Lecture Notes: Android Overview

1. Demo: How to create a project in Android Studio
    a. Compatibility issues: See “help me choose”
    b. Brief overview of activities: Choose “Empty Activity”
2. Emulators and how to set one up (tools -> AVD Manager)
3. Use of support library (extend AppCompatActivity)
    a. Allows you to use new Android features even in apps that will run on devices with older versions of the AndroidOS
    b. Newer features are in the support library and get installed with your app
4. Brief overview of Activities and layouts
    a. Activities are views/screens
    b. Layouts are defined separately in xml and “inflated” by the activity
    c. Activity provides a place for you to get and keep references to UI widgets and attach event listeners
5. Use string resources as a convenient place to put and change strings, but most importantly, to provide for i18n/l10n of your app
    a. Create new string resources files for different locales to support different languages and even different regions/dialects
        i. Right-click on ‘values/strings’ in ‘res’ folder
        ii. Select New -> Values Resource Folder
        iii. Give it the same name as your existing strings file
        iv. Select the ‘Locale’ qualifier and choose your language and optionally your region
        v. Copy all strings from the previous resources file into the new one
        vi. Translate the strings
        vii. Change your language settings on your device to see the translated app
6. Colors are also specified in a resources file (res/values/colors.xml)
7. Event Listeners

a. Get reference to the UI control
    i. From within your Activity class, call **findViewById(R.id.<id you widget in layout xml file>)**
b. Add event listener as an anonymous inner class in the OnCreate method of your Activity
    i. Example:

```
Button button = findViewById(R.id.button);
button.setOnClickListener(new View.OnClickListener() {
  @Override
  public void onClick(View v) {
    textView.setText(R.string.goodbye);
  }
});
```

8. Making a toast
    a. **Toast.makeText(this, "message", Toast.LENGTH_LONG).show();**
    b. The first parameter must be a context (a reference to an Activity or other context).
        i. From an event listener, 'this' will refer to the inner class, not the context, so you will need to use <ActivityClassName>.this
    c. **DON'T FORGET TO CALL show()**
9. Project structure
    a. Android View vs. Project View
        i. Android View gives easy access to the most commonly used files
        ii. Project View shows you what your file system looks like
10. Testing
    a. Two testing folders (local and instrumented/device)
    b. Local tests do not require a device or emulator to run
    c. Instrumented tests are slower because they run on the device or emulator
    d. For this class, you only need to write local tests
11. Many programming details and little issues you will run into
    a. Stack overflow—but be careful, some answers are old