

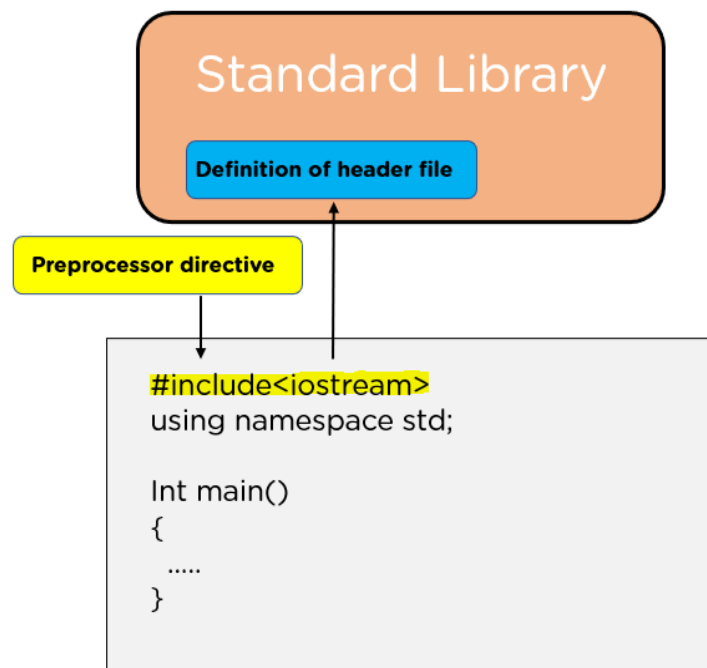
# Header files in C/C++ and its uses

## Why Do You Use Header Files?

Header files are used in C++ so that you don't have to write the code for every single thing. It helps to reduce the complexity and number of lines of code. It also gives you the benefit of reusing the functions that are declared in header files to different .cpp files and including a header file is way easier than writing the implementations. By using a header file, you keep the program precise and focused, which makes it manageable.

## What Are C++ Header Files?

These are those files that store predefined functions. It contains definitions of functions that you can include or import using a preprocessor directive `#include`. This preprocessor directive tells the compiler that the header file needs to be processed prior to the compilation. For example, the `<iostream>` header file in C++ contains the definition of input-output functions.



## Standard Header Files And Their Uses:

1. **`#include<stdio.h>`**: It is used to perform input and output operations using functions `scanf()` and `printf()`.
2. **`#include<iostream>`**: It is used as a stream of Input and Output using `cin` and `cout`.
3. **`#include<string.h>`**: It is used to perform various functionalities related to string manipulation like [`strlen\(\)`](#), [`strcmp\(\)`](#), [`strcpy\(\)`](#), `size()`, etc.
4. **`#include<math.h>`**: It is used to perform mathematical operations like [`sqrt\(\)`](#), [`log2\(\)`](#), [`pow\(\)`](#), etc.

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5. **#include<iomanip.h>:** It is used to access `set()` and `setprecision()` function to limit the decimal places in variables.
6. **#include<signal.h>:** It is used to perform signal handling functions like `signal()` and `raise()`.
7. **#include<stdarg.h>:** It is used to perform standard argument functions like `va_start()` and `va_arg()`. It is also used to indicate start of the variable-length argument list and to fetch the arguments from the variable-length argument list in the program respectively.
8. **#include<errno.h>:** It is used to perform [error handling](#) operations like `errno()`, `strerror()`, `perror()`, etc.
9. **#include<fstream.h>:** It is used to control the data to read from a file as an input and data to write into the file as an output.
10. **#include<time.h>:** It is used to perform functions related to `date()` and `time()` like [setdate\(\)](#) and [getdate\(\)](#). It is also used to modify the system date and get the CPU time respectively.
11. **#include<float.h>:** It contains a set of various platform-dependent constants related to floating point values. These constants are proposed by ANSI C. They allow making programs more portable. Some examples of constants included in this header file are- `e(exponent)`, `b(base/radix)`, etc.
12. **#include<limits.h>:** It determines various properties of the various variable types. The macros defined in this header, limits the values of various variable types like `char`, `int`, and `long`. These limits specify that a variable cannot store any value beyond these limits, for example an unsigned character can store up to a maximum value of **255**.
13. **#include<assert.h>:** It contains information for adding diagnostics that aid program debugging.
14. **#include<ctype.h>:** It contains function prototypes for functions that test characters for certain properties, and also function prototypes for functions that can be used to convert uppercase letters to lowercase letters and vice versa.
15. **#include<locale.h>:** It contains function prototypes and other information that enables a program to be modified for the current locale on which it's running. It enables the computer system to handle different conventions for expressing data such as times, dates or large numbers throughout the world.
16. **#include<setjmp.h>:** It contains function prototypes for functions that allow bypassing of the usual function call and return sequence.
17. **#include<stddef.h>:** It contains common type definitions used by C for performing calculations.