Preparing laptop for mobile app development using Cordova platform

1. Introduction

There are three ways of developing mobile apps:

- **Native:** In this approach, you can create an app that is specific to a mobile platform such as iOS or Android. You would need to use a dedicated programming language and the supporting APIs to implement the app.
- **Web based:** This is a normal website using responsive design that enables your app to fit onto a mobile device as well as a big screen.
- **Hybrid:** The core of this method is developing your app in a web based format using the same language and tools for a website. Then a specific browser instance called WebView for each mobile platform wraps the website to be shown appropriately in that platform. Finally, you need to compile your app for each specific platform (see Figure 1).

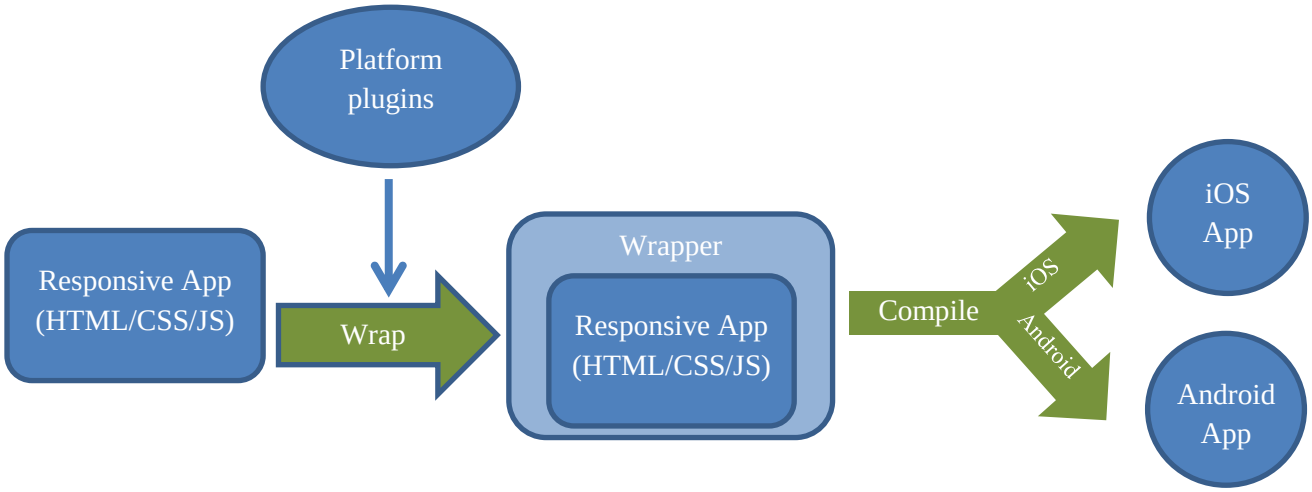

Figure 1. Creating a hybrid mobile app

To build and run your app in a hybrid mode, you need to install SDKs for each platform you wish to develop. Native apps are faster than the hybrid ones due to their direct access to the native APIs. On the downside, each platform needs its own specific app to be implemented.

Figure 2 shows the high-level structure of three models and their components.

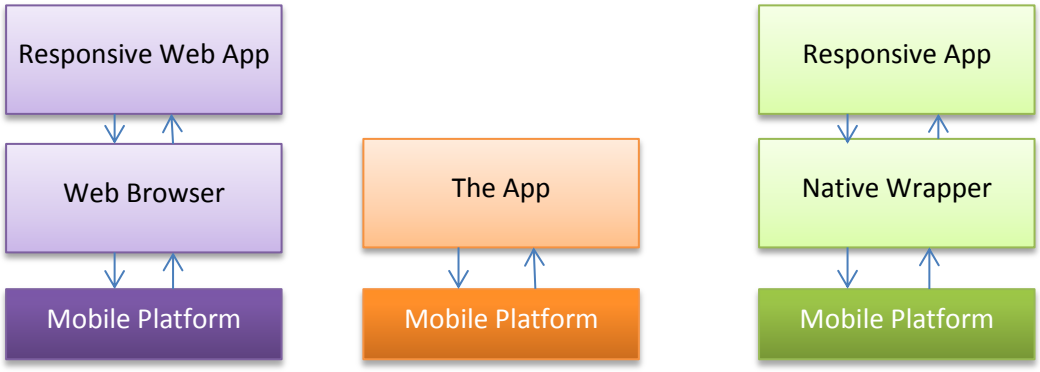

Figure 2. Three models of mobile app development

2. Common Prerequisites

You need to have the following tools installed regardless of the platform you want to target.

Git: it is required for downloading Cordova and some other packages. Go to their download page at https://git-scm.com/download and download and run the appropriate installer based on your OS.

Node.js: Refer to http://nodejs.org/download/ to get the latest version and installation instructions. Installation on Windows and Mac OS is simple. You just need to run the installer and follow the familiar instructions. You also may need to install Node Package Manager (npm) to install other packages.

At this point, based on your target platform - iOS or Android - you need to follow the instructions in section 3 or 4, respectively. You also can install both platforms. After installing the specific prerequisites for iOS or Android, you need to then install Cordova and Ionic.

Cordova: When you have the aforementioned tools available, you can install Cordova by this command in a terminal:

```
npm install cordova -g
```

Ionic: Ionic is a user interface enhancer for mobile devices. It uses Cordova in the back-end and angular-js as a front-end framework. To install Ionic, like the previous command type in a terminal:

```
npm install ionic -g
```

3. Prerequisites for iOS

iOS apps just can be built on OSX and will require an Apple device to build and compile your app for iOS.

Xcode: Xcode can be downloaded either from the App Store, available by searching for "Xcode" in the App Store application or from Apple Developer Downloads. This one requires registration as an Apple Developer.

4. Prerequisites for Android

Java JDK: You need to install Java Development Kit (JDK) 7 or later: https://goo.gl/TfUlf. You also need to set *JAVA_HOME* Environment Variable to point to your JDK installation path.

Android SDK: You can either install Android Studio (https://developer.android.com/studio/install.html?pkg=studio) or Android SDK Tools (https://developer.android.com/studio/install.html?pkg=tools). After installing the Android SDK, you need to add some packages of API level you want to program for (such as Android 5, 6 and so on). You also need to set the Environment Variable for *Android_Home*. Refer to this page for further information: https://goo.gl/BiCFfO

5. More Information

For more information please refer to the following links:

- Prerequisite for Cordova and creating first app: https://cordova.apache.org/docs/en/latest/guide/cli/
- Start your first ionic app: https://ionicframework.com/getting-started/