20MCA243 MOBILE APPLICATION DEVELOPMENT LAB

Lab Report SubmittedBy
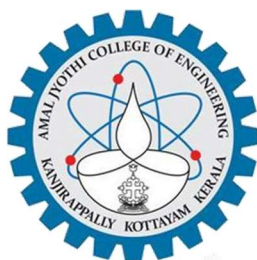
SREYA M

Reg. No.: AJC20MCA-2069

In Partial fulfillment for the Award of the Degree Of

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

AMAL JYOTHI COLLEGE OF ENGINEERING
KANJIRAPPALLY

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

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DEPARTMENT OF COMPUTER APPLICATIONS
AMAL JYOTHI COLLEGE OF ENGINEERING
KANJIRAPPALLY
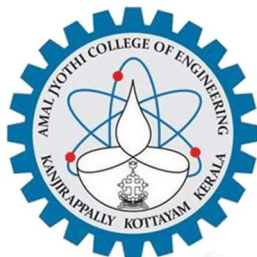
CERTIFICATE

This is to certify that the lab report, "**20MCA243 MOBILE APPLICATION DEVELOPMENT LAB**" is the bonafide work of **SREYA M (Reg.No:AJC20MCA-2069)** 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.

Ms. Grace Joseph
Staff In-Charge

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Program No:1

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

XML code:

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

    <LinearLayout
        android:layout_width="wrap_content"
        android:layout_height="wrap_content">

    <TextView
        android:id="@+id/textView"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_weight="1"
        android:text="Name:" />
    <EditText
        android:id="@+id/editTextTextPersonName"
        android:layout_width="142dp"
        android:layout_height="wrap_content"
        android:layout_weight="1"
```

```xml
        android:ems="10"

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

<LinearLayout
    android:layout_width="wrap_content"
    android:layout_height="wrap_content">

    <TextView
        android:id="@+id/t1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_weight="1"
        android:text="Password" />

    <EditText
        android:id="@+id/editTextTextPersonName2"
        android:layout_width="119dp"
        android:layout_height="wrap_content"
        android:layout_weight="1"
        android:ems="10"
        android:inputType="textPersonName"
        android:text="" />
</LinearLayout>

<LinearLayout
    android:layout_width="wrap_content"
    android:layout_height="wrap_content">
```

```
<Button
    android:id="@+id/b1
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Submit" />
  </LinearLayout>

</LinearLayout>
```

Java Code:

```java
package com.example.loginform;

import androidx.appcompat.app.AppCompatActivity;

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

public class MainActivity extends AppCompatActivity {
    EditText un,pw;
    Button b1;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        un=findViewById(R.id.editTextTextPersonName);
        pw=findViewById(R.id.editTextTextPersonName2);
        b1=findViewById(R.id.b1);
```

```
b1.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View view) {
            if(un.getText().length()>0 && pw.getText().length()>0){
                String toastmsg="User name: "+ un.getText().toString() + "Password: "+
pw.getText().toString();
                Toast.makeText(getApplicationContext(), toastmsg,
Toast.LENGTH_SHORT).show();
            }
            else{
                String toastmsg ="user name and password id needed";
                Toast.makeText(getApplicationContext(), toastmsg,
Toast.LENGTH_SHORT).show();
            }
        }
    });

    }
}
```

OUTPUT
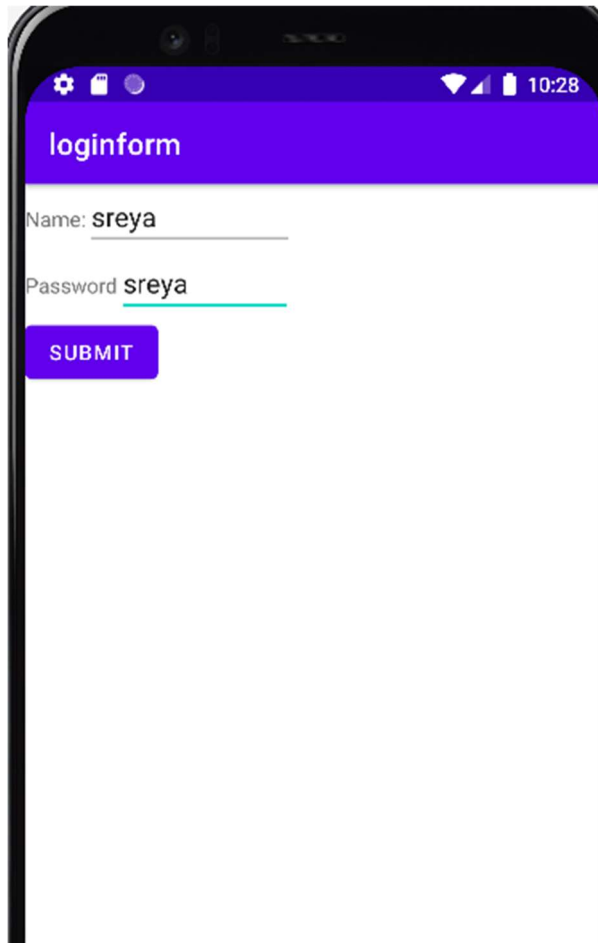
Program No:2

Aim: Write a program that demonstrates Activity Lifecycle.

XML Code:

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

    <TextView
        android: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:

```java
package com.example.exption02_03;
import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import android.util.Log;
```

```java
public class MainActivity extends AppCompatActivity {

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        Log.d("Lifecycle","onCreate invoked");
    }
    protected void onStart(){
        super.onStart();
        Log.d("Lifecycle","onStart invoked");
    }
    @Override
    protected void onResume() {
        super.onResume();
        Log.d("Lifecycle","onResume invoked");
    }
    @Override
    protected void onDestroy() {
        super.onDestroy();
        Log.d("Lifecycle","OnDestry invoked");
    }
}
```

OUTPUT:

```
2022-03-02 05:31:03.844 14441-14441/com.example.exption02_03 D/Lifecycle: onCreate invoked
2022-03-02 05:31:03.855 14441-14441/com.example.exption02_03 D/Lifecycle: onStart invoked
2022-03-02 05:31:03.856 14441-14441/com.example.exption02_03 D/Lifecycle: onResume invoked
2022-03-02 05:31:07.617 14441-14441/com.example.exption02_03 D/Lifecycle: OnDestry invoked
```

Program No:3

Aim :Implementing basic arithmetic operations of a simple calculator

XML code:

```xml
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout
xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity3">

    <TextView
        android:id="@+id/textView"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:fontFamily="sans-serif-black"
        android:text="Calculator"
        android:textColor="#7D2097"
        android:textSize="24sp"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.453"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.022" />

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

```
    android:layout_width="wrap_content"

    android:layout_height="wrap_content"

    android:layout_marginBottom="612dp"

    android:text="Enter a number"

    android:textSize="16sp"

    app:layout_constraintBottom_toBottomOf="parent"

    app:layout_constraintEnd_toEndOf="parent"

    app:layout_constraintHorizontal_bias="0.045"

    app:layout_constraintStart_toStartOf="parent" />


<EditText

    android:id="@+id/e1"

    android:layout_width="wrap_content"

    android:layout_height="wrap_content"

    android:ems="10"

    android:hint="First Number"

    android:inputType="number"

    android:text=""

    app:layout_constraintBottom_toBottomOf="parent"

    app:layout_constraintEnd_toEndOf="parent"

    app:layout_constraintHorizontal_bias="0.756"

    app:layout_constraintStart_toStartOf="parent"

    app:layout_constraintTop_toTopOf="parent"

    app:layout_constraintVertical_bias="0.109" />


<TextView

    android:id="@+id/t3"

    android:layout_width="wrap_content"

    android:layout_height="wrap_content"

    android:text="Enter a number"

    android:textSize="16sp"
```

```
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.046"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.229" />


<EditText
    android:id="@+id/e2"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:ems="10"
    android:hint="second Number"
    android:inputType="number"
    android:text=""
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.746"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.204" />


<Button
    android:id="@+id/b1"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Sum"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.464"
```

```xml
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.364" />


    <Button
        android:id="@+id/b2"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Difference"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.055"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.434" />


    <Button
        android:id="@+id/b3"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Product"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.804"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.434" />


    <Button
        android:id="@+id/b4"
        android:layout_width="wrap_content"
```

```
        android:layout_height="wrap_content"

        android:text="Quotient"

        app:layout_constraintBottom_toBottomOf="parent"

        app:layout_constraintEnd_toEndOf="parent"


      app:layout_constraintHorizontal_bias="0.456"

      app:layout_constraintStart_toStartOf="parent"

      app:layout_constraintTop_toTopOf="parent"

      app:layout_constraintVertical_bias="0.522" />


    <TextView

        android:id="@+id/t4"

        android:layout_width="wrap_content"

        android:layout_height="wrap_content"

        android:text="Result"

        android:textSize="20sp"

        app:layout_constraintBottom_toBottomOf="parent"

        app:layout_constraintEnd_toEndOf="parent"

        app:layout_constraintHorizontal_bias="0.459"

        app:layout_constraintStart_toStartOf="parent"

        app:layout_constraintTop_toTopOf="parent"

        app:layout_constraintVertical_bias="0.616" />


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

Java Code:

```java
package com.example.oddoreven;


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

```java
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.TextView;

public class MainActivity2 extends AppCompatActivity {
    TextView tv1,tv2,tv3;
    EditText et1,et2;
    Button bt1,bt2,bt3,bt4;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main2);
        tv1=findViewById(R.id.t2);
        tv2=findViewById(R.id.t3);
        tv3=findViewById(R.id.t4);
        et1=findViewById(R.id.e1);
        et2=findViewById(R.id.e2);
        bt1=findViewById(R.id.b1);
        bt2=findViewById(R.id.b2);
        bt3=findViewById(R.id.b3);
        bt4=findViewById(R.id.b4);

        bt1.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                Integer num1=Integer.parseInt(et1.getText().toString());
                Integer num2=Integer.parseInt(et2.getText().toString());
                Integer add=num1+num2;
```

```java
                tv3.setText("Sum is "+add);
            }
        });
        bt2.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                Integer num1=Integer.parseInt(et1.getText().toString());
                Integer num2=Integer.parseInt(et2.getText().toString());
                Integer Diff=num1-num2;
                tv3.setText("Difference is "+Diff);
            }
        });
        bt3.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                Integer num1=Integer.parseInt(et1.getText().toString());
                Integer num2=Integer.parseInt(et2.getText().toString());
                Integer pro=num1*num2;
                tv3.setText("product is "+pro);
            }
        });
        bt4.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                Integer num1=Integer.parseInt(et1.getText().toString());
                Integer num2=Integer.parseInt(et2.getText().toString());
                Integer quo=num1/num2;
                tv3.setText("Quotient is "+quo);
            }
        });
    }
}
```
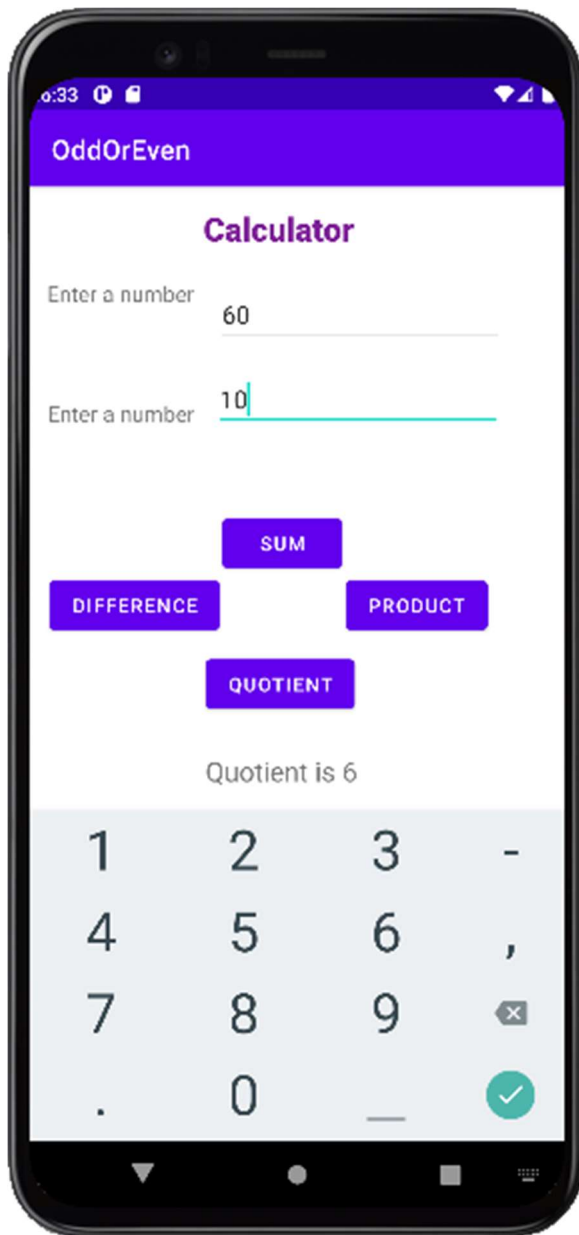
OUTPUT:

