

# Full Stack Software Testing Training

This course delves into various testing strategies, ensuring a holistic approach to software quality assurance. With a focus on practical learning, the program incorporates the latest tools and frameworks used in the industry, supported by real-world projects and case studies. Graduates of this course will be adept at identifying and resolving issues across the entire technology stack, ensuring robust, high-quality software products.

**Course Duration** : 3 Months

**Course Language** : English/Hindi/Telugu

**Classroom** : Offline/Online Training/Hybrid Training

## Description

The Full Stack Testing course provides comprehensive training in testing methodologies and techniques across all layers of software development, from front-end to back-end. Designed for aspiring quality assurance professionals and seasoned testers alike, this course offers a deep dive into the principles, tools, and best practices essential for ensuring the reliability, functionality, and performance of modern web applications and software systems.

Throughout the course, students will gain hands-on experience with a wide range of testing frameworks, tools, and techniques commonly used in full stack development environments. This includes mastering front-end testing frameworks like Selenium and Cypress for automating browser interactions, as well as back-end testing tools such as Postman and REST Assured for API testing. Additionally, students will learn how to conduct integration testing to ensure seamless communication between different components of the application stack.

Furthermore, the Full Stack Testing course covers essential topics such as test planning, test case design, defect tracking, and test reporting, empowering students to effectively manage the testing process from start to finish. By the end of the course, students will be equipped with the skills and knowledge needed to excel in a variety of testing roles within the software development lifecycle, making them valuable assets to any organisation striving for quality and reliability in their software products.

## Skills you get

- Proficiency in Automated Testing Tools
- Understanding of Frontend Testing Techniques
- Backend Testing and API Validation
- Database Testing Skills
- Performance and Load Testing Expertise
- Continuous Integration/Continuous Deployment (CI/CD) Integration

# Course Contents

## Manual Testing

### **Software Testing Fundamentals**

- Introduction to Software Testing
- Software Development Process
- SDLC Real Time process Steps
- What is Software & Software Testing?
- Define QA Process
- History of Software testing
- Objective of Testing
- Why Testing required?
- When to start Testing
- Testing importance
- Definition, Basics & Types
- Software Testing as a Career Path (Skills, Salary, Growth)
- Why software has Defects
  
- Services based vs Product based Companies

### **Testing Roles and Responsibilities**

- Software Test Engineer
- Real Time Job Role of Tester
- Senior Software Test Engineer
- Test Lead
  
- Test Manager

### **Software Testing Methods**

- White Box Testing
- Black Box Testing
- Gray Box Testing
  
- Difference of Whitebox & Blackbox Testing

### **Software Development Life Cycle - SDLC**

- What is SDLC?
- SDLC Phases
  
- SDLC Models

- Waterfall model
- V model
- Verification & Validation
- Agile Model

### **Agile Process Concepts**

- What is agile?
- Why Agile is important
- Agile Testing principles
- What is mean by scrum master
- Roles of Scrum Master
- Sprint Planning
- Sprint Planning
- Sprint Release
- Product Backlog
- What is Epic
- Concept of User Stories
- Defect Backlog
- Standup meeting
- Status meeting
- Scrum meeting

### **Software Testing Life Cycle - STLC**

#### **Understanding the requirements**

- Requirements Specification
- Business requirement specification
- Software requirement specification

- Functional requirement specification

### **Test Plan Preparation**

- Overview of Test Plan
- Entry and Exit criteria
- Test Plan template

### **Test Engineer Responsibilities**

- LAB Checklist

### **Creation and working with Folder Structure**

#### **Test Scenarios**

- Test Scenario Entry and Exit Criteria
- Test Scenario Template
- Test Scenarios Identification
- Writing Test Scenarios for application

#### **Test Cases**

- Test cases Entry and Exit Criteria
- Test cases Template
- Test cases Identification
- Test Design Guidelines
- Writing Test cases for application
- Good Test Case design steps
- Test Data Preparation

#### **Test Case Design Techniques**

- Equivalence Class Partitioning
- Boundary Value Analysis
- State Transition

- Decision Table
- White box Testing Techniques

### **Software Testing Types**

- Smoke Testing
- Sanity Testing
- Re-Testing
- Regression Testing
- Static Testing
- Dynamic Testing
- Ad-hoc Testing
- Functionality Testing
- Usability Testing
- Compatibility Testing
- Data Base Testing
- Interface Testing
- Performance Testing
- Security Testing

### **User Acceptance Testing**

- Alpha Testing
- Beta Testing
- UAT Testing

### **Test Execution**

- When to start Test Execution
- Process to start test execution
- What is build

- Build Release process
- Executing Test Cases on multiple builds
- Test Cases Execution Status

### **Bug/Defect management**

- Defect/Bug Life Cycle
- Defects Reporting
- Defects Reporting Template
- Defects Reporting & Re-Testing
- Defects Closing
- Severity and Priority
- Defect /Bug/Error/Failure
- Defects in Real Time application
- How to find more bugs

