

Appium Flutter Driver

Module 1: Introduction to Flutter

- Introduction to Flutter
 - Overview, advantages, architecture
 - Basic concepts: Widgets, layouts, state management
- Setting up Flutter development environment
 - Installation steps
 - IDE setup (e.g., Visual Studio Code)
 - Project creation and structure
 - Flutter CLI commands overview
- Lab 1: Setting Up Flutter Development Environment
 - Participants install Flutter, set up a Flutter project, and explore Flutter CLI commands.

Module 2: Introduction to Appium

- Introduction to Appium
 - Overview, architecture, and components
 - Benefits for mobile automation
 - Comparison with other automation tools
- Setting up Appium
 - Installation on different platforms
 - Configuration files (desired capabilities, server settings)
 - Appium server setup and starting Appium sessions
 - Emulator/device configuration for testing
- Lab 2: Setting Up Appium for Mobile Automation
 - Participants install Appium, configure desired capabilities, and set up emulators/devices for testing.

Module 3: Flutter Widgets

- Understanding Flutter widgets
 - Stateless vs. Stateful widgets
 - Common widgets: Text, buttons, images, etc.
 - Layouts: Row, Column, Stack, etc.
 - Themes and styling in Flutter

Module 4: UI Testing

- Flutter UI testing basics
 - Widget testing fundamentals
 - Integration testing concepts
 - UI automation principles
 - Using the widget inspector for debugging
- Lab 3: Basic Flutter Widget Testing
 - Participants create basic widget tests for different Flutter widgets and perform UI validations.

Module 5: Introduction to Flutter Driver

- Introduction to Flutter Driver
 - Features and capabilities
 - Flutter Driver commands and APIs
 - Element locators: Finding widgets in the UI
 - Interacting with Flutter widgets using Flutter Driver
- Writing Flutter UI tests using Flutter Driver
 - Test structure and organization
 - Assertions and validations
 - Synchronization and waits in UI tests
 - Best practices for writing robust UI tests
- Lab 4: Writing UI Tests with Flutter Driver
 - Participants write UI tests using Flutter Driver for a sample Flutter app and practice synchronization techniques.

Module 6: Advanced Flutter UI Testing and Test Management

- Handling gestures and interactions in Flutter UI tests
 - Taps, swipes, scrolls, and complex gestures
 - Testing user interactions: Form submissions, dialogs, etc.
- Managing state and navigation in Flutter apps for testing
 - Widget states and lifecycle
 - State management Overview
 - Navigation Fundamentals and Data passing
 - Navigation stack management
 - Deep linking and route testing
- Lab 5: Advanced Flutter UI Testing Scenarios
 - Participants work on advanced UI testing scenarios involving gestures, navigation, and widget states.

Module 7: Appium Flutter Driver Basics

- Understanding Appium Flutter Driver
 - Purpose and use cases
 - Architecture and components
 - Compatibility with Flutter versions
- Setting up Appium Flutter Driver
 - Installation steps and dependencies
 - Configuration for Flutter projects
 - Device/emulator setup for Appium testing
- Lab 6: Setting Up Appium Flutter Driver
 - Participants install and configure Appium Flutter Driver for testing Flutter apps.

Module 8: Test Automation

- Writing automated tests for Flutter apps using Appium Flutter Driver
 - Element locators in Appium
 - Interacting with Flutter widgets using Appium
 - Assertions and verifications in Appium Flutter tests
 - Handling synchronization and waits in Appium tests
- Handling common automation challenges
 - Dynamic elements and identifiers
 - Waits, retries, and timeouts
 - Handling pop-ups and alerts in Flutter apps
- Lab 7: Appium Flutter Test Automation
 - Participants write automated tests using Appium Flutter Driver and handle common automation challenges.

Module 9: Advanced Appium Flutter Testing

- Advanced techniques in Appium Flutter testing
 - XPath selectors for complex UI elements
 - Handling dynamic elements and identifiers
 - Advanced assertions and verifications
 - Dealing with complex UI scenarios
- Performance testing and profiling for Flutter apps using Appium
 - Identifying performance bottlenecks
 - Memory profiling and optimization tips
 - Test execution strategies for performance testing
- Lab 8: Advanced Appium Flutter Testing Scenarios

Module 10: Best Practices

- Best practices for efficient Appium Flutter testing
 - Test data management strategies
 - Parameterization in tests
 - Test environment setup and cleanup
 - Parallel execution and distributed testing
- Reviewing and optimizing Flutter app automation scripts
 - Code refactoring and modularization
 - Reusable components and libraries
 - Error handling and reporting improvements
 - Maintaining and updating test suites for long-term reliability