**Course Objectives:**

This course is designed to train the beginners, intermediate and professional testers with the basics of testing web applications using Selenium. The focus is on the practical application of selenium to resolve common web automated testing challenges. We introduce WebDriver and advanced topics for experienced delegates to take you to Selenium WebDriver superstar status. We explore Maven Build Tool ,Jenkins CI integration, Page Objects, Excel and WebDriver for data driven examples, Hybrid Framework, BDD Cucumber & Selenium Grid, Source Control SVN integration & GIT hub.

**Advantages:**

**Reliable:** Tests perform precisely the same operations each time they are run, thereby eliminating Human error.

**Repeatable:** You can test how the software reacts under repeated execution of the same operations.

**Programmable:** You can program sophisticated tests that bring out hidden information from the application.

**Comprehensive:** You can build a suite of tests that covers every feature in your application.

**Reusable:** You can reuse tests on different versions of an application, even if the user interfaces changes.

**Better Quality Software:** Because you can run more tests in less time with fewer resources.

**Fast:** Automated Tools run tests significantly faster than human users.

**Cost Reduction:** As the number of resources for regression test are reduced.

**Reporting:** Customized reporting of application defects.

**Selenium with Java Objectives:**

1. To understand the importance features of the selenium IDE.
2. To record and run the test-cases in selenium.
3. To identifying the object in the selenium by using locators.
4. To understand the different kind of locators and importance of the locators.
5. To create and install the selenium core and use for the running the test suites in selenium.
6. To understand the selenium remote control, how to install and run the remote-control test in the Java IDE like Eclipse or Visual Studio or Intellij.
7. To understand the Selenium latest feature web-driver, what is the importance of the web-drivers and how to run the web-driver test in eclipse IDE.
8. To understand how to run test-cases in multiple browsers by using web-drivers.
9. To create a selenium grid to execute same test-case in multiple operating systems and multiple browsers.
10. To understand the importance of the test-NG in the selenium and how to run J-Unit test.
11. To understand selenium frameworks like Data-driven, Keyword driven and so on.

* **Introduction**
* What is Automation Testing?
* When to start automation?
* When not to go for automation?
* What are the advantages of automation testing?
* What is Selenium
* What are the advantages of selenium?
* Difference between Selenium and QTP?
* **Java for Selenium**
* Introduction to Java
* Installing JDK
* Configuring Eclipse IDE
* Creating Java Project
* Sample Java Program
* Classes and Objects
* Downloading Selenium server jar
* Configuring Selenium into the Java Project
* Conditional Statements in Java
* Loops in Java
* Arrays in Java
* Array List in Java
* Methods in Java
* Utility Functions in Java
* Local and Global variables in Java
* Static and Instance Variables in Java
* Hash Set in Java
* Method Overloading in Java
* Constructors in Java.
* Inheritance in Java
* Interfaces in Java.
* Packages in Java.
* **Selenium IDEIntroduction**
* Installation and Introduction to IDE
* Creating first script using record and playback
* Installation of Inspector Tools and its Uses.
* Installation and Introduction to IDE
* Creating first script using record and playback
* Installation of Inspector Tools and its Uses.
* Generating Scripts using different Web Elements
* Handling Wait Commands
* Handling Validations Commands
* Handling Store Commands
* Limitations of IDE
* **WebDriver Introduction**
* Architecture of Selenium WebDriver
* WebDriver Interface
* Writing single script to work on different browsers
* Firefox Browser
* Chrome Browser
* IE Browser
* Edge Browser
* **How to do Browser settings by using Option Classes**
* ChromeOptions, FirefoxOptions, EdgeOptions and InternetExplorerOptions Classes
* Browser Logs - Disabling/Writing to File
* Disabling notifications
* maximizing
* Disabling info-bars
* Page Load Strategy
* Managing https Certificate Errors
* **Profiles**
* Concept of Browser profiles
* Why we need Profiles
* Types of Browser Profile Classes
* Firefox, Chrome, IE, Edge Profiles
* Making WebDriver launch with customized instance of Firefox, Chrome, IE, Edge Profiles
* **Add on and Methods**
* Firebug and FirePath
* Login functionality test
* Locators in WebDriver
* Methods in WebDriver
* **Synchronization**
* Introduction to Synchronization
* Thread.sleep()
* Implicit waits
* WebDriverWait Class
* Waiting strategies
* PageLoadTimeout and ScriptTimeout Property
* **Xpaths**
* Types of Xpaths
* Relative and Absolute
* Creation of relative Xpaths
* Creation of Absolute Xpaths
* Customizing Xpaths
* Handling Dynamic Xpaths
* Xpath Axes
* **Using CSS Selectors**
* CSS Selectors
* Creation of CSS Selectors
* Comparison between Xpath and CSS Selectors
* Relative and Absolute CSS
* Handling Dynamic CSS Selectors
* **Maven Project**
* What is Maven and Why Maven?
* Installing/Configuring Maven
* Archetypes in Maven
* Creating maven project
* Eclipse plugin for maven
* Using the maven plugin to execute phases - compile, clean, package etc
* POM.xml
* Maven Repositories
* Building POM.xml to configure Selenium and TestNG
* Building a selenium project and running it through Maven
* **TestNG**
* What is TestNG
* Installing TestNg in Eclipse
* TestNg annotations
* Understanding usage of annotations
* Setting priority of execution for test cases
* Skipping Tests
* Grouping test cases
* How to set Test Dependencies
* Running a Test in TestNg
* Batch Running of tests in TestNg
* parameterizing Tests - DataProvider
* Putting Dataproviders for multiple tests in a single file
* Parameterizing/Sharing single dataprovider for multiple test cases
* Listeners for logging in case of FAILED, SKIPPED or PASSED test cases
* TestListener Adaptor
* Reporting multiple failures in single test case
* TestNg Maven Configuration
* Maven-surefire-report-plugin with testng
* Executing testng from maven
* Generating Maven Surefire Reports
* Generating XSLT Reports with Maven
* **PAGE OBJECT MODEL WITH PAGE FACTORY**
* Introduction to Grid 2
* Creating Nodes and Hubs
* Deciding number of browsers on a Node
* Deciding type of browsers on Node
* Limiting number of concurrent browsers on node
* Difference between maxSession and maxInstance
* Configuring chromedriver and IEdriver exe files on grid
* Testng configurations
* RemoteWebDriver and DesiredCapabilities
* Configuring JSON file format to initialize/configure hub and nodes
* Running single test on single node - serially in multiple browsers
* Running single test on single node – parallelly on multiple browsers
* Running single test on multiple nodes – each node having different browser
* Can we decide node to run test?
* Running multiple tests spread across 3 nodes – one for ie, one for firefox and one for chrome
* Prioritizing the test cases
* **Automating Links**
* Links Testing
* Clicking on a link and validating
* Capturing all links in a page
* Capturing links from a section of the page
* Capturing links from a section of the page and validating them.
* Links Testing
* Visible links and Hidden links
* Validating all the links based on href property
* Checking for broken links
* **Automating Dropdowns**
* Dropdown Testing
* Selection an option from the dropdown
* Select class to automate dropdown
* Capturing all element in a dropdown
* Checking if all options in dropdown are working correctly
* Validating multiple dropdowns
* **Tab and Popup Automation**
* Automating Tabs
* Automating multiple windows
* Handling popup
* Handling Alerts
* **Actions Class**
* Advanced user interactions
* Mouse Hovering
* Right Clicking
* Double Clicking
* Chain Actions
* Drag and drop and element
* Automating Slider bar
* **JavaScriptExecutor in Selenium WebDriver**
* How to type Text in Selenium WebDriver without using sendKeys() method
* How To click a Button in Selenium WebDriver using JavaScript
* HowTo handle Checkbox
* HowTo generate Alert Pop window in selenium
* HowTo refresh browser window using Javascript
* HowTo get innertext of the entire webpage in Selenium
* HowTo get the Title of our webpage
* HowTo get the domain
* HowTo get the URL of a webpage
* HowTo perform Scroll on application using  Selenium
* HowTo click on a SubMenu which is only visible on mouse hover on Menu
* HowTo navigate to different page using Javascript
* **Automating Window Components**
* Handling Window Components
* Installing AutoIT
* Notepad Automation
* Integrating Auto IT and Selenium
* File download using AutoIT
* File upload using AutoIT
* **Automating WebTable**
* Introduction to WebTable Testing
* Handling static WebTable
* Handling dynamic WebTable
* Automating Datepicker(calendar)
* **Reading/Writing using log4j, properties& xml Files**
* Reading/Writing Text Files
* Reading Properties File in Java
* Concept of jar file
* Log4j API for Logging
* Usage of Log4J in Selenium
* Reading data from XML files using Java
* **Reading/Writing Microsoft XLS Files using Apache POI**
* Configuring POI into the project
* Interacting with Excel
* Read operations on excel
* Write operations on excel
* Dropdown Testing and storing the results in Excel
* WebTable testing and storing the results in excel
* Creating Data Driven Framework
* Creating Test data excel files
* Using the test data to test the web application
* **Grid II**
* Introduction to Grid 2
* Creating Nodes and Hubs
* Deciding number of browsers on a Node
* Deciding type of browsers on Node
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* Difference between maxSession and maxInstance
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* **Continuous Integration (Jenkins)**
* Jenkins Integration
* What is continuous integration
* How Jenkins helps in continuous integration
* Downloading and Installing Jenkins
* Executing simple batch commands
* Build project at will and build at intervals/ Scheduling builds
* Executing Selenium Project builds on remote Server/GitHub with MAVEN?
* Build Triggers
* Mailing if build fails
* Configuring/Scheduling Maven Project in Jenkins
* Configuring/Scheduling remote Git maven project in Jenkins
* **Version Controlling (GITHUB)**
* GIT
* Version Controlling
* Installing Git
* Creating Git Hub account
* Creating a Git local repository
* Creating user defined Branches
* Uploading projects into Git hub(push)
* Downloading from Git Hub(pull)
* **Basics of Cucumber BDD Framework**
* What is BDD
* Cucumber implements BDD
* Downloading Cucumber Jars
* Preparing Features File having test scenarios
* Writing a step definition
* Writing Runner Class
* Given, When, Then, And, But annotations and usage in features class
* Passing parameters in Step Functions
* Using regular expression in step implementation to parameterize
* Parameterize complete scenario using features class
* Datatable in Cucumber and its implementation
* Running Cucumber through ANT
* Pretty, Tags and Glue
* Junit Report Generation in Cucumber
* Cucumber HTML Reports
* Log4j Usage
* Using Assertions to report failure