

## Java Inner Classes

### Android UI Basics

Android Chapters 1 & 2

Activities represent the different screens of the application. Activities inherit from the SDK Android class. For compatibility reasons, activities can inherit from the “app compatibility” library’s AppCompatActivity. This class gives activities running on old versions of Android access to Activity features only available in new versions of Android.

Create a new Android Studio project with an Empty activity. Options: app name, package name, location, minimum sdk

app/AndroidManifest.xml: Include <activity> entry for each activity. Mark main activity as follows:

```
<action android:name="android.intent.action.MAIN" />: Main app activity
```

```
<category android:name="android.intent.category.LAUNCHER" />: App should be in launcher
```

Peruse other settings in the manifest.

Activity’s UI is defined in its layout XML file.

Change to GeoQuiz project from Chapter 2. Display layout XML file.

Activity’s UI is defined as a tree of widgets. Simple widgets like buttons and labels are at the tree’s leaves. Simple widgets extend Android’s View class. The interior nodes of the tree represent “view groups”, which are widgets that contain and arrange other widgets. View group widgets extend Android’s ViewGroup class. (LinearLayout, RelativeLayout, TableLayout, FrameLayout)

Show Figure 1.11 (tree diagram for activity UI)

Explain contents of layout XML file (include widget attributes). Show Preview tool window. (Selecting element in XML file highlights in preview)

String resources. Drawable resources.

Default and Qualified resource sub-directories. Create a new resource sub-directory, and demonstrate dialog that lets you select qualifying attributes.

### From Layout XML to View Objects

Show QuizActivity.java

Inflate XML into widget tree.

Declare widget fields in activity class

Get references to widgets by ID.

R class IDs (app/build/generated/source/r/debug/R.java)

Attach listeners to widgets for event handling

Analyze GeoQuiz functionality (what the event listeners do)

## **UI / Model Separation**

Model layer vs. UI layer

Question model class

## **Family Map Application**

Family Map has six activities. Briefly demonstrate each one.