More Android

How hard was week 9 code review assignment?

A) Easy

B) Moderate

C) Challenging

D) Unreasonable

How long did week 9 assignment take?

A) Less than 2 hours

B) 2 to 4 hours

C) 4 to 6 hours

D) 6 to 8 hours

E) More than 8 hours

Unix

- wc -- “word count”
- grep – “search files for particular strings”
- find – “identify files with matching names”

Testing

- **Two kinds of tests for Android Projects:**
  - Normal non-UI tests (‘test’ directory)
    - Just use Junit as normal
  - User Interface tests (‘androidTest’ directory)
    - Use Espresso

Which is not an Android logging level

A) ERROR

B) DEBUG

C) WTF

D) VERBOSE

E) All of the above are valid

Logging

- **Dump messages to the log; see with Android Monitor**

- **Log messages have:**
  - Priority (ERROR, WARN, INFO, DEBUG, VERBOSE)
  - Tag
  - Message

- **Usage: (use logd shortcut)**

```
private final static String TAG =
        ClassName.class.getSimpleName();
Log.d(TAG, "functionName: your message here");
```

What is going to happen?

A) Success

B) Fail – Networking on main thread exception

C) Fail – Didn't initialize networking library

D) Fail – Don't have permission to access network

E) Fail – Can't translate URL to IP address

Android Permission Model

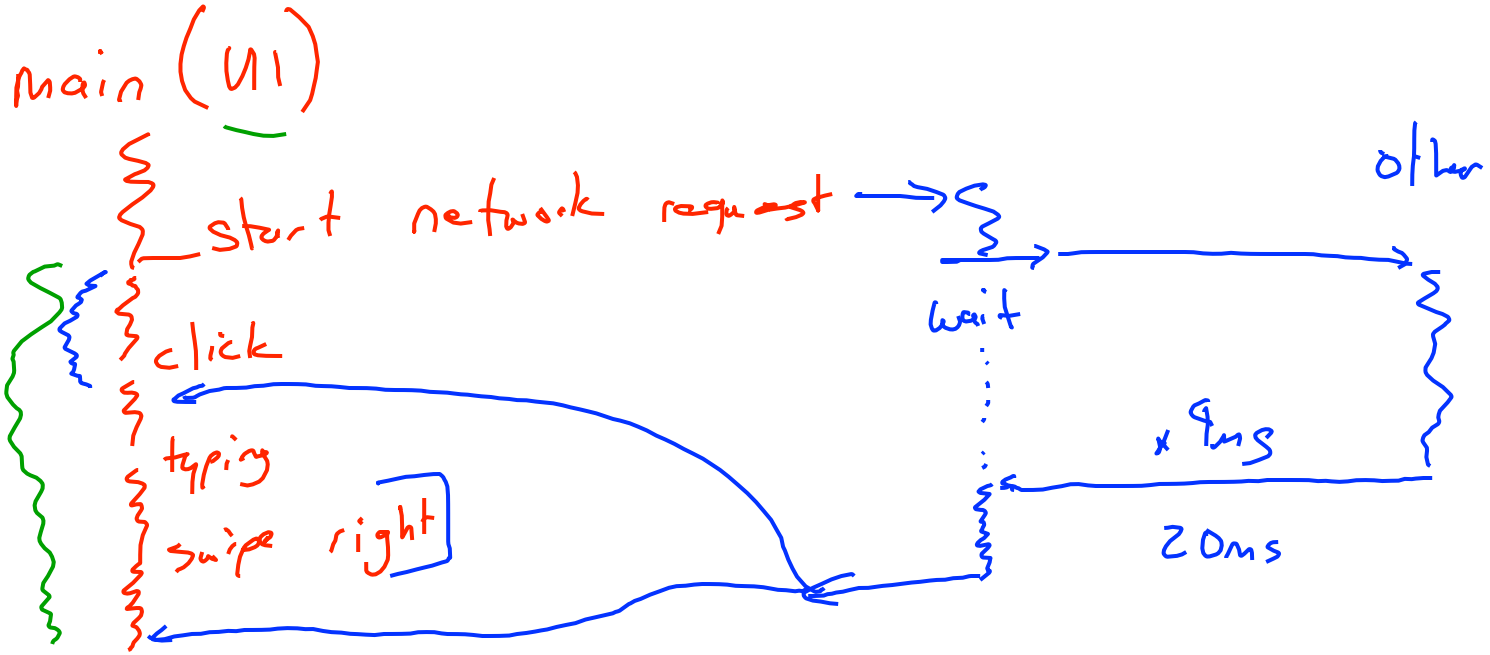
- **Users don't want apps to violate their privacy**
- **Users grant apps permission to do things**
  - Access the network, camera, calendar, phone book, etc.
  - Historically, these have been granted at install time
  - All or nothing model

- **Starting in Marshmallow, incremental permission model**
  - Request "mandatory" permissions at install time
  - Request other permissions as needed (for clarity)
  - Allow users to revoke permissions
    - App must check permissions before doing controlled things.

Threads

AsyncTask

- **When you write code, you tell the machine what to do**
  - One thing at a time.
- **Hard/bad to interleave multiple things**
  - E.g., a user interface with long latency tasks



Threads, cont.

- **Computer programs are made up of threads**
- **Each thread:**
  - Performs a series of task
  - In the order specified by the code
  - One at a time
- **Hard/bad to interleave multiple things on a single thread**
  - E.g., a user interface with long latency tasks
- **Solution: use multiple threads; dedicate a thread to the UI**
  - So it is always responsive
  - Do slow stuff on other threads
  - Have to handle communication/synch between threads