

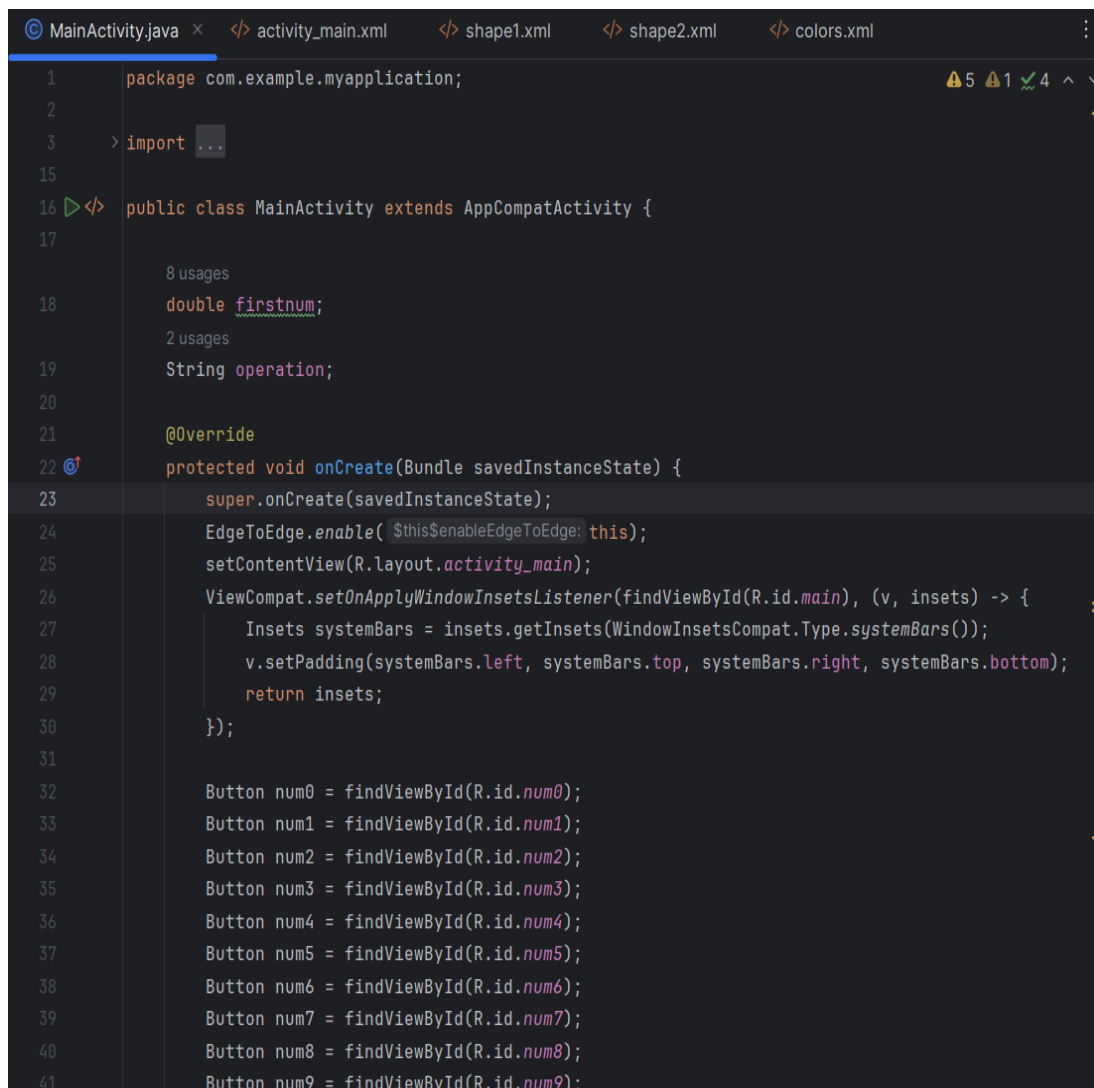
CALCULATOR APPLICATION

Muhammed Nifal V
CB.SC.P2CYS23017

Components of the Application

1.MainActivity.java

The MainActivity class is the entry point of the application. It is responsible for handling the user input and performing the currency conversions. Below is the detailed explanation of the code.

A screenshot of an IDE showing the MainActivity.java file. The code is written in Java and includes package declarations, imports, class declarations, and method implementations for onCreate and findViewById. The IDE interface shows a dark theme with a sidebar on the left and a toolbar at the top. The code is as follows:

```
1 package com.example.myapplication;
2
3 > import ...
15
16 public class MainActivity extends AppCompatActivity {
17
18     8 usages
19     double firstnum;
20     2 usages
21     String operation;
22
23     @Override
24     protected void onCreate(Bundle savedInstanceState) {
25         super.onCreate(savedInstanceState);
26         EdgeToEdge.enable( $this$enableEdgeToEdge: this);
27         setContentView(R.layout.activity_main);
28         ViewCompat.setOnApplyWindowInsetsListener(findViewById(R.id.main), (v, insets) -> {
29             Insets systemBars = insets.getInsets(WindowInsetsCompat.Type.systemBars());
30             v.setPadding(systemBars.left, systemBars.top, systemBars.right, systemBars.bottom);
31             return insets;
32         });
33
34         Button num0 = findViewById(R.id.num0);
35         Button num1 = findViewById(R.id.num1);
36         Button num2 = findViewById(R.id.num2);
37         Button num3 = findViewById(R.id.num3);
38         Button num4 = findViewById(R.id.num4);
39         Button num5 = findViewById(R.id.num5);
40         Button num6 = findViewById(R.id.num6);
41         Button num7 = findViewById(R.id.num7);
42         Button num8 = findViewById(R.id.num8);
43         Button num9 = findViewById(R.id.num9);
```

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```
© MainActivity.java × </> activity_main.xml </> shape1.xml </> shape2.xml </> colors.xml
43 Button on = findViewById(R.id.on);
44 Button ac = findViewById(R.id.ac);
45 Button plus = findViewById(R.id.plus);
46 Button min = findViewById(R.id.min);
47 Button mult = findViewById(R.id.mult);
48 Button off = findViewById(R.id.off);
49 Button equals = findViewById(R.id.equals);
50 Button div = findViewById(R.id.div);
51 Button del = findViewById(R.id.del);
52 Button point = findViewById(R.id.point);
53
54 TextView screen = findViewById(R.id.screen);
55 TextView answer = findViewById(R.id.panel);
56
57 off.setOnClickListener(view -> screen.setVisibility(TextView.GONE));
58
59 on.setOnClickListener(view -> {
60     screen.setVisibility(TextView.VISIBLE);
61     screen.setText("");
62 });
63
64 ac.setOnClickListener(view -> {
65     firstnum = 0;
66     screen.setText("");
67 });
68
69 ArrayList<Button> nums = new ArrayList<>();
70 nums.add(num0);
71 nums.add(num1);
72 nums.add(num2);
73 nums.add(num3);
74 nums.add(num4);
```

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```
© MainActivity.java × </> activity_main.xml </> shape1.xml </> shape2.xml </> colors.xml
76      nums.add(num6);
77      nums.add(num7);
78      nums.add(num8);
79      nums.add(num9);
80
81      for(Button b: nums){
82          b.setOnClickListener(view -> {
83              if (!screen.getText().toString().equals(0)){
84                  screen.setText(screen.getText() + b.getText().toString());
85              } else {
86                  screen.setText(b.getText().toString());
87              }
88          });
89      }
90
91      ArrayList<Button> opers = new ArrayList<>();
92      opers.add(div);
93      opers.add(min);
94      opers.add(plus);
95      opers.add(equals);
96      opers.add(mult);
97
98      for(Button b: opers){
99          b.setOnClickListener( view -> {
100              firstnum = Double.parseDouble(screen.getText().toString());
101              operation = b.getText().toString();
102              screen.setText("");
103          });
104      }
105
106      del.setOnClickListener(view -> {
107          String num = screen.getText().toString();
```

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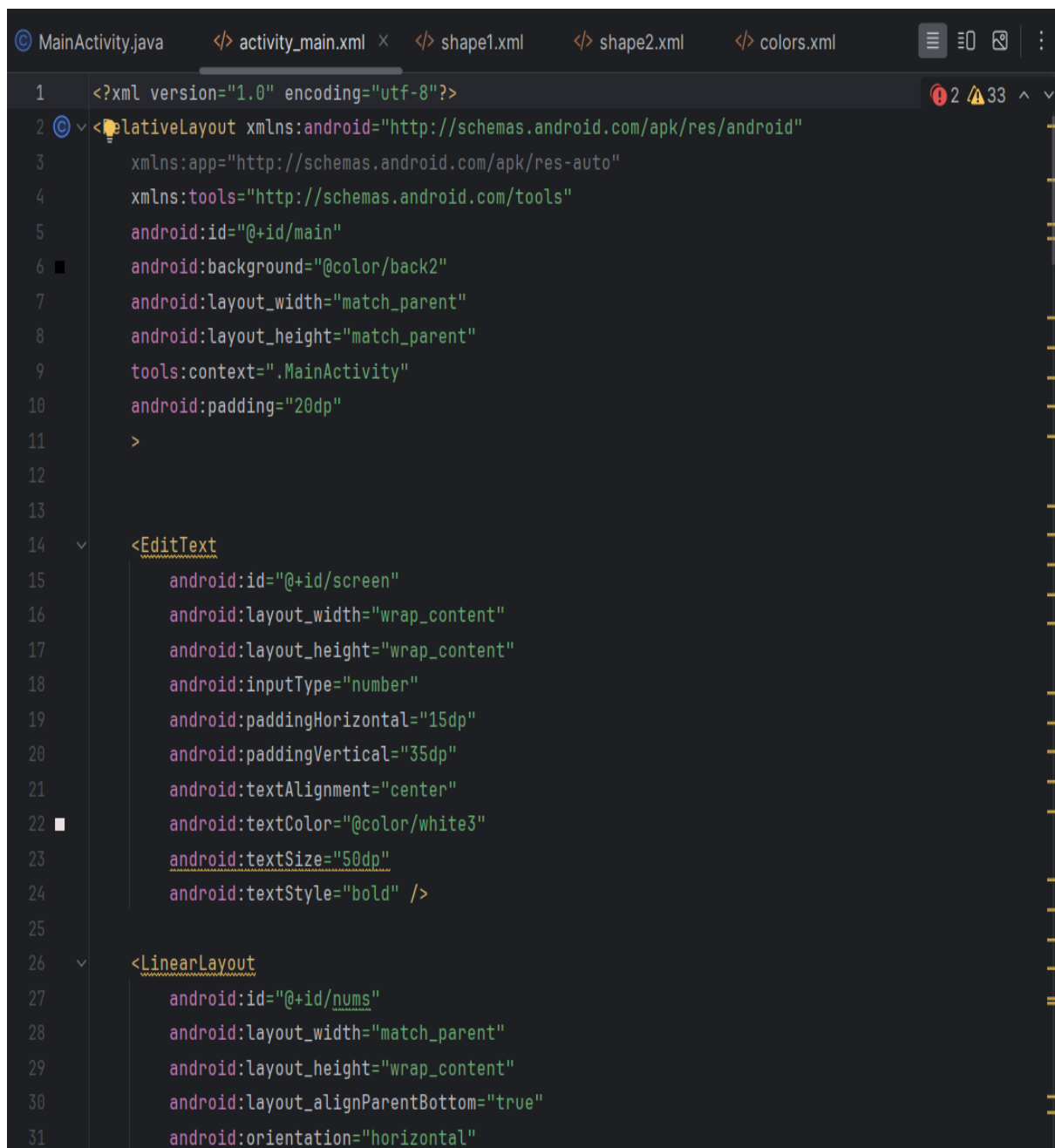
```
© MainActivity.java × </> activity_main.xml </> shape1.xml </> shape2.xml </> colors.xml
114
115     point.setOnClickListener( view -> {
116         if(!screen.getText().toString().contains(".")){
117             screen.setText(screen.getText().toString()+".");
118         }
119     });
120     equals.setOnClickListener( view -> {
121         double secondNum = Double.parseDouble(screen.getText().toString());
122         double result;
123         switch (operation){
124             case "/":
125                 result = firstnum/secondNum;
126                 break;
127
128             case "*":
129                 result = firstnum*secondNum;
130                 break;
131             case "+":
132                 result = firstnum+secondNum;
133                 break;
134
135             case "-":
136                 result = firstnum-secondNum;
137                 break;
138             default:
139                 result = firstnum+secondNum;
140                 break;
141         }
142         answer.setText(String.valueOf(result));
143         firstnum = result;
144
145     }
```

