**INTRODUCTION TO PYTHON**

**What is python ?**

* language Phython is a high level language, it is similler to English ( human underrtanding).
* phython is language a interpreted.

**Where can you use python ?**

**1. Data Science & Machine Learning**

* **Libraries**: Pandas, NumPy, Scikit-learn, TensorFlow, PyTorch
* **Use**: Data analysis, predictive modeling, AI development

**2. Web Development**

* **Frameworks**: Django, Flask, FastAPI
* **Use**: Building websites, web APIs, back-end servic

**3. Automation & Scripting**

* **Use**: Automating repetitive tasks, file handling, web scraping (with BeautifulSoup, Selenium)

**4. Software Development**

* **Use**: Developing desktop and mobile applications
* **GUI Tools**: Tkinter, PyQt

**5. Game Development**

* **Library**: Pygame
* **Use**: Building simple 2D games

**6. Internet of Things (IoT)**

* **Use**: Programming Raspberry Pi, hardware interfaces, sensors.

**What is difference between python and other language?**

* It Is Interpreter
* Easy Syntax
* Data visualization

**What is Data?**

Data is a set of information

**Datatypes in python:**

**Data Types-**Python data types can be categorized into two main groups: primitive and non-primitive.

**1.Primitive Data types:**

Primitive data types in python are the most basic types of data. They are typically [immutable](https://www.geeksforgeeks.org/mutable-vs-immutable-objects-in-python/), meaning their value cannot change after they are created.

**Examples of primitive data types:**

* **Integer (int)**:

Represents whole numbers.

Example: a = 10

* **Float (float)**:

Represents floating-point numbers (decimal values).

Example: b = 10.5

* **Boolean (bol)**:

Represents True or False values.

Example: is married = False

* **String (str)**:

Represents a sequence of characters.

Example: name = "Pavani"

**2.Non-Primitive Data types:**

* Non-primitive data types, also known as complex or composite data types, are data types that are derived from primitive data types.
* They can store multiple values or more complex structures of data.
* Unlike primitive types, non-primitive data types are mutable, meaning their contents can be changed.

**Examples of Non-primitive data types:**

* **List (list):**

Ordered collection of items, which can be of different types.

Example: numbers = [1, 2.5, 3,8]

* **Dictionary (dict):**

Collection of key-value pairs.

Example: person = {"name": "pavani", "age": 21}

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