Program No:4

Aim :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=".MainActivity2">

    <EditText

        android:id="@+id/firstName"

        android:layout_width="match_parent"

        android:layout_height="wrap_content"

        android:ems="10"

        android:inputType="text"

        android:hint="First Name"

        app:layout_constraintBottom_toBottomOf="parent"

        app:layout_constraintEnd_toEndOf="parent"

        app:layout_constraintHorizontal_bias="0.079"

        app:layout_constraintStart_toStartOf="parent"
```

```
    app:layout_constraintTop_toTopOf="parent"

    app:layout_constraintVertical_bias="0.023" />

<EditText

    android:id="@+id/lastName"

    android:layout_width="match_parent"

    android:layout_height="wrap_content"

    android:ems="10"

    android:inputType="text"

    android:hint="Last Name"

    app:layout_constraintBottom_toBottomOf="parent"

    app:layout_constraintEnd_toEndOf="parent"

    app:layout_constraintHorizontal_bias="0.079"

    app:layout_constraintStart_toStartOf="parent"

    app:layout_constraintTop_toTopOf="parent"

    app:layout_constraintVertical_bias="0.11" />

<EditText

    android:id="@+id/email"

    android:layout_width="match_parent"

    android:layout_height="wrap_content"

    android:ems="10"

    android:inputType="text"

    android:hint="Email-Id"

    app:layout_constraintBottom_toBottomOf="parent"

    app:layout_constraintEnd_toEndOf="parent"
```

```
    app:layout_constraintHorizontal_bias="0.0"

    app:layout_constraintStart_toStartOf="parent"

    app:layout_constraintTop_toTopOf="parent"

    app:layout_constraintVertical_bias="0.192" />

<EditText

    android:id="@+id/password"

    android:layout_width="match_parent"

    android:layout_height="wrap_content"

    android:ems="10"

    android:inputType="text"

    android:hint="Password"

    app:layout_constraintBottom_toBottomOf="parent"

    app:layout_constraintEnd_toEndOf="parent"

    app:layout_constraintHorizontal_bias="0.079"

    app:layout_constraintStart_toStartOf="parent"

    app:layout_constraintTop_toTopOf="parent"

    app:layout_constraintVertical_bias="0.269" />

<Button

    android:id="@+id/proceed_button"

    android:layout_width="wrap_content"

    android:layout_height="wrap_content"

    android:text="PROCEED"

    android:backgroundTint="@color/black"

    app:layout_constraintBottom_toBottomOf="parent"
```

```
            app:layout_constraintEnd_toEndOf="parent"

            app:layout_constraintHorizontal_bias="0.911"

            app:layout_constraintStart_toStartOf="parent"

            app:layout_constraintTop_toTopOf="parent"

            app:layout_constraintVertical_bias="0.373" />

    <Button

            android:id="@+id/button2"

            android:layout_width="wrap_content"

            android:layout_height="wrap_content"

            android:text="Cancel"

            android:backgroundTint="@color/black"

            app:layout_constraintBottom_toBottomOf="parent"

            app:layout_constraintEnd_toEndOf="parent"

            app:layout_constraintHorizontal_bias="0.05"

            app:layout_constraintStart_toStartOf="parent"

            app:layout_constraintTop_toTopOf="parent"

            app:layout_constraintVertical_bias="0.373" />

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

Java Code:

```java
package com.example.myapplication;

import androidx.appcompat.app.AppCompatActivity;

import android.content.Intent;

import android.os.Bundle;
```

```java
import android.view.View;

import android.widget.Button;

import android.widget.EditText;

public class MainActivity extends AppCompatActivity {

    Button procee,cancel;

    EditText first,last,emai,pass;

    boolean isAllFieldChecked=false;

    @Override

    protected void onCreate(Bundle savedInstanceState) {

        super.onCreate(savedInstanceState);

        setContentView(R.layout.activity_main);

        procee=findViewById(R.id.proceed_button);

        cancel=findViewById(R.id.button2);

        first=findViewById(R.id.firstName);

        last=findViewById(R.id.lastName);

        emai=findViewById(R.id.email);

        pass=findViewById(R.id.password);

        procee.setOnClickListener(new View.OnClickListener() {

            @Override

            public void onClick(View view) {

                isAllFieldChecked = CheckAllFields();

                if(isAllFieldChecked){

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

                    startActivity(i);
```

```
        }

      }

    });

    cancel.setOnClickListener(new View.OnClickListener() {

      @Override

      public void onClick(View view) {

        MainActivity.this.finish();

        System.exit(0);

      }

    });

  }

  private boolean CheckAllFields(){

    if(first.length()==0){

      first.setError("This field is required");

      return false;

    }

    if(last.length()==0){

      last.setError("This field is required");

      return false;

    }

    if(emai.length()==0){

      emai.setError("This field is required");

      return false;

    }
```
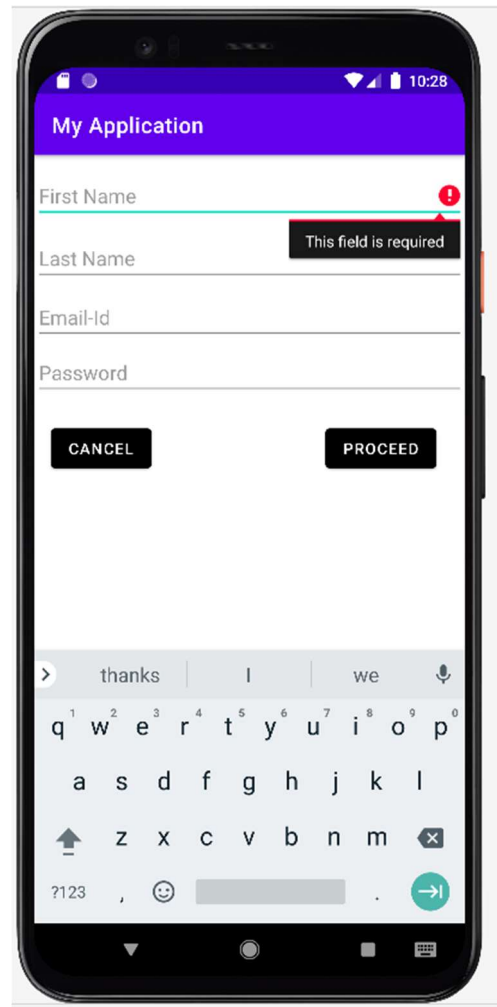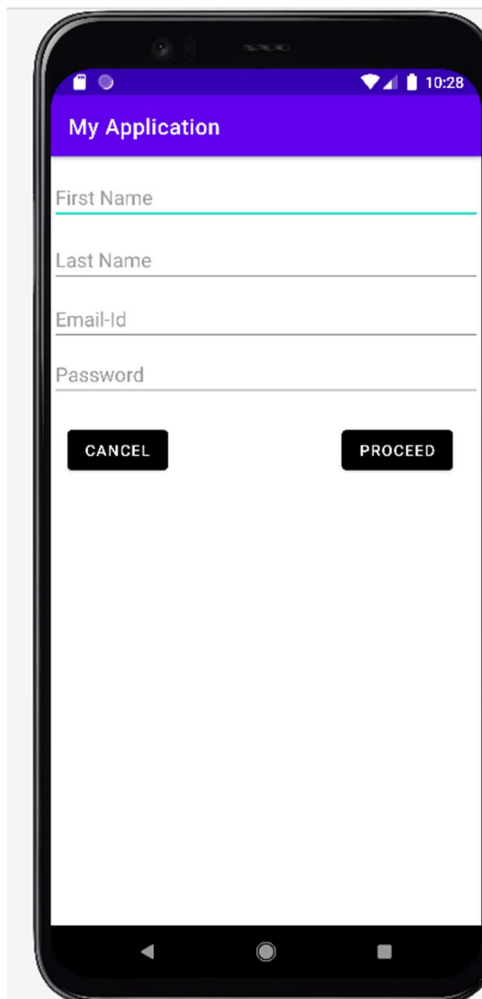
```
if(pass.length()==0){

    pass.setError("Password is required");

    return false;

}

else if(pass.length()<8){

    pass.setError("Password must be minimum 8 characters");

    return false;

}

return true;

  }

}
```

OUTPUT:

Program No:5

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

XML Code:

activitymain.xml

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

    <TextView
        android:id="@+id/tv1"
        android:layout_width="137dp"
        android:layout_height="38dp"
        android:text="Enter your Name"
```

```xml
        app:layout_constraintBottom_toBottomOf="parent"

        app:layout_constraintHorizontal_bias="0.364"

        app:layout_constraintLeft_toLeftOf="parent"

        app:layout_constraintRight_toRightOf="parent"

        app:layout_constraintTop_toTopOf="parent"

        app:layout_constraintVertical_bias="0.288" />


    <EditText

        android:id="@+id/ed1"

        android:layout_width="wrap_content"

        android:layout_height="wrap_content"

        android:ems="10"

        android:inputType="textPersonName"

        android:text=""

        app:layout_constraintBottom_toBottomOf="parent"

        app:layout_constraintEnd_toEndOf="parent"

        app:layout_constraintHorizontal_bias="0.497"

        app:layout_constraintStart_toStartOf="parent"

        app:layout_constraintTop_toTopOf="parent"

        app:layout_constraintVertical_bias="0.39" />


    <Button

        android:id="@+id/b1"

        android:layout_width="wrap_content"
```

```
android:layout_height="wrap_content"

android:text="Save"

app:layout_constraintBottom_toBottomOf="parent"

app:layout_constraintEnd_toEndOf="parent"

app:layout_constraintStart_toStartOf="parent"

app:layout_constraintTop_toTopOf="parent" />


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

activitymain2.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/t1"

        android:layout_width="66dp"

        android:layout_height="21dp"
```

```xml
        android:text="TextView"

        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:

Mainactivity.java

```java
package com.example.myapp9_02;


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.TextView;


public class MainActivity extends AppCompatActivity {
```

```java
Button b1;

EditText e1;

SharedPreferences sh;


@Override

protected void onCreate(Bundle savedInstanceState) {

    super.onCreate(savedInstanceState);

    setContentView(R.layout.activity_main);

    e1=findViewById(R.id.ed1);

    b1=findViewById(R.id.b1);

    sh=getSharedPreferences("sp",MODE_PRIVATE);

    b1.setOnClickListener(new View.OnClickListener() {

        @Override

        public void onClick(View v) {

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

            sh.edit().putString("value",val).commit();

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

            startActivity(in);

        }

    });


}

}
```

Mainactivity2.java

package com.example.myapp9_02;

import androidx.appcompat.app.AppCompatActivity;

import android.content.SharedPreferences;

import android.os.Bundle;

import android.widget.TextView;

```java
public class MainActivity2 extends AppCompatActivity {

    TextView t1;

    SharedPreferences sh;

    @Override
    protected void onCreate(Bundle savedInstanceState) {

        super.onCreate(savedInstanceState);

        setContentView(R.layout.activity_main2);

        t1=findViewById(R.id.t1);

        sh=getSharedPreferences("sp",MODE_PRIVATE);

        String s1=sh.getString("value","No Data is Found");

        t1.setText(s1);

    }

}
```
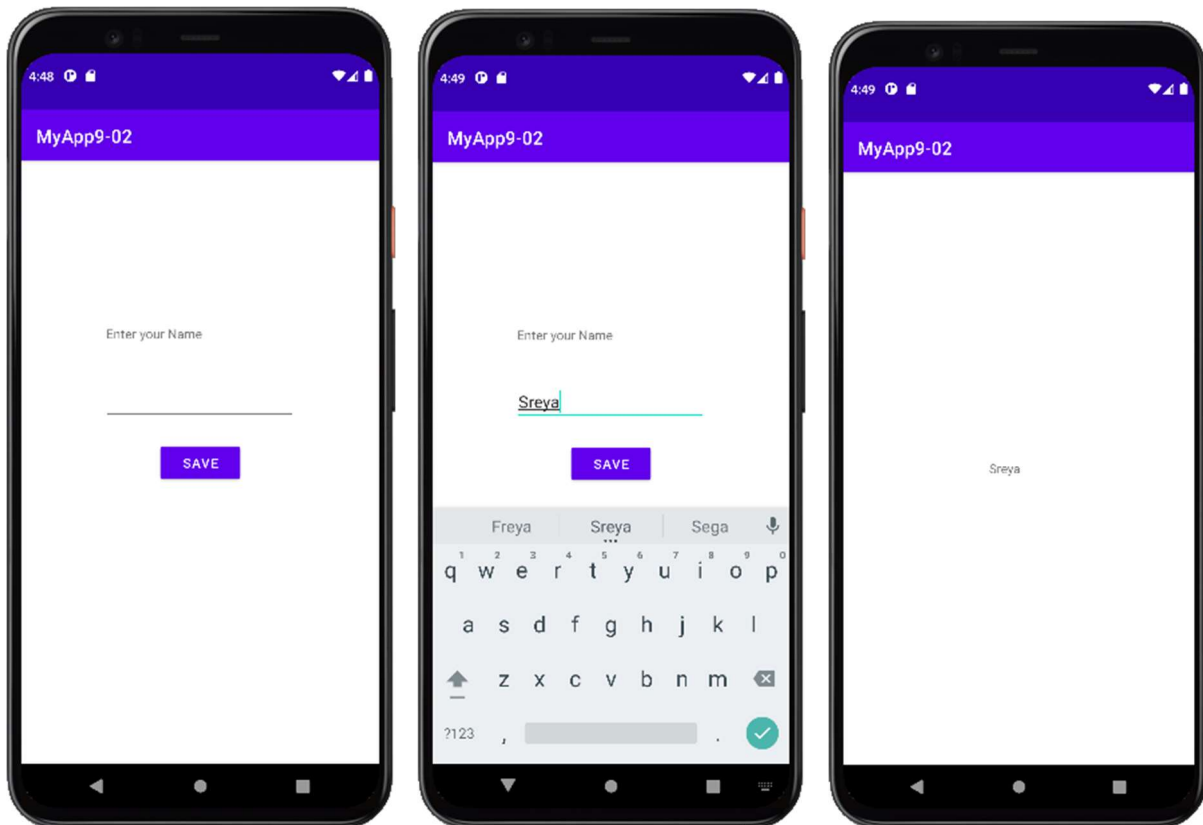
Program No:6

