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# SELENIUM WITH JAVA

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## Module-1: Overview on Automation & Selenium

- What is Software Testing? Types of Software Testing?
- Challenges in Manual testing
- How Automation Overcome challenges in Manual testing?
- How Automation tools work?
- Importance of Programming in Automation
- What is Selenium? What are the components of Selenium?
- What are the Advantages & Disadvantages of Selenium WebDriver?

## Module-2: Java Essentials for Selenium

- Java and Eclipse Environment setup
- How to write Basic Java program ?
- Understanding console output
- Java Variables and Data Types
- Java Operators
- Conditional statements – if, if else , switch case
- Loops – while, do while, for
- Jumping statement – break and continue
- Arrays
- String Class

- String methods

### **Module-3:Java OOPS Concepts**

- Classes and Objects
- Java methods
- Passing parameters to the methods
- Call by value and call by reference
- Java Constructor
- Encapsulation
  - setters and getters
- Polymorphism
  - Overloading Methods
  - Overloading Constructors
- this keyword
- Static variables and methods
- Inheritance
  - Types of Inheritance
  - Method Overriding
- super keyword
- final keyword
- Abstract Class
- Java Interface
- Java Packages
- Access Modifiers
- Data conversion functions
- Reading Input from keyboard
- Exception Handling
- Java Collections
  - List
  - Set
  - Hash Map
- JDBC

### **Module-4: Selenium WebDriver**

- Introduction to WebDriver and Architecture
- Environment Setup & WebDriver Configuration
- How to Create Automated test case in WebDriver?
- Execute test case on multiple browsers.

- Basic Locators – Name, ID, LinkText, PartialLinkText
- Advanced Locators – CSS, XPath
- Working with SelectorsHub
- WebDriver Commands
  - Get Commands
  - Conditional Commands
  - Navigation Commands
  - Waits – Implicit, Explicit and Fluent Waits
  - Browser Commands – close() and quit()
- Working with Web Elements
  - Input box, Checkbox & Radio buttons
  - Dropdowns – Select Class, JQuery & Bootstrap Drop Downs
  - Links & Broken Links
  - Alerts/Popups
  - Iframes
- Working with Browser Windows
  - getWindowHandle()
  - getWindowHandles()
- How to Handle Date Picker
- How to Handle Web Tables
- How to Handle Mouse Actions – Actions class
- How to Handle Keyboard Actions
- How to Handle Upload & Download Files
- How to Scroll Web page
- How to Capture Screenshots
- How to work with Cookies
- Headless Browser Testing
- Data Driven Testing using MS-Excel- Apache POI API

## **Module-5: TestNG**

- TestNG Introduction and Advantages
- Configuring TestNG in Project
- How to write TestNG Test case
- Understanding testng.xml
- TestNG Report
- How to Prioritizing tests
- TestNG annotations
- dependsOnMethods
- How to Skip tests

- How to Group tests
- Assertions
- How to Parameterize tests
- Parallel testing
- Data Provider
- Invocation Count
- TestNG Listeners

## **Module-6: Extent Reports, Log4j2 & Page Object Model**

- How To Generate Extent Reports
- Log4j2 for logging
- Page Object Model Pattern – Page Factory

## **Module-7: Maven integration with Selenium**

- What is Maven and Why Maven?
- Installing/Configuring Maven
- Creating Maven Project
- Understanding POM.xml
- How To Add Dependencies to pom.xml
- How To Add plugins to pom.xml

## **Module-8: Hybrid Framework with POM – Live Project (E-Commerce Domain)**

- Understanding what is Automation Framework & Types of Frameworks
- Phases in Designing Framework
- How To choose Test cases for automation
- Step by Step Implementation of Hybrid Driven Framework
- Creating Maven Project
- Update pom.xml with dependencies
- Creating page objects and Object repository
- Creating utilities
- Setting up configuration files
- Creating automation test cases
- Creating data driven test cases
- Creating database test cases
- Generating extent reports

- Generating logs using log4j2
- Execute test scripts using TestNG xml File
- Emailing test reports
- Execute test scripts through Command Line
- Execute test scripts using bat file

## **Module-9: CI – Continuous Integration (Git, Github & Jenkins)**

- What is Continuous Integration?
- Workflow of Git & Github
- Git commands
  - init
  - clone
  - add
  - commit
  - push
  - pull
  - branch
  - merge
  - status
- Jenkins Overview
- Maven integration with Jenkins
- Run selenium test scripts through Jenkins

## **Module-10 : Interview Preparation**

- Interview Questions & Answers
- Resume Preparation & Mock Interviews