $range\")\n   range.last < UInt.MAX_VALUE -> nextUInt(range.first, range.last + 1u)\n   range.first > UInt.MIN_VALUE -> nextUInt(range.first - 1u, range.last) + 1u\n   else -> nextUInt()\n}\n\n/**\n * Gets the next random [ULong] from the random number generator.\n *\n * Generates a [ULong] random value uniformly distributed between [ULong.MIN_VALUE] and [ULong.MAX_VALUE] (inclusive).\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic fun Random.nextULong(): ULong = nextLong().toULong()\n\n/**\n * Gets the next random [ULong] from the random number generator less than the specified [until] bound.\n *\n * Generates a [ULong] random value uniformly distributed between `0` (inclusive) and the specified [until] bound (exclusive).\n *\n * @throws IllegalArgumentException if [until] is zero.\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic fun Random.nextULong(until: ULong): ULong = nextULong(0uL, until)\n\n/**\n * Gets the next random [ULong] from the random number generator in the specified range.\n *\n * Generates a [ULong] random value uniformly distributed between the specified [from] (inclusive) and [until] (exclusive) bounds.\n *\n * @throws IllegalArgumentException if [from] is greater than or equal to [until].\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic fun Random.nextULong(from: ULong, until: ULong): ULong {\n   checkULongRangeBounds(from, until)\n\n   val signedFrom = from.toLong() xor Long.MIN_VALUE\n   val signedUntil = until.toLong() xor Long.MIN_VALUE\n\n   val signedResult = nextLong(signedFrom, signedUntil) xor Long.MIN_VALUE\n   return signedResult.toULong()\n}\n\n/**\n * Gets the next random [ULong] from the random number generator in the specified [range].\n *\n * Generates a [ULong] random value uniformly distributed in the specified [range]:\n * from `range.start` inclusive to `range.endInclusive` inclusive.\n *\n * @throws IllegalArgumentException if [range] is empty.\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic fun Random.nextULong(range: ULongRange): ULong = when {\n   range.isEmpty() -> throw IllegalArgumentException(\"Cannot get random in empty range: $range\")\n   range.last < ULong.MAX_VALUE -> nextULong(range.first, range.last + 1u)\n   range.first > ULong.MIN_VALUE -> nextULong(range.first - 1u, range.last) + 1u\n   else -> nextULong()\n}\n\n/**\n * Fills the specified unsigned byte [array] with random bytes and returns it.\n *\n * @return [array] filled with random bytes.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\npublic fun Random.nextUBytes(array: UByteArray): UByteArray {\n   nextBytes(array.asByteArray())\n   return array\n}\n\n/**\n * Creates an unsigned byte array of the specified [size], filled with random bytes.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\npublic fun Random.nextUBytes(size: Int): UByteArray = nextBytes(size).asUByteArray()\n\n/**\n * Fills a subrange of the specified `UByte` [array] starting from [fromIndex] inclusive and ending [toIndex] exclusive with random UBytes.\n *\n * @return [array] with the subrange filled with random bytes.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\npublic fun Random.nextUBytes(array: UByteArray, fromIndex: Int = 0, toIndex: Int = array.size): UByteArray {\n   nextBytes(array.asByteArray(), fromIndex, toIndex)\n   return array\n}\n\n\ninternal fun checkUIntRangeBounds(from: UInt, until: UInt) = require(until > from) { boundsErrorMessage(from, until) }\ninternal fun checkULongRangeBounds(from: ULong, until: ULong) = require(until > from) { boundsErrorMessage(from, until) }\n","/*\n * Copyright 2010-2018 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin.random\n\n/**\n * Random number generator, using Marsaglia's \"xorwow\" algorithm\n *\n * Cycles after 2^192 - 2^32 repetitions.\n *\n * For more details, see Marsaglia, George (July 2003). \"Xorshift RNGs\". Journal of Statistical Software. 8 (14). doi:10.18637/jss.v008.i14\n *\n * Available at https://www.jstatsoft.org/v08/i14/paper\n *\n */\ninternal class XorWowRandom internal constructor(\n   private var x: Int,\n   private var y: Int,\n   private var z: Int,\n   private var w: Int,\n   private var v: Int,\n   private var addend: Int\n) : Random(), Serializable {\n\n   internal constructor(seed1: Int, seed2: Int) :\n   this(seed1, seed2, 0, 0, seed1.inv(), (seed1 shl 10) xor (seed2 ushr 4))\n\n   init {\n   require((x or y or z or w or v) != 0) { \"Initial state must have at least one non-zero element.\" }\n\n   // some trivial seeds can produce several values with zeroes in upper bits, so we discard first 64\n   repeat(64) { nextInt() }\n   }\n\n   override fun nextInt(): Int {\n   // Equivalent to the xorxow algorithm\n   // From Marsaglia, G. 2003. Xorshift RNGs. J. Statis. Soft. 8, 14, p. 5\n   var t = x\n   t = t xor (t ushr 2)\n   x = y\n   y = z\n   z = w\n   val v0 = v\n   w = v0\n   t = (t xor (t shl 1)) xor v0 xor (v0 shl 4)\n   v = t\n   addend += 362437\n   return t + addend\n   }\n\n   override fun nextBits(bitCount: Int): Int =\n   nextInt().takeUpperBits(bitCount)\n\n   private companion object {\n   private const val serialVersionUID: Long = 0L\n   }\n}\n","/*\n * Copyright 2010-2022 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\n// Auto-generated file. DO NOT EDIT!\n\npackage kotlin.ranges\n\n/**\n * An iterator over a progression of values of type `Char`.\n * @property step the number by which the value is incremented on each step.\n */\ninternal class CharProgressionIterator(first: Char, last: Char, val step: Int) : CharIterator() {\n   private val finalElement: Int = last.code\n   private var hasNext: Boolean = if (step > 0) first <= last else first >= last\n   private var next: Int = if (hasNext) first.code else finalElement\n\n   override fun hasNext(): Boolean = hasNext\n\n   override fun nextChar(): Char {\n   val value = next\n   if (value == finalElement) {\n   if (!hasNext) throw kotlin.NoSuchElementException()\n   hasNext = false\n   }\n   else {\n   next += step\n   }\n   return value.toChar()\n   }\n}\n\n/**\n * An iterator over a progression of values of type `Int`.\n * @property step the number by which the value is incremented on each step.\n */\ninternal class IntProgressionIterator(first: Int, last: Int, val step: Int) : IntIterator() {\n   private val finalElement: Int = last\n   private var hasNext: Boolean = if (step > 0) first <= last else first >= last\n   private var next: Int = if (hasNext) first else finalElement\n\n   override fun hasNext(): Boolean = hasNext\n\n   override fun nextInt(): Int {\n   val value = next\n   if (value == finalElement) {\n   if (!hasNext) throw kotlin.NoSuchElementException()\n   hasNext = false\n   }\n   else {\n   next += step\n   }\n   return value\n   }\n}\n\n/**\n * An iterator over a progression of values of type `Long`.\n * @property step the number by which the value is incremented on each step.\n */\ninternal class LongProgressionIterator(first: Long, last: Long, val step: Long) : LongIterator() {\n   private val finalElement: Long = last\n   private var hasNext: Boolean = if (step > 0) first <= last else first >= last\n   private var next: Long = if (hasNext) first else finalElement\n\n   override fun hasNext(): Boolean = hasNext\n\n   override fun nextLong(): Long {\n   val value = next\n   if (value == finalElement) {\n   if (!hasNext) throw kotlin.NoSuchElementException()\n   hasNext = false\n   }\n   else {\n   next += step\n   }\n   return value\n   }\n}\n\n","/*\n * Copyright 2010-2022 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\n// Auto-generated file. DO NOT EDIT!\n\npackage kotlin.ranges\n\nimport kotlin.internal.getProgressionLastElement\n\n/**\n * A progression of values of type `Char`.\n */\npublic open class CharProgression\n   internal constructor\n   (\n   start: Char,\n   endInclusive: Char,\n   step: Int\n   ) : Iterable<Char> {\n   init {\n   if (step == 0) throw kotlin.IllegalArgumentException(\"Step must be non-zero.\")\n   if (step == Int.MIN_VALUE) throw kotlin.IllegalArgumentException(\"Step must be greater than Int.MIN_VALUE to avoid overflow on negation.\")\n   }\n\n   /**\n   * The first element in the progression.\n   */\n   public val first: Char = start\n\n   /**\n   * The last element in the progression.\n   */\n   public val last: Char = getProgressionLastElement(start.code, endInclusive.code, step).toChar()\n\n   /**\n   * The step of the progression.\n   */\n   public val step: Int = step\n\n   override fun iterator(): CharIterator = CharProgressionIterator(first, last, step)\n\n   /**\n   * Checks if the progression is empty.\n   *\n   * Progression with a positive step is empty if its first element is greater than the last element.\n   * Progression with a negative step is empty if its first element is less than the last element.\n   */\n   public open fun isEmpty(): Boolean = if (step > 0) first > last else first < last\n\n   override fun equals(other: Any?): Boolean =\n   other is CharProgression && (isEmpty() && other.isEmpty() ||\n   first == other.first && last == other.last && step == other.step)\n\n   override fun hashCode(): Int =\n   if (isEmpty()) -1 else (31 * (31 * first.code + last.code) + step)\n\n   override fun toString(): String = if (step > 0) \"$first..$last step $step\" else \"$first downTo $last step ${-step}\"\n\n   companion object {\n   /**\n   * Creates CharProgression within the specified bounds of a closed range.\n   *\n   * The progression starts with the [rangeStart] value and goes toward the [rangeEnd] value not excluding it, with the specified [step].\n   * In order to go backwards the [step] must be negative.\n   *\n   * [step] must be greater than `Int.MIN_VALUE` and not equal to zero.\n   */\n   public fun fromClosedRange(rangeStart: Char, rangeEnd: Char, step: Int): CharProgression = CharProgression(rangeStart, rangeEnd, step)\n   }\n}\n\n/**\n * A progression of values of type `Int`.\n */\npublic open class IntProgression\n   internal constructor\n   (\n   start: Int,\n   endInclusive: Int,\n   step: Int\n   ) : Iterable<Int> {\n   init {\n   if (step == 0) throw kotlin.IllegalArgumentException(\"Step must be non-zero.\")\n   if (step == Int.MIN_VALUE) throw kotlin.IllegalArgumentException(\"Step must be greater than Int.MIN_VALUE to avoid overflow on negation.\")\n   }\n\n   /**\n   * The first element in the progression.\n   */\n   public val first: Int = start\n\n   /**\n   * The last element in the progression.\n   */\n   public val last: Int = getProgressionLastElement(start, endInclusive, step)\n\n   /**\n   * The step of the progression.\n   */\n   public val step: Int = step\n\n   override fun iterator(): IntIterator = IntProgressionIterator(first, last, step)\n\n   /**\n   * Checks if the progression is empty.\n   *\n   * Progression with a positive step is empty if its first element is greater than the last element.\n   * Progression with a negative step is empty if its first element is less than the last element.\n   */\n   public open fun isEmpty(): Boolean = if (step > 0) first > last else first < last\n\n   override fun equals(other: Any?): Boolean =\n   other is IntProgression && (isEmpty() && other.isEmpty() ||\n   first == other.first && last == other.last && step == other.step)\n\n   override fun hashCode(): Int =\n   if (isEmpty()) -1 else (31 * (31 * first + last) + step)\n\n   override fun toString(): String = if (step > 0) \"$first..$last step $step\" else \"$first downTo $last step ${-step}\"\n\n   companion object {\n   /**\n   * Creates IntProgression within the specified bounds of a closed range.\n   *\n   * The progression starts with the [rangeStart] value and goes toward the [rangeEnd] value not excluding it, with the specified [step].\n   * In order to go backwards the [step] must be negative.\n   *\n   * [step] must be greater than `Int.MIN_VALUE` and not equal to zero.\n   */\n   public fun fromClosedRange(rangeStart: Int, rangeEnd: Int, step: Int): IntProgression = IntProgression(rangeStart, rangeEnd, step)\n   }\n}\n\n/**\n * A progression of values of type `Long`.\n */\npublic open class LongProgression\n   internal constructor\n   (\n   start: Long,\n   endInclusive: Long,\n   step: Long\n   ) : Iterable<Long> {\n   init {\n   if (step == 0L) throw kotlin.IllegalArgumentException(\"Step must be non-zero.\")\n   if (step == Long.MIN_VALUE) throw kotlin.IllegalArgumentException(\"Step must be greater than Long.MIN_VALUE to avoid overflow on negation.\")\n   }\n\n   /**\n   * The first element in the progression.\n   */\n   public val first: Long = start\n\n   /**\n   * The last element in the progression.\n   */\n   public val last: Long = getProgressionLastElement(start, endInclusive, step)\n\n   /**\n   * The step of the progression.\n   */\n   public val step: Long = step\n\n   override fun iterator(): LongIterator = LongProgressionIterator(first, last, step)\n\n   /**\n   * Checks if the progression is empty.\n   *\n   *

Progression with a positive step is empty if its first element is greater than the last element.\n   * Progression with a negative step is empty if its first element is less than the last element.\n   */\n   public open fun isEmpty(): Boolean = if (step > 0) first > last else first < last\n\n   override fun equals(other: Any?): Boolean =\n   other is LongProgression && (isEmpty() && other.isEmpty() ||\n   first == other.first && last == other.last && step == other.step)\n\n   override fun hashCode(): Int =\n   if (isEmpty()) -1 else (31 * (31 * (first xor (first ushr 32)) + (last xor (last ushr 32))) + (step xor (step ushr 32))).toInt()\n\n   override fun toString(): String = if (step > 0) \"$first..$last step $step\" else \"$first downTo $last step ${-step}\"\n\n   companion object {\n   /**\n   * Creates LongProgression within the specified bounds of a closed range.\n   *\n   * The progression starts with the [rangeStart] value and goes toward the [rangeEnd] value not excluding it, with the specified [step].\n   * In order to go backwards the [step] must be negative.\n   *\n   * [step] must be greater than `Long.MIN_VALUE` and not equal to zero.\n   */\n   public fun fromClosedRange(rangeStart: Long, rangeEnd: Long, step: Long): LongProgression = LongProgression(rangeStart, rangeEnd, step)\n   }\n}\n\n","/*\n * Copyright 2010-2019 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin.ranges\n\n/**\n * Represents a range of values (for example, numbers or characters) where both the lower and upper bounds are included in the range.\n * See the [Kotlin language documentation](https://kotlinlang.org/docs/reference/ranges.html) for more information.\n */\npublic interface ClosedRange<T : Comparable<T>> {\n   /**\n   * The minimum value in the range.\n   */\n   public val start: T\n\n   /**\n   * The maximum value in the range (inclusive).\n   */\n   public val endInclusive: T\n\n   /**\n   * Checks whether the specified [value] belongs to the range.\n   *\n   * A value belongs to the closed range if it is greater than or equal to the [start] bound and less than or equal to the [endInclusive] bound.\n   */\n   public operator fun contains(value: T): Boolean = value >= start && value <= endInclusive\n\n   /**\n   * Checks whether the range is empty.\n   *\n   * The range is empty if its start value is greater than the end value.\n   */\n   public fun isEmpty(): Boolean = start > endInclusive\n}\n\n/**\n * Represents a range of values (for example, numbers or characters) where the upper bound is not included in the range.\n * See the [Kotlin language documentation](https://kotlinlang.org/docs/reference/ranges.html) for more information.\n */\n@SinceKotlin(\"1.7\")\n@ExperimentalStdlibApi\npublic interface OpenEndRange<T : Comparable<T>> {\n   /**\n   * The minimum value in the range.\n   */\n   public val start: T\n\n   /**\n   * The maximum value in the range (exclusive).\n   *\n   * @throws IllegalStateException can be thrown if the exclusive end bound cannot be represented\n   * with a value of type [T].\n   */\n   public val endExclusive: T\n\n   /**\n   * Checks whether the specified [value] belongs to the range.\n   *\n   * A value belongs to the open-ended range if it is greater than or equal to the [start] bound and strictly less than the [endExclusive] bound.\n   */\n   public operator fun contains(value: T): Boolean = value >= start && value < endExclusive\n\n   /**\n   * Checks whether the range is empty.\n   *\n   * The open-ended range is empty if its start value is greater than or equal to the end value.\n   */\n   public fun isEmpty(): Boolean = start >= endExclusive\n}","/*\n * Copyright 2010-2018 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\n@file:kotlin.jvm.JvmMultifileClass\n@file:kotlin.jvm.JvmName(\"RangesKt\")\n\npackage kotlin.ranges\n\n/**\n * Represents a range of [Comparable] values.\n */\nprivate open class ComparableRange<T : Comparable<T>>(\n   override val start: T,\n   override val endInclusive: T\n) : ClosedRange<T> {\n\n   override fun equals(other: Any?): Boolean {\n   return other is ComparableRange<*> && (isEmpty() && other.isEmpty() ||\n   start == other.start && endInclusive == other.endInclusive)\n   }\n\n   override fun hashCode(): Int {\n   return if (isEmpty()) -1 else 31 * start.hashCode() + endInclusive.hashCode()\n   }\n\n   override fun toString(): String = \"$start..$endInclusive\"\n}\n\n/**\n * Creates a range from this [Comparable] value to the specified [that] value.\n *\n * This value needs to be smaller than or equal to [that] value, otherwise the returned range will be empty.\n * @sample samples.ranges.Ranges.rangeFromComparable\n */\npublic operator fun <T : Comparable<T>> T.rangeTo(that: T): ClosedRange<T> = ComparableRange(this, that)\n\n/**\n * Represents a range of [Comparable] values.\n */\n@OptIn(ExperimentalStdlibApi::class)\nprivate open class

ComparableOpenEndRange<T : Comparable<T>>(\n   override val start: T,\n   override val endExclusive: T\n) : OpenEndRange<T> {\n\n   override fun equals(other: Any?): Boolean {\n   return other is ComparableOpenEndRange<*> && (isEmpty() && other.isEmpty() ||\n   start == other.start && endExclusive == other.endExclusive)\n   }\n\n   override fun hashCode(): Int {\n   return if (isEmpty()) -1 else 31 * start.hashCode() + endExclusive.hashCode()\n   }\n\n   override fun toString(): String = \"$start..<$endExclusive\"\n}\n\n/**\n * Creates an open-ended range from this [Comparable] value to the specified [that] value.\n *\n * This value needs to be smaller than [that] value, otherwise the returned range will be empty.\n * @sample samples.ranges.Ranges.rangeFromComparable\n */\n@SinceKotlin(\"1.7\")\n@ExperimentalStdlibApi\npublic operator fun <T : Comparable<T>> T.rangeUntil(that: T): OpenEndRange<T> = ComparableOpenEndRange(this, that)\n\n\n/**\n * Represents a range of floating point numbers.\n * Extends [ClosedRange] interface providing custom operation [lessThanOrEquals] for comparing values of range domain type.\n *\n * This interface is implemented by floating point ranges returned by [Float.rangeTo] and [Double.rangeTo] operators to\n * achieve IEEE-754 comparison order instead of total order of floating point numbers.\n */\n@SinceKotlin(\"1.1\")\npublic interface ClosedFloatingPointRange<T : Comparable<T>> : ClosedRange<T> {\n   override fun contains(value: T): Boolean = lessThanOrEquals(start, value) && lessThanOrEquals(value, endInclusive)\n   override fun isEmpty(): Boolean = !lessThanOrEquals(start, endInclusive)\n\n   /**\n   * Compares two values of range domain type and returns true if first is less than or equal to second.\n   */\n   fun lessThanOrEquals(a: T, b: T): Boolean\n}\n\n\n/**\n * A closed range of values of type `Double`.\n *\n * Numbers are compared with the ends of this range according to IEEE-754.\n */\nprivate class ClosedDoubleRange(\n   start: Double,\n   endInclusive: Double\n) : ClosedFloatingPointRange<Double> {\n   private val _start = start\n   private val _endInclusive = endInclusive\n   override val start: Double get() = _start\n   override val endInclusive: Double get() = _endInclusive\n\n   override fun lessThanOrEquals(a: Double, b: Double): Boolean = a <= b\n\n   override fun contains(value: Double): Boolean = value >= _start && value <= _endInclusive\n   override fun isEmpty(): Boolean = !(_start <= _endInclusive)\n\n   override fun equals(other: Any?): Boolean {\n   return other is ClosedDoubleRange && (isEmpty() && other.isEmpty() ||\n   _start == other._start && _endInclusive == other._endInclusive)\n   }\n\n   override fun hashCode(): Int {\n   return if (isEmpty()) -1 else 31 * _start.hashCode() + _endInclusive.hashCode()\n   }\n\n   override fun toString(): String = \"$_start..$_endInclusive\"\n}\n\n/**\n * Creates a range from this [Double] value to the specified [that] value.\n *\n * Numbers are compared with the ends of this range according to IEEE-754.\n * @sample samples.ranges.Ranges.rangeFromDouble\n */\n@SinceKotlin(\"1.1\")\npublic operator fun Double.rangeTo(that: Double): ClosedFloatingPointRange<Double> = ClosedDoubleRange(this, that)\n\n/**\n * An open-ended range of values of type `Double`.\n *\n * Numbers are compared with the ends of this range according to IEEE-754.\n */\n@OptIn(ExperimentalStdlibApi::class)\nprivate class OpenEndDoubleRange(\n   start: Double,\n   endExclusive: Double\n) : OpenEndRange<Double> {\n   private val _start = start\n   private val _endExclusive = endExclusive\n   override val start: Double get() = _start\n   override val endExclusive: Double get() = _endExclusive\n\n   private fun lessThanOrEquals(a: Double, b: Double): Boolean = a <= b\n\n   override fun contains(value: Double): Boolean = value >= _start && value < _endExclusive\n   override fun isEmpty(): Boolean = !(_start < _endExclusive)\n\n   override fun equals(other: Any?): Boolean {\n   return other is OpenEndDoubleRange && (isEmpty() && other.isEmpty() ||\n   _start == other._start && _endExclusive == other._endExclusive)\n   }\n\n   override fun hashCode(): Int {\n   return if (isEmpty()) -1 else 31 * _start.hashCode() + _endExclusive.hashCode()\n   }\n\n   override fun toString(): String = \"$_start..<$_endExclusive\"\n}\n\n/**\n * Creates an open-ended range from this [Double] value to the specified [that] value.\n *\n * Numbers are compared with the ends of this range according to IEEE-754.\n */\n@SinceKotlin(\"1.7\")\n@ExperimentalStdlibApi\npublic operator fun Double.rangeUntil(that: Double): OpenEndRange<Double> = OpenEndDoubleRange(this, that)\n\n\n/**\n * A closed range of values of type `Float`.\n *\n * Numbers are compared with the ends of this range according to IEEE-754.\n */\nprivate class ClosedFloatRange(\n   start: Float,\n   endInclusive: Float\n) : ClosedFloatingPointRange<Float> {\n   private val _start = start\n   private val _endInclusive = endInclusive\n   override val start: Float get() = _start\n   override val endInclusive: Float get() = _endInclusive\n\n override fun lessThanOrEquals(a: Float, b: Float): Boolean = a <= b\n\n override fun contains(value: Float): Boolean = value >= _start && value <= _endInclusive\n override fun isEmpty(): Boolean = !(_start <= _endInclusive)\n\n override fun equals(other: Any?): Boolean {\n return other is ClosedFloatRange && (isEmpty() && other.isEmpty() ||\n _start == other._start && _endInclusive == other._endInclusive)\n }\n\n override fun hashCode(): Int {\n return if (isEmpty()) -1 else 31 * _start.hashCode() + _endInclusive.hashCode()\n }\n\n override fun toString(): String = \"$_start..$_endInclusive\"\n}\n\n/**\n * Creates a range from this [Float] value to the specified [that] value.\n *\n * Numbers are compared with the ends of this range according to IEEE-754.\n * @sample samples.ranges.Ranges.rangeFromFloat\n */\n@SinceKotlin(\"1.1\")\npublic operator fun Float.rangeTo(that: Float): ClosedFloatingPointRange<Float> = ClosedFloatRange(this, that)\n\n\n/**\n * An open-ended range of values of type `Float`.\n *\n * Numbers are compared with the ends of this range according to IEEE-754.\n */\n@OptIn(ExperimentalStdlibApi::class)\nprivate class OpenEndFloatRange(\n start: Float,\n endExclusive: Float\n) : OpenEndRange<Float> {\n private val _start = start\n private val _endExclusive = endExclusive\n override val start: Float get() = _start\n override val endExclusive: Float get() = _endExclusive\n\n private fun lessThanOrEquals(a: Float, b: Float): Boolean = a <= b\n\n override fun contains(value: Float): Boolean = value >= _start && value < _endExclusive\n override fun isEmpty(): Boolean = !(_start < _endExclusive)\n\n override fun equals(other: Any?): Boolean {\n return other is OpenEndFloatRange && (isEmpty() && other.isEmpty() ||\n _start == other._start && _endExclusive == other._endExclusive)\n }\n\n override fun hashCode(): Int {\n return if (isEmpty()) -1 else 31 * _start.hashCode() + _endExclusive.hashCode()\n }\n\n override fun toString(): String = \"$_start..<$_endExclusive\"\n}\n\n/**\n * Creates an open-ended range from this [Float] value to the specified [that] value.\n *\n * Numbers are compared with the ends of this range according to IEEE-754.\n */\n@SinceKotlin(\"1.7\")\n@ExperimentalStdlibApi\npublic operator fun Float.rangeUntil(that: Float): OpenEndRange<Float> = OpenEndFloatRange(this, that)\n\n\n/**\n * Returns `true` if this iterable range contains the specified [element].\n *\n * Always returns `false` if the [element] is `null`.\n */\n@SinceKotlin(\"1.3\")\n@kotlin.internal.InlineOnly\npublic inline operator fun <T, R> R.contains(element: T?): Boolean where T : Any, R : ClosedRange<T>, R : Iterable<T> =\n element != null && contains(element)\n\n/**\n * Returns `true` if this iterable range contains the specified [element].\n *\n * Always returns `false` if the [element] is `null`.\n */\n@SinceKotlin(\"1.7\")\n@ExperimentalStdlibApi\n@kotlin.internal.InlineOnly\npublic inline operator fun <T, R> R.contains(element: T?): Boolean where T : Any, R : OpenEndRange<T>, R : Iterable<T> =\n element != null && contains(element)\n\ninternal fun checkStepIsPositive(isPositive: Boolean, step: Number) {\n if (!isPositive) throw IllegalArgumentException(\"Step must be positive, was: $step.\")\n}\n","/*\n * Copyright 2010-2019 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\n@file:kotlin.jvm.JvmName(\"KClasses\")\n@file:Suppress(\"UNCHECKED_CAST\")\n\npackage kotlin.reflect\n\nimport kotlin.internal.LowPriorityInOverloadResolution\n\n/**\n * Casts the given [value] to the class represented by this [KClass] object.\n * Throws an exception if the value is `null` or if it is not an instance of this class.\n *\n * This is an experimental function that behaves as a similar function from kotlin.reflect.full on JVM.\n *\n * @see [KClass.isInstance]\n * @see [KClass.safeCast]\n */\n@SinceKotlin(\"1.4\")\n@WasExperimental(ExperimentalStdlibApi::class)\n@LowPriorityInOverloadResolution\nfun <T : Any> KClass<T>.cast(value: Any?): T {\n if (!isInstance(value)) throw ClassCastException(\"Value cannot be cast to $qualifiedOrSimpleName\")\n return value as T\n}\n\n// TODO: replace with qualifiedName when it is fully supported in K/JS\ninternal expect val KClass<*>.qualifiedOrSimpleName: String?\n\n/**\n * Casts the given [value] to the class represented by this [KClass] object.\n * Returns `null` if the value is `null` or if it is not an instance of this class.\n *\n * This is an experimental function that behaves as a similar function from kotlin.reflect.full on JVM.\n *\n * @see [KClass.isInstance]\n * @see [KClass.cast]\n */\n@SinceKotlin(\"1.4\")\n@WasExperimental(ExperimentalStdlibApi::class)\n@LowPriorityInOverloadResolution\nfun <T : Any> KClass<T>.safeCast(value: Any?): T? {\n return if (isInstance(value)) value as T else null\n}\n","/*\n * Copyright 2010-2020 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin.reflect\n\nimport kotlin.jvm.JvmField\nimport kotlin.jvm.JvmStatic\n\n\n\n/**\n * Represents a type projection. Type projection is usually the argument to another type in a type usage.\n * For example, in the type `Array<out Number>`, `out Number` is the covariant projection of the type represented by the class `Number`.\n *\n * Type projection is either the star projection, or an entity consisting of a specific type plus optional variance.\n *\n * See the [Kotlin language documentation](https://kotlinlang.org/docs/reference/generics.html#type-projections)\n * for more information.\n */\n@SinceKotlin(\"1.1\")\npublic data class KTypeProjection constructor(\n /**\n * The use-site variance specified in the projection, or `null` if this is a star projection.\n */\n public val variance: KVariance?,\n /**\n * The type specified in the projection, or `null` if this is a star projection.\n */\n public val type: KType?\n) {\n\n init {\n require((variance == null) == (type == null)) {\n if (variance == null)\n \"Star projection must have no type specified.\"\n else\n \"The projection variance $variance requires type to be specified.\"\n }\n }\n\n override fun toString(): String = when (variance) {\n null -> \"*\"\n KVariance.INVARIANT -> type.toString()\n KVariance.IN -> \"in $type\"\n KVariance.OUT -> \"out $type\"\n }\n\n public companion object {\n // provided for compiler access\n @JvmField\n @PublishedApi\n internal val star: KTypeProjection = KTypeProjection(null, null)\n\n /**\n * Star projection, denoted by the `*` character.\n * For example, in the type `KClass<*>`, `*` is the star projection.\n * See the [Kotlin language documentation](https://kotlinlang.org/docs/reference/generics.html#star-projections)\n * for more information.\n */\n public val STAR: KTypeProjection get() = star\n\n /**\n * Creates an invariant projection of a given type. Invariant projection is just the type itself,\n * without any use-site variance modifiers applied to it.\n * For example, in the type `Set<String>`, `String` is an invariant projection of the type represented by the class `String`.\n */\n @JvmStatic\n public fun invariant(type: KType): KTypeProjection =\n KTypeProjection(KVariance.INVARIANT, type)\n\n /**\n * Creates a contravariant projection of a given type, denoted by the `in` modifier applied to a type.\n * For example, in the type `MutableList<in Number>`, `in Number` is a contravariant projection of the type of class `Number`.\n */\n @JvmStatic\n public fun contravariant(type: KType): KTypeProjection =\n KTypeProjection(KVariance.IN, type)\n\n /**\n * Creates a covariant projection of a given type, denoted by the `out` modifier applied to a type.\n * For example, in the type `Array<out Number>`, `out Number` is a covariant projection of the type of class `Number`.\n */\n @JvmStatic\n public fun covariant(type: KType): KTypeProjection =\n KTypeProjection(KVariance.OUT, type)\n }\n}","/*\n * Copyright 2010-2019 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin.reflect\n\n/**\n * Represents variance applied to a type parameter on the declaration site (*declaration-site variance*),\n * or to a type in a projection (*use-site variance*).\n *\n * See the [Kotlin language documentation](https://kotlinlang.org/docs/reference/generics.html#variance)\n * for more information.\n *\n * @see [KTypeParameter.variance]\n * @see [KTypeProjection]\n */\n@SinceKotlin(\"1.1\")\nenum class KVariance {\n /**\n * The affected type parameter or type is *invariant*, which means it has no variance applied to it.\n */\n INVARIANT,\n\n /**\n * The affected type parameter or type is *contravariant*. Denoted by the `in` modifier in the source code.\n */\n IN,\n\n /**\n * The affected type parameter or type is *covariant*. Denoted by the `out` modifier in the source code.\n */\n OUT,\n}","/*\n * Copyright 2010-2019 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin.reflect\n\n/**\n * Returns a runtime representation of the given reified type [T] as an instance of [KType].\n *\n * Note that on JVM, the created type has no annotations ([KType.annotations] returns an empty list)\n * even if the type in the source code is annotated. Support for type annotations might be added in a future version.\n */\n@SinceKotlin(\"1.6\")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic inline fun <reified T> typeOf(): KType =\n throw UnsupportedOperationException(\"This function is implemented as an intrinsic on all supported platforms.\")\n","/*\n * Copyright 2010-2019 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\n@file:kotlin.jvm.JvmMultifileClass\n@file:kotlin.jvm.JvmName(\"StringsKt\")\n\npackage kotlin.text\n\n/**\n * An object to which char sequences and values can be appended.\n */\nexpect interface Appendable {\n   /**\n   * Appends the specified character [value] to this Appendable and returns this instance.\n   *\n   * @param value the character to append.\n   */\n   fun append(value: Char): Appendable\n\n   /**\n   * Appends the specified character sequence [value] to this Appendable and returns this instance.\n   *\n   * @param value the character sequence to append. If [value] is `null`, then the four characters `\"null\"` are appended to this Appendable.\n   */\n   fun append(value: CharSequence?): Appendable\n\n   /**\n   * Appends a subsequence of the specified character sequence [value] to this Appendable and returns this instance.\n   *\n   * @param value the character sequence from which a subsequence is appended. If [value] is `null`,\n   * then characters are appended as if [value] contained the four characters `\"null\"`.\n   * @param startIndex the beginning (inclusive) of the subsequence to append.\n   * @param endIndex the end (exclusive) of the subsequence to append.\n   *\n   * @throws IndexOutOfBoundsException or [IllegalArgumentException] when [startIndex] or [endIndex] is out of range of the [value] character sequence indices or when `startIndex > endIndex`.\n   */\n   fun append(value: CharSequence?, startIndex: Int, endIndex: Int): Appendable\n}\n\n/**\n * Appends a subsequence of the specified character sequence [value] to this Appendable and returns this instance.\n *\n * @param value the character sequence from which a subsequence is appended.\n * @param startIndex the beginning (inclusive) of the subsequence to append.\n * @param endIndex the end (exclusive) of the subsequence to append.\n *\n * @throws IndexOutOfBoundsException or [IllegalArgumentException] when [startIndex] or [endIndex] is out of range of the [value] character sequence indices or when `startIndex > endIndex`.\n */\n@SinceKotlin(\"1.4\")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic fun <T : Appendable> T.appendRange(value: CharSequence, startIndex: Int, endIndex: Int): T {\n   @Suppress(\"UNCHECKED_CAST\")\n   return append(value, startIndex, endIndex) as T\n}\n\n/**\n * Appends all arguments to the given [Appendable].\n */\npublic fun <T : Appendable> T.append(vararg value: CharSequence?): T {\n   for (item in value)\n   append(item)\n   return this\n}\n\n/** Appends a line feed character (`\\n`) to this Appendable. */\n@SinceKotlin(\"1.4\")\n@kotlin.internal.InlineOnly\npublic inline fun Appendable.appendLine(): Appendable = append('\\n')\n\n/** Appends value to the given Appendable and a line feed character (`\\n`) after it. */\n@SinceKotlin(\"1.4\")\n@kotlin.internal.InlineOnly\npublic inline fun Appendable.appendLine(value: CharSequence?): Appendable = append(value).appendLine()\n\n/** Appends value to the given Appendable and a line feed character (`\\n`) after it. */\n@SinceKotlin(\"1.4\")\n@kotlin.internal.InlineOnly\npublic inline fun Appendable.appendLine(value: Char): Appendable = append(value).appendLine()\n\n\ninternal fun <T> Appendable.appendElement(element: T, transform: ((T) -> CharSequence)?) {\n   when {\n   transform != null -> append(transform(element))\n   element is CharSequence? -> append(element)\n   element is Char -> append(element)\n   else -> append(element.toString())\n   }\n}\n","/*\n * Copyright 2010-2018 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\n@file:kotlin.jvm.JvmMultifileClass\n@file:kotlin.jvm.JvmName(\"StringsKt\")\n\npackage kotlin.text\n\n\n/**\n * Trims leading whitespace characters followed by [marginPrefix] from every line of a source string and removes\n * the first and the last lines if they are blank (notice difference blank vs empty).\n *\n * Doesn't affect a line if it doesn't contain [marginPrefix] except the first and the last blank lines.\n *\n * Doesn't preserve the original line endings.\n *\n * @param marginPrefix non-blank string, which is used as a margin delimiter. Default is `|` (pipe character).\n *\n * @sample samples.text.Strings.trimMargin\n * @see trimIndent\n * @see kotlin.text.isWhitespace\n */\n@kotlin.internal.IntrinsicConstEvaluation\npublic fun String.trimMargin(marginPrefix: String = \"|\"): String =\n   replaceIndentByMargin(\"\", marginPrefix)\n\n/**\n * Detects indent by [marginPrefix] as it does [trimMargin] and replace it with [newIndent].\n *\n * @param marginPrefix non-blank string, which is used as a margin delimiter. Default is `|` (pipe character).\n */\npublic fun

String.replaceIndentByMargin(newIndent: String = \"\", marginPrefix: String = \"|\"): String {\n require(marginPrefix.isNotBlank()) { \"marginPrefix must be non-blank string.\" }\n val lines = lines()\n\n return lines.reindent(length + newIndent.length * lines.size, getIndentFunction(newIndent), { line ->\n val firstNonWhitespaceIndex = line.indexOfFirst { !it.isWhitespace() }\n\n when {\n firstNonWhitespaceIndex == -1 -> null\n line.startsWith(marginPrefix, firstNonWhitespaceIndex) -> line.substring(firstNonWhitespaceIndex + marginPrefix.length)\n else -> null\n }\n })\n}\n\n/**\n * Detects a common minimal indent of all the input lines, removes it from every line and also removes the first and the last\n * lines if they are blank (notice difference blank vs empty).\n *\n * Note that blank lines do not affect the detected indent level.\n *\n * In case if there are non-blank lines with no leading whitespace characters (no indent at all) then the\n * common indent is 0, and therefore this function doesn't change the indentation.\n *\n * Doesn't preserve the original line endings.\n *\n * @sample samples.text.Strings.trimIndent\n * @see trimMargin\n * @see kotlin.text.isBlank\n */\n@kotlin.internal.IntrinsicConstEvaluation\npublic fun String.trimIndent(): String = replaceIndent(\"\")\n\n/**\n * Detects a common minimal indent like it does [trimIndent] and replaces it with the specified [newIndent].\n */\npublic fun String.replaceIndent(newIndent: String = \"\"): String {\n val lines = lines()\n\n val minCommonIndent = lines\n .filter(String::isNotBlank)\n .map(String::indentWidth)\n .minOrNull() ?: 0\n\n return lines.reindent(length + newIndent.length * lines.size, getIndentFunction(newIndent), { line -> line.drop(minCommonIndent) })\n}\n\n/**\n * Prepends [indent] to every line of the original string.\n *\n * Doesn't preserve the original line endings.\n */\npublic fun String.prependIndent(indent: String = \"   \"): String =\n lineSequence()\n .map {\n when {\n it.isBlank() -> {\n when {\n it.length < indent.length -> indent\n else -> it\n }\n }\n else -> indent + it\n }\n }\n .joinToString(\"\\n\")\n\nprivate fun String.indentWidth(): Int = indexOfFirst { !it.isWhitespace() }.let { if (it == -1) length else it }\n\nprivate fun getIndentFunction(indent: String) = when {\n indent.isEmpty() -> { line: String -> line }\n else -> { line: String -> indent + line }\n}\n\nprivate inline fun List<String>.reindent(\n resultSizeEstimate: Int,\n indentAddFunction: (String) -> String,\n indentCutFunction: (String) -> String?\n): String {\n val lastIndex = lastIndex\n return mapIndexedNotNull { index, value ->\n if ((index == 0 || index == lastIndex) && value.isBlank())\n null\n else\n indentCutFunction(value)?.let(indentAddFunction) ?: value\n }\n .joinTo(StringBuilder(resultSizeEstimate), \"\\n\")\n .toString()\n}\n","/*\n * Copyright 2010-2018 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin.text\n\n/**\n * Defines names for Unicode symbols used in proper Typography.\n */\npublic object Typography {\n /** The character " \u2013 quotation mark */\n public const val quote: Char = '\\u0022'\n /** The character $ \u2013 dollar sign */\n public const val dollar: Char = '\\u0024'\n /** The character & \u2013 ampersand */\n public const val amp: Char = '\\u0026'\n /** The character < \u2013 less-than sign */\n public const val less: Char = '\\u003C'\n /** The character > \u2013 greater-than sign */\n public const val greater: Char = '\\u003E'\n /** The non-breaking space character */\n public const val nbsp: Char = '\\u00A0'\n /** The character × */\n public const val times: Char = '\\u00D7'\n /** The character ¢ */\n public const val cent: Char = '\\u00A2'\n /** The character £ */\n public const val pound: Char = '\\u00A3'\n /** The character § */\n public const val section: Char = '\\u00A7'\n /** The character © */\n public const val copyright: Char = '\\u00A9'\n /** The character « */\n @SinceKotlin(\"1.6\")\n public const val leftGuillemet: Char = '\\u00AB'\n /** The character » */\n @SinceKotlin(\"1.6\")\n public const val rightGuillemet: Char = '\\u00BB'\n /** The character ® */\n public const val registered: Char = '\\u00AE'\n /** The character ° */\n public const val degree: Char = '\\u00B0'\n /** The character ± */\n public const val plusMinus: Char = '\\u00B1'\n /** The character ¶ */\n public const val paragraph: Char = '\\u00B6'\n /** The character · */\n public const val middleDot: Char = '\\u00B7'\n /** The character ½ */\n public const val half: Char = '\\u00BD'\n /** The character – */\n public const val ndash: Char = '\\u2013'\n /** The character — */\n public const val mdash: Char = '\\u2014'\n /** The character ‘ */\n public const val leftSingleQuote: Char = '\\u2018'\n /** The character ’ */\n public const val rightSingleQuote:

Char = '\\u2019'\n /** The character ‚ */\n public const val lowSingleQuote: Char = '\\u201A'\n /** The character “ */\n public const val leftDoubleQuote: Char = '\\u201C'\n /** The character ” */\n public const val rightDoubleQuote: Char = '\\u201D'\n /** The character „ */\n public const val lowDoubleQuote: Char = '\\u201E'\n /** The character † */\n public const val dagger: Char = '\\u2020'\n /** The character ‡ */\n public const val doubleDagger: Char = '\\u2021'\n /** The character • */\n public const val bullet: Char = '\\u2022'\n /** The character … */\n public const val ellipsis: Char = '\\u2026'\n /** The character ′ */\n public const val prime: Char = '\\u2032'\n /** The character ″ */\n public const val doublePrime: Char = '\\u2033'\n /** The character € */\n public const val euro: Char = '\\u20AC'\n /** The character ™ */\n public const val tm: Char = '\\u2122'\n /** The character ≈ */\n public const val almostEqual: Char = '\\u2248'\n /** The character ≠ */\n public const val notEqual: Char = '\\u2260'\n /** The character ≤ */\n public const val lessOrEqual: Char = '\\u2264'\n /** The character ≥ */\n public const val greaterOrEqual: Char = '\\u2265'\n\n /** The character « */\n @Deprecated(\"This constant has a typo in the name. Use leftGuillemet instead.\", ReplaceWith(\"Typography.leftGuillemet\"))\n @DeprecatedSinceKotlin(\"1.6\")\n public const val leftGuillemete: Char = '\\u00AB'\n\n /** The character » */\n @Deprecated(\"This constant has a typo in the name. Use rightGuillemet instead.\", ReplaceWith(\"Typography.rightGuillemet\"))\n @DeprecatedSinceKotlin(\"1.6\")\n public const val rightGuillemete: Char = '\\u00BB'\n}","/*\n * Copyright 2010-2018 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin.text\n\n/**\n * Represents a collection of captured groups in a single match of a regular expression.\n *\n * This collection has size of `groupCount + 1` where `groupCount` is the count of groups in the regular expression.\n * Groups are indexed from 1 to `groupCount` and group with the index 0 corresponds to the entire match.\n *\n * An element of the collection at the particular index can be `null`,\n * if the corresponding group in the regular expression is optional and\n * there was no match captured by that group.\n */\npublic interface MatchGroupCollection : Collection<MatchGroup?> {\n\n /** Returns a group with the specified [index].\n *\n * @return An instance of [MatchGroup] if the group with the specified [index] was matched or `null` otherwise.\n *\n * Groups are indexed from 1 to the count of groups in the regular expression. A group with the index 0\n * corresponds to the entire match.\n */\n public operator fun get(index: Int): MatchGroup?\n}\n\n/**\n * Extends [MatchGroupCollection] by introducing a way to get matched groups by name, when regex supports it.\n */\n@SinceKotlin(\"1.1\")\npublic interface MatchNamedGroupCollection : MatchGroupCollection {\n /**\n * Returns a named group with the specified [name].\n * @return An instance of [MatchGroup] if the group with the specified [name] was matched or `null` otherwise.\n * @throws IllegalArgumentException if there is no group with the specified [name] defined in the regex pattern.\n * @throws UnsupportedOperationException if this match group collection doesn't support getting match groups by name,\n * for example, when it's not supported by the current platform.\n */\n public operator fun get(name: String): MatchGroup?\n}\n\n/**\n * Represents the results from a single regular expression match.\n */\npublic interface MatchResult {\n /** The range of indices in the original string where match was captured. */\n public val range: IntRange\n /** The substring from the input string captured by this match. */\n public val value: String\n /**\n * A collection of groups matched by the regular expression.\n *\n * This collection has size of `groupCount + 1` where `groupCount` is the count of groups in the regular expression.\n * Groups are indexed from 1 to `groupCount` and group with the index 0 corresponds to the entire match.\n */\n public val groups: MatchGroupCollection\n /**\n * A list of matched indexed group values.\n *\n * This list has size of `groupCount + 1` where `groupCount` is the count of groups in the regular expression.\n * Groups are indexed from 1 to `groupCount` and group with the index 0 corresponds to the entire match.\n *\n * If the group in the regular expression is optional and there were no match captured by that group,\n * corresponding item in [groupValues] is an empty string.\n *\n * @sample samples.text.Regexps.matchDestructuringToGroupValues\n */\n public val groupValues: List<String>\n\n /**\n * An instance of [MatchResult.Destructured] wrapper providing components for destructuring assignment of group values.\n *\n * component1 corresponds to the value of the first group, component2 \u2014 of the second, and so on.\n   *\n   * @sample samples.text.Regexps.matchDestructuringToGroupValues\n   */\n public val destructured: Destructured get() = Destructured(this)\n\n   /** Returns a new [MatchResult] with the results for the next match, starting at the position\n   * at which the last match ended (at the character after the last matched character).\n   */\n   public fun next(): MatchResult?\n\n   /**\n   * Provides components for destructuring assignment of group values.\n   *\n   * [component1] corresponds to the value of the first group, [component2] \u2014 of the second, and so on.\n   *\n   * If the group in the regular expression is optional and there were no match captured by that group,\n   * corresponding component value is an empty string.\n   *\n   * @sample samples.text.Regexps.matchDestructuringToGroupValues\n   */\n   public class Destructured internal constructor(public val match: MatchResult) {\n   @kotlin.internal.InlineOnly\n   public operator inline fun component1(): String = match.groupValues[1]\n   @kotlin.internal.InlineOnly\n   public operator inline fun component2(): String = match.groupValues[2]\n   @kotlin.internal.InlineOnly\n   public operator inline fun component3(): String = match.groupValues[3]\n   @kotlin.internal.InlineOnly\n   public operator inline fun component4(): String = match.groupValues[4]\n   @kotlin.internal.InlineOnly\n   public operator inline fun component5(): String = match.groupValues[5]\n   @kotlin.internal.InlineOnly\n   public operator inline fun component6(): String = match.groupValues[6]\n   @kotlin.internal.InlineOnly\n   public operator inline fun component7(): String = match.groupValues[7]\n   @kotlin.internal.InlineOnly\n   public operator inline fun component8(): String = match.groupValues[8]\n   @kotlin.internal.InlineOnly\n   public operator inline fun component9(): String = match.groupValues[9]\n   @kotlin.internal.InlineOnly\n   public operator inline fun component10(): String = match.groupValues[10]\n\n   /**\n   * Returns destructured group values as a list of strings.\n   * First value in the returned list corresponds to the value of the first group, and so on.\n   *\n   * @sample samples.text.Regexps.matchDestructuringToGroupValues\n   */\n   public fun toList(): List<String> = match.groupValues.subList(1, match.groupValues.size)\n   }\n}","/*\n * Copyright 2010-2021 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\n@file:kotlin.jvm.JvmMultifileClass()\n@file:kotlin.jvm.JvmName(\"DurationUnitKt\")\n\npackage kotlin.time\n\n\n/**\n * The list of possible time measurement units, in which a duration can be expressed.\n *\n * The smallest time unit is [NANOSECONDS] and the largest is [DAYS], which corresponds to exactly 24 [HOURS].\n */\n@SinceKotlin(\"1.6\")\n@WasExperimental(ExperimentalTime::class)\npublic expect enum class DurationUnit {\n   /**\n   * Time unit representing one nanosecond, which is 1/1000 of a microsecond.\n   */\n   NANOSECONDS,\n   /**\n   * Time unit representing one microsecond, which is 1/1000 of a millisecond.\n   */\n   MICROSECONDS,\n   /**\n   * Time unit representing one millisecond, which is 1/1000 of a second.\n   */\n   MILLISECONDS,\n   /**\n   * Time unit representing one second.\n   */\n   SECONDS,\n   /**\n   * Time unit representing one minute.\n   */\n   MINUTES,\n   /**\n   * Time unit representing one hour.\n   */\n   HOURS,\n   /**\n   * Time unit representing one day, which is always equal to 24 hours.\n   */\n   DAYS;\n}\n\n/** Converts the given time duration [value] expressed in the specified [sourceUnit] into the specified [targetUnit]. */\n@SinceKotlin(\"1.3\")\ninternal expect fun convertDurationUnit(value: Double, sourceUnit: DurationUnit, targetUnit: DurationUnit): Double\n\n// overflown result is unspecified\n@SinceKotlin(\"1.5\")\ninternal expect fun convertDurationUnitOverflow(value: Long, sourceUnit: DurationUnit, targetUnit: DurationUnit): Long\n\n// overflown result is coerced in the Long range boundaries\n@SinceKotlin(\"1.5\")\ninternal expect fun convertDurationUnit(value: Long, sourceUnit: DurationUnit, targetUnit: DurationUnit): Long\n\n\n@SinceKotlin(\"1.3\")\n@Suppress(\"REDUNDANT_ELSE_IN_WHEN\")\ninternal fun DurationUnit.shortName(): String = when (this) {\n   DurationUnit.NANOSECONDS -> \"ns\"\n   DurationUnit.MICROSECONDS -> \"us\"\n   DurationUnit.MILLISECONDS -> \"ms\"\n   DurationUnit.SECONDS -> \"s\"\n   DurationUnit.MINUTES -> \"m\"\n   DurationUnit.HOURS -> \"h\"\n   DurationUnit.DAYS -> \"d\"\n   else -> error(\"Unknown unit: $this\")\n}\n\n@SinceKotlin(\"1.5\")\ninternal fun durationUnitByShortName(shortName: String): DurationUnit = when (shortName) {\n   \"ns\" -> DurationUnit.NANOSECONDS\n   \"us\" -> DurationUnit.MICROSECONDS\n   \"ms\" ->

DurationUnit.MILLISECONDS\n   \"s\" -> DurationUnit.SECONDS\n   \"m\" -> DurationUnit.MINUTES\n   \"h\" -> DurationUnit.HOURS\n   \"d\" -> DurationUnit.DAYS\n   else -> throw IllegalArgumentException(\"Unknown duration unit short name: $shortName\")\n}\n\n@SinceKotlin(\"1.5\")\ninternal fun durationUnitByIsoChar(isoChar: Char, isTimeComponent: Boolean): DurationUnit =\n   when {\n   !isTimeComponent -> {\n   when (isoChar) {\n   'D' -> DurationUnit.DAYS\n   else -> throw IllegalArgumentException(\"Invalid or unsupported duration ISO non-time unit: $isoChar\")\n   }\n   }\n   else -> {\n   when (isoChar) {\n   'H' -> DurationUnit.HOURS\n   'M' -> DurationUnit.MINUTES\n   'S' -> DurationUnit.SECONDS\n   else -> throw IllegalArgumentException(\"Invalid duration ISO time unit: $isoChar\")\n   }\n   }\n   }","/*\n * Copyright 2010-2019 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin.time\n\nimport kotlin.annotation.AnnotationTarget.*\n\n/**\n * This annotation marks the experimental preview of the standard library API for measuring time and working with durations.\n *\n * > Note that this API is in a preview state and has a very high chance of being changed in the future.\n * Do not use it if you develop a library since your library will become binary incompatible\n * with the future versions of the standard library.\n *\n * Any usage of a declaration annotated with `@ExperimentalTime` must be accepted either by\n * annotating that usage with the [OptIn] annotation, e.g. `@OptIn(ExperimentalTime::class)`,\n * or by using the compiler argument `-opt-in=kotlin.time.ExperimentalTime`.\n */\n@RequiresOptIn(level = RequiresOptIn.Level.ERROR)\n@MustBeDocumented\n@Retention(AnnotationRetention.BINARY)\n@Target(\n   CLASS,\n   ANNOTATION_CLASS,\n   PROPERTY,\n   FIELD,\n   LOCAL_VARIABLE,\n   VALUE_PARAMETER,\n   CONSTRUCTOR,\n   FUNCTION,\n   PROPERTY_GETTER,\n   PROPERTY_SETTER,\n   TYPEALIAS\n)\n@SinceKotlin(\"1.3\")\npublic annotation class ExperimentalTime\n","/*\n * Copyright 2010-2022 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin.time\n\nimport kotlin.jvm.JvmInline\n\n/**\n * A source of time for measuring time intervals.\n *\n * The only operation provided by the time source is [markNow]. It returns a [TimeMark], which can be used to query the elapsed time later.\n *\n * @see [measureTime]\n * @see [measureTimedValue]\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalTime\npublic interface TimeSource {\n   /**\n   * Marks a point in time on this time source.\n   *\n   * The returned [TimeMark] instance encapsulates the captured time point and allows querying\n   * the duration of time interval [elapsed][TimeMark.elapsedNow] from that point.\n   */\n   public fun markNow(): TimeMark\n\n   /**\n   * The most precise time source available in the platform.\n   *\n   * This time source returns its readings from a source of monotonic time when it is available in a target platform,\n   * and resorts to a non-monotonic time source otherwise.\n   *\n   * The function [markNow] of this time source returns the specialized [ValueTimeMark] that is an inline value class\n   * wrapping a platform-dependent time reading value.\n   */\n   public object Monotonic : TimeSource {\n   override fun markNow(): ValueTimeMark = MonotonicTimeSource.markNow()\n   override fun toString(): String = MonotonicTimeSource.toString()\n\n   /**\n   * A specialized [kotlin.time.TimeMark] returned by [TimeSource.Monotonic].\n   *\n   * This time mark is implemented as an inline value class wrapping a platform-dependent\n   * time reading value of the default monotonic time source, thus allowing to avoid additional boxing\n   * of that value.\n   *\n   * The operations [plus] and [minus] are also specialized to return [ValueTimeMark] type.\n   */\n   @ExperimentalTime\n   @SinceKotlin(\"1.7\")\n   @JvmInline\n   public value class ValueTimeMark internal constructor(internal val reading: ValueTimeMarkReading) : TimeMark {\n   override fun elapsedNow(): Duration = MonotonicTimeSource.elapsedFrom(this)\n   override fun plus(duration: Duration): ValueTimeMark = MonotonicTimeSource.adjustReading(this, duration)\n   override fun minus(duration: Duration): ValueTimeMark = MonotonicTimeSource.adjustReading(this, -duration)\n   override fun hasPassedNow(): Boolean = !elapsedNow().isNegative()\n   override fun hasNotPassedNow(): Boolean =

elapsedNow().isNegative()\n   }\n   }\n\n   public companion object {\n\n   }\n}\n\n/** A platform-specific reading type that is wrapped by [TimeSource.Monotonic.ValueTimeMark] inline class. */\ninternal expect class ValueTimeMarkReading\n\n\n/**\n * Represents a time point notched on a particular [TimeSource]. Remains bound to the time source it was taken from\n * and allows querying for the duration of time elapsed from that point (see the function [elapsedNow]).\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalTime\npublic interface TimeMark {\n   /**\n   * Returns the amount of time passed from this mark measured with the time source from which this mark was taken.\n   *\n   * Note that the value returned by this function can change on subsequent invocations.\n   *\n   * @throws IllegalArgumentException an implementation may throw if calculating the elapsed time involves\n   * adding a positive infinite duration to an infinitely distant past time mark or\n   * a negative infinite duration to an infinitely distant future time mark.\n   */\n   public abstract fun elapsedNow(): Duration\n\n   /**\n   * Returns a time mark on the same time source that is ahead of this time mark by the specified [duration].\n   *\n   * The returned time mark is more _late_ when the [duration] is positive, and more _early_ when the [duration] is negative.\n   *\n   * If the time mark is adjusted too far in the past or in the future, it may saturate to an infinitely distant time mark.\n   * In that case, [elapsedNow] will return an infinite duration elapsed from such infinitely distant mark.\n   *\n   * @throws IllegalArgumentException an implementation may throw if a positive infinite duration is added to an infinitely distant past time mark or\n   * a negative infinite duration is added to an infinitely distant future time mark.\n   */\n   public open operator fun plus(duration: Duration): TimeMark = AdjustedTimeMark(this, duration)\n\n   /**\n   * Returns a time mark on the same time source that is behind this time mark by the specified [duration].\n   *\n   * The returned time mark is more _early_ when the [duration] is positive, and more _late_ when the [duration] is negative.\n   *\n   * If the time mark is adjusted too far in the past or in the future, it may saturate to an infinitely distant time mark.\n   * In that case, [elapsedNow] will return an infinite duration elapsed from such infinitely distant mark.\n   *\n   * @throws IllegalArgumentException an implementation may throw if a positive infinite duration is subtracted from an infinitely distant future time mark or\n   * a negative infinite duration is subtracted from an infinitely distant past time mark.\n   */\n   public open operator fun minus(duration: Duration): TimeMark = plus(-duration)\n\n\n   /**\n   * Returns true if this time mark has passed according to the time source from which this mark was taken.\n   *\n   * Note that the value returned by this function can change on subsequent invocations.\n   * If the time source is monotonic, it can change only from `false` to `true`, namely, when the time mark becomes behind the current point of the time source.\n   */\n   public fun hasPassedNow(): Boolean = !elapsedNow().isNegative()\n\n   /**\n   * Returns false if this time mark has not passed according to the time source from which this mark was taken.\n   *\n   * Note that the value returned by this function can change on subsequent invocations.\n   * If the time source is monotonic, it can change only from `true` to `false`, namely, when the time mark becomes behind the current point of the time source.\n   */\n   public fun hasNotPassedNow(): Boolean = elapsedNow().isNegative()\n}\n\n\n@ExperimentalTime\n@SinceKotlin(\"1.3\")\n@kotlin.internal.InlineOnly\n@Deprecated(\n   \"Subtracting one TimeMark from another is not a well defined operation because these time marks could have been obtained from the different time sources.\",\n   level = DeprecationLevel.ERROR\n)\n@Suppress(\"UNUSED_PARAMETER\")\npublic inline operator fun TimeMark.minus(other: TimeMark): Duration = throw Error(\"Operation is disallowed.\")\n\n@ExperimentalTime\n@SinceKotlin(\"1.3\")\n@kotlin.internal.InlineOnly\n@Deprecated(\n   \"Comparing one TimeMark to another is not a well defined operation because these time marks could have been obtained from the different time sources.\",\n   level = DeprecationLevel.ERROR\n)\n@Suppress(\"UNUSED_PARAMETER\")\npublic inline operator fun TimeMark.compareTo(other: TimeMark): Int = throw Error(\"Operation is disallowed.\")\n\n\n@ExperimentalTime\nprivate class AdjustedTimeMark(val mark: TimeMark, val adjustment: Duration) : TimeMark {\n   override fun elapsedNow(): Duration = mark.elapsedNow() - adjustment\n\n   override fun plus(duration: Duration): TimeMark = AdjustedTimeMark(mark, adjustment + duration)\n}\n","/*\n * Copyright 2010-2022 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin.time\n\n@SinceKotlin(\"1.3\")\n@ExperimentalTime\ninternal expect object MonotonicTimeSource : TimeSource {\n   override fun markNow(): TimeSource.Monotonic.ValueTimeMark\n   fun elapsedFrom(timeMark: TimeSource.Monotonic.ValueTimeMark): Duration\n   fun adjustReading(timeMark: TimeSource.Monotonic.ValueTimeMark, duration: Duration): TimeSource.Monotonic.ValueTimeMark\n}\n\n/**\n * An abstract class used to implement time sources that return their readings as [Long] values in the specified [unit].\n *\n * @property unit The unit in which this time source's readings are expressed.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalTime\npublic abstract class AbstractLongTimeSource(protected val unit: DurationUnit) : TimeSource {\n   /**\n   * This protected method should be overridden to return the current reading of the time source expressed as a [Long] number\n   * in the unit specified by the [unit] property.\n   */\n   protected abstract fun read(): Long\n\n   private class LongTimeMark(private val startedAt: Long, private val timeSource: AbstractLongTimeSource, private val offset: Duration) : TimeMark {\n   override fun elapsedNow(): Duration = (timeSource.read() - startedAt).toDuration(timeSource.unit) - offset\n   override fun plus(duration: Duration): TimeMark = LongTimeMark(startedAt, timeSource, offset + duration)\n   }\n\n   override fun markNow(): TimeMark = LongTimeMark(read(), this, Duration.ZERO)\n}\n\n/**\n * An abstract class used to implement time sources that return their readings as [Double] values in the specified [unit].\n *\n * @property unit The unit in which this time source's readings are expressed.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalTime\npublic abstract class AbstractDoubleTimeSource(protected val unit: DurationUnit) : TimeSource {\n   /**\n   * This protected method should be overridden to return the current reading of the time source expressed as a [Double] number\n   * in the unit specified by the [unit] property.\n   */\n   protected abstract fun read(): Double\n\n   private class DoubleTimeMark(private val startedAt: Double, private val timeSource: AbstractDoubleTimeSource, private val offset: Duration) : TimeMark {\n   override fun elapsedNow(): Duration = (timeSource.read() - startedAt).toDuration(timeSource.unit) - offset\n   override fun plus(duration: Duration): TimeMark = DoubleTimeMark(startedAt, timeSource, offset + duration)\n   }\n\n   override fun markNow(): TimeMark = DoubleTimeMark(read(), this, Duration.ZERO)\n}\n\n/**\n * A time source that has programmatically updatable readings. It is useful as a predictable source of time in tests.\n *\n * The current reading value can be advanced by the specified duration amount with the operator [plusAssign]:\n *\n * ```\n * val timeSource = TestTimeSource()\n * timeSource += 10.seconds\n * ```\n *\n * Implementation note: the current reading value is stored as a [Long] number of nanoseconds,\n * thus it's capable to represent a time range of approximately \u00b1292 years.\n * Should the reading value overflow as the result of [plusAssign] operation, an [IllegalStateException] is thrown.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalTime\npublic class TestTimeSource : AbstractLongTimeSource(unit = DurationUnit.NANOSECONDS) {\n   private var reading: Long = 0L\n\n   override fun read(): Long = reading\n\n   /**\n   * Advances the current reading value of this time source by the specified [duration].\n   *\n   * [duration] value is rounded down towards zero when converting it to a [Long] number of nanoseconds.\n   * For example, if the duration being added is `0.6.nanoseconds`, the reading doesn't advance because\n   * the duration value is rounded to zero nanoseconds.\n   *\n   * @throws IllegalStateException when the reading value overflows as the result of this operation.\n   */\n   public operator fun plusAssign(duration: Duration) {\n   val longDelta = duration.toLong(unit)\n   reading = if (longDelta != Long.MIN_VALUE && longDelta != Long.MAX_VALUE) {\n   // when delta fits in long, add it as long\n   val newReading = reading + longDelta\n   if (reading xor longDelta >= 0 && reading xor newReading < 0) overflow(duration)\n   newReading\n   } else {\n   val delta = duration.toDouble(unit)\n   // when delta is greater than long, add it as double\n   val newReading = reading + delta\n   if (newReading > Long.MAX_VALUE || newReading < Long.MIN_VALUE) overflow(duration)\n   newReading.toLong()\n   }\n   }\n\n   private fun overflow(duration: Duration) {\n   throw IllegalStateException(\"TestTimeSource will overflow if its reading ${reading}ns is advanced by $duration.\")\n   }\n}\n","/*\n * Copyright 2010-2022 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin.time\n\nimport kotlin.time.Duration.Companion.milliseconds\nimport kotlin.time.Duration.Companion.nanoseconds\n\n// Long time reading saturation math, shared between JVM and Native\n\ninternal fun saturatingAdd(longNs: Long, duration: Duration): Long {\n   val durationNs = duration.inWholeNanoseconds\n   if ((longNs - 1) or 1 == Long.MAX_VALUE) { // MIN_VALUE or MAX_VALUE - the reading is infinite\n   return checkInfiniteSumDefined(longNs, duration, durationNs)\n   }\n   if ((durationNs - 1) or 1 == Long.MAX_VALUE) { // duration doesn't fit in Long nanos\n   return saturatingAddInHalves(longNs, duration)\n   }\n\n   val result = longNs + durationNs\n   if (((longNs xor result) and (durationNs xor result)) < 0) {\n   return if (longNs < 0) Long.MIN_VALUE else Long.MAX_VALUE\n   }\n   return result\n}\n\nprivate fun checkInfiniteSumDefined(longNs: Long, duration: Duration, durationNs: Long): Long {\n   if (duration.isInfinite() && (longNs xor durationNs < 0)) throw IllegalArgumentException(\"Summing infinities of different signs\")\n   return longNs\n}\n\nprivate fun saturatingAddInHalves(longNs: Long, duration: Duration): Long {\n   val half = duration / 2\n   if ((half.inWholeNanoseconds - 1) or 1 == Long.MAX_VALUE) {\n   // this will definitely saturate\n   return (longNs + duration.toDouble(DurationUnit.NANOSECONDS)).toLong()\n   } else {\n   return saturatingAdd(saturatingAdd(longNs, half), half)\n   }\n}\n\ninternal fun saturatingDiff(valueNs: Long, originNs: Long): Duration {\n   if ((originNs - 1) or 1 == Long.MAX_VALUE) { // MIN_VALUE or MAX_VALUE\n   return -(originNs.toDuration(DurationUnit.DAYS)) // saturate to infinity\n   }\n   val result = valueNs - originNs\n   if ((result xor valueNs) and (result xor originNs).inv() < 0) {\n   val resultMs = valueNs / NANOS_IN_MILLIS - originNs / NANOS_IN_MILLIS\n   val resultNs = valueNs % NANOS_IN_MILLIS - originNs % NANOS_IN_MILLIS\n   return resultMs.milliseconds + resultNs.nanoseconds\n   }\n   return result.nanoseconds\n}\n","/*\n * Copyright 2010-2022 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin.time\n\nimport kotlin.contracts.*\n\n/**\n * Executes the given function [block] and returns the duration of elapsed time interval.\n *\n * The elapsed time is measured with [TimeSource.Monotonic].\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalTime\npublic inline fun measureTime(block: () -> Unit): Duration {\n   contract {\n   callsInPlace(block, InvocationKind.EXACTLY_ONCE)\n   }\n   return TimeSource.Monotonic.measureTime(block)\n}\n\n\n/**\n * Executes the given function [block] and returns the duration of elapsed time interval.\n *\n * The elapsed time is measured with the specified `this` [TimeSource] instance.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalTime\npublic inline fun TimeSource.measureTime(block: () -> Unit): Duration {\n   contract {\n   callsInPlace(block, InvocationKind.EXACTLY_ONCE)\n   }\n\n   val mark = markNow()\n   block()\n   return mark.elapsedNow()\n}\n\n/**\n * Executes the given function [block] and returns the duration of elapsed time interval.\n *\n * The elapsed time is measured with the specified `this` [TimeSource.Monotonic] instance.\n */\n@SinceKotlin(\"1.7\")\n@ExperimentalTime\npublic inline fun TimeSource.Monotonic.measureTime(block: () -> Unit): Duration {\n   contract {\n   callsInPlace(block, InvocationKind.EXACTLY_ONCE)\n   }\n\n   val mark = markNow()\n   block()\n   return mark.elapsedNow()\n}\n\n\n/**\n * Data class representing a result of executing an action, along with the duration of elapsed time interval.\n *\n * @property value the result of the action.\n * @property duration the time elapsed to execute the action.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalTime\npublic data class TimedValue<T>(val value: T, val duration: Duration)\n\n/**\n * Executes the given function [block] and returns an instance of [TimedValue] class, containing both\n * the result of the function execution and the duration of elapsed time interval.\n *\n * The elapsed time is measured with [TimeSource.Monotonic].\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalTime\npublic inline fun <T> measureTimedValue(block: () -> T): TimedValue<T> {\n   contract {\n   callsInPlace(block, InvocationKind.EXACTLY_ONCE)\n   }\n\n   return TimeSource.Monotonic.measureTimedValue(block)\n}\n\n/**\n * Executes the given [block] and returns an instance of [TimedValue] class, containing both\n * the result of function execution and the duration of elapsed time interval.\n *\n * The elapsed time is measured with the specified `this` [TimeSource] instance.\n */\n@SinceKotlin(\"1.3\")\n@ExperimentalTime\npublic inline fun <T> TimeSource.measureTimedValue(block: () -> T): TimedValue<T> {\n   contract {\n   callsInPlace(block, InvocationKind.EXACTLY_ONCE)\n   }\n\n   val mark = markNow()\n   val result = block()\n   return TimedValue(result, mark.elapsedNow())\n}\n\n/**\n * Executes the given [block] and returns an instance of [TimedValue] class, containing both\n * the result of function execution and the duration of elapsed time interval.\n *\n * The elapsed time is measured with the specified `this` [TimeSource.Monotonic] instance.\n */\n@SinceKotlin(\"1.7\")\n@ExperimentalTime\npublic inline fun <T> TimeSource.Monotonic.measureTimedValue(block: () -> T): TimedValue<T> {\n   contract {\n   callsInPlace(block, InvocationKind.EXACTLY_ONCE)\n   }\n\n   val mark = markNow()\n   val result = block()\n   return TimedValue(result, mark.elapsedNow())\n}\n","/*\n * Copyright 2010-2020 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin\n\nimport kotlin.coroutines.*\nimport kotlin.coroutines.intrinsics.*\nimport kotlin.native.concurrent.SharedImmutable\n\n/**\n * Defines deep recursive function that keeps its stack on the heap,\n * which allows very deep recursive computations that do not use the actual call stack.\n * To initiate a call to this deep recursive function use its [invoke] function.\n * As a rule of thumb, it should be used if recursion goes deeper than a thousand calls.\n *\n * The [DeepRecursiveFunction] takes one parameter of type [T] and returns a result of type [R].\n * The [block] of code defines the body of a recursive function. In this block\n * [callRecursive][DeepRecursiveScope.callRecursive] function can be used to make a recursive call\n * to the declared function. Other instances of [DeepRecursiveFunction] can be called\n * in this scope with `callRecursive` extension, too.\n *\n * For example, take a look at the following recursive tree class and a deeply\n * recursive instance of this tree with 100K nodes:\n *\n * ```\n * class Tree(val left: Tree? = null, val right: Tree? = null)\n * val deepTree = generateSequence(Tree()) { Tree(it) }.take(100_000).last()\n * ```\n *\n * A regular recursive function can be defined to compute a depth of a tree:\n *\n * ```\n * fun depth(t: Tree?): Int =\n *   if (t == null) 0 else max(depth(t.left), depth(t.right)) + 1\n * println(depth(deepTree)) // StackOverflowError\n * ```\n *\n * If this `depth` function is called for a `deepTree` it produces `StackOverflowError` because of deep recursion.\n * However, the `depth` function can be rewritten using `DeepRecursiveFunction` in the following way, and then\n * it successfully computes [`depth(deepTree)`][DeepRecursiveFunction.invoke] expression:\n *\n * ```\n * val depth = DeepRecursiveFunction<Tree?, Int> { t ->\n *   if (t == null) 0 else max(callRecursive(t.left), callRecursive(t.right)) + 1\n * }\n * println(depth(deepTree)) // Ok\n * ```\n *\n * Deep recursive functions can also mutually call each other using a heap for the stack via\n * [callRecursive][DeepRecursiveScope.callRecursive] extension. For example, the\n * following pair of mutually recursive functions computes the number of tree nodes at even depth in the tree.\n *\n * ```\n * val mutualRecursion = object {\n *   val even: DeepRecursiveFunction<Tree?, Int> = DeepRecursiveFunction { t ->\n *   if (t == null) 0 else odd.callRecursive(t.left) + odd.callRecursive(t.right) + 1\n *   }\n *   val odd: DeepRecursiveFunction<Tree?, Int> = DeepRecursiveFunction { t ->\n *   if (t == null) 0 else even.callRecursive(t.left) + even.callRecursive(t.right)\n *   }\n * }\n * ```\n *\n * @param [T] the function parameter type.\n * @param [R] the function result type.\n * @param block the function body.\n */\n@SinceKotlin(\"1.7\")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic class DeepRecursiveFunction<T, R>(\n   internal val block: suspend DeepRecursiveScope<T, R>.(T) -> R\n)\n\n/**\n * Initiates a call to this deep recursive function, forming a root of the call tree.\n *\n * This operator should not be used from inside of [DeepRecursiveScope] as it uses the call stack slot for\n * initial recursive invocation. From inside of [DeepRecursiveScope] use\n * [callRecursive][DeepRecursiveScope.callRecursive].\n */\n@SinceKotlin(\"1.7\")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic operator fun <T, R> DeepRecursiveFunction<T, R>.invoke(value: T): R =\n   DeepRecursiveScopeImpl<T, R>(block, value).runCallLoop()\n\n/**\n * A scope class for [DeepRecursiveFunction] function declaration that defines [callRecursive] methods to\n * recursively call this function or another [DeepRecursiveFunction] putting the call activation frame on the heap.\n *\n * @param [T] function parameter type.\n * @param [R] function result type.\n */\n@RestrictsSuspension\n@SinceKotlin(\"1.7\")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic sealed class DeepRecursiveScope<T, R> {\n   /**\n   * Makes recursive call to this [DeepRecursiveFunction] function putting the call activation frame on the heap,\n   * as opposed to the actual call stack that is used by a regular recursive call.\n   */\n   public abstract suspend fun callRecursive(value: T): R\n\n   /**\n   * Makes call to the specified [DeepRecursiveFunction] function putting the call activation frame on the heap,\n   * as opposed to the actual call stack that is used by a regular call.\n   */\n   public abstract suspend fun <U, S>

DeepRecursiveFunction<U, S>.callRecursive(value: U): S\n\n   @Deprecated(\n   level = DeprecationLevel.ERROR,\n   message =\n   \"'invoke' should not be called from DeepRecursiveScope. \" +\n   \"Use 'callRecursive' to do recursion in the heap instead of the call stack.\",\n   replaceWith = ReplaceWith(\"this.callRecursive(value)\")\n   )\n   @Suppress(\"UNUSED_PARAMETER\")\n   public operator fun DeepRecursiveFunction<*, *>.invoke(value: Any?): Nothing =\n   throw UnsupportedOperationException(\"Should not be called from DeepRecursiveScope\")\n}\n\n// ================== Implementation ==================\n\nprivate typealias DeepRecursiveFunctionBlock = suspend DeepRecursiveScope<*, *>.(Any?) -> Any?\n\n@SharedImmutable\nprivate val UNDEFINED_RESULT = Result.success(COROUTINE_SUSPENDED)\n\n@Suppress(\"UNCHECKED_CAST\")\nprivate class DeepRecursiveScopeImpl<T, R>(\n   block: suspend DeepRecursiveScope<T, R>.(T) -> R,\n   value: T\n) : DeepRecursiveScope<T, R>(), Continuation<R> {\n   // Active function block\n   private var function: DeepRecursiveFunctionBlock = block as DeepRecursiveFunctionBlock\n\n   // Value to call function with\n   private var value: Any? = value\n\n   // Continuation of the current call\n   private var cont: Continuation<Any?>? = this as Continuation<Any?>\n\n   // Completion result (completion of the whole call stack)\n   private var result: Result<Any?> = UNDEFINED_RESULT\n\n   override val context: CoroutineContext\n   get() = EmptyCoroutineContext\n\n   override fun resumeWith(result: Result<R>) {\n   this.cont = null\n   this.result = result\n   }\n\n   override suspend fun callRecursive(value: T): R = suspendCoroutineUninterceptedOrReturn { cont ->\n   // calling the same function that is currently active\n   this.cont = cont as Continuation<Any?>\n   this.value = value\n   COROUTINE_SUSPENDED\n   }\n\n   override suspend fun <U, S> DeepRecursiveFunction<U, S>.callRecursive(value: U): S = suspendCoroutineUninterceptedOrReturn { cont ->\n   // calling another recursive function\n   val function = block as DeepRecursiveFunctionBlock\n   with(this@DeepRecursiveScopeImpl) {\n   val currentFunction = this.function\n   if (function !== currentFunction) {\n   // calling a different function -- create a trampoline to restore function ref\n   this.function = function\n   this.cont = crossFunctionCompletion(currentFunction, cont as Continuation<Any?>)\n   } else {\n   // calling the same function -- direct\n   this.cont = cont as Continuation<Any?>\n   }\n   this.value = value\n   }\n   COROUTINE_SUSPENDED\n   }\n\n   private fun crossFunctionCompletion(\n   currentFunction: DeepRecursiveFunctionBlock,\n   cont: Continuation<Any?>\n   ): Continuation<Any?> = Continuation(EmptyCoroutineContext) {\n   this.function = currentFunction\n   // When going back from a trampoline we cannot just call cont.resume (stack usage!)\n   // We delegate the cont.resumeWith(it) call to runCallLoop\n   this.cont = cont\n   this.result = it\n   }\n\n   @Suppress(\"UNCHECKED_CAST\")\n   fun runCallLoop(): R {\n   while (true) {\n   // Note: cont is set to null in DeepRecursiveScopeImpl.resumeWith when the whole computation completes\n   val result = this.result\n   val cont = this.cont\n   ?: return (result as Result<R>).getOrThrow() // done -- final result\n   // The order of comparison is important here for that case of rogue class with broken equals\n   if (UNDEFINED_RESULT == result) {\n   // call \"function\" with \"value\" using \"cont\" as completion\n   val r = try {\n   // This is block.startCoroutine(this, value, cont)\n   function.startCoroutineUninterceptedOrReturn(this, value, cont)\n   } catch (e: Throwable) {\n   cont.resumeWithException(e)\n   continue\n   }\n   // If the function returns without suspension -- calls its continuation immediately\n   if (r !== COROUTINE_SUSPENDED)\n   cont.resume(r as R)\n   } else {\n   // we returned from a crossFunctionCompletion trampoline -- call resume here\n   this.result = UNDEFINED_RESULT // reset result back\n   cont.resumeWith(result)\n   }\n   }\n   }\n}\n","/*\n * Copyright 2010-2022 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\n// Auto-generated file. DO NOT EDIT!\n\n@file:kotlin.jvm.JvmName(\"NumbersKt\")\n@file:kotlin.jvm.JvmMultifileClass\npackage kotlin\n\nimport kotlin.math.sign\n\n/** Divides this value by the other value, flooring the result to an integer that is closer to negative infinity.

*/\n@SinceKotlin(\"1.5\")\n@kotlin.internal.InlineOnly\n@kotlin.internal.IntrinsicConstEvaluation\npublic inline fun Byte.floorDiv(other: Byte): Int = \n   this.toInt().floorDiv(other.toInt())\n\n/**\n * Calculates the remainder of flooring division of this value by the other value.\n * \n * The result is either zero or has the same sign as the _divisor_ and has the absolute value less than the absolute value of the divisor.\n */\n@SinceKotlin(\"1.5\")\n@kotlin.internal.InlineOnly\n@kotlin.internal.IntrinsicConstEvaluation\npublic inline fun Byte.mod(other: Byte): Byte = \n   this.toInt().mod(other.toInt()).toByte()\n\n/** Divides this value by the other value, flooring the result to an integer that is closer to negative infinity. */\n@SinceKotlin(\"1.5\")\n@kotlin.internal.InlineOnly\n@kotlin.internal.IntrinsicConstEvaluation\npublic inline fun Byte.floorDiv(other: Short): Int = \n   this.toInt().floorDiv(other.toInt())\n\n/**\n * Calculates the remainder of flooring division of this value by the other value.\n * \n * The result is either zero or has the same sign as the _divisor_ and has the absolute value less than the absolute value of the divisor.\n */\n@SinceKotlin(\"1.5\")\n@kotlin.internal.InlineOnly\n@kotlin.internal.IntrinsicConstEvaluation\npublic inline fun Byte.mod(other: Short): Short = \n   this.toInt().mod(other.toInt()).toShort()\n\n/** Divides this value by the other value, flooring the result to an integer that is closer to negative infinity. */\n@SinceKotlin(\"1.5\")\n@kotlin.internal.InlineOnly\n@kotlin.internal.IntrinsicConstEvaluation\npublic inline fun Byte.floorDiv(other: Int): Int = \n   this.toInt().floorDiv(other)\n\n/**\n * Calculates the remainder of flooring division of this value by the other value.\n * \n * The result is either zero or has the same sign as the _divisor_ and has the absolute value less than the absolute value of the divisor.\n */\n@SinceKotlin(\"1.5\")\n@kotlin.internal.InlineOnly\n@kotlin.internal.IntrinsicConstEvaluation\npublic inline fun Byte.mod(other: Int): Int = \n   this.toInt().mod(other)\n\n/** Divides this value by the other value, flooring the result to an integer that is closer to negative infinity. */\n@SinceKotlin(\"1.5\")\n@kotlin.internal.InlineOnly\n@kotlin.internal.IntrinsicConstEvaluation\npublic inline fun Byte.floorDiv(other: Long): Long = \n   this.toLong().floorDiv(other)\n\n/**\n * Calculates the remainder of flooring division of this value by the other value.\n * \n * The result is either zero or has the same sign as the _divisor_ and has the absolute value less than the absolute value of the divisor.\n */\n@SinceKotlin(\"1.5\")\n@kotlin.internal.InlineOnly\n@kotlin.internal.IntrinsicConstEvaluation\npublic inline fun Byte.mod(other: Long): Long = \n   this.toLong().mod(other)\n\n/** Divides this value by the other value, flooring the result to an integer that is closer to negative infinity. */\n@SinceKotlin(\"1.5\")\n@kotlin.internal.InlineOnly\n@kotlin.internal.IntrinsicConstEvaluation\npublic inline fun Short.floorDiv(other: Byte): Int = \n   this.toInt().floorDiv(other.toInt())\n\n/**\n * Calculates the remainder of flooring division of this value by the other value.\n * \n * The result is either zero or has the same sign as the _divisor_ and has the absolute value less than the absolute value of the divisor.\n */\n@SinceKotlin(\"1.5\")\n@kotlin.internal.InlineOnly\n@kotlin.internal.IntrinsicConstEvaluation\npublic inline fun Short.mod(other: Byte): Byte = \n   this.toInt().mod(other.toInt()).toByte()\n\n/** Divides this value by the other value, flooring the result to an integer that is closer to negative infinity. */\n@SinceKotlin(\"1.5\")\n@kotlin.internal.InlineOnly\n@kotlin.internal.IntrinsicConstEvaluation\npublic inline fun Short.floorDiv(other: Short): Int = \n   this.toInt().floorDiv(other.toInt())\n\n/**\n * Calculates the remainder of flooring division of this value by the other value.\n * \n * The result is either zero or has the same sign as the _divisor_ and has the absolute value less than the absolute value of the divisor.\n */\n@SinceKotlin(\"1.5\")\n@kotlin.internal.InlineOnly\n@kotlin.internal.IntrinsicConstEvaluation\npublic inline fun Short.mod(other: Short): Short = \n   this.toInt().mod(other.toInt()).toShort()\n\n/** Divides this value by the other value, flooring the result to an integer that is closer to negative infinity. */\n@SinceKotlin(\"1.5\")\n@kotlin.internal.InlineOnly\n@kotlin.internal.IntrinsicConstEvaluation\npublic inline fun Short.floorDiv(other: Int): Int = \n   this.toInt().floorDiv(other)\n\n/**\n * Calculates the remainder of flooring division of this value by the other value.\n * \n * The result is either zero or has the same sign as the _divisor_ and has the absolute value less than the absolute value of the divisor.\n */\n@SinceKotlin(\"1.5\")\n@kotlin.internal.InlineOnly\n@kotlin.internal.IntrinsicConstEvaluation\npublic inline fun Short.mod(other: Int): Int = \n   this.toInt().mod(other)\n\n/** Divides this value by the other value, flooring the

result to an integer that is closer to negative infinity.
*/\n@SinceKotlin(\"1.5\")\n@kotlin.internal.InlineOnly\n@kotlin.internal.IntrinsicConstEvaluation\npublic inline fun Short.floorDiv(other: Long): Long = \n   this.toLong().floorDiv(other)\n\n/**\n * Calculates the remainder of flooring division of this value by the other value.\n * \n * The result is either zero or has the same sign as the _divisor_ and has the absolute value less than the absolute value of the divisor.\n
*/\n@SinceKotlin(\"1.5\")\n@kotlin.internal.InlineOnly\n@kotlin.internal.IntrinsicConstEvaluation\npublic inline fun Short.mod(other: Long): Long = \n   this.toLong().mod(other)\n\n/** Divides this value by the other value, flooring the result to an integer that is closer to negative infinity.
*/\n@SinceKotlin(\"1.5\")\n@kotlin.internal.InlineOnly\n@kotlin.internal.IntrinsicConstEvaluation\npublic inline fun Int.floorDiv(other: Byte): Int = \n   this.floorDiv(other.toInt())\n\n/**\n * Calculates the remainder of flooring division of this value by the other value.\n * \n * The result is either zero or has the same sign as the _divisor_ and has the absolute value less than the absolute value of the divisor.\n
*/\n@SinceKotlin(\"1.5\")\n@kotlin.internal.InlineOnly\n@kotlin.internal.IntrinsicConstEvaluation\npublic inline fun Int.mod(other: Byte): Byte = \n   this.mod(other.toInt()).toByte()\n\n/** Divides this value by the other value, flooring the result to an integer that is closer to negative infinity.
*/\n@SinceKotlin(\"1.5\")\n@kotlin.internal.InlineOnly\n@kotlin.internal.IntrinsicConstEvaluation\npublic inline fun Int.floorDiv(other: Short): Int = \n   this.floorDiv(other.toInt())\n\n/**\n * Calculates the remainder of flooring division of this value by the other value.\n * \n * The result is either zero or has the same sign as the _divisor_ and has the absolute value less than the absolute value of the divisor.\n
*/\n@SinceKotlin(\"1.5\")\n@kotlin.internal.InlineOnly\n@kotlin.internal.IntrinsicConstEvaluation\npublic inline fun Int.mod(other: Short): Short = \n   this.mod(other.toInt()).toShort()\n\n/** Divides this value by the other value, flooring the result to an integer that is closer to negative infinity.
*/\n@SinceKotlin(\"1.5\")\n@kotlin.internal.InlineOnly\n@kotlin.internal.IntrinsicConstEvaluation\npublic inline fun Int.floorDiv(other: Int): Int {\n   var q = this / other\n   if (this xor other < 0 && q * other != this) q-- \n   return q\n}\n\n/**\n * Calculates the remainder of flooring division of this value by the other value.\n * \n * The result is either zero or has the same sign as the _divisor_ and has the absolute value less than the absolute value of the divisor.\n
*/\n@SinceKotlin(\"1.5\")\n@kotlin.internal.InlineOnly\n@kotlin.internal.IntrinsicConstEvaluation\npublic inline fun Int.mod(other: Int): Int {\n   val r = this % other\n   return r + (other and (((r xor other) and (r or -r)) shr 31))\n}\n\n/** Divides this value by the other value, flooring the result to an integer that is closer to negative infinity. */\n@SinceKotlin(\"1.5\")\n@kotlin.internal.InlineOnly\n@kotlin.internal.IntrinsicConstEvaluation\npublic inline fun Int.floorDiv(other: Long): Long = \n   this.toLong().floorDiv(other)\n\n/**\n * Calculates the remainder of flooring division of this value by the other value.\n * \n * The result is either zero or has the same sign as the _divisor_ and has the absolute value less than the absolute value of the divisor.\n
*/\n@SinceKotlin(\"1.5\")\n@kotlin.internal.InlineOnly\n@kotlin.internal.IntrinsicConstEvaluation\npublic inline fun Int.mod(other: Long): Long = \n   this.toLong().mod(other)\n\n/** Divides this value by the other value, flooring the result to an integer that is closer to negative infinity.
*/\n@SinceKotlin(\"1.5\")\n@kotlin.internal.InlineOnly\n@kotlin.internal.IntrinsicConstEvaluation\npublic inline fun Long.floorDiv(other: Byte): Long = \n   this.floorDiv(other.toLong())\n\n/**\n * Calculates the remainder of flooring division of this value by the other value.\n * \n * The result is either zero or has the same sign as the _divisor_ and has the absolute value less than the absolute value of the divisor.\n
*/\n@SinceKotlin(\"1.5\")\n@kotlin.internal.InlineOnly\n@kotlin.internal.IntrinsicConstEvaluation\npublic inline fun Long.mod(other: Byte): Byte = \n   this.mod(other.toLong()).toByte()\n\n/** Divides this value by the other value, flooring the result to an integer that is closer to negative infinity.
*/\n@SinceKotlin(\"1.5\")\n@kotlin.internal.InlineOnly\n@kotlin.internal.IntrinsicConstEvaluation\npublic inline fun Long.floorDiv(other: Short): Long = \n   this.floorDiv(other.toLong())\n\n/**\n * Calculates the remainder of flooring division of this value by the other value.\n * \n * The result is either zero or has the same sign as the _divisor_ and has the absolute value less than the absolute value of the divisor.\n

