Python

Introduction:Python is a widely used general-purpose, high level programming language. It was created by Guido van Rossum in 1991 and further developed by the Python Software Foundation. It was designed with an emphasis on code readability, and its syntax allows programmers to express their concepts in fewer lines of code.

Python is a programming language that lets you work quickly and integrate systems more efficiently.

Python is an interpreted, object-oriented, high-level programming language with dynamic semantics. Its high-level built in data structures, combined with dynamic typing and dynamic binding, make it very attractive for Rapid Application Development, as well as for use as a scripting or glue language to connect existing components together. Python's simple, easy to learn syntax emphasizes readability and therefore reduces the cost of program maintenance. Python supports modules and packages, which encourages program modularity and code reuse. The Python interpreter and the extensive standard library are available in source or binary form without charge for all major platforms, and can be freely distributed.

Often, programmers fall in love with Python because of the increased productivity it provides. Since there is no compilation step, the edit-test-debug cycle is incredibly fast. Debugging Python programs is easy: a bug or bad input will never cause a segmentation fault. Instead, when the interpreter discovers an error, it raises an exception. When the program doesn't catch the exception, the interpreter prints a stack trace. A source level debugger allows inspection of local and global variables, evaluation of arbitrary expressions, setting breakpoints, stepping through the code a line at a time, and so on. The debugger is written in Python itself, testifying to Python's introspective power. On the other hand, often the quickest way to debug a program is to add a few print statements to the source: the fast edit-test-debug cycle makes this simple approach very effective.

Prerequisite:

The prerequisite for learning Python is basic knowledge of concepts like Variables, Loops, Control Statements etc. To know these concepts thoroughly, watch the videos given below. Python is a very simple language. So, you can easily learn Python and can easily implement the Python codes in real time.

Topics:

- Python Data Types
- Numbers
- Math Function
- Operator Precedence
- Variables
- Strings:
  - String Concatination
  - Type Conversion
  - Escape Sequence
  - Formatted Strings

- String Indexes
- Immutability
- Booleans:
  - Booleans
  - Type Conversion
- List:
  - List
  - List Slicing
  - Matrix

List Methods

- List Unpacking
- None
- Dictionaries:
  - Dictionaries
  - Dictionaries Keys
  - Dictionaries Methods
- Tuples:
  - Tuples
  - Tuples Methods
- sets:
  - sets
  - sets Methods
- Conditional Logics
- Logical Operators
- For Loops
- Iterables
- Range
- Enumerate
- While Loops
- Break, Continue, pass
- Functions:
  - Functions
  - Parameters and Arguments
  - Keyword Arguments
  - return
- Methods vs Function
- args and kwargs
- Global Keyword and Local Keyword
- OOp's:
  - oops concept
  - Objects
  - Attributes and Methods
  - __init__
  - Class methods and Static methods
  - Encapasulation
  - Abstraction
  - Inheritance
  - Polymorphism
  - super methods
  - Dunder Methods
  - Multiple Inheritance

- MRO
- Functional Programming:
  - Pure Function
  - map()
  - filter()
  - zip()
  - reduce()
  - Lambda Expression
  - List Comprehension
  - set comprehension
  - dictionary Comprehension
- Decorators
- Error Handling
- Generator
- Models
- File Handling
- Regular Expression

What after Python:

- Learn a Web Development Framework
- Learn Machine Learning and Artificial Intelligence
- Data Science and Data Visualization
- Python GUI
- Game Deveopment