

# Selenium Online Training Brochure

Selenium Online Training in Real-time orientation, Selenium WebDriver, Core Java Programming, TestNG Testing Framework, Maven Integration, Jenkins Integration and Selenium Automation Framework.

## Selenium Training Brochure

### Module I) Selenium Fundamentals

#### Session 1: Introduction to Selenium

- i) What is Selenium?
- ii) History of the Selenium Project
- iii) Selenium Components / Selenium's Tools suite
  - a) Selenium IDE
  - b) Selenium RC
  - c) Selenium WebDriver
  - d) Selenium Grid
- iv) Platforms supported by Selenium
- v) Selenium License
- vi) Advantages of Selenium
- vii) Disadvantages of Selenium
- viii) Testing Frameworks and other tools used in Selenium
- ix) Selenium vs. UFT/QTP
- x) Selenium Environment Setup

#### Session 2: Software Test Life Cycle / Software Test Process

- i) Test Planning
- ii) Test Design
- iii) Test Execution
- iv) Test Closure

#### Session 3: Selenium Test Process / Selenium Test Life Cycle

- i) Test Planning
- ii) Generate Basic Tests / Test cases
- iii) Enhancing Tests / Test Cases
- iv) Running Test cases & Debugging Test Cases
- v) Analyzing Test Result and Report Defects

## **Session 4: Java for Selenium - Overview of Java Programming**

### **Core Java / Java Standard Edition**

- i) Comments in Java
  - ii) Data Types in Java
  - iii) Java Modifiers
  - iv) Variables in Java
  - v) Operators in Java
  - vi) Java Control Flow Statements
    - a) Conditional Statements (Ex: if...)
    - b) Loop Statements (Ex: for...)
    - c) Branching Statements (Ex: break...)
  - vii) String handling in Java
  - viii) Arrays and ArrayList in Java
  - ix) IO Operations and File Handling in Java
  - x) Java Methods
    - a) Java Predefined Methods
    - b) Java Built-in Methods
  - xi) Exception Handling
  - xii) Java Object Oriented Programming System (OOPS) Concepts
    - a) Inheritance
    - b) Polymorphism
    - c) Abstraction
    - d) Encapsulation
- Interfaces in java  
Constructor in Java

## **Module II) Java Programming for Selenium**

### **Session 5: Java Environment Setup**

- i) Uses of Java
- ii) Java Syntax
- iii) Java Environment Setup
- iv) Write first Java Program...

### **Session 6: Java Program Structure**

#### ***i) Java Program Structure***

- a) Documentation Section
- b) Package Statement
- c) Import Statement/s
- d) Class Declaration
- e) Interface Section

- f) main Method (Java Program Execution Starts from main method)
- g) Declaration Statements
- h) Normal Statements
- i) Code Blocks
- j) Object Creation Statement, etc...

**ii) Java Program Example**

**Session 7: Java Comments, Modifiers, and Data Types**

**i) Java Comments**

**ii) Java Modifiers**

- a) Access Modifiers
- b) Non -Access Modifiers

**iii) Java Data Types**

- a) Primitive Data Types
- b) Non-primitive Data Types

**Session 8: Java Variables and Operators**

**i) Java Variables**

- a) What is Variable?
- b) Declaration of Variables
- c) Assign values to Variables
- d) Variable Naming Restrictions
- e) Types of variables in Java

**ii) Java Operators**

- a) Arithmetic Operators
- b) Assignment Operators
- c) Comparison Operators
- d) Logical Operators
- e) Miscellaneous Operators

**Session 9: Java Control Flow Statements Part-1**

**i) Conditional Or Decision Making Statements**

- a) Types of Conditional Statements
- b) Types of Conditions
- c) Usage of Conditional Statements / Decision Making Statements
- d) Java programming Examples

## **Session 10: Java Control Flow Statements Part-2**

### ***i) Java Loop Statements...***

- a) for loop
- b) while loop
- c) do while loop
- d) Enhanced for loop

### ***ii) Branching Statements***

- a) break
- b) continue
- c) return

## **Session 11: Java Strings, and Arrays**

### **i) String Handling in Java**

- a) What is String?
- b) Create and Use Strings
- c) Concatenating Strings
- d) String Comparison
- e) Find String Length

### **ii) Java Arrays**

- a) What is Array?
- b) Declare and Use Arrays
- c) Creating different Types of Arrays
- d) Copy values form one Array to another (Copy Array)
- e) Advantages and Disadvantages of Arrays

## **Session 12: Java IO Operations**

### **i) Java IO Operations**

- a) Java Input Operations
- b) Java Output Operations

### **ii) File Handling in Java**

- a) File System Operations
- b) Create a Folder
- c) Delete a Folder
- d) Create a Text File
- e) Create different Files
- f) Read a Text File
- g) Write data to a Text file
- h) Read a Text File and write to another file.

### **Session 13: Exception Handling in Java**

- i) What is an Exception in Programming?
- ii) Types of Exceptions
- iii) Common scenarios where Exceptions may occur
  - a) Scenario where ArithmeticException may occur
  - b) Scenario where NumberFormatException Occurs
  - c) Scenario where NullPointerException occurs
  - d) Scenario where ArrayIndexOutOfBoundsException occurs

### **Session 14: Java Methods - User Defined Methods**

- i) What is Method?
- ii) Introduction to Java Methods
- iii) Types of Methods
- iv) User Defined Methods
  - a) Methods with return value
    - 1) Call methods by invoking Object (Non static Methods)
    - 2) Call methods without invoking Object (Static methods)
  - b) Methods without return any value
    - 1) Call methods by invoking Object (Non static Methods)
    - 2) Call methods without invoking Object (Static methods)

### **Session 15: Java Predefined Methods**

- i) String Methods
- ii) Number Methods
- iii) Character Methods
- iv) Array Methods Etc...

### **Selenium Class 16: Java OOPS - Inheritance**

- i) Java Object Oriented Programming System
- ii) Java Inheritance
  - a) What is Inheritance?
  - b) Types of Inheritance in Java
  - c) Reusing Class members between two classes without inheritance in same package
  - d) Reusing Class members between two classes with inheritance in same package
  - e) Reusing Class Members (Multi Level) without inheritance in same package
  - f) Reusing Class Members (Multi Level) with inheritance in same package
  - g) Reusing Class Members from two different packages in same project

h) Reusing Class Members from two different packages as well as two different projects

## **Session 17: Java Polymorphism, Abstraction and Encapsulation**

### **i) Polymorphism**

- a) What is Polymorphism?
- b) Compile Time Polymorphism / Method OverLoading
- c) Run Time Polymorphism / Method Overriding

### **ii) Abstraction**

- a) What is Abstraction?
- b) When we go for Abstract Methods?
- c) Inherit Abstract Class (Class Members)
- d) How to call methods in Home Class/Abstract Class?

### **iii) Java Interfaces**

### **iv) Encapsulation**

## **Session 18: Miscellaneous Topics (Java)**

- i) Java Constructor
- ii) Calling Methods inside another Methods
- iii) Data Type Conversion
- iv) Types of Output in Java

## **Module III: Selenium WebDriver**

### **Session 19: Introduction to Selenium WebDriver**

- i) What is Selenium WebDriver?
- ii) Advantages of Selenium WebDriver
- iii) Drawbacks of Selenium WebDriver
- iv) Writing Selenium WebDriver Test Steps
- v) Types of Statements/Steps in Selenium Test cases

### **Session 20: Selenium WebDriver Environment Setup**

- i) Selenium WebDriver Environment Setup  
(Download and Extract Eclipse IDE, Download & Install Java, Download Selenium WebDriver Java Language binding and add to Java Project in Eclipse IDE)
- ii) Write first Selenium Test Case and Execute

## **Session 21: Web Elements and Operations on the Web Elements**

- i) Introduction to Web Environment
- ii) Web Elements (Page, Button, Link, Edit Box, Text Box, Drop Down Box, List Box, Combo Box, Radio Button, Check Box, Web Table and Frame Etc...)
- iii) Manual Operations on Web Elements

## **Session 22: Element Locators in Selenium**

- i) What is Element Locator?
- ii) Why we need to use different locators?
- iii) How to inspect Elements?
- iv) Element Locators Selenium
  - a) id
  - b) name
  - c) className
  - d) tagName
  - e) linkText
  - f) partialLinkText
  - g) cssSelector
  - h) xpath

## **Session 23: Selenium WebDriver API Commands**

*Categories of WebDriver Commands:*

- i) Browser Regular commands
- ii) Browser Navigation commands
- iii) Regular Commands on Web Elements
- iv) Verification Commands on Web Elements
- v) Other Commands

## **Session 24: Element Handling in Selenium Part-1**

Prerequisites to create Test Cases in Selenium WebDriver

- i) Element Locators
- ii) Selenium WebDriver Commands
- iii) Java Programming Concepts
- iv) Handling Browser
- v) Handling Edit Box

## **Session 25: Handling Elements in Selenium Part-2**

- i) Handling Text Area, Error Message and Popup Window
- ii) Handling Button

- iii) Handling Link
- iv) Radio Button
- v) Image, Image Button and Image Link

### **Session 26: Handling Elements in Selenium Part-3**

- i) Handling Check Box
- ii) Handling Drop down Box
- iii) Handling Web Table
- iv) Handling Frames...
- v) Handling Mousehover

### **Session 27: Writing Selenium Test Cases**

Prerequisites for writing Selenium WebDriver Test Cases...