*/\n@SinceKotlin(\"1.5\")\n@kotlin.internal.InlineOnly\n@kotlin.internal.IntrinsicConstEvaluation\npublic inline fun Long.mod(other: Short): Short = \n   this.mod(other.toLong()).toShort()\n\n/** Divides this value by the other value, flooring the result to an integer that is closer to negative infinity.
*/\n@SinceKotlin(\"1.5\")\n@kotlin.internal.InlineOnly\n@kotlin.internal.IntrinsicConstEvaluation\npublic inline fun Long.floorDiv(other: Int): Long = \n   this.floorDiv(other.toLong())\n\n/**\n * Calculates the remainder of flooring division of this value by the other value.\n * \n * The result is either zero or has the same sign as the _divisor_ and has the absolute value less than the absolute value of the divisor.\n
*/\n@SinceKotlin(\"1.5\")\n@kotlin.internal.InlineOnly\n@kotlin.internal.IntrinsicConstEvaluation\npublic inline fun Long.mod(other: Int): Int = \n   this.mod(other.toLong()).toInt()\n\n/** Divides this value by the other value, flooring the result to an integer that is closer to negative infinity.
*/\n@SinceKotlin(\"1.5\")\n@kotlin.internal.InlineOnly\n@kotlin.internal.IntrinsicConstEvaluation\npublic inline fun Long.floorDiv(other: Long): Long {\n   var q = this / other\n   if (this xor other < 0 && q * other != this) q-- \n   return q\n}\n\n/**\n * Calculates the remainder of flooring division of this value by the other value.\n * \n * The result is either zero or has the same sign as the _divisor_ and has the absolute value less than the absolute value of the divisor.\n
*/\n@SinceKotlin(\"1.5\")\n@kotlin.internal.InlineOnly\n@kotlin.internal.IntrinsicConstEvaluation\npublic inline fun Long.mod(other: Long): Long {\n   val r = this % other\n   return r + (other and (((r xor other) and (r or -r)) shr 63))\n}\n\n/**\n * Calculates the remainder of flooring division of this value by the other value.\n * \n * The result is either zero or has the same sign as the _divisor_ and has the absolute value less than the absolute value of the divisor.\n * \n * If the result cannot be represented exactly, it is rounded to the nearest representable number. In this case the absolute value of the result can be less than or _equal to_ the absolute value of the divisor.\n
*/\n@SinceKotlin(\"1.5\")\n@kotlin.internal.InlineOnly\n@kotlin.internal.IntrinsicConstEvaluation\npublic inline fun Float.mod(other: Float): Float {\n   val r = this % other\n   return if (r != 0.0.toFloat() && r.sign != other.sign) r + other else r\n}\n\n/**\n * Calculates the remainder of flooring division of this value by the other value.\n * \n * The result is either zero or has the same sign as the _divisor_ and has the absolute value less than the absolute value of the divisor.\n * \n * If the result cannot be represented exactly, it is rounded to the nearest representable number. In this case the absolute value of the result can be less than or _equal to_ the absolute value of the divisor.\n
*/\n@SinceKotlin(\"1.5\")\n@kotlin.internal.InlineOnly\n@kotlin.internal.IntrinsicConstEvaluation\npublic inline fun Float.mod(other: Double): Double = \n   this.toDouble().mod(other)\n\n/**\n * Calculates the remainder of flooring division of this value by the other value.\n * \n * The result is either zero or has the same sign as the _divisor_ and has the absolute value less than the absolute value of the divisor.\n * \n * If the result cannot be represented exactly, it is rounded to the nearest representable number. In this case the absolute value of the result can be less than or _equal to_ the absolute value of the divisor.\n
*/\n@SinceKotlin(\"1.5\")\n@kotlin.internal.InlineOnly\n@kotlin.internal.IntrinsicConstEvaluation\npublic inline fun Double.mod(other: Float): Double = \n   this.mod(other.toDouble())\n\n/**\n * Calculates the remainder of flooring division of this value by the other value.\n * \n * The result is either zero or has the same sign as the _divisor_ and has the absolute value less than the absolute value of the divisor.\n * \n * If the result cannot be represented exactly, it is rounded to the nearest representable number. In this case the absolute value of the result can be less than or _equal to_ the absolute value of the divisor.\n
/\n@SinceKotlin(\"1.5\")\n@kotlin.internal.InlineOnly\n@kotlin.internal.IntrinsicConstEvaluation\npublic inline fun Double.mod(other: Double): Double {\n   val r = this % other\n   return if (r != 0.0 && r.sign != other.sign) r + other else r\n}\n\n","/\n * Copyright 2010-2018 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin\n\nimport kotlin.internal.InlineOnly\n\n\n/**\n * Returns a hash code value for the object or zero if the object is `null`.\n *\n * @see Any.hashCode\n */\n@SinceKotlin(\"1.3\")\n@InlineOnly\npublic inline fun Any?.hashCode(): Int = this?.hashCode() ?: 0\n","/*\n * Copyright 2010-2020 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin\n\n/**\n * Represents a version of the Kotlin standard

library.\n *\n * [major], [minor] and [patch] are integer components of a version,\n * they must be non-negative and not greater than 255 ([MAX_COMPONENT_VALUE]).\n *\n * @constructor Creates a version from all three components.\n */\n@SinceKotlin(\"1.1\")\npublic class KotlinVersion(val major: Int, val minor: Int, val patch: Int) : Comparable<KotlinVersion> {\n /**\n * Creates a version from [major] and [minor] components, leaving [patch] component zero.\n */\n public constructor(major: Int, minor: Int) : this(major, minor, 0)\n\n private val version = versionOf(major, minor, patch)\n\n private fun versionOf(major: Int, minor: Int, patch: Int): Int {\n require(major in 0..MAX_COMPONENT_VALUE && minor in 0..MAX_COMPONENT_VALUE && patch in 0..MAX_COMPONENT_VALUE) {\n \"Version components are out of range: $major.$minor.$patch\"\n }\n return major.shl(16) + minor.shl(8) + patch\n }\n\n /**\n * Returns the string representation of this version\n */\n override fun toString(): String = \"$major.$minor.$patch\"\n\n override fun equals(other: Any?): Boolean {\n if (this === other) return true\n val otherVersion = (other as? KotlinVersion) ?: return false\n return this.version == otherVersion.version\n }\n\n override fun hashCode(): Int = version\n\n override fun compareTo(other: KotlinVersion): Int = version - other.version\n\n /**\n * Returns `true` if this version is not less than the version specified\n * with the provided [major] and [minor] components.\n */\n public fun isAtLeast(major: Int, minor: Int): Boolean = // this.version >= versionOf(major, minor, 0)\n this.major > major || (this.major == major &&\n this.minor >= minor)\n\n /**\n * Returns `true` if this version is not less than the version specified\n * with the provided [major], [minor] and [patch] components.\n */\n public fun isAtLeast(major: Int, minor: Int, patch: Int): Boolean = // this.version >= versionOf(major, minor, patch)\n this.major > major || (this.major == major &&\n (this.minor > minor || this.minor == minor &&\n this.patch >= patch))\n\n companion object {\n /**\n * Maximum value a version component can have, a constant value 255.\n */\n // NOTE: Must be placed before CURRENT because its initialization requires this field being initialized in JS\n public const val MAX_COMPONENT_VALUE = 255\n\n /**\n * Returns the current version of the Kotlin standard library.\n */\n @kotlin.jvm.JvmField\n public val CURRENT: KotlinVersion = KotlinVersionCurrentValue.get()\n }\n}\n\n// this class is ignored during classpath normalization when considering whether to recompile dependencies in Kotlin build\nprivate object KotlinVersionCurrentValue {\n @kotlin.jvm.JvmStatic\n fun get(): KotlinVersion = KotlinVersion(1, 7, 20) // value is written here automatically during build\n}","/*\n * Copyright 2010-2018 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\n@file:kotlin.jvm.JvmName(\"LateinitKt\")\n@file:Suppress(\"unused\")\n\npackage kotlin\n\nimport kotlin.internal.InlineOnly\nimport kotlin.internal.AccessibleLateinitPropertyLiteral\nimport kotlin.reflect.KProperty0\n\n/**\n * Returns `true` if this lateinit property has been assigned a value, and `false` otherwise.\n *\n * Cannot be used in an inline function, to avoid binary compatibility issues.\n */\n@SinceKotlin(\"1.2\")\n@InlineOnly\ninline val @receiver:AccessibleLateinitPropertyLiteral KProperty0<*>.isInitialized: Boolean\n get() = throw NotImplementedError(\"Implementation is intrinsic\")\n","/*\n * Copyright 2010-2018 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\n@file:kotlin.jvm.JvmName(\"LazyKt\")\n@file:kotlin.jvm.JvmMultifileClass\n\npackage kotlin\n\nimport kotlin.reflect.KProperty\n\n/**\n * Represents a value with lazy initialization.\n *\n * To create an instance of [Lazy] use the [lazy] function.\n */\npublic interface Lazy<out T> {\n /**\n * Gets the lazily initialized value of the current Lazy instance.\n * Once the value was initialized it must not change during the rest of lifetime of this Lazy instance.\n */\n public val value: T\n\n /**\n * Returns `true` if a value for this Lazy instance has been already initialized, and `false` otherwise.\n * Once this function has returned `true` it stays `true` for the rest of lifetime of this Lazy instance.\n */\n public fun isInitialized(): Boolean\n}\n\n/**\n * Creates a new instance of the [Lazy] that is already initialized with the specified [value].\n */\npublic fun <T> lazyOf(value: T): Lazy<T> = InitializedLazyImpl(value)\n\n/**\n * An extension to delegate a read-only property of type [T] to an instance of [Lazy].\n *\n * This extension allows to use instances of Lazy for property delegation:\n * `val property: String by lazy { initializer }`\n */\n@kotlin.internal.InlineOnly\npublic inline operator fun <T> Lazy<T>.getValue(thisRef:

Any?, property: KProperty<*>): T = value\n\n/**\n * Specifies how a [Lazy] instance synchronizes initialization among multiple threads.\n */\npublic enum class LazyThreadSafetyMode {\n\n   /**\n   * Locks are used to ensure that only a single thread can initialize the [Lazy] instance.\n   */\n   SYNCHRONIZED,\n\n   /**\n   * Initializer function can be called several times on concurrent access to uninitialized [Lazy] instance value,\n   * but only the first returned value will be used as the value of [Lazy] instance.\n   */\n   PUBLICATION,\n\n   /**\n   * No locks are used to synchronize an access to the [Lazy] instance value; if the instance is accessed from multiple threads, its behavior is undefined.\n   *\n   * This mode should not be used unless the [Lazy] instance is guaranteed never to be initialized from more than one thread.\n   */\n   NONE,\n}\n\n\ninternal object UNINITIALIZED_VALUE\n\n// internal to be called from lazy in JS\ninternal class UnsafeLazyImpl<out T>(initializer: () -> T) : Lazy<T>, Serializable {\n   private var initializer: (() -> T)? = initializer\n   private var _value: Any? = UNINITIALIZED_VALUE\n\n   override val value: T\n   get() {\n   if (_value === UNINITIALIZED_VALUE) {\n   _value = initializer!!()\n   initializer = null\n   }\n   @Suppress(\"UNCHECKED_CAST\")\n   return _value as T\n   }\n\n   override fun isInitialized(): Boolean = _value !== UNINITIALIZED_VALUE\n\n   override fun toString(): String = if (isInitialized()) value.toString() else \"Lazy value not initialized yet.\"\n\n   private fun writeReplace(): Any = InitializedLazyImpl(value)\n}\n\ninternal class InitializedLazyImpl<out T>(override val value: T) : Lazy<T>, Serializable {\n\n   override fun isInitialized(): Boolean = true\n\n   override fun toString(): String = value.toString()\n\n}\n","/*\n * Copyright 2010-2019 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\n@file:kotlin.jvm.JvmMultifileClass\n@file:kotlin.jvm.JvmName(\"NumbersKt\")\npackage kotlin\n\n/**\n * Counts the number of set bits in the binary representation of this [Int] number.\n */\n@SinceKotlin(\"1.4\")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic expect fun Int.countOneBits(): Int\n\n/**\n * Counts the number of consecutive most significant bits that are zero in the binary representation of this [Int] number.\n */\n@SinceKotlin(\"1.4\")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic expect fun Int.countLeadingZeroBits(): Int\n\n/**\n * Counts the number of consecutive least significant bits that are zero in the binary representation of this [Int] number.\n */\n@SinceKotlin(\"1.4\")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic expect fun Int.countTrailingZeroBits(): Int\n\n/**\n * Returns a number having a single bit set in the position of the most significant set bit of this [Int] number,\n * or zero, if this number is zero.\n */\n@SinceKotlin(\"1.4\")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic expect fun Int.takeHighestOneBit(): Int\n\n/**\n * Returns a number having a single bit set in the position of the least significant set bit of this [Int] number,\n * or zero, if this number is zero.\n */\n@SinceKotlin(\"1.4\")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic expect fun Int.takeLowestOneBit(): Int\n\n/**\n * Rotates the binary representation of this [Int] number left by the specified [bitCount] number of bits.\n * The most significant bits pushed out from the left side reenter the number as the least significant bits on the right side.\n *\n * Rotating the number left by a negative bit count is the same as rotating it right by the negated bit count:\n * `number.rotateLeft(-n) == number.rotateRight(n)`\n *\n * Rotating by a multiple of [Int.SIZE_BITS] (32) returns the same number, or more generally\n * `number.rotateLeft(n) == number.rotateLeft(n % 32)`\n */\n@SinceKotlin(\"1.6\")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic expect fun Int.rotateLeft(bitCount: Int): Int\n\n\n/**\n * Rotates the binary representation of this [Int] number right by the specified [bitCount] number of bits.\n * The least significant bits pushed out from the right side reenter the number as the most significant bits on the left side.\n *\n * Rotating the number right by a negative bit count is the same as rotating it left by the negated bit count:\n * `number.rotateRight(-n) == number.rotateLeft(n)`\n *\n * Rotating by a multiple of [Int.SIZE_BITS] (32) returns the same number, or more generally\n * `number.rotateRight(n) == number.rotateRight(n % 32)`\n

*/\n@SinceKotlin(\"1.6\")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic expect fun Int.rotateRight(bitCount: Int): Int\n\n\n/**\n * Counts the number of set bits in the binary representation of this [Long] number.\n */\n@SinceKotlin(\"1.4\")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic expect fun Long.countOneBits(): Int\n\n/**\n * Counts the number of consecutive most significant bits that are zero in the binary representation of this [Long] number.\n */\n@SinceKotlin(\"1.4\")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic expect fun Long.countLeadingZeroBits(): Int\n\n/**\n * Counts the number of consecutive least significant bits that are zero in the binary representation of this [Long] number.\n */\n@SinceKotlin(\"1.4\")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic expect fun Long.countTrailingZeroBits(): Int\n\n/**\n * Returns a number having a single bit set in the position of the most significant set bit of this [Long] number,\n * or zero, if this number is zero.\n */\n@SinceKotlin(\"1.4\")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic expect fun Long.takeHighestOneBit(): Long\n\n/**\n * Returns a number having a single bit set in the position of the least significant set bit of this [Long] number,\n * or zero, if this number is zero.\n */\n@SinceKotlin(\"1.4\")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic expect fun Long.takeLowestOneBit(): Long\n\n/**\n * Rotates the binary representation of this [Long] number left by the specified [bitCount] number of bits.\n * The most significant bits pushed out from the left side reenter the number as the least significant bits on the right side.\n *\n * Rotating the number left by a negative bit count is the same as rotating it right by the negated bit count:\n * `number.rotateLeft(-n) == number.rotateRight(n)`\n *\n * Rotating by a multiple of [Long.SIZE_BITS] (64) returns the same number, or more generally\n * `number.rotateLeft(n) == number.rotateLeft(n % 64)`\n */\n@SinceKotlin(\"1.6\")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic expect fun Long.rotateLeft(bitCount: Int): Long\n\n/**\n * Rotates the binary representation of this [Long] number right by the specified [bitCount] number of bits.\n * The least significant bits pushed out from the right side reenter the number as the most significant bits on the left side.\n *\n * Rotating the number right by a negative bit count is the same as rotating it left by the negated bit count:\n * `number.rotateRight(-n) == number.rotateLeft(n)`\n *\n * Rotating by a multiple of [Long.SIZE_BITS] (64) returns the same number, or more generally\n * `number.rotateRight(n) == number.rotateRight(n % 64)`\n */\n@SinceKotlin(\"1.6\")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic expect fun Long.rotateRight(bitCount: Int): Long\n\n/**\n * Counts the number of set bits in the binary representation of this [Byte] number.\n */\n@SinceKotlin(\"1.4\")\n@WasExperimental(ExperimentalStdlibApi::class)\n@kotlin.internal.InlineOnly\npublic inline fun Byte.countOneBits(): Int = (toInt() and 0xFF).countOneBits()\n\n/**\n * Counts the number of consecutive most significant bits that are zero in the binary representation of this [Byte] number.\n */\n@SinceKotlin(\"1.4\")\n@WasExperimental(ExperimentalStdlibApi::class)\n@kotlin.internal.InlineOnly\npublic inline fun Byte.countLeadingZeroBits(): Int = (toInt() and 0xFF).countLeadingZeroBits() - (Int.SIZE_BITS - Byte.SIZE_BITS)\n\n/**\n * Counts the number of consecutive least significant bits that are zero in the binary representation of this [Byte] number.\n */\n@SinceKotlin(\"1.4\")\n@WasExperimental(ExperimentalStdlibApi::class)\n@kotlin.internal.InlineOnly\npublic inline fun Byte.countTrailingZeroBits(): Int = (toInt() or 0x100).countTrailingZeroBits()\n\n/**\n * Returns a number having a single bit set in the position of the most significant set bit of this [Byte] number,\n * or zero, if this number is zero.\n */\n@SinceKotlin(\"1.4\")\n@WasExperimental(ExperimentalStdlibApi::class)\n@kotlin.internal.InlineOnly\npublic inline fun Byte.takeHighestOneBit(): Byte = (toInt() and 0xFF).takeHighestOneBit().toByte()\n\n/**\n * Returns a number having a single bit set in the position of the least significant set bit of this [Byte] number,\n * or zero, if this number is zero.\n */\n@SinceKotlin(\"1.4\")\n@WasExperimental(ExperimentalStdlibApi::class)\n@kotlin.internal.InlineOnly\npublic inline fun Byte.takeLowestOneBit(): Byte = toInt().takeLowestOneBit().toByte()\n\n\n/**\n * Rotates the binary

representation of this [Byte] number left by the specified [bitCount] number of bits.\n * The most significant bits pushed out from the left side reenter the number as the least significant bits on the right side.\n *\n * Rotating the number left by a negative bit count is the same as rotating it right by the negated bit count:\n * `number.rotateLeft(-n) == number.rotateRight(n)`\n *\n * Rotating by a multiple of [Byte.SIZE_BITS] (8) returns the same number, or more generally\n * `number.rotateLeft(n) == number.rotateLeft(n % 8)`\n */\n@SinceKotlin(\"1.6\")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic fun Byte.rotateLeft(bitCount: Int): Byte =\n   (toInt().shl(bitCount and 7) or (toInt() and 0xFF).ushr(8 - (bitCount and 7))).toByte()\n\n/**\n * Rotates the binary representation of this [Byte] number right by the specified [bitCount] number of bits.\n * The least significant bits pushed out from the right side reenter the number as the most significant bits on the left side.\n *\n * Rotating the number right by a negative bit count is the same as rotating it left by the negated bit count:\n * `number.rotateRight(-n) == number.rotateLeft(n)`\n *\n * Rotating by a multiple of [Byte.SIZE_BITS] (8) returns the same number, or more generally\n * `number.rotateRight(n) == number.rotateRight(n % 8)`\n */\n@SinceKotlin(\"1.6\")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic fun Byte.rotateRight(bitCount: Int): Byte =\n   (toInt().shl(8 - (bitCount and 7)) or (toInt() and 0xFF).ushr(bitCount and 7)).toByte()\n\n/**\n * Counts the number of set bits in the binary representation of this [Short] number.\n */\n@SinceKotlin(\"1.4\")\n@WasExperimental(ExperimentalStdlibApi::class)\n@kotlin.internal.InlineOnly\npublic inline fun Short.countOneBits(): Int = (toInt() and 0xFFFF).countOneBits()\n\n/**\n * Counts the number of consecutive most significant bits that are zero in the binary representation of this [Short] number.\n */\n@SinceKotlin(\"1.4\")\n@WasExperimental(ExperimentalStdlibApi::class)\n@kotlin.internal.InlineOnly\npublic inline fun Short.countLeadingZeroBits(): Int =\n   (toInt() and 0xFFFF).countLeadingZeroBits() - (Int.SIZE_BITS - Short.SIZE_BITS)\n\n/**\n * Counts the number of consecutive least significant bits that are zero in the binary representation of this [Short] number.\n */\n@SinceKotlin(\"1.4\")\n@WasExperimental(ExperimentalStdlibApi::class)\n@kotlin.internal.InlineOnly\npublic inline fun Short.countTrailingZeroBits(): Int = (toInt() or 0x10000).countTrailingZeroBits()\n\n/**\n * Returns a number having a single bit set in the position of the most significant set bit of this [Short] number,\n * or zero, if this number is zero.\n */\n@SinceKotlin(\"1.4\")\n@WasExperimental(ExperimentalStdlibApi::class)\n@kotlin.internal.InlineOnly\npublic inline fun Short.takeHighestOneBit(): Short = (toInt() and 0xFFFF).takeHighestOneBit().toShort()\n\n/**\n * Returns a number having a single bit set in the position of the least significant set bit of this [Short] number,\n * or zero, if this number is zero.\n */\n@SinceKotlin(\"1.4\")\n@WasExperimental(ExperimentalStdlibApi::class)\n@kotlin.internal.InlineOnly\npublic inline fun Short.takeLowestOneBit(): Short = toInt().takeLowestOneBit().toShort()\n\n\n/**\n * Rotates the binary representation of this [Short] number left by the specified [bitCount] number of bits.\n * The most significant bits pushed out from the left side reenter the number as the least significant bits on the right side.\n *\n * Rotating the number left by a negative bit count is the same as rotating it right by the negated bit count:\n * `number.rotateLeft(-n) == number.rotateRight(n)`\n *\n * Rotating by a multiple of [Short.SIZE_BITS] (16) returns the same number, or more generally\n * `number.rotateLeft(n) == number.rotateLeft(n % 16)`\n */\n@SinceKotlin(\"1.6\")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic fun Short.rotateLeft(bitCount: Int): Short =\n   (toInt().shl(bitCount and 15) or (toInt() and 0xFFFF).ushr(16 - (bitCount and 15))).toShort()\n\n/**\n * Rotates the binary representation of this [Short] number right by the specified [bitCount] number of bits.\n * The least significant bits pushed out from the right side reenter the number as the most significant bits on the left side.\n *\n * Rotating the number right by a negative bit count is the same as rotating it left by the negated bit count:\n * `number.rotateRight(-n) == number.rotateLeft(n)`\n *\n * Rotating by a multiple of [Short.SIZE_BITS] (16) returns the same number, or more generally\n * `number.rotateRight(n) == number.rotateRight(n % 16)`\n */\n@SinceKotlin(\"1.6\")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic fun Short.rotateRight(bitCount: Int): Short =\n   (toInt().shl(16 - (bitCount and 15)) or (toInt() and

0xFFFF).ushr(bitCount and 15)).toShort()\n","/*\n * Copyright 2010-2018 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin\nimport kotlin.internal.RequireKotlin\nimport kotlin.internal.RequireKotlinVersionKind\n\n@kotlin.internal.InlineOnly\n@SinceKotlin(\"1.2\")\n@Suppress(\"INVISIBLE_MEMBER\", \"INVISIBLE_REFERENCE\")\npublic inline fun <R> suspend(noinline block: suspend () -> R): suspend () -> R = block\n","/*\n * Copyright 2010-2018 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\n@file:kotlin.jvm.JvmName(\"TuplesKt\")\n\npackage kotlin\n\n\n/**\n * Represents a generic pair of two values.\n *\n * There is no meaning attached to values in this class, it can be used for any purpose.\n * Pair exhibits value semantics, i.e. two pairs are equal if both components are equal.\n *\n * An example of decomposing it into values:\n * @sample samples.misc.Tuples.pairDestructuring\n *\n * @param A type of the first value.\n * @param B type of the second value.\n * @property first First value.\n * @property second Second value.\n * @constructor Creates a new instance of Pair.\n */\npublic data class Pair<out A, out B>(\n public val first: A,\n public val second: B\n) : Serializable {\n\n /**\n * Returns string representation of the [Pair] including its [first] and [second] values.\n */\n public override fun toString(): String = \"($first, $second)\"\n}\n\n/**\n * Creates a tuple of type [Pair] from this and [that].\n *\n * This can be useful for creating [Map] literals with less noise, for example:\n * @sample samples.collections.Maps.Instantiation.mapFromPairs\n */\npublic infix fun <A, B> A.to(that: B): Pair<A, B> = Pair(this, that)\n\n/**\n * Converts this pair into a list.\n * @sample samples.misc.Tuples.pairToList\n */\npublic fun <T> Pair<T, T>.toList(): List<T> = listOf(first, second)\n\n/**\n * Represents a triad of values\n *\n * There is no meaning attached to values in this class, it can be used for any purpose.\n * Triple exhibits value semantics, i.e. two triples are equal if all three components are equal.\n * An example of decomposing it into values:\n * @sample samples.misc.Tuples.tripleDestructuring\n *\n * @param A type of the first value.\n * @param B type of the second value.\n * @param C type of the third value.\n * @property first First value.\n * @property second Second value.\n * @property third Third value.\n */\npublic data class Triple<out A, out B, out C>(\n public val first: A,\n public val second: B,\n public val third: C\n) : Serializable {\n\n /**\n * Returns string representation of the [Triple] including its [first], [second] and [third] values.\n */\n public override fun toString(): String = \"($first, $second, $third)\"\n}\n\n/**\n * Converts this triple into a list.\n * @sample samples.misc.Tuples.tripleToList\n */\npublic fun <T> Triple<T, T, T>.toList(): List<T> = listOf(first, second, third)\n","/*\n * Copyright 2010-2022 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\n// Auto-generated file. DO NOT EDIT!\n\npackage kotlin.ranges\n\n\n\nimport kotlin.internal.*\n\n/**\n * A range of values of type `UInt`.\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\n@OptIn(ExperimentalStdlibApi::class)\npublic class UIntRange(start: UInt, endInclusive: UInt) : UIntProgression(start, endInclusive, 1), ClosedRange<UInt>, OpenEndRange<UInt> {\n override val start: UInt get() = first\n override val endInclusive: UInt get() = last\n \n @SinceKotlin(\"1.7\")\n @ExperimentalStdlibApi\n @Deprecated(\"Can throw an exception when it's impossible to represent the value with UInt type, for example, when the range includes MAX_VALUE. It's recommended to use 'endInclusive' property that doesn't throw.\")\n override val endExclusive: UInt get() {\n if (last == UInt.MAX_VALUE) error(\"Cannot return the exclusive upper bound of a range that includes MAX_VALUE.\")\n return last + 1u\n }\n\n override fun contains(value: UInt): Boolean = first <= value && value <= last\n\n /** \n * Checks if the range is empty.\n \n * The range is empty if its start value is greater than the end value.\n */\n override fun isEmpty(): Boolean = first > last\n\n override fun equals(other: Any?): Boolean =\n other is UIntRange && (isEmpty() && other.isEmpty() ||\n first == other.first && last == other.last)\n\n override fun hashCode(): Int =\n if (isEmpty()) -1 else (31 * first.toInt() + last.toInt())\n\n override fun toString(): String = \"$first..$last\"\n\n companion object {\n /** An empty range of values of type UInt. */\n public val EMPTY: UIntRange = UIntRange(UInt.MAX_VALUE, UInt.MIN_VALUE)\n }\n}\n\n/**\n * A progression of values of type `UInt`.\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic open class

UIntProgression\ninternal constructor(\n   start: UInt,\n   endInclusive: UInt,\n   step: Int\n) : Iterable<UInt> {\n   init {\n   if (step == 0.toInt()) throw kotlin.IllegalArgumentException(\"Step must be non-zero.\")\n   if (step == Int.MIN_VALUE) throw kotlin.IllegalArgumentException(\"Step must be greater than Int.MIN_VALUE to avoid overflow on negation.\")\n   }\n\n   /**\n   * The first element in the progression.\n   */\n   public val first: UInt = start\n\n   /**\n   * The last element in the progression.\n   */\n   public val last: UInt = getProgressionLastElement(start, endInclusive, step)\n\n   /**\n   * The step of the progression.\n   */\n   public val step: Int = step\n\n   final override fun iterator(): Iterator<UInt> = UIntProgressionIterator(first, last, step)\n\n   /** \n   * Checks if the progression is empty.\n   \n   * Progression with a positive step is empty if its first element is greater than the last element.\n   * Progression with a negative step is empty if its first element is less than the last element.\n   */\n   public open fun isEmpty(): Boolean = if (step > 0) first > last else first < last\n\n   override fun equals(other: Any?): Boolean =\n   other is UIntProgression && (isEmpty() && other.isEmpty() ||\n   first == other.first && last == other.last && step == other.step)\n\n   override fun hashCode(): Int =\n   if (isEmpty()) -1 else (31 * (31 * first.toInt() + last.toInt()) + step.toInt())\n\n   override fun toString(): String = if (step > 0) \"$first..$last step $step\" else \"$first downTo $last step ${-step}\"\n\n   companion object {\n   /**\n   * Creates UIntProgression within the specified bounds of a closed range.\n\n   * The progression starts with the [rangeStart] value and goes toward the [rangeEnd] value not excluding it, with the specified [step].\n   * In order to go backwards the [step] must be negative.\n   *\n   * [step] must be greater than `Int.MIN_VALUE` and not equal to zero.\n   */\n   public fun fromClosedRange(rangeStart: UInt, rangeEnd: UInt, step: Int): UIntProgression = UIntProgression(rangeStart, rangeEnd, step)\n   }\n}\n\n\n/**\n * An iterator over a progression of values of type `UInt`.\n * @property step the number by which the value is incremented on each step.\n */\n@SinceKotlin(\"1.3\")\nprivate class UIntProgressionIterator(first: UInt, last: UInt, step: Int) : Iterator<UInt> {\n   private val finalElement = last\n   private var hasNext: Boolean = if (step > 0) first <= last else first >= last\n   private val step = step.toUInt() // use 2-complement math for negative steps\n   private var next = if (hasNext) first else finalElement\n\n   override fun hasNext(): Boolean = hasNext\n\n   override fun next(): UInt {\n   val value = next\n   if (value == finalElement) {\n   if (!hasNext) throw kotlin.NoSuchElementException()\n   hasNext = false\n   } else {\n   next += step\n   }\n   return value\n   }\n}\n\n","/*\n * Copyright 2010-2022 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\n// Auto-generated file. DO NOT EDIT!\n\npackage kotlin.ranges\n\n\n\nimport kotlin.internal.*\n\n/**\n * A range of values of type `ULong`.\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\n@OptIn(ExperimentalStdlibApi::class)\npublic class ULongRange(start: ULong, endInclusive: ULong) : ULongProgression(start, endInclusive, 1), ClosedRange<ULong>, OpenEndRange<ULong> {\n   override val start: ULong get() = first\n   override val endInclusive: ULong get() = last\n   \n   @SinceKotlin(\"1.7\")\n   @ExperimentalStdlibApi\n   @Deprecated(\"Can throw an exception when it's impossible to represent the value with ULong type, for example, when the range includes MAX_VALUE. It's recommended to use 'endInclusive' property that doesn't throw.\")\n   override val endExclusive: ULong get() {\n   if (last == ULong.MAX_VALUE) error(\"Cannot return the exclusive upper bound of a range that includes MAX_VALUE.\")\n   return last + 1u\n   }\n\n   override fun contains(value: ULong): Boolean = first <= value && value <= last\n\n   /** \n   * Checks if the range is empty.\n   \n   * The range is empty if its start value is greater than the end value.\n   */\n   override fun isEmpty(): Boolean = first > last\n\n   override fun equals(other: Any?): Boolean =\n   other is ULongRange && (isEmpty() && other.isEmpty() ||\n   first == other.first && last == other.last)\n\n   override fun hashCode(): Int =\n   if (isEmpty()) -1 else (31 * (first xor (first shr 32)).toInt() + (last xor (last shr 32)).toInt())\n\n   override fun toString(): String = \"$first..$last\"\n\n   companion object {\n   /** An empty range of values of type ULong. */\n   public val EMPTY: ULongRange = ULongRange(ULong.MAX_VALUE, ULong.MIN_VALUE)\n   }\n}\n\n/**\n * A progression of values of type `ULong`.\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic open class ULongProgression\ninternal constructor(\n   start: ULong,\n   endInclusive: ULong,\n   step: Long\n) : Iterable<ULong> {\n   init {\n   if (step == 0.toLong()) throw kotlin.IllegalArgumentException(\"Step must be non-zero.\")\n   if (step == Long.MIN_VALUE) throw kotlin.IllegalArgumentException(\"Step must be greater than Long.MIN_VALUE to avoid overflow on negation.\")\n   }\n\n   /**\n   * The first element in the progression.\n   */\n   public val first: ULong = start\n\n   /**\n   * The last element in the progression.\n   */\n   public val last: ULong = getProgressionLastElement(start, endInclusive, step)\n\n   /**\n   * The step of the progression.\n   */\n   public val step: Long = step\n\n   final override fun iterator(): Iterator<ULong> = ULongProgressionIterator(first, last, step)\n\n   /** \n   * Checks if the progression is empty.\n   \n   * Progression with a positive step is empty if its first element is greater than the last element.\n   * Progression with a negative step is empty if its first element is less than the last element.\n   */\n   public open fun isEmpty(): Boolean = if (step > 0) first > last else first < last\n\n   override fun equals(other: Any?): Boolean =\n   other is ULongProgression && (isEmpty() && other.isEmpty() ||\n   first == other.first && last == other.last && step == other.step)\n\n   override fun hashCode(): Int =\n   if (isEmpty()) -1 else (31 * (31 * (first xor (first shr 32)).toInt() + (last xor (last shr 32)).toInt()) + (step xor (step ushr 32)).toInt())\n\n   override fun toString(): String = if (step > 0) \"$first..$last step $step\" else \"$first downTo $last step ${-step}\"\n\n   companion object {\n   /**\n   * Creates ULongProgression within the specified bounds of a closed range.\n\n   * The progression starts with the [rangeStart] value and goes toward the [rangeEnd] value not excluding it, with the specified [step].\n   * In order to go backwards the [step] must be negative.\n   *\n   * [step] must be greater than `Long.MIN_VALUE` and not equal to zero.\n   */\n   public fun fromClosedRange(rangeStart: ULong, rangeEnd: ULong, step: Long): ULongProgression = ULongProgression(rangeStart, rangeEnd, step)\n   }\n}\n\n\n/**\n * An iterator over a progression of values of type `ULong`.\n * @property step the number by which the value is incremented on each step.\n */\n@SinceKotlin(\"1.3\")\nprivate class ULongProgressionIterator(first: ULong, last: ULong, step: Long) : Iterator<ULong> {\n   private val finalElement = last\n   private var hasNext: Boolean = if (step > 0) first <= last else first >= last\n   private val step = step.toULong() // use 2-complement math for negative steps\n   private var next = if (hasNext) first else finalElement\n\n   override fun hasNext(): Boolean = hasNext\n\n   override fun next(): ULong {\n   val value = next\n   if (value == finalElement) {\n   if (!hasNext) throw kotlin.NoSuchElementException()\n   hasNext = false\n   } else {\n   next += step\n   }\n   return value\n   }\n}\n\n","/*\n * Copyright 2010-2021 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin.math\n\n/**\n * Returns the smaller of two values.\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\n@kotlin.internal.InlineOnly\npublic inline fun min(a: UInt, b: UInt): UInt {\n   return minOf(a, b)\n}\n\n/**\n * Returns the smaller of two values.\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\n@kotlin.internal.InlineOnly\npublic inline fun min(a: ULong, b: ULong): ULong {\n   return minOf(a, b)\n}\n\n/**\n * Returns the greater of two values.\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\n@kotlin.internal.InlineOnly\npublic inline fun max(a: UInt, b: UInt): UInt {\n   return maxOf(a, b)\n}\n\n/**\n * Returns the greater of two values.\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\n@kotlin.internal.InlineOnly\npublic inline fun max(a: ULong, b: ULong): ULong {\n   return maxOf(a, b)\n}","/*\n * Copyright 2010-2021 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\n@file:kotlin.jvm.JvmName(\"UNumbersKt\")\npackage kotlin\n\n/**\n * Counts the number of set bits in the binary representation of this [UInt] number.\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class, ExperimentalStdlibApi::class)\n@kotlin.internal.InlineOnly\npublic inline fun UInt.countOneBits(): Int = toInt().countOneBits()\n\n/**\n * Counts the number of consecutive most significant bits that are zero in the binary representation of this [UInt] number.\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class, ExperimentalStdlibApi::class)\n@kotlin.internal.InlineOnly\npublic inline fun UInt.countLeadingZeroBits(): Int = toInt().countLeadingZeroBits()\n\n/**\n * Counts the number of consecutive least significant bits that are zero in the binary representation of this [UInt] number.\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class, ExperimentalStdlibApi::class)\n@kotlin.internal.InlineOnly\npublic inline fun UInt.countTrailingZeroBits(): Int = toInt().countTrailingZeroBits()\n\n/**\n * Returns a number having a single bit set in the position of the most significant set bit of this [UInt] number,\n * or zero, if this number is zero.\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class, ExperimentalStdlibApi::class)\n@kotlin.internal.InlineOnly\npublic inline fun UInt.takeHighestOneBit(): UInt = toInt().takeHighestOneBit().toUInt()\n\n/**\n * Returns a number having a single bit set in the position of the least significant set bit of this [UInt] number,\n * or zero, if this number is zero.\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class, ExperimentalStdlibApi::class)\n@kotlin.internal.InlineOnly\npublic inline fun UInt.takeLowestOneBit(): UInt = toInt().takeLowestOneBit().toUInt()\n\n/**\n * Rotates the binary representation of this [UInt] number left by the specified [bitCount] number of bits.\n * The most significant bits pushed out from the left side reenter the number as the least significant bits on the right side.\n *\n * Rotating the number left by a negative bit count is the same as rotating it right by the negated bit count:\n * `number.rotateLeft(-n) == number.rotateRight(n)`\n *\n * Rotating by a multiple of [UInt.SIZE_BITS] (32) returns the same number, or more generally\n * `number.rotateLeft(n) == number.rotateLeft(n % 32)`\n */\n@SinceKotlin(\"1.6\")\n@WasExperimental(ExperimentalStdlibApi::class, ExperimentalUnsignedTypes::class)\n@kotlin.internal.InlineOnly\npublic inline fun UInt.rotateLeft(bitCount: Int): UInt = toInt().rotateLeft(bitCount).toUInt()\n\n\n/**\n * Rotates the binary representation of this [UInt] number right by the specified [bitCount] number of bits.\n * The least significant bits pushed out from the right side reenter the number as the most significant bits on the left side.\n *\n * Rotating the number right by a negative bit count is the same as rotating it left by the negated bit count:\n * `number.rotateRight(-n) == number.rotateLeft(n)`\n *\n * Rotating by a multiple of [UInt.SIZE_BITS] (32) returns the same number, or more generally\n * `number.rotateRight(n) == number.rotateRight(n % 32)`\n */\n@SinceKotlin(\"1.6\")\n@WasExperimental(ExperimentalStdlibApi::class, ExperimentalUnsignedTypes::class)\n@kotlin.internal.InlineOnly\npublic inline fun UInt.rotateRight(bitCount: Int): UInt = toInt().rotateRight(bitCount).toUInt()\n\n\n/**\n * Counts the number of set bits in the binary representation of this [ULong] number.\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class, ExperimentalStdlibApi::class)\n@kotlin.internal.InlineOnly\npublic inline fun ULong.countOneBits(): Int = toLong().countOneBits()\n\n/**\n * Counts the number of consecutive most significant bits that are zero in the binary representation of this [ULong] number.\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class, ExperimentalStdlibApi::class)\n@kotlin.internal.InlineOnly\npublic inline fun ULong.countLeadingZeroBits(): Int = toLong().countLeadingZeroBits()\n\n/**\n * Counts the number of consecutive least significant bits that are zero in the binary representation of this [ULong] number.\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class, ExperimentalStdlibApi::class)\n@kotlin.internal.InlineOnly\npublic inline fun ULong.countTrailingZeroBits(): Int = toLong().countTrailingZeroBits()\n\n/**\n * Returns a number having a single bit set in the position of the most significant set bit of this [ULong] number,\n * or zero, if this number is zero.\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class, ExperimentalStdlibApi::class)\n@kotlin.internal.InlineOnly\npublic inline fun ULong.takeHighestOneBit(): ULong = toLong().takeHighestOneBit().toULong()\n\n/**\n * Returns a number having a single bit set in the position of the least significant set bit of this [ULong] number,\n * or zero, if this number is zero.\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class, ExperimentalStdlibApi::class)\n@kotlin.internal.InlineOnly\npublic inline fun ULong.takeLowestOneBit(): ULong = toLong().takeLowestOneBit().toULong()\n\n/**\n * Rotates the binary representation of this [ULong] number left by the specified [bitCount] number of bits.\n * The most significant bits pushed out from the left side reenter the number as the least significant bits on the right side.\n *\n * Rotating the number left by a negative bit count is the same as rotating it right by the negated bit count:\n * `number.rotateLeft(-n) == number.rotateRight(n)`\n *\n * Rotating by a multiple of [ULong.SIZE_BITS] (64) returns the same number, or more generally\n * `number.rotateLeft(n) == number.rotateLeft(n % 64)`\n */\n@SinceKotlin(\"1.6\")\n@WasExperimental(ExperimentalStdlibApi::class, ExperimentalUnsignedTypes::class)\n@kotlin.internal.InlineOnly\npublic inline fun ULong.rotateLeft(bitCount: Int): ULong = toLong().rotateLeft(bitCount).toULong()\n\n/**\n * Rotates the binary representation of this [ULong] number right by the specified [bitCount] number of bits.\n * The least significant bits pushed out from the right side reenter the number as the most significant bits on the left side.\n *\n * Rotating the number right by a negative bit count is the same as rotating it left by the negated bit count:\n * `number.rotateRight(-n) == number.rotateLeft(n)`\n *\n * Rotating by a multiple of [ULong.SIZE_BITS] (64) returns the same number, or more generally\n * `number.rotateRight(n) == number.rotateRight(n % 64)`\n */\n@SinceKotlin(\"1.6\")\n@WasExperimental(ExperimentalStdlibApi::class, ExperimentalUnsignedTypes::class)\n@kotlin.internal.InlineOnly\npublic inline fun ULong.rotateRight(bitCount: Int): ULong = toLong().rotateRight(bitCount).toULong()\n\n/**\n * Counts the number of set bits in the binary representation of this [UByte] number.\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class, ExperimentalStdlibApi::class)\n@kotlin.internal.InlineOnly\npublic inline fun UByte.countOneBits(): Int = toUInt().countOneBits()\n\n/**\n * Counts the number of consecutive most significant bits that are zero in the binary representation of this [UByte] number.\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class, ExperimentalStdlibApi::class)\n@kotlin.internal.InlineOnly\npublic inline fun UByte.countLeadingZeroBits(): Int = toByte().countLeadingZeroBits()\n\n/**\n * Counts the number of consecutive least significant bits that are zero in the binary representation of this [UByte] number.\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class, ExperimentalStdlibApi::class)\n@kotlin.internal.InlineOnly\npublic inline fun UByte.countTrailingZeroBits(): Int = toByte().countTrailingZeroBits()\n\n/**\n * Returns a number having a single bit set in the position of the most significant set bit of this [UByte] number,\n * or zero, if this number is zero.\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class, ExperimentalStdlibApi::class)\n@kotlin.internal.InlineOnly\npublic inline fun UByte.takeHighestOneBit(): UByte = toInt().takeHighestOneBit().toUByte()\n\n/**\n * Returns a number having a single bit set in the position of the least significant set bit of this [UByte] number,\n * or zero, if this number is zero.\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class, ExperimentalStdlibApi::class)\n@kotlin.internal.InlineOnly\npublic inline fun UByte.takeLowestOneBit(): UByte = toInt().takeLowestOneBit().toUByte()\n\n\n/**\n * Rotates the binary representation of this [UByte] number left by the specified [bitCount] number of bits.\n * The most significant bits pushed out from the left side reenter the number as the least significant bits on the right side.\n *\n * Rotating the number left by a negative bit count is the same as rotating it right by the negated bit count:\n * `number.rotateLeft(-n) == number.rotateRight(n)`\n *\n * Rotating by a multiple of [UByte.SIZE_BITS] (8) returns the same number, or more generally\n * `number.rotateLeft(n) == number.rotateLeft(n % 8)`\n */\n@SinceKotlin(\"1.6\")\n@WasExperimental(ExperimentalStdlibApi::class, ExperimentalUnsignedTypes::class)\n@kotlin.internal.InlineOnly\npublic inline fun UByte.rotateLeft(bitCount: Int): UByte = toByte().rotateLeft(bitCount).toUByte()\n\n/**\n * Rotates the binary representation of this [UByte] number right by the specified [bitCount] number of bits.\n * The least significant bits pushed out from the right side reenter the number as the most significant bits on the left side.\n *\n * Rotating the number right by a negative bit count is the same as rotating it left by the negated bit count:\n * `number.rotateRight(-n) == number.rotateLeft(n)`\n *\n * Rotating by a multiple of [UByte.SIZE_BITS] (8) returns the same number, or more generally\n * `number.rotateRight(n) == number.rotateRight(n % 8)`\n */\n@SinceKotlin(\"1.6\")\n@WasExperimental(ExperimentalStdlibApi::class, ExperimentalUnsignedTypes::class)\n@kotlin.internal.InlineOnly\npublic inline fun UByte.rotateRight(bitCount: Int): UByte = toByte().rotateRight(bitCount).toUByte()\n\n/**\n * Counts the number of set bits in the binary representation of this [UShort] number.\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class, ExperimentalStdlibApi::class)\n@kotlin.internal.InlineOnly\npublic inline fun UShort.countOneBits(): Int = toUInt().countOneBits()\n\n/**\n * Counts the number of consecutive most significant bits that are zero in the binary representation of this [UShort] number.\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class, ExperimentalStdlibApi::class)\n@kotlin.internal.InlineOnly\npublic inline fun UShort.countLeadingZeroBits(): Int = toShort().countLeadingZeroBits()\n\n/**\n * Counts the number of consecutive least significant bits that are zero in the binary representation of this [UShort] number.\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class, ExperimentalStdlibApi::class)\n@kotlin.internal.InlineOnly\npublic inline fun UShort.countTrailingZeroBits(): Int = toShort().countTrailingZeroBits()\n\n/**\n * Returns a number having a single bit set in the position of the most significant set bit of this [UShort] number,\n * or zero, if this number is zero.\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class, ExperimentalStdlibApi::class)\n@kotlin.internal.InlineOnly\npublic inline fun UShort.takeHighestOneBit(): UShort = toInt().takeHighestOneBit().toUShort()\n\n/**\n * Returns a number having a single bit set in the position of the least significant set bit of this [UShort] number,\n * or zero, if this number is zero.\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class, ExperimentalStdlibApi::class)\n@kotlin.internal.InlineOnly\npublic inline fun UShort.takeLowestOneBit(): UShort = toInt().takeLowestOneBit().toUShort()\n\n\n/**\n * Rotates the binary representation of this [UShort] number left by the specified [bitCount] number of bits.\n * The most significant bits pushed out from the left side reenter the number as the least significant bits on the right side.\n *\n * Rotating the number left by a negative bit count is the same as rotating it right by the negated bit count:\n * `number.rotateLeft(-n) == number.rotateRight(n)`\n *\n * Rotating by a multiple of [UShort.SIZE_BITS] (16) returns the same number, or more generally\n * `number.rotateLeft(n) == number.rotateLeft(n % 16)`\n */\n@SinceKotlin(\"1.6\")\n@WasExperimental(ExperimentalStdlibApi::class, ExperimentalUnsignedTypes::class)\n@kotlin.internal.InlineOnly\npublic inline fun UShort.rotateLeft(bitCount: Int): UShort = toShort().rotateLeft(bitCount).toUShort()\n\n/**\n * Rotates the binary representation of this [UShort] number right by the specified [bitCount] number of bits.\n * The least significant bits pushed out from the right side reenter the number as the most significant bits on the left side.\n *\n * Rotating the number right by a negative bit count is the same as rotating it left by the negated bit count:\n * `number.rotateRight(-n) == number.rotateLeft(n)`\n *\n * Rotating by a multiple of [UShort.SIZE_BITS] (16) returns the same number, or more generally\n * `number.rotateRight(n) == number.rotateRight(n % 16)`\n */\n@SinceKotlin(\"1.6\")\n@WasExperimental(ExperimentalStdlibApi::class, ExperimentalUnsignedTypes::class)\n@kotlin.internal.InlineOnly\npublic inline fun UShort.rotateRight(bitCount: Int): UShort = toShort().rotateRight(bitCount).toUShort()\n","/*\n * Copyright 2010-2021 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin.internal\n\n// (a - b) mod c\nprivate fun differenceModulo(a: UInt, b: UInt, c: UInt): UInt {\n   val ac = a % c\n   val bc = b % c\n   return if (ac >= bc) ac - bc else ac - bc + c\n}\n\nprivate fun differenceModulo(a: ULong, b: ULong, c: ULong): ULong {\n   val ac = a % c\n   val bc = b % c\n   return if (ac >= bc) ac - bc else ac - bc + c\n}\n\n/**\n * Calculates the final element of a bounded arithmetic progression, i.e. the last element of the progression which is in the range\n * from [start] to [end] in case of a positive [step], or from [end] to [start] in case of a negative\n * [step].\n *\n * No validation on passed parameters is performed. The given parameters should satisfy the condition:\n *\n * - either `step > 0` and `start <=

