KATHMANDU UNIVERSITY SCHOOL OF MANAGEMENT

BBIS

COM 102 : 3 Credit Hours

Getting Started…

20/12/2021

Outlines

- Evaluation Criteria
- Course Structure/Syllabus
- Fundamental concepts of Computer Programming
- A simple C program

What is Programming ?

- Computer doesn't know the things in advance that you know. However, you can make the computer do things which you can do.

  This is achieved through programming.

- When computers are programmed to do things, they can prove themselves much smarter.
- In a broad sense programming is all about problem solving and mathematical logic implementations.

Characteristics of Computer

Here are few significant characteristics of computer to recall.

- Speed: A computer works with much higher speed compared to humans.
- Accuracy: A Computers perform calculations with 100% accuracy.
- Diligence: A computer can perform millions of tasks with the same consistency and accuracy.
- Versatility: A computer is capable of working in diverse areas.
- Reliability : the probability that a system, or service will perform its intended function adequately for a specified period of time, or will operate in a defined environment without failure
- Memory: A computer can store tremendous amount of data in its memory.

Computer Programming

- Programming is the process of creating a set of instructions that tell a computer how to perform a task.

- Programming can be done using a variety of computer programming languages, such as C, C++, Java, Python, JavaScript, etc.

- These are High Level Languages(HLL).

Application of Programming Languages

- Programmers use programming languages to communicate with computers.

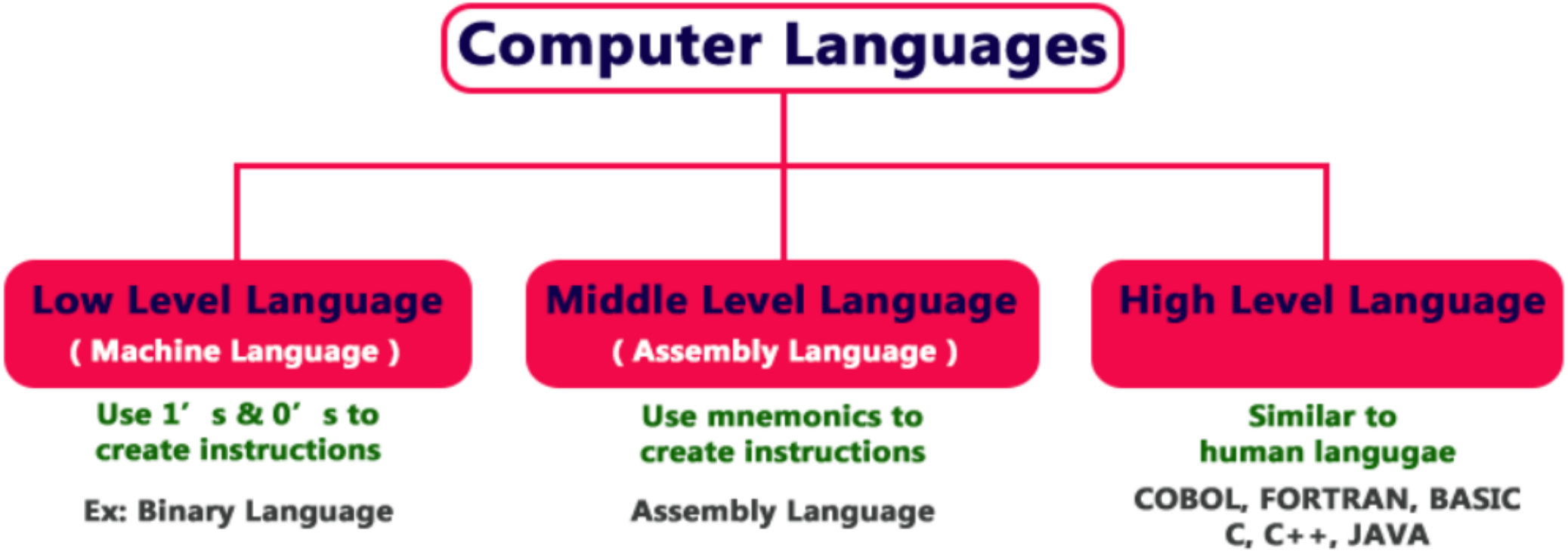
- Some programming languages are used to create programs to solve problems or interpret data.

- Other programming languages are more suitable for making software or apps.

Programming Languages

Programming languages are generally categorized as:

- Machine Language (ML) - low-level language - binary digits (ones and zeros).
  - e.g. machine code
- Assembly Language is a type of low-level language intended to communicate directly with a computer's hardware.
  - Unlike machine language, assembly languages are designed to be readable by humans.
  - e.g IBM PC DOS operating systems
  - More about assembly language
  - (https://www.tutorialspoint.com/assembly_programming/assembly_tutorial.pdf)
- High-Level Languages are designed to simplify computer programming.
  - High-level source code contains easy-to-read syntax that is later converted into a low-level language, which can be recognized and run by a specific CPU.
  - e.g C, Java, Python



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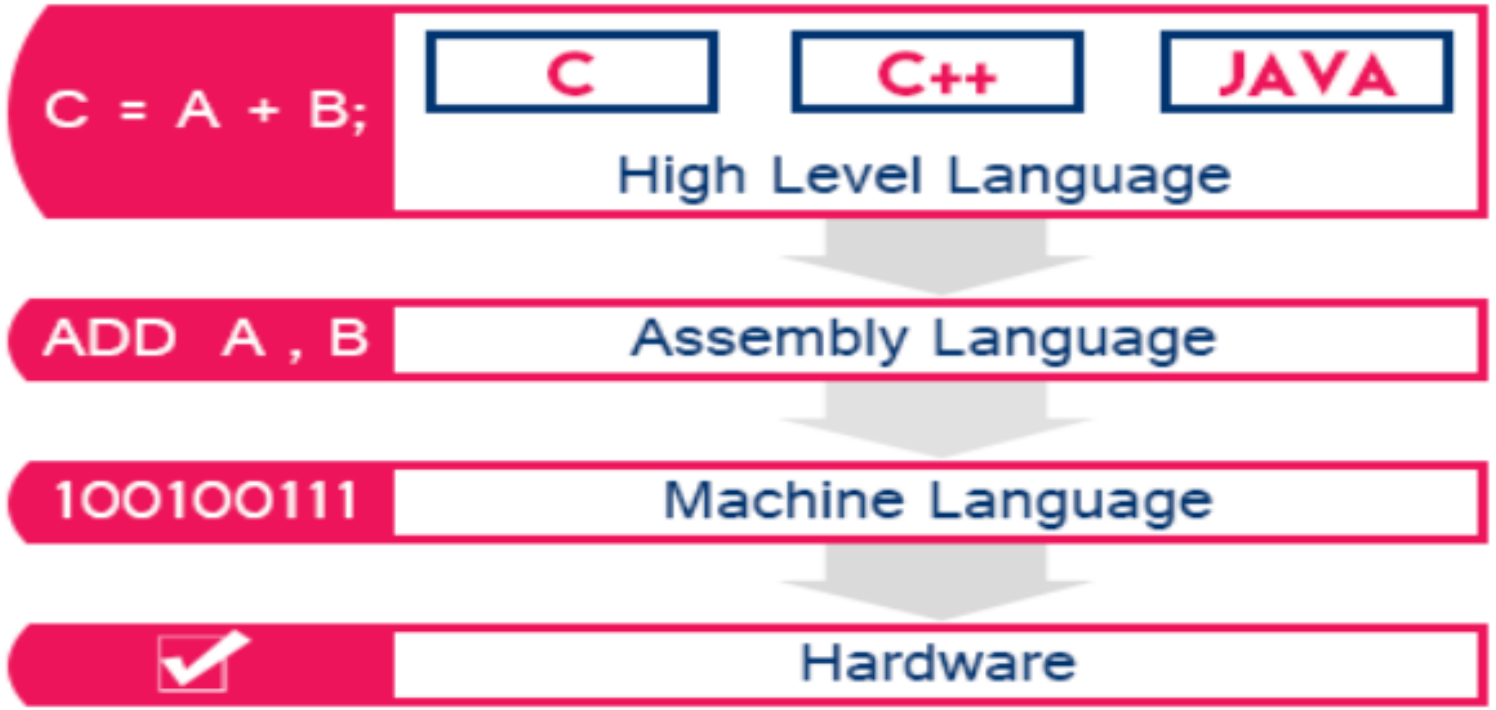

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C programming Language

- C is a powerful general-purpose programming language.
- C is a high level Language.
- It can be used to develop software like operating systems, databases, compilers, and so on.
- C is a very common/widely used language to learn to program for beginners.

The Process of Writing a C Program

Step 1: Write the source codes (.c) and header files (.h).

Step 2: Pre-process the source codes according to the preprocessor directives. The preprocessor directives begin with a hash sign (#), such as #include and #define. They indicate that certain manipulations (such as including another file or replacement of symbols) are to be performed before compilation.

Step 3: Compile the pre-processed source codes into object codes (.obj, .o).

Step 4: Link the compiled object codes with other object codes and the library object codes (.lib, .a)to produce the executable code (.exe).

Step 5: Load the executable code into computer memory.

Step 6: Run the executable code.

