Two-Day Python Workshop

This is a full hands-on workshop with 80% practice and 20% theory

**DAY -1**

9 to 9.30 am

**Session 0 : WARM UP and Interaction**

9.30 am to 10.30 am

**Session 1: An Introduction to Python**

- Introduction and Importance
- Python Versions (2.x & 3.x)
- Installing Python (in Windows/Linux)
- IDLE and IDEs for Python
- Getting Help
- Python distributions – pip, Anaconda, python(x,y), Active Python

10 minutes Break

10.40 am to 11 am

**Session 2: Hands-on - Installation of Python & Development setup**

11 am to 12 pm

**Session 3: Basics of Python Programming**

- Basic Syntax and Indenting
- Identifier Naming Conventions
- Python Reserved Words
- Built-in functions
- Numbers
  - Integers
    - Decimal
    - Octal
    - Hexadecimal
- Float
- complex
- Arithmetic Operations
- Input and Output Operations

10 minutes Break

12.10 pm to 1 pm
Session 4: Basics of Python Programming
String Operations

1 pm to 2 pm  LUNCH Break

2 pm to 3 pm

Session 5: Language Components
- Relational Operators
- Logical Operators
- Boolean Operations - True or False
- Bit Wise Operators
- Type Conversions
- Control Operations
  - If, else and elif
  - range and xrange functions

10 minutes Break

3.10 pm to 4 pm

Session 6: Language Components
- Loops
  - for and while
  - break, continue, pass and sys.exit

3.10 pm to 4 pm

Session 7: Collections
- Lists
- Tuples
- Sets
- Dictionaries
- Comprehensions

10 minutes break

4.10 pm to 5 pm

Session 8: Functions
- User-defined functions
- Default Arguments
- Keyword and Optional Arguments - variadic functions
- Scope - Global versus local variables
- Lambda (Anonymous) functions
  - Purpose and Advantage
  - Usage and Rules
- Higher-Order Functions
  - Map
  - zip
  - Filter
  - Reduce
DAY -2

9 am to 9.15 am  QWICK RECAP

9.15 am to 10.30 am

Session 9: Module

import statement
Function aliases
Basic essential modules — sys, math, time, os
Importing user-defined .py files
Importance of .pyw and .pyc files

10 minutes break

10.40 am to 11.40 am

Session 10: Exceptions

Types of Errors
Error Handling in Python
The Exception Model
Exception Hierarchy
Handling Multiple Exceptions
raise
Assert

Debugging
Using pydevd

10 minutes break

11.50 am to 1 pm

Session 11:

Working with Files

Flat files
Non-Flat files
Pickle files
Shelve files
CSV files
Excel files
XML files
JSON files
YAML files

Iterators and Generators
Iterators
Iter protocol
Generators

1 pm to 2 pm Lunch Break

2 pm to 3 pm
Session 12:
Web Services
Consuming REST API
Using urllib, urllib2 and request modules
Logging
Necessity of Logging
Logging to a file
Formatting logs
Advanced logging

10 minutes break
3.10 pm to 4 pm
Session 13: Regular Expressions
Simple Character Matches
Special Characters
The Dot Character
Greedy Matches
Grouping
Matching at Beginning or End

10 minutes break
4.10 pm to 5 pm
Session 14:
OOP in Python
Creating Classes
Instance Methods
Constructors & Destructors
Special Methods
Class Variables
Inheritance
Purpose, usage and types
Polymorphism
Method Overriding
Operator Overloading
Custom Exception Classes
Default Decorators- Static and Class Methods

Unit Testing
Importance of TDD