end`,\n * - or `step < 0` and `start >= end`.\n *\n * @param start first element of the progression\n * @param end ending bound for the progression\n * @param step increment, or difference of successive elements in the progression\n * @return the final element of the progression\n * @suppress\n */\n@PublishedApi\n@SinceKotlin(\"1.3\")\ninternal fun getProgressionLastElement(start: UInt, end: UInt, step: Int): UInt = when {\n   step > 0 -> if (start >= end) end else end - differenceModulo(end, start, step.toUInt())\n   step < 0 -> if (start <= end) end else end + differenceModulo(start, end, (-step).toUInt())\n   else -> throw kotlin.IllegalArgumentException(\"Step is zero.\")\n}\n\n/**\n * Calculates the final element of a bounded arithmetic progression, i.e. the last element of the progression which is in the range\n * from [start] to [end] in case of a positive [step], or from [end] to [start] in case of a negative\n * [step].\n *\n * No validation on passed parameters is performed. The given parameters should satisfy the condition:\n *\n * - either `step > 0` and `start <= end`,\n * - or `step < 0` and `start >= end`.\n *\n * @param start first element of the progression\n * @param end ending bound for the progression\n * @param step increment, or difference of successive elements in the progression\n * @return the final element of the progression\n * @suppress\n */\n@PublishedApi\n@SinceKotlin(\"1.3\")\ninternal fun getProgressionLastElement(start: ULong, end: ULong, step: Long): ULong = when {\n   step > 0 -> if (start >= end) end else end - differenceModulo(end, start, step.toULong())\n   step < 0 -> if (start <= end) end else end + differenceModulo(start, end, (-step).toULong())\n   else -> throw kotlin.IllegalArgumentException(\"Step is zero.\")\n}\n","/*\n * Copyright 2010-2021 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\n@file:kotlin.jvm.JvmName(\"UStringsKt\") // string representation of unsigned numbers\n\npackage kotlin.text\n\n/**\n * Returns a string representation of this [Byte] value in the specified [radix].\n *\n * @throws IllegalArgumentException when [radix] is not a valid radix for number to string conversion.\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\n//@kotlin.internal.InlineOnly\npublic /*inline*/ fun UByte.toString(radix: Int): String = this.toInt().toString(radix)\n\n/**\n * Returns a string representation of this [Short] value in the specified [radix].\n *\n * @throws IllegalArgumentException when [radix] is not a valid radix for number to string conversion.\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\n//@kotlin.internal.InlineOnly\npublic /*inline*/ fun UShort.toString(radix: Int): String = this.toInt().toString(radix)\n\n\n/**\n * Returns a string representation of this [Int] value in the specified [radix].\n *\n * @throws IllegalArgumentException when [radix] is not a valid radix for number to string conversion.\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\n//@kotlin.internal.InlineOnly\npublic /*inline*/ fun UInt.toString(radix: Int): String = this.toLong().toString(radix)\n\n/**\n * Returns a string representation of this [Long] value in the specified [radix].\n *\n * @throws IllegalArgumentException when [radix] is not a valid radix for number to string conversion.\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic fun ULong.toString(radix: Int): String = ulongToString(this.toLong(), checkRadix(radix))\n\n\n/**\n * Parses the string as a signed [UByte] number and returns the result.\n * @throws NumberFormatException if the string is not a valid representation of a number.\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic fun String.toUByte(): UByte = toUByteOrNull() ?: numberFormatError(this)\n\n/**\n * Parses the string as a signed [UByte] number and returns the result.\n * @throws NumberFormatException if the string is not a valid representation of a number.\n * @throws IllegalArgumentException when [radix] is not a valid radix for string to number conversion.\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic fun String.toUByte(radix: Int): UByte = toUByteOrNull(radix) ?: numberFormatError(this)\n\n\n/**\n * Parses the string as a [UShort] number and returns the result.\n * @throws NumberFormatException if the string is not a valid representation of a number.\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic fun String.toUShort(): UShort = toUShortOrNull() ?: numberFormatError(this)\n\n/**\n * Parses the string as a [UShort] number and

returns the result.\n * @throws NumberFormatException if the string is not a valid representation of a number.\n * @throws IllegalArgumentException when [radix] is not a valid radix for string to number conversion.\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic fun String.toUShort(radix: Int): UShort = toUShortOrNull(radix) ?: numberFormatError(this)\n\n/**\n * Parses the string as an [UInt] number and returns the result.\n * @throws NumberFormatException if the string is not a valid representation of a number.\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic fun String.toUInt(): UInt = toUIntOrNull() ?: numberFormatError(this)\n\n/**\n * Parses the string as an [UInt] number and returns the result.\n * @throws NumberFormatException if the string is not a valid representation of a number.\n * @throws IllegalArgumentException when [radix] is not a valid radix for string to number conversion.\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic fun String.toUInt(radix: Int): UInt = toUIntOrNull(radix) ?: numberFormatError(this)\n\n/**\n * Parses the string as a [ULong] number and returns the result.\n * @throws NumberFormatException if the string is not a valid representation of a number.\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic fun String.toULong(): ULong = toULongOrNull() ?: numberFormatError(this)\n\n/**\n * Parses the string as a [ULong] number and returns the result.\n * @throws NumberFormatException if the string is not a valid representation of a number.\n * @throws IllegalArgumentException when [radix] is not a valid radix for string to number conversion.\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic fun String.toULong(radix: Int): ULong = toULongOrNull(radix) ?: numberFormatError(this)\n\n\n\n\n/**\n * Parses the string as an [UByte] number and returns the result\n * or `null` if the string is not a valid representation of a number.\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic fun String.toUByteOrNull(): UByte? = toUByteOrNull(radix = 10)\n\n/**\n * Parses the string as an [UByte] number and returns the result\n * or `null` if the string is not a valid representation of a number.\n *\n * @throws IllegalArgumentException when [radix] is not a valid radix for string to number conversion.\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic fun String.toUByteOrNull(radix: Int): UByte? {\n   val int = this.toUIntOrNull(radix) ?: return null\n   if (int > UByte.MAX_VALUE) return null\n   return int.toUByte()\n}\n\n/**\n * Parses the string as an [UShort] number and returns the result\n * or `null` if the string is not a valid representation of a number.\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic fun String.toUShortOrNull(): UShort? = toUShortOrNull(radix = 10)\n\n/**\n * Parses the string as an [UShort] number and returns the result\n * or `null` if the string is not a valid representation of a number.\n *\n * @throws IllegalArgumentException when [radix] is not a valid radix for string to number conversion.\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic fun String.toUShortOrNull(radix: Int): UShort? {\n   val int = this.toUIntOrNull(radix) ?: return null\n   if (int > UShort.MAX_VALUE) return null\n   return int.toUShort()\n}\n\n/**\n * Parses the string as an [UInt] number and returns the result\n * or `null` if the string is not a valid representation of a number.\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic fun String.toUIntOrNull(): UInt? = toUIntOrNull(radix = 10)\n\n/**\n * Parses the string as an [UInt] number and returns the result\n * or `null` if the string is not a valid representation of a number.\n *\n * @throws IllegalArgumentException when [radix] is not a valid radix for string to number conversion.\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic fun String.toUIntOrNull(radix: Int): UInt? {\n   checkRadix(radix)\n\n   val length = this.length\n   if (length == 0) return null\n\n   val limit: UInt = UInt.MAX_VALUE\n   val start: Int\n\n   val firstChar = this[0]\n   if (firstChar < '0') {\n   if (length == 1 || firstChar != '+') return null\n   start = 1\n   } else {\n   start = 0\n   }\n\n   val limitForMaxRadix = 119304647u // limit / 36\n\n   var limitBeforeMul = limitForMaxRadix\n   val uradix = radix.toUInt()\n   var result = 0u\n   for (i in start until length) {\n   val digit = digitOf(this[i], radix)\n\n   if (digit < 0) return null\n   if (result > limitBeforeMul) {\n   if (limitBeforeMul == limitForMaxRadix) {\n limitBeforeMul = limit / uradix\n\n if (result > limitBeforeMul) {\n return null\n }\n } else {\n return null\n }\n }\n\n result *= uradix\n\n val beforeAdding = result\n result += digit.toUInt()\n if (result < beforeAdding) return null // overflow has happened\n }\n\n return result\n}\n\n/**\n * Parses the string as an [ULong] number and returns the result\n * or `null` if the string is not a valid representation of a number.\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic fun String.toULongOrNull(): ULong? = toULongOrNull(radix = 10)\n\n/**\n * Parses the string as an [ULong] number and returns the result\n * or `null` if the string is not a valid representation of a number.\n *\n * @throws IllegalArgumentException when [radix] is not a valid radix for string to number conversion.\n */\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic fun String.toULongOrNull(radix: Int): ULong? {\n checkRadix(radix)\n\n val length = this.length\n if (length == 0) return null\n\n val limit: ULong = ULong.MAX_VALUE\n val start: Int\n\n val firstChar = this[0]\n if (firstChar < '0') {\n if (length == 1 || firstChar != '+') return null\n start = 1\n } else {\n start = 0\n }\n\n val limitForMaxRadix = 512409557603043100uL // limit / 36\n\n var limitBeforeMul = limitForMaxRadix\n val uradix = radix.toULong()\n var result = 0uL\n for (i in start until length) {\n val digit = digitOf(this[i], radix)\n\n if (digit < 0) return null\n if (result > limitBeforeMul) {\n if (limitBeforeMul == limitForMaxRadix) {\n limitBeforeMul = limit / uradix\n\n if (result > limitBeforeMul) {\n return null\n }\n } else {\n return null\n }\n }\n\n result *= uradix\n\n val beforeAdding = result\n result += digit.toUInt()\n if (result < beforeAdding) return null // overflow has happened\n }\n\n return result\n}\n","/*\n * Copyright 2010-2018 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\n@file:Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\npackage kotlin\n\nimport kotlin.annotation.AnnotationTarget.*\nimport kotlin.internal.RequireKotlin\nimport kotlin.internal.RequireKotlinVersionKind\n\n/**\n * Marks the API that is dependent on the experimental unsigned types, including those types themselves.\n *\n * Usages of such API will be reported as warnings unless an explicit opt-in with\n * the [OptIn] annotation, e.g. `@OptIn(ExperimentalUnsignedTypes::class)`,\n * or with the `-opt-in=kotlin.ExperimentalUnsignedTypes` compiler option is given.\n *\n * It's recommended to propagate the experimental status to the API that depends on unsigned types by annotating it with this annotation.\n */\n@RequiresOptIn(level = RequiresOptIn.Level.WARNING)\n@MustBeDocumented\n@Target(CLASS, ANNOTATION_CLASS, PROPERTY, FIELD, LOCAL_VARIABLE, VALUE_PARAMETER, CONSTRUCTOR, FUNCTION, PROPERTY_GETTER, PROPERTY_SETTER, TYPEALIAS)\n@Retention(AnnotationRetention.BINARY)\npublic annotation class ExperimentalUnsignedTypes\n","/*\n * Copyright 2010-2018 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\n@file:kotlin.jvm.JvmMultifileClass\n@file:kotlin.jvm.JvmName(\"MathKt\")\n\n\npackage kotlin.math\n\n\n\n\n// constants, can't use them from nativeMath as they are not constants there\n\n/** Ratio of the circumference of a circle to its diameter, approximately 3.14159. */\n@SinceKotlin(\"1.2\")\npublic const val PI: Double = 3.141592653589793\n/** Base of the natural logarithms, approximately 2.71828. */\n@SinceKotlin(\"1.2\")\npublic const val E: Double = 2.718281828459045\n\n// region ================ Double Math ==\n\n/** Computes the sine of the angle [x] given in radians.\n *\n * Special cases:\n * - `sin(NaN|+Inf|-Inf)` is `NaN`\n */\n@SinceKotlin(\"1.2\")\npublic expect fun sin(x: Double): Double\n\n/** Computes the cosine of the angle [x] given in radians.\n *\n * Special cases:\n * - `cos(NaN|+Inf|-Inf)` is `NaN`\n */\n@SinceKotlin(\"1.2\")\npublic expect fun cos(x: Double): Double\n\n/** Computes the tangent of the angle [x] given in radians.\n *\n * Special cases:\n * - `tan(NaN|+Inf|-Inf)` is `NaN`\n */\n@SinceKotlin(\"1.2\")\npublic expect fun tan(x: Double): Double\n\n/**\n * Computes the arc sine of the value [x];\n * the returned value is an angle in the range from `-PI/2` to `PI/2` radians.\n *\n * Special cases:\n * - `asin(x)` is `NaN`, when `abs(x) > 1` or x is `NaN`\n */\n@SinceKotlin(\"1.2\")\npublic expect fun asin(x: Double): Double\n\n/**\n * Computes the arc cosine of the value [x];\n * the returned value is an angle in the range from `0.0` to `PI` radians.\n *\n * Special cases:\n * - `acos(x)` is `NaN`, when `abs(x) > 1` or x is `NaN`\n */\n@SinceKotlin(\"1.2\")\npublic expect fun acos(x: Double): Double\n\n/**\n * Computes the arc tangent of the value [x];\n * the returned value is an angle in the range from `-PI/2` to `PI/2` radians.\n *\n * Special cases:\n * - `atan(NaN)` is `NaN`\n */\n@SinceKotlin(\"1.2\")\npublic expect fun atan(x: Double): Double\n\n/**\n * Returns the angle `theta` of the polar coordinates `(r, theta)` that correspond\n * to the rectangular coordinates `(x, y)` by computing the arc tangent of the value [y] / [x];\n * the returned value is an angle in the range from `-PI` to `PI` radians.\n *\n * Special cases:\n * - `atan2(0.0, 0.0)` is `0.0`\n * - `atan2(0.0, x)` is `0.0` for `x > 0` and `PI` for `x < 0`\n * - `atan2(-0.0, x)` is `-0.0` for 'x > 0` and `-PI` for `x < 0`\n * - `atan2(y, +Inf)` is `0.0` for `0 < y < +Inf` and `-0.0` for '-Inf < y < 0`\n * - `atan2(y, -Inf)` is `PI` for `0 < y < +Inf` and `-PI` for `-Inf < y < 0`\n * - `atan2(y, 0.0)` is `PI/2` for `y > 0` and `-PI/2` for `y < 0`\n * - `atan2(+Inf, x)` is `PI/2` for finite `x`y\n * - `atan2(-Inf, x)` is `-PI/2` for finite `x`\n * - `atan2(NaN, x)` and `atan2(y, NaN)` is `NaN`\n */\n@SinceKotlin(\"1.2\")\npublic expect fun atan2(y: Double, x: Double): Double\n\n/**\n * Computes the hyperbolic sine of the value [x].\n *\n * Special cases:\n * - `sinh(NaN)` is `NaN`\n * - `sinh(+Inf)` is `+Inf`\n * - `sinh(-Inf)` is `-Inf`\n */\n@SinceKotlin(\"1.2\")\npublic expect fun sinh(x: Double): Double\n\n/**\n * Computes the hyperbolic cosine of the value [x].\n *\n * Special cases:\n * - `cosh(NaN)` is `NaN`\n * - `cosh(+Inf|-Inf)` is `+Inf`\n */\n@SinceKotlin(\"1.2\")\npublic expect fun cosh(x: Double): Double\n\n/**\n * Computes the hyperbolic tangent of the value [x].\n *\n * Special cases:\n * - `tanh(NaN)` is `NaN`\n * - `tanh(+Inf)` is `1.0`\n * - `tanh(-Inf)` is `-1.0`\n */\n@SinceKotlin(\"1.2\")\npublic expect fun tanh(x: Double): Double\n\n/**\n * Computes the inverse hyperbolic sine of the value [x].\n *\n * The returned value is `y` such that `sinh(y) == x`.\n *\n * Special cases:\n * - `asinh(NaN)` is `NaN`\n * - `asinh(+Inf)` is `+Inf`\n * - `asinh(-Inf)` is `-Inf`\n */\n@SinceKotlin(\"1.2\")\npublic expect fun asinh(x: Double): Double\n\n/**\n * Computes the inverse hyperbolic cosine of the value [x].\n *\n * The returned value is positive `y` such that `cosh(y) == x`.\n *\n * Special cases:\n * - `acosh(NaN)` is `NaN`\n * - `acosh(x)` is `NaN` when `x < 1`\n * - `acosh(+Inf)` is `+Inf`\n */\n@SinceKotlin(\"1.2\")\npublic expect fun acosh(x: Double): Double\n\n/**\n * Computes the inverse hyperbolic tangent of the value [x].\n *\n * The returned value is `y` such that `tanh(y) == x`.\n *\n * Special cases:\n * - `tanh(NaN)` is `NaN`\n * - `tanh(x)` is `NaN` when `x > 1` or `x < -1`\n * - `tanh(1.0)` is `+Inf`\n * - `tanh(-1.0)` is `-Inf`\n */\n@SinceKotlin(\"1.2\")\npublic expect fun atanh(x: Double): Double\n\n/**\n * Computes `sqrt(x^2 + y^2)` without intermediate overflow or underflow.\n *\n * Special cases:\n * - returns `+Inf` if any of arguments is infinite\n * - returns `NaN` if any of arguments is `NaN` and the other is not infinite\n */\n@SinceKotlin(\"1.2\")\npublic expect fun hypot(x: Double, y: Double): Double\n\n/**\n * Computes the positive square root of the value [x].\n *\n * Special cases:\n * - `sqrt(x)` is `NaN` when `x < 0` or `x` is `NaN`\n */\n@SinceKotlin(\"1.2\")\npublic expect fun sqrt(x: Double): Double\n\n/**\n * Computes Euler's number `e` raised to the power of the value [x].\n *\n * Special cases:\n * - `exp(NaN)` is `NaN`\n * - `exp(+Inf)` is `+Inf`\n * - `exp(-Inf)` is `0.0`\n */\n@SinceKotlin(\"1.2\")\npublic expect fun exp(x: Double): Double\n\n/**\n * Computes `exp(x) - 1`.\n *\n * This function can be implemented to produce more precise result for [x] near zero.\n *\n * Special cases:\n * - `expm1(NaN)` is `NaN`\n * - `expm1(+Inf)` is `+Inf`\n * - `expm1(-Inf)` is `-1.0`\n *\n * @see [exp] function.\n */\n@SinceKotlin(\"1.2\")\npublic expect fun expm1(x: Double): Double\n\n/**\n * Computes the logarithm of the value [x] to the given [base].\n *\n * Special cases:\n * - `log(x, b)` is `NaN` if either `x` or `b` are `NaN`\n * - `log(x, b)` is `NaN` when `x < 0` or `b <= 0` or `b == 1.0`\n * - `log(+Inf, +Inf)` is `NaN`\n * - `log(+Inf, b)` is `+Inf` for `b > 1` and `-Inf` for `b < 1`\n * - `log(0.0, b)` is `-Inf` for `b > 1` and `+Inf` for `b > 1`\n *\n * See also logarithm functions for common fixed bases: [ln], [log10] and [log2].\n */\n@SinceKotlin(\"1.2\")\npublic expect fun log(x: Double, base: Double): Double\n\n/**\n * Computes the natural logarithm (base `E`) of the value [x].\n *\n * Special cases:\n * - `ln(NaN)` is `NaN`\n * - `ln(x)` is `NaN` when `x < 0.0`\n * - `ln(+Inf)` is `+Inf`\n * - `ln(0.0)` is `-Inf`\n */\n@SinceKotlin(\"1.2\")\npublic expect fun ln(x: Double): Double\n\n/**\n * Computes the common logarithm (base 10) of the value [x].\n *\n * @see [ln] function for special cases.\n */\n@SinceKotlin(\"1.2\")\npublic expect fun log10(x: Double): Double\n\n/**\n *

Computes the binary logarithm (base 2) of the value [x].\n *\n * @see [ln] function for special cases.\n */\n@SinceKotlin(\"1.2\")\npublic expect fun log2(x: Double): Double\n\n/**\n * Computes `ln(x + 1)`.\n *\n * This function can be implemented to produce more precise result for [x] near zero.\n *\n * Special cases:\n *   - `ln1p(NaN)` is `NaN`\n *   - `ln1p(x)` is `NaN` where `x < -1.0`\n *   - `ln1p(-1.0)` is `-Inf`\n *   - `ln1p(+Inf)` is `+Inf`\n *\n * @see [ln] function\n * @see [expm1] function\n */\n@SinceKotlin(\"1.2\")\npublic expect fun ln1p(x: Double): Double\n\n/**\n * Rounds the given value [x] to an integer towards positive infinity.\n\n * @return the smallest double value that is greater than or equal to the given value [x] and is a mathematical integer.\n *\n * Special cases:\n *   - `ceil(x)` is `x` where `x` is `NaN` or `+Inf` or `-Inf` or already a mathematical integer.\n */\n@SinceKotlin(\"1.2\")\npublic expect fun ceil(x: Double): Double\n\n/**\n * Rounds the given value [x] to an integer towards negative infinity.\n\n * @return the largest double value that is smaller than or equal to the given value [x] and is a mathematical integer.\n *\n * Special cases:\n *   - `floor(x)` is `x` where `x` is `NaN` or `+Inf` or `-Inf` or already a mathematical integer.\n */\n@SinceKotlin(\"1.2\")\npublic expect fun floor(x: Double): Double\n\n/**\n * Rounds the given value [x] to an integer towards zero.\n *\n * @return the value [x] having its fractional part truncated.\n *\n * Special cases:\n *   - `truncate(x)` is `x` where `x` is `NaN` or `+Inf` or `-Inf` or already a mathematical integer.\n */\n@SinceKotlin(\"1.2\")\npublic expect fun truncate(x: Double): Double\n\n/**\n * Rounds the given value [x] towards the closest integer with ties rounded towards even integer.\n *\n * Special cases:\n *   - `round(x)` is `x` where `x` is `NaN` or `+Inf` or `-Inf` or already a mathematical integer.\n */\n@SinceKotlin(\"1.2\")\npublic expect fun round(x: Double): Double\n\n/**\n * Returns the absolute value of the given value [x].\n *\n * Special cases:\n *   - `abs(NaN)` is `NaN`\n *\n * @see absoluteValue extension property for [Double]\n */\n@SinceKotlin(\"1.2\")\npublic expect fun abs(x: Double): Double\n\n/**\n * Returns the sign of the given value [x]:\n *   - `-1.0` if the value is negative,\n *   - zero if the value is zero,\n *   - `1.0` if the value is positive\n *\n * Special case:\n *   - `sign(NaN)` is `NaN`\n */\n@SinceKotlin(\"1.2\")\npublic expect fun sign(x: Double): Double\n\n\n/**\n * Returns the smaller of two values.\n *\n * If either value is `NaN`, then the result is `NaN`.\n */\n@SinceKotlin(\"1.2\")\npublic expect fun min(a: Double, b: Double): Double\n\n/**\n * Returns the greater of two values.\n *\n * If either value is `NaN`, then the result is `NaN`.\n */\n@SinceKotlin(\"1.2\")\npublic expect fun max(a: Double, b: Double): Double\n\n\n/**\n * Returns the cube root of [x]. For any `x`, `cbrt(-x) == -cbrt(x)`;\n * that is, the cube root of a negative value is the negative of the cube root\n * of that value's magnitude. Special cases:\n *\n * Special cases:\n *   - If the argument is `NaN`, then the result is `NaN`.\n *   - If the argument is infinite, then the result is an infinity with the same sign as the argument.\n *   - If the argument is zero, then the result is a zero with the same sign as the argument.\n */\n@SinceKotlin(\"1.7\")\n@ExperimentalStdlibApi\npublic expect fun cbrt(x: Double): Double\n\n\n// extensions\n\n/**\n * Raises this value to the power [x].\n *\n * Special cases:\n *   - `b.pow(0.0)` is `1.0`\n *   - `b.pow(1.0) == b`\n *   - `b.pow(NaN)` is `NaN`\n *   - `NaN.pow(x)` is `NaN` for `x != 0.0`\n *   - `b.pow(Inf)` is `NaN` for `abs(b) == 1.0`\n *   - `b.pow(x)` is `NaN` for `b < 0` and `x` is finite and not an integer\n */\n@SinceKotlin(\"1.2\")\npublic expect fun Double.pow(x: Double): Double\n\n/**\n * Raises this value to the integer power [n].\n *\n * See the other overload of [pow] for details.\n */\n@SinceKotlin(\"1.2\")\npublic expect fun Double.pow(n: Int): Double\n\n/**\n * Returns the absolute value of this value.\n *\n * Special cases:\n *   - `NaN.absoluteValue` is `NaN`\n *\n * @see abs function\n */\n@SinceKotlin(\"1.2\")\npublic expect val Double.absoluteValue: Double\n\n/**\n * Returns the sign of this value:\n *   - `-1.0` if the value is negative,\n *   - zero if the value is zero,\n *   - `1.0` if the value is positive\n *\n * Special case:\n *   - `NaN.sign` is `NaN`\n */\n@SinceKotlin(\"1.2\")\npublic expect val Double.sign: Double\n\n/**\n * Returns this value with the sign bit same as of the [sign] value.\n *\n * If [sign] is `NaN` the sign of the result is undefined.\n */\n@SinceKotlin(\"1.2\")\npublic expect fun Double.withSign(sign: Double): Double\n\n/**\n * Returns this value with the sign bit same as of the [sign] value.\n */\n@SinceKotlin(\"1.2\")\npublic expect fun Double.withSign(sign: Int): Double\n\n/**\n * Returns the ulp (unit in the last place) of this value.\n *\n * An ulp is a positive distance between this value and the next nearest [Double] value larger in magnitude.\n *\n * Special Cases:\n *   - `NaN.ulp` is `NaN`\n *   - `x.ulp` is `+Inf` when `x` is `+Inf` or `-Inf`\n *   - `0.0.ulp` is `Double.MIN_VALUE`\n */\n@SinceKotlin(\"1.2\")\npublic expect val Double.ulp: Double\n\n/**\n * Returns the [Double] value nearest to this value in direction of positive infinity.\n */\n@SinceKotlin(\"1.2\")\npublic expect fun Double.nextUp(): Double\n\n/**\n * Returns the [Double] value nearest to this value in direction of negative infinity.\n */\n@SinceKotlin(\"1.2\")\npublic expect fun Double.nextDown(): Double\n\n/**\n * Returns the [Double] value nearest to this value in direction from this value towards the value [to].\n *\n * Special cases:\n *   - `x.nextTowards(y)` is `NaN` if either `x` or `y` are `NaN`\n *   - `x.nextTowards(x) == x`\n *\n */\n@SinceKotlin(\"1.2\")\npublic expect fun Double.nextTowards(to: Double): Double\n\n/**\n * Rounds this [Double] value to the nearest integer and converts the result to [Int].\n * Ties are rounded towards positive infinity.\n *\n * Special cases:\n *   - `x.roundToInt() == Int.MAX_VALUE` when `x > Int.MAX_VALUE`\n *   - `x.roundToInt() == Int.MIN_VALUE` when `x < Int.MIN_VALUE`\n *\n * @throws IllegalArgumentException when this value is `NaN`\n */\n@SinceKotlin(\"1.2\")\npublic expect fun Double.roundToInt(): Int\n\n/**\n * Rounds this [Double] value to the nearest integer and converts the result to [Long].\n * Ties are rounded towards positive infinity.\n *\n * Special cases:\n *   - `x.roundToLong() == Long.MAX_VALUE` when `x > Long.MAX_VALUE`\n *   - `x.roundToLong() == Long.MIN_VALUE` when `x < Long.MIN_VALUE`\n *\n * @throws IllegalArgumentException when this value is `NaN`\n */\n@SinceKotlin(\"1.2\")\npublic expect fun Double.roundToLong(): Long\n\n// endregion\n\n\n\n// region ================ Float Math ==\n\n/** Computes the sine of the angle [x] given in radians.\n *\n * Special cases:\n *   - `sin(NaN|+Inf|-Inf)` is `NaN`\n */\n@SinceKotlin(\"1.2\")\npublic expect fun sin(x: Float): Float\n\n/** Computes the cosine of the angle [x] given in radians.\n *\n * Special cases:\n *   - `cos(NaN|+Inf|-Inf)` is `NaN`\n */\n@SinceKotlin(\"1.2\")\npublic expect fun cos(x: Float): Float\n\n/** Computes the tangent of the angle [x] given in radians.\n *\n * Special cases:\n *   - `tan(NaN|+Inf|-Inf)` is `NaN`\n */\n@SinceKotlin(\"1.2\")\npublic expect fun tan(x: Float): Float\n\n/**\n * Computes the arc sine of the value [x];\n * the returned value is an angle in the range from `-PI/2` to `PI/2` radians.\n *\n * Special cases:\n *   - `asin(x)` is `NaN`, when `abs(x) > 1` or x is `NaN`\n */\n@SinceKotlin(\"1.2\")\npublic expect fun asin(x: Float): Float\n\n/**\n * Computes the arc cosine of the value [x];\n * the returned value is an angle in the range from `0.0` to `PI` radians.\n *\n * Special cases:\n *   - `acos(x)` is `NaN`, when `abs(x) > 1` or x is `NaN`\n */\n@SinceKotlin(\"1.2\")\npublic expect fun acos(x: Float): Float\n\n/**\n * Computes the arc tangent of the value [x];\n * the returned value is an angle in the range from `-PI/2` to `PI/2` radians.\n *\n * Special cases:\n *   - `atan(NaN)` is `NaN`\n */\n@SinceKotlin(\"1.2\")\npublic expect fun atan(x: Float): Float\n\n/**\n * Returns the angle `theta` of the polar coordinates `(r, theta)` that correspond\n * to the rectangular coordinates `(x, y)` by computing the arc tangent of the value [y] / [x];\n * the returned value is an angle in the range from `-PI` to `PI` radians.\n *\n * Special cases:\n *   - `atan2(0.0, 0.0)` is `0.0`\n *   - `atan2(0.0, x)` is `0.0` for `x > 0` and `PI` for `x < 0`\n *   - `atan2(-0.0, x)` is `-0.0` for 'x > 0` and `-PI` for `x < 0`\n *   - `atan2(y, +Inf)` is `0.0` for `0 < y < +Inf` and `-0.0` for '-Inf < y < 0`\n *   - `atan2(y, -Inf)` is `PI` for `0 < y < +Inf` and `-PI` for `-Inf < y < 0`\n *   - `atan2(y, 0.0)` is `PI/2` for `y > 0` and `-PI/2` for `y < 0`\n *   - `atan2(+Inf, x)` is `PI/2` for finite `x`y\n *   - `atan2(-Inf, x)` is `-PI/2` for finite `x`\n *   - `atan2(NaN, x)` and `atan2(y, NaN)` is `NaN`\n */\n@SinceKotlin(\"1.2\")\npublic expect fun atan2(y: Float, x: Float): Float\n\n/**\n * Computes the hyperbolic sine of the value [x].\n *\n * Special cases:\n *   - `sinh(NaN)` is `NaN`\n *   - `sinh(+Inf)` is `+Inf`\n *   - `sinh(-Inf)` is `-Inf`\n */\n@SinceKotlin(\"1.2\")\npublic expect fun sinh(x: Float): Float\n\n/**\n * Computes the hyperbolic cosine of the value [x].\n *\n * Special cases:\n *   - `cosh(NaN)` is `NaN`\n *   - `cosh(+Inf|-Inf)` is `+Inf`\n */\n@SinceKotlin(\"1.2\")\npublic expect fun cosh(x: Float): Float\n\n/**\n * Computes the hyperbolic tangent of the value [x].\n *\n * Special cases:\n *   - `tanh(NaN)` is `NaN`\n *   - `tanh(+Inf)` is `1.0`\n *   - `tanh(-Inf)` is `-1.0`\n */\n@SinceKotlin(\"1.2\")\npublic expect fun tanh(x: Float): Float\n\n/**\n * Computes the inverse hyperbolic sine of the value [x].\n *\n * The returned value is `y` such that `sinh(y) == x`.\n *\n * Special cases:\n *   - `asinh(NaN)` is `NaN`\n *   - `asinh(+Inf)` is `+Inf`\n *   - `asinh(-Inf)` is `-Inf`\n */\n@SinceKotlin(\"1.2\")\npublic expect fun asinh(x: Float): Float\n\n/**\n * Computes the inverse hyperbolic cosine of the value [x].\n *\n * The returned value is positive `y` such that `cosh(y) == x`.\n *\n * Special cases:\n *   - `acosh(NaN)` is `NaN`\n *   - `acosh(x)` is `NaN` when `x < 1`\n *   - `acosh(+Inf)` is `+Inf`\n */\n@SinceKotlin(\"1.2\")\npublic expect fun acosh(x: Float): Float\n\n/**\n * Computes the inverse hyperbolic tangent of the value [x].\n *\n * The returned value is `y` such that `tanh(y) == x`.\n *\n * Special cases:\n *   - `tanh(NaN)` is `NaN`\n *   - `tanh(x)` is `NaN` when `x > 1` or `x < -1`\n *   - `tanh(1.0)` is `+Inf`\n *   - `tanh(-1.0)` is `-Inf`\n */\n@SinceKotlin(\"1.2\")\npublic expect fun atanh(x: Float): Float\n\n/**\n * Computes `sqrt(x^2 + y^2)` without intermediate overflow or underflow.\n *\n * Special cases:\n *   - returns `+Inf` if any of arguments is infinite\n *   - returns `NaN` if any of arguments is `NaN` and the other is not infinite\n */\n@SinceKotlin(\"1.2\")\npublic expect fun hypot(x: Float, y: Float): Float\n\n/**\n * Computes the positive square root of the value [x].\n *\n * Special cases:\n *   - `sqrt(x)` is `NaN` when `x < 0` or `x` is `NaN`\n */\n@SinceKotlin(\"1.2\")\npublic expect fun sqrt(x: Float): Float\n\n/**\n * Computes Euler's number `e` raised to the power of the value [x].\n *\n * Special cases:\n *   - `exp(NaN)` is `NaN`\n *   - `exp(+Inf)` is `+Inf`\n *   - `exp(-Inf)` is `0.0`\n */\n@SinceKotlin(\"1.2\")\npublic expect fun exp(x: Float): Float\n\n/**\n * Computes `exp(x) - 1`.\n *\n * This function can be implemented to produce more precise result for [x] near zero.\n *\n * Special cases:\n *   - `expm1(NaN)` is `NaN`\n *   - `expm1(+Inf)` is `+Inf`\n *   - `expm1(-Inf)` is `-1.0`\n *\n * @see [exp] function.\n */\n@SinceKotlin(\"1.2\")\npublic expect fun expm1(x: Float): Float\n\n/**\n * Computes the logarithm of the value [x] to the given [base].\n *\n * Special cases:\n *   - `log(x, b)` is `NaN` if either `x` or `b` are `NaN`\n *   - `log(x, b)` is `NaN` when `x < 0` or `b <= 0` or `b == 1.0`\n *   - `log(+Inf, +Inf)` is `NaN`\n *   - `log(+Inf, b)` is `+Inf` for `b > 1` and `-Inf` for `b < 1`\n *   - `log(0.0, b)` is `-Inf` for `b > 1` and `+Inf` for `b > 1`\n *\n * See also logarithm functions for common fixed bases: [ln], [log10] and [log2].\n */\n@SinceKotlin(\"1.2\")\npublic expect fun log(x: Float, base: Float): Float\n\n/**\n * Computes the natural logarithm (base `E`) of the value [x].\n *\n * Special cases:\n *   - `ln(NaN)` is `NaN`\n *   - `ln(x)` is `NaN` when `x < 0.0`\n *   - `ln(+Inf)` is `+Inf`\n *   - `ln(0.0)` is `-Inf`\n */\n@SinceKotlin(\"1.2\")\npublic expect fun ln(x: Float): Float\n\n/**\n * Computes the common logarithm (base 10) of the value [x].\n *\n * @see [ln] function for special cases.\n */\n@SinceKotlin(\"1.2\")\npublic expect fun log10(x: Float): Float\n\n/**\n * Computes the binary logarithm (base 2) of the value [x].\n *\n * @see [ln] function for special cases.\n */\n@SinceKotlin(\"1.2\")\npublic expect fun log2(x: Float): Float\n\n/**\n * Computes `ln(a + 1)`.\n *\n * This function can be implemented to produce more precise result for [x] near zero.\n *\n * Special cases:\n *   - `ln1p(NaN)` is `NaN`\n *   - `ln1p(x)` is `NaN` where `x < -1.0`\n *   - `ln1p(-1.0)` is `-Inf`\n *   - `ln1p(+Inf)` is `+Inf`\n *\n * @see [ln] function\n * @see [expm1] function\n */\n@SinceKotlin(\"1.2\")\npublic expect fun ln1p(x: Float): Float\n\n/**\n * Rounds the given value [x] to an integer towards positive infinity.\n\n * @return the smallest Float value that is greater than or equal to the given value [x] and is a mathematical integer.\n *\n * Special cases:\n *   - `ceil(x)` is `x` where `x` is `NaN` or `+Inf` or `-Inf` or already a mathematical integer.\n */\n@SinceKotlin(\"1.2\")\npublic expect fun ceil(x: Float): Float\n\n/**\n * Rounds the given value [x] to an integer towards negative infinity.\n\n * @return the largest Float value that is smaller than or equal to the given value [x] and is a mathematical integer.\n *\n * Special cases:\n *   - `floor(x)` is `x` where `x` is `NaN` or `+Inf` or `-Inf` or already a mathematical integer.\n */\n@SinceKotlin(\"1.2\")\npublic expect fun floor(x: Float): Float\n\n/**\n * Rounds the given value [x] to an integer towards zero.\n *\n * @return the value [x] having its fractional part truncated.\n *\n * Special cases:\n *   - `truncate(x)` is `x` where `x` is `NaN` or `+Inf` or `-Inf` or already a mathematical integer.\n */\n@SinceKotlin(\"1.2\")\npublic expect fun truncate(x: Float): Float\n\n/**\n * Rounds the given value [x] towards the closest integer with ties rounded towards even integer.\n *\n * Special cases:\n *   - `round(x)` is `x` where `x` is `NaN` or `+Inf` or `-Inf` or already a mathematical integer.\n */\n@SinceKotlin(\"1.2\")\npublic expect fun round(x: Float): Float\n\n\n/**\n * Returns the absolute value of the given value [x].\n *\n * Special cases:\n *   - `abs(NaN)` is `NaN`\n *\n * @see absoluteValue extension property for [Float]\n */\n@SinceKotlin(\"1.2\")\npublic expect fun abs(x: Float): Float\n\n/**\n * Returns the sign of the given value [x]:\n *   - `-1.0` if the value is negative,\n *   - zero if the value is zero,\n *   - `1.0` if the value is positive\n *\n * Special case:\n *   - `sign(NaN)` is `NaN`\n */\n@SinceKotlin(\"1.2\")\npublic expect fun sign(x: Float): Float\n\n\n\n/**\n * Returns the smaller of two values.\n *\n * If either value is `NaN`, then the result is `NaN`.\n */\n@SinceKotlin(\"1.2\")\npublic expect fun min(a: Float, b: Float): Float\n\n/**\n * Returns the greater of two values.\n *\n * If either value is `NaN`, then the result is `NaN`.\n */\n@SinceKotlin(\"1.2\")\npublic expect fun max(a: Float, b: Float): Float\n\n\n/**\n * Returns the cube root of [x]. For any `x`, `cbrt(-x) == -cbrt(x)`;\n * that is,

