



# Android Class

**#Android Notes**

# Basic UI Controls



# UI Controls

- Android provides a wide variety of controls you can use in your UI, such as buttons, text fields, progress bars, check box, radio button, toggle buttons, and many more.



# TextView Control



# TextView Control

- **TextView** is a user interface control which is used to set and display the text to the user .
- The TextView control will act as like label control and it won't allow users to edit the text.



# Properties Of Control

Property	Description
<code>android:id</code>	This is the ID which uniquely identifies the control
<code>android:fontFamily</code>	This property specifies font family for control
<code>android:hint</code>	This property specifies hint for the control
<code>android:gravity</code>	Specifies how to align the text by the view's x- and/or y-axis
<code>android:maxHeight</code>	Specifies maximum height for the control
<code>android:maxWidth</code>	Specifies maximum width for the control
<code>android:minHeight</code>	Specifies minimum height for the control
<code>android:minWidth</code>	Specifies minimum width for the control
<code>android:text</code>	Display text



## Cont...

<b>android:textSize</b>	Specifies text size . Recommended dimension type for text is "sp"(scaled-pixels) (example: 15sp).
<b>android:textStyle</b>	Style (bold, italic, bolditalic) for the text.
<b>android:textAlignment</b>	Specifies alignment of the text
<b>android:textAllCaps</b>	Specifies the text in ALL CAPS. Accept 2 values either "true" or "false".
<b>android:textColor</b>	Specifies text color
<b>android:textColorHint</b>	Specifies hint color
<b>android:layout_width</b>	Specifies width of the control
<b>android:layout_height</b>	Specifies height of the control



# Layout Height And Width

- Layout height and width property has three value :-
- **match\_parent** :- Used to define width or height of a view or control in full screen horizontally or vertically.
- **fill\_parent** :- **fill\_parent** and **match\_parent** are same property, but now it has been deprecated and replaced by **match\_parent** .
- **wrap\_content** :- Used to define width or height of a view or control according to the content.
- **Note** :-You can also specifies height and width in dp(Density-independent Pixels) also as per your requirement.





# About dp, dip, sp and px

- **dp:** Density Independent Pixel, it varies based on screen density . In 160 dpi screen, 1 dp = 1 pixel. Except for font size, use dp always.
- **dip:** dip == dp. In earlier Android versions dip was used and later changed to dp.



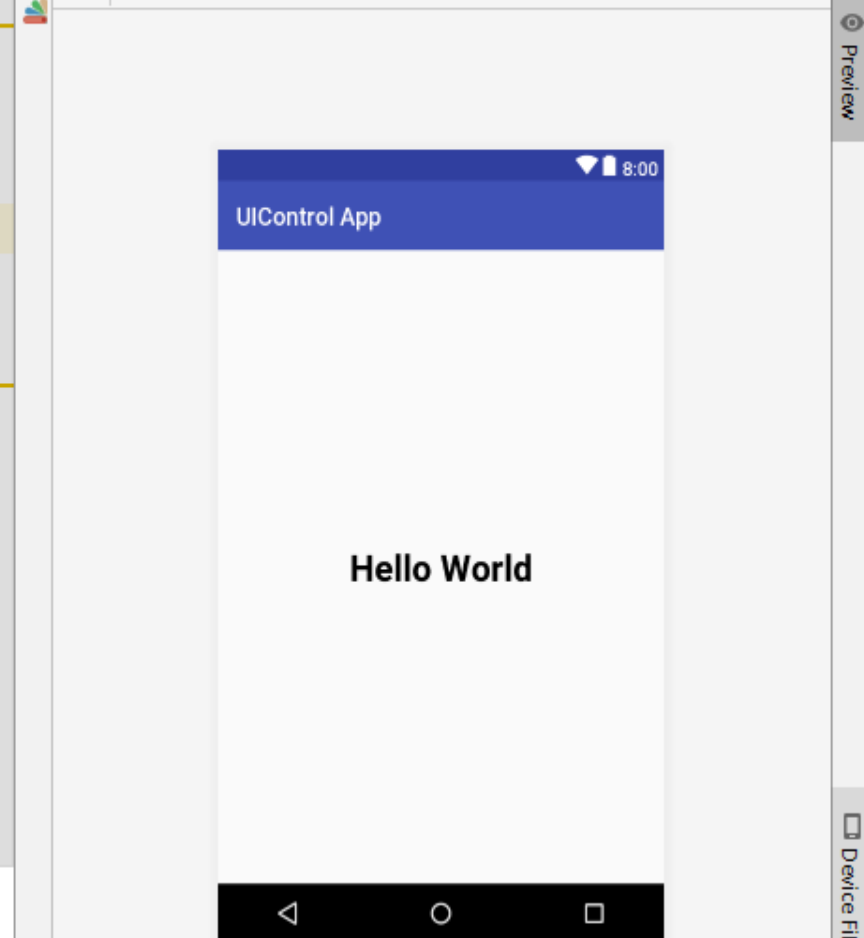
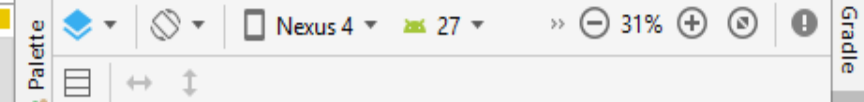
## Cont...

- **sp**: Scale Independent Pixel, scaled based on user's font size preference. Fonts should use sp.
- **px**: our usual standard pixel which maps to the screen pixel.
- **Note :- Always use dp and sp only. sp for font sizes and dp for everything else.** It will make UI compatible for Android devices with different densities.



```
1 <?xml version="1.0" encoding="utf-8"?>
2 <LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
3     xmlns:app="http://schemas.android.com/apk/res-auto"
4     xmlns:tools="http://schemas.android.com/tools"
5     android:layout_width="match_parent"
6     android:layout_height="match_parent"
7     tools:context=".TextviewActivity">
8     <TextView
9         android:layout_width="match_parent"
10        android:layout_height="wrap_content"
11        android:text="Hello World"
12        android:id="@+id/tv1"
13        android:layout_gravity="center"
14        android:textAlignment="center"
15        android:textStyle="bold"
16        android:textSize="30sp"
17        android:textColor="@android:color/black"/>
18 </LinearLayout>
```

Preview



LinearLayout

Design Text

TODO Logcat Build Terminal

Event Log

```
1 package com.example.akashtechlabs.uicontrolapp;
2
3 import ...
4
5
6
7 public class TextviewActivity extends AppCompatActivity {
8     //Create Textview Object
9     TextView textView;
10
11     @Override
12     protected void onCreate(Bundle savedInstanceState) {
13         super.onCreate(savedInstanceState);
14         setContentView(R.layout.activity_textview);
15         //Initialize textview object
16         textView = findViewById(R.id.tv1);
17     }
18 }
19
```

TextviewActivity &gt; onCreate()

# Output



# EditText Control



# EditText Control

- The **EditText** is an extension of **TextView** that possesses rich editing capabilities.
- It provide a text field to allow the user to input text.



# Properties Of Control

Property	Description
<code>android:id</code>	It is used to uniquely identify the control
<code>android:text</code>	It is used to set the text.
<code>android:hint</code>	It is used to display the hint text when text is empty
<code>android:gravity</code>	It is used to specify how to align the text like left, right, center, top, etc.
<code>android:textColor</code>	It is used to change the color of text.
<code>android:textColorHint</code>	It is used to change the text color of hint text.
<code>android:textSize</code>	It is used to specify the size of text.
<code>android:textStyle</code>	It is used to change the style (bold, italic, bolditalic) of text.





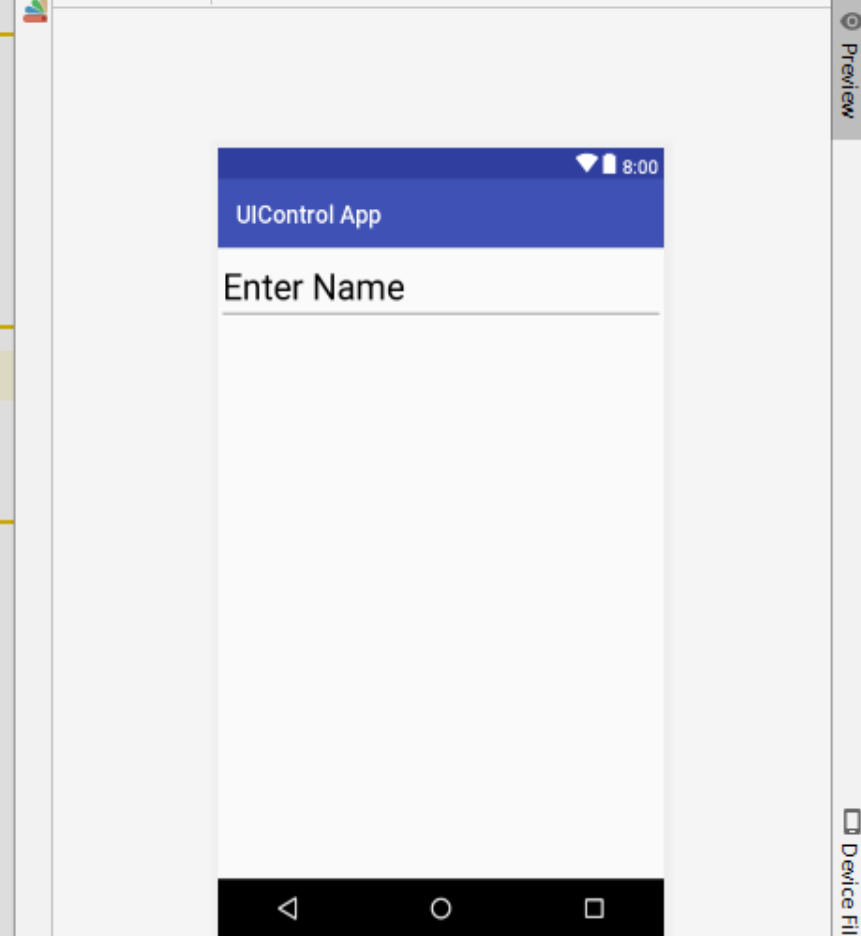
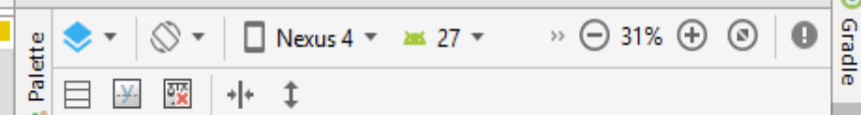
## Cont...

<b>android:background</b>	It is used to set the background color for edit text control
<b>android:inputType</b>	It is used to specify the type of text being placed in a text fields.
<b>android:fontFamily</b>	It is used to specify the fontFamily for the text.
<b>android:editable</b>	If we set false, EditText won't allow us to enter or modify text
<b>android:drawableBottom</b>	This is the drawable to be drawn below the text.
<b>android:drawableRight</b>	This is the drawable to be drawn to the right of the text.
<b>android:drawableBottom</b>	This is the drawable to be drawn to the bottom of the text.
<b>android:layout_width</b>	Specifies width of the control
<b>android:layout_height</b>	Specifies height of the control



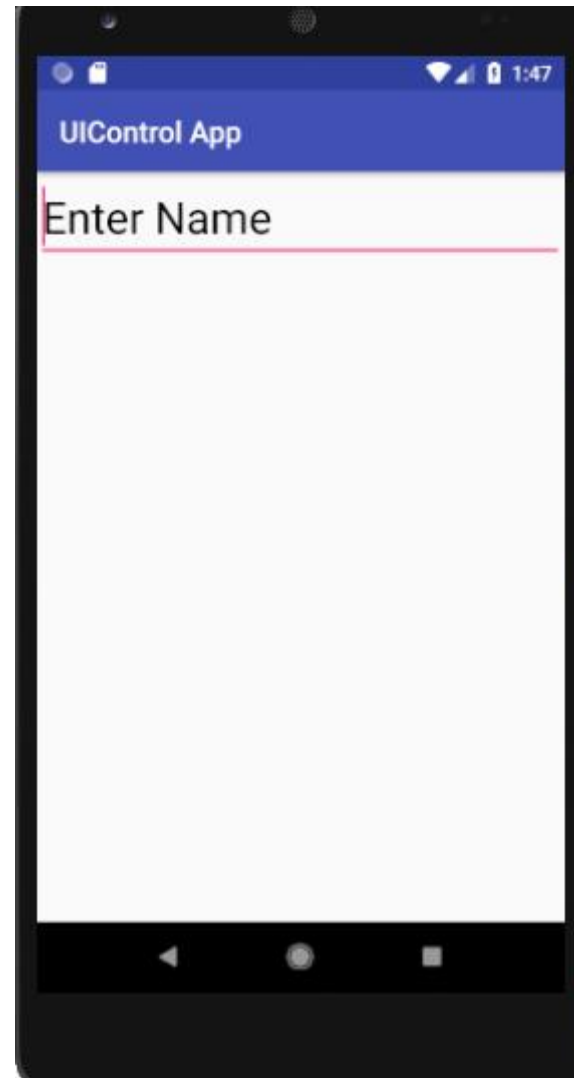
```
1 <?xml version="1.0" encoding="utf-8"?>
2 <LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
3     xmlns:app="http://schemas.android.com/apk/res-auto"
4     xmlns:tools="http://schemas.android.com/tools"
5     android:layout_width="match_parent"
6     android:layout_height="match_parent"
7     tools:context=".EdittextActivity">
8
9     <EditText
10         android:id="@+id/et1"
11         android:layout_width="match_parent"
12         android:layout_height="wrap_content"
13         android:hint="Enter Name"
14         android:textColorHint="@android:color/black"
15         android:textSize="30sp" />
16 </LinearLayout>
```

Preview



```
1 package com.example.akashtechlabs.uicontrolapp;
2
3 import ...
4
5
6
7 public class EdittextActivity extends AppCompatActivity {
8     EditText et1;
9
10
11     @Override
12     protected void onCreate(Bundle savedInstanceState) {
13         super.onCreate(savedInstanceState);
14         setContentView(R.layout.activity_edittext);
15         et1 = findViewById(R.id.et1);
16     }
17 }
18
```

# Output





# Button Control



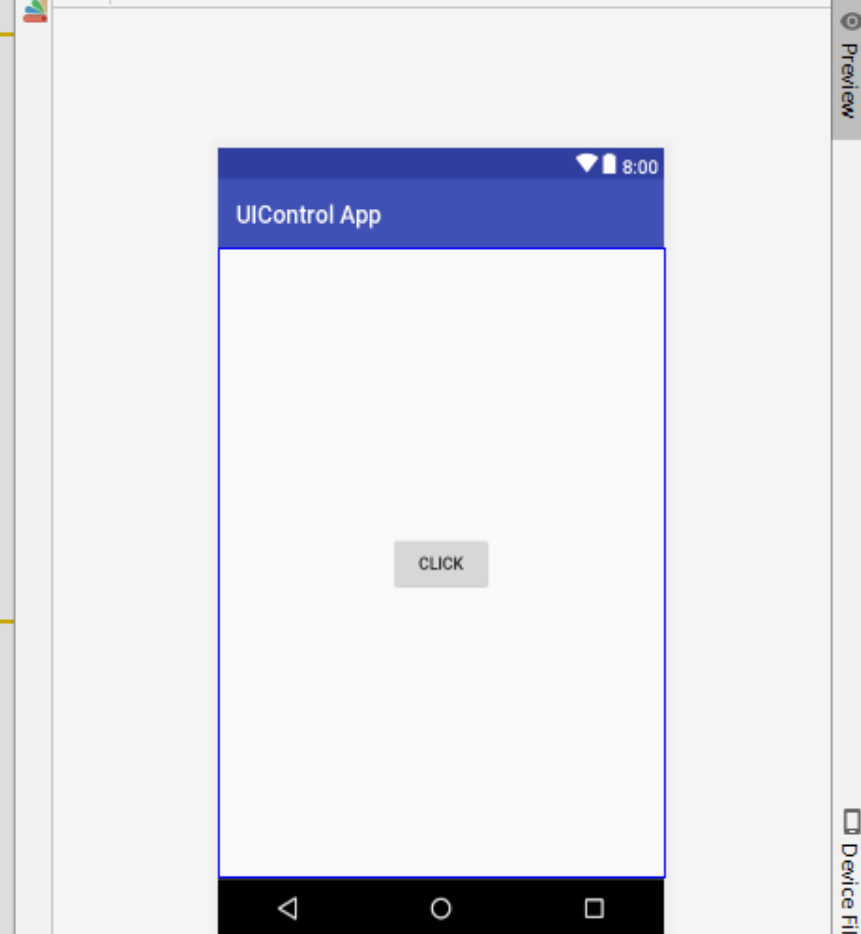
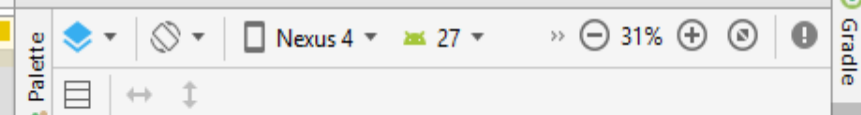
# Button Control

- In android, **Button** is a user interface control which is used to perform an action whenever the user click or tap on it.



```
activity_button.xml x ButtonActivity.java x
1 <?xml version="1.0" encoding="utf-8"?>
2 <LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
3   xmlns:app="http://schemas.android.com/apk/res-auto"
4   xmlns:tools="http://schemas.android.com/tools"
5   android:layout_width="match_parent"
6   android:layout_height="match_parent"
7   android:gravity="center"
8   tools:context=".ButtonActivity">
9
10  <Button
11    android:id="@+id/btnClick"
12    android:layout_width="wrap_content"
13    android:layout_height="wrap_content"
14    android:layout_gravity="center"
15    android:text="CLICK" />
16 </LinearLayout>
```

Preview



```
1 package com.example.akashtechlabs.uicontrolapp;
2
3 import ...
4
5
6
7
8
9 public class ButtonActivity extends AppCompatActivity {
10     Button btnClick;
11     @Override
12     protected void onCreate(Bundle savedInstanceState) {
13         super.onCreate(savedInstanceState);
14         setContentView(R.layout.activity_button);
15         btnClick = findViewById(R.id.btnClick);
16         //To perform action setOnClickListener is used
17         btnClick.
18     }
19 }
20
```

- setOnClickListener(OnClickListener... void
- getAccessibilityClassName() CharSequence
- onResolvePointerIcon(Motion... PointerIcon
- addChildrenForAccessibility(ArrayL... void
- addExtraDataToAccessibilityNodeInfo void
- addFocusables(ArrayList<View> view... void
- addFocusables(ArrayList<View> view... void
- addKeyboardNavigationClusters(Coll... void
- addOnAttachStateChangeListener(OnA... void
- addOnLayoutChangeListener(OnLayout... void
- addTextChangedListener(TextWatcher... void

ButtonActivity &gt; onCreate



```
1 package com.example.akashtechlabs.uicontrolapp;
2
3 import ...
4
5
6
7
8
9 public class ButtonActivity extends AppCompatActivity {
10     Button btnClick;
11     @Override
12     protected void onCreate(Bundle savedInstanceState) {
13         super.onCreate(savedInstanceState);
14         setContentView(R.layout.activity_button);
15         btnClick = findViewById(R.id.btnClick);
16         //To perform action setOnClickListener is used
17         btnClick.setOnClickListener(new );
```

Documentation for OnClickListener in View

Fetching Documentation...

View.OnClickListener{...} (android.view.View)

QuickContactBadge (android.widget)

CharacterPickerDialog (android.text.met...

KeyboardView (android.inputmethodservic...

ActionMenuItemView (android.support.v7...

boolean []

byte []

char []

double []

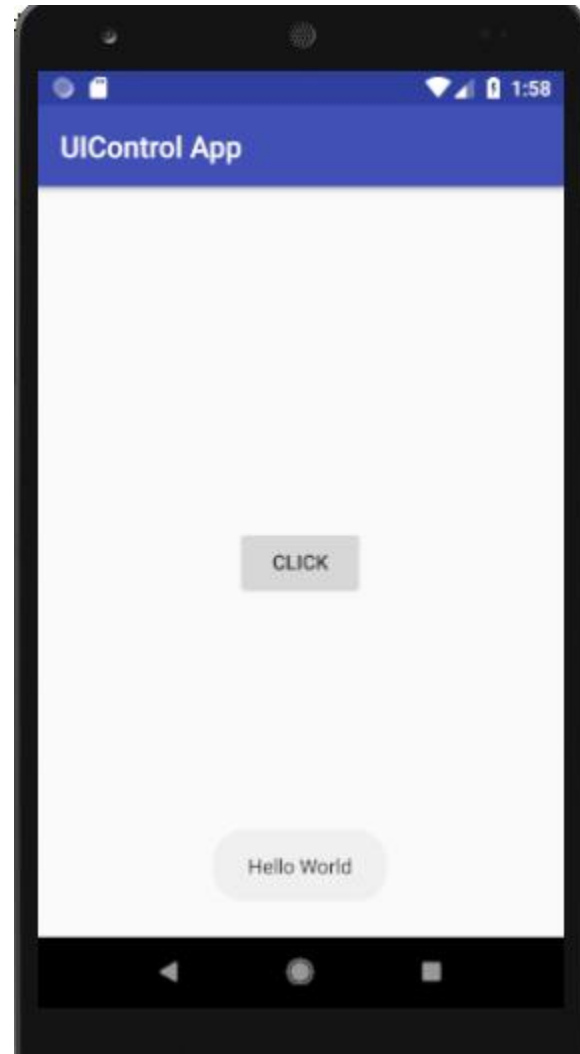
float []

```
1 package com.example.akashtechlabs.uicontrolapp;
2
3 import ...
4
5
6
7
8
9 public class ButtonActivity extends AppCompatActivity {
10     Button btnClick;
11     @Override
12     protected void onCreate(Bundle savedInstanceState) {
13         super.onCreate(savedInstanceState);
14         setContentView(R.layout.activity_button);
15         btnClick = findViewById(R.id.btnClick);
16         //To perform action setOnClickListener is used
17         btnClick.setOnClickListener(new View.OnClickListener() {
18             @Override
19             public void onClick() {
20                 Toast.makeText(this, "Create a new Toast", Toast.LENGTH_SHORT).show();
21             }
22         });
23     }
24 }
25
```

ButtonActivity &gt; onCreate() &gt; new OnClickListener &gt; onClick()

```
3  import ...
8
9  public class ButtonActivity extends AppCompatActivity {
10      Button btnClick;
11      @Override
12      protected void onCreate(Bundle savedInstanceState) {
13          super.onCreate(savedInstanceState);
14          setContentView(R.layout.activity_button);
15          btnClick = findViewById(R.id.btnClick);
16          //To perform action setOnClickListener is used
17          btnClick.setOnClickListener(new View.OnClickListener() {
18              @Override
19              public void onClick(View v) {
20                  //To display message
21                  Toast.makeText(context: ButtonActivity.this, text: "Hello World", Toast.LENGTH_SHORT).show();
22              }
23          });
24      }
25  }
26
```

# Output



# | Checkbox Control



# Checkbox Control

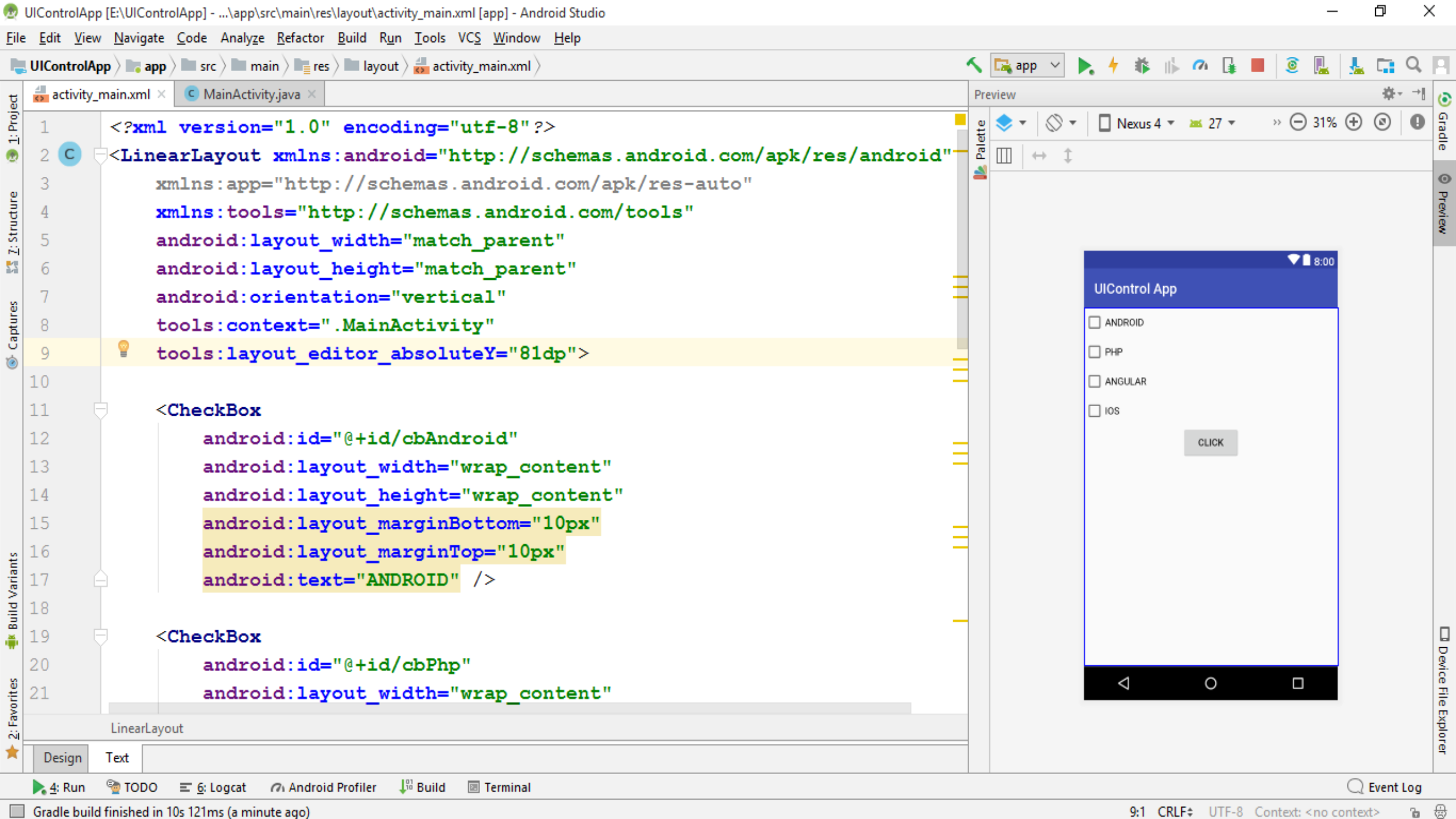
- A **CheckBox** allows users to select or unselect an option.
- We use a set of checkboxes when we want to allow users to select multiple options that are mutually exclusive.



# Property

Property	Description
<b>android:id</b>	It is used to uniquely identify the control
<b>android:checked</b>	It is used to specify the current state of checkbox
<b>android:text</b>	It is used to set the text for checkbox.
<b>android:padding</b>	It is used to set the padding from left, right, top and bottom.



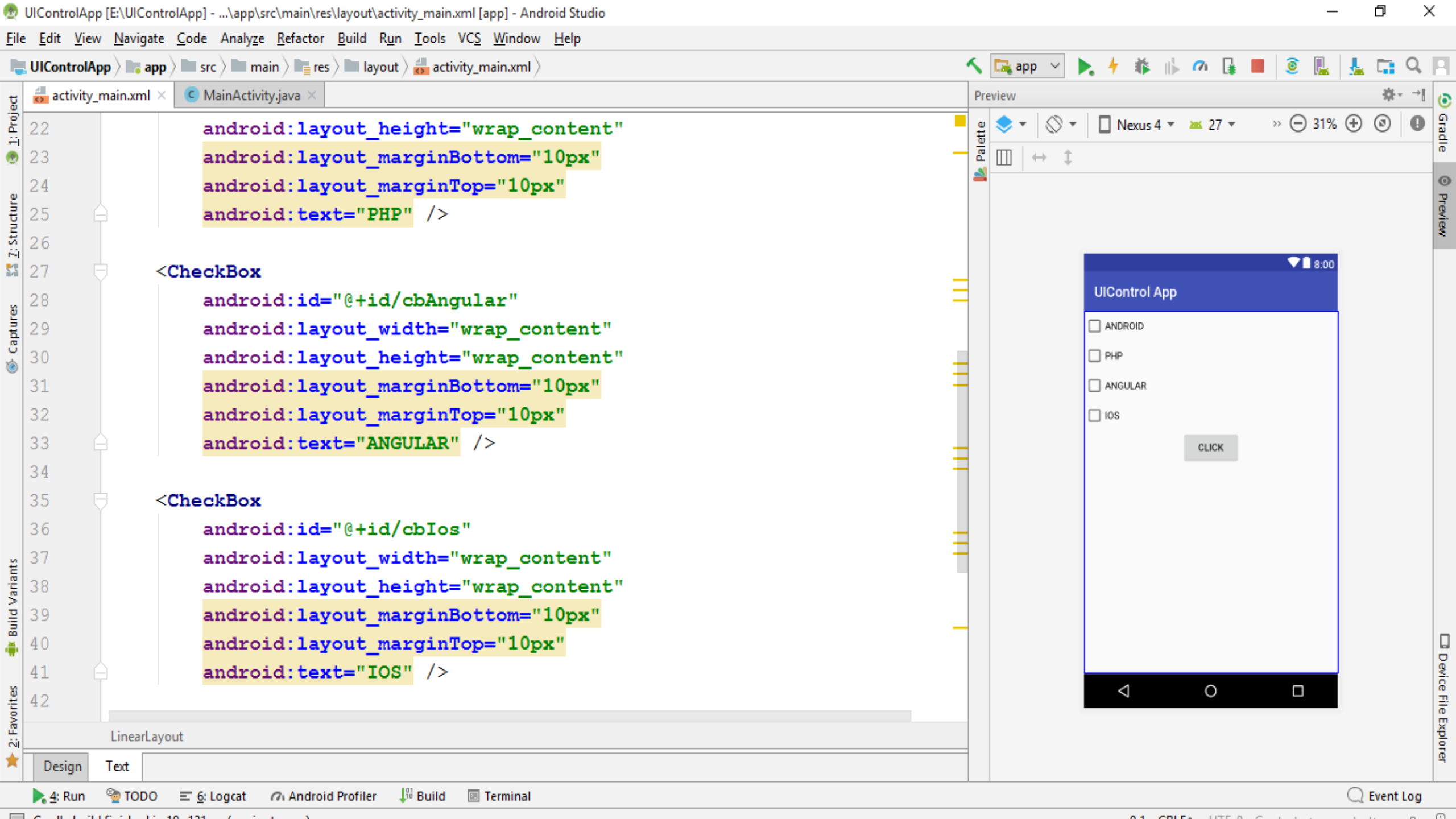


```
1 <?xml version="1.0" encoding="utf-8"?>
2 <LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
3     xmlns:app="http://schemas.android.com/apk/res-auto"
4     xmlns:tools="http://schemas.android.com/tools"
5     android:layout_width="match_parent"
6     android:layout_height="match_parent"
7     android:orientation="vertical"
8     tools:context=".MainActivity"
9     tools:layout_editor_absoluteY="81dp">
10
11     <CheckBox
12         android:id="@+id/cbAndroid"
13         android:layout_width="wrap_content"
14         android:layout_height="wrap_content"
15         android:layout_marginBottom="10px"
16         android:layout_marginTop="10px"
17         android:text="ANDROID" />
18
19     <CheckBox
20         android:id="@+id/cbPhp"
21         android:layout_width="wrap_content"
```

LinearLayout

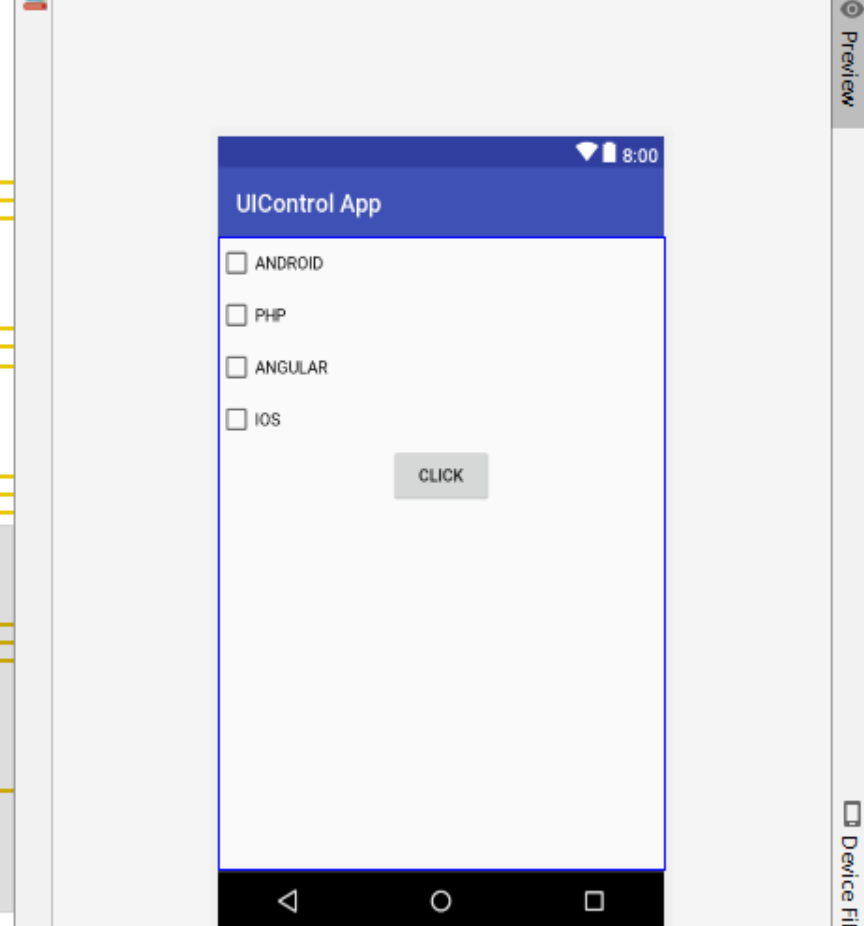
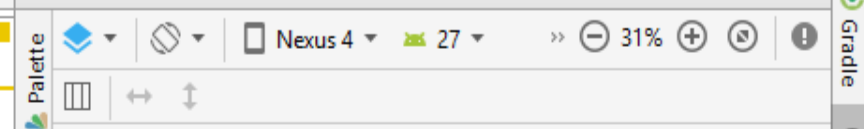
Design Text





```
34
35 <CheckBox
36     android:id="@+id/cbIos"
37     android:layout_width="wrap_content"
38     android:layout_height="wrap_content"
39     android:layout_marginBottom="10px"
40     android:layout_marginTop="10px"
41     android:text="IOS" />
42
43 <Button
44     android:id="@+id/btnClick"
45     android:layout_width="wrap_content"
46     android:layout_height="wrap_content"
47     android:layout_gravity="center"
48     android:text="CLICK" />
49
50
51 </LinearLayout>
```

Preview



LinearLayout

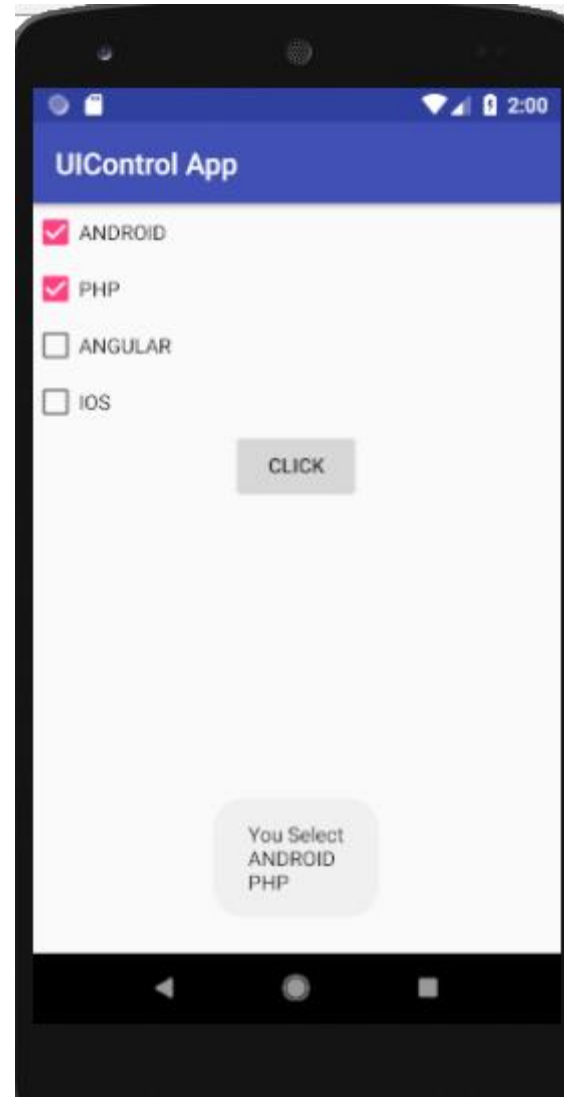
Design Text

```
1 package com.example.akashtechlabs.uicontrolapp;
2
3 import ...
4
5
6
7
8
9
10 public class MainActivity extends AppCompatActivity {
11     CheckBox cbAndroid, cbPhp, cbAngular, cbIos;
12     Button btnClick;
13
14     @Override
15     protected void onCreate(Bundle savedInstanceState) {
16         super.onCreate(savedInstanceState);
17         setContentView(R.layout.activity_main);
18         cbAndroid=findViewById(R.id.cbAndroid);
19         cbPhp=findViewById(R.id.cbPhp);
20         cbAngular=findViewById(R.id.cbAngular);
21         cbIos=findViewById(R.id.cbIos);
22         btnClick=findViewById(R.id.btnClick);
23         btnClick.setOnClickListener(new View.OnClickListener() {
24             @Override
25             public void onClick(View v) {
26                 String result = "You Select";
27                 if(cbAndroid.isChecked()){
28                     result += "\nANDROIDID";
29                 }
30             }
31         });
32     }
33 }
```

MainActivity

```
24 public void onClick(View v) {
25     String result = "You Select";
26     if(cbAndroid.isChecked()){
27         result += "\nANDROID";
28     }
29     if(cbPhp.isChecked()){
30         result += "\nPHP";
31     }
32     if(cbAngular.isChecked()){
33         result += "\nANGULAR";
34     }
35     if(cbIos.isChecked()){
36         result += "\nIOS";
37     }
38     Toast.makeText(context: MainActivity.this, result, Toast.LENGTH_SHORT).show();
39 }
40
41 });
42
43 }
44
45 }
```

# Output



# Radio Button Control



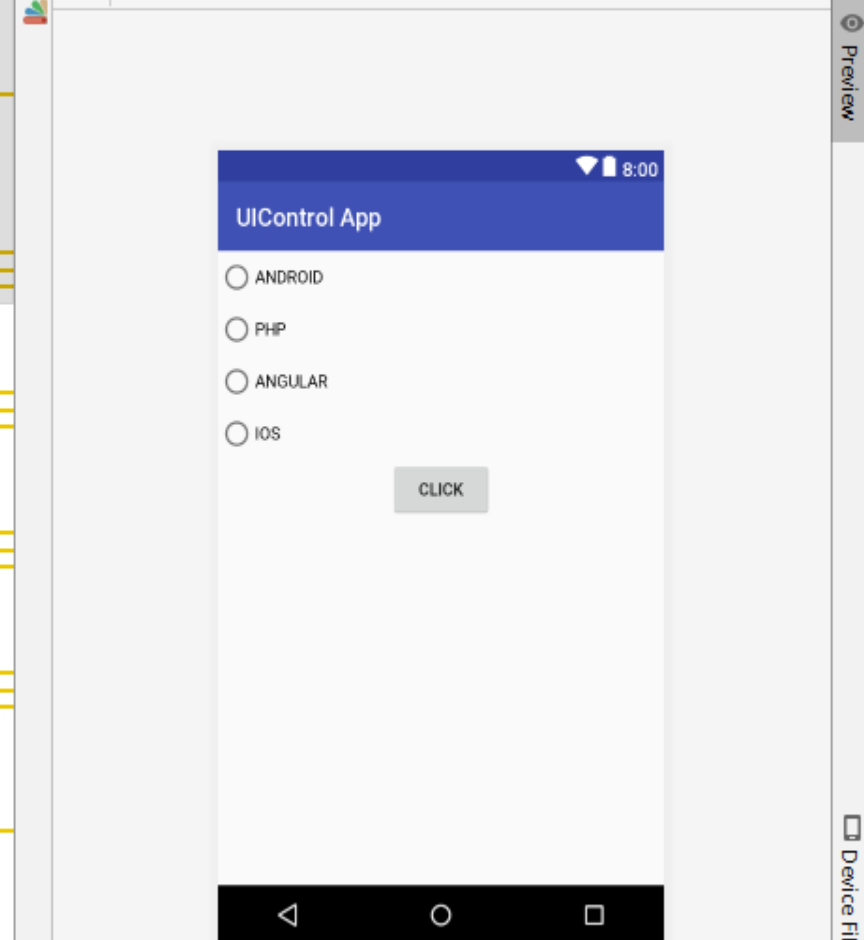
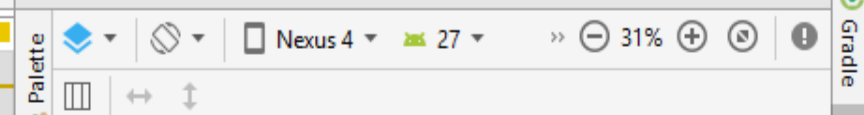
# Radio Button Control

- A RadioButton has two states: either checked or unchecked. This allows the user to select one option from a set.
- In android, we use radio buttons with in a **RadioGroup** to combine multiple radio buttons into one group and it will make sure that user can select only one option from the group of multiple options.
- A RadioGroup class is used for set of radio buttons.



```
1 <?xml version="1.0" encoding="utf-8"?>
2 <LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
3     xmlns:app="http://schemas.android.com/apk/res-auto"
4     xmlns:tools="http://schemas.android.com/tools"
5     android:layout_width="match_parent"
6     android:layout_height="match_parent"
7     android:orientation="vertical"
8     tools:context=".RadiobuttonActivity">
9
10    <RadioGroup
11        android:id="@+id/rgCourse"
12        android:layout_width="match_parent"
13        android:layout_height="wrap_content">
14
15        <RadioButton
16            android:id="@+id/rbAndroid"
17            android:layout_width="wrap_content"
18            android:layout_height="wrap_content"
19            android:layout_marginBottom="10px"
20            android:layout_marginTop="10px"
21            android:text="ANDROID" />
```

Preview



LinearLayout &gt; RadioGroup &gt; Button

Design Text

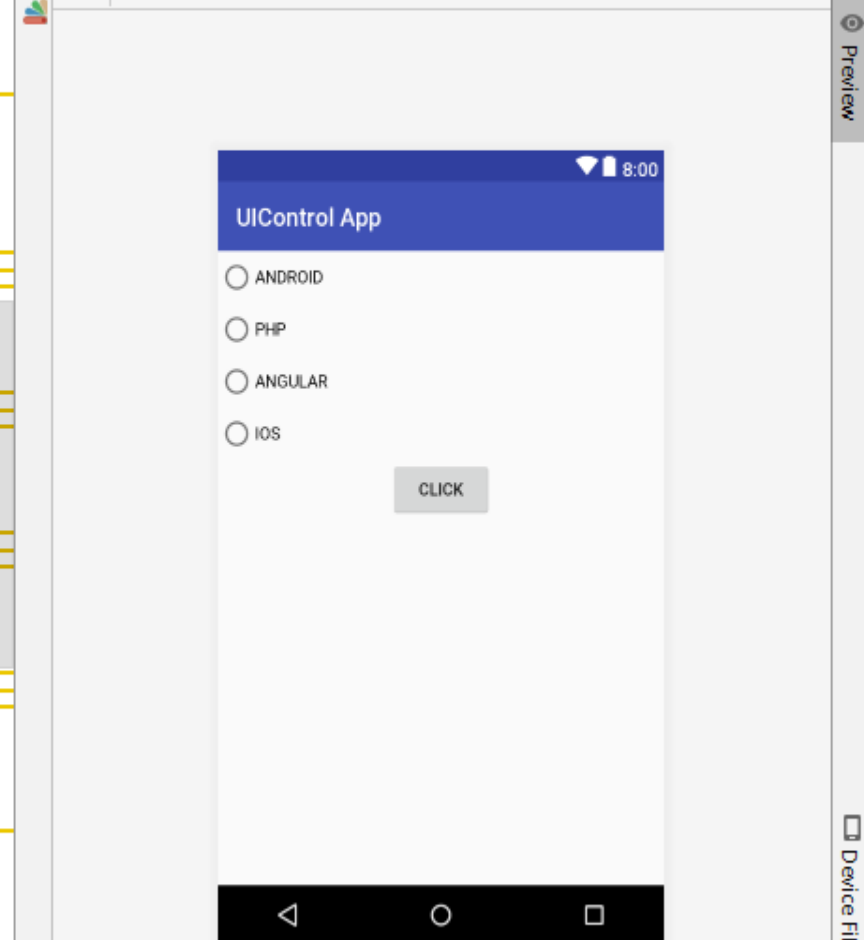


```
22
23
24 <RadioButton
25     android:id="@+id/rbPhp"
26     android:layout_width="wrap_content"
27     android:layout_height="wrap_content"
28     android:layout_marginBottom="10px"
29     android:layout_marginTop="10px"
30     android:text="PHP" />
31
32 <RadioButton
33     android:id="@+id/rbAngular"
34     android:layout_width="wrap_content"
35     android:layout_height="wrap_content"
36     android:layout_marginBottom="10px"
37     android:layout_marginTop="10px"
38     android:text="ANGULAR" />
39
40 <RadioButton
41     android:id="@+id/rbIos"
42     android:layout_width="wrap_content"
43     android:layout_height="wrap_content"
```

LinearLayout &gt; RadioGroup &gt; Button

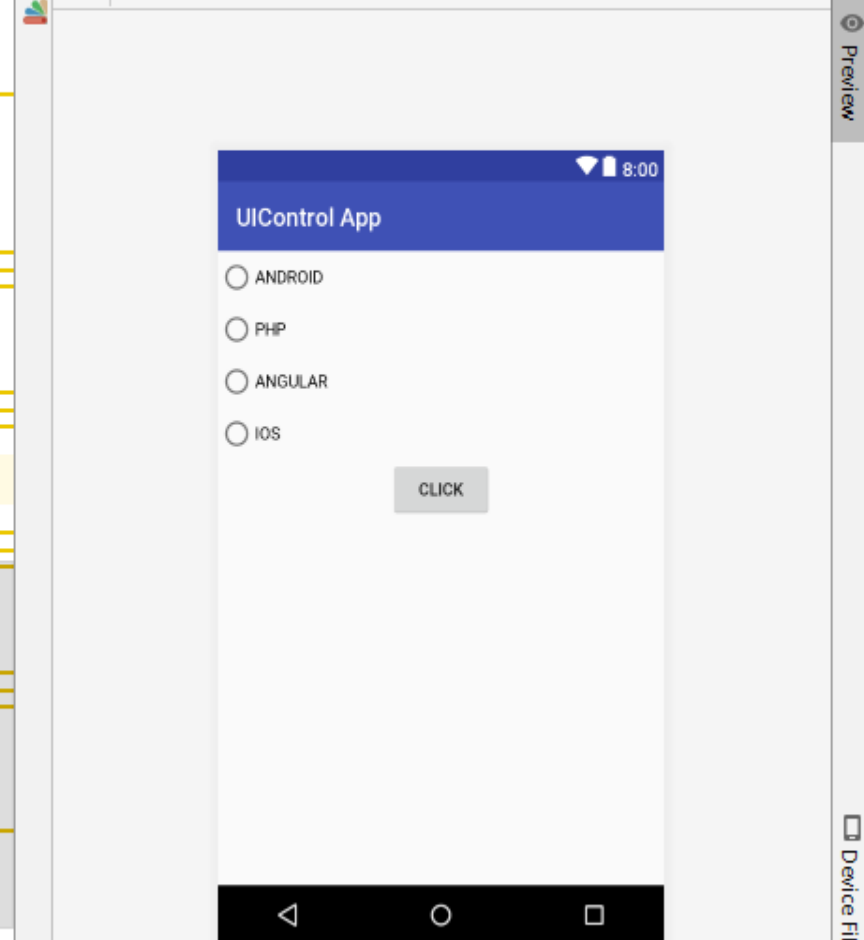
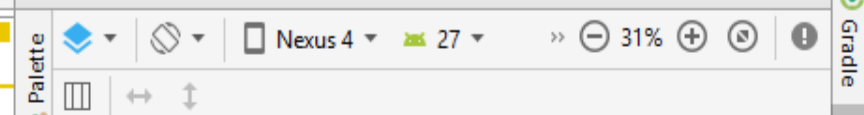
Design Text

Preview



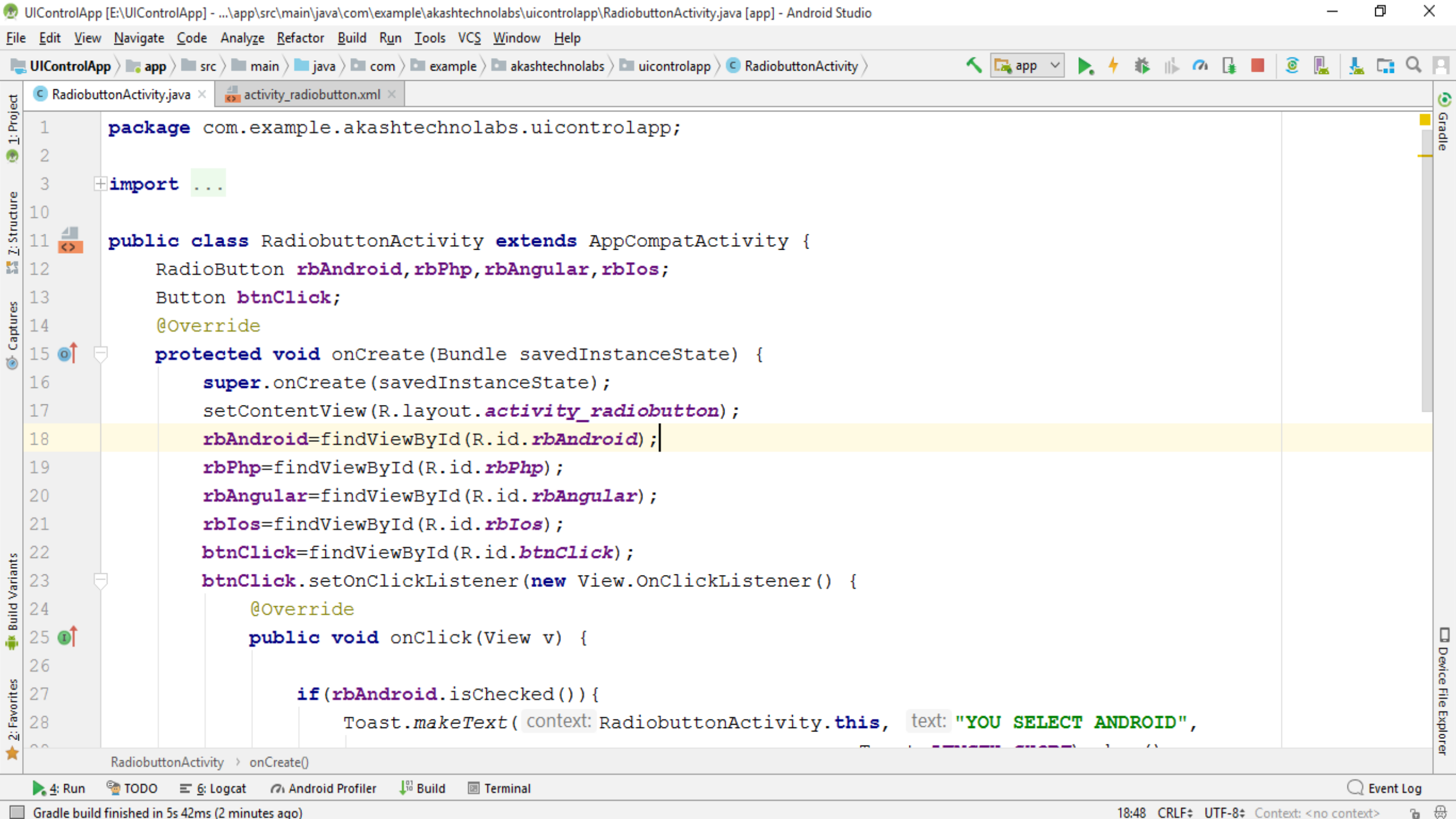
```
37         android:text="ANGULAR" />
38
39     <RadioButton
40         android:id="@+id/rbIos"
41         android:layout_width="wrap_content"
42         android:layout_height="wrap_content"
43         android:layout_marginBottom="10px"
44         android:layout_marginTop="10px"
45         android:text="IOS" />
46
47     <Button
48         android:id="@+id/btnClick"
49         android:layout_width="wrap_content"
50         android:layout_height="wrap_content"
51         android:layout_gravity="center"
52         android:text="CLICK" />
53 </RadioGroup>
54 </LinearLayout>
```

Preview



LinearLayout &gt; RadioGroup &gt; Button

Design Text

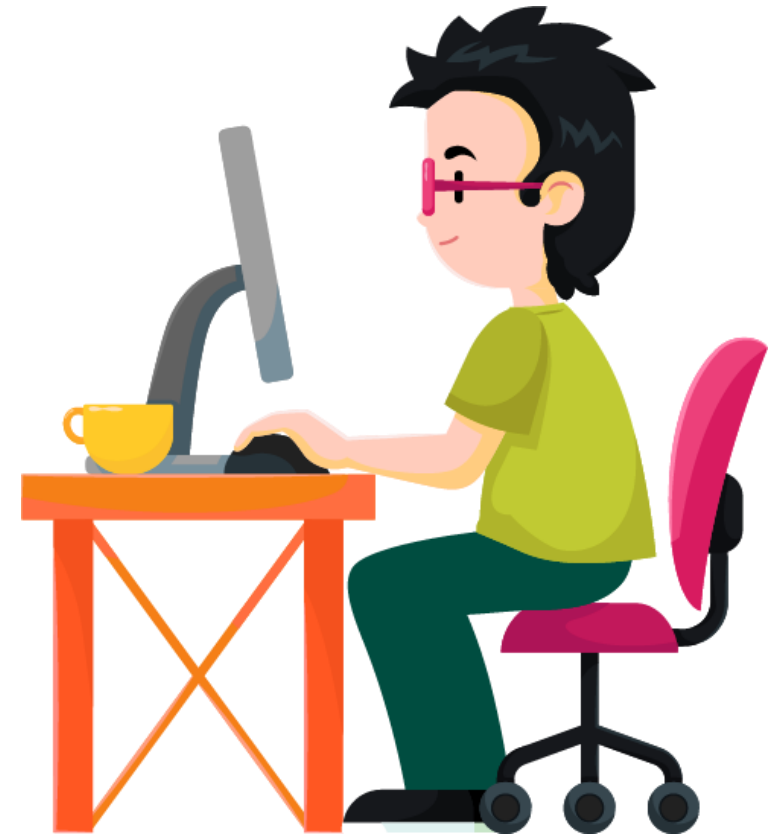


```
24  
25 public void onClick(View v) {  
26  
27     if (rbAndroid.isChecked()) {  
28         Toast.makeText(context: RadiobuttonActivity.this, text: "YOU SELECT ANDROID",  
29             Toast.LENGTH_SHORT).show();  
30     }  
31     if (rbPhp.isChecked()) {  
32         Toast.makeText(context: RadiobuttonActivity.this, text: "YOU SELECT PHP",  
33             Toast.LENGTH_SHORT).show();  
34     }  
35     if (rbAngular.isChecked()) {  
36         Toast.makeText(context: RadiobuttonActivity.this, text: "YOU SELECT ANGULAR",  
37             Toast.LENGTH_SHORT).show();  
38     }  
39     if (rbIos.isChecked()) {  
40         Toast.makeText(context: RadiobuttonActivity.this, text: "YOU SELECT IOS",  
41             Toast.LENGTH_SHORT).show();  
42     }  
43 }  
44 });  
45 }  
46 }
```

# Output



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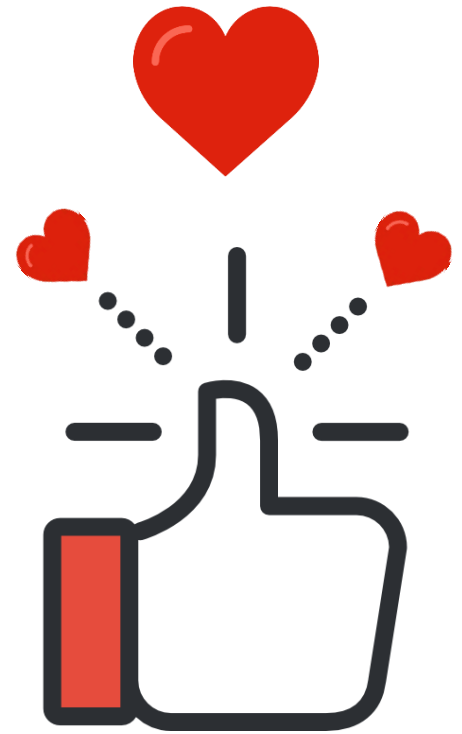
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