20MCA243 MOBILE APPLICATION DEVELOPMENT LAB

Lab Report Submitted By

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AMAL JYOTHI COLLEGE OF ENGINEERING KANJIRAPPALLY

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DEPARTMENT OF COMPUTER APPLICATIONS
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CERTIFICATE

This is to certify that the lab report, "**20MCA243 MOBILE APPLICATION DEVELOPMENT LAB**" is the bonafide work of **SWATHY KRISHNA P R (Reg.No: AJC20MCA-2076)** in partial fulfillment of the requirements for the award of the Degree of Master of Computer Applications under APJ Abdul Kalam Technological University during the year 2021-22.

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CONTENT

11	Develop application that works with explicit intents	19/01/2022	**62**	
12	Implement Options Menu to navigate to activities	02/02/2022	**68**	
13	Develop an application that uses ArrayAdapter with ListView.	02/02/2022	**71**	
14	Develop an application that use GridView with images and display Alert box on selection	09/02/2022	**74**	
15	Develop an application that implements Spinner component and perform event handling	14/02/2022	**80**	
16	Apply themes via code and manifest file	15/02/2022	**83**	
17	Develop application using Fragments	15/02/2022	**88**	
18	Implement Navigation drawer	16/02/2022	**94**	
19	Program to implement various SQLite operations : (INSERT, UPDATE ,DELETE ,SELECT)	23/02/2022	**98**	

PROGRAM 1

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

CODE

activity_main.xml

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

<TextView
    android:id="@+id/textView"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="User Name"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.07"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.311" />

<EditText
    android:id="@+id/user"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:ems="10"
    android:inputType="textPersonName"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
```

```
    app:layout_constraintHorizontal_bias="0.661"

    app:layout_constraintStart_toStartOf="parent"

    app:layout_constraintTop_toTopOf="parent"

    app:layout_constraintVertical_bias="0.307" />


<TextView

    android:id="@+id/textView2"

    android:layout_width="wrap_content"

    android:layout_height="wrap_content"

    android:text="Password"

    app:layout_constraintBottom_toBottomOf="parent"

    app:layout_constraintEnd_toEndOf="parent"

    app:layout_constraintHorizontal_bias="0.068"

    app:layout_constraintStart_toStartOf="parent"

    app:layout_constraintTop_toTopOf="parent"

    app:layout_constraintVertical_bias="0.421" />


<EditText

    android:id="@+id/pass"

    android:layout_width="wrap_content"

    android:layout_height="wrap_content"

    android:ems="10"

    android:inputType="numberPassword"

    app:layout_constraintBottom_toBottomOf="parent"

    app:layout_constraintEnd_toEndOf="parent"

    app:layout_constraintHorizontal_bias="0.661"

    app:layout_constraintStart_toStartOf="parent"

    app:layout_constraintTop_toTopOf="parent"

    app:layout_constraintVertical_bias="0.418" />


<Button

    android:id="@+id/log"

    android:layout_width="wrap_content"
```

```
        android:layout_height="wrap_content"

        android:text="LOGIN"

        app:layout_constraintBottom_toBottomOf="parent"

        app:layout_constraintEnd_toEndOf="parent"

        app:layout_constraintHorizontal_bias="0.444"

        app:layout_constraintStart_toStartOf="parent"

        app:layout_constraintTop_toTopOf="parent"

        app:layout_constraintVertical_bias="0.569" />


    <TextView

        android:id="@+id/er"

        android:layout_width="wrap_content"

        android:layout_height="wrap_content"

        app:layout_constraintBottom_toBottomOf="parent"

        app:layout_constraintEnd_toEndOf="parent"

        app:layout_constraintHorizontal_bias="0.444"

        app:layout_constraintStart_toStartOf="parent"

        app:layout_constraintTop_toTopOf="parent" />


</Linearlayout.widget.ConstraintLayout>
```

MainActivity.java

```java
package com.example.login_reg;

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.TextView;


public class MainActivity extends AppCompatActivity {
```

```java
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        EditText user_name=findViewById(R.id.user);
        EditText password   =findViewById(R.id.pass);
        TextView err=findViewById(R.id.er);
        Button save =findViewById(R.id.log);
        save.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                if
(user_name.getText().toString().equals("swathypr")&&password.getText().toString().equals(
"123456"))
                {
                    Intent i=new Intent(MainActivity.this,MainActivity2.class);
                    startActivity(i);

                }
                else {
                    err.setText("Error");

                }
            }
        });
    }
}
```

activity_main2.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=".MainActivity2">


<TextView

    android:id="@+id/textView3"

    android:layout_width="wrap_content"

    android:layout_height="wrap_content"

    android:text="HOUSE_NAME"

    app:layout_constraintBottom_toBottomOf="parent"

    app:layout_constraintEnd_toEndOf="parent"

    app:layout_constraintHorizontal_bias="0.031"

    app:layout_constraintStart_toStartOf="parent"

    app:layout_constraintTop_toTopOf="parent"

    app:layout_constraintVertical_bias="0.306" />


<EditText

    android:id="@+id/hn"

    android:layout_width="wrap_content"

    android:layout_height="wrap_content"

    android:ems="10"

    android:inputType="textPersonName"

    app:layout_constraintBottom_toBottomOf="parent"

    app:layout_constraintEnd_toEndOf="parent"

    app:layout_constraintHorizontal_bias="0.786"

    app:layout_constraintStart_toStartOf="parent"

    app:layout_constraintTop_toTopOf="parent"

    app:layout_constraintVertical_bias="0.298" />


<TextView

    android:id="@+id/textView4"

    android:layout_width="wrap_content"

    android:layout_height="wrap_content"
```

```
    android:text="PHONE NO."
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.029"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.396" />

<EditText
    android:id="@+id/ph"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:ems="10"
    android:inputType="number"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.791"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.397" />

<TextView
    android:id="@+id/textView5"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="EMAIL ID"

    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.028"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent" />
```

```
<EditText
    android:id="@+id/eml"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:ems="10"
    android:inputType="textPersonName"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.796"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.518" />

<Button
    android:id="@+id/sve"
    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_constraintHorizontal_bias="0.4"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.658" />

<TextView
    android:id="@+id/textView6"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="WELCOME SWATHY!..."
    android:textSize="28sp"
    android:textStyle="italic"
    app:layout_constraintBottom_toBottomOf="parent"
```

```
        app:layout_constraintEnd_toEndOf="parent"

        app:layout_constraintHorizontal_bias="0.297"

        app:layout_constraintStart_toStartOf="parent"

        app:layout_constraintTop_toTopOf="parent"

        app:layout_constraintVertical_bias="0.095" />


    <TextView

        android:id="@+id/textView7"

        android:layout_width="wrap_content"

        android:layout_height="wrap_content"

        android:text="Add details"

        android:textSize="22sp"

        android:textStyle="bold"

        app:layout_constraintBottom_toBottomOf="parent"

        app:layout_constraintEnd_toEndOf="parent"

        app:layout_constraintHorizontal_bias="0.387"

        app:layout_constraintStart_toStartOf="parent"

        app:layout_constraintTop_toTopOf="parent"

        app:layout_constraintVertical_bias="0.198" />
</androidx.constraintlayout.widget.ConstraintLayout>
```

MainActivity2.java

```java
package com.example.login_reg;

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 MainActivity2 extends AppCompatActivity {
```

```java
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main2);
        ActionBar c=getSupportActionBar();
        c.setTitle("Add details");
        EditText hname=findViewById(R.id.hn);
        EditText phone=findViewById(R.id.ph);
        EditText ema=findViewById(R.id.eml);
        Button save=findViewById(R.id.sve);
        save.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                Intent j=new Intent(MainActivity2.this,MainActivity3.class);
                String honame=hname.getText().toString();
                j.putExtra("Hname",honame);
                String phon=phone.getText().toString();
                j.putExtra("Phone",phon);
                String emai=ema.getText().toString();
                j.putExtra("Email",emai);
                startActivity(j);

            }
        });
    }
}
```

activity_main3.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"
```

```xml
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity3">


    <TextView
        android:id="@+id/textView8"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Details of SWATHY..."
        android:textSize="30sp"
        android:textStyle="bold"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.157" />

    <TextView
        android:id="@+id/tr"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:textSize="20sp"
        android:textStyle="italic"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.474"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.318" />
</androidx.constraintlayout.widget.ConstraintLayout>
```

MainActivity3.java

```java
package com.example.login_reg;
import androidx.appcompat.app.ActionBar;
import androidx.appcompat.app.AppCompatActivity;
import android.content.Intent;
import android.os.Bundle;
import android.widget.TextView;

public class MainActivity3 extends AppCompatActivity {

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        ActionBar b=getSupportActionBar();
        b.setTitle("Display");
        setContentView(R.layout.activity_main3);
        TextView tr=findViewById(R.id.tr);
        Intent k=getIntent();
        String hname=k.getStringExtra("Hname");
        String phone=k.getStringExtra("Phone");
        String email=k.getStringExtra("Email");
        tr.setText("House Name : "+hname+"\nPhone : "+phone+"\nEmail : "+email);
    }
}
```
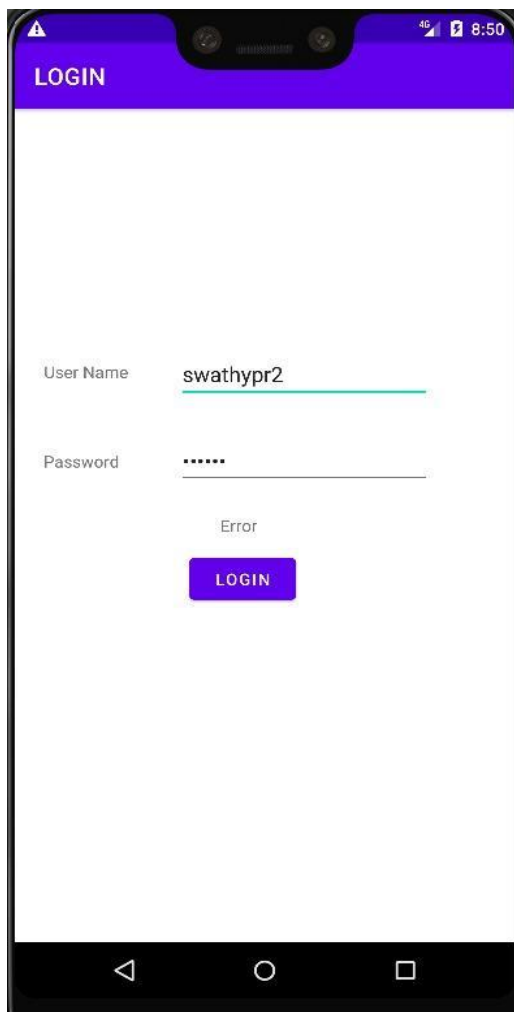
OUTPUT