the cube root of a negative value is the negative of the cube root\n * of that value's magnitude. Special cases:\n *\n * Special cases:\n *   - If the argument is `NaN`, then the result is `NaN`.\n *   - If the argument is infinite, then the result is an infinity with the same sign as the argument.\n *   - If the argument is zero, then the result is a zero with the same sign as the argument.\n */\n@SinceKotlin(\"1.7\")\n@ExperimentalStdlibApi\npublic expect fun cbrt(x: Float): Float\n\n\n// extensions\n\n\n/**\n * Raises this value to the power [x].\n *\n * Special cases:\n *   - `b.pow(0.0)` is `1.0`\n *   - `b.pow(1.0) == b`\n *   - `b.pow(NaN)` is `NaN`\n *   - `NaN.pow(x)` is `NaN` for `x != 0.0`\n *   - `b.pow(Inf)` is `NaN` for `abs(b) == 1.0`\n *   - `b.pow(x)` is `NaN` for `b < 0` and `x` is finite and not an integer\n */\n@SinceKotlin(\"1.2\")\npublic expect fun Float.pow(x: Float): Float\n\n/**\n * Raises this value to the integer power [n].\n *\n * See the other overload of [pow] for details.\n */\n@SinceKotlin(\"1.2\")\npublic expect fun Float.pow(n: Int): Float\n\n/**\n * Returns the absolute value of this value.\n *\n * Special cases:\n *   - `NaN.absoluteValue` is `NaN`\n *\n * @see abs function\n */\n@SinceKotlin(\"1.2\")\npublic expect val Float.absoluteValue: Float\n\n/**\n * Returns the sign of this value:\n *   - `-1.0` if the value is negative,\n *   - zero if the value is zero,\n *   - `1.0` if the value is positive\n *\n * Special case:\n *   - `NaN.sign` is `NaN`\n */\n@SinceKotlin(\"1.2\")\npublic expect val Float.sign: Float\n\n/**\n * Returns this value with the sign bit same as of the [sign] value.\n *\n * If [sign] is `NaN` the sign of the result is undefined.\n */\n@SinceKotlin(\"1.2\")\npublic expect fun Float.withSign(sign: Float): Float\n\n/**\n * Returns this value with the sign bit same as of the [sign] value.\n */\n@SinceKotlin(\"1.2\")\npublic expect fun Float.withSign(sign: Int): Float\n\n\n/**\n * Rounds this [Float] value to the nearest integer and converts the result to [Int].\n * Ties are rounded towards positive infinity.\n *\n * Special cases:\n *   - `x.roundToInt() == Int.MAX_VALUE` when `x > Int.MAX_VALUE`\n *   - `x.roundToInt() == Int.MIN_VALUE` when `x < Int.MIN_VALUE`\n *\n * @throws IllegalArgumentException when this value is `NaN`\n */\n@SinceKotlin(\"1.2\")\npublic expect fun Float.roundToInt(): Int\n\n/**\n * Rounds this [Float] value to the nearest integer and converts the result to [Long].\n * Ties are rounded towards positive infinity.\n *\n * Special cases:\n *   - `x.roundToLong() == Long.MAX_VALUE` when `x > Long.MAX_VALUE`\n *   - `x.roundToLong() == Long.MIN_VALUE` when `x < Long.MIN_VALUE`\n *\n * @throws IllegalArgumentException when this value is `NaN`\n */\n@SinceKotlin(\"1.2\")\npublic expect fun Float.roundToLong(): Long\n\n\n// endregion\n\n// region ================ Integer Math ==\n\n\n/**\n * Returns the absolute value of the given value [n].\n *\n * Special cases:\n *   - `abs(Int.MIN_VALUE)` is `Int.MIN_VALUE` due to an overflow\n *\n * @see absoluteValue extension property for [Int]\n */\n@SinceKotlin(\"1.2\")\npublic expect fun abs(n: Int): Int\n\n/**\n * Returns the smaller of two values.\n */\n@SinceKotlin(\"1.2\")\npublic expect fun min(a: Int, b: Int): Int\n\n/**\n * Returns the greater of two values.\n */\n@SinceKotlin(\"1.2\")\npublic expect fun max(a: Int, b: Int): Int\n\n/**\n * Returns the absolute value of this value.\n *\n * Special cases:\n *   - `Int.MIN_VALUE.absoluteValue` is `Int.MIN_VALUE` due to an overflow\n *\n * @see abs function\n */\n@SinceKotlin(\"1.2\")\npublic expect val Int.absoluteValue: Int\n\n/**\n * Returns the sign of this value:\n *   - `-1` if the value is negative,\n *   - `0` if the value is zero,\n *   - `1` if the value is positive\n */\n@SinceKotlin(\"1.2\")\npublic expect val Int.sign: Int\n\n\n\n/**\n * Returns the absolute value of the given value [n].\n *\n * Special cases:\n *   - `abs(Long.MIN_VALUE)` is `Long.MIN_VALUE` due to an overflow\n *\n * @see absoluteValue extension property for [Long]\n */\n@SinceKotlin(\"1.2\")\npublic expect fun abs(n: Long): Long\n\n/**\n * Returns the smaller of two values.\n */\n@SinceKotlin(\"1.2\")\npublic expect fun min(a: Long, b: Long): Long\n\n/**\n * Returns the greater of two values.\n */\n@SinceKotlin(\"1.2\")\npublic expect fun max(a: Long, b: Long): Long\n\n/**\n * Returns the absolute value of this value.\n *\n * Special cases:\n *   - `Long.MIN_VALUE.absoluteValue` is `Long.MIN_VALUE` due to an overflow\n *\n * @see abs function\n */\n@SinceKotlin(\"1.2\")\npublic expect val Long.absoluteValue: Long\n\n/**\n * Returns the sign of this value:\n *   - `-1` if the value is negative,\n *   - `0` if the value is zero,\n *   - `1` if the value is positive\n */\n@SinceKotlin(\"1.2\")\npublic expect val Long.sign: Int\n\n\n// endregion\n","/*\n * Copyright 2010-2022 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin.js\n\n/**\n * Exposes the JavaScript [Math object](https://developer.mozilla.org/en/docs/Web/JavaScript/Reference/Global_Objects/Math)

to Kotlin.\n */\n@PublishedApi\n@JsName(\"Math\")\ninternal external object JsMath {\n   val LN2: Double\n
fun abs(value: Double): Double\n   fun acos(value: Double): Double\n   fun asin(value: Double): Double\n   fun
atan(value: Double): Double\n   fun atan2(y: Double, x: Double): Double\n   fun cos(value: Double): Double\n
fun sin(value: Double): Double\n   fun exp(value: Double): Double\n   fun max(vararg values: Int): Int\n   fun
max(vararg values: Float): Float\n   fun max(vararg values: Double): Double\n   fun min(vararg values: Int): Int\n
fun min(vararg values: Float): Float\n   fun min(vararg values: Double): Double\n   fun sqrt(value: Double):
Double\n   fun tan(value: Double): Double\n   fun log(value: Double): Double\n   fun cbrt(value: Double):
Double\n   fun pow(base: Double, exp: Double): Double\n   fun round(value: Number): Double\n   fun floor(value:
Number): Double\n   fun ceil(value: Number): Double\n}\n\ninternal const val defineTaylorNBound = \"\"\"\n   var
epsilon = 2.220446049250313E-16;\n   var taylor_2_bound = Math.sqrt(epsilon);\n   var taylor_n_bound =
Math.sqrt(taylor_2_bound);\n\"\"\"\n\ninternal const val defineUpperTaylor2Bound = \"\"\"\n
$defineTaylorNBound\n   var upper_taylor_2_bound = 1/taylor_2_bound;\n\"\"\"\n\ninternal const val
defineUpperTaylorNBound = \"\"\"\n $defineUpperTaylor2Bound\n   var upper_taylor_n_bound =
1/taylor_n_bound;\n\"\"\"\n"],"names":[],"mappings":"AAWC,CAXA,yB;EACG,IAAI,OAAO,MAAO,KAAI,UAA
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,IAAI,OAAO,OAAQ,KAAI,QAAvB,C;IACD,OAAO,CAAC,MAAM,QAAP,C;;IAGP,IAAI,OAAQ,GAAE,E;IAC
d,OAAO,CAAC,IAAI,OAAL,C;;CAEd,CAAC,IAAD,EAAO,kB;EACJ,IAAI,IAAI,M;ECPU;;;IAAtB,MAAM,eAA
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e,OAAO,W;MACtB,WAAW,0B;MACN,WAAL,IAAK,C;MACL,OAAO,I;K;IAGX,+B;MAII,IAqnEO,qBAAQ,C
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C,GM9/UhC,EAAS,MAAT,C;YACA,e;;YAEA,c;;UN2/UA,iB;UACA,IAAK,WAAI,OAAJ,C;;QAlQT,OAoQO,W;
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A,e;;YAEA,c;;UN4gVA,iB;UACA,IAAK,WAAI,OAAJ,C;;QAvQT,OAyQO,W;O;KAlRX,C;sFAYA,yB;MAAA,w
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H,WN+oVwB,GM/oVxB,C;UACL,IAAI,aAAJ,C;YACH,aN6oVuC,gB;YAA5B,WM5oVX,aN4oVgC,GM5oVhC,
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,OA4SO,W;O;KAtTX,C;uFAaA,yB;MAAA,wE;MA4SA,+D;MA5SA,yD;QAUW,kBAAU,oB;QA4SD,Q;QAAhB,
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T,C;YACA,e;;YAEA,c;;UN2pVA,iB;UACA,IAAK,WA/SyD,cA+SrD,CAAe,OAAf,CAAJ,C;;QA/ST,OAiTO,W;O
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,W;O;KAdX,C;0FAiBA,yB;MAAA,+D;MAAA,sD;QASoB,Q;QAAhB,wBAAgB,SAAhB,gB;UAAgB,cAAA,SAA
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B,C;MACf,OAAO,QAAS,UAAhB,C;QACI,QAAQ,SAAS,QAAS,OAAlB,C;QACR,IAAI,UAAW,SAAQ,QAAR,E
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hB,C;QAAgB,yB;QACZ,OAAO,SAAS,OAAT,C;;MAEX,OAAO,G;K;mFAGX,+B;MAUoB,Q;MADhB,UAAoB,
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X,+B;MAUoB,Q;MADhB,UAAe,C;MACC,2B;MAAhB,OAAgB,cAAhB,C;QAAgB,yB;QACZ,YAAO,SAAS,OA
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oE,KAAX,IAAf,C;;QkB65FrD,OAAO,G;O;KAdX,C;mFAiBA,yB;MDrmFA,+B;MCqmFA,sC;QAWoB,Q;QADh
B,UDpmFqC,eAAW,oBComF/B,CDpmF+B,CAAX,C;QCqmFrB,2B;QAAhB,OAAgB,cAAhB,C;UAAgB,yB;UAC
Z,MDz6FmD,eCy6FnD,GDz6F8D,KAAK,KCy6F5D,SAAS,OAAT,CDz6FuE,KAAX,CAAhB,C;;QC26FvD,OAA
O,G;O;KAdX,C;IAiBA,qC;MAIoB,UAMT,M;MANS,2B;MAAhB,OAAgB,cAAhB,C;QAAgB,yB;QACZ,IAAI,eA
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ANS,2B;MAAhB,OAAgB,cAAhB,C;QAAgB,yB;QACZ,IAAI,eAAJ,C;UACI,MAAM,gCAAyB,2BAAwB,SAAxB
,MAAzB,C;;;MAId,OAAO,+D;K;IAGX,kC;MAWI,OAAO,oBAAS,IAAT,EAAe,IAAf,EAAsC,IAAtC,C,C;K;IAGX,
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,IAAI,cAAJ,C;UACI,OAAO,M;;;MAGf,OAAO,I;K;IAGX,6B;MAII,IAAI,mBAAQ,CAAZ,C;QACI,OAAO,W;M
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Q,W;MmBpK5F,OAAgB,cAAhB,C;QAAgB,yB;QAAM,OAAO,OAAP,C;;K;kFAG1B,yB;MJ+qDA,sE;MI/qDA,s
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;QJguDI,eIrtDO,iBJqtDQ,W;QACf,IAAI,CAAC,QAAS,UAAd,C;UAAyB,MAAM,6B;QAC/B,eIvtDqB,QJutDN,C
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O,G;K;IAGX,2B;MAWI,eAAe,oB;MACf,IAAI,CAAC,QAAS,UAAd,C;QAAyB,MAAM,6B;MAC/B,UAAU,QAA
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CC,2B;MAAhB,OAAgB,cAAhB,C;QAAgB,yB;QACZ,YAAO,SAAS,OAAT,CAAP,I;;MAEJ,OAAO,G;K;iFAGX,
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AO,I;;;MAnOP,yB;K;iFAGJ,gC;MASW,sB;;QAiOS,Q;QAAA,2B;QAAhB,OAAgB,cAAhB,C;UAAgB,yB;UAAM
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,gC;MASW,sB;;QAgOS,Q;QAAA,2B;QAAhB,OAAgB,cAAhB,C;UAAgB,yB;UAAM,IAhOH,SAgOO,CAAU,OA
AV,CAAJ,C;YAAwB,qBAAO,O;YAAP,uB;;;QAC9C,qBAAO,I;;;MAjOP,yB;K;iFAGJ,gC;MASW,sB;;QA+NS,Q;
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,cAAc,sBAAK,KAAL,C;YACd,IAloBc,SAkoBV,CAAU,OAAV,CAAJ,C;cAAwB,oBAAO,O;cAAP,sB;;;UAE5B,
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Q,uB;;UvC+0Bf,0D;YACI,IuCh1B0B,UpC7ZK,cH6uCjB,YAAK,KAAL,CG7uCiB,CoC6ZL,CvCg1B1B,C;cACI,s
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F,C;MAPhC,uC;QAOmB,kBAAR,iB;QAAQ,uB;;UvCi1Bf,0D;YACI,IuCl1B0B,UnBxZQ,epB0uCpB,YAAK,KAA
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15BP,yB;O;KAPJ,C;+FAUA,yB;MAAA,sC;MvC02BA,0D;MAAA,+C;MEp3CA,+B;MqC0gBA,yBAO+B,yB;QrC
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;QAOmB,kBAAR,iB;QAAQ,sB;;UvCu2BD,Q;UAAA,OAAQ,SAAR,wBAAQ,CAAR,W;UAAd,OAAc,cAAd,C;Y
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,WAAI,OAAJ,C;;QAnD3D,OAoDO,W;O;KA7DX,C;+FAYA,6C;MASoB,Q;MAAA,2B;MAAhB,OAAgB,cAAhB,
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,UAAU,OAAV,CAAJ,C;UAAwB,WAAY,WAAI,OAAJ,C;;MAC1D,OAAO,W;K;IAGX,sC;MAMI,IAAI,OAAQ,
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S,OAAT,C;;MAEX,OAAO,G;K;mFAGX,+B;MAYoB,Q;MADhB,UAAoB,C;MACJ,2B;MAAhB,OAAgB,cAAhB,
C;QAAgB,yB;QACZ,OAAO,SAAS,OAAT,C;;MAEX,OAAO,G;K;mFAGX,+B;MAYoB,Q;MADhB,UAAoB,C;M
ACJ,2B;MAAhB,OAAgB,cAAhB,C;QAAgB,yB;QACZ,OAAO,SAAS,OAAT,C;;MAEX,OAAO,G;K;mFAGX,+B
;MAYoB,Q;MADhB,UAAoB,C;MACJ,2B;MAAhB,OAAgB,cAAhB,C;QAAgB,yB;QACZ,OAAO,SAAS,OAAT,
C;;MAEX,OAAO,G;K;mFAGX,+B;MAYoB,Q;MADhB,UAAe,C;MACC,2B;MAAhB,OAAgB,cAAhB,C;QAAgB
,yB;QACZ,YAAO,SAAS,OAAT,CAAP,I;;MAEJ,OAAO,G;K;mFAGX,+B;MAYoB,Q;MADhB,UAAe,C;MACC,2
B;MAAhB,OAAgB,cAAhB,C;QAAgB,yB;QACZ,YAAO,SAAS,OAAT,CAAP,I;;MAEJ,OAAO,G;K;mFAGX,+B;
MAYoB,Q;MADhB,UAAe,C;MACC,2B;MAAhB,OAAgB,cAAhB,C;QAAgB,yB;QACZ,YAAO,SAAS,OAAT,C
AAP,I;;MAEJ,OAAO,G;K;mFAGX,+B;MAYoB,Q;MADhB,UAAe,C;MACC,2B;MAAhB,OAAgB,cAAhB,C;QA
AgB,yB;QACZ,YAAO,SAAS,OAAT,CAAP,I;;MAEJ,OAAO,G;K;mFAGX,yB;MAAA,SAWoB,gB;MAXpB,sC;Q

AYoB,Q;QADhB,Y;QACgB,2B;QAAhB,OAAgB,cAAhB,C;UAAgB,yB;UACZ,cAAO,SAAS,OAAT,CAAP,C;;Q
AEJ,OAAO,G;O;KAfX,C;mFAkBA,yB;MAAA,SAWoB,gB;MAXpB,sC;QAYoB,Q;QADhB,Y;QACgB,2B;QAAh
B,OAAgB,cAAhB,C;UAAgB,yB;UACZ,cAAO,SAAS,OAAT,CAAP,C;;QAEJ,OAAO,G;O;KAfX,C;mFAkBA,yB;
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,cAAO,SAAS,OAAT,CAAP,C;;QAEJ,OAAO,G;O;KAfX,C;mFAkBA,yB;MAAA,SAWoB,gB;MAXpB,sC;QAYo
B,Q;QADhB,Y;QACgB,2B;QAAhB,OAAgB,cAAhB,C;UAAgB,yB;UACZ,cAAO,SAAS,OAAT,CAAP,C;;QAEJ,
OAAO,G;O;KAfX,C;mFAkBA,yB;MpChnTA,6B;MoCgnTA,sC;QAaoB,Q;QADhB,UpClnTmC,coCknTnB,CpCln
TmB,C;QoCmnTnB,2B;QAAhB,OAAgB,cAAhB,C;UAAgB,yB;UACZ,MpCt7TiD,coCs7TjD,GpCt7T2D,KAAK,
GoCs7TzD,SAAS,OAAT,CpCt7ToE,KAAX,IAAf,C;;QoCw7TrD,OAAO,G;O;KAhBX,C;mFAmBA,yB;MpCnoT
A,6B;MoCmoTA,sC;QAaoB,Q;QADhB,UpCroTmC,coCqoTnB,CpCroTmB,C;QoCsoTnB,2B;QAAhB,OAAgB,cA
AhB,C;UAAgB,yB;UACZ,MpCz8TiD,coCy8TjD,GpCz8T2D,KAAK,GoCy8TzD,SAAS,OAAT,CpCz8ToE,KAA
X,IAAf,C;;QoC28TrD,OAAO,G;O;KAhBX,C;mFAmBA,yB;MpCtpTA,6B;MoCspTA,sC;QAaoB,Q;QADhB,UpC
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49TjD,GpC59T2D,KAAK,GoC49TzD,SAAS,OAAT,CpC59ToE,KAAX,IAAf,C;;QoC89TrD,OAAO,G;O;KAhBX,
C;mFAmBA,yB;MpCzqTA,6B;MoCyqTA,sC;QAaoB,Q;QADhB,UpC3qTmC,coC2qTnB,CpC3qTmB,C;QoC4qTn
B,2B;QAAhB,OAAgB,cAAhB,C;UAAgB,yB;UACZ,MpC/+TiD,coC++TjD,GpC/+T2D,KAAK,GoC++TzD,SAAS
,OAAT,CpC/+ToE,KAAX,IAAf,C;;QoCi/TrD,OAAO,G;O;KAhBX,C;mFAmBA,yB;MnBzrTA,+B;MmByrTA,sC;
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C;UAAgB,yB;UACZ,MnB//TmD,emB+/TnD,GnB//T8D,KAAK,KmB+/T5D,SAAS,OAAT,CnB//TuE,KAAX,CA
AhB,C;;QmBigUvD,OAAO,G;O;KAhBX,C;mFAmBA,yB;MnB5sTA,+B;MmB4sTA,sC;QAaoB,Q;QADhB,UnB7
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OAAO,G;O;KAhBX,C;mFAmBA,yB;MnB/tTA,+B;MmB+tTA,sC;QAaoB,Q;QADhB,UnBhuTqC,eAAW,oBmBg
uT/B,CnBhuT+B,CAAX,C;QmBiuTrB,2B;QAAhB,OAAgB,cAAhB,C;UAAgB,yB;UACZ,MnBriUmD,emBqiUnD
,GnBriU8D,KAAK,KmBqiU5D,SAAS,OAAT,CnBriUuE,KAAX,CAAhB,C;;QmBuiUvD,OAAO,G;O;KAhBX,C;
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X,C;QmBovTrB,2B;QAAhB,OAAgB,cAAhB,C;UAAgB,yB;UACZ,MnBxjUmD,emBwjUnD,GnBxjU8D,KAAK,
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ACI,IAAK,WA5DqB,GA4DP,sBAAK,CAAL,CA5DO,EAAnB,KA4DqB,CAAM,CAAN,CA5DF,CA4DrB,C;;MA
5DT,OA8DO,I;K;IA3DX,kC;MAyEI,WpB7+TO,MAAO,KoB6+TG,cpB7+TH,EoB66TH,KAgEkB,OpB7+Tf,C;M
oB8+Td,WAAW,iBAAa,IAAb,C;MACX,aAAU,CAAV,MAAkB,IAAlB,M;QACI,IAAK,WAnEqB,GAmEP,sBAA
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,CAAnB,CAAJ,C;;QAET,OAAO,I;O;KAhBX,C;+EAmBA,yB;MAAA,gE;MpBr9TA,iB;MoBq9TA,8C;QAWI,Wp
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,CAAJ,C;;QAET,OAAO,I;O;KAhBX,C;+EAmBA,yB;MAAA,gE;MpBx+TA,iB;MoBw+TA,8C;QAWI,WpB7+TO
,MAAO,KoB6+TG,cpB7+TH,EoB6+TS,KAAM,OpB7+Tf,C;QoB8+Td,WAAW,eAAa,IAAb,C;QACX,aAAU,CA
AV,MAAkB,IAAlB,M;UACI,IAAK,WAAI,UAAU,sBAAK,CAAL,CAAV,EAAmB,MAAM,CAAN,CAAnB,CAA
J,C;;QAET,OAAO,I;O;KAhBX,C;+EAmBA,yB;MAAA,gE;MpB3/TA,iB;MoB2/TA,8C;QAWI,WpBhgUO,MAA

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Q,C;MACQ,OArDL,KAqDK,W;MAAhB,OAAgB,cAAhB,C;QAAgB,yB;QACZ,IAAI,KAAK,SAAT,C;UAAoB,K
;QACpB,IAAK,WAvDqB,GAuDP,uBAAK,UAAL,EAAK,kBAAL,UAvDO,EAuDI,OAvDJ,CAuDrB,C;;MAvDT,
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EqB,GAgEP,uBAAK,UAAL,EAAK,kBAAL,UAhEO,EAgEI,OAhEJ,CAgErB,C;;MAhET,OAkEO,I;K;IA/DX,kC;
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YAAoB,K;UACpB,IAAK,WAAI,UAAU,uBAAK,UAAL,EAAK,kBAAL,UAAV,EAAqB,OAArB,CAAJ,C;;QAET
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;MAES,Q;MAAL,IAAI,eAAC,0EAAD,QAAJ,C;QAAiC,OAAO,E;MACxC,OpCwpBO,UoCxpBA,gBpCwpBR,Q
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C,OAAO,E;MACxC,OpC24BO,coC34BA,gBpC24BR,QAAQ,EoC34BwB,OzE6HJ,KqC8wBpB,C;K;;IoCj6BnB,8
B;MAMI,4C;K;IA2BO,6C;MAAA,8B;MAAS,uB;K;8FACW,Y;MAAQ,OAAA,gBAAY,K;K;+CAC3C,Y;MAAkC
,OAAA,gBAAY,U;K;sDAC9C,mB;MAAkD,OAAA,gBAAY,gBAAS,OAAT,C;K;mDAC9D,iB;MACI,oCAAa,2B
AAkB,KAAlB,EAAyB,SAAzB,C;MACb,OAAO,6BAAY,KAAZ,C;K;qDAEX,mB;MAES,Q;MAAL,IAAI,eAAC,
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qhBtB,C;K;yDoCroBX,mB;MAES,Q;MAAL,IAAI,eAAC,0EAAD,SAAJ,C;QAAkC,OAAO,E;MACzC,OpC03BO,

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;K;;IAIA,wB;K;;IAKiC,uB;MAAC,oB;QAAA,OAA0B,E;MAA1B,gB;K;;IAElC,kB;K;;IAqCqC,sB;MAAC,gB;K;;
IAgCN,4B;MAAC,sB;K;;IAEjC,uB;K;;IA8DmC,4B;MAAC,kB;K;;IAEpC,oB;K;;IAmCA,+B;K;;ICvLA,oB;K;;IAI
A,wB;K;;oFzDJA,qB;MAKqE,uC8BJtB,E;K;iG9BM/C,yB;MAAA,kD;MAAA,4B;QAQsE,mBAAY,SAAZ,C;O;K
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hB,C;K;IAGR,qC;MAEI,Y8B3B2C,E;M9B4B3C,eAAe,UAAW,W;MAC1B,OAAO,QAAS,UAAhB,C;QACU,KA
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,KAA5B,C;QACI,OAAO,gBAAgB,UAAhB,C;;MAEX,eAAe,UAAW,W;MAC1B,YAAY,C;MACZ,OAAO,QAAS
,UAAhB,C;QACI,MAAM,YAAN,EAAM,oBAAN,UAAiB,QAAS,O;;MAE9B,IAAI,QAAQ,KAAM,OAAlB,C;QA
CI,MAAM,KAAN,IAAe,I;;MAEnB,OAAO,K;K;IAIX,yB;MAG6C,sBAAY,OAAZ,E;K;wGAE7C,yB;MAAA,+D;
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AA,gE;MAAA,0C;QAII,qBAAqB,QAArB,C;QAC8B,gBAAvB,eAAa,QAAb,C;QAA6B,aJEpC,W;QIFA,OJGO,SI
H4C,Q;O;KALvD,C;IASA,wB;MAG2C,oBAAU,OAAV,E;K;sGAE3C,yB;MAAA,uE;MAAA,gC;QAI8B,gBAAn
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,E;K;sGAEvD,yB;MAAA,wE;MAAA,gC;QAIiC,gBAAtB,oB;QAA4B,aJhCnC,W;QIgCA,OJ/BO,SI+B2C,Q;O;K
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AAc,KAAd,C;;K;IAIR,+B;MAMuD,sBAAQ,4BAAR,C;K;IAEvD,6B;MAIwE,kBAAhB,0B;MAAwB,uB;MAAxB,
OJlE7C,W;K;IIoEX,4B;MAQI,gBAAgB,SAAhB,EAAsB,cAAtB,C;K;IAGJ,2C;MAQI,gBAAgB,SAAhB,EAAsB,
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,U;YACI,YAAY,oBAAoB,KAApB,IAAZ,IAAyC,OAAO,aAAa,KAAb,IAAP,C;;;UAG7C,mBAAc,YAAY,CAAZ,
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EJ,OAAO,K;K;IAGX,mC;MAEI,IAAI,QAAQ,CAAZ,C;QACI,oB;;MAEJ,OAAO,K;K;IAIX,mC;MAIqD,mB;K;IA
ErD,wC;MP1NI,IAAI,EOiOI,YAAY,CPjOhB,CAAJ,C;QACI,cOgOqB,gC;QP/NrB,MAAM,gCAAyB,OAAQ,WA
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;;;MAGf,OAAO,K;K;yDAGX,oB;MAGoB,Q;MAFhB,qB;MACA,eAAe,K;MACC,0B;MAAhB,OAAgB,cAAhB,C
;QAAgB,yB;QACZ,IAAI,eAAI,OAAJ,CAAJ,C;UAAkB,WAAW,I;;MAEjC,OAAO,Q;K;IAKuC,sE;MAAA,qB;Q
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AV,C;K;IAKU,sE;MAAA,qB;QAAE,QAAO,gBAAP,mB;O;K;4DAFpD,oB;MAEY,Q;MADR,qB;MACA,OAAoC
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AhB,C;QACI,QAAS,O;QACT,QAAS,S;;K;iDAIjB,Y;MAE8B,OAAA,IAAK,U;K;yDAGnC,Y;K;;IC3CgD,+B;MA
AiC,oC;MACjF,gBAA8B,C;K;8CAM9B,mB;MAMI,qB;MACA,iBAAI,SAAJ,EAAU,OAAV,C;MACA,OAAO,I;
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Ad,C;QACA,UAAU,I;;MAEd,OAAO,O;K;0CAGX,Y;MACI,qB;MACA,yBAAY,CAAZ,EAAe,SAAf,C;K;IAKiB,

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;sDAGX,mB;MACI,iBAAc,sBAAd,WAA+B,CAA/B,U;QACI,IAAI,wBAAI,KAAJ,GAAc,OAAd,CAAJ,C;UACI,
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;oDAGvE,8B;MAA4E,uCAAQ,IAAR,EAAc,SAAd,EAAyB,OAAzB,C;K;wDAE5E,8B;MAII,eAAe,0BAAa,SAAb
,C;MACf,YAAO,UAAU,SAAV,I;M/DuDX,iBAAc,CAAd,UAAsB,KAAtB,U;Q+DtDiB,e;QACA,iB;;K;2CAIjB,iB
;MAMI,IAAI,UAAU,IAAd,C;QAAoB,OAAO,I;MAC3B,IAAI,2BAAJ,C;QAAuB,OAAO,K;MAE9B,OAAO,oCA
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AJ,C;K;wDAGX,Y;MlE5CJ,IAAI,EkE6CU,gBAAQ,ElE7ClB,CAAJ,C;QACI,ckE4CwB,sE;QlE3CxB,MAAM,6B
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oB;MAGmD,wD;MAG3C,oCAAa,4BAAmB,KAAnB,EAA0B,WAAyB,KAAnD,C;MACb,eAAa,K;K;iEAGjB,Y;
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,I;K;+DAEpC,mB;MACI,wBAAI,YAAJ,EAAW,OAAX,C;MACA,mC;MACA,cAAO,E;K;+DAGX,mB;MlElFJ,IA
AI,EkEmFU,gBAAQ,ElEnFlB,CAAJ,C;QACI,ckEkFwB,4E;QlEjFxB,MAAM,6BAAsB,OAAQ,WAA9B,C;;MkEk
FF,wBAAI,WAAJ,EAAU,OAAV,C;K;;IAIgB,+D;MAAuF,8B;MAAtF,kB;MAA0C,4B;MAC/D,eAAyB,C;MAGr
B,oCAAa,2BAAkB,gBAAlB,EAA6B,OAA7B,EAAsC,WAAK,KAA3C,C;MACb,eAAa,UAAU,gBAAV,I;K;wDA
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,OAAvB,C;MACL,mC;K;wDAGJ,iB;MACI,oCAAa,2BAAkB,KAAlB,EAAyB,YAAzB,C;MAEb,OAAO,wBAAK
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mB;K;2DAE/B,Y;MAA+C,WAAK,iB;K;;;ICxMN,8B;MAAiC,sB;MAwCnF,uBAAoC,I;MA+CpC,yBAA6C,I;K;I
AlFR,oD;MAAC,wB;MAGlC,gBAAqB,K;K;iFAHa,Y;MAAA,yB;K;uGAKZ,Y;MAAQ,oB;K;8DAE9B,oB;MAKI,
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C,iEAAc,IAAd,C;K;sDAClC,iB;MAA4C,+DAAY,IAAZ,EAAkB,KAAlB,C;K;;IAlB5C,8E;MAAAA,wE;MAAsC,2
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;MAAS,6B;K;uFACb,mB;MAAwC,MAAM,qCAA8B,8BAA9B,C;K;mFAC9C,Y;MACI,4BAAwB,Q;K;4FAG5B,
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C5B,6G;K;0FAOJ,mB;MACI,qB;MACA,IAAI,+CAAY,OAAZ,CAAJ,C;QACI,4BAAwB,cAAO,OAAP,C;QACxB
,OAAO,I;;MAEX,OAAO,K;K;oIAGY,Y;MAAQ,OAAAA,4BAAwB,K;K;4FAEvD,Y;MAAsC,4BAAwB,iB;K;;0FA
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4E/MxD,iBAAI,GAAJ,EAAS,KAAT,C;;K;IAQc,iG;MAAAA,sD;MAAS,oC;K;yFACf,mB;MAAwC,MAAM,qCAA
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,K;K;8FAEvD,Y;MAAsC,4BAAwB,iB;K;;4FAnB1E,Y;MACI,IAAI,8BAAJ,C;QACI,iG;;MAoBJ,OAAO,qC;K;gD
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AQ,KAAM,I;QACd,IAAI,YAAO,CAAP,CAAJ,C;UACI,YAAY,KAAM,M;UAClB,IAAK,S;UACL,OAAO,K;;;M
AGf,OAAO,I;K;kDAIX,Y;K;;IC3I+C,8B;MAAiC,oC;K;0CAEhF,iB;MAMI,IAAI,UAAU,IAAd,C;QAAoB,OAAO
,I;MAC3B,IAAI,0BAAJ,C;QAAsB,OAAO,K;MAC7B,OAAO,mCAAY,mBAAU,IAAV,EAAgB,KAAhB,C;K;4C

