Devops Assignment 2
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Whenever we write a C source file, it’s basically human readable. But,computers only understand binary code. So, the main task is to translate human readable C code into Binary code.

Now suppose we have a file :- diya.c

If I execute the above mentioned file(using -> ./diya.c) , it wont work because the computer wont understand the language written inside itsince it’s human redable and not in binary as of yet.

now, if I compile the code before executing it , say using gcc compiler (using -> gcc diya.c) and hence execute it , then the code runs because after compilation the code gets converted into machine-readable language.

Basically, what happens is when we compile the code using gcc diya.c it sends the diya.c file through 4 steps:

A. Pre-processing: This is considered as the first phase of translation. It cleans the C file by eliminating comments, replacing macros name with code, including the header file code in the file etc.
Here, the actual code from the header is included, although the actual code is much more longer.

B. Compilation: The compiler then takes the file and generates assembly code from the preprocessed file. Assembly code is less human-readable but is still based on English mnemonics. So, the compiler takes the file one step further from purely human-readable code but does not quite make it machine-readable.

C. Assembler: The assembler takes the assembly code and converts it into pure binary code/machine language in the form of an object file.

D. Linker: The linker then looks at the machine code and merges all object files and libraries in the same project into one executable file.

So, when we fire the command gcc diya.c , the compiler preprocesses, compiles, assembles and finally links the diya.c program. and the finaltranslated output is stored in a.out by default/ We can then execute a.out file to run the C program.