Introduction to Programming Using Python

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Hardware VS Software

Hardware

- Computer **hardware** is any physical device used in or with your machine
- For Example : CPU , Monitor , Hard disk , graphics card , sound card , mother board , speakers etc

Software

- By contrast, **software** is instructions that can be stored and ran by **hardware**.
- For Example : OS , MS office , Chrome , all other applications

Programming Language

- Programming Languages Generally fall into two categories : Low level language and High level language
- Computer hardware is designed in such a way that it can only understand machine language (low level language) which is written in the form of 0's & 1's
- But humans can understand high level languages not machine language
- We need a translator which are of two types :
- **Compiler and interpreter**

Interpreter VS Compiler

Interpreter

- Interpreter translates the program line by line or statement by statement
- Programming languages like Python and Ruby are interpreter based languages
- Debugging is easy
- Interpreters are slow

Compiler

- Compiler scan the entire program and translate it as a whole into machine code
- Programming languages like C\C++ are compiler based languages
- Debugging is relatively hard
- Compilers are relatively fast

Python Interpreter & Text Editors

- Typing commands into the Python interpreter is a great way to experiment with Python's features, but it is not recommended for solving more complex problems.
- When we want to write a program, we use a text editor to write the Python instructions into a file, which is called a script.
- **IDEs** can be used as **text editors**, and **text editors** can be used as **IDEs**.
- A **text editor** is just for writing/modifying **text**/code. With an **IDE**, you should do a lot more within that single program; running, debugging, version control, etc.
- Most common Python text editors or IDEs are : Pycharm , Atom , Spyder , Thonny , Microsoft visual studio , Jupyter Notebook etc

Learning Resources

- Python Crash Course by Eric Matthes
- Smarter way to learn Python by Mark Myers
- Python's Official Website https://docs.python.org/3/tutorial/index.html
- And ***You***…