Learning Python

A Beginning

What you will learn

1. Installation of Python
2. Installation of IDE
3. Checking Python Version
    a. Using Command Line
4. Introduction to OOP
5. Terminology

Installing Python

- Check if it already exists
  - > python --version
  - Python.org
    - 2.7 and 3.x versions
    - Use 3.x . 2.7 is supported upto 2020
    - Mac. - Go to Applications folder -> Python Install -> Install Certificates
    - Windows - run the downloaded exe.
      - Check version
    - Linux - use apt-get or your distribution installer program

IDE

Visual Studio Code

1. Code.visualstudio.com
    a. Go to Extensions panel
    b. Install Python by Microsoft. Helps Debug
        i. Restart VS Code if prompted

Python Version and Path

In VS Code Preferences, Settings

Search for python.pythonPath

Check if points to python3

Check in VS Code Terminal for Python path and version

Check in Windows cmd for Python Path and version

Check Environmental Variables

Command Line

Python is interpreted language

Use command line

Enter python or python3

Advantages of Python

1. Extensive Library
    a. Including Data Science
2. IoT
3. Extensible to C++
4. Easy
    a. To Read, Write, Learn, Less Code
5. Object Oriented
6. Portable- unlike C++

Disadvantages of Python

1. Interpreted-- so it is slow
2. Unlike JavaScript, it is not present in Web Browsers
3. Dynamically Typed- Can cause runtime errors
    a. myVar = 10 // this makes it myVar an integer
    b. yourVar =”Pankaj” // this makes yourVar a string
        i. Notice that the type of myVar and yourVar is not defined beforehand
        ii. In C, C++ and Java you wiil have to declare the type of variable before you use it.

Basic Terminology

1. Program
    a. A sequence of instructions to a computer
        i. Input, output, computation- conditions (control structures) , data structures, repetition, storage, ...
2. Debugging
    a. Process of tracking the errors or causes of it- usually called bugs
    b. Syntax Errors
    c. Runtime Errors
    d. Semantic Errors: Runs without syntax or runtime error but does not produce meaningful result
3. Formal Language
    a. As in Mathematical Equations, Chemical Formulas
4. Natural Language
    a. What humans use

Terminology

1. Function
    a. Reusable, task driven, group of code
2. Classes
    a. Object Oriented Class
3. Modules
    a. Collection of related classes and modules- OS, Maths, Strings,
4. Packages
    a. Collection of related Modules