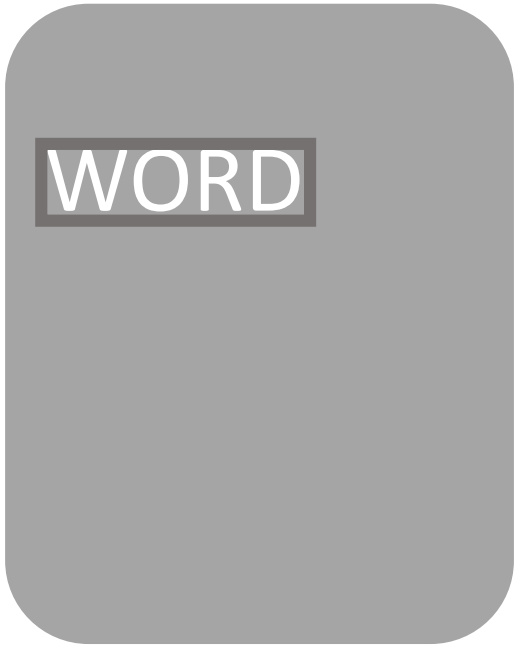
Android Sizes

Layout_Height
Layout_Width

Are mandatory attributes in XML

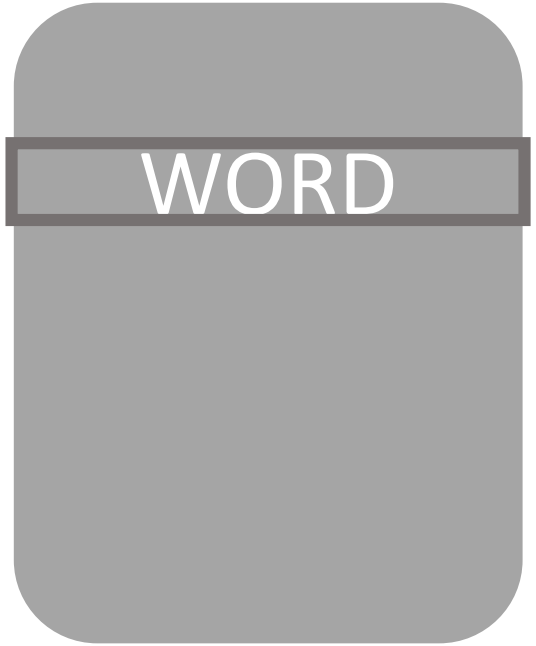
Android needs to know how big you want to draw things.

