

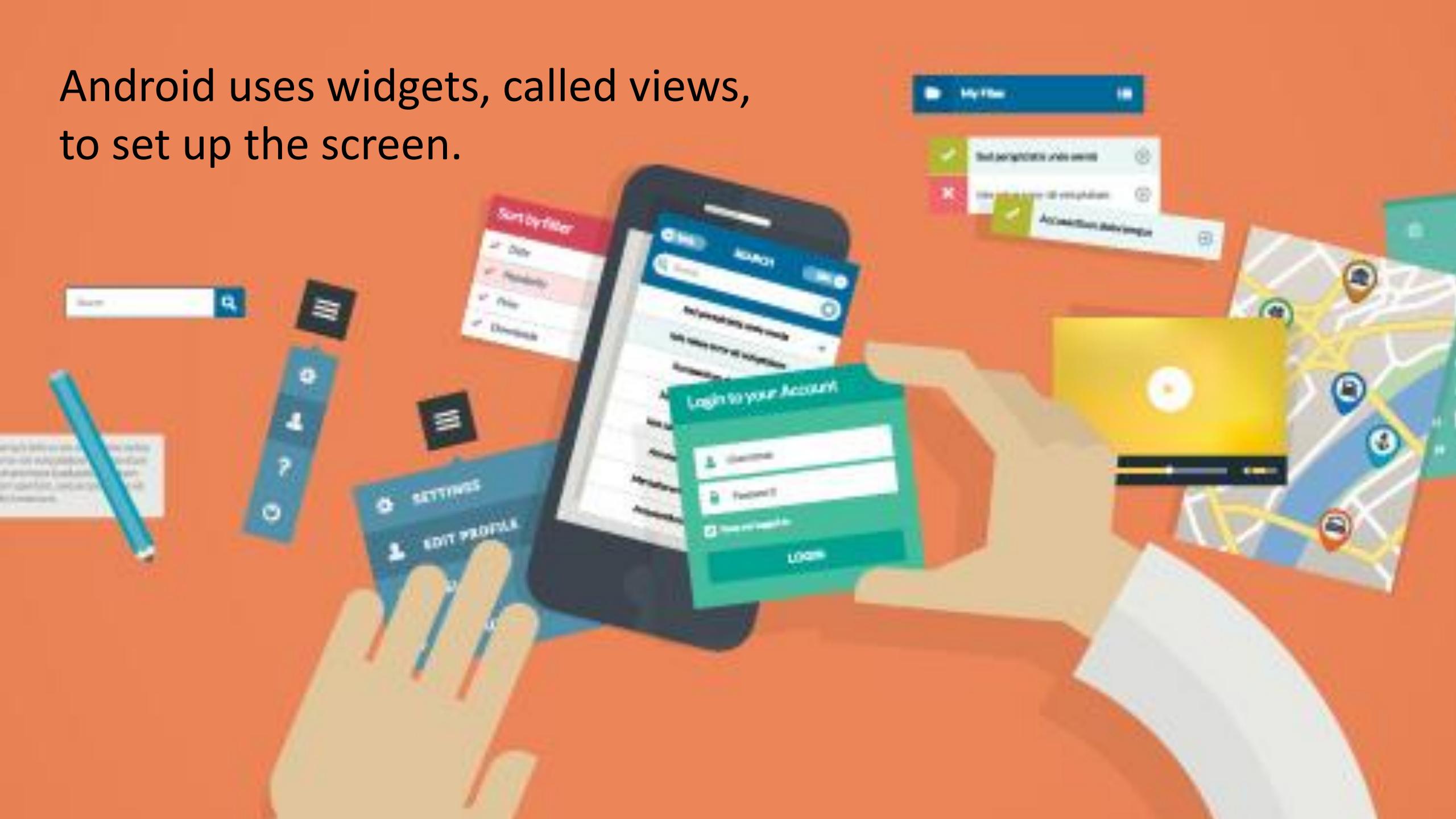
Views

Widgets in Android

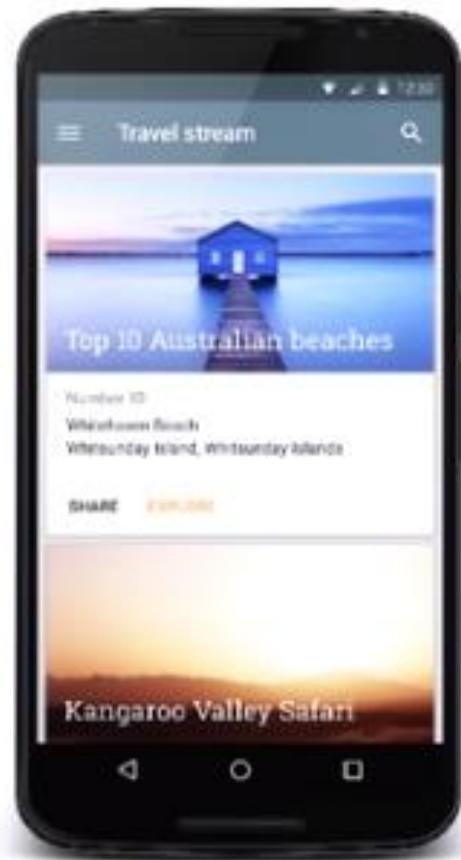


- eXtensible Markup Language
- A programming language
- Used in Android to set up the screen
- Tags
 - Have a start: <TextView
 - Many attributes
 - An end: />

Android uses widgets, called views,
to set up the screen.



VIEWS



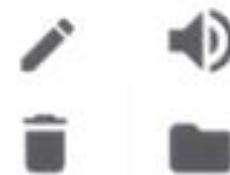
TextView

Morning Pizza

I'll be in your neighborhood doing errands
this weekend if you want to meet up for
brunch. Lemme know.

Show notifications

ImageView



Button



BUTTON

BUTTON



VIEWS

Identify the type of View

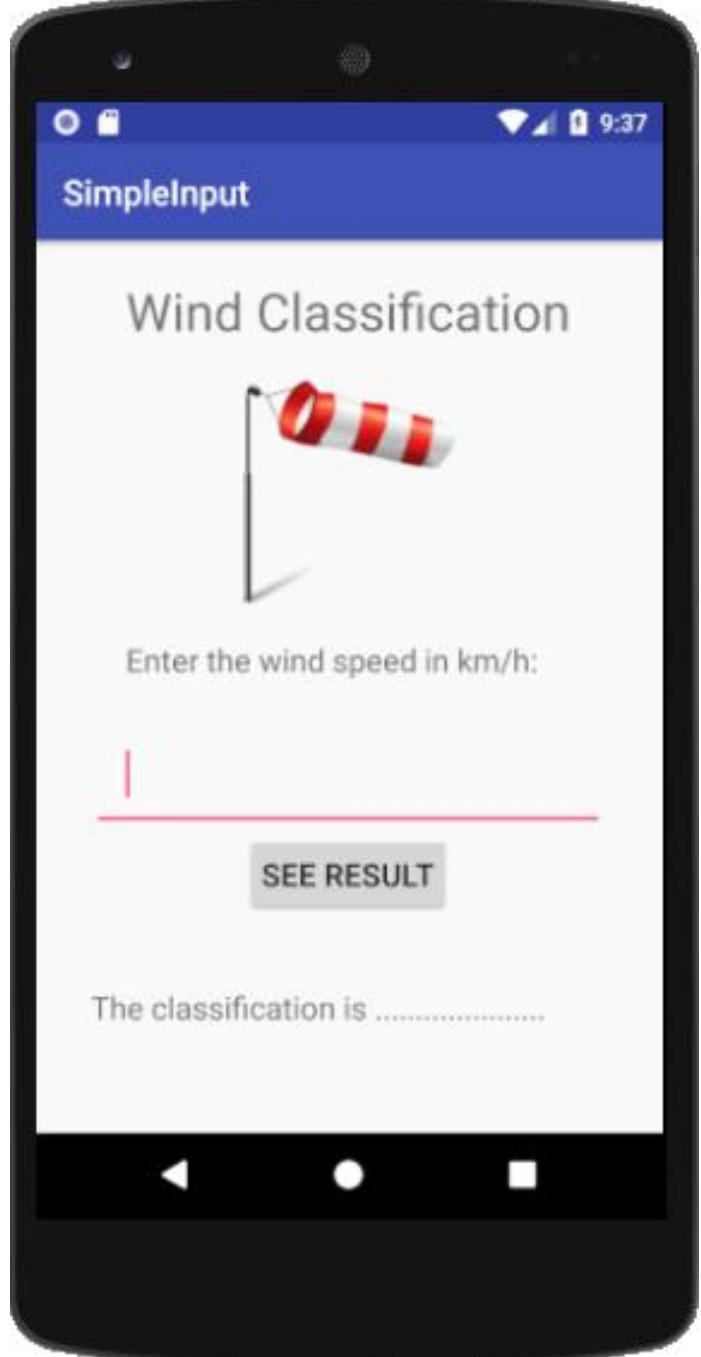
- | | | | |
|---|--------------------------------|---------------------------------|------------------------------|
| A | <input type="radio"/> TextView | <input type="radio"/> ImageView | <input type="radio"/> Button |
| B | <input type="radio"/> TextView | <input type="radio"/> ImageView | <input type="radio"/> Button |
| C | <input type="radio"/> TextView | <input type="radio"/> ImageView | <input type="radio"/> Button |
| D | <input type="radio"/> TextView | <input type="radio"/> ImageView | <input type="radio"/> Button |
| E | <input type="radio"/> TextView | <input type="radio"/> ImageView | <input type="radio"/> Button |