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2. activity_main.xml

The activity_main.xml file defines the user interface for MainActivity.



```
1 <?xml version="1.0" encoding="utf-8"?>
2 <RelativeLayout 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:id="@+id/main"
6     android:background="@color/back2"
7     android:layout_width="match_parent"
8     android:layout_height="match_parent"
9     tools:context=".MainActivity"
10    android:padding="20dp"
11    >
12
13
14    <EditText
15        android:id="@+id/screen"
16        android:layout_width="wrap_content"
17        android:layout_height="wrap_content"
18        android:inputType="number"
19        android:paddingHorizontal="15dp"
20        android:paddingVertical="35dp"
21        android:textAlignment="center"
22        android:textColor="@color/white3"
23        android:textSize="50dp"
24        android:textStyle="bold" />
25
26    <LinearLayout
27        android:id="@+id/nums"
28        android:layout_width="match_parent"
29        android:layout_height="wrap_content"
30        android:layout_alignParentBottom="true"
31        android:orientation="horizontal"
```

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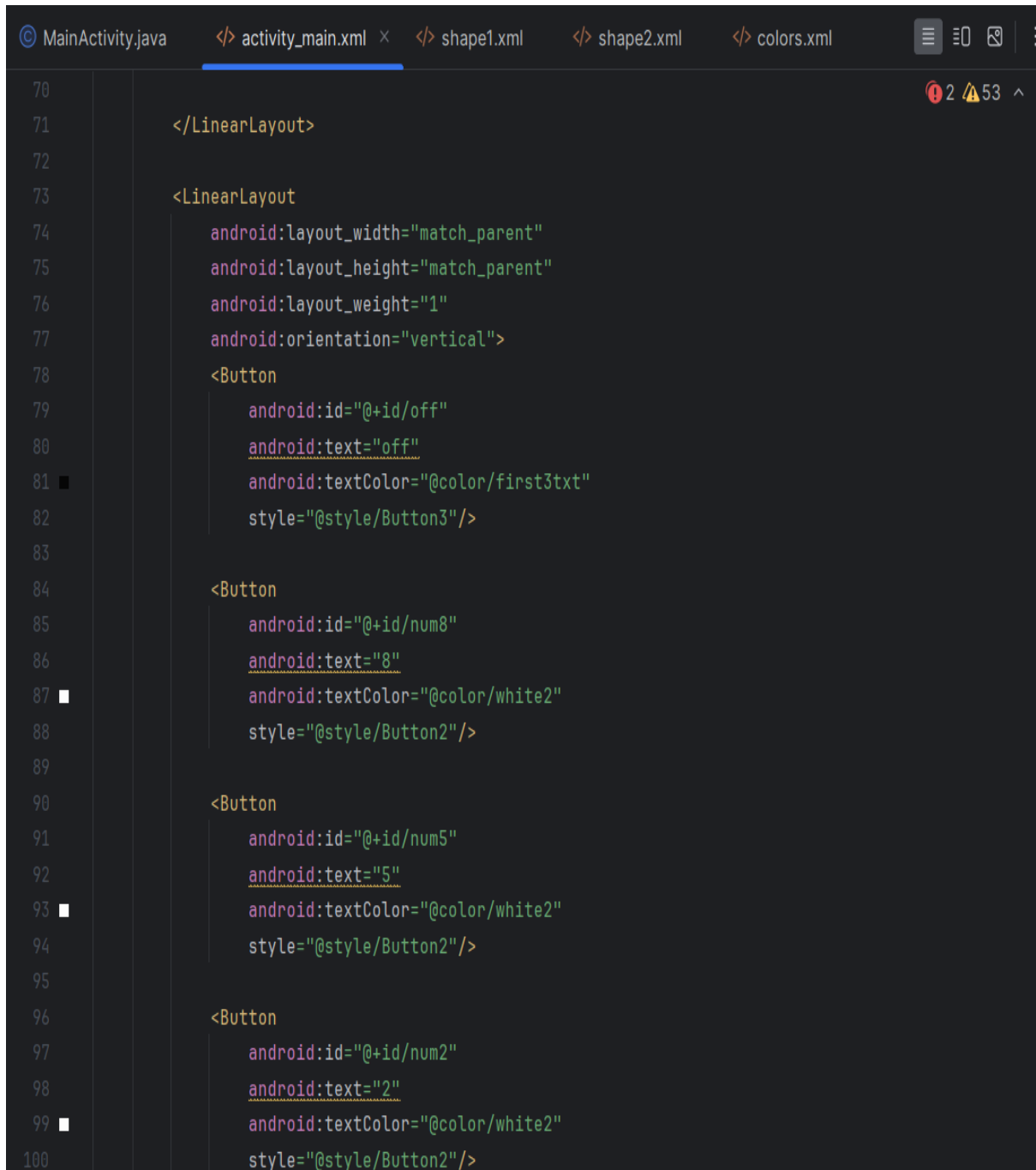
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```
34
35     <LinearLayout
36         android:layout_width="match_parent"
37         android:layout_height="match_parent"
38         android:layout_weight="1"
39         android:orientation="vertical">
40         <Button
41             android:id="@+id/on"
42             android:text="ON"
43             android:textColor="@color/first3txt"
44             style="@style/Button3"/>
45
46         <Button
47             android:id="@+id/num7"
48             android:text="7"
49             android:textColor="@color/white2"
50             style="@style/Button2"/>
51
52         <Button
53             android:id="@+id/num4"
54             android:text="4"
55             android:textColor="@color/white2"
56             style="@style/Button2"/>
57
58         <Button
59             android:id="@+id/num1"
60             android:text="1"
61             android:textColor="@color/white2"
62             style="@style/Button2"/>
63
64         <Button
```

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```
70
71     </LinearLayout>
72
73     <LinearLayout
74         android:layout_width="match_parent"
75         android:layout_height="match_parent"
76         android:layout_weight="1"
77         android:orientation="vertical">
78         <Button
79             android:id="@+id/off"
80             android:text="off"
81             android:textColor="@color/first3txt"
82             style="@style/Button3"/>
83
84         <Button
85             android:id="@+id/num8"
86             android:text="8"
87             android:textColor="@color/white2"
88             style="@style/Button2"/>
89
90         <Button
91             android:id="@+id/num5"
92             android:text="5"
93             android:textColor="@color/white2"
94             style="@style/Button2"/>
95
96         <Button
97             android:id="@+id/num2"
98             android:text="2"
99             android:textColor="@color/white2"
100            style="@style/Button2"/>
```

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```
© MainActivity.java  </> activity_main.xml x  </> shape1.xml  </> shape2.xml  </> colors.xml  [Menu] [Search] [Run] [Tools] [Help]
109      </LinearLayout>
110
111      <LinearLayout
112          android:layout_width="match_parent"
113          android:layout_height="match_parent"
114          android:layout_weight="1"
115          android:orientation="vertical">
116          <Button
117              android:id="@+id/ac"
118              android:text="AC"
119              android:textColor="@color/first3txt"
120              style="@style/Button3"/>
121
122          <Button
123              android:id="@+id/num9"
124              android:text="9"
125              android:textColor="@color/white2"
126              style="@style/Button2"/>
127
128          <Button
129              android:id="@+id/num6"
130              android:text="6"
131              android:textColor="@color/white2"
132              style="@style/Button2"/>
133
134          <Button
135              android:id="@+id/num3"
136              android:text="3"
137              android:textColor="@color/white2"
138              style="@style/Button2"/>
139
```


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```
MainActivity.java  activity_main.xml  shape1.xml  shape2.xml  colors.xml
147      </LinearLayout>
148
149      <LinearLayout
150          android:layout_width="match_parent"
151          android:layout_height="match_parent"
152          android:layout_weight="1"
153          android:orientation="vertical">
154          <Button
155              android:id="@+id/div"
156              android:text="/"
157              android:textColor="@color/white2"
158              style="@style/Button1"/>
159
160          <Button
161              android:id="@+id/mult"
162              android:text="*"
163              android:textColor="@color/white2"
164              style="@style/Button1"/>
165
166          <Button
167              android:id="@+id/min"
168              android:text="-"
169              android:textColor="@color/white2"
170              style="@style/Button1"/>
171
172          <Button
173              android:id="@+id/plus"
174              android:text="+"
175              android:textColor="@color/white2"
176              style="@style/Button1"/>
177
```

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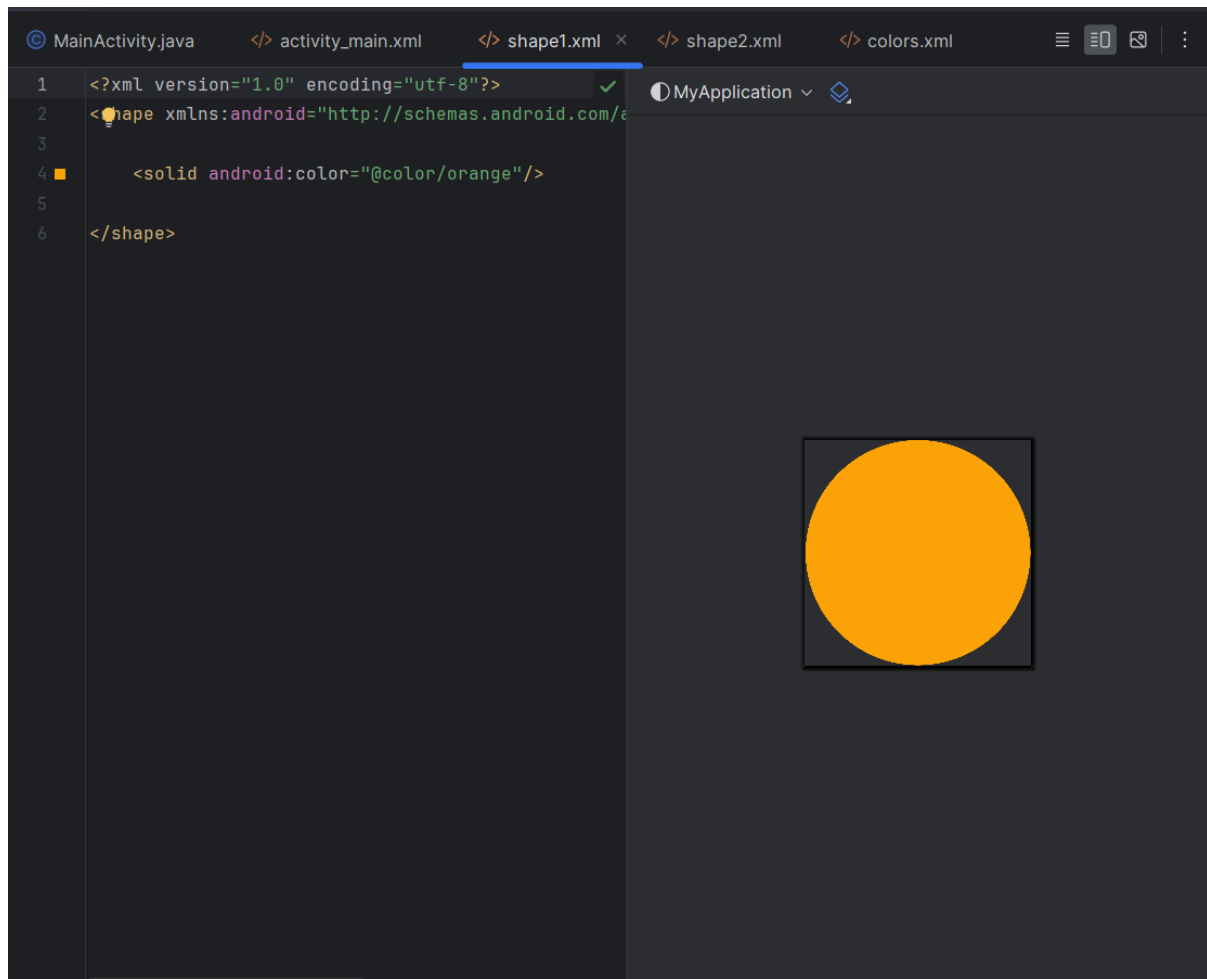
```
© MainActivity.java  </> activity_main.xml  ×  </> shape1.xml  </> shape2.xml  </> colors.xml  2 53 ^
177
178         <Button
179             android:id="@+id/equals"
180             android:text="="
181             android:textSize="50dp"
182             android:textAlignment="center"
183             android:textColor="@color/white2"
184             style="@style/Button1"/>
185
186
187     </LinearLayout>
188 </LinearLayout>
189
190     <TextView
191         android:id="@+id/panel"
192         android:layout_width="wrap_content"
193         android:layout_height="wrap_content"
194         android:layout_alignParentStart="true"
195         android:layout_alignParentTop="true"
196         android:layout_alignParentEnd="true"
197         android:layout_marginStart="215dp"
198         android:layout_marginTop="118dp"
199         android:layout_marginEnd="20dp"
200         android:text="0"
201         android:textAlignment="textEnd"
202         android:textColor="@color/white5"
203         android:textSize="40dp" />
204
205 </RelativeLayout>
```

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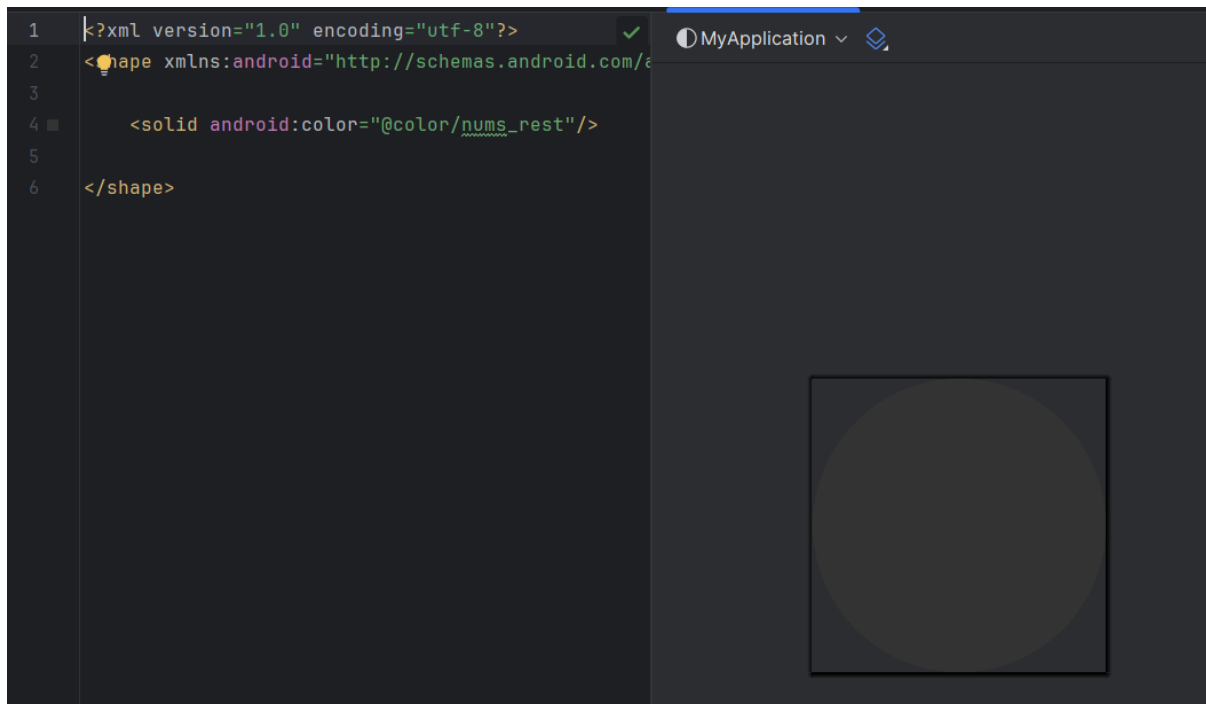
3. Shape1.xml

IT gives the essential information of shape of the button



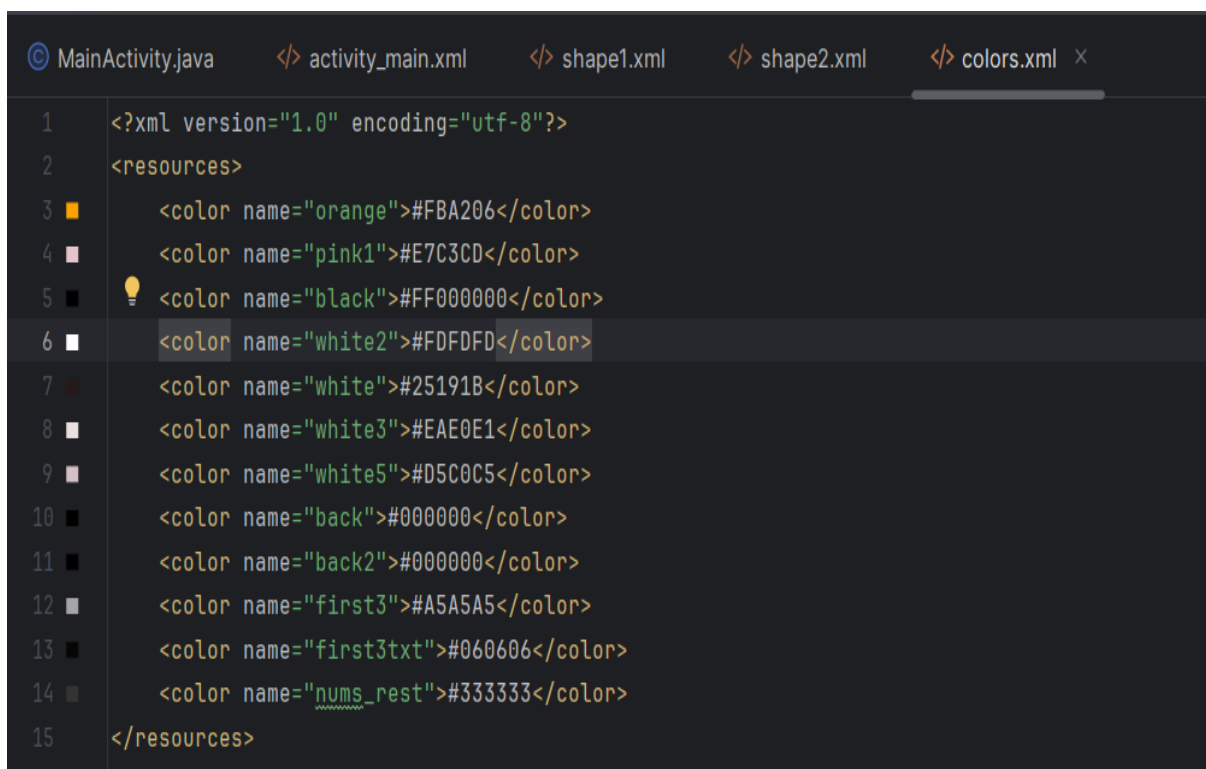
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4.Colors.xml

It gives the essential information on the color code.



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5. Android's Manifest.xml

```
AndroidManifest.xml
1  <?xml version="1.0" encoding="utf-8"?>
2  <manifest xmlns:android="http://schemas.android.com/apk/res/android"
3    xmlns:tools="http://schemas.android.com/tools">
4
5    <application
6        android:allowBackup="true"
7        android:dataExtractionRules="@xml/data_extraction_rules"
8        android:fullBackupContent="@xml/backup_rules"
9        android:icon="@mipmap/ic_launcher"
10       android:label="@string/calculator_label"
11       android:roundIcon="@mipmap/ic_launcher_round"
12       android:supportRtl="true"
13       android:theme="@style/Theme.MyApplication"
14       tools:targetApi="31">
15        <activity
16            android:name=".MainActivity"
17            android:exported="true">
18            <intent-filter>
19                <action android:name="android.intent.action.MAIN" />
20
21                <category android:name="android.intent.category.LAUNCHER" />
22            </intent-filter>
23        </activity>
24    </application>
25
26 </manifest>
```

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Output:

