

Test Automation & Advanced Selenium

Lesson 00:



Course Goals and Non Goals

Course Goals

- At the end of this program, participants gain an understanding of how to automate test cases using Selenium testing API of a web application

Course Non Goals

- This course does not cover other than anything the course goals





Pre-requisites

Web Designing & Development Technologies like HTML5, CSS 3, JavaScript & XML

Testing concepts

Requirement Validation & Functional Decomposition

Use case

Defect Reporting

Java 8 with JAXB

Development Tools

Intended Audience



Test Engineers, Software Engineers and Senior Software Engineers





Day Wise Schedule

Day 1

- Lesson 1: Introduction to Automation
- Lesson 2: Introduction to Selenium

Day 2

- Lesson 3: Working With Selenium IDE

Day 3

- Lesson 3: Working With Selenium IDE (Cont.)
- Lesson 4: Selenium 2.0 – WebDriver

Day 4

- Lesson 5: Testing Web Applications Using Web Driver API



Day Wise Schedule

Day 5

- Lesson 5: Testing Web Applications Using Web Driver API (Cont.)

Day 6

- Lesson 6: Web Driver Test with Xunit

Day 7

- Lesson 7: Selenium WebDriver – Advanced

Day 8

- Lesson 8: Working with Page Object Model (POM)

Day 9

- Lesson 8: Working with Page Object Model (POM) (Cont.)
- Lesson 9: Working with Page Factory & Object Repository



Day Wise Schedule

Day 10

- Lesson 9: Working with Page Factory & Object Repository (Cont.)
- Lesson 10 : Selenium Frameworks



Table of Contents

Lesson 1: Introduction to Automation

- 1.1 What is Automation?
- 1.2 What is Test Automation?
- 1.3 Why to Automate?
- 1.4 Manual Testing Vs Automation Testing
- 1.5 Manual To Automated Testing – The Process
- 1.6 Advantage of Automation Testing
- 1.7 What Should Be Automated?
- 1.8 Automation Testing – Best Practices
- 1.9 Common Misconceptions About Automated Testing
- 1.10 Example of Test Automation



Table of Contents

Lesson 2: Introduction to Selenium

- 2.1 Introduction to Selenium
- 2.2 Selenium : What it is?
- 2.3 Landscape and Usage
- 2.4 Overview of Selenium Core
- 2.5 Overview Selenium Remote Control (Selenium 1.0)
- 2.6 Overview of Selenium IDE
- 2.7 Overview of Selenium Web Driver (Selenium 2.0)
- 2.8 Overview of Selenium Grid
- 2.9 Why Selenium?
- 2.10 Selenium 3.0 Out Now!



Table of Contents

Lesson 3: Working With Selenium IDE

- 3.1 Selenium IDE – An Introduction
- 3.2 Installation of Selenium IDE
- 3.3 Opening the Selenium IDE
- 3.4 Components of Selenium IDE
- 3.5 Introduction to Selenium IDE Commands – “Selenese”
- 3.6 Capabilities of Selenium IDE Commands
- 3.7 Types of Selenium IDE Commands
- 3.8 Selenium IDE Commands – Some Common Commands
- 3.9 Understanding Element Locators in Selenium IDE
- 3.10 Locators in Selenium
- 3.11 Locating Elements by CSS Selectors
- 3.12 Locating Elements by DOM



Table of Contents

Lesson 3: Working With Selenium IDE (Cont.)

- 3.13 Introduction to XPath
- 3.14 Types of XPath
- 3.15 Locating Elements by XPath
- 3.16 Store Commands
- 3.17 Introduction to Alert Selenium IDE Commands
- 3.18 Introduction to Confirmation Selenium IDE Commands
- 3.19 Introduction to Debugging in Selenium IDE
- 3.20 Using Breakpoints in Test Case
- 3.21 Using Startpoint in Test Case
- 3.22 Using Firebug to identify object
- 3.23 Create Script Using Selenium IDE
- 3.24 Exporting scripts to multiple languages and Formats



