

# **20MCA243 MOBILE APPLICATION DEVELOPMENT LAB**

*Lab Report Submitted By*

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**MASTER OF COMPUTER APPLICATIONS (2 Year)  
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**APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY**



**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 **ALEENA JOSEPH (Reg.No:AJC20MCA-2008)** 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: 01**

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

**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"

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"
    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"
    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: 02**

**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:

```

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();

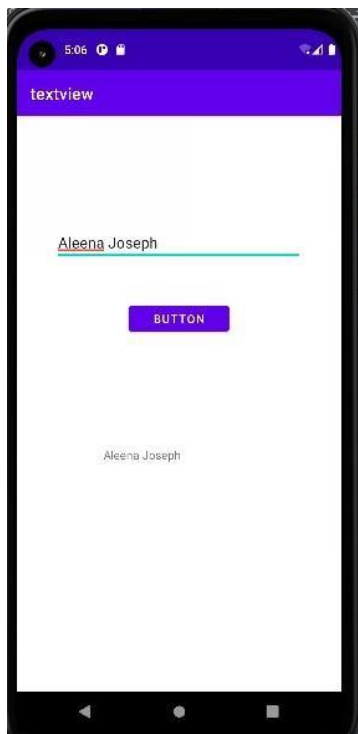
                t1.setText(value);

            }

        });

    }

}
```

**Output:**

**Program no: 03**

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

**XML Code:**

```
<?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"
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.logformvalid;

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);
```

```
    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();
```

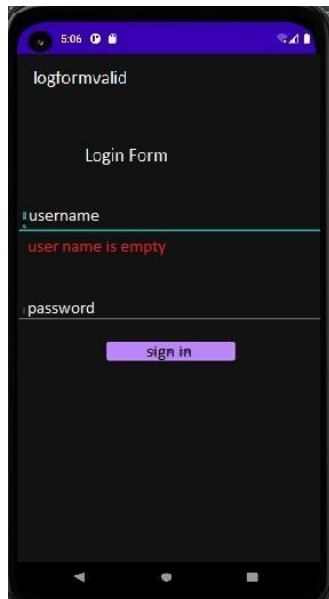
```
            }
```

```
});
```

```
}
```

```
}
```

### Output:



**Program no: 04**

**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"
```

```
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:**

```
#MainActivity.java
```

```
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
```

```
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) {  
        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
    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;
            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) {

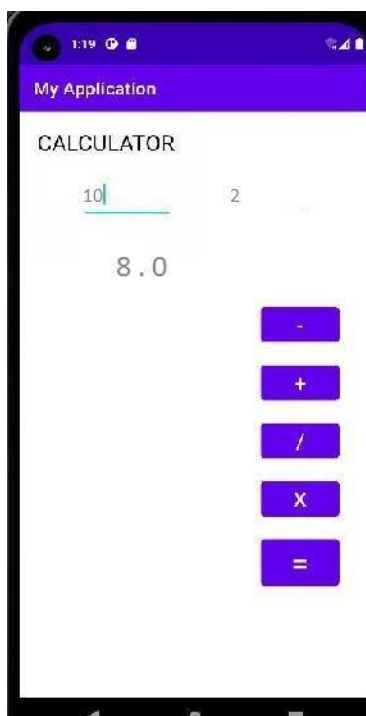
```

```

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: 05**

**Aim:** Program to complement validations on various UI controls.

**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" android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:orientation="vertical"
    tools:context=".Ui_validation" tools:ignore="HardcodedText">

    <EditText android:id="@+id/firstName"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_marginStart="16dp"
        android:layout_marginTop="16dp"
        android:layout_marginEnd="16dp"
        android:hint="First Name"
        android:inputType="text" />

    <EditText android:id="@+id/lastName"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_marginStart="16dp"
        android:layout_marginTop="16dp"
        android:layout_marginEnd="16dp"
        android:hint="Last Name"
        android:inputType="text" />
```

```
<EditText android:id="@+id/email"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_marginStart="16dp"
    android:layout_marginTop="16dp"
    android:layout_marginEnd="16dp"
    android:hint="Email"
    android:inputType="textEmailAddress" />
```

```
<EditText android:id="@+id/password"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_marginStart="16dp"
    android:layout_marginTop="16dp"
```

```
    android:layout_marginEnd="16dp"
    android:hint="Password"
    android:inputType="textPassword" />
```

```
<LinearLayout android:layout_width="match_parent" android:layout_height="wrap_content"
    android:layout_marginTop="8dp"
    android:gravity="end"
    android:orientation="horizontal">
```

```
<Button
```

```

android:id="@+id/cancelButton" style="@style/Widget.AppCompat.Button.Borderless"
android:layout_width="wrap_content"

android:layout_height="wrap_content"

android:layout_marginEnd="4dp"

android:text="CANCEL"

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

<Button

android:id="@+id/proceedButton"

android:layout_width="wrap_content"

android:layout_height="wrap_content"

android:layout_marginEnd="16dp"

android:backgroundTint="@color/black"

android:text="PROCEED"

android:textColor="@android:color/white" tools:ignore="ButtonStyle" />

</LinearLayout>

</LinearLayout>

```

### Java Code:

```

package com.example.validation;

import androidx.appcompat.app.AppCompatActivity; import android.content.Intent;

import android.os.Bundle;

import android.view.View;

import android.widget.Button;

import android.widget.EditText;

public class Ui_validation extends AppCompatActivity {

```

```

// two buttons

Button bCancel, bProceed;

// four text fields

EditText etFirstName, etLastName, etEmail, etPassword;

// one boolean variable to check whether all the text fields

// are filled by the user, properly or not. boolean isAllFieldsChecked = false;

@Override

protected void onCreate(Bundle savedInstanceState) { super.onCreate(savedInstanceState);
setContentView(R.layout.activity_ui_validation);

// register buttons with their proper IDs. bProceed = findViewById(R.id.proceedButton);
bCancel = findViewById(R.id.cancelButton);

// register all the EditText fields with their IDs. etFirstName =
findViewById(R.id.firstName); etLastName = findViewById(R.id.lastName); etEmail =
findViewById(R.id.email); etPassword = findViewById(R.id.password);

// handle the PROCEED button bProceed.setOnClickListener(new View.OnClickListener() {

@Override

public void onClick(View v) {

// store the returned value of the dedicated function which checks

// whether the entered data is valid or if any fields are left blank. isAllFieldsChecked =
CheckAllFields();

// the boolean variable turns to be true then

// only the user must be proceed to the activity2

if (isAllFieldsChecked) {

Intent i = new Intent(Ui_validation.this, Dashboard.class); startActivity(i);

}

```

```

}

});

// if user presses the cancel button then close the

// application or the particular activity. bCancel.setOnClickListener(new
View.OnClickListener() {

@Override

public void onClick(View v) { Ui_validation.this.finish(); System.exit(0);

}

});

}

// function which checks all the text fields

// are filled or not by the user.

// when user clicks on the PROCEED button

// this function is triggered.

private boolean CheckAllFields() { if (etFirstName.length() == 0) {

etFirstName.setError("This field is required"); return false;

}

if (etLastName.length() == 0) { etLastName.setError("This field is required"); return false;

}

if (etEmail.length() == 0) { etEmail.setError("Email is required"); return false;

}

if (etPassword.length() == 0) { etPassword.setError("Password is required"); return false;

} else if (etPassword.length() < 8) {

```



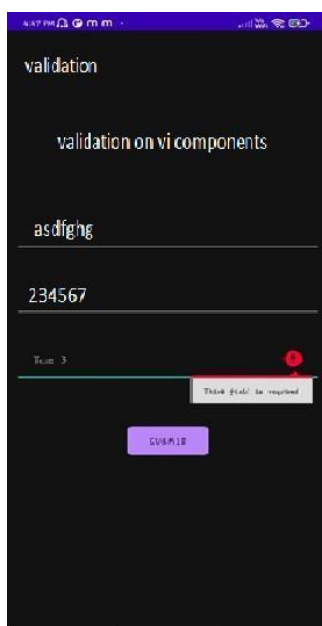
```
etPassword.setError("Password must be minimum 8 characters"); return false;  
  
}
```

```
// after all validation return true. return true;
```

```
}
```

```
}
```

### Output:



**Program no: 06**

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

**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="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"/>

<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:**

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

**#mainactivity2.java**

```
package com.example.shared preference;
```

```
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);
```

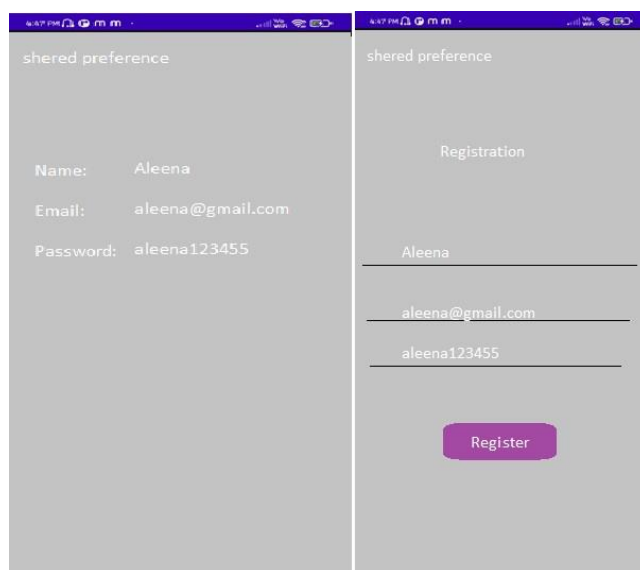
```
        String name, email, password;
```

```
        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: 07**

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

**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"
    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:**

```
package com.example.calculator;

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: 08**

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

**XML Code:**

```
<?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:

```
package com.example.facebook

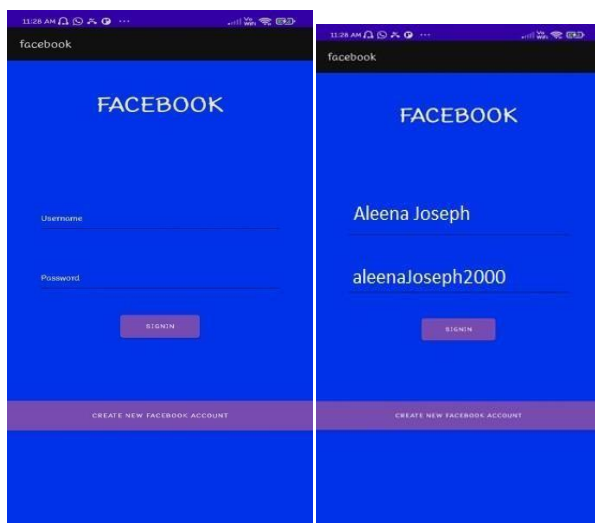
import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;

public class MainActivity extends AppCompatActivity {

    @Override

    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        getSupportActionBar().hide();
    }
}
```

### Output:



**Program no: 09**

**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:**

```
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)

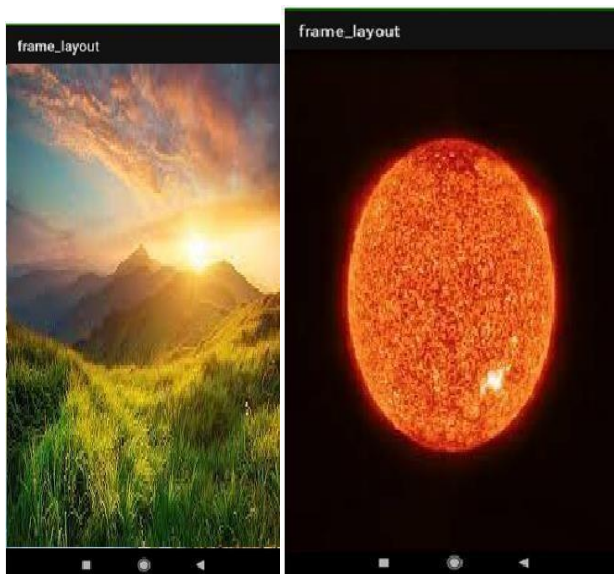
    {

        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 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:

```

package com.example.exception;

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;

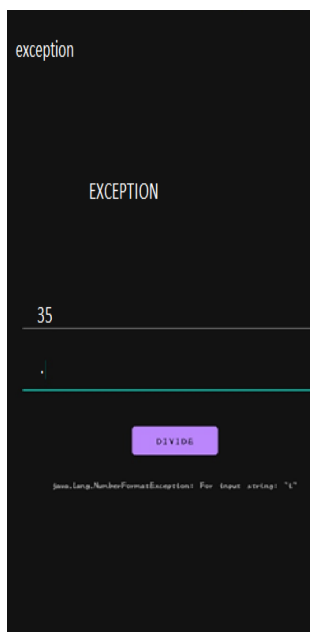
```

```
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:**

#activity\_main1.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="SWITCH TO 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="GO TO 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:**

#### **#MainActivity1**

```

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;

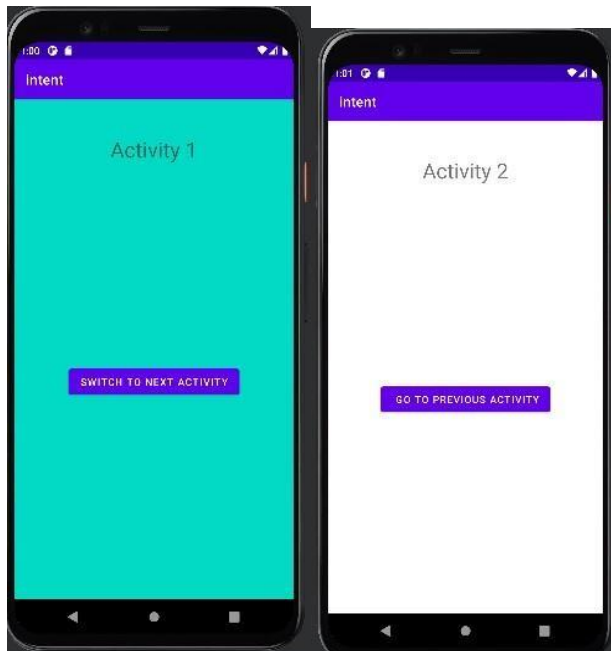

    @Override

    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 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:**

```
package com.example.explicit;
```

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

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"));

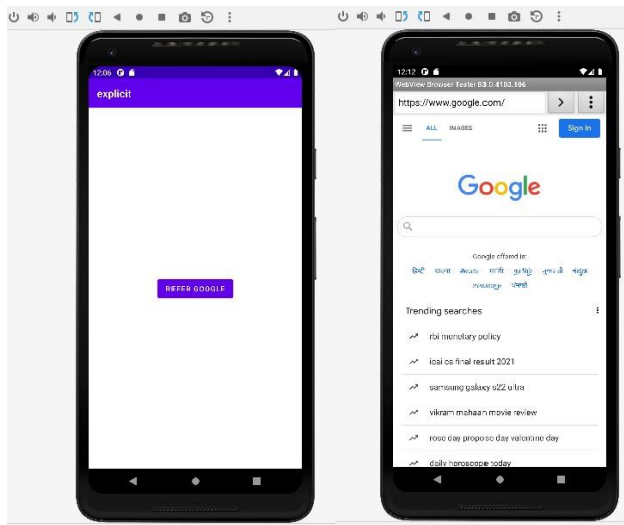
                startActivity(b);

            }

        });

    }

}
```

**Output:**

**Program no: 13**

**Aim:** Program to implement Options Menu to navigate to activities.

**XML Code:**

```
#Activity_main_drawer

<?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 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:

```

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();

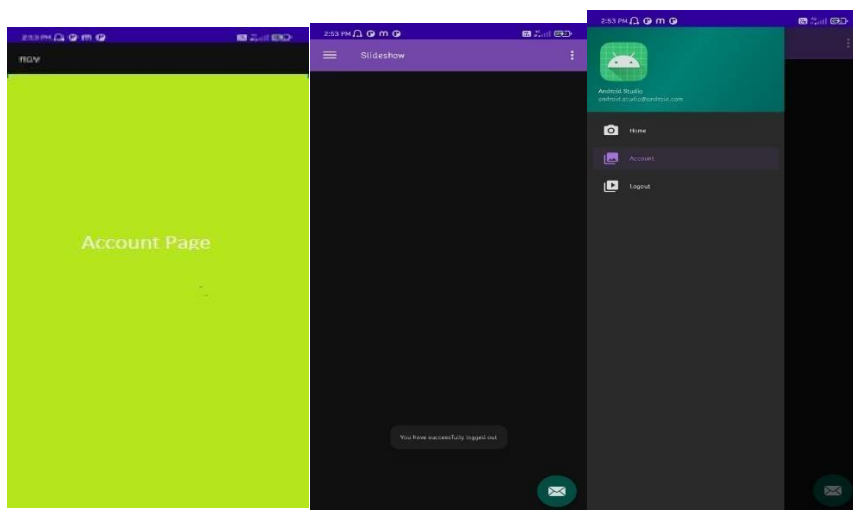
}

}

```

#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:lay
        out_width="math_parent"

        android:layout_height="wrap_content" >

    </ListView>

</LinearLayout>
```

**Java Code:**

```
package com.example.ArrayAdapter;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;

import
    android.view.View;

import android.widget.AdapterView;
import
    android.widget.ArrayAdapter;

import android.widget.ListView;
import android.widget.TextView;

import android.widget.Toast;

public class arrayAdapter extends AppCompatActivity
```

```

implements AdapterView.OnItemClickListener {

    ListView l;

    String[] days = {"one", "two", "three", "four", "five", "six", "seven"};

    @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, digits);


        l.setAdapter(adapter);

        l.setOnItemClickListener(this);

    }

    @Override

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

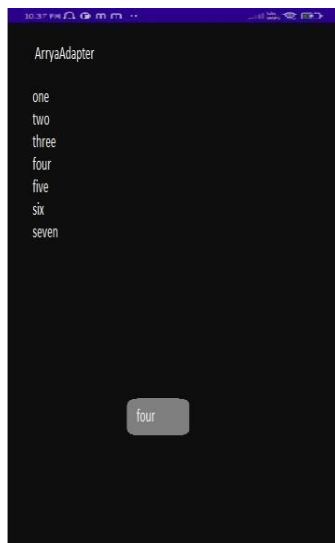
        TextView temp = (TextView) view;

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

    <!-- android:numColumns=2 is the number of columns for Grid View
    android:horizontalSpacing is the space between horizontal
    grid items.-->

    <GridView
        android:id="@+id/idGVcourses"
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        android:horizontalSpacing="6dp"
        android:numColumns="2"
        android:verticalSpacing="6dp" />

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

**Java Code:**

```
package com.example.myapp;

import androidx.annotation.NonNull;
```



```

import androidx.appcompat.app.AlertDialog;

import androidx.appcompat.app.AppCompatActivity;


import
android.content.DialogInterface;
import android.content.Intent;
import android.os.Bundle; import android.view.Menu;


import
android.view.MenuItem;
import android.view.View;
import
android.widget.Button;
import
android.widget.ImageView;
import
android.widget.TextView;
import android.widget.Toast;


public class MainActivity3 extends AppCompatActivity
    ImageView i;
    AlertDialog.Builder builder;
    AlertDialog alertDialog;
    Button b;
    //option
    menu

    @Override
    de

    public boolean onCreateOptionsMenu(Menu menu) {
        getMenuInflater().inflate(R.menu.menu,menu); return
        true;
        //return super.onCreateOptionsMenu(menu);

    }

    @Override

    public boolean onOptionsItemSelected(@NonNull MenuItem item) {

        item.setIcon(R.drawable.about);
        //i=findViewById(R.id.imageView);

        TextView t=findViewById(R.id.textView4);

```

*//handle item selection*

```
switch (item.getItemId()) {

    case R.id.it3:

        builder=new AlertDialog.Builder(MainActivity3.this);
        builder.setMessage("Do you want to
        close?").setTitle("AlertDialog").setPositiveButton("OK", new
        DialogInterface.OnClickListener() {
            @Override

            public void onClick(DialogInterface dialog, int which)

            {

                finish();
            }

        }).setNegativeButton("Cancel", new DialogInterface.OnClickListener()

        {

            @Override

            public void onClick(DialogInterface dialog, int which) {
                dialog.dismiss();
            }

        });

        alertDialog=builder.create();
        alertDialog.show();
        return true;
    case R.id.it4:
        builder=new AlertDialog.Builder(MainActivity3.this);

        View popupView=getLayoutInflater().inflate(R.layout.popup1,null);
        builder.setView(popupView);
        alertDialog=builder.create();
        alertDialog.show();
        return true;

    default:

        return super.onOptionsItemSelected(item);

    }

}
```

@Override

```
protected void onCreate(Bundle savedInstanceState) {
    super.onCreate(savedInstanceState);
    setContentView(R.layout.activity_main3);
}
```

### **Popup.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">

    <ImageView android:id="@+id/imageView2"

    android:layout_width="wrap_content" a

    android:layout_height="wrap_content"

    android:layout_weight="1"

        android:src="@drawable/help" />

    <TextView
        android:id="@+id/textView3"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_weight="1"
        android:text="help" />
    </LinearLayout>
```

### **Menu.xml**

```

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

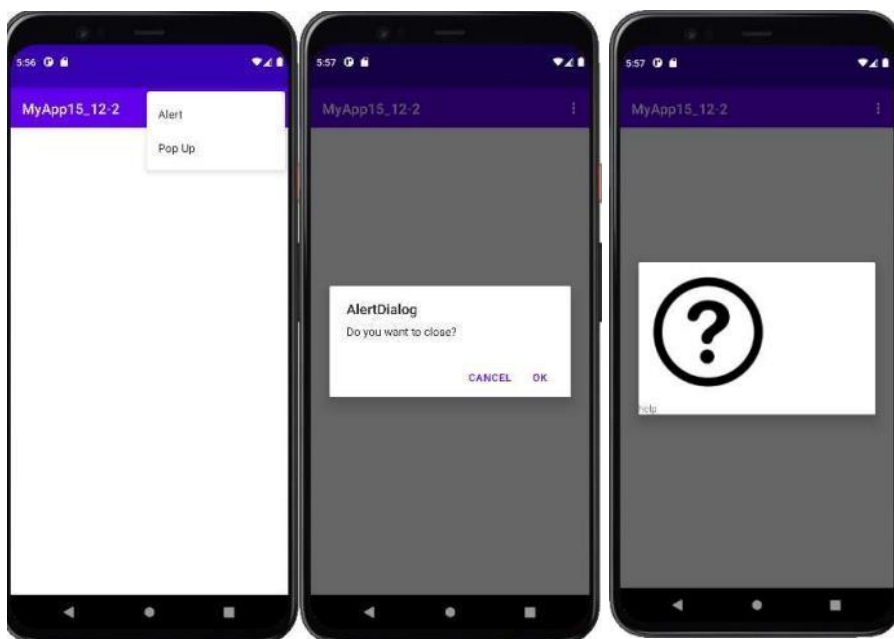
<menu xmlns:app="http://schemas.android.com/apk/res-auto"
      xmlns:android="http://schemas.android.com/apk/res/android">
<item
  android:id="@+id/it3"

  android:title="Alert" />

<item
  android:id="@+id/it4"
  android:title="Pop Up" />
</menu>

```

### Output:



**Program no:16**

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

**XML Code:**

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

<androidx.constraintlayout.widget.ConstraintLayout xmlns:android="http://schemas.android.c
om/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:**

```
package com.example.spinner;
```

```

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;

import android.view.View;

import android.widget.AdapterView;

import android.widget.AdapterView.OnItemClickListener;

import android.widget.ArrayAdapter;

import android.widget.Spinner;

import android.widget.Toast;

public class MainActivity extends AppCompatActivity implements
    AdapterView.OnItemClickListener {

    String[] country={"india","Iran","USA","other"};

    @Override

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

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

        spin.setOnItemClickListener(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 onItemClick(AdapterView<?> arg0, View arg1, int position, long id){
        Toast.makeText(getApplicationContext(),country[position],Toast.LENGTH_LONG).show();
    }

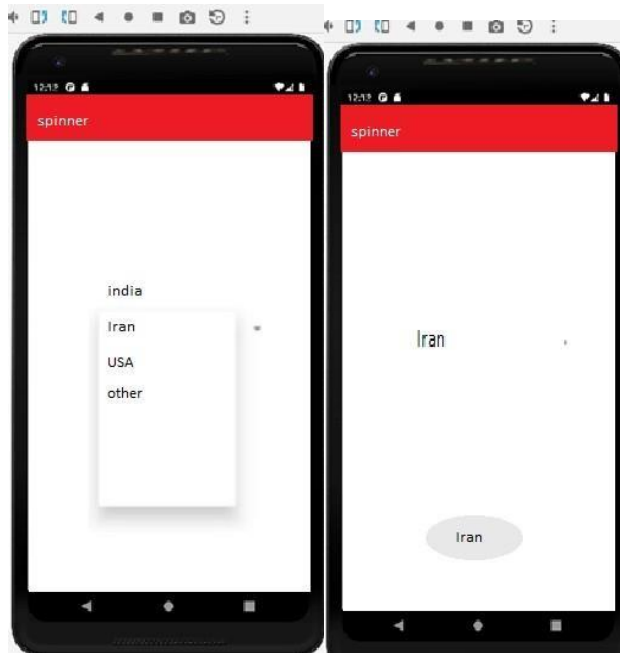
    @Override

    public void onNothingSelected(AdapterView<?>arg0){

    }

}

```

**Output:**

**Program no:17**

**Aim:** Program to apply themes via code from manifest file.

**XML Code:**

```
<?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:**

```
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>

```

**#AndroidManifest.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:supportRtl="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">

<!-- 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 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">

    <FrameLayout
        android:id="@+id/frameLayout"
        android:layout_width="match_parent"
        android:background="@color/teal_200"
        android:layout_height="0dp"
        android:layout_weight="4" />
    <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:text="Fragment 1" />
```

**Java Code:**

```
package com.example.myapp09_02_3;
```

```
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);

        b1=findViewById(R.id.b1);
        b2=findViewById(R.id.b2);

        b1.setOnClickListener(new View.OnClickListener() {
            @Override

            public void onClick(View v) {
                replaceFragmnt(new fragment1());
            }

        });

        b2.setOnClickListener(new View.OnClickListener() {
            @Override

            public void onClick(View v) {
                replaceFragmnt(new fragment2());

            }

        });
    }
}
```

```

private void replaceFragmnt(Fragment fragment) {
FragmentManager fragmentManager=getSupportFragmentManager();

FragmentManager
fragmentTransaction=fragmentManager.beginTransaction();
fragmentTransaction.replace(R.id.frameLayout,fragment);
fragmentTransaction.commit();
}

}

<Button
android:id="@+id/b2"

android:layout_width="160dp"
android:layout_height="50dp"
android:layout_alignParentBottom="true"
android:layout_alignParentRight="true"
android:layout_marginStart="30dp"
android:layout_marginBottom="30dp"
android:text="Fragment 2" />

</RelativeLayout>

</LinearLayout>
//create fragment from new>framents>fragment(blank)

```

### **fragment1.java**

```

package
com.example.myapplication09_02_3;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_fragment1, container, false);
}
}
```

### **fragment2.java**

```
package com.example.myapplication;

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_fragment2, container, false);
    }
}
```

### **fragment\_fragment1.xml**

```
<?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/purple_700"
```

```
tools:context=".fragment1">
```

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

```
<TextView android:layout_width="wrap_content"
```

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

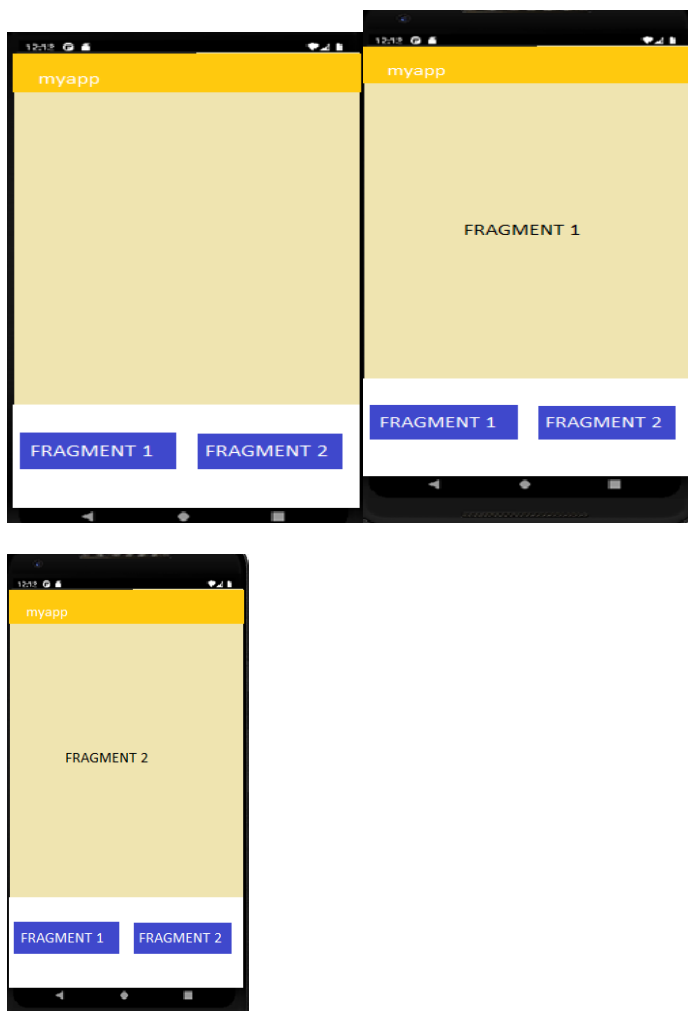
```
android:layout_centerInParent="true"
```

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

```
android:text="Fragment 1" />
```

```
</RelativeLayout>
```

### Output:





**Program no:19**

**Aim:** Program to implement Navigation drawer.

**XML Code:**

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

<androidx.drawerlayout.widget.DrawerLayoutxmlns:android="http://schemas.android.com/a
pk/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:

```
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 onOptionsItemSelected(@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 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**

```

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

```

### **#build.gradle(:app)**

```

plugins {
    id 'com.android.application'
}

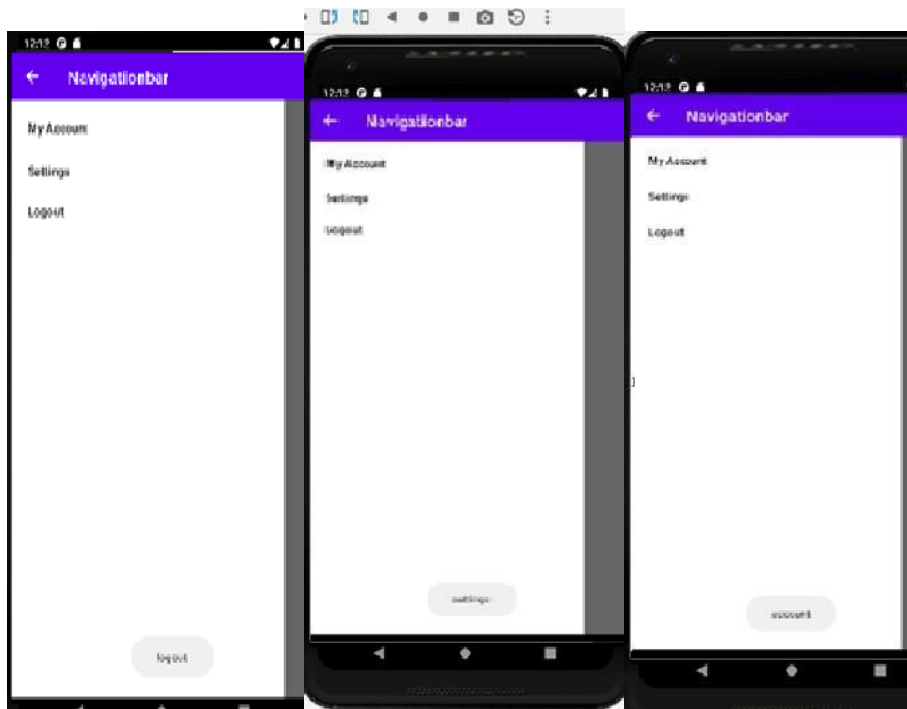
android {
    compileSdk 31
    defaultConfig {
        applicationId "com.example.drawernavigation"
        minSdk 21
        targetSdk 31
        versionCode 1
        versionName "1.0"
        testInstrumentationRunner "androidx.test.runner.AndroidJUnitRunner"
    }
    buildTypes {

```

```
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:**

**Program no:20**

**Aim:** Program to implement activity life cycle

**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:layout_width="wrap_content"

android:layout_height="wrap_content"

android:text="Welcome"

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 Code:**

```
package com.example.myapplication;
import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import android.util.Log;
import com.example.myapplication.R;

public class MainActivity extends AppCompatActivity {

    @Override

    protected void onCreate(Bundle savedInstanceState) {

        super.onCreate(savedInstanceState);

        setContentView(R.layout.activity_main);

        Log.i("State","onCreate");

    }

    @Override

    protected void onStart() {

        super.onStart();

        Log.i("State","onStart");

    }

    @Override

    protected void onResume() {

        super.onResume();
```



```
Log.i("State","onResume");
```

```
}
```

```
@Override
```

```
protected void onPause() {
```

```
super.onPause();
```

```
Log.i("State","onCreate");
```

```
}
```

```
@Override
```

```
protected void onRestart() {
```

```
super.onRestart();
```

```
Log.i("State","onRestart");
```

```
}
```

```
@Override
```

```
protected void onStop() {
```

```
super.onStop();
```

```
Log.i("State","onStop");
```

```
}
```

```
@Override
```

```
protected void onDestroy() {

    super.onDestroy();

    Log.i("State","onDestroy");

}

}
```

### Output:

```
2022-03-03 11:51:50.642 7632-7644/com.example.myapplication I/e.myapplication: Background young concurrent copying GC freed 14816(1328KB) AllocSpace objects
2022-03-03 11:51:50.953 7632-7653/com.example.myapplication I/OpenGLRenderer: Davey! duration=713ms; Flags=1, IntendedVsync=30119275487723, Vsync=301192754
2022-03-03 11:51:54.248 7632-7644/com.example.myapplication I/e.myapplication: WaitForGcToComplete blocked RunEmptyCheckpoint on ProfileSaver for 5.591ms
2022-03-03 11:52:55.797 7632-7632/com.example.myapplication I/State: onCreate
2022-03-03 11:52:56.821 7632-7632/com.example.myapplication I/State: onStop
2022-03-03 11:52:56.828 7632-7632/com.example.myapplication I/State: onDestroy
2022-03-03 11:53:50.852 7632-7632/com.example.myapplication I/State: onCreate
2022-03-03 11:53:50.861 7632-7632/com.example.myapplication I/State: onStart
2022-03-03 11:53:50.862 7632-7632/com.example.myapplication I/State: onResume
2022-03-03 11:53:57.002 7632-7632/com.example.myapplication I/State: onCreate
2022-03-03 11:53:57.912 7632-7632/com.example.myapplication I/State: onStop
2022-03-03 11:54:07.265 7632-7632/com.example.myapplication I/State: onRestart
2022-03-03 11:54:07.274 7632-7632/com.example.myapplication I/State: onStart
2022-03-03 11:54:07.275 7632-7632/com.example.myapplication I/State: onResume
2022-03-03 11:54:10.704 7632-7632/com.example.myapplication I/State: onCreate
2022-03-03 11:54:11.651 7632-7632/com.example.myapplication I/State: onStop
2022-03-03 11:54:11.653 7632-7632/com.example.myapplication I/State: onDestroy
2022-03-03 11:54:17.578 7632-7632/com.example.myapplication I/State: onCreate
2022-03-03 11:54:17.587 7632-7632/com.example.myapplication I/State: onStart
2022-03-03 11:54:17.588 7632-7632/com.example.myapplication I/State: onResume
```

**Program no:21**

**Aim:** Program to implement various SQLite operations : (INSERT, UPDATE ,DELETE ,SELECT)

**XML Code:**

```
<?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:padding="10dp"
    tools:context=".MainActivity">
```

```
<TextView
    android:id="@+id/texttitle"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginTop="20dp"
    android:text="Please enter the details below"
    android:textSize="24dp" />
```

```
<EditText
    android:id="@+id/name"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:hint="Name"
    android:textSize="24dp"
    android:layout_below="@+id/texttitle"
    android:inputType="textPersonName"
/>
```

```
<EditText
    android:id="@+id/contact"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:hint="Contact"
    android:textSize="24dp"
    android:layout_below="@+id/name"
    android:inputType="number"
/>
```

```
<EditText
    android:id="@+id/dob"
```

```

    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:hint="Date of birth"
    android:textSize="24dp"
    android:layout_below="@+id/contact"
    android:inputType="number"
/>
<Button
    android:id="@+id/buttonInsert"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:textSize="24dp"
    android:text="Insert new Data"
    android:layout_marginTop="30dp"
    android:layout_below="@+id/dob"
/>
<Button
    android:id="@+id/buttonUpdate"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:textSize="24dp"
    android:text="Update Data"
    android:layout_below="@+id/buttonInsert"
/>
<Button
    android:id="@+id/buttondelete"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:textSize="24dp"
    android:text="Delete existing data"
    android:layout_below="@+id/buttonUpdate"
/>
<Button
    android:id="@+id/buttonView"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:textSize="24dp"
    android:text="View data"
    android:layout_below="@+id/buttondelete"
/>

</RelativeLayout>

```

**Java Code:****#MainActivity.java**

```
package com.example.sqlite_app;

import androidx.appcompat.app.AlertDialog;
import androidx.appcompat.app.AppCompatActivity;

import android.database.Cursor;
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 name, contact, dob;

    Button insert, update, delete, view;

    DBHelper DB;

    @Override

    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        name=findViewById(R.id.name);
        contact=findViewById(R.id.contact);
        dob=findViewById(R.id.dob);
        insert=findViewById(R.id.buttonInsert);
```

```

update=findViewById(R.id.buttonUpdate);

delete=findViewById(R.id.buttondelete);

view=findViewById(R.id.buttonView);

DB=new DBHelper(this);

insert.setOnClickListener(new View.OnClickListener() {

@Override

public void onClick(View v) {

String nameTXT=name.getText().toString();

String contactTXT=contact.getText().toString();

String dobTXT=dob.getText().toString();


Boolean checkinsertdata=DB.insertuserdata(nameTXT,contactTXT,dobTXT);

if(checkinsertdata==true)

Toast.makeText(MainActivity.this, "New Entry Inserted", Toast.LENGTH_SHORT).show();

else

Toast.makeText(MainActivity.this, "unable to insert", Toast.LENGTH_SHORT).show();

}

});

update.setOnClickListener(new View.OnClickListener() {

@Override

public void onClick(View v) {

String nameTXT=name.getText().toString();

String contactTXT=contact.getText().toString();

String dobTXT=dob.getText().toString();


Boolean checkupdatedata=DB.updateuserdata(nameTXT,contactTXT,dobTXT);

```

```

if(checkupdatedata==true)

Toast.makeText(MainActivity.this, "Entry updated", Toast.LENGTH_SHORT).show();

else

Toast.makeText(MainActivity.this, "Not updated", Toast.LENGTH_SHORT).show();

}

});

delete.setOnClickListener(new View.OnClickListener() {

@Override

public void onClick(View v) {

String nameTXT=name.getText().toString();


Boolean checkdeletedata=DB.deletedata(nameTXT);

if(checkdeletedata==true)

Toast.makeText(MainActivity.this, "Entry deleted", Toast.LENGTH_SHORT).show();

else

Toast.makeText(MainActivity.this, "Not deleted", Toast.LENGTH_SHORT).show();

}

});

view.setOnClickListener(new View.OnClickListener() {

@Override

public void onClick(View v) {

Cursor res=DB.getdata();

if(res.getCount()==0){

Toast.makeText(MainActivity.this, "No entry exists", Toast.LENGTH_SHORT).show();

return;

}

StringBuffer buffer=new StringBuffer();

```

```

while(res.moveToNext()){
    buffer.append("Name:"+res.getString(0)+"\n");
    buffer.append("Contact:"+res.getString(1)+"\n");
    buffer.append("Date of Birth:"+res.getString(2)+"\n");
}

AlertDialog.Builder builder=new AlertDialog.Builder(MainActivity.this);
builder.setCancelable(true);
builder.setTitle("User Entries");
builder.setMessage(buffer.toString());
builder.show();

}

});

}

}

```

### **#DBHelper.java**

```

package com.example.sqlite_app;

import android.content.ContentValues;
import android.content.Context;
import android.database.Cursor;
import android.database.sqlite.SQLiteDatabase;
import android.database.sqlite.SQLiteOpenHelper;

```



```

import androidx.annotation.Nullable;

public class DBHelper extends SQLiteOpenHelper {

    public DBHelper(Context context) {
        super(context, "Userdata", null, 1);
    }

    @Override

    public void onCreate(SQLiteDatabase DB) {

        DB.execSQL("create Table Userdetails(name TEXT primary key, contact TEXT, dob TEXT)");

    }

    @Override

    public void onUpgrade(SQLiteDatabase DB, int oldVersion, int newVersion) {

        DB.execSQL("drop Table if exists Userdetails");

    }

    public Boolean insertuserdata(String name, String contact, String dob){

        SQLiteDatabase DB=this.getWritableDatabase();

        ContentValues contentValues=new ContentValues();

        contentValues.put("name",name);

        contentValues.put("contact",contact);

        contentValues.put("dob",dob);

        long result=DB.insert("Userdetails", null, contentValues);

        if(result==-1){

            return false;

```

```

}else{

return true;

}

}

public Boolean updateuserdata(String name, String contact, String dob){

SQLiteDatabase DB=this.getWritableDatabase();

ContentValues contentValues=new ContentValues();

contentValues.put("contact",contact);

contentValues.put("dob",dob);

Cursor cursor=DB.rawQuery("Select * from Userdetails where name=?", new
String[]{name});

if(cursor.getCount()>0) {

long result = DB.update("Userdetails", contentValues, "name=?", new String[]{name});

if (result == -1) {

return false;

} else {

return true;

}

}else{

return false;

}

}

public Boolean deletedata(String name){

SQLiteDatabase DB=this.getWritableDatabase();

Cursor cursor=DB.rawQuery("Select * from Userdetails where name=?", new
String[]{name});

if(cursor.getCount()>0) {

long result = DB.delete("Userdetails", "name=?", new String[]{name});

```

```

if (result == -1) {

return false;

} else {

return true;

}

}else{

return false;

}

}

}

public Cursor getdata (){

SQLiteDatabase DB=this.getWritableDatabase();

Cursor cursor=DB.rawQuery("Select * from Userdetails",null);

return cursor;

}

}

```

### Output:

