

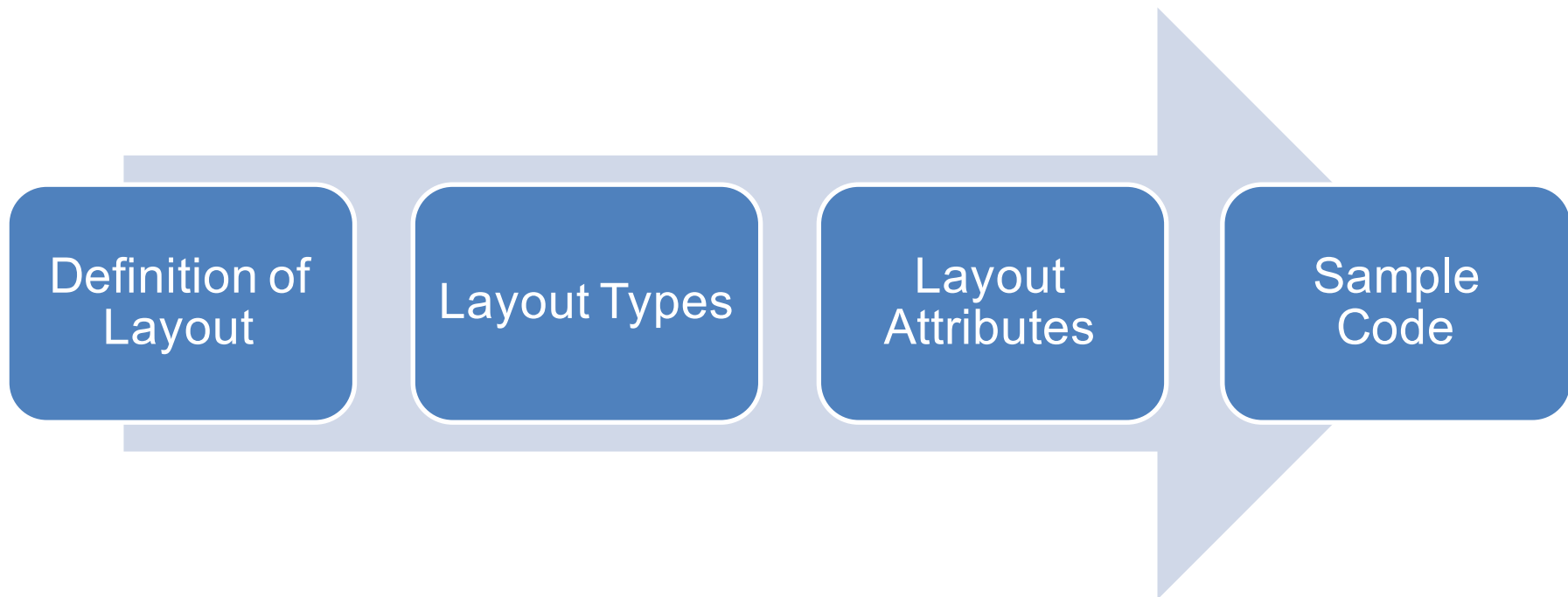
# ANDROID USER INTERFACE

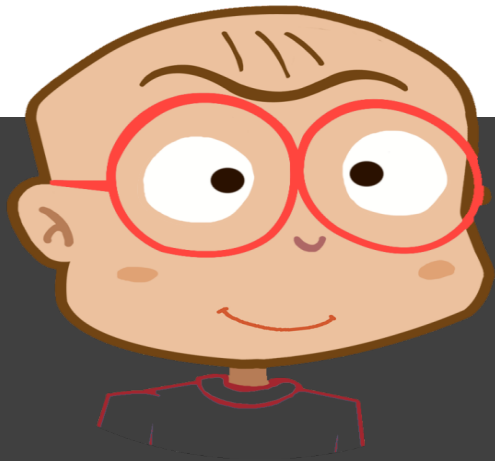
## *Basic ViewGroup*

START >>



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# Definition of layout



# Layout Definition

The **ViewGroup** is a subclass of **View** and provides invisible container that hold other

Views or other ViewGroups and define their layout properties.

There are many different layouts which are subclasses of ViewGroup

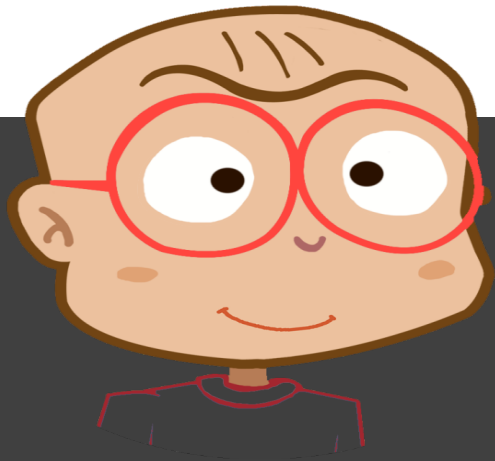
There are many ways to create UI for the Android Application

- ✓ XML
- ✓ Java
- ✓ "OpenGL"
- ✓ ...

```
<?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:orientation="vertical">

    <Button
        android:id="@+id/button2"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:onClick="buttonOnClick2"
        android:text="Button2" />
</LinearLayout>
```

```
@Override
protected void onCreate(Bundle savedInstanceState) {
    super.onCreate(savedInstanceState);
    setContentView(R.layout.test);
}
```

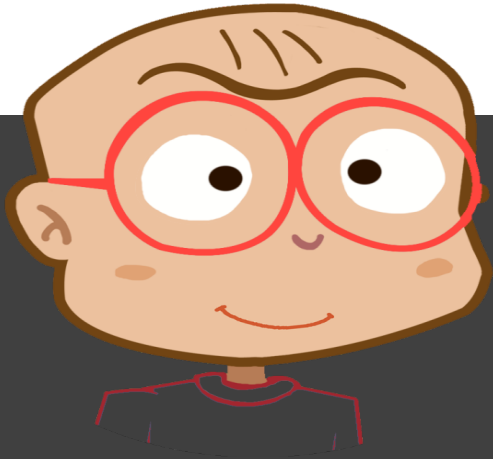


# Layout types



# Layout types

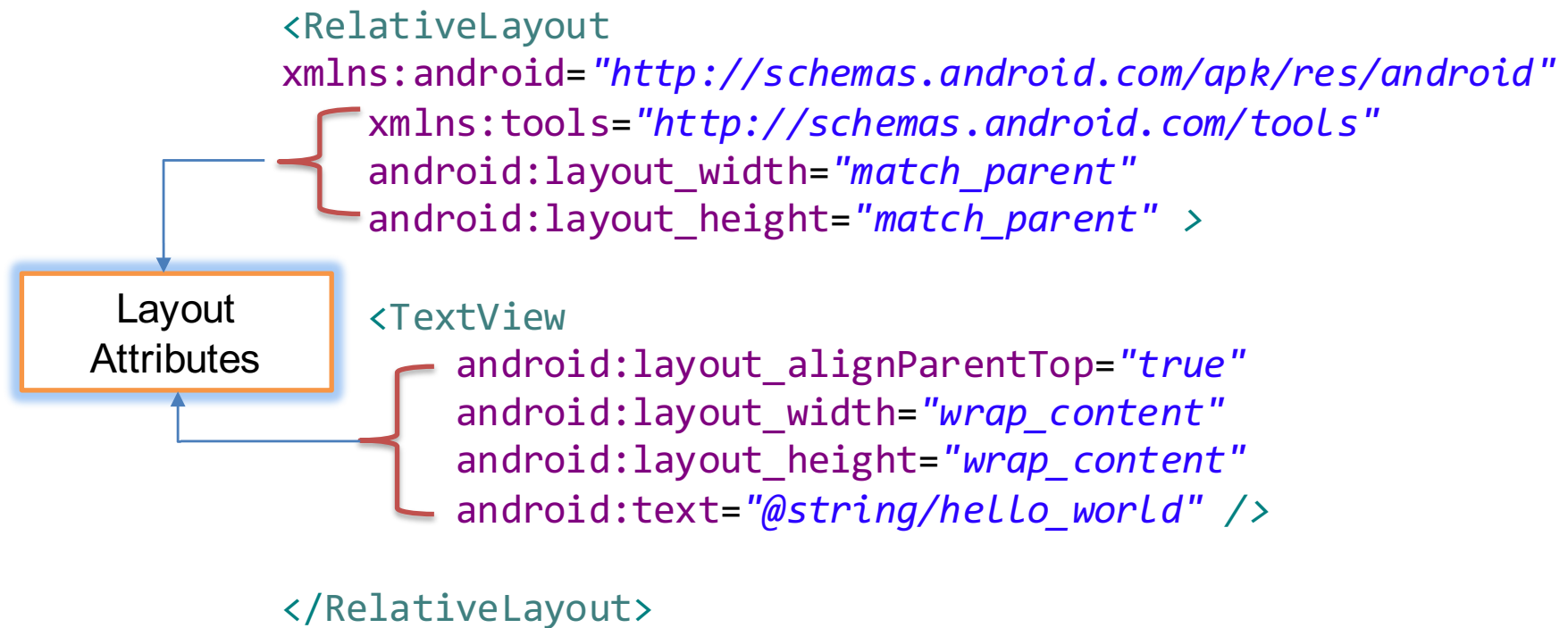
Linear Layout	<ul style="list-style-type: none"><li>• LinearLayout is a view group that aligns all children in a single direction, vertically or horizontally</li></ul>
Relative Layout	<ul style="list-style-type: none"><li>• RelativeLayout is a view group that displays child views in relative positions.</li></ul>
Table Layout	<ul style="list-style-type: none"><li>• TableLayout is a view that groups views into rows and columns.</li></ul>
Absolute Layout	<ul style="list-style-type: none"><li>• AbsoluteLayout enables you to specify the exact location of its children. <b>(This class was deprecated in API level 3.)</b></li></ul>
Frame Layout	<ul style="list-style-type: none"><li>• The FrameLayout is a placeholder on screen that you can use to display a single view.</li></ul>
List View	<ul style="list-style-type: none"><li>• ListView is a view group that displays a list of scrollable items</li></ul>
Grid View	<ul style="list-style-type: none"><li>• GridView is a ViewGroup that displays items in a two-dimensional, scrollable grid.</li></ul>
ScrollView	<ul style="list-style-type: none"><li>• The ScrollView class can be used to contain one View that might be too big to fit on one screen</li></ul>



# Layout Attributes



# Layout Attributes







## *Layout Attributes (cont)*

Attribute	Description
android:id	This is the ID which uniquely identifies the view.
android:layout_width	This is the width of the layout.
android:layout_height	This is the height of the layout
android:layout_marginTop	This is the extra space on the top side of the layout.
android:layout_marginBottom	This is the extra space on the bottom side of the layout.
android:layout_marginLeft	This is the extra space on the left side of the layout.
android:layout_marginRight	This is the extra space on the right side of the layout.



## *Layout Attributes (cont)*

Attribute	Description
android:layout_gravity	This specifies how child Views are positioned.
android:layout_weight	This specifies how much of the extra space in the layout should be allocated to the View.
android:paddingLeft	This is the left padding filled for the layout.
android:paddingRight	This is the right padding filled for the layout.
android:paddingTop	This is the top padding filled for the layout.
android:paddingBottom	This is the bottom padding filled for the layout.



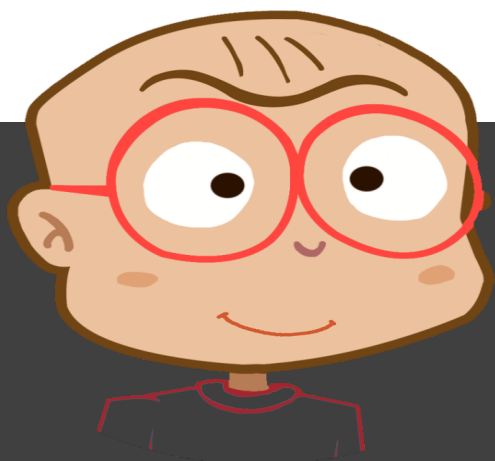
## *Layout Attributes (cont)*

`android:layout_width="match_parent"`

`android:layout_width="wrap_content"`

`android:layout_width="40px"`

`android:layout_width="40dp"`



## Sample code



# Sample code

## LinearLayout vertical

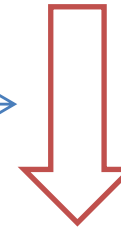
```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout
xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:orientation="vertical" >
    <Button
        android:id="@+id/button3"
        style="?android:attr/buttonStyleSmall"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Button" />
    <CheckBox
        android:id="@+id/checkbox1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="CheckBox" />
    .....
</LinearLayout>
```



AndroidUserInterface

Button

☐ CheckBox





## Sample code

### LinearLayout horizontal

```
<?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:orientation="horizontal" >
  <Button
    android:id="@+id/button3"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Button" />
  <Button
    android:id="@+id/button4"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Button" />
  .....
</LinearLayout>
```



AndroidUserInterface

Button

Button

Button



# Sample code

## LinearLayoutlayout\_weight

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout
xmlns:android="http://schemas.android.com/apk/res/an
droid"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:weightSum="3"
    android:orientation="horizontal" >
    <Button
        android:layout_weight="2"
        android:id="@+id/button3"
        android:layout_width="0dp"
        android:layout_height="wrap_content"
        android:text="Button1" />
    <Button
        android:layout_weight="1"
        android:id="@+id/button4"
        android:layout_width="0dp"
        android:layout_height="wrap_content"
        android:text="Button2" />
</LinearLayout>
```

Internal Use



AndroidUserInterface

Button1

Button2

2/3

1/3

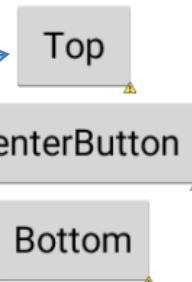


## Android UI Layout – RelativeLayout



AndroidUserInterface

```
<?xml version="1.0" encoding="utf-8"?>
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
    android:layout_height="match_parent" >
    <Button
        android:id="@+id/btnCenter"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_centerInParent="true"
        android:text="CenterButton" />
    <Button
        android:id="@+id/btnTop"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_above="@+id/btnCenter"
        android:layout_centerInParent="true"
        android:text="Top" />
    <Button
        android:id="@+id/btnBottom"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_below="@+id/btnCenter"
        android:layout_centerInParent="true"
        android:text="Bottom" />
</RelativeLayout>
```



Internal Use