

QA Automation - Selenium & Core Java

Course Summary:

- ⇒ In detailed, easy, step by step, real time, practical and well organized Course
- ⇒ Not required to have any prior programming knowledge, as all the prerequisites such as Java will be explained from basics
- ⇒ Training videos and notes will be shared
- ⇒ Downloadable automation frameworks, programming code and other files will be provided
- ⇒ Real time End to End eCommerce Automation Project will be explained ([Course Differentiator](#))

Course Contents:

⇒ Introduction to Selenium

- Manual Testing
- Automation Testing
- How can a Tool perform Testing ?
- Selenium
- Types of Applications that Selenium can automate
- Selenium is a free tool
- Different Browsers supported by Selenium
- Different Operating Systems supported by Selenium
- Different Programming Languages supported by Selenium
- Different components in Selenium
- Different versions of Selenium
- Pre-requisites required for learning Selenium

⇒ Firebug & HTML

- Installing older version of Firefox Browser
- Installing FireBug
- HTML Basics
 - ◇ Introduction to HTML
 - ◇ HTML Elements & Tags
 - ◇ Structure of HTML
 - ◇ Demonstrating of different HTML Elements
 - * Creating and Saving an HTML file
 - * Creating Structure for a Web Page
 - * Adding Title to the Web Page
 - * Different sizes of Page Heading

- * Body section of Web Page
- * Adding a link to a Web Page
- * Displaying a ruler on the Web Page
- * Creating line breaks in HTML
- * Creating HTML Table
- * Creating Order lists
- * Creating Unordered lists
- * Creating Bold Text
- * Creating Italicized Text
- * Creating Underlined Text
- * Viewing Page Source in a Browser

- **FireBug**

- ◇ Web Developer Tool
- ◇ Editing HTML elements using FireBug
- ◇ Inspecting UI elements using FireBug

⇒ **Selenium IDE**

- What is Selenium IDE ?
- Record and Playback Tool
- Installing Selenium IDE
- Launching Selenium IDE
- Recording Test Cases using Selenium IDE
- Saving Test Cases in Selenium IDE
- Playing the Test Cases in Selenium IDE
- Disadvantages of Selenium IDE

⇒ **Locators**

- Introduction to Locators
- Different types of Locators
- Demonstrating different types of Locators
- Priority of Locators

⇒ **Xpath Expressions**

- Introduction to Xpath Expressions
- Types of Xpath Expressions
- Absolute Xpath
- Demonstrating Absolute Xpath Expressions
- Using Firepath for Auto generating Xpath Expressions
- Disadvantages of using Absolute Xpath Expressions

- Relative Xpath Expressions
- Difference between Absolute and Relative Xpath Expressions
- Demonstrating Relative Xpath Expressions
- Using Firepath for auto generating Relative Xpath Expressions
- Advantages of Relative Xpath Expressions
- Xpath Functions
- Demonstrating Xpath Functions
- Xpath Axes
- Demonstrating Xpath Axes

⇒ CSS Selectors

- Introduction to CSS Selectors
- Types of CSS Selectors
- Absolute CSS Selectors
- Demonstrating Absolute CSS Selectors
- Relative CSS Selectors
- Difference between Absolute and Relative CSS Selectors
- Demonstrating Relative CSS Selectors
- Using Firepath for auto generating Relative CSS Selectors

⇒ Core Java

- Introduction to Java
- Installing Java
- Installing Eclipse IDE
- Creating Java Project in Eclipse IDE
- Executing Java Project in Eclipse IDE
- Understanding Java Programs
- Compiler Errors
- Print Statements
 - ◇ Using print
 - ◇ Using println
- Comments
 - ◇ Single Line Comments
 - ◇ Multi Line Comments

⇒ Variables

- What are Variables ?
- Purpose of Variables in Java

- Different types of Variables
 - * Local Variables
 - * Instance Variables

⇒ Data Types

- What are Data Types ?
- Different Types of Data Types in Java.
 - ◇ byte
 - ◇ short
 - ◇ int
 - ◇ long
 - ◇ float
 - ◇ double
 - ◇ char
 - ◇ boolean
- Demonstrating different Data Types in Java.

⇒ Operators

- What are Operators ?
- Different Types of Operators in Java.
 - ◇ Arithmetic Operators
 - ◇ Relational Operators
 - ◇ Logical Operators
 - ◇ Assignment Operators
 - * Assignment Operator
 - * Compound Assignment Operators
 - ◇ Conditional Operator
- Demonstrating the Operators in Java.

⇒ Flow Control

- What is Flow Control ?
- Different types of Flow Control Statements in Java
 - ◇ Selection Statements
 - * if statements
 - * if else statements
 - * if .. else if .. Else statements
 - * switch statements

◇ Iterative Statements

- * While loop
- * Do while loop
- * For loop
- * For each loop

◇ Transfer Statements

- * break statement
- * continue statement
- * return statement
- * try, catch & finally statements

⇒ Methods

- What are Methods in Java ?
- What is the Purpose of Methods in Java ?
- main() method
- Creating non-main methods
- Creating multiple methods inside the same Class
- Method Calling
- Parameterized Methods
- Return Type

⇒ Arrays

- What are Arrays in Java ?
- Types of Arrays
 - ◇ Single Dimensional Arrays
 - ◇ Demonstrating Single Dimensional Arrays
 - * Declaring Single Dimensional Arrays
 - * Creating Single Dimensional Arrays
 - * Initializing Single Dimensional Arrays
 - * Accessing Single Dimensional Arrays
 - ◇ Two Dimensional Arrays
 - ◇ Demonstrating Two Dimensional Arrays
 - * Declaring Two Dimensional Arrays
 - * Creating Two Dimensional Arrays
 - * Initializing Two Dimensional Arrays
 - * Accessing Two Dimensional Arrays
 - ◇ Three Dimensional Arrays
 - ◇ Object Arrays
 - ◇ Disadvantages of Arrays

⇒ Strings

- What are Strings ?
- Purpose of Strings in Java
- Shortcut representation of Strings
- Actual representation of Strings
- Concatenating Two Strings
- Demonstrating Pre-defined methods of Strings (equals(), length(), substring(), trim(), indexOf() and split())

⇒ Wrapper Classes and Primitive Data types

- What are wrapper classes ?
- What are primitive data types ?
- Different Primitive Data Types
- Different Wrapper Classes
- Converting Primitive data types to Objects
- Demonstrating Wrapper Classes and Primitive Data Types

⇒ Constructors

- What are Constructors ?
- Difference between Constructors and Methods
- Purpose of Constructors in Java
- Demonstrating initialization of Variables without Constructors
- Demonstrating initialization of Variables with Constructors

⇒ this keyword

- Purpose of this keyword in Java
- Using this keyword with methods
- Using this keyword with constructors
- Demonstrating the program using this keyword with methods
- Demonstrating the program using this keyword with constructors

⇒ Overloading

- What is Overloading in Java ?
- Method Overloading
- Constructor Overloading
- Demonstrating Method Overloading
- Demonstrating Constructor Overloading

⇒ Packages

- What are Packages ?
- Purpose of Packages in Java
- Default Packages
- Creating Packages
- Demonstrate Packages
- Demonstrate accessing variables and methods in the same package
- Demonstrate accessing variables and methods defined in other packages

⇒ Inheritance

- What is Inheritance ?
- Purpose of Inheritance in Java
- Super Class / Parent Class
- Sub Class / Child Class
- Using extends keyword
- Demonstrate a Child class inheriting the properties of a Parent Class

⇒ Overriding

- What is Overriding ?
- Purpose of Overriding in Java
- Method Overriding
- Creating Objects and accessing Overridden Properties
- Demonstrating Overriding

⇒ Modifiers

- What are Modifiers in Java ?
- Purpose of Modifiers
- Types of Modifiers
 - ◇ Access Modifiers
 - ◇ private
 - ◇ public
 - ◇ protected
 - ◇ default
 - ◇ Non-Access Modifiers
 - ◇ static
 - ◇ final
 - ◇ abstract

⇒ Interfaces

- What are Interfaces ?
- Purpose of Interfaces in Java
- Difference between Classes and Interfaces
- Creating an Interface
- Creating variables in Interfaces
- Creating methods in Interfaces
- Using implements keyword
- Demonstrating Interfaces
- Assigning Class Objects to Interfaces

⇒ Exceptional Handling

- What is Exceptional Handling ?
- What are Exceptions ?
- Purpose of Exceptional Handling
- Using try catch blocks
- Exceptional Hierarchy (Throwable, Exception, ArithmeticException and ArrayIndexOutOfBoundsException Classes)
- Exception Types
 - ◇ Checked Exceptions
 - ◇ Unchecked Exceptions
- Using throws keyword

⇒ Handling Files

- Representing Files in Java
- Creating Files in Java
- Reading text from Files
- Demonstrating File Handling in Java

⇒ Collections Framework

- Drawback of Arrays
- Advantage of Collection Framework over Arrays
- Hierarchy of Collections Framework
- Types of Collections framework
 - Array List
 - HashSet
 - Hash Map
 - Iterator
- Iterator interface versus iterator() method

- Demonstrating the Collection Frameworks using:
 - for() loop
 - For-each loop
 - Iterator() method
 - hasNext() and next() methods of Iterator interface

⇒ Selenium WebDriver

- Introduction
- Downloading Selenium WebDriver
- Configuring Selenium WebDriver
 - ◇ Downloading Selenium Jar files
 - ◇ Adding the Jar files to the Java Project
 - ◇ Configuring the Jar files with the Java Project
 - ◇ Executing Sample Selenium Automation code to confirm
- Selenium WebDriver and Firefox Browser
 - ◇ Checking the compatibility of Firefox Browser version with Selenium WebDriver Version
 - * Finding the compatibility details in Change logs
 - * Google Search for finding compatibility
 - ◇ Creating object for FirefoxDriver class
 - ◇ Creating object for FirefoxDriver class and assigning it to WebDriver interface
- Selenium WebDriver API
 - ◇ get()
 - ◇ manage().window().maximize()
 - ◇ findElement(), findElements() and By Class and its predefined methods
 - * id()
 - * name()
 - * className()
 - * linkText()
 - * cssSelector()
 - * xpath()
 - ◇ WebElement class
 - ◇ click()
 - ◇ sendKeys()
 - ◇ clear()
 - ◇ getText()
 - ◇ getTitle()
 - ◇ getCurrentURL()
 - ◇ close()
 - ◇ quit()
 - ◇ getAttribute()
 - ◇ isDisplayed()

- ◇ isEnabled()
- ◇ isSelected()
- ◇ navigate()
- ◇ getPageSource()
- ◇ findElements()

⇒ Handling Multiple Windows

- getWindowHandles()
- switchTo()
- Demonstrate handling multiple windows using getWindowHandles() and switchTo() methods

⇒ Handling Alerts

- switchTo().alert()
- getText()
- accept()
- switchTo().defaultContent()
- Demonstrate handling Alerts using the above methods

⇒ Waiting Mechanism in Selenium WebDriver

- Importance of Waiting in Selenium WebDriver
- Using Thread.sleep()
- Implicit Wait
- Explicit Wait

⇒ Handling Dropdown fields and Multi Selection Boxes

- Select Class
- selectByVisibleText() with Dropdown fields
- selectByVisibleText() with Multi Selection Boxes
- deselectByVisibleText() with Multi Selection Boxes

⇒ Handling Frames

- Introduction to Frames
- Frames in HTML
- Checking Frames on any Application pages
- Frames and NoSuchElementException
- Switching to frames
- Switching to default page

⇒ Handling Lightbox

- Introduction to Lightboxes in HTML
- Lightboxes in HTML
- Demonstrate handling Lightboxes using Selenium WebDriver

⇒ Selenium 2 and Chrome Browser

- Checking Selenium 2 compatibility with Chrome Browser
- Demonstrate Selenium 2 scripts on Chrome Browser

⇒ Selenium 2 and Internet Explorer Browser

- Checking Selenium 2 compatibility with Internet Explorer Browser
- Demonstrate Selenium 2 scripts on Internet Explorer Browser

⇒ Selenium 3

- Introduction
- Difference between Selenium 2 and Selenium 3
- Executing Selenium 3 Scripts on Firefox Browser
 - ◇ Checking the compatibility of Firefox Browser with Selenium 3
 - ◇ Configuring the project with geckodriver.exe
 - ◇ Demonstrate executing the Selenium 3 scripts on Firefox Browser
- Executing Selenium 3 Scripts on Chrome Browser
 - ◇ Checking the compatibility of Chrome Browser with Selenium 3
 - ◇ Demonstrate executing the Selenium 3 scripts on Chrome Browser
- Executing Selenium 3 Scripts on IE Browser
 - ◇ Checking the compatibility of IE Browser with Selenium 3
 - ◇ Demonstrate executing the Selenium 3 scripts on IE Browser

⇒ Advantage of using WebDriver interface in Selenium programs

- Framework Concepts - Properties Files
 - ◇ Purpose of properties files in Selenium Automation
 - ◇ Demonstrate a Java program which reads the data from a Properties file
 - ◇ Load the object reference of the FileInputStream class using **load()** method of Properties class
 - ◇ Retrieve the values from the properties file using the **getProperty()** method of Properties class and print
 - ◇ Demonstrate a Selenium program, which reads the Project configuration data like website details, browser etc from the Properties file
 - ◇ Advantage of using Properties files

⇒ **Framework Concepts - POI API**

- Purpose of POI API in Selenium Automation
- Understand the basics of POI API
- Demonstrate POI API

⇒ **Framework Concepts - Log4j API**

- Purpose of Log4j API in Selenium Automation
- Implement logging in Selenium Automation code using **System.out.println()**
- Disadvantages of SOP logging
- Advantages of **Log4j** logging
- Implementing Log4j in Selenium Automation

⇒ **Framework Concepts - TestNG API**

- Purpose of TestNG in Selenium Automation
- Configure the Project with TestNG JAR file
- **TestNG Annotations**
 - ◇ @Test
 - ◇ @BeforeMethod
 - ◇ @AfterMethod
 - ◇ @BeforeClass
 - ◇ @AfterClass
- Executing the Java class files in batch using TestNG
- Failing @Test annotated methods
- **TestNG Assertions**
 - ◇ assertEquals()
 - ◇ assertTrue()
 - ◇ assertFalse()
 - ◇ fail()
- **Parameterizing tests using TestNG's @DataProvider annotation**
 - ◇ @DataProvider
 - ◇ dataProvider
 - ◇ Demonstrate a program which parameterizes

⇒ **Framework Concepts - ANT**

- Purpose of ANT
- Downloading and Configuring ANT
- build.xml file and its execution using ANT
- Demonstrate ANT

⇒ **Framework Concepts - Maven**

- Purpose of Maven
- Demonstrate Maven

⇒ **Framework Concepts - Taking Screenshots in Selenium**

- Demonstrate taking Screenshots in Selenium

⇒ **Framework Concepts - Extent Reports**

- Demonstrate Extent Reports

⇒ **Framework Concepts - TestNG (Continued)**

- throw
- Skipping a test in TestNG

⇒ **Data Driven Framework**

- Data Driven Testing
- Data Driven Framework
- Build the Data Driven Framework from scratch
- Demonstrate this Framework on a sample application
- Download Framework

⇒ **Page Object Model and Page Factory**

- Build the Page Object Model and Page Factory from scratch
- Demonstrate this Design Pattern on a sample application
- Download Page Object Model and Page Factory implemented Framework

⇒ **Cucumber & BDD Framework**

- Cucumber
- BDD
- Demonstrate Cucumber and BDD in Selenium Automation

⇒ **Real time eCommerce Automation Project (Differentiator from other Selenium courses in the market)**

- End to End Real time eCommerce Automation Project