

Mobile Automation Testing using Java & Appium

Module 1: Introduction to Mobile Automation Testing

- What is Mobile Automation?
- Native, Hybrid, and Web Apps
- Why Appium for Mobile Automation?
- Appium vs Other Mobile Testing Tools
- Setting Up a Mobile Testing Environment

Module 2: Core Java for Appium

- Java Basics: Variables, Data Types, and Operators
- Control Statements (Loops, Conditions)
- Object-Oriented Programming (OOP) Concepts:
 - Classes and Objects
 - Inheritance
 - Polymorphism
 - Encapsulation
 - Abstraction
- Exception Handling
- Collections Framework (List, Set, Map)
- File Handling
- Multi-Threading Basics
- Java 8 Features:
 - Lambda Expressions
 - Streams API
 - Functional Interfaces

Module 3: Setting Up Appium

- Introduction to Appium Architecture
- Downloading & Installing Appium Server

- Setting Up Android Environment (ADB, SDK, Emulator)
- Setting Up iOS Environment (Xcode, WebDriverAgent, Simulator)
- Appium Desktop & Appium Inspector
- Connecting Real Devices & Virtual Devices

Module 4: Locating Mobile Elements

- Understanding Mobile UI Components
- Different Locators:
 - ID
 - Class Name
 - XPath
 - Accessibility ID
 - UIAutomator (Android)
 - iOS Predicate String & iOS Class Chain
- Using Appium Inspector for Element Identification

Module 5: Writing First Test Script with Appium

- Setting Up Maven Project for Appium
- Configuring Appium in Java with Desired Capabilities
- Writing First Test for Android & iOS
- Launching & Closing the App
- Basic Actions: Click, SendKeys, Clear, Hide Keyboard
- Handling Alerts & Popups

Module 6: Advanced User Actions

- Touch Actions (Tap, Long Press, Double Tap)
- Swipe, Scroll, and Drag & Drop
- Handling Gestures in Appium
- Switching Between Apps & Activities
- Working with Notifications & Toast Messages

Module 7: Appium with TestNG Framework

- Introduction to TestNG
- Annotations & Test Execution Order
- TestNG XML Configuration
- Assertions & Reporting
- Running Parallel Tests on Multiple Devices

Module 8: Hybrid App & WebView Testing

- Understanding Hybrid Apps
- Switching Between Native and WebView Context
- Handling Web Elements in WebView
- Using Chrome DevTools for Debugging WebView

Module 9: Handling Different App Scenarios

- Working with Permissions & System Alerts
- Handling OTP Authentication
- Testing Mobile Browsers with Appium
- Automating Camera & Gallery Scenarios
- Handling Network Conditions & GPS Simulation

Module 10: Integrating Appium with CI/CD

- Setting Up Jenkins for Mobile Automation
- Running Appium Tests in CI/CD Pipeline
- Appium Test Execution on Cloud Platforms (Sauce Labs, BrowserStack)
- Generating Detailed Test Reports

Module 11: Database & API Testing in Mobile Apps

- Introduction to Mobile Database (SQLite)
- Validating Data in Mobile Apps
- REST API Automation Basics (Using RestAssured)
- API Testing in Mobile Applications

Module 12: Appium Best Practices & Debugging

- Appium Logs & Debugging Techniques

- Handling Common Errors in Appium
- Optimizing Test Execution Time
- Best Practices for Mobile Test Automation

Module 13: Real-Time Project & Case Studies

- Mobile Testing Project – E-commerce App Automation
- Framework Development Using Appium, Java, TestNG, Maven
- Running Tests on Cloud-Based Real Devices
- Interview Preparation & FAQs