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K;gCAkBlC,Y;MAEI,qB;MACA,4BAAa,I;MACb,OAAO,I;K;qCAGX,Y;K;iDAGA,uB;K;iFAG8B,Y;MAAQ,OA
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Aa,I;MAHpB,qB;MACA,0BAAW,KAAX,C;MAEoB,gBAAb,qBAAM,KAAN,C;MAAqB,qC;MAA5B,OAAO,CA
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,mCAAoB,KAApB,C;MAEA,IAAI,UAAS,SAAb,C;QAAmB,OAAO,oBAAO,QAAP,C;MAC1B,IAAI,QAAS,UA
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,EAAmB,SAAnB,CAA5C,C;;MAG5D,qC;MACA,OAAO,I;K;2CAGX,iB;MACI,qB;MACA,0BAAW,KAAX,C;M
ACA,qC;MACA,OAAW,UAAS,sBAAb,GACG,oBAAY,MADf,GAGG,oBAAY,QAAO,KAAP,EAAc,CAAd,CAA
lB,CAAmC,CAAnC,C;K;uCAGR,mB;MAEkB,Q;MADd,qB;MACc,2B;MAAd,mD;QACI,IAAI,4BAAM,KAAN,
GAAgB,OAAhB,CAAJ,C;UACU,oBAAY,QAAO,KAAP,EAAc,CAAd,C;UAClB,qC;UACA,OAAO,I;;;MAGf,OA
AO,K;K;8CAGX,8B;MACI,qB;MACA,qC;MACM,oBAAY,QAAO,SAAP,EAAkB,UAAU,SAAV,IAAlB,C;K;gC
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AAR,C;K;4CAErD,mB;MAAmD,OAAM,YAAN,oBAAM,EAAY,OAAZ,C;K;mCAEzD,Y;MAA0B,uBAAc,oBA
Ad,C;K;0CAE1B,iB;MAGe,UAGL,MAHK,EAMO,M;MAPlB,IAAI,KAAM,OAAN,GAAa,SAAjB,C;QACI,OAA
O,2D;;MAGc,gBAAxB,eAAK,SAAL,IAAK,gBAAL,yB;MpEuwBL,UAAU,SAAV,EoEvwBsC,KpEuwBtC,EAD+
F,CAC/F,EADoH,CACpH,EADuI,gBACvI,C;MoErwBI,IAAI,KAAM,OAAN,GAAa,SAAjB,C;QACI,MAAM,SA
AN,IAAc,6E;;MAGlB,OAAO,K;K;kCAGX,Y;MACI,OAAO,EAAS,MAAM,MAAK,oBAAL,C;K;yCAI1B,Y;MA
CI,IAAI,yBAAJ,C;QAAgB,MAAM,oC;K;+CAG1B,iB;MACI,oCAAa,kCAAyB,SAAzB,C;MADoB,Y;K;wDAIrC,
iB;MACI,oCAAa,mCAA0B,SAA1B,C;MAD6B,Y;K;;IAlJ9C,+B;MAAA,mD;MAG8B,sBhCRa,EgCQb,C;MAH9
B,Y;K;IAKA,kD;MAAA,mD;MAIkD,sBhCdP,EgCcO,C;MAJlD,Y;K;IAMA,2C;MAAA,mD;MAGqD,sB9DLa,Y8
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P,C;;K;IAIlD,4D;MAEI,IAAI,UAAS,GAAb,C;QACI,OAAO,K;;MAGX,aAAa,CAAC,QAAQ,GAAAR,IAAD,IAAg
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;YAAmC,2BAAR,OAAQ,C;eACnC,sC;YAAmC,2BAAR,OAAQ,C;eACnC,uC;YAAmC,2BAAR,OAAQ,C;;YAE
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B;MAA+B,8C;K;IAE3B,sD;MAAA,oB;MACI,cACsC,I;MAEtC,cACsC,I;MAGlC,cAAO,iC;K;6DAIX,Y;MACI,O
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O;MACa,gBAAb,OAAQ,a;;MAAf,c3E0DS,S2E1DoB,KAAO,iC3E0DzC,GAAqB,SAArB,GAA+B,I;M2EzD1B,O
AAO,O;K;4DAGX,Y;M9EwBR,IAAI,E8EvBc,eAAQ,I9EuBtB,CAAJ,C;QACI,cAdW,e;QAeX,MAAM,6BAAsB,
OAAQ,WAA9B,C;;M8ExBE,WAAc,iB;MAGP,oCAAP,0BAAO,C;MACP,gCAAI,cAAO,0BAAO,IAAd,C;MAEJ,
cAAO,I;K;;iDAIf,mB;MAAyD,MAAM,qCAA8B,iCAA9B,C;K;6CAC/D,Y;MACI,WAAmB,Q;K;6DAGvB,mB;M
AAgE,OAAA,WAAmB,uBAAc,OAAd,C;K;gDAEnF,Y;MAAwE,qD;K;2DAExE,mB;MACI,qB;MACA,IAAI,iBA
AS,OAAT,CAAJ,C;QACI,WAAmB,cAAO,OAAQ,IAAf,C;QACnB,OAAO,I;;MAEX,OAAO,K;K;8FAGY,Y;MA
AQ,OAAA,WAAmB,K;K;sDAElD,Y;MAAsC,WAAmB,iB;K;;iDAa7D,qB;M9ErBA,IAAI,E8E0BM,0BAAQ,IAA
R,IAAgB,0BAAQ,I9E1B9B,CAAJ,C;QACI,cAdW,e;QAeX,MAAM,6BAAsB,OAAQ,WAA9B,C;;M8E0BN,YAA
Y,mB;MACZ,IAAI,SAAS,IAAb,C;QACI,sBAAO,S;QACP,yBAAO,S;QACP,yBAAO,S;;QAGK,YAAa,KAAM,a;
Q9ElBhC,uB;QAeP,IAfoB,KAehB,QAAJ,C;UACI,gBAhByB,0B;UAiBzB,MAAM,6BAAsB,SAAQ,WAA9B,C;;U
AEN,sBAnBgB,K;;Q8EkBZ,+B;QAEA,yBAAO,K;QACP,yBAAO,K;QAEP,qBAAa,S;QACb,qBAAa,S;;K;+CAIr
B,qB;MAII,IAAI,SAAK,aAAL,KAAc,SAAlB,C;QAEI,sBAAO,I;;QAEP,IAAI,wBAAS,SAAb,C;UAEI,sBAAO,sB

;;QAEX,qDAAc,sB;QACd,qDAAc,sB;;MAElB,yBAAO,I;MACP,yBAAO,I;K;oCA8CX,Y;MAEI,qB;MACA,4BA
Aa,I;MACb,OAAO,I;K;oCAGX,Y;MACI,qB;MACA,kBAAI,Q;MACJ,sBAAO,I;K;gDASX,e;MAAmD,OAAA,kB
AAI,mBAAY,GAAZ,C;K;kDAEvD,iB;MACiC,Q;MAAA,0B;MAAA,iB;QAAQ,OAAO,K;;MAA5C,WAA6B,I;;Q
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AJ,kBAAI,WAAI,GAAJ,CAAJ,6B;K;0CAE/C,sB;MACI,qB;MAEA,UAAU,kBAAI,WAAI,GAAJ,C;MACd,IAAI,
OAAO,IAAX,C;QACI,eAAe,mCAAW,GAAX,EAAgB,KAAhB,C;QACf,kBAAI,aAAI,GAAJ,EAAS,QAAT,C;QA
CK,wBAAT,QAAS,C;QACT,OAAO,I;;QAEP,OAAO,GAAI,gBAAS,KAAT,C;;K;2CAInB,e;MACI,qB;MAEA,Y
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N,EAAuB,UAAvB,Q;MA/KlE,yB;MAgLQ,sBAAM,gB;MATV,Y;K;IAYA,sD;MAAA,uD;MAA2C,qBAAK,eAA
L,EAAsB,GAAtB,Q;MAA3C,Y;K;IAEA,+C;MAAA,uD;MAG2C,qB;MAxL/C,yB;MAyLQ,sBAAM,gB;MACN,K
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jMO,S;K;;;oC4EvCP,Y;MAEK,Q;MAA8B,CAA9B,2EAA8B,S;MAC/B,OAAO,I;K;6CAGX,Y;MAA+C,gBAAI,i
B;K;;IAhCnD,wC;MAAA,uD;MAAmD,eAAM,GAAN,Q;MAPvD,yB;MAOI,Y;K;IAEA,qC;MAAA,uD;MAGuB,e
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qBAAO,QAAP,C;MAJJ,Y;K;IAOA,kE;MAAA,uD;MAQ8D,eAAM,qBAAsB,eAAtB,EAAuC,UAAvC,CAAN,Q;
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C;MAKmD,gBAAxC,mBAAc,qBAAd,C;MAAgD,6B;MAAvD,O5EoBO,S;K;;;;;kF6EzEX,uB;MAQI,OAAO,O;K;I
CXX,sB;K;mCACI,Y;MACI,mBAAM,IAAN,C;K;2CAGJ,mB;MACI,mBAAM,OAAN,C;MACA,c;K;iCAKJ,Y;K;
;IAKuB,oC;MAA8B,qB;MAA7B,gC;K;2CACxB,mB;MAEI,oBA+DyC,OA/Dd,OA+Dc,C;MA9DzC,iBAAa,OAA
M,aAAN,C;K;;IAIrB,8B;MAEoC,qB;K;iDAChC,mB;MACI,OAAQ,KAAI,OAAJ,C;K;mDAGZ,mB;MACI,OAAQ
,KAAI,OAAJ,C;K;2CAGZ,Y;MACI,OAAQ,KAAI,EAAJ,C;K;;IAIhB,0B;MAEqC,qB;MACjC,cAAa,E;K;6CAEb,
mB;MACI,eAoCyC,OApCxB,OAoCwB,C;K;qCAjC7C,Y;MACI,cAAS,E;K;;IAIjB,sC;MAE4C,yB;K;yDACxC,m
B;MACI,QAwByC,OAxB1B,OAwB0B,C;MAvBzC,QAAQ,CpEqJoF,aoErJhE,IpEqJgE,EoErJ1D,CpEqJ0D,C;Mo
EpJ5F,IAAI,KAAK,CAAT,C;QACI,4BAAU,CpEwL0E,WoExL9D,CpEwL8D,EoExL3D,CpEwL2D,C;QoEvLpF,
Y;QACA,IAAI,CpEmLiE,WoEnLrD,IAAI,CAAJ,IpEmLqD,C;;MoEjLzE,4BAAU,C;K;iDAGd,Y;MACI,OAAQ,K
AAI,WAAJ,C;MACR,cAAS,E;K;;;IAWjB,yB;MACiD,cAAa,KAAb,C;K;IAEjD,mB;MAEI,MAAO,U;K;IAGX,4B
;MAEI,MAAO,iBAAQ,OAAR,C;K;IAGX,wB;MAEI,MAAO,eAAM,OAAN,C;K;IAGX,kB;MACqC,MAAM,qCA
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a;K;2FAFvB,Y;MAAQ,OAAA,eAAS,Q;K;oDAIrB,kB;MACI,UAAU,IAAK,S;MAEX,YAAQ,2CAAR,C;QACI,g
BAAc,MAAO,M;WAEzB,YAAQ,yBAAR,C;QACI,gBAAc,yC;QACd,eAAS,oBAAW,MAAX,C;;QAEL,MAAM,6
BAAsB,iBAAtB,C;K;4CAItB,Y;MAOW,Q;MALP,IAAI,kBAAW,2CAAf,C;QACI,gBAAS,yB;QACT,OAAO,yB;;
MAEX,aAAa,IAAK,S;MAEd,eAAW,yCAAX,C;QAAsB,gC;WACtB,0C;QAA4B,MAAM,MAAO,U;;QACjC,a;M
AHZ,W;K;;IA7BJ,gD;MAAA,0D;MACyD,6BAAK,QAAL,EAAe,2CAAf,C;MADzD,Y;K;;;;;ICRA,2C;MAAA,+D
;MAAuB,iC;MAF3B,iC;MAEI,Y;K;IACA,sD;MAAA,+D;MAAuC,6BAAM,OAAN,Q;MAH3C,iC;MAGI,Y;K;IA
CA,6D;MAAA,+D;MAAmD,kCAAM,OAAN,EAAe,KAAf,C;MAJvD,iC;MAII,Y;K;IACA,oD;MAAA,+D;MAAi
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XpB,E;IAAA,0DAaQ,kB;MACI,wBAAW,MAAX,C;K;IAdZ,sF;I2C5C2E,0C;M5CkKhE,Q;MADP,e4ChKA,M5C
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AAL,C;MACA,OAAO,M;K;wFC3HX,yB;MAAA,uD;MAAA,wC;QAWqG,OAAK,cAAL,SAAK,EAAiB,IAAjB,E
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,iD;MAAA,4B;QAAe,OAAK,WAAL,SAAK,C;O;KAApB,C;wFAYA,yB;MAAA,uD;MAAA,4B;QAAe,OAAK,c

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,eAAQ,KAAR,C;K;8CAGJ,Y;MAAyC,iCAAuB,cAAvB,M;K;;ICCO,6C;MAAA,8B;MAAS,uB;K;8FAClC,Y;MA
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C;K;;IARtB,8B;MAGoD,4C;K;wECFpD,yB;MAAA,uC;MAAA,4B;QAOsC,MAAL,SAAK,C;O;KAPtC,C;kFASA
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B;MAEI,MAAM,uBAAmB,cAAnB,C;K;IAGV,2B;MAEI,MAAM,6BAAsB,OAAtB,C;K;IAGV,iC;MAEI,MAAM,
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;QAjFnE,WxGyKJ,awGzKgB,GxGyKhB,EuG5OoB,CCmEkC,uBAAuB,CAAC,WAAY,mBAAY,GAAZ,CAiFhD,
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B,oC;MAAC,oC;K;;;;;iF9CFrC,kD;MAyDI,SAAY,MAAK,OAAL,EAAc,SAAd,EAAyB,OAAzB,C;K;iFCzDhB,iC
;MAuBmC,0B;QAAA,aAAuD,S;MACtF,SAAY,MAAK,UAAL,C;K;;;;I8CoBhB,qB;MAK0B,Q;MADtB,UAAmB,
E;MACnB,wBAAsB,KAAtB,gB;QAAsB,aAAA,KAAtB,M;QAAK,IAAC,0BAAD,EAAO,2B;QACR,IAAI,IAAJ,I
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;KAP7D,C;qEASA,yB;MAAA,iB;MAAA,oB;QAOkD,OAAA,MAAW,KAAI,CAAJ,C;O;KAP7D,C;qEASA,yB;M
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,C;uEAoBA,yB;MAAA,0B;MAAA,oB;QAUmD,kBAAW,CAAX,C;O;KAVnD,C;uEAYA,yB;MAAA,0B;MAAA,
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,OAAO,IAAW,KAAI,CAAJ,CAAX,GAAAoB,IAAW,KAAI,IAAJ,C;K;mEAG1C,yB;MAAA,iB;MAAA,oB;QAWi
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;KAV/D,C;+EAYA,yB;MAAA,4B;MAAA,oB;QAUuD,mBAAY,CAAZ,C;O;KAVvD,C;IAYA,kB;MAQI,IAAI,IA
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AeA,yB;MAAA,iB;MAAA,+B;QAOsD,OAAA,MAAW,KAAI,SAAJ,EAAY,CAAZ,C;O;KAPjE,C;iGAmBsD,yB;
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,C;O;KALnE,C;IAkBqC,4B;MACjC,gBAAO,CAAP,C;QADyC,OACrB,QAAP,CAAC,SAAM,C;WACpB,IAAK,
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E;QAHgB,OnDjc6B,MAAa,gBAAe,IAAf,C;;K;ImDuctF,6B;MAKI,IAAK,QAAL,SAAK,CAAL,IAAgB,cAAQ,w
CAAO,kBAA/B,C;QAD0C,OACU,S;WACpD,kBAAQ,GAAR,C;QAF0C,OAE3B,CAAC,wCAAO,U;;QACR,WA
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AAe,IAAf,C;;K;ImDkdtF,oC;MAUI,IAAK,QAAL,SAAK,CAAL,IAAmB,QAAH,EAAG,CAAnB,C;QADuD,OAC
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K;ICP9B,yC;K;;IAWA,+B;K;;4GAYA,yB;MAAA,gC;MAAA,yD;MAAA,sC;QAQI,OAAK,qBAAL,SAAK,iB;O;
KART,C;ICPI,2B;MAAS,Q;MAAD,OAAwB,CAAvB,iEAAuB,Q;K;IAMhC,+B;MAAQ,iBAAU,SAAV,C;K;;;;;;I
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E,C;MAEf,kBACiB,wBAAoB,MAApB,EAA+D,OAA/D,EAAwE,kCAAxE,C;MAEjB,mBACkB,wBAAoB,MAAp
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AAlE,EAA+E,sCAA/E,C;MAErB,uBACsB,wBAAoB,YAApB,EAA0E,YAA1E,EAAwF,uCAAxF,C;MAEtB,wBA
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D,mC;MAEqE,UAAY,KAAZ,IAAqB,K;K;6EAuB1F,4B;MAEqE,iBAAY,KAAZ,C;K;6EAErE,mC;MAE4E,UAA
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AE,SAAF,IAAe,O;MACf,EAAE,UAAF,IAAgB,Q;MAChB,EAAE,QAAF,IAAc,M;MACd,EAAE,SAAF,IAAe,O;
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UX,4B;MAE6D,iBAAY,KAAZ,C;K;+GC6B7D,sJ;MAEsC,mB;QAAA,MA4GuD,M;;MA5GG,oB;QAAA,OAAgB
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AO,kC;QAAA,qBAA+B,K;MAAO,sB;QAAA,SAAmB,K;MAAO,oB;QAAA,OAAa,I;MAAM,uB;QAAA,UAAsC,
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AF,IAAa,K;MACb,EAAE,OAAF,IAAa,K;MACb,EAAE,SAAF,IAAe,O;MACf,EAAE,WAAF,IAAiB,S;MACjB,E
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,wC;K;;IAPJ,qC;MAAA,yF;K;;IAAA,0C;MAAA,a;aAAA,S;UAAA,+C;aAAA,O;UAAA,6C;;UAAA,8D;;K;;;IAyB
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MACA,kB;MACA,OAAO,kD;K;+CAeX,iB;MAII,2BAAY,K;MACZ,gD;K;sCAGJ,Y;MAII,+C;K;;ICjDkC,wB;M
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CC,sB;QAAb,OAAa,cAAb,C;UAAa,sB;UACT,ImJrUmE,OnJqUrD,ImJrUqD,UnJqUnE,C;YACI,sBAAO,K;YAA
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1KqO/C,CAAtB,C;QACI,2B0KtOwE,mB;;Q1KyOxE,2BAAO,sE;;M0KzOoC,+B;K;;I1KvFnD,oB;MAAA,wB;M
ACI,8C;K;gCAEA,iB;MAA4C,oCAAsB,KAAM,U;K;kCACxE,Y;MAA+B,Q;K;kCAC/B,Y;MAAkC,W;K;gFAEX
,Y;MAAQ,Q;K;iCAC/B,Y;MAAkC,W;K;2CAElC,e;MAA+C,Y;K;6CAC/C,iB;MAAsD,Y;K;mCACtD,e;MAAwC,
W;K;mFACY,Y;MAAQ,6B;K;gFAC/B,Y;MAAQ,6B;K;kFACI,Y;MAAQ,8B;K;uCAEjD,Y;MAAiC,6B;K;;;IAjBr
C,gC;MAAA,+B;QAAA,c;;MAAA,wB;K;IAoBA,oB;MAMuE,Q;MAA7B,OAA6B,uE;K;IAEvE,wB;MAaI,OAAI,
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B;QAQ4D,2B;O;KAR5D,C;IAUA,+B;MAYiD,gBAA7C,qBAAoB,YAAY,KAAM,OAAlB,CAApB,C;MAAqD,w
B;MAArD,OYJO,S;K;wFZMX,yB;MAAA,4D;MAAA,mB;QAOsD,qB;O;KAPtD,C;IASA,4B;MAM8G,gBAAvC,
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d,CAAN,C;K;sFAErF,yB;MgBfA,wE;MhBeA,gC;QgBXiC,gBAAtB,oB;QhB8BiB,aY9DxB,W;QZ8DA,OY7DO,S
I+B2C,Q;O;KhBWtD,C;uFA2BA,yB;MgBnCA,uE;MhBmCA,0C;QgB/ByC,gBAA9B,mBhBsDiB,QgBtDjB,C;Qh
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AV,C;O;KAJhE,C;2FAMA,wC;MAMiF,Q;MAAA,mCAAI,GAAJ,oBAAY,c;K;uGAG7F,yB;MAAA,gB;MAAA,8
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,OAlD6B,W;O;KAyCjC,C;oFAYA,yB;MAAA,0D;MAAA,uE;MAAA,uC;QAYW,kBAAU,mBAAoB,YAAY,cAA
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;MAAuB,eAAS,Q;K;8CAChC,iB;MAAuC,OAAA,eAAS,kBAAS,0BAAoB,KAApB,CAAT,C;K;yCAEhD,0B;MA
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B,C;K;IAE5D,gD;MACoB,Q;MAAA,qB;MAAhB,IAAa,CAAT,0BAAJ,C;QAAA,OAAsB,iBAAO,KAAP,I;;QAA
kB,MAAM,8BAA0B,oBAAiB,KAAjB,2BAA2C,gBAAG,cAAH,CAA3C,OAA1B,C;K;IAGlD,+B;MAK+C,gCAA
qB,SAArB,C;K;IAE/C,iC;MAM6D,wBAAa,SAAb,C;K;;;;IrKpC7D,oD;MAQuF,wC;K;IARvF,8CASI,Y;MAAuC,
8B;K;IAT3C,gF;IsKa8G,wC;MAAA,mB;QAAE,kBAAS,aAAT,C;O;K;IAVhH,yB;MAUqG,oCAAS,sBAAT,C;K;I
AErG,2B;MASI,eAAe,6B;MACf,oBAA0B,+BAAN,KAAM,EAAwC,QAAxC,EAA+D,QAA/D,C;MAC1B,OAAO,
Q;K;IAc+B,yB;K;+CAoBtC,kC;MAOI,IAAI,uCAA0B,QAAS,UAAvC,C;QAAkD,M;MAClD,OAAO,sBAAS,QA
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FA,Y;MACU,IASe,I;MATrB,QAAM,YAAN,C;aACI,C;aAAA,C;UAAsC,OAAO,qB;aAC7C,C;UACI,eAAQ,C;U
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,+B;MACI,mBAAY,K;MACZ,eAAQ,C;MACR,OAA6C,0CAAtC,c;K;IAUsC,+E;MAAA,oB;QACzC,wCAAW,C;

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D;M6HSH,eAAQ,C;K;kGAIR,Y;MAAQ,0C;K;;ItK/KhB,oD;MAQuF,wC;K;IARvF,8CASI,Y;MAAuC,8B;K;IAT3
C,gF;sFAAA,yB;MAAA,kC;MAAA,0C;MAAA,kD;QAQuF,wC;O;MARvF,4CASI,Y;QAAuC,8B;O;MAT3C,8E;
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;;cAAA,W;;;;;;;;;;;;;;;;K;IADwF,gE;MAAA,yD;uBAAA,uG;YAAA,S;iBAAA,Q;;iBAAA,uB;O;K;IAP5F,4C;MAO
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,W;MACxB,iBAAqB,E;MACrB,gBAAmB,I;K;oEAEnB,Y;MACI,OAAO,aAAS,UAAhB,C;QACI,WAAW,aAAS,
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;K;;IAc3C,6D;MACI,0B;MACA,gC;MACA,0B;K;IAEuC,4E;MAAA,sD;MACnC,gBAAe,kCAAS,W;MACxB,oB
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UpB,CAAJ,C;QACI,gBDgUkC,0DAAuD,eAAvD,WAAmE,iB;QC/TrG,MAAM,gCAAyB,SAAQ,WAAjC,C,C;;K;sF
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,aAAS,O;QACT,qC;;K;2DAIR,Y;MACI,a;MACA,OAAQ,gBAAW,gCAAZ,IAAyB,aAAS,U;K;wDAG7C,Y;MAC
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,CAAC,0BAAa,QAAb,EAAuB,QAAvB,EAAiC,KAAjC,CAAL,C;QACI,M;;MAEJ,uBAAa,K;MACb,yBAAY,QA
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;4EAIJ,wC;MAmBI,OAAO,cAAI,OAAJ,C;K;4EAGX,+C;MAqBI,cAAI,OAAJ,EAAa,KAAb,C;K;IC/FJ,kB;MA6P
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,SAAV,W;K;IAElC,+B;MAAA,mC;MACI,aAC8B,qB;K;;;IAFlC,2C;MAAA,0C;QAAA,yB;;MAAA,mC;K;;IgM9
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C/B,gBAAS,SAAU,OAAnB,I;UACqB,cAAU,K;UuBnsCpC,U;UAAA,IAAI,WAAS,CAAT,IAAc,WAAS,iBvBms
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C;;UAA9C,qB;UACA,qB;UACA,WAAW,sBAAsB,QAAtB,EAAgC,eAAhC,C,C;UACX,IAAI,YAAY,IAAZ,IAAoB,
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BmlCzC,QkBnlCyC,C;YlBolC5E,4BAA2C,aAAjC,0BAA0B,KAA1B,CAAiC,EAAW,IAAX,CAA3C,C;YACA,4B
AAmD,aAAX,SAA9B,SkBxlCmD,WlBwlC/B,QkBxlC+B,ClBwlCrB,CAAW,EAAW,IAAX,CAAnD,C;;YAEA,4B
AA+C,aAArC,0BAA0B,SAA1B,CAAqC,EAAW,IAAX,CAA/C,C;;;aAIZ,c;QACI,MAAM,+B;;QACV,IAAM,cAA
N,KAAM,EAAc,KAAd,EAAqB,cAArB,EAAqC,CAArC,ES1yCH,MAAO,KT0yCmD,SAAS,KAAT,IS1yCnD,ET
0yCmE,cAAe,OS1yClF,CT0yCJ,EAA4G,IAA5G,CAAN,C;UACI,SAAS,gCAAS,S;;UAIlB,iBAA8B,I;UAC9B,iB
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kB,MAAM,E;;;;gBA8Cd,iB;;cA9CzB,QA+CT,G;;YA7CK,aAAa,I;YACS,mBAAe,K;YA0CjD,UAHgC,Y;YAIhC,
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,W;gBAAc,WAAU,YAxCJ,KAwCI,YAAK,GAAL,E;gBAAV,SAxCoC,CAAM,kBAAK,GAAL,CAAN,mC;;;;cAw
ChB,iB;;YAxC7B,eAAe,KkBjnCiE,WlBqpClF,YkBrpCkF,ElB0pCrF,GkB1pCqF,C;YlBknChF,gBAAS,QAAS,OA
AlB,I;YACA,aAAW,wBAAwB,QAAxB,C;YACX,IAAI,cAAY,IAAZ,IAAoB,2BAAY,MAAZ,MAAxB,C;cAA0C,
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AI,CXnT4C,CAAa,kBAAK,EAAL,CAAb,oCWmTjC,OXnTiC,EWmThD,C;cAAyB,aAAO,K;cAAP,e;;;UAC/C,a
AAO,I;;;QXpTyD,iB;;MAAhE,S;QAEI,OAAW,iBAAM,CAAN,MAAY,EAAhB,sD;;MAGX,OAAiB,WAAN,KA
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ArB,C;QAAyC,a;;MAJzC,OkBrpC4F,oBlBqpClF,UkBrpCkF,ElB0pCrF,CkB1pCqF,C;K;IlBupChG,qD;MACI,QA
AQ,U;MACR,OAAO,IAAI,gBAAJ,IAAc,UAAU,iCAAK,CAAL,EAAV,CAArB,C;QAAyC,a;;MACzC,OAAO,C;
K;;;;;IAmBX,8B;MAA+C,qCAAQ,OAAR,E;K;IAC/C,+B;MAAgD,2CAAS,OAAT,E;K;IAEhD,sC;MAAiD,oBAA
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C;K;IACnD,oD;MAAoE,oBAAU,sBAAgB,CAAhB,CAAD,yBAAsB,iBAAtB,EAAT,C;K;IACpE,0C;MACI,IAAI,
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GR,4C;MACI,IAAI,kEAAgC,mBAAhC,CAAJ,C;QAAAA,OACI,gBAAgB,cAAc,MAAd,CAAhB,C;;QADJ,OAGI,i
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4C,OAChB,I;aAC5B,c;UAF4C,OAEf,I;aAC7B,c;UAH4C,OAGf,I;aAC7B,S;UAJ4C,OAIpB,G;aACxB,S;UAL4C,
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HZ,sC;;UAIoB,MAAM,gCAAyB,4EAAqD,OAArD,CAAzB,C;;QAIlB,QAAM,OAAN,C;eACI,E;YATZ,uC;eAUY
,E;YAVZ,yC;eAWY,E;YAXZ,yC;;YAYoB,MAAM,gCAAyB,yDAAkC,OAAlC,CAAzB,C;;;K;IC5F9B,4B;K;;;M
CqDI,kC;;IAlCA,gC;MAAA,oC;K;6CAUI,Y;MAAwC,OAAA,iCAAoB,U;K;8CAC5D,Y;MAAkC,OAAA,iCAAo
B,W;K;IAcrB,qD;MAAqB,8B;K;8DAClD,Y;MAAsC,OAAA,iCAAoB,qBAAY,IAAZ,C;K;+DAC1D,oB;MAAuD,
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AkD,+CAAa,gBAAb,EAAwB,iBAAxB,EAAoC,0BAAS,QAAT,CAApC,C;K;;+CAGtD,Y;MAAmC,+CAAa,WA
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,IAAI,gDAA+B,4CAAnC,C;QAEN,iBAAiB,mBAAU,SAAV,C;QACjB,IAAI,mBAAY,SAAZ,gBAAyB,CAAzB,I
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;;IC9Fd,yC;MACI,iBAAiB,QAAS,mB;MAC1B,IAAI,OAAC,oCAAS,CAAT,EAAD,kCAAJ,C;QACI,OAAO,wBA
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D,KAAyB,eAAe,MAAf,CAAzB,CAAD,cAAoD,CAAxD,C;QACI,OAAW,oBAAS,CAAb,sD;;MAEX,OAAO,M;K
;IAGX,+D;MACI,IAAI,QAAS,aAAT,IAA0B,WAAW,UAAX,eAAwB,CAAtD,C;QAA0D,MAAM,gCAAyB,uCA
AzB,C;MAChE,OAAO,M;K;IAGX,iD;MACI,WAAW,qBAAW,CAAX,C;MACX,IAAI,OAAC,IAAK,mBAAL,8B
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F+MjEnD,yB;MAAA,yC;MAAA,wB;QA4CI,WAAW,8B;QAjC6B,KAkCxC,E;QAlCA,OAmCO,IAAK,a;O;KA9C
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X,O;MACA,OAAO,IAAK,a;K;IAYe,qC;MAAC,kB;MAAc,wB;K;;sCAR9C,Y;MAQgC,iB;K;sCARhC,Y;MAQ8C
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,C;YACI,IlKrKhB,oBDgDQ,WmKqHoB,0EnKrHpB,CChDR,C;;;UkKwKY,gBAAc,gB;UACd,IAAK,oBAAW,MA
AX,C;;;K;;0ECxMrB,4B;MAyLI,QApLK,SAoLG,GApLoB,KAoLpB,I;MACR,IAAI,CArLC,SAqLD,GArLwB,KA
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AP,e;;;QAC/C,aAAO,I;;;Mc9nDH,iB;K;mCAGJ,Y;MAAkC,OAAA,IAAK,QAAQ,OAAb,KAAqB,C;K;;IA9CvD,s
C;MAAA,oD;MACgC,uBAAK,cAAU,IAAV,CAAL,C;MADhC,Y;K;;;;oCAPJ,Y;MAAA,OAKqB,qDALrB,M;K;o
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AS6D,sB;MAT7D,+B;MA/PA,wB;QAEuD,OiBAA,eAAW,CjBsQ7B,eAAW,oBAAL,SAAK,CAAL,iBAAN,CiBt
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,yB;MC8MA,6B;MD9MA,wB;QAEwD,OAGF,cAAe,YAAV,IAAK,KAAK,EAAY,CCkN9C,cDrNgC,KCqNtB,K
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,C;O;KANpD,C;wFAOA,yB;MA+LA,kBAS6D,sB;MAT7D,+B;MiB/LA,oD;MjBAA,wB;QAMsD,OiBAA,ejBkMj
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;wFASA,yB;MA9DA,kD;MA8DA,wB;QAQ2C,OAhES,cAAc,IAAd,EAgEL,KAhEK,C;O;KAwDpD,C;wFASA,y
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D,+B;MAAA,mB;QASqC,sBAAW,oBAAL,SAAK,CAAL,iBAAN,C;O;KATrC,C;gFAWA,yB;MASA,gD;MATA,
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,SAAV,C;O;KAXxC,C;wEAYA,yB;MAAA,6B;MAAA,4B;QAWyC,qBAAU,SAAV,C;O;KAXzC,C;wEAYA,yB;
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,eAAoB,C;K;2CACpB,Y;MAAyB,sBAAQ,YAAM,O;K;wCACvC,Y;MAAoD,Q;MAA9B,IAAI,eAAQ,YAAM,OA
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,WAA7B,C;K;;yCAGrF,mB;MAIS,Q;MAAL,IAAI,eAAC,0EAAD,OAAJ,C;QAAgC,OAAO,K;MAEvC,OAAe,W
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,2B;Ue7nD6B,2Bf6nDR,Oe7nDQ,O;UAAA,W;YAAsB,oBAAR,YAAQ,Ef6nD9B,OlB74CJ,KiChPkC,C;;Uf6nD7
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;I+LjE5C,wC;MA8BlB,iC;MA9BsD,2BAAgB,KAAhB,EAAuB,YAAvB,EAAqC,CAArC,C;K;kFAC7B,Y;MAAQ,
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wC,KAA7B,CgO/BpB,K;MAAA,S;QAAkB,OhO+BE,YgO/BF,KhO+BmB,KAAjB,EgO/BO,ShO+BsB,KAA7B,C
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A/BnE,C;sGAQA,yB;MhB8QA,aAS6D,0B;MAT7D,+B;MgB9PA,gD;MAhBA,wB;QAM2D,OAiBQ,aAAa,IAAK,
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C;sGAQA,yB;MjByRA,kBAS6D,sB;MAT7D,+B;MiBjRA,gD;MARA,wB;QAMyD,OASU,aAAa,IAAK,KAAlB,E
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yB;MAAA,gD;MAAA,wB;QAOmE,oBAAa,IAAK,KAAlB,EAAwB,KAAM,KAA9B,C;O;KAPnE,C;4FASA,yB;
MlBoPA,WAS6D,wB;MAT7D,+B;MkBpPA,wB;QAEuD,OASA,eAAM,IAAK,KAAK,KAAW,ClBkP7C,eAAW,o
BkB3PiB,KlB2PtB,KAAK,CAAL,UAAN,CkBlP6C,MAAX,CAAhB,C;O;KAXvD,C;4FAGA,yB;MhBkPA,aAS6D
,0B;MAT7D,+B;MgBlPA,wB;QAEwD,OAMD,eAAM,IAAK,KAAK,KAAW,ChBmP7C,eAAW,oBgBzPkB,KhBy
PvB,KAAK,CAAL,YAAN,CgBnP6C,MAAX,CAAhB,C;O;KARvD,C;4FAGA,yB;MjBkQA,kBAS6D,sB;MAT7D,
+B;MiBlQA,wB;QAEsD,OAGC,eAAM,IAAK,KAAK,KAAW,CjBsQ7C,eAAW,oBiBzQgB,KjByQrB,KAAK,CA
AL,iBAAN,CiBtQ6C,MAAX,CAAhB,C;O;KALvD,C;4FAGA,yB;MAAA,+B;MAAA,wB;QAEuD,sBAAM,IAAK
,KAAK,KAAK,KAAM,KAAX,CAAhB,C;O;KAFvD,C;8FAIA,yB;MlBuOA,WAS6D,wB;MAT7D,+B;MkBvOA,
wB;QAEwD,OASA,eAAM,IAAK,KAAK,UAAY,ClBqO/C,eAAW,oBkB9OmB,KlB8OxB,KAAK,CAAL,UAAN,
CkBrO+C,MAAZ,CAAhB,C;O;KAXxD,C;8FAGA,yB;MhBqOA,aAS6D,0B;MAT7D,+B;MgBrOA,wB;QAEyD,O
AMD,eAAM,IAAK,KAAK,UAAY,ChBsO/C,eAAW,oBgB5OoB,KhB4OzB,KAAK,CAAL,YAAN,CgBtO+C,MA
AZ,CAAhB,C;O;KARxD,C;8FAGA,yB;MjBqPA,kBAS6D,sB;MAT7D,+B;MiBrPA,wB;QAEuD,OAGC,eAAM,I
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KALxD,C;8FAGA,yB;MAAA,+B;MAAA,wB;QAEwD,sBAAM,IAAK,KAAK,UAAM,KAAM,KAAZ,CAAhB,C;
O;KAFxD,C;8FAIA,yB;MlB0NA,WAS6D,wB;MAT7D,+B;MkB1NA,wB;QAEwD,OASA,eAAM,IAAK,KAAK,
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N/C,eAAW,oBgB/NoB,KhB+NzB,KAAK,CAAL,YAAN,CgBzN+C,MAAZ,CAAhB,C;O;KARxD,C;8FAGA,yB;
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BiB/OkB,KjB+OvB,KAAK,CAAL,iBAAN,CiB5O+C,MAAZ,CAAhB,C;O;KALxD,C;8FAGA,yB;MAAA,+B;MA
AA,wB;QAEwD,sBAAM,IAAK,KAAK,UAAM,KAAM,KAAZ,CAAhB,C;O;KAFxD,C;0FAIA,yB;MlB6MA,WA
S6D,wB;MAT7D,+B;MkBpMA,8C;MATA,wB;QAEsD,OASA,YAAY,IAAZ,ElB2MjB,eAAW,oBkBpNe,KlBoNp
B,KAAK,CAAL,UAAN,CkB3MiB,C;O;KAXtD,C;0FAGA,yB;MhB2MA,aAS6D,0B;MAT7D,+B;MgBrMA,8C;M
ANA,wB;QAEuD,OAMD,YAAY,IAAZ,EhB4MjB,eAAW,oBgBlNgB,KhBkNrB,KAAK,CAAL,YAAN,CgB5MiB
,C;O;KARtD,C;0FAGA,yB;MjB2NA,kBAS6D,sB;MAT7D,+B;MiBxNA,8C;MAHA,wB;QAEqD,OAGC,YAAY,I
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B;MkB3KA,oD;MArBA,wB;QAMsD,OAqBA,eAAe,IAAf,ElB8KjB,eAAW,oBkBnMe,KlBmMpB,KAAK,CAAL,
UAAN,CkB9KiB,C;O;KA3BtD,C;0FAOA,yB;MhB0LA,aAS6D,0B;MAT7D,+B;MgB5KA,oD;MAdA,wB;QAMu
D,OAcD,eAAe,IAAf,EhB+KjB,eAAW,oBgB7LgB,KhB6LrB,KAAK,CAAL,YAAN,CgB/KiB,C;O;KApBtD,C;0F
AOA,yB;MjBsMA,kBAS6D,sB;MAT7D,+B;MiB/LA,oD;MAPA,wB;QAMqD,OAOC,eAAe,IAAf,EjBkMjB,eAA
W,oBiBzMc,KjByMnB,KAAK,CAAL,iBAAN,CiBlMiB,C;O;KAbtD,C;0FAOA,yB;MAAA,oD;MAAA,wB;QAMs
D,sBAAe,IAAf,EAAqB,KAArB,C;O;KANtD,C;oGAQA,yB;MlBmKA,WAS6D,wB;MAT7D,+B;MkBpMA,8C;M
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C;O;KA+BtD,C;oGAOA,yB;MhB6JA,aAS6D,0B;MAT7D,+B;MgBrMA,8C;MAwCA,wB;QAMmD,OA5CG,YA
AY,IAAZ,EhB4MjB,eAAW,oBgBhKiB,KhBgKtB,KAAK,CAAL,YAAN,CgB5MiB,C;O;KAsCtD,C;oGAOA,yB;
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D;MlB4OJ,0B;MAAA,+B;MkBvMI,wB;QAQ6C,OlB0MP,eAAW,OkBjPK,eAAe,IAAf,ElB8KjB,eAAW,oBkBvI
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6D,0B;MAT7D,+B;MgB5KA,oD;MhB6OJ,4B;MAAA,iC;MgB/LI,wB;QAQ+C,OhBkMP,gBAAY,QgBlPE,eAAe,I
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C,C;0FASA,yB;MjBwIA,kBAS6D,sB;MAT7D,+B;MiB/LA,oD;MjBkQJ,6B;MiB3MI,wB;QAQ2C,OjB8MP,ciBvQ
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O;KiBtNpC,C;0FASA,yB;MAhEA,oD;MAgEA,wB;QAQ6C,OAlES,eAAe,IAAf,EAkEL,KAlEK,C;O;KA0DtD,C;
0EAUA,yB;MAAA,+B;MAAA,mB;QAM0C,sBAAM,SAAK,MAAX,C;O;KAN1C,C;0EAQA,yB;MAAA,+B;MA
AA,mB;QAM0C,sBAAM,SAAK,MAAX,C;O;KAN1C,C;kGAQA,yB;MAAA,gD;MAAA,wB;QAE+D,2BAAW,I
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;O;KAPpD,C;0FASA,yB;MAAA,+B;MAAA,2B;QAOoD,sBAAM,6BAAU,QAAV,CAAN,C;O;KAPpD,C;0FASA,
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,S;O;KAV1C,C;8EAWA,Y;MAUiC,OAAA,SAAK,Q;K;gFACtC,Y;MASmC,gB;K;kFAEnC,yB;MlBmEJ,0B;MA
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J,6B;MiBrEI,mB;QASmC,OjBuEC,ciBvED,SjBuEW,QAAV,C;O;KiBhFpC,C;kFAUA,Y;MAEqC,W;K;kFAErC,y
B;MASA,kD;MATA,mB;QAQqC,OASE,cAAc,SAAd,C;O;KAjBvC,C;oFASA,yB;MAAA,kD;MAAA,mB;QAQu
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BAAL,SAAK,CAAX,C;O;KAX1C,C;0EAYA,yB;MAAA,+B;MAAA,4B;QAW2C,sBAAW,oBAAL,SAAK,CAA
X,C;O;KAX3C,C;0EAYA,yB;MAAA,+B;MAAA,4B;QAWyC,sBAAW,oBAAL,SAAK,CAAX,C;O;KAXzC,C;0E
AYA,yB;MAAA,+B;MAAA,4B;QAU0C,sBAAM,SAAN,C;O;KAV1C,C;yEAYA,yB;MAAA,kD;MAAA,4B;QAS
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,aAAQ,KAAR,IAAiB,KjBoRc,K;K;kFiBhRL,Y;MAAQ,OAAA,YAAQ,O;K;oCAE9C,Y;MAC8E,+BAAS,YAAT,
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;QAAhB,OAAgB,gBAAhB,C;UAAgB,2B;UgB7nD6B,2BhB6nDR,OgB7nDQ,Q;UAAA,W;YAAuB,oBAAR,YAA
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9nDH,iB;K;mCAGJ,Y;MAAkC,OAAA,IAAK,QAAQ,OAAb,KAAqB,C;K;;IA9CvD,sC;MAAA,oD;MACgC,uBA
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B,wD;MALrB,a;K;kCAAA,iB;MAAA,2IAKqB,0CALrB,G;K;gFAwDA,yB;MAAA,yC;MAWsC,yC;QAAA,wB;U
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B,CAAX,C;O;KAXX,C;kFAcA,oB;MAGqE,e;K;I+LjE9C,2C;MA8BnB,kC;MA9ByD,4BAAiB,KAAjB,EAAwB,
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AhB,C;K;8CgNpDvD,iB;MAA+C,WhNuCoB,agNvCpB,UhNuCsC,KAAlB,EgNvCX,KhNuCyC,KAA9B,CgNvCp
B,K;MAAA,S;QAAkB,OhNuCE,agNvCF,KhNuCoB,KAAlB,EgNvCO,ShNuCuB,KAA9B,CgNvCF,K;;MAAlB,W
;K;qCAE/C,Y;MAKkC,OhNgCiC,agNhCjC,UhNgCmD,KAAlB,EgNhCzB,ShNgCuD,KAA9B,CgNhCjC,I;K;oCA
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M,CAAN,EAAS,CAAT,C;O;KAPX,C;wEAUA,yB;MAAA,8C;MAAA,uB;QAOI,OAAO,MAAM,CAAN,EAAS,C
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;wEAUA,yB;MAAA,8C;MAAA,uB;QAOI,OAAO,MAAM,CAAN,EAAS,CAAT,C;O;KAPX,C;oFC7BA,yB;MAA
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+QzB,cmO/QyB,C;O;KAN9D,C;8FAQA,yB;MAAA,0D;MnOwWA,6B;MmOxWA,4B;QAOmD,OnO2WZ,cmO3
WoB,kBnOsQtB,cmOtQsB,CnO2WpB,C;O;KmOlXvC,C;4FASA,yB;MAAA,wD;MnO+VA,6B;MmO/VA,4B;QA
OkD,OnOkWX,cmOlWmB,iBnO6PrB,cmO7PqB,CnOkWnB,C;O;KmOzWvC,C;gFASA,yB;MAAA,4C;MnOsVA,
6B;MmOtVA,sC;QAayD,OnOmVlB,cmOnV0B,WnO8O5B,cmO9O4B,EAAW,QAAX,CnOmV1B,C;O;KmOhWv
C,C;kFAgBA,yB;MAAA,8C;MnOsUA,6B;MmOtUA,sC;QAa0D,OnOmUnB,cmOnU2B,YnO8N7B,cmO9N6B,EA
AY,QAAZ,CnOmU3B,C;O;KmOhVvC,C;oFAgBA,yB;MAAA,gD;MAAA,4B;QAM8C,OAAS,alNgOhB,ckNhOg
B,C;O;KANvD,C;oGAQA,yB;MAAA,gE;MAAA,4B;QAMsD,OAAS,qBlNwNxB,ckNxNwB,C;O;KAN/D,C;sGA
QA,yB;MAAA,kE;MAAA,4B;QAMuD,OAAS,sBlNgNzB,ckNhNyB,C;O;KANhE,C;8FAQA,yB;MAAA,0D;MlN
6SA,+B;MkN7SA,4B;QAOqD,OlNgTX,ekNhToB,kBlNuMvB,ckNvMuB,ClNgTpB,C;O;KkNvT1C,C;4FASA,yB;
MAAA,wD;MlNoSA,+B;MkNpSA,4B;QAOoD,OlNuSV,ekNvSmB,iBlN8LtB,ckN9LsB,ClNuSnB,C;O;KkN9S1C,
C;+EASA,yB;MAAA,4C;MlN2RA,+B;MkN3RA,sC;QAa2D,OlNwRjB,ekNxR0B,WlN+K7B,ckN/K6B,EAAW,Q
AAX,ClNwR1B,C;O;KkNrS1C,C;iFAeA,yB;MpHgEA,4C;M9F4MA,+B;MkN5QA,sC;QAa4D,OlNyQlB,e8FzMu
B,W9FgG1B,c8FhG0B,EAAW,CoHhEK,QpHgEL,IAAX,C9FyMvB,C;O;KkNtR1C,C;oFAeA,yB;MpOwJI,6B;Mo
O1SJ,gD;MAkJA,4B;QAM8C,OAlJO,anO+RhB,CDcE,cAAU,cAAL,GAAiB,GAAtB,CCdF,MmO/RgB,C;O;KA4I
rD,C;oGAQA,yB;MpH1GA,4B;MoH0GA,4B;QAMsD,OpH1GK,YhHuMpB,c8N1Ge,GAAY,G9G7FP,C8G6FN,G
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AAO,C;O;KMOzE,C;8FAQA,yB;MAAA,0D;MpO+LA,0B;MAAA,+B;MoO/LA,4B;QAOqD,OpOmMZ,eAAW,O
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A,0B;MAAA,+B;MoOtLA,4B;QAOoD,OpO0LX,eAAW,OoO1LQ,iBpOuFlB,cAAL,GAAiB,GoOvFM,CpO0LR,C
AAX,C;O;KoOjMzC,C;gFAUA,yB;MAAA,4C;MpOqJA,+B;MoOrJA,sC;QAa2D,OpOkJjB,eoOlJ0B,WpOmD7B,c
oOnD6B,EAAW,QAAX,CpOkJ1B,C;O;KoO/J1C,C;kFAeA,yB;MAAA,8C;MpOsIA,+B;MoOtIA,sC;QAa4D,OpO
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D;MA2NA,4B;QAM+C,OA3NM,anO+RhB,CCeE,cAAU,cAAL,GAAiB,KAAtB,CDfF,MmO/RgB,C;O;KAqNrD,
C;oGAQA,yB;MpHnLA,4B;MoHmLA,4B;QAMuD,OpHnLI,Y9GkNlB,c4N3CpC,GAAY,K9GvK0C,C8GuKvD,G
AA+C,EAA/C,I;O;KMMJ,C;sGAQA,yB;MNZA,kE;MMYA,4B;QAMwD,ONZoB,sB5NmCnC,c4NnCe,GAAW,K
AAS,C;O;KMM5E,C;8FAQA,yB;MAAA,0D;MlOuHA,4B;MAAA,iC;MkOvHA,4B;QAOuD,OlO2HZ,gBAAY,Qk
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;KkOzH3C,C;gFAUA,yB;MAAA,4C;MlOyFA,iC;MkOzFA,sC;QAa6D,OlOsFhB,gBkOtF0B,WlOX9B,ckOW8B,E
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+E8C,KAAK,UmN/E9C,EnN+E0D,KAAZ,CAAhB,CmN/ExD,GnNkEuD,UAAW,CAaV,UmN/EtB,EnN+EiC,KA
AK,UmN/EjC,EnN+E6C,KAAZ,CAAhB,CAbU,MAAK,KmNlE3B,CnNkEsC,KAAX,CAAhB,C;K;ImN/D3D,uD;
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,6B;MA9NA,wB;QAEuD,ODMD,cAAU,CC+N7B,cAAU,SAAL,GAAiB,KAAtB,CD/N6B,MAAK,GAAY,CD8N9
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FxD,C;4FAIA,yB;MAoMA,6B;MD9LA,4C;MCNA,wB;QAEqD,ODMD,WCqMjB,cAAU,SAAL,GAAiB,KAAtB,
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,uBAAY,QAAL,SAAK,KAAZ,C;O;KAN3C,C;oGAQA,yB;MAAA,8C;MAwEA,6B;MAxEA,wB;QAE+D,0BA+E
5B,cAAU,SAAL,GAAiB,KAAtB,CA/E4B,EA+E5B,cA/EqD,KA+E3C,KAAL,GAAiB,KAAtB,CA/E4B,C;O;KAF/
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,C;O;KAFlC,C;kFAIA,yB;MAAA,0B;MAAA,mB;QAUmC,OAAK,OAAL,SAAK,C;O;KAVxC,C;oFAWA,Y;MA
SqC,gB;K;gFACrC,Y;MASiC,OAAK,SAAL,GAAiB,K;K;kFAClD,yB;MAAA,aASqD,0B;MATrD,mB;QASmC,O
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* /opt/cola/permits/1213933366_1634184082.3/0/material-design-2-0-3-tgz/package/src/mdc-base/types.ts
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*/
/**
* Defines the shape of the adapter expected by the foundation.
* Implement this adapter for your framework of choice to delegate updates to
* the component in your framework of choice. See architecture documentation
* for more details.
* https://github.com/material-components/material-components-web/blob/master/docs/code/architecture.md
*/

