

Selenium Java Course

Beginners to Advanced
[Includes Live Project]

Introduction to Selenium

- Manual Testing
- Automation Testing
- What Selenium can Automate?
- What Selenium cannot Automate?
- Selenium is Free

Firebug and HTML

- Downgrading the Firefox Browser version for Firebug
- Installing FireBug
- What is FireBug?
- Purpose of using FireBug
- What is HTML?
- HTML Basics – Practical Demonstration

Locators

- Introduction to Locators
- Different types of Locators
 - id locator
 - name locator
 - class locator
 - link locator
 - xpath locator
 - css locator
 - dom locator
- Demonstrating different types of Locators
- Priority of Locators

XPath Expressions – Part 1

- XPath Expressions
- Types of XPath Expressions
- Installing Fire path
- Absolute XPath
- Demonstrating Absolute XPath Expressions
- Using Fire path for auto generating Absolute XPath
- Disadvantages of Absolute XPath
- Relative XPath
- Demonstrating Relative XPath Expressions
- Using Fire path for auto generating Relative XPath
- Advantages of Relative XPath

XPath Expressions – Part 2

- Practical demonstration of various Relative XPath Expressions
- Demonstrating Relative XPath Expressions on <http://compendiumdev.co.uk> website
- Demonstrating Relative XPath Expressions on <http://omayo.blogspot.in/> blog
- 30 Examples for Practicing Relative XPath Expressions and their demonstration

XPath Expressions – Part 3

- XPath Function – text()
- XPath Function – contains()
- XPath Function – starts-with()
- 16 Examples for Practicing Relative XPath Expressions and their demonstration

XPath Expressions – Part 4

- XPath Function – last()
- XPath Function – position()
- XPath Expressions – Table()
- XPath Axes()
- XPath Expressions – Wild cards ()
- 50 Examples for Practicing Relative XPath Expressions and their demonstration

CSS Selectors – Part 1

- CSS Selectors versus XPath Expressions
- Types of CSS Selectors
- Absolute CSS Selectors
- Demonstration of Absolute CSS Selectors with examples
- Relative CSS Selectors
- Demonstration of Relative CSS Selectors with examples
- Using Firepath for auto generating Relative CSS Selectors

CSS Selectors – Part 2

- 65 Examples for Practicing Relative XPath Expressions and their demonstration
- Generating Relative CSS using Firepath

Introduction to Java

- Introduction to Java
- Downloading Java
- Installing Java
- Configuring Java
- Downloading Eclipse IDE
- Extracting Eclipse IDE

Java – Part 2

- Launching Eclipse IDE
- Java Project Creation and Execution
- Understanding Java programs
- Configuring Java
- Compiler Errors

Java – Part 3

- Print Statements – print & println
- Comments – single line and multi line comments
- Storing data in Java programs using Variables, Data Types, Operators and Literals
- Variables – Local variables and Instance variables

Java – Part 4

- Data Types – byte, short, int, long, float, double, char and boolean
- Operators
- Arithmetic Operators
- Demonstrating different data types and Arithmetic Operators

Java – Part 5

- Selection Flow Control Statements
- if statements
- if .. else statements
- if .. else if .. else statements
- switch statements

Java – Part 6

- Iterative Flow Control Statements
 - while loop
 - do while loop
 - for loop
 - for-each loop
- Transfer Flow Control Statements
 - break statement
 - continue statement
 - return, try, catch and finally statements

Java – Part 7

- Methods
- main() method
- Creating multiple methods
- Calling methods
- Single and multiple parameterized methods
- Passing arguments to the parameterized methods
- Returning values to the calling methods
- Return type

Java – Part 8

- Classes, Variables and Methods
- Class and Objects
- Demonstrating objects creation using Class as a template
- Object creation statement
- Arrays
- Types of Arrays

Java – Part 9

- Single Dimensional Arrays
- Declaration, Creation, Assignment and Accessing Single Dimensional Arrays
- Shortcut representation of Single Dimensional Arrays
- length variable and Single Dimensional Arrays
- for loop and single dimensional arrays
- for-each loop and single dimensional arrays
- Two Dimensional Arrays
- Declaration, Creation, Assignment and Accessing Two Dimensional Arrays
- Shortcut representation of Two Dimensional Arrays

