

CPSC 475/575 - Mobile Computing

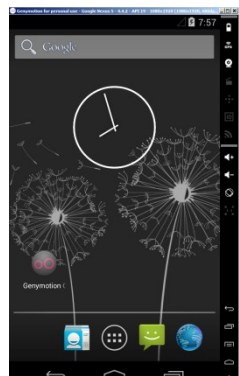
Topics

- Communications between Android Studio and Device and Emulator
- Compilation
- Sizing
- Layouts

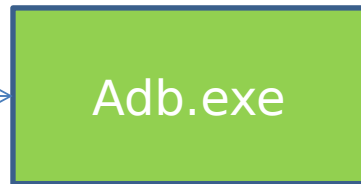
Communications

Adb.exe

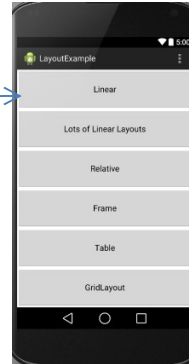
- How does Android Studio communicate with emulator or device?



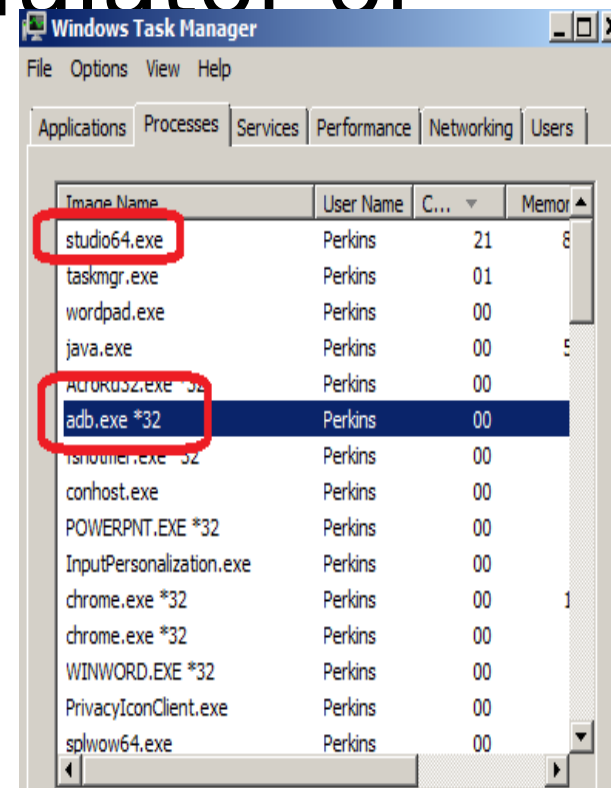
Emulated device



Development Machine



Actual Device



Compilation – generate apk or aab

What is an apk file?

Compiled app to deploy to device

What is an aab file?

Signed bundle to deploy to app stores

Where is it?

Depends, can be a release or a debug build.

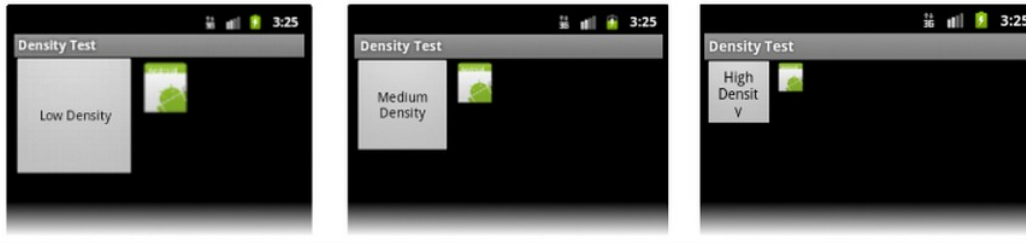
Build aab, get location notification

Build apk, search for *.apk in project

Sizing

Sizing Note

Use dp not px



Using **px** – buttons get smaller as density goes up



Using **dp** – scales as density changes

Layouts

Layouts

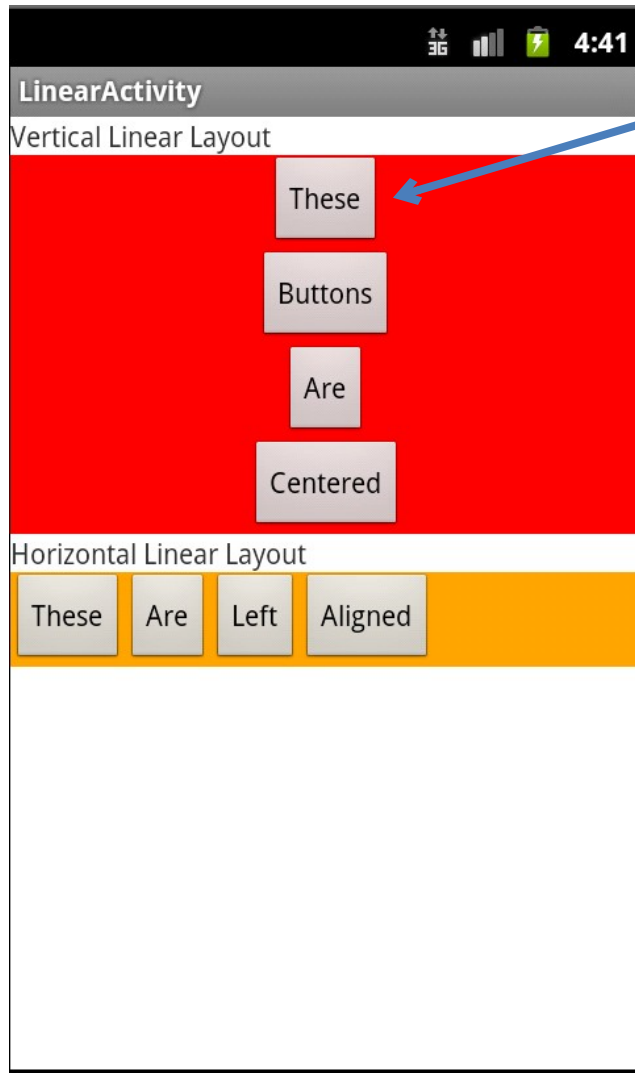
- Location



- 2 today
 - Linear (3_layoutExample project)
 - Framelayout “
- See the online doc on Constraint Layout

LinearLayout

(see 3_layoutExample project)



```
<Button android:text="These"
        android:layout_gravity="center"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
/>
```

```
<LinearLayout
    android:layout_height="wrap_content"
    android:layout_width="match_parent"
    android:orientation="vertical"
    android:background="#ffff180a">
```

```
<LinearLayout
    android:orientation="horizontal"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:gravity="left"
    android:background="#ffff980c">
```

LinearLayout

LinearLayout

gravity layout_gravity

gravity – align text
inside widget



```
<Button  
    android:layout_width="match_parent"  
    android:layout_height="wrap_content"  
    android:gravity="left"  
    android:text="Left" />
```

layout-gravity –
align widget in
parent

```
<Button  
    android:layout_width="wrap_content"  
    android:layout_height="wrap_content"  
    android:layout_gravity="right"  
    android:text="right" />
```

LinearLayout

android:layout_weight (There is no android:weight!)

Proportions widget spacing



```
<Button android:text="Weight1"
        android:layout_weight="1"
        android:gravity="center"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"/>

<Button android:text="Weight2"
        android:layout_weight="2"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"/>

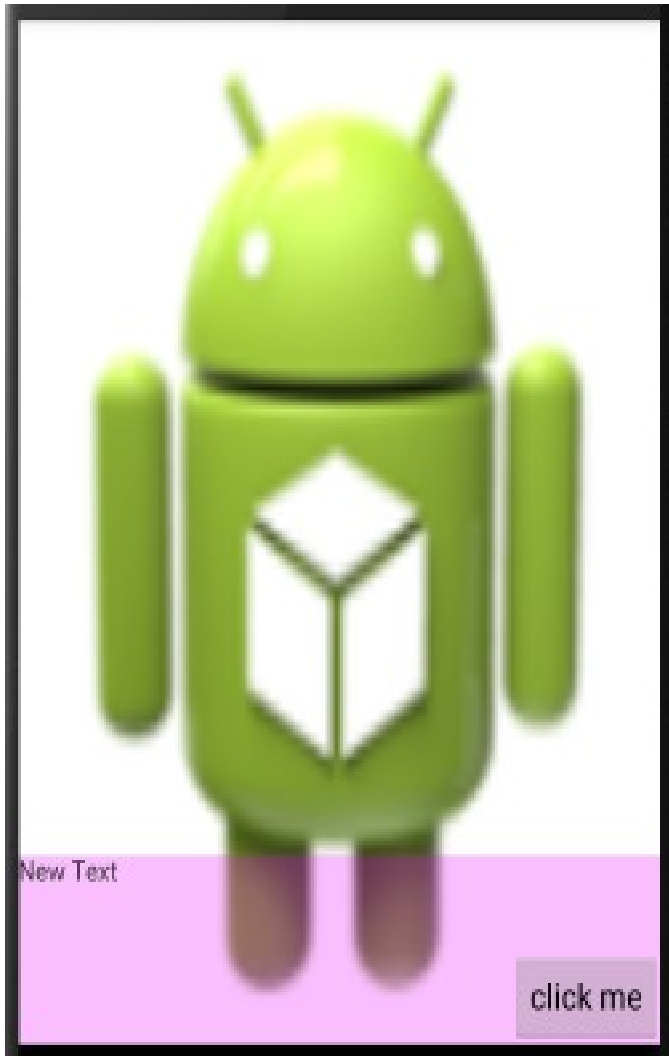
<Button android:text="NO Weight"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"/>

<Button android:text="Weight1(all the rest)"
        android:layout_weight="1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"/>
```

Note android:layout_width="wrap_content"
Necessary for proper function

FrameLayout

- Placed on screen
- On Top of each other
- In order declared



```
<FrameLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:id="@+id/FL"
    android:layout_width="match_parent" android:layout_height="match_parent"
    android:background="@drawable/ic_launcher">

    <TextView
        android:layout_width="match_parent"
        android:layout_height="96dp"
        android:text="New Text"
        android:id="@+id/textView"
        android:layout_gravity="center_horizontal|bottom"
        android:background="#44ee0bff" />

    <Button
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="click me"
        android:onClick="doButton"
        android:id="@+id/button"
        android:layout_gravity="right|bottom" />
</FrameLayout>
```

Use dp not px

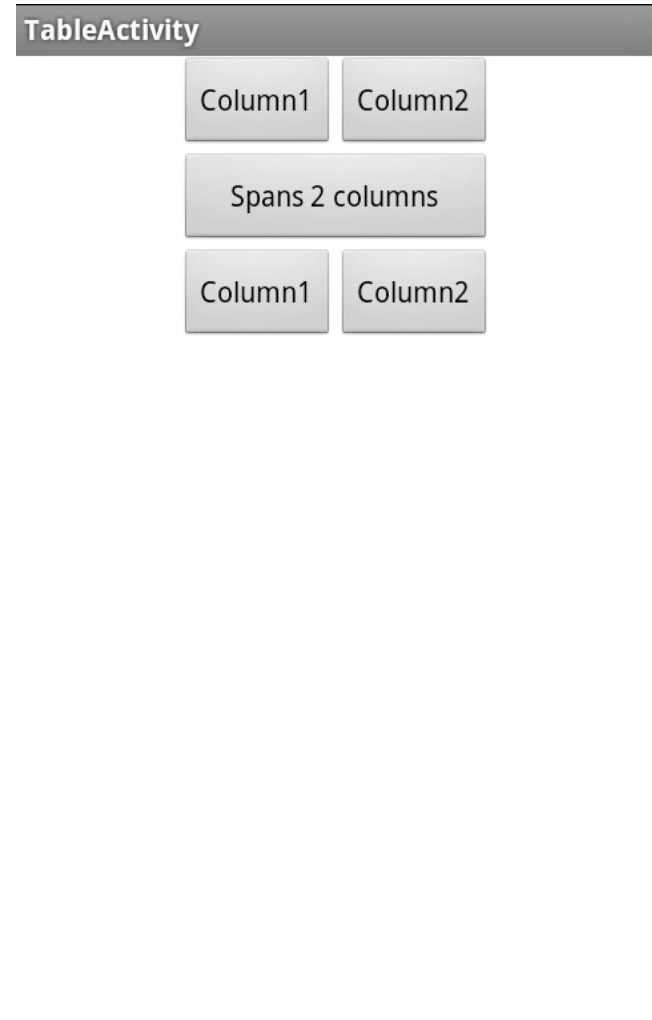
FrameLayout



```
public class FrameLayoutActivity extends Activity {  
  
    private boolean isGreen = false;  
    private int Id;  
    @Override  
    protected void onCreate(Bundle savedInstanceState) {  
        super.onCreate(savedInstanceState);  
        setContentView(R.layout.activity_framelayout);  
        Resources resources = this.getApplicationContext().getResources();  
        Id = resources.getIdentifier("ic_launcher", "drawable", getPackageName());  
    }  
  
    public void doButton(View view) {  
        FrameLayout ml = (FrameLayout)findViewById(R.id.FL);  
  
        if (isGreen)  
            ml.setBackgroundResource(Id);  
        else  
            ml.setBackgroundColor(0xFF00FF00);  
  
        isGreen = !isGreen;  
    }  
}
```

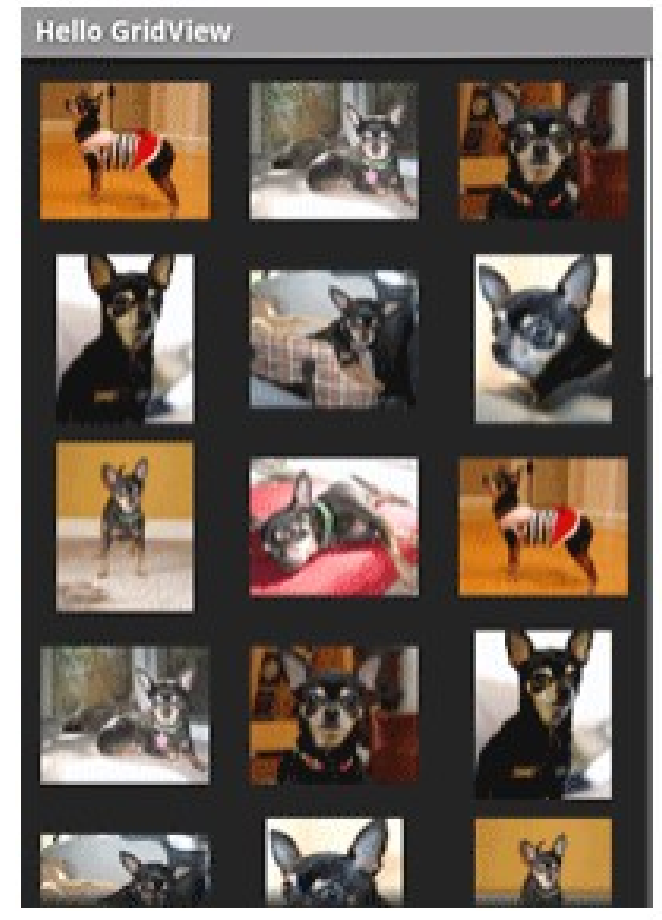
TableLayout

- rows and columns
- rows normally `TableRow`
- `TableRow`s contain other elements such as buttons, text, etc.



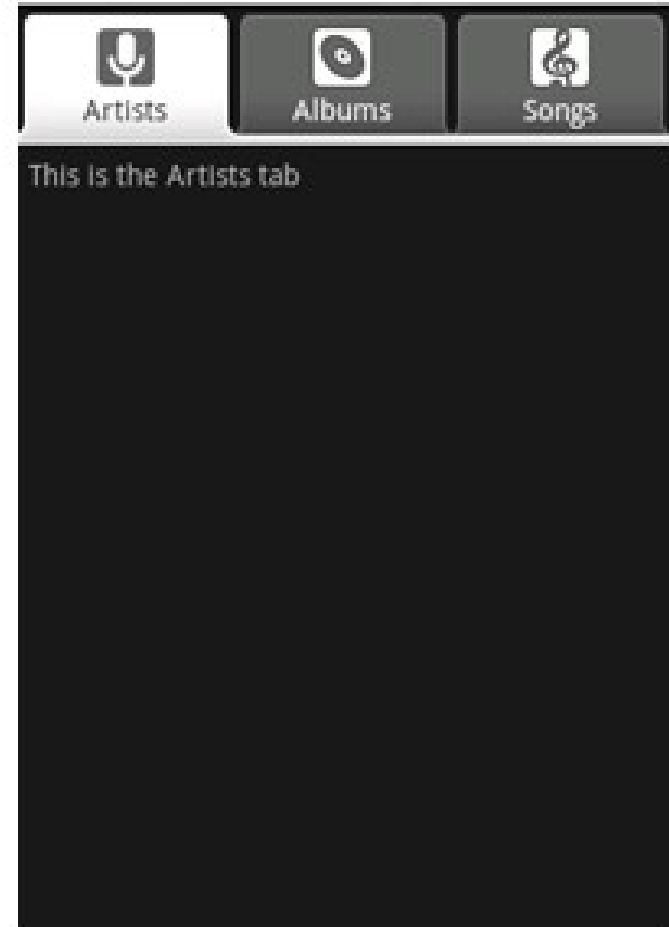
Other Layouts - GridView

- Two Dimensional Scrollable Grid
- Items inserted into layout via a ListAdapter



Other Layouts - TabLayout

- Uses a TabHost and TabWidget
- Swap between views in same activity or switch between different activities



Other Views - Layouts

- Gallery
 - horizontal scrolling display of images from a list
- SurfaceView
 - provide access to a "drawing" surface. Intended to draw pixels, not display other views / widgets