CS194A
Android Programming Workshop

Lecture 6: October 21, 2020
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Outline

- Logistics
- Intents review
- Activity lifecycle
- Q&A with Nikil Viswanathan
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Week #

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

- RecyclerView
- Google Maps integration
- Activities and intents
My Maps app

- Project due Sunday, **October 25, 11:59pm**
- Partner feedback due Wednesday, **October 28, 4:00pm**
- Submission through Canvas
Mid-quarter feedback (anonymous)

- https://forms.gle/UgEi1G2GvFMiyeh78
- Should only take a few minutes
Outline

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What is an intent?
Types of Intents

- **Explicit intent**: launch other activities in your app
  - `val myIntent = Intent(this, ActivityName::class.java)`
  - `startActivity(myIntent)`

- **Implicit intent**: request to perform an action based on a desired result
  - `val browserIntent = Intent(Intent.ACTION_VIEW, Uri.parse("url.com"))`
  - `startActivity(browserIntent)`
  - **Common implicit intents**: start a phone call, take a picture, open the browser/maps
Returning data to the parent

Activity A

List Screen

data

Activity B

Add Contact Screen
Getting a result back from a launched activity

- Sometimes you’ll want to get data from the launched activity, e.g.
  - MainActivity launched AddContactActivity: adding a contact to the list
  - Intent to take a picture
- Call startActivityForResult rather than startActivity.
  - Pass a request code along with the intent
  - Returns immediately, but the Android system will call another method...
- onActivityResult is called when the second activity is done
  - Second activity should call setResult and finish to communicate back
Week3

Person 1
Age: 1

Person 2
Age: 2

Person 3
Age: 3

Person 4
Age: 4

Person 5
Age: 5

Person 6
Age: 6

Person 7
Age: 7

Person 8
Nullability in Kotlin

Java
String name = null;
int length = name.length(); // runtime crash
if (name != null) {
    int length = name.length(); // ok
}

Kotlin
val bad: String = null         // compiler error!
val name: String? = null       // ok
val lengthBad = name.length()  // compiler error!
val length1 = name?.length() ?: 0
if (name != null) {
    val length2 = name.length()
}
Activity back stack - like a stack of plates
Outline

● Logistics
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● **Activity lifecycle**
● Q&A with Nikil Viswanathan
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
  onCreated()
    onStart()
      onResume()
        onRestart()
  App process killed
    User navigates to the activity
      Apps with higher priority need memory
      Another activity comes into the foreground
        User returns to the activity
      The activity is no longer visible
        User navigates to the activity
          The activity is finishing or being destroyed by the system
            onDestroy()
              Activity shut down
Prep for next week

- Finish My Maps

- Submit peer feedback through Canvas
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- Q&A with Nikil Viswanathan
Guest speaker: 
Nikil Viswanathan

- Built Down to Lunch (iOS and Android app):
  - #1 Social App in 2016
  - iOS and Android app

- Co-founder & CEO at Alchemy
  - Blockchain development platform powering millions of users