Android
Improving Layouts
HierarchyViewer & lint

Victor Matos

Cleveland State University

Notes are based on:
   Android Developers
   http://developer.android.com

Improving Layouts

To help debug issues in your layout and Manifest, the Android SDK provides the **Hierarchy Viewer** and **lint** tools.
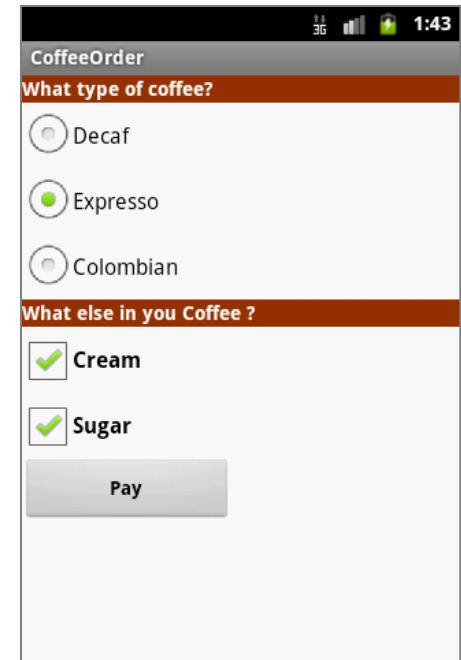
- **The Hierarchy Viewer** application allows you to debug and optimize your user interface.
    - It provides a visual representation of the layout's View hierarchy (the View Hierarchy window) and

    - a magnified view of the display (the Pixel Perfect window).

- Android **lint** is a static code scanning tool that helps you optimize the layouts and layout hierarchies of your applications, as well as detect other common coding problems.

Improving Layouts

Hierarchy Viewer

Shows the tree structure of your XML layout. Assume the **CoffeeOrder** app is running in the emulator. To execute the program do the following:

- Make sure the emulator is displaying the UI you want to assess
- Run a DOS shell
- Make sure the path includes access to the **/android-sdk/tools** folder. In the DOS shell type PATH=your-path\Android\android-sdk\tools;%PATH%
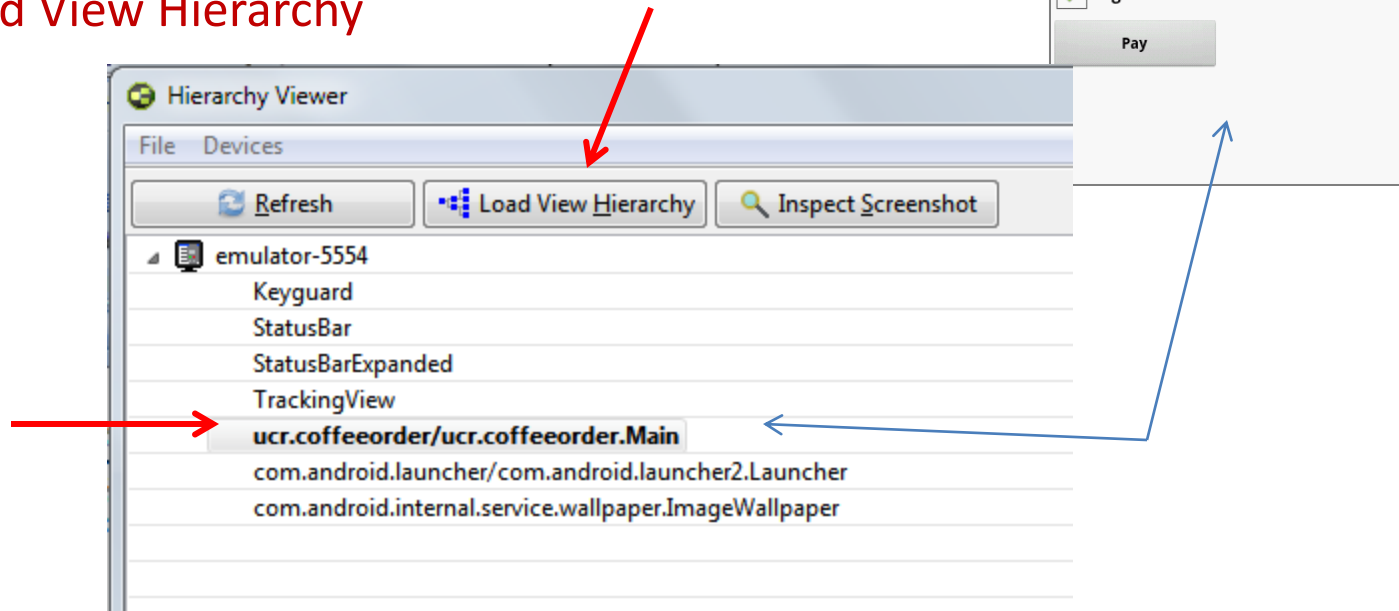- Type the command hierarchyviewer *name-offolder-holding-your-app*

Improving Layouts

Hierarchy Viewer

The next screen offers a list of activities.

Choose the activity whose UI is to be explored

In this case we pick: Main

Click on Load View Hierarchy

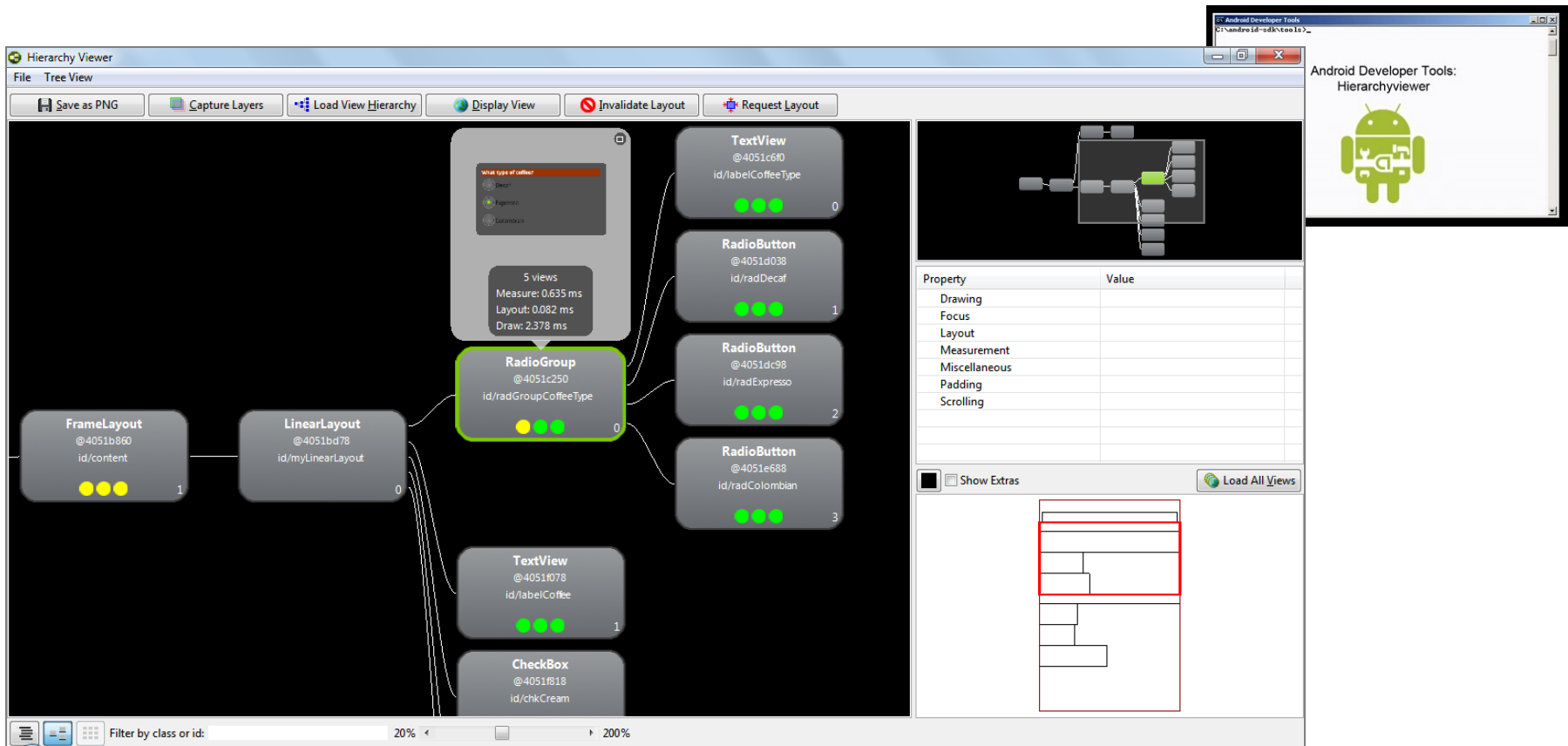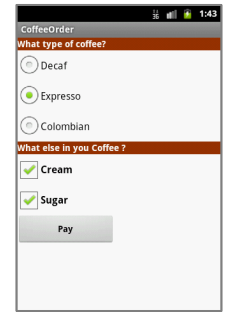# Improving Layouts

