

CO1

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

XML

```
<?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>
```

JAVA

```
package com.example.login;

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);
}

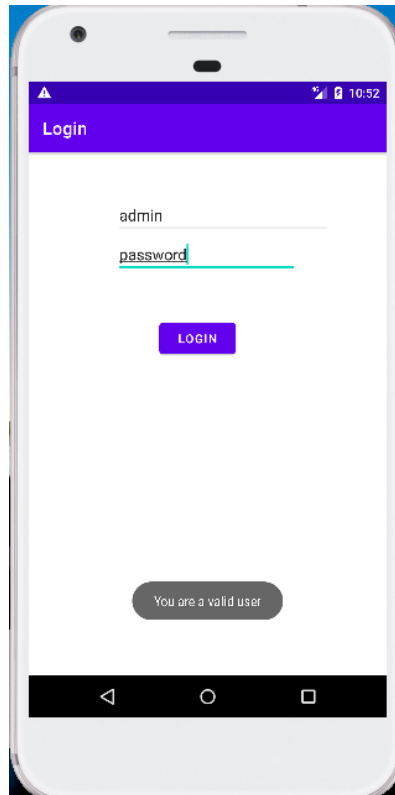
public void click(View v)
{
    String s1=t1.getText().toString();
    String s2=t2.getText().toString();
    if(s1.equals("admin") && s2.equals("password"))
    {
        Toast t;
        t = Toast.makeText(getApplicationContext(), "You are a valid user", Toast.LENGTH_LONG);
        t.show();
    }
    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();

    }
}
}

```

OUTPUT



2. Write a program that demonstrates Activity Lifecycle.

XML

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

<androidx.constraintlayout.widget.ConstraintLayout
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">

    <TextView

        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Hello World!"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintLeft_toLeftOf="parent"
        app:layout_constraintRight_toRightOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

</androidx.constraintlayout.widget.ConstraintLayout>
```

JAVA

```
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");

    }

    @Override
    protected void onStart()
    {
        super.onStart();
        Log.d("MainActivity", "Start");
    }

    @Override
    protected void onResume()
    {
        super.onResume();
        Log.d("MainActivity", "Resume");
    }

    @Override
    protected void onPause()
    {
        super.onPause();
        Log.d("MainActivity", "Pause");
    }

    @Override
    protected void onStop()
    {
        super.onStop();
        Log.d("MainActivity", "Stop");
    }
}
```

```

    }

    @Override
    protected void onDestroy()
    {
        super.onDestroy();

        Log.d("MainActivity", "Destroy");
    }

    @Override
    protected void onRestart()
    {
        super.onRestart();

        Log.d("MainActivity", "Restart");
    }
}

```

OUTPUT



```

D/MainActivity: Create
D/MainActivity: Start
    Resume
D/OpenGLRenderer: Use EGL_SWAP_BEHAVIOR_PRESERVED: true
D/: HostConnection:get() New Host Connection established 0xb48f1740, tid 3617
D/Atlas: Validating map...
D/: HostConnection:get() New Host Connection established 0xae45f1a0, tid 3634
I/OpenGLRenderer: Initialized EGL, version 1.4
W/OpenGLRenderer: Failed to choose config with EGL_SWAP_BEHAVIOR_PRESERVED, retrying without...
D/EGL_emulation: eglCreateContext: 0xae434ac0: maj 2 min 0 rcv 2
D/EGL_emulation: eglMakeCurrent: 0xae434ac0: ver 2 0 (tinfo 0xae4392f0)
D/OpenGLRenderer: Enabling debug mode 0
D/EGL_emulation: eglMakeCurrent: 0xae434ac0: ver 2 0 (tinfo 0xae4392f0)
D/MainActivity: Pause
D/EGL_emulation: eglMakeCurrent: 0xae434ac0: ver 2 0 (tinfo 0xae4392f0)
D/MainActivity: Stop
D/MainActivity: Restart
D/MainActivity: Start
    Resume
D/EGL_emulation: eglMakeCurrent: 0xae434ac0: ver 2 0 (tinfo 0xae4392f0)
D/MainActivity: Pause
D/MainActivity: Stop
D/MainActivity: Destroy

```

3) Implementing basic arithmetic operations of a simple calculator

XML

```
<?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"
    android:layout_gravity="center_horizontal"
    tools:context=".MainActivity">
```

```
<EditText
    android:id="@+id/etn1"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:ems="10"
    android:inputType="number"
    android:layout_marginTop="20dp"
    android:text=""/>
```

```
<EditText
    android:id="@+id/etn2"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:ems="10"
    android:inputType="number"
    android:layout_below="@id/etn1"

    android:text=""/>
```



```
<RelativeLayout

    android:id="@+id/rl"

    android:layout_width="wrap_content"

    android:layout_height="wrap_content"

    android:layout_below="@id/etn2">

    <Button

        android:id="@+id/btadd"

        android:layout_width="wrap_content"

        android:layout_height="wrap_content"

        android:layout_marginTop="10dp"

        android:text="+" />

    <Button

        android:id="@+id/btsub"

        android:layout_width="wrap_content"

        android:layout_height="wrap_content"

        android:layout_toRightOf="@id/btadd"

        android:layout_marginTop="10dp"

        android:text="-" />

    <Button

        android:id="@+id/btdiv"

        android:layout_width="wrap_content"

        android:layout_height="wrap_content"

        android:layout_toRightOf="@id/btsub"

        android:layout_marginTop="10dp"

        android:text="/" />

    <Button

        android:id="@+id/btmult"

        android:layout_width="wrap_content"
```

```

        android:layout_height="wrap_content"

        android:layout_marginTop="10dp"

        android:layout_toRightOf="@id/btdiv"

        android:text="*" />
</RelativeLayout>

<EditText
    android:id="@+id/etres"

    android:layout_width="wrap_content"

    android:layout_height="wrap_content"

    android:ems="10"

    android:inputType="textPersonName"

    android:layout_below="@id/rl"

    android:layout_marginTop="30dp"

    android:text="" />
</LinearLayout>

```

JAVA

```

package com.example.simplecalculator;

import androidx.appcompat.app.AppCompatActivity;


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


import com.example.simplecalculator.R;

public class MainActivity extends AppCompatActivity
{
    EditText e1,e2,e3;

    Button add,sub,mult,div;

```

```

@Override

public void onCreate(Bundle savedInstanceState) {

    super.onCreate(savedInstanceState);

    setContentView(R.layout.activity_main);

    e1=(EditText) findViewById(R.id.etn1);

    e2=(EditText) findViewById(R.id.etn2);

    e3=(EditText) findViewById(R.id.etres);

    add=(Button) findViewById(R.id.btadd);

    sub=(Button) findViewById(R.id.btsub);

    mult=(Button) findViewById(R.id.btmult);

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

    add.setOnClickListener(new View.OnClickListener() {

        @Override

        public void onClick(View v) {

            float f1=Float.parseFloat(e1.getText().toString());

            float f2=Float.parseFloat(e2.getText().toString());

            e3.setText(f1+f2+"");

        }

    });

    sub.setOnClickListener(new View.OnClickListener() {

        @Override

        public void onClick(View v) {

            float f1=Float.parseFloat(e1.getText().toString());

            float f2=Float.parseFloat(e2.getText().toString());

            e3.setText(f1-f2+"");

        }

    });

    mult.setOnClickListener(new View.OnClickListener() {

        @Override

        public void onClick(View v) {

            float f1=Float.parseFloat(e1.getText().toString());

            float f2=Float.parseFloat(e2.getText().toString());

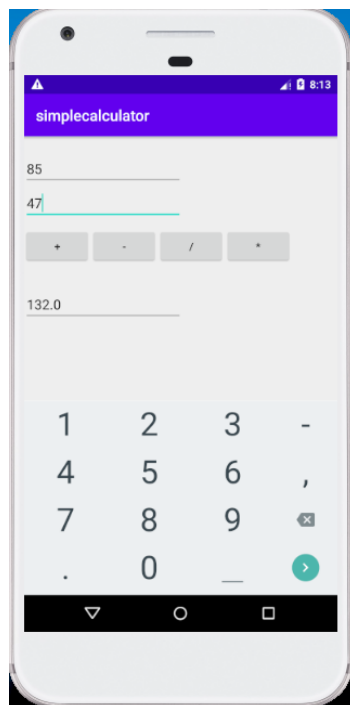
```

```

        e3.setText(f1*f2+"");
    }
});
div.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        float f1=Float.parseFloat(e1.getText().toString());
        float f2=Float.parseFloat((e2.getText().toString()));
        e3.setText(f1/f2+"");
    }
});
}
}

```

OUTPUT



4. Implement validations on various UI controls

XML

```
<?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>

JAVA

```
package com.example.ui;

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;

import com.example.ui.R;

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_SHORT).show();

        img.setImageResource(R.drawable.n2);

    }

});

}

```

Strings.xml

```

<resources>

    <string name="app_name">Box</string>

    <string-array name="list">

        <item>INDIA</item>

        <item>USA</item>

        <item>UK</item>

    </string-array>

</resources>

```

OUTPUT

