



SNS COLLEGE OF TECHNOLOGY, COIMBATORE –35  
(An Autonomous Institution)  
16CS306 and Composing Mobile Apps  
UNIT 5



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### **Test automation of mobile apps**

In the fast paced software development industry, mobile automation testing has become indispensable. The real value of mobile automation testing is realized when the development team can progress at a rapid pace, without the fear of breaking existing features. Such automation tests free developers to carry out refactoring confidently without fear.

Testing in the world of mobile applications presents its own set of challenges. It is a waste of time for manual test engineering teams to spend a considerable amount of time testing out each feature on so many different devices, mobile operating systems, and versions.

### **TOOLS OVERVIEW**

Some tools available to us for mobile automation testing include:

1. Appium
2. Robotium
3. Selendroid
4. Calabash

### **APPIUM**

Appium is an open source test automation tool for mobile applications. It is used for native app testing, hybrid app testing, and mobile web app testing. It supports most platforms including iOS, Android, Windows, Firefox OS and Mac. It supports running the apps on Android emulators, iOS simulators and real devices with Android, iOS, Windows, and Mac operating systems. This makes Appium a true cross-platform mobile automation testing tool. The underlying philosophy of Appium is that code should be reusable on various platforms. Appium is built on the idea that testing native apps should not involve including an SDK and recompiling your app. It provides standard automation APIs for all platforms. With Appium, you can write tests with any of your favorite development tools using many different programming languages like Javascript, Java, C#, Ruby, Python, PHP. It is

extremely easy to set up and works on the Selenium Web Driver API that specifies a client-server protocol called JSON Wire Protocol.

### **ROBOTIUM**

Robotium is another test automation framework explicitly targeted for Android. It supports testing for both native and hybrid Android apps. It eases the tasks of writing powerful black box UI tests for Android applications. It is similar to Selenium, but is exclusive to Android. It integrates smoothly with Maven, Gradle or Ant to support running tests as a part of Continuous Integration. These tests can be executed on an Android emulator as well as on real Android devices. One aspect to note is that Robotium tests can only run on one device at a time. This means you cannot run one test against a host of devices, which can make scaling difficult. You can develop a Robotium test suite from Android Studio or Eclipse. Robotium was founded and developed by Renas Reda and was released in January 2010. It is currently at version 5.6.3.

### **SELENDROID**

Selendroid is another mobile test automation framework for Android. It can be used to test a native Android app, a hybrid app, or a mobile web app. Here, tests are written in Selenium 2 Client API. It can be used on Android emulators and real devices. A significant benefit of Selendroid is that it can be added as a node into the Selenium Grid for scaling and parallel testing. It is fully compatible with JSON Wire Protocol, and can handle gestures and interact with multiple Android devices at the same time. The current stable version of Selendroid is 0.17.0.

### **CALABASH**

Calabash is a Behavior-Driven Development (BDD) test automation framework. It can be used to create and execute automated acceptance tests both for Android and iOS. It is cross-platform, open source and free. It is executable on mobile devices and consists of libraries that enable test code to interact programmatically with native and hybrid apps. This functionality requires Ruby to be running on the machine. It is developed and maintained by Xamarin and can be run on Xamarin Test Cloud. It also supports Cucumber. It can be used with any Ruby-based test framework. Calabash is currently at version 0.5.4.