Hierarchy Viewer

For details on how to use the tool see video:

http://www.youtube.com/watch?v=PAgE7saQUUY&feature=player_embedded
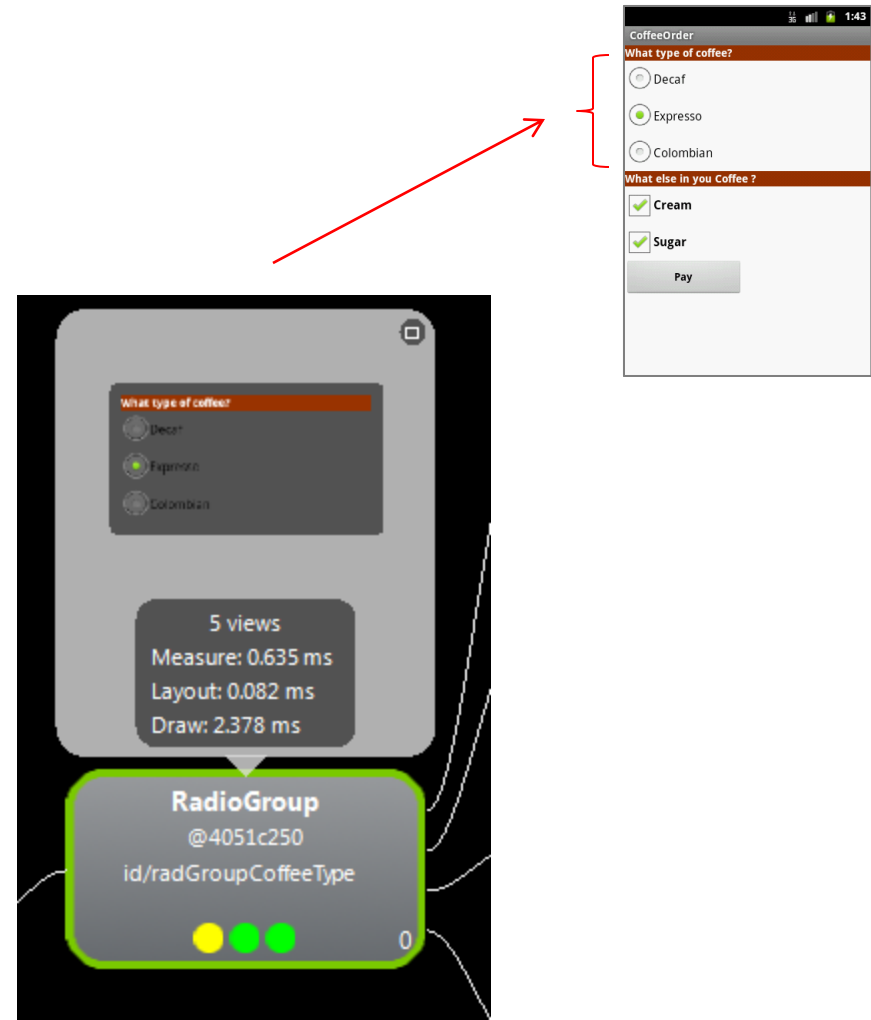
Improving Layouts

Hierarchy Viewer – Detail

Rendering time includes:
1. Measuring,
2. Laying out,
3. Drawing

In the example, the **RadioGroup** component consumes a moderate measuring time (yellow circle) and relatively fast layout & draw timing (green circles)

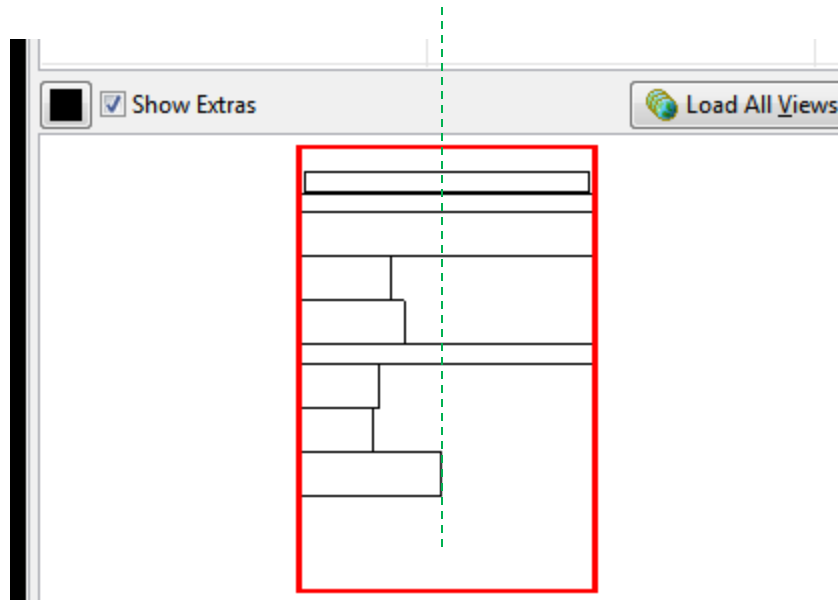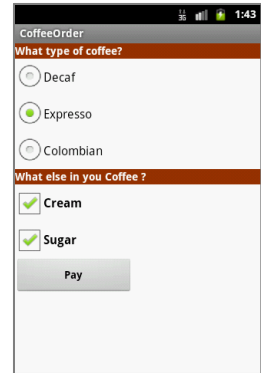Time is miliseconds is also displayed

Improving Layouts

Hierarchy Viewer – Detail

The lower right panel displays an outline of the UI.

