Python

Duration: 4 days

PREREQUISITES

  Good to know - basic knowledge of any Programming Language

THIS COURSE IS DESIGNED FOR HANDS-ON WORKSHOP

- Execute Python code
- Python syntax, control flow constructs
- Python data types, Python functions
- Modules and packages in python
- Use standard Python modules such as os, sys, math, and time
- File Operations, reading data from excel files and process it
- Database connectivity using python
- Analyse data using pandas
- Data visualization using matplotlib

Contents

Day 1 :

Module – Refresher to Python
Introduction to Python & Python Fundamentals
Python Interpreter and its Environment
Python variables and basic data structures
Declaration of variables
Understanding basic data types and functions -Number, Strings, Boolean
Lists, Tuples, Built-in functions
Sets, dictionary
Operators
Conditional statements/Control Structures

Module – What is Github
What Is Git?
Version Control
Distributed Version Control
Basic Usage
Creating a New Repo
Adding a New File
Committing Changes

Day 2-

Functions
Local variables
Default Argument Values
Documentation Strings
Variable number of parameters to function

Module – Data manipulations – different sources
Modules and packages
Executing modules as scripts

Python

Building modules
Using OS and subprocess module for automating system administrative jobs
Demo: Imports and Packages
How an Installed Package is found
Python Packaging
Installing and Inspecting Packages with Pip

Day 3:

Requirements Files
File handling – reading data from text files.xls files
File handling – merging two files, finding distinct values from
file Excel file handling, files with json data Database
Programming
Database Operations
The Python Debugger
Packaging and Distributing Your Project

Module – Data Analysis with Pandas and Python
Installation and setup?
Why Python?
Introduction to Jupyter, diff libs
Jupyter shortcuts
Introduction to Series and Dataframes
Working with columns in dataframe
Add, drop, update, sort and filter records in dataframe
Merging, joining, concatenating records
Importing and exporting data to and from excel, csv, json formats

Day 4:

Module – Data Visualization using matplotlib
Why Data Visualization?
Why Python?
Introduction to Jupyter, diff libs
Finding Distribution of Data
Creating Time Series with Charts using datetime module
Examining Relationships in Data with Scatter Plots Data
with Bar Graphs, pie charts
How to handle big data using pandas
Analyze data using pandas dataframe
Solving Real-world Problems with Visualization

Module – Introduction to web development using flask
What is flask?
Introduction to other different python web framework
Installing flask
Creating a simple "hello world" web site
Creating a simple dynamic web site
Passing parameters to a web site
Handling forms

Python

Building a sample web application.

Module – Introduction to Machine learning using Python
What is machine learning?
Difference between data analytics, data science and data engineering
Different types of data used in statistical & ML analysis
Python data science packages to be used
Introduction to numpy and scipy
How is machine learning different from data analysis?
Introduction to classification of algorithms
- Unsupervised learning algorithms
- Supervised learning algorithms
Introduction to NLTK (Natural language processing)