Programming using Python

Duration: 5 days

This course is completely hands-on with case studies that would be implemented by the participants with the help of the trainer …

Prerequisites:

- The participants should have the knowledge of general programming concepts. The knowledge of any one programming language is appreciated.

Lab setup

- Python 3 should be installed in all the systems.
- Internet connection should be there in all the systems
- Python software can be downloaded from the following site https://www.python.org/downloads/

Day 1

- Installation and setup
- Introduction to Python
- Understanding the dynamic typing nature of Python
- Data types in python
    - Lists
    - Dictionaries
    - Tuples
    - Strings
- Exploring **nested dictionaries**
- Modules in python
- Built-in modules in Python
- Building applications using built-in modules
- Building applications using third party modules – **Excel Automation**

Day 2

- Functions in python
- Writing our own functions
- Positional versus keyword arguments
- Polymorphism in python
- Object Oriented Programming in Python

- Understanding special methods
- The __init__ method
- Over-riding the methods like
    - __gt__
    - __eq__
- Using Regular Expressions
    - matching, finding and replacing the patterns
- Functional programming tools
    - map, filter and reduce
- List comprehensions
    - module attributes
- The import statement and how it works
- Building an object oriented module
- Inheritance in Python
- Exceptions and How to handle them

Day 3

- Working with language independent formats
    - XMl and json
    - Building and parsing XML
    - Building and parsing json
- Developing command line applications
    - sys module
    - argparse module
- Chaining command line applications using subprocess
- The OS module
- The subprocess module
- Getting ready to test and debug
- The unittest module
- Writing test cases
- Building a test suite
- The setUp and tearDown methods
- Using pdb module to debug

Day 4

- CSV module
    - Creating csv files
    - reading csv files
- Working with datetime module

- Working with Databases
- Generators and Iterators
- Decorators and class Decorators
- Managing attributes in Python
- Properties and Descriptors

Day 5

- Understanding the REST API
- Creating your own REST end points
- Working with Flask framework
    - Implementing REST API
- Working with Django framework
    - models, views and templates
- Consuming REST API
- **Conclusion**