Advanced Python Programming

Description

In this Python training course, students already familiar with Python programming will learn advanced Python techniques.

This advanced Python course is taught using Python 3; however, differences between Python 2 and Python 3 are noted.

Delegates will learn to

- work with Jupyter Notebook.
- work with the Collections module.
- about mapping and filtering and lambda functions.
- advanced sorting.
- work with regular expressions in Python.
- work with databases, CSV files, JSON, and XML.
- write object-oriented code in Python.
- test and debug your Python code.
- about Unicode and text encoding.

Outline

Language Overview

- Quick Review of Python Essentials

- Flow Control, Functions, Lists, Tuples, Sets, Dictionaries, Exceptions

Object Oriented Programming

- Encapsulation
- Information Hiding
- Inheritance
- Polymorphism
- Overloading
- Overriding
- Constructors
- Multiple Inheritance

Advanced Functions

- Packing and Unpacking
- Zip Function
- Function Parameters: *args, **kwargs
- Iterator
- Generator
- Decorator
- Magic Methods

Regular Expressions

- Regex Module
- Search vs. Match
- Find and Replace
- Option Flags
- Special Char Classes

Dates and Times

- Understanding Time
- The time Module
- The datetime Module
- Working with Timezones
- Arithmetic with Time and Dates

OS Communication with other OS

- How to send commands to OS from Python
- os Module
- sys Module
- shutil Module
- subprocess Module

Networking Basics

- How to access remote devices from Python
- Paramiko Library
- Netmiko Library
- LAB: Access and Run Command on Linux using Paramiko

Packaging Details

- Virtual Environments
- Creating your own packages and modules
- Creating EXE files
- CLI Debugging
- PVM: CPython vs Cython vs Jython

Data Formats

- How to Read and Write Different Data Formats
- File Read/Write: Text and Binary
- CSV
- XML
- EXCEL
- JSON
- YAML
- JSON LABS

HTTP and API Access

- HTTP Basics
- GET, POST, PUT, PATCH, HEAD, DELETE
- HTTP Status Codes
- requests Module
- How to access an API
- API LABS

Database Access

- SQL vs. NoSQL Databases
- SQLite3 Module
- SQL Basics
- CRUD Operations on SQLite3 Database
- – CREATE
- – SELECT
- – INSERT
- – UPDATE
- – DELETE
- SQLite3 Movie Database Project

Introduction to Data Analysis

- This module just give basic info Data Science Topics
- Understanding the Nature of the Data
- The Data Analysis Process
- Problem Definition
- Data Extraction
- Python and Data Analysis
- The NumPy Library
- The Pandas Standard Library
- Data Visualization with matplotlib

Prerequisites

Introduction to Python Programming