Automated Testing with Selenium WebDriver

Course ID #: 1145-100-ZZ-W

Hours: 21

Course Content

What you will learn:

- The major building blocks of the Selenium tool suite
- How to use the Selenium WebDriver to write web application automated test scrips as Java code.
- How to control test script execution
- How to use Selenium Grid to run multiple tests in parallel in different browser environments.
- How to use the Selenium IDE tool as a prototype productivity tool
- Selenium test script patterns and best practices for designing maintainable and reusable automated tests scripts
- Test concepts and Testing frameworks
- Version considerations and migration between Selenium 1 (RC), Selenium 2 (WebDriver) and Selenium 3
- Selenium latest features including the WebDriver W3C Specification and the Selenium Roadmap

Target Student:

Experienced Java developers working as Web Developers, Test Engineers or other IT Personnel who want to learn how to use Selenium to automate Web Application tests.

Prerequisites:

This is a hands on course designed for experienced Web and Test Engineer Developers who are new to Selenium.

Students should have a background in

- Developing Java applications in an IDE like Eclipse
- Web technologies
- Testing concepts
- Knowledge of HTML DOM and Object Oriented Development is helpful

Topics:

Introduction to Test Automation

- Variations of Test Automation
- Test Harness Tools
- Benefits of Test Automation
- What to test
  - o The Testing Pyramid
  - o Test Data

Introduction to Selenium

- Selenium Suite of Testing Tools
- History of Selenium
- Selenium Browser Drivers
- Version Considerations
  - o W3C WebDriver Specification
  - o JSON Wire Protocol
  - o Selenium Roadmap

Automated Testing with Selenium WebDriver

- Downloading and Installing Selenium

Selenium WebDriver
- Introduction to WebDriver
- Test script as Java code
- The Selenium WebDriver library
- The Main WebDriver classes
- WebDriver Capabilities
- Setting up Selenium WebDriver projects
- Using Maven and Gradle build tools

Working with Selenium WebElements
- WebElements as Nodes in the DOM
- Locating WebElements on the Web Page
- Using Selenium IDE as a Prototype Time Saver
- Interacting with WebElements
  - Retrieving WebElements
  - Verifying WebElements
  - Submitting a Form

Working with Selenium Clickable WebElements
- Working with Clickable WebElements
  - Handling Radio buttons and Check Boxes
  - Working with Select Drop Down Elements

Accessing Links Using Selenium WebDriver
- Exact and Partial Link Text Match
- Case-sensitivity

Accessing Tables Using Selenium WebDriver
- HTML Tables Structure
- Advanced Strategies for Locating WebElements
- Walking a Table with Selenium

Selenium Patterns and Testing Frameworks
- Testing Frameworks
  - Modular
  - Data Driven
  - Keyword-Driven
  - Hybrid
- Introduction to POM (Page Object Model)
  - Making Automated Test Scripts Maintainable
  - POM Benefits
  - How to Refactor a Project to POM

The Selenium Page Factory
- Introduction to the Page Factory
- PageFactory implicit Instantiations
- Page Factory Annotations
- Lazy Instantiations and Caching

Working with Multiple Windows
- Working with alert pop-ups
- Switching between multiple windows
- Working with iFrames
- OS Generated pop-ups

Controlling Test Execution
- Waiting on a Web Page Element
- Implicit Waits
- Explicit Waits
- Specifying Expected Conditions
- Working with Ajax Controls Using WebDriver
  - Overview of Ajax
  - Issues testing Ajax model
  - Pros and Cons of different methods to wait on Ajax

Advanced User Interactions
- Introduction to Advanced User Interactions
- Keyboard & Mouse Events
- Building a Series of Multiple Actions

Advanced Web Application Access
- Taking Screenshot Using WebDriver
- Working with Colors
- HTML5 Considerations
- Handling HTML5 Date Time Picker Using Selenium
- Working with Non-Text Pressable Keys or Unicode PUA Code points
- Menu Selection

Selenium Wisdom
- Selenium Guidelines and Recommendations
- Selenium Worst Practices to Avoid
- Selenium References

Working with Selenium Grid
- Introduction to Selenium Grid
- Selenium Grid Distributed architecture
- Selenium Server
- Selenium Grid Console
- Running Selenium Grid

Mobile Application Testing
- Mobile App Considerations
- Selenium and Mobile Apps
- Testing with Native Platform Support
- Appium Cross Platform Support