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UML: (Unified Modelling Language)

It is standard general purpose language that is used in software engineering to visualize, construct, and document a software system. It provides a way to create a blueprint of the software before making the real one so that everyone can easily understand about the project.

For this reason its helps to design complex software's and their relationship. That makes the task easy for the developers.

Variables

Variables store data for use in a program.

Operators

Operators perform actions on variables/values.

Examples:

1. Arithmetic:
    - +: Addition (5 + 3 = 8)
    - -: Subtraction (5 - 2 = 3)
    - *: Multiplication (4 * 2 = 8)
    - /: Division (8 / 2 = 4.0)
    - %: Modulus (7 % 3 = 1)
    - **: Exponentiation (2 ** 3 = 8)
2. Comparison:
    - ==: Equal (5 == 5 → True)
    - !=: Not equal (5 != 3 → True)
    - >: Greater than (7 > 4 → True)

Python Libraries Overview

- NumPy: A library for numerical computing with support for large arrays and matrices and mathematical functions.
- Pandas: A library for data manipulation and analysis, providing data structures like DataFrames.
- Matplotlib: A plotting library used to create static, interactive, and animated visualizations.
- Tkinter: Python's standard library for creating graphical user interfaces (GUIs).

How the Python Interpreter Runs Code:

The Python interpreter reads the code line by line, converts it into bytecode, and executes it using the Python Virtual Machine (PVM), which processes the bytecode and produces the output.

Source Code → 2. **Interpreter** → 3. **Bytecode (.pyc file)** → 4. **Python Virtual Machine (PVM)** → 5. **Output**