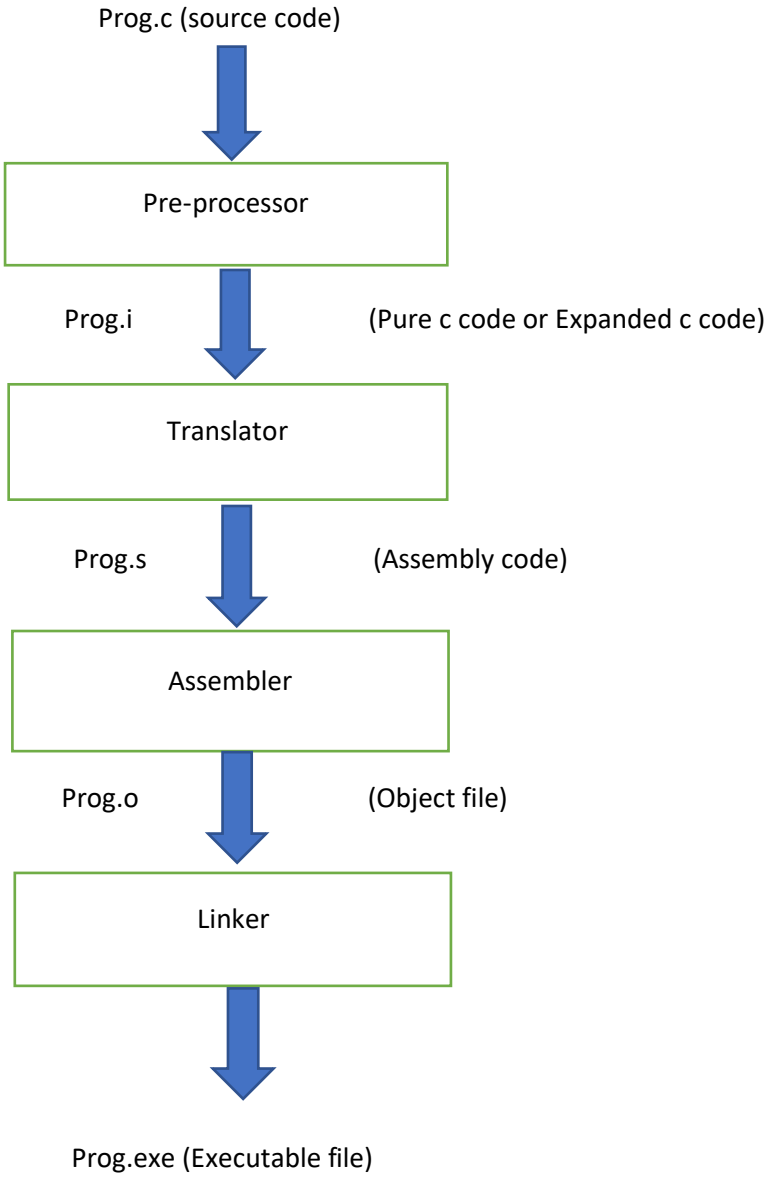
Compilation stages in C Language:

In the C programming language, the compilation process consists of several stages. These stages Take the source code written in C and transform it into an executable program. Below are the typical Stages of the compilation process for a C program.



Pre-processor :

1. Header files are replaced by its contents,(In place of #include statements respective content will be replaced and #include statements will be removed) .

2. Comments will be removed and also it will do macro replacements.
3. Conditional compilation will be done by pre-processor.
4. By using GCC compiler we can get the Intermediate file i.e preprocessor output (prog.i) using the command (CC -E prog.c -o prog.i)
5. Output of preprocessor will be expanded in pure c code/ expanded c code because it will be having only c statements ,comments and preprocessor directive will be removed.

Translator:

1. Translator will check for syntax error.
2. If there is no error in code it will convert source code into assembly code.
3. We can get intermediate file i.e translator output prog.s using command (CC -S prog.i -o prog.s)

Assembler:

1. It will convert assembly code into binary code i.e object file
2. We can get intermediate file i.e Assembler output prog.o using command (CC -S prog.s -o prog.o)

Linker:

1. Linker links calling function to called function that is basically called function mapping.
2. It will create _start function which will call main() function in our program,it will also have proper exit procedure so it will avoid run time error i.e (segmentation fault).
3. We can get intermediate file using command CC prog.o -o prog.exe