Aim: 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">


    <LinearLayout

        android:id="@+id/linearLayout"

        android:layout_width="match_parent"

        android:layout_height="200dp"

        android:layout_marginBottom="4dp"

        app:layout_constraintBottom_toTopOf="@+id/gridLayout"

        app:layout_constraintEnd_toEndOf="parent"

        app:layout_constraintStart_toStartOf="parent"

        app:layout_constraintTop_toTopOf="parent">
```

```xml
    <TextView

        android:layout_width="match_parent"

        android:layout_height="match_parent"

        android:text="Enetr Number here"

        android:textSize="34sp" />

</LinearLayout>

<androidx.gridlayout.widget.GridLayout

    android:id="@+id/gridLayout"

    android:layout_width="411dp"

    android:layout_height="526dp"

    android:layout_marginTop="4dp"

    android:layout_marginBottom="1dp"

    app:layout_constraintBottom_toBottomOf="parent"

    app:layout_constraintEnd_toEndOf="parent"

    app:layout_constraintHorizontal_bias="0.0"

    app:layout_constraintStart_toStartOf="parent"

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

    <Button

        android:id="@+id/button"

        android:layout_width="90dp"

        android:layout_height="90dp"

        android:backgroundTint="#CA1EF1"

        android:text="7"

        app:layout_column="0"
```

```xml
        app:layout_row="0" />


    <Button

        android:id="@+id/button2"

        android:layout_width="90dp"

        android:layout_height="90dp"

        android:backgroundTint="#CA1EF1"

        android:text="4"

        app:layout_column="0"

        app:layout_row="1" />


    <Button

        android:id="@+id/button3"

        android:layout_width="90dp"

        android:layout_height="90dp"

        android:backgroundTint="#CA1EF1"

        android:text="1"

        app:layout_column="0"

        app:layout_row="2" />


    <Button

        android:id="@+id/button4"

        android:layout_width="90dp"

        android:layout_height="90dp"
```

```
android:backgroundTint="#CA1EF1"

android:text="."

app:layout_column="0"

app:layout_row="3" />


<Button

    android:id="@+id/button5"

    android:layout_width="90dp"

    android:layout_height="90dp"

    android:backgroundTint="#CA1EF1"

    android:text="8"

    app:layout_column="1"

    app:layout_row="0" />


<Button

    android:id="@+id/button6"

    android:layout_width="90dp"

    android:layout_height="90dp"

    android:backgroundTint="#CA1EF1"

    android:text="5"

    app:layout_column="1"

    app:layout_row="1" />


<Button
```

```
android:id="@+id/button7"

android:layout_width="90dp"

android:layout_height="90dp"

android:backgroundTint="#CA1EF1"

android:text="2"

app:layout_column="1"

app:layout_row="2" />


<Button

    android:id="@+id/button8"

    android:layout_width="90dp"

    android:layout_height="90dp"

    android:backgroundTint="#CA1EF1"

    android:text="0"

    app:layout_column="1"

    app:layout_row="3" />


<Button

    android:id="@+id/button9"

    android:layout_width="90dp"

    android:layout_height="90dp"

    android:backgroundTint="#CA1EF1"

    android:text="9"

    app:layout_column="2"
```

```
        app:layout_row="0" />
    <Button

        android:id="@+id/button10"

        android:layout_width="90dp"

        android:layout_height="90dp"

        android:backgroundTint="#CA1EF1"

        android:text="6"

        app:layout_column="2"

        app:layout_row="1" />
    <Button

        android:id="@+id/button11"

        android:layout_width="90dp"

        android:layout_height="90dp"

        android:backgroundTint="#CA1EF1"

        android:text="3"

        app:layout_column="2"

      app:layout_row="2" />
    <Button

        android:id="@+id/button12"

        android:layout_width="90dp"

        android:layout_height="90dp"

        android:backgroundTint="#CA1EF1"

        android:text="/"

        app:layout_column="2"
```

```
    app:layout_row="3" />

<Button

    android:id="@+id/button13"

    android:layout_width="90dp"

    android:layout_height="90dp"

    android:backgroundTint="#CA1EF1"

    android:text="*"

    app:layout_column="3"

    app:layout_row="0" />

<Button

    android:id="@+id/button14"

    android:layout_width="90dp"

    android:layout_height="90dp"

    android:backgroundTint="#CA1EF1"

    android:text="+"

    app:layout_column="3"

    app:layout_row="1" />

<Button

    android:id="@+id/button15"

    android:layout_width="90dp"

    android:layout_height="90dp"

    android:backgroundTint="#CA1EF1"

    android:text="-"

    app:layout_column="3"
```

```
        app:layout_row="2" />

    <Button

        android:id="@+id/button16"

        android:layout_width="90dp"

        android:layout_height="90dp"

        android:backgroundTint="#CA1EF1"

        android:text="="

        app:layout_column="3"

        app:layout_row="3" />

    </androidx.gridlayout.widget.GridLayout>

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

Java Code:

```
package com.example.calculator02;

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);

    }

}
```
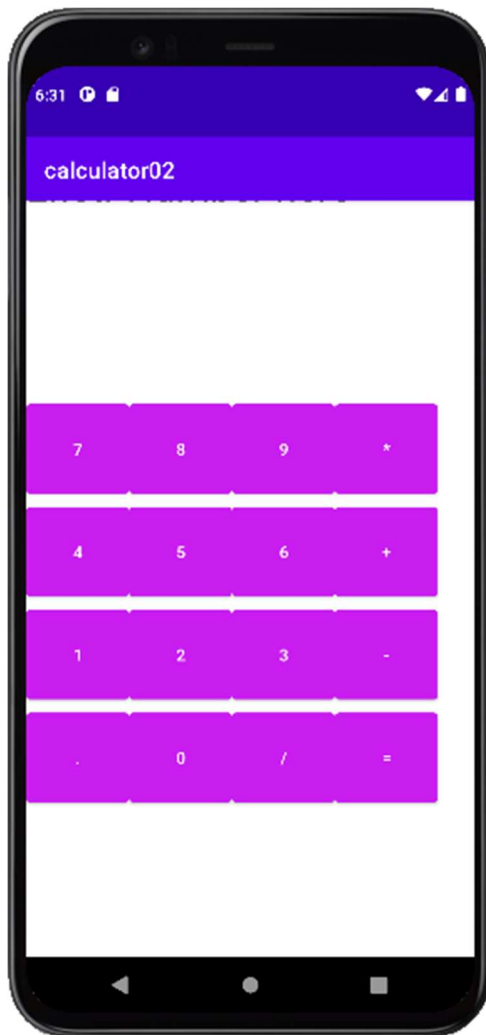
OUTPUT

Program No:7

Aim: Create a Facebook page using RelativeLayout; set properties using .xml file

XML Code:

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

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

    xmlns: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/fb"

    android:orientation="vertical"


    android:textAlignment="viewEnd"

    tools:context=".MainActivity">


    <FrameLayout

        android:id="@+id/frameLayout"

        android:layout_width="362dp"

        android:layout_height="403dp"

        android:background="@color/white"

        app:layout_constraintBottom_toBottomOf="parent"
```

```xml
app:layout_constraintEnd_toEndOf="parent"

app:layout_constraintHorizontal_bias="0.489"

app:layout_constraintStart_toStartOf="parent"

app:layout_constraintTop_toTopOf="parent"

app:layout_constraintVertical_bias="0.609">


<com.google.android.material.textfield.TextInputLayout

    android:id="@+id/l1"

    android:layout_width="match_parent"

    android:layout_height="wrap_content"

    android:layout_marginStart="30dp"

    android:layout_marginTop="30dp"

    android:layout_marginEnd="20dp">


    <com.google.android.material.textfield.TextInputEditText

        android:layout_width="match_parent"

        android:layout_height="wrap_content"

        android:hint="Name" />
</com.google.android.material.textfield.TextInputLayout>


<com.google.android.material.textfield.TextInputLayout

    android:id="@+id/l2"

    android:layout_width="match_parent"

    android:layout_height="wrap_content">
```

```xml
<com.google.android.material.textfield.TextInputEditText

    android:layout_width="match_parent"

    android:layout_height="wrap_content"

    android:layout_marginStart="30dp"

    android:layout_marginTop="110dp"

    android:layout_marginEnd="20dp"

    android:hint="Password"

    android:textColor="#3F51B5" />

</com.google.android.material.textfield.TextInputLayout>


<Button

    android:id="@+id/button"

    android:layout_width="match_parent"

    android:layout_height="wrap_content"

    android:layout_marginStart="30dp"

    android:layout_marginTop="180dp"

    android:layout_marginEnd="20dp"

    android:backgroundTint="#2196F3"

    android:text="Log IN" />


<TextView

    android:id="@+id/textView3"

    android:layout_width="wrap_content"
```

```
android:layout_height="wrap_content"

android:layout_marginStart="100dp"

android:layout_marginTop="240dp"

android:layout_marginEnd="20dp"

android:text="Forgotten Password..??"

android:textColor="#1F3AD1" />


<Button

    android:id="@+id/button2"

    android:layout_width="match_parent"

    android:layout_height="wrap_content"

    android:layout_marginStart="70dp"

    android:layout_marginTop="290dp"

    android:layout_marginEnd="50dp"

    android:backgroundTint="#2FE136"

    android:text="Create a Account" />

</FrameLayout>


<TextView

    android:id="@+id/textView"

    android:layout_width="189dp"

    android:layout_height="43dp"

    android:fontFamily="sans-serif-black"

    android:text="facebook"
```

```xml
        android:textAlignment="center"

        android:textColor="#3F51B5"

        android:textSize="34sp"

        app:layout_constraintBottom_toBottomOf="parent"

        app:layout_constraintEnd_toEndOf="parent"

        app:layout_constraintStart_toStartOf="parent"

        app:layout_constraintTop_toTopOf="parent"

        app:layout_constraintVertical_bias="0.049" />

    <TextView

        android:id="@+id/textView2"

        android:layout_width="335dp"

        android:layout_height="91dp"

        android:text="Facebook help you to connect and share with the people in your life"

        android:textAlignment="center"

        android:textColor="#0C0C0C"

        android:textSize="20sp"

        app:layout_constraintBottom_toBottomOf="parent"

        app:layout_constraintEnd_toEndOf="parent"

        app:layout_constraintHorizontal_bias="0.433"

        app:layout_constraintStart_toStartOf="parent"

        app:layout_constraintTop_toTopOf="parent"

        app:layout_constraintVertical_bias="0.13" />

    <TextView

        android:id="@+id/textView4"
```

```
android:layout_width="wrap_content"

android:layout_height="wrap_content"

android:text="Create a page for celebrity"

android:textAlignment="center"

android:textColor="#0C0C0C"

android:textSize="16sp"

app:layout_constraintBottom_toBottomOf="parent"

app:layout_constraintEnd_toEndOf="parent"

app:layout_constraintHorizontal_bias="0.555"

app:layout_constraintStart_toStartOf="parent"

app:layout_constraintTop_toTopOf="parent"

app:layout_constraintVertical_bias="0.891" />
```

</androidx.constraintlayout.widget.ConstraintLayout>

Java Code:

```
package com.example.facebook;

import androidx.appcompat.app.AppCompatActivity;

import android.content.Intent;

import android.os.Bundle;

import android.view.View;

import android.widget.Button;

import android.widget.EditText;

import android.widget.Toast;

import com.google.android.material.textfield.TextInputLayout;
```

```java
public class MainActivity extends AppCompatActivity {

    Button b1,b2;

    TextInputLayout e1,e2;

    @Override

    protected void onCreate(Bundle savedInstanceState) {

        super.onCreate(savedInstanceState);

        setContentView(R.layout.activity_main);

        b1=findViewById(R.id.button);

        b2=findViewById(R.id.button2);

        e1=findViewById(R.id.l1);

        e2=findViewById(R.id.l2);

        b1.setOnClickListener(new View.OnClickListener() {

            @Override

            public void onClick(View view) {

                String uname=e1.getEditText().getText().toString();

                String passw=e2.getEditText().getText().toString();

                if(uname.equals("")){

                    Toast.makeText(MainActivity.this, "Enter Username",
Toast.LENGTH_SHORT).show();

                }

                else if(passw.equals("")){

                    Toast.makeText(MainActivity.this, "Enter Password",
Toast.LENGTH_SHORT).show();

                }
```

```
        else{

            Intent j=new Intent(MainActivity.this,login.class);

            if(uname.equals("sreya")){

                j.putExtra("name",uname);

                startActivity(j);

            }
            else {

                Toast.makeText(MainActivity.this, "Invalid user",
Toast.LENGTH_SHORT).show();

            }

        }

    }

});

b2.setOnClickListener(new View.OnClickListener() {

    @Override

    public void onClick(View view) {

        Intent i=new Intent(MainActivity.this,signup.class);

        startActivity(i);

    }

});

    }

}
```
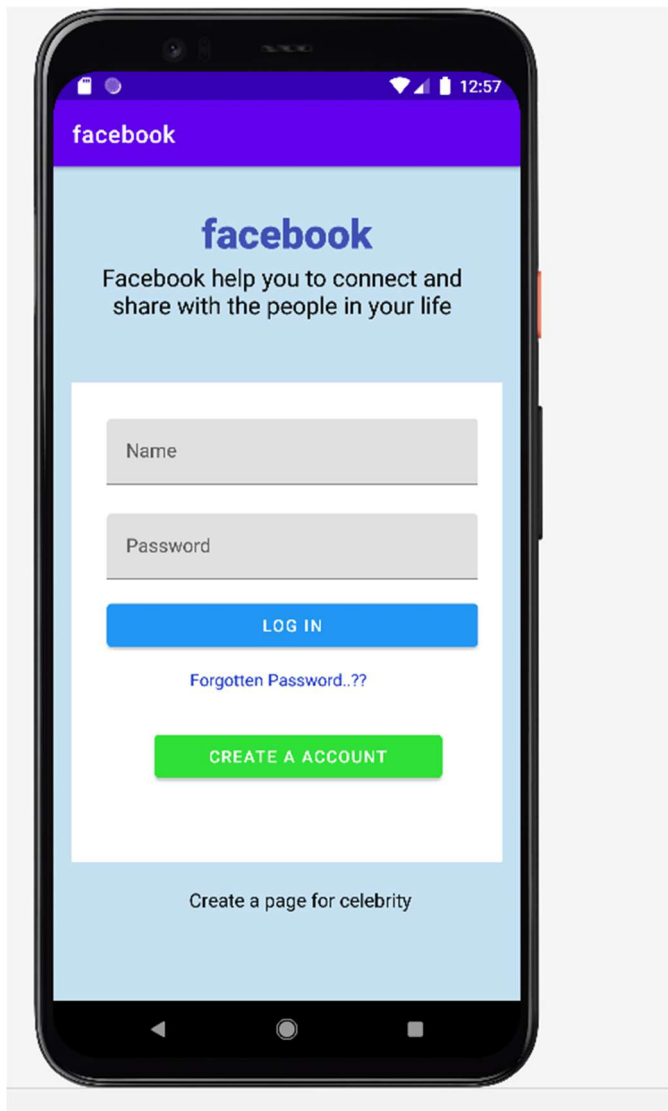
OUTPUT:

Program No:8

Aim: Develop an application that toggles image using FrameLayout

XML Code:

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

    <FrameLayout
        android:layout_width="409dp"
        android:layout_height="729dp"
        android:layout_marginStart="1dp"
        android:layout_marginTop="1dp"
        android:layout_marginEnd="1dp"
        android:layout_marginBottom="1dp"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        tools:context=".MainActivity">

        <ImageView
            android:id="@+id/imageView3"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:src="@drawable/help" />
```

```xml
<ImageView
    android:id="@+id/imageView4"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:src="@drawable/about" />
    </FrameLayout>
</androidx.constraintlayout.widget.ConstraintLayout>
```

Java Code

```java
package com.example.myapp09_02_2;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;
import android.view.View;
import android.widget.ImageView;

public class MainActivity extends AppCompatActivity {

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        ImageView im1=findViewById(R.id.imageView);
        ImageView im2=findViewById(R.id.imageView2);
        im2.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                im1.bringToFront();
            }
```
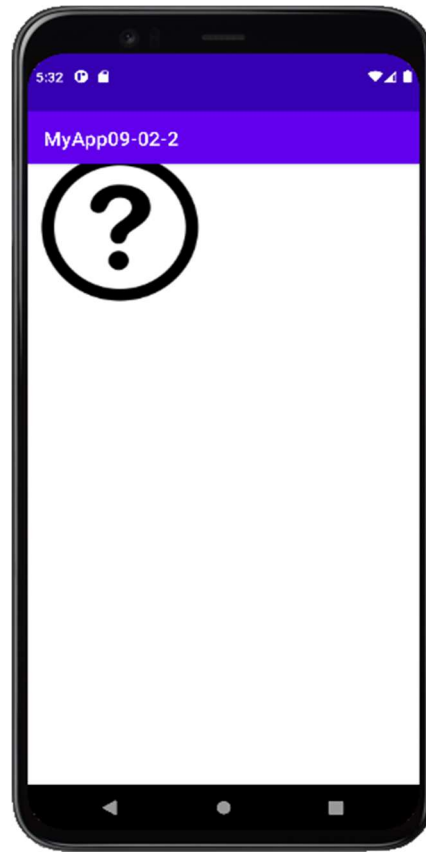
```
    });
    im1.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View v) {
            im2.bringToFront();
        }
    });
  }
}
```

OUTPUT:
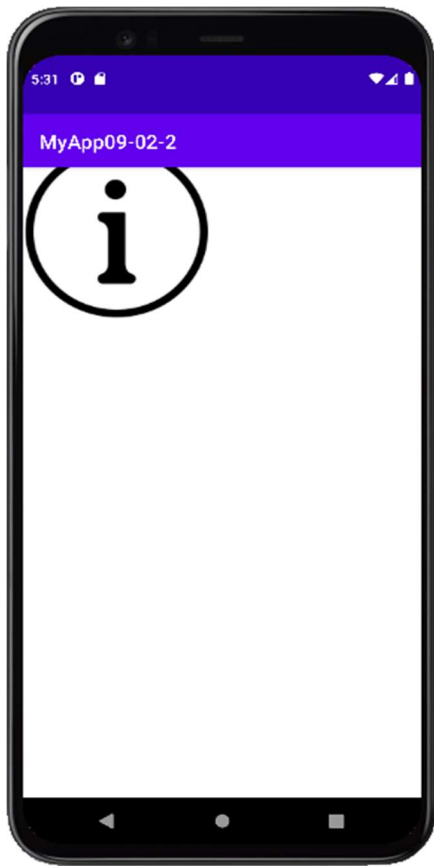
Program No:9

Aim: Implement Adapters and perform exception handling

XML Code:

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

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

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

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

    android:layout_width="match_parent"

    android:layout_height="match_parent"

    tools:context=".MainActivity">


    <ListView

        android:layout_width="326dp"

        android:layout_height="528dp"

        app:layout_constraintBottom_toBottomOf="parent"

        app:layout_constraintEnd_toEndOf="parent"

        app:layout_constraintStart_toStartOf="parent"

        app:layout_constraintTop_toTopOf="parent"/>


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

Java Code:

```java
package com.example.exption02;


import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;

import android.widget.Toast;

import java.util.ArrayList;

import java.util.List;


public class MainActivity extends AppCompatActivity {

List<String> list=new ArrayList();

    @Override


    protected void onCreate(Bundle savedInstanceState) {

        super.onCreate(savedInstanceState);

        setContentView(R.layout.activity_main);

        list.add("item 1");

        list.add("item 2");

        list.add("item 3");

        list.add("item 4");

        for (int i=0;i<7;i++){
```

```
try{

    list.get(i);

}

catch (Exception e){

    Toast.makeText(this,"Exception caught",Toast.LENGTH_LONG).show();

}

}

}

}
```

OUTPUT:
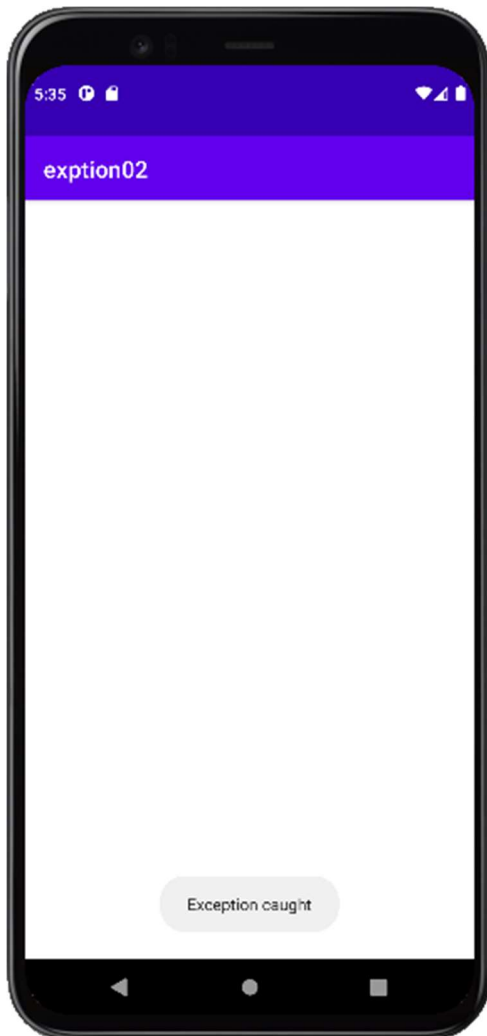
Program No:10

Aim: Implement Intent to navigate between multiple activities

XML Code

activitymain1.xml

```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="#D38A8A"
    tools:context=".MainActivity">

    <Button
        android:id="@+id/button"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Button"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

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

```
        android:ems="10"

        android:inputType="textPersonName"

        android:hint="Name"

        app:layout_constraintBottom_toBottomOf="parent"

        app:layout_constraintEnd_toEndOf="parent"

        app:layout_constraintHorizontal_bias="0.213"

        app:layout_constraintStart_toStartOf="parent"

        app:layout_constraintTop_toTopOf="parent"

        app:layout_constraintVertical_bias="0.091" />


    <EditText

        android:id="@+id/ed2"

        android:layout_width="wrap_content"

        android:layout_height="wrap_content"

        android:ems="10"

        android:hint="email"

        android:inputType="textEmailAddress"

        app:layout_constraintBottom_toBottomOf="parent"

        app:layout_constraintEnd_toEndOf="parent"

        app:layout_constraintHorizontal_bias="0.213"

        app:layout_constraintStart_toStartOf="parent"

        app:layout_constraintTop_toTopOf="parent"

        app:layout_constraintVertical_bias="0.19" />


    <EditText

        android:id="@+id/ed3"

        android:layout_width="wrap_content"

        android:layout_height="wrap_content"

        android:ems="10"

        android:hint="phone number"

        android:inputType="phone"

        app:layout_constraintBottom_toBottomOf="parent"

        app:layout_constraintEnd_toEndOf="parent"
```

```xml
        app:layout_constraintHorizontal_bias="0.174"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.282" />


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

activitymain2.xml

```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="#48C1D1"
    tools:context=".MainActivity2">

    <TextView
        android:id="@+id/textView"
        android:layout_width="353dp"
        android:layout_height="194dp"
        android:fontFamily="sans-serif-black"
        android:text="TextView"
        android:textColor="#FF00DD"
        android:textSize="20sp"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.201"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.214" />
```

</androidx.constraintlayout.widget.ConstraintLayout>

JAVA Code:

Mainactivity1.java

```java
package com.example.myapp15_12_2;

import androidx.appcompat.app.ActionBar;
import androidx.appcompat.app.AppCompatActivity;

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

public class MainActivity extends AppCompatActivity {
    Button b1;
    EditText name,email,num;
    String un,em,no;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        ActionBar action=getSupportActionBar();
        action.setTitle("First Page");
        b1=findViewById(R.id.button);
        name=findViewById(R.id.ed1);
        email=findViewById(R.id.ed2);
        num=findViewById(R.id.ed3);
        b1.setOnClickListener(new View.OnClickListener() {
```

```java
        @Override
        public void onClick(View v) {
            Intent in=new Intent(MainActivity.this,MainActivity2.class);

            un=name.getText().toString();
            em=email.getText().toString();
            no=num.getText().toString();
            in.putExtra("na",un);
            in.putExtra("el",em);
            in.putExtra("ph",no);
            startActivity(in);
        }
    });
  }
}
```

Mainactivity2.java

```java
package com.example.myapp15_12_2;

import androidx.appcompat.app.ActionBar;
import androidx.appcompat.app.AppCompatActivity;

import android.content.Intent;
import android.os.Bundle;
import android.widget.TextView;


public class MainActivity2 extends AppCompatActivity {

  @Override
  protected void onCreate(Bundle savedInstanceState) {
      super.onCreate(savedInstanceState);
```
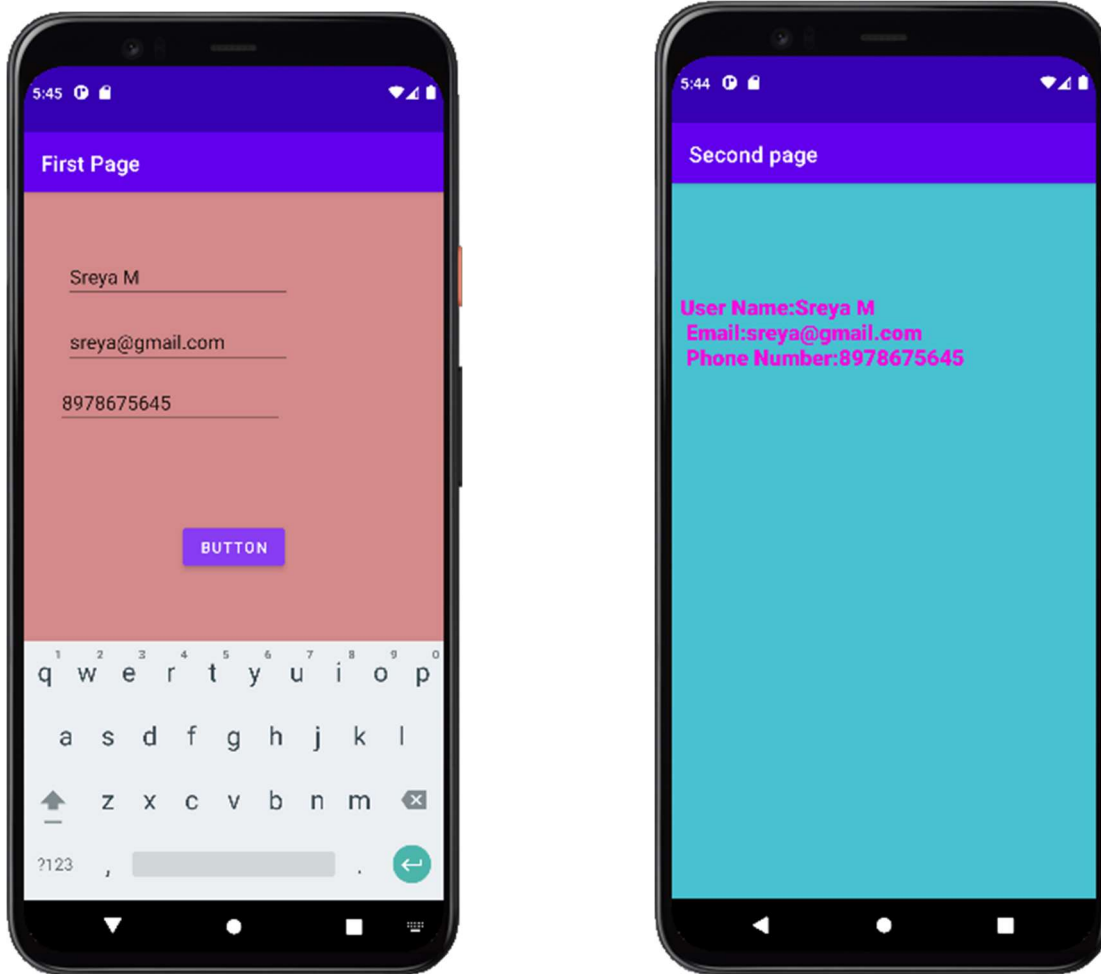
```java
setContentView(R.layout.activity_main2);
ActionBar act=getSupportActionBar();
act.setTitle("Second page");
TextView t1=findViewById(R.id.textView);
Intent in=getIntent();
String uname=in.getStringExtra("na");
String ema=in.getStringExtra("el");
String pn=in.getStringExtra("ph");
t1.setText("User Name:"+uname+"\n Email:"+ema+"\n Phone Number:"+pn);


    }
}
```

OUTPUT:

Program No:11

Aim: Develop application that works with explicit intents

XML Code

```
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout
xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:background="#46F44336"
    tools:context=".MainActivity">

    <Button
        android:id="@+id/button"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:backgroundTint="#E91E63"
        android:text="Click"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.498"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.251" />

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

Java Code:

```java
package com.example.myapp15_12_3;


import androidx.appcompat.app.ActionBar;
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);
        ActionBar act=getSupportActionBar();
        act.setTitle("Implicit Intent");
        b1=findViewById(R.id.button);
        b1.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                Intent in= new Intent(Intent.ACTION_VIEW,
Uri.parse("https://www.google.com/"));
                startActivity(in);
            }
        });
    }
}
```

OUTPUT:
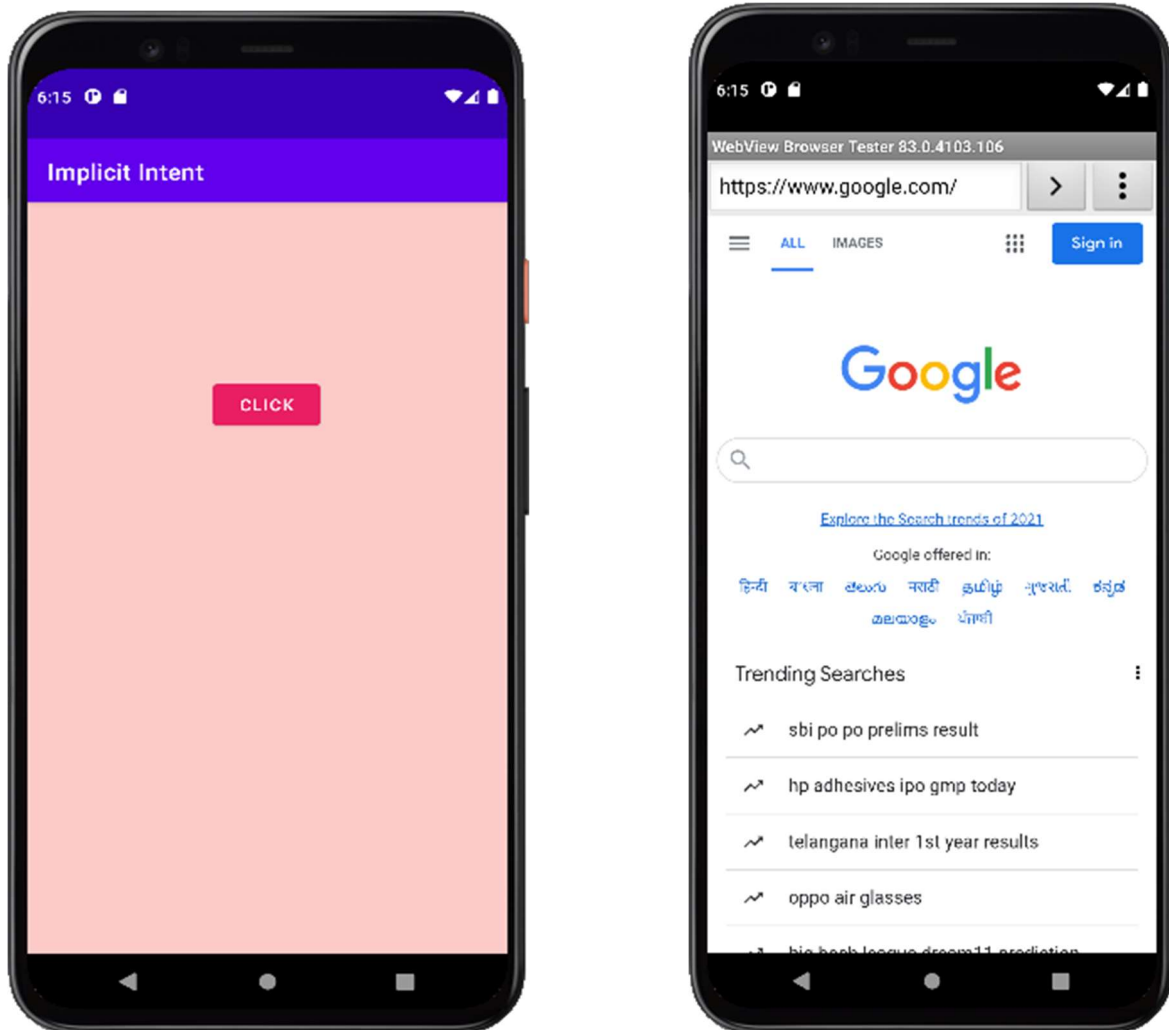
Program No:12

Aim: Implement Options Menu to navigate to activities

XML Code:

main.xml

```xml
<?xml version="1.0" encoding="utf-8"?>
<menu xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:android="http://schemas.android.com/apk/res/android">
    <item
        android:id="@+id/it1"
        android:icon="@drawable/about"
        android:title="About"
        app:showAsAction="withText" />
    <item
        android:id="@+id/it2"
        android:icon="@drawable/help"
        android:title="Help" />
</menu>
```

activity_main.xml

```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=".MainActivity3">

    <ImageView
        android:id="@+id/imageView"
```

```
        android:layout_width="wrap_content"

        android:layout_height="wrap_content"

        app:layout_constraintBottom_toBottomOf="parent"

        app:layout_constraintEnd_toEndOf="parent"

        app:layout_constraintHorizontal_bias="0.497"

        app:layout_constraintStart_toStartOf="parent"

        app:layout_constraintTop_toTopOf="parent"

        app:layout_constraintVertical_bias="0.642"

        />

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

Java Code:

```java
package com.example.myapp15_12_2;

import androidx.annotation.NonNull;

import androidx.appcompat.app.AppCompatActivity;

import android.content.Intent;

import android.os.Bundle;

import android.view.Menu;

import android.view.MenuItem;

import android.widget.ImageView;

import android.widget.Toast;

public class MainActivity3 extends AppCompatActivity {

    ImageView i;

//option menu

    @Override

    public boolean onCreateOptionsMenu(Menu menu) {

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

        return true;

        //return super.onCreateOptionsMenu(menu);

    }

    @Override
```

```java
public boolean onOptionsItemSelected(@NonNull MenuItem item) {

    item.setIcon(R.drawable.about);
        i=findViewById(R.id.imageView);
        //handle item selection
        switch (item.getItemId()) {
            case R.id.it1:
                //view image - about click
                i.setImageResource(R.drawable.about);
                Toast.makeText(getApplicationContext(), "You Clicked About",
Toast.LENGTH_SHORT).show();
                return true;
            case R.id.it2:
                //moving to next page
                Intent in=new Intent(MainActivity3.this,MainActivity.class);
                startActivity(in);
                Toast.makeText(getApplicationContext(), "You Clicked Help",
Toast.LENGTH_SHORT).show();
                return true;
            default:
                return super.onOptionsItemSelected(item);
        }
    }

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

}
```

OUTPUT:
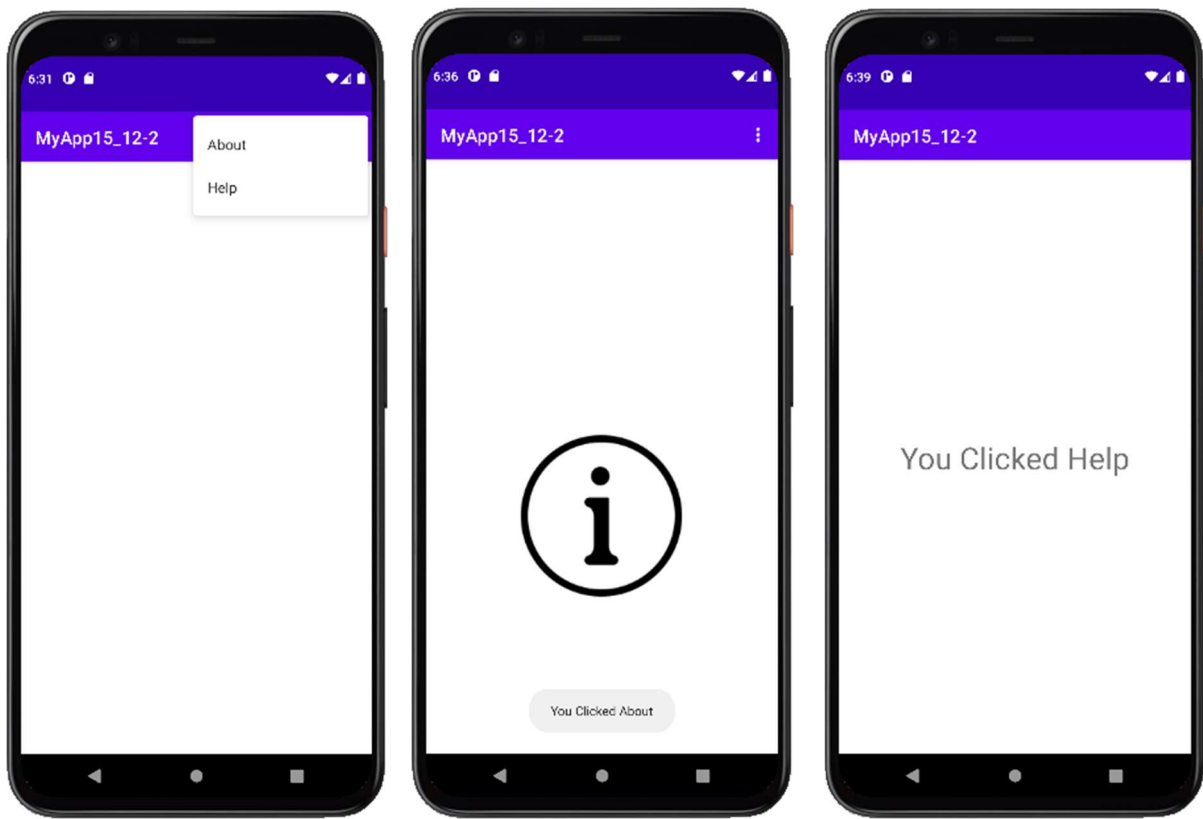
Program No:13

Aim: Develop an application that uses ArrayAdapter with ListView

XML Code:

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

    <ListView
        android:id="@+id/list1"
        android:layout_width="258dp"
        android:layout_height="190dp"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.104"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.142" />

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

Java Code:

```java
package com.example.a04_01_22;

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

```java
import android.os.Bundle;
import android.view.View;
import android.widget.AdapterView;
import android.widget.ArrayAdapter;
import android.widget.ListView;
import android.widget.Toast;

public class MainActivity extends AppCompatActivity {

    ListView l1;
    String flowers[]={"rose","jasmin","sunflower"};
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        l1=findViewById(R.id.list1);

        ArrayAdapter arrayAdapter=new
ArrayAdapter<String>(MainActivity.this,R.layout.support_simple_spinner_dropdown_item,flowers);
        l1.setAdapter(arrayAdapter);
        //for toast while clicking item
        l1.setOnItemClickListener(new AdapterView.OnItemClickListener() {
            @Override
            public void onItemClick(AdapterView<?> parent, View view, int position, long id) {
                Toast.makeText(getApplicationContext(), "You Clicked "+flowers[position],
Toast.LENGTH_LONG).show();
            }
        });
    }
}
```

OUTPUT:
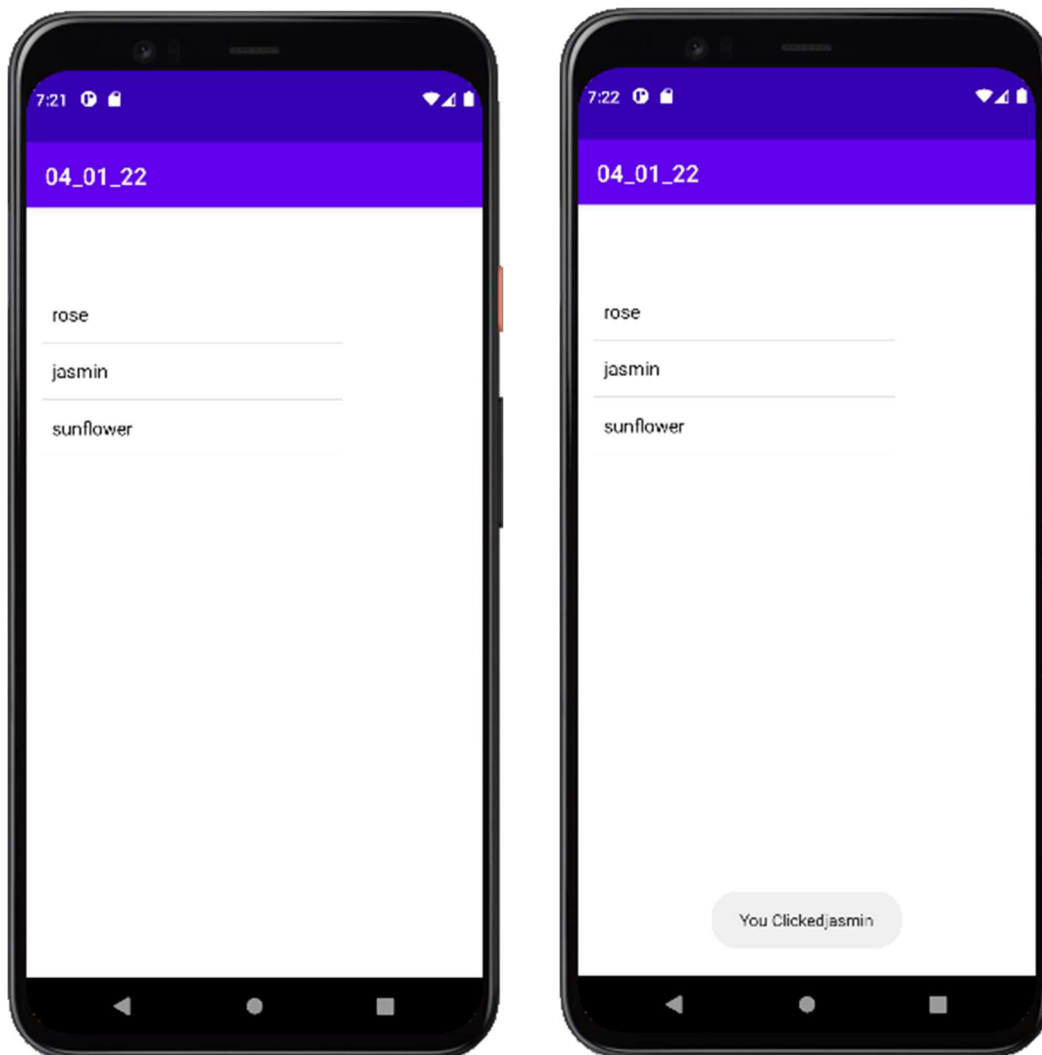
Program No:14

Aim: Develop an application that use GridView with images and display Alert box on selection

XML Code:

android_main.xml

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

    <GridView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:id="@+id/gv"
        android:numColumns="2"/>

</LinearLayout>
```

gridlay.xml

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

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

    android:layout_width="match_parent"

    android:layout_height="match_parent"

    android:orientation="vertical">


    <ImageView

        android:layout_width="150dp"

        android:layout_height="150dp"

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


    <TextView

        android:layout_width="wrap_content"

        android:layout_height="wrap_content"

        android:id="@+id/tv"

        android:textSize="20dp"/>


</LinearLayout>
```

Java Code:

mainactivity.java

```java
package com.example.myapp22_02;
```

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

import android.os.Bundle;

import android.widget.GridView;

public class MainActivity extends AppCompatActivity {

    GridView gridView;

    String
text[]={"Image1","Image2","image3","image4","image5","image6","image7","image8"};

    int image[]={R.drawable.bird1,R.drawable.bird2,R.drawable.bird3,
R.drawable.bird4,R.drawable.bird5,R.drawable.bird6, R.drawable.bird7,R.drawable.bird8};

    @Override
    protected void onCreate(Bundle savedInstanceState) {

        super.onCreate(savedInstanceState);

        setContentView(R.layout.activity_main);

        gridView=findViewById(R.id.gv);
```

```
        CustomAdaptr customAdaptr=new CustomAdaptr(MainActivity.this,text,image);

        gridView.setAdapter(customAdaptr);

    }

}
```

customadapter.class

package com.example.myapp22_02;

import android.content.Context;

import android.view.LayoutInflater;

import android.view.View;

import android.view.ViewGroup;

import android.widget.BaseAdapter;

import android.widget.ImageView;

import android.widget.TextView;

public class CustomAdaptr extends BaseAdapter {

    Context context;

    String text[];

    int image[];

    LayoutInflater layoutInflater;

```java
public CustomAdaptr(MainActivity mainActivity, String[] text, int[] image) {


    this.context=mainActivity;

    this.text=text;

    this.image=image;

    this.layoutInflater=(LayoutInflater.from(mainActivity));

}


    @Override
    public int getCount() {

        return image.length;

    }


    @Override
    public Object getItem(int position) {

        return null;

    }


    @Override
    public long getItemId(int position) {

        return 0;

    }


    @Override
```

```
public View getView(int position, View convertView, ViewGroup parent) {

    convertView=layoutInflater.inflate(R.layout.gridlay,null);


    TextView textView=(TextView) convertView.findViewById(R.id.tv);

    ImageView imageView=(ImageView) convertView.findViewById(R.id.im);


    textView.setText(text[position]);

    imageView.setImageResource(image[position]);


    return convertView;

  }

}
```

OUTPUT:

Program No:15

Aim: Develop an application that implements Spinner component and perform event handling

XML Code:

```
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout
xmlns:android="http://schemas.android.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="250dp"
        android:layout_height="40dp"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.695"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.164" />

    <TextView
        android:id="@+id/textView2"
        android:layout_width="wrap_content"
```

```
        android:layout_height="wrap_content"

        android:text="Course"

        app:layout_constraintBottom_toBottomOf="parent"

        app:layout_constraintEnd_toEndOf="parent"

        app:layout_constraintHorizontal_bias="0.076"

        app:layout_constraintStart_toStartOf="parent"

        app:layout_constraintTop_toTopOf="parent"

        app:layout_constraintVertical_bias="0.189" />
</androidx.constraintlayout.widget.ConstraintLayout>
```

Java Code

```java
package com.example.spinner1402;


import androidx.appcompat.app.AppCompatActivity;


import android.os.Bundle;
import android.view.View;
import android.widget.AdapterView;
import android.widget.ArrayAdapter;
import android.widget.Spinner;
import android.widget.Toast;


public class MainActivity extends AppCompatActivity {

    Spinner sp;
    String[] course={
        "MCA","MBA","MTECH" };


    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
```

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

sp=findViewById(R.id.spinner);

ArrayAdapter arrayAdapter=new
ArrayAdapter(this,R.layout.support_simple_spinner_dropdown_item,course);
sp.setAdapter(arrayAdapter);
sp.setOnItemSelectedListener(new AdapterView.OnItemSelectedListener() {
    @Override
    public void onItemSelected(AdapterView<?> parent, View view, int position, long id)
{
        Toast.makeText(getApplicationContext(), "You clicked"+course[position],
Toast.LENGTH_SHORT).show();
    }

    @Override
    public void onNothingSelected(AdapterView<?> parent) {
        return;

    }
});

}
}
```

OUTPUT:
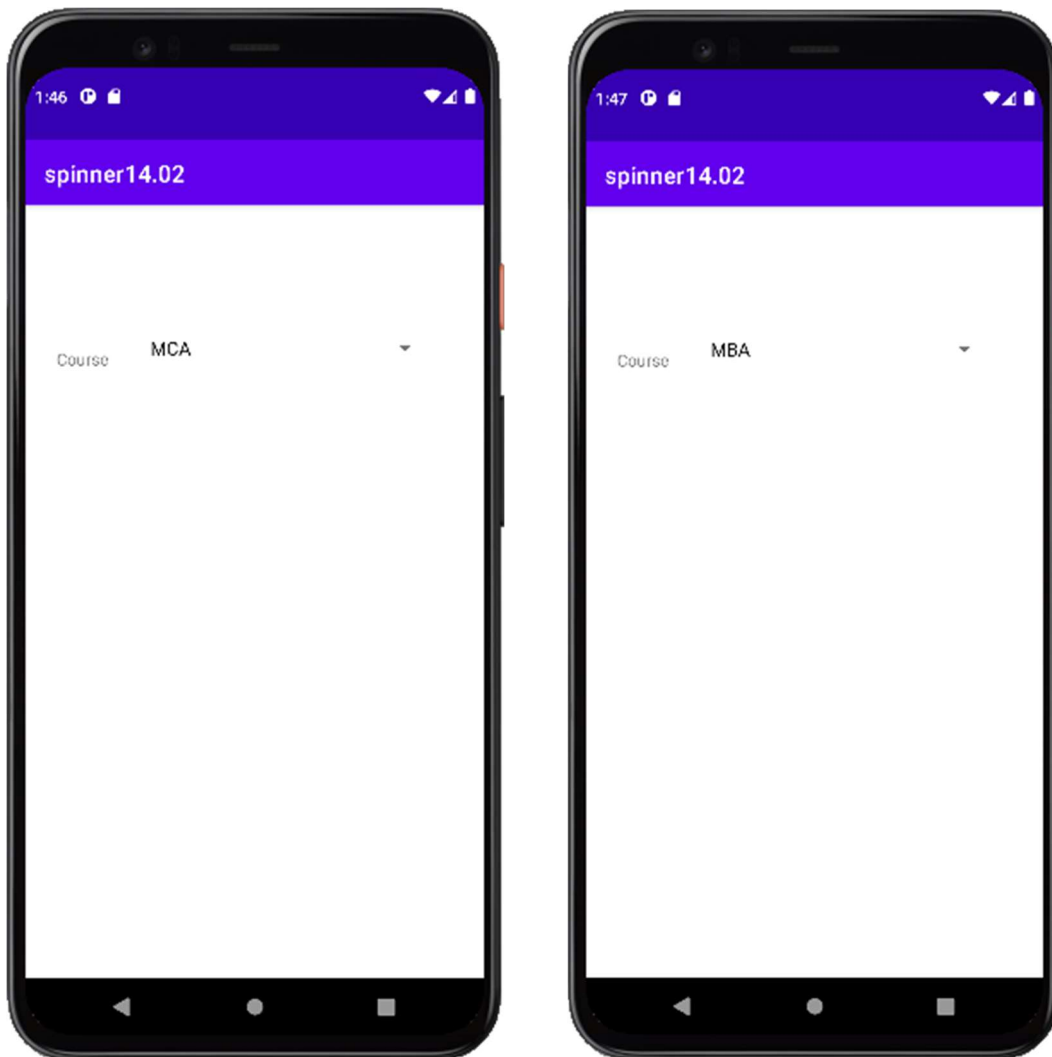
Program No:16

Aim: Apply themes via code and manifest file

XML Code:

Androidmanifest.xml

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

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

    package="com.example.facebook">


    <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.AppCompat.DayNight.DarkActionBar">

        <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>
```

Theme.xml

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

    <!-- Base application theme. -->

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

        <!-- Primary brand color. -->

        <item name="colorPrimary">@color/teal_200</item>

        <item name="colorPrimaryVariant">@color/purple_700</item>

        <item name="colorOnPrimary">@color/purple_200</item>

        <!-- Secondary brand color. -->

        <item name="colorSecondary">@color/teal_200</item>

        <item name="colorSecondaryVariant">@color/teal_700</item>

        <item name="colorOnSecondary">@color/black</item>

        <!-- Status bar color. -->

        <item name="android:statusBarColor"
tools:targetApi="l">?attr/colorPrimaryVariant</item>

        <!-- Customize your theme here. -->

    </style>

</resources>
```

Java Code:

package com.example.exption02_03;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;

import android.util.Log;

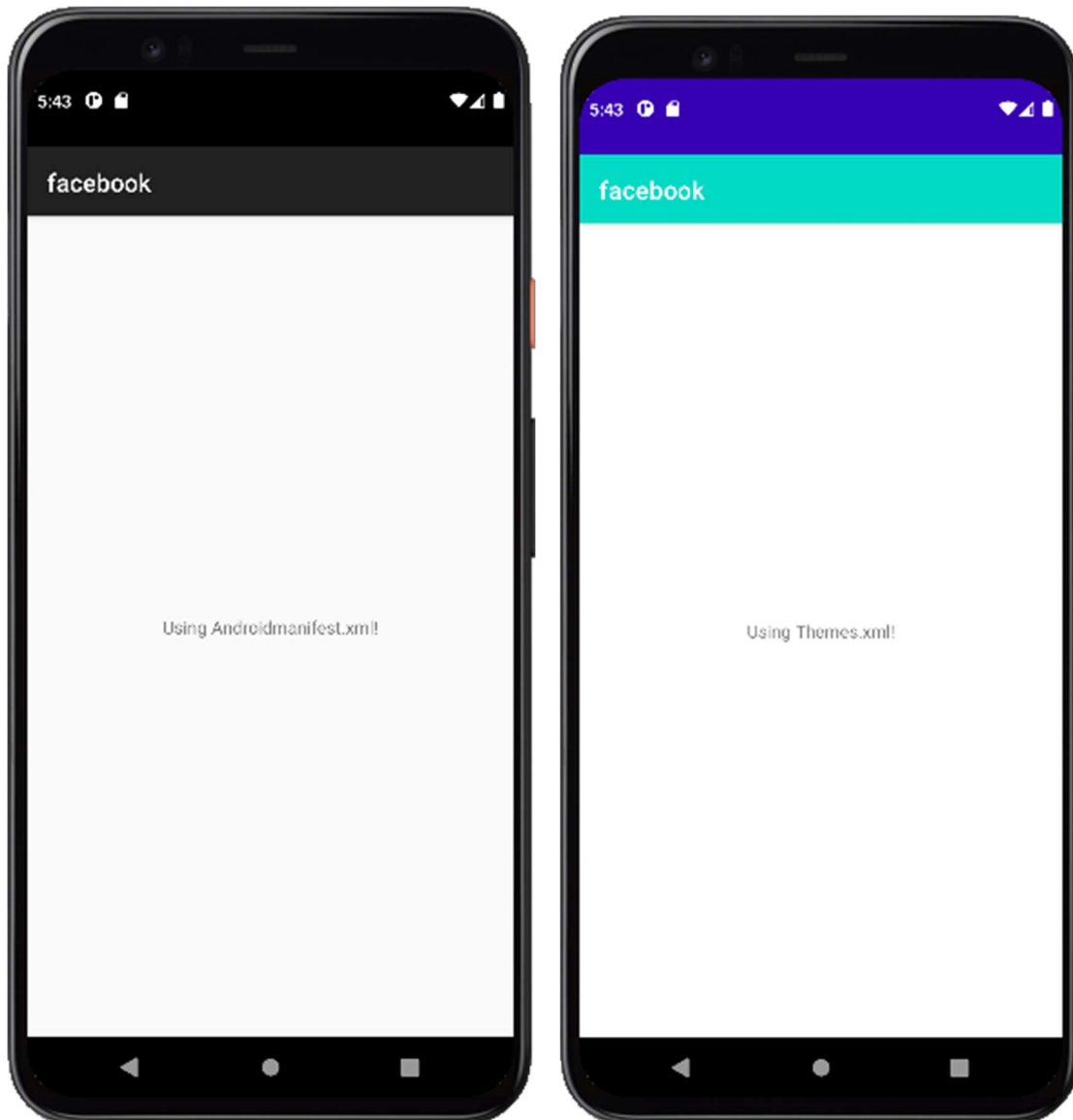public class MainActivity extends AppCompatActivity {

  @Override

  protected void onCreate(Bundle savedInstanceState) {

    super.onCreate(savedInstanceState);

    setContentView(R.layout.activity_main);

  }

}

OUTPUT:

Program No:17

Aim: Develop application using Fragments

XML Code:

activitymain.xml

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

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

        <Button
            android:id="@+id/b1"
            android:layout_width="160dp"
            android:layout_height="50dp"
```

```
            android:layout_alignParentBottom="true"
            android:layout_marginStart="30dp"
            android:layout_marginBottom="30dp"
            android:text="Fragment 1" />


        <Button
            android:id="@+id/b2"
            android:layout_width="160dp"
            android:layout_height="50dp"
            android:layout_alignParentBottom="true"
            android:layout_alignParentRight="true"
            android:layout_marginStart="30dp"
            android:layout_marginBottom="30dp"
            android:text="Fragment 2" />
    </RelativeLayout>
</LinearLayout>
```

fragment_fragment1.xml

```
<?xml version="1.0" encoding="utf-8"?>
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:background="@color/purple_700"
    tools:context=".fragment1">


    <!-- TODO: Update blank fragment layout -->
    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_centerInParent="true"
        android:textSize="30dp"
```

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

fragment_fragment2.xml

```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_700"
    tools:context=".fragment2">

    <!-- TODO: Update blank fragment layout -->
    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_centerInParent="true"
        android:textSize="30dp"
        android:text="Fragment 2" />

</RelativeLayout>
```

Java Code:

```java
package com.example.myapp09_02_3;

import androidx.appcompat.app.AppCompatActivity;
import androidx.fragment.app.Fragment;
import androidx.fragment.app.FragmentManager;
import androidx.fragment.app.FragmentTransaction;
```

```java
import android.os.Bundle;
import android.view.View;
import android.widget.Button;

public class MainActivity extends AppCompatActivity {
    Button b1,b2;

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

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

        b1.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                replaceFragmnt(new fragment1());
            }
        });

        b2.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                replaceFragmnt(new fragment2());

            }
        });
    }
```

```java
    private void replaceFragmnt(Fragment fragment) {
        FragmentManager fragmentManager=getSupportFragmentManager();
        FragmentTransaction fragmentTransaction=fragmentManager.beginTransaction();
        fragmentTransaction.replace(R.id.frameLayout,fragment);
        fragmentTransaction.commit();
    }

}
```

fragment1.java

```java
package com.example.myapp09_02_3;

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


public class fragment1 extends Fragment {

    @Override
    public View onCreateView(LayoutInflater inflater, ViewGroup container,
                 Bundle savedInstanceState) {
        // Inflate the layout for this fragment
        return inflater.inflate(R.layout.fragment_fragment1, container, false);
    }
}
```

fragment2.java

```
package com.example.myapp09_02_3;

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



public class fragment2 extends Fragment {

    @Override
    public View onCreateView(LayoutInflater inflater, ViewGroup container,
                 Bundle savedInstanceState) {
        // Inflate the layout for this fragment
        return inflater.inflate(R.layout.fragment_fragment2, container, false);
    }
}
```

OUTPUT
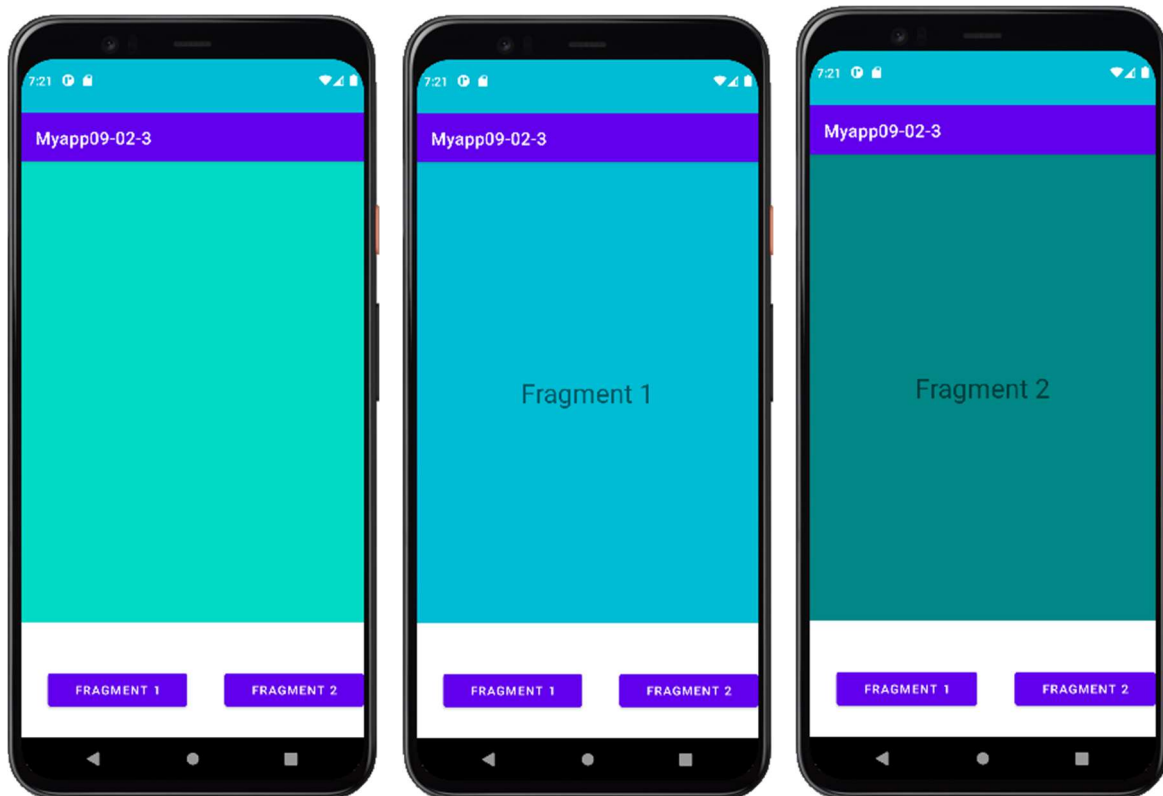
Program No:18

Aim: Implement Navigation drawer

XML Code:

activitymain.xml

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

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

        <TextView
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_gravity="center"
            android:text="Navigation"
            android:textSize="20dp" />

    </LinearLayout>
```

```xml
<com.google.android.material.navigation.NavigationView
    android:layout_width="wrap_content"
    android:layout_height="match_parent"
    android:layout_gravity="start"
    app:menu="@menu/navimenu"/>
```

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

String.xml

```xml
<resources>
    <string name="app_name">nav14.02</string>
    <string name="nav_open">Open</string>
    <string name="nav_close">Close</string>
</resources>
```

Navimenu.xml

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

 <item
     android:id="@+id/acc"
     android:title="Account"
     android:icon="@drawable/acc"/>
  <item
     android:id="@+id/sett"
     android:title="Settings"
     android:icon="@drawable/sett"/>
  <item
     android:id="@+id/log"
     android:title="Logout"
```

```
            android:icon="@drawable/logout" />
</menu>
```

Java Code:

```java
package com.example.nav1402;

import androidx.annotation.NonNull;
import androidx.appcompat.app.ActionBarDrawerToggle;
import androidx.appcompat.app.AppCompatActivity;
import androidx.drawerlayout.widget.DrawerLayout;

import android.os.Bundle;
import android.view.MenuItem;

public class MainActivity extends AppCompatActivity {

    DrawerLayout drawerLayout;
    ActionBarDrawerToggle actionBarDrawerToggle;

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

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

        drawerLayout.addDrawerListener(actionBarDrawerToggle);
        actionBarDrawerToggle.syncState();

        getSupportActionBar().setDisplayHomeAsUpEnabled(true);
```
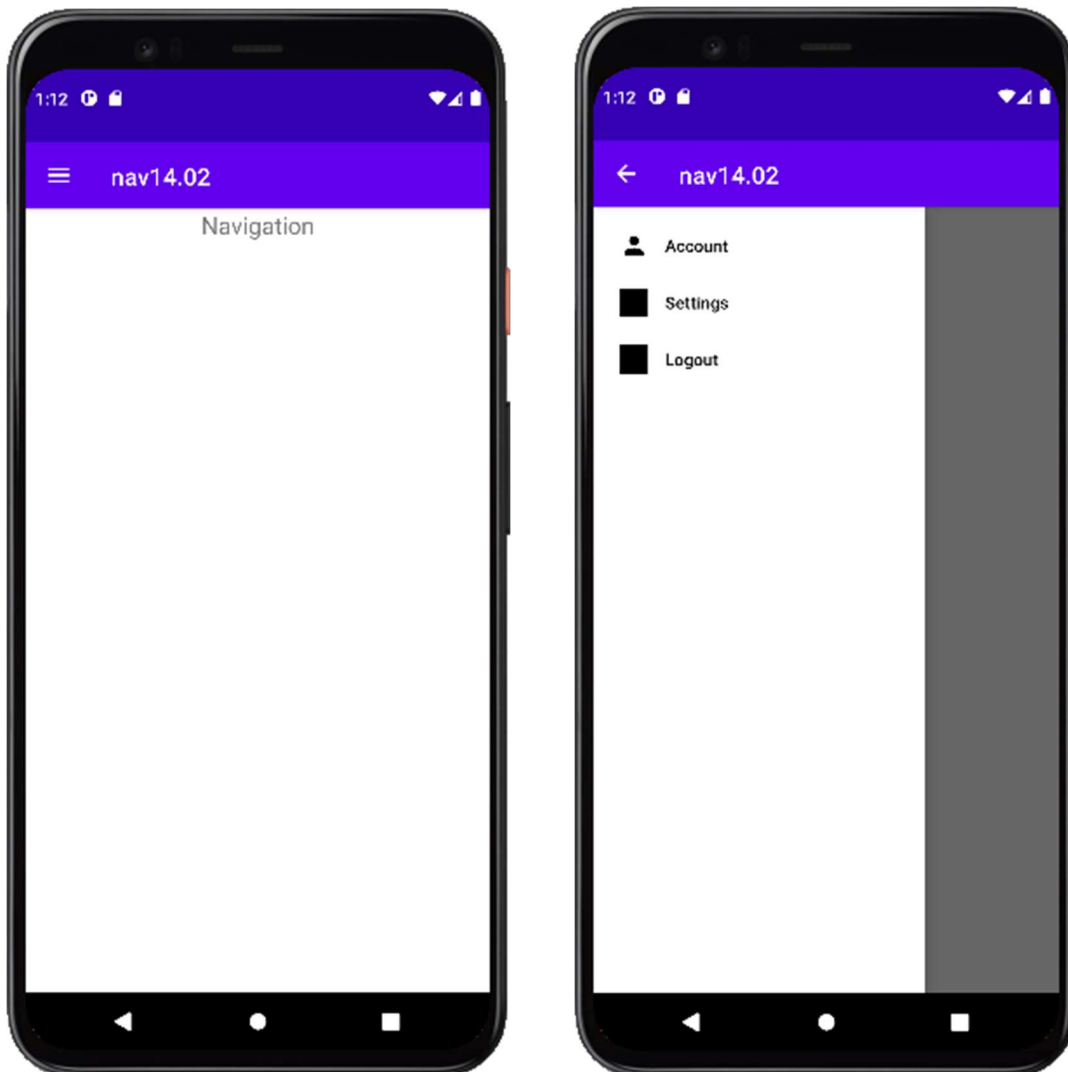
```
    }


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


        if (actionBarDrawerToggle.onOptionsItemSelected(item))
        {
            return true;
        }


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

OUTPUT

Program No:19

Aim: Create database using SQLite and perform INSERT,SELECT,UPDATE and DELETE on SQLite database

XML Code:

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

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

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

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

    android:layout_width="match_parent"

    android:layout_height="match_parent"

    tools:context=".MainActivity">


    <TextView

        android:id="@+id/t1"

        android:layout_width="wrap_content"

        android:layout_height="wrap_content"

        android:text="Name"

        android:textSize="20sp"

        app:layout_constraintBottom_toBottomOf="parent"

        app:layout_constraintEnd_toEndOf="parent"

        app:layout_constraintHorizontal_bias="0.045"

        app:layout_constraintStart_toStartOf="parent"
```

```
app:layout_constraintTop_toTopOf="parent"

app:layout_constraintVertical_bias="0.089" />


<TextView

    android:id="@+id/t2"

    android:layout_width="wrap_content"

    android:layout_height="wrap_content"

    android:text="Course"

    android:textSize="20sp"

    app:layout_constraintBottom_toBottomOf="parent"

    app:layout_constraintEnd_toEndOf="parent"

    app:layout_constraintHorizontal_bias="0.045"

    app:layout_constraintStart_toStartOf="parent"

    app:layout_constraintTop_toTopOf="parent"

    app:layout_constraintVertical_bias="0.172" />


<EditText

    android:id="@+id/e1"

    android:layout_width="wrap_content"

    android:layout_height="wrap_content"

    android:ems="10"

    android:inputType="textPersonName"

    android:text=""

    app:layout_constraintBottom_toBottomOf="parent"
```

```
    app:layout_constraintEnd_toEndOf="parent"

    app:layout_constraintHorizontal_bias="0.497"

    app:layout_constraintStart_toStartOf="parent"

    app:layout_constraintTop_toTopOf="parent"

    app:layout_constraintVertical_bias="0.071" />


<EditText

    android:id="@+id/e2"

    android:layout_width="wrap_content"

    android:layout_height="wrap_content"

    android:ems="10"

    android:inputType="textPersonName"

    android:text=""

    app:layout_constraintBottom_toBottomOf="parent"

    app:layout_constraintEnd_toEndOf="parent"

    app:layout_constraintHorizontal_bias="0.497"

    app:layout_constraintStart_toStartOf="parent"

    app:layout_constraintTop_toTopOf="parent"

    app:layout_constraintVertical_bias="0.177" />


<Button

    android:id="@+id/button"

    android:layout_width="wrap_content"

    android:layout_height="wrap_content"
```

```
android:text="Insert"

app:layout_constraintBottom_toBottomOf="parent"

app:layout_constraintEnd_toEndOf="parent"

app:layout_constraintHorizontal_bias="0.201"

app:layout_constraintStart_toStartOf="parent"

app:layout_constraintTop_toTopOf="parent"

app:layout_constraintVertical_bias="0.314" />


<Button

    android:id="@+id/button2"

    android:layout_width="wrap_content"

    android:layout_height="wrap_content"

    android:text="View"

    app:layout_constraintBottom_toBottomOf="parent"

    app:layout_constraintEnd_toEndOf="parent"

    app:layout_constraintHorizontal_bias="0.747"

    app:layout_constraintStart_toStartOf="parent"

    app:layout_constraintTop_toTopOf="parent"

    app:layout_constraintVertical_bias="0.313" />


<Button

    android:id="@+id/button3"

    android:layout_width="wrap_content"

    android:layout_height="wrap_content"
```

```xml
    android:text="Delete"

    app:layout_constraintBottom_toBottomOf="parent"

    app:layout_constraintEnd_toEndOf="parent"

    app:layout_constraintHorizontal_bias="0.466"

    app:layout_constraintStart_toStartOf="parent"

    app:layout_constraintTop_toTopOf="parent"

    app:layout_constraintVertical_bias="0.563" />

<Button

    android:id="@+id/button4"

    android:layout_width="wrap_content"

    android:layout_height="wrap_content"

    android:text="Update"

    app:layout_constraintBottom_toBottomOf="parent"

    app:layout_constraintEnd_toEndOf="parent"

    app:layout_constraintHorizontal_bias="0.656"

    app:layout_constraintStart_toStartOf="parent"

    app:layout_constraintTop_toTopOf="parent"

    app:layout_constraintVertical_bias="0.563" />


<TextView

    android:id="@+id/textView"

    android:layout_width="wrap_content"

    android:layout_height="wrap_content"
```

```
        android:text="Text"

        app:layout_constraintBottom_toBottomOf="parent"

        app:layout_constraintEnd_toEndOf="parent"

        app:layout_constraintHorizontal_bias="0.47"

        app:layout_constraintStart_toStartOf="parent"

        app:layout_constraintTop_toTopOf="parent"

        app:layout_constraintVertical_bias="0.886" />


    <EditText

        android:id="@+id/ed1"

        android:layout_width="wrap_content"

        android:layout_height="wrap_content"

        android:ems="10"

        android:hint="Name"

        android:inputType="textPersonName"

        app:layout_constraintBottom_toBottomOf="parent"

        app:layout_constraintEnd_toEndOf="parent"

        app:layout_constraintHorizontal_bias="0.079"

        app:layout_constraintStart_toStartOf="parent"

        app:layout_constraintTop_toTopOf="parent"

        app:layout_constraintVertical_bias="0.463" />

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

Mainactivity.java

package com.example.sqldb15;

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.TextView;

import android.widget.Toast;


```java
public class MainActivity extends AppCompatActivity {

    EditText e1,e2,e3;

    Button b1,b2,b3,b4;

    TextView t1;


    @Override
    protected void onCreate(Bundle savedInstanceState) {

        super.onCreate(savedInstanceState);

        setContentView(R.layout.activity_main);


        e1=findViewById(R.id.e1);
```

```java
e2=findViewById(R.id.e2);

b1=findViewById(R.id.button);

b2=findViewById(R.id.button2);

b3=findViewById(R.id.button3);

   b4=findViewById(R.id.button4);

t1=findViewById(R.id.textView);

e3=findViewById(R.id.ed1);

sqldb database=new sqldb(this);

StringBuffer sbuff=new StringBuffer();


b1.setOnClickListener(new View.OnClickListener() {

   @Override

   public void onClick(View v) {

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

      String course=e2.getText().toString();

      database.insert(name,course);


   }

});


b2.setOnClickListener(new View.OnClickListener() {

   @Override

   public void onClick(View v) {

      Cursor cur=database.viewdata();
```

```
        while (cur.moveToNext()){

            sbuff.append("Id"+cur.getString(0)+"\n");

            sbuff.append("Student Name"+cur.getString(1)+"\n");

            sbuff.append("Student add"+cur.getString(2)+"\n");

        }

        //Toast.makeText(getApplicationContext(), sbuff.toString(),
Toast.LENGTH_LONG).show();

        t1.setText(sbuff);

      }

    });




    b3.setOnClickListener(new View.OnClickListener() {

      @Override

      public void onClick(View v) {

        String del=e3.getText().toString();

        database.deletedata(del);

      }

    });

b4.setOnClickListener(new View.OnClickListener() {

  @Override

  public void onClick(View v) {

    String uid=e3.getText().toString();

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

    String ucourse=e2.getText().toString();
```

```
            database.updatedb(uid,uname,ucourse);

    }

});

 }

}


Sqldb.java

package com.example.sqldb15;


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 sqldb extends SQLiteOpenHelper {


    private static String databaseName="dbstud";

    private static int databaseVer=2;


    SQLiteDatabase db;

    public sqldb(Context context) {
```

```
        super(context, databaseName, null, databaseVer);

    }


    @Override

    public void onCreate(SQLiteDatabase db) {

        db.execSQL("create table tbl_student(studid integer primary key
autoincrement,studname varchar(20),studcourse varchar(20))" );



    }


    @Override

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


    }

    public void insert(String name,String course){

        db=getWritableDatabase();

        ContentValues insertdata=new ContentValues();

        insertdata.put("studname",name);

        insertdata.put("studcourse",course);

        db.insert("tbl_student",null,insertdata);


    }

    public Cursor viewdata(){
```

```
db=getReadableDatabase();

Cursor cur=db.rawQuery("Select * from tbl_student ",null);

return cur;

}

public void deletedata(String del){

db=getWritableDatabase();

db.delete("tbl_student","studid=?",new String[]{del});


}
public void updatedb(String uid,String uname,String ucourse){

db=getWritableDatabase();

ContentValues updatedata=new ContentValues();


updatedata.put("studname",uname);

updatedata.put("studcourse",ucourse);

db.update("tbl_student",updatedata,"studid=?",new String[]{uid});
}


}
```

OUTPUT

: