

<b>Program No:</b>	<b>5</b>
<b>Roll No :</b>	<b>1545</b>
<b>Title of Program :</b>	<b>Relative layout</b>
<b>Objective :</b>	<b>Use relative layout and its different attributes</b>

## Relative Layout in Android

**RelativeLayout** is a flexible layout manager in Android that lets you position child views relative to each other or to the parent container. Unlike **LinearLayout**, which arranges elements strictly in one direction, **RelativeLayout** allows you to arrange components above, below, left, right, centered, or aligned to any edge of the parent or other views. This makes it ideal for creating complex and responsive user interfaces without deeply nested layouts, thus improving performance and keeping the view hierarchy flat

### Key Advantages:

- Position any view in relation to others or the parent boundary.
- Reduce or eliminate the need for nested layouts.
- Create more dynamic and adaptive layouts for different screen sizes and orientations

## Main Attributes of Relative Layout

**RelativeLayout** uses a set of unique attributes to define the position of its child elements, either relative to siblings or to the parent. Here are the most important and commonly used **RelativeLayout** attributes:

Attribute	Description
<code>android:layout_above</code>	Positions the bottom edge of this view above the given sibling view ID.

<code>android:layout_below</code>	Positions the top edge of this view below the given sibling view ID.
<code>android:layout_toLeftOf</code>	Places this view to the left of the specified sibling view ID.
<code>android:layout_toRightOf</code>	Places this view to the right of the specified sibling view ID.
<code>android:layout_alignParentTop</code>	Aligns the top edge of this view with the top edge of the parent container.
<code>android:layout_alignParentBottom</code>	Aligns the bottom edge of this view with the bottom of the parent container.
<code>android:layout_alignParentLeft</code>	Aligns the left edge of this view with the left edge of the parent.
<code>android:layout_alignParentRight</code>	Aligns the right edge of this view with the right edge of the parent.
<code>android:layout_centerInParent</code>	Centers the view both vertically and horizontally within the parent.
<code>android:layout_centerHorizontal</code>	Centers the view horizontally in the parent.
<code>android:layout_centerVertical</code>	Centers the view vertically in the parent.
<code>android:layout_alignBaseline</code>	Aligns the baseline of this view with the baseline of another specified view.
<code>android:layout_alignLeft</code>	Aligns the left edge of this view with that of another specified view.
<code>android:layout_alignRight</code>	Aligns the right edge of this view with that of another specified view.

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android:layout_alignTo p	Aligns the top edge of this view with that of another specified view.
android:layout_alignBo ttom	Aligns the bottom edge of this view with that of another specified view.

## Source Code:

### activity\_main.xml layout\_below

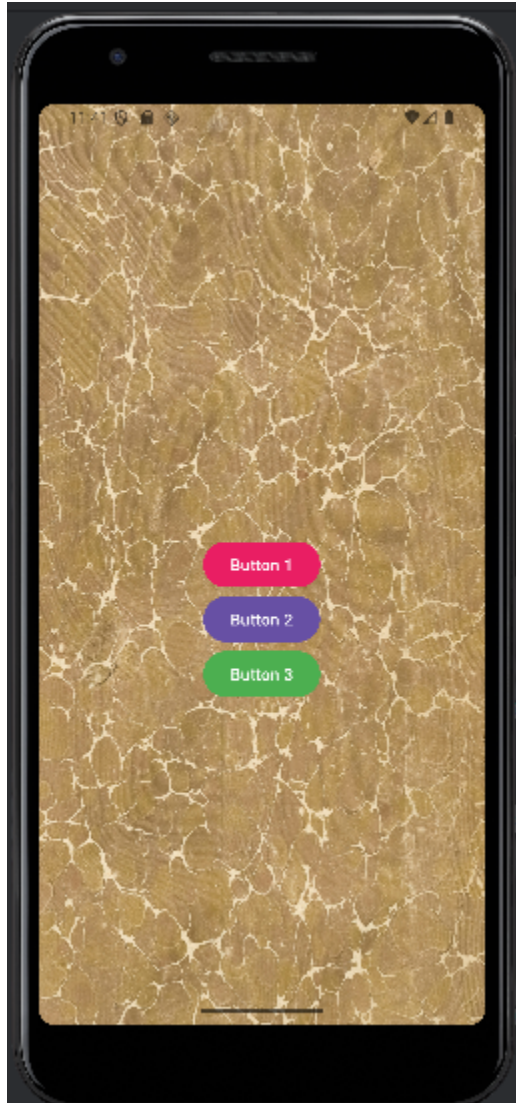
```
<?xml version="1.0" encoding="utf-8"?>
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:id="@+id/main"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:background="@drawable/bg"
    tools:context=".MainActivity">

    <Button
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:id="@+id/btn1"
        android:text="@string/b1"
        android:backgroundTint="#E91E63"
        android:layout_centerInParent="true"
        />

    <Button
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:id="@+id/btn2"
        android:text="@string/b2"
        android:layout_below="@id/btn1"
        android:layout_centerInParent="true"
        />

    <Button
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:id="@+id/btn3"
```

```
android:text="@string/b3"  
android:layout_below="@id/btn2"  
android:backgroundTint="#4CAF50"  
android:layout_centerInParent="true"  
/>  
</RelativeLayout>
```



activity\_main.xml

layout\_toLeftOf / layout\_toRightOf

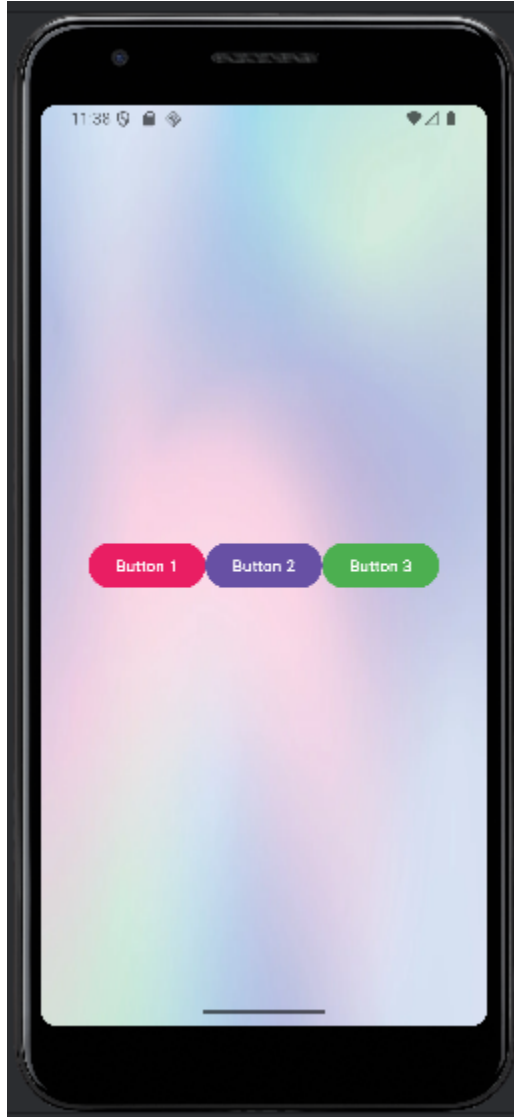
```
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:id="@+id/main"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:background="@drawable/bg1"
    android:layout_centerVertical="true"
    tools:context=".MainActivity">

    <Button
        android:id="@+id/btn2"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Button 2"
        android:layout_centerInParent="true" />

    <Button
        android:id="@+id/btn1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Button 1"
        android:backgroundTint="#E91E63"
        android:layout_toLeftOf="@id/btn2"
        android:layout_alignBaseline="@id/btn2" />

    <Button
        android:id="@+id/btn3"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Button 3"
        android:backgroundTint="#4CAF50"
        android:layout_toRightOf="@id/btn2"
        android:layout_alignBaseline="@id/btn2" />

</RelativeLayout>
```



## activity\_main.xml

### layout\_alignParentLeft / layout\_alignParentRight / layout\_alignParentBottom

```
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:id="@+id/main"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:background="@drawable/bg1"
    android:layout_centerVertical="true"
    tools:context=".MainActivity">

    <Button
        android:id="@+id/btn2"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Button 1"
        android:layout_alignParentLeft="true"
    />

    <Button
        android:id="@+id/btn1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Button 2"
        android:backgroundTint="#E91E63"
        android:layout_alignParentRight="true" />

    <Button
        android:id="@+id/btn3"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Button 3"
        android:layout_alignParentBottom="true" />

    <Button
        android:id="@+id/btn4"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Button 4"
        android:backgroundTint="#E91E63"
        android:layout_alignParentBottom="true"
        android:layout_alignParentRight="true"
    />

</RelativeLayout>
```





## layout\_centerInParent

```
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:id="@+id/main"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:background="@drawable/bg1"
    android:layout_centerVertical="true"
    tools:context=".MainActivity">

    <Button
        android:id="@+id/btn1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Button 1"
        android:layout_alignParentLeft="true" />

    <Button
        android:id="@+id/btn2"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Button 2"
        android:backgroundTint="#E91E63"
        android:layout_centerInParent="true"
        android:layout_alignParentBottom="true"
        />

    <Button
        android:id="@+id/btn3"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Button 3"
        android:backgroundTint="#4CAF50"
        android:layout_alignParentRight="true" />

</RelativeLayout>
```



## activity\_main.xml

```
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:id="@+id/main"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:background="@drawable/bg1"
    android:layout_centerVertical="true"
    tools:context=".MainActivity">

    <Button
        android:id="@+id/btn1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Button 1"
        android:layout_marginHorizontal="10sp"
        android:layout_centerInParent="true" />

    <Button
        android:id="@+id/btn2"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Button 2"
        android:backgroundTint="#E91E63"
        android:layout_toLeftOf="@id/btn1"
        android:layout_centerInParent="true"
        />

    <Button
        android:id="@+id/btn3"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Button 3"
        android:backgroundTint="#4CAF50"
        android:layout_centerInParent="true"
        android:layout_above="@id/btn1"
        />

    <Button
        android:id="@+id/btn4"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Button 4"
        android:backgroundTint="#4CAF50"
        android:layout_toRightOf="@id/btn1"
        android:layout_centerInParent="true"
        />

    <Button
```

```
android:id="@+id/btn5"  
android:layout_width="wrap_content"  
android:layout_height="wrap_content"  
android:text="Button 5"  
android:backgroundTint="#4CAF50"  
android:layout_below="@id/btn1"  
android:layout_centerInParent="true"  
</>  
</RelativeLayout>
```

