Introduction to Python

Dr. Brijesh Bhatt
D. D. University, Nadiad

Outline

- Overview of Python

- Python programming

  - Basics

  - Variables, Datatypes

  - File Handling

  - Functions

  - Object Oriented Programming

  - Web development using DJango

Overview

- Python is an interpreted high level programming language.

- Created by Guido van Rossum and first released in 1991.

- Python features a dynamic type system and automatic memory management.

- Multiple programming paradigms, e.g. procedural, object oriented, functional, imperative.

Python philosophy

- Beautiful is better than ugly
- Explicit is better than implicit
- Simple is better than complex
- Complex is better than complicated
- Readability counts

Syntax

- Indentation: White space indentation. No curly brackets, keywords or semicolons

- Statements:

  – Assignment, if, for, while, try, class, def, pass, import, print etc.

- Expression: Similar to c or Java with little variation in syntax. e.g. comparison, add, subtract, bit wise operation etc.

  – List comprehension is a unique feature.

- Method: similar to functions. Def operator.

- Typing: duck typing – typed objects but untyped variable names.

  – Some data types: int, list, set, string, dictionary,

Libraries

- Provides tools suited to many tasks.

- PyPI : Python Package Index. The official index of third party python softwares.

- Over, 130000 packages.

- GUI, Web Framework, Multimedia, Database, Scientific Computing, Text Processing, Image processing.
    - Nltk, scikit-learn, Django etc.

IDE

- IDLE
- Spyder
- Jupyter notebook
- PyCharm
- PyDev

Let's begin

- Prerequisits
  - Tools
    - Python
    - Jupyter notebook
    - https://medium.com/@GalarnykMichael/install-python-on-windows-anaconda-c63c7c3d1444

- Topics
  - Basics of Procedural and object oriented programming
  - Exposure to a scripting language and a higher level language. e.g. C or JAVA