

Report

Project : Hospital Finder

**CPE 353 Developing Location-Based Service for Mobile
Devices**

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Abstract

We want to create a useful application. Fortunately, we have a chance in this CPE353 course. However, we have never created any application yet. So, our concept is “Simple but useful”. This is the reason why we do this project “Hospital Finder”. A useful application for people and also not so hard to implement.

Description of project

Our project name is Hospital Finder. It's a cross-platform location-based-services application. It can run on many platforms. For example, Android, iOS, web browsers (Chrome, Safari, Mozilla Firefox, etc). Its main function is finding nearby hospitals, clinics, and pharmacies.

What can this application do?

- Find your current location.
- Display nearby hospitals, clinics, pharmacies.
- Show the details of the places found.
- Show the name of the places and distance from the current location using distance as criteria and sorted by ascending order.

Reason why project is useful

It's useful that you can find nearby hospitals, clinics, and pharmacies at the same time. Moreover, it can rank the distances of the places found. Thus, it may help you to make the decision which place you should go first in case of emergency.

Imagine if you are a traveler that go to different places that you don't know. If there is an emergency or you have a cold or something, you can use our application to find the nearest pharmacy, hospital or clinics that best fit your situation.

Even you are locals but would you want to waste your time to go to your pharmacy. Our application can sort out the distance from the nearby hospitals, clinics, and pharmacies. This will save your time to go to your normal pharmacy instead you can go to the shortest distance and hence save your time.

Implementation



On the top of our stack development. We use Ionic framework. It provides tools and services for developing the cross-platform application.



We use AngularJs to develop front-end web application because it is required by Ionic framework.



Cordova provides cross-platform plugins. We use cordovaGeolocation to get the current location of the user.



We use Google map API to get the map and satellite views. There are two libraries in Google map API that we used which are Places and Geometry. These two libraries are used to find nearby places and distance between places.

What parts were successful, what parts were NOT successful

Successful

- Find the current location.
- Find nearby hospital, clinic, and pharmacy.
- Can sort distance by ascending order and show it on screen.
- Categorize hospital, clinic, and pharmacy clearly.
- Can use street view to navigate in our application.

Unsuccessful

- Distance is a radius from the current location so the path that goes to the desired place the distance might not be exactly the same as we have shown.
- Can't highlight the path from current location to the desired place so you need to read the map by yourself.
- We can't provide the phone number of places.

Current status (is it ready)

No, it's not ready to download from either Play store (Android) or App store(iOS).

In IOS, we can't deploy because our license is limited to only IOS deployment, not distribution.

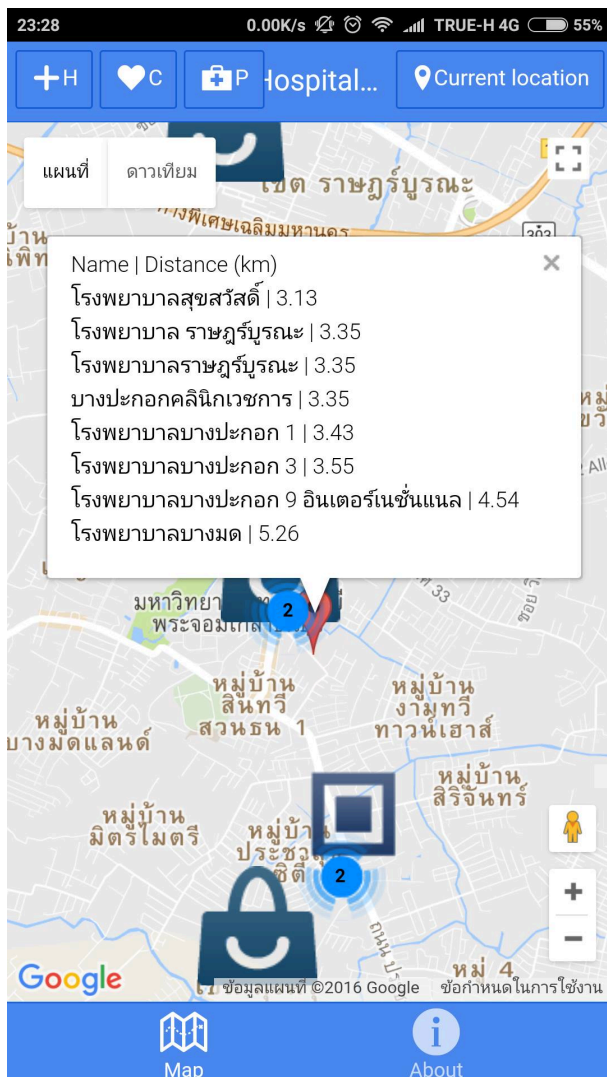
In android, we don't have an account to deploy the application.

