

C- Programming Language

Introduction

4) C Introduction

- low level languages
- Speed of execution
- Requires less Resources
- Used in Embedded systems & System softwares.

C Vs C++

- Both are low level languages
- Both have fast speed of execution
- Both require less Resources
- C++ is a superset of C
- C++ has additional features.

Applications

- Kernels of OS are written in C-programming lang
- DBMS are written in C
- Interpreter of python is written in C.

5) C Standards & Implementations

- Compilers → GCC C, Microsoft visual C++, Oracle C
open source compiler.

6) Basic C- Programming Lang

(i) Keywords

They are reserved words for C- Programming

Eg: for, while, do while.

(ii) Function

A sequence of instructions that does a specific job.

Eg: printf, scanf.

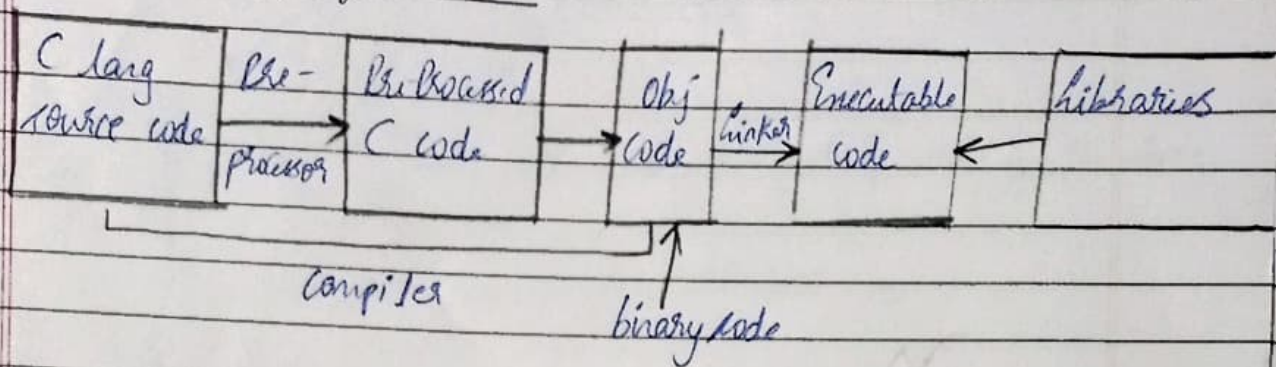
(iii) Statically typed / Dynamically typed

- We need to declare the variable before using in the former
- Do not need to declare the variable in the latter.
- Statically = faster
- Dynamically = slower.

(iv) Pre-processor & Header file

- Pre-Processors ⇒ Anything that has (#) & gets extracted from the compiler. Used to include header files.
- Header files ⇒ #include <stdio.h>
- Conditional Compilation ⇒ #ifdef _unix
→ #elif defined WIN32
→ #include <windows.h>
→ #endif
- Macro expansion ⇒ #define PI 3.142

7) How do C programs Run?



- header files have declarations for ~~low~~ basic functions.
- Execution of software starts from `main()`.
- `return 0;` indicates the end of program.
- `(\n)` is a line terminator.

Process of compiling & running a C program

(a) Writing a code

- write a C program using text editor
- save file with extension (.c)

(b) Compiling the Program

- It is used to convert source code to machine code for computer to execute. Also using a compiler.
- syntax checking, translation & linking happens here.
- machine code extension is (.o).

(c) Running the Program

- After successful compilation, we can run the code.