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BATCH – 3rd(4PM-6PM)

# DAY-1

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1.PROGRAMING LANGUAGE

A programming language is a **computer language** that is used by **programmers (developers) to communicate with computers**. It is a set of instructions written in any specific language (C, C++, Java, Python) to perform a specific task.

A programming language is mainly used to **develop desktop applications, websites, and mobile applications**.

## **Types of programming language**

### **1. Low-level programming language**

### **2. High-level programming language**

### **3. Middle-level programming language**

2-PYTHON

Python is a **General purpose**, **High level**, **Interpreted** Programing language.

>>>GENRAL PURPOSE-General purpose it means that it can be used in any domain.

>>>HIGH LEVEL LANGUAGE- High level language it means that it is **easy to read, write, and maintain**.

>>>INTERPRETED LANGUAGE- Interpreted language it means that it compile step by step program.

3-GENERAL PURPOSE

A general-purpose language is a computer language that is broadly applicable across application domains, and lacks specialized features for a particular domain.

4-HIGH LEVEL LANGUAGE

High-level programming language (HLL) is designed for **developing user-friendly software programs and websites**. This programming language requires a compiler or interpreter to translate the program into machine language (execute the program).

High-level programming language includes **Python, Java, JavaScript, PHP, C#, C++, Objective C, Cobol, Perl, Pascal, LISP, FORTRAN, and Swift programming language**

**It is divided in to three parts.**

1. **Procedural Oriented programming language**
2. **Object-Oriented Programming language**
3. **Natural language**

5-INTERPRETED LANGUAGE

An Interpreted Language is a Programming language in which the code is executed line by line by the interpreter. They differ from Compiled Languages in which the code is compiled into the machine language.

An Interpreter is defined as a program that reads and executes the code of a high-level language by interpreting each statement one by one.

6-FUNCTIONS

A function is a block of code that performs a specific task.

Dividing a complex problem into smaller chunks makes our program easy to understand and reuse.

## Types of function

There are two types of function in Python programming:

* **Standard library functions** - These are built-in functions in Python that are available to use.
* **User-defined functions** - We can create our own functions based on our requirements.

7-FEATURES

* Easy To Learn and easy to use.
* Interpreted Language. ...
* Dynamically Typed Language. ...
* Free Open Source . ...
* Large Standard Library. ...
* High-Level Language. ...
* Object Oriented Programming Language. ...
* Large Community Support

8-EXCUTION

**1..** COMPILER(.pyc)

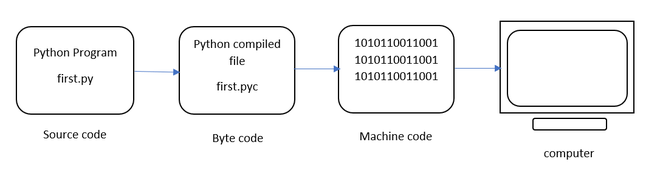
**2.**INTERPRETER(.py)

## Compilation

The program is converted into **byte code.**Byte code is a fixed set of instructions that represent arithmetic, comparison, memory operations, etc. It can run on any operating system and hardware. The byte code instructions are created in the **.pyc**file.

## Interpreter

The next step involves converting the byte code (.pyc file) into machine code.  these machine code instructions are executed by processor and the results are displayed.



9-EXTENTION

As every Programming Language has an extension, similarly Python has an extension called (. py).

10-APPLICATION

 Web application  Web development

 Video game development Data science

 Software development  Business

 Computer-aided design  Web application

 Natural language processing Embedded system

11-ADVANTAGE AND DISADVANTAGE

>>>>>ADVANTAGE OF PYTHON

* Presence of third-party modules.
* Extensive support libraries(NumPy for numerical calculations, Pandas for data analytics, etc.)
* Open source and large active community base.
* Versatile, Easy to read, learn and write.
* User-friendly data structures

>>>>>DISADVANTAGE OF PYTHON

* Not Very Fast: Python is much slower than more efficient languages like C and Java. ...
* Memory Intensive

>>>>>>>>>>>

**Difference between interpreter and compiler**

|  |  |
| --- | --- |
| **compiler** | **INTERPRETER** |
| * It execute whole program at a time | * it execute step by step program at a time |
| * Generally it fast | * It is slow in comparison to compiler |
| * Compiler is used in compile the programing language like c,c++, java etc | * Interpreter is used in interpreted the programing language like python etc |
| * It consume less time | * It consume large time |
| * Compiler larger in size | * Interpreter smaller in size |