Android III

JSON, Recycler Views
What we will learn

- JSON Parsing
- Model classes
- What a RecyclerView is and how to build one
  - ViewHolders
  - Adapters
  - LayoutManagers
Simple JSON Parsing

Parsing the JSON on the left

```

```

```json
{
  "name": {
    "firstName": "John",
    "lastName": "Doe",
  },
  "title": "Missing Person"
}
```

```

Initialize JSONObject from JSON string
JSONObject contact = new JSONObject(contact.getJSONObject("name"));

Name into a JSONObject
JSONObject name = contact.getJSONObject("name");

First and last names
String firstName = name.getString("firstName")
String lastName = name.getString("lastName")

Title
String title = contact.getString("title");
```
Parsing JSON

- Github Repo Searcher: Our goal is to parse the JSON into an ArrayList of model classes
- Model Class: used to create POJOs containing information
- For us, we will create a Repository model
  - Fields: name, url
- Each Repository interest will contain information to be displayed in an item of our RecyclerView
What is a RecyclerView?

- A flexible view for providing a limited window into a large data set
- It uses smaller views for individual pieces of data (items)
- It mainly manages the recycling of items to avoid wasted time and space
- Replaces ListView
Using a RecyclerView

- RecyclerViews need 3 other partners to help:
- ViewHolder: inflates and encapsulates a view item, stores Java references to child views
- Adapter: Creates new Holders with items, populates items with data, returns this to recyclerview
- LayoutManager: Lays out the views in a pattern
<FrameLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:id="@+id/rv_numbers"
    android:layout_width="match_parent"
    android:layout_height="match_parent">
    <android.support.v7.widget.RecyclerView
        android:id="@+id(rv_numbers"
        android:layout_width="match_parent"
        android:layout_height="match_parent"/>
</FrameLayout>

<?xml version="1.0" encoding="utf-8"?>
<FrameLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:id="@+id/rv_numbers"
    android:layout_width="match_parent"
    android:layout_height="match_parent"/>
</FrameLayout>
Click Listeners

- These are implementations of an interface that get passed into a view
- The implementations have a “onClick” method that gets called by Android OS when the item is clicked
- The listener pattern is a way to tell an interface what to do by implementing an interface
- A classic example of polymorphism
- We will implement listeners for the items in a Button and in RecyclerView in the live coding demo
Building the System

See in-class live coding demo!