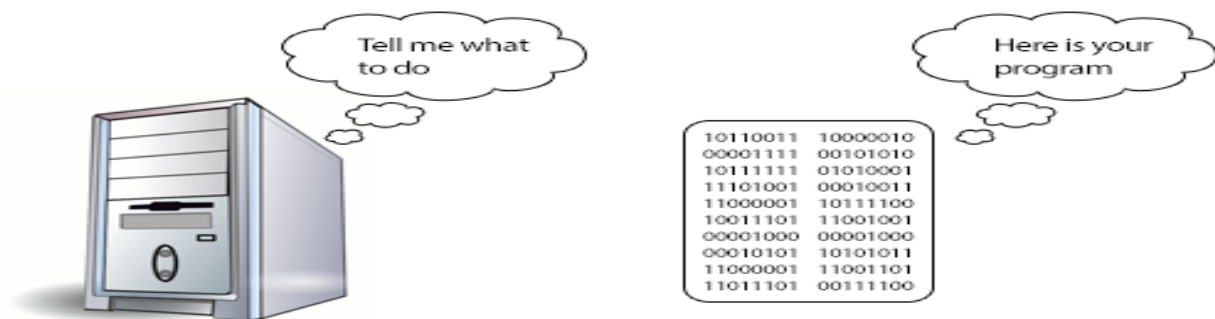


What is a computer program?

A Program is a set of instructions compiled together in a file to perform some specific task by the CPU (Central Processing Unit). It is a series of binary numbers (0s and 1s) arranged in a sequence, which when given to the computer performs some task.

Computer is a dumb machine with expeditious computational speed. It can give quick results to many of the complex scientific calculations but it can't perform a task on its own. A computer needs set of instructions to do some task. This set of instructions is contained in a computer program. Computer program is basically in binary language i.e. series of 0s and 1s. A large bunch of programs makes the computer functional without which the computer would be like a paralyzed machine.

You may think computer as an idiot person who does not know to cook. If you provide ingredients for cooking *Pasta* to that idiot person, you cannot expect a delicious dish. However, if you provide ingredients along with the full step-by-step recipe of cooking *Pasta* then you may expect a real *Pasta* from that idiot person. Same is the concept with computers, for computers the ingredients are data (might be an integer, string, images, videos or anything) and the recipe is a program.



In my early ages one question always ponders in my mind, how can I create my own programs? Smaller but effective and my own. Programs like *Calculator*, *Notepad*, *Music Player*, *A Website* and many complex as a *Remote Administration Tool*, *Search Engine* etc. I found programming is the only way through which I can create my own program. Surely you won't be creating complex and big software's in few days, with little or no programming knowledge and experience. But definitely, you can create different small programs designed for specific tasks.

What is Programming?

Programming is the process of writing an algorithm into a sequence of computer instructions. Or you can simply say it is the process of writing programs. We generally transform the solution of a specific problem into computer language. It is the only way through which we can create our own programs and can execute them on a computer. Programming requires skill, logical thinking and lots of experience. Programmers are the person who writes programs in a specific computer programming language. They are highly skilled, hardworking, problem solvers

What is Programming Language and its Different Types

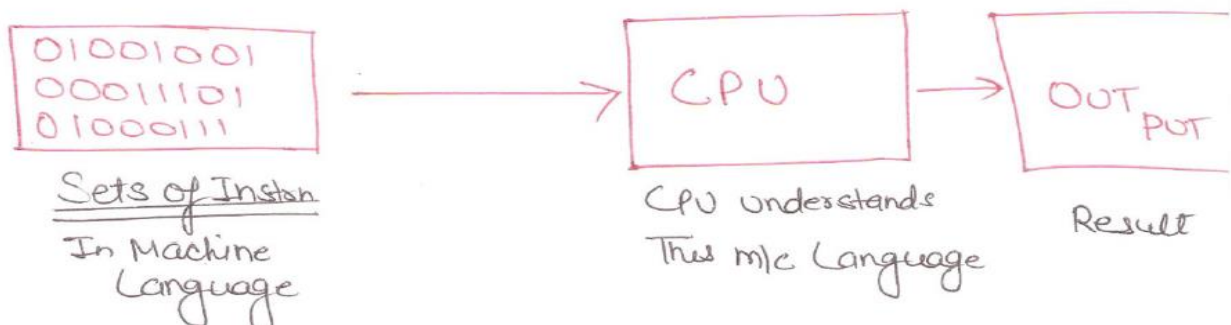
Programming language:

It is a formal computer language which is designed to communicate instructions or commands or orders to a machine, particularly a computer. Programming languages can be used to create program to control the behaviour of the machine.

Different types of programming languages:

1) Machine Language: A computer or a machine only can understand its machine language which is Defined by its hardware architecture. This directly executed by CPU that is central Processing Unit of the computer. Machine language generally consist of numbers that is 0 and 1.

This 0 AND 1 codes are difficult to understand by the programmer.



2) Assembly Languages: It is low level language for computers and microprocessor and other Programmable devices. It is basically English like abbreviations to perform operations. Now we need to convert assembly language to machine language as CPUs do not understand assembly language. So assembler converts the Assembly language to machine language basically an assembler is a translator program which is used to convert the language. Example of assembly languages are :

Go , Jump, Run , Addr. etc
Assembly Language instructions.

GO, JUMP, RUN, ADDR etc. These are the basically assembly language instructions.

3) High Level Languages: As a requirement of the developing a fast and easy language for developer to understand, high level language comes in existence.

Generation of Programming Languages

First Generation Languages:

These are low-level languages like machine language.

Second Generation Languages:

These are low-level assembly languages used in kernels and hardware drives.

Third Generation Languages:

These are high-level languages like C, C++, Java, Visual Basic and JavaScript.

Fourth Generation Languages:

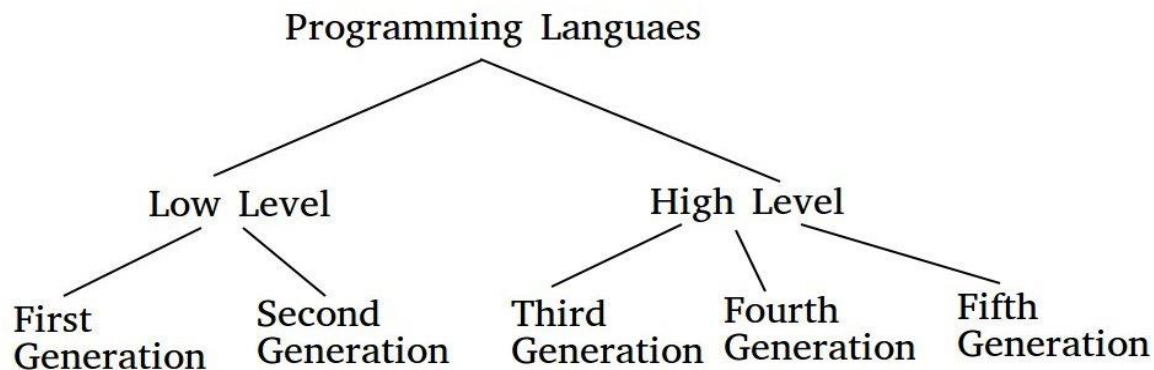
These are languages that consist of statements that are similar to statements in the human language. These are used mainly in database programming and scripting. Example of these languages include Perl, Python, Ruby, SQL, MatLab(MatrixLaboratory).

Fifth Generation Languages:

These are the programming languages that have visual tools to develop a program.

Examples of fifth generation language include Mercury, OPS5, and Prolog.

The first two generations are called low level languages. The next three generations are called high level languages.



What is Translators? Different type of translators

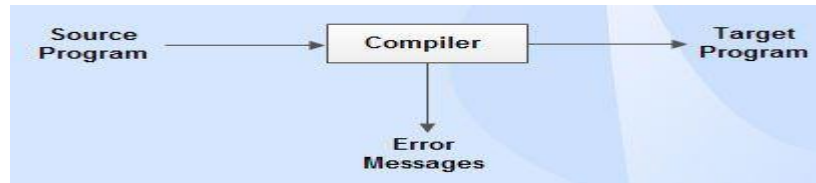
A translator takes a program written in source language as input and converts it into a program in target language as output.

Different type of translators

The different types of translator are as follows:

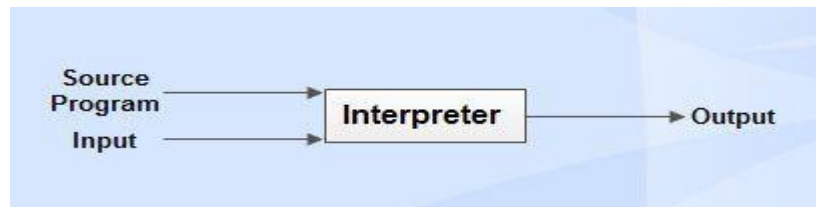
Compiler

Compiler is a translator which is used to convert programs in high-level language to low-level language. It translates the entire program and also reports the errors in source program encountered during the translation.



Interpreter

Interpreter is a translator which is used to convert programs in high-level language to low-level language. Interpreter translates line by line and reports the error once it encountered during the translation process.



Assembler

Assembler is a translator which is used to translate the assembly language code into machine language code.