Wrap Content

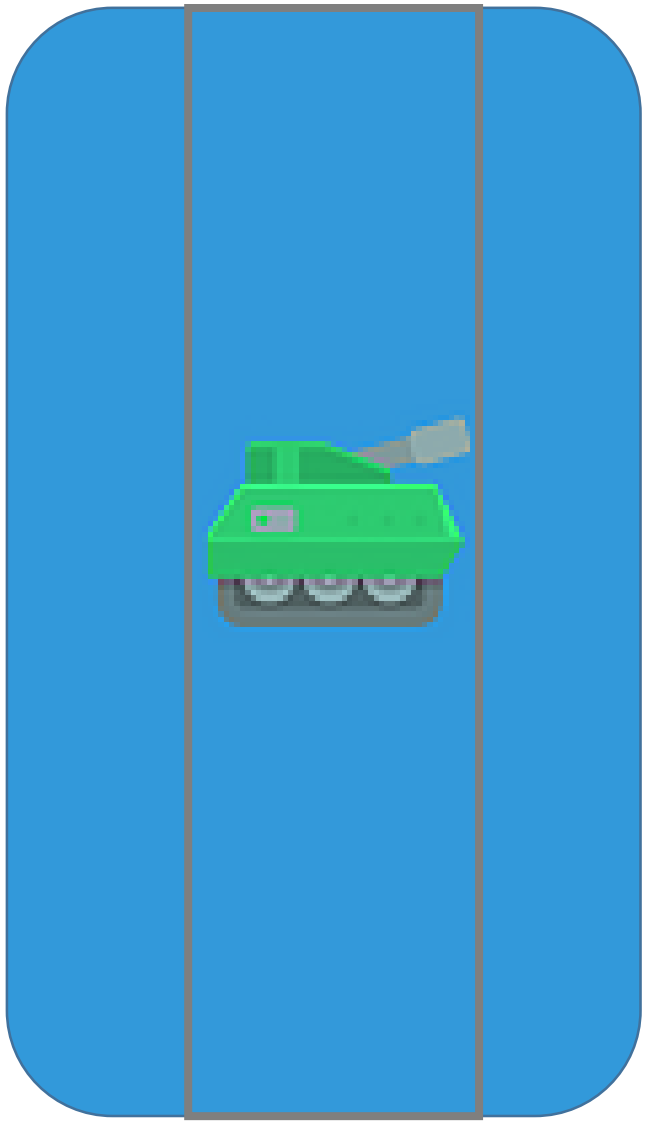


Width = Wrap Content
Height = Wrap Content

Match Parent

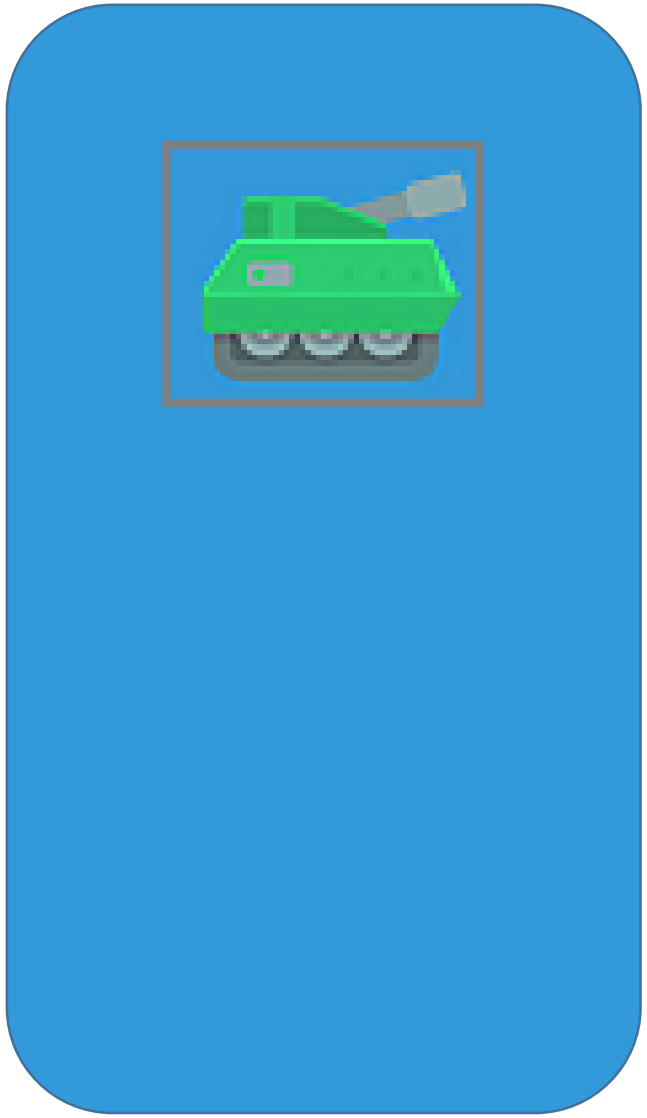


Width = Match Parent
Height = Wrap Content



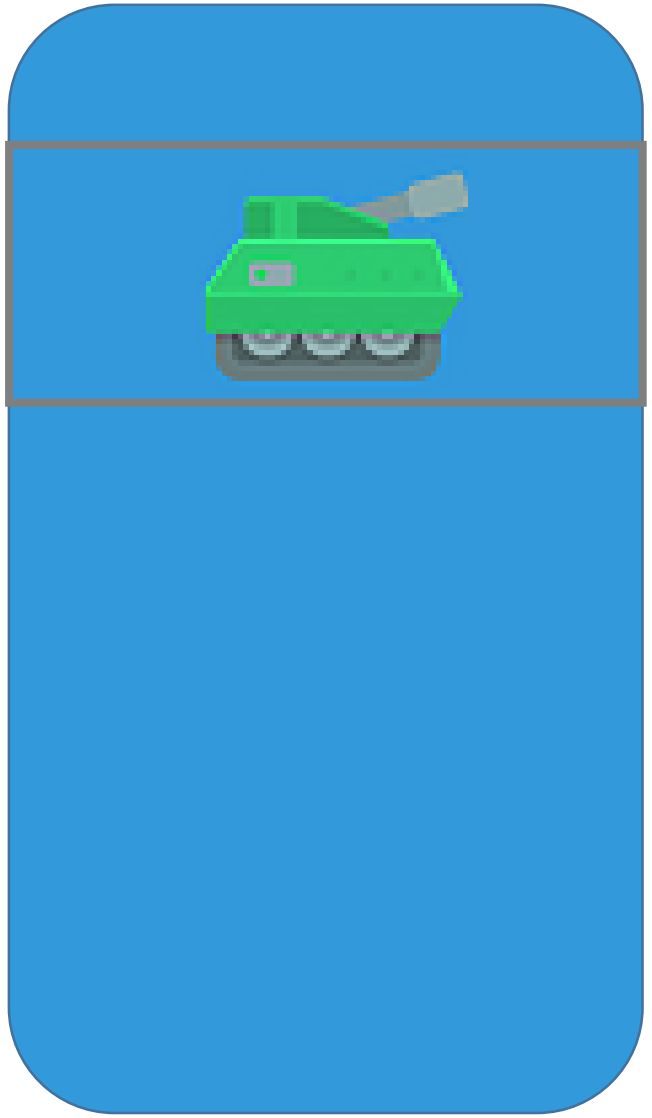
Match_parent or wrap_content?

```
<ImageView
   android:src="@drawable/tank"
   android:layout_width="_____"
   android:layout_height="_____"
/>
```



