PYTHON

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AR/VR

Python?

- An Interpreted Language: Python doesn't run "Compilation" it , the Python Interpreted handles the process in the background.
- Python is a High-Level Language: Python focuses more on abstraction so much such that its code can be understood by most beginners.
- Python trades off speed in development with speed in execution. Compared to other compiled languages like C and C++, python runs slower. (PS: increase in computing power makes this variation in speed insignificant)
- Python can be referred to as a programming language as well as a scripting language.

Difference between a program and a script

- A **program** is Executed. (the source code has to be compiled by a compiler, then the result can then be executed)
- A **Program** is simply a sequence of instructions written so that a computer can perform a certain task

- A **script** is interpreted by an interpreter
- A **Script** is a code written in a scripting language. (Scripting language is type of programming language in which code is written to control another software)

Scopes of Python

- IoT/ Robotics
- Bioinformatics
- System Administration
  - Web Logic
  - Unix

- Web Application Development

-CGI (Animation)

- Servers and Servlets

- etc...

Concepts in Python

- Object-Oriented: Supports concepts such as polymorphism, inheritance, multiple inheritance, etc...
- Indentation: A key feature in Python that makes it stand out from other languages
- Open Source: Python is free and open-sourced, it can be downloaded and used by anyone for free.
- It is Powerful
  - Dynamic Typing
  - Built-in types and tools
  - Library utilities
  - Third party utilities (Numpy, Panda, Sci-kit learn, etc)
  - Automatic memory management

cont’d

- Portability: Python runs on virtually every platform existing, as long as a compatible python interpreter exists, Python will run the same on all platform
- Ease of Learning
- etc...

What can i do with python

- Component Integration
- System programming
- Graphical User Interface Programming
- Internet Scripting
- Database programming
- Data Science
- AI & ML
- Gaming, CGI, Robotics, etc

Tricks to look out for

- Indentation means a lot: Block structure is indicated by indentation
- First assignment to a variable creates it: Variable types don't need to be declared, Python figures out variable types on its own
- Assignment operator is =, while comparison is ==
- "+" can also be used for string concatenation
- Logical operators are words (and, or, not), not symbols
- Basic printing command is "print"

Data Types

- Int
- Float
- String
- Lists
- Tuples
- Dictionaries

Blocks

- Blocks are delimited by indentation
- Colon is used to start a block
- Tabs or spaces may be used

Looping

- **For** statement loops over sequence
- Built-in function **range()** used to build sequence of integers
- **While** statement loops

Function Definition

- Functions are defined using the keyword **def**