Base of Python Programming

1. **Setup:**
   Download Official Python Installer from: https://www.python.org
   Also, there are other distributors same as:
   - Anaconda® Distribution: https://www.anaconda.com
   - Microsoft Store, Apple Store and etc.
2. **IDE:** (Integrated Development Environment)
   Writing Python code in simple Text Editors same as Notepad in Windows or Vim in Linux or TextEdit in MacOS is Time Consuming with Typo problems so There are many Writing-Assistant Tools for Coding in any Languages, below are several Popular IDE for Python:
   - VS Code, PyCharm and …
   - Spyder in Anaconda.
   - JupyterLab (Jupyter Notebook), Standalone and Its VS Code Extension.
3. **Syntax:**

   Indentation:
   Python uses indentation (whitespace at the beginning of a line) to define code blocks, such as those within loops, functions, and conditional statements. This replaces the use of braces or other delimiters found in many other languages, emphasizing code readability. Consistent indentation, typically using four spaces per level, is crucial.
   No Semicolons:
   Unlike many other languages, Python statements are generally terminated by a newline, eliminating the need for semicolons at the end of most lines.
   Keywords:
   Python reserves certain words as keywords (e.g., if, else, while, for, def, class, return). These words have specific meanings and cannot be used as identifiers (variable names, function names, etc.).
   Identifiers:
   Identifiers are names given to variables, functions, classes, and other program elements. They can consist of letters, digits, and underscores, but cannot start with a digit. Identifiers are case-sensitive.
   Python Variables
   In Python, variables are created when you assign a value to it.
   Operators:
   Arithmetic operators (+, -, *, /), comparison operators (==, !=, <, >), logical operators (and, or, not)
   Expressions and Statements:
   Expressions combine values, variables, and operators that can be evaluated to produce a result (e.g., 2 + 3). Statements are instructions that tell Python to perform an action (e.g., print("Hello"), x = 10).
   Comments:
   Comments are used to explain code and are ignored by the interpreter. Single-line comments begin with a hash symbol (#), while multi-line comments are enclosed within triple single or double quotes ('''comment''' or """comment""").
   String Literals:
   Strings can be defined using single quotes ('string'), double quotes ("string"), or triple quotes for multi-line strings.

4. **Variables**

Variables are containers for storing data values.

Creating Variables

Python has no command for declaring a variable. A variable is created the moment you first assign a value to it. Variables do not need to be declared with any particular *type*, and can even change type after they have been set.

Casting

If you want to specify the data type of a variable, this can be done with casting.

Variable Names

A variable can have a short name (like x and y) or a more descriptive name (age, carname, total_volume). Rules for Python variables:

- A variable name must start with a letter or the underscore character
- A variable name cannot start with a number
- A variable name can only contain alpha-numeric characters and underscores (A-z, 0-9, and _)
- Variable names are case-sensitive (age, Age and AGE are three different variables)
- A variable name cannot be any of the Python keywords.

5.