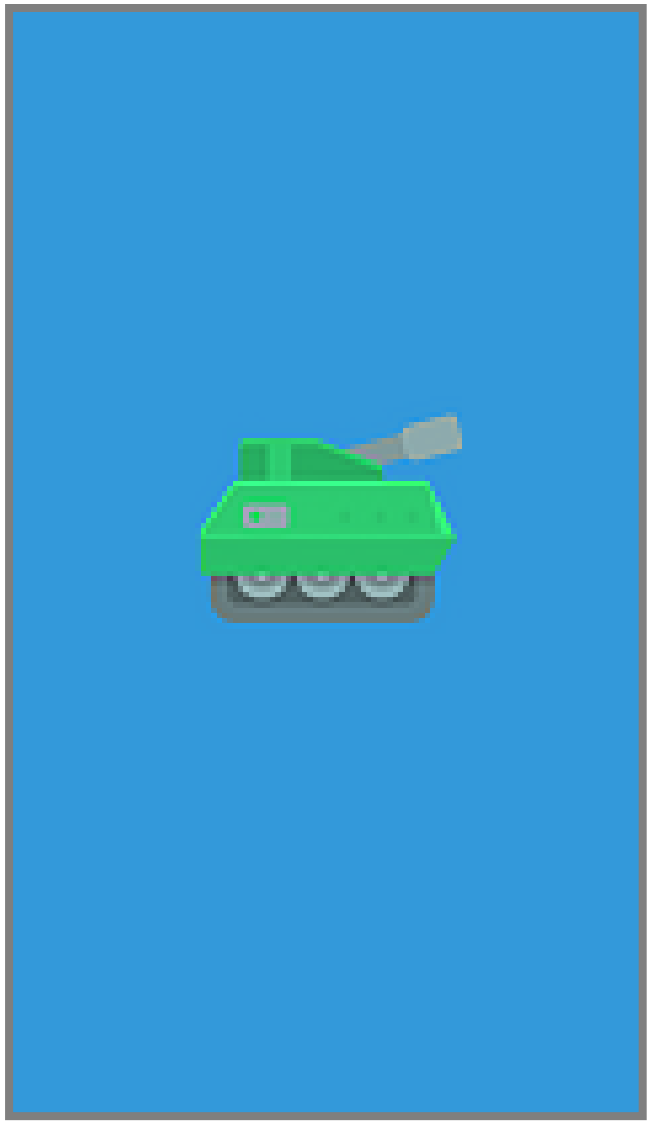
Match_parent or wrap_content?

```
<ImageView
   android:src="@drawable/tank"
   android:layout_width="_____"
   android:layout_height="_____"
/>
```



Match_parent or wrap_content?

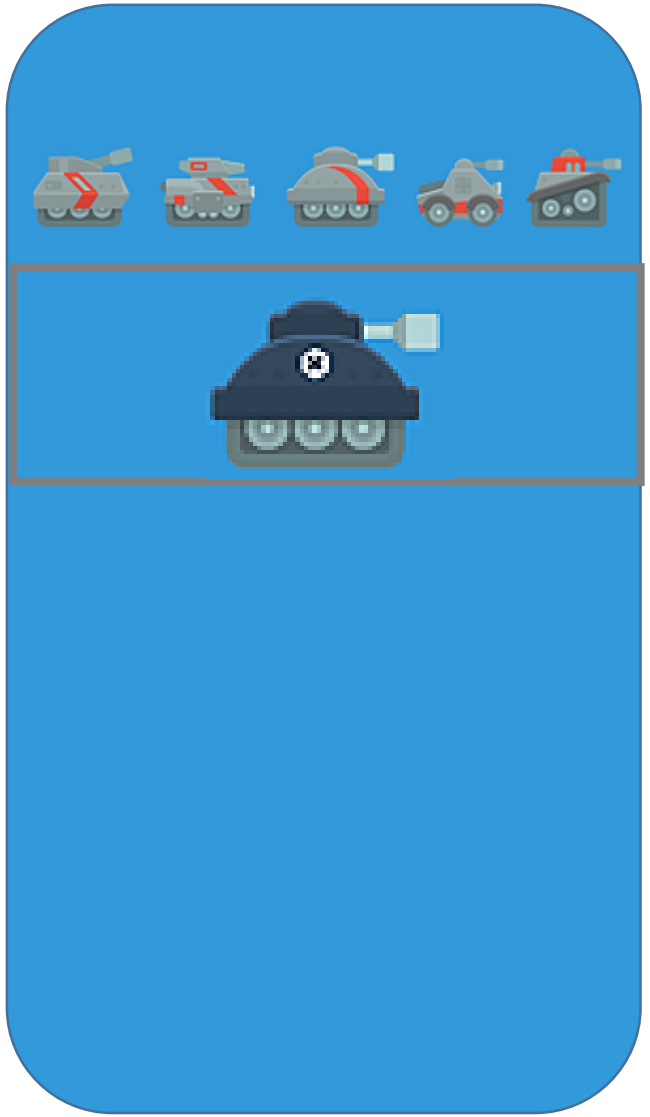
```
<ImageView
   android:src="@drawable/tank"
   android:layout_width="_____"
   android:layout_height="_____"
/>
```



Match_parent or wrap_content?

```
<ImageView
   android:src="@drawable/tank"
   android:layout_width="_____"
   android:layout_height="_____"
/>
```

A common error



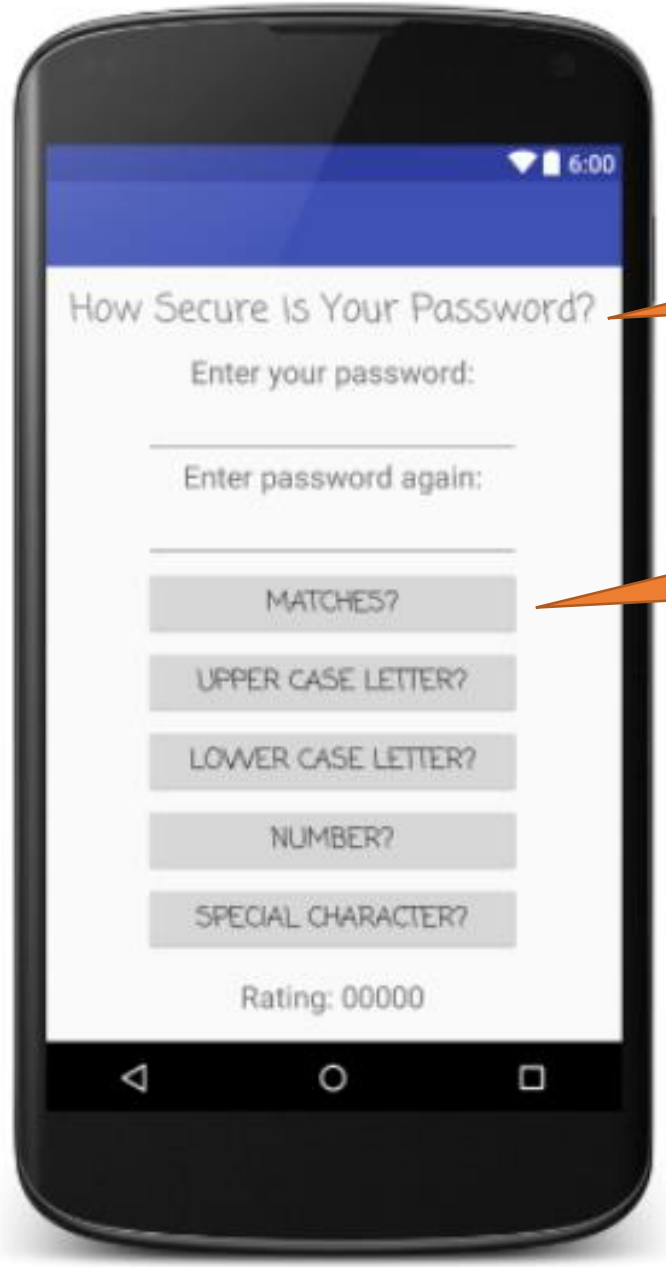
These 5 images?

This image?

Match_parent or wrap_content?

```
<ImageView
   android:src="@drawable/tank"
   android:layout_width="_____"
   android:layout_height="_____"
/>
```

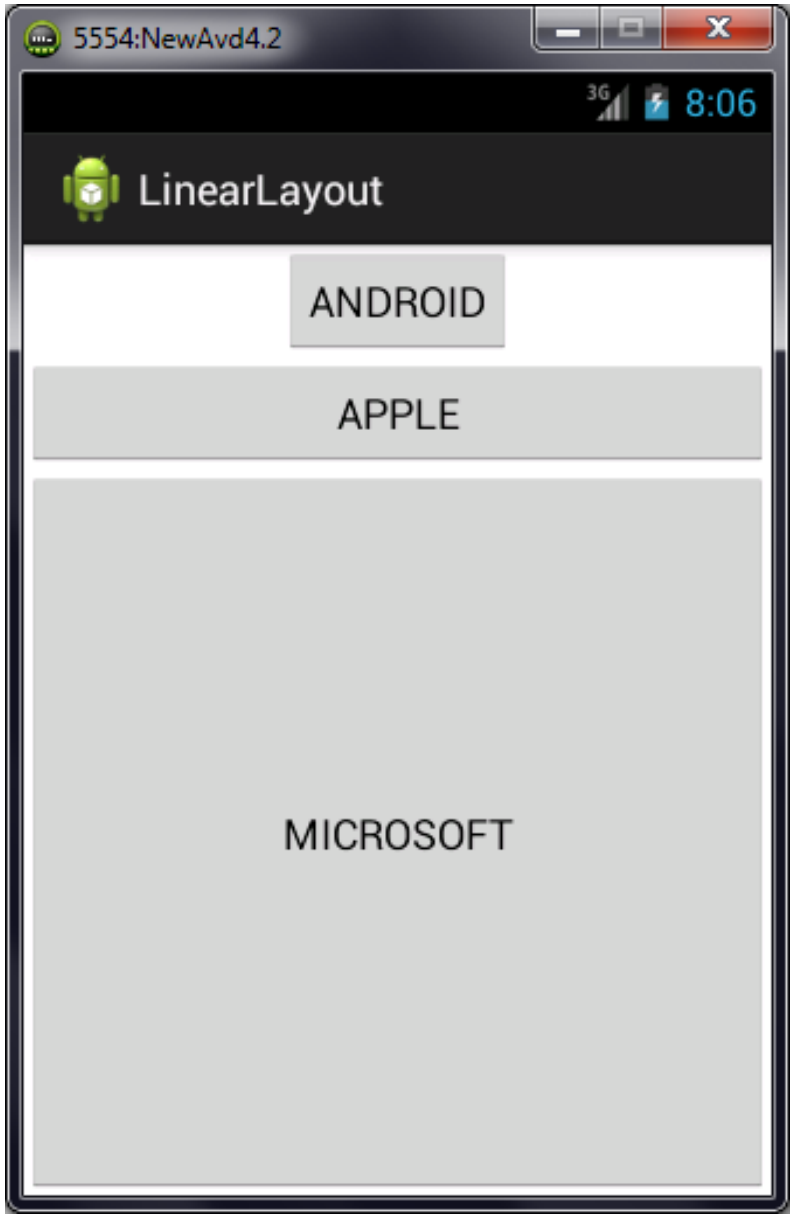
DIFFERENT WIDTHS ON CHILD VIEWS



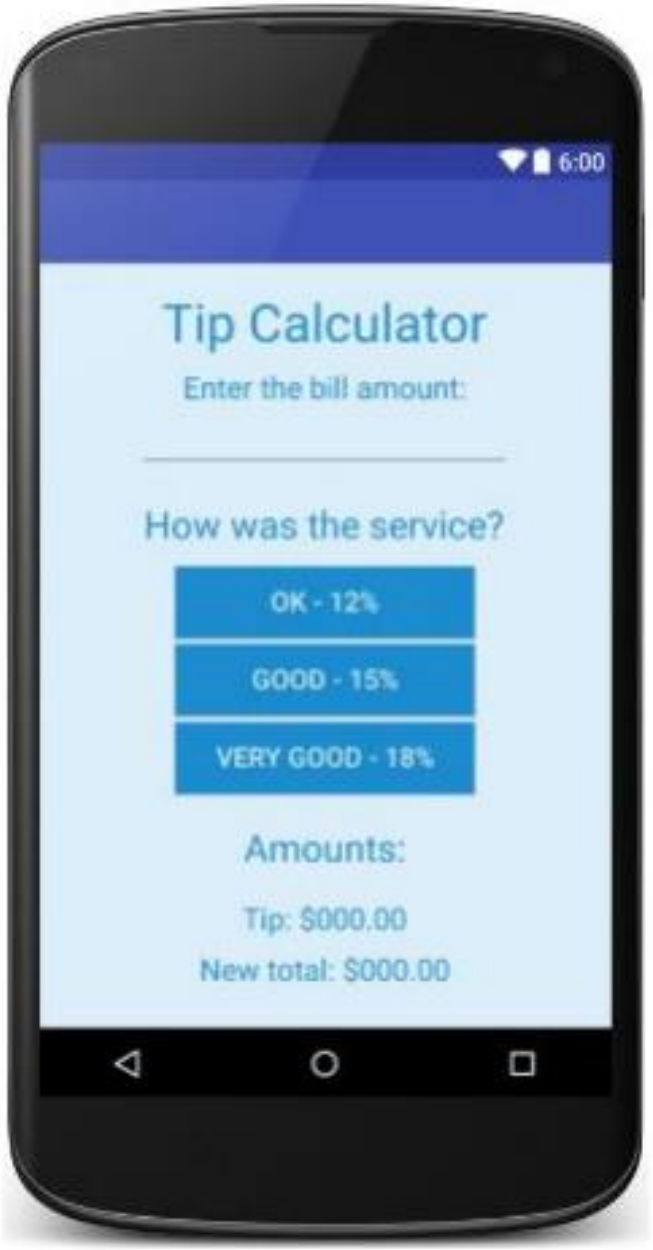
Width & Height?

Width & Height?

If a series of Views are all formatted the same, their height and width use DP, not wrap content.

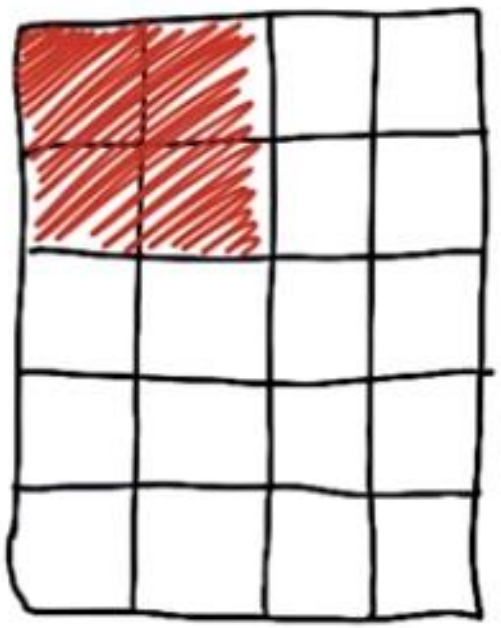


Wrap Content or Match Parent or Fixed DP?

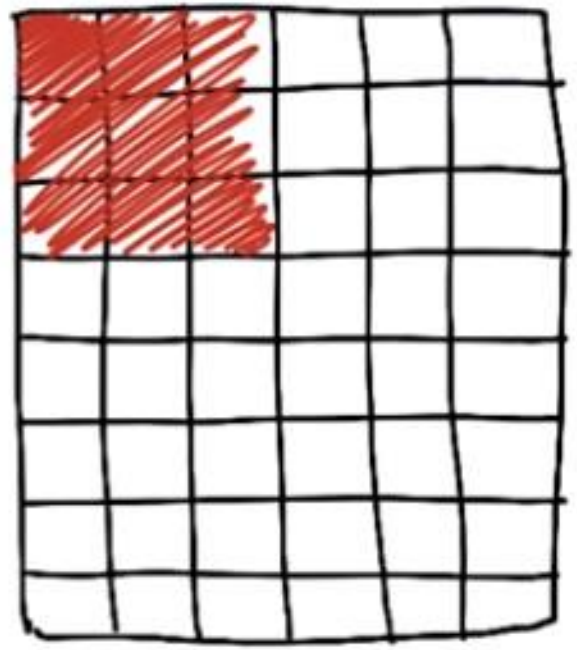


DENSITY-INDEPENDENT PIXELS

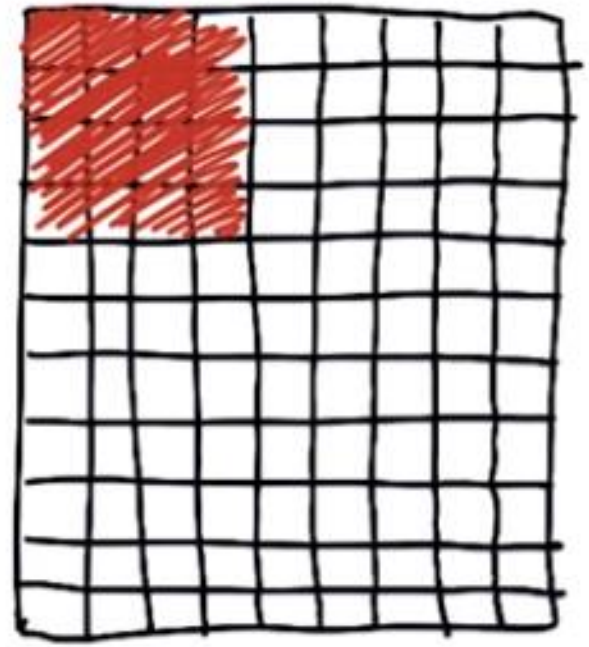
2 dp by 2 dp



Medium Resolution Device



High Resolution Device



Extra-High Resolution Device

Density Independent Pixels (DP)

- This is a size in Android. It can be used for height, width, text, margins, padding.
- It isn’t a fixed size. It is re-calculated for different phone screen resolutions.
- This means that the views are a standard proportion of the screen and don’t get smaller as screen resolutions improve.

dp (Density-Independent Pixel)


```
<TextView
    android:layout_width="160dp"
    android:layout_height="80dp"
    android:background="#00FF00"
    android:text="Hello"/>
```

DESCRIPTION | SAMPLE CODE

The screen of an **Android device** is made of rows and columns of glowing dots called **pixels**. Devices can range in **screen density**, which means how many pixels per inch (or dots per inch) are on the screen. For example, an mdpi (or medium density device) has 160 dots per inch, while an xxhdpi (extra extra high density device) has 480 dots per inch.

If we specify the size of views in pixel values, then views would appear very small on the higher density devices, where there are many pixels packed into a small area. If a button is too small, then it would be hard for the user to touch it.

To achieve a consistent physical size of Views, across devices of different screen densities, we use a unit of measure called a **density-independent pixel** (**dp** or **dip**, pronounced "dee pee" **or** "dip"). 1 dp is equal to 1 pixel on an mdpi device. 1 dp is equal to 3 pixels on an xxhdpi device, and so on for other devices. Per Material design guidelines, any touch target on the screen should be at least 48dp wide by 48dp tall. That way, a button in an app on one device will be approximately the same physical size as that button in the same app running on a device with a different screen density.

GETTING PAST ERRORS

```
<Text View
    android:text="Hapy Birthday"
    android:layout_width="150dp"
    android:layout_height="150"
    android:background="@android:color/darker_groy"
    >
```

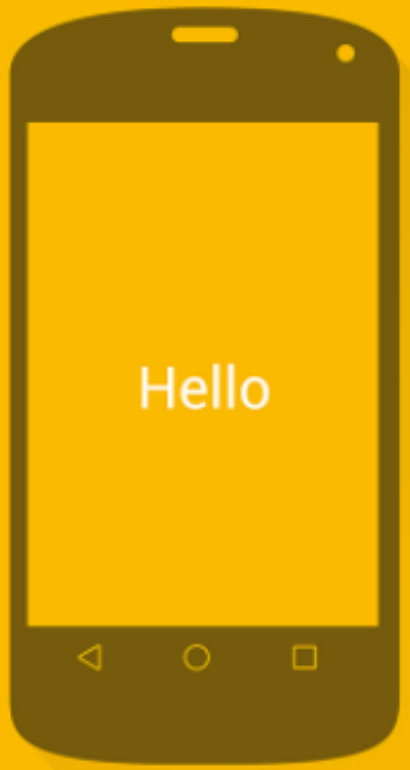
Uh oh! Invalid XML... help!

4 errors.

WRAP_CONTENT

- [ ] Change the width and height of the TextView to wrap_content
- [ ] Change the text to be more than 1 line of text on the device

sp (Scale-Independent Pixel)



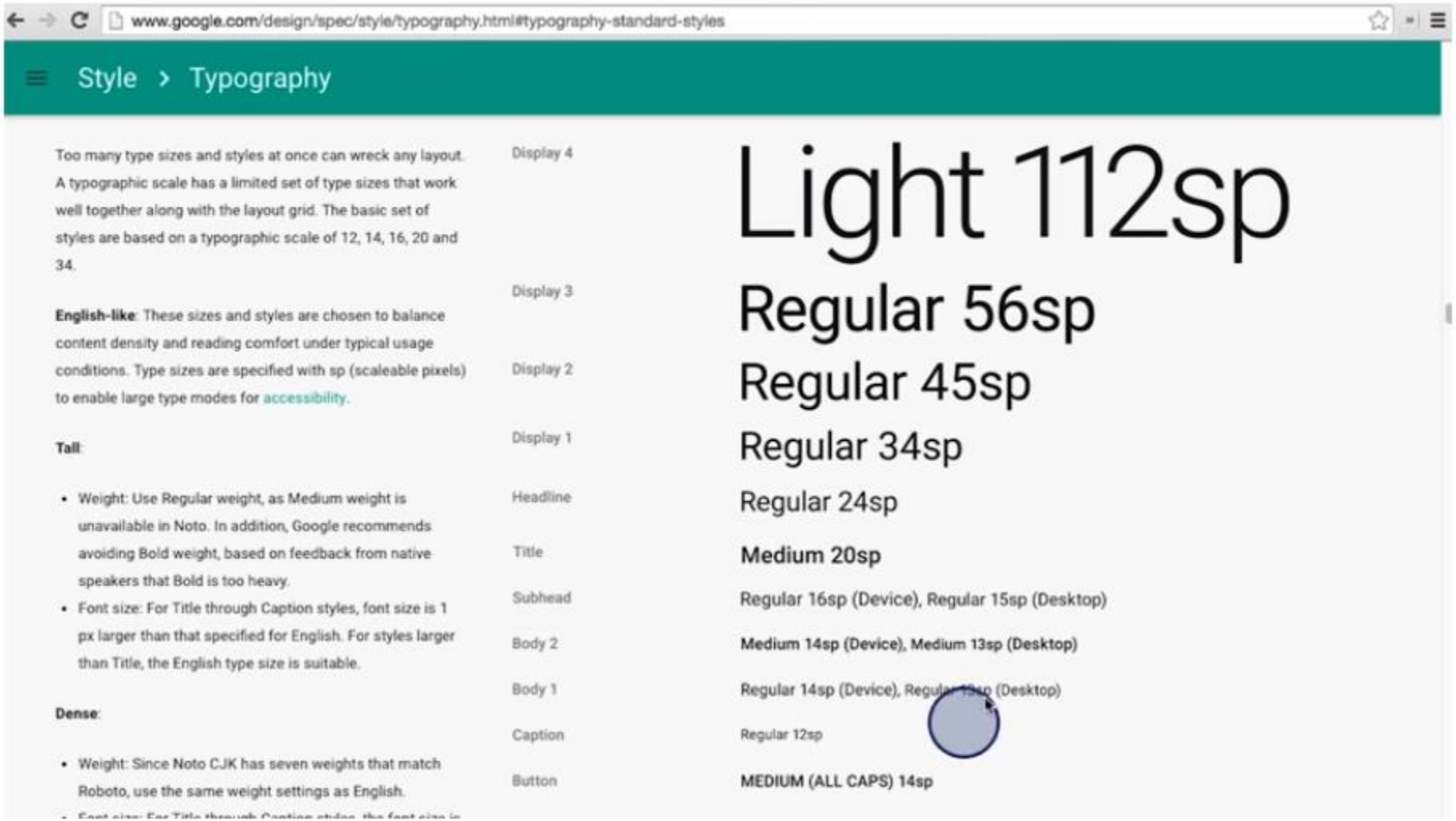
user selects **medium** font setting

DESCRIPTION | SAMPLE CODE

A **scale-independent pixel** (sp) is a unit of length for specifying the size of a font of type. Its length depends on the user's preference for font size, set in the Settings app of the Android device.

To respect the user's preferences, you should specify all font sizes in scale-independent pixels. All other measurements should be given in **device-independent pixels** (dp's).

```
<TextView
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:padding="8dp"
    android:textSize="20sp"
    android:text="Hello"/>
```




```
android:textAppearance="?android:textAppearanceSmall" />
android:textAppearance="?android:textAppearanceLarge"
```

Scale Independent Pixels (SP)

- This is a size in Android. It can be used for height, width, text, margins, padding.
- This is the same as DP – Android reads them as equivalent.
- It is intended for font sizes.

4. Circle and correct one problem in each View.

(a)

```
<TextView
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:text="Motorcycle"
    android:padding="25dp"
    android:textSize="20sp"
```

(b)

```
<JButton
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Continue"
    android:textSize="40sp"/>
```

(c)

```
<TextView
    android:layout_width="400dp"
    android:layout_height="100dp"
    android:text="Driving"
    android:textSize="20sp"/>;
```

(d)

```
<Image
  android:layout_height="wrap_content"
  android:layout_width="match_parent"
  android:src="@drawable/snowblower"/>
```

(e)

```
<EditText
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:hint="First Name"
    android:layout_height="wrap_content"
    android:layout_gravity="center"/>
```

(f)

```
<Button
  android:layout_width="match_parent"
  android:layout_height="match_parent"
  android:text="Introduction"
  android:textSize="24sp"/>
```