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# Working with UASResearch Application Code

(Project Created on Mac using Android Studio; Tested on Mac; Documentation Created Based on Mac)

*When testing the UASResearch app, make sure DJI GO is installed. Requires HOME point to be set correctly in DJI GO app. Otherwise, UASResearch app will throw an error message on the screen stating the "trace" of the mission is too long.
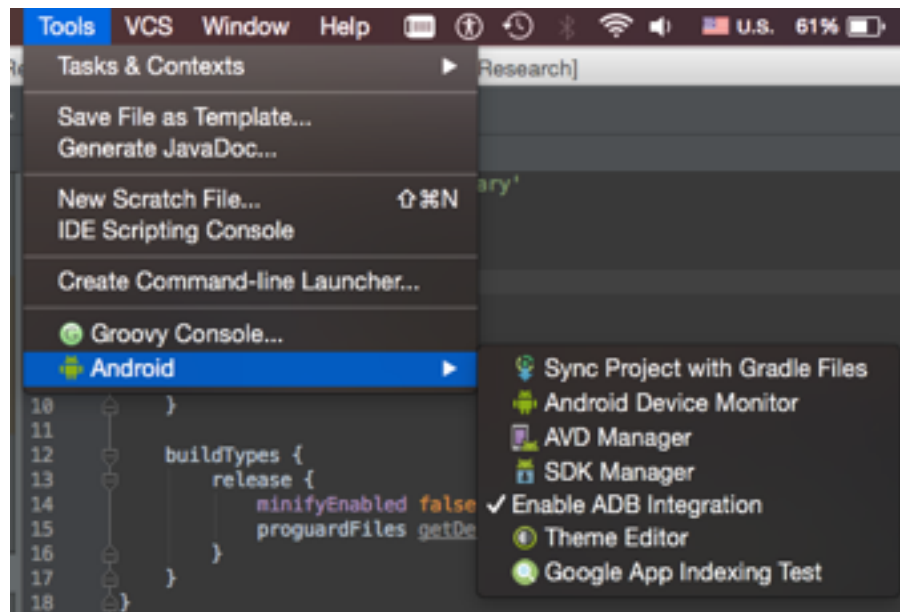
*UASResearch App requires a minimum amount of satellites to launch a Waypoint Mission. The number of satellites required can be seen via DJI GO's app (top of the screen will be green when there are enough satellites in the DJI GO app.
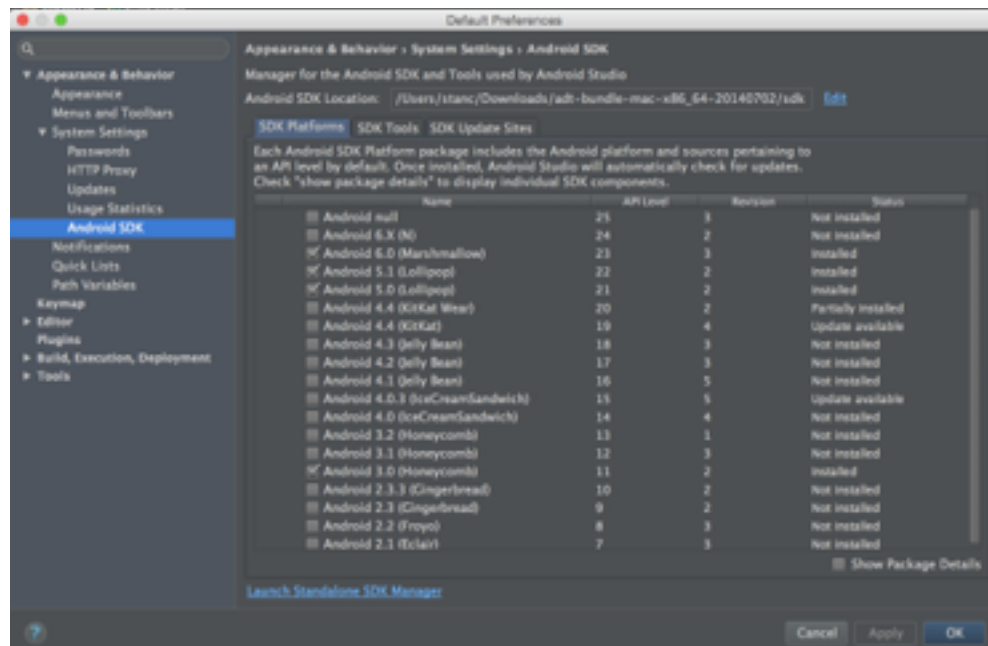
Initial Setup
• Download Android Studio
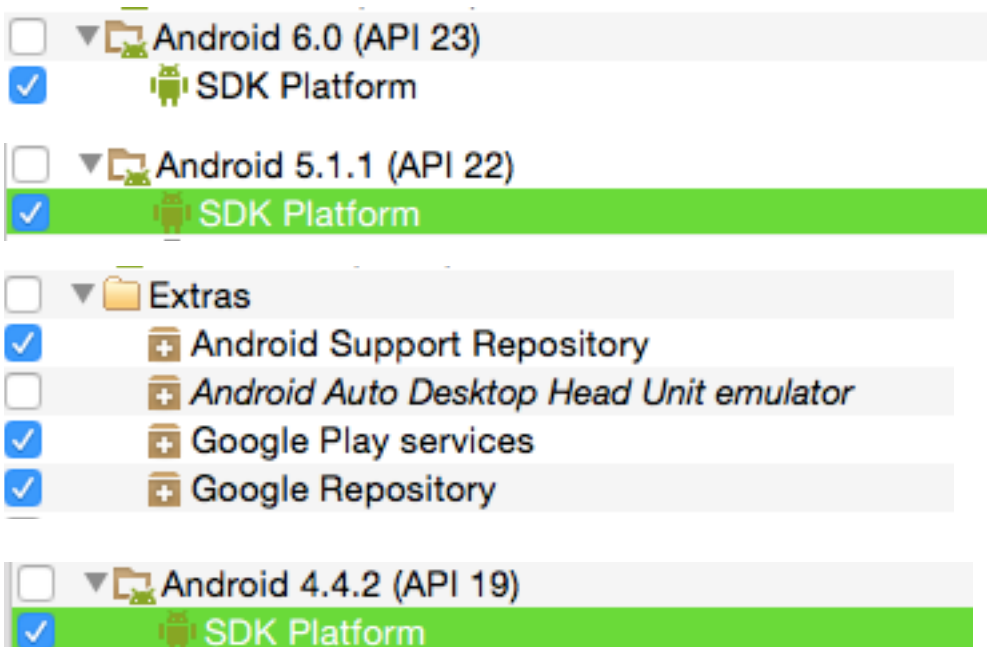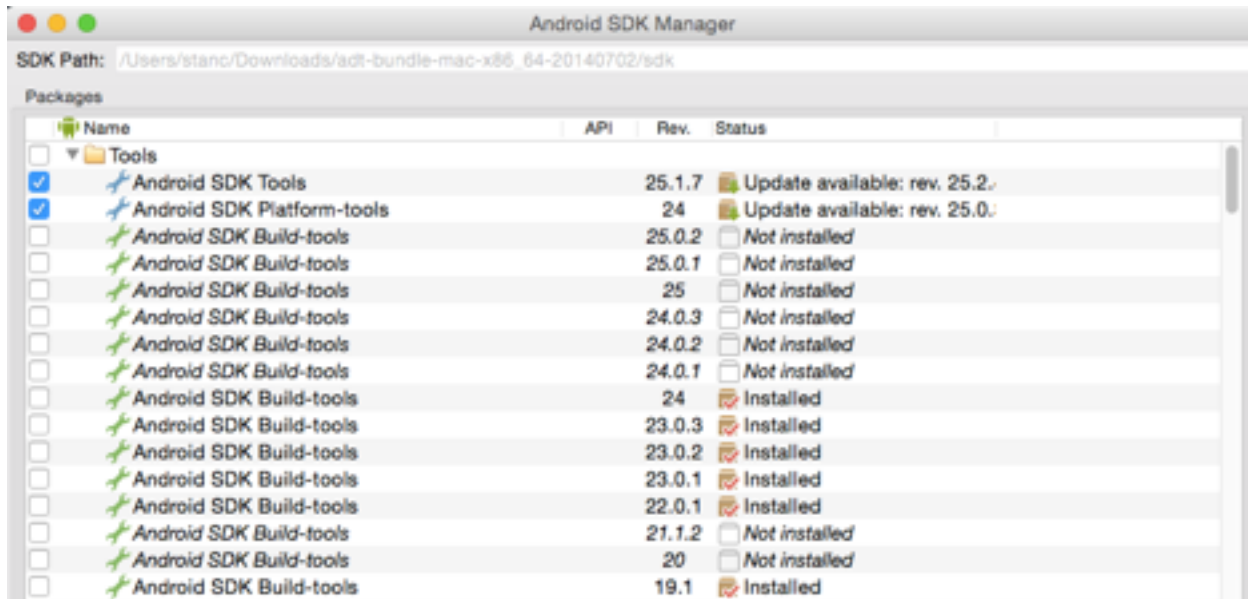   • https://developer.android.com/studio/index.html
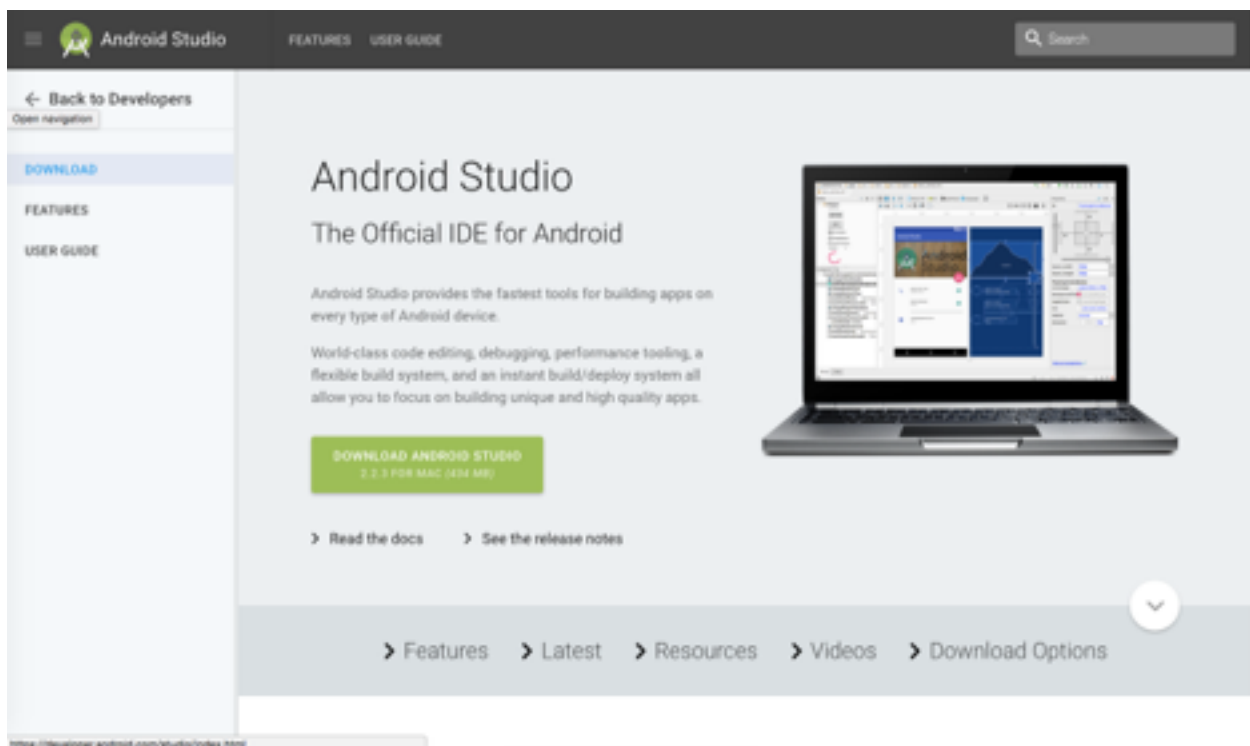
- Obtain latest Android SDK and Build tools

- Tools -> Android -> SDK Manager

- If needed, open the standalone SDK Manager
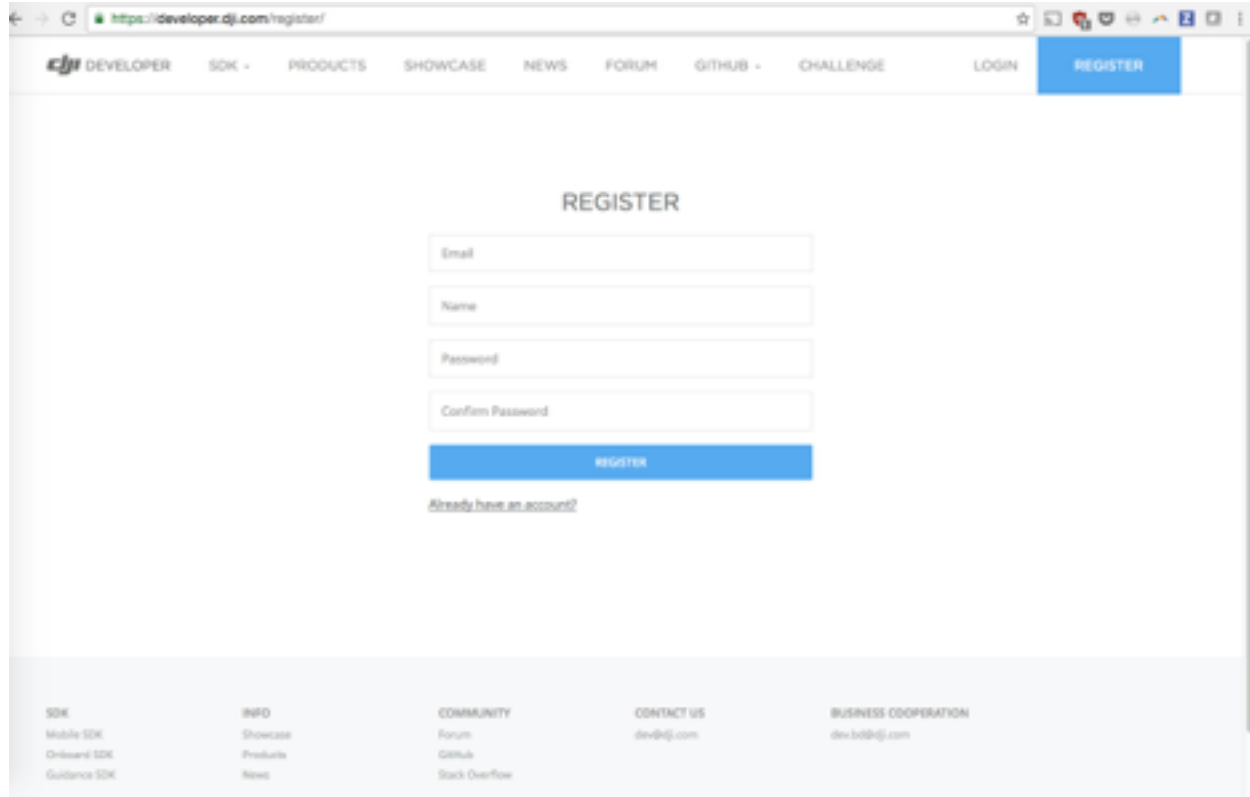- You should now have the following window open. Select the latest "Android SDK Tools" and "Android SDK Platform-tools"

Name	API	Rev.	Status
▼ Tools			
Android SDK Tools		25.1.7	Update available: rev. 25.2.
Android SDK Platform-tools		24	Update available: rev. 25.0.
Android SDK Build-tools		25.0.2	Not installed
Android SDK Build-tools		25.0.1	Not installed
Android SDK Build-tools		25	Not 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	Installed
Android SDK Build-tools		23.0.3	Installed
Android SDK Build-tools		23.0.2	Installed
Android SDK Build-tools		23.0.1	Installed
Android SDK Build-tools		22.0.1	Installed
Android SDK Build-tools		21.1.2	Not installed
Android SDK Build-tools		20	Not installed
Android SDK Build-tools		19.1	Installed

- Also select the following to install:

Once installed, Android Studio should now be ready to handle compilation of the project.

3

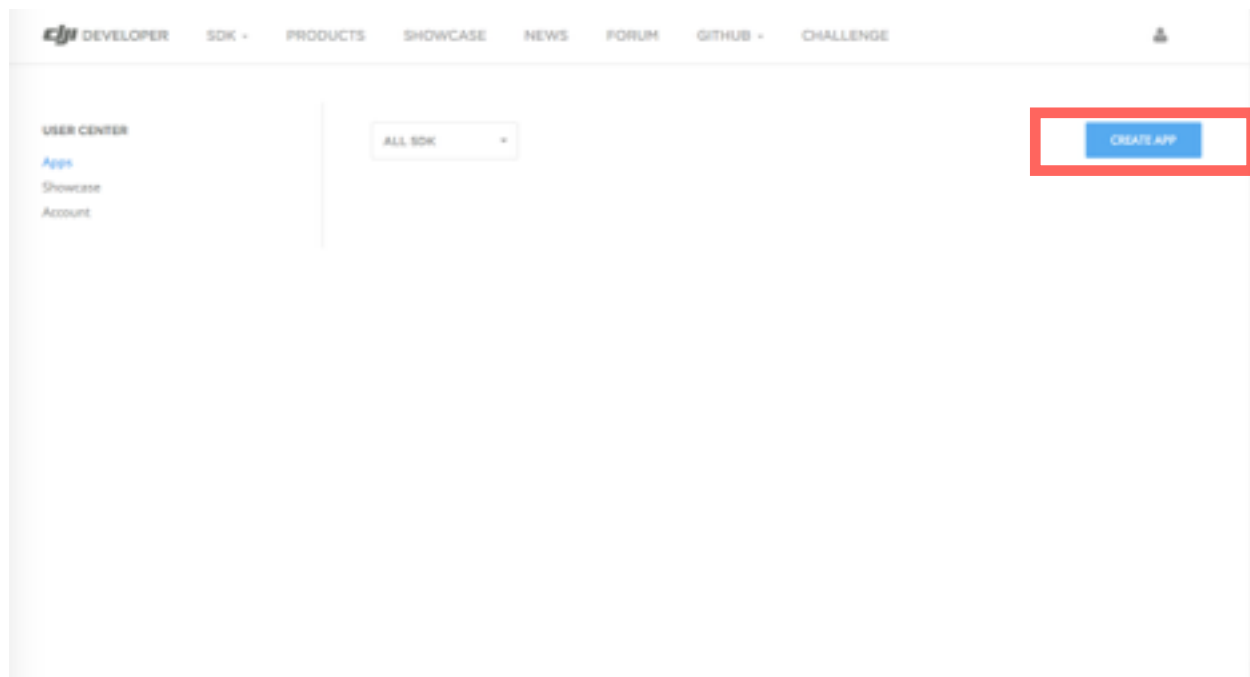**Obtaining Keys**

- Obtain DJI Key (Required to interact with DJI Drone via custom Android App)
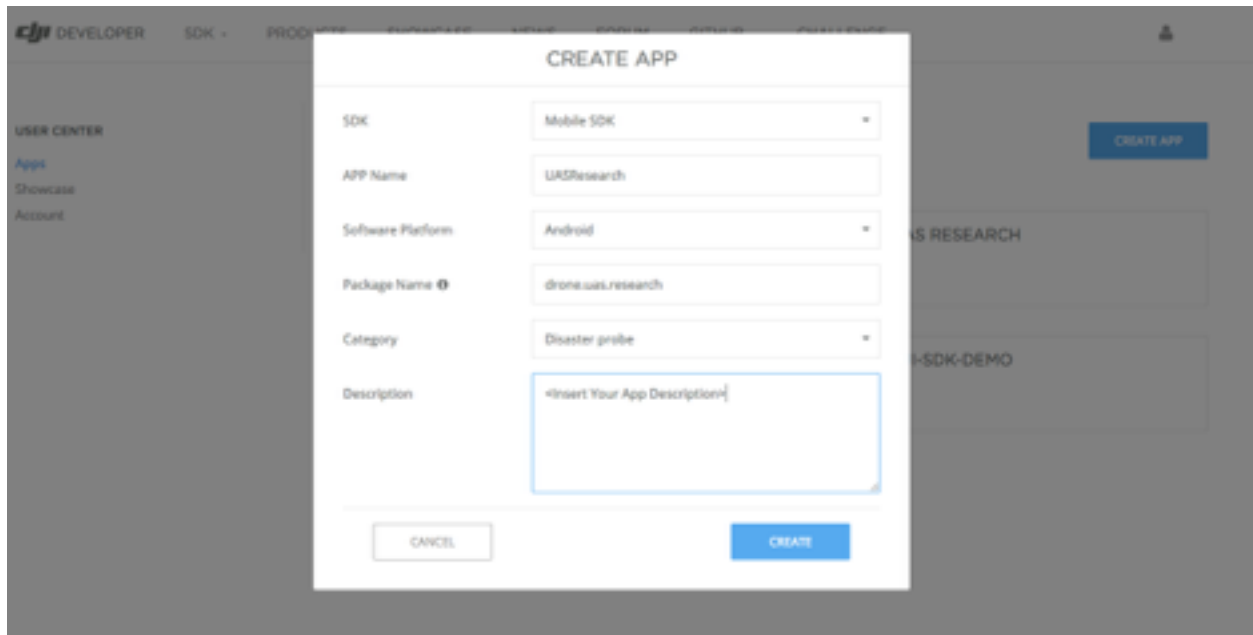 - Register for a Developer account: https://developer.dji.com/register/

  - Login with your credentials, and select "CREATE APP"

- Fill out the details with the following. Do NOT change the App Name or the Package Name. Insert any description.

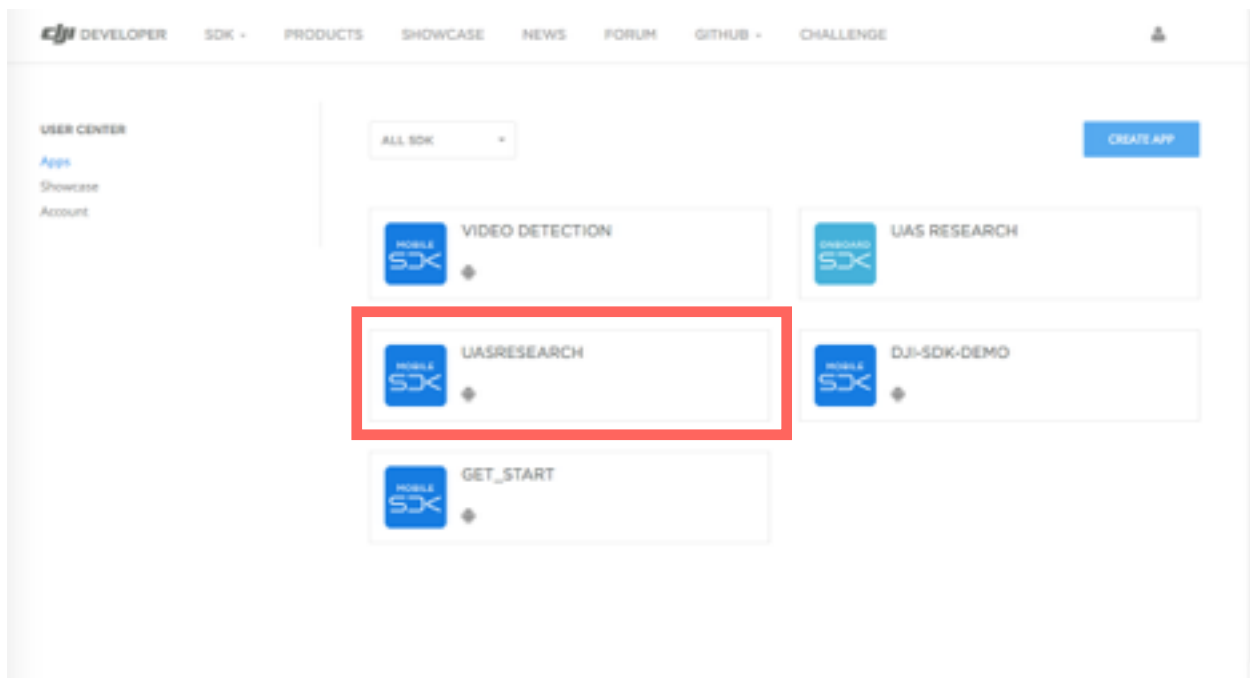- Go back to the following screen, and select "UASRESEARCH"

- Copy the DJI Key. We will need it for later
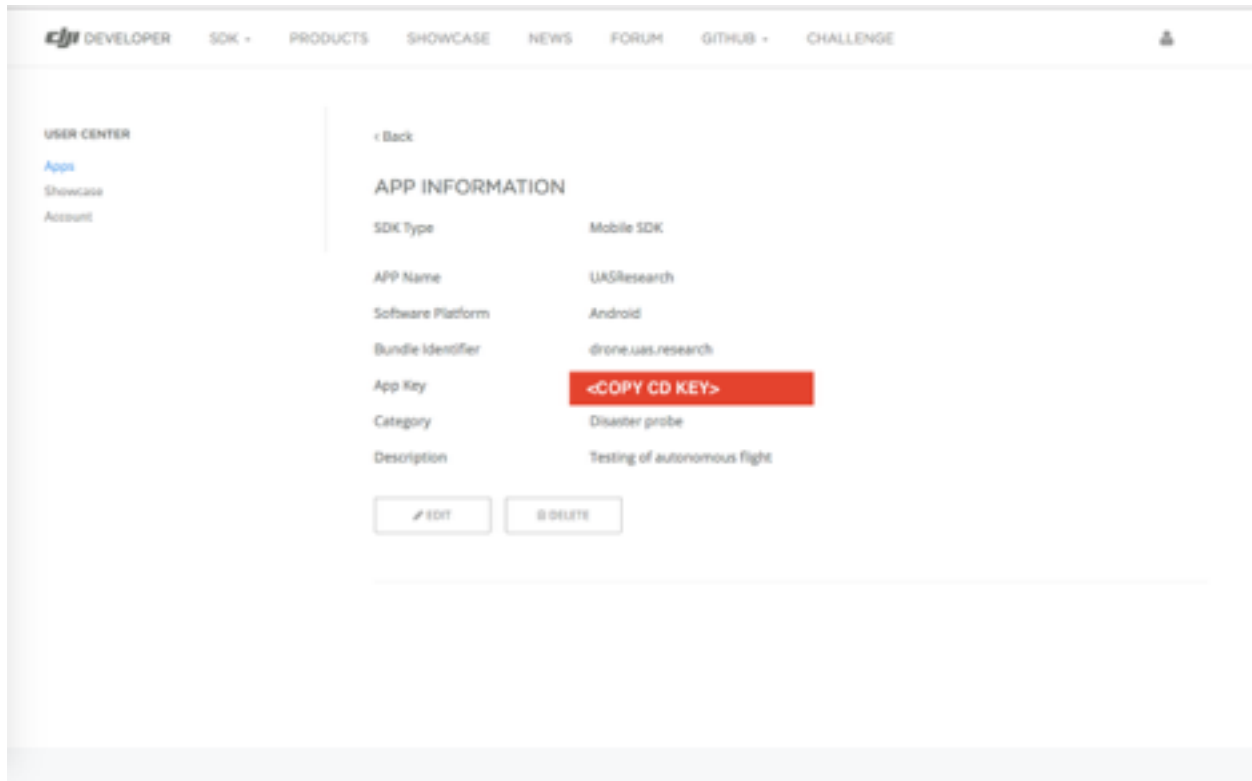

- Obtain Google Maps Key (Required to use Google Maps on this custom Android app)
  - Go to the following link: https://developers.google.com/maps/documentation/android-api/
  - Follow the "Quick Start" steps on the page to obtain a Google Maps API Key for Android.
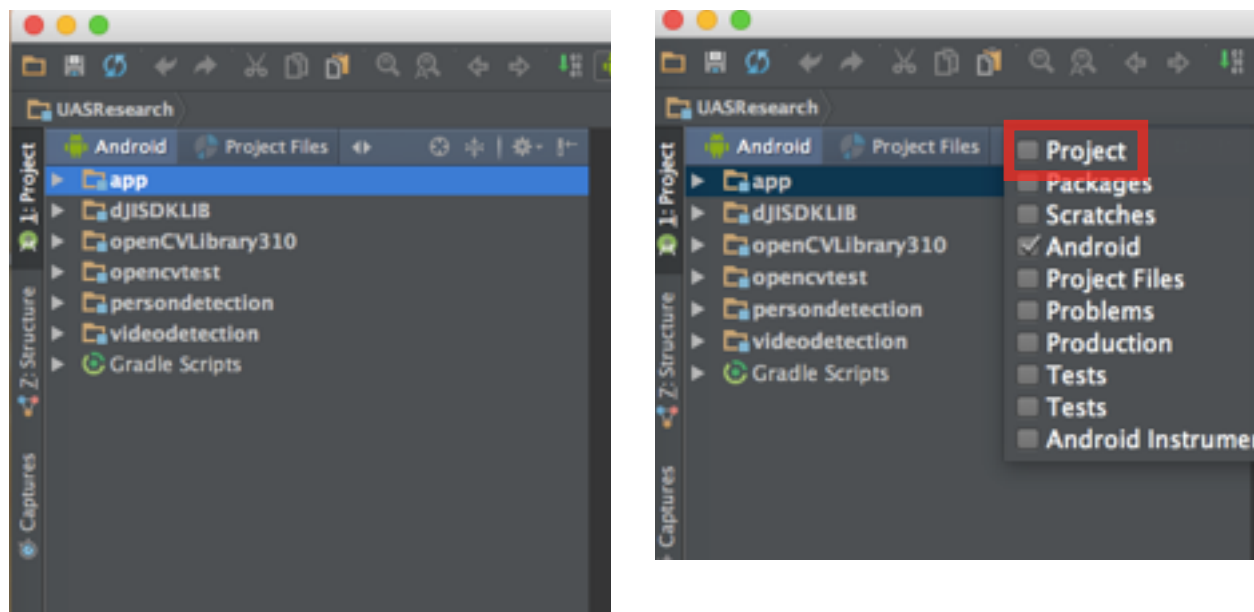 - Once you have obtained an API key, copy it.
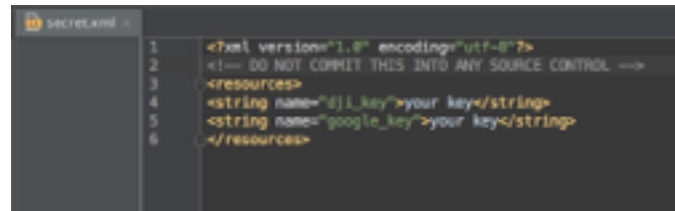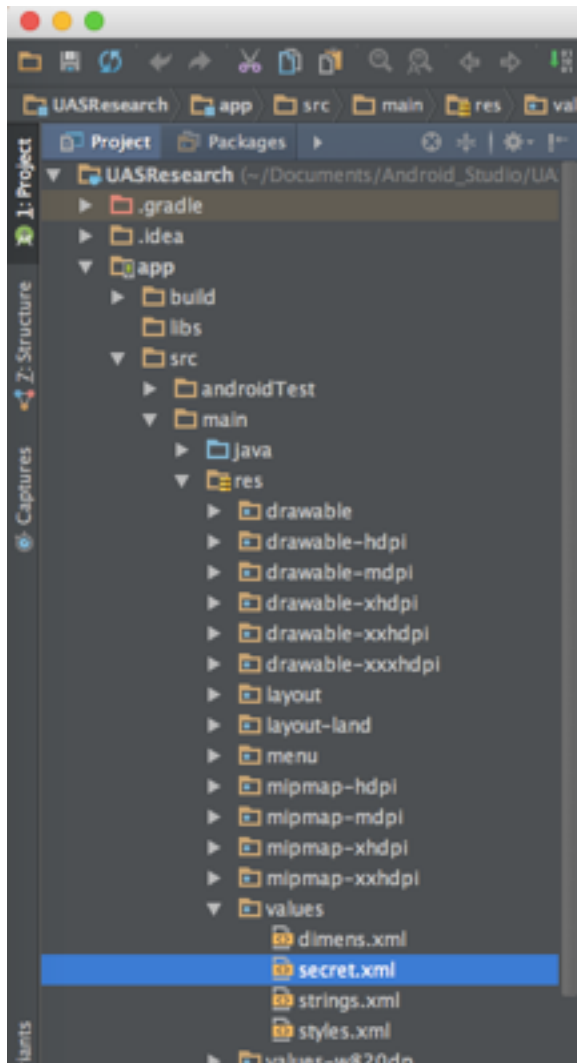
Setting Up the Project
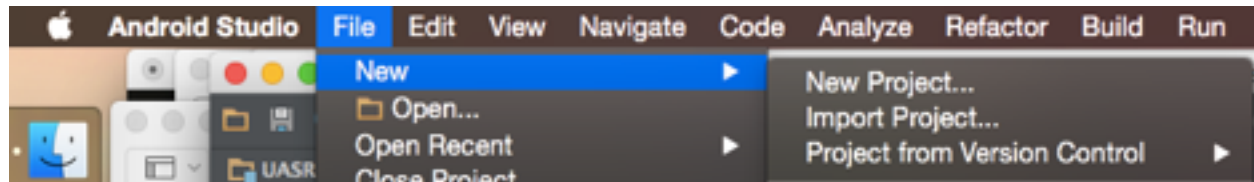
- Obtain the project code. Go to "File -> New -> Import Project" and select "UASResearch" from the code obtained. Importing the project will take some time.
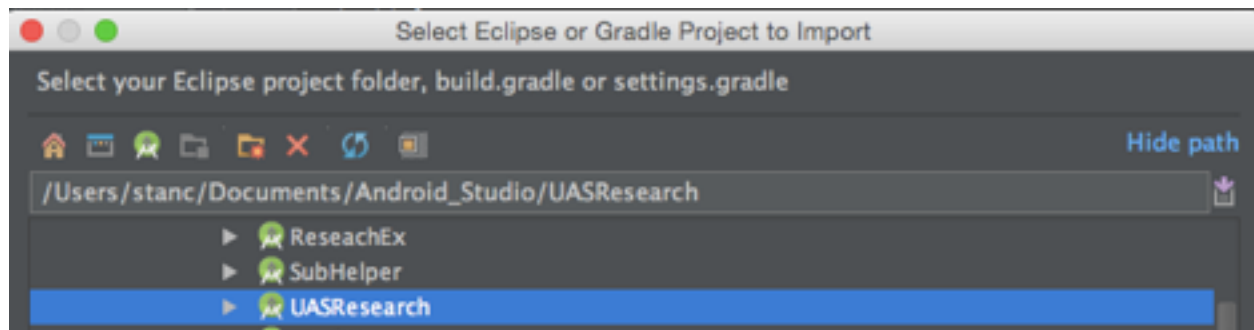
- Switch to Project View (If not already in Project View)

- Open "secret.xml". Paste the API keys here

Compiling and Running the Code
- Connect Android phone/tablet to computer.
  - Ensure Developer options are on. Search on google for "Android developer settings" along with the type of phone you use. Every phone hides these options by default, and unlocking these options vary from phone to phone.
  - Set "Developer options" on and "USB debugging" on
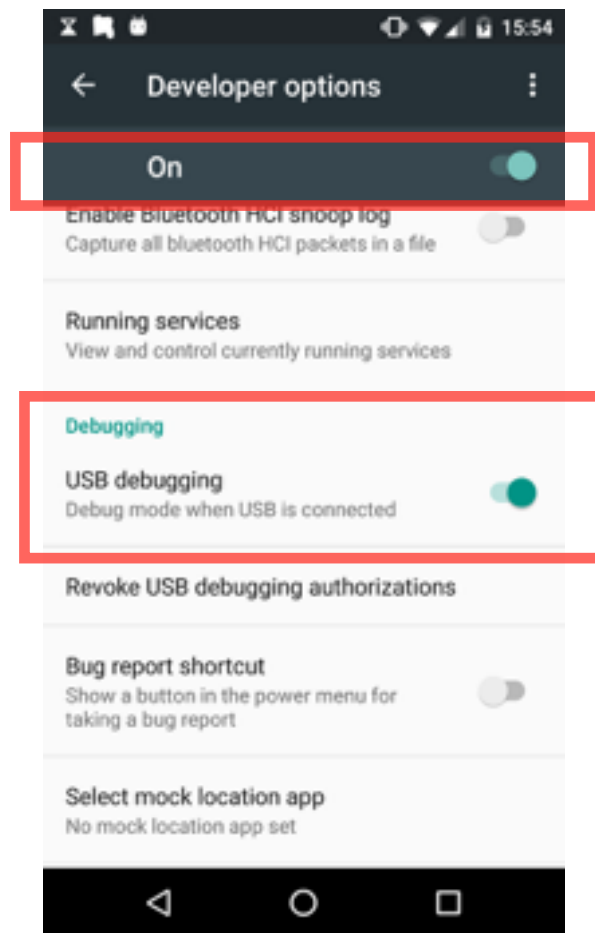
- Download application onto the phone/tablet
  - Make sure "app" is selected, and click the play button to download.