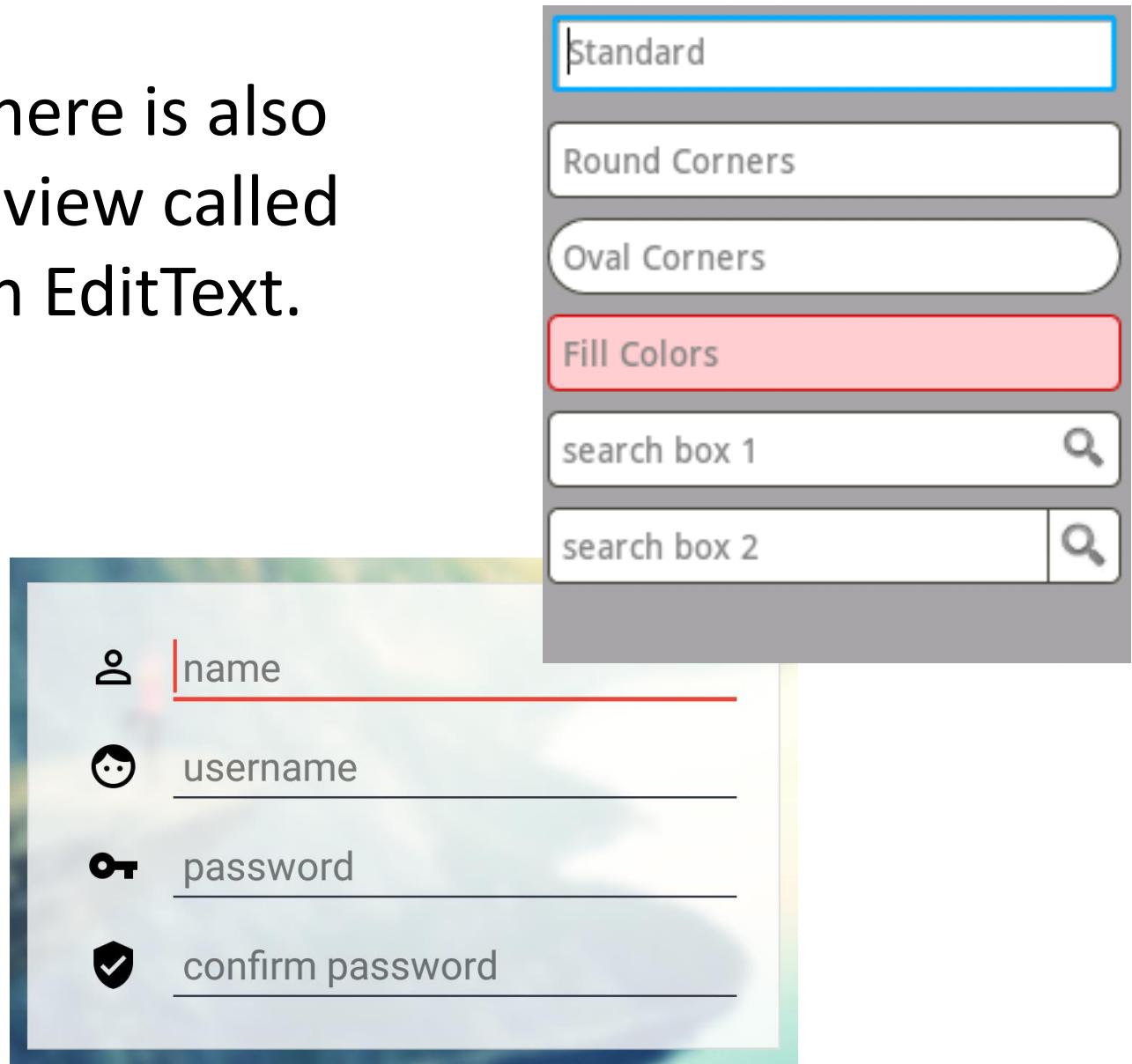
VIEWS

Identify the type of View

- | | | | |
|---|--------------------------------|---------------------------------|------------------------------|
| A | <input type="radio"/> TextView | <input type="radio"/> ImageView | <input type="radio"/> Button |
| B | <input type="radio"/> TextView | <input type="radio"/> ImageView | <input type="radio"/> Button |
| C | <input type="radio"/> TextView | <input type="radio"/> ImageView | <input type="radio"/> Button |
| D | <input type="radio"/> TextView | <input type="radio"/> ImageView | <input type="radio"/> Button |
| E | <input type="radio"/> TextView | <input type="radio"/> ImageView | <input type="radio"/> Button |



There is also
a view called
an EditText.





You place your
Views into a
Layout and ta-dah!

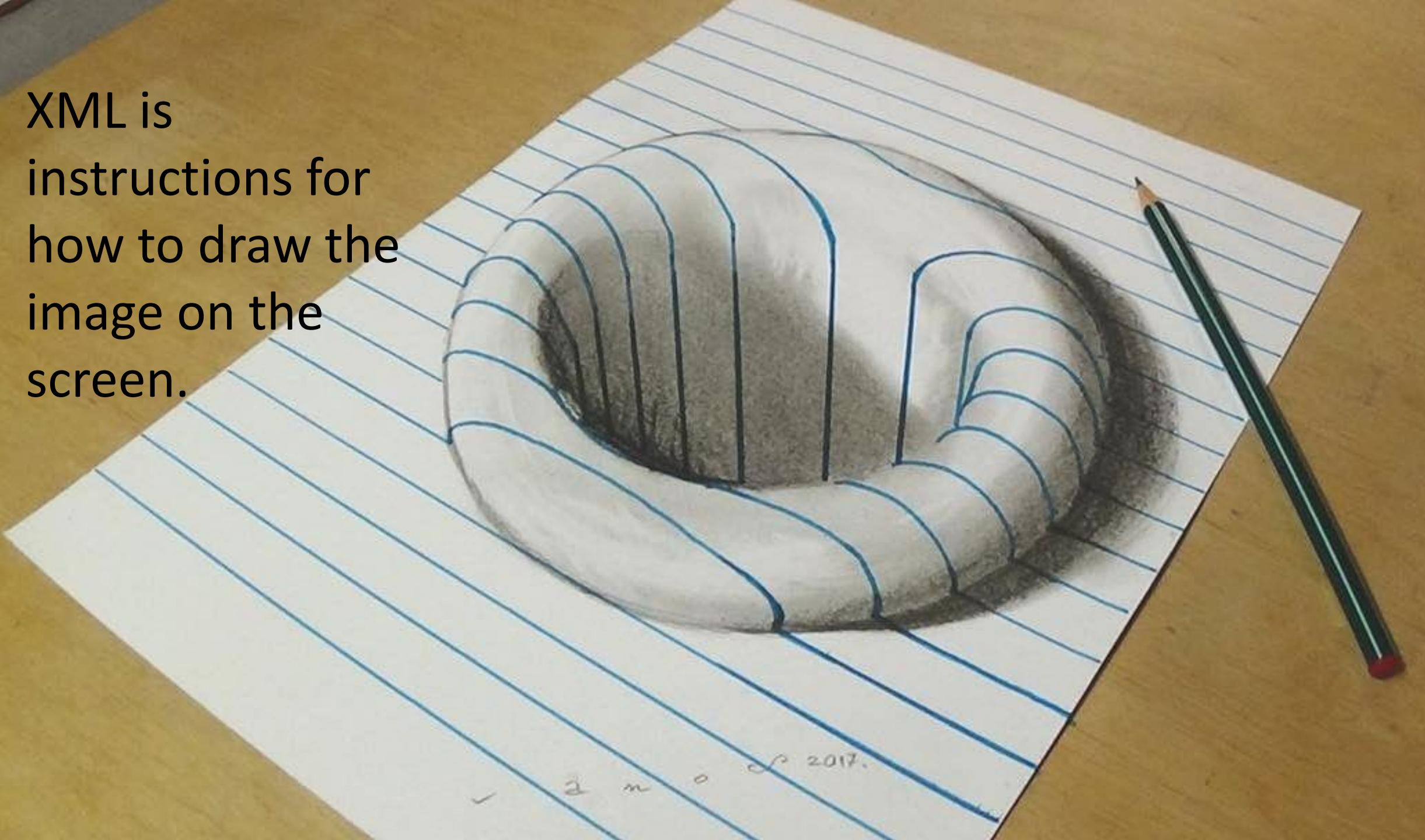
You have an
Android Screen.

Android Studio is a real developers program.
The training wheels are gone.

If you make a foolish mistake,
that's your problem.



XML is
instructions for
how to draw the
image on the
screen.



File Edit View Navigate Code Analyze Refactor Build Run Tools VCS Window Help

StoryCubes app src main res layout activity_main.xml

1: Project 2: Favorites

Java Code

Java Code

XML

XML

Preview

Gradle

Preview

Design Text

Messages Terminal Android Monitor TODO

Event Log Gradle Console

Gradle build finished in 17s 560ms (6 minutes ago)

17:12 CRLF UTF-8 Context: <no context>

The screenshot shows the Android Studio interface for a project named "StoryCubes". The main window displays the "activity_main.xml" layout file, which contains a single "LinearLayout" with a "Button". The "Text" tab of the editor shows the XML code for the layout:

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:paddingLeft="16dp"
    android:paddingRight="16dp"
    android:orientation="vertical" >

    <TextView
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="Welcome to Story Cubes"
        android:textSize="30dp"
        android:paddingTop="150dp"
        android:paddingBottom="100dp" />

    <Button
        android:id="@+id/send"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Begin"
        android:layout_gravity="center_horizontal"
        android:onClick="toSecond"/>
</LinearLayout>
```

Arrows point from the labels to specific parts of the interface: "Java Code" points to both the Java files in the Project structure and the Java code tab in the editor; "XML" points to the XML code in the editor and the XML tab in the editor; and "Preview" points to the preview pane showing a blue bar with the text "Story Cubes" and a "Welcome to Story Cubes" button.

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:paddingLeft="16dp"
    android:paddingRight="16dp"
    android:orientation="vertical" >

    <TextView
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="Welcome to Story Cubes"
        android:textSize="30dp"
        android:paddingTop="150dp"
        android:paddingBottom="100dp"/>

    <Button
        android:id="@+id/send"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Begin"
        android:layout_gravity="center_horizontal"
        android:onClick="toSecond"/>

</LinearLayout>
```



Tags

- XML creates views using tags.
- They start with < and End with />
- Be careful of the start and end Brackets. If you lose them or misplaced them, the code doesn't run.

Attributes

- When you create a new view, you tell XML how to format it.
- Colour, font, height, width are all attributes that can be specified

XML SYNTAX

```
<TextView  
    android:text="Happy Birthday!"  
    android:background="@android:color/darker_gray"  
    android:layout_width="150dp"  
    android:layout_height="75dp" />
```

↑
Attribute
Name

↑
Attribute
Value in
"Quotations"

XML SYNTAX

Line
numbers ↓

```
1 <TextView  
2     android:text="Happy Birthday!"  
3     android:textColor="@android:color/white"  
4     android:background="@android:color/black"  
5     android:layout_width="200dp"  
6     android:layout_height="300dp" />
```

1. What's the name of the XML element?

2. List all attribute names (not attribute values) separated by commas

3. On what line number is the tag closed?

<TextView

```
1  android:text="Welcome!"  
2  android:layout_width="match_parent"  
3  android:layout_height="0dp"  
4  android:layout_weight="1"  
5  android:padding="20dp"  
  
6  android:background="#FFFF00"  
7  android:textColor="#FF0000"  
8  android:layout_gravity="center"  
9  android:fontFamily="sans-serif"  
10 android:textSize="48sp" />
```



GETTING PAST ERRORS

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

Un oh! Invalid
XML... help!

4 errors.

```
<TextView  
    android:text="I got you a free hug. Surprise!"  
    android:background="#9C27B0"  
    android:textColor="#DCE775"  
    android:layout_width="wrap_content"  
    android:layout_height="wrap_content"  
    android:textSize="45sp" />
```

