

# **20MCA243 MOBILE APPLICATION DEVELOPMENT LAB**

*Lab Report Submitted By*

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**Reg. No.:AJC20MCA-2029**

*In Partial fulfillment for the Award of the Degree Of*

**MASTER OF COMPUTER APPLICATIONS (2 Year)  
(MCA)**

**APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY**



**AMAL JYOTHI COLLEGE OF ENGINEERING  
KANJIRAPPALLY**

[Affiliated to APJ Abdul Kalam Technological University, Kerala. Approved by AICTE,  
Accredited by NAAC with 'A' grade. Koovapally, Kanjirappally, Kottayam, Kerala – 686518]

**2020-2022**

**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 **ASHTAMI PRASAD** (Reg.No:AJC20MCA-2029) in partial fulfillment of the requirements for the award of the Degree of Master of Computer Applications under APJ Abdul Kalam Technological University during the year 2021-22.

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**Program no:1**

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

.

**XML Code:**

```
<?xml 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"

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 {

    EditTextloginName, loginPwd;

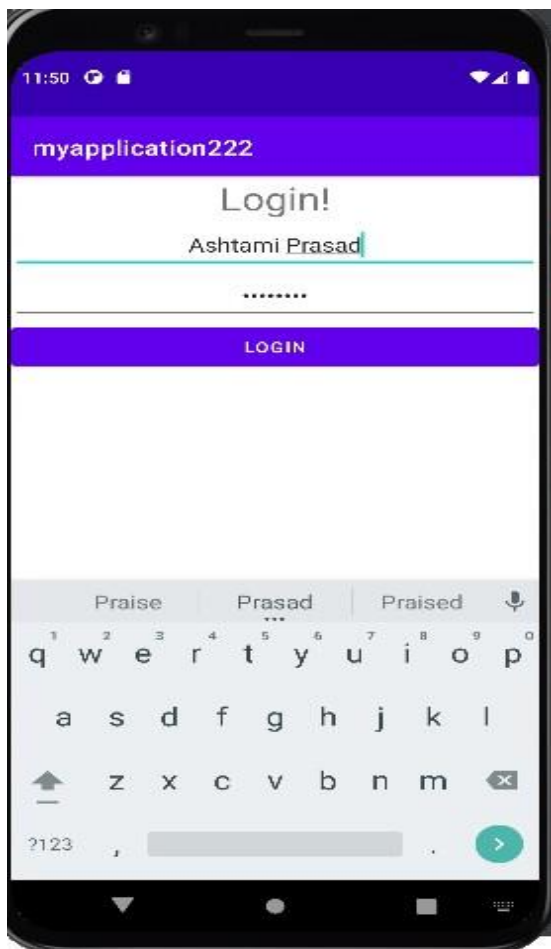
    Button login;

    @Override

    protected void onCreate(Bundle savedInstanceState) {
super.onCreate(savedInstanceState);
setContent View(R.layout.activity_login);
loginName = findViewById(R.id.loginUsername);
loginPwd = findViewById(R.id.loginPassword);
login = findViewById(R.id.loginButton);
login.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        String uName, passwd;
```

```
uName = loginName.getText().toString();  
    passwd = loginPwd.getText().toString();  
    Toast.makeText(LoginActivity.this"Welcome", Toast.LENGTH_SHORT).show();  
    }  
    });  
    }  
}
```

### Output:



**Program no:2**

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

**XML Code:**

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

<androidx.constraintlayout.widget.ConstraintLayout xmlns:android="http://schemas.android.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">

<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;

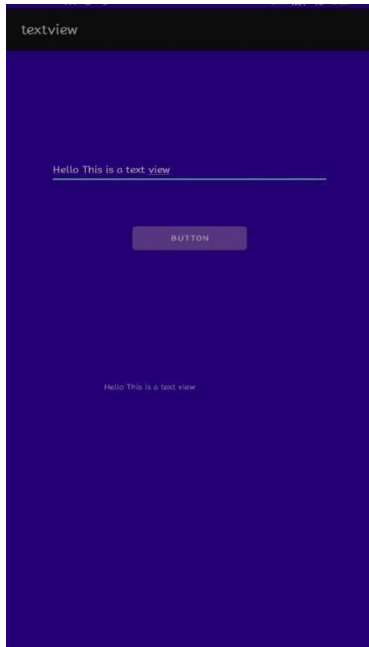
    EditText e1;

    TextView t1;

    @Override

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

        e1 = findViewById(R.id.edt1);
        b1=findViewById(R.id.btn1);
        t1=findViewById(R.id.txt1);
        b1.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                String value=e1.getText().toString();
                t1.setText(value);
            }
        });
    }
}
```

**Output:**

**Program no:3**

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

**XML Code:**

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayoutxmlns: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.loginformvalidation;

import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.TextView;
import android.widget.Toast;

public class MainActivity extends AppCompatActivity {
    EditText e1,e2;
    TextView t1, t2;
    Button b1;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);

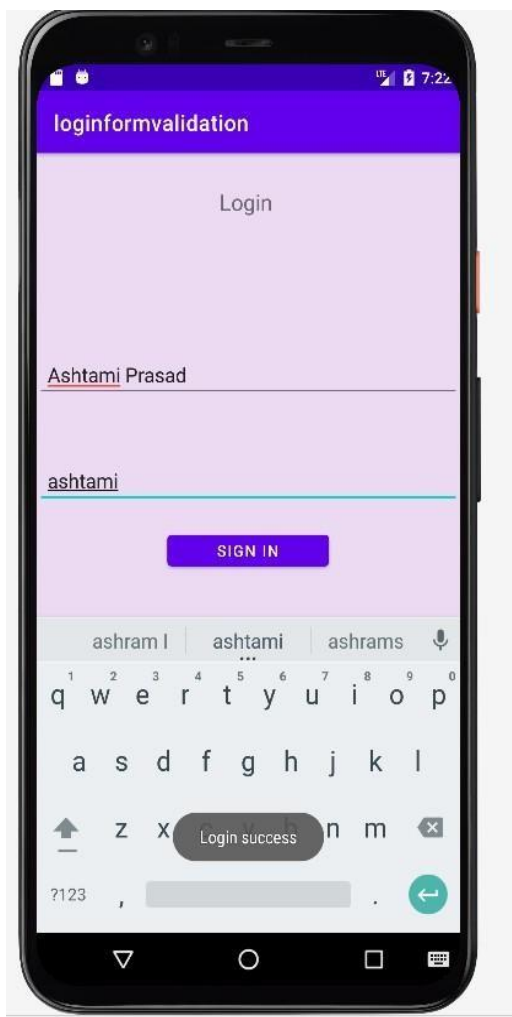
        e1=findViewById(R.id.edt1);
        e2=findViewById(R.id.edt2);
        t1 = findViewById(R.id.t1);
    }
}

```

```

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

```

**Output:**

**Program no:4**

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

**XML Code:**

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

<androidx.constraintlayout.widget.ConstraintLayout xmlns:android="http://schemas.android.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">

<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;
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;

    }

}

});

}

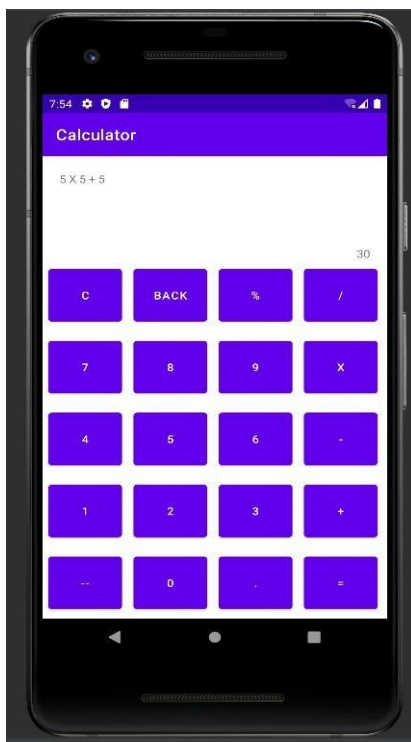
public void onClick(View view) {

}

}

```

### Output:



**Program no:5**

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

**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">

<TextView

android:id="@+id/txt1"

android:layout_width="wrap_content"

android:layout_height="wrap_content"

android:text="Validation on UI Components"

app:layout_constraintLeft_toLeftOf="parent"

android:textSize="25sp"

app:layout_constraintRight_toRightOf="parent"

android:layout_marginTop="30dp"

app:layout_constraintTop_toTopOf="parent" />

<EditText

android:id="@+id/edt1"

android:layout_width="match_parent"

android:layout_height="wrap_content"

app:layout_constraintStart_toStartOf="parent"

app:layout_constraintEnd_toEndOf="parent"

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

```

android:padding="20dp"
android:layout_marginTop="100dp"
android:hint="Text 1"
android:layout_marginHorizontal="10dp"/>
<EditText
android:id="@+id/edt2"
android:layout_width="match_parent"
android:layout_height="wrap_content"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintTop_toBottomOf="@+id/edt1"
android:padding="20dp"
android:layout_marginTop="20dp"
android:hint="Text 2"
android:layout_marginHorizontal="10dp"/>
<EditText
android:id="@+id/edt3"
android:layout_width="match_parent"
android:layout_height="wrap_content"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintTop_toBottomOf="@+id/edt2"
android:padding="20dp"
android:layout_marginTop="20dp"
android:hint="Text 3"
android:layout_marginHorizontal="10dp"/>

<Button
android:id="@+id/btn1"

```

```

android:layout_width="wrap_content"
android:layout_height="wrap_content"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintTop_toBottomOf="@+id/edt3"
android:layout_marginTop="50dp"
android:text="Submit"/>
</androidx.constraintlayout.widget.ConstraintLayout>

```

### Java Code:

```

package com.example.validation;

import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;

public class MainActivity extends AppCompatActivity {

    EditText e1, e2, e3;

    Button b1;

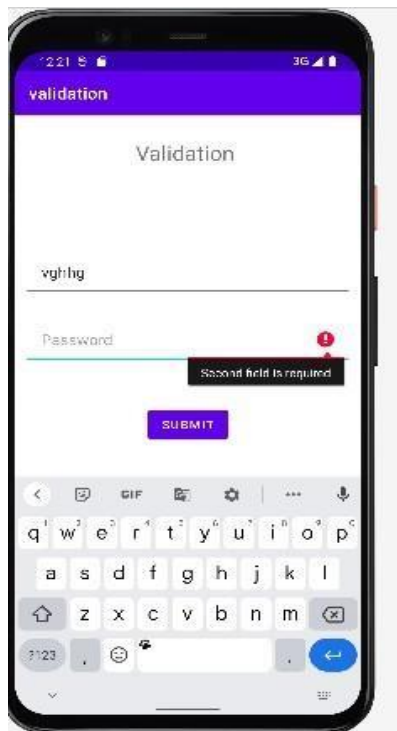
    @Override

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

        e1 = findViewById(R.id.edt1);
        e2 = findViewById(R.id.edt2);
        e3 = findViewById(R.id.edt3);
        b1 = findViewById(R.id.btn1);
    }
}

```

```
b1.setOnClickListener(new View.OnClickListener() {  
    @Override  
    public void onClick(View v) {  
        String a, b, c;  
        a = e1.getText().toString();  
        b = e2.getText().toString();  
        c = e3.getText().toString();  
  
        if(a.isEmpty()){  
            e1.setError("First field is required");  
        }else if(b.isEmpty()){  
            e2.setError("Second field is required");  
        }else if(c.isEmpty()){  
            e3.setError("Third field is required");  
        }  
    }  
});  
}  
}
```

**Output:**

**Program no:6**

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

**XML Code:**

```
<?xml 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">

<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.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=".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.sharedpref;
import androidx.appcompat.app.AppCompatActivity;
import android.content.SharedPreferences;
import android.os.Bundle;
import android.widget.TextView;
import android.widget.Toast;
public class MainActivity2 extends AppCompatActivity {

    TextView t1, t2, t3;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main2);

        t1 = findViewById(R.id.txt1);
        t2 = findViewById(R.id.txt2);
        t3 = findViewById(R.id.txt3);

        SharedPreferences sharedPreferences = getSharedPreferences("myKey", MODE_PRIVATE);
        String name, email, password;
    }
}

```

```

name = "Name: "+sharedPreferences.getString("name", "");
email = "Email: "+sharedPreferences.getString("email", "");
password = "Password: "+sharedPreferences.getString("password", "");

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

```

## Output:

The screenshot displays a registration form in an Android application. At the top, there are two blue horizontal bars, each labeled "shared pref". Below these, the form is titled "Registration". It consists of three input fields with corresponding labels: "Name: ashtami", "Email: ashtami@gmail.com", and "Password: ghjv". The input fields are white with black text. Below the input fields, there is a blue button labeled "REGISTER". The form is set against a light gray background.

**Program no:7**

**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.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">

<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.cal;

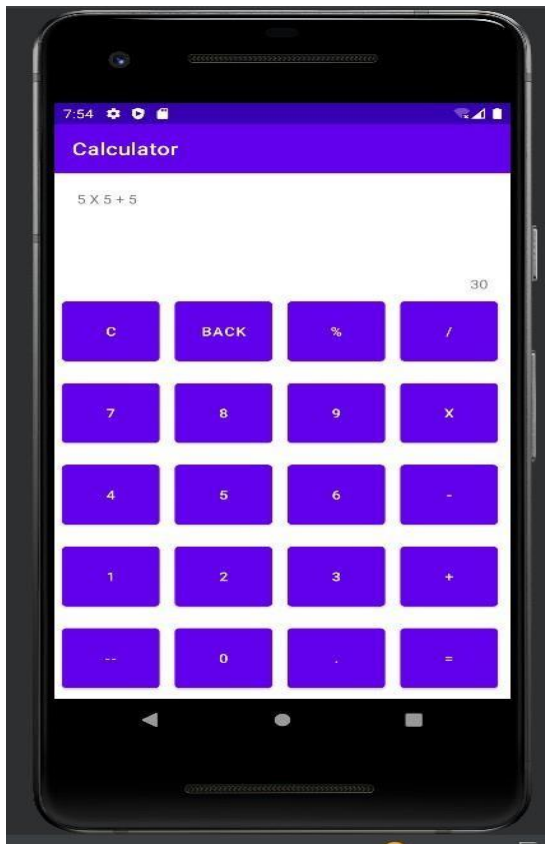
import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;

public class MainActivity extends AppCompatActivity {

    @Override

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

```

**Output:**

**Program no:8**

**Aim:**Create a facebook page using relative layout set properties.

**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;

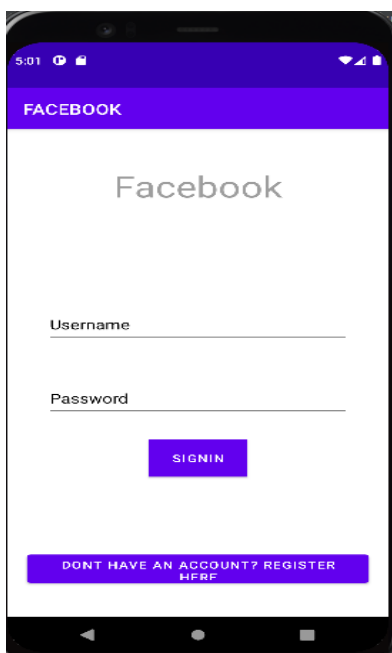
import android.os.Bundle;

public class MainActivity extends AppCompatActivity {

    @Override

```

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

**Output:**



**Program no:9**

**Aim:**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:**Implement Adapters and perform exception 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:tool="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.exceptionhandling;

import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.TextView;

public class MainActivity extends AppCompatActivity {

    EditText e1, e2;

    Button b1;

    TextView t1;

    @Override

    protected void onCreate(Bundle savedInstanceState) {

```

```
super.onCreate(savedInstanceState);

setContentView(R.layout.activity_main);

    e1 = findViewById(R.id.edt1);
    e2 = findViewById(R.id.edt2);
    b1 = findViewById(R.id.btn1);
    t1 = findViewById(R.id.txt2);
    b1.setOnClickListener(new View.OnClickListener() {

        @Override

        public void onClick(View v) {

            String a, b;

            int c, d;

            a = e1.getText().toString();
            b = e2.getText().toString();

try{

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

            t1.setText(res);

}catch(Exception e){

            t1.setText(e.toString());

            }

        }

    });

}
```

**Output:**

```
exceptionhandling
```

EXCEPTION

/

.

DIVIDE

java.lang.NumberFormatException: For input string: ""



**Program no:11**

**Aim:**Implement Intent to navigate between multiple activities.

**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:background="@color/teal_200"

android:layout_height="match_parent"

tools:context=".MainActivity">

<TextView

android:id="@+id/txt1"

android:layout_width="wrap_content"

android:layout_height="wrap_content"

android:text="Activity 1"

app:layout_constraintLeft_toLeftOf="parent"

android:layout_marginTop="50dp"

android:textSize="30sp"

app:layout_constraintRight_toRightOf="parent"

app:layout_constraintTop_toTopOf="parent" />

<Button

android:id="@+id/btn1"

android:layout_width="wrap_content"
```

```

android:layout_height="wrap_content"
android:text="Next Activity"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintTop_toBottomOf="@id/txt1"
app:layout_constraintBottom_toBottomOf="parent"/>
</androidx.constraintlayout.widget.ConstraintLayout>

```

#activity\_main2.xml

```

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

<androidx.constraintlayout.widget.ConstraintLayout xmlns:android="http://schemas.android.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"
android:background="@color/white"
tools:context=".MainActivity2">

<TextView

android:id="@+id/txt2"

android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:textSize="30sp"
android:text="Activity 2"
app:layout_constraintLeft_toLeftOf="parent"
android:layout_marginTop="50dp"
app:layout_constraintRight_toRightOf="parent"

```

```

app:layout_constraintTop_toTopOf="parent" />

<Button

android:id="@+id/btn2"

android:layout_width="wrap_content"

android:layout_height="wrap_content"

android:text="Previous Activity"

app:layout_constraintStart_toStartOf="parent"

app:layout_constraintEnd_toEndOf="parent"

app:layout_constraintTop_toBottomOf="@id/txt2"

app:layout_constraintBottom_toBottomOf="parent"/>

</androidx.constraintlayout.widget.ConstraintLayout>

```

### Java Code:

```

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);

            }

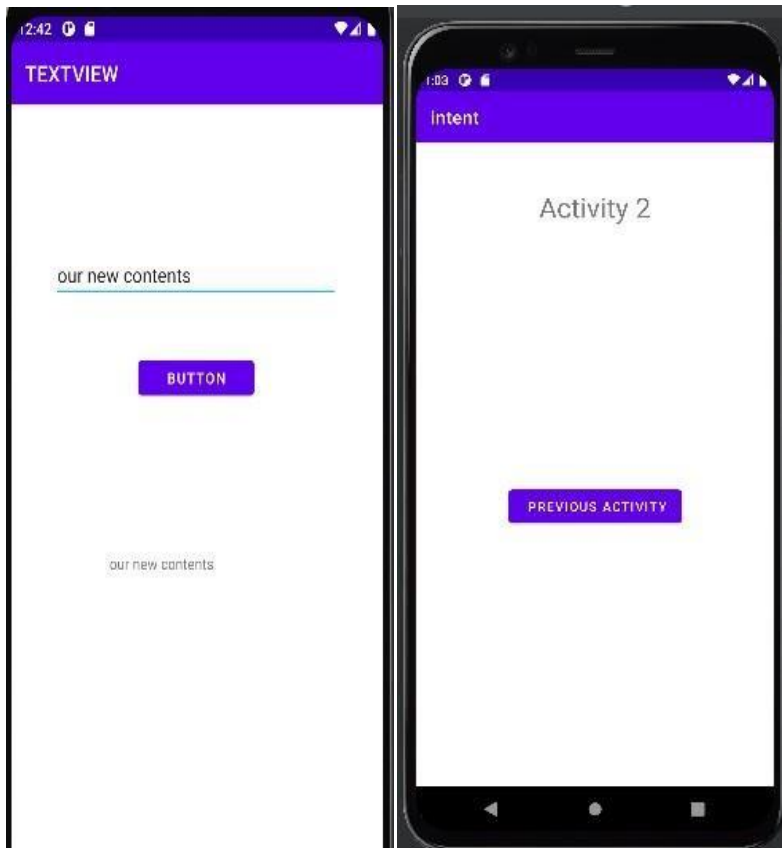
        });

    }

}

```

```
    });  
}  
}
```

**Output:**

**Program no:12**

**Aim:**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.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"

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);

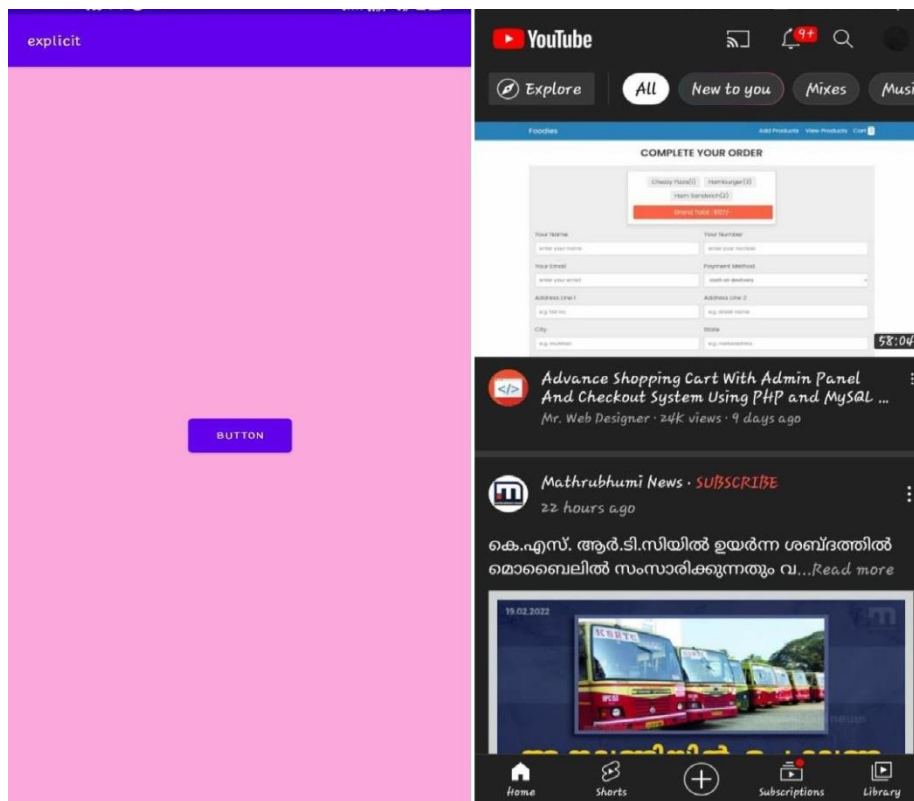
            }

        });

    }
}

```

## Output:





**Program no:13**

**Aim:**Implement Options Menu to navigate to activities

**XML Code:**

```
<?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/it1"
        android:icon="@drawable/about"
        android:title="About"
        app:showAsAction="withText" />

    <item
        android:id="@+id/it2"
        android:icon="@drawable/help"
        android:title="Help" />
</menu>
<?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=".MainActivity3">
    <ImageView
        android:id="@+id/imageView
```

```

"
    android:layout_width="wrap_
content"
    android:layout_height="wrap_
content"
    app:layout_constraintBottom_toBottomOf="
parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.497
"
    app:layout_constraintStart_toStartOf="parent
"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.642"
/>

```

</androidx.constraintlayout.widget.ConstraintLayout

#### Java Code:

```

package com.example.myapplication15_12_2;

import androidx.annotation.NonNull;
import androidx.appcompat.app.AppCompatActivity;
import android.content.Intent;
import android.os.Bundle;
import android.view.Menu;
import android.view.MenuItem;
import android.widget.ImageView;
import android.widget.Toast;
public class MainActivity3 extends
    AppCompatActivity {
    ImageView i;

    public boolean onCreateOptionsMenu(Menu
        menu) {
        getMenuInflater().inflate(R.menu.menu,men
            u); return true;
    }
}

```

```

        //return super.onCreateOptionsMenu(menu);
    }

    @Override
    public boolean onOptionsItemSelected(@NonNull MenuItem item) {
        item.setIcon(R.drawable
        about);
        i=findViewById(R.id.imag
        eView);

        //handle item selection
        switch
            (item.getIte
            mId()) {case
            R.id.it1:
                //view image - about click
                i.setImageResource(R.drawable.about);
                Toast.makeText(getApplicationContext(), "You Clicked
                About",
                Toast.LENGTH_SHORT).
                show();
                return true;

            case R.id.it2:
                //moving to next page
                Intent in=new
                Intent(MainActivity3.this,MainActivity.class);
                startActivity(in);
                Toast.makeText(getApplicationContext(), "You Clicked
                Help",Toast.LENGTH_SHORT).show();

```

```
        return super.onOptionsItemSelected(item);
    }
}

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

}
```

**Output:**



**Program no:14**

**Aim:**Develop an application that uses ArrayAdapter with ListView.

**XML Code:**

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

<android.support.constraint.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/textView"
    android:layout_width="wrap_
content"
    android:layout_height="wrap_content"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintLeft_toLeftOf="parent"
    app:layout_constraintRight_toRightOf="parent"
    app:layout_constraintTop_toTopOf="parent" />

<ListView
    android:id="@+id/list"
    android:layout_width="396dp"
    android:layout_height="732dp"
    android:layout_marginStart="1dp"
    android:layout_marginEnd="1dp"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
```

```

        app:layout_constraintHorizontal_bias="0.461"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.0" />

</android.support.constraint.ConstraintLayout>

```

### Java Code:

```

package com.example.listview;

import android.support.v7.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View;

import android.widget.AdapterView;
import android.widget.AdapterView;
import android.widget.ArrayAdapter;
import android.widget.ListView;
import android.widget.Toast;

public class MainActivity extends AppCompatActivity {
    ListView listView;
    String
    countries[]={ "India","America","UK"};@Override
    protected void onCreate(Bundle
        savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        listView=findViewById(R.id.list);
        ArrayAdapter arrayAdapter=new
        ArrayAdapter<String>(MainActivity.this,R.layout.support_simple_spinner_dropdown_item,countries);

        listView.setAdapter(arrayAdapt

```

```

er);

listView.setOnItemClickListener(new AdapterView.OnItemClickListener() {
    @Override
    public void onItemClick(AdapterView<?> parent, View view, int position, long id) {
        Toast.makeText(getApplicationContext(), "View
Clicked"+countries[position], Toast.LENGTH_SHORT).show();
    }
});
}
}

```

### Output:





**Program no:15**

**Aim:** 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.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">

<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>
```

#carditem.xml

```
<?xml version="1.0" encoding="utf-8"?>
<!--XML implementation of Card Layout-->
<androidx.cardview.widget.CardView
xmlns:android="http://schemas.android.com/apk/res/android"
xmlns:app="http://schemas.android.com/apk/res-auto"
android:layout_width="match_parent"
```

```

android:layout_height="120dp"
android:layout_gravity="center"
android:layout_margin="5dp"
app:cardCornerRadius="5dp"
app:cardElevation="5dp">

```

```

<LinearLayout
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:orientation="vertical">

```

```

<ImageView
    android:id="@+id/image"
    android:layout_width="100dp"
    android:layout_height="100dp"
    android:layout_gravity="center"
    android:src="@mipmap/ic_launcher" />

```

```

<TextView
    android:id="@+id/flower"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:text="@string/app_name"
    android:textAlignment="center" />

```

```

</LinearLayout>

```

```

</androidx.cardview.widget.CardView>

```

### Java Code:

```

package com.example.myapplication;

import androidx.appcompat.app.AppCompatActivity;

```

```

import android.os.Bundle;
import android.widget.GridView;
import java.util.ArrayList;

public class MainActivity extends AppCompatActivity {
    GridView images;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        coursesGV = findViewById(R.id.idimages);

        ArrayList<image>imageArrayList;
        imageArrayList = new ArrayList<image>();
        imageArrayList.add(new image("Flower1", R.drawable.img));
        imageArrayList.add(new image("Flower2", R.drawable.img_1));
        imageArrayList.add(new image("Flower3",R.drawable.img_2));
        imageArrayList.add(new image("Flower4", R.drawable.img_3));
        imageArrayList.add(new image("Flower5", R.drawable.img_4));
        imageArrayList.add(new image("Flower6", R.drawable.img_5));

        imageAdapter adapter = new imageAdapter(this, imageArrayList);
        image.setAdapter(adapter);

    }
}

#Adapter

package com.example.myapplication;

import android.content.Context;
import android.view.LayoutInflater;

```

```

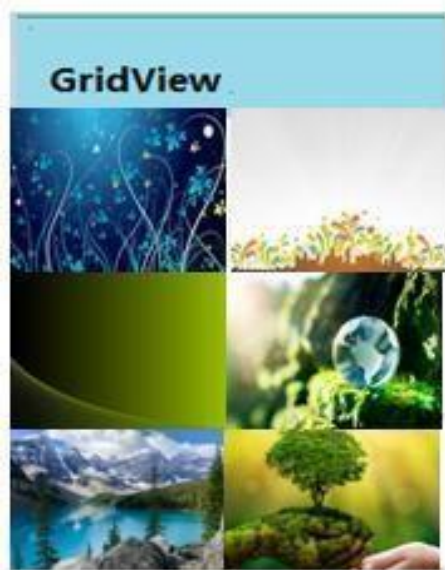
import android.view.View;
import android.view.ViewGroup;
import android.widget.AdapterView;
import android.widget.ImageView;
import android.widget.TextView;
import androidx.annotation.NonNull;
import androidx.annotation.Nullable;
import java.util.ArrayList;

public class imageAdapter extends ArrayAdapter<image> {
    public imageAdapter(@NonNull Context context, ArrayList<image>imageArrayList) {
        super(context, 0, imageArrayList);
    }

    @NonNull
    @Override
    public View getView(int position, @Nullable View convertView, @NonNull ViewGroup
parent) {
        View listitemView = convertView;
        if (listitemView == null) {
            // Layout Inflater inflates each item to be displayed in GridView.
            listitemView = LayoutInflater.from(getContext()).inflate(R.layout.card_item, parent, false);
        }
        Image image = getItem(position);
        TextView image = listitemView.findViewById(R.id.flower);
        ImageView image = listitemView.findViewById(R.id.image);
        courseTV.setText(image.getCourse_name());
        courseIV.setImageResource(image.getImgid());
        return listitemView;
    }
}

```

**Output:**



**Program no:16**

**Aim:** 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.spinnercomponents;
import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
```



**Output:**



**Program no:17**

**Aim:** Apply themes vis code and 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:supportsRtl="true"
        android:theme="@style/Theme.new_style">
        <activity
            android:name=".MainActivity"
            android:exported="true" >
            <intent-filter>
                <action android:name="android.intent.action.MAIN" />
                <category android:name="android.intent.category.LAUNCHER" />
            </intent-filter>
        </activity>
    </application>
</manifest>

```

**#night/themes.xml**

```

<resources xmlns:tools="http://schemas.android.com/tools">
    <!-- 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:** 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.myapplication09_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();
    FragmentTransaction
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.myapp09_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.myapp09_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 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">

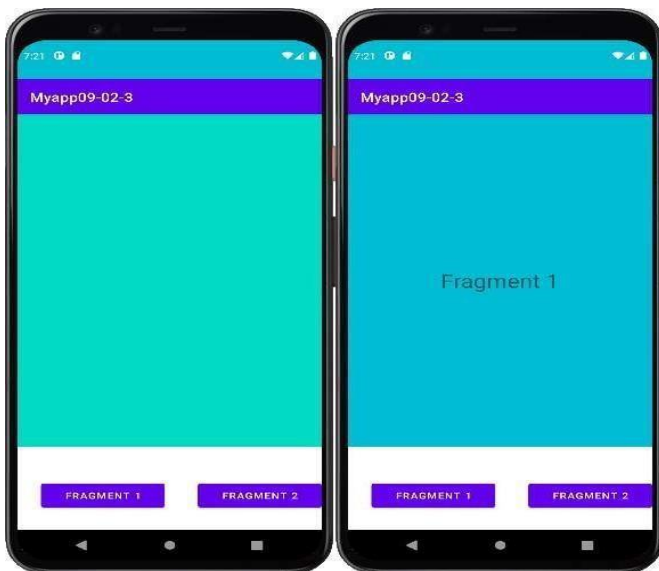
    <!-- TODO: Update blank fragment layout -->

    <TextView
        android:layout_width="wrap_content"
        "
        android:layout_height="wrap_conten
        t"
        android:layout_centerInParent="true"
        android:textSize="30dp"
```

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

```
</RelativeLayout>
```

### Output:



**Program no:19****Aim:**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**

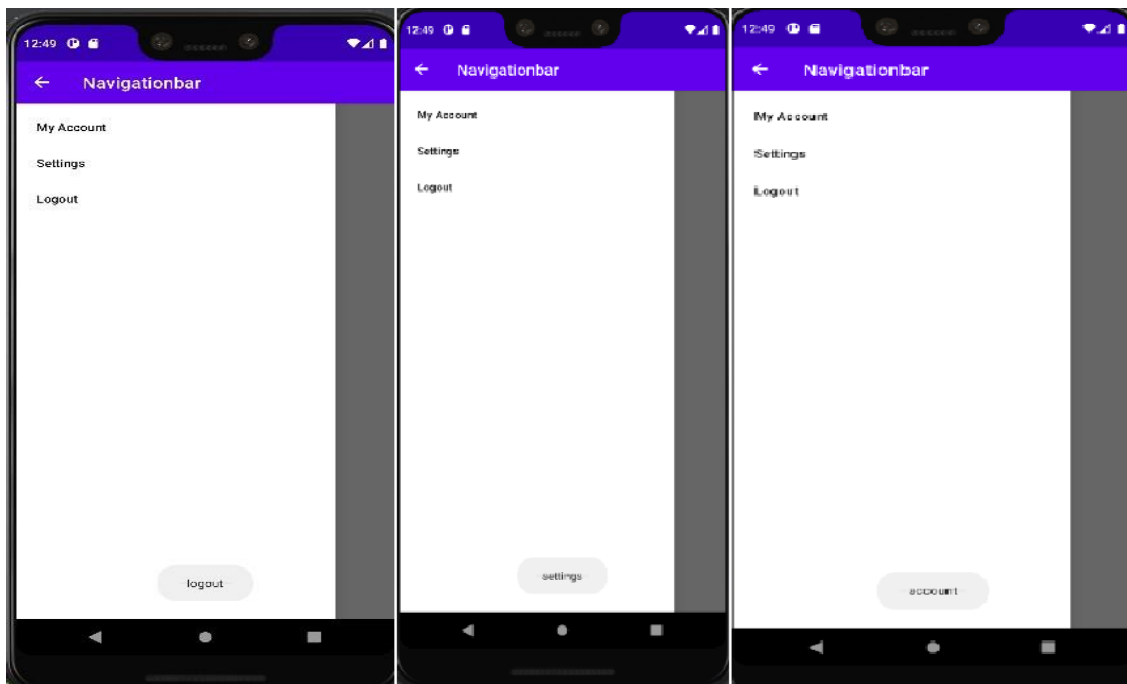
```
<resources>
    <string name="app_name">drawernavigation</string>
    <string name="nav_open">Open</string>
    <string name="nav_close">Close</string>
</resources>
```

**#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 lifecycle.

**XML Code:**

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

<android.support.constraint.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="example.javatpoint.com.activitylifecycle.MainActivity"
    >

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

</android.support.constraint.ConstraintLayout>
```

**Java Code:**

```
package example.javatpoint.com.activitylifecycle;

import android.app.Activity;
```



```
import android.os.Bundle;

import android.util.Log;

public class MainActivity extends Activity {

    @Override

    protected void onCreate(Bundle savedInstanceState) {

        super.onCreate(savedInstanceState);

        setContentView(R.layout.activity_main);

        Log.d("lifecycle", "onCreate invoked");

    }

    @Override

    protected void onStart() {

        super.onStart();

        Log.d("lifecycle", "onStart invoked");

    }

    @Override

    protected void onResume() {

        super.onResume();

        Log.d("lifecycle", "onResume invoked");

    }

    @Override

    protected void onPause() {

        super.onPause();

        Log.d("lifecycle", "onPause invoked");

    }

    @Override

    protected void onStop() {

        super.onStop();

    }

}
```

```

Log.d("lifecycle","onStop invoked");

}

@Override

protected void onRestart() {

super.onRestart();

Log.d("lifecycle","onRestart invoked");

}

@Override

protected void onDestroy() {

super.onDestroy();

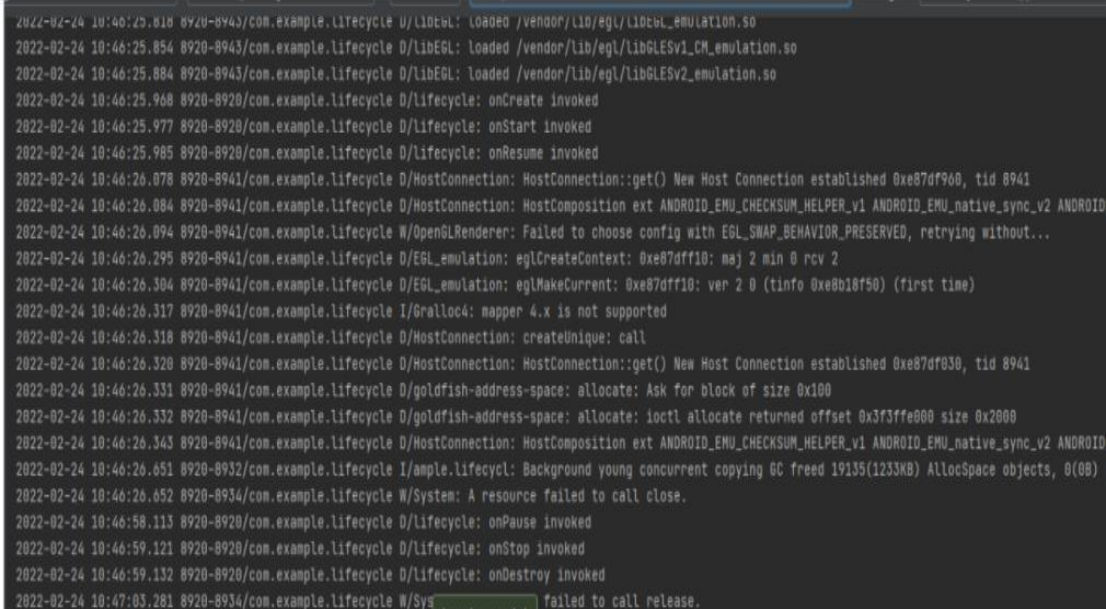
Log.d("lifecycle","onDestroy invoked");

}

}

```

### Output:



```

2022-02-24 10:46:25.816 8920-8943/com.example.lifecycle U/LibGLESv1: loaded /vendor/lib/egl/LibGLESv1_CM_emulation.so
2022-02-24 10:46:25.854 8920-8943/com.example.lifecycle D/LibGLESv1: loaded /vendor/lib/egl/LibGLESv1_CM_emulation.so
2022-02-24 10:46:25.884 8920-8943/com.example.lifecycle D/LibGLESv2: loaded /vendor/lib/egl/LibGLESv2_emulation.so
2022-02-24 10:46:25.968 8920-8920/com.example.lifecycle D/Lifecycle: onCreate invoked
2022-02-24 10:46:25.977 8920-8920/com.example.lifecycle D/Lifecycle: onStart invoked
2022-02-24 10:46:25.985 8920-8920/com.example.lifecycle D/Lifecycle: onResume invoked
2022-02-24 10:46:26.078 8920-8941/com.example.lifecycle D/HostConnection: HostConnection::get() New Host Connection established 0xe87df960, tid 8941
2022-02-24 10:46:26.084 8920-8941/com.example.lifecycle D/HostConnection: HostComposition ext ANDROID_EMU_CHECKSUM_HELPER_v1 ANDROID_EMU_native_sync_v2 ANDROID
2022-02-24 10:46:26.094 8920-8941/com.example.lifecycle W/OpenGLRenderer: Failed to choose config with EGL_SWAP_BEHAVIOR_PRESERVED, retrying without...
2022-02-24 10:46:26.295 8920-8941/com.example.lifecycle D/EGL_emulation: eglCreateContext: 0xe87dff10: maj 2 min 0 rcv 2
2022-02-24 10:46:26.304 8920-8941/com.example.lifecycle D/EGL_emulation: eglMakeCurrent: 0xe87dff10: ver 2 0 (info 0xe8b18f50) (first time)
2022-02-24 10:46:26.317 8920-8941/com.example.lifecycle I/Gralloc4: mapper 4.x is not supported
2022-02-24 10:46:26.318 8920-8941/com.example.lifecycle D/HostConnection: createUnique: call
2022-02-24 10:46:26.320 8920-8941/com.example.lifecycle D/HostConnection: HostConnection::get() New Host Connection established 0xe87df930, tid 8941
2022-02-24 10:46:26.331 8920-8941/com.example.lifecycle D/goldfish-address-space: allocate: Ask for block of size 0x100
2022-02-24 10:46:26.332 8920-8941/com.example.lifecycle D/goldfish-address-space: allocate: ioctl allocate returned offset 0x3f3ffe00 size 0x2000
2022-02-24 10:46:26.343 8920-8941/com.example.lifecycle D/HostConnection: HostComposition ext ANDROID_EMU_CHECKSUM_HELPER_v1 ANDROID_EMU_native_sync_v2 ANDROID
2022-02-24 10:46:26.651 8920-8932/com.example.lifecycle I/ample.lifecycle: Background young concurrent copying GC freed 19135(1233KB) AllocSpace objects, 0(0B)
2022-02-24 10:46:26.652 8920-8934/com.example.lifecycle W/System: A resource failed to call close.
2022-02-24 10:46:58.113 8920-8920/com.example.lifecycle D/Lifecycle: onPause invoked
2022-02-24 10:46:59.121 8920-8920/com.example.lifecycle D/Lifecycle: onStop invoked
2022-02-24 10:46:59.132 8920-8920/com.example.lifecycle D/Lifecycle: onDestroy invoked
2022-02-24 10:47:03.281 8920-8934/com.example.lifecycle W/System: failed to call release.

```

**Program no:21**

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

**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"
        tools:context=".MainActivity"
        android:orientation="vertical">

        <TextView
            android:id="@+id/textView"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:text="Please enter the details!"
            app:layout_constraintBottom_toBottomOf="parent"
            app:layout_constraintHorizontal_bias="0.498"
            app:layout_constraintLeft_toLeftOf="parent"
            app:layout_constraintRight_toRightOf="parent"
            app:layout_constraintTop_toTopOf="parent"
            app:layout_constraintVertical_bias="0.171" />

        <EditText
            android:id="@+id/name"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:layout_marginTop="40dp"
            android:hint=" Enter Name"
```

```

android:inputType="textPersonName"
android:textSize="24dp"
app:layout_constraintBottom_toTopOf="@+id/contact"
app:layout_constraintTop_toBottomOf="@+id/textView"
tools:layout_editor_absoluteX="0dp" />

```

<EditText

```

android:id="@+id/contact"
android:layout_width="match_parent"
android:layout_height="wrap_content"
android:layout_below="@+id/name"
android:hint="Contact"
android:inputType="number"
android:textSize="24dp"
tools:layout_editor_absoluteX="89dp"
tools:layout_editor_absoluteY="286dp" />

```

<EditText

```

android:id="@+id/dob"
android:layout_width="match_parent"
android:layout_height="wrap_content"
android:layout_below="@+id/contact"
android:hint="Date of birth"
android:inputType="number"
android:textSize="24dp"
tools:layout_editor_absoluteX="63dp"
tools:layout_editor_absoluteY="339dp" />

```

<Button

```

android:id="@+id/buttonInsert"
android:layout_width="match_parent"
android:layout_height="wrap_content"
android:layout_below="@+id/dob"
android:layout_marginTop="44dp"

```

```

android:text="Insert new Data"
android:textSize="24dp"
app:layout_constraintTop_toBottomOf="@+id/dob"
tools:layout_editor_absoluteX="0dp" />

```

<Button

```

android:id="@+id/buttonUpdate"
android:layout_width="match_parent"
android:layout_height="wrap_content"
android:layout_below="@+id/buttonInsert"
android:text="Update Data"
android:textSize="24dp"
tools:layout_editor_absoluteX="16dp"
tools:layout_editor_absoluteY="519dp" />

```

<Button

```

android:id="@+id/buttondelete"
android:layout_width="match_parent"
android:layout_height="wrap_content"
android:layout_below="@+id/buttonUpdate"
android:text="Delete existing data"
android:textSize="24dp"
tools:layout_editor_absoluteX="-41dp"
tools:layout_editor_absoluteY="582dp" />

```

<Button

```

android:id="@+id/buttonView"
android:layout_width="match_parent"
android:layout_height="wrap_content"
android:layout_below="@+id/buttondelete"
android:text="View data"
android:textSize="24dp"
tools:layout_editor_absoluteX="28dp"

```

```
tools:layout_editor_absoluteY="634dp" />
</LinearLayout>
```

## 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

