

## 2.1 Layouts

### layout file

An XML layout file specifies the widgets (**View** objects) and widget arrangement (**ViewGroup** objects) in the UI. Layout files are stored in a project's **res/layout** directory.

### child / parent

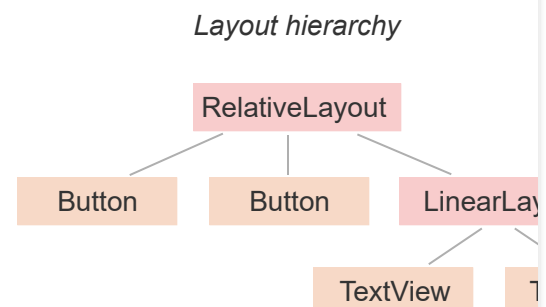
A View that appears in a ViewGroup is called a child, and the ViewGroup is called the parent.

#### PARTICIPATION ACTIVITY

#### 2.1.1: Layout hierarchy with nested ViewGroups.

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```
<?xml version="1.0" encoding="utf-8"?>
<RelativeLayout ...>
    <Button
        android:text="Button 1" ...
        android:id="@+id/button1" />
    <Button
        android:text="Button 2" ...
        android:layout_alignParentTop="true"
        android:layout_toRightOf="@id/button1"
        android:id="@+id/button2" />
    <LinearLayout ...
        android:layout_below="@id/button1"
        android:orientation="vertical">
        <TextView ... android:text="Text 1" />
        <TextView ... android:text="Text 2" />
    </LinearLayout>
</RelativeLayout>
```



Captions ^

1. A RelativeLayout is the root ViewGroup in the layout file.
2. The RelativeLayout contains three children, two Button widgets and a LinearLayout, which form the next level of the hierarchy.
3. The LinearLayout contains two child TextView widgets, which form the third hierarchy level.

## layout parameters

Every ViewGroup implements layout parameters that determine the layout position of the child Views. A layout parameter is specified with an XML attribute named **layout\_***param* where *param* is a unique name.

## layout\_width / layout\_height

All Views use the layout parameters `layout_width` and `layout_height` to specify the View's width and height.

## wrap\_content

The `wrap_content` constant makes the View just large enough to contain the View's contents.

## match\_parent

The `match_parent` constant makes the View fill the largest amount of space the parent ViewGroup permits.

Figure 2.1.1: Buttons using different `layout_width` and `layout_height` values.

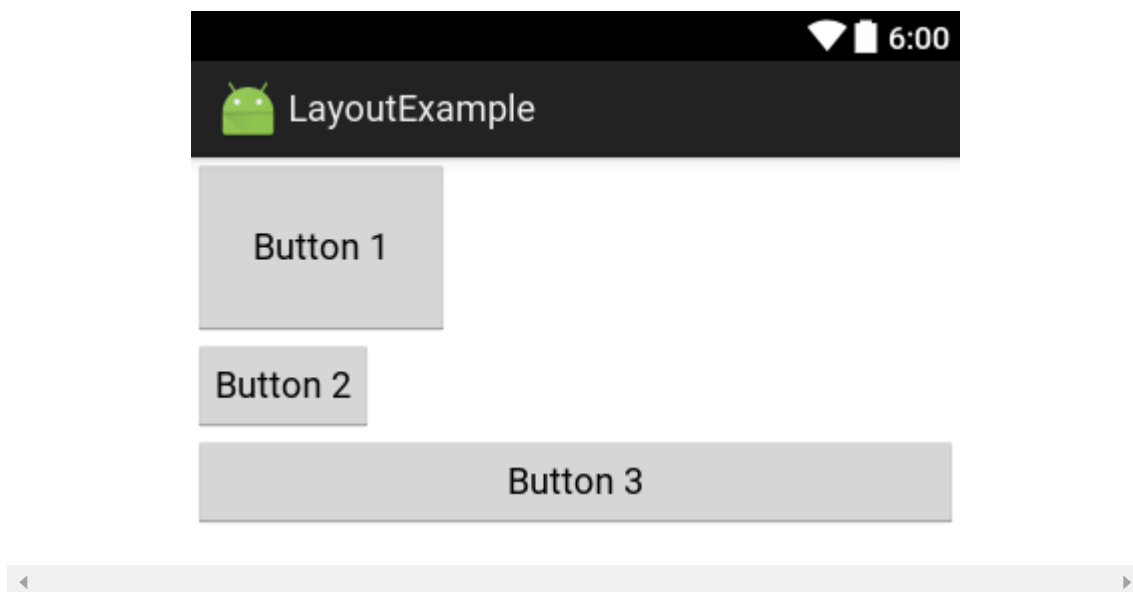
```
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:orientation="vertical">

    <Button
        android:layout_width="130dp"
        android:layout_height="90dp"
        android:text="Button 1" />

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

    <Button
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        android:text="Button 3" />

</LinearLayout>
```

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