

# 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" –

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```
#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*.

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