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* /opt/cola/permits/1213933366_1634184082.3/0/material-design-2-0-3-tgz/package/src/mdc-ripple/adapter.ts

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* /opt/cola/permits/1213933366_1634184082.3/0/material-design-2-0-3-tgz/package/src/mdc-ripple/component.ts
* /opt/cola/permits/1213933366_1634184082.3/0/material-design-2-0-3-tgz/package/src/mdc-ripple/util.ts
* /opt/cola/permits/1213933366_1634184082.3/0/material-design-2-0-3-tgz/package/src/mdc-ripple/foundation.ts
* /opt/cola/permits/1213933366_1634184082.3/0/material-design-2-0-3-tgz/package/src/mdc-base/foundation.ts
* /opt/cola/permits/1213933366_1634184082.3/0/material-design-2-0-3-tgz/package/src/mdc-base/component.ts

1.25 sqlite 3.33.0

1.25.1 Available under license :

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1.26 cpprest 2.9.0

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* /opt/cola/permits/1209197947_1686812628.275104/0/vendors-gtest-1-8-0-234-windows-zip/include/gmock/internal/gmock-internal-utils.h
* /opt/cola/permits/1209197947_1686812628.275104/0/vendors-gtest-1-8-0-234-windows-zip/include/gmock/gmock-matchers.h
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* /opt/cola/permits/1209197947_1686812628.275104/0/vendors-gtest-1-8-0-234-windows-zip/include/opensource/gmock-1.7.0/include/gmock/gmock.h
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zip/include/gtest/internal/gtest-filepath.h
* /opt/cola/permits/1209197947_1686812628.275104/0/vendors-gtest-1-8-0-234-windows-zip/include/gmock/internal/gmock-generated-internal-utils.h
* /opt/cola/permits/1209197947_1686812628.275104/0/vendors-gtest-1-8-0-234-windows-zip/include/opensource/gtest-1.7.0/include/gtest/internal/gtest-filepath.h
* /opt/cola/permits/1209197947_1686812628.275104/0/vendors-gtest-1-8-0-234-windows-zip/include/gmock/gmock-more-actions.h
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* /opt/cola/permits/1209197947_1686812628.275104/0/vendors-gtest-1-8-0-234-windows-zip/include/opensource/gtest-1.7.0/include/gtest/gtest.h
* /opt/cola/permits/1209197947_1686812628.275104/0/vendors-gtest-1-8-0-234-windows-zip/include/opensource/gtest-1.7.0/include/gtest/internal/gtest-internal.h
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* /opt/cola/permits/1209197947_1686812628.275104/0/vendors-gtest-1-8-0-234-windows-zip/include/gtest/internal/gtest-linked_ptr.h

* /opt/cola/permits/1209197947_1686812628.275104/0/vendors-gtest-1-8-0-234-windows-zip/include/gmock/gmock.h
* /opt/cola/permits/1209197947_1686812628.275104/0/vendors-gtest-1-8-0-234-windows-zip/include/opensource/gmock-1.7.0/include/gmock/internal/gmock-internal-utils.h
* /opt/cola/permits/1209197947_1686812628.275104/0/vendors-gtest-1-8-0-234-windows-zip/include/opensource/gmock-1.7.0/include/gmock/gmock-cardinalities.h

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* /opt/cola/permits/1209197947_1686812628.275104/0/vendors-gtest-1-8-0-234-windows-zip/include/opensource/gtest-1.7.0/include/gtest/internal/gtest-param-util-generated.h

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$$ -*- mode: c++; -*-
$var n = 50 $$ Maximum length of type lists we want to support.

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//
// Author: wan@google.com (Zhanyong Wan)

// Type utilities needed for implementing typed and type-parameterized
// tests.  This file is generated by a SCRIPT.  DO NOT EDIT BY HAND!
//
// Currently we support at most $n types in a list, and at most $n
// type-parameterized tests in one type-parameterized test case.
// Please contact googletestframework@googlegroups.com if you need
// more.

#ifndef GTEST_INCLUDE_GTEST_INTERNAL_GTEST_TYPE_UTIL_H_
#define GTEST_INCLUDE_GTEST_INTERNAL_GTEST_TYPE_UTIL_H_

#include "gtest/internal/gtest-port.h"

// #ifdef __GNUC__ is too general here.  It is possible to use gcc without using
// libstdc++ (which is where cxxabi.h comes from).
# if GTEST_HAS_CXXABI_H_
#  include <cxxabi.h>
```

```
# elif defined(__HP_aCC)
#  include <acxx_demangle.h>
# endif  // GTEST_HASH_CXXABI_H_

namespace testing {
namespace internal {

// GetTypeName<T>() returns a human-readable name of type T.
// NB: This function is also used in Google Mock, so don't move it inside of
// the typed-test-only section below.
template <typename T>
std::string GetTypeName() {
# if GTEST_HAS_RTTI

 const char* const name = typeid(T).name();
#  if GTEST_HAS_CXXABI_H_ || defined(__HP_aCC)
 int status = 0;
 // gcc's implementation of typeid(T).name() mangles the type name,
 // so we have to demangle it.
#   if GTEST_HAS_CXXABI_H_
 using abi::__cxa_demangle;
#   endif  // GTEST_HAS_CXXABI_H_
 char* const readable_name = __cxa_demangle(name, 0, 0, &status);
 const std::string name_str(status == 0 ? readable_name : name);
 free(readable_name);
 return name_str;
#  else
 return name;
#  endif  // GTEST_HAS_CXXABI_H_ || __HP_aCC

# else

 return "<type>";

# endif  // GTEST_HAS_RTTI
}

#if GTEST_HAS_TYPED_TEST || GTEST_HAS_TYPED_TEST_P

// AssertyTypeEq<T1, T2>::type is defined iff T1 and T2 are the same
// type.  This can be used as a compile-time assertion to ensure that
// two types are equal.

template <typename T1, typename T2>
struct AssertTypeEq;

template <typename T>
struct AssertTypeEq<T, T> {
```

```
 typedef bool type;
};

// A unique type used as the default value for the arguments of class
// template Types.  This allows us to simulate variadic templates
// (e.g. Types<int>, Type<int, double>, and etc), which C++ doesn't
// support directly.
struct None {};

// The following family of struct and struct templates are used to
// represent type lists.  In particular, TypesN<T1, T2, ..., TN>
// represents a type list with N types (T1, T2, ..., and TN) in it.
// Except for Types0, every struct in the family has two member types:
// Head for the first type in the list, and Tail for the rest of the
// list.

// The empty type list.
struct Types0 {};

// Type lists of length 1, 2, 3, and so on.

template <typename T1>
struct Types1 {
 typedef T1 Head;
 typedef Types0 Tail;
};

$range i 2..n

$for i [[
$range j 1..i
$range k 2..i
template <$for j, [[typename T$j]]>
struct Types$i {
 typedef T1 Head;
 typedef Types$(i-1)<$for k, [[T$k]]> Tail;
};


]]

}  // namespace internal

// We don't want to require the users to write TypesN<...> directly,
// as that would require them to count the length.  Types<...> is much
// easier to write, but generates horrible messages when there is a
// compiler error, as gcc insists on printing out each template
// argument, even if it has the default value (this means Types<int>
```

```
// will appear as Types<int, None, None, ..., None> in the compiler
// errors).
//
// Our solution is to combine the best part of the two approaches: a
// user would write Types<T1, ..., TN>, and Google Test will translate
// that to TypesN<T1, ..., TN> internally to make error messages
// readable.  The translation is done by the 'type' member of the
// Types template.

$range i 1..n
template <$for i, [[typename T$i = internal::None]]>
struct Types {
 typedef internal::Types$n<$for i, [[T$i]]> type;
};

template <>
struct Types<$for i, [[internal::None]]> {
 typedef internal::Types0 type;
};

$range i 1..n-1
$for i [[
$range j 1..i
$range k i+1..n
template <$for j, [[typename T$j]]>
struct Types<$for j, [[T$j]]$for k[[, internal::None]]> {
 typedef internal::Types$i<$for j, [[T$j]]> type;
};

]]

namespace internal {

# define GTEST_TEMPLATE_ template <typename T> class

// The template "selector" struct TemplateSel<Tmpl> is used to
// represent Tmpl, which must be a class template with one type
// parameter, as a type.  TemplateSel<Tmpl>::Bind<T>::type is defined
// as the type Tmpl<T>.  This allows us to actually instantiate the
// template "selected" by TemplateSel<Tmpl>.
//
// This trick is necessary for simulating typedef for class templates,
// which C++ doesn't support directly.
template <GTEST_TEMPLATE_ Tmpl>
struct TemplateSel {
 template <typename T>
 struct Bind {
   typedef Tmpl<T> type;
```

```
 };
};

# define GTEST_BIND_(TmplSel, T) \
 TmplSel::template Bind<T>::type

// A unique struct template used as the default value for the
// arguments of class template Templates.  This allows us to simulate
// variadic templates (e.g. Templates<int>, Templates<int, double>,
// and etc), which C++ doesn't support directly.
template <typename T>
struct NoneT {};

// The following family of struct and struct templates are used to
// represent template lists.  In particular, TemplatesN<T1, T2, ...,
// TN> represents a list of N templates (T1, T2, ..., and TN).  Except
// for Templates0, every struct in the family has two member types:
// Head for the selector of the first template in the list, and Tail
// for the rest of the list.

// The empty template list.
struct Templates0 {};

// Template lists of length 1, 2, 3, and so on.

template <GTEST_TEMPLATE_ T1>
struct Templates1 {
 typedef TemplateSel<T1> Head;
 typedef Templates0 Tail;
};

$range i 2..n

$for i [[
$range j 1..i
$range k 2..i
template <$for j, [[GTEST_TEMPLATE_ T$j]]>
struct Templates$i {
 typedef TemplateSel<T1> Head;
 typedef Templates$(i-1)<$for k, [[T$k]]> Tail;
};


]]

// We don't want to require the users to write TemplatesN<...> directly,
// as that would require them to count the length.  Templates<...> is much
// easier to write, but generates horrible messages when there is a
```

```
// compiler error, as gcc insists on printing out each template
// argument, even if it has the default value (this means Templates<list>
// will appear as Templates<list, NoneT, NoneT, ..., NoneT> in the compiler
// errors).
//
// Our solution is to combine the best part of the two approaches: a
// user would write Templates<T1, ..., TN>, and Google Test will translate
// that to TemplatesN<T1, ..., TN> internally to make error messages
// readable.  The translation is done by the 'type' member of the
// Templates template.

$range i 1..n
template <$for i, [[GTEST_TEMPLATE_ T$i = NoneT]]>
struct Templates {
 typedef Templates$n<$for i, [[T$i]]> type;
};

template <>
struct Templates<$for i, [[NoneT]]> {
 typedef Templates0 type;
};

$range i 1..n-1
$for i [[
$range j 1..i
$range k i+1..n
template <$for j, [[GTEST_TEMPLATE_ T$j]]>
struct Templates<$for j, [[T$j]]$for k[[, NoneT]]> {
 typedef Templates$i<$for j, [[T$j]]> type;
};

]]

// The TypeList template makes it possible to use either a single type
// or a Types<...> list in TYPED_TEST_CASE() and
// INSTANTIATE_TYPED_TEST_CASE_P().

template <typename T>
struct TypeList {
 typedef Types1<T> type;
};


$range i 1..n
template <$for i, [[typename T$i]]>
struct TypeList<Types<$for i, [[T$i]]> > {
 typedef typename Types<$for i, [[T$i]]>::type type;
};
```

#endif // GTEST_HAS_TYPED_TEST || GTEST_HAS_TYPED_TEST_P

} // namespace internal
} // namespace testing

#endif // GTEST_INCLUDE_GTEST_INTERNAL_GTEST_TYPE_UTIL_H_

Found in path(s):
* /opt/cola/permits/1209197947_1686812628.275104/0/vendors-gtest-1-8-0-234-windows-zip/include/gtest/internal/gtest-type-util.h.pump
* /opt/cola/permits/1209197947_1686812628.275104/0/vendors-gtest-1-8-0-234-windows-zip/include/opensource/gtest-1.7.0/include/gtest/internal/gtest-type-util.h.pump
No license file was found, but licenses were detected in source scan.

$$ -*- mode: c++; -*-
$$ This is a Pump source file. Please use Pump to convert it to
$$ gmock-generated-nice-strict.h.
$$
$var n = 10 $$ The maximum arity we support.
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```
//
// Author: wan@google.com (Zhanyong Wan)

// Implements class templates NiceMock, NaggyMock, and StrictMock.
//
// Given a mock class MockFoo that is created using Google Mock,
// NiceMock<MockFoo> is a subclass of MockFoo that allows
// uninteresting calls (i.e. calls to mock methods that have no
// EXPECT_CALL specs), NaggyMock<MockFoo> is a subclass of MockFoo
// that prints a warning when an uninteresting call occurs, and
// StrictMock<MockFoo> is a subclass of MockFoo that treats all
// uninteresting calls as errors.
//
// Currently a mock is naggy by default, so MockFoo and
// NaggyMock<MockFoo> behave like the same.  However, we will soon
// switch the default behavior of mocks to be nice, as that in general
// leads to more maintainable tests.  When that happens, MockFoo will
// stop behaving like NaggyMock<MockFoo> and start behaving like
// NiceMock<MockFoo>.
//
// NiceMock, NaggyMock, and StrictMock "inherit" the constructors of
// their respective base class, with up-to $n arguments.  Therefore
// you can write NiceMock<MockFoo>(5, "a") to construct a nice mock
// where MockFoo has a constructor that accepts (int, const char*),
// for example.
//
// A known limitation is that NiceMock<MockFoo>, NaggyMock<MockFoo>,
// and StrictMock<MockFoo> only works for mock methods defined using
// the MOCK_METHOD* family of macros DIRECTLY in the MockFoo class.
// If a mock method is defined in a base class of MockFoo, the "nice"
// or "strict" modifier may not affect it, depending on the compiler.
// In particular, nesting NiceMock, NaggyMock, and StrictMock is NOT
// supported.
//
// Another known limitation is that the constructors of the base mock
// cannot have arguments passed by non-const reference, which are
// banned by the Google C++ style guide anyway.

#ifndef GMOCK_INCLUDE_GMOCK_GMOCK_GENERATED_NICE_STRICT_H_
#define GMOCK_INCLUDE_GMOCK_GMOCK_GENERATED_NICE_STRICT_H_

#include "gmock/gmock-spec-builders.h"
#include "gmock/internal/gmock-port.h"

namespace testing {

$range kind 0..2
$for kind [[
```

```
$var clazz=[[$if kind==0 [[NiceMock]]
            $elif kind==1 [[NaggyMock]]
            $else [[StrictMock]]]]

$var method=[[$if kind==0 [[AllowUninterestingCalls]]
            $elif kind==1 [[WarnUninterestingCalls]]
            $else [[FailUninterestingCalls]]]]

template <class MockClass>
class $clazz : public MockClass {
public:
 // We don't factor out the constructor body to a common method, as
 // we have to avoid a possible clash with members of MockClass.
 $clazz() {
   ::testing::Mock::$method(
       internal::ImplicitCast_<MockClass*>(this));
 }

 // C++ doesn't (yet) allow inheritance of constructors, so we have
 // to define it for each arity.
 template <typename A1>
 explicit $clazz(const A1& a1) : MockClass(a1) {
   ::testing::Mock::$method(
       internal::ImplicitCast_<MockClass*>(this));
 }

$range i 2..n
$for i [[
$range j 1..i
 template <$for j, [[typename A$j]]>
 $clazz($for j, [[const A$j& a$j]]) : MockClass($for j, [[a$j]]) {
   ::testing::Mock::$method(
       internal::ImplicitCast_<MockClass*>(this));
 }


]]
 virtual ~$clazz() {
   ::testing::Mock::UnregisterCallReaction(
       internal::ImplicitCast_<MockClass*>(this));
 }

private:
 GTEST_DISALLOW_COPY_AND_ASSIGN_($clazz);
};

]]
```

```
// The following specializations catch some (relatively more common)
// user errors of nesting nice and strict mocks.  They do NOT catch
// all possible errors.

// These specializations are declared but not defined, as NiceMock,
// NaggyMock, and StrictMock cannot be nested.

template <typename MockClass>
class NiceMock<NiceMock<MockClass> >;
template <typename MockClass>
class NiceMock<NaggyMock<MockClass> >;
template <typename MockClass>
class NiceMock<StrictMock<MockClass> >;

template <typename MockClass>
class NaggyMock<NiceMock<MockClass> >;
template <typename MockClass>
class NaggyMock<NaggyMock<MockClass> >;
template <typename MockClass>
class NaggyMock<StrictMock<MockClass> >;

template <typename MockClass>
class StrictMock<NiceMock<MockClass> >;
template <typename MockClass>
class StrictMock<NaggyMock<MockClass> >;
template <typename MockClass>
class StrictMock<StrictMock<MockClass> >;

}  // namespace testing

#endif  // GMOCK_INCLUDE_GMOCK_GMOCK_GENERATED_NICE_STRICT_H_
```

Found in path(s):
* /opt/cola/permits/1209197947_1686812628.275104/0/vendors-gtest-1-8-0-234-windows-zip/include/gmock/gmock-generated-nice-strict.h.pump
* /opt/cola/permits/1209197947_1686812628.275104/0/vendors-gtest-1-8-0-234-windows-zip/include/opensource/gmock-1.7.0/include/gmock/gmock-generated-nice-strict.h.pump
No license file was found, but licenses were detected in source scan.

```
$$ -*- mode: c++; -*-
$var n = 50  $$ Maximum length of Values arguments we want to support.
$var maxtuple = 10  $$ Maximum number of Combine arguments we want to support.
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// modification, are permitted provided that the following conditions are
```

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//
// Author: vladl@google.com (Vlad Losev)

// Type and function utilities for implementing parameterized tests.
// This file is generated by a SCRIPT. DO NOT EDIT BY HAND!
//
// Currently Google Test supports at most $n arguments in Values,
// and at most $maxtuple arguments in Combine. Please contact
// googletestframework@googlegroups.com if you need more.
// Please note that the number of arguments to Combine is limited
// by the maximum arity of the implementation of tr1::tuple which is
// currently set at $maxtuple.

#ifndef GTEST_INCLUDE_GTEST_INTERNAL_GTEST_PARAM_UTIL_GENERATED_H_
#define GTEST_INCLUDE_GTEST_INTERNAL_GTEST_PARAM_UTIL_GENERATED_H_

// scripts/fuse_gtest.py depends on gtest's own header being #included
// *unconditionally*. Therefore these #includes cannot be moved
// inside #if GTEST_HAS_PARAM_TEST.
#include "gtest/internal/gtest-param-util.h"
#include "gtest/internal/gtest-port.h"

#if GTEST_HAS_PARAM_TEST

namespace testing {

```
// Forward declarations of ValuesIn(), which is implemented in
// include/gtest/gtest-param-test.h.
template <typename ForwardIterator>
internal::ParamGenerator<
 typename ::testing::internal::IteratorTraits<ForwardIterator>::value_type>
ValuesIn(ForwardIterator begin, ForwardIterator end);

template <typename T, size_t N>
internal::ParamGenerator<T> ValuesIn(const T (&array)[N]);

template <class Container>
internal::ParamGenerator<typename Container::value_type> ValuesIn(
   const Container& container);

namespace internal {

// Used in the Values() function to provide polymorphic capabilities.
template <typename T1>
class ValueArray1 {
public:
 explicit ValueArray1(T1 v1) : v1_(v1) {}

 template <typename T>
 operator ParamGenerator<T>() const { return ValuesIn(&v1_, &v1_ + 1); }

private:
 // No implementation - assignment is unsupported.
 void operator=(const ValueArray1& other);

 const T1 v1_;
};

$range i 2..n
$for i [[
$range j 1..i

template <$for j, [[typename T$j]]>
class ValueArray$i {
public:
 ValueArray$i($for j, [[T$j v$j]]) : $for j, [[v$(j)_(v$j)]] {}

 template <typename T>
 operator ParamGenerator<T>() const {
   const T array[] = {$for j, [[static_cast<T>(v$(j)_)]]};
   return ValuesIn(array);
 }
```

```
private:
 // No implementation - assignment is unsupported.
 void operator=(const ValueArray$i& other);

$for j [[

 const T$j v$(j)_;
]]

};

]]

# if GTEST_HAS_COMBINE
// INTERNAL IMPLEMENTATION - DO NOT USE IN USER CODE.
//
// Generates values from the Cartesian product of values produced
// by the argument generators.
//
$range i 2..maxtuple
$for i [[
$range j 1..i
$range k 2..i

template <$for j, [[typename T$j]]>
class CartesianProductGenerator$i
   : public ParamGeneratorInterface< ::std::tr1::tuple<$for j, [[T$j]]> > {
public:
 typedef ::std::tr1::tuple<$for j, [[T$j]]> ParamType;

 CartesianProductGenerator$i($for j, [[const ParamGenerator<T$j>& g$j]])
     : $for j, [[g$(j)_(g$j)]] {}
 virtual ~CartesianProductGenerator$i() {}

 virtual ParamIteratorInterface<ParamType>* Begin() const {
   return new Iterator(this, $for j, [[g$(j)_, g$(j)_.begin()]]);
 }
 virtual ParamIteratorInterface<ParamType>* End() const {
   return new Iterator(this, $for j, [[g$(j)_, g$(j)_.end()]]);
 }

private:
 class Iterator : public ParamIteratorInterface<ParamType> {
  public:
   Iterator(const ParamGeneratorInterface<ParamType>* base, $for j, [[

     const ParamGenerator<T$j>& g$j,
     const typename ParamGenerator<T$j>::iterator& current$(j)]])
```

```
      : base_(base),
$for j, [[

        begin$(j)_(g$j.begin()), end$(j)_(g$j.end()), current$(j)_(current$j)
]]    {
    ComputeCurrentValue();
  }
  virtual ~Iterator() {}

  virtual const ParamGeneratorInterface<ParamType>* BaseGenerator() const {
    return base_;
  }
  // Advance should not be called on beyond-of-range iterators
  // so no component iterators must be beyond end of range, either.
  virtual void Advance() {
    assert(!AtEnd());
    ++current$(i)_;

$for k [[
    if (current$(i+2-k)_ == end$(i+2-k)_) {
      current$(i+2-k)_ = begin$(i+2-k)_;
      ++current$(i+2-k-1)_;
    }

]]
    ComputeCurrentValue();
  }
  virtual ParamIteratorInterface<ParamType>* Clone() const {
    return new Iterator(*this);
  }
  virtual const ParamType* Current() const { return &current_value_; }
  virtual bool Equals(const ParamIteratorInterface<ParamType>& other) const {
    // Having the same base generator guarantees that the other
    // iterator is of the same type and we can downcast.
    GTEST_CHECK_(BaseGenerator() == other.BaseGenerator())
        << "The program attempted to compare iterators "
        << "from different generators." << std::endl;
    const Iterator* typed_other =
        CheckedDowncastToActualType<const Iterator>(&other);
    // We must report iterators equal if they both point beyond their
    // respective ranges. That can happen in a variety of fashions,
    // so we have to consult AtEnd().
    return (AtEnd() && typed_other->AtEnd()) ||
       ($for j  && [[

        current$(j)_ == typed_other->current$(j)_
]]);
  }
```

```
 private:
  Iterator(const Iterator& other)
      : base_(other.base_), $for j, [[

      begin$(j)_(other.begin$(j)_),
      end$(j)_(other.end$(j)_),
      current$(j)_(other.current$(j)_)
]] {
    ComputeCurrentValue();
  }

  void ComputeCurrentValue() {
    if (!AtEnd())
      current_value_ = ParamType($for j, [[*current$(j)_]]);
  }
  bool AtEnd() const {
    // We must report iterator past the end of the range when either of the
    // component iterators has reached the end of its range.
    return
$for j  || [[

        current$(j)_ == end$(j)_
]];
  }

  // No implementation - assignment is unsupported.
  void operator=(const Iterator& other);

  const ParamGeneratorInterface<ParamType>* const base_;
  // begin[i]_ and end[i]_ define the i-th range that Iterator traverses.
  // current[i]_ is the actual traversing iterator.
$for j [[

  const typename ParamGenerator<T$j>::iterator begin$(j)_;
  const typename ParamGenerator<T$j>::iterator end$(j)_;
  typename ParamGenerator<T$j>::iterator current$(j)_;
]]

  ParamType current_value_;
 };  // class CartesianProductGenerator$i::Iterator

 // No implementation - assignment is unsupported.
 void operator=(const CartesianProductGenerator$i& other);


$for j [[
 const ParamGenerator<T$j> g$(j)_;
```

```
]]
};  // class CartesianProductGenerator$i


]]

// INTERNAL IMPLEMENTATION - DO NOT USE IN USER CODE.
//
// Helper classes providing Combine() with polymorphic features. They allow
// casting CartesianProductGeneratorN<T> to ParamGenerator<U> if T is
// convertible to U.
//
$range i 2..maxtuple
$for i [[
$range j 1..i

template <$for j, [[class Generator$j]]>
class CartesianProductHolder$i {
public:
CartesianProductHolder$i($for j, [[const Generator$j& g$j]])
    : $for j, [[g$(j)_(g$j)]] {}
 template <$for j, [[typename T$j]]>
 operator ParamGenerator< ::std::tr1::tuple<$for j, [[T$j]]> >() const {
   return ParamGenerator< ::std::tr1::tuple<$for j, [[T$j]]> >(
       new CartesianProductGenerator$i<$for j, [[T$j]]>(
$for j,[[

       static_cast<ParamGenerator<T$j> >(g$(j)_)
]]));
 }

private:
 // No implementation - assignment is unsupported.
 void operator=(const CartesianProductHolder$i& other);


$for j [[
 const Generator$j g$(j)_;

]]
};  // class CartesianProductHolder$i

]]

# endif  // GTEST_HAS_COMBINE

}  // namespace internal
```

} // namespace testing

#endif // GTEST_HAS_PARAM_TEST

#endif // GTEST_INCLUDE_GTEST_INTERNAL_GTEST_PARAM_UTIL_GENERATED_H_

Found in path(s):
* /opt/cola/permits/1209197947_1686812628.275104/0/vendors-gtest-1-8-0-234-windows-zip/include/opensource/gtest-1.7.0/include/gtest/internal/gtest-param-util-generated.h.pump
* /opt/cola/permits/1209197947_1686812628.275104/0/vendors-gtest-1-8-0-234-windows-zip/include/gtest/internal/gtest-param-util-generated.h.pump

1.27 libsrtp 2.2.0

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*
*/

1.28 rapidxml 1.13

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1.29 appcompat 1.6.0

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Found in path(s):
* /opt/cola/permits/1549830853_1675235102.9042222/0/appcompat-1-6-0-sources-jar/com/am/appcompat/view/ToggleView.java
* /opt/cola/permits/1549830853_1675235102.9042222/0/appcompat-1-6-0-sources-jar/com/am/appcompat/dialog/MaterialAlertDialog.java
* /opt/cola/permits/1549830853_1675235102.9042222/0/appcompat-1-6-0-sources-jar/com/am/appcompat/view/FloatingActionMode.java
* /opt/cola/permits/1549830853_1675235102.9042222/0/appcompat-1-6-0-sources-jar/com/am/appcompat/view/OverflowListView.java
* /opt/cola/permits/1549830853_1675235102.9042222/0/appcompat-1-6-0-sources-jar/com/am/appcompat/dialog/MaterialDialogFragment.java
* /opt/cola/permits/1549830853_1675235102.9042222/0/appcompat-1-6-0-sources-jar/com/am/appcompat/widget/ShapeableImageView.java

* /opt/cola/permits/1549830853_1675235102.9042222/0/appcompat-1-6-0-sources-jar/com/am/appcompat/app/PendingIntentCompat.java
* /opt/cola/permits/1549830853_1675235102.9042222/0/appcompat-1-6-0-sources-jar/com/am/appcompat/view/LayoutParams.java
* /opt/cola/permits/1549830853_1675235102.9042222/0/appcompat-1-6-0-sources-jar/com/am/appcompat/dialog/MaterialDialog.java
* /opt/cola/permits/1549830853_1675235102.9042222/0/appcompat-1-6-0-sources-jar/com/am/appcompat/app/ToolbarDelegate.java
* /opt/cola/permits/1549830853_1675235102.9042222/0/appcompat-1-6-0-sources-jar/com/am/appcompat/storage/StorageManagerCompat.java
* /opt/cola/permits/1549830853_1675235102.9042222/0/appcompat-1-6-0-sources-jar/com/am/appcompat/storage/StorageVolumeCompat.java
* /opt/cola/permits/1549830853_1675235102.9042222/0/appcompat-1-6-0-sources-jar/com/am/appcompat/view/ActionModeCompat.java
* /opt/cola/permits/1549830853_1675235102.9042222/0/appcompat-1-6-0-sources-jar/com/am/appcompat/graphics/CanvasCompat.java
* /opt/cola/permits/1549830853_1675235102.9042222/0/appcompat-1-6-0-sources-jar/com/am/appcompat/os/BundleCompat.java
* /opt/cola/permits/1549830853_1675235102.9042222/0/appcompat-1-6-0-sources-jar/com/am/appcompat/widget/AppCompatImageView.java
* /opt/cola/permits/1549830853_1675235102.9042222/0/appcompat-1-6-0-sources-jar/com/am/appcompat/dialog/MaterialDialogHelper.java
* /opt/cola/permits/1549830853_1675235102.9042222/0/appcompat-1-6-0-sources-jar/com/am/appcompat/widget/DividerItemDecoration.java
* /opt/cola/permits/1549830853_1675235102.9042222/0/appcompat-1-6-0-sources-jar/com/am/appcompat/view/MenuListView.java
* /opt/cola/permits/1549830853_1675235102.9042222/0/appcompat-1-6-0-sources-jar/com/am/appcompat/view/MainLayout.java
* /opt/cola/permits/1549830853_1675235102.9042222/0/appcompat-1-6-0-sources-jar/com/am/appcompat/dialog/MaterialAlertDialogFragment.java
* /opt/cola/permits/1549830853_1675235102.9042222/0/appcompat-1-6-0-sources-jar/com/am/appcompat/view/MenuItemView.java
* /opt/cola/permits/1549830853_1675235102.9042222/0/appcompat-1-6-0-sources-jar/com/am/appcompat/widget/ImageViewHelper.java
* /opt/cola/permits/1549830853_1675235102.9042222/0/appcompat-1-6-0-sources-jar/com/am/appcompat/app/BackPressedDelegate.java
* /opt/cola/permits/1549830853_1675235102.9042222/0/appcompat-1-6-0-sources-jar/com/am/appcompat/app/ApplicationCompat.java
* /opt/cola/permits/1549830853_1675235102.9042222/0/appcompat-1-6-0-sources-jar/com/am/appcompat/widget/AppCompatImageButton.java
* /opt/cola/permits/1549830853_1675235102.9042222/0/appcompat-1-6-0-sources-jar/com/am/appcompat/view/ToggleLayout.java
* /opt/cola/permits/1549830853_1675235102.9042222/0/appcompat-1-6-0-sources-jar/com/am/appcompat/view/FloatingPopupWindow.java
* /opt/cola/permits/1549830853_1675235102.9042222/0/appcompat-1-6-0-sources-jar/com/am/appcompat/view/BoundsAdapter.java
* /opt/cola/permits/1549830853_1675235102.9042222/0/appcompat-1-6-0-sources-jar/com/am/appcompat/view/BackgroundLayout.java

No license file was found, but licenses were detected in source scan.

Found in path(s):
* /opt/cola/permits/1549830853_1675235102.9042222/0/appcompat-1-6-0-sources-jar/com/am/appcompat/app/Fragment.java
* /opt/cola/permits/1549830853_1675235102.9042222/0/appcompat-1-6-0-sources-jar/com/am/appcompat/app/ApplicationHolder.java
* /opt/cola/permits/1549830853_1675235102.9042222/0/appcompat-1-6-0-sources-jar/com/am/appcompat/app/AppCompatDialogFragment.java
* /opt/cola/permits/1549830853_1675235102.9042222/0/appcompat-1-6-0-sources-jar/com/am/appcompat/app/AppCompatAlertDialogFragment.java
* /opt/cola/permits/1549830853_1675235102.9042222/0/appcompat-1-6-0-sources-jar/com/am/appcompat/app/AppCompatActivity.java

1.30 firebase-messaging 23.1.2

1.30.1 Available under license :

---
nav_order: 1
permalink: /

Contributor documentation

This site is a collection of docs and best practices for contributors to Firebase Android SDKs.
It describes how Firebase works on Android and provides guidance on how to build/maintain a Firebase SDK.

New to Firebase?

- [Development Environment Setup]({{ site.baseurl }}{% link onboarding/env_setup.md %})
- [Creating a new SDK]({{ site.baseurl }}{% link onboarding/new_sdk.md %})

- [How Firebase works]({{ site.baseurl }}{% link how_firebase_works.md %})
---
parent: Best Practices

Dependency Injection

While [Firebase Components]({{ site.baseurl }}{% link components/components.md %}) provides basic Dependency Injection capabilities for interop between Firebase SDKs, it's not ideal as a general purpose DI framework for a few reasons, to name some:

* It's verbose, i.e. requires manually specifying dependencies and constructing instances of components in Component
 definitions.
* It has a runtime cost, i.e. initialization time is linear in the number of Components present in the graph

As a result using [Firebase Components]({{ site.baseurl }}{% link components/components.md %}) is appropriate only
for inter-SDK injection and scoping instances per `FirebaseApp`.

On the other hand, manually instantiating SDKs is often tedious, errorprone, and leads to code smells
that make code less testable and couples it to the implementation rather than the interface. For more context see
[Dependency Injection](https://en.wikipedia.org/wiki/Dependency_injection) and
[Motivation](https://github.com/google/guice/wiki/Motivation).

{: .important }
It's recommended to use [Dagger](https://dagger.dev) for internal dependency injection within the SDKs and
[Components]({{ site.baseurl }}{% link components/components.md %}) to inject inter-sdk dependencies that are available only at
runtime into the [Dagger Graph](https://dagger.dev/dev-guide/#building-the-graph) via
[builder setters](https://dagger.dev/dev-guide/#binding-instances) or [factory
arguments](https://dagger.dev/api/latest/dagger/Component.Factory.html).

See: [Dagger docs](https://dagger.dev)
See: [Dagger tutorial](https://dagger.dev/tutorial/)

{: .highlight }
While Hilt is the recommended way to use dagger in Android applications, it's not suitable for SDK/library development.

How to get started

Since [Dagger](https://dagger.dev) does not strictly follow semver and requires the dagger-compiler version to match the dagger library version,
it's not safe to depend on it via a pom level dependency, see [This comment](https://github.com/firebase/firebase-android-sdk/issues/1677#issuecomment-645669608) for context. For this reason in Firebase SDKs we "vendor/repackage" Dagger into the SDK itself under
`com.google.firebase.{sdkname}.dagger`. While it incurs in a size increase, it's usually on the order of a couple of

KB and is considered
negligible.

To use Dagger in your SDK use the following in your Gradle build file:

```groovy
plugins {
  id("firebase-vendor")
}

dependencies {
  implementation(libs.javax.inject)
  vendor(libs.dagger.dagger) {
      exclude group: "javax.inject", module: "javax.inject"
  }
  annotationProcessor(libs.dagger.compiler)
}
```

General Dagger setup

As mentioned in [Firebase Components]({{ site.baseurl }}{% link components/components.md %}), all components are scoped per `FirebaseApp`
meaning there is a single instance of the component within a given `FirebaseApp`.

This makes it a natural fit to get all inter-sdk dependencies and instatiate the Dagger component inside the `ComponentRegistrar`.

```kotlin
class MyRegistrar : ComponentRegistrar {
 override fun getComponents() = listOf(
  Component.builder(MySdk::class.java)
    .add(Dependency.required(FirebaseOptions::class.java))
    .add(Dependency.optionalProvider(SomeInteropDep::class.java))
    .factory(c -> DaggerMySdkComponent.builder()
      .setFirebaseApp(c.get(FirebaseApp::class.java))
      .setSomeInterop(c.getProvider(SomeInteropDep::class.java))
      .build()
      .getMySdk())
    .build()
}
```

Here's a simple way to define the dagger component:

```kotlin
@Component(modules = MySdkComponent.MainModule::class)
@Singleton
```

```
interface MySdkComponent {
 // Informs dagger that this is one of the types we want to be able to create
 // In this example we only care about MySdk
 fun getMySdk() : MySdk

 // Tells Dagger that some types are not available statically and in order to create the component
 // it needs FirebaseApp and Provider<SomeInteropDep>
 @Component.Builder
 interface Builder {
   @BindsInstance fun setFirebaseApp(app: FirebaseApp)
   @BindsInstance fun setSomeInterop(interop: com.google.firebase.inject.Provider<SomeInteropDep>)
   fun build() : MySdkComponent
 }

 @Module
 interface MainModule {
   // define module @Provides and @Binds here
 }
}
```

The only thing left to do is to properly annotate `MySdk`:

```kotlin
@Singleton
class MySdk @Inject constructor(app: FirebaseApp, interopAdapter: MySdkAdapter) {
   fun someMethod() {
       interopAdapter.doInterop()
   }
}

@Singleton
class MySdkInteropAdapter @Inject constructor(private val interop:
com.google.firebase.inject.Provider<SomeInteropDep>) {
   fun doInterop() {
       interop.get().doStuff()
   }
}
```

Scope

Unlike Component, Dagger does not use singleton scope by default and instead injects a new instance of a type at each injection point,
in the example above we want `MySdk` and `MySdkInteropAdapter` to be singletons so they are are annotated with `@Singleton`.

