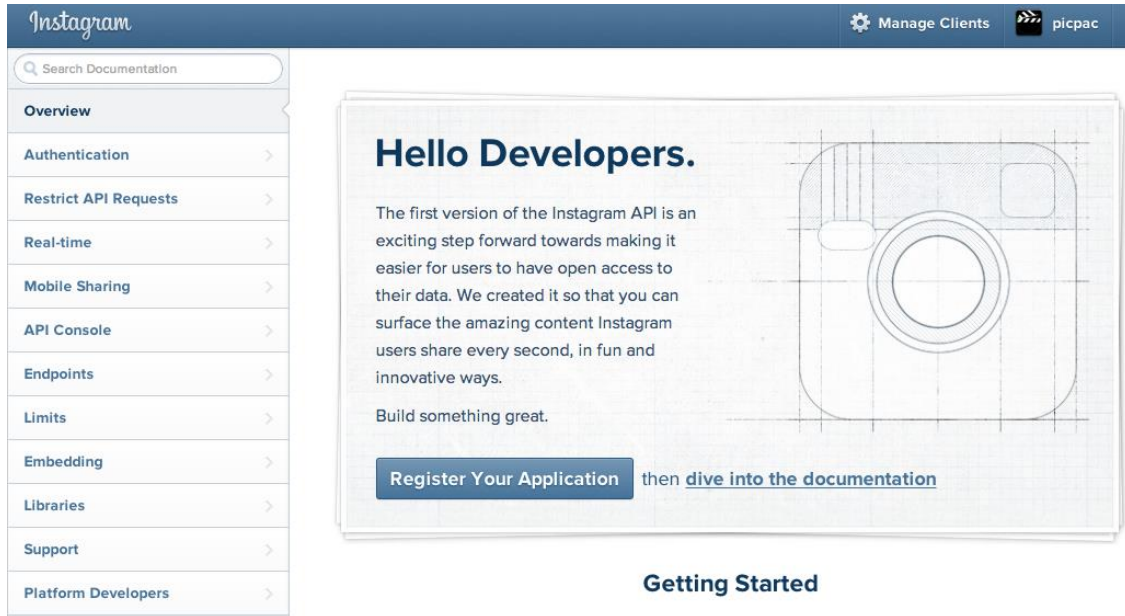# LabW10 – Android UI Advanced

Objectives:

1. Understand the Instagram API
2. Understand how to use a third-party library
3. Understand JSON structure
4. Understand how to use GridView and custom adapter

Tasks:

1. Make an Instagram Popular Feed app
2. Explain the code

Task 1: Make an Instagram Popular Feed app

1. Register as an Instagram Developer at http://instagram.com/developer/, and register an application.

Then you will get your **CLIENT ID** and **CLIENT SECRET**.

2. Download the complete project from the lab files. Unzip it.

3. Import it into your Android Studio workspace

4. Check out the structure.
   - MainActivity is the only Activity
   - ImageViewSquare is a custom ImageView always in square size (no modification needed)
   - activity_main.xml is the layout for MainActivity. It only contains a GridView
   - grid_item.xml is the layout for the grid item, containing only an ImageView
   - AndroidManifest.xml declares the permission for Internet and file writing (for caching).

5. Change the **INSTAGRAM_CLIENT_ID_STRING** in MainActivity to your own **Client ID**

6. Run it

Task 2: Explain the code

1. The project uses the very popular ION library to perform network request, JSON processing and image display. See https://github.com/koush/ion for details.

   The libs folder contains the required jar for ION:

   ion-xxx.jar, gson-xxx.jar and androidasync-xxx.jar

2. We only read the popular feed from Instagram, which does not require authentication, so only the client id is needed for making the request.

   To learn more about all the endpoints in Instagram API, go to:

   http://instagram.com/developer/endpoints/

3. In MainActivity, loadInstagramPopularFeed() is read the feed from Instagram and put the image url into the list.

   It contains the code for JSON processing from ION.

4. In MainActivity, ImageGridAdapter is defined as the adapter for the gridview. A more detailed example of GridView and custom adapter can be found at: http://developer.android.com/guide/topics/ui/layout/gridview.html

   It also uses the popular "View Holder" design pattern to make scrolling smooth.

   http://developer.android.com/training/improving-layouts/smooth-scrolling.html

5. After the photo list is read in loadInstagramPopularFeed(), adapter.notifyDataSetChanged() is called to notify the grid view to display the content.

6. The default ImageView does not know the size of the online photo, so it cannot show the square-sized photo properly. In the **grid_item.xml**, you may comment out the original ImageView and use the ImageViewSquare instead. Check the result.

   You may use this new custom View in your own project.

   Custom View is a very advanced topic.

   Check out the detailed tutorial below if you are interested.

   http://developer.android.com/training/custom-views/index.html