Introduction to Python

Python is a high-level, interpreted programming language known for its simplicity and readability. It is widely used in web development, data science, automation, artificial intelligence, and more.

Why Learn Python?

- **Easy to Read & Write** – Uses simple and clean syntax.
- **Versatile** – Can be used for web development, data analysis, machine learning, and automation.
- **Large Community** – Well-supported with numerous libraries and frameworks.
- **Cross-Platform** – Works on Windows, macOS, and Linux.

Applications of Python

Python is used in many industries, such as:
Web Development → Django, Flask
Data Science & Analytics → Pandas, NumPy
Artificial Intelligence & Machine Learning → TensorFlow, Scikit-Learn
Game Development → Pygame
Automation & Scripting → Automate daily tasks like renaming files

print() :

- A **printing statement** is a command used in programming languages to display output on a screen, usually in a console or terminal
- print() is the function used to display text or values.
- Multiple arguments can be separated by commas.
- The values are separated by a space by default.
- By default, Python separates multiple arguments with a space (' '), but you can change this using the sep parameter
- By default, print() adds a newline ('\n') at the end. You can change this using the end parameter.
  Example : print("welcome to class")

Variable

A variable in Python is a name that stores data (values). It acts as a container for storing information that can be referenced and manipulated throughout the program.

Declaring a Variable

In Python, you do not need to declare a variable type explicitly. Simply assign a value to a variable

Variable Naming Rules

✅ **Valid Variable Names**:

- Must start with a letter (a-z, A-Z) or an underscore _
- Can contain letters, numbers, and underscores (_)
- Case-sensitive (Name and name are different)

❌ **Invalid Variable Names**:

- Cannot start with a number (1name ❌)
- Cannot contain special characters (name@ ❌)
- Cannot be a Python keyword (class, def, if, etc.)

Variable Assignments

1. Single Assignment

    x = 5
    y = "Python"

2. Multiple Assignments

    a, b, c = 10, 20, 30
    All variables share the same value:
    x = y = z = 100