

Java Selenium Internship Syllabus

1. Manual Testing Fundamentals

- SDLC and STLC
- Test scenario and test case
- Test case writing
- Bug/defect life cycle
- Severity and priority
- Functional and non-functional testing
- Smoke, sanity and regression testing

2. Core Java Fundamentals

- Introduction to Java
- JDK, JRE and JVM
- Variables and data types
- Operators
- Conditional statements
- Loops
- Arrays
- Strings and String methods
- Methods and constructors
- Packages and access modifiers
- Exception handling
- Collections Framework – List, Set and Map
- OOP Concepts – Class and Object, Inheritance, Polymorphism, Encapsulation and Abstraction
- Interfaces and Abstract Classes
- Java 8 Features – Lambda Expressions, Functional Interfaces and Stream API

3. Selenium WebDriver

- Introduction to Automation Testing
- Manual Testing vs Automation Testing
- Selenium Architecture
- Selenium WebDriver Setup
- Browser Configuration
- WebDriver Methods

- Locators – ID, Name, Class Name, Tag Name, Link Text, Partial Link Text, CSS Selector and XPath
- WebElement Methods
- Handling Text Boxes, Buttons and Links
- Dropdowns
- Checkboxes and Radio Buttons
- Alerts
- Frames and iFrames
- Windows and Tabs
- Mouse Actions
- Keyboard Actions
- JavaScriptExecutor
- Screenshots
- File Upload and Download
- Web Tables
- Date Pickers
- Dynamic Web Elements
- Explicit, Implicit and Fluent Waits

4. XPath and CSS

- Absolute vs Relative XPath
- XPath Functions
- XPath Axes
- Dynamic XPath
- CSS Selectors
- Advanced Locator Strategies

5. TestNG Framework

- Introduction to TestNG
- Installation and Configuration
- Annotations
- TestNG Assertions
- Test Suites
- Groups
- Parameters
- DataProvider
- Dependency Tests



- Parallel Execution
- TestNG Reports

6. Page Object Model

- POM Concept
- Page Classes
- Reusable Methods
- Base Class
- Configuration Management
- Properties Files
- Utility Classes
- PageFactory

7. Maven and Git

- Maven Introduction
- pom.xml
- Maven Dependencies
- Maven Build Lifecycle
- Git and GitHub Basics
- Branching and Merging
- Pull Requests



8. API Testing Basics

- REST API Fundamentals
- HTTP Methods
- GET, POST, PUT and DELETE
- Status Codes
- JSON
- Postman
- REST Assured with Java

9. Framework Development

- Selenium Framework Architecture
- Data-Driven Framework
- Excel Integration
- Logging

- Screenshot on Failure
- Extent Reports
- Configuration Files
- Reusable Components

10. CI/CD and DevOps

- Jenkins Introduction
- Jenkins Job Configuration
- Git + Jenkins Integration
- Maven + Jenkins
- Automated Test Execution
- Test Reports in Jenkins
- CI/CD Pipeline Basics

11. Advanced Selenium

- Selenium Grid
- Parallel Testing
- Headless Testing
- Chrome/Firefox Options
- WebDriverManager
- Remote WebDriver
- Handling Dynamic Applications
- Selenium 4 Features

12. Real-Time Project

- Requirement Analysis
- Test Scenario Preparation
- Test Case Design
- Automation Framework Setup
- Page Object Model Implementation
- TestNG Integration
- Data-Driven Testing
- Reporting
- GitHub Integration
- Jenkins Execution
- End-to-End Automation Project

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13. Interview Preparation

- Core Java Interview Questions
- Selenium Interview Questions
- TestNG Interview Questions
- Framework-Based Questions
- Coding Programs
- Real-Time Scenario Questions
- Debugging and Troubleshooting
- Automation Testing Mock Interviews
- Resume Preparation
- Project Explanation for Interviews