### **Test/Project management Tool: JIRA**

- Introduction to Jira
- Features of Jira
- Test Case Design in Jira
- Creating Test Cycle
- Test Execution in Jira
- Bug Reporting using Jira
- Jira Dashboard

### **Status Reports Process**

- Daily Status Report
- Daily Defect Report
- Weekly Status Report

- Monthly Status Report

## **Test Closure**

- Criteria for Test Closure
- Test Closure process
- Test Summary Reports
- When testing need to be stopped

## **Selenium**

### **Selenium Components & Object Identification**

#### Automation Testing Overview & Process

- What is automation testing
- Why automation testing ?
- Difference between manual & Automation Testing
- Drawbacks of manual testing
- Advantages of Automation Testing
- When to start Automation Testing
  
- Tool Evaluation or POC

#### **Types of Automation tools**

- Licensed Tools
- Open Source Tools

#### **Test Automation Fundamentals**

- Automated Testing
- Benefits of Automation Testing
  
- Limitations of Automation Testing

#### **Automation Testing Tools**

- Test Automation Tool Evaluation
- Introduction to Selenium
- Difference between Selenium and QTP

- Why Selenium is Preferred

### **Selenium Components**

- Selenium IDE
- Selenium RC
- Selenium WebDriver
  
- Selenium GRID

### **Object Identification/Locators**

- Introduction to element locators
- Types of Element Locators
- How to use name,id,class properties
- Writing Xpath Manually
- Types of Xpath
- When to use xpath
- Xpath with attributes
- How to use tagname
- Locating using linktext,partiallinktext
- findElement & FindElements
  
- Element locators on different browsers

## **Core Java**

### **Core Java Fundamentals**

#### **About Eclipse**

- Installation of Java
- Installation of Eclipse IDE
- Creating Project in eclipse
- Creating Packages
- Creating Classes & methods
- Writing & Executing programs in Eclipse IDE
- Eclipse and Selenium together
- Debugging using Eclipse
  
- Why JAVA for selenium

#### **Language Fundamentals**



- History & Features of java
- Introduction to Java Programming
- First java program
- Creating classes & Methods
- Keywords & Class and Object
- Data Types& Variables
- Static methods
- Purpose of static methods
  
- Arrays, Construction and Initialization

### **Conditional Statements**

- if else condition
- nested if else condition
- Switch case statement
- Examples for all the if conditions

### **Loop Statement**

- While Loop
- Do-while
- For loop
- Foreach loop
- Examples for loops

### **Keywords**

- break
- continue
- Examples for keywords

### **Arrays**

- What is Array
- Advantages of Array in Java
- Working with Array and ForEach loop
- Examples for Array

## **Packages ,Classes and Objects**

- What are Packages
- Creating packages , Class & Objects
- Types of Methods
- Writing user defined methods
- Scanner class

## **Inheritance**

- What is Inheritance
- Advantage of inheritance
- Types of Inheritance
- Examples for inheritance

## **Polymorphism**

- What is polymorphism
- Method OverLoad
- Method OverRide
- Examples

## **Encapsulation**

- Introduction
- Examples

## **Abstraction**

- Define Abstraction Class
- Define Abstract Methods
- Steps to define Abstraction
- Examples

## **Interface**

- Implementing interface
- Difference between Abstraction & Interface
- Implements vs extends
- Examples

## **WebDriver with Project Testing**

### **Basic Selenium / Web Driver**

- Introduction to selenium
- Advantages of web driver
- Web Driver v/s RC
- Architecture of Web Driver and RC
- Configure Selenium with Eclipse IDE(Adding Selenium jar files)
- Working with multiple browsers Firefox, Chrome & Edge, etc...
- Creating the generic scripts in Web Driver
- Navigate methods
- Performing Verification
  
- Providing Test Data

### **Advanced Stuff**

#### **Alerts,Frames,Windows**

- Handling alerts
- Alert interface methods
- Handling Frames/Iframes
- Locating Frames
- Switching between Frames
- Using window handler methods
- Switching between windows

#### **Dropdown ,WebTable page back commands**

- Handling dropdown
- Select class methods
- Select Single value & multiple values

- Reading data from web table
- Page back commands

### **Synchronization**

- Introduction of wait Methods
- Use of Wait methods in selenium
- Types of Wait Methods
- Difference between Thread.sleep,ImplicitWait&ExplicitWait
- Different Expected Conditions in Webdriver

### **Miscellaneous**

- Capturing screenshots
- How to take data from DB
- Handling Ajax events
- Capturing screenshot on failure
- Handling Auto Suggestions
- Different Selenium Exceptions
- File upload and download

### **Robot Class , Mouse Events**

- Robot class in Web driver
- Simulating Keyboard Events
- Windows popup using Robot class
- Action class
- Mouse Over Actions
- Drag & Drop Actions

### **JavaScript Executer in Web driver**

- What is JavaScript Executor?
- What is JavaScript Executor in Selenium?
- When we have to use JavaScript Executor

### **Working with Excel**

- Configure Apache POI with Eclipse
- Workbook,Sheet,Row,Cell ,methods
- HSSFWorkbook ,HSSFSheet,HSSFRow ,HSSFCell methods

- How to Read data from Excel file(XLS or XLSX)
- How to Write data to excel file

## **Framework Design & Implementation from Scratch**

### **Automation Framework Implementation**

- TestNG Framework
- Hybrid Framework
- POM Framework

### **TestNG and Junit in Selenium**

- Introduction to TestNG
- Advantages of TestNG over Junit
- TestNG Features
- Configure TestNG with Eclipse
- Writing Selenium testing script from scratch
- Running the Test
- Checking the reports generated by TestNG
- Annotations used in TestNG
- Prioritizing Tests
- TestNG with Excel data
- Create Testng.xml
- Creating and running Test suites using TestNG
- Skipping Tests
- Setting priority of execution for test cases
- Executing group of regression/sanity/smoke test cases using TestNG

### **Advanced TestNG concepts**

- Printing the log statements in TestNG report
- TestNG Results output folder walkthrough
- Running Parallel & Distributed tests

### **Integration of Third party Tools in Framework**

#### **Log4j**

- Log4j Introduction
- Usage of Logger

- Add Log4j Jars
- Integrate Log4j in Selenium
  
- How to Integrate Log4j in Framework

### **Jenkins Integration**

- Why Jenkins
- Installation of Jenkins
- Steps to integrate Jenkins
- Configure Email notification in Jenkins
- Scheduling Jenkins Jobs
- Integration with Selenium Scripts and Running Scripts
- Creating Batch file
  
- Executing scripts using batchfile

### **Git Hub Integration**

- What is Git Hub
- How to create Git Hub Account
- Setup of GitHub in Eclipse
- What is Commit and push
- Steps to perform Push and Commit
  
- Integrating with Framework

### **Maven**

- What is Maven
- Using the pom.xml file
- Setting up the Maven project in eclipse editor
- Building and running the selenium Maven project
- Adding Dependencies to pom.xml
  
- Updating the selenium project dependencies by using Maven

### **Cucumber Tool with Web Driver**

- Cucumber tool Overview
- Difference between Cucumber & other automation tools
- Preparing Features File having test scenarios
- Writing Runner Class
- Given, When, Then, And, But annotations and usage in features class

- Cucumber HTML Reports
- Usage of cucumber tool with Web driver

### **Sikuli/Auto it Tool for handling windows**

- Sikuli Overview
- Why Sikuli?
- Configure Sikuli with Selenium
- Sikuli scripts in Selenium Web Driver

### **Selenium Grid**

- Selenium Grid Overview
- Hub & Node details
- Desired Capabilities & Remote WebDriver
- Configure Hub & Node

Executing scripts using Grid

### **API Testing using POSTMAN & Rest Assured**

- Introduction to Web Service
- Types of Webservice
- What is an API?
- What is API Testing?
- What does API Testing involve
- API Testing Steps
- HTTP methods
- Status codes
- Example APIs
- Postman api
- Rest api
- Difference between SOAP and REST Web services.
- GUI tools available for API Testing
- Creation of Workspace & Collections
- Understanding GET request
- Understanding POST request
- Understanding PUT request
- Understanding DELETE request

- API Test Case Template
- Sample TestScenarios/testcases for api testing
- Test Case Execution
- What is Rest Assured
- Rest assured Installation
- API automation programs using Rest Assured
- Rest Assured Eamples

## **Data Base Testing using SQL**

- What is DataBase
- Types of DataBase
- What is SQL
- Writing SQL queries
- Types of commands
- DDL: Data definition language
- DML: Data manipulation language
- DCL: Data control language
- AND / OR clauses
- Where Clauses
- Update & Delete DataBase
- Primary Key VS Foreign Key
- Joining Tables
- Right/Left joins
- joining multipul tables
- Roles and Responsibility of Tester
- Differences between User-Interface Testing and Data Testing
- Sample TestScenarios/test case for database testing

## **Performance Testing Using JMeter**

- What is mean by performance Testing
- Types of performance Testing
- Elements of Jmeter
- Jmeter introduction
- Advantages of Jmeter
- installation of Jmeter
- steps to record the script
- Load Testing using Jmeter



- Timers in Jmeter
- Jmeter-Recording
  
- Sample testScenarios/Test Case

## **ChatGPT for Software Testing**

- What is ChatGPT
- Why ChatGPT
- Use of ChatGPT in Software Testing
- How to Use ChatGPT to write Test Cases
- How to use ChatGPT to find Bugs
- ChatGPT for Selenium Program
  
- How To save Time using ChatGPT

## **Domain Testing (Banking/Insurance)**

- Domain overview
- Why Domain knowledge is Required ?
- Types of Domains
- Domain Terms
- Domain importance
  
- Types of domain application

## **Agile Testing**

- Agile Overview
- What is Agile Testing
- Agile Testing Life Cycle
  
- Agile importance

