



Data Automation Workshop using Python

ANI_405x | Expert-Led Live | Automation and Insights | 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

