

PYTHON TRAINING COURSE CONTENT

SECTION 1: INTRODUCTION

Learning Objectives: In this section you will be introduced to Python and Its usage in Current Trend.

Topics:

- What's python?
- Why do people use python?
- Some quotable quotes
- A python history lesson
- Advocacy news
- What's python good for?
- What's python not good for?
- The compulsory features list
- Python portability
- On apples and oranges
- Summary: why python?

SECTION 2: USING THE INTERPRETER AND TEXT EDITOR

Learning Objectives: In this section you will be came to know about different Interpreter tools to write and execute Python program.

Topics:

- Introduction to Sublime & Pycharm
- Config Pycharm for Python Project
- How Python Runs Programs
- How You Run Programs
- Configuration Details
- Module Files: A First Look
- The Idle Interface
- Other Python Ides
- Time To Start Coding
- Lab Session

Hands-on Practicals:

- Writing the Python Program in text editor and execute from command prompt.
- Writing the Python Program in Notebook and execute from Notebook.
- Writing the Python Program in IDE and execute from IDE

SECTION 3: TYPES AND OPERATORS

Learning Objectives: In this section you will be came to know about Different Data types and Variables in Python.

Topics:

- A First Pass
- The 'Big Picture'
- Numbers
- Dynamic Typing Interlude
- Strings
- Lists
- Dictionaries
- Tuples
- General Object Properties
- Mutable vs Immutable
- Summary: Python's Type Hierarchies
- Built-In Type Gotchas
- Lab Session 2

Hands on Practicals:

- Writing the program to expose all the Arithmetic Operators.

SECTION 4: BASIC STATEMENTS

Learning Objectives: In this section you will be came to know about Different Conditional, Looping statement and Data structure in Python .

Topics:

- Introduction to Reserved Keywords
- General Syntax Concepts
- Expressions
- Print
- If Selections
- Python Syntax Rules
- Documentation Sources Interlude
- Truth Tests
- While Loops
- Break, Continue, Pass, And The Loop Else
- For Loops

- Comprehensions And Iterations
- Loop Coding Techniques
- Comprehensive Loop Examples
- Basic Coding Gotchas
- Preview: Program Unit Statements
- Lab Session 3

Hands on Practicals:

- Writing the program to expose more on Logical Programming .Example: Prime Number, Fibonacci series
- Writing the Program to manipulate List, Tuple, Set and Dict

SECTION 5: FUNCTIONS

Learning Objectives: In this section you will be came to know about Functions and their implementations in Python.

Topics:

- Function Basics
- Scope Rules In Functions
- More On “Global” (And “Nonlocal”)
- More On “Return”
- More On Argument Passing
- Special Argument Matching Modes
- Odds And Ends
- Generator Expressions And Functions
- Function Design Concepts
- Functions Are Objects: Indirect Calls
- Function Gotchas
- Optional Case Study: Set Functions
- Lab Session 4

Hands-on Practicals:

- Writing the module framework to implement calculator app.

SECTION 6: MODULES

Learning Objectives: In this section you will be introduce to Object-Oriented programming in Python.

Topics:

- Module Basics

- Module Files Are A Namespace
- Name Qualification
- Import Variants
- Reloading Modules
- Package Imports
- Odds And Ends
- Module Design Concepts
- Modules Are Objects: Metaprograms
- Module Gotchas
- Optional Case Study: A Shared Stack Module
- Lab Session 5

Hands-on Practicals:

- Writing the Object-Oriented programming to implement application.

SECTION 7: GETTING STARED WITH DOCKER

Learning Objectives: In this section you will be deep dive in to Class, Object and Method in Python.

Topics:

- Oop: The Big Picture
- Class Basics
- A More Realistic Example
- Using The Class Statement
- Using Class Methods
- Customization Via Inheritance
- Specializing Inherited Methods
- Operator Overloading In Classes
- Namespace Rules: The Whole Story
- Oop Examples: Inheritance And Composition
- Classes And Methods Are Objects
- Odds And Ends
- New Style Classes
- Class Gotchas
- Optional Case Study: A Set Class
- Summary: Oop In Python
- Lab Session 6

Hands-on Practicals:

- Writing the Object-Oriented programming to implement application.

SECTION 8: EXCEPTIONS

Learning Objective: In this section you will be came to know about Exception and way to handle the exceptions in Python.

Topics:

- Exception Basics
- First Examples
- Exception Idioms
- Exception Catching Modes
- Class Exceptions
- Exception Gotchas
- Lab Session 7

Hands-on Practicals:

- Writing the program to handle the difference type of exceptions.

SECTION 9: BUILT-IN TOOLS OVERVIEW

Learning Objectives: In this section you will be came to know about Build-in tools in Python.

Topics:

- The Secret Handshake
- Debugging Options
- Inspecting Name-Spaces
- Dynamic Coding Tools
- Timing And Profiling Python Programs
- File Types And Packaging Options
- Development Tools For Larger Projects
- Summary: Python Tool-Set Layers
- Lab Session 7 Continued

Hands-on Practicals:

- Writing the program to design the logic for Age Calculator.
- Writing the program to design the logic for Guessing Game.

SECTION 10: SYSTEM INTERFACES

Learning Objectives: In this section you will be came to know about how to make Python to interact with Operating Systems.

Topics:

- System Modules Overview
- Running Shell Commands
- Arguments, Streams, Shell Variables
- File Tools
- Directory Tools
- Forking Processes
- Thread Modules And Queues
- The Subprocess And Multiprocessing Modules
- Ipc Tools: Pipes, Sockets, Signals
- Fork Versis Spawnv
- Larger Examples
- Lab Session 8

Hands-on Practicals:

- Writing the program to read and write the data in text file.
- Writing the program to read and write the data in json file.
- Writing the program to read and write the data in csv file.

SECTION 11 : GUI PROGRAMMING

Learning Objectives: In this section you will be came to know about to create the GUI application using Tkinter in Python.

Topics:

- Python Gui Options
- Introduction of Tkinter
- The Tkinter 'Hello World' Program
- Adding Buttons, Frames, And Callbacks
- Getting Input From A User
- Assorted Tkinter Details
- Building Guis By Subclassing Frames
- Reusing Guis By Subclassing And Attaching
- Advanced Widgets: Images, Grids, And More
- Designing UI using QT4 Designer
- Introduction to PySide2
- Converting UI into Application Using PySide
- Larger Examples
- Tkinter Odds And Ends
- Lab Session 8 Continued

Hands-on Pracicals:

- Writing the program to design the GUI and logic for Age Calculator.
- Writing the program to design the GUI and logic for Guessing Game.
- Writing the program to design the GUI and logic for Digital Calculator

SECTION 12: DATABASES AND PERSISTENCE

Learning Objectives: In this section you will be came to know about how to make Python to interact with Database.

Topics:

- Databases and Persistence
- Object Persistence: Shelves
- Storing Class Instances
- Pickling Objects Without Shelves
- Using Simple Dbm Files
- Shelve Gotchas
- Zodb Object-Oriented Database
- Python Sql Database Api
- Persistence Odds And Ends
- Lab Session 9

Hands-on Practicals:

- Writing the program to Create the Table and Insert Data in it.
- Writing the program to Read data from the Table and manipulate it.

SECTION 13: TEXT PROCESSING

Learning Objectives: In this section you will be came to know about String manipulation in Python.

Topics:

- String Objects: Review
- Splitting And Joining Strings
- Regular Expressions
- Parsing Languages
- Regular Expressions
- Lab Session 10

Hands-on Practicals:

- Writing the program to validate the User Name, Password, Mobile No and Mail Pattern.

SECTION 14: INTERNET SCRIPTING

Learning Objectives: In this section you will be came to know about how to make Python to interact with SMTP.

Topics:

- Using Sockets In Python
- The Ftp Module
- Email Processing
- Other Client-Side Tools
- Building Web Sites With Python
- Writing Server-Side Cgi Scripts
- Jython: Python For Java Systems
- Active Scripting And Com
- Other Internet-Related Tools
- Lab Session 10

Hands-on Practicals:

- Writing the program to send email to your friend using Python.

SECTION 15: ADVANCED TOPICS

Learning Objectives: In this section you will be came to know about the advanced topic introduced in Python 3.x.

Topics:

- Unicode Text And Binary Data
- Managed Attributes
- Decorators
- Metaclasses
- Context Managers
- Python 3.X Changes
- Lab Session 13

Hands-on Practicals:

- Writing the program to create the wrapper class and use it for all the functions.

LABORATORY EXERCISES

Topics:

- Lab 1: Using The Interpreter
- Lab 2: Types And Operators
- Lab 3: Basic Statements

- Lab 4: Functions
- Lab 5: Modules
- Lab 6: Classes
- Lab 7: Exceptions And Built-In Tools
- Lab 8: System Interfaces And Guis
- Lab 9: Persistence
- Lab 10: Text Processing And The Internet
- Lab 11: Decorators And Meta classes

REAL TIME PROJECT:

Topics:

- File Explorer window
- Calculator
- Replicating Task Manager
- Image Processing
- Simple Django Website
- Guessing Game