Basic & Advance Python Scripting/Programming

Duration: 45 Hours
Prerequisites: Knowledge of any Programming Language & Operating System

Course Content

Module – I: Basic Python

❖ **1. Introduction to Python**
  - What is Python ?
  - Python History
  - Python Features
  - Python Version
  - Python Applications
  - Python 2 vs Python 3

❖ **2. Python Installation**
  - Install from Python Portal
  - Python Path Set-up
  - Work on Interactive Mode
  - Execute in Script Mode

❖ **3. Python Basic Fundamentals**
  - Keywords
  - Identifiers
  - Variables
  - Literals
  - Comments

❖ **4. Python Operators**
  - What is Operator ?
  - Types of Python Operators
  - Python Operators Precedence

❖ **5. Python Data Type**
  - Number
  - String
  - List
  - Tuple
  - Dictionary

❖ **6. Python Core Object**
  - What is Object ?
  - Set Object
  - Boolean Object
  - None Object

❖ **7. Conditional Statement**
  - if
  - if else and else if
  - Nested if

❖ **8. Loop Statement**
  - for loop
  - while loop
  - do while

❖ **9. Control Statement**
  - break
  - continue
  - pass

❖ **10. Python Function**
  - In-built Function
  - User Defined Function

❖ **11. Python OOPS Concept**
  - Object
  - Class
  - Constructors
  - Inheritance

❖ **12. Python Files I/O**
  - The "print" statement
  - Input from Keyboard
  - File Handling
  - Attributes of File
  - Modes of File
  - Methods

❖ **13. Python Modules**
  - What is Python Module ?
  - Search Path and Import a Module
  - Buit-in Modules in Python
  - Creating User defined Modules

❖ **14. Python Exceptions**
  - What is Exception ?
  - Handling various exceptions
  - Try-finally clause
  - Argument of an Exception
  - Create self exception class
  - Python Standard Exceptions
  - User-Defined Exceptions

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Module – II: Advance Python

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❖ 15. Python Date
- Retrieve Time
- Formatted Time
- Time Module
- Calendar

❖ 16. Packages in Python
- What is Package?
- Importing module from a package
- Creating a Package
- Creating Sub Package
- Importing from Sub-Packages
- Popular Python Packages

❖ 17. Database interaction with Python
- Creating a Database with SQLite 3
- Connecting and Disconnecting DB
- CRUD Operations
- Creating Database Object
- Python MySQL Database Access
- DML and DDL Operations
- Performing Transactions
- Handling Database Errors

❖ 18. Python Regular Expression
- What is Regular expression?
- The match and search Function
- Compile and matching
- Matching vs Searching
- Search and Replace feature using RE
- Extended Regular Expressions
- Wildcard characters

❖ 19. Python XML Parser
- What is XML?
- XML, HTML, JSON, Gson
- How to Parse XML
- How to Create XML Node
- Python vs JAVA

❖ 20. Web Scrapping
- The components of a web page
- BeautifulSoup
- Urllib2
- HTML,CSS,JS,jQuery
- Dataframes
- PIP
- Installing External Modules Using PIP

❖ 21. Unit Testing with PyUnit
- What is Testing?
- Types of Testings and Methods?
- What is Unit Testing?
- What is PyUnit?
- Test scenarios, Test Cases, Test suites

❖ 22. GUI Programming-Tkinter
- Introduction
- Components and Events
- Adding Controls
- Entry Widget, Text Widget, Radio Button, Check Button
- List Boxes, Menus, ComboBox

❖ 23. Machine Learning with Python
- What is Machine Leaning?
- Areas of Implementation
- Major Classes of Learning Algorithms
- Supervised vs Unsupervised Learning
- Predictive and Descriptive Model
- Learning Numpy and Scipy
- Basic plotting using Matplotlib
- Algorithms using Skikit learn

❖ 24. Data Analysis with Pandas
- What is Pandas?
- Creating Series
- Data Frames
- Grouping, Sorting
- Plotting Data
- Data Analysis with data set

❖ 25. Python Web Frameworks
- Django – Design
- Advantages of Django
- MVC and MVT
- Installing Django
- Designing Web Pages
- HTML5, CSS3, AngularJS
- Flask
- Bottle
- Pyramid
- Falcon