Data Automation Workshop using Python

ANI_405x | Expert-Led Live | Custom | Expert
Course Duration: 3 days

The Data Automation Workshop using Python is designed for non-programmers who want to create programs in Python to help them automate some of their mundane daily tasks related to gathering and analyzing data. By using hands-on, lab-based programming exercises, it takes the student on a practical guided tour of Python's capabilities and throughout the session create several practical and useful Python programs. The workshop provides an opportunity to define and develop a Python program based on a practical and relevant use case.

Intended Audience

This workshop is intended for anyone (non-programmers) who wants to build knowledge and skills related to leveraging data tools to be more productive.

Objectives

After completing this course, the student will be able to:

- Analyze a problem and design step-by-step ways to automate the task at hand
- Learn how to manage data in different forms of data structures to load and manipulate data
- How to use key control structures to manage the process flow
- Implement solutions based on string manipulation, regular expression processing and loops
- Implement a data processing exercise using control and data structures including file operations
- Implement text file and Excel file handling for Input/Output processing
- Learn how to automate data collection through APIs
- Python is used as the programming language for all exercises and lab-work

Outline

1. Get started with Python
1.1 Create a Python program
1.2 Run a Python program
1.3 Import and Modules/Packages
1.4 Conditional statements
1.5 For and while loops
1.6 Functions
1.7 Lists
1.8 Dictionary
1.9 String Operations
Exercise: Create and Run a Program

2. Processing Data from Text Files
2.1 Text File Processing basics
2.2 Command line arguments in Python
2.3 Python File Operations
2.4 File reading and writing
2.5 Python to walk a directory
2.6 Counting lines, words
Exercise: Read a file, count lines, words and develop word length vs. frequency data
Exercise: Define a class-specific use case
Exercise: Develop a Python program to implement the use case

3. Processing Data from Excel Workbooks
3.1 What is Openpyxl?
3.2 Installing Openpyxl module
3.3 Creating a Workbook
3.4 Reading data from a Workbook
3.5 Creating and naming Worksheets
3.6 Deleting a Worksheet
3.7 Excel Object Structure
3.8 Reading and writing to/from a cell
3.9 Inserting Formulas into Excel Sheets from Python Programs
3.10 Formatting rows and columns
3.11 Inserting Excel Charts in Python
3.12 Saving an Excel Workbook
Exercise: Create an Excel file, insert data from text file processing and plot a chart

4. Data gathering from Websites and Applications
4.1 Concept of APIs
4.2 Using APIs in Python
4.3 Invoke API on a Web Server
4.4 Capture the response
4.5 Save the response to a file
4.6 Invoke API on an App Server
4.7 Capture the response
4.8 Save the response to a file
Exercise: Invoke APIs from Python

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