CS194A

Android Programming Workshop

Lecture 6: May 13, 2020

Rahul Pandey

Outline

- Logistics
- Permissions
- Networking/APIs

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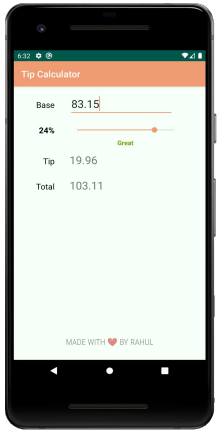
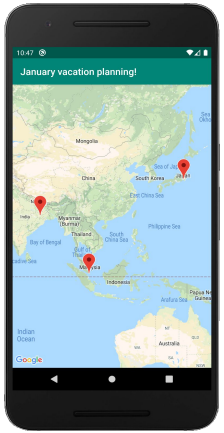
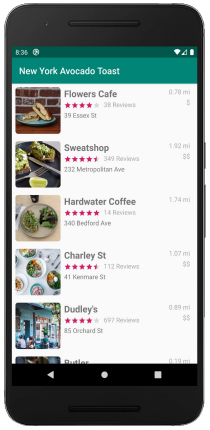
- **Logistics**
- Permissions
- Networking/APIs







Assn 1: Tip Calculator

Assn 2: Google Maps

Assn 3: Yelp Clone

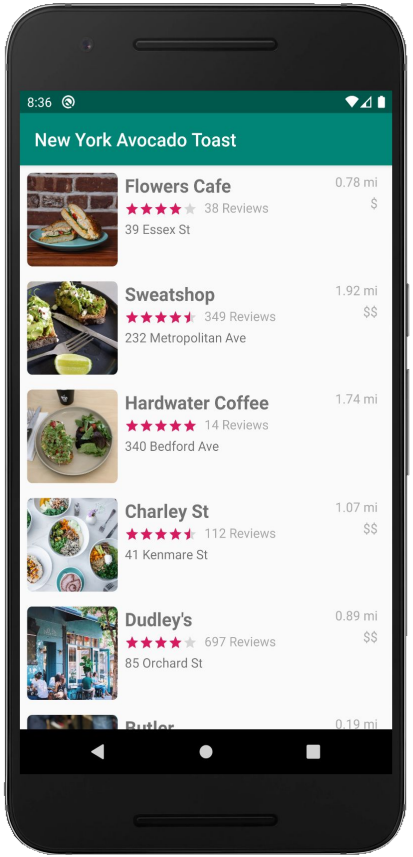
Industry panel discussion

1 2 3 4 5 6 7 8 9

Week #

Assignment #3- Yelp Clone

- The last assignment!
- Gives you practice with Retrofit and networking
- Many extension possibilities
- Due Sunday, May 24



Code review

- Are there logic errors or edge cases that weren’t considered?
- Is the code written idiomatically so that it follows best practices for the language and can be maintained in the future?
- Are there alternative (potentially cleaner) approaches to implementing the same functionality?

- Company/team socialization!

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- **Permissions**
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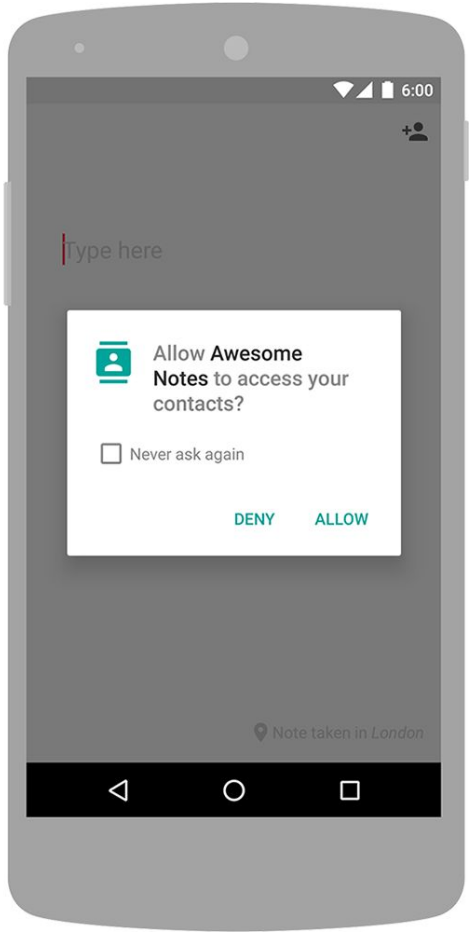
Permissions

- Defines what your app can and cannot access- designed to protect the user's privacy.
- E.g. access the camera, see your contacts, get your location
  - Full list of permissions
- **Normal permissions** are automatically granted to the app
- **Dangerous permissions** must be accepted by the user

Permissions model- change in 2015

- Pre-6.0: Permissions granted at install time
- Starting with 6.0 (Android Marshmallow): Permissions granted at runtime when needed



```
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
    package="edu.stanford.rkpandey.week3">

    <uses-permission android:name="android.permission.INTERNET" />

    <application...>

</manifest>
```

```
if (ContextCompat.checkSelfPermission(this, Manifest.permission.READ_CONTACTS) !=
PackageManager.PERMISSION_GRANTED) {
        // Permission is not granted
        // Check if we should show an explanation
        if (ActivityCompat.shouldShowRequestPermissionRationale(this, Manifest.permission.READ_CONTACTS)) {
            // Show an additional explanation to the user *asynchronously*
        } else {
            // No explanation needed, we can request the permission.
            ActivityCompat.requestPermissions(this, arrayOf(Manifest.permission.READ_CONTACTS),
    REQUEST_READ_CONTACTS)
            // REQUEST_READ_CONTACTS is an app-defined int constant. Handle the result in
    onRequestPermissionsResult.
        }

} else {
    // Permission has already been granted
}
```

My Maps **highlights**

Esther Goldstein

My Maps **highlights**

Qiwen Wang

My Maps **highlights**

Kyle Nguyen

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- Logistics
- Permissions
- **Networking/APIs**

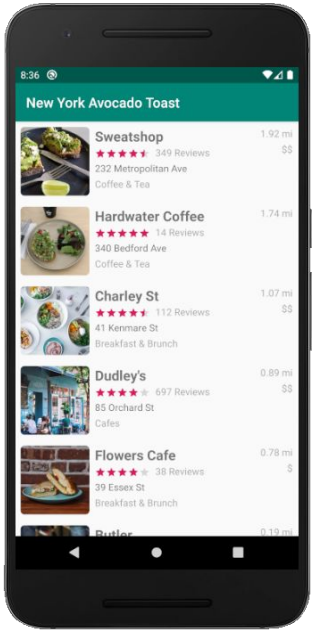
Networking

- Most interesting apps use the internet to retrieve or send data
- Our application needs to know where to get the data and how to use it
- **Important**: Do not make network requests on the main (UI) thread
  - Long-running, flaky operation which should not occur on the UI thread
  - Avoid jank in your app

Web services

- **Client**: your mobile application
  - Makes a query to a URL
- **Server**: a computer which listens for requests on that URL
  - Responds to the query as appropriate (e.g. database query)
- **API:** defines how the client and server communicate
  - Language of data transfer: JSON, XML, HTML, something else
  - Example request to a movie API

API: defines how software apps communicate



I want to search for restaurants in New York that serve avocado toast.

Here's a list of businesses:

1. Flowers Cafe
2. Sweatshop
3. .....

yelp®

Networking library

- You'll almost always use a library for networking
- AsyncHttpClient
- Retrofit
- Volley
- Ion

Prep for next week

Start the **Yelp clone**