

# Python Programming Course

**Duration: 40 Hours**

## Overview

- Why do we need Python?
- Program structure

## Environment Setup

- Python Installation
- Execution Types
- What is an interpreter?
- Interpreters vs Compilers
- Using the Python Interpreter
- Interactive Mode
- Running python files
- Working with Python shell
- Integrated Development Environments (IDES)
- Interactive Mode Programming
- Script Mode Programming

## Basic Operators in Python

- Types of Operator
- Python Arithmetic Operators
- Python Comparison Operators
- Python Assignment Operators
- Python Bitwise Operators
- Python Logical Operators
- Python Membership Operators (in, not in)
- Python Identity Operators (is, is not)
- Python Operators Precedence

## Basic Concepts

- Data Types
- Variables

- Assigning Values to Variables
- Multiple Assignment
- Python Numbers
- Python Strings
- Accessing Values in Strings
- String Special Operators
- String Formatting Operator
- Triple Quotes
- Built-in String Operations
- Python Lists
- Accessing Values in Lists
- Updating Lists
- Delete List Elements
- Basic List Operations
- Indexing, Slicing, and Matrixes
- Built-in List Functions & Methods
- Python Tuples
- Accessing Values in Tuples
- Updating Tuples
- Delete Tuple Elements
- Basic Tuples Operations
- Indexing, Slicing, and Matrixes
- No Enclosing Delimiters
- Built-in Tuple Functions
- Python Dictionary
- Accessing Values in Dictionary
- Updating Dictionary
  
- Delete Dictionary Elements
- Properties of Dictionary Keys
- Built-in Dictionary Functions & Methods

## Loops and Decision Making

- if statements
- ..else statements
- nested if statements
- while loop
- for loop
- nested loops
- Loop Control Statements
- 1) break statement
- 2) continue statement
- 3) pass statement

# Functions

- Defining a Function
- Syntax
- Calling a Function
- Pass by reference vs value
- Function Arguments
- Required arguments
- Keyword arguments
- Default arguments
- Variable-length arguments
- The return Statement
- Scope of Variables

# Global vs. Local variables

Built-in module and functions

Os module

mkdir()

chdir()

getcwd()

rmdir()

listdir()

Math module and functions

Constants

Trigonometry

Logarithmic

Representation

Random module and functions

random()

randint()

randrange()

choice ()

shuffle ()

# Python Modules and Packages

- Framework vs Packages
- Folium Introduction
- Why are modules used?
- Creating modules
- The import Statement

- The from...import Statement
- The from...import \* Statement
- Locating Modules
- The PYTHONPATH Variable

## Namespaces and Scoping

- The dir() Function
- The globals() and locals() Functions
- The reload() Function
- Packages in Python
- Constructing user defined packages
- Importing user defined packages

## Basic OOPs Concept

- Creating class in Python
- Private Identifier
- Constructor
- Inheritance
- Polymorphism

## Decorator, Iterator and Generator

## File Manipulation

- Opening Text File
- Working with a File on Python
- The open function
- File modes
- The file object attributes
- close() method
- write() method
- read() method
- Files: Input
- Files: Output
- Reading files
- Renaming & deleting files
- Writing into a file
- remove() method

## Python GUI

- Basic Operations using Tkinter
- Buttons and Textbox
- Menu Bar

- Message Box and Radio Button
- Checkbox and Event Creating
- Creating an Application in GUI

## SQL and Python

- Overview of SQLite
- Integrating Python with SQLite

## Other Concepts

- Errors and Exception Handling
- Standard exceptions
- Assertions in Python
- The assert Statement
- What is Exception?
- Handling an exception
- Syntax
- The except Clause with No Exceptions
- The except Clause with Multiple Exceptions
- The try-finally Clause
- Argument of an Exception
- Regular Expression

Khushbu Mali