

## Python Training Overview

Python is an interpreted, object-oriented, high-level programming language. In today's world of programming python is the most popular language for Scripting, Data analysis, Data science, Machine learning, Artificial intelligence etc.

### Objectives of the Course

- ◆ To understand concepts and deep insights of the concepts
- ◆ To be able to understand and contribute in code for any python based projects

### Pre-requisites

Frankly this course is for any one who is interested in programming whether beginner or experienced.

### Course Duration

40 days

## Core Python

### Introduction

- History
- Features of Python
- Python Versions
- Installation & Setting up path
- Identifiers
- Keywords in python
- Data Types in Python
- Type casting
- Operators in python

### Flow Control

- Conditional Statements

- If
- If-else
- If-elif-else
- Transfer Statements
  - break
  - continue
  - pass
- Iterative statements
  - for
  - while

### String Manipulation

- What is String
- Multi-line String in Python
- How to access characters of a String
- Mathematical operators for String
- Membership operator in String
- Comparison of String
- String functions

### Lists

- Introduction
- Ways to create a list
- Accessing list elements
- Traversing the list elements
- Functions of a list
- Cloning of a list
- Using mathematical operators with list
- Comparing list objects
- Nested list
- List Comprehensions

## Tuple

- Introduction
- Creating a tuple
- Mathematical operators for tuple
- Tuple comprehensions
- Functions of Tuple
- List v/s Tuple

## Set

- Introduction
- How to create set
- Important functions of set
- Mathematical operations on set
- Membership operator in set
- Set Comprehensions
- Set Objects won't support indexing and slicing

## Dictionaries

- Intro create a dictionary
- How to access data from dictionary
- Important functions of dictionary
- How to
- Dictionary Comprehensions

## Functions

- User defined and built in functions
- Function parameters
- Types of arguments
- Function return statement
- Global and local variables
- Recursive Functions
- Anonymous functions

- Function aliasing
- Nested Functions

## Modules

- Importing module
- Reloading a module
- The special variable `__name__`
- Math module
- Random module
- Packages

## Input-Output

- Types of files
- Opening and closing a file
- Various properties of file object
- Reading and writing to a file
- The 'with' statement
- Handling binary data files
- Handling CSV files
- Zipping and Unzipping files
- Working with directories
- Pickling and Unpickling

## Exception Handling

- Syntax errors and Runtime errors
- What is Exception
- Default Exception handling in Python
- Python Exception hierarchy
- Customized Exception handling in Python
- Control flow in try-except

- Control flow in try-except-finally
- Control flow in nested try-except-finally
- Various possible combinations of try-except-finally
- Predefined and user-defined exceptions

## Advance Python

### OOPs concept

- Class and object
- Constructor
- Types of variables
- Types of methods
- Inner class
- Garbage Collection
- Polymorphism
- Inheritance
- Overloading
- Overriding

### Regular expressions

- Match function
- Search function
- Matching VS Searching
- Modifiers
- Patterns

### Multithreading

- Introduction
- Ways to create a Thread
- Setting and getting name of a Thread
- Thread identification number
- Join() method

- Daemon Thread
- Thread Synchronization
- Inter Thread communication

### Database connectivity in python

- Introduction
- Connection with mysql
- Connection with MongoDB
- Executing queries
- Transactions
- Handling errors

### Sending Email in python

### Standard Python programs