20MCA243 MOBILE APPLICATION DEVELOPMENT LAB

Lab Report Submitted By

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AMAL JYOTHI COLLEGE OF ENGINEERING
KANJIRAPPALLY

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DEPARTMENT OF COMPUTER APPLICATIONS
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CERTIFICATE

This is to certify that the lab report, "20MCA243 MOBILE APPLICATION DEVELOPMENT LAB" is the bonafide work of ASHIQUE P RAJ (Reg.No:AJC20MCA-2027) in partial fulfillment of the requirements for the award of the Degree of Master of Computer Applications under APJ Abdul Kalam Technological University during the year 2021-22.

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Program no:1

Aim:Program to develop the android mobile application which consist of GUI components for Login Page creation.

XML Code:

```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"

    android:background="@drawable/primary_screen"

    tools:context=".LoginActivity">


    <ImageView

        android:id="@+id/avatar"

        android:layout_width="120dp"

        android:layout_height="120dp"

        android:layout_marginTop="10dp"

        android:contentDescription="@string/login_image"

        android:src="@drawable/avatar"

        app:layout_constraintEnd_toEndOf="parent"

        app:layout_constraintHorizontal_bias="0.498"

        app:layout_constraintStart_toStartOf="parent"

        app:layout_constraintTop_toTopOf="parent" /

    <TextView

        android:id="@+id/loginText"

        android:layout_width="wrap_content"

        android:layout_height="wrap_content"

        android:layout_marginTop="10dp"
```

```
android:text="@string/login"

android:textColor="@color/black"

android:textSize="30sp"

app:layout_constraintEnd_toEndOf="parent"

app:layout_constraintHorizontal_bias="0.498"

app:layout_constraintStart_toStartOf="parent"

app:layout_constraintTop_toBottomOf="@+id/avatar" />


<RelativeLayout

  android:id="@+id/loginLoginLayout"

  android:layout_width="match_parent"

  android:layout_height="wrap_content"

  android:layout_marginStart="5dp"

  android:layout_marginEnd="5dp"

  android:background="@drawable/account_creation"

  app:layout_constraintBottom_toBottomOf="parent"

  app:layout_constraintEnd_toEndOf="parent"

  app:layout_constraintHorizontal_bias="1.0"

  app:layout_constraintStart_toStartOf="parent"

  app:layout_constraintTop_toBottomOf="@+id/loginText"

  app:layout_constraintVertical_bias="0.098">

  <EditText

    android:id="@+id/loginUsername"

    android:layout_width="match_parent"

    android:layout_height="40dp"

    android:layout_marginTop="40dp"

    android:autofillHints=""

    android:layout_alignParentTop="true"

    android:hint="@string/username"
```

```xml
        android:layout_alignParentStart="true"

        android:layout_alignParentEnd="true"

        android:inputType="textEmailAddress"

        android:padding="10dp"

        android:layout_marginEnd="20dp"

        android:layout_marginStart="20dp"

        android:textColor="@color/white"

        android:textColorHint="@color/white" />


    <EditText

        android:id="@+id/loginPassword"

        android:layout_width="match_parent"

        android:layout_height="40dp"

        android:layout_below="@+id/loginUsername"

        android:layout_alignParentStart="true"

        android:layout_alignParentEnd="true"

        android:layout_marginTop="20dp"

        android:layout_marginEnd="20dp"

        android:layout_marginStart="20dp"

        android:hint="@string/password"

        android:inputType="textPassword"

        android:padding="10dp"

        android:textColor="@color/white"

        android:textColorHint="@color/white" />


    <TextView

        android:id="@+id/forgotPasswordText"

        android:layout_width="wrap_content"
```

```xml
        android:layout_height="wrap_content"

        android:layout_marginTop="20dp"

        android:text="@string/forgot_password"

        android:clickable="true"

        android:textSize="20sp"

        android:layout_marginStart="30dp"

        android:layout_alignParentStart="true"

        android:layout_below="@+id/loginPassword"/>


    <com.blure.complexview.ComplexView

        android:id="@+id/shadowLoginButton"

        android:layout_width="match_parent"

        android:layout_height="wrap_content"

        app:radius="20dp"

        app:shadow="true"

        app:shadowAlpha="100"

        app:shadowColor="#2962FF"

        android:padding="10dp"

        android:layout_below="@+id/forgotPasswordText"

        android:layout_marginTop="30dp"

        app:shadowSpread="2">


        <Button

            android:id="@+id/loginButton"

            android:layout_width="match_parent"

            android:layout_height="46dp"

            android:background="@drawable/password_reset_buttons"

            android:text="@string/sign_in" />
</androidx.constraintlayout.widget.ConstraintLayout>
```

Java Code:

```
import androidx.annotation.NonNull;

import androidx.appcompat.app.AlertDialog;

import androidx.appcompat.app.AppCompatActivity;


import android.view.View;

import android.view.ViewGroup;

import android.widget.Button;

import android.widget.EditText;

import android.widget.ImageView;

import android.widget.TextView;

import android.widget.Toast;

public class LoginActivity extends AppCompatActivity {


    EditText loginName, loginPwd;

    Button login;

    @Override

    protected void onCreate(Bundle savedInstanceState) {

        super.onCreate(savedInstanceState);

        setContentView(R.layout.activity_login);

        loginName = findViewById(R.id.loginUsername);

        loginPwd = findViewById(R.id.loginPassword);

        login = findViewById(R.id.loginButton);

        login.setOnClickListener(new View.OnClickListener() {

            @Override

            public void onClick(View v) {

                String uName, passwd;

                uName = loginName.getText().toString();
```

```
        passwd = loginPwd.getText().toString();

        Toast.makeText(LoginActivity.this"Welcome",
Toast.LENGTH_SHORT).show();

        }

    });

  }

}
```

Output:
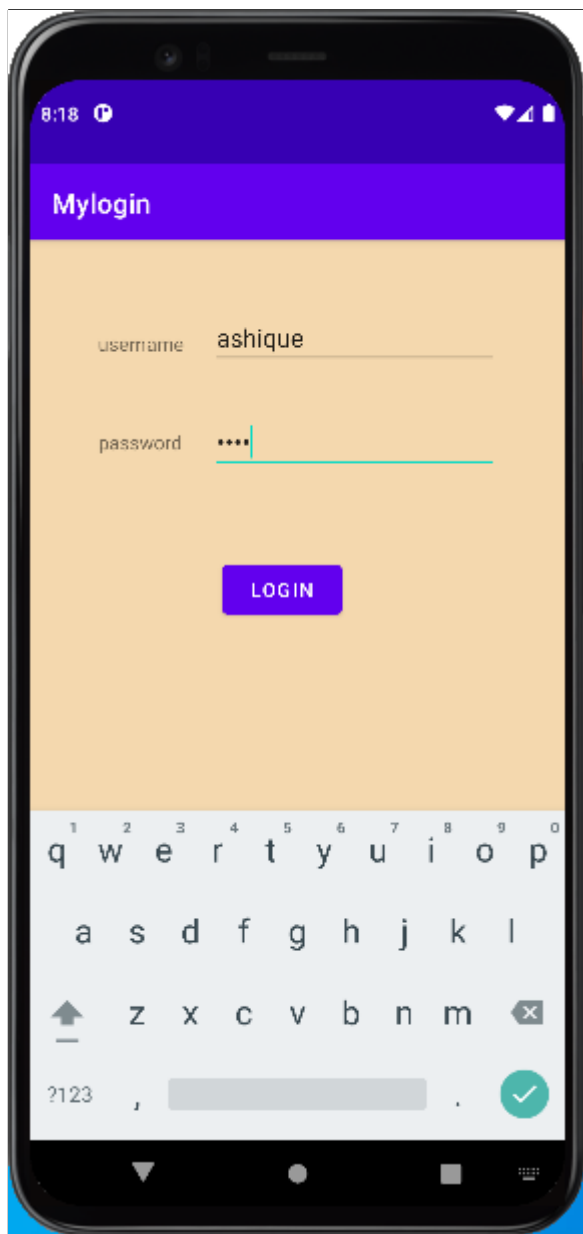
Program no:2

Aim: Program to display the content of EditText in TextView on button click.

XML Code:

```
<?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:id="@+id/txt1"

        android:layout_width="182dp"

        android:layout_height="54dp"


        app:layout_constraintBottom_toBottomOf="parent"

        app:layout_constraintHorizontal_bias="0.497"

        app:layout_constraintLeft_toLeftOf="parent"

        app:layout_constraintRight_toRightOf="parent"

        app:layout_constraintTop_toBottomOf="@+id/btn1"

        app:layout_constraintVertical_bias="0.356" />


    <EditText

        android:id="@+id/edt1"

        android:layout_width="300dp"
```

```
        android:layout_height="40dp"

        android:layout_marginTop="136dp"

        app:layout_constraintEnd_toEndOf="parent"

        app:layout_constraintHorizontal_bias="0.495"

        app:layout_constraintStart_toStartOf="parent"

        app:layout_constraintTop_toTopOf="parent"

        app:layout_constraintVertical_bias="0.85" />


    <Button

        android:id="@+id/btn1"

        android:layout_width="122dp"

        android:layout_height="43dp"

        android:layout_marginTop="48dp"

        android:text="Button"

        app:layout_constraintEnd_toEndOf="parent"

        app:layout_constraintHorizontal_bias="0.498"

        app:layout_constraintStart_toStartOf="parent"

        app:layout_constraintTop_toBottomOf="@+id/edt1" />


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

Java Code:

```java
package com.example.textview;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;

import android.view.View;

import android.widget.Button;

import android.widget.EditText;

import android.widget.TextView;
```

```
import android.widget.Toast;

public class MainActivity extends AppCompatActivity {
    Button b1;
    EditText e1;
    TextView t1;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        e1 = findViewById(R.id.edt1);
        b1 =findViewById(R.id.btn1);
        t1 =findViewById(R.id.txt1);
        b1.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                String value=e1.getText().toString();
                t1.setText(value);
            }
        });
    }
}
```
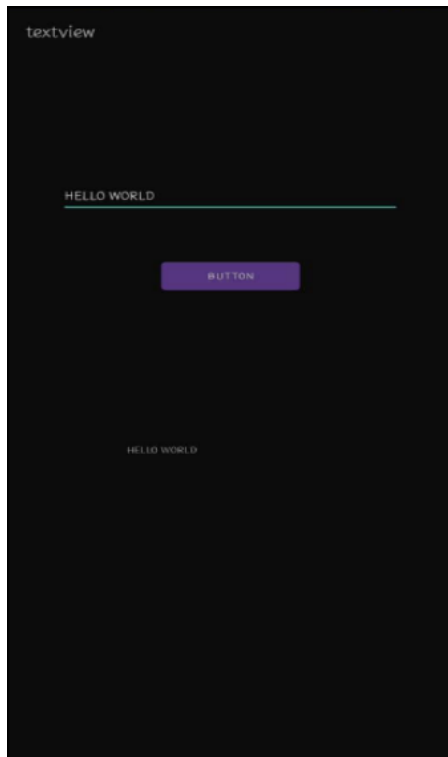
Output:

Program no:3

Aim:Program to design a Login Form with username and password using LinearLayout and toast valid credentials

XML Code:

```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:background="#ecdaf2"
    tools:context=".MainActivity">

    <TextView
        android:id="@+id/txt1"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_marginTop="10dp"
        android:padding="20dp"
        android:textAlignment="center"
        android:textSize="20sp"
        android:text="Login form"/>

    <EditText
        android:id="@+id/edt1"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_marginTop="100dp"
```

```xml
        android:paddingStart="10dp"

        android:hint="Username" />

    <TextView

        android:id="@+id/t1"

        android:layout_width="wrap_content"

        android:layout_height="wrap_content"

        android:visibility="gone"

        android:padding="10dp"

        android:text="*Please enter username"

        android:textColor="@color/red"/>


    <EditText

        android:id="@+id/edt2"

        android:layout_width="match_parent"

        android:layout_height="wrap_content"

        android:layout_marginTop="50dp"

        android:paddingStart="10dp"

        android:hint="Password" />

    <TextView

        android:id="@+id/t2"

        android:layout_width="wrap_content"

        android:layout_height="wrap_content"

        android:visibility="gone"

        android:padding="10dp"

        android:text="*Please enter password"

        android:textColor="@color/red"/>


    <Button

        android:id="@+id/btn1"
```

```
    android:layout_width="150dp"

    android:layout_height="40dp"

    android:layout_gravity="center"

    android:text="Sign In"

    android:layout_marginTop="20dp"

