

20MCA243 MOBILE APPLICATION DEVELOPMENT LAB

Lab Report Submitted By

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



**AMAL JYOTHI COLLEGE OF ENGINEERING
KANJIRAPPALLY**

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**DEPARTMENT OF COMPUTER APPLICATIONS
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CERTIFICATE

This is to certify that the lab report, “**20MCA243 MOBILE APPLICATION DEVELOPMENT LAB**” is the bonafide work of **AVANI P A (Reg.No:AJC20MCA-2032)** 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.com/apk/res/android"

    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:background="@drawable/primary_screen"
    tools:context=".LoginActivity">

    <ImageView
        android:id="@+id/avatar"
        android:layout_width="120dp"
        android:layout_height="120dp"
        android:layout_marginTop="10dp"
        android:contentDescription="@string/login_image"
        android:src="@drawable/avatar"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.498"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" /

    <TextView
        android:id="@+id/loginText"
        android:layout_width="wrap_content"
```

```

android:layout_height="wrap_content"
android:layout_marginTop="10dp"
android:text="@string/login"
android:textColor="@color/black"
android:textSize="30sp"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintHorizontal_bias="0.498"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toBottomOf="@+id/avatar" />

```

<RelativeLayout

```

android:id="@+id/loginLoginLayout"
android:layout_width="match_parent"
android:layout_height="wrap_content"
android:layout_marginStart="5dp"
android:layout_marginEnd="5dp"
android:background="@drawable/account_creation"
app:layout_constraintBottom_toBottomOf="parent"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintHorizontal_bias="1.0"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toBottomOf="@+id/loginText"
app:layout_constraintVertical_bias="0.098">

```

<EditText

```

android:id="@+id/loginUsername"
android:layout_width="match_parent"
android:layout_height="40dp"
android:layout_marginTop="40dp"
android:autofillHints=""

```

```
android:layout_alignParentTop="true"
android:hint="@string/username"
android:layout_alignParentStart="true"
android:layout_alignParentEnd="true"
android:inputType="textEmailAddress"
android:padding="10dp"
android:layout_marginEnd="20dp"
android:layout_marginStart="20dp"
android:textColor="@color/white"
android:textColorHint="@color/white" />
```

<EditText

```
android:id="@+id/loginPassword"
android:layout_width="match_parent"
android:layout_height="40dp"
android:layout_below="@+id/loginUsername"
android:layout_alignParentStart="true"
android:layout_alignParentEnd="true"
android:layout_marginTop="20dp"
android:layout_marginEnd="20dp"
android:layout_marginStart="20dp"
android:hint="@string/password"
android:inputType="textPassword"
android:padding="10dp"
android:textColor="@color/white"
android:textColorHint="@color/white" />
```

<TextView

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

```

android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_marginTop="20dp"
android:text="@string/forgot_password"
android:clickable="true"
android:textSize="20sp"
android:layout_marginStart="30dp"
android:layout_alignParentStart="true"
android:layout_below="@+id/loginPassword"/>

```

```

<com.blure.complexview.ComplexView
    android:id="@+id/shadowLoginButton"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    app:radius="20dp"
    app:shadow="true"
    app:shadowAlpha="100"
    app:shadowColor="#2962FF"
    android:padding="10dp"
    android:layout_below="@+id/forgotPasswordText"
    android:layout_marginTop="30dp"
    app:shadowSpread="2">

```

```

<Button
    android:id="@+id/loginButton"
    android:layout_width="match_parent"
    android:layout_height="46dp"
    android:background="@drawable/password_reset_buttons"
    android:text="@string/sign_in" />

```



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

Java Code:

```
import androidx.annotation.NonNull;
import androidx.appcompat.app.AlertDialog;
import androidx.appcompat.app.AppCompatActivity;

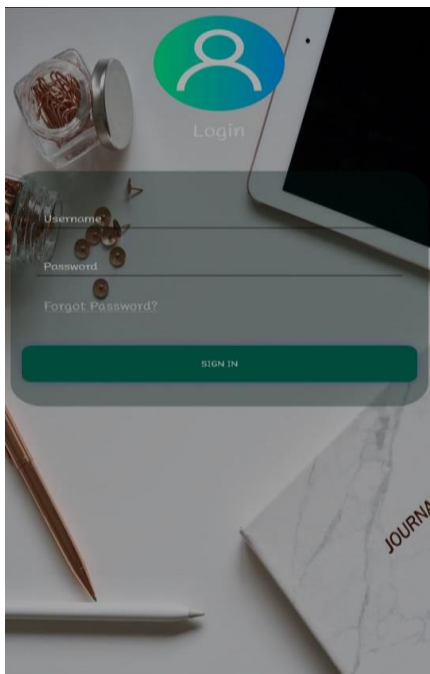
import android.view.View;
import android.view.ViewGroup;
import android.widget.Button;
import android.widget.EditText;
import android.widget.ImageView;
import android.widget.TextView;
import android.widget.Toast;

public class LoginActivity extends AppCompatActivity {

    EditText loginName, loginPwd;
    Button login;

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

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

Output:

Program no:2

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

XML Code:

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

<androidx.constraintlayout.widget.ConstraintLayout
xmlns:android="http://schemas.android.com/apk/res/android"

    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">

    <TextView
        android:id="@+id/txt1"
        android:layout_width="182dp"
        android:layout_height="54dp"

        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintHorizontal_bias="0.497"
        app:layout_constraintLeft_toLeftOf="parent"
        app:layout_constraintRight_toRightOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/btn1"
        app:layout_constraintVertical_bias="0.356" />

    <EditText
        android:id="@+id/edt1"
        android:layout_width="300dp"
```

```

    android:layout_height="40dp"
    android:layout_marginTop="136dp"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.495"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.85" />

```

```
<Button
```

```

    android:id="@+id/btn1"
    android:layout_width="122dp"
    android:layout_height="43dp"
    android:layout_marginTop="48dp"
    android:text="Button"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.498"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/edt1" />

```

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

Java Code:

```

package com.example.textview;

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

```

```

import android.widget.Toast;

public class MainActivity extends AppCompatActivity {

    Button b1;

    EditText e1;

    TextView t1;

    @Override

    protected void onCreate(Bundle savedInstanceState) {

        super.onCreate(savedInstanceState);

        setContentView(R.layout.activity_main);

        e1 = findViewById(R.id.edt1);

        b1=findViewById(R.id.btn1);

        t1=findViewById(R.id.txt1);

        b1.setOnClickListener(new View.OnClickListener() {

            @Override

            public void onClick(View v) {

                String value=e1.getText().toString();

                t1.setText(value);

            }

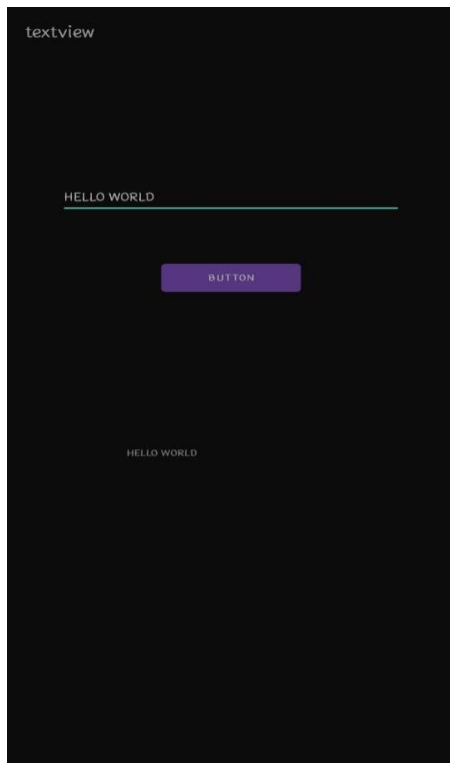
        });

    }

}

```

Output:



Program no:3

Aim: Design a Login Form with username and password using LinearLayout and toast valid credentials

XML Code:

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:orientation="vertical"
    android:background="#ecdaf2"
    tools:context=".MainActivity">

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

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

```
        android:paddingStart="10dp"
        android:hint="Username" />
<TextView
    android:id="@+id/t1"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:visibility="gone"
    android:padding="10dp"
    android:text="*Please enter username"
    android:textColor="@color/red"/>

<EditText
    android:id="@+id/edt2"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_marginTop="50dp"
    android:paddingStart="10dp"
    android:hint="Password" />
<TextView
    android:id="@+id/t2"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:visibility="gone"
    android:padding="10dp"
    android:text="*Please enter password"
    android:textColor="@color/red"/>

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



```

        android:layout_width="150dp"
        android:layout_height="40dp"
        android:layout_gravity="center"
        android:text="Sign In"
        android:layout_marginTop="20dp"

    />
</LinearLayout>

```

Java Code:

```

package com.example.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:

Login Form Validation

Login form

Username

Please enter username

Password

SIGN IN

Program no:4

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

XML Code:

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

<androidx.constraintlayout.widget.ConstraintLayout
xmlns:android="http://schemas.android.com/apk/res/android"

    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">

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

    <TextView
        android:id="@+id/txt2"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="20"
        app:layout_constraintStart_toStartOf="parent"
        android:gravity="end"
```

```

app:layout_constraintBottom_toTopOf="@+id/grid"
android:layout_marginTop="60dp"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintTop_toBottomOf="@+id/txt1"
android:padding="20dp"/>

```

<GridLayout

```

android:id="@+id/grid"
android:layout_width="match_parent"
android:layout_height="wrap_content"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintEnd_toEndOf="parent"
android:rowCount="3"
android:columnCount="4"
app:layout_constraintBottom_toBottomOf="parent">

```

<Button

```

android:layout_height="80dp"
android:layout_width="wrap_content"
android:layout_margin="7dp"
android:text="C"/>

```

<Button

```

android:layout_height="80dp"
android:layout_width="wrap_content"
android:layout_margin="7dp"
android:text="Back"/>

```

<Button

```

android:layout_height="80dp"
android:layout_width="wrap_content"

```

```
android:layout_margin="7dp"
```

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

```
<Button
```

```
android:layout_height="80dp"
```

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

```
android:layout_margin="7dp"
```

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

```
<Button
```

```
android:layout_height="80dp"
```

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

```
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.buttonequal);  
  
    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;
    }
}

});

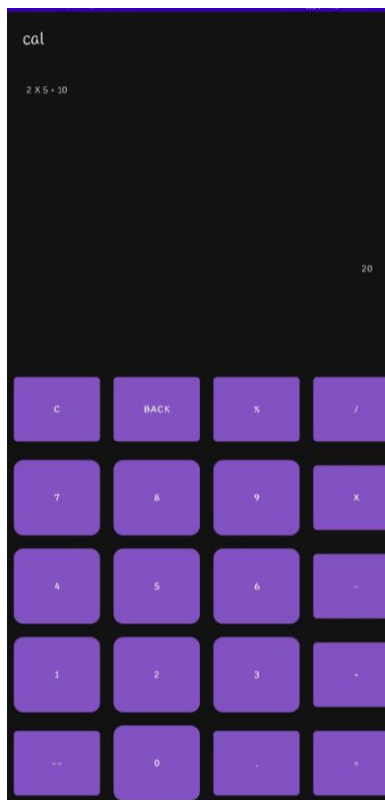
buttonDel.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        edt1.setText("");
        input1 = 0.0;
        input2 = 0.0;
    }
});

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.com/apk/res/android"

    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">

<TextView

    android:id="@+id/txt1"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Validation on UI Components"
    app:layout_constraintLeft_toLeftOf="parent"
    android:textSize="25sp"
    app:layout_constraintRight_toRightOf="parent"
    android:layout_marginTop="30dp"
    app:layout_constraintTop_toTopOf="parent" />

<EditText

    android:id="@+id/edt1"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/txt1"
```

```
android:padding="20dp"
android:layout_marginTop="100dp"
android:hint="Text 1"
android:layout_marginHorizontal="10dp"/>
```

<EditText

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

<EditText

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

<Button

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

```

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

```

Java Code:

```

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:

validation

Validation on VI Components

##

why

Text 3

Third field is required

SUBMIT

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.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">

    <TextView
        android:id="@+id/txt1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Registration"
        android:layout_marginTop="50dp"
        android:textSize="25sp"
        app:layout_constraintLeft_toLeftOf="parent"
        app:layout_constraintRight_toRightOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

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

```

android:layout_marginTop="100dp"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintEnd_toEndOf="parent"
android:paddingStart="10dp"
app:layout_constraintTop_toBottomOf="@+id/txt1"
android:hint="Name"/>

```

```
<EditText
```

```

    android:id="@+id/edt2"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_marginTop="10dp"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    android:paddingStart="10dp"
    app:layout_constraintTop_toBottomOf="@+id/edt1"
    android:hint="Email"/>

```

```
<EditText
```

```

    android:id="@+id/edt3"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_marginTop="10dp"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    android:paddingStart="10dp"
    app:layout_constraintTop_toBottomOf="@+id/edt2"
    android:hint="Password"/>

```

```
<Button
```

```

    android:layout_width="wrap_content"

```



```

        android:id="@+id/btn1"
        android:layout_height="wrap_content"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/edt3"
        android:layout_marginTop="30dp"
        android:text="Register"/>
    </androidx.constraintlayout.widget.ConstraintLayout>
<.constraintlayout.widget.ConstraintLayout>

```

#activity2.xml

```

<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity2">

    <TextView
        android:id="@+id/txt1"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        android:layout_marginTop="70dp"
        android:layout_marginHorizontal="20dp"/>

```

```

<TextView
    android:id="@+id/txt2"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/txt1"
    android:layout_marginTop="70dp"
    android:layout_marginHorizontal="20dp"/>

```

```

<TextView
    android:id="@+id/txt3"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/txt2"
    android:layout_marginTop="70dp"
    android:layout_marginHorizontal="20dp"/>

```

```

</androidx.constraintlayout.widget.ConstraintLayout>

```

Java Code:

```

package com.example.sharedpref;

import androidx.appcompat.app.AppCompatActivity;
import android.content.Intent;
import android.content.SharedPreferences;
import android.os.Bundle;
import android.view.View;

```

```

import android.widget.Button;
import android.widget.EditText;
import android.widget.Toast;

public class MainActivity extends AppCompatActivity {

    EditText e1, e2, e3;

    Button b1;

    @Override

    protected void onCreate(Bundle savedInstanceState) {

        super.onCreate(savedInstanceState);

        setContentView(R.layout.activity_main);

        e1 = findViewById(R.id.edt1);
        e2 = findViewById(R.id.edt2);
        e3 = findViewById(R.id.edt3);
        b1 = findViewById(R.id.btn1);
        b1.setOnClickListener(new View.OnClickListener() {

            @Override

            public void onClick(View v) {

                String a, b, c;

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

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

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

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

                SharedPreferences.Editor editor = sharedPreferences.edit();

                editor.putString("name", a);

                editor.putString("email", b);

                editor.putString("password", c);

                editor.apply();
            }

        });
    }
}

```

```

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

}
}

```

#mainactivity2.java

```

package com.example.sharedpref;
import androidx.appcompat.app.AppCompatActivity;
import android.content.SharedPreferences;
import android.os.Bundle;
import android.widget.TextView;
import android.widget.Toast;
public class MainActivity2 extends AppCompatActivity {

    TextView t1, t2, t3;

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

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

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

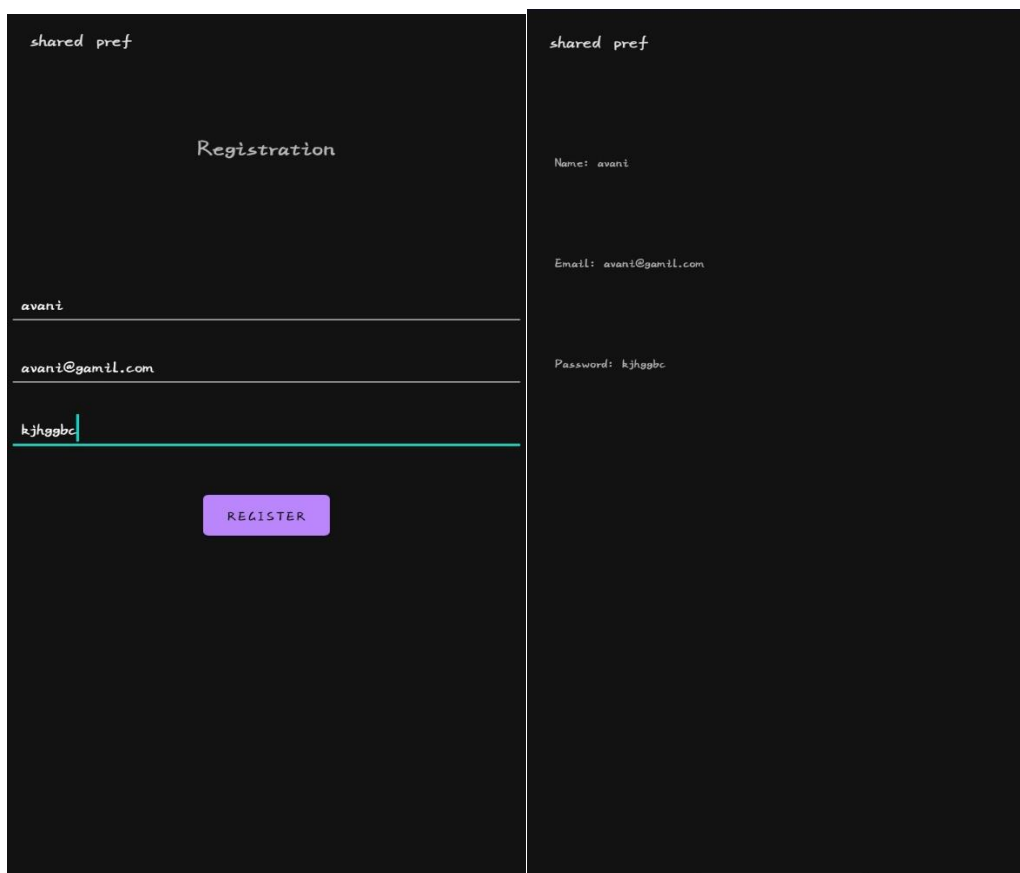
```

```
String name, email, password;

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

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

Output:



Program no:7

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

XML Code:

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

<androidx.constraintlayout.widget.ConstraintLayout
xmlns:android="http://schemas.android.com/apk/res/android"

    xmlns:app="http://schemas.android.com/apk/res-auto"

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

    android:layout_width="match_parent"

    android:layout_height="match_parent"

    tools:context=".MainActivity">

    <EditText

        android:id="@+id/t1"

        android:layout_width="146dp"

        android:layout_height="62dp"

        android:hint="number1"

        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="0.118" />

    <EditText

        android:id="@+id/t2"
```

```

    android:layout_width="146dp"
    android:layout_height="61dp"
    android:layout_marginBottom="488dp"
    android:hint="number2"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintHorizontal_bias="0.498"
    app:layout_constraintLeft_toLeftOf="parent"
    app:layout_constraintRight_toRightOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/t1"
    app:layout_constraintVertical_bias="0.365" />

```

<EditText

```

    android:id="@+id/t3"
    android:layout_width="198dp"
    android:layout_height="72dp"
    android:hint="result"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintHorizontal_bias="0.497"
    app:layout_constraintLeft_toLeftOf="parent"
    app:layout_constraintRight_toRightOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.356" />

```

<Button

```

    android:id="@+id/b1"
    android:layout_width="131dp"
    android:layout_height="64dp"
    android:text="Add"
    app:layout_constraintBottom_toBottomOf="parent"

```

```

app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintHorizontal_bias="0.207"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toTopOf="parent"
app:layout_constraintVertical_bias="0.499" />

```

<Button

```

android:id="@+id/b2"
android:layout_width="128dp"
android:layout_height="54dp"
android:layout_marginEnd="52dp"
android:text="Subtract"
app:layout_constraintBottom_toBottomOf="parent"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintTop_toTopOf="parent"
app:layout_constraintVertical_bias="0.506" />

```

<Button

```

android:id="@+id/b3"
android:layout_width="127dp"
android:layout_height="69dp"
android:text="Multiple"
app:layout_constraintBottom_toBottomOf="parent"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintHorizontal_bias="0.233"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toTopOf="parent"
app:layout_constraintVertical_bias="0.644" />

```

<Button


```

        android:id="@+id/b4"
        android:layout_width="130dp"
        android:layout_height="56dp"
        android:text="Divide"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.822"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.632" />

</androidx.constraintlayout.widget.ConstraintLayout>

```

MainActivity.java

```

package com.example.myapplication;

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 t1,t2,t3;

    Button b1,b2,b3,b4;

    @Override

    protected void onCreate(Bundle savedInstanceState) {

```

```

super.onCreate(savedInstanceState);

setContentView(R.layout.activity_main);

t1=findViewById(R.id.t1);
t2=findViewById(R.id.t2);
t3=findViewById(R.id.t3);
b1=findViewById(R.id.b1);
b2=findViewById(R.id.b2);
b3=findViewById(R.id.b3);
b4=findViewById(R.id.b4);

b1.setOnClickListener(new View.OnClickListener() {

    @Override

    public void onClick(View v) {

        Double s1=Double.parseDouble(t1.getText().toString());

        Double s2=Double.parseDouble(t2.getText().toString());

        Double s3=s1+s2;

        t3.setText(String.valueOf(s3));

    }

});

b2.setOnClickListener(new View.OnClickListener() {

    @Override

    public void onClick(View v) {

        Double s1=Double.parseDouble(t1.getText().toString());

        Double s2=Double.parseDouble(t2.getText().toString());

        Double s3=s1-s2;

        t3.setText(String.valueOf(s3));

    }

});

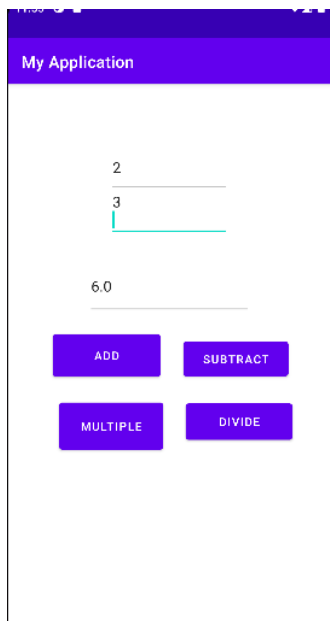
```

```

b3.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        Double s1=Double.parseDouble(t1.getText().toString());
        Double s2=Double.parseDouble(t2.getText().toString());
        Double s3=s1*s2;
        t3.setText(String.valueOf(s3));
    }
});
b4.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        Double s1=Double.parseDouble(t1.getText().toString());
        Double s2=Double.parseDouble(t2.getText().toString());
        Double s3=s1/s2;
        t3.setText(String.valueOf(s3));
    }
});
} }

```

Output:



Program no:8

Aim: Program to create a facebook page using relative layout set properties using.xml file

XML Code:

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

<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:background="@color/blue"
    tools:context=".MainActivity">

    <TextView
        android:id="@+id/t1"
        android:layout_width="264dp"
        android:layout_height="40dp"
        android:layout_alignParentStart="true"
        android:layout_alignParentTop="true"
        android:textColor="@color/white"
        android:layout_alignParentEnd="true"
        android:layout_marginTop="50dp"
        android:text="FACEBOOK"
        android:textAlignment="center"
        android:textSize="40dp" />

    <EditText
        android:id="@+id/ed1"
```

```

android:layout_width="match_parent"
android:layout_height="50dp"
android:layout_below="@+id/t1"
android:layout_alignParentStart="true"
android:layout_alignParentEnd="true"
android:layout_marginHorizontal="40dp"
android:layout_marginTop="150dp"
android:textColor="@color/white"
android:textColorHint="@color/white"
android:hint="Username"
android:paddingStart="10px" />

```

<EditText

```

android:id="@+id/ed2"
android:layout_width="match_parent"
android:layout_height="50dp"
android:layout_below="@+id/ed1"
android:layout_alignParentStart="true"
android:layout_alignParentEnd="true"
android:textColor="@color/white"
android:textColorHint="@color/white"
android:layout_marginHorizontal="40dp"
android:layout_marginTop="50dp"
android:hint="Password"
android:paddingStart="10px" />

```

<Button

```

android:id="@+id/btn1"

```

```

        android:layout_width="334dp"
        android:layout_height="50dp"
        android:layout_below="@+id/ed2"
        android:layout_marginTop="31dp"
        android:layout_alignParentStart="true"
        android:layout_alignParentEnd="true"
        android:background="@color/purple_700"
        android:layout_marginHorizontal="400px"
        android:text="SignIn"/>
<Button
    android:id="@+id/btn2"
    android:layout_width="match_parent"
    android:layout_height="50dp"
    android:layout_below="@+id/btn1"
    android:layout_marginTop="100dp"
    android:background="@color/green"
    android:text="Dont have an account? Register here"
    android:layout_marginHorizontal="20dp"

/>
</RelativeLayout>

```

Java Code:

```

package com.example.facebook;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;

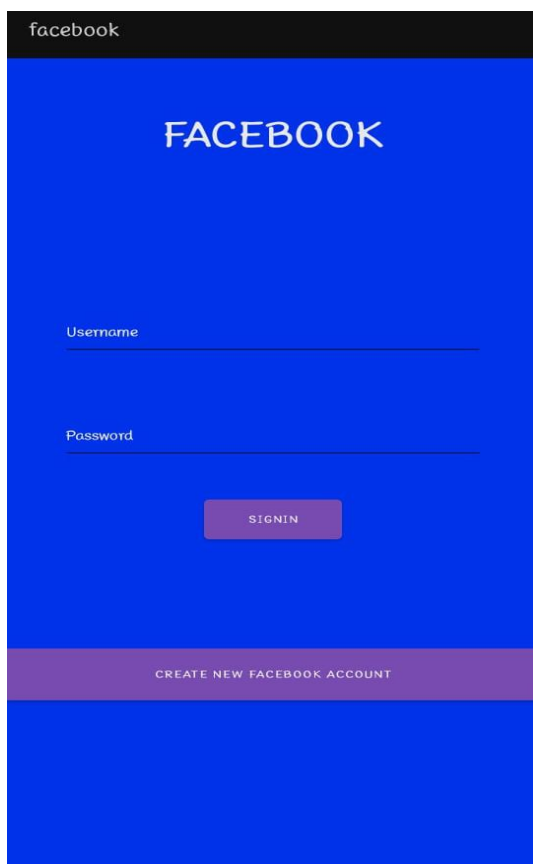
public class MainActivity extends AppCompatActivity {

```

@Override

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

Output:



Program no:9

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

XML Code:

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

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

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

    android:layout_width="match_parent"

    android:layout_height="match_parent"

    android:layout_gravity="center"

    android:background="@color/teal_700"

    tools:context=".MainActivity">

    <ImageView

        android:id="@+id/image2"

        android:layout_width="wrap_content"

        android:layout_height="wrap_content"

        android:layout_gravity="center"

        android:src="@drawable/image2"

        android:visibility="gone"/>

    <ImageView

        android:id="@+id/image1"

        android:layout_width="wrap_content"

        android:layout_height="wrap_content"

        android:layout_gravity="center"

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

```
</FrameLayout>
```

Java Code:

```
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);

            case R.id.image2:

                img2.setVisibility(View.GONE);

            default:

                break;

        }

    }

}
```

```
img2.setVisibility(View.VISIBLE);  
  
break;  
  
case R.id.image2:  
  
img1.setVisibility(View.VISIBLE);  
  
img2.setVisibility(View.GONE);  
  
break;  
  
}  
  
}  
  
}
```

Output:

Program no:10

Aim: Program to Implement Adapters and perform exception handling

XML Code:

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

```
<androidx.constraintlayout.widget.ConstraintLayout
xmlns:android="http://schemas.android.com/apk/res/android"
```

```
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools" android:layout_width="match_parent"
    android:layout_height="match_parent" tools:context=".MainActivity">
```

```
<ListView
```

```
    android:layout_width="409dp"
```

```
    android:layout_height="354dp"
```

```
    tools:layout_editor_absoluteX="1dp"
```

```
    tools:layout_editor_absoluteY="1dp"
```

```
    android:id="@+id/list1"
```

```
    tools:ignore="MissingConstraints" />
```

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

Java Code:

```
package com.example.myadapter;
```

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

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

```

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

public class MainActivity extends AppCompatActivity implements
AdapterView.OnItemClickListener {

    ListView l1; @Override

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

    String[] cars = {"BMW", "BENZ", "AUDI"};

    try {

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

        l1.setAdapter(adapter); l1.setOnItemClickListener(this);

    }
catch (Exception e)
{
    Toast.makeText(this,e.getMessage(),Toast.LENGTH_SHORT).show();
}
}

@Override

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

```

```
TextView tem = (TextView) view;
```

```
Toast.makeText(this, tem.getText(), Toast.LENGTH_LONG).show();
```

```
}
```

```
}
```

Output:



Attempt to invoke virtual method 'void android.widget.ListView.setAdapter(android.widget.ListAdapter)' on a null object reference



Program no:11

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

XML Code:

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

<androidx.constraintlayout.widget.ConstraintLayout
xmlns:android="http://schemas.android.com/apk/res/android"

    xmlns:app="http://schemas.android.com/apk/res-auto"

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

    android:layout_width="match_parent"

    android:layout_height="match_parent"

    android:background="#fba9dc"

    tools:context=".MainActivity">

<Button

    android:id="@+id/btn1"

    android:layout_width="wrap_content"

    android:layout_height="wrap_content"

    app:layout_constraintEnd_toEndOf="parent"

    app:layout_constraintStart_toStartOf="parent"

    app:layout_constraintTop_toTopOf="parent"

    app:layout_constraintBottom_toBottomOf="parent"

    android:text="Button"

    />

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

Java Code:

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

```

import androidx.appcompat.app.AppCompatActivity;

import android.content.Intent;

import android.net.Uri;

import android.os.Bundle;

import android.view.View;

import android.widget.Button;

public class MainActivity extends AppCompatActivity {

    Button b1;

    @Override

    protected void onCreate(Bundle savedInstanceState) {

        super.onCreate(savedInstanceState);

        setContentView(R.layout.activity_main);

        b1=findViewById(R.id.btn1);

        b1.setOnClickListener(new View.OnClickListener() {

            @Override

            public void onClick(View v) {

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

                startActivity(b);

            }

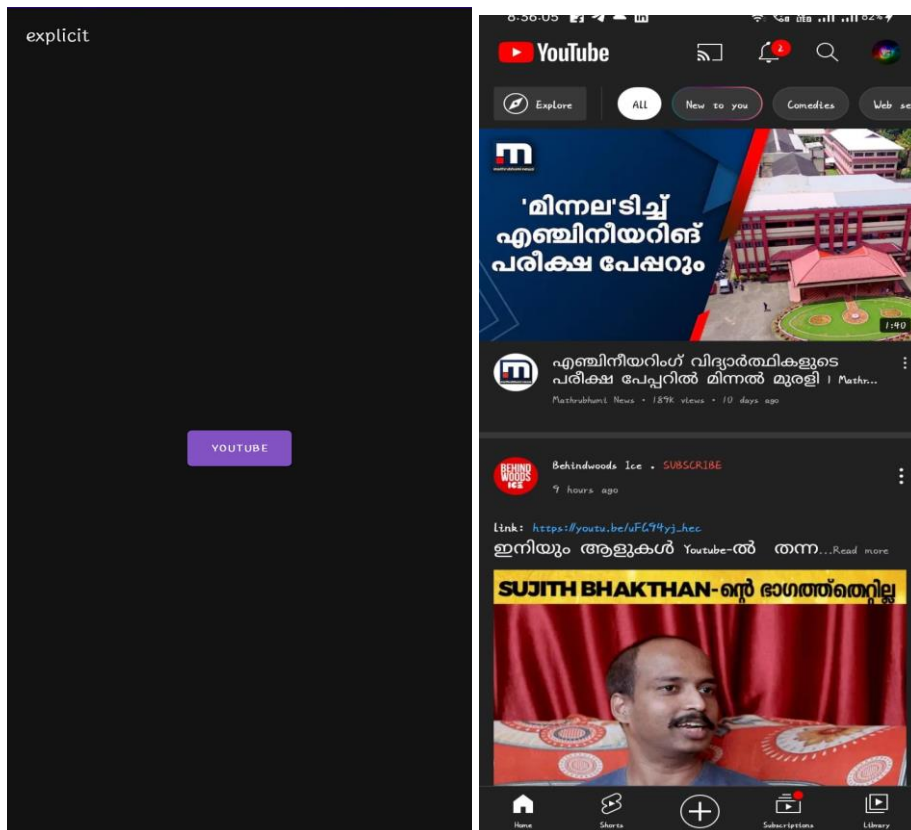
        });

    }

}

```

Output:



Program no:12

Aim: Program develop an application that works with implicit intents

XML Code:

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

<androidx.constraintlayout.widget.ConstraintLayout
xmlns:android="http://schemas.android.com/apk/res/android"

    xmlns:app="http://schemas.android.com/apk/res-auto"

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

    android:layout_width="match_parent"

    android:background="@color/teal_200"

    android:layout_height="match_parent"

    tools:context=".MainActivity">

    <TextView

        android:id="@+id/txt1"

        android:layout_width="wrap_content"

        android:layout_height="wrap_content"

        android:text="Activity 1"

        app:layout_constraintLeft_toLeftOf="parent"

        android:layout_marginTop="50dp"

        android:textSize="30sp"

        app:layout_constraintRight_toRightOf="parent"

        app:layout_constraintTop_toTopOf="parent" />

    <Button

        android:id="@+id/btn1"

        android:layout_width="wrap_content"

        android:layout_height="wrap_content"
```

```

        android:text="Next Activity"

        app:layout_constraintStart_toStartOf="parent"

        app:layout_constraintEnd_toEndOf="parent"

        app:layout_constraintTop_toBottomOf="@id/txt1"

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

```

#activity_main2.xml

```

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

<androidx.constraintlayout.widget.ConstraintLayout
    xmlns:android="http://schemas.android.com/apk/res/android"

    xmlns:app="http://schemas.android.com/apk/res-auto"

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

    android:layout_width="match_parent"

    android:layout_height="match_parent"

    android:background="@color/white"

    tools:context=".MainActivity2">

    <TextView

        android:id="@+id/txt2"

        android:layout_width="wrap_content"

        android:layout_height="wrap_content"

        android:textSize="30sp"

        android:text="Activity 2"

        app:layout_constraintLeft_toLeftOf="parent"

        android:layout_marginTop="50dp"

        app:layout_constraintRight_toRightOf="parent"

        app:layout_constraintTop_toTopOf="parent" />

```

```

<Button
    android:id="@+id/btn2"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Previous Activity"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintTop_toBottomOf="@id/txt2"
    app:layout_constraintBottom_toBottomOf="parent"/>
</androidx.constraintlayout.widget.ConstraintLayout>

```

Java Code:

```

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);

            }

        });

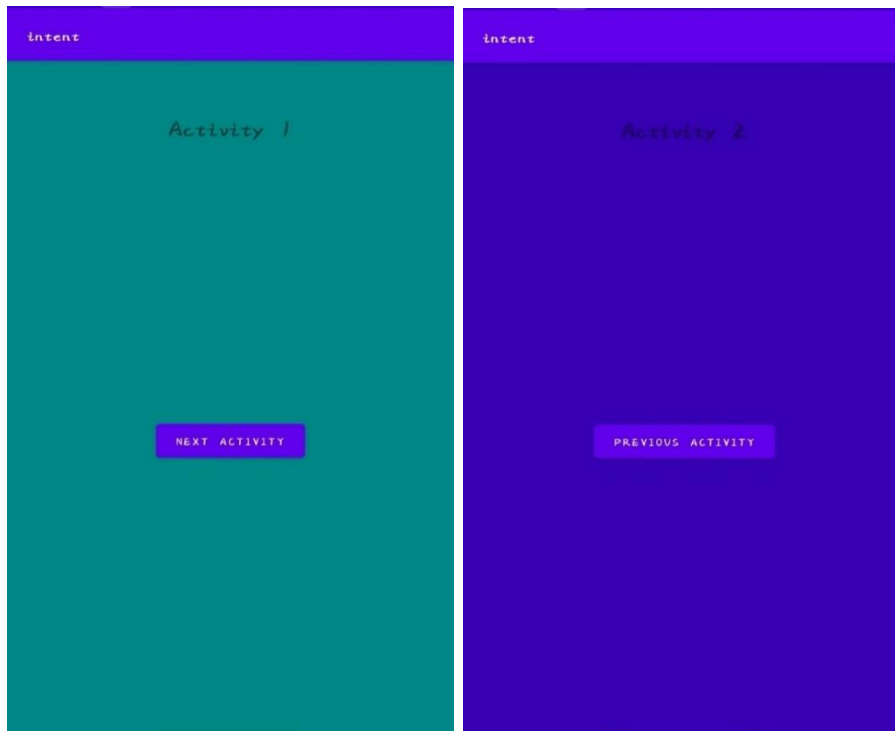
}

```

```
}
```

```
}
```

Output:



Program no:13

Aim: Program to implement Options Menu to navigate to activities

XML Code:

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

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

#main

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

<menu xmlns:android="http://schemas.android.com/apk/res/android"
      xmlns:app="http://schemas.android.com/apk/res-auto">
```

```

<item
    android:id="@+id/action_settings"
    android:orderInCategory="100"
    android:title="@string/action_settings"
    app:showAsAction="never" />
</menu>

#activity_main
<?xml version="1.0" encoding="utf-8"?>
<androidx.drawerlayout.widget.DrawerLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:id="@+id/drawer_layout"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:fitsSystemWindows="true"
    tools:openDrawer="start">
    <include
        android:id="@+id/app_bar_main"
        layout="@layout/app_bar_main"
        android:layout_width="match_parent"
        android:layout_height="match_parent" />
    <com.google.android.material.navigation.NavigationView
        android:id="@+id/nav_view"
        android:layout_width="wrap_content"
        android:layout_height="match_parent"

```



```

        android:layout_gravity="start"

        android:fitsSystemWindows="true"

        app:headerLayout="@layout/nav_header_main"

        app:menu="@menu/activity_main_drawer" />
</androidx.drawerlayout.widget.DrawerLayout>

#activity_main2

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

<androidx.constraintlayout.widget.ConstraintLayout
xmlns:android="http://schemas.android.com/apk/res/android"

    xmlns:app="http://schemas.android.com/apk/res-auto"

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

    android:layout_width="match_parent"

    android:layout_height="match_parent"

    android:background="@color/teal_700"

    tools:context=".MainActivity2">

    <TextView

        android:layout_width="match_parent"

        android:layout_height="wrap_content"

        app:layout_constraintBottom_toBottomOf="parent"

        app:layout_constraintEnd_toEndOf="parent"

        android:text="Account Page"

        android:textSize="30sp"

        android:textAlignment="center"

        app:layout_constraintStart_toStartOf="parent"

        app:layout_constraintTop_toTopOf="parent" />

</androidx.constraintlayout.widget.ConstraintLayout>

```

Java Code:

```

package com.example.nav;

import android.os.Bundle;

import android.view.View;

import android.view.Menu;

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

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

import androidx.navigation.NavController;

import androidx.navigation.Navigation;

import androidx.navigation.ui.AppBarConfiguration;

import androidx.navigation.ui.NavigationUI;

import androidx.drawerlayout.widget.DrawerLayout;

import androidx.appcompat.app.AppCompatActivity;

import com.example.nav.databinding.ActivityMainBinding;

public class MainActivity extends AppCompatActivity {

    private AppBarConfiguration mAppBarConfiguration;

    private ActivityMainBinding binding;

    @Override

    protected void onCreate(Bundle savedInstanceState) {

        super.onCreate(savedInstanceState);

        binding = ActivityMainBinding.inflate(getLayoutInflater());

        setContentView(binding.getRoot());

        setSupportActionBar(binding.appBarMain.toolbar);

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

            @Override

            public void onClick(View view) {

```

```

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

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

    }

});

DrawerLayout drawer = binding.drawerLayout;

NavigationView navigationView = binding.navView;

// Passing each menu ID as a set of Ids because each
// menu should be considered as top level destinations.

mAppBarConfiguration = new AppBarConfiguration.Builder(
    R.id.nav_home, R.id.nav_gallery, R.id.nav_slideshow)
        .setOpenableLayout(drawer)
        .build();

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

NavigationUI.setupActionBarWithNavController(this, navController,
mAppBarConfiguration);

NavigationUI.setupWithNavController(navigationView, navController);
}

@Override

public boolean onCreateOptionsMenu(Menu menu) {

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

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

    return true;

}

@Override

public boolean onSupportNavigateUp() {

```

```

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

        return NavigationUI.navigateUp(navController, mAppBarConfiguration)

            || super.onSupportNavigateUp();

    }

}

#mainactivity2

package com.example.nav;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;

public class MainActivity2 extends AppCompatActivity {

    @Override

    protected void onCreate(Bundle savedInstanceState) {

        super.onCreate(savedInstanceState);

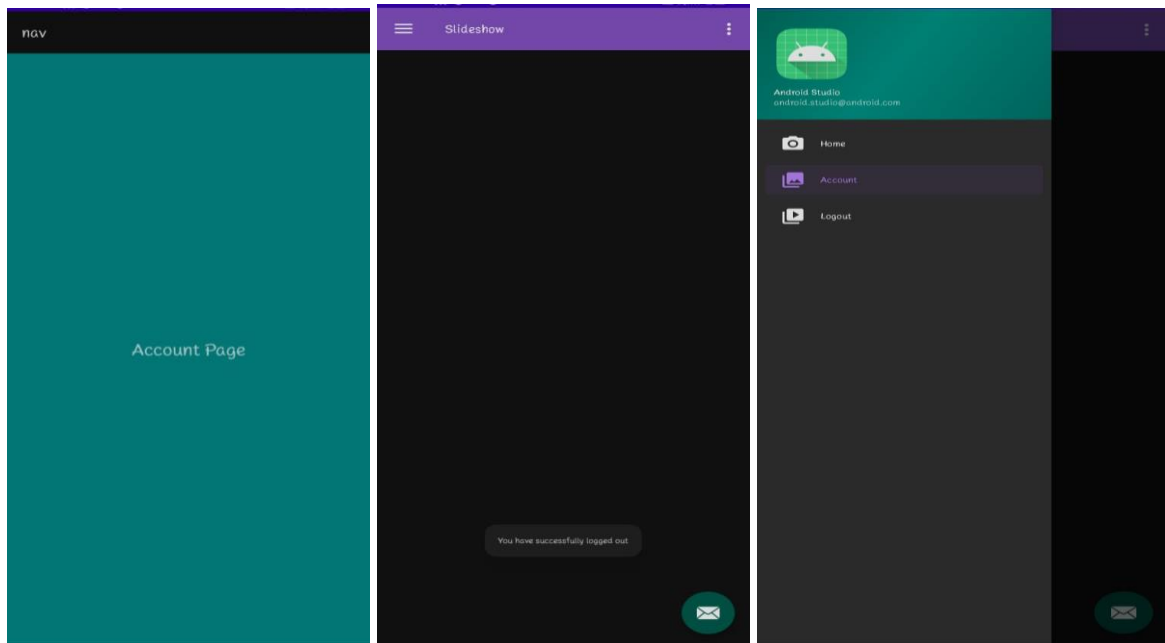
        setContentView(R.layout.activity_main2);

    }

}

```

Output:



Program no:14

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

XML Code:

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

<LinearLayout

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

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

xmlns:app="http://schemas.android.com/apk/res-auto"

android:layout_width="match_parent"

android:layout_height="match_parent"

tools:context=".arrayAdapter">

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

    android:layout_width="match_parent"

        android:layout_height="wrap_content" >

    </ListView>

</LinearLayout

>
```

Java Code:

```
package com.example.ArrayAdapter;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;

import android.view.View;

import android.widget.AdapterView;

import android.widget.ArrayAdapter;
```

```

import android.widget.ListView;

import android.widget.TextView;

import android.widget.Toast;

public class arrayAdapter extends
    AppCompatActivity implements
    AdapterView.OnItemClickListener {

    ListView l;

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

    @Override

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

        super.onCreate(savedInstanceState);

        setContentView(R.layout.activity_array_adapter);

        l = findViewById(R.id.mobile_list);

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

        l.setAdapter(adapter);

        l.setOnItemClickListener(this);

    }

    @Override

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

        TextView temp = (TextView) view;

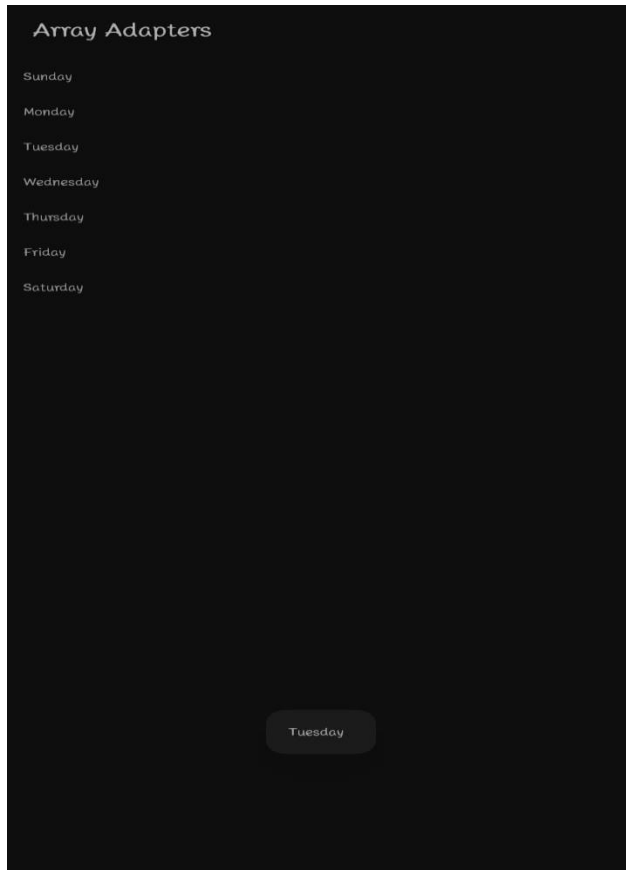
        Toast.makeText(this, "You clicked " + temp.getText() + " at " + i,
            Toast.LENGTH_LONG).show();
    }

```

```
}
```

```
}
```

Output:



Program no:15

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

XML Code:

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

<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.ArrayAdapter;
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: Program to develop an application that implements spinner component and perform event handling.

XML Code:

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

<androidx.constraintlayout.widget.ConstraintLayout
xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">
    <Spinner
        android:id="@+id/spinner"
        android:layout_width="197dp"
        android:layout_height="70dp"
        tools:layout_editor_absoluteX="92dp"
        tools:layout_editor_absoluteY="297dp"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.502"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.48"/>
</androidx.constraintlayout.widget.ConstraintLayout>
```

Java Code:

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

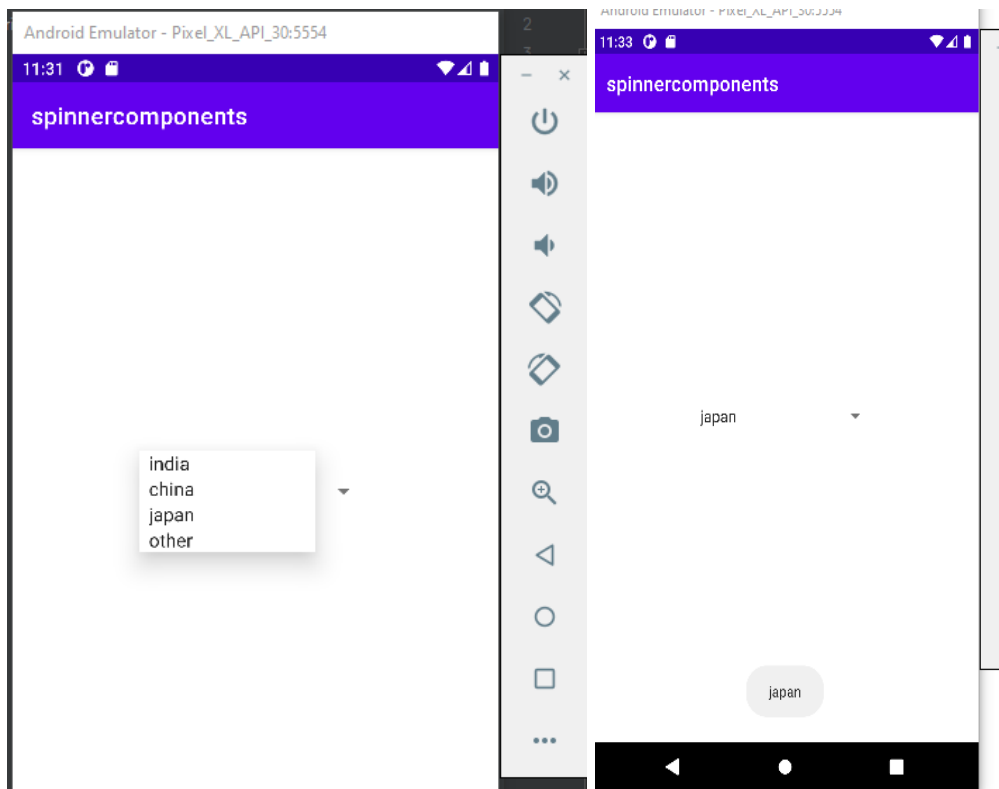
```

import android.view.View;
import android.widget.AdapterView;
import android.widget.AdapterView.OnItemClickListener;
import android.widget.ArrayAdapter;
import android.widget.Spinner;
import android.widget.Toast;

public class MainActivity extends AppCompatActivity implements
    AdapterView.OnItemClickListener {
    String[] country = {"india","china","japan","other"};
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        Spinner spin =(Spinner) findViewById(R.id.spinner);
        spin.setOnItemClickListener(this);
        ArrayAdapter aa = new
ArrayAdapter(this,android.R.layout.simple_spinner_item,country);
        aa.setDropDownViewResource(android.R.layout.simple_spinner_item);
        spin.setAdapter(aa);
    }
    @Override
    public void onItemClick(AdapterView<?> arg0, View arg1, int position, long id){
        Toast.makeText(getApplicationContext(),country[position],Toast.LENGTH_LONG).show();
    }
    @Override
    public void onNothingSelected(AdapterView<?>arg0){
    }
}

```

Output:



Program no:17

Aim: Program to apply themes via code 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>

```

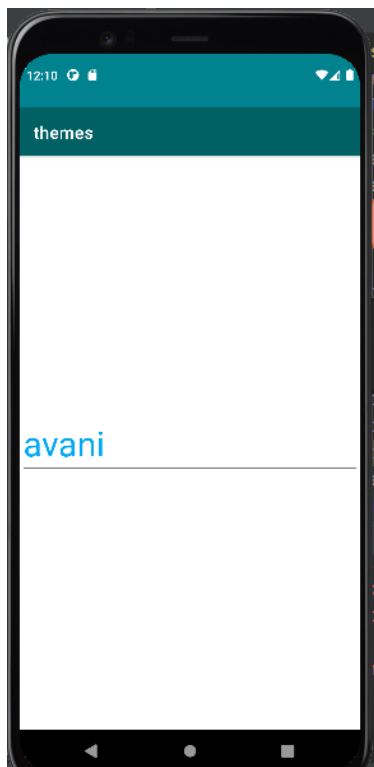
#night\themes.xml

```

<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: Program to develop an application using fragments

XML Code:

#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/material_on_surface_stroke"
    tools:context=".fragment1">

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_centerInParent="true"
        android:textSize="30dp"
        android:text="fragment 1" />

</RelativeLayout>
```

Java Code:

```
package com.example.fragment;

import android.os.Bundle;
import androidx.fragment.app.Fragment;
import android.view.LayoutInflater;
import android.view.View;
import android.view.ViewGroup;

public class fragment1 extends Fragment {

    @Override
```

```
public View onCreateView(LayoutInflater inflater, ViewGroup container,
    Bundle savedInstanceState) {
```

```
    return inflater.inflate(R.layout.fragment_fragment1, container, false);
```

```
}
```

```
}
```

```
#fragment2.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/teal_200"
```

```
    tools:context=".fragment2">
```

```
<TextView
```

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

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

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

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

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

```
</RelativeLayout>
```

```
#fragment.java
```

```
package com.example.fragment;
```

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

```
import androidx.fragment.app.Fragment;
```

```
import android.view.LayoutInflater;
```

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

```
import android.view.ViewGroup;
```

```
public class fragment2 extends Fragment {
```

```
    @Override
```

```

        public View onCreateView(LayoutInflater inflater, ViewGroup container,
                                   Bundle savedInstanceState) {

            // Inflate the layout for this fragment

            return inflater.inflate(R.layout.fragment_fragment2, container, false);

        }

    }

```

#activity_main.java

```

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

<LinearLayout

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

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

xmlns:app="http://schemas.android.com/apk/res-auto"

android:layout_width="match_parent"

android:layout_height="match_parent"

android:orientation="vertical"

tools:context=".MainActivity">

    <FrameLayout

        android:layout_width="match_parent"

        android:layout_height="0dp"

        android:layout_weight="4"

        android:background="@color/yellow"

        android:id="@+id/framelayout"/>

        <RelativeLayout

            android:layout_width="match_parent"

            android:layout_height="0dp"

            android:layout_weight="1">

                <Button

                    android:layout_width="160dp"

```

```

android:layout_height="50dp"
android:id="@+id/fragbtn1"
android:text="fragment1"
android:layout_alignParentBottom="true"
android:layout_marginStart="30dp"
android:layout_marginEnd="30dp"/>
<Button
android:layout_width="160dp"
android:layout_height="50dp"
android:id="@+id/fragbtn2"
android:text="fragment1"
android:layout_alignParentBottom="true"
android:layout_alignParentRight="true"
android:layout_marginRight="30dp"
android:layout_marginEnd="30dp"/>
</RelativeLayout>
<TextView
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:text=""
app:layout_constraintBottom_toBottomOf="parent"
app:layout_constraintLeft_toLeftOf="parent"
app:layout_constraintRight_toRightOf="parent"
app:layout_constraintTop_toTopOf="parent" />
</LinearLayout>

#MainActivity.java

package com.example.fragment;

import androidx.appcompat.app.AppCompatActivity;
import androidx.fragment.app.Fragment;

```

```

import androidx.fragment.app.FragmentManager;
import androidx.fragment.app.FragmentTransaction;

import android.os.Bundle;

import android.view.View;

import android.widget.Button;

public class MainActivity extends AppCompatActivity {

    @Override

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


        Button b1=findViewById(R.id.fragbtn1);

        Button b2=findViewById(R.id.fragbtn2);


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

            public void onClick(View v) {

                replaceFragment(new fragment1());

            }

        });

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

            public void onClick(View v) {

                replaceFragment(new fragment2());

            }

        });

```



```

}

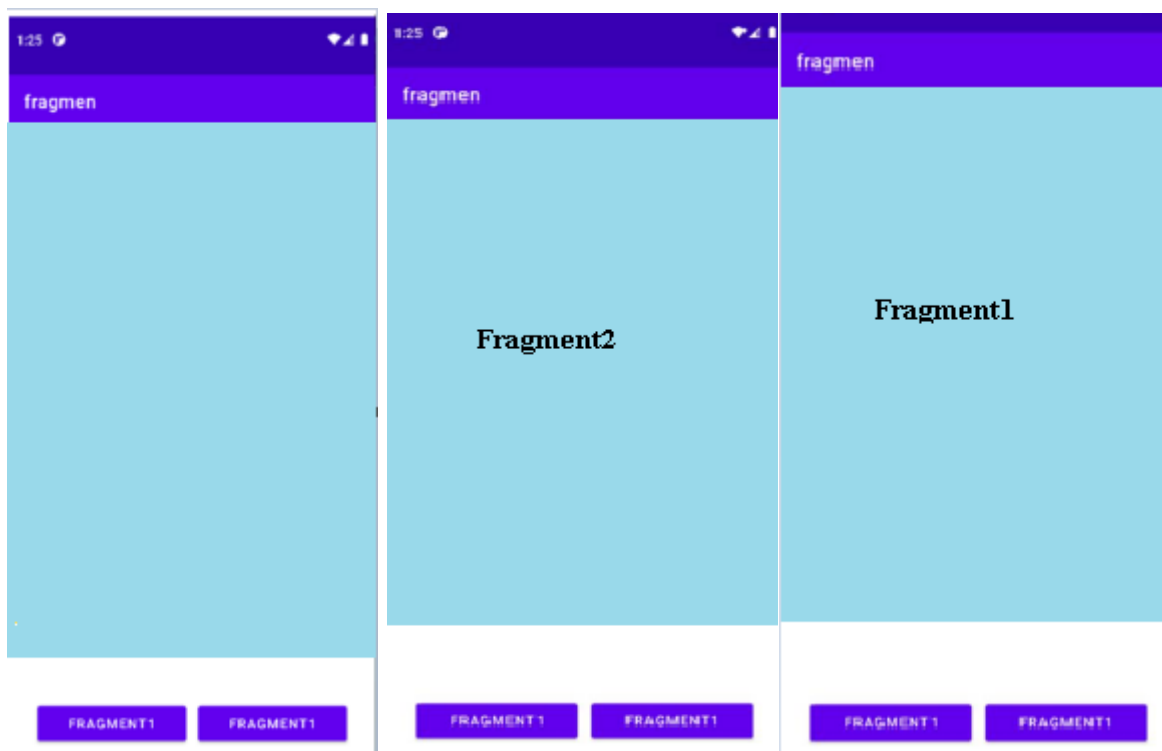
private void replaceFragment(Fragment fragment) {

    FragmentManager fragmentManager=getSupportFragmentManager();
    FragmentTransaction fragmentTransaction=fragmentManager.beginTransaction();
    fragmentTransaction.replace(R.id.frame_layout,fragment);
    fragmentTransaction.commit();

}

```

Output:



Program no:19

Aim: Program to implement Navigation drawer

XML Code:

```
<?xml version="1.0" encoding="utf-8"?>
<androidx.drawerlayout.widget.DrawerLayout
xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity"
    android:id="@+id/drawer">
    <LinearLayout
        android:layout_width="match_parent"
        android:layout_height="match_parent">
        <TextView
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="Hello World!"
            app:layout_constraintBottom_toBottomOf="parent"
            app:layout_constraintLeft_toLeftOf="parent"
            app:layout_constraintRight_toRightOf="parent"
            app:layout_constraintTop_toTopOf="parent" />
        </LinearLayout>
        <com.google.android.material.navigation.NavigationView
            android:layout_width="match_parent"
            android:layout_height="match_parent"
            android:id="@+id/navigation_view"
            app:menu="@menu/navigation_menu"
            android:layout_gravity="start"/>
```

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

Java Code:

```
package com.example.drawernavigation;

import androidx.annotation.NonNull;
import androidx.appcompat.app.ActionBarDrawerToggle;
import androidx.appcompat.app.AppCompatActivity;
import androidx.drawerlayout.widget.DrawerLayout;
import android.app.ActionBar;
import android.os.Bundle;
import android.view.MenuItem;
import android.widget.Toast;

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

public class MainActivity extends AppCompatActivity implements
NavigationView.OnNavigationItemSelectedListener {

    public DrawerLayout drawerLayout;

    public ActionBarDrawerToggle actionBarDrawerToggle;

    @Override

    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        drawerLayout = findViewById(R.id.drawer);

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

        drawerLayout.addDrawerListener(actionBarDrawerToggle);
        actionBarDrawerToggle.syncState();
        getSupportActionBar().setDisplayHomeAsUpEnabled(true);
        NavigationView navigationView = findViewById(R.id.navigation_view);
        navigationView.setNavigationItemSelectedListener(this);
    }

    @Override

    public boolean onOptionsItemSelected(@NonNull MenuItem item) {
        if (actionBarDrawerToggle.onOptionsItemSelected(item)) {
```

```

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

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

```

#navigation_menu.xml

```

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

```

#strings.xml

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

#build.gradle(:app)

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

```
dependencies {
    implementation 'androidx.appcompat:appcompat:1.4.1'
    implementation 'com.google.android.material:material:1.5.0'
    implementation 'androidx.constraintlayout:constraintlayout:2.1.3'
    implementation 'androidx.drawerlayout:drawerlayout:1.1.1'
    testImplementation 'junit:junit:4.+'
```

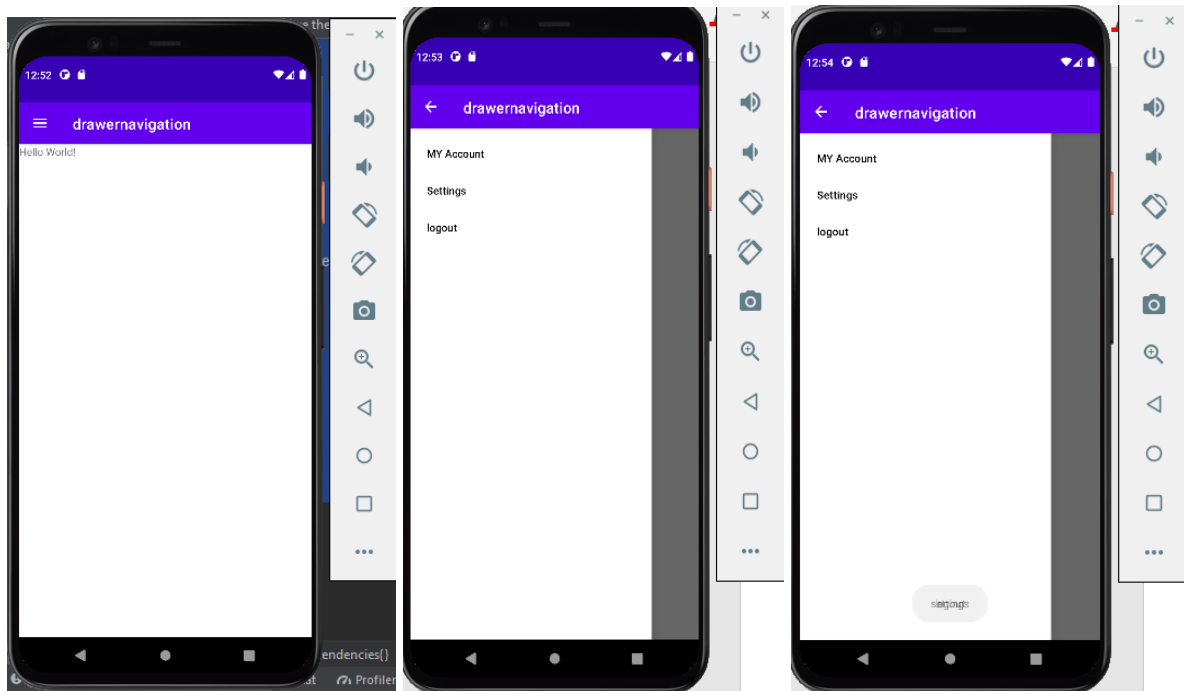
```
    androidTestImplementation 'androidx.test.ext:junit:1.1.3'
```

```
    androidTestImplementation 'androidx.test.espresso:espresso-core:3.4.0'
```

```
    implementation "com.google.android.material:material:1.4.1"
```

```
}
```

Output:



Program no:20

Aim:Program to implement activity life cycle

XML Code

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

<androidx.constraintlayout.widget.ConstraintLayout
xmlns:android="http://schemas.android.com/apk/res/android"

    xmlns:app="http://schemas.android.com/apk/res-auto"

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

    android:layout_width="match_parent"

    android:layout_height="match_parent"

    tools:context=".MainActivity">

    <TextView

        android:layout_width="wrap_content"

        android:layout_height="wrap_content"

        android:text="Hello World!"

        app:layout_constraintBottom_toBottomOf="parent"

        app:layout_constraintLeft_toLeftOf="parent"

        app:layout_constraintRight_toRightOf="parent"

        app:layout_constraintTop_toTopOf="parent" />

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

JAVA CODE:

```
package com.example.activitylifecycle;

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

```
import android.os.Bundle;

import android.util.Log;

public class MainActivity extends AppCompatActivity {

    @Override

    protected void onCreate(Bundle savedInstanceState) {

        super.onCreate(savedInstanceState);

        setContentView(R.layout.activity_main);

        Log.d("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");

    }

}
```


OUTPUT

```

Emulator Pixel_XL_API_30 Andro  com.example.activitylifecycle (53%)  Verbose  Q  [x] Regex  Show only selected application
figurationToResources(Landroid/content/res/Configuration;Landroid/content/res/CompatibilityInfo;)Z (blacklist, linking, denied)
2022-02-25 11:33:16.423 4759-4759/? W/e.myapplication: Accessing hidden method Landroid/app/ResourcesManager;-->applyConfigurationToResourcesLocked(Landroid/conte
2022-02-25 11:33:16.424 4759-4759/? W/e.myapplication: Accessing hidden method Landroid/app/ResourcesManager;-->applyConfigurationToResourcesLocked(Landroid/conte
2022-02-25 11:33:16.424 4759-4759/? W/e.myapplication: Accessing hidden method Landroid/content/res/Configuration;-->isOtherSeqNewer(Landroid/content/res/Configur
2022-02-25 11:33:16.424 4759-4759/? W/e.myapplication: Accessing hidden method Landroid/app/ResourcesManager;-->applyNewResourceDirsLocked(Landroid/content/pm/App
2022-02-25 11:33:16.424 4759-4759/? W/e.myapplication: Accessing hidden method Landroid/content/pm/ApplicationInfo;-->getBaseCodePath()Ljava/lang/String; (greylist
2022-02-25 11:33:16.424 4759-4759/? W/e.myapplication: Accessing hidden method Landroid/app/ResourcesManager;-->createAssetManager(Landroid/content/res/ResourcesM
2022-02-25 11:33:16.424 4759-4759/? W/e.myapplication: Accessing hidden method Landroid/content/res/AssetManager$Builder;--><init>()V (greylist-max-o, linking, de
2022-02-25 11:33:16.424 4759-4759/? W/e.myapplication: Accessing hidden method Landroid/app/ResourcesManager;-->createBaseTokenResources(Landroid/os/IBinder;Ljava
2022-02-25 11:33:16.425 4759-4759/? W/e.myapplication: Accessing hidden method Landroid/content/res/ResourcesKey;--><init>()V (greylist-max-o, linking, de
2022-02-25 11:33:16.425 4759-4759/? I/chatty: uid=10122(com.example.myapplication) identical 1 line
2022-02-25 11:33:16.425 4759-4759/? W/e.myapplication: Accessing hidden method Landroid/content/res/ResourcesKey;--><init>()V (greylist-max-o, linking, de
2022-02-25 11:33:16.425 4759-4759/? W/e.myapplication: Accessing hidden method Landroid/app/ResourcesManager;-->dump(Ljava/lang/String;Ljava/io/PrintWriter;)V (gr
2022-02-25 11:33:16.425 4759-4759/? W/e.myapplication: Accessing hidden method Lcom/android/internal/util/IndentingPrintWriter;--><init>()V (greylist-max-o, linking, de
2022-02-25 11:33:16.425 4759-4759/? W/e.myapplication: Accessing hidden method Lcom/android/internal/util/IndentingPrintWriter;-->increaseIndent()Lcom/android/int

```

Program no:21

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

XML Code:

```
<?xml version="1.0" encoding="utf-8"?>
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:padding="10dp"
    tools:context=".MainActivity">

    <TextView
        android:id="@+id/texttitle"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginTop="20dp"
        android:text="User details"
        android:textSize="24dp" />

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

```
</>
```

```
<EditText
```

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

```
</>
```

```
<EditText
```

```
    android:id="@+id/dob"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:hint="Date of birth"
    android:textSize="24dp"
    android:layout_below="@+id/contact"
    android:inputType="number"
```

```
</>
```

```
<Button
```

```
    android:id="@+id/buttonInsert"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:textSize="24dp"
    android:text="Insert new Data"
    android:layout_marginTop="30dp"
    android:layout_below="@+id/dob"
```

```
</>
```

```
<Button
```

```

        android:id="@+id/buttonUpdate"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:textSize="24dp"
        android:text="Update Data"
        android:layout_below="@+id/buttonInsert"

    />

```

```
<Button
```

```

        android:id="@+id/buttondelete"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:textSize="24dp"
        android:text="Delete existing data"
        android:layout_below="@+id/buttonUpdate"

    />

```

```
<Button
```

```

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

    />

```

```
</RelativeLayout>
```

Java Code:

```

package com.example.database;

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(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)

```

```

        Toast.makeText(MainActivity.this, "New Entry Inserted",
Toast.LENGTH_LONG).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_LONG).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_LONG).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_LONG).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.database;

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:

