

Course Outcome 1 (CO1):

1. Design a Login Form with username and password using RelativeLayout and toast valid credentials

```
<?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:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">
```

```
<EditText
    android:id="@+id/etuser"
    android:layout_width="247dp"
    android:layout_height="wrap_content"
    android:layout_marginTop="50dp"
    android:ems="10"
    android:hint="enter user name"
    android:inputType="textPersonName"
    android:text=""
    android:layout_marginLeft="100dp"
/>
```

```
<EditText
    android:id="@+id/etpwd"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:ems="10"
    android:hint="Enter Password"
    android:inputType="textPersonName"
    android:text=""
    android:layout_below="@id/etuser"
```

```
    android:layout_marginLeft="100dp"
/>

<Button
    android:id="@+id/btlogin"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="LOGIN"
    android:layout_below="@id/etpwd"
    android:layout_marginTop="50dp"
    android:layout_marginLeft="150dp"
    android:onClick="click"
/>
</RelativeLayout>
```

MAINACTIVITY

```
package com.example.mylogin;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.Toast;

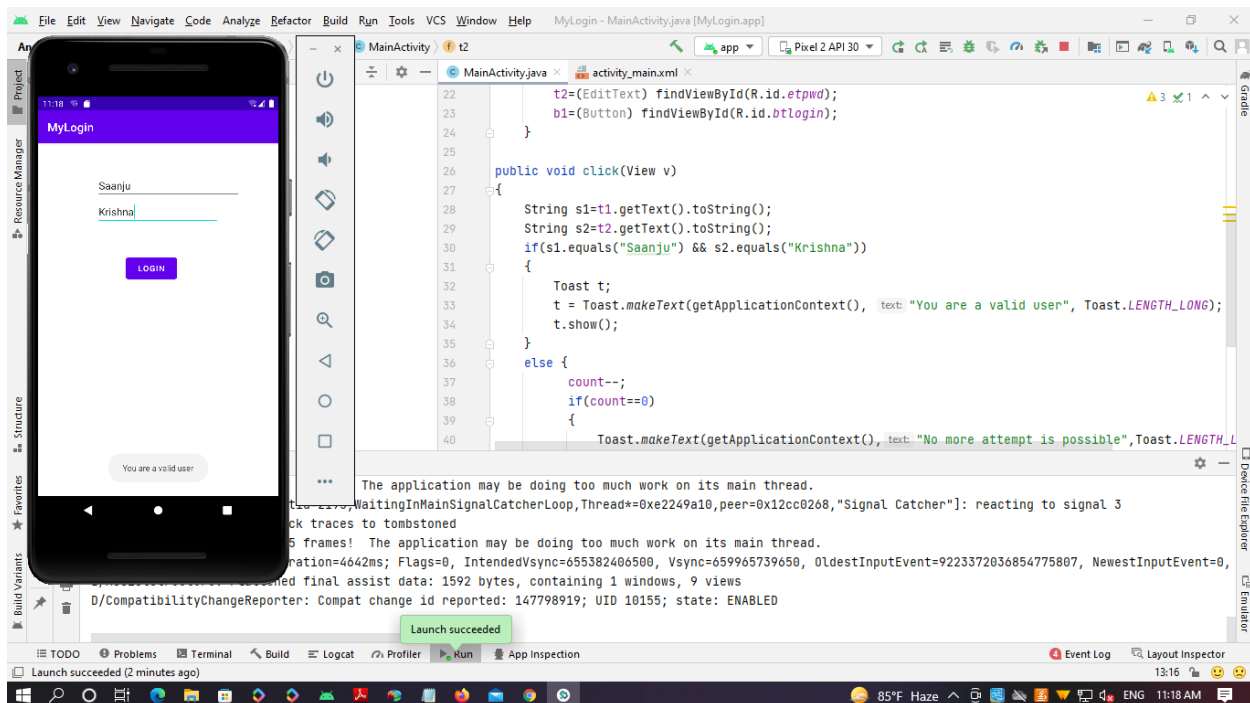
public class MainActivity extends AppCompatActivity
{
    EditText t1,t2;
    Button b1;
    int count=4;
    @Override
```

```

protected void onCreate(Bundle savedInstanceState)
{
    super.onCreate(savedInstanceState);
    setContentView(R.layout.activity_main);
    t1=(EditText) findViewById(R.id.etuser);
    t2=(EditText) findViewById(R.id.etpwd);
    b1=(Button) findViewById(R.id.btlogin);
}

public void click(View v)
{
    String s1=t1.getText().toString();
    String s2=t2.getText().toString();
    if(s1.equals("Saanju") && s2.equals("Krishna"))
    {
        Toast t;
        t = Toast.makeText(getApplicationContext(), "You are a valid user", Toast.LENGTH_LONG);
        t.show();
    }
    else {
        count--;
        if(count==0)
        {
            Toast.makeText(getApplicationContext(), "No more attempt is possible", Toast.LENGTH_LONG).show();
            b1.setEnabled(false);
        }
    }
    else
        Toast.makeText(getApplicationContext(), "Not a valid user", Toast.LENGTH_LONG).show();
}
}
}

```



2. Write a program that demonstrates Activity Lifecycle.

`package com.example.lifecycle;`

`import androidx.appcompat.app.AppCompatActivity;`

`import android.os.Bundle;`

`import android.util.Log;`

`public class MainActivity extends AppCompatActivity {`

`@Override`

`protected void onCreate(Bundle savedInstanceState) {`

`super.onCreate(savedInstanceState);`

`setContentView(R.layout.activity_main);`

`Log.d("MainActivity", "create");`

`}`

`protected void onStart()`

`{`

`super.onStart();`

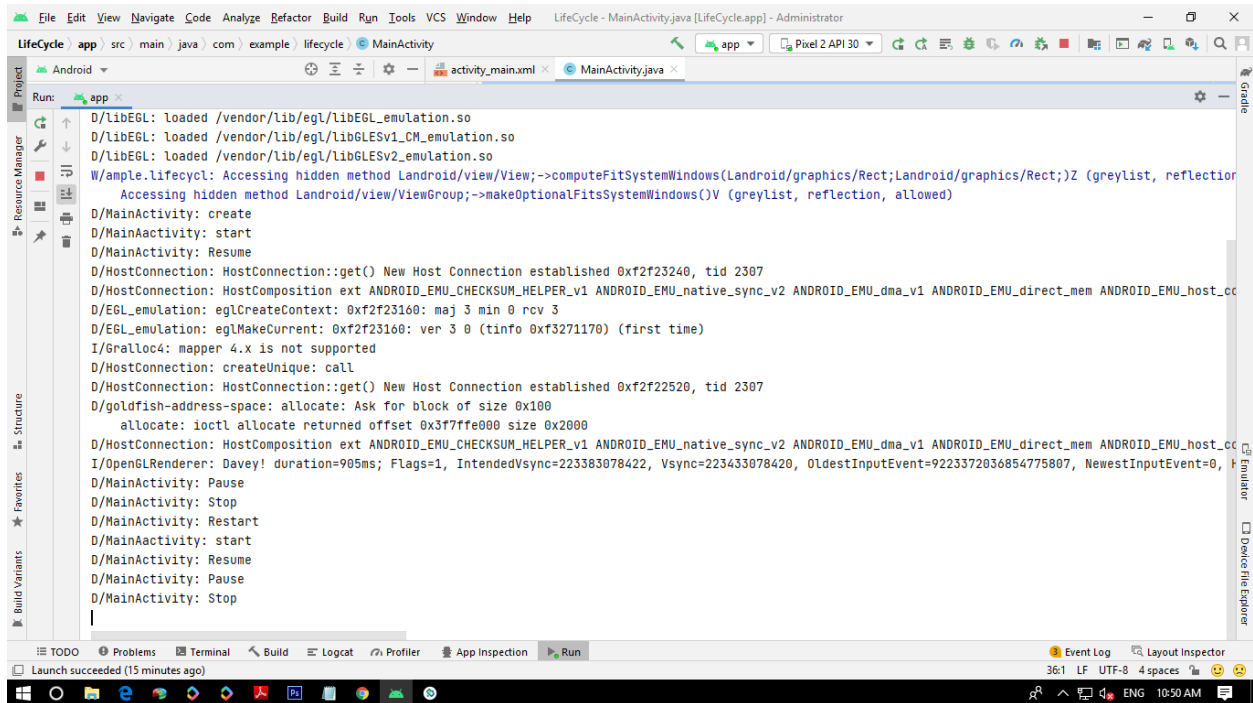
`Log.d("MainAactivity", "start");`

`}`

`protected void onResume()`

`{`

```
super.onResume();
Log.d("MainActivity", "Resume");
}
protected void onPause()
{
super.onPause();
Log.d("MainActivity", "Pause");
}
protected void onStop()
{
super.onStop();
Log.d("MainActivity", "Stop");
}
protected void onDestroy()
{
super.onDestroy();
Log.d("MainActivity", "Destroy");
}
protected void onRestart()
{
super.onRestart();
Log.d("MainActivity", "Restart");
}
}
```



3. Implementing basic arithmetic operations of a simple calculator

```
<?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:layout_width="match_parent"
```

```
android:layout_height="match_parent"
```

```
tools:context=".MainActivity"
```

```
android:background="@color/teal_200">
```

```
<EditText
```

```
android:id="@+id/etc1"
```

```
android:layout_width="wrap_content"
```

```
android:layout_height="wrap_content"
```

```
android:layout_marginStart="100dp"
```

```
android:layout_marginLeft="100dp"
```

```
android:layout_marginTop="100dp"
```

```
android:layout_marginEnd="100dp"
android:layout_marginBottom="100dp"
android:ems="10"
android:enabled="false"
android:hint="Enter Number"
android:inputType="textPersonName"
android:text="" />
```

```
<Button
android:id="@+id/btplus"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_marginTop="50dp"
android:layout_marginRight="20dp"
android:layout_below="@id/etc1"
android:onClick="onclick"
android:text="+" />
```

```
<Button
android:id="@+id/btminus"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_marginTop="50dp"
android:layout_marginRight="20dp"
android:layout_below="@id/etc1"
android:onClick="onclick"
android:layout_toRightOf="@id/btplus"
android:text="-" />
```

```
<Button
android:id="@+id/btmul"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_marginTop="50dp"
android:layout_marginRight="20dp"
```

```
android:layout_below="@id/etc1"
android:onClick="onclick"
android:layout_toRightOf="@id/btminus"
android:text="*" />
```

```
<Button
android:id="@+id/btdiv"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_marginTop="50dp"
android:layout_below="@id/etc1"
android:onClick="onclick"
android:layout_toRightOf="@id/btmul"
android:text="/" />
```

```
<Button
android:id="@+id/b1"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_marginTop="50dp"
android:layout_marginRight="20dp"
android:onClick="onnum"
android:layout_below="@id/btplus"
android:text="1" />
```

```
<Button
android:id="@+id/b2"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_marginTop="50dp"
android:layout_marginRight="20dp"
android:onClick="onnum"
android:layout_below="@id/btplus"
android:layout_toRightOf="@id/b1"
```



```
android:text="2" />
```

```
<Button
```

```
android:id="@+id/b3"
```

```
android:layout_width="wrap_content"
```

```
android:layout_height="wrap_content"
```

```
android:layout_below="@id/btplus"
```

```
android:layout_marginTop="50dp"
```

```
android:layout_marginRight="20dp"
```

```
android:onClick="onnum"
```

```
android:layout_toRightOf="@id/b2"
```

```
android:text="3" />
```

```
<Button
```

```
android:id="@+id/b4"
```

```
android:layout_width="wrap_content"
```

```
android:layout_height="wrap_content"
```

```
android:layout_marginTop="50dp"
```

```
android:layout_marginRight="20dp"
```

```
android:onClick="onnum"
```

```
android:layout_below="@id/btdiv"
```

```
android:layout_toRightOf="@id/b3"
```

```
android:text="4" />
```

```
<Button
```

```
android:id="@+id/b5"
```

```
android:layout_width="wrap_content"
```

```
android:layout_height="wrap_content"
```

```
android:onClick="onnum"
```

```
android:layout_marginTop="20dp"
```

```
android:layout_marginRight="20dp"
```

```
android:layout_below="@id/b1"
```

```
android:text="5" />
```

```
<Button
```

```
android:id="@+id/b6"
```

```
android:layout_width="wrap_content"
```

```
android:layout_height="wrap_content"
android:layout_marginTop="20dp"
android:onClick="onnum"
android:layout_marginRight="20dp"
android:layout_below="@id/b1"
android:layout_toRightOf="@id/b5"
android:text="6" />
```

```
<Button
android:id="@+id/b7"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_marginTop="20dp"
android:layout_marginRight="20dp"
android:onClick="onnum"
android:layout_below="@id/b1"
android:layout_toRightOf="@id/b6"
android:text="7" />
```

```
<Button
android:id="@+id/b8"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_marginTop="20dp"
android:onClick="onnum"
android:layout_marginRight="20dp"
android:layout_below="@id/b1"
android:layout_toRightOf="@id/b7"
android:text="8"/>
```

```
<Button
android:id="@+id/b9"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_marginTop="20dp"
```

```
android:onClick="onnum"
android:layout_marginRight="20dp"
android:layout_below="@id/b5"
android:text="9"/>
<Button
android:id="@+id/b0"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_marginTop="20dp"
android:layout_below="@id/b5"
android:onClick="onnum"
android:layout_toRightOf="@id/b9"
android:text="0"/>
```

```
<Button
android:id="@+id/btcan"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_below="@id/b7"
android:layout_marginTop="20dp"
android:layout_marginRight="20dp"
android:onClick="onclick"
android:layout_marginLeft="20dp"
android:layout_toRightOf="@id/b0"
android:text="Cancel" />
```

```
<Button
android:id="@+id/bteq"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_below="@id/b7"
android:layout_marginTop="20dp"
android:onClick="onclick"
android:layout_marginRight="20dp"
```

```
android:layout_toRightOf="@id/btcan"
android:text="=" />
```

```
</RelativeLayout>
```

MAINACTIVITY

```
package com.example.mycalculator;
```

```
import androidx.appcompat.app.AppCompatActivity;
```

```
import android.os.Bundle;
```

```
import android.view.View;
```

```
import android.widget.Button;
```

```
import android.widget.EditText;
```

```
public class MainActivity extends AppCompatActivity {
```

```
    EditText etresult;
```

```
    Button b1, b2, b3, b4, b5, b6, b7, b8, b9, b0, btplus, btminus, btmul, btdiv, btcan, bteq;
```

```
    float temp1, temp2;
```

```
    String op;
```

```
@Override
```

```
protected void onCreate(Bundle savedInstanceState) {
```

```
    super.onCreate(savedInstanceState);
```

```
    setContentView(R.layout.activity_main);
```

```
    etresult = (EditText) findViewById(R.id.etc1);
```

```
    btplus = (Button) findViewById(R.id.btplus);
```

```
    btminus = (Button) findViewById(R.id.btminus);
```

```
    btmul = (Button) findViewById(R.id.btmul);
```

```
    btdiv = (Button) findViewById(R.id.btdiv);
```

```
    b1 = (Button) findViewById(R.id.b1);
```

```
    b2 = (Button) findViewById(R.id.b2);
```

```

b3 = (Button) findViewById(R.id.b3);
b4 = (Button) findViewById(R.id.b4);
b5 = (Button) findViewById(R.id.b5);
b6 = (Button) findViewById(R.id.b6);
b7 = (Button) findViewById(R.id.b7);
b8 = (Button) findViewById(R.id.b8);
b9 = (Button) findViewById(R.id.b9);
b0 = (Button) findViewById(R.id.b0);
btcan = (Button) findViewById(R.id.btcan);
bteq = (Button) findViewById(R.id.bteq);

}

public void onclick(View v) {
    if (v == btplus || v == btminus || v == btmul || v == btdiv) {

        temp1 = Float.parseFloat(etresult.getText().toString());
        etresult.setText("" + temp1);
        Button b = (Button) v;
        op = b.getText().toString();
        //temp2 = Float.parseFloat(etresult.getText().toString());
    }

    if (v == bteq) {
        temp2 = Float.parseFloat(etresult.getText().toString());
        if (op.equals("+"))
            etresult.setText("" + (temp1 + temp2));
        else if (op.equals("-"))
            etresult.setText("" + (temp1 - temp2));
        else if (op.equals("*"))
            etresult.setText("" + (temp1 * temp2));
        else if (op.equals("/"))
            etresult.setText("" + (temp1 / temp2));
    }
    if (v == btcan) {

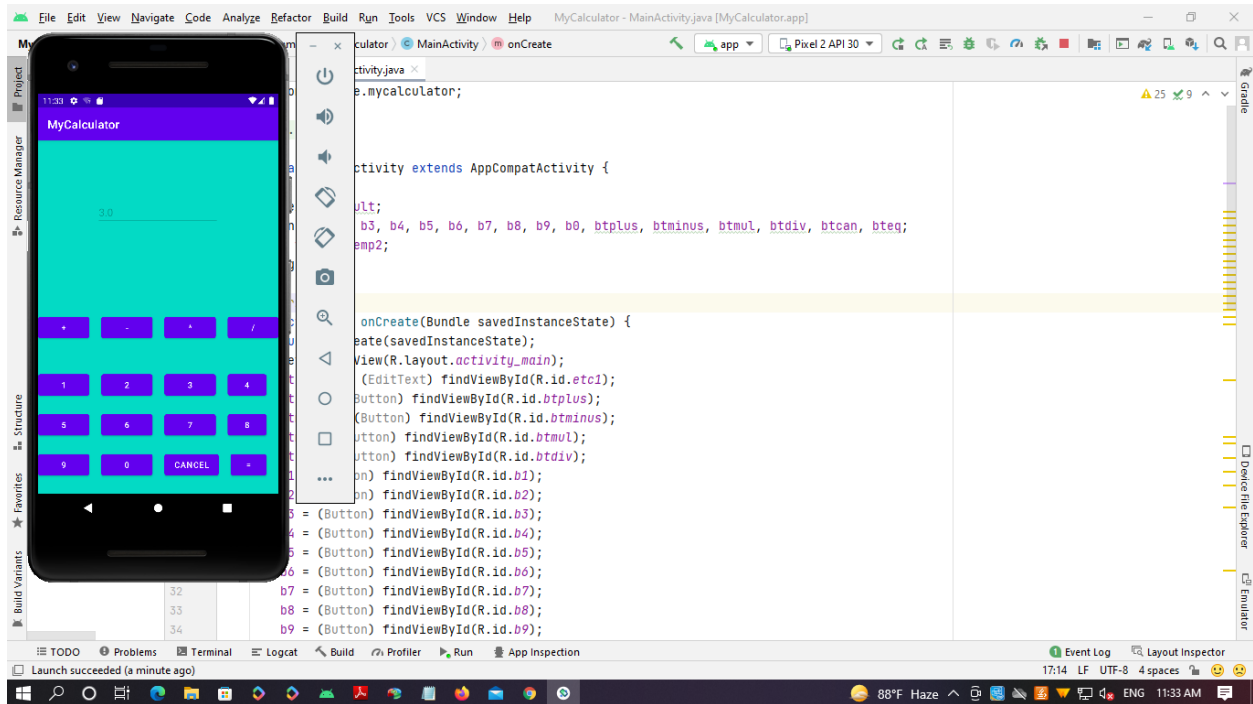
```

```

etresult.setText("");
}
}

public void onnum(View v)
{
String str=etresult.getText().toString();
Button numb=(Button) v;
String num=numb.getText().toString();
etresult.setText(str+num);
}
}

```



```

<?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:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">

```

```
<EditText
    android:id="@+id/etno1"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginTop="20dp"
    android:ems="10"
    android:inputType="textPersonName"
    android:text="" />
```

```
<EditText
    android:id="@+id/etno2"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_below="@id/etno1"
    android:layout_marginTop="20dp"
    android:ems="10"
    android:inputType="textPersonName"
    android:text="" />
```

```
<Button
    android:id="@+id/btplus"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_below="@id/etno2"
    android:layout_marginTop="20dp"
    android:onClick="fun"
    android:text="+" />
```

```
<Button
    android:id="@+id/btminus"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_below="@id/etno2"
    android:layout_marginLeft="100dp"
    android:layout_marginTop="20dp"
    android:onClick="fun"
    android:text="-" />
```

```
<Button
    android:id="@+id/btmult"
```

```
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginTop="20dp"
    android:layout_below="@id/btplus"
    android:onClick="fun"
    android:text="*" />
```

<Button

```
    android:id="@+id/btdiv"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_below="@id/btminus"
    android:layout_marginLeft="20dp"
    android:layout_marginTop="20dp"
    android:onClick="fun"
    android:layout_toRightOf="@id/btmult"
    android:text="/" />
```

<EditText

```
    android:id="@+id/etresult"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_below="@id/btdiv"
    android:layout_alignLeft="@id/btdiv"
    android:ems="10"
    android:inputType="textPersonName"
    android:text="" />
```

</RelativeLayout>

MAINACTIVITY

```
package com.example.firstapp;
```

```
import androidx.appcompat.app.AppCompatActivity;
```

```
import android.os.Bundle;
```

```
import android.view.View;
```

```
import android.widget.Button;
```

```
import android.widget.EditText;
```



```

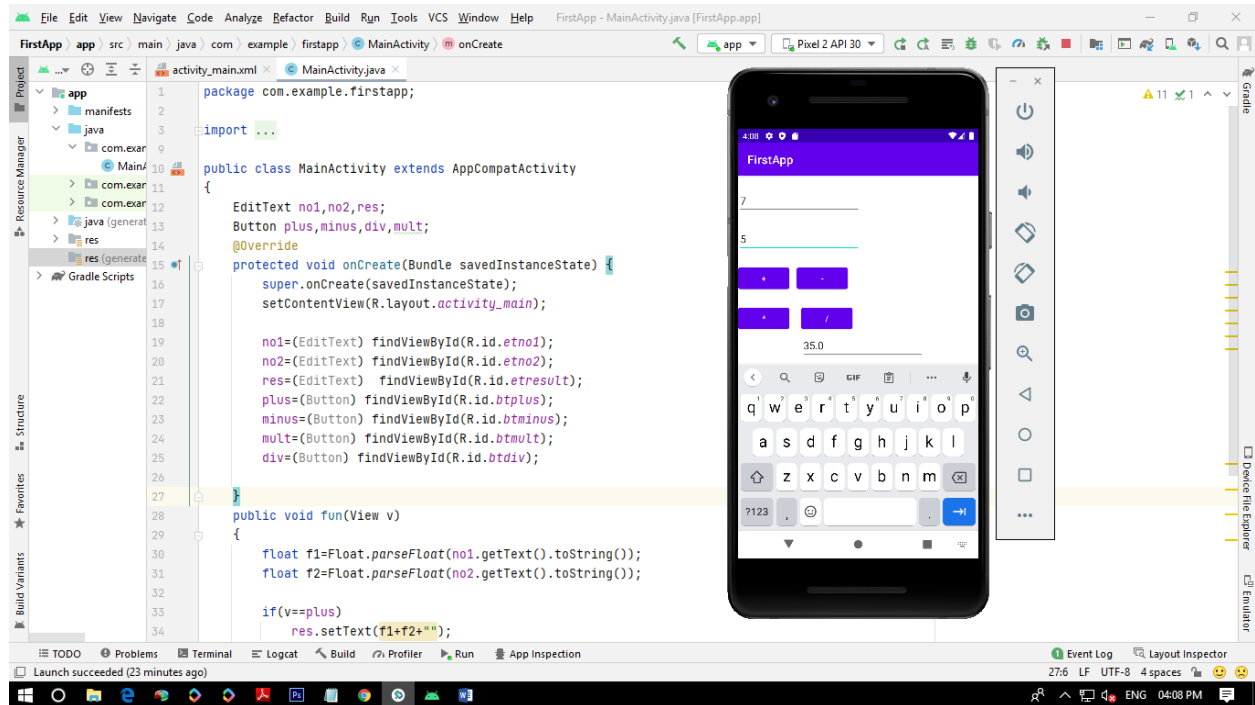
public class MainActivity extends AppCompatActivity
{
    EditText no1,no2,res;
    Button plus,minus,div,mult;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);

        no1=(EditText) findViewById(R.id.etno1);
        no2=(EditText) findViewById(R.id.etno2);
        res=(EditText) findViewById(R.id.etresult);
        plus=(Button) findViewById(R.id.btplus);
        minus=(Button) findViewById(R.id.btminus);
        mult=(Button) findViewById(R.id.btmult);
        div=(Button) findViewById(R.id.btdiv);

    }
    public void fun(View v)
    {
        float f1=Float.parseFloat(no1.getText().toString());
        float f2=Float.parseFloat(no2.getText().toString());

        if(v==plus)
            res.setText(f1+f2+"");
        else if(v==minus)
            res.setText(f1-f2+"");
        else if(v==mult)
            res.setText(f1*f2+"");
        else if(v==div)
            res.setText(f1/f2+"");
    }
}

```



4. Implement validations on various UI controls

<?xml version="1.0" encoding="utf-8"?>

<LinearLayout 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:layout_width="match_parent"
 android:layout_height="match_parent"
 android:orientation="vertical"
 tools:context=".MainActivity">

<CheckBox

android:id="@+id/chekapple"
 android:layout_width="wrap_content"
 android:layout_height="wrap_content"
 android:text="Apple"
 tools:layout_editor_absoluteX="16dp"
 tools:layout_editor_absoluteY="157dp" />

<CheckBox

android:id="@+id/chkorange"
 android:layout_width="match_parent"

```
android:layout_height="wrap_content"  
android:text="Orange" />
```

```
<CheckBox  
android:id="@+id/chkgrapes"  
android:layout_width="match_parent"  
android:layout_height="wrap_content"  
android:text="Grapes" />
```

```
<TextView  
android:id="@+id/tvres"  
android:layout_width="match_parent"  
android:layout_height="wrap_content"  
android:text="" />
```

```
<RadioGroup  
android:layout_width="match_parent"  
android:layout_height="wrap_content"  
android:orientation="horizontal">
```

```
<RadioButton  
android:id="@+id/rdmale"  
android:layout_width="wrap_content"  
android:layout_height="wrap_content"  
android:text="Male" />
```

```
<RadioButton  
android:id="@+id/rdfemale"  
android:layout_width="wrap_content"  
android:layout_height="wrap_content"  
android:text="Female" />
```

```
</RadioGroup>
```

```
<ToggleButton  
android:id="@+id/tgonoff"  
android:layout_width="wrap_content"  
android:layout_height="wrap_content"  
android:textOn="ON"  
android:textOff="OFF"/>
```

```

<Switch
    android:id="@+id/swone"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:textOn="ON"
    android:textOff="OFF"
    android:text="Are You Indian" />
<Spinner
    android:id="@+id/country"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:entries="@array/list"

/>

<Button
    android:id="@+id/click"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:src="@drawable/n2"
    android:text="Display" />

<ImageView
    android:id="@+id/img"
    android:layout_width="match_parent"
    android:layout_height="100dp"
    android:src="@drawable/nature"
    android:contentDescription="nature" />

</LinearLayout>

```

MAINACTIVITY

```

package com.example.box;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;
import android.view.View;
import android.widget.Button;

```

```
import android.widget.CheckBox;
import android.widget.ImageView;
import android.widget.RadioButton;
import android.widget.Spinner;
import android.widget.Switch;
import android.widget.TextView;
import android.widget.Toast;
import android.widget.ToggleButton;
```

```
public class MainActivity extends AppCompatActivity {
    CheckBox apple,orange,grapes;
    String chkstr="",chkstr1="",chkstr2="";
    RadioButton male,female;
    ToggleButton tg;
    Switch sw;
    Spinner sp;
    Button btclick;
    ImageView img;
    TextView res;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        apple=(CheckBox) findViewById(R.id.chekapple);
        orange=(CheckBox) findViewById(R.id.chkorange);
        grapes=(CheckBox)findViewById(R.id.chkgrapes);
        res=(TextView) findViewById(R.id.tvres);
        male=(RadioButton)findViewById(R.id.rdmale) ;
        female=(RadioButton)findViewById(R.id.rdfemale);
        tg=(ToggleButton)findViewById(R.id.tgonoff);
        sw=(Switch)findViewById(R.id.swone);
        sp=(Spinner)findViewById(R.id.country);
        btclick=(Button)findViewById(R.id.click) ;
        img=(ImageView)findViewById(R.id.img) ;
        apple.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                if(apple.isChecked())

                chkstr=apple.getText().toString();
```

```

else
chkstr="";
res.setText(chkstr+chkstr1+chkstr2);
}
});
orange.setOnClickListener(new View.OnClickListener() {
@Override
public void onClick(View v) {
if(orange.isChecked())
chkstr1=orange.getText().toString();
else
chkstr1="";
res.setText(chkstr+chkstr1+chkstr2);
}
});
grapes.setOnClickListener(new View.OnClickListener() {
@Override
public void onClick(View v) {

if(grapes.isChecked())
chkstr2=grapes.getText().toString();
else
chkstr2="";
res.setText(chkstr+chkstr1+chkstr2);
}
});
male.setOnClickListener(new View.OnClickListener() {
@Override
public void onClick(View v) {
Toast t= Toast.makeText(getApplicationContext(),"male",Toast.LENGTH_SHORT);
t.show();
}
});
female.setOnClickListener(new View.OnClickListener() {
@Override
public void onClick(View v) {
Toast t=Toast.makeText(getApplicationContext(),"female",Toast.LENGTH_SHORT);
t.show();
}
});

```

```

tg.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        if (tg.isChecked()) {
            Toast t = Toast.makeText(getApplicationContext(), tg.getTextOn(), Toast.LENGTH_SHORT);
            t.show();
        } else
            Toast.makeText(getApplicationContext(), tg.getTextOff(), Toast.LENGTH_SHORT).show();
        }
    });
sw.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        if (sw.isChecked()) {
            Toast t=Toast.makeText(getApplicationContext(),sw.getTextOn(),Toast.LENGTH_SHORT);
            t.show();
        }
        else
            Toast.makeText(getApplicationContext(),sw.getTextOff(),Toast.LENGTH_SHORT).show();
        }
    });

btclick.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        Toast.makeText(getApplicationContext(),sp.getSelectedItem().toString(),Toast.LENGTH_SHOR
        T).show();
        img.setImageResource(R.drawable.n2);
    }
});

}

}

<resources>
<string name="app_name">Box</string>
<string-array name="list">
<item>INDIA</item>
<item>USA</item>

```

```
<item>UK</item>
</string-array>
</resources>
```