    />
</LinearLayout>
```

Java Code:

```
package com.example.loginformvalidation;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;

import android.view.View;

import android.widget.Button;

import android.widget.EditText;

import android.widget.TextView;

import android.widget.Toast;

public class MainActivity extends AppCompatActivity {

    EditText e1,e2;

    TextView t1, t2;

    Button b1;

    @Override

    protected void onCreate(Bundle savedInstanceState) {

        super.onCreate(savedInstanceState);

        setContentView(R.layout.activity_main);

        e1=findViewById(R.id.edt1);

        e2=findViewById(R.id.edt2);

        t1 = findViewById(R.id.t1);

        t2 = findViewById(R.id.t2);
```

```java
b1=findViewById(R.id.btn1);
b1.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        String username,password;
        username=e1.getText().toString();
        password=e2.getText().toString();
        if (username.isEmpty()){
            t1.setVisibility(View.VISIBLE);
            Toast.makeText(MainActivity.this,"Username is empty",
Toast.LENGTH_SHORT).show();
        }
        else if (password.isEmpty()){
            t2.setVisibility(View.VISIBLE);
            Toast.makeText(MainActivity.this, "Password is empty",
Toast.LENGTH_SHORT).show();
        }else
            Toast.makeText(MainActivity.this, "Login success",
Toast.LENGTH_SHORT).show();
    }
});
}
}
```

Output:
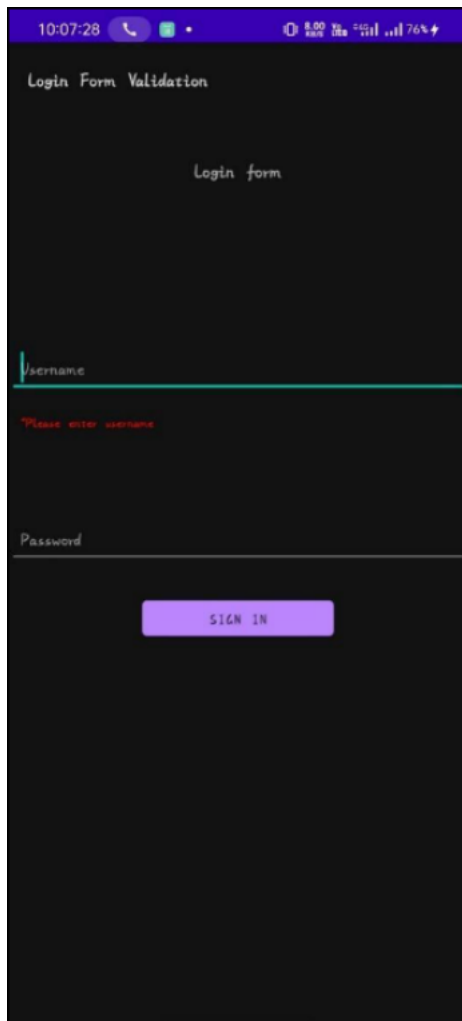
Program no:4

Aim:Program to implementing basic arithmetic operations of a simple calculator

XML Code:

```
<?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:id="@+id/txt1"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="2 X 5 + 10"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        android:padding="20dp"/>


    <TextView
        android:id="@+id/txt2"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="20"
        app:layout_constraintStart_toStartOf="parent"
        android:gravity="end"
        app:layout_constraintBottom_toTopOf="@+id/grid"
        android:layout_marginTop="60dp"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/txt1"
        android:padding="20dp"/>


    <GridLayout
        android:id="@+id/grid"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
```

```
app:layout_constraintStart_toStartOf="parent"

app:layout_constraintEnd_toEndOf="parent"

android:rowCount="3"

android:columnCount="4"

app:layout_constraintBottom_toBottomOf="parent">


<Button

    android:layout_height="80dp"

    android:layout_width="wrap_content"

    android:layout_margin="7dp"

    android:text="C"/>

<Button

    android:layout_height="80dp"

    android:layout_width="wrap_content"

    android:layout_margin="7dp"

    android:text="Back"/>

<Button

    android:layout_height="80dp"

    android:layout_width="wrap_content"

    android:layout_margin="7dp"

    android:text="%"/>

<Button

    android:layout_height="80dp"

    android:layout_width="wrap_content"

    android:layout_margin="7dp"

    android:text="/"/>

<Button

    android:layout_height="80dp"

    android:layout_width="wrap_content"
```

```xml
        android:background="@drawable/button_number"

        android:layout_margin="7dp"

        android:text="7"/>

    <Button

        android:layout_height="80dp"

        android:layout_width="wrap_content"

        android:layout_margin="7dp"

        android:background="@drawable/button_number"

        android:text="8"/>

    <Button

        android:layout_height="80dp"

        android:layout_width="wrap_content"

        android:layout_margin="7dp"

        android:background="@drawable/button_number"

        android:text="9"/>

    <Button

        android:layout_height="80dp"

        android:layout_width="wrap_content"

        android:layout_margin="7dp"

        android:text="X"/>


    <Button

        android:layout_height="80dp"

        android:layout_width="wrap_content"

        android:background="@drawable/button_number"

        android:layout_margin="7dp"

        android:text="4"/>

    <Button

        android:layout_height="80dp"
```

```xml
    android:layout_width="wrap_content"

    android:background="@drawable/button_number"

    android:layout_margin="7dp"

    android:text="5"/>

<Button

    android:layout_height="80dp"

    android:layout_width="wrap_content"

    android:background="@drawable/button_number"

    android:layout_margin="7dp"

    android:text="6"/>

<Button

    android:layout_height="80dp"

    android:layout_width="wrap_content"

    android:layout_margin="7dp"

    android:text="-"/>




<Button

    android:layout_height="80dp"

    android:layout_width="wrap_content"

    android:background="@drawable/button_number"

    android:layout_margin="7dp"

    android:text="1"/>

<Button

    android:layout_height="80dp"

    android:layout_width="wrap_content"

    android:background="@drawable/button_number"

    android:layout_margin="7dp"

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

```xml
<Button
    android:layout_height="80dp"
    android:layout_width="wrap_content"
    android:background="@drawable/button_number"
    android:layout_margin="7dp"
    android:text="3"/>
<Button
    android:layout_height="80dp"
    android:layout_width="wrap_content"
    android:layout_margin="7dp"
    android:text="+"/>


<Button
    android:layout_height="80dp"
    android:layout_width="wrap_content"
    android:layout_margin="7dp"
    android:text="--"/>
<Button
    android:layout_height="80dp"
    android:layout_width="wrap_content"
    android:background="@drawable/button_number"
    android:layout_margin="7dp"
    android:text="0"/>
<Button
    android:layout_height="80dp"
    android:layout_width="wrap_content"
    android:layout_margin="7dp"
    android:text="."/>
<Button
```

```
            android:layout_height="80dp"

            android:layout_width="wrap_content"

            android:layout_margin="7dp"

            android:text="="/>

    </GridLayout>


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

Java Code:

```
package com.example.calculator;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;

import android.view.View;

import android.widget.Button;

import android.widget.TextView;

public class MainActivity extends AppCompatActivity {


    double input1 = 0, input2 = 0;

    TextView edt1;

    boolean Addition, Subtract, Multiplication, Division, mRemainder, decimal;

    Button button0, button1, button2, button3, button4, button5, button6, button7,
button8, button9, buttonAdd, buttonSub,

        buttonMul, buttonDivision, buttonEqual, buttonDel, buttonDot, Remainder;


    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);


        button0 = (Button) findViewById(R.id.button0);
```

```
button1 = (Button) findViewById(R.id.button1);

button2 = (Button) findViewById(R.id.button2);

button3 = (Button) findViewById(R.id.button3);

button4 = (Button) findViewById(R.id.button4);

button5 = (Button) findViewById(R.id.button5);

button6 = (Button) findViewById(R.id.button6);

button7 = (Button) findViewById(R.id.button7);

button8 = (Button) findViewById(R.id.button8);

button9 = (Button) findViewById(R.id.button9);

buttonDot = (Button) findViewById(R.id.buttonDot);

buttonAdd = (Button) findViewById(R.id.buttonadd);

buttonSub = (Button) findViewById(R.id.buttonsub);

buttonMul = (Button) findViewById(R.id.buttonmul);

buttonDivision = (Button) findViewById(R.id.buttondiv);

Remainder = (Button) findViewById(R.id.Remainder);

buttonDel = (Button) findViewById(R.id.buttonDel);

buttonEqual = (Button) findViewById(R.id.buttoneql);


edt1 = (TextView) findViewById(R.id.display);


button1.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        edt1.setText(edt1.getText() + "1");
    }
});


button2.setOnClickListener(new View.OnClickListener() {
    @Override
```

```java
    public void onClick(View v) {
        edt1.setText(edt1.getText() + "2");
    }
});


button3.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        edt1.setText(edt1.getText() + "3");
    }
});


button4.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        edt1.setText(edt1.getText() + "4");
    }
});


button5.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        edt1.setText(edt1.getText() + "5");
    }
});


button6.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
```

```java
            edt1.setText(edt1.getText() + "6");
        }
});


button7.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        edt1.setText(edt1.getText() + "7");
    }
});


button8.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        edt1.setText(edt1.getText() + "8");
    }
});


button9.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        edt1.setText(edt1.getText() + "9");
    }
});


button0.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        edt1.setText(edt1.getText() + "0");
```

```
        }
    });


    buttonAdd.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View v) {
            if (edt1.getText().length() != 0) {
                input1 = Float.parseFloat(edt1.getText() + "");
                Addition = true;
                decimal = false;
                edt1.setText(null);
            }
        }
    });


    buttonSub.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View v) {
            if (edt1.getText().length() != 0) {
                input1 = Float.parseFloat(edt1.getText() + "");
                Subtract = true;
                decimal = false;
                edt1.setText(null);
            }
        }
    });


    buttonMul.setOnClickListener(new View.OnClickListener() {
        @Override
```

```java
    public void onClick(View v) {

        if (edt1.getText().length() != 0) {

            input1 = Float.parseFloat(edt1.getText() + "");

            Multiplication = true;

            decimal = false;

            edt1.setText(null);

        }

    }

});


buttonDivision.setOnClickListener(new View.OnClickListener() {

    @Override

    public void onClick(View v) {

        if (edt1.getText().length() != 0) {

            input1 = Float.parseFloat(edt1.getText() + "");

            Division = true;

            decimal = false;

            edt1.setText(null);

        }

    }

});


Remainder.setOnClickListener(new View.OnClickListener() {

    @Override

    public void onClick(View v) {

        if (edt1.getText().length() != 0) {

            input1 = Float.parseFloat(edt1.getText() + "");

            mRemainder = true;

            decimal = false;
```

```java
                edt1.setText(null);
            }
        }
    });


    buttonEqual.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View v) {
            if (Addition || Subtract || Multiplication || Division || mRemainder) {
                input2 = Float.parseFloat(edt1.getText() + "");
            }


            if (Addition) {


                edt1.setText(input1 + input2 + "");
                Addition = false;
            }


            if (Subtract) {


                edt1.setText(input1 - input2 + "");
                Subtract = false;
            }


            if (Multiplication) {
                edt1.setText(input1 * input2 + "");
                Multiplication = false;
            }
            if (Division) {
```

```
            edt1.setText(input1 / input2 + "");

            Division = false;

        }

        if (mRemainder) {

            edt1.setText(input1 % input2 + "");

            mRemainder = false;

        }

    }

});

buttonDel.setOnClickListener(new View.OnClickListener() {

    @Override

    public void onClick(View v) {

        edt1.setText("");

        input1 = 0.0;

        input2 = 0.0;

    }

});

buttonDot.setOnClickListener(new View.OnClickListener() {

        @Override

        public void onClick(View v) {

            if (decimal) {

                //do nothing or you can show the error

            } else {

                edt1.setText(edt1.getText() + ".");

                decimal = true;

            }


        }

    });
```
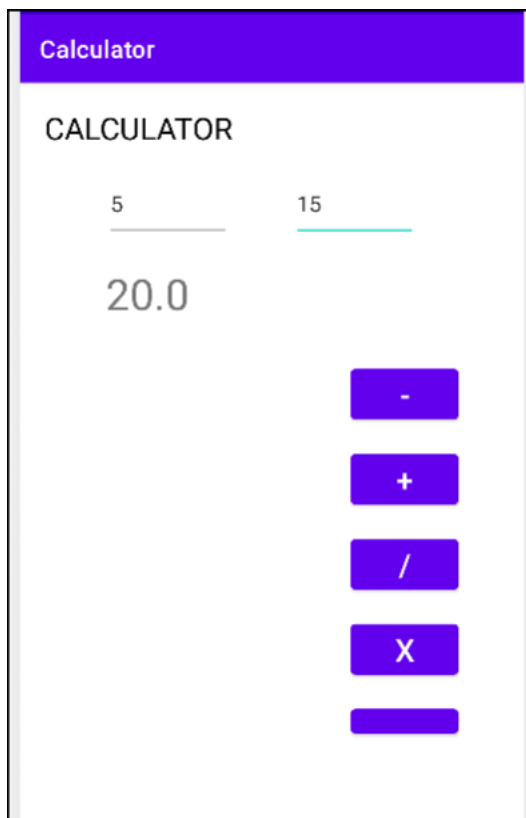
```
}
public void onClick(View view) {
}}
```

Output:

Program no:5

Aim: Program to implement validations on various UI controls

XML Code:

```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:id="@+id/txt1"

        android:layout_width="wrap_content"

        android:layout_height="wrap_content"

        android:text="Validation on UI Components"

        app:layout_constraintLeft_toLeftOf="parent"

        android:textSize="25sp"

        app:layout_constraintRight_toRightOf="parent"

        android:layout_marginTop="30dp"

        app:layout_constraintTop_toTopOf="parent" />

<EditText

        android:id="@+id/edt1"

        android:layout_width="match_parent"

        android:layout_height="wrap_content"

        app:layout_constraintStart_toStartOf="parent"

        app:layout_constraintEnd_toEndOf="parent"

        app:layout_constraintTop_toBottomOf="@+id/txt1"

        android:padding="20dp"
```

```
    android:layout_marginTop="100dp"

    android:hint="Text 1"

    android:layout_marginHorizontal="10dp"/>

<EditText

    android:id="@+id/edt2"

    android:layout_width="match_parent"

    android:layout_height="wrap_content"

    app:layout_constraintStart_toStartOf="parent"

    app:layout_constraintEnd_toEndOf="parent"

    app:layout_constraintTop_toBottomOf="@+id/edt1"

    android:padding="20dp"

    android:layout_marginTop="20dp"

    android:hint="Text 2"

    android:layout_marginHorizontal="10dp"/>

<EditText

    android:id="@+id/edt3"

    android:layout_width="match_parent"

    android:layout_height="wrap_content"

    app:layout_constraintStart_toStartOf="parent"

    app:layout_constraintEnd_toEndOf="parent"

    app:layout_constraintTop_toBottomOf="@+id/edt2"

    android:padding="20dp"

    android:layout_marginTop="20dp"

    android:hint="Text 3"

    android:layout_marginHorizontal="10dp"/>


  <Button

    android:id="@+id/btn1"

    android:layout_width="wrap_content"
```

```
        android:layout_height="wrap_content"

        app:layout_constraintStart_toStartOf="parent"

        app:layout_constraintEnd_toEndOf="parent"

        app:layout_constraintTop_toBottomOf="@+id/edt3"

        android:layout_marginTop="50dp"

        android:text="Submit"/>

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

Java Code:

```java
package com.example.validation;

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 e1, e2, e3;

    Button b1;

    @Override
    protected void onCreate(Bundle savedInstanceState) {

        super.onCreate(savedInstanceState);

        setContentView(R.layout.activity_main);


        e1 = findViewById(R.id.edt1);

        e2 = findViewById(R.id.edt2);

        e3 = findViewById(R.id.edt3);

        b1 = findViewById(R.id.btn1);
```
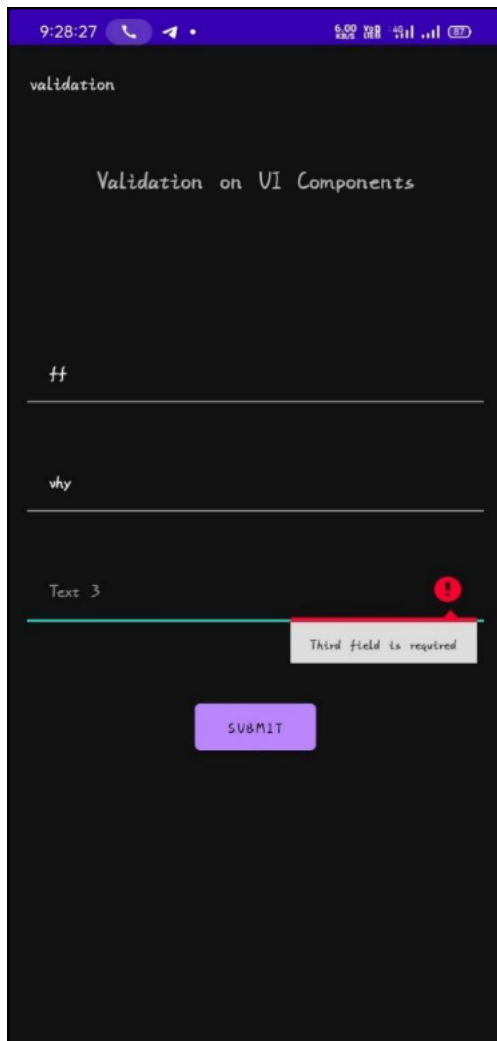
```
b1.setOnClickListener(new View.OnClickListener() {

    @Override

    public void onClick(View v) {

        String a, b, c;

        a = e1.getText().toString();

        b = e2.getText().toString();

        c = e3.getText().toString();


        if(a.isEmpty()){

            e1.setError("First field is required");

        }else if(b.isEmpty()){

            e2.setError("Second field is required");

        }else if(c.isEmpty()){

            e3.setError("Third field is required");

        }

    }

});

}

}
```

Output:

Program no:6

Aim: Program to design a registration activity and store registration details in local memory of phone using Intents and SharedPreferences

XML Code:

```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:id="@+id/txt1"

        android:layout_width="wrap_content"

        android:layout_height="wrap_content"

        android:text="Registration"

        android:layout_marginTop="50dp"

        android:textSize="25sp"

        app:layout_constraintLeft_toLeftOf="parent"

        app:layout_constraintRight_toRightOf="parent"

        app:layout_constraintTop_toTopOf="parent" />


    <EditText

        android:id="@+id/edt1"

        android:layout_width="match_parent"

        android:layout_height="wrap_content"
```

```
    android:layout_marginTop="100dp"

    app:layout_constraintStart_toStartOf="parent"

    app:layout_constraintEnd_toEndOf="parent"

    android:paddingStart="10dp"

    app:layout_constraintTop_toBottomOf="@+id/txt1"

    android:hint="Name"/>

<EditText

    android:id="@+id/edt2"

    android:layout_width="match_parent"

    android:layout_height="wrap_content"

    android:layout_marginTop="10dp"

    app:layout_constraintStart_toStartOf="parent"

    app:layout_constraintEnd_toEndOf="parent"

    android:paddingStart="10dp"

    app:layout_constraintTop_toBottomOf="@+id/edt1"

    android:hint="Email"/>

<EditText

    android:id="@+id/edt3"

    android:layout_width="match_parent"

    android:layout_height="wrap_content"

    android:layout_marginTop="10dp"

    app:layout_constraintStart_toStartOf="parent"

    app:layout_constraintEnd_toEndOf="parent"

    android:paddingStart="10dp"

    app:layout_constraintTop_toBottomOf="@+id/edt2"

    android:hint="Password"/>


<Button

    android:layout_width="wrap_content"
```

```
            android:id="@+id/btn1"

            android:layout_height="wrap_content"

            app:layout_constraintStart_toStartOf="parent"

            app:layout_constraintEnd_toEndOf="parent"

            app:layout_constraintTop_toBottomOf="@+id/edt3"

            android:layout_marginTop="30dp"

            android:text="Register"/>

    </androidx.constraintlayout.widget.ConstraintLayout>

    .constraintlayout.widget.ConstraintLayout>
```

#activity2.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=".MainActivity2">


    <TextView

        android:id="@+id/txt1"

        android:layout_width="match_parent"

        android:layout_height="wrap_content"

        app:layout_constraintStart_toStartOf="parent"

        app:layout_constraintEnd_toEndOf="parent"

        app:layout_constraintTop_toTopOf="parent"

        android:layout_marginTop="70dp"

        android:layout_marginHorizontal="20dp"/>
```

```xml
    <TextView

        android:id="@+id/txt2"

        android:layout_width="match_parent"

        android:layout_height="wrap_content"

        app:layout_constraintStart_toStartOf="parent"

        app:layout_constraintEnd_toEndOf="parent"

        app:layout_constraintTop_toBottomOf="@+id/txt1"

        android:layout_marginTop="70dp"

        android:layout_marginHorizontal="20dp"/>


    <TextView

        android:id="@+id/txt3"

        android:layout_width="match_parent"

        android:layout_height="wrap_content"

        app:layout_constraintStart_toStartOf="parent"

        app:layout_constraintEnd_toEndOf="parent"

        app:layout_constraintTop_toBottomOf="@+id/txt2"

        android:layout_marginTop="70dp"

        android:layout_marginHorizontal="20dp"/>
</androidx.constraintlayout.widget.ConstraintLayout>
```

Java Code:

```java
package com.example.sharedpref;

import androidx.appcompat.app.AppCompatActivity;

import android.content.Intent;

import android.content.SharedPreferences;

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 e1, e2, e3;

  Button b1;

@Override

  protected void onCreate(Bundle savedInstanceState) {

    super.onCreate(savedInstanceState);

    setContentView(R.layout.activity_main);


    e1 = findViewById(R.id.edt1);

    e2 = findViewById(R.id.edt2);

    e3 = findViewById(R.id.edt3);

    b1 = findViewById(R.id.btn1);

    b1.setOnClickListener(new View.OnClickListener() {

      @Override

      public void onClick(View v) {

        String a, b, c;

        a = e1.getText().toString();

        b = e2.getText().toString();

        c = e3.getText().toString();

SharedPreferences sharedPreferences = getSharedPreferences("myKey",
MODE_PRIVATE);

        SharedPreferences.Editor editor = sharedPreferences.edit();

        editor.putString("name", a);

        editor.putString("email", b);

        editor.putString("password", c);

        editor.apply();
```

```java
Intent intent = new Intent(MainActivity.this, MainActivity2.class);

startActivity(intent);

        }

    });



    }

}
```

#mainactivity2.java

```java
package com.example.sharedpref;

import androidx.appcompat.app.AppCompatActivity;

import android.content.SharedPreferences;

import android.os.Bundle;

import android.widget.TextView;

import android.widget.Toast;

public class MainActivity2 extends AppCompatActivity {


    TextView t1, t2, t3;


    @Override
    protected void onCreate(Bundle savedInstanceState) {

        super.onCreate(savedInstanceState);

        setContentView(R.layout.activity_main2);


        t1 = findViewById(R.id.txt1);

        t2 = findViewById(R.id.txt2);

        t3 = findViewById(R.id.txt3);

 SharedPreferences sharedPreferences = getSharedPreferences("myKey",
MODE_PRIVATE);
```
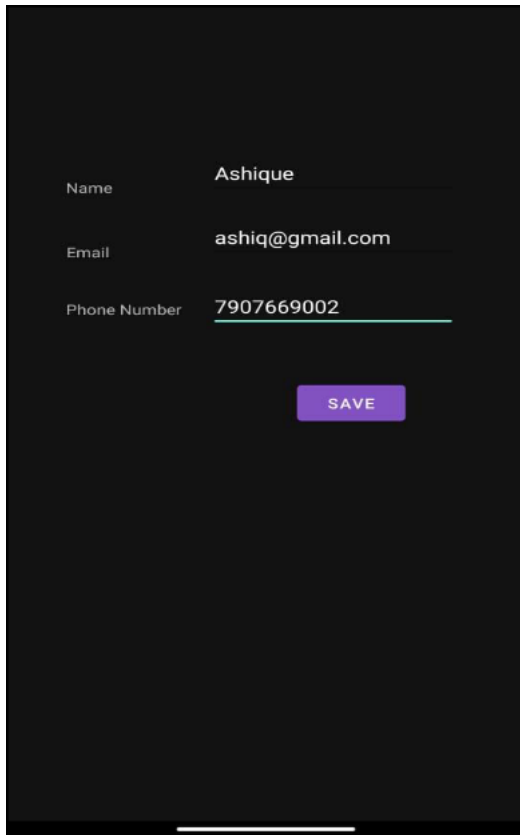
```
String name, email, password;
name = "Name: "+sharedPreferences.getString("name", "");
email = "Email: "+sharedPreferences.getString("email", "");
password = "Password: "+sharedPreferences.getString("password", "");


t1.setText(name);
t2.setText(email);
t3.setText(password);
    }
}
```

Output:

Program no:7

Aim: Program to design a simple Calculator using GridLayout and Cascaded LinearLayout

XML Code:

```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:id="@+id/txt1"

        android:layout_width="match_parent"

        android:layout_height="wrap_content"

        android:text="2 X 5 + 10"

        app:layout_constraintStart_toStartOf="parent"

        app:layout_constraintEnd_toEndOf="parent"

        app:layout_constraintTop_toTopOf="parent"

        android:padding="20dp"/>


    <TextView

        android:id="@+id/txt2"

        android:layout_width="match_parent"

        android:layout_height="wrap_content"

        android:text="20"

        app:layout_constraintStart_toStartOf="parent"
```

```
    android:gravity="end"

    app:layout_constraintBottom_toTopOf="@+id/grid"

    android:layout_marginTop="60dp"

    app:layout_constraintEnd_toEndOf="parent"

    app:layout_constraintTop_toBottomOf="@+id/txt1"

    android:padding="20dp"/>


<GridLayout

    android:id="@+id/grid"

    android:layout_width="match_parent"

    android:layout_height="wrap_content"

    app:layout_constraintStart_toStartOf="parent"

    app:layout_constraintEnd_toEndOf="parent"

    android:rowCount="3"

    android:columnCount="4"

    app:layout_constraintBottom_toBottomOf="parent">


    <Button

        android:layout_height="80dp"

        android:layout_width="wrap_content"

        android:layout_margin="7dp"

        android:text="C"/>

    <Button

        android:layout_height="80dp"

        android:layout_width="wrap_content"

        android:layout_margin="7dp"

        android:text="Back"/>

    <Button

        android:layout_height="80dp"
```

```xml
        android:layout_width="wrap_content"

        android:layout_margin="7dp"

        android:text="%"/>

    <Button

        android:layout_height="80dp"

        android:layout_width="wrap_content"

        android:layout_margin="7dp"

        android:text="/"/>

    <Button

        android:layout_height="80dp"

        android:layout_width="wrap_content"

        android:background="@drawable/button_number"

        android:layout_margin="7dp"

        android:text="7"/>

    <Button

        android:layout_height="80dp"

        android:layout_width="wrap_content"

        android:layout_margin="7dp"

        android:background="@drawable/button_number"

        android:text="8"/>

    <Button

        android:layout_height="80dp"

        android:layout_width="wrap_content"

        android:layout_margin="7dp"

        android:background="@drawable/button_number"

        android:text="9"/>

    <Button

        android:layout_height="80dp"

        android:layout_width="wrap_content"
```

```
        android:layout_margin="7dp"

        android:text="X"/>


    <Button

        android:layout_height="80dp"

        android:layout_width="wrap_content"

        android:background="@drawable/button_number"

        android:layout_margin="7dp"

        android:text="4"/>

    <Button

        android:layout_height="80dp"

        android:layout_width="wrap_content"

        android:background="@drawable/button_number"

        android:layout_margin="7dp"

        android:text="5"/>

    <Button

        android:layout_height="80dp"

        android:layout_width="wrap_content"

        android:background="@drawable/button_number"

        android:layout_margin="7dp"

        android:text="6"/>

    <Button

        android:layout_height="80dp"

        android:layout_width="wrap_content"

        android:layout_margin="7dp"

        android:text="-"/>


    <Button

        android:layout_height="80dp"
```

```
    android:layout_width="wrap_content"

    android:background="@drawable/button_number"

    android:layout_margin="7dp"

    android:text="1"/>

<Button

    android:layout_height="80dp"

    android:layout_width="wrap_content"

    android:background="@drawable/button_number"

    android:layout_margin="7dp"

    android:text="2"/>

<Button

    android:layout_height="80dp"

    android:layout_width="wrap_content"

    android:background="@drawable/button_number"

    android:layout_margin="7dp"

    android:text="3"/>

<Button

    android:layout_height="80dp"

    android:layout_width="wrap_content"

    android:layout_margin="7dp"

    android:text="+"/>


<Button

    android:layout_height="80dp"

    android:layout_width="wrap_content"

    android:layout_margin="7dp"

    android:text="--"/>

<Button

    android:layout_height="80dp"
```

```
    android:layout_width="wrap_content"

    android:background="@drawable/button_number"

    android:layout_margin="7dp"

    android:text="0"/>

  <Button

    android:layout_height="80dp"

    android:layout_width="wrap_content"

    android:layout_margin="7dp"

    android:text="."/>

  <Button

    android:layout_height="80dp"

    android:layout_width="wrap_content"

    android:layout_margin="7dp"

    android:text="="/>

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

Java Code:

```java
package com.example.cal;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;

public class MainActivity extends AppCompatActivity {

  @Override

  protected void onCreate(Bundle savedInstanceState) {

    super.onCreate(savedInstanceState);

    setContentView(R.layout.activity_main);

  }

}
```
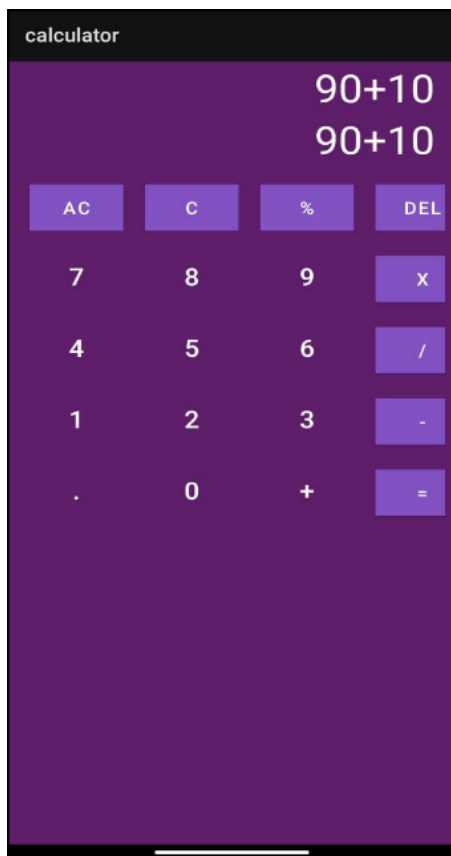
Output:

Program no:8

Aim: Program to create a Facebook page using RelativeLayout; set properties using .xml file

XML Code:

```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"
    android:background="@color/blue"
    tools:context=".MainActivity">
<TextView
    android:id="@+id/t1"
    android:layout_width="264dp"
    android:layout_height="40dp"
    android:layout_alignParentStart="true"
    android:layout_alignParentTop="true"
    android:textColor="@color/white"
    android:layout_alignParentEnd="true"
    android:layout_marginTop="50dp"
    android:text="FACEBOOK"
    android:textAlignment="center"
    android:textSize="40dp" />
    <EditText
    android:id="@+id/ed1"
    android:layout_width="match_parent"
```

```
        android:layout_height="50dp"

        android:layout_below="@+id/t1"

        android:layout_alignParentStart="true"

        android:layout_alignParentEnd="true"

        android:layout_marginHorizontal="40dp"

        android:layout_marginTop="150dp"

        android:textColor="@color/white"

        android:textColorHint="@color/white"

        android:hint="Username"

        android:paddingStart="10px" />


    <EditText

        android:id="@+id/ed2"

        android:layout_width="match_parent"

        android:layout_height="50dp"

        android:layout_below="@+id/ed1"

        android:layout_alignParentStart="true"

        android:layout_alignParentEnd="true"

        android:textColor="@color/white"

        android:textColorHint="@color/white"

        android:layout_marginHorizontal="40dp"

        android:layout_marginTop="50dp"

        android:hint="Password"

        android:paddingStart="10px" />

    <Button

        android:id="@+id/btn1"

        android:layout_width="334dp"
```

```
    android:layout_height="50dp"

    android:layout_below="@+id/ed2"

    android:layout_marginTop="31dp"

    android:layout_alignParentStart="true"

    android:layout_alignParentEnd="true"

    android:background="@color/purple_700"

    android:layout_marginHorizontal="400px"

    android:text="SignIn"/>

<Button

    android:id="@+id/btn2"

    android:layout_width="match_parent"

    android:layout_height="50dp"

    android:layout_below="@+id/btn1"

    android:layout_marginTop="100dp"

    android:background="@color/green"

    android:text="Dont have an account? Register here"

    android:layout_marginHorizontal="20dp"


    />

</RelativeLayout>
```

Java Code:

```java
package com.example.facebook;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;

public class MainActivity extends AppCompatActivity {

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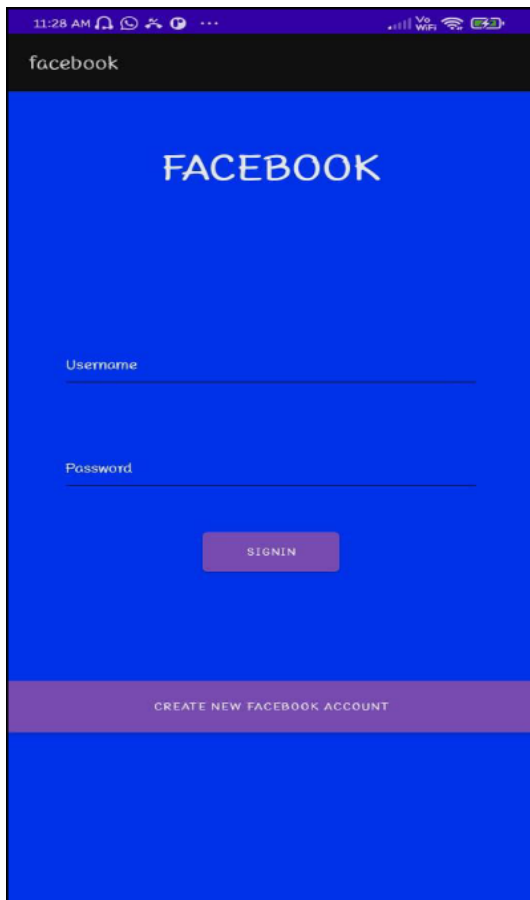
```
protected void onCreate(Bundle savedInstanceState) {

    super.onCreate(savedInstanceState);

    setContentView(R.layout.activity_main);

}
}
```

Output:

Program no:9

Aim:Program to develop an application that toggles image using FrameLayout

XML Code:

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

<FrameLayout xmlns:android="http://schemas.android.com/apk/res/android"

    xmlns:tools="http://schemas.android.com/tools"

    android:layout_width="match_parent"

    android:layout_height="match_parent"

    android:layout_gravity="center"

    android:background="@color/teal_700"

    tools:context=".MainActivity">

    <ImageView

        android:id="@+id/image2"

        android:layout_width="wrap_content"

        android:layout_height="wrap_content"

        android:layout_gravity="center"

        android:src="@drawable/image2"

        android:visibility="gone"/>

    <ImageView

        android:id="@+id/image1"

        android:layout_width="wrap_content"

        android:layout_height="wrap_content"

        android:layout_gravity="center"
```

```
            android:src="@drawable/image1"/>

</FrameLayout>
```

Java Code:

```java
package com.example.frame_layout;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;

import android.view.View;

import android.widget.ImageView;

public class MainActivity extends AppCompatActivity implements
View.OnClickListener {

    ImageView img1,img2;

    @Override

    protected void onCreate(Bundle savedInstanceState) {

        super.onCreate(savedInstanceState);

        setContentView(R.layout.activity_main);

        img1 =findViewById(R.id.image1);

        img2 =findViewById(R.id.image2);

        img1.setOnClickListener(this);

        img2.setOnClickListener(this);

    }

    public void onClick(View v)

    {

        int id=v.getId();

        switch (id){

            case R.id.image1:
```
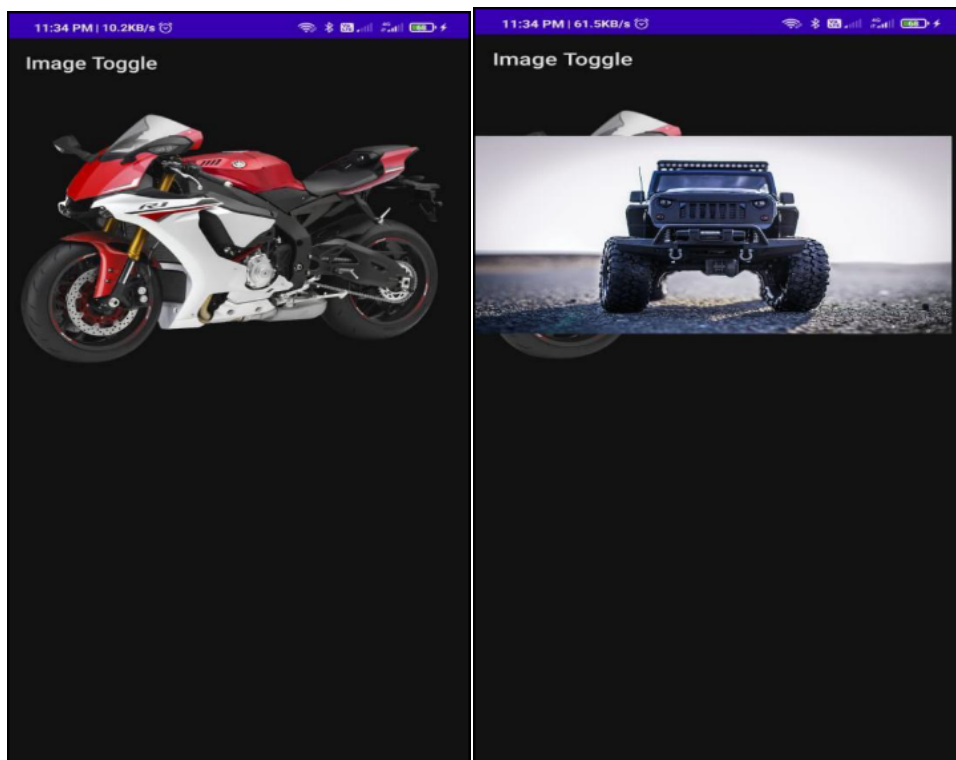
```
                    img1.setVisibility(View.GONE);

                    img2.setVisibility(View.VISIBLE);

                    break;

                case R.id.image2:

                    img1.setVisibility(View.VISIBLE);

                    img2.setVisibility(View.GONE);

                    break;

            }

        }

    }
```

Output:

Program no:10

Aim:Program to implement Adapters and perform exception handling

XML Code:

```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"

    android:background="@color/purple_500"

    tools:context=".MainActivity">

<TextView

        android:id="@+id/txt1"

        android:layout_width="match_parent"

        android:padding="20dp"

        android:textAlignment="center"

        android:layout_marginHorizontal="10dp"

        android:layout_height="wrap_content"

        android:textSize="30sp"

        app:layout_constraintStart_toStartOf="parent"

        app:layout_constraintEnd_toEndOf="parent"

        app:layout_constraintTop_toTopOf="parent"

        android:layout_marginTop="100dp"

        android:text="EXCEPTION" />

    <EditText
```

```
        android:id="@+id/edt1"

        android:layout_width="match_parent"

        android:layout_height="wrap_content"

        android:padding="20dp"

        android:layout_marginHorizontal="20dp"

        android:hint="Enter first number"

        app:layout_constraintStart_toStartOf="parent"

        app:layout_constraintEnd_toEndOf="parent"

        app:layout_constraintTop_toBottomOf="@+id/txt1"

        android:layout_marginTop="100dp"/>

    <EditText

        android:id="@+id/edt2"

        android:layout_width="match_parent"

        android:layout_height="wrap_content"

        android:padding="20dp"

        android:hint="Enter second number"

        android:layout_marginHorizontal="20dp"

        app:layout_constraintStart_toStartOf="parent"

        app:layout_constraintEnd_toEndOf="parent"

        app:layout_constraintTop_toBottomOf="@+id/edt1"

        android:layout_marginTop="10dp"/>

    <Button

        android:id="@+id/btn1"

        android:layout_width="wrap_content"

        android:layout_height="wrap_content"

        android:text="Divide"

        app:layout_constraintTop_toBottomOf="@+id/edt2"
```

```
    android:layout_marginTop="30dp"

    app:layout_constraintStart_toStartOf="parent"

    app:layout_constraintEnd_toEndOf="parent"/>

<TextView

    android:id="@+id/txt2"

    android:layout_width="wrap_content"

    android:layout_height="wrap_content"

    android:layout_marginTop="20dp"

    app:layout_constraintStart_toStartOf="parent"

    app:layout_constraintEnd_toEndOf="parent"

    app:layout_constraintTop_toBottomOf="@+id/btn1"/>

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

Java Code:

```java
package com.example.exceptionhandling;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;

import android.view.View;

import android.widget.Button;

import android.widget.EditText;

import android.widget.TextView;

public class MainActivity extends AppCompatActivity {

    EditText e1, e2;

    Button b1;

    TextView t1;

    @Override
    protected void onCreate(Bundle savedInstanceState) {

        super.onCreate(savedInstanceState);
```

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

e1 = findViewById(R.id.edt1);

e2 = findViewById(R.id.edt2);

b1 = findViewById(R.id.btn1);

t1 = findViewById(R.id.txt2);

b1.setOnClickListener(new View.OnClickListener() {

    @Override

    public void onClick(View v) {

        String a, b;

        int c, d;

        a = e1.getText().toString();

        b = e2.getText().toString();

        try{

            int res = Integer.parseInt(a)/Integer.parseInt(b);

            t1.setText(res);

        }catch(Exception e){

            t1.setText(e.toString());

        }

    }

});

}

}
```
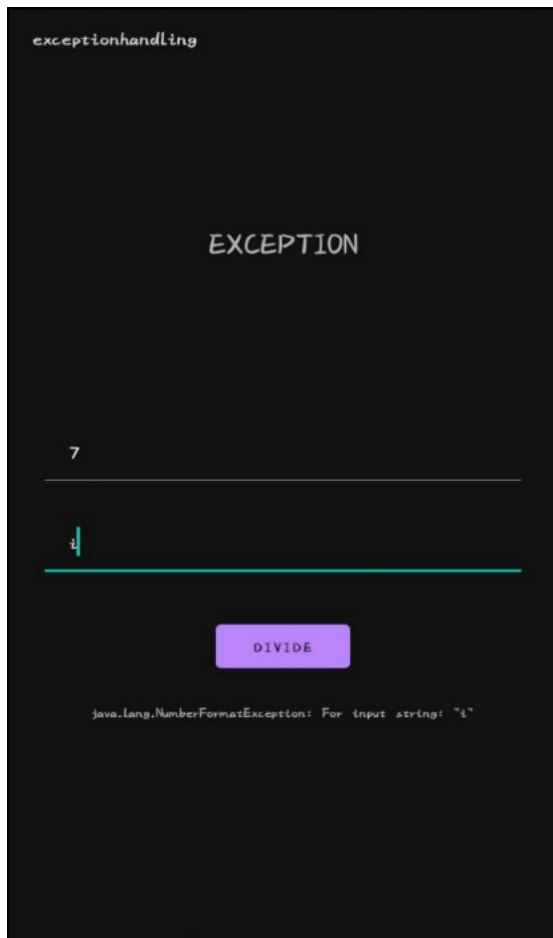
Output:

Program no:11

Aim:Program to implement Intent to navigate between multiple activities (Explicit Intent)

XML Code:

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

    android:layout_height="match_parent"

    tools:context=".MainActivity">

    <TextView

        android:id="@+id/txt1"

        android:layout_width="wrap_content"

        android:layout_height="wrap_content"

        android:text="Activity 1"

        app:layout_constraintLeft_toLeftOf="parent"

        android:layout_marginTop="50dp"

        android:textSize="30sp"

        app:layout_constraintRight_toRightOf="parent"

        app:layout_constraintTop_toTopOf="parent" />

    <Button

        android:id="@+id/btn1"

        android:layout_width="wrap_content"

        android:layout_height="wrap_content"

        android:text="Next Activity"
```

```
        app:layout_constraintStart_toStartOf="parent"

        app:layout_constraintEnd_toEndOf="parent"

        app:layout_constraintTop_toBottomOf="@id/txt1"

        app:layout_constraintBottom_toBottomOf="parent"/>

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

#activity_main2.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"

  android:background="@color/white"

  tools:context=".MainActivity2">

  <TextView

    android:id="@+id/txt2"

    android:layout_width="wrap_content"

    android:layout_height="wrap_content"

    android:textSize="30sp"

    android:text="Activity 2"

    app:layout_constraintLeft_toLeftOf="parent"

    android:layout_marginTop="50dp"

    app:layout_constraintRight_toRightOf="parent"

    app:layout_constraintTop_toTopOf="parent" />

  <Button
```

```
android:id="@+id/btn2"

android:layout_width="wrap_content"

android:layout_height="wrap_content"

android:text="Previous Activity"

app:layout_constraintStart_toStartOf="parent"

app:layout_constraintEnd_toEndOf="parent"

app:layout_constraintTop_toBottomOf="@id/txt2"

app:layout_constraintBottom_toBottomOf="parent"/>
```
`</androidx.constraintlayout.widget.ConstraintLayout>`

Java Code:

```java
package com.example.intent;

import androidx.appcompat.app.AppCompatActivity;

import android.content.Intent;

import android.os.Bundle;

import android.view.View;

import android.widget.Button;

public class MainActivity extends AppCompatActivity {

    Button b1;

    @Override

    protected void onCreate(Bundle savedInstanceState) {

        super.onCreate(savedInstanceState);

        setContentView(R.layout.activity_main);

        b1 = findViewById(R.id.btn1);

        b1.setOnClickListener(new View.OnClickListener() {

            @Override

            public void onClick(View v) {

                Intent intent = new Intent(MainActivity.this, MainActivity2.class);
```

```
            startActivity(intent);

        }

    });

}

}

#Mainactivity2

package com.example.intent;

import androidx.appcompat.app.AppCompatActivity;

import android.content.Intent;

import android.os.Bundle;

import android.view.View;

import android.widget.Button;

public class MainActivity2 extends AppCompatActivity {

    Button b1;

    @Override

    protected void onCreate(Bundle savedInstanceState) {

        super.onCreate(savedInstanceState);

        setContentView(R.layout.activity_main2);

        b1 = findViewById(R.id.btn2);

        b1.setOnClickListener(new View.OnClickListener() {

            @Override

            public void onClick(View v) {

                Intent intent = new Intent(MainActivity2.this, MainActivity.class);

                startActivity(intent);

            }

        });

}}
```
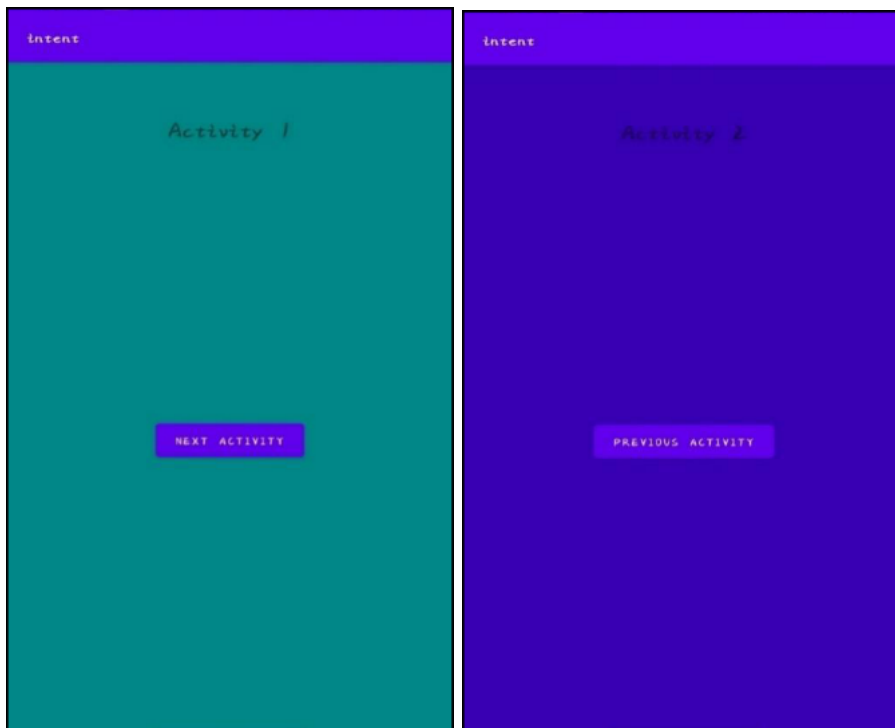
Output:

Program no:12

Aim: Program to develop an application that works with Implicit intents

XML Code:

```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"
    android:background="#fba9dc"
    tools:context=".MainActivity">
<Button
    android:id="@+id/btn1"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintBottom_toBottomOf="parent"
    android:text="Button"
    />
</androidx.constraintlayout.widget.ConstraintLayout>
```

Java Code:

```java
package com.example.explicit;
import androidx.appcompat.app.AppCompatActivity;
```

```java
import android.content.Intent;

import android.net.Uri;

import android.os.Bundle;

import android.view.View;

import android.widget.Button;

public class MainActivity extends AppCompatActivity {

    Button b1;

    @Override

    protected void onCreate(Bundle savedInstanceState) {

        super.onCreate(savedInstanceState);

        setContentView(R.layout.activity_main);

        b1=findViewById(R.id.btn1);

        b1.setOnClickListener(new View.OnClickListener() {

            @Override

            public void onClick(View v) {

                Intent b=new Intent(Intent.ACTION_VIEW,
Uri.parse("https://www.google.com"));

                startActivity(b);

            }

        });

    }

}
```
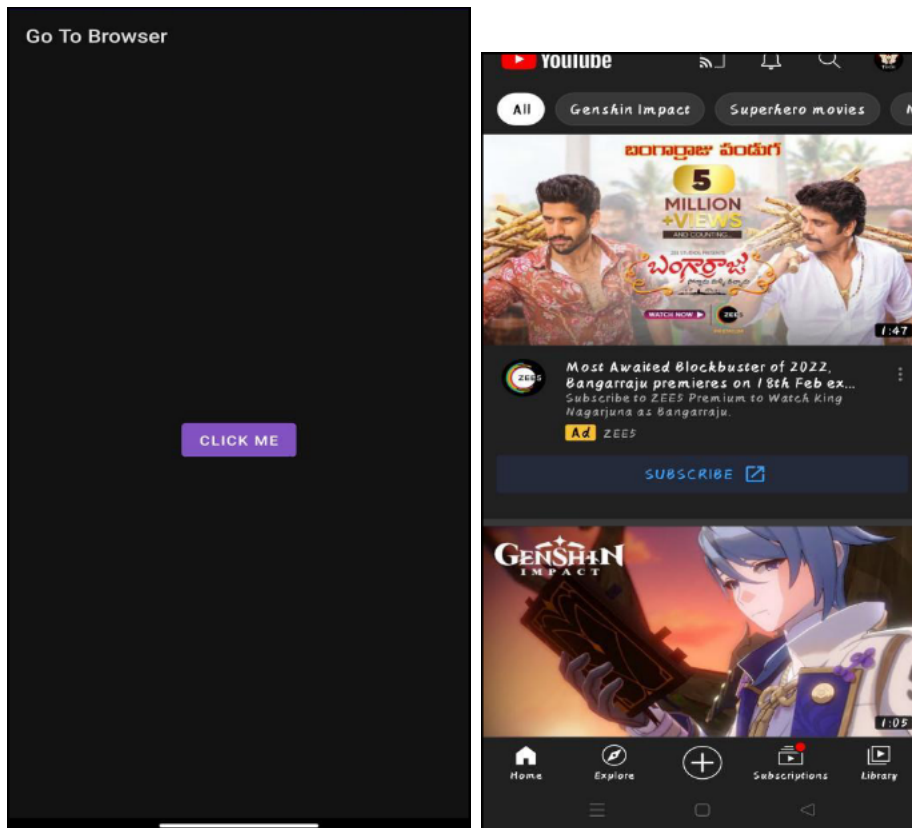
Program no:13

Aim: Program to implement Options Menu to navigate to activities

XML Code:

```xml
<?xml version="1.0" encoding="utf-8"?>
<menu xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    tools:showIn="navigation_view">
<group android:checkableBehavior="single">
    <item
        android:id="@+id/nav_home"
        android:icon="@drawable/ic_menu_camera"
        android:title="@string/menu_home" />
    <item
        android:id="@+id/nav_gallery"
        android:icon="@drawable/ic_menu_gallery"
        android:title="Account" />
    <item
        android:id="@+id/nav_slideshow"
        android:icon="@drawable/ic_menu_slideshow"
        android:title="Logout" />
    </group>
</menu>
```

#main

```xml
<?xml version="1.0" encoding="utf-8"?>
<menu xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto">
    <item
```

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

        android:orderInCategory="100"

        android:title="@string/action_settings"

        app:showAsAction="never" />

</menu>
```

#activity_main

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

<androidx.drawerlayout.widget.DrawerLayout
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/drawer_layout"

    android:layout_width="match_parent"

    android:layout_height="match_parent"

    android:fitsSystemWindows="true"

    tools:openDrawer="start">

    <include

        android:id="@+id/app_bar_main"

        layout="@layout/app_bar_main"

        android:layout_width="match_parent"

        android:layout_height="match_parent" />

    <com.google.android.material.navigation.NavigationView

        android:id="@+id/nav_view"

        android:layout_width="wrap_content"

        android:layout_height="match_parent"

        android:layout_gravity="start"
```

```
    android:fitsSystemWindows="true"

    app:headerLayout="@layout/nav_header_main"

    app:menu="@menu/activity_main_drawer" />

</androidx.drawerlayout.widget.DrawerLayout>
```

#activity_main2

```
<?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"

    android:background="@color/teal_700"

    tools:context=".MainActivity2">

    <TextView

        android:layout_width="match_parent"

        android:layout_height="wrap_content"

        app:layout_constraintBottom_toBottomOf="parent"

        app:layout_constraintEnd_toEndOf="parent"

        android:text="Account Page"

        android:textSize="30sp"

        android:textAlignment="center"

        app:layout_constraintStart_toStartOf="parent"

        app:layout_constraintTop_toTopOf="parent" />

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

Java Code:

```java
package com.example.nav;

import android.os.Bundle;

import android.view.View;

import android.view.Menu;

import com.google.android.material.snackbar.Snackbar;

import com.google.android.material.navigation.NavigationView;

import androidx.navigation.NavController;

import androidx.navigation.Navigation;

import androidx.navigation.ui.AppBarConfiguration;

import androidx.navigation.ui.NavigationUI;

import androidx.drawerlayout.widget.DrawerLayout;

import androidx.appcompat.app.AppCompatActivity;

import com.example.nav.databinding.ActivityMainBinding;

public class MainActivity extends AppCompatActivity {

    private AppBarConfiguration mAppBarConfiguration;

    private ActivityMainBinding binding;

    @Override

    protected void onCreate(Bundle savedInstanceState) {

        super.onCreate(savedInstanceState);

        binding = ActivityMainBinding.inflate(getLayoutInflater());

        setContentView(binding.getRoot());

        setSupportActionBar(binding.appBarMain.toolbar);

        binding.appBarMain.fab.setOnClickListener(new View.OnClickListener() {

            @Override

            public void onClick(View view) {

                Snackbar.make(view, "Replace with your own action",
Snackbar.LENGTH_LONG)
```

```
        .setAction("Action", null).show();

    }

  });

  DrawerLayout drawer = binding.drawerLayout;

  NavigationView navigationView = binding.navView;

  // Passing each menu ID as a set of Ids because each

  // menu should be considered as top level destinations.

  mAppBarConfiguration = new AppBarConfiguration.Builder(

      R.id.nav_home, R.id.nav_gallery, R.id.nav_slideshow)

      .setOpenableLayout(drawer)

      .build();

  NavController navController = Navigation.findNavController(this,
R.id.nav_host_fragment_content_main);

  NavigationUI.setupActionBarWithNavController(this, navController,
mAppBarConfiguration);

  NavigationUI.setupWithNavController(navigationView, navController);

}

@Override

public boolean onCreateOptionsMenu(Menu menu) {

    // Inflate the menu; this adds items to the action bar if it is present.

    getMenuInflater().inflate(R.menu.main, menu);

    return true;

}

@Override

public boolean onSupportNavigateUp() {

    NavController navController = Navigation.findNavController(this,
R.id.nav_host_fragment_content_main);

    return NavigationUI.navigateUp(navController, mAppBarConfiguration)
```
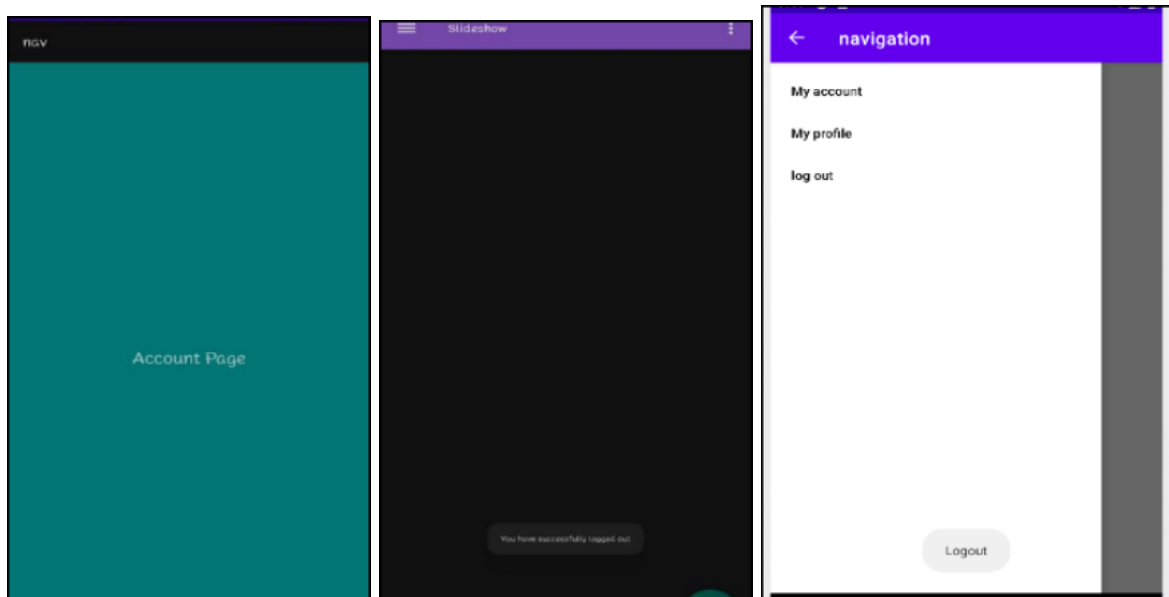
```
            || super.onSupportNavigateUp();

    }

}

#mainactivity2

package com.example.nav;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;

public class MainActivity2 extends AppCompatActivity {

    @Override

    protected void onCreate(Bundle savedInstanceState) {

        super.onCreate(savedInstanceState);

        setContentView(R.layout.activity_main2);

    }

}
```

Output:

Program no:14

Aim: Program to develop an application that uses ArrayAdapter with ListView

XML Code:

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout
xmlns:android="http://schemas.android.com/apk/res/android" xmlns:tools="http://schemas.android.com/tools"
xmlns:app="http://schemas.android.com/apk/res-auto"

android:layout_width="match_parent"
android:layout_height="match_parent" tools:context=".arrayAdapter">

<ListView
android:id="@+id/mobile_list"
android:layout_width="match_parent"

    android:layout_height="wrap_content" >
</ListView>
</LinearLayout
>
```

Java Code:

```
package com.example.ArrayAdapter;
import androidx.appcompat.app.AppCompatActivity;


importandroid.os.Bundle;
importandroid.view.Vie
```

```java
w;

import

android.widget.AdapterView;

importandroid.widget.ArrayAdapt

er;


import android.widget.ListView;

import android.widget.TextView;


import android.widget.Toast;


public class arrayAdapter

extends AppCompatActivity

implements

AdapterView.OnItemClickListene

r {

ListView l;

String[] days = {"Sunday", "Monday", "Tuesday", "Wednesday", "Thursday", "Friday", "Saturday"};

@Override

protected void onCreate(Bundle savedInstanceState)
{ super.onCreate(savedInstanceState);

    super.onCreate(savedInstanceState);


setContentView(R.layout.activity_array_adapter);


    l = findViewById(R.id.mobile_list);

ArrayAdapter<String> adapter = new ArrayAdapter<String>(this,
R.layout.support_simple_spinner_dropdown_item, days);

l.setAdapter(adapter);
```

```
l.setOnItemClickListener(this);

}
@Override

public void onItemClick(AdapterView<?> adapterView, View view, int i, long l)

{ TextView temp = (TextView) view;

Toast.makeText(this, "You clicked " + temp.getText() + " at " + i,

Toast.LENGTH_LONG).show();}}
```

Output:

Program no:15

Aim: Program to develop an application that use GridView with images and display Alert box on selection

XML Code:

```xml
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity" >

    <GridView
        android:numColumns="auto_fit"
        android:gravity="center"
        android:columnWidth="100dp"
        android:stretchMode="columnWidth"
        android:layout_width="fill_parent"
        android:layout_height="fill_parent"
        android:id="@+id/grid"
        />
</LinearLayout>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:padding="5dp" >
```

```xml
<ImageView

    android:id="@+id/grid_image"

    android:layout_width="50dp"

    android:layout_height="50dp">

</ImageView>


<TextView

    android:id="@+id/grid_text"

    android:layout_width="wrap_content"

    android:layout_height="wrap_content"

    android:layout_marginTop="15dp"

    android:textSize="9sp" >

</TextView>

</LinearLayout>
```

Java Code:

```java
package com.example.gridview_image_text_example;

import android.content.Context;

import android.view.LayoutInflater;

import android.view.View;

import android.view.ViewGroup;

import android.widget.BaseAdapter;

import android.widget.ImageView;

import android.widget.TextView;


public class CustomGrid extends BaseAdapter{
```

```java
private Context mContext;

private final String[] web;

private final int[] Imageid;


public CustomGrid(Context c,String[] web,int[] Imageid ) {

    mContext = c;

    this.Imageid = Imageid;

    this.web = web;

}

@Override

public int getCount() {

    // TODO Auto-generated method stub

    return web.length;

}


@Override

public Object getItem(int position) {

    // TODO Auto-generated method stub

    return null;

}


@Override

public long getItemId(int position) {

    // TODO Auto-generated method stub

    return 0;

}
```

```java
@Override
public View getView(int position, View convertView, ViewGroup parent) {
    // TODO Auto-generated method stub
    View grid;
    LayoutInflater inflater = (LayoutInflater) mContext
.getSystemService(Context.LAYOUT_INFLATER_SERVICE);


    if (convertView == null) {


        grid = new View(mContext);
        grid = inflater.inflate(R.layout.grid_single, null);
        TextView textView = (TextView) grid.findViewById(R.id.grid_text);
        ImageView imageView = (ImageView)grid.findViewById(R.id.grid_image);
        textView.setText(web[position]);
        imageView.setImageResource(Imageid[position]);
    } else {
        grid = (View) convertView;
    }


    return grid;
  }
}
package com.example.gridview_image_text_example;


import android.os.Bundle;
import android.app.Activity;
import android.view.View;
```

```java
import android.widget.AdapterView;

import android.widget.GridView;

import android.widget.Toast;


public class MainActivity extends Activity {

    GridView grid;

    String[] web = {

        "Google",

        "Github",

        "Instagram",

        "Facebook",

        "Twitter",

        "WordPress",

        "Youtube",

        "Whatsapp",

        "Blogger"

    };

    int[] imageId = {

        R.drawable.image1,

        R.drawable.image2,

        R.drawable.image3,

        R.drawable.image4,

        R.drawable.image5,

R.drawable.image6,

        R.drawable.image7,

        R.drawable.image8,

        R.drawable.image9,
```

```
};


@Override

protected void onCreate(Bundle savedInstanceState) {

    super.onCreate(savedInstanceState);

    setContentView(R.layout.activity_main);


    CustomGrid adapter = new CustomGrid(MainActivity.this, web, imageId);

    grid=(GridView)findViewById(R.id.grid);

    grid.setAdapter(adapter);

    grid.setOnItemClickListener(new AdapterView.OnItemClickListener() {


        @Override

        public void onItemClick(AdapterView<?> parent, View view,

                int position, long id) {

            Toast.makeText(MainActivity.this, "You Clicked at " +web[+ position],
Toast.LENGTH_SHORT).show();


        }

    });


}


}
```
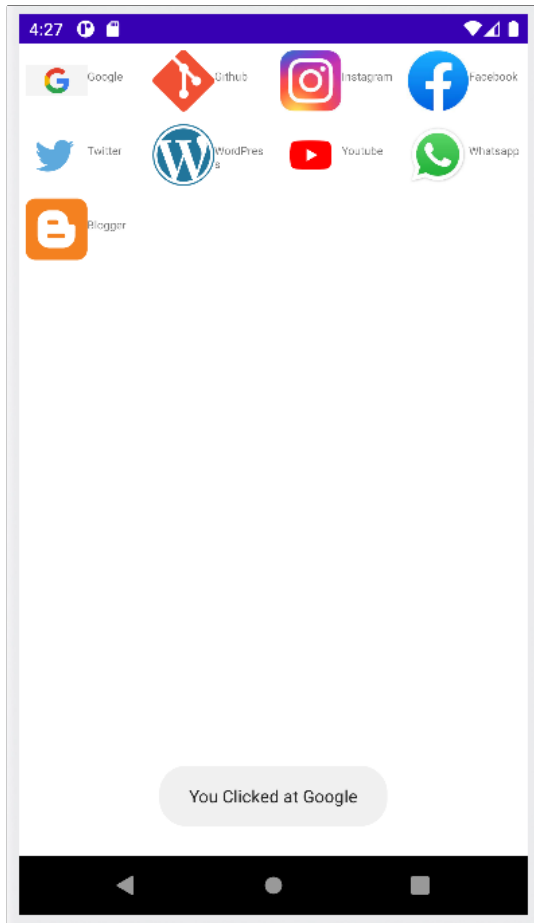
Output:

Program no:16

Aim:Program to develop an application that implements Spinner component and perform event handling

XML Code:

```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">
  <Spinner
      android:id="@+id/spinner"
      android:layout_width="197dp"
      android:layout_height="70dp"
      tools:layout_editor_absoluteX="92dp"
      tools:layout_editor_absoluteY="297dp"
      app:layout_constraintBottom_toBottomOf="parent"
      app:layout_constraintEnd_toEndOf="parent"
      app:layout_constraintHorizontal_bias="0.502"
      app:layout_constraintStart_toStartOf="parent"
      app:layout_constraintTop_toTopOf="parent"
      app:layout_constraintVertical_bias="0.48"/>
</androidx.constraintlayout.widget.ConstraintLayout>
```

Java Code:

```java
package com.example.spinnercomponents;
import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
```

```java
import android.view.View;

import android.widget.AdapterView;

import android.widget.ArrayAdapter;

import android.widget.Spinner;

import android.widget.Toast;

public class MainActivity extends AppCompatActivity implements
    AdapterView.OnItemSelectedListener {

  String[] country ={"india","china","japan","other"};

  @Override

  protected void onCreate(Bundle savedInstanceState) {

    super.onCreate(savedInstanceState);

    setContentView(R.layout.activity_main);

    Spinner spin =(Spinner) findViewById(R.id.spinner);

    spin.setOnItemSelectedListener(this);

    ArrayAdapter aa = new
ArrayAdapter(this,android.R.layout.simple_spinner_item,country);

        aa.setDropDownViewResource(android.R.layout.simple_spinner_item);

    spin.setAdapter(aa);

  }

  @Override

  public void onItemSelected(AdapterView<?> arg0, View arg1, int position, long id){

    Toast.makeText(getApplicationContext(),country[position],Toast.LENGTH_LON
G).show();

  }

  @Override

  public void onNothingSelected(AdapterView<?>arg0){

}

}
```

Output:
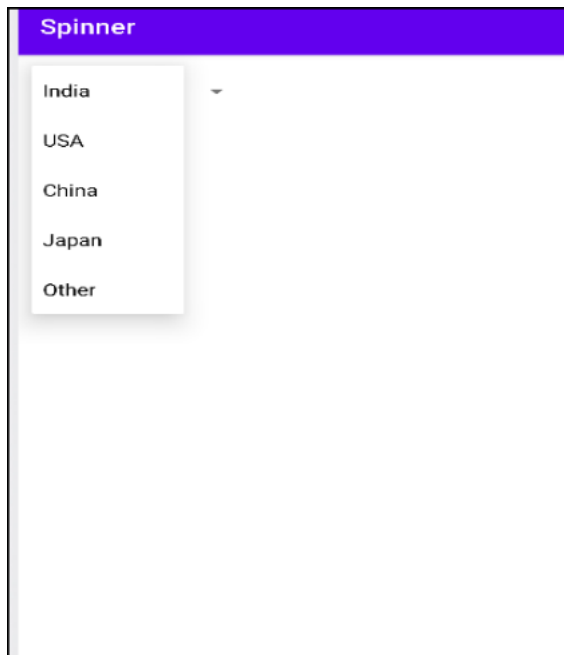
Program no:17

Aim: Program to apply themes via code from manifest file

XML Code:

```xml
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">


    <EditText
        android:id="@+id/editTextTextPersonName"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:ems="10"
        android:inputType="textPersonName"
        android:minHeight="48dp"
        android:text="avani"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />
</androidx.constraintlayout.widget.ConstraintLayout>
```

Java Code:

```java
package com.example.themes;
import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
public class MainActivity extends AppCompatActivity {
    @Override
```

```
protected void onCreate(Bundle savedInstanceState) {

    super.onCreate(savedInstanceState);

    setContentView(R.layout.activity_main);

}

}
```

#colors.xml

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

<resources>

    <color name="colorPrimary">#006064</color>

    <color name="color_primary_dark">#00838F</color>

    <color name="color_accent">#B2DFDB</color>

    <color name="color_text_color_primary">#03A9F4</color>

</resources>
```

#new_style.xml

```
<resources xmlns:tools="http://schemas.android.com/tools">

    <!-- Base application theme. -->

    <style name="Theme.new_style"
parent="Theme.MaterialComponents.DayNight.DarkActionBar">

        <item name="colorPrimary">@color/colorPrimary</item>

        <item name="colorPrimaryDark">@color/color_primary_dark</item>

        <item name="colorAccent">@color/color_accent</item>

        <item
name="android:textColorPrimary">@color/color_text_color_primary</item>

        <item name="android:textSize">40dp</item>

    </style>

</resources>
```

#values\themes.xml

```
<resources xmlns:tools="http://schemas.android.com/tools">

    <!-- Base application theme. -->

    <style name="Theme.Themes"
parent="Theme.MaterialComponents.DayNight.DarkActionBar">

        <item name="colorPrimary">@color/colorPrimary</item>
```

```
    <item name="colorPrimaryDark">@color/color_primary_dark</item>

    <item name="colorAccent">@color/color_accent</item>

    <item
name="android:textColorPrimary">@color/color_text_color_primary</item>

    <item name="android:textSize">40dp</item>

  </style>

</resources>
```

#AndroidMainfest.xml

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

<manifest xmlns:android="http://schemas.android.com/apk/res/android"

  package="com.example.themes" >

  <application

    android:allowBackup="true"

    android:icon="@mipmap/ic_launcher"

    android:label="@string/app_name"

    android:roundIcon="@mipmap/ic_launcher_round"

    android:supportsRtl="true"

    android:theme="@style/Theme.new_style">

    <activity

      android:name=".MainActivity"

      android:exported="true" >

      <intent-filter>

        <action android:name="android.intent.action.MAIN" />

        <category android:name="android.intent.category.LAUNCHER" />

      </intent-filter>

    </activity>

  </application>

</manifest>
```

#night\themes.xml

```
<resources xmlns:tools="http://schemas.android.com/tools">
```

```xml
<!-- Base application theme. -->
<style name="Theme.Themes"
parent="Theme.MaterialComponents.DayNight.DarkActionBar">


    <item name="colorPrimary">@color/colorPrimary</item>

    <item name="colorPrimaryDark">@color/color_primary_dark</item>

    <item name="colorAccent">@color/color_accent</item>

    <item
name="android:textColorPrimary">@color/color_text_color_primary</item>

    <item name="android:textSize">40sp</item>

</style>
</resources>
```

Output:

Program no:18

Aim: Program to develop application using Fragments

XML Code:

```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">

    <RelativeLayout
        android:layout_width="match_parent"
        android:layout_height="0dp"
        android:layout_weight="1">

        <Button
            android:id="@+id/b1"
            android:layout_width="160dp"
            android:layout_height="50dp"
            android:layout_alignParentBottom="true"
            android:layout_marginStart="30dp"
            android:layout_marginBottom="30dp"
            android:backgroundTint="#2196F3"
            android:text="Fragment1" />
```

```xml
    <Button
        android:id="@+id/b2"
        android:layout_width="160dp"
        android:layout_height="50dp"
        android:layout_alignParentRight="true"
        android:layout_alignParentBottom="true"
        android:layout_marginStart="30dp"
        android:layout_marginBottom="30dp"
        android:backgroundTint="#FFC107"
        android:text="Fragment2" />

</RelativeLayout>


<FrameLayout
    android:id="@+id/frameLayout"
    android:layout_width="match_parent"
    android:layout_height="0dp"
    android:layout_weight="4"
    android:background="@color/purple_200"/>



</LinearLayout>


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

<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
```

```
    xmlns:tools="http://schemas.android.com/tools"

    android:layout_width="match_parent"

    android:layout_height="match_parent"

    android:background="@color/teal_200"

    tools:context=".Fragment1">


    <!-- TODO: Update blank fragment layout -->

    <TextView

        android:layout_width="wrap_content"

        android:layout_height="wrap_content"

        android:layout_centerInParent="true"

        android:background="#FFEB3B"

        android:text="Fragment1"

        android:textSize="30dp" />


</RelativeLayout>

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

<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"

    xmlns:tools="http://schemas.android.com/tools"

    android:layout_width="match_parent"

    android:layout_height="match_parent"

    android:background="#FFEB3B"

    tools:context=".Fragment2">


    <!-- TODO: Update blank fragment layout -->

    <TextView

        android:layout_width="wrap_content"
```

```
        android:layout_height="wrap_content"

        android:layout_centerInParent="true"

        android:background="#FAA3C1"

        android:text="Fragment2"

        android:textSize="30dp" />
```

```
</RelativeLayout>
```

Java Code:

```
package com.example.fragment;


import androidx.appcompat.app.AppCompatActivity;

import androidx.fragment.app.Fragment;

import androidx.fragment.app.FragmentManager;

import androidx.fragment.app.FragmentTransaction;


import android.os.Bundle;

import android.view.View;

import android.widget.Button;


public class MainActivity extends AppCompatActivity {

    Button b1,b2;


    @Override

    protected void onCreate(Bundle savedInstanceState) {

        super.onCreate(savedInstanceState);

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

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

b2=findViewById(R.id.b2);


b1.setOnClickListener(new View.OnClickListener() {

  @Override

  public void onClick(View v) {

    replaceFragment(new Fragment1());

  }

});

b2.setOnClickListener(new View.OnClickListener() {

  @Override

  public void onClick(View v) {

    replaceFragment(new Fragment2());

  }

});

}


private void replaceFragment(Fragment fragment) {

  FragmentManager fragmentManager=getSupportFragmentManager();

  FragmentTransaction fragmentTransaction=fragmentManager.beginTransaction();

  fragmentTransaction.replace(R.id.frameLayout,fragment);

  fragmentTransaction.commit();

}

}
```

```
package com.example.fragment;

import android.os.Bundle;

import androidx.fragment.app.Fragment;

import android.view.LayoutInflater;

import android.view.View;

import android.view.ViewGroup;


public class Fragment1 extends Fragment {


    @Override
    public View onCreateView(LayoutInflater inflater, ViewGroup container,
                Bundle savedInstanceState) {
        // Inflate the layout for this fragment
        return inflater.inflate(R.layout.fragment_1, container, false);
    }
}


package com.example.fragment;


import android.os.Bundle;


import androidx.fragment.app.Fragment;


import android.view.LayoutInflater;

import android.view.View;

import android.view.ViewGroup;
```
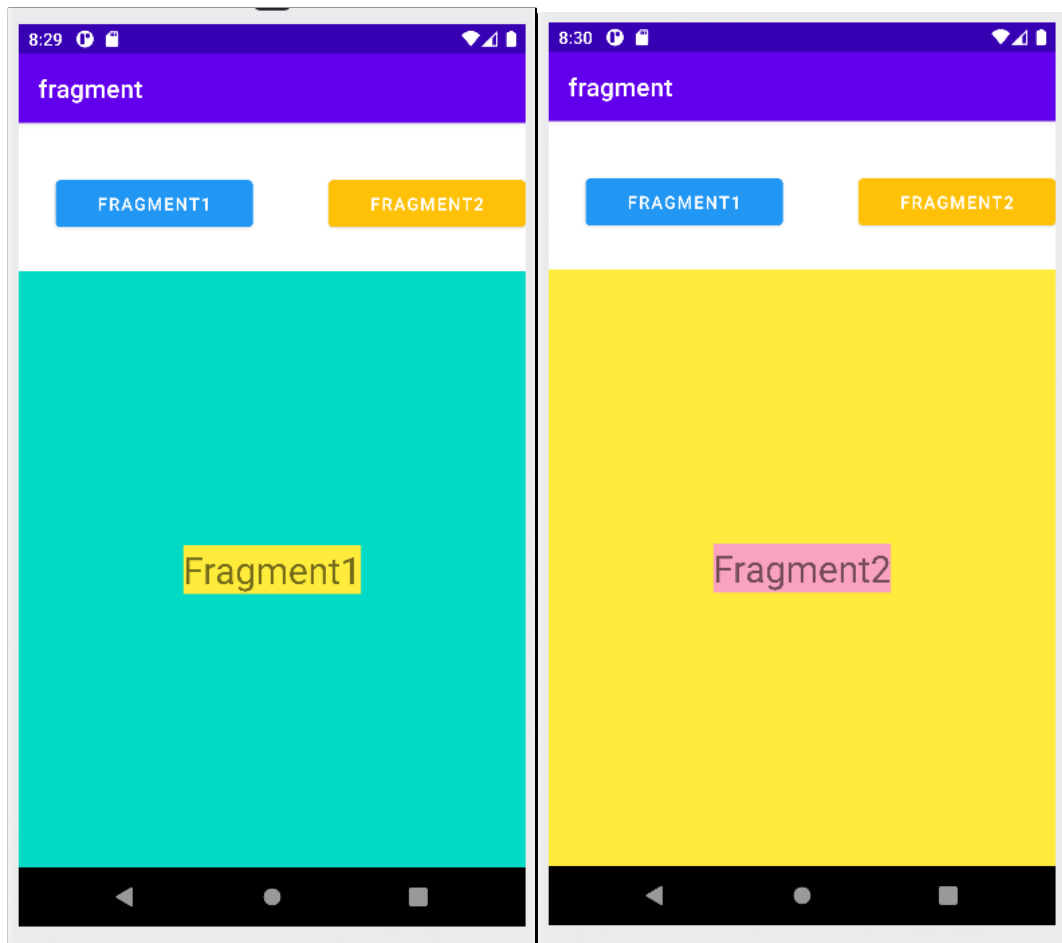
```
public class Fragment2 extends Fragment {

    @Override
    public View onCreateView(LayoutInflater inflater, ViewGroup container,
                Bundle savedInstanceState) {
        // Inflate the layout for this fragment
        return inflater.inflate(R.layout.fragment_2, container, false);
    }
}
```

Output:

Program no:19

Aim: Program to implement Navigation drawer

XML Code:

```xml
<?xml version="1.0" encoding="utf-8"?>
<androidx.drawerlayout.widget.DrawerLayout
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:id="@+id/drawer">
    <LinearLayout
      android:layout_width="match_parent"
      android:layout_height="match_parent">
    <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" />
</LinearLayout>
    <com.google.android.material.navigation.NavigationView
      android:layout_width="match_parent"
      android:layout_height="match_parent"
      android:id="@+id/navigation_view"
      app:menu="@menu/navigation_menu"
      android:layout_gravity="start"/>

</androidx.drawerlayout.widget.DrawerLayout>
```

Java Code:

```java
package com.example.drawernavigation;

import androidx.annotation.NonNull;

import androidx.appcompat.app.ActionBarDrawerToggle;

import androidx.appcompat.app.AppCompatActivity;

import androidx.drawerlayout.widget.DrawerLayout;

import android.app.ActionBar;

import android.os.Bundle;

import android.view.MenuItem;

import android.widget.Toast;

import com.google.android.material.navigation.NavigationView;

public class MainActivity extends AppCompatActivity implements
NavigationView.OnNavigationItemSelectedListener {

    public DrawerLayout drawerLayout;

    public ActionBarDrawerToggle actionBarDrawerToggle;

    @Override
    protected void onCreate(Bundle savedInstanceState) {

        super.onCreate(savedInstanceState);

        setContentView(R.layout.activity_main);

        drawerLayout = findViewById(R.id.drawer);

        actionBarDrawerToggle = new ActionBarDrawerToggle(this, drawerLayout,
R.string.nav_open, R.string.nav_close);

        drawerLayout.addDrawerListener(actionBarDrawerToggle);

        actionBarDrawerToggle.syncState();

        getSupportActionBar().setDisplayHomeAsUpEnabled(true);

        NavigationView navigationView = findViewById(R.id.navigation_view);

        navigationView.setNavigationItemSelectedListener(this);

    }

    @Override
    public boolean onOptionsItemSelected(@NonNull MenuItem item) {

        if (actionBarDrawerToggle.onOptionsItemSelected(item)) {

            return true;
```

```
                }
            return super.onOptionsItemSelected(item);
        }
    @Override
    public boolean onNavigationItemSelected(@NonNull MenuItem item) {
        int id = item.getItemId();
        if (id == R.id.nav_account) {
            Toast.makeText(this, "home", Toast.LENGTH_SHORT).show();
        }
        if (id == R.id.nav_settings) {
            Toast.makeText(this, "settings", Toast.LENGTH_SHORT).show();
        }
        if (id == R.id.nav_logout) {
            Toast.makeText(this, "logout", Toast.LENGTH_SHORT).show();
        }
        return false;
    }
}
```

#navigation_menu.xml

```xml
<?xml version="1.0" encoding="utf-8"?>
<menu xmlns:android="http://schemas.android.com/apk/res/android">
<item
 android:id="@+id/nav_account"
  android:title="MY Account"/>
  <item
    android:id="@+id/nav_settings"
    android:title="Settings"/>
  <item
    android:id="@+id/nav_logout"
    android:title="logout"/>
</menu>
```

#strings.xml

```xml
<resources>
    <string name="app_name">drawernavigation</string>
    <string name="nav_open">Open</string>
    <string name="nav_close">Close</string>
</resources>
```

#build.gradle(:app)

```gradle
plugins {
    id 'com.android.application'
}
android {
    compileSdk 31
    defaultConfig {
        applicationId "com.example.drawernavigation"
        minSdk 21
        targetSdk 31
        versionCode 1
        versionName "1.0"
        testInstrumentationRunner "androidx.test.runner.AndroidJUnitRunner"
    }
    buildTypes {
        release {
            minifyEnabled false
            proguardFiles getDefaultProguardFile('proguard-android-optimize.txt'),
'proguard-rules.pro'
        }
    }
    compileOptions {
        sourceCompatibility JavaVersion.VERSION_1_8
        targetCompatibility JavaVersion.VERSION_1_8
    }
}
dependencies {
```

```
    implementation 'androidx.appcompat:appcompat:1.4.1'
    implementation 'com.google.android.material:material:1.5.0'
    implementation 'androidx.constraintlayout:constraintlayout:2.1.3'
    implementation 'androidx.drawerlayout:drawerlayout:1.1.1'
    testImplementation 'junit:junit:4.+'
    androidTestImplementation 'androidx.test.ext:junit:1.1.3'
    androidTestImplementation 'androidx.test.espresso:espresso-core:3.4.0'
    implementation "com.google.android.material:material:1.4.1"
}
```

Output: