Automation using Python

Module 1: Python Basics

- o Introduction to Python
- o Data Types
- o Variables
- o Data Structure
- o Operations on Data Structure
- o Inbuilt methods

Module 2: Data Types and Variables

- o Data Types
- o Understanding Variables
- o Getting User Input and Print statements
- o Use quotes and escape character
- o Lists
- o Tuples
- o Dictionaries
- o Sets
- o Different Methods on data structures
- o String Indexing and Slicing Strings
- o Concatenation and Repetition
- o Common String Methods
- o String Formatting
- o Namespaces
- o Formatted String Literals (f-strings and .format() method)
- o Built-in String Functions

Module 3: Functions and Modules

- o Defining Functions
- o Using Parameters and Return Values
- o Using Arguments and Default Parameters
- o Scope of Variables
- o Modules and Packages
- o Writing and Importing Modules

Module 4: Flow Control

- o Python Operators
- o If, else, elif clauses
- o Loops – for and while loops
- o Iteration

Module 5: Introduction to Python Automation

- o Overview of Automation and its Benefits
- o Introduction to Python Libraries for Automation
- o Setting up the development environment.

Module 6: File Handling and Manipulation

- o Working with files and directories
- o Automating file operations
- o File searching and filtering
- o Opening Files
- o The os and os.path modules
- o Reading files
- o Writing into a file
- o Appending data into a file

Module 7: Web Scraping and Data Extraction

- o Introduction to web scraping
- o Using BeautifulSoup and Requests libraries for web scraping

Module 8: GUI Automation

- o Introduction to GUI automation
- o Automating mouse and keyboard actions
- o Interacting with desktop applications

Module 9: Database Automation

- o Introduction to database automation
- o Connecting to databases using Python
- o Automating database queries and data manipulation tasks

Module 10: Task Scheduling and Automation

- o Introduction to task scheduling
- o Using cron jobs and task scheduler libraries
- o Automating recurring tasks and processes

Module 11: Error Handling and Logging

- o Handling errors and exceptions in automation scripts
- o Implementing logging for debugging and monitoring

Module 12: Parallel Execution in Python

- o Threading
- o Multiprocessing for parallel execution
- o Implementing automation best practices
- o Performance optimization techniques

Module 13: Excel Automation

- o Introduction to Excel automation
- o Reading and writing Excel files using pandas library
- o Handling different Excel formats (e.g., .xls, .xlsx)
- o Extracting data from Excel worksheets and ranges
- o Automating data manipulation and analysis tasks with Excel files

Module 14: PDF Automation

- o Reading and extracting data from PDF files using PyPDF2 or pdf plumber library
- o Automating PDF generation and manipulation tasks
- o Converting PDF files to other formats (e.g., text, images)

Module 15: Image Processing with Python

- o Automating image manipulation tasks (e.g., resizing, cropping, filtering)
- o Working with image recognition and OCR (Optical Character Recognition) for automation