Mastering Automation Testing with Selenium in Python

Prerequisites: Knowledge of Web Application, Testing and Programming

Module 1: Introduction to Python

- Introduction to Python
- Overview Python Based Applications
- Environment Setup
- Data Types
- Variables and its Scope
- Data Structure
- Operations on Data Structure
- Input and Output Operation
- Writing a Python Module

Module 2: Functions

- Define and use custom functions within a Python program.
- Types of function
- Types of Arguments.
- Naming conventions
- Using Imports
- Executing Modules as Scripts
- Lambda Functions

Module 3: Iterables and Conditional Statement

- Definitions
- Sequences
- Dictionaries
- The len() function
- Conditional Statements
- Loops in Python
- break and continue

Module 4: Exception Handling

- Except Clauses
- The else clause

- The finally clause
- Using Exceptions For Flow Control
- Raising your own exceptions
- Exception Hierarchy

Module 5: OOPS in Python

- Introduction to Object-Oriented Python
- Creating Classes, Methods, and Objects
- Using Constructor and Attributes
- Using Class Attributes and Static Methods
- Understanding Object Encapsulation
- Private Attributes and Methods
- Controlling Attribute Access

Module 6: Introduction to Selenium

- What is Selenium?
- Importance and benefits of Selenium.
- Brief history and evolution of Selenium.
- Understanding Web Elements

Module 7: Basic HTML concepts.

- Different types of web elements (e.g., text boxes, buttons, links).
- Introduction to locators (ID, name, class name, XPath, CSS selector).

Module 8: Setting Up Selenium Environment

- Installing Python and pip.
- Installing Selenium WebDriver.
- Setting up a development environment (e.g., IDEs like PyCharm, VS Code).
- Your First Selenium Script
- Writing a basic Selenium script to open a browser and navigate to a webpage.
- Understanding WebDriver commands (e.g., get, find_element, click).

Module 9: Advanced Selenium Concepts

- Handling Different Web Elements
- Interacting with text boxes, buttons, checkboxes, radio buttons.

- Handling dropdowns and selecting options.

- Uploading files and handling alerts.

- Working with Frames and Windows

- Switching between frames and windows.

- Handling multiple windows and pop-ups.

Module 10: Selenium Waits

- Introduction to implicit and explicit waits.

- Handling dynamic elements and page loading.

- Advanced Locator Strategies

- Writing effective XPath and CSS selectors.

- Using techniques like parent-child relationships, sibling locators.

Module 11: Test Automation Frameworks and Best Practices

- Introduction to Test Automation Frameworks

- Overview of test automation frameworks (e.g., Page Object Model, Data-Driven Testing, Keyword-Driven Testing).

- Pros and cons of using frameworks.

- Building a Basic Test Automation Framework

- Implementing the Page Object Model (POM).

- Organizing test scripts and page classes.