



Python - Advance

Python is a popular programming language. It was created by Guido van Rossum, and released in 1991.

It is used for:

- web development (server-side),
- software development,
- mathematics,
- system scripting.

What can Python do?

- Python can be used on a server to create web applications.
- Python can be used alongside software to create workflows.
- Python can connect to database systems. It can also read and modify files.
- Python can be used to handle big data and perform complex mathematics.
- Python can be used for rapid prototyping, or for production-ready software development.

Why Python?

- Python works on different platforms (Windows, Mac, Linux, Raspberry Pi, etc).
- Python has a simple syntax similar to the English language.
- Python has syntax that allows developers to write programs with fewer lines than some other programming languages.
- Python runs on an interpreter system, meaning that code can be executed as soon as it is written. This means that prototyping can be very quick.
- Python can be treated in a procedural way, an object-oriented way or a functional way.

Module 1: An Introduction to Python

- What Python can do?
- Why Python?

Module 2: Beginning Python Basics

- The print statement
- Comments
- Data structures & data types
- String operations
- I/O & formatting output

Module 3: Python Program Flow

- Indentation
- If statements
- While loop
- For loop
- Range statement
- Break & Continue

Module 4: Functions & Module

- Creating a functions
- Functions parameters & documents
- Lambda functions
- Modules creation & standard module.

Module 5: Exceptions Handling

- Errors
- Exceptions handling with try
- Handling multiple exceptions

- Writing your own exception

Module 6: File Handling

- Different Modes
- Reading files
- Writing & appending to files
- Handling file exceptions

Module 7: Classes in Python

- New style classes
- creating classes
- Instance methods
- Inheritance
- Polymorphism

Module 8: Generators & Iterators

- Iterators
- Generators
- Data compression

Module 9: Data structures

- List, Nested lists
- Dictionary
- Functions
- Variables

Module 10: Collections

- Namedtuple()
- Deque
- ChainMap
- Counter
- OrderedDict
- DefaultDict
- UserDict
- UserList
- UserString

Module 11: Python SQL Database access

- Installation
- DB Connections
- Creating DB table
- Insert, read, update, delete
- Handling errors

Module 12: Network programming

- A daytime server
- Clients & servers
- The client program
- The server program

Module 13: Regular expression

- Split
- Special character
- Quantifiers
- Match & find all
- Search method



Module 14: Threads Essentials

- Class & threads
- Multi-threading
- Synchronizations

