C - Program Structure

Before we study the basic building blocks of the C programming language, let us look at a bare minimum C program structure so that we can take it as a reference in the upcoming chapters.

Hello World Example

A C program basically consists of the following parts −

* Preprocessor Commands
* Functions
* Variables
* Statements & Expressions
* Comments

Let us look at a simple code that would print the words "Hello World" −

[Live Demo](http://tpcg.io/3Ty4QP)

#include <stdio.h>

int main() {

/\* my first program in C \*/

printf("Hello, World! \n");

return 0;

}

Let us take a look at the various parts of the above program −

* The first line of the program *#include <stdio.h>* is a preprocessor command, which tells a C compiler to include stdio.h file before going to actual compilation.
* The next line *int main()* is the main function where the program execution begins.
* The next line /\*...\*/ will be ignored by the compiler and it has been put to add additional comments in the program. So such lines are called comments in the program.
* The next line *printf(...)* is another function available in C which causes the message "Hello, World!" to be displayed on the screen.
* The next line **return 0;** terminates the main() function and returns the value 0.

Compile and Execute C Program

Let us see how to save the source code in a file, and how to compile and run it. Following are the simple steps −

* Open a text editor and add the above-mentioned code.
* Save the file as *hello.c*
* Open a command prompt and go to the directory where you have saved the file.
* Type *gcc hello.c* and press enter to compile your code.
* If there are no errors in your code, the command prompt will take you to the next line and would generate *a.out* executable file.
* Now, type *a.out* to execute your program.
* You will see the output *"Hello World"* printed on the screen.

$ gcc hello.c

$ ./a.out

Hello, World!

Make sure the gcc compiler is in your path and that you are running it in the directory containing the source file hello.c.