20MCA243 MOBILE APPLICATION DEVELOPMENT LAB

Lab Report Submitted By

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(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
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KANJIRAPPALLY

CERTIFICATE

This is to certify that the lab report, "**20MCA243 MOBILE APPLICATION DEVELOPMENT LAB**" is the bonafide work of **SOJA SONY (Reg.No:AJC20MCA-2067)** 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

CONTENT

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"
    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"/>
```

```xml
    <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:

```java
package com.example.loginformvalidation;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;

import android.view.View;

import android.widget.Button;

import android.widget.EditText;

import android.widget.TextView;

import android.widget.Toast;

public class MainActivity extends AppCompatActivity {

    EditText e1,e2;

    TextView t1, t2;

    Button b1;

    @Override

protected void onCreate(Bundle

savedInstanceState) {

super.onCreate(savedInstanceState);

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

```
e1=findViewById(R.id.edt1);

e2=findViewById(R.id.edt2);

    t1 = findViewById(R.id.t1);



    t2 = findViewById(R.id.t2);

    b1=findViewById(R.id.btn1);

    b1.setOnClickListener(new View.OnClickListener() {

      @Override

      public void onClick(View v) {

        String username,password;

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

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

        if (username.isEmpty()){

        t1.setVisibility(View.VISIBLE);

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

        }

        else if (password.isEmpty()){

          t2.setVisibility(View.VISIBLE);

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

        }else

            Toast.makeText(MainActivity.this, "Login success",
Toast.LENGTH_SHORT).show();

      }

    });

  }

}
```

Output

Program: 2

Aim: Program to implement 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>
```

Mainactivity.java

```java
package com.example.lifecycle;
```

```java
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();
```

```java
    Log.d("Lifecycle","onPause invoked");

  }

  @Override

  protected void onStop(){

    super.onStop();

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

  }

  @Override

  protected void onRestart(){

    super.onRestart();

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

  }

  @Override

  protected  void onDestroy(){

    super.onDestroy();

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

  }


}
```

Output

```
W/UnpreeriveG,Der AccessIng WIDDEN WCCHED-2WNdrsIG,710m,710MGTGGp/ MWKeGptIGWdermeGG,GtGMMGenGdUNGG7v (g7d,GIGG,7e77GG7IGW,7GGGGAGGG)
D/Lifecycle: onCreate invoked
D/Lifecycle: onStart invoked
D/Lifecycle: onResume invoked
D/HostConnection: HostConnection::get() New Host Connection established 0xeda5f570, tid 6704
D/HostConnection: HostComposition ext ANDROID_EMU_CHECKSUM_HELPER_v1 ANDROID_EMU_native_sync_v2 ANDROID_EMU_native_sync_v3 ANDROID_EMU_native_sync_v4 ANDROI
W/OpenGLRenderer: Failed to choose config with EGL_SWAP_BEHAVIOR_PRESERVED, retrying without...
D/EGL_emulation: eglCreateContext: 0xeda5ff80: maj 2 min 0 rcv 2
D/EGL_emulation: eglMakeCurrent: 0xeda5ff80: ver 2 0 (tinfo 0xeddb2730) (first time)
I/Gralloc4: mapper 4.x is not supported
D/HostConnection: createUnique: call
D/HostConnection: HostConnection::get() New Host Connection established 0xeda5f0a0, tid 6704
D/goldfish-address-space: allocate: Ask for block of size 0x100
    allocate: ioctl allocate returned offset 0x3f3ffe000 size 0x2000
D/HostConnection: HostComposition ext ANDROID_EMU_CHECKSUM_HELPER_v1 ANDROID_EMU_native_sync_v2 ANDROID_EMU_native_sync_v3 ANDROID_EMU_native_sync_v4 ANDROI
W/System: A resource failed to call close.
D/Lifecycle: onPause invoked
D/Lifecycle: onStop invoked
D/Lifecycle: onRestart invoked
D/Lifecycle: onStart invoked
D/Lifecycle: onResume invoked
```

Program: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=".MainActivity">

    <EditText
    android:id="@+id/etnum1"
    android:layout_width="343dp"
    android:layout_height="106dp"
    android:drawableLeft="@drawable/num1"
    android:ems="10"
    android:hint="enter the first number"
    android:inputType="number"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.764"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.096" />

  <Button
    android:id="@+id/btnadd"
    android:layout_width="121dp"
    android:layout_height="64dp"
   android:text="Add"
    android:textSize="20sp"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.145"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent" />

  <Button
```

```xml
    android:id="@+id/div"
    android:layout_width="121dp"
    android:layout_height="64dp"
    android:text="div"
    android:textSize="20sp"
    app:layout_constraintBottom_toBottomOf="parent"
  app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.806"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.622" />

<Button
    android:id="@+id/mul2"
    android:layout_width="121dp"
    android:layout_height="64dp"


    android:text="mul"
    android:textSize="20sp"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.144"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.611" />

<Button
    android:id="@+id/btsub"
    android:layout_width="121dp"
    android:layout_height="64dp"
    android:text="Sub"
    android:textSize="20sp"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.806"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent" />

<EditText
    android:id="@+id/etnum2"
    android:layout_width="336dp"
```

```
    android:layout_height="103dp"
    android:drawableLeft="@drawable/num1"
    android:ems="10"
    android:hint="enter the 2 number"
    android:inputType="number"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.75"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.285" />

  <TextView
    android:id="@+id/tvanswer"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:fontFamily="@font/bigshot_one"
    android:text="Answer"
    android:textColor="@color/anto"
   android:textSize="32sp"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.163"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/btnadd"
    app:layout_constraintVertical_bias="0.46" />

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

Javacode:

```
package com.example.calculator;



import androidx.appcompat.app.AppCompatActivity;



import android.os.Bundle;

import android.view.View;

import android.widget.Button;
```

```java
import android.widget.EditText;

import android.widget.TextView;


public class MainActivity extends AppCompatActivity {

    private EditText num1;

    private EditText num2;

    private Button add;

    private Button sub;

    private Button mul;

    private Button div;

    private TextView result;

    @Override

    protected void onCreate(Bundle savedInstanceState) {

        super.onCreate(savedInstanceState);

        setContentView(R.layout.activity_main);


        num1=(EditText)findViewById(R.id.etnum1);

        num2=(EditText)findViewById(R.id.etnum2);

        add=(Button)findViewById(R.id.btnadd);

        sub=(Button)findViewById(R.id.btsub);

        mul=(Button)findViewById(R.id.mul2);

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

        result=(TextView) findViewById(R.id.tvanswer);

        add.setOnClickListener(new View.OnClickListener() {

            @Override

            public void onClick(View view) {
```

```java
            int number1=Integer.parseInt(num1.getText().toString());

            int number2=Integer.parseInt(num2.getText().toString());

            int sum=number1+number2;

            result.setText("Answer: "+String.valueOf(sum));

        }

    });

    sub.setOnClickListener(new View.OnClickListener() {

        @Override

        public void onClick(View v) {

         int number1=Integer.parseInt(num1.getText().toString());

            int number2=Integer.parseInt(num2.getText().toString());

            int sum=number1-number2;

            result.setText("Answer: "+String.valueOf(sum));

        }

    });


     mul.setOnClickListener(new View.OnClickListener() {

        @Override

        public void onClick(View v) {

            int number1=Integer.parseInt(num1.getText().toString());

            int number2=Integer.parseInt(num2.getText().toString());

            int sum=number1 * number2;

            result.setText("Answer: "+String.valueOf(sum));


        }

    });
```
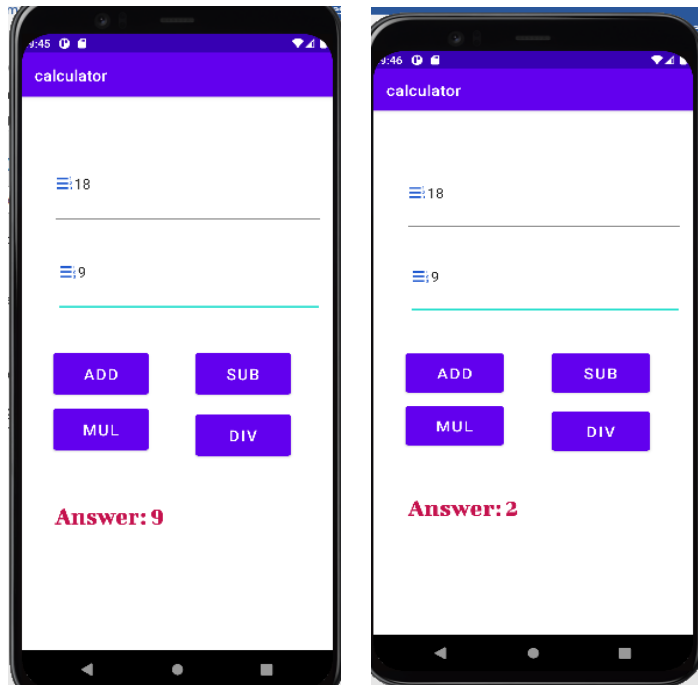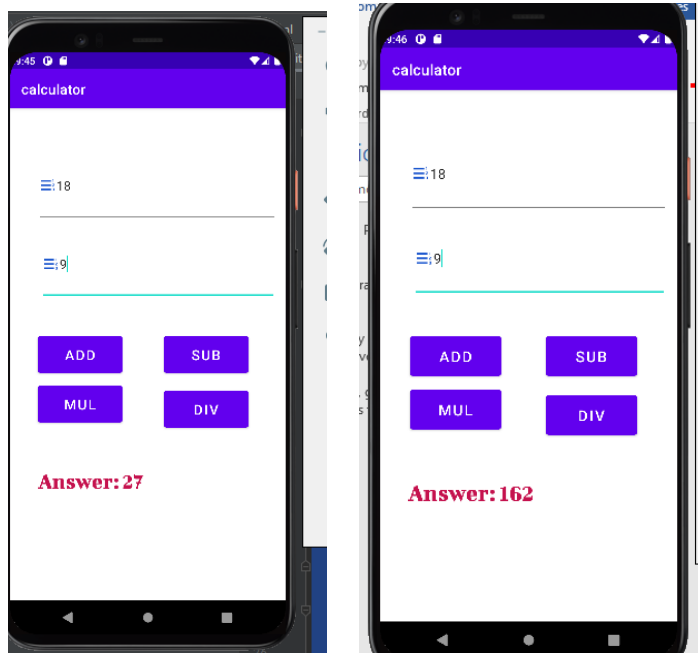
```
    div.setOnClickListener(new View.OnClickListener() {

      @Override

      public void onClick(View v) {

        int number1=Integer.parseInt(num1.getText().toString());

        int number2=Integer.parseInt(num2.getText().toString());

        int sum=number1/number2;

        result.setText("Answer: "+String.valueOf(sum));


      }

    });


  }
}
```

Output

Program: 4

Aim: Implement validations on various UI controls

Xml Code

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

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

```
    android:layout_marginStart="16dp"

    android:layout_marginTop="16dp"

    android:layout_marginEnd="16dp"

    android:hint="Last Name"

    android:inputType="text" />


<EditText

    android:id="@+id/email"

    android:layout_width="match_parent"

    android:layout_height="wrap_content"

    android:layout_marginStart="16dp"

    android:layout_marginTop="16dp"

    android:layout_marginEnd="16dp"

    android:hint="Email"

    android:inputType="textEmailAddress" />


<EditText

    android:id="@+id/password"

    android:layout_width="match_parent"

    android:layout_height="wrap_content"

    android:layout_marginStart="16dp"

    android:layout_marginTop="16dp"

    android:layout_marginEnd="16dp"

    android:hint="Password"

    android:inputType="textPassword" />
```

```xml
<LinearLayout

    android:layout_width="match_parent"

    android:layout_height="wrap_content"

    android:layout_marginTop="8dp"

    android:gravity="end"

    android:orientation="horizontal">


    <Button

        android:id="@+id/cancelButton"

        style="@style/Widget.AppCompat.Button.Borderless"

        android:layout_width="wrap_content"

        android:layout_height="wrap_content"

        android:layout_marginEnd="4dp"

        android:text="CANCEL"

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


    <Button

        android:id="@+id/proceedButton"

        android:layout_width="wrap_content"

        android:layout_height="wrap_content"

        android:layout_marginEnd="16dp"

        android:backgroundTint="@color/black"

        android:text="PROCEED"

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

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

```
    </LinearLayout>

</LinearLayout>
```

MainActivity.java

```java
package com.example.validation;

import androidx.appcompat.app.AppCompatActivity;

import android.content.Intent;

import android.os.Bundle;

import android.view.View;

import android.widget.Button;

import android.widget.EditText;


public class MainActivity extends AppCompatActivity {


    // two buttons

    Button bCancel, bProceed;


    // four text fields

    EditText etFirstName, etLastName, etEmail, etPassword;


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

    // are filled by the user, properly or not.

    boolean isAllFieldsChecked = false;


    @Override

    protected void onCreate(Bundle savedInstanceState) {

        super.onCreate(savedInstanceState);
```

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


// register buttons with their proper IDs.

bProceed = findViewById(R.id.proceedButton);

bCancel = findViewById(R.id.cancelButton);


// register all the EditText fields with their IDs.

etFirstName = findViewById(R.id.firstName);

etLastName = findViewById(R.id.lastName);

etEmail = findViewById(R.id.email);

etPassword = findViewById(R.id.password);


// handle the PROCEED button

bProceed.setOnClickListener(new View.OnClickListener() {

  @Override

  public void onClick(View v) {


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

    // whether the entered data is valid or if any fields are left blank.

    isAllFieldsChecked = CheckAllFields();


    // the boolean variable turns to be true then

    // only the user must be proceed to the activity2

    if (isAllFieldsChecked) {

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

      startActivity(i);
```

```java
        }

    }

});


// if user presses the cancel button then close the

// application or the particular activity.

bCancel.setOnClickListener(new View.OnClickListener() {

    @Override

    public void onClick(View v) {

        MainActivity.this.finish();

        System.exit(0);

    }

});

}


// function which checks all the text fields

// are filled or not by the user.

// when user clicks on the PROCEED button

// this function is triggered.

private boolean CheckAllFields() {

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

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

        return false;

    }


    if (etLastName.length() == 0) {
```

```
    etLastName.setError("This field is required");

      return false;

  }


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

    etEmail.setError("Email is required");

      return false;

  }


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

    etPassword.setError("Password is required");

      return false;

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

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

      return false;

  }


  // after all validation return true.

  return true;

  }

}
```

Output

Program:5

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

XML Code:

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

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

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

```
        android:layout_marginTop="100dp"

        app:layout_constraintStart_toStartOf="parent"

        app:layout_constraintEnd_toEndOf="parent"

        android:paddingStart="10dp"

        app:layout_constraintTop_toBottomOf="@+id/txt1"

        android:hint="Name"/>

    <EditText

        android:id="@+id/edt2"

        android:layout_width="match_parent"

        android:layout_height="wrap_content"

        android:layout_marginTop="10dp"

        app:layout_constraintStart_toStartOf="parent"

        app:layout_constraintEnd_toEndOf="parent"

        android:paddingStart="10dp"

        app:layout_constraintTop_toBottomOf="@+id/edt1"

        android:hint="Email"/>

    <EditText

        android:id="@+id/edt3"

        android:layout_width="match_parent"

        android:layout_height="wrap_content"

        android:layout_marginTop="10dp"

        app:layout_constraintStart_toStartOf="parent"

        app:layout_constraintEnd_toEndOf="parent"

        android:paddingStart="10dp"

        app:layout_constraintTop_toBottomOf="@+id/edt2"

        android:hint="Password"/>


    <Button

        android:layout_width="wrap_content
```

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

android:layout_height="wrap_content"

app:layout_constraintStart_toStartOf="parent"

app:layout_constraintEnd_toEndOf="parent"

app:layout_constraintTop_toBottomOf="@+id/edt3"

android:layout_marginTop="30dp"

android:text="Register"/>
</androidx.constraintlayout.widget.ConstraintLayout>
```

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/txt

    1"

    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>
```

Javacode:

```
package com.example.sharedpref;

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

```java
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);
```
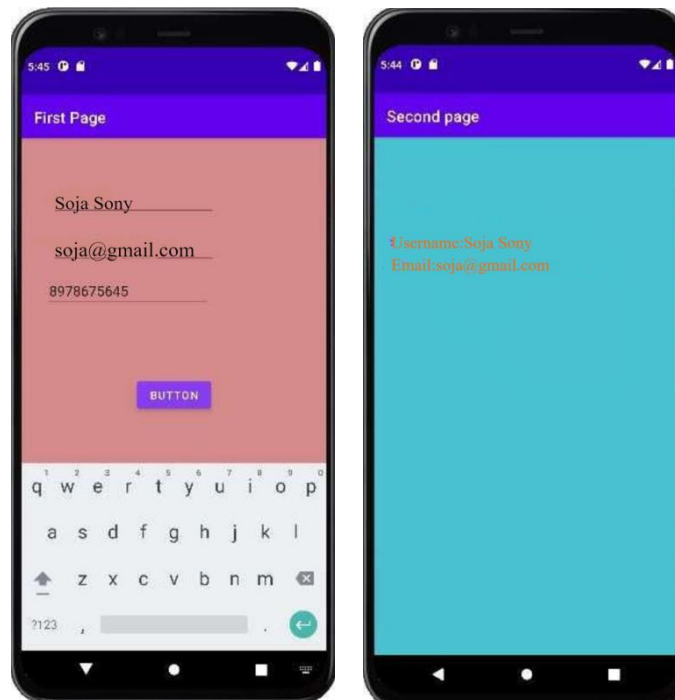
```java
        t1 = findViewById(R.id.txt1);

        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: 6

Aim: Design a simple Calculator using GridLayout and Cascaded LinearLayout

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:background="#323030"
    android:layout_gravity="bottom"
    android:gravity="bottom"
    android:orientation="vertical"
    tools:context=".MainActivity">

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

        <LinearLayout
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:layout_gravity="end"
```

```xml
    android:orientation="vertical">


    <TextView

        android:layout_width="match_parent"

        android:layout_height="wrap_content"

        android:layout_marginEnd="20dp"

        android:text="9+10"

        android:textAlignment="textEnd"

        android:textColor="@color/white"

        android:textSize="40dp" />


    <TextView

        android:layout_width="match_parent"

        android:layout_height="wrap_content"

        android:layout_marginEnd="20dp"

        android:text="=19"

        android:textAlignment="textEnd"

        android:textColor="@color/white"

        android:textSize="40dp" />

</LinearLayout>


<GridLayout

    android:layout_width="wrap_content"

    android:layout_height="wrap_content"

    android:layout_margin="10dp"
```

```
android:layout_weight="1"

android:columnCount="4"

android:gravity="bottom"

android:rowCount="4">


<Button

    android:id="@+id/b9"

    android:layout_width="wrap_content"

    android:layout_height="wrap_content"

    android:layout_margin="10dp"

    android:background="@drawable/bg_button"

    android:text="9"

    android:textColor="@color/white"

    android:textSize="25dp" />



<Button

    android:id="@+id/b8"

    android:layout_width="wrap_content"

    android:layout_height="wrap_content"

    android:layout_margin="10dp"

    android:background="@drawable/bg_button"

    android:text="8"

    android:textColor="@color/white"

    android:textSize="25dp" />
```

```
<Button

    android:id="@+id/b7"

    android:layout_width="wrap_content"

    android:layout_height="wrap_content"

    android:layout_margin="10dp"

    android:background="@drawable/bg_button"

    android:text="7"

    android:textColor="@color/white"

    android:textSize="25dp" />


<Button

    android:id="@+id/bmult"

    android:layout_width="wrap_content"

    android:layout_height="wrap_content"

    android:layout_margin="10dp"

    android:background="#F86605"

    android:text="x"

    android:textColor="@color/white"

    android:textSize="18dp" />


<Button

    android:id="@+id/b6"

    android:layout_width="wrap_content"

    android:layout_height="wrap_content"
```

```
android:layout_margin="10dp"

android:background="@drawable/bg_button"

android:text="6"

android:textColor="@color/white"

android:textSize="25dp" />


<Button

    android:id="@+id/b5"

    android:layout_width="wrap_content"

    android:layout_height="wrap_content"

    android:layout_margin="10dp"

    android:background="@drawable/bg_button"

    android:text="5"

    android:textColor="@color/white"

    android:textSize="25dp" />


<Button

    android:id="@+id/b4"

    android:layout_width="wrap_content"

    android:layout_height="wrap_content"

    android:layout_margin="10dp"

    android:background="@drawable/bg_button"

    android:text="4"

    android:textColor="@color/white"

    android:textSize="25dp" />
```

```xml
<Button
    android:id="@+id/bdiv"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_margin="10dp"
    android:background="#F86605"
    android:text="/"
    android:textColor="@color/white"
    android:textSize="25dp" />


<Button
    android:id="@+id/b3"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_margin="10dp"
    android:background="@drawable/bg_button"
    android:text="3"
    android:textColor="@color/white"
    android:textSize="25dp" />


<Button
    android:id="@+id/b2"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
```

```
android:layout_margin="10dp"

android:background="@drawable/bg_button"

android:text="2"

android:textColor="@color/white"

android:textSize="25dp" />


<Button

    android:id="@+id/b1"

    android:layout_width="wrap_content"

    android:layout_height="wrap_content"

    android:layout_margin="10dp"

    android:background="@drawable/bg_button"

    android:text="1"

    android:textColor="@color/white"

    android:textSize="25dp" />


<Button

    android:id="@+id/bminus"

    android:layout_width="wrap_content"

    android:layout_height="wrap_content"

    android:layout_margin="10dp"

    android:background="#F86605"

    android:text="-"

    android:textColor="@color/white"

    android:textSize="25dp" />
```

```
<Button

    android:id="@+id/b0"

    android:layout_width="wrap_content"

    android:layout_height="wrap_content"

    android:layout_margin="10dp"

    android:background="@drawable/bg_button"

    android:text="0"

    android:textColor="@color/white"

    android:textSize="25dp" />


<Button

    android:id="@+id/b."

    android:layout_width="wrap_content"

    android:layout_height="wrap_content"

    android:layout_margin="10dp"

    android:background="@drawable/bg_button"

    android:text="."

    android:textColor="@color/white"

    android:textSize="25dp" />


<Button

    android:id="@+id/bequal"

    android:layout_width="wrap_content"

    android:layout_height="wrap_content"

    android:layout_margin="10dp"
```

android:background="@drawable/bg_button"

android:text="="

android:textColor="@color/white"

android:textSize="25dp" />

<Button

android:id="@+id/bplus"

android:layout_width="wrap_content"

android:layout_height="wrap_content"

android:layout_margin="10dp"

android:background="#F86605"

android:text="+"

android:textColor="@color/white"

android:textSize="25dp" />

</GridLayout>

</LinearLayout>

</LinearLayout>

Java code

package com.example.grid_layout;
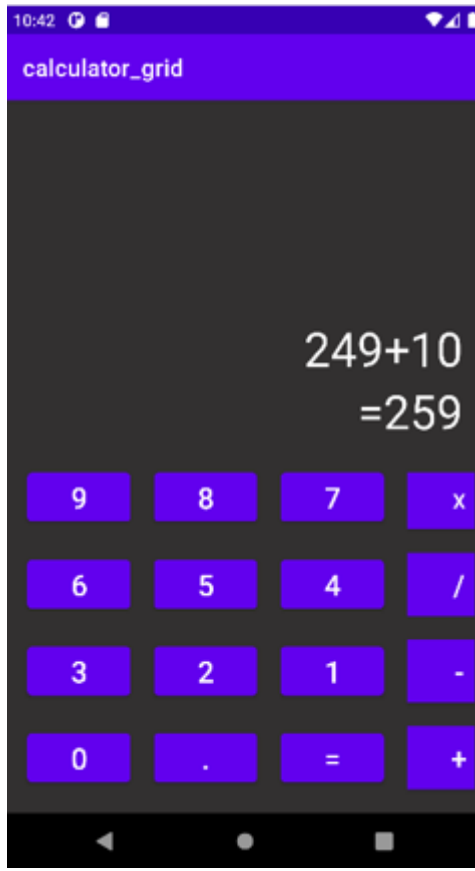
import androidx.appcompat.app.AppCompatActivity;

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: 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:orientation="vertical"
    tools:context=".MainActivity"
    android:background="@android:color/holo_blue_bright">


    <FrameLayout
        android:id="@+id/frameLayout"
        android:layout_width="362dp"
        android:layout_height="403dp"
        android:background="@color/white"
        app:layout_constraintBottom_toBottomOf="parent"
        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">

        <EditText
            android:id="@+id/ed1"
            android:layout_width="match_parent"
            android:layout_height="61dp"
```

```xml
        android:layout_marginStart="30dp"

        android:layout_marginTop="30dp"


    android:layout_marginEnd="20dp"

    android:ems="15"

    android:inputType="textPersonName"

    android:text="" />


<EditText

    android:id="@+id/ed2"

    android:layout_width="match_parent"

    android:layout_height="61dp"

    android:layout_marginStart="30dp"

    android:layout_marginTop="110dp"


    android:layout_marginEnd="20dp"

    android:text="" />


<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">


  <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="#27C6DA"

    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="#586BD5" />


    <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="#F3291B"


        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"

        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" />
```

```xml
    <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.fb;

import androidx.appcompat.app.AppCompatActivity;

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

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

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() {
```

```java
        @Override
        public void onClick(View v) {
            String s1=e1.getEditText().getText().toString();
            String s2=e2.getEditText().getText().toString();
            if (s1.equals("")){
                Toast.makeText(MainActivity.this, "Enter Username",
Toast.LENGTH_SHORT).show();
            }
            else if (s2.equals("")){
                Toast.makeText(MainActivity.this, "Enter Password",
Toast.LENGTH_SHORT).show();

            }
            else {

                Intent j = new Intent(MainActivity.this, login.class);
                if (s1.equals("soja")) {
                    j.putExtra("name", s1);
                    startActivity(j);
                } else {
                    Toast.makeText(MainActivity.this, "Invalid user",
Toast.LENGTH_SHORT).show();
                }
            }
        }
    });

  }
}
```

```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=".login">

<TextView

    android:id="@+id/textView8"

    android:layout_width="0dp"

    android:layout_height="wrap_content"

    android:fontFamily="serif-monospace"

    android:text=""

    android:textAlignment="center"

    android:textColor="#E91E63"

    android:textSize="48sp"

    app:layout_constraintBottom_toBottomOf="parent"

    app:layout_constraintEnd_toEndOf="parent"

    app:layout_constraintStart_toStartOf="parent"

    app:layout_constraintTop_toTopOf="parent" />


<TextView

    android:id="@+id/t1"

    android:layout_width="wrap_content"

    android:layout_height="wrap_content"

    android:fontFamily="sans-serif-medium"

    android:textColor="#2196F3"

    android:textSize="24sp"

    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="0.407" />
```

</androidx.constraintlayout.widget.ConstraintLayout>

```java
package com.example.fb;

import androidx.appcompat.app.AppCompatActivity;

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

public class login extends AppCompatActivity {

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_login);
        Intent j=getIntent();
        TextView t1=findViewById(R.id.t1);
        String uname=j.getStringExtra("name");
        t1.setText(uname);
    }
}
```
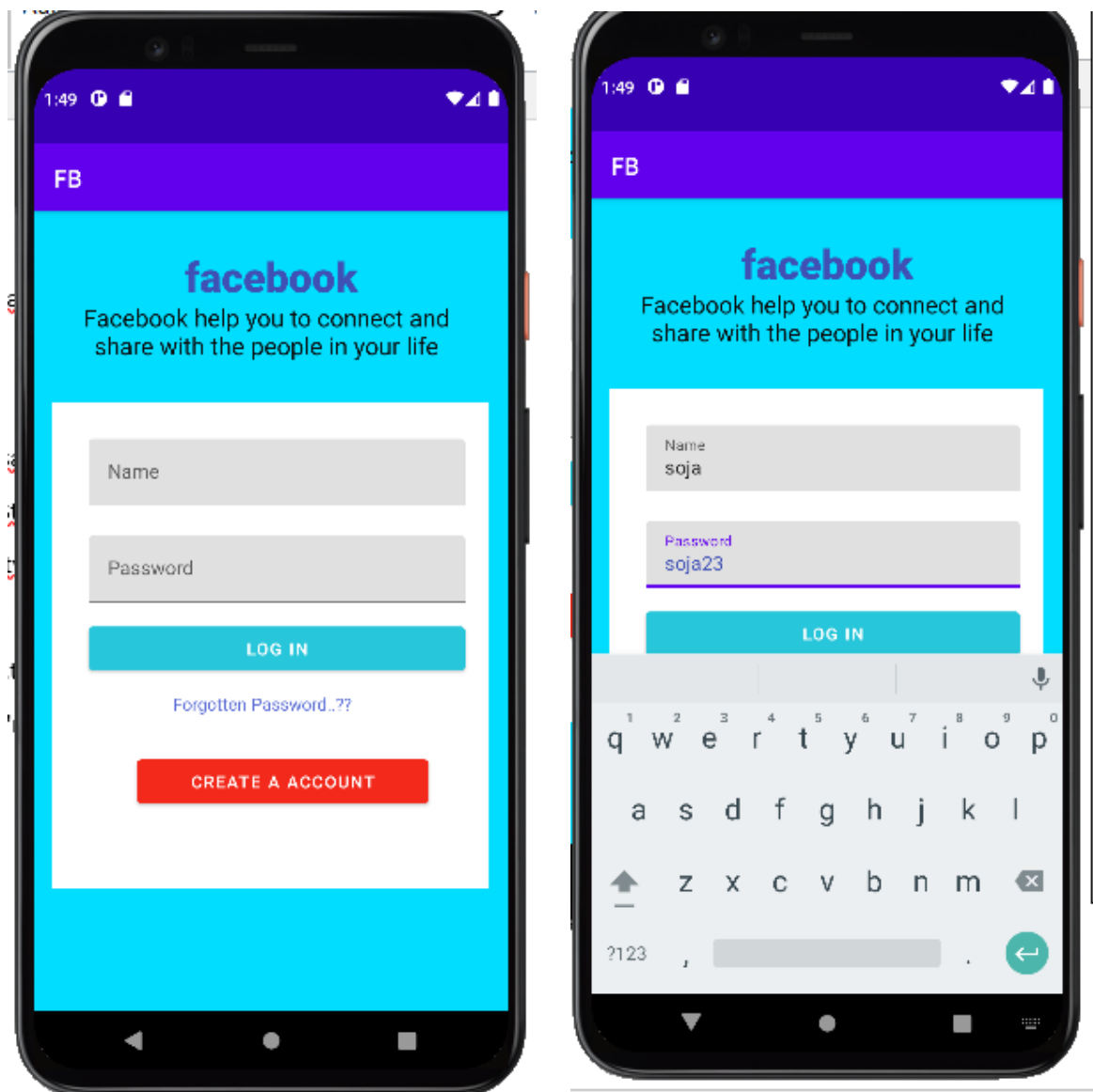
Output

Program 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"
<ImageView
    android:id="@+id/imageView"
     android:layout_width="186dp"

android:layout_height="122dp"

    app:layout_constraintBottom_toBottomOf="parent"

    app:layout_constraintEnd_toEndOf="parent"

    app:layout_constraintHorizontal_bias="0.401"

    app:layout_constraintStart_toStartOf="parent"

    app:layout_constraintTop_toTopOf="parent"

    app:layout_constraintVertical_bias="0.169"

    app:srcCompat="@drawable/amm" />

  <FrameLayout

    android:layout_width="410dp"
```

```
android:layout_height="738dp"

app:layout_constraintBottom_toBottomOf="parent"

app:layout_constraintEnd_toEndOf="parent"

app:layout_constraintStart_toStartOf="parent"

app:layout_constraintTop_toTopOf="parent">

<ImageView

    android:id="@+id/iv"

    android:layout_width="392dp"

    android:layout_height="240dp"

    app:srcCompat="@drawable/amm" />

 <ImageView

    android:id="@+id/iv2"

    android:layout_width="309dp"

    android:layout_height="wrap_content"

    app:srcCompat="@drawable/sss" />

<TextView

    android:id="@+id/tv1"

   android:layout_width="79dp"

    android:layout_height="33dp"

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

```
    </FrameLayout>

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

Javacode:

```java
package com.example.myapplication;


import androidx.appcompat.app.AppCompatActivity;


import android.os.Bundle;

import android.view.View;

import android.widget.ImageView;


public class MainActivity extends AppCompatActivity {

    ImageView i;

    ImageView i2;


    @Override

    protected void onCreate(Bundle savedInstanceState) {

        super.onCreate(savedInstanceState);

        setContentView(R.layout.activity_main);

        i=findViewById(R.id.iv);
```

```
i2=findViewById(R.id.iv2);

    i2.setOnClickListener(new View.OnClickListener() {

      @Override

      public void onClick(View v) {

        i.bringToFront();

      }

    });

    i.setOnClickListener(new View.OnClickListener() {

      @Override

      public void onClick(View v) {

        i2.bringToFront();

      }

    });


  }
}
```
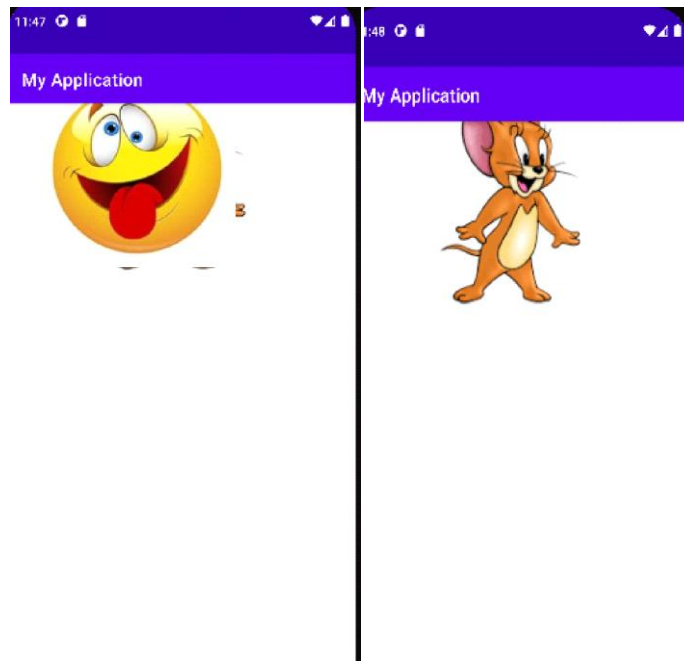
Output

Program: 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="match_parent"

        android:layout_height="wrap_content"

        android:id="@+id/lv"

        tools:ignore="MissingConstraints" />


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

Mainactivity.java

```java
package com.example.item;


import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;

import android.widget.Toast;
```

```java
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<6;i++){
            try{
                list.get(i);
            }
            catch (Exception e){
                Toast.makeText(this, "Exception caught", Toast.LENGTH_SHORT).show();
            }
        }
    }
}
```

<u>Output</u>

Program:10

Aim: Implement Intent to navigate between multiple activities

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">

    <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_constraintHorizontal_bias="0.498"

        app:layout_constraintStart_toStartOf="parent"

        app:layout_constraintTop_toTopOf="parent"

        app:layout_constraintVertical_bias="0.499" />
</androidx.constraintlayout.widget.ConstraintLayout>
```

Javacode:

```java
package com.example.myapplication;
```

```java
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 button;



    @Override

    protected void onCreate(Bundle savedInstanceState) {

        super.onCreate(savedInstanceState);

        setContentView(R.layout.activity_main);

        ActionBar action=getSupportActionBar();

        action.setTitle("First activity");



        Button b=findViewById(R.id.button);

        b.setOnClickListener(new View.OnClickListener() {

            @Override
```

```
        public void onClick(View v) {

            Intent browser=new Intent(Intent.ACTION_VIEW,
Uri.parse("https://www.google.com/search?q=clock+icon+png+free+download&rlz=1C1OKW
M_enIN980IN980&sxsrf=AOaemvJS9nTBwoJiWPdfklQxySoPKnvu3A:1639541098873&tbm
=isch&source=iu&ictx=1&fir=N1DD4xDVeDCdVM%252CmE2reONbypgb9M%252C_%253
BCr4PWptnsecuZM%252CFWWsU_cBoF3vaM%252C_%253BXtQza-
hneLb8bM%252C0yDxpuyw_rQxgM%252C_%253Be8MH47byF8fcFM%252Caln4TBlteNjy
oM%252C_%253Bjgo5WK2F61fwgM%252Cq-Xbd1Wl-
w7fOM%252C_%253BGd00UUhRAvtmJM%252CIzyJ6pQfnTGi-
M%252C_%253B8RwlfTp269oEzM%252C0yDxpuyw_rQxgM%252C_%253Bd4Wq5OjE2tP
udM%252Cx6cmvpH9iBz5-M%252C_%253BtAui6SAgqu-
dLM%252C0yDxpuyw_rQxgM%252C_%253BW0XGd9Gn8K29OM%252C0yDxpuyw_rQxg
M%252C_%253B0lx_0__zl1vEJM%252CeLS76Y_EsSv8sM%252C_%253BpzkihcoBA-
9NUM%252CaLNRWN8TkFF3qM%252C_%253Byemd9T4ciKXjpM%252C3cLAcwkCpcew
dM%252C_%253BDmXVHHW6vi8R7M%252CaXSIRCw7PabxrM%252C_%253BhGJQzg2
eIpD6oM%252Ch6hBX41I3QSXuM%252C_%253BHNp2w39kklmGJM%252Cg2Cfc3V4bgo
GYM%252C_&vet=1&usg=AI4_-
kQbI6e2pxoVi54oZfvyjCEWb9uvPg&sa=X&ved=2ahUKEwjQ0qvG9uT0AhVQUGwGHbgb
DUIQ9QF6BAgHEAE#imgrc=yemd9T4ciKXjpM"));

            startActivity(browser);

        }

    });

  }

}
```
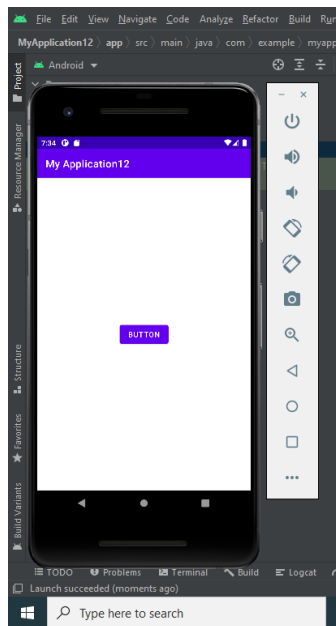
Output

Program:11

Aim: Develop application that works with explicit intents

XML Code:

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

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

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

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

    android:layout_width="match_parent"

    android: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>
```

Javacode:

```
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;
```
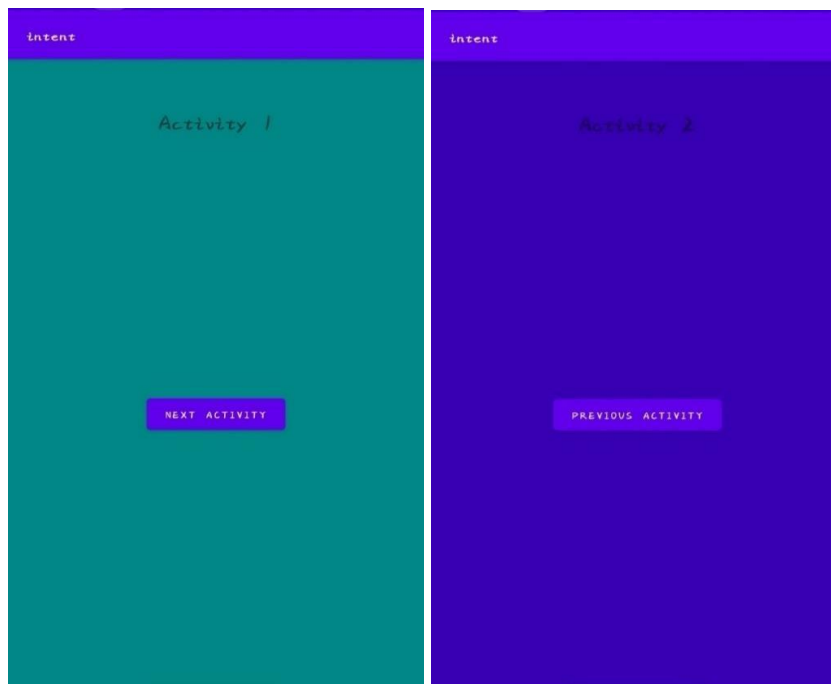
```
@Override

    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:12

Aim: Implement Options Menu to navigate to activities.

Menu.xml

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

    <item android:id="@+id/item1"
        android:title="About"/>
    <item android:id="@+id/item2"
        android:title="Help"/>

    <item android:id="@+id/item3"
        android:title="Search"/>

    <item android:id="@+id/item4"
        android:title="Settings"/>


</menu>
```

MainActivity.java

```java
package com.example.myapplication12;

import androidx.appcompat.app.AppCompatActivity;

import android.content.Intent;
import android.net.Uri;
import android.os.Bundle;
import android.view.Menu;
import android.view.MenuItem;
import android.view.View;
import android.widget.Button;
import android.widget.Toast;

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.button2);
        Button b1=findViewById(R.id.button2);
        b1.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                Intent i=new Intent(Intent.ACTION_VIEW, Uri.parse("https://www.google.com/"));
                startActivity(i);
            }
        });
    }
    //option menu
    public boolean onCreateOptionsMenu(Menu m1){
        getMenuInflater().inflate(R.menu.menu,m1);
        return true;
    }
    //Option perform

    public boolean onOptionsItemSelected(MenuItem item){

        switch(item.getItemId()){
            case R.id.item1:
              Toast.makeText(getApplicationContext(),"About",Toast.LENGTH_SHORT).show();
               return true;
            case R.id.item2:
               Toast.makeText(getApplicationContext(),"Help",Toast.LENGTH_SHORT).show();
               return true;
            case R.id.item3:
               Toast.makeText(getApplicationContext(),"Search",Toast.LENGTH_SHORT).show();
               return true;
            case R.id.item4:
               Toast.makeText(getApplicationContext(),"Settings",Toast.LENGTH_SHORT).show();
               return true;

            default:
               return super.onOptionsItemSelected(item);
        }
    }

}
```
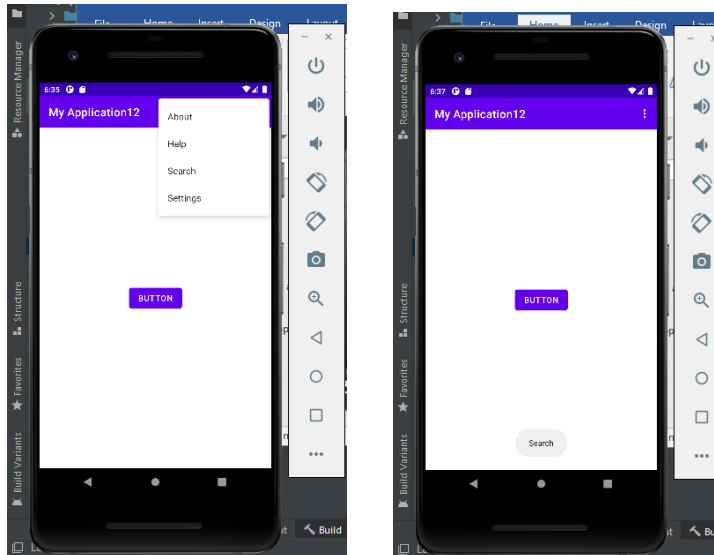
Output

Program: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/list"
        android:layout_width="308dp"
        android:layout_height="705dp"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />
</androidx.constraintlayout.widget.ConstraintLayout>
```

Javacode:

```java
package com.example.listview;

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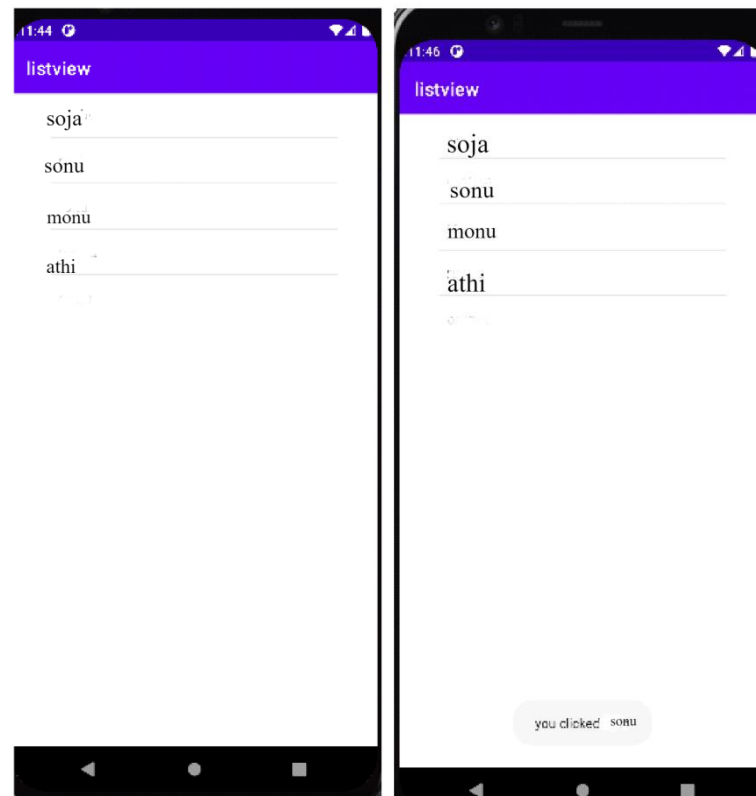
```java
import android.os.Bundle;

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 listView;
    String Name[]={"soja","sonu","monu","athi "};
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        listView=findViewById(R.id.list);
        ArrayAdapter arrayAdapter=new
ArrayAdapter<String>(MainActivity.this,R.layout.support_simple_spinner_dropdown_item,Name);
        listView.setAdapter(arrayAdapter);
        listView.setOnItemClickListener(new AdapterView.OnItemClickListener() {
            @Override
            public void onItemClick(AdapterView<?> parent, View view, int position, long id) {
                Toast.makeText(getApplicationContext(),"you clicked"+Name
[position],Toast.LENGTH_LONG).show();
            }
        });
    }
}
```

Output

Program:14

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

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"
    tools:context=".MainActivity">


    <GridView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:id="@+id/g1"
        android:numColumns="3"/>
    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text=""
        android:id="@+id/t1"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintLeft_toLeftOf="parent"
        app:layout_constraintRight_toRightOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

</LinearLayout>
```

Grid_layout.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/img1"/>

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:id="@+id/t1"
        android:textSize="20dp"/>
</LinearLayout>
```

Javacode:

```java
package com.example.myapp;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;
import android.widget.GridView;

public class MainActivity extends AppCompatActivity {

    GridView gridView;
    String flower[]={"flower1","bd1","bd2","bd3","cat1","cat2","lotus1","lotus2"};
```

```
    int
img[]={R.drawable.pic,R.drawable.pic,R.drawable.pic,R.drawable.pic,R.drawable.pic,R.drawa
ble.pic,R.drawable.pic,R.drawable.pic};

  @Override

  protected void onCreate(Bundle savedInstanceState) {

    super.onCreate(savedInstanceState);

    setContentView(R.layout.activity_main);

    gridView=findViewById(R.id.g1);


    CustomAdaptor customAdaptor=new CustomAdaptor(MainActivity.this,flower,img);

    gridView.setAdapter(customAdaptor);

  }

}
```

CustomAdapter.java

```
package com.example.myapp;


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 CustomAdaptor extends BaseAdapter {

    Context context;

    String flower[];

    int img[];

    LayoutInflater layoutInflater;


    public CustomAdaptor(MainActivity mainActivity, String[] flower, int[] img) {
```

```java
        this.context=mainActivity;

        this.flower=flower;

        this.img=img;

        layoutInflater=(LayoutInflater.from(mainActivity));

    }

    @Override
    public int getCount() {

        return img.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.grid_layout,null);

        TextView textView=convertView.findViewById((R.id.t1));

        ImageView imageView=convertView.findViewById((R.id.img1));

        textView.setText(flower[position]);

        imageView.setImageResource(img[position]);

        return convertView;

    }
```
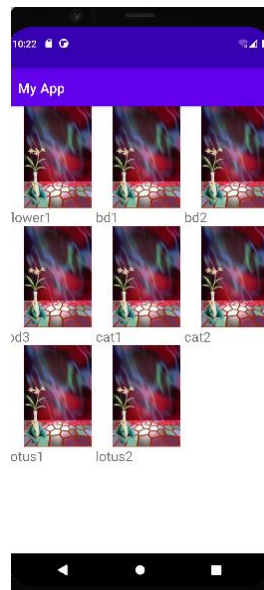
Output

Program:15

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

XML Code:

```
</androidx.constraintlayout.widget.ConstraintLayout>
<?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="190dp"
        android:layout_height="58dp"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.828"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.371" />

    <TextView
        android:id="@+id/t1"
        android:layout_width="103dp"
        android:layout_height="54dp"
        android:text="course"
        app:layout_constraintBottom_toBottomOf="parent"
```

```
    app:layout_constraintEnd_toEndOf="parent"

    app:layout_constraintHorizontal_bias="0.094"

    app:layout_constraintStart_toStartOf="parent"

    app:layout_constraintTop_toTopOf="parent"

  app:layout_constraintVertical_bias="0.375" />


<TextView

    android:id="@+id/t2"

    android:layout_width="103dp"

    android:layout_height="45dp"

    android:text="Name"

    app:layout_constraintBottom_toBottomOf="parent"

    app:layout_constraintEnd_toEndOf="parent"

    app:layout_constraintHorizontal_bias="0.094"

    app:layout_constraintStart_toStartOf="parent"

    app:layout_constraintTop_toTopOf="parent"

    app:layout_constraintVertical_bias="0.262" />
```

Javacode:

```java
package com.example.spinner;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;
import android.view.View;
import android.widget.AdapterView;
import android.widget.ArrayAdapter;
import android.widget.EditText;
import android.widget.Spinner;
import android.widget.TextView;
```

import android.widget.Toast;

```java
public class MainActivity extends AppCompatActivity {

    TextView tt1;

    TextView tt2;

    Spinner spinner;

    String course[]={"MCA","MTech","BTech"};


    @Override

    protected void onCreate(Bundle savedInstanceState) {

        super.onCreate(savedInstanceState);

        setContentView(R.layout.activity_main);


        spinner=findViewById(R.id.spinner);


        ArrayAdapter arrayAdapter=new
ArrayAdapter(this,R.layout.support_simple_spinner_dropdown_item,course);

        spinner.setAdapter(arrayAdapter);

    spinner.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;

        }

    });

    }

}
```
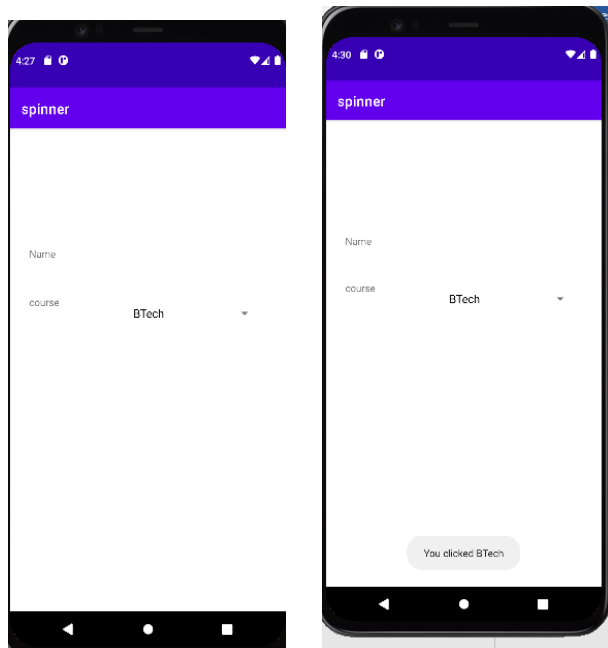
<u>Output</u>

Program: 16

Aim: 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: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/editTextTextPersonName"

    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_constraintTop_toTopOf="parent"

    tools:layout_editor_absoluteX="100dp" />

</androidx.constraintlayout.widget.ConstraintLayout>

AndroidManifest.xml

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

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

```
    package="com.example.myappp">

<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.newstyle">

    <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>
```

themes.xml

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

  <!-- Base application theme. -->

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

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

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

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

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

```
    </style>

</resources>
```

colors.xml

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

<resources>

    <color name="purple_200">#FFBB86FC</color>

    <color name="purple_500">#FF6200EE</color>

    <color name="purple_700">#FF3700B3</color>

    <color name="teal_200">#FF03DAC5</color>

    <color name="teal_700">#FF018786</color>

    <color name="black">#B30707</color>

    <color name="white">#FFFFFFFF</color>

    <color name="teal">#FF018786</color>

    <color name="yellow">#6377E4</color>

    <color name="red">#F80F0F</color>

</resources>
```

Mainactivity.java

```java
package com.example.myappp;

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

exp_1

SOJA SONY

Program:17

Aim: Develop application using Fragments

XML Code:

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

    <FrameLayout
        android:id="@+id/frameLayout"
        android:layout_width="match_parent"
        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/button1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignParentStart="true"
        android:layout_marginStart="30dp"
```

```
        android:layout_marginBottom="30dp"

        android:text="Button" />


    <Button

        android:id="@+id/button2"

      android:layout_width="wrap_content"

        android:layout_height="wrap_content"

        android:layout_alignParentStart="true"

        android:layout_alignParentRight="true"


        android:layout_marginStart="217dp"

        android:layout_marginRight="100dp"

        android:layout_marginBottom="30dp"

        android:text="Button" />

  </RelativeLayout>

</LinearLayout>
```

Fragment_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"

    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>`

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"
    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>
```

Javacode:

```
package com.example.nav;

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;
```

```java
public class MainActivity extends AppCompatActivity {
    Button btt,btt2;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        btt=findViewById(R.id.button1);
        btt2=findViewById(R.id.button2);

        btt.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                replaceFragment(new fragment1());

            }
        });
        btt2.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                replaceFragment(new fragment2());

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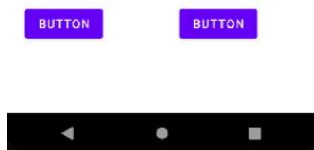
Output

Fragment 1

Fragment 2

Program:18

Aim: Implement Navigation drawer

Xml code

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

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

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

  android:layout_width="match_parent"

  android:layout_height="match_parent"

  android:id="@+id/drawerLayout"

  tools:context=".MainActivity">

  <LinearLayout

    android:layout_width="match_parent"

    android:layout_height="wrap_content"

    android:orientation="vertical">

    <TextView

      android:layout_width="wrap_content"

      android:layout_height="wrap_content"

      android:text="NavigationDrawer"

      android:textSize="20dp"

      android:layout_gravity="center"/>

  </LinearLayout>
  <com.google.android.material.navigation.NavigationView

    android:layout_width="wrap_content"
```

```
        android:layout_height="match_parent"

        android:layout_gravity="start"

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



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

Navigation_menu.xml

```xml
<?xml version="1.0" encoding="utf-8"?>
<menu xmlns:android="http://schemas.android.com/apk/res/android">
    <item
        android:id="@+id/ac"
        android:title="My Account"

        android:icon="@drawable/img" />
    <item
        android:id="@+id/se"
        android:title="My Settings"
        android:icon="@drawable/img_2" />
    <item
        android:id="@+id/lg"
        android:title="Logout"
        android:icon="@drawable/img_4" />
</menu>
```

String.xml

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

JavaCode

package com.example.sample;

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.drawerLayout);

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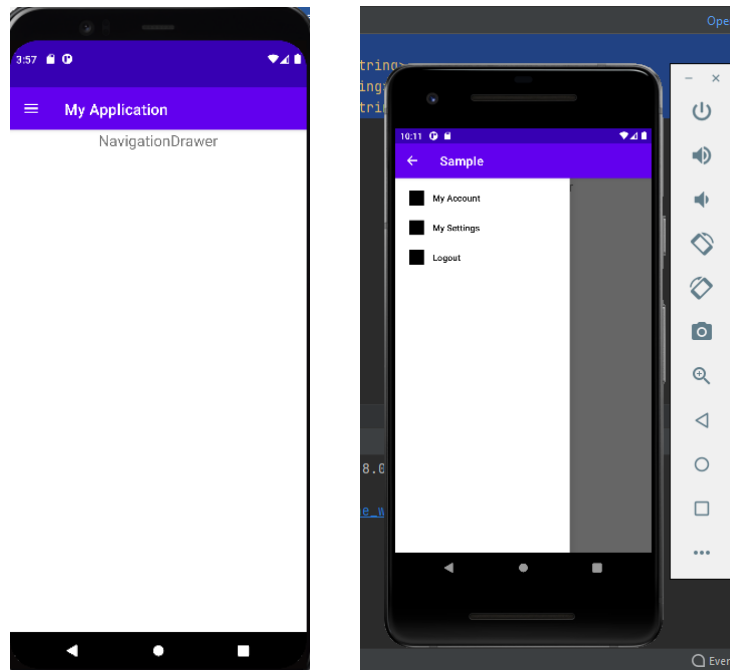
      drawerLayout.addDrawerListener(actionBarDrawerToggle);

      actionBarDrawerToggle.syncState();

      getSupportActionBar().setDisplayHomeAsUpEnabled(true);

   }

   @Override

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

    if(actionBarDrawerToggle.onOptionsItemSelected(item))

    {

        return true;

    }


    return super.onOptionsItemSelected(item);

    }

}
```

PROGRAM 19

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

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">


    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="name"/>
    <EditText
        android:id="@+id/e1"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        />

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Address"/>
    <EditText
```

```
    android:id="@+id/e2"

    android:layout_width="match_parent"

   android:layout_height="wrap_content"/>


  <Button

    android:id="@+id/b1"

    android:layout_width="wrap_content"

    android:layout_height="wrap_content"

    android:text="Save" />


      <Button

      android:id="@+id/b2"

    android:layout_width="wrap_content"

    android:layout_height="wrap_content"

      android:text="View" />


<TextView

        android:layout_width="wrap_content"

    android:layout_height="wrap_content"

      android:text="Id"/>

      <EditText

    android:layout_width="match_parent"

    android:layout_height="wrap_content"

      android:id="@+id/e3"


      />

      <Button

    android:layout_width="wrap_content"
```

```
    android:layout_height="wrap_content"

        android:id="@+id/b3"

        android:text="Delete"/>


        <Button

    android:layout_width="wrap_content"

        android:layout_height="wrap_content"

        android:id="@+id/b4"

        android:text="update"/>


</LinearLayout>
```

Javacode

```
package com.example.database;

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 et1;
    EditText et2;
```

```java
    EditText et3;

    Button bt1;

    Button bt2;

    Button bt3;

    Button bt4;

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


        et1=findViewById(R.id.e1);
        et2=findViewById(R.id.e2);
        et3=findViewById(R.id.e3);
        bt1=findViewById(R.id.b1);
        bt2=findViewById(R.id.b2);
        bt3=findViewById(R.id.b3);
        bt4=findViewById(R.id.b4);


    StringBuffer s=new StringBuffer();
        dbsql dbl=new dbsql(this);
        bt1.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                String s1=et1.getText().toString();
                String s2=et2.getText().toString();
                dbl.insert(s1,s2);
            }
        });
bt2.setOnClickListener(new View.OnClickListener() {
            @Override
```

```
    public void onClick(View v) {

    Cursor cu=dbl.view();

    while(cu.moveToNext()){

        s.append("Id"+cu.getString(0)+"\n");

        s.append("Name"+cu.getString(1)+"\n");

        s.append("Address"+cu.getString(2)+"\n");

    }

      Toast.makeText(getApplicationContext(), s.toString(),
Toast.LENGTH_SHORT).show();

    }

    });

      bt3.setOnClickListener(new View.OnClickListener() {

    @Override

    public void onClick(View v) {

    String del=et3.getText().toString();

    dbl.delete(del);

    }

    });

    bt4.setOnClickListener(new View.OnClickListener() {

    @Override

    public void onClick(View v) {

    String del=et3.getText().toString();

    String s1=et1.getText().toString();

    String s2=et2.getText().toString();

    dbl.update(del,s1,s2);

    }

    });

    }

}

  }

}
```

dbsql.java

package com.example.database;

import android.content.ContentValues;

import android.content.Context;

import android.database.sqlite.SQLiteDatabase;

import android.database.sqlite.SQLiteOpenHelper;

import androidx.annotation.Nullable;

```java
public class dbsql extends SQLiteOpenHelper {
    private static String dbName="student";
    private static int dbVersion=1;

    SQLiteDatabase db;

    public dbsql( Context context) {
        super(context, dbName, null, dbVersion);
    }

    @Override
    public void onCreate(SQLiteDatabase db) {
        db.execSQL("create table stud_tbl(sid integer primary key autoincrement,sname varchar(20),saddress varchar(30))");

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

    }
    public void insert(String Name,String Address){
        db=getWritableDatabase();
        ContentValues d1=new ContentValues();
        d1.put("sname" ,Name);
```

```
        d1.put("saddress",Address);

      db.insert("stud_tbl",null,d1);

    }

public Cursor view(){

        db=getReadableDatabase();

        Cursor cu=db.rawQuery("select * from stud_tbl",null);

        return  cu;

        }

public void delete(String valid){

        db=getWritableDatabase();

        db.delete("stud_tbl ","sid=?",new String[]{valid});



        }

        public void update(String valid,String Name,String Address){

        db=getWritableDatabase();

        ContentValues d1=new ContentValues();



        d1.put("sname" ,Name);

        d1.put("saddress",Address);

      db.update("stud_tbl",d1,"sid=?",new String[]{valid});



}

}

}

}
```

Output