- i) Test Scenario or Manual Test Case
- ii) Element Locators to Locate/Recognize/Identify Elements/Objects
- iii) Selenium WebDriver API Commands to perform operations on Elements
- iv) Programming Concepts to enhance the Test Cases
- v) Testing Framework (JUnit/TestNG) to group Test cases, prioritize Test cases, execute Test batches and generate Test Reports
- vi) Test Case 1: Verify Internal and External Links in a Website
- vii) Test Case 2: Verify an Element Existence in a Web Page
- viii) Write a Negative Test Case with Exception Handling

### **Session 28: Writing Selenium Test Cases Part-2**

- i) Test Case 4: Customer Registration in gcrShop Web portal User Interface
- ii) Test Case 5: Verify Customer Login to gcrShop User Interface
- iii) Test Case 6: Admin Login to gcrShop Admin Interface

### **Session 29: Writing Selenium Test Cases Part-3**

- i) Data Driven Testing
- ii) Batch Testing

### **Session 30: Writing Selenium Test Cases Part-4**

- i) Write a Test Case for Admin Login Locking Functionality
- ii) Write a Test Case for Positive and Negative Testing for Admin Login Functionality
- iii) Synchronization in Selenium WebDriver
  - a) What is Synchronization?
  - b) Why Synchronization?



- c) When Synchronization is required?
- d) How to identify the Synchronization Problem?
- e) How to Synchronize AUT and Test Tool (Selenium WebDriver)

### **Session 31: Writing Positive and Negative Test Cases**

- i) Writing Positive Test cases
- ii) Writing Negative Test Cases with Exception Handling

## **Module IV: TestNG Testing Framework for Selenium**

TestNG Testing Framework for Selenium

### **Session 32: TestNG Testing Framework for Selenium Part-1**

- i) Introduction to TestNG Testing Framework
- ii) Install TestNG and write first TestNG Test Case
- iii) Create multiple Test Cases and Run
- iv) Prioritize Test Cases

### **Session 33: TestNG Testing Framework Part-2**

- i) TestNG Annotations
- ii) TestNG Attributes
- iii) Execute multiple Programs/Classes using XML

### **Session 34: TestNG Testing Framework Part-3**

- i) Grouping Test Cases using XML
- ii) Parallel Testing using TestNG
- iii) Data Driven Testing using @DataProvider

## **Module V: Selenium Framework**

Selenium Automation Framework Design & Implementation

### **Session 35: Selenium Automation Framework Design**

- i) Maven Integration with Selenium
- ii) Create Maven Project and add Software dependencies
- iii) Create multiple Packages to store Test Automation Resources
- iv) Page Object Model (POM)

## **Session 36: Selenium Automation Framework Implementation**

- i) Create Object Repositories using POM
- ii) Create customized Commands
- iii) Create Reusable Functions
- iv) Create Test Cases using Automation Resources
- v) Jenkins Integration with Selenium
- vi) Execute Test Cases and View Result Reports

## **Module VI: Selenium Live Project**

Selenium Live Project with Selenium WebDriver, Java and TestNG

### **Session 37: Software Testing Project Part-1**

- i) Project Environment and Information
- ii) Project Description
- iii) Stake Holders of the Project
- iv) Interfaces of the Project/AUT
- v) Features to be tested in Admin Interface

### **Session 38: Software Testing Project Part-2**

- i) Features to be tested in User Interface
- ii) Test Requirements, Test scenarios, and Test cases...
- iii) Derive Smoke Test Scenarios for Admin Interface
- iv) Derive Smoke Test Scenarios for User Interface
- v) Derive Comprehensive (All Possible) Test Cases for Admin Interface
- vi) Derive Comprehensive (All Possible) Test Cases for User Interface

### **Session 39: Software Testing Project Part-3**

Automate **Admin Interface Smoke Test Cases** using Selenium WebDriver, Java, TestNG and Maven

### **Session 40: Software Testing Project Part-4**

Automate **User Interface Smoke Test Cases** using Selenium WebDriver, Java, TestNG and Maven

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Selenium Online Training provides you to enhance your Software Automated Testing Skills and Programming Skills.