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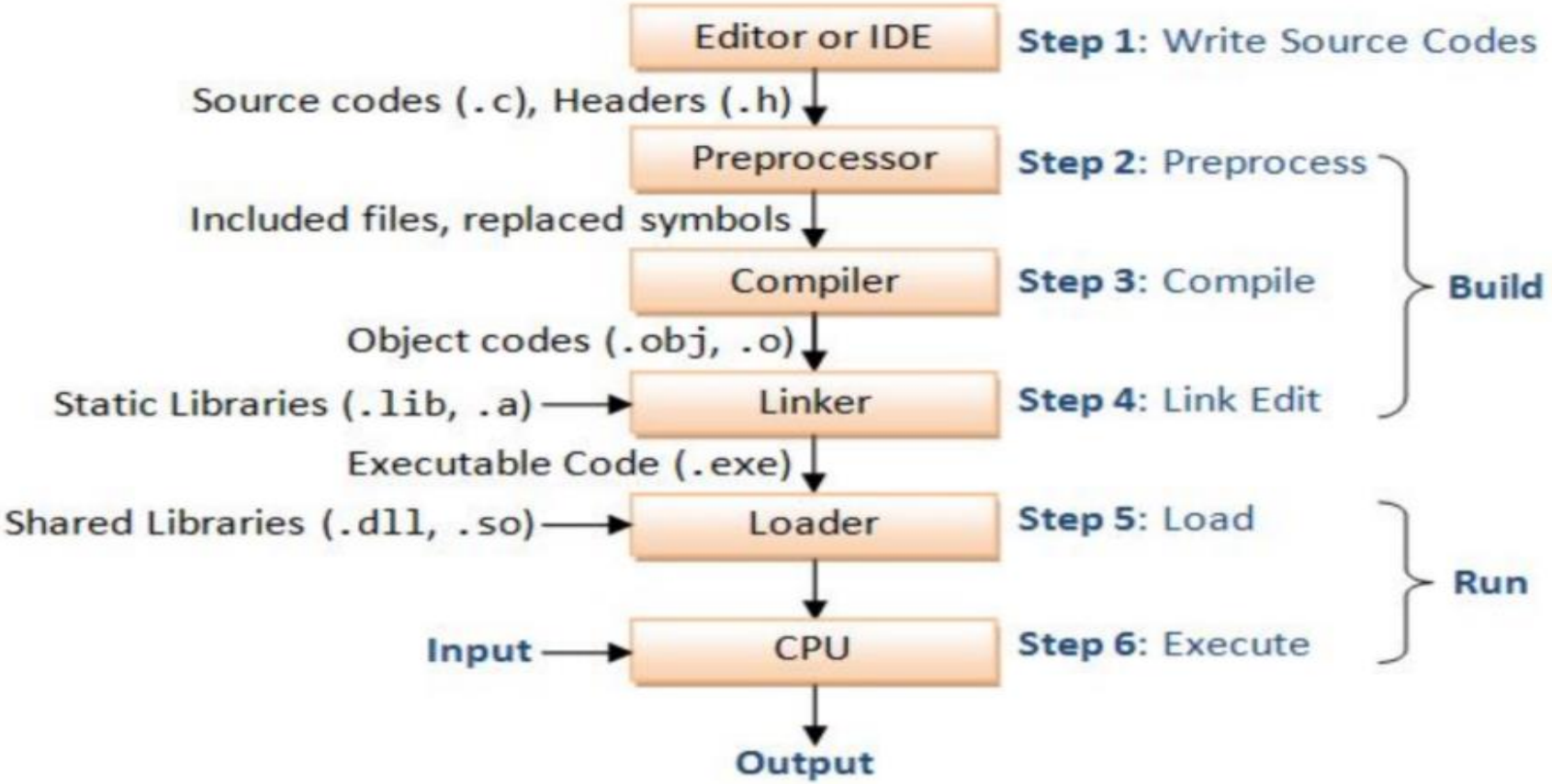
Editor or IDE
Step 1: Write Source Codes
Source codes (.c), Headers (.h)
Preprocessor
Step 2: Preprocess
Included files, replaced symbols
Compiler
Step 3: Compile
Build
Object codes (.obj, .o)
Static Libraries (.lib, .a)
Linker
Step 4: Link Edit
Executable Code (.exe)
Shared Libraries (.dll, .so)
Loader
Step 5: Load
Run
Input
CPU
Step 6: Execute
Output

A First C Program

```
#include <stdio.h>
int main() {
/* my first program in C */
printf("Hello, World! \n");
return 0;
}
```

Write your own First C Program

- Write a Program (WAP) to print “Hello ...”

Queries???