Table of Contents

Lesson 4: Selenium 2.0 – WebDriver

- 4.1 Introduction To WebDriver
- 4.2 Selenium WebDriver Architecture
- 4.3 Selenium WebDriver Architecture - Components
- 4.4 Web Driver Vs Selenium RC Vs Selenium IDE
- 4.5 Benefits of Web Driver over Selenium IDE and RC
- 4.6 Limitations of Web Driver

Lesson 5: Testing Web Applications Using Web Driver API

- 5.1 Writing First WebDriver Test
- 5.2 Locating UI Elements-Developers Tools
- 5.3 Navigation API
- 5.4 Interrogation API
- 5.5 Introduction to WebElement Interface



Table of Contents

Lesson 5: Testing Web Applications Using Web Driver API (Cont.)

- 5.6 WebDriver API Methods - findElement() and findElements()
- 5.7 Locating UI Elements using By Strategy
- 5.8 Difference between findElement() and findElements()
- 5.9 WebElement API
- 5.10 Interacting with Form Elements Using WebDriver API
- 5.11 Interacting with Dropdown-box Using WebDriver API
- 5.12 Handling Popup Dialogs and Alerts
- 5.13 Handling Multiple Windows in Selenium WebDriver
- 5.14 getWindowHandle() and getWindowHandles() - Example
- 5.15 Closing Windows
- 5.16 Handling Synchronization in Selenium WebDriver
- 5.17 Types of Synchronization in Selenium WebDriver
- 5.18 Execute JavaScript Based Code in Selenium WebDriver
- 5.19 JavaScript Executor - Scenarios



Table of Contents

Lesson 6: Web Driver Test with XUnit

- 6.1 Introduction to XUnit and JUnit
- 6.2 JUnit Annotations
- 6.3 Assertions/Verifications with JUnit or TestNG
- 6.4 Web Driver Test cases with JUnit or TestNG
- 6.5 Test Suite

Lesson 7: Selenium WebDriver - Advanced

- 7.1 Overview of Cross Browser Testing
- 7.2 Cross Browser Testing in Selenium WebDriver
- 7.3 Launching Firefox Browser With Selenium 3 & GeckoDriver
- 7.4 Launching Edge Browser using Microsoft Edge Driver with Selenium 3
- 7.5 Introduction to Headless Browsers



Table of Contents

Lesson 7: Selenium WebDriver – Advanced (Cont.)

- 7.6 Other Important Browsers
- 7.7 Introduction to Selenium Grid
- 7.8 What is Selenium Grid?
- 7.9 Selenium Grid Architecture – The Hub & The Node
- 7.10 Selenium Grid Architecture – Configuring Hub and Node
- 7.11 Selenium Grid Architecture – RemoteWebDriver
- 7.12 DesiredCapabilities and Profile Setting in Selenium WebDriver

Lesson 8: Working with Page Object Model (POM)

- 8.1 Why Page Object Model (POM)?
- 8.2 What is Page Object Model (POM)?
- 8.3 Page Object Model (POM) Architecture
- 8.4 Advantages of Page Object Model (POM)
- 8.5 Overview of Selenium Design Patterns
- 8.6 Importance of Design Patterns in Selenium Automation Testing



Table of Contents

Lesson 9: Working with Page Factory & Object Repository

- 9.1 Introduction to Page Factory Design Pattern
- 9.2 Advantages of Page Factory Design Pattern
- 9.3 Implementing Page Factory Design Pattern
- 9.4 Difference between Page Object Model (POM) and Page Factory

Lesson 10 : Selenium Frameworks

- 10.1 Framework Overview
- 10.2 Data Driven (Excel, Databases)
- 10.3 Keyword Driven
- 10.4 Component based (Sprintest®/CBF)
- 10.5 Reports (Excel, PDF)
- 10.6 TDD (JUnit, TestNG)
- 10.7 BDD (Cucumber, SpecFlow)
- 10.8 ATDD (Fittesse)
- 10.9 CI Tools (Jenkins)



References

Websites :

- www.toolsqa.com
- www.seleniumeasy.com
- www.artoftesting.com

Books :



Other Parallel Technology Areas

None



Next Step Courses

None