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Programming in Python

BOOKS:

- 1. Kenneth Lambert - "Fundamentals of Python_ Data Structures", *Cengage Learning PTR* (2013).
- 2. Gowrishankar S, Veena A, "Introduction to Python Programming", 1st Edition, *CRC Press/Taylor & Francis*, 2018. ISBN-13: 978-0815394372.
- 3. Mark Lutz, "Programming Python", 4th Edition, *O'Reilly Media*, 2011.ISBN-13: 978-9350232873.

REFERENCE MATERIALS:

- 1. Cody Jackson ,"Learning to Program using Python", Second Edition, 2014.
- 2. Michael DAWSON, "Python Programming",3rd Edition, Course technology PTR, 2010
- 3. Charles R. Severance, "Python for Everybody: Exploring Data Using Python 3", 1st Edition, *CreateSpace Independent Publishing Platform*, 2016.

  http://do1.drchuck.com/pythonlearn/EN_us/pythonlearn.pdf
- 4. Allen B. Downey, "Think Python: How to Think Like a Computer Scientist", 2nd Edition, *Green Tea Press*, 2015. (http://greenteapress.com/thinkpython2/thinkpython2.pdf)

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Module - 1

- **Introduction to Python Programming:** History, Application of Python, Identifiers, Keywords, Statements and Expressions, Variables, Operators, Data Types, Type Conversions.
- **Control Flow Statements:** The if, if...else, if...elif...else, Decision Control Flow Statement, Nested if Statement, The while, for Loop, The continue and break Statements,
- **Functions:** Built-In Functions, Commonly Used Modules, Function Definition and Calling the Function, The return Statement and void Function,
- **Strings:** Basic String Operations, Accessing Characters in String by Index Number, String Slicing and Joining, String Methods.

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Introduction

python

Guido van Rossum

Author of the Python programming language

Why the name Python??

Inspired by the TV show

The Complete Monty Python's Flying Circus

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Python Versions

Python released on 20-02-1991 -Ver-0.9.9

- **Python 1.0 - Jan 1994**
- Python 1.5 - 31 Dec 1997
- Python 1.5.2 - April 1999
- Python 1.6 - 05 Sep 2000
- **Python 2.0 - 16 Oct 2000**
- Python 2.0.1 - 22 Jun 2001
- Python 2.1 - 17 Apr 2001
- Python 2.2 - 21 Dec 2001
- Python 2.3 - 29 Jul 2003
- Python 2.4 - 30 Nov 2004
- Python 2.5 - 19 Sep 2006
- Python 2.6 - 01 Oct 2008
- Python 2.7 - 03 Jul 2010

- **Python 3.0 - 03 Dec 2008**
- Python 3.1 - 27 Jun 2009
- Python 3.2 - 20 Feb 2011
- Python 3.3 - 29 Sep 2012
- Python 3.4 - 16 Mar 2014
- Python 3.5 - 13 Sep 2015
- Python 3.6 - 23 Dec 2016
- Python 3.7 - 27 Jun 2018
- Python 3.8 - 14 Oct 2019

[May Not be backword compatible with 2.x]

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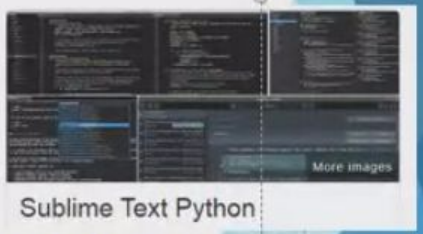
Introduction

- File Extension - py [Command Window Execution - py prog.py or python prog.py]
- More popularity because of its simplicity, Concise code, Applications Include Machine learning, Deep Learning, Artificial Intelligence, Neural Networks, Data Science, IoT etc..
- The **Python Software Foundation** (PSF) is a non-profit organization devoted to the Python programming language
- Python software and few IDEs: https://www.python.org/

PyCharm

Computer program

https://www.jetbrains.com/pycharm/



Sublime Text Python

```
C:\Users>py
Python 3.8.1 (tags/v3.8.1:1b293b6, Dec 18 2019, 22:39:24) [MSC v.1916 32 bit (In
tel)] on win32
Type "help", "copyright", "credits" or "license" for more information.
>>>
```

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Introduction

- Python is an all rounder
  - Functional programming features from C
  - OOP features from C++
  - Scripting language features from Perl, Shell Script
    - Group of lines executed one by one

- Use of python:
  - Desktop Applications
  - Web Applications
  - Network Applications
  - Games Development
  - Data Analysis, Data Science
  - Machine Learning, Deep Learning, Neural Network, Artificial Language, IoT..

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Features of Python

- Simple and easy to learn
- Freeware and Open Source
- High level Programming language
- Platform independent, Portable
- Dynamically typed language
- Procedure and Object Oriented
- Interpreted
- Extensible and Embedded
- Extensive Library

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Limitations and Flavours of Python

Limitations of Python

- Not suitable for
  - Mobile applications
  - Enterprise applications - Banking Application, Telecom Application-End to End Support
  - Performance is low because of Interpreted nature
- Flavours of Python
  - Free ware and open source-Customised python versions
    - C-Python- C-language applications
    - Jpython/Jython- Java Applications
    - Iron Python- To work with C#, .net
    - Ruby Python- Ruby applications
    - Anaconda Python- Large volume data, ML, Data Science..
    - Stackless- Concurrent applications
    - PyPy- Python for speed - PVM+JIT(Just in Time) Compiler

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