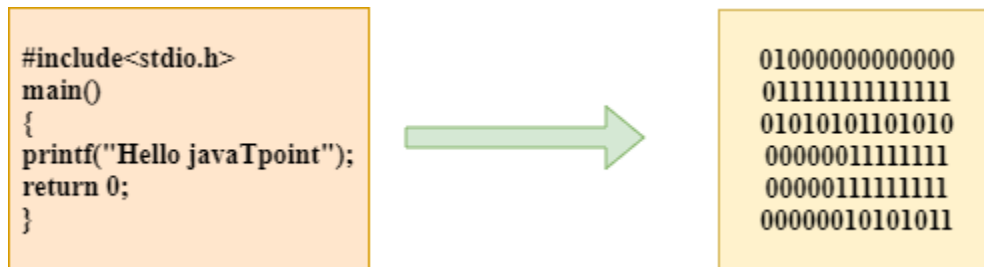


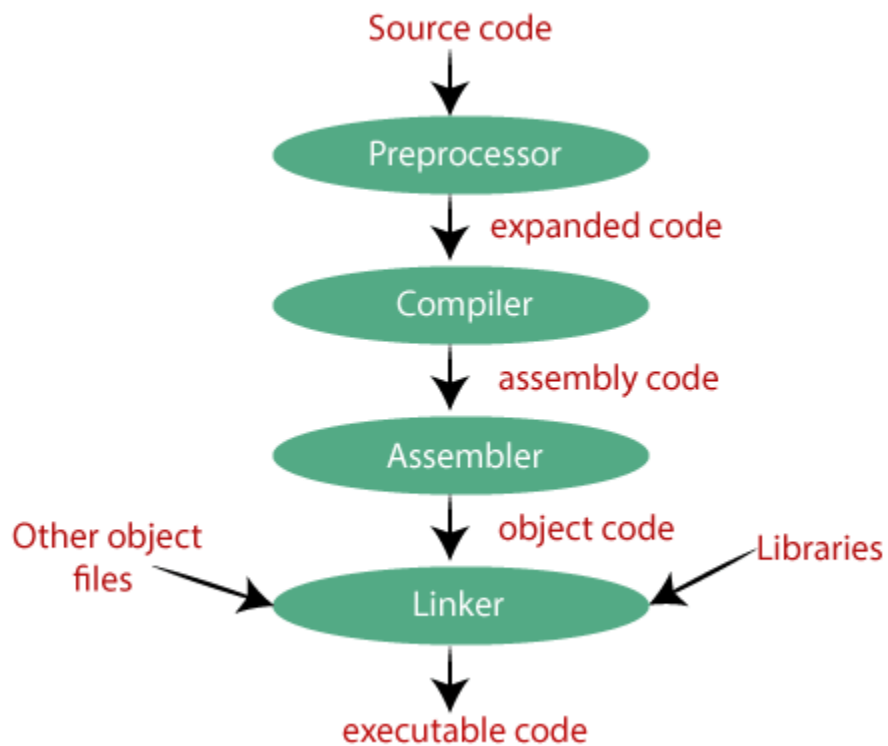
Compilation and Execution:

What is a compilation?

- The compilation is a process of converting the source code into object code. It is done with the help of the compiler.
- The compiler checks the source code for the syntactical or structural errors, and if the source code is error-free, then it generates the object code.



- The c compilation process converts the source code taken as input into the object code or machine code.
- The compilation process can be divided into four steps, i.e., Pre-processing, Compiling, Assembling, and Linking.



Let's understand through an example.

hello.c

```
#include <stdio.h>
```

```
int main()
```

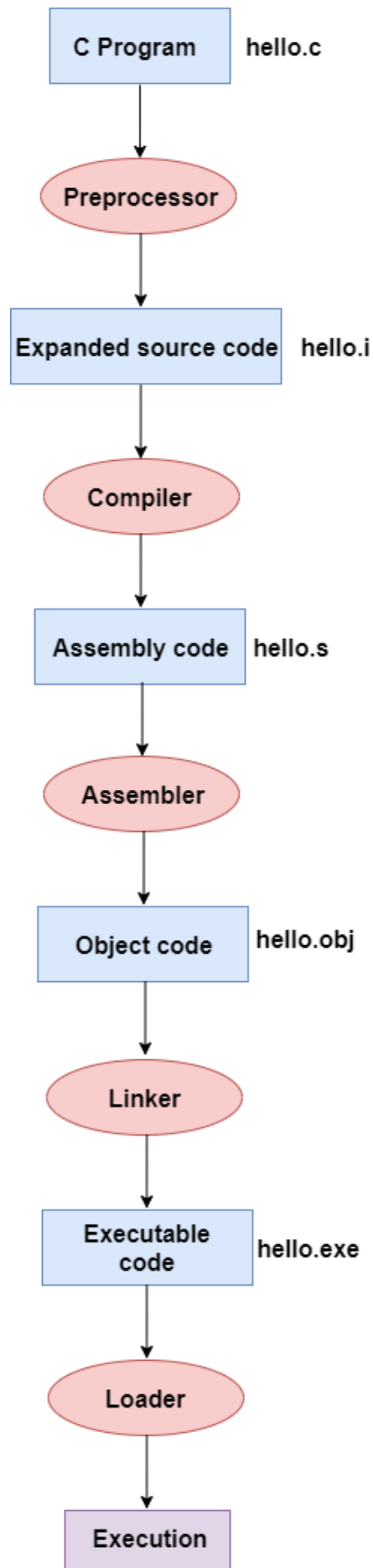
```
{
```

```
    printf("Hello world");
```

```
    return 0;
```

```
}
```

Now, we will create a flow diagram of the above program:



How does Hello World program run?

- The first line of code `#include<stdio.h>` is a preprocessor. `stdio.h` is a header file which includes multiple functions defined in it such as `scanf()`, `printf()` functions. Adding this header file in our program, allow us to use functions defined in the header file. Using existing function makes our job pretty easy.
- Every C program execution starts with `main()` function. Your program may have multiple functions, the code inside the `main()` function block is executed first. Here, the return type of the `main()` function is `int`.
- As like all other function, `main()` function block starts with a `{` and end with a `}` delimiter.
- Write `printf()` statement by passing a string as an input. It will print the string message on the output console.
- As we have defined the main with return `int` value, write `return 0;` It returns a SUCCESS message to the operating system.
- `\n` in string message moves the cursor to a new line.

Compilation and Execution of C Program:

Follow the steps given below.

- Save the program as `helloWorld.c` (with `.c` extension).
- Open a command prompt.
- Go to the current directory where the program is saved using. You can use `cd` command to change the current directory.
- Compile the program with the following command.

```
gcc helloWorld.c
```

It will compile the program file and create an executable file.

(`a.exe` if you are running program on the window system. `a.out` for Linux system).

- Running executable file.

For Windows,

a.exe

There are 2 ways to compile and run the c program, by menu and by shortcut.

By menu

- Now **click on the compile menu then compile sub menu** to compile the c program.
- Then **click on the run menu then run sub menu** to run the c program.

By shortcut

- **Or, press ctrl+f9** keys compile and run the program directly.