PYTHON ASSIGNMENT

DEFINATION OF PYTHON:

Python is a high-level, general-purpose, and interpreted programming language that is easy to read and write.

It supports:

- High level programming - is easy to read and write.
- Interpreted - code runs line by line, where there is no need of compilation.
- General purpose – can be used in many fields (AI, automation, web, Data science)
- Object Oriented – supports classes and objects.

Features:

- Simple, Easy to learn
- Interpreted language
- Open source and free
- Portable/Platform Independent (Windows,MAC,Linux)
- Extensive Libraries (built-in modules like numpy, pandas)
- Object Oriented (supports classes, objects, OOP's concept)
- Dynamic Typing (no need to declare variable types)
- Scalable and Extensible (integrate with C,C++)

Disadvantages:

- **Power Execution speed:** as python is interpreted language, it runs slower when compared to C,C++, Java.
- **Runtime Errors:** Since dynamically typed, errors may only appear while running the program.
- **Not ideal for mobile and game development.**

Applications:

- Web Development - is used to create websites and web applications using frameworks like Django and Flask.
- Data Science and Machine Learning - It allows us to analyse large amounts of data, make predictions, and build intelligent systems using libraries such as Pandas, NumPy.
- Artificial Intelligence - create systems that can think, learn, and make decisions — such as chatbots, recommendation engines, and image recognition
- Game development - Using libraries like Pygame, developers can create 2D games
- Cyber Security and IOT - It's popular for building secure systems and powering small hardware like Raspberry Pi.