

Assignment 1

CS 407

Due February 18, 2013 11:59pm CST

1 Introduction

The goal of this project is to become acquainted with the iOS or Android platform. Please choose **ONE** platform for this assignment. You are not required to turn in projects for both platforms. Ideally you will want to choose the platform you will be using for your course project, but this is not required. UW-Madison has an Instagram account (<http://instagram.com/uwmadison>) that has some nice pictures we would like to feature in our own custom app. The goal of this assignment is to implement an application that will include the basic functionality of an Instagram clone: 1) Parsing Instagram's API to determine the number of images and their URLs, 2) Displaying those images in a grid, and 3) Tapping an image will transition to a new view and display the full-sized image.

During our lab sessions, we will cover what is needed to complete most of the assignment. However, you will be required to parse a JSON response, fetch the images via the network, and implement additional improvements in order to receive full credit (see: Extension Ideas, Grading).

2 Fetching via the Network

In order to communicate directly with Instagram, you are required to have a developer API key and authenticate with their web service. We have simplified this by providing a URL with a cached copy of an Instagram API response for the UW-Madison account. The response will be in JSON and will be in the following format: http://instagram.com/developer/endpoints/users/#get_users_media_recent. You can fetch our cached response from <http://cs.wisc.edu/~griepent/instagram.json>.

2.1 iOS Hints

Look at Apple's documentation for `NSJSONSerialization`, `NSData`, `NSDictionary`, and `NSURLConnection`. Start with `NSJSONSerialization` and see what arguments its methods require.

2.2 Android Hints

Here are some resources that should help you with this project

- <http://ihofmann.wordpress.com/2012/08/09/restful-web-services-with-json-in-android/>
- <http://android-developers.blogspot.com/2010/07/multithreading-for-performance.html>
- <http://lukencode.com/2010/04/27/calling-web-services-in-android-using-httpclient/>

3 Extension Ideas

In order to receive full credit for this assignment, you must extend what we covered in lab and add additional functionalities. How many additional extensions you do will determine your grade (see Grading).

Possible extensions include:

- When showing the full-sized image, allow the user to pinch-zoom if the image is scaled. For example, the standard resolution photos are 612x612px. Most non-retina screens will not be able to show the full-sized image, so it must be scaled. Implementing pinch-zoom will allow users to view the full image and scroll up/down to view cropped parts of the image.
- Loading the images asynchronously. This allows the UI to be responsive while the images load.
- Show metadata about the image in the full-sized image view. (i.e., created time, caption text, likes, etc).
- Show the download progress for the full-sized image while it is being fetched.
- Create an entirely new view that complements the app (i.e., a view that will show images that have location metadata as points on a map, or a view that shows the comments posted for a given picture).
- Fetch and parse directly from Instagram's API. This involves getting an API token from Instagram and authenticating with their web service. See <http://instagram.com/developer> for more information.

You are welcome to implement extensions that are not listed here. Create a post on Piazza if you have any questions.

4 Grading

Grades will be determined using the following criteria:

- **70% Core Functionality** - Your application must implement the following:
 - Show a grid of the images using a UICollectionView(iOS)/GridView(Android).
 - When you tap on an image, it transitions to a new view to show the full-sized image.
 - Parse the JSON response we have provided and fetch the images via the network.
- **30% Extensions** - You must implement three (3) extensions to the core application worth 10% each.

5 Collaboration Policy

These projects must be done individually.

6 Handin

Handin instructions will be posted on Piazza closer to the deadline.