

Python Specialization

Duration: 150
Hrs.

Course Highlights :

Introduction to python

- History of Python
- Why to learn python
- How is Python Different from other programming languages
- Installing Python and path setting
- How to run python programs

Basics of Python

- Variable
- Identifier
- Keywords
- Statements & Comments
- Indentation
- Data types (number, string, list, tuple, set, dictionary)
- Static Typing vs. Dynamic Typing

Input and output Operators

- Arithmetic operator
- Relational Operator
- Assignment Operator

- Logical operator
- Bitwise operator
- Membership Operator
- Identity Operator

Control Flow

- If statement
- If - else
- If – elif -else
- Nested if – else
- While loop
- for – in loop
- Nested loop
- Loop with else
- Pass statement
- Break and continue

Functions

- Function Basics
- Defining function
- Function call
- Return statement
- Function parameters
- Call by value or call by reference
- Local and global variable
- Recursion



- Anonymous (lambda) function
 - Function: Types of Argument (Required argument, Keyword arguments, Default arguments, Variable-length arguments).
 - Function: Passing Immutable & Mutable Object

Modules

- Defining module
- How to create module
- Importing module
- Dir ()
- Module search path
- Reloading a module
- Sys module
- Os module
- Namespace

Packages

- Defining package
- How to create package
- Importing package
- Installing third party packages

Numeric Types

- Numeric type basics
- Numbers
- Hexadecimal, Octal and Binary Notation
- Complex Numbers

- Type casting
- Numeric Functions
- Random number generation

String

- Defining a string
- Different ways to create string
- Accessing elements of string
- Escape sequence
- Raw string
- String methods
- String formatting Expressions

List

- Defining a list
- Creating list
- Accessing list elements of list
- Deleting list
- List methods
- Functions used with list
- List comprehension
- Implementation of stack and queue using list
- Use of Zip ()
- Matrix operations using list

Tuple

- Defining a tuple

- Creating a tuple
- Accessing elements of tuple
- Immutability
- List vs. tuples
- Tuple Methods
- Functions used with tuple
- Advantage of Tuple

Dictionary

- Defining a dictionary
- Creating a dictionary
- Accessing elements of dictionary
- Deleting a dictionary
- Dictionary methods
- Dictionary Comprehension

Set

- Defining a set
- Creating set
- Set operations
- Set methods
- Set comprehension

File Handling

- Defining a file
- Types of file
- File operations



- Opening a File
- Closing file
- File modes
- File attributes
- Writing to file
- Reading from file
- Appending to file
- File positions
- Binary file
- Pickle module

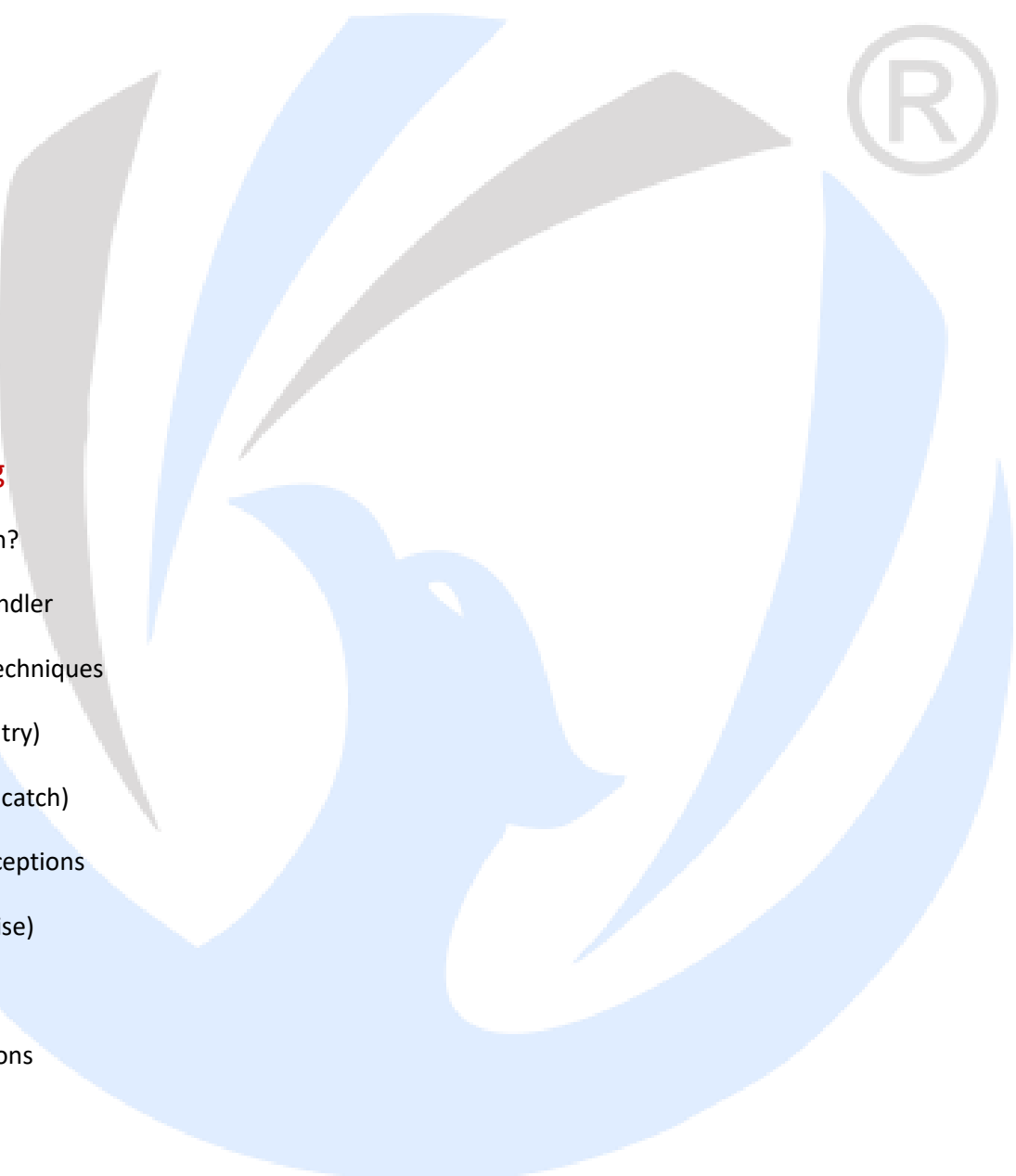
Exception Handling

- Defining an exception?
- Default exception handler
- Exception handling techniques
- Detecting Exception (try)
- Catching exceptions (catch)
- Catching multiple exceptions
- Raising exception (raise)
- Finally block
- User defined exceptions

Advance Python

Object Oriented Programming

- Oop concepts
- Defining a class



- Creating object
- Method vs. function
- Calling methods
- Instance attribute vs. class attribute
- Instance method vs. class method
- Private attribute and method
- Static method
- Method Overloading
- Constructor
- List of objects
- Inheritance
- Method overriding
- Operator overloading
- Abstract method
- Abstract class
 - Destroying Objects (Garbage Collection)
 - Data Hiding
 - Base Overloading Methods

Multithreading

- Process based multi-tasking
- Thread based multi-tasking
- Creating a Thread without using class
- Creating thread using class
- Sleep () method
- Join () method

- Getting and setting name of Thread
- Logging module
- Synchronization
- Lock concept
- Inter thread communication
- Is_Alive () method
- Active_count () method
- Enumerate () method
- Current thread () method
- Daemon Thread

GUI Programming with Tkinter

- Introduction to tkinter
- Creating a window
- Tkinter widgets
- Label
- Button
- Entry
- Message box
- List
- Radio Button
- Check Button
- Creating Frame
- Creating Menu

Event Handling

- Defining an event

- Bind () method
- Mousse events
- Keyboard events

Python Regular Expression

Socket Programming

XML Parser

JSON

Python CGI Programming

File Upload & Download

Database Programming

SQLite

- Introduction to SQLite module
- Connecting to database by using sqlite3
- Creating table by sqlite3
- Performing SQL operations

MySQL

- Introduction to MySQL
- Installing MySQL
- Creating database using MySQL
- Connecting MySQL database from python
- Creating table
- Performing SQL operations

MongoDB



- Introduction to Mongo DB
- Schema Design and Date Modeling
- CRUD Operation
- Indexing and Aggregation Framework
- Mongo DB Security

Converting Python script to Executable file

- Defining an executable file
- Installing cx_Freeze or Pyinstaller module
- Importing setup and Executable
- Deploying the application

Python Framework

- Django
- Flask

Email Sending

- Working with email
- Understanding SMTP
- Sending and receiving email



Python Data Analysis

- **Numpy**
- Data Science-overview
- Scipy packages
- Numpy Array-Concept
- Slicing in NumPy Array
- NumPy Sorting & Searching
- **Pandas**
- Pandas DataFrame
- Processing JSON Data
- Processing Excel
- NoSQL Databases-CRUD
- Applying Aggregations on DataFrame
- **Matplotlib, Scikit & SciPy**
- Chart Properties
- SciPy in Python
- Working with Polynomials
- SciPy Special Functions

Project

Exit Profile : Python Developer

Certificate & Placement assistance will be provided after completion of the course & clearing exams.

Course Objective :

This Instructor-led live online classes or classroom training provides a complete understanding of application development on Python. Python Specialization will help you to become an expert in Python and opens a career opportunity in various domains such as Machine Learning, Data Science and Web Development.