Thus, our application still only available for us.

User Interface (Main page) & How to use



Android



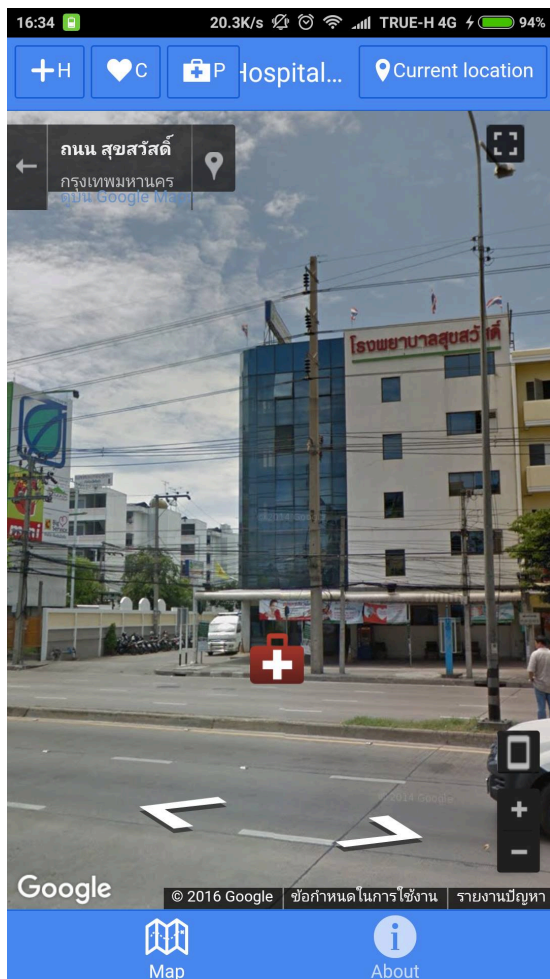
iOS



There are 4 buttons on the top bar. 1) H for showing list of nearby hospitals, 2) C for clinics, 3) P for pharmacies, and 4) Current location for getting your current location.

The red bag refers to hospital, square refers to clinic, and blue bag refers to pharmacy. You can click on those icons to show some details. For example, name, address, type, and distance. On the bottom tab, you can click Map or About.

