Outline

- Logistics
- Activity lifecycle
- Permissions
- Networking/APIs
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Week #

1. Assn 1: Tip Calculator
2. Assn 2: Google Maps
3. Assn 3: Yelp Clone
4. Industry panel discussion
Assignment #3- **Yelp Clone**

- The last assignment!
- Gives you practice with Retrofit and networking
- Many extension possibilities
- Due Sunday, November 8
Mid-quarter survey readout
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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Activity can be in a number of states

- **States:**
  - **Resumed:** activity is in foreground
  - **Paused:** activity is partially obscured by another activity. Activity cannot receive user input or execute code
  - **Stopped:** activity is hidden/in the background. Things like member variables are maintained
  - **Destroyed:** Resources of the activity are reclaimed by the Android system. E.g. back button press

- **Android system will notify you when a state transition happens**
Activity launched

- onCreate()
- onStart()
  - onResume()
    - onRestart()
    - onPause()
      - onStop()
        - onDestroy()
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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

Jessica Chen
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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. ......................
Networking library

- You’ll almost always use a library for networking
- AsyncHttpClient
- Retrofit
- Volley
- Ion
Prep for next week
Start the Yelp clone