Appsfactory GmbH | February 2021

Mobile Test Automation

Automated Test Setup for a iOS and Android Native App Project

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Abstract

The trend of mobile app development continues to grow as mobile devices are increasingly more capable. This trend is driven by the need to shorten time-to-market and more advanced methods and tools for mobile test automation. This paper aims to give a good recommendation for your mobile test automation which will be a native app for Android and IOS.

Overview

Developing a native app for both IOS and Android at the same time needs a useful environment and tool to achieve the quality of the process. It is important to protect the balance of quality, cost and time. Because of that, Appium becomes the best choice for your Automation Test Setup due to the following reasons.

Why Appium?

Appium is an open source automation testing tool for testing a native mobile application and mobile-web application on both the platforms iOS and android using a WebDriver. Importantly, Appium is "cross-platform": it allows you to write tests against multiple platforms (iOS, Android, Windows), using the same API. This enables code reuse between iOS, Android, and Windows testsuites.

Features

Free of cost: The best of its features are free of cost and open source. Also, it doesn’t require any device installation to bridge the interaction between the software and the application under test.

Highly Flexible: It supports multiple scripting languages like Java, Python, C#, Javascript etc. that makes it easy for the user to select a scripting language based on their convenience and work across multiple platforms. Also testing the native apps using Appium doesn’t require any SDK or app recompiling. In fact, in most of the cases, it doesn’t even require any code change to work on Android and iOS.

Easy to learn: As Appium is built on Selenium, it doesn’t require any time for the Selenium engineers to ramp up on the tool. Apparently, Appium is a wrapper that translates Selenium commands into iOS and Android commands to interact with the elements of the application under test. Furthermore, all Selenium functionality is available in Appium.

High Community Support: Another major benefit which Appium brings in is the large community of contributors available on all the major networking portals and are striving to keep the users updated on the latest trends on the tool.

Appium Inspector: This can be used as record and playback option like Selenium IDE. Using this the actions on the native apps can be recorded and converted to a selected scripting language for further optimization and customization. But the Appium Inspector isn't compatible with Microsoft Windows currently.

Cross-Platform Automation: Appium supports cross-platform automation wherein tests can be built in any language for both Android and for iOS. These

can be executed without any change in the code. It enables tests to be written and run across multiple devices simultaneously, reducing time to market and man-hours of manual test effort, and increased testing coverage across devices that would otherwise not be tested due to time constraints. It can integrate easily with emulators, simulators and cloud environments which could be useful in bringing down the execution time and improve return on investment.

Existing Frameworks: Users are free to use their own test practices or frameworks from the already available lot. The framework also allows automation on native, web and hybrid apps. Testing is possible on a real device, simulators or emulators.

Integration with CI tools: Appium framework can be easily integrated with all the leading CI tools that enable integration with the development release cycles.

Continuous Integration/Testing

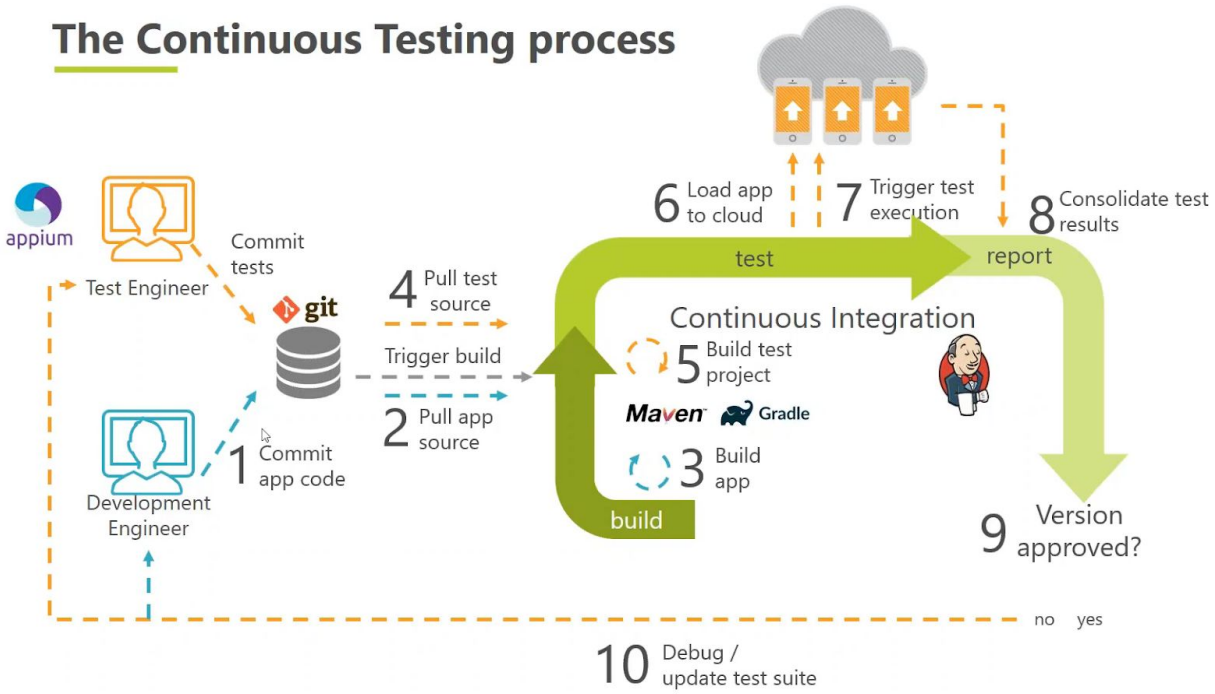
The mobile test automation process is in and of itself code that needs to be tested. Running tests continuously makes sure that our testing environment is running smoothly even if there is no new version being tested.

We can describe the CI/CD Pipeline with these elements;

- Source Stage
- Build Stage
- Test Stage
- Deploy Stage

In the Test Stage we can run smoke, sanity or end to end tests periodically. Furthermore an extensive test suite is typically parallelized to reduce run time. It's essential for this stage to produce feedback to developers quickly, while the

problem space is still fresh in their minds and they can maintain the state of flow. There are too many CI/CD tools which some of them are free (e.g. Jenkins) and paid (e.g. TeamCity Enterprise).



Conclusion

Choosing the right mobile automation test tool is the key to a successful enterprise. In order to achieve success in test automation projects using Appium, one should always consider that resources should be skilled enough to identify the test cases, customize, implement workarounds and troubleshoot. The framework in place should also be highly scalable and easy to maintain.