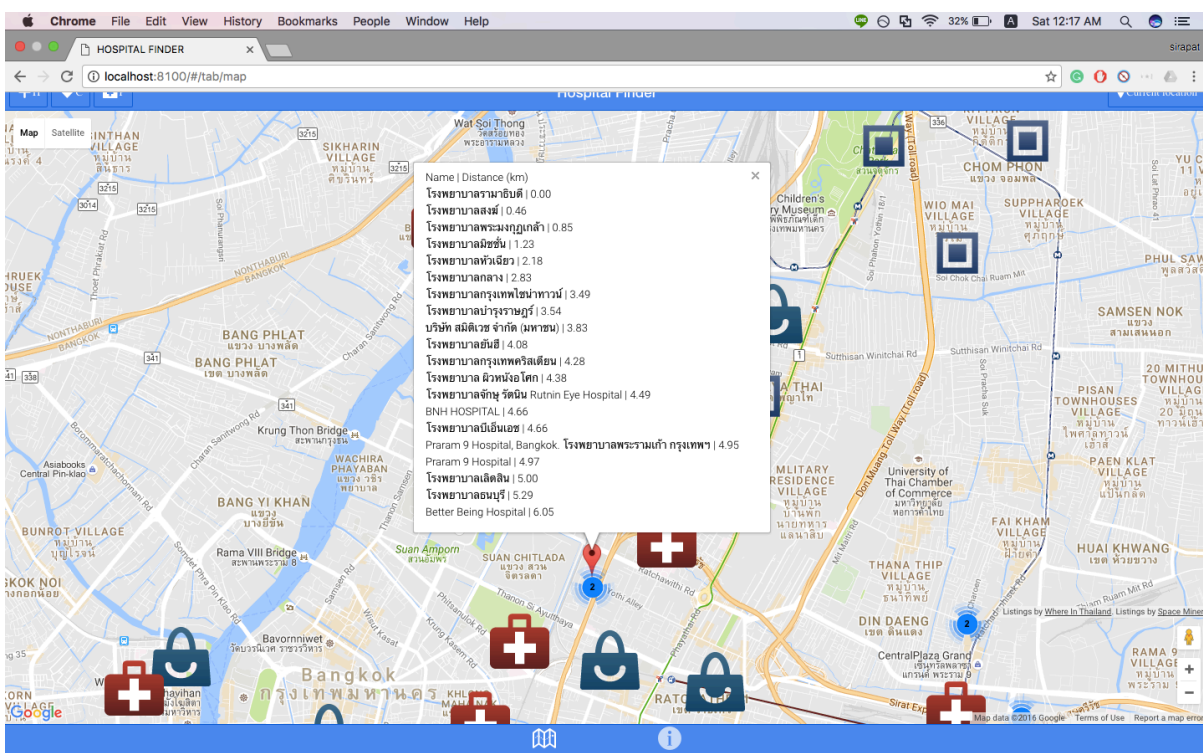
Street view



About us



Web browser



Questions (and answers) from class presentation, and any improvements which were requested.

How did we find or categorize hospital, clinic, and pharmacy?

```
// find nearby
var requestHospital = {
  location: myLatLng, // current location
  radius: 5000, // 5000 meters = 5 kms
  type: 'hospital', // find hospital
  keyword: ["(โรงพยาบาล) OR (hospital)"]
};
var requestHealth = {
  location: myLatLng, // current location
  radius: 5000, // 5000 meters = 5 kms
  type: 'health', // find clinic
  keyword: ["(คลินิก) OR (clinic)"]
};
var requestPharmacy = {
  location: myLatLng, // current location
  radius: 5000, // 5000 meters = 5 kms
  type: 'pharmacy', // find pharmacy
  keyword: 'pharmacy'
};
```

This is the code that we have written to do that.

We used type hospital, health, and pharmacy (there is no clinic type provided).

We used keywords hospital, clinic, pharmacy, โรงพยาบาล, and คลินิก

We have discussed with you about the distance that is the shortcut or the real distance without any obstacle. (not the radius that we are using). And the specific performance or ability of each hospital. Those kind of things are really hard to do. However, we got your points. We will try to improve and develop those things in the future if we could.

How did we run our application on our devices or simulators. (We'll go through the steps in case you are interested in)

IOS

Add platform iOS to your ionic project.

\$ionic platform add ios

If you encounter any problem or warning try to use this command(may require sudo)

\$npm install -g ios-sim

You have to build your project first by using

\$ionic build ios

You can check how many and what type your ionic application can simulate by typing this command.

\$ios-sim showdevicetype

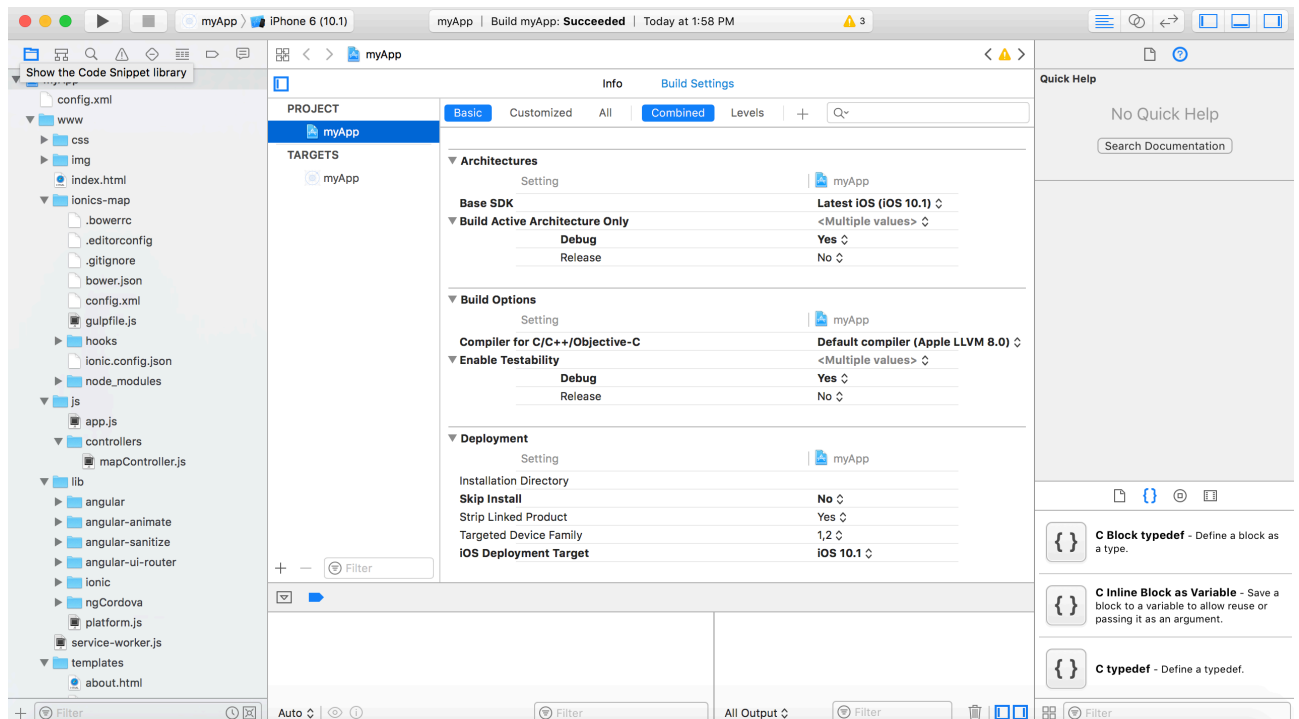
If you are MacBook user and you want to simulate iPhone or iPad. You can use this command

\$ionic emulate ios --target = "iPhone-6"

Now after you can simulate in your MacBook and you want to import into Xcode project. You need to use this command.

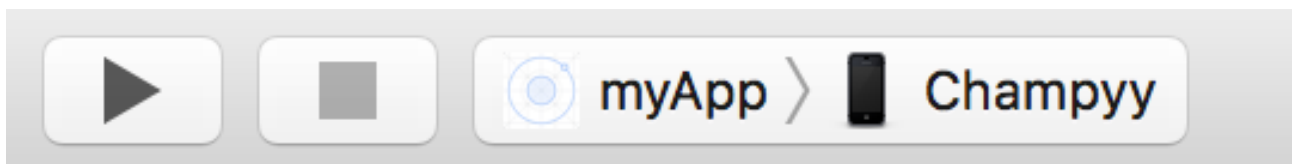
\$ionic build ios --release

This command will create file at **/myApp/platforms/ios**.
File will be **myApp.xcodeproj** which can use Xcode to open it. (our project folder name “**myApp**”).



After you open, it will look like this.

Now if you want import into an iPhone or iPad, you need to have certificate of IOS developer.

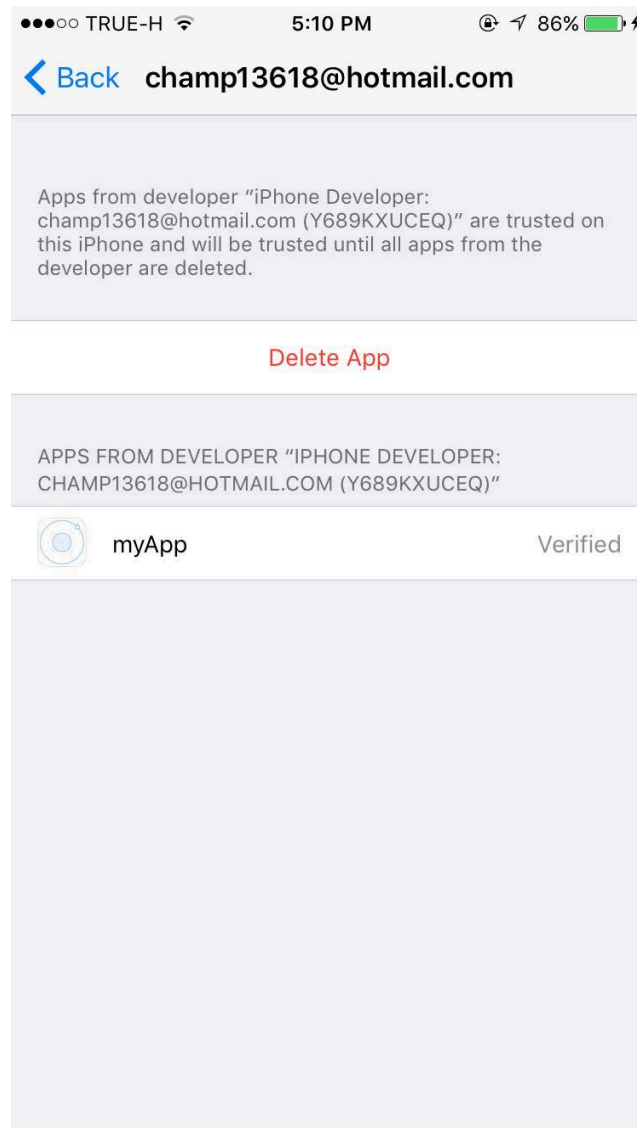


In case you have one, this is an example

For example my device name is “Champyy”. If you want to import just simply press the “play button”(left hand side) and in iPhone/iPad you need to unlock your screen.

At first time of running, it will not successful because your iPhone/iPad didn't trust this developer.

So you need to go to Setting->general->Device Management then press trust.



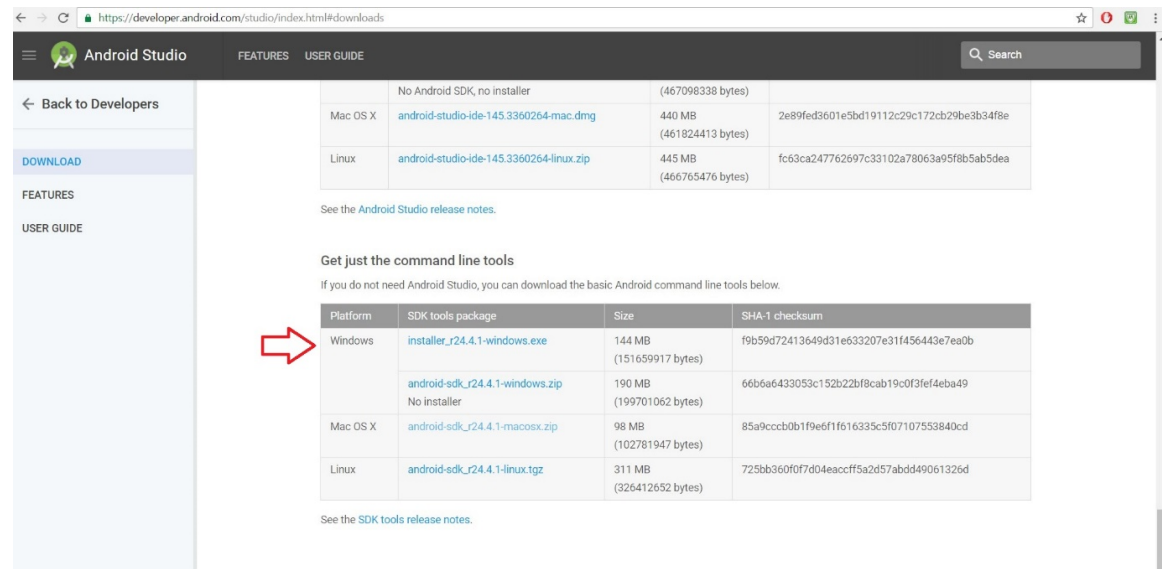
This is result after you press trust.

Now you can running our application on your iPhone/iPad.

Android

In our group, we use windows to setup with Android

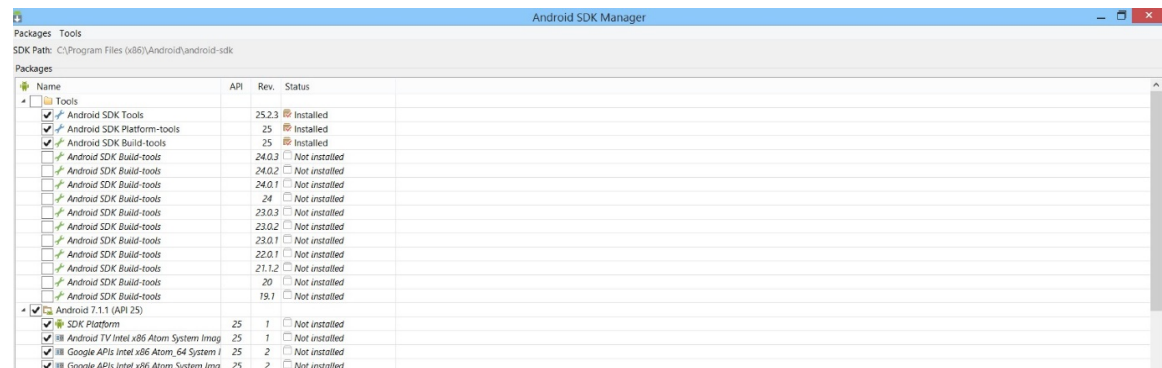
Download android SDK for setup environment



The screenshot shows the Android Studio website with a sidebar on the left containing 'Back to Developers', 'DOWNLOAD', 'FEATURES', and 'USER GUIDE'. The main content area has a table for downloading Android Studio IDEs for Mac OS X and Linux. Below this, a section titled 'Get just the command line tools' provides instructions and a table for downloading the basic Android command line tools. A red arrow points to this section.

Platform	SDK tools package	Size	SHA-1 checksum
Windows	installer_r24.4.1-windows.exe	144 MB (151659917 bytes)	f9b59d72413649d31e633207e31f456443e7ea0b
	android-sdk_r24.4.1-windows.zip	190 MB (199701062 bytes)	66b6ae433053c152b22bf8cab19c0f3ef4eba49
Mac OS X	android-sdk_r24.4.1-macosx.zip	98 MB (102781947 bytes)	85a9cccb0b1f9e6f1f616335c5f07107553840cd
Linux	android-sdk_r24.4.1-linux.tgz	311 MB (326412652 bytes)	725bb360f07d04eacff5a2d57abdd49061326d

Open android SDK manager program for install the following file

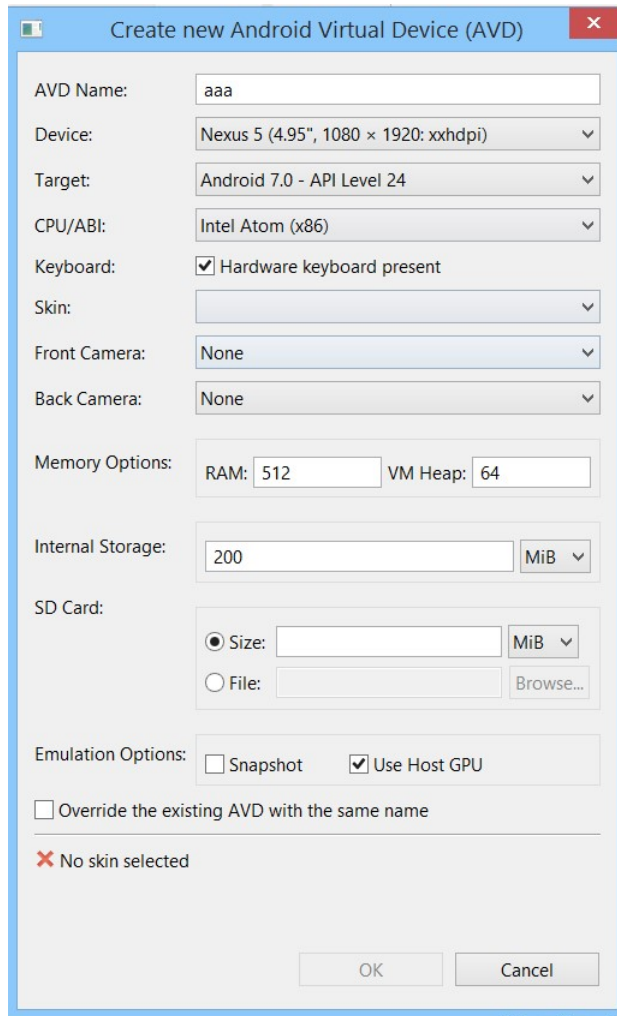


The screenshot shows the Android SDK Manager window. It displays a list of packages with columns for Name, API, Rev., and Status. The 'Tools' section is expanded, showing various SDK tools and platforms. The 'Android SDK Platform' section is also expanded, showing the 'Android 7.1.1 (API 25)' platform.

Name	API	Rev.	Status
Android SDK Tools		25.2.3	Installed
Android SDK Platform-tools		25	Installed
Android SDK Build-tools		25	Installed
Android SDK Build-tools		24.0.3	Not installed
Android SDK Build-tools		24.0.2	Not installed
Android SDK Build-tools		24.0.1	Not installed
Android SDK Build-tools		24	Not installed
Android SDK Build-tools		23.0.3	Not installed
Android SDK Build-tools		23.0.2	Not installed
Android SDK Build-tools		23.0.1	Not installed
Android SDK Build-tools		22.0.1	Not installed
Android SDK Build-tools		21.1.2	Not installed
Android SDK Build-tools		20	Not installed
Android SDK Build-tools		19.1	Not installed
Android 7.1.1 (API 25)			
SDK Platform	25	1	Not installed
Android TV Intel x86 Atom System Image	25	1	Not installed
Google APIs Intel x86 Atom, 64 System Image	25	2	Not installed
Google APIs Intel x86 Atom System Image	25	2	Not installed

Open android AVD (Android Virtual Device) Manager program

And create virtual android device for simulate this app



Run the following command to simulate app

Ionic run android

But if you have problem when you run this command, it shows that can't find your ANDROID_HOME and PATH you should configure by using the following command.

Set ANDROID_HOME=C:\Program Files
(x86)\Android\android-sdk

This is an example of my path. You have to change to your own directory where you have installed.

Instruction

1. Install cordova

\$ sudo npm install -g cordova

Drop sudo If you are running on Windows.

2. Install ionic

\$ sudo npm install -g ionic

3. Create project

ionic start NAME_OF_YOUR_PROJECT blank

4. cd NAME_OF_YOUR_PROJECT

5. Configure platform

ionic platform add ios, ionic platform add android

6. * Replace the WWW folder by our WWW folder that we have provided for you. (Our source codes are here)

7. Run following command to add plugins

cordova plugin add cordova-plugin-geolocation

cordova plugin add cordova-plugin-whitelist

8. Run following command to run your project

ionic serve

** We will send you a zip file contain WWW folder for doing on step 6. However, if you run into any problem or you aren't comfortable to do those 8 steps, you can download the whole project folder on <https://www.dropbox.com/s/tjvom4e2yn3rs67/myApp.zip?dl=0>

(It's 49MB so we can't send it to you on email). If you have downloaded this file. Just **cd PATH_OF_myApp/myApp** and then **ionic serve**.

References

<https://developers.google.com/places/documentation/>

<https://developers.google.com/maps/documentation/javascript/libraries>

<http://ionicframework.com/>

<https://cordova.apache.org/>

<http://ngcordova.com/>

<http://www.gajotres.net/using-cordova-geolocation-api-with-google-maps-in-ionic-framework/>

<https://ionicframework.com/docs/guide/publishing.html>