See [Scoped bindings](https://dagger.dev/dev-guide/#singletons-and-scoped-bindings) for more details.

Support multiple instances of the SDK per `FirebaseApp`(multi-resource)

As mentioned in [Firebase Components]({{ site.baseurl }}{% link components/components.md %}), some SDKs support multi-resource mode,
which effectively means that there are 2 scopes at play:

1. `@Singleton` scope that the main `MultiResourceComponent` has.
2. Each instance of the sdk will have its own scope.

```mermaid
flowchart LR
 subgraph FirebaseApp
   direction TB
   subgraph FirebaseComponents
     direction BT
     subgraph GlobalComponents[Outside of SDK]
       direction LR

       FirebaseOptions
       SomeInterop
       Executor["@Background Executor"]
     end

     subgraph DatabaseComponent["@Singleton DatabaseMultiDb"]
       direction TB
       subgraph Singleton["@Singleton"]
         SomeImpl -.-> SomeInterop
         SomeImpl -.-> Executor
       end

       subgraph Default["@DbScope SDK(default)"]
         MainClassDefault[FirebaseDatabase] --> SomeImpl
         SomeOtherImplDefault[SomeOtherImpl] -.-> FirebaseOptions
         MainClassDefault --> SomeOtherImplDefault
       end
       subgraph MyDbName["@DbScope SDK(myDbName)"]
         MainClassMyDbName[FirebaseDatabase] --> SomeImpl
         SomeOtherImplMyDbName[SomeOtherImpl] -.-> FirebaseOptions
         MainClassMyDbName --> SomeOtherImplMyDbName
       end
     end
   end
 end

 classDef green fill:#4db6ac
 classDef blue fill:#1a73e8
 class GlobalComponents green
```

 class DatabaseComponent green
 class Default blue
 class MyDbName blue
```

As you can see above, `DatabaseMultiDb` and `SomeImpl` are singletons, while `FirebaseDatabase` and `SomeOtherImpl` are scoped per `database name`.

It can be easily achieved with the help of [Dagger's subcomponents](https://dagger.dev/dev-guide/subcomponents).

For example:

```kotlin
@Scope
annotation class DbScope

@Component(modules = DatabaseComponent.MainModule::class)
interface DatabaseComponent {
  fun getMultiDb() : DatabaseMultiDb

  @Component.Builder
  interface Builder {
    // usual setters for Firebase component dependencies
    // ...
    fun build() : DatabaseComponent
  }

  @Module(subcomponents = DbInstanceComponent::class)
  interface MainModule {}

  @Subcomponent(modules = DbInstanceComponent.InstanceModule::class)
  @DbScope
  interface DbInstanceComponent {
    fun factory() : Factory

    @Subcomponent.Factory
    interface Factory {
      fun create(@BindsInstance @Named("dbName") dbName: String)
    }
  }

  @Module
  interface InstanceModule {
    // ...
  }
}
```
```

Annotating `FirebaseDatabase`:

```kotlin
@DbScope
class FirebaseDatabase @Inject constructor(options: FirebaseOptions, @Named dbName: String) {
 // ...
}
```

Implementing `DatabaseMultiDb`:

```kotlin
@Singleton
class DatabaseMultiDb @Inject constructor(private val factory: DbInstanceComponent.Factory) {
 private val instances = mutableMapOf<String, FirebaseDatabase>()

 @Synchronized
 fun get(dbName: String) : FirebaseDatabase {
   if (!instances.containsKey(dbName)) {
     mInstances.put(dbName, factory.create(dbName))
   }
   return mInstances.get(dbName);
 }
}
```
---
parent: Onboarding

Creating a new Firebase SDK
{: .no_toc}

1. TOC
{:toc}

Want to create a new SDK in
[firebase/firebase-android-sdk](https://github.com/firebase/firebase-android-sdk)?
Read on.

{:toc}

Repository layout and Gradle

[firebase/firebase-android-sdk](https://github.com/firebase/firebase-android-sdk)
uses a multi-project Gradle build to organize the different libraries it hosts.
As a consequence, each project/product within this repo is hosted under its own
subdirectory with its respective build file(s).

```bash
firebase-android-sdk
buildSrc
appcheck
  firebase-appcheck
  firebase-appcheck-playintegrity
firebase-annotations
firebase-common
  firebase-common.gradle # note the name of the build file
  ktx
    ktx.gradle.kts # it can also be kts
build.gradle # root project build file.
```

Most commonly, SDKs are located as immediate child directories of the root
directory, with the directory name being the exact name of the Maven artifact ID
the library will have once released. e.g. `firebase-common` directory
hosts code for the `com.google.firebase:firebase-common` SDK.

{: .warning }
Note that the build file name for any given SDK is not `build.gradle` or `build.gradle.kts`
but rather mirrors the name of the sdk, e.g.
`firebase-common/firebase-common.gradle` or `firebase-common/firebase-common.gradle.kts`.

All of the core Gradle build logic lives in `buildSrc` and is used by all
SDKs.

SDKs can be grouped together for convenience by placing them in a directory of
choice.

Creating an SDK

Let's say you want to create an SDK named `firebase-foo`

1. Create a directory called `firebase-foo`.
1. Create a file `firebase-foo/firebase-foo.gradle.kts`.
1. Add `firebase-foo` line to `subprojects.cfg` at the root of the tree.

Update `firebase-foo.gradle.kts` with the following content

<details open markdown="block">
 <summary>
  firebase-foo.gradle.kts
 </summary>

```kotlin
plugins {
 id("firebase-library")
 // Uncomment for Kotlin
```

// id("kotlin-android")
}

firebaseLibrary {
  // enable this only if you have tests in `androidTest`.
  testLab.enabled = true
  publishSources = true
  publishJavadoc = true
}

android {
 val targetSdkVersion : Int by rootProject
 val minSdkVersion : Int by rootProject

 compileSdk = targetSdkVersion
 defaultConfig {
  namespace = "com.google.firebase.foo"
  // change this if you have custom needs.
  minSdk = minSdkVersion
  targetSdk = targetSdkVersion
  testInstrumentationRunner = "androidx.test.runner.AndroidJUnitRunner"
 }

 testOptions.unitTests.isIncludeAndroidResources = true
}

dependencies {
 implementation(project(":firebase-common"))
 implementation(project(":firebase-components"))
}

```
</details>

### Create `src/main/AndroidManifest.xml` with the following content:

<details open markdown="block">
 <summary>
  src/main/AndroidManifest.xml
 </summary>
```xml
<?xml version="1.0" encoding="utf-8"?>
<!-- Copyright {{ 'now' | date: "%Y" }} Google LLC -->
<!-- -->
<!-- Licensed under the Apache License, Version 2.0 (the "License"); -->
<!-- you may not use this file except in compliance with the License. -->
<!-- You may obtain a copy of the License at -->
<!-- -->

```
<!--     http://www.apache.org/licenses/LICENSE-2.0 -->
<!-- -->
<!-- Unless required by applicable law or agreed to in writing, software -->
<!-- distributed under the License is distributed on an "AS IS" BASIS, -->
<!-- WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. -->
<!-- See the License for the specific language governing permissions and -->
<!-- limitations under the License. -->

<manifest xmlns:android="http://schemas.android.com/apk/res/android">
 <application>
     <service android:name="com.google.firebase.components.ComponentDiscoveryService"
         android:exported="false">
         <meta-data
             android:name="com.google.firebase.components:com.google.firebase.foo.FirebaseFooRegistrar"
             android:value="com.google.firebase.components.ComponentRegistrar" />
     </service>
 </application>
</manifest>
```

</details>

Create `com.google.firebase.foo.FirebaseFoo`

For Kotlin
<details open markdown="block">
 <summary>
   src/main/kotlin/com/google/firebase/foo/FirebaseFoo.kt
 </summary>

```kotlin
class FirebaseFoo {
 companion object {
   @JvmStatic
   val instance: FirebaseFoo
     get() = getInstance(Firebase.app)

   @JvmStatic fun getInstance(app: FirebaseApp): FirebaseFoo = app.get(FirebaseFoo::class.java)
 }
}
```

</details>

For Java
<details markdown="block">
 <summary>
   src/main/java/com/google/firebase/foo/FirebaseFoo.java

 </summary>

```java
public class FirebaseFoo {
 public static FirebaseFoo getInstance() {
   return getInstance(FirebaseApp.getInstance());
 }
 public static FirebaseFoo getInstance(FirebaseApp app) {
   return app.get(FirebaseFoo.class);
 }
}
```

</details>

Create `com.google.firebase.foo.FirebaseFooRegistrar`

For Kotlin
<details open markdown="block">
 <summary>
   src/main/kotlin/com/google/firebase/foo/FirebaseFooRegistrar.kt
 </summary>

{: .warning }
You should strongly consider using [Dependency Injection]({{ site.baseurl }}{% link best_practices/dependency_injection.md %})
to instantiate your sdk instead of manually constructing its instance in the `factory()` below.

```kotlin
class FirebaseFooRegistrar : ComponentRegistrar {
 override fun getComponents() =
   listOf(
     Component.builder(FirebaseFoo::class.java).factory { container -> FirebaseFoo() }.build(),
     LibraryVersionComponent.create("fire-foo", BuildConfig.VERSION_NAME)
   )
}
```

</details>

For Java
<details markdown="block">
 <summary>
   src/main/java/com/google/firebase/foo/FirebaseFooRegistrar.java
 </summary>

```java
public class FirebaseFooRegistrar implements ComponentRegistrar {
```

@Override
 public List<Component<?>> getComponents() {
  return Arrays.asList(
      Component.builder(FirebaseFoo.class).factory(c -> new FirebaseFoo()).build(),
      LibraryVersionComponent.create("fire-foo", BuildConfig.VERSION_NAME));

 }
}
```

</details>

Continue to [How Firebase works]({{ site.baseurl }}{% link how_firebase_works.md %}).
---
has_children: true
permalink: /best_practices/
nav_order: 5
---

# Best Practices
title: Contributor documentation
description: Documentation and best practices for Android SDK development
logo: "https://firebase.google.com/downloads/brand-guidelines/SVG/logo-logomark.svg"

remote_theme: just-the-docs/just-the-docs@v0.4.0.rc3
plugins:
- jekyll-remote-theme

color_scheme: light

# Aux links for the upper right navigation
aux_links:
 "SDK Github Repo":
  - "//github.com/firebase/firebase-android-sdk"

# Enable or disable the site search
# Supports true (default) or false
search_enabled: true
search:
 # Split pages into sections that can be searched individually
 # Supports 1 - 6, default: 2
 heading_level: 6
 # Maximum amount of previews per search result
 # Default: 3
 previews: 2
 # Maximum amount of words to display before a matched word in the preview
 # Default: 5
 preview_words_before: 3
```

```
 # Maximum amount of words to display after a matched word in the preview
 # Default: 10
 preview_words_after: 3
 # Set the search token separator
 # Default: /[\s\-/]+/
 # Example: enable support for hyphenated search words
 tokenizer_separator: /[\s/]+/
 # Display the relative url in search results
 # Supports true (default) or false
 rel_url: true
 # Enable or disable the search button that appears in the bottom right corner of every page
 # Supports true or false (default)
 button: false

mermaid:
 # Version of mermaid library
 # Pick an available version from https://cdn.jsdelivr.net/npm/mermaid/
 version: "9.2.2"
 # Put any additional configuration, such as setting the theme, in _includes/mermaid_config.js

# Enable or disable heading anchors
heading_anchors: true
permalink: pretty

callouts_level: quiet
callouts:
 highlight:
   color: yellow
 important:
   title: Important
   color: blue
 new:
   title: New
   color: green
 note:
   title: Note
   color: purple
 warning:
   title: Warning
   color: red

# Back to top link
back_to_top: true
back_to_top_text: "Back to top"

# Footer last edited timestamp
last_edit_timestamp: true # show or hide edit time - page must have `last_modified_date` defined in the frontmatter
last_edit_time_format: "%b %e %Y at %I:%M %p" # uses ruby's time format: https://ruby-doc.org/stdlib-
```

2.7.0/libdoc/time/rdoc/Time.html

```
# Footer "Edit this page on GitHub" link text
gh_edit_link: true # show or hide edit this page link
gh_edit_link_text: "Edit this page on GitHub"
gh_edit_repository: "https://github.com/firebase/firebase-android-sdk" # the github URL for your repo
gh_edit_branch: "master" # the branch that your docs is served from
gh_edit_source: "contributor-docs" # the source that your files originate from
gh_edit_view_mode: "edit" # "tree" or "edit" if you want the user to jump into the editor immediately
```

```
name: Copyright check

on: pull_request

concurrency:
 group: ${{ github.workflow }}-${{ github.event.pull_request.number || github.ref }}
 cancel-in-progress: true

jobs:
 copyright-check:
   runs-on: ubuntu-22.04
   steps:
     - uses: actions/checkout@v3.0.2
     - uses: actions/setup-python@v2
       with:
         python-version: '3.9'
     - run: |
         pip install -e "ci/fireci"
     - run: |
         fireci copyright_check \
           -e py                  \
           -e gradle              \
           -e java                \
           -e kt                  \
           -e groovy              \
           -e sh                  \
           -e proto
```

Test license

---
parent: Firebase Components

Dynamic Module Support

TODO

---
nav_order: 3

How Firebase Works

Background

Eager Initialization

One of the biggest strengths for Firebase clients is the ease of integration. In a common case, a developer has very few things to do to integrate with Firebase. There is no need to initialize/configure Firebase at runtime. Firebase automatically initializes at application start and begins providing value to developers. A few notable examples:

* `Analytics` automatically tracks app events
* `Firebase Performance` automatically tracks app startup time, all network requests and screen performance
* `Crashlytics` automatically captures all application crashes, ANRs and non-fatals

This feature makes onboarding and adoption very simple. However, comes with the great responsibility of keeping the application snappy. We shouldn't slow down application startup for 3p developers as it can stand in the way of user adoption of their application.

Automatic Inter-Product Discovery

When present together in an application, Firebase products can detect each other and automatically provide additional functionality to the developer, e.g.:

* `Firestore` automatically detects `Auth` and `AppCheck` to protect read/write access to the database
* `Crashlytics` integrates with `Analytics`, when available, to provide additional insights into the application behavior and enables safe app rollouts

FirebaseApp at the Core of Firebase

Regardless of what Firebase SDKs are present in the app, the main initialization point of Firebase is `FirebaseApp`. It acts as a container for all SDKs, manages their configuration, initialization and lifecycle.

Initialization

`FirebaseApp` gets initialized with the help of `FirebaseApp#initializeApp()`. This happens [automatically at app startup](https://firebase.blog/posts/2016/12/how-does-firebase-initialize-on-android) or manually by the developer.

During initialization, `FirebaseApp` discovers all Firebase SDKs present in the app, determines the dependency graph between products(for inter-product functionality) and initializes `eager` products that need to start immediately, e.g. `Crashlytics` and `FirebasePerformance`.

Firebase Configuration

`FirebaseApp` contains Firebase configuration for all products to use, namely `FirebaseOptions`, which tells Firebase which `Firebase` project to talk to, which real-time database to use, etc.

Additional Services/Components

In addition to `FirebaseOptions`, `FirebaseApp` registers additional components that product SDKs can request via dependency injection. To name a few:

* `android.content.Context`(Application context)
* [Common Executors]({{ site.baseurl }}{% link components/executors.md %})
* `FirebaseOptions`
* Various internal components

Discovery and Dependency Injection

There are multiple considerations that lead to the current design of how Firebase SDKs initialize.

1. Certain SDKs need to initialize at app startup.
2. SDKs have optional dependencies on other products that get enabled when the developer adds the dependency to their app.

To enable this functionality, Firebase uses a runtime discovery and dependency injection framework [firebase-components](https://github.com/firebase/firebase-android-sdk/tree/master/firebase-components).

To integrate with this framework SDKs register the components they provide via a `ComponentRegistrar` and declare any dependencies they need to initialize, e.g.

```java
public class MyRegistrar implements ComponentRegistrar {
 @Override
 public List<Component<?>> getComponents() {
   return Arrays.asList(
       // declare the component
       Component.builder(MyComponent.class)
           // declare dependencies
           .add(Dependency.required(Context.class))
           .add(Dependency.required(FirebaseOptions.class))
           .add(Dependency.optionalProvider(InternalAuthProvider.class))
           // let the runtime know how to create your component.
           .factory(
               diContainer ->
                   new MyComponent(
                       diContainer.get(Context.class),
                       diContainer.get(FirebaseOptions.class),
                       diContainer.get(InternalAuthProvider.class)))
           .build());
 }
}
```

This registrar is then registered in `AndroidManifest.xml` of the SDK and is used by `FirebaseApp` to discover all components and construct the dependency graph.

More details in [Firebase Components]({{ site.baseurl }}{% link components/components.md %}).
---
parent: Onboarding

Development Environment Setup

This page describes software and configuration required to work on code in the
[Firebase/firebase-android-sdk](https://github.com/firebase/firebase-android-sdk)
repository.

{:toc}

JDK

The currently required version of the JDK is `11`. Any other versions are
unsupported and using them could result in build failures.

Android Studio

In general, the most recent version of Android Studio should work. The version
that is tested at the time of this writing is `Dolphin | 2021.3.1`.

Download it here:
[Download Android Studio](https://developer.android.com/studio)

Emulators

If you plan to run tests on emulators(you should), you should be able to install
them directly from Android Studio's AVD manager.

Github (Googlers Only)

To onboard and get write access to the github repository you need to have a
github account fully linked with go/github.

File a bug using this
[bug template](http://b/issues/new?component=312729&template=1016566) and wait
for access to be granted.

After that configure github keys as usual using this
[Github documentation page](https://docs.github.com/en/github/authenticating-to-github/connecting-to-github-with-ssh).

Importing the repository

1. Clone the repository with `git clone --recurse-submodules

git@github.com:firebase/firebase-android-sdk.git`.
1. Open Android Studio and click "Open an existing project".
   `![Open an existing project](as_open_project.png)`
1. Find the `firebase-android-sdk` directory and open.
1. To run integration/device tests you will need a `google-services.json` file.
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has_children: true
permalink: /components/
nav_order: 4

Firebase Components
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Firebase is known for being easy to use and requiring no/minimal configuration at runtime.
Just adding SDKs to the app makes them discover each other to provide additional functionality,
e.g. `Firestore` automatically integrates with `Auth` if present in the app.

* Firebase SDKs have required and optional dependencies on other Firebase SDKs
* SDKs have different initialization requirements, e.g. `Analytics` and `Crashlytics` must be
 initialized upon application startup, while some are initialized on demand only.

To accommodate these requirements Firebase uses a component model that discovers SDKs present in the app,
determines their dependencies and provides them to dependent SDKs via a `Dependency Injection` mechanism.

This page describes the aforementioned Component Model, how it works and why it's needed.

Design Considerations

Transparent/invisible to 3p Developers

To provide good developer experience, we don't want developers to think about how SDKs work and interoperate internally.
Instead we want our SDKs to have a simple API surface that hides all of the internal details.
Most products have an API surface that allows developers to get aninstance of a given SDK via
`FirebaseFoo.getInstance()`
and start using it right away.

Simple to use and integrate with for component developers

* The component model is lightweight in terms of integration effort. It is not opinionated on how components are structured.
* The component model should require as little cooperation from components runtime as possible.
* It provides component developers with an API that is easy to use correctly, and hard to use incorrectly.
* Does not sacrifice testability of individual components in isolation

Performant at startup and initialization

The runtime does as little work as possible during initialization.

What is a Component?

A Firebase Component is an entity that:

* Implements one or more interfaces
* Has a list of dependencies(required or optional). See [Dependencies]({{ site.baseurl }}{% link components/dependencies.md %})
* Has initialization requirements(e.g. eager in default app)
* Defines a factory creates an instance of the components interface given it's dependencies.
 (In other words describes how to create the given component.)

Example:

```java
// Defines a component that is registered as both `FirebaseAuth` and `InternalAuthProvider`.
Component<FirebaseAuth> auth = Component.builder(FirebaseAuth.class, InternalAuthProvider.class)
   // Declares dependencies
   .add(Dependency.required(FirebaseOptions.class))
   // Defines a factory
   .factory(container -> new FirebaseAuth(container.get(FirebaseOptions.class)))
   .eagerInDefaultApp() // alwaysEager() or lazy(), lazy is the default.
   .build()
```

All components are singletons within a Component Container(e.g. one instance per FirebaseApp).
There are however SDKs that need the ability to expose multiple objects per FirebaseApp,
for example RTBD(as well as Storage and Firestore) has multidb support which allows developers
to access one or more databases within one FirebaseApp. To address this requirement,
SDKs have to register their components in the following form(or similar):

```java
// This is the singleton holder of different instances of FirebaseDatabase.
interface RtdbComponent {
 FirebaseDatabase getDefault();
 FirebaseDatabase get(String databaseName);
}
```

As you can see in the previous section, components are just values and don't have any behavior per se,
essentially they are just blueprints of how to create them and what dependencies they need.

So there needs to be some ComponentRuntime that can discover and wire them together into a dependency graph,
in order to do that, there needs to be an agreed upon location where SDKs can register the components they provide.

The next 2 sections describe how it's done.

Component Registration

In order to define the `Components` an SDK provides, it needs to define a class that implements `ComponentRegistrar`,
this class contains all component definitions the SDK wants to register with the runtime:

```java
public class MyRegistrar implements ComponentRegistrar {
 /// Returns a one or more Components that will be registered in
 /// FirebaseApp and participate in dependency resolution and injection.
 @Override
 public Collection<FirebaseComponent<?>> getComponents() {
   Arrays.asList(Component.builder(MyType.class)
       /* ... */
       .build());
 }
}
```

Component Discovery

In addition to creating the `ComponentRegistrar` class, SDKs also need to add them to their `AndroidManifest.xml` under `ComponentDiscoveryService`:

```xml
<manifest xmlns:android="http://schemas.android.com/apk/res/android">
 <application>
     <service android:name="com.google.firebase.components.ComponentDiscoveryService"
         android:exported="false">
         <meta-data
             android:name="com.google.firebase.components:com.google.firebase.foo.FirebaseFooRegistrar"
             android:value="com.google.firebase.components.ComponentRegistrar" />
     </service>
 </application>
</manifest>
```

When the final app is built, manifest registrar entries will all end up inside the above `service` as metadata key-value pairs.
At this point `FirebaseApp` will instantiate them and use the `ComponentRuntime` to construct the component graph.

Dependency resolution and initialization

Definitions and constraints

* **Component A depends on Component B** if `B` depends on an `interface` that `A` implements.
* **For any Interface I, only one component is allowed to implement I**(with the exception of
 [Set Dependencies]({{ site.baseurl }}{% link components/dependencies.md %}#set-dependencies)). If this invariant is violated, the container will
 fail to start at runtime.
* **There must not be any dependency cycles** among components. See Dependency Cycle Resolution on how this limitation can
 be mitigated
* **Components are initialized lazily by default**(unless a component is declared eager) and are initialized when requested
 by an application either directly or transitively.

The initialization phase of the FirebaseApp will consist of the following steps:

1. Get a list of available FirebaseComponents that were discovered by the Discovery mechanism
2. Topologically sort components based on their declared dependencies - failing if a dependency cycle is detected or multiple implementations are registered for any interface.
3. Store a map of {iface -> ComponentFactory} so that components can be instantiated on demand(Note that component instantiation does not yet happen)
4. Initialize EAGER components or schedule them to initialize on device unlock, if in direct boot mode.

Initialization example

Below is an example illustration of the state of the component graph after initialization:

```mermaid
flowchart TD
    Analytics --> Installations
    Auth --> Context
    Auth --> FirebaseOptions
    Context[android.os.Context]
    Crashlytics --> Installations
    Crashlytics --> FirebaseApp
    Crashlytics --> FirebaseOptions
    Crashlytics -.-> Analytics
    Crashlytics --> Context
    Database -.-> Auth
    Database --> Context
    Database --> FirebaseApp
    Database --> FirebaseOptions
    Firestore -.-> Auth
    Messaging --> Installations
    Messaging --> FirebaseOptions
    Messaging --> Context
    RemoteConfig --> FirebaseApp
    RemoteConfig --> Context
    RemoteConfig --> Installations
```

classDef eager fill:#4db66e,stroke:#4db6ac,color:#000;
classDef transitive fill:#4db6ac,stroke:#4db6ac,color:#000;
classDef always fill:#1a73e8,stroke:#7baaf7,color:#fff;

class Analytics eager
class Crashlytics eager
class Context always
class FirebaseOptions always
class FirebaseApp always
class Installations transitive
```

There are **2 explicitly eager** components in this example: `Crashlytics` and `Analytics`.
These components are initialized when `FirebaseApp` is initialized. `Installations` is initialized eagerly because eager components depends on it(see Prefer Lazy dependencies to avoid this as mush as possible).
`FirebaseApp`, `FirebaseOptions` and `Android Context` are always present in the Component Container and are considered initialized as well.

*The rest of the components are left uninitialized and will remain so until the client application requests them or an eager
component initializes them by using a Lazy dependency.*
For example, if the application calls `FirebaseDatabase.getInstance()`, the container will initialize `Auth` and `Database`
and will return `Database` to the user.

### Support multiple instances of the SDK per `FirebaseApp`(multi-resource)

Some SDKs support multi-resource mode of operation, where it's possible to create more than one instance per `FirebaseApp`.

Examples:

* RTDB allows more than one database in a single Firebase project, so it's possible to instantiate one instance of the sdk per datbase

```kotlin
val rtdbOne = Firebase.database(app) // uses default database
val rtdbTwo = Firebase.database(app, "dbName")
```

* Firestore, functions, and others support the same usage pattern

To allow for that, such SDKs register a singleton "MultiResource" [Firebase component]({{ site.baseurl }}{% link components/components.md %}),
which creates instances per resource(e.g. db name).
```

Example

```kotlin
class DatabaseComponent(private val app: FirebaseApp, private val tokenProvider: InternalTokenProvider) {
 private val instances: MutableMap<String, FirebaseDatabase> = new HashMap<>();

 @Synchronized
 fun get(dbName: String) : FirebaseDatabase {
   if (!instances.containsKey(dbName)) {
     instances.put(dbName, FirebaseDatabase(app, tokenProvider, dbName))
   }
   return instances.get(dbName);
 }
}

class FirebaseDatabase(
   app: FirebaseApp,
   tokenProvider: InternalTokenProvider,
   private val String dbName)

   companion object {
     fun getInstance(app : FirebaseApp) = getInstance("default")
     fun getInstance(app : FirebaseApp, dbName: String) =
       app.get(DatabaseComponent::class.java).get("default")
   }

```
---
has_children: true
permalink: /onboarding/
nav_order: 2

Onboarding
---
parent: Firebase Components

Executors
{: .no_toc}

1. TOC
{:toc}

Intro

OS threads are a limited resource that needs to be used with care. In order to minimize the number of threads used by Firebase

as a whole and to increase resource sharing Firebase Common provides a set of standard
[executors](https://developer.android.com/reference/java/util/concurrent/Executor)
and [coroutine dispatchers](https://kotlinlang.org/api/kotlinx.coroutines/kotlinx-coroutines-core/kotlinx.coroutines/-coroutine-dispatcher/)
for use by all Firebase SDKs.

These executors are available as components and can be requested by product SDKs as component dependencies.

Example:

```java
public class MyRegistrar implements ComponentRegistrar {
 public List<Component<?>> getComponents() {
   Qualified<Executor> backgroundExecutor = Qualified.qualified(Background.class, Executor.class);
   Qualified<ExecutorService> liteExecutorService = Qualified.qualified(Lightweight.class, ExecutorService.class);

   return Collections.singletonList(
     Component.builder(MyComponent.class)
       .add(Dependency.required(backgroundExecutor))
       .add(Dependency.required(liteExecutorService))
       .factory(c -> new MyComponent(c.get(backgroundExecutor), c.get(liteExecutorService)))
       .build());
 }
}
```

All executors(with the exception of `@UiThread`) are available as the following interfaces:

* `Executor`
* `ExecutorService`
* `ScheduledExecutorService`
* `CoroutineDispatcher`

`@UiThread` is provided only as a plain `Executor`.

Validation

All SDKs have a custom linter check that detects creation of thread pools and threads,
this is to ensure SDKs use the above executors instead of creating their own.

Choose the right executor

Use the following diagram to pick the right executor for the task you have at hand.

```mermaid
flowchart TD
   Start[Start] --> DoesBlock{Does it block?}
   DoesBlock -->|No| NeedUi{Does it need to run\n on UI thread?}
```

```
    NeedUi --> |Yes| UiExecutor[[UiThread Executor]]
    NeedUi --> |No| TakesLong{Does it take more than\n 10ms to execute?}
    TakesLong --> |No| LiteExecutor[[Lightweight Executor]]
    TakesLong --> |Yes| BgExecutor[[Background Executor]]
    DoesBlock --> |Yes| DiskIO{Does it block only\n on disk IO?}
    DiskIO --> |Yes| BgExecutor
    DiskIO --> |No| BlockExecutor[[Blocking Executor]]


    classDef start fill:#4db6ac,stroke:#4db6ac,color:#000;
    class Start start

    classDef condition fill:#f8f9fa,stroke:#bdc1c6,color:#000;
    class DoesBlock condition;
    class NeedUi condition;
    class TakesLong condition;
    class DiskIO condition;

    classDef executor fill:#1a73e8,stroke:#7baaf7,color:#fff;
    class UiExecutor executor;
    class LiteExecutor executor;
    class BgExecutor executor;
    class BlockExecutor executor;
```

UiThread

Used to schedule tasks on application's UI thread, internally it uses a Handler to post runnables onto the main looper.

Example:

```java
// Java
Qualified<Executor> uiExecutor = qualified(UiThread.class, Executor.class);
```

```kotlin
// Kotlin
Qualified<CoroutineDispatcher> dispatcher = qualified(UiThread::class.java, CoroutineDispatcher::class.java);
```

Lightweight

Use for tasks that never block and don't take to long to execute. Backed by a thread pool of N threads where N is the amount of parallelism available on the device(number of CPU cores)

Example:

```java
// Java
Qualified<Executor> liteExecutor = qualified(Lightweight.class, Executor.class);
```

```kotlin
// Kotlin
Qualified<CoroutineDispatcher> dispatcher = qualified(Lightweight::class.java, CoroutineDispatcher::class.java);
```

Background

Use for tasks that may block on disk IO(use `@Blocking` for network IO or blocking on other threads).
Backed by 4 threads.

Example:

```java
// Java
Qualified<Executor> bgExecutor = qualified(Background.class, Executor.class);
```

```kotlin
// Kotlin
Qualified<CoroutineDispatcher> dispatcher = qualified(Background::class.java, CoroutineDispatcher::class.java);
```

Blocking

Use for tasks that can block for arbitrary amounts of time, this includes network IO.

Example:

```java
// Java
Qualified<Executor> blockingExecutor = qualified(Blocking.class, Executor.class);
```

```kotlin
// Kotlin
Qualified<CoroutineDispatcher> dispatcher = qualified(Blocking::class.java, CoroutineDispatcher::class.java);
```

Other executors

Direct executor

{: .warning }
Prefer `@Lightweight` instead of using direct executor as it could cause dead locks and stack overflows.

For any trivial tasks that don't need to run asynchronously

Example:

```kotlin
FirebaseExecutors.directExecutor()
```

Sequential Executor

When you need an executor that runs tasks sequentially and guarantees any memory access is synchronized prefer to use a sequential executor instead of creating a `newSingleThreadedExecutor()`.

Example:

```java
// Pick the appropriate underlying executor using the chart above
Qualified<Executor> bgExecutor = qualified(Background.class, Executor.class);
// ...
Executor sequentialExecutor = FirebaseExecutors.newSequentialExecutor(c.get(bgExecutor));
```

Proper Kotlin usage

A `CoroutineContext` should be preferred when possible over an explicit `Executor`
or `CoroutineDispatcher`. You should only use an `Executor` at the highest
(or inversely the lowest) level of your implementations. Most classes should not
be concerned with the existence of an `Executor`.

Keep in mind that you can combine `CoroutineContext` with other `CoroutineScope`
or `CoroutineContext`. And that all `suspend` functions inherent their `coroutineContext`:

```kotlin
suspend fun createSession(): Session {
 val context = backgroundDispatcher.coroutineContext + coroutineContext
 return Session(context)
}
```

To learn more, you should give the following Kotlin wiki page a read:

[Coroutine context and dispatchers](https://kotlinlang.org/docs/coroutine-context-and-dispatchers.html#dispatchers-and-threads)

Testing

Using Executors in tests

`@Lightweight` and `@Background` executors have StrictMode enabled and throw exceptions on violations.
For example trying to do Network IO on either of them will throw.
With that in mind, when it comes to writing tests, prefer to use the common executors as opposed to creating your own thread pools. This will ensure that your code uses the appropriate executor and does not slow down all of Firebase by using the wrong one.

To do that, you should prefer relying on Components to inject the right executor even in tests.
This will ensure your tests are always using the executor that is actually used in your SDK build.
If your SDK uses Dagger, see [Dependency Injection]({{ site.baseurl }}{% link best_practices/dependency_injection.md %})
and [Dagger's testing guide](https://dagger.dev/dev-guide/testing).

When the above is not an option, you can use `TestOnlyExecutors`, but make sure you're testing your code with the same executor that is used in production code:

```kotlin
dependencies {
 // ...
 testImplementation(project(":integ-testing"))
 // or
 androidTestImplementation(project(":integ-testing"))
}
```

This gives access to

```java
TestOnlyExecutors.ui();
TestOnlyExecutors.background();
TestOnlyExecutors.blocking();
TestOnlyExecutors.lite();
```

Policy violations in tests

Unit tests require [Robolectric](https://github.com/robolectric/robolectric) to function correctly, and this comes with a major drawback; no policy validation.

Robolectric supports `StrictMode`- but does not provide the backing for its policy mechanisms to fire on violations. As such, you'll be able to do things like using `TestOnlyExecutors.background()` to execute blocking actions; usage that would have otherwise crashed in a real application.

Unfortunately, there is no easy way to fix this for unit tests. You can get around the issue by moving the tests to an emulator (integration tests)- but

those can be more expensive than your standard unit test, so you may want to
take that into consideration when planning your testing strategy.

StandardTestDispatcher support

The [kotlin.coroutines.test](https://kotlin.github.io/kotlinx.coroutines/kotlinx-coroutines-test/)
library provides support for a number of different mechanisms in tests. Some of the more
famous features include:

- [advanceUntilIdle](https://kotlin.github.io/kotlinx.coroutines/kotlinx-coroutines-test/kotlinx.coroutines.test/-test-coroutine-scheduler/advance-until-idle.html)
- [advanceTimeBy](https://kotlin.github.io/kotlinx.coroutines/kotlinx-coroutines-test/kotlinx.coroutines.test/-test-coroutine-scheduler/advance-time-by.html)
- [runCurrent](https://kotlin.github.io/kotlinx.coroutines/kotlinx-coroutines-test/kotlinx.coroutines.test/-test-coroutine-scheduler/run-current.html)

These features are all backed by `StandardTestDispatcher`, or more appropriately,
the `TestScope` provided in a `runTest` block.

Unfortunately, `TestOnlyExecutors` does not natively bind with `TestScope`.
Meaning, should you use `TestOnlyExecutors` in your tests- you won't be able to utilize
the features provided by `TestScope`:

```kotlin
@Test
fun doesStuff() = runTest {
  val scope = CoroutineScope(TestOnlyExecutors.background().asCoroutineDispatcher())
  scope.launch {
    // ... does stuff
  }

  runCurrent() // doesn't invoke scope ??
 }
```

To help fix this, we provide an extension method on `TestScope` called
`firebaseExecutors`. It facilitates the binding of `TestOnlyExecutors` with the
current `TestScope`.

For example, here's how you could use this extension method in a test:

```kotlin
@Test
fun doesStuff() = runTest {
  val scope = CoroutineScope(firebaseExecutors.background)
  scope.launch {
    // ... does stuff
  }
```

  runCurrent()
 }
```
---
parent: Firebase Components
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# Dependencies
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{:toc}

This page gives an overview of the different dependency types supported by the Components Framework.

## Background

As discussed in [Firebase Components]({{ site.baseurl }}{% link components/components.md %}), in order for a `Component` to be injected with the things it needs to function, it has to declare its dependencies. These dependencies are then made available and injected into `Components` at runtime.

Firebase Components provide different types of dependencies.

## Lazy vs Eager dependencies

When it comes to initialize a component, there are 2 ways of provide its dependencies.

### Direct Injection

With this type of injection, the component gets an instance of its dependency directly.

```kotlin
class MyComponent(private val dep : MyDep) {
 fun someMethod() {
   dep.use();
 }
}
```

As you can see above the component's dependency is passed by value directly,
which means that the dependency needs to be fully initialized before
it's handed off to the requesting component. As a result `MyComponent` may have to pay the cost
of initializing `MyDep` just to be created.

Lazy/Provider Injection

With this type of injection, instead of getting an instance of the dependency directly, the dependency
```

is passed into the `Component` with the help of a `com.google.firebase.inject.Provider`

```java
public interface Provider<T> { T get(); }
```

```kotlin
class MyComponent(private val dep : Provider<MyDep>) {
 fun someMethod() {
   // Since all components are singletons, each call to
   // get() will return the same instance.
   dep.get().use();
 }
}
```

On the surface this does not look like a big change, but it has an important side effect. In order to create an instance of `MyComponent`, we don't need to initialize `MyDep` anymore. Instead, initialization can be delayed until `MyDep` is actually used.

It is also benefitial to use a `Provider` in the context of [Play's dynamic feature delivery](https://developer.android.com/guide/playcore/feature-delivery).
See [Dynamic Module Support]({{ site.baseurl }}{% link components/dynamic_modules.md %}) for more details.

Required dependencies

This type of dependency informs the `ComponentRuntime` that a given `Component` cannot function without a dependency.
When the dependency is missing during initialization, `ComponentRuntime` will throw a `MissingDependencyException`.
This type of dependency is useful for built-in components that are always present like `Context`, `FirebaseApp`, `FirebaseOptions`, [Executors]({{ site.baseurl }}{% link components/executors.md %}).

To declare a required dependency use one of the following in your `ComponentRegistrar`:

```java
 // Required directly injected dependency
 .add(Dependency.required(MyDep.class))
 // Required lazily injected dependency
 .add(Dependency.requiredProvider(MyOtherDep.class))
 .factory( c -> new MyComponent(c.get(MyDep.class), c.getProvider(MyOtherDep.class)))
 .build();
```

Optional Dependencies

This type of dependencies is useful when your `Component` can operate normally when the dependency is not available, but can have enhanced functionality when present. e.g. `Firestore` can work without `Auth` but provides secure database access when `Auth` is present.

To declare an optional dependency use the following in your `ComponentRegistrar`:

```java
 .add(Dependency.optionalProvider(MyDep.class))
 .factory(c -> new MyComponent(c.getProvider(MyDep.class)))
 .build();
```

The provider will return `null` if the dependency is not present in the app.

{: .warning }
When the app uses [Play's dynamic feature delivery](https://developer.android.com/guide/playcore/feature-delivery),
`provider.get()` will return your dependency when it becomes available. To support this use case, don't store references to the result of `provider.get()` calls.

See [Dynamic Module Support]({{ site.baseurl }}{% link components/dynamic_modules.md %}) for details

{: .warning }
See Deferred dependencies if you your dependency has a callback based API

Deferred Dependencies

Useful for optional dependencies which have a listener-style API, i.e. the dependent component registers a listener with the dependency and never calls it again (instead the dependency will call the registered listener). A good example is `Firestore`'s use of `Auth`, where `Firestore` registers a token change listener to get notified when a new token is available. The problem is that when `Firestore` initializes, `Auth` may not be present in the app, and is instead part of a dynamic module that can be loaded at runtime on demand.

To solve this problem, Components have a notion of a `Deferred` dependency. A deferred is defined as follows:

```java
public interface Deferred<T> {
 interface DeferredHandler<T> {
   @DeferredApi
   void handle(Provider<T> provider);
 }

 void whenAvailable(DeferredHandler<T> handler);
}
```

To use it a component needs to call `Dependency.deferred(SomeType.class)`:

```kotlin
class MyComponent(deferred: Deferred<SomeType>) {
```

```
 init {
   deferred.whenAvailable { someType ->
     someType.registerListener(myListener)
   }
 }
}
```

See [Dynamic Module Support]({{ site.baseurl }}{% link components/dynamic_modules.md %}) for details

Set Dependencies

The Components Framework allows registering components to be part of a set, such components are registered explicitly to be a part of a `Set<T>` as opposed to be a unique value of `T`:

```java
// Sdk 1
Component.intoSet(new SomeTypeImpl(), SomeType.class);
// Sdk 2
Component.intoSetBuilder(SomeType.class)
 .add(Dependency(SomeDep.class))
 .factory(c -> new SomeOtherImpl(c.get(SomeDep.class)))
 .build();
```

With the above setup each SDK contributes a value of `SomeType` into a `Set<SomeType>` which becomes available as a
`Set` dependency.

To consume such a set the interested `Component` needs to declare a special kind of dependency in one of 2 ways:

* `Dependency.setOf(SomeType.class)`, a dependency of type `Set<SomeType>`.
* `Dependency.setOfProvider(SomeType.class)`, a dependency of type `Provider<Set<SomeType>>`. The advantage of this
 is that the `Set` is not initialized until the first call to `provider.get()` at which point all elements of the
 set will get initialized.

{: .warning }
Similar to optional `Provider` dependencies, where an optional dependency can become available at runtime due to
[Play's dynamic feature delivery](https://developer.android.com/guide/playcore/feature-delivery),
`Set` dependencies can change at runtime by new elements getting added to the set.
So make sure to hold on to the original `Set` to be able to observe new values in it as they are added.

Example:

```kotlin
class MyClass(private val set1: Set<SomeType>, private val set2: Provider<Set<SomeOtherType>>)
```

```java
Component.builder(MyClass.class)
   .add(Dependency.setOf(SomeType.class))
   .add(Dependency.setOfProvider(SomeOtherType.class))
   .factory(c -> MyClass(c.setOf(SomeType.class), c.setOfProvider(SomeOtherType.class)))
   .build();
```

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Version 2, June 1991

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* /opt/cola/permits/1722483595_1686907247.848899/0/volley-2014-12-09-sources-1-jar/com/android/volley/toolbox/NetworkImageView.java
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* /opt/cola/permits/1722483595_1686907247.848899/0/volley-2014-12-09-sources-1-jar/com/android/volley/toolbox/JsonRequest.java
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* /opt/cola/permits/1722483595_1686907247.848899/0/volley-2014-12-09-sources-1-jar/com/android/volley/NetworkError.java
* /opt/cola/permits/1722483595_1686907247.848899/0/volley-2014-12-09-sources-1-jar/com/android/volley/toolbox/JsonObjectRequest.java

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* /opt/cola/permits/1722483595_1686907247.848899/0/volley-2014-12-09-sources-1-jar/com/android/volley/toolbox/Volley.java

1.40 udt 1.0.3

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1.42 boost 1.65.1

1.42.1 Available under license :

1.43 libcxxabi 9.0.8svn

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Developed by:

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