Observe than some stretching might be needed to make all radio & check boxes have similar width
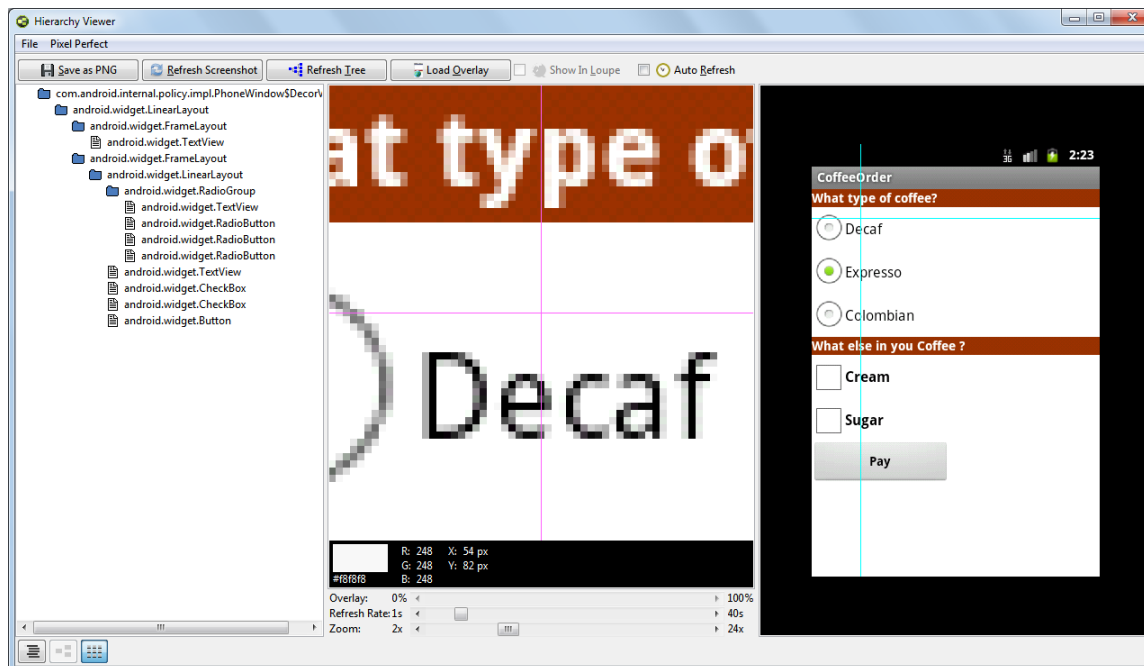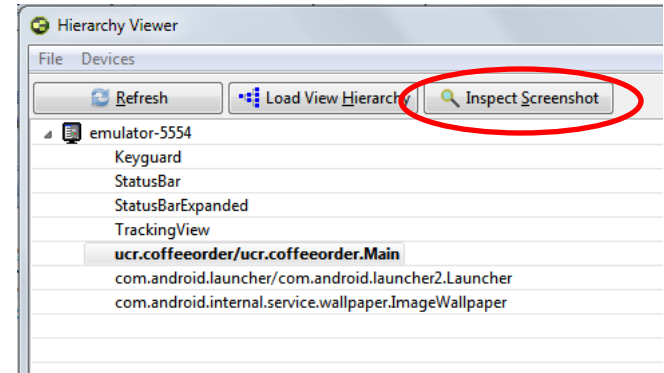
Improving Layouts

Pixel Perfect

- Gives a very detailed depiction of the UI.
- Useful way of saving templates, and adding Overlay Layers to 'beautify' the screen design.

For details see the video:

http://www.youtube.com/watch?v=C45bMZGdN7Y&feature=player_embeddedves

Improving Layouts

Lint

Use **lint** on your resource directories to check for inefficiencies or other types of problems that could be affecting the performance of your application.

```
c:\Users\1002125\workspace-ANDROID> lint   04-6-UI-Coffee-Order

Scanning 04-6-UI-Coffee-Order: .............................................................
Scanning 04-6-UI-Coffee-Order (Phase 2): ..
proguard.cfg:19: Error: Obsolete ProGuard file; use -keepclasseswithmembers instead of -keepclasseswithmembernames [Proguard]
-keepclasseswithmembernames class * {
 ^
AndroidManifest.xml:22: Warning: <uses-sdk> tag appears after <application> tag [ManifestOrder]
   <uses-sdk
    ^
res\layout\main.xml:8: Warning: Unexpected text found in layout file: "á" [ExtraText]


 ^
res\layout\main.xml:92: Warning: Avoid using "px" as units; use "dp" instead [PxUsage]
res\values\strings.xml:3: Warning: The resource R.string.hello appears to be unused [UnusedResources]
   <string name="hello">Hello World, Main!</string>
    ^
res: Warning: Missing density variation folders in res: drawable-xhdpi [IconMissingDensityFolder]
res\layout\main.xml:24: Warning: [I18N] Hardcoded string "What type of coffee?", should use @string resource [HardcodedText]


       ^
res\layout\main.xml:36: Warning: [I18N] Hardcoded string "Decaf", should use @string resource [HardcodedText]
     <RadioButton
       ^
...
1 errors, 13 warnings
```

Improving Layouts

Questions?