C++ Standard Library

The C++ standard library provides a large number of library functions (under different header files) for performing common tasks.

C++ Header Files

- cmath - declares functions for mathematical operations
- cstdlib - usually general purpose functions
- iostream - functions for standard I/O
- cstring - functions to manipulate C-style string
- cctype - functions to classify (and transform) individual characters
- csignal - to handle signals
- clocale - internationalization support task such as date/time formatting
- cwctype - for classifying and transforming individual wide characters
- cstdio - C Standard Input and Output Library
- cwchar - to work with C wide string
- cuchar - convert between multibyte characters and UTF-16 or UTF-32
- csetjmp - bypass the normal function call and return discipline
- cfenv - access floating point environment
- ctime - functions to work with date and time

Search library function

<cmath>

Title	Description
C++ pow()	Computes Power a Number
C++ llrint()	Rounds argument using current rounding mode
C++ remainder()	Returns remainder of x/y
C++ nan()	returns a quiet NaN value
C++ cosh()	Returns Hyperbolic Cosine of an Angle
C++ copysign()	returns num with value of first and sign of second
C++ fma()	Returns Fused Multiply–Accumulate
C++ abs()	returns absolute value of an argument
C++ fabs()	returns absolute value of argument
C++ fdim()	Returns Positive Different Between Arguments
C++ fmin()	returns smallest among two given arguments
C++ fmax()	returns largest among two arguments passed
C++ hypot()	Returns Square Root of sum of square of Arguments
C++ nexttoward()	returns next value after x in direction of y
C++ nextafter()	returns next value after x in direction of y
C++ cbrt()	Computes Cube Root of a Number
C++ sqrt()	Computes Square Root of A Number
C++ remquo()	Computer remainder and stores quotient of x/y
C++ logb()	returns logarithm of |x|

C++ log1p()	returns natural logarithm of x+1.
C++ scalbln()	Scales x by FLT_RADIX to the power n
C++ log2()	returns base2 logarithm of a number
C++ scalbn()	Scales x by FLT_RADIX to the power n
C++ ilogb()	returns integral part of logarithm of |x|
C++ nearbyint()	Rounds argument to using current rounding mode
C++ expm1()	Returns e raised to Power Minus 1
C++ ldexp()	returns product of x and 2 raised to the power e
C++ frexp()	breaks float to its binary significand
C++ exp2()	Returns 2 raised to a Number
C++ exp()	returns exponential (e) raised to a number
C++ modf()	Breaks Number Into Integral and Fractional Part
C++ log10()	Returns Base 10 Logarithm of a Number
C++ lrint()	Rounds argument using current rounding mode
C++ rint()	Rounds argument using current rounding mode
C++ llround()	Rounds argument to nearest long long int value
C++ lround()	Returns the long int value nearest to the argument
C++ round()	Returns integral value nearest to argument
C++ trunc()	Truncates the demical part of a number
C++ log()	Returns Natural Logarithm of a Number
C++ atanh()	returns arc hyperbolic tangent of a number
C++ asinh()	returns arc hyperbolic sine of a number

C++ acosh()	returns hyperbolic cosine of a number
C++ fmod()	Computes floating point remainder of division
C++ tanh()	returns hyperbolic tangent of an angle
C++ floor()	Returns floor value of decimal number
C++ ceil()	Return ceiling value of number
C++ sinh()	returns hyperbolic sine of an angle
C++ acos()	Returns Inverse cosine a Number
C++ atan2()	Returns Inverse Tangent of a Coordinate
C++ tan()	Returns Tangent of the Argument
C++ atan()	Returns Inverse tangent a Number
C++ asin()	Returns Inverse Sine a Number
C++ sin()	Returns Sine of the Argument
C++ cos()	Returns Cosine of the Argument

<cstdlib>

Title	Description
C++ calloc()	allocates block of memory and initializes to zero
C++ wcstombs()	converts wide character string to multibyte seq
C++ mbstowcs()	converts multibyte char string to wide char seq
C++ wctomb()	converts wide character to a multibyte character
C++ mbtowc()	converts multibyte character to a wide character
C++ mblen()	determines size of a multibyte character
C++ lldiv()	computes integral division of two long long int.

C++ llabs()	returns absolute value of a long long int data
C++ ldiv()	computes integral division of long int numbers
C++ labs()	returns absolute value of long or long int number
C++ abs()	returns absolute value of an integer
C++ div()	computes integral quotient and remainder of number
C++ qsort()	sorts array using quick-sort algorithm
C++ bsearch()	performs binary search on sorted array
C++ _Exit()	causes termination without cleanup tasks
C++ quick_exit()	causes termination without cleaning resources
C++ getenv()	returns pointer to environment variable passed
C++ at_quick_exit()	registers function and calls on quick termination
C++ atexit()	registers function to be called on termination
C++ realloc()	reallocates a block of previously allocated memory
C++ malloc()	allocates a block of unitialized memory
C++ free()	deallocates a block of memory
C++ srand()	seeds pseudo random number for rand()
C++ strtoull()	converts string to unsigned long long int
C++ strtoll()	converts string to long long int in C++
C++ atol()	Converts String to Integer
C++ strtol()	Converts a string to number
C++ atof()	Converts String to Double
C++ strtod()	returns string float to double

Title	Description
C++ wclog	writes to log stream with wide character
C++ wcerr	prints to error stream as wide character type
C++ wcout	displays wide characters (Unicode) to screen
C++ wcin	accepts input in wide character type
C++ clog	used for streaming logs
C++ cerr	writes to error stream
C++ cout	displays output to output device i.e monitor
C++ cin	accepts input from user

<cstring>

Title	Description
C++ strxfrm()	transform byte string into implementation def form
C++ strcoll()	compares two null terminated string
C++ strlen()	returns length of given string
C++ strerror()	gives description of system error code
C++ memset()	copies character to beginning of string n times
C++ strtok()	split string based on delimiter
C++ strstr()	finds first occurrence of a substring in string
C++ strspn()	gives length of maximum initial segment
C++ strrchr()	searches last occurence of a character in string
C++ strpbrk()	search characters in one string in another string
C++ strcspn()	searches a string for characters in another string

C++ strchr()	searches for character in string
C++ memchr()	searches for character in string
C++ strncmp()	compares two strings lexographically
C++ strcmp()	compare two strings
C++ memcmp()	compares two pointer objects
C++ strncat()	appends string to end of another string
C++ strcat()	appends copy of string to end of another string
C++ strncpy()	copies character string from source to destination
C++ strcpy()	copies character string from source to destination
C++ memmove()	copies memory even if there is overlapping blocks
C++ memcpy()	copies block of memory from source to destination

<cctype>

Title	Description
C++ toupper()	converts a given character to uppercase
C++ tolower()	converts a given character to lowercase
C++ isxdigit()	checks if given character is hexadecimal character
C++ isupper()	check if given character is uppercase or not
C++ isspace()	check if given character is whitespace character
C++ ispunct()	check if given character is punctuation character
C++ isprint()	check if given character is printable or not
C++ islower()	checks if given character is lowercase
C++ isgraph()	checks if given character is graphic or not

C++ isdigit()	checks if given character is a digit or not
C++ iscntrl()	checks if given character is control character
C++ isblank()	checks if given character is a blank character
C++ isalpha()	checks if given character is alphabet or not

<csignal>

Title	Description
C++ raise()	sends signal to the program
C++ signal()	sets error handler for specifiied signal

<clocale>

Title	Description
C++ localeconv()	returns current locale formatting rules
C++ setlocale()	sets locale information for the current program

<cwctype>

Title	Description
C++ iswdigit()	checks if given wide character is digit or not
C++ wctype()	returns wide character classification
C++ wctrans()	returns current transformation for wide character
C++ towctrans()	transforms a given wide character
C++ iswctype()	checks if given wide char has certain property
C++ towupper()	converts given wide character to uppercase
C++ towlower()	converts given wide character to lowercase

C++ iswxdigit()	checks if given wide character is hexadecimal num
C++ iswupper()	checks if given wide character is uppercase
C++ iswspace()	checks if given wide character is wide whitespace
C++ iswpunct()	checks if given wide character is punctuation
C++ iswprint()	checks if given wide character can be printed
C++ iswlower()	checks if given wide character is lowercase
C++ iswgraph()	checks if wide char has graphical representation
C++ iswcntrl()	checks if given wide char is control character
C++ iswblank()	checks if given wide character is blank character
C++ iswalpha()	checks if given wide character is an alphabet
C++ iswalnum()	checks if given wide character is alphanumeric

<cstdio>

Title	Description
C++ getc()	reads next character from input stream
C++ fseek()	sets file position indicator for given file stream
C++ ungetc()	push previously read character back to the stream
C++ vsscanf()	read data from a string buffer
C++ vscanf()	read data from stdin
C++ vfscanf()	read data from a file stream
C++ freopen()	opens a new file with stream associated to another
C++ fflush()	flushes any buffered data to the respective device
C++ setvbuf()	change or specify buffering mode and buffer size

C++ perror()	prints error to stderr
C++ ferror()	checks for errors in given stream
C++ feof() function	checks if file stream EOF has been reached or not
C++ clearerr()	resets error flags and EOF indicator for stream
C++ rewind()	sets file position to beginning of stream
C++ ftell()	returns current position of file pointer
C++ fsetpos()	sets stream file pointer to given position
C++ fgetpos()	gets current file position
C++ fwrite()	writes specified number of characters to stream
C++ fread()	reads specified no. of characters from stream
C++ puts()	writes string to stdout
C++ putchar()	writes a character to stdout
C++ putc()	writes character to given output stream
C++ gets()	reads line from stdin
C++ getchar()	reads next character from stdin
C++ fputs()	writes string to file stream
C++ fputc()	writes character to given output stream
C++ fgets()	reads n number of characters from file stream
C++ fgetc()	reads the next character from given input stream
C++ vsprintf()	write formatted string to a string buffer
C++ vsnprintf()	write formatted string to string buffer
C++ vprintf()	printf but takes args from vlist instead

C++ vfprintf()	write formatted string to file stream
C++ sscanf()	read data from string buffer
C++ sprintf()	write a formatted string to buffer
C++ snprintf()	write formatted string to character string buffer
C++ scanf	read data form stdin
C++ printf()	write formatted string to stdout
C++ fscanf()	read data from file stream
C++ fprintf()	write a formatted string to file stream
C++ setbuf()	sets the internal buffer to be used for I/O
C++ fopen()	opens specified file
C++ fclose()	closes given file stream
C++ tmpnam()	generates unique filename
C++ tmpfile()	creates temporary file with auto-generated name
C++ rename()	renames or moves specified file
C++ remove()	deletes the specified file

<cwchar>

Title	Description
C++ wcscoll()	compares two null terminated wide string
C++ wcstoull()	converts wide string num to unsigned long long
C++ wcstoul()	converts wide str of given base to unsigned long
C++ wcstoll()	converts wide string of specified base to int
C++ wcsftime()	converts given date and time to wide character str

C++ wmemset()	copies single wide char for a certain num of time
C++ wmemmove()	moves wide chars from src to dest
C++ wmemcpy()	copies specified num of wide char from src to dest
C++ wmemcmp()	compares wide chars of two wide strings
C++ wmemchr()	searches for first occurrence of wide char
C++ wcsxfrm()	transforms wide string to implementation defined
C++ wcsstr()	finds first occurrence of wide substring in a str
C++ wcsspn()	returns length of maximum initial segment
C++ wcsrchr()	searches last occurrence of wide char in string
C++ wcspbrk()	searches for set of wide char in given wide string
C++ wcsncpy()	copies specified number of wide characters
C++ wcsncmp()	compares specified number of wide char of strings
C++ wcsncat()	appends specified num of wide char to another str
C++ wcslen()	returns length of the given wide string
C++ wcscspn()	returns number of wide char before first occurence
C++ wcscpy()	copies wide character string from source to dest
C++ wcscmp()	lexicographically compares two wide string
C++ wcschr()	searches for a wide character in a wide string
C++ wcscat()	appends copy of wide string to the end of another
C++ wcsrtombs()	convert wide char seq to narrow multibyte char seq
C++ wctob()	converts wide character to single byte character
C++ wcrtomb()	convert wide character to its narrow multibyte rep

C++ mbsrtowcs()	convert narrow multibyte char seq to wide char seq
C++ mbsinit()	describe initial conversion state of mbstate_t obj
C++ mbrtowc()	converts narrow multibyte char to wide char
C++ mbrlen()	determines size in bytes of a multibyte character
C++ btowc()	converts character to its wide character
C++ wcstok()	returns next token in null terminated wide string
C++ wcstold()	converts wide string float number to long double
C++ wcstol()	converts wide string float number to long int
C++ wcstof()	converts wide string float number to float
C++ wcstod()	converts wide string float number to double
C++ wscanf()	reads wide character from stdin
C++ wprintf()	write formatted wide string to stdout
C++ vwscanf()	read wide character from stdin
C++ vwprintf()	write formatted wide string to stdout
C++ vswscanf()	read wide character string from wide string buffer
C++ vswprintf()	write formatted wide string to wide string buffer
C++ vfwscanf()	read wide character string from a file stream
C++ vfwprintf()	write formatted wide string to a file stream
C++ ungetwc()	push previously read wide character back to stream
C++ swscanf()	reads wide character from wide string buffer
C++ swprintf()	write formatted wide string to wide string buffer
C++ putwchar()	writes wide character to stdout

C++ putwc()	writes wide character to the given output stream
C++ getwchar()	reads next wide character from stdin
C++ getwc()	reads next wide character from input stream
C++ fwscanf()	reads wide character from file stream
C++ fwprintf()	write formatted wide string to a file stream
C++ fwide()	set or query orientation of given file stream
C++ fputws()	writes wide string except null wide char to output
C++ fputwc()	writes wide character to the given output stream
C++ fgetws()	reads specified num of wide characters from stream
C++ fgetwc()	reads next wide character from given input stream

<cuchar>

Title	Description
C++ mbrtoc32()	converts narrow multibyte char to 32 bit char
C++ mbrtoc16()	converts narrow multibyte char to 16 bit char
C++ c32rtomb()	converts 32 bit char to narrow multibyte char
C++ c16rtomb()	converts 16 bit char to narrow multibyte char

<csetjmp>

Title	Description
C++ longjmp() and setjmp()	restores previously saved environment

<cfenv>

Title	Description

C++ fetestexcept()	tests floating point exception
C++ feupdateenv()	updates floating point environment
C++ feholdexcept()	saves and clear floating point status flags
C++ fesetenv()	set floating point environment
C++ fesetround()	set rounding direction
C++ fegetenv()	store status of floating point env in an object
C++ fegetround()	gets round direction mode
C++ fesetexceptflag()	sets given floating point exceptions to the env
C++ fegetexceptflag()	gets floating point exception flags
C++ feraiseexcept()	raises floating point exceptions specified
C++ feclearexcept()	attempts to clear floating point exception flags

<ctime>

Title	Description
C++ strftime()	converts calendar time to multibyte character str
C++ mktime()	converts local calendar time to time since epoch
C++ localtime()	converts given time since epoch to local time
C++ gmtime()	converts given time since epoch to UTC time
C++ ctime()	converts time since epoch to char representation
C++ asctime()	converts calendar time to character representation
C++ time()	returns current calendar time
C++ difftime()	computes difference between two times in seconds
C++ clock()	returns processor time consumed by program

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