Java – Part 10

- Using length variable with Two Dimensional Array
- Using for loop with Two Dimensional Array
- Arrays and Object Class
- Disadvantages of Arrays
- String
- Actual and short-cut representation of String
- Concatenating two Strings
- Pre-defined methods of String and their demonstration

Java – Part 11

- Primitive Data Types and Wrapper Classes
- Demonstrating Primitive Data Types values covention to Wrapper Class Objects
- Demonstrating Wrapper Class Objects conversion to Primitive Data Types values
- Constructors
- Difference between Constructors and Methods
- Demonstrating Constructors
- Purpose of Constructors and its demonstration
- Using this keyword

Java – Part 12

- Overloading
- Method Overloading Demonstration
- Constructor Overloading Demonstration
- Packages
- Demonstrating Packages
- Packages and import Statements
- Inheritance
- Inheritance and extends keyword
- Demonstrating Inheritance using Parent and child classes

Java – Part 13

- Overriding
- Method Overriding Demonstration
- Modifiers – Part 1
- Access Modifiers
- Non-access Modifiers
- public
- private
- default
- protected

Java – Part 14

- Non-Access Modifiers
- static Variables
- static Methods
- final Classes
- final Variables
- final Methods
- abstract Classes
- abstract Methods
- abstract and object creation

Java – Part 15

- Interfaces
- Classes versus Interfaces
- Purpose of Interfaces
- Inheriting the properties of interfaces
- Interfaces and objects creation
- And other miscellenious topics in Interfaces

Java – Part 16

- Exception Handling
- What is an Exception?
- Compile time error versus Run time errors
- try catch block for handling Exceptions
- Demonstrating programs and cases of try catch block
- Exception Hierarchy
- Example Exceptions – ArithmeticException and ArrayIndexOutOfBoundsException
- Demonstrating Arithmetic Exception
- Demonstrating ArrayIndexOutOfBoundsException
- Using Throwable and Exception parent classes for handling their sub class exceptions

Java – Part 17

- Exception Types
- Unchecked Exceptions
- Checked Exceptions
- Checked Exceptions versus Unchecked Exceptions
- Demonstrating Checked and Unchecked Exceptions
- Handling Checked Exceptions using try catch block
- Ignoring Checked Exceptions using throws
- Demonstrating different ways to print the Exception details in the catch block

Java – Part 18

- File Handling
- Representing Files in Java
- Demonstrating reading text from files and optimizing the program
- Collections Framework
- What are Collections?
- Collections Hierarchy
- ArrayList
- Arrays versus ArrayList
- Demonstrating ArrayList using for and for-each loops

Java – Part 19

- Collections Framework – Part 2
- HashSet
- ArrayList versus HashSet
- Demonstrating HashSet using for-each loop
- Iterator interface and iterator() method
- Using Iterator interface and iterator() method with ArrayList
- Using Iterator interface and iterator() method with HashSet
- HashMap
- Demonstrating HashMap using for-each loop
- Reflection API
- Demonstrating Reflection API conception with non-parametrized method
- Demonstrating Reflection API conception with parametrized method

Selenium WebDriver – Part 1

- Selenium & its components
- Main component of Selenium
- Downloading Selenium WebDriver
- Configuring Java Project with Selenium WebDriver
- Executing Selenium WebDriver scripts on Firefox browser
- Checking the compatibility of Firefox Browser version with Selenium WebDriver version

Selenium WebDriver – Part 2

- Selenium WebDriver API Library – commands / methods
- `get()` method
- `manage().window().maximize()`
- `findElement()`
- By class
- `id()` method
- `name()` method
- `className()` method
- `linkText()` method
- `partialLinkText()` method
- `cssSelector()` method
- `xpath()` method
- `click()` method
- `sendKeys()` method
- `clear()` method
- `getText()` method

Selenium WebDriver – Part 3

- Selenium WebDriver API Library – commands / methods – Part 2
- getTitle() method
- getCurrentUrl() method
- close() method
- quit() method
- getAttribute() method
- isDisplayed() method
- isEnabled() method
- isSelected() method
- navigate() method
- getPageSource() method

Selenium WebDriver – Part 4

- Selenium WebDriver API Library – commands / methods – Part 3
- findElements() method
- findElements and By.tagName
- Handling Multiple Windows – Part 1
- getWindowHandles()
- switchTo() method

Selenium WebDriver – Part 5

- Handling Multiple Windows – Part 2
- Handling More Than Two windows
- Waiting mechanism
- Java – Thread.sleep()
- Selenium – Implicit Wait
- Selenium – Explicit Wait
- Implicit vs Explicit Wait

Selenium WebDriver – Part 6

- Waiting Mechanism – Part 2
- WebDriverWait versus FluentWait
- Practical demonstration of FluentWait
- Handling Alerts
- Reading text on the alert
- Practical demonstration of handling alerts
- Handling dropdown fields and multiselection boxes
- Practical demonstration of handling dropdown fields
- Practical demonstration of handling multi selection box fields

Selenium WebDriver – Part 7

- Handling Frames
- Handling Lightbox
- Execution Selenium scripts on Chrome Browser
- Executing Selenium scripts on IE Browser

Selenium WebDriver – Part 8

- Selenium 3 – Part 2
- Unavailability of FireBug, FirePath and stable Selenium IDE in latest Firefox Browser versions
- Selenium 3 – Demonstrating click() method
- Selenium 3 – Demonstrating sendKeys() method
- Selenium 3 – Demonstrating clear() method
- Selenium 3 – Demonstrating getText() method
- Selenium 3 – Demonstrating getTitle() method
- Selenium 3 – Demonstrating getCurrentURL() method
- Selenium 3 – Demonstrating close() method
- Selenium 3 – Demonstrating quit() method
- Selenium 3 – Demonstrating getAttribute() method
- Selenium 3 – Demonstrating isDisplayed() method
- Selenium 3 – Demonstrating isEnabled() method
- Selenium 3 – Demonstrating isSelected() method
- Selenium 3 – Demonstrating navigate() methods – back(), forward(), refresh() and to()
- Selenium 3 – Demonstrating getPageSource() method

Framework Concepts – Properties Files

- Purpose of Properties Files in Frameworks
- Demonstrating a Java project retrieving the properties from the Properties file
- Demonstrating the usage of Properties files in Selenium Projects
- Understanding the actual purpose of Properties files in Selenium Projects

Framework Concepts – POI API – Part 1

- Purpose of POI API
- Excel File Versions – xls and xlsx
- POI API Interfaces and Classes
- Practical Demonstration for understanding the basics of POI API

Framework Concepts – POI API – Part 2

- Demonstrating the generalization of POI API programs to work with xls and xlsx files
- Utilizing the userdefined methods in MyXLSReader.java file

Framework Concepts – Log4j API

- Purpose of logging
- Implementing Logging using `System.out.println()` statements
- Disadvantages of using SOP statements for Logging
- Implementing Logging using `System.out.println()` statements
- Customizing the properties in `log4j.properties` file
- Demonstrating logging using log4j API

Framework Concepts – TestNG API – Part 1

- Role of TestNG in Frameworks
- Installing TestNG in Eclipse IDE
- Configuring the Java projects with TestNG jar files
- TestNG API Library
- TestNG Annotations
- @Test Annotation
- Prioritising the Tests

Framework Concepts – TestNG API – Part 2

- TestNG – @BeforeMethod annotation
- TestNG – @AfterMethod annotation
- TestNG – @BeforeClass annotation
- TestNG – @AfterClass annotation
- TestNG – Executing the TestNG Classes in batch

Framework Concepts – TestNG API – Part 3

- TestNG – Failing a test
- TestNG – Passing a test
- TestNG – Skipping a test
- TestNG – Assertions
- TestNG – Parameterization using
@DataProvider

Framework Concepts – Maven

- What is Maven?
- Purpose of Maven
- Demonstrating using the Jar files in Traditional Project
- Maven Project Creation
- Understanding the Maven Project default structure
- Demonstrating using the Jar files in Maven Project

Framework Concepts – Extent Reports

- What are Extent Reports?
- Advantages of Extent Reports?
- Demonstrating Extent Reports
- Generating reports with the names as Timestamp
- Passing the Extent Reports
- Failing the Extent Reports

Framework Concepts – Taking Screenshots and ANT – Part 1

- Taking Screenshots in Selenium
- What is ANT?
- Purpose of using ANT
- Maven versus ANT

Framework Concepts – Taking Screenshots and ANT – Part 2

- Download ANT
- Configuring ANT
- Understand build.xml file
- Executing the Selenium Project code from command line
- Demonstrating ANT

Data Driven Framework – Part 1

- Data Driven Testing
- Data Driven Framework
- Demo Application – www.zoho.com
- Creating/Designing Data Driven Framework Development – Part 1

Data Driven Framework – Part 2

- Creating/Designing Data Driven Framework Development – Part 2

Data Driven Framework – Part 3

- Creating/Designing Data Driven Framework Development – Part 3

Data Driven Framework – Part 4

- Creating/Designing Data Driven Framework Development – Part 4

Data Driven Framework – Part 5

- Creating/Designing Data Driven Framework Development – Part 5

Data Driven Framework – Part 6

- Creating/Designing Data Driven Framework Development – Part 6

Cucumber and BDD – Part 1

- Cucumber and BDD – Introduction
- What is Behaviour Driven Development?
- What is Cucumber?

Cucumber and BDD – Part 2

- Installing Cucubmer Eclipse Plugin
- Creating Maven Project and configuring it with Cucumber and Selenium
- Creating Feature File
- Creating Step Definitions Class
- Creating Runner Class and executing the Feature Files
- Insalling ansi-escape-console

Cucumber and BDD – Part 3

- Providing Description in Feature File
- Scenario versus Scenario Outline
- Understanding Scenario Outline and Examples keywords
- Parameterizing the tests in Feature File and implementing step definitions
- Executing the feature files independently

Cucumber and BDD – Part 4

- Regular Expressions
- Background keyword
- Generating reports in Cucumber

Cucumber and BDD – Part 5

- Organizing Feature files, Step Definition files and Runner class
- Using Tags
- Different types of Tags – Default and Custom Tags

Cucumber and BDD – Part 6

- Cucumber – Comments
- Cucubmer Options – Using monochrome attribute
- Cucumber Options – pretty
- Hooks – @Before and @After
- Tagged Hooks
- Cucumber – Using Assertions
- Cucumber – Data Tables

Page Object Model and Page Factory – Part 1

- About Page Object Model Design pattern
- Advantages of Page Object Model
- About Page Factory Design Pattern
- Creating the Framework using the Design patterns – Part 1

Page Object Model and Page Factory – Part 2

- Creating the Framework using the Design patterns – Part 2

Page Object Model and Page Factory

– Part 3

- Creating the Framework using the Design patterns – Part 3

Page Object Model and Page Factory – Part 4

- Creating the Framework using the Design patterns – Part 4

Jenkins, Git and GitHub – Part 1

- Process of working on a project as a team
- Best practices to follow while working as a team
- Jenkins, Git and GitHub for continuous integration, collaboration and version controlling

Jenkins, Git and GitHub – Part 2

- GitHub – Creating Account and Repository
- Git – Installation
- Jenkins – Downloading, Installation and configuration
- Jenkins – Creating an item and demonstrating building a sample windows command
- Jenkins – Creating an item and demonstrating building local code of an ANT project

Jenkins, Git and GitHub – Part 3

- Real time working of Jenkins, Git and GitHub
- Uploading the local code to GitHub using Git commands
- Configuring Jenkins to execute the code from GitHub

Jenkins, Git and GitHub – Part 3

- Real time working of Jenkins, Git and GitHub
- Uploading the local code to GitHub using Git commands
- Configuring Jenkins to execute the code from GitHub

Jenkins, Git and GitHub – Part 4

- Steps to upload the Maven Project to GitHub
- Configure the Jenkins to invoke the Maven Project from GitHub

Jenkins, Git and GitHub – Part 5

- Git Commands

Jenkins, Git and GitHub – Part 6

- Jenkins Configurations – Email Notifications
- Jenkins Configurations – Scheduling the builds
- Jenkins Configurations – Polling Code for updates

WebDriverManager

- Demonstrating WebDriverManager and its advantages

Live Project – Part 1

- **Live Project – Part 1**

Live Project – Part 2

- **Live Project – Part 2**

Live Project – Part 3

- **Live Project – Part 3**

Live Project – Part 4

- **Live Project – Part 4**

Live Project – Part 5

- **Live Project – Part 5**

Live Project – Part 6

- **Live Project – Part 6**

Live Project – Part 7

- **Live Project – Part 7**

Live Project – Part 7

- **Live Project – Part 7**

Robot Class

- Introduction to Robot Class
- Different methods of Robot Class – Demonstration
- Capturing Screenshot using Robot Class – Practical demonstration
- Uploading a file using Robot Class – Practical demonstration
- Demonstrating mouse and keyword simulation using different methods of Robot Class

Actions Class

- Introduction to Actions Class
- Different methods of Actions Class –
Demonstration

JavaScript for JavaScriptExecutor

- Introduction to JavaScript
- JavaScript Programming Basics for understanding JavaScriptExecutor – Practical Demonstrations

DOM (Document Object Model) for JavaScriptExecutor

- Introduction to DOM (Document Object Model)
- Demonstrate how DOM can be used along with JavaScript – Practical Demonstration
- Locating elements using DOM (Absolute and Relative way) – Practical Demonstration

JavaScriptExecutor

- Introduction to JavaScriptExecutor (Document Object Model)
- Purpose of using JavaScriptExecutor in Selenium
- JavaScriptExecutor – Practical Demonstrations

Selenium & Browser Configurations – Firefox

- Selenium & Firefox Browser Configurations – Browser Logs
- Selenium & Firefox Browser Configurations – Setting Browser exe file path
- Selenium & Firefox Browser Configurations – Page Load Strategy
- Selenium & Firefox Browser Configurations – Profiling
- Selenium & Firefox Browser Configurations – Handling Notifications
- Selenium & Firefox Browser Configurations – Handling Certificate Errors
- Selenium & Firefox Browser Configurations – Proxy Settings

Selenium & Browser Configurations – Chrome&IE

- Selenium & Chrome Browser Configurations – Browser Logs
- Selenium & Chrome Browser Configurations – Handling Notifications
- Selenium & Chrome Browser Configurations – Handling Info Bars
- Selenium & Chrome Browser Configurations – Start Maximized Mode
- Selenium & Chrome Browser Configurations – Proxy Settings
- Selenium & Chrome Browser Configurations – Profiling
- Selenium & Chrome Browser Configurations – Handling Certificate Errors
- Selenium & Chrome Browser Configurations – Page Load Strategy
- Selenium & Chrome Browser Configurations – Setting Browser exe file path
- Selenium & IE Browser Configurations – Browser Logs
- Selenium & IE Browser Configurations – Page Load Strategy
- Selenium & IE Browser Configurations – Setting Browser exe file path
- Selenium & IE Browser Configurations – Handling Notifications
- Selenium & IE Browser Configurations – Proxy Settings
- Selenium & IE Browser Configurations – Handling Certificate Errors

Selenium WebDriver – Handling Calendar

- Java Program for converting string type interger values to int type
- Java Program for retrieving date, month and year from the string type date text
- Java Program for converting a month stored in String text format to a number
- Selenium Program for Handling the Calendar – Selecting a date, month and year

Selenium WebDriver – Handling Web Tables – Part 1

- Introduction to Web Tables
- HTML representation of Web Tables and different HTML Tags
- XPath Expressions for Handling Web Tables
- CSS Selectors for Handling Web Tables
- CSS Selectors for Handling Web Tables
- Program demonstration for retrieving and printing all the headings in a table
- Program demonstration for retrieving and printing all the table data
- Program demonstration for retrieving and printing all the rows in a table
- Program demonstration for printing all the values in the table rows in a different way
- Program demonstration for printing all the values in a table column say Name column
- Program demonstration for printing all the values in a table row say Second row

Selenium WebDriver – Handling Web Tables – Part 2

- Program demonstration for retrieving the place of the person from the Web Table based on the given name of the person
- Program demonstration for retrieving the number of rows and columns in the table
- Program demonstration for retrieving the row number of the provided cell data and later use the retrieved row number to retrieve the other details of the cell data from the same row
- Program demonstration to retrieve the column number of given table heading and then using the retrieved column number to retrieve all the values under the column

Selenium WebDriver – Handling Dynamic Web Tables

- What are Dynamic Web Tables?
- Types of Web Tables – Static and Dynamic
- Program demonstration on Dynamic Web Table

Selenium WebDriver – Select Class

- Select Class and its predefined methods in Selenium API
- UI of Dropdown and Multi-selection box fields
- HTML code of Dropdown and Multi-selection box fields
- Using `sendsKeys()` for selecting options in Dropdown field
- Using `sendsKeys()` for selecting options in Multi-selection box field
- Disadvantage of using `sendsKeys()` for selecting options in Multi-selection box field
- Predefined methods of Select Class – `selectByVisibleText()`
- Predefined methods of Select Class – `selectByIndex()`
- Predefined methods of Select Class – `selectByValue()`
- Predefined methods of Select Class – `deselectByVisibleText()`
- Predefined methods of Select Class – `deselectByIndex()`
- Predefined methods of Select Class – `deselectByValue()`
- Predefined methods of Select Class – `deselectAll()`
- Predefined methods of Select Class – `getOptions()`
- Predefined methods of Select Class – `getAllSelectedOptions()`
- Predefined methods of Select Class – `getFirstSelectedOption()`
- Predefined methods of Select Class – `isMultiple()`

Selenium WebDriver – Handling Frames – Part 1

- Introduction to Frames
- HTML implementation for Frames
- Demonstrate the need for switching to Frames
- Switching to the frame using their id
- Switching to the frame using their WebElement
- Switching to the frame using their index value
- Practical demonstration of all the above ways

Selenium WebDriver – Handling Frames – Part 2

- Switching between Parent and Child Frames
- Switching between Multiple Parent and Child Frames
- Switching between Multiple Parent and Multiple Child Frames
- Practical demonstration of all the examples

Selenium WebDriver – Handling Cookies

- Introduction to Cookies
- Purpose of Cookies
- Purpose of Cookies in Testing
- Program for retrieving all the cookies
- Program for deleting all the cookies
- Program for retrieving all the cookies
- Program for deleting all the cookies
- Program for retrieving all properties of the cookies
- Program for deleting a specific cookie
- Program for adding a new cookie

Selenium WebDriver – Downloading Files

- Downloading Files in Firefox Browser
- Downloading Files in Chrome Browser
- Downloading Files in Internet Explorer Browser
- Practical demonstration of all the above

Selenium WebDriver – Event Listeners

- Purpose of WebDriver Listeners
- EventFiringWebDriver class and WebDriverEventListener interface
- Practical demonstration of WebDriver Listeners in Selenium code

TestNG Listeners

- Purpose of TestNG Listeners
- WebDriver Listeners versus TestNG Listeners
- Types of TestNG Listeners
- Practical demonstration of TestNG Listeners

Selenium WebDriver – StaleElementReferenceException

- Program for printing the names of all hyperlinks in a page
- Program for printing the names of hyperlinks from a section
- Program which results in StaleElementReferenceException
- Reasons for StaleElementReferenceException
- Solution one for resolving StaleElementReferenceException
- Solution two for resolving StaleElementReferenceException

Selenium WebDriver – sendKeys()

- sendKeys() and Text Box fields
- sendKeys() and Password fields
- sendKeys() and Text Area fields
- sendKeys() and Dropdown fields
- sendKeys() and Multi-selection box fields
- Uploading files using sendKeys()
- Handling keyboard keys using sendKeys()
- Practical demonstration of all the above