**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 JavaScript, Python, C++, C, Java etc. The main purpose of programming is to have a machine do a task for us. Computers will always do exactly what their programming tells them to do. Programs are often referred to as **code** and hence programming is also known as **coding**.

**Programming Language**

Unfortunately, computers don’t understand languages like English or Spanish, so we have to use a **programming language** they understand to give them instructions. A programming language uses commands, instructions in a syntax to create a software program. Programming language is the language which is used to communicate with machines in order to perform task.

**Programmer is a person who develops programs.**

**Types of Programming Language**

**High Level Language**

It is near to human and far away from computer. English like letters, basic mathematical symbols are used in high level language. Examples: C++, Java and Python etc. High level languages are portable. It can be considered as a programmer-friendly language. It is easy to debug.

**Language Translators:**

Language translators are the programs that translate a high-level language program into machine code. Two types of translators are used to by high level languages to convert into machine code.

* **Compiler:** A compiler is a program that translates a source program into machine language as a whole. Compiler checks the error in the program and generate the error message.
* **Interpreter:** An interpreter is a program that translate source program into machine code line by line. If there is an error in the line interpreter stop working and generate an error message. Programmer can find error quickly.

**Low Level Language**

1It is near to computer and far away from human. It is considered as a machine-friendly language. It is difficult to debug.

**Types of Low-Level Language**

1. **Machine Language**

A type of language in which instructions are written in binary form. In the form of 0’s and 1’s. It is difficult to learn and takes a lot of time to writing and modifying. It is native language of computer.

1. **Assembly Language**

The language which is written by using mnemonics. Mnemonics are the short English word like ADD, SUB, MUL, DIV etc. It is one step higher than machine language. It requires assembler to translate the code into machine code. It is mostly used for writing system software.

**Source code**

A program written in high-level language. Also called source program. Computer cannot understand the statements of high-level language. Source code cannot be executed by computer directly. It is converted into object code and then executed. It is easy to modify.

**Object code**

A program in machine language. Computer understand object code directly. It is difficult to modify.

**In this course you will be programming using a language called Python.**

# **Python**

# Python is an interpreted, object-oriented, high-level programming language with dynamic semantics. Python syntax are easy compared to other languages.

FORTRAN(Formula Translation)=first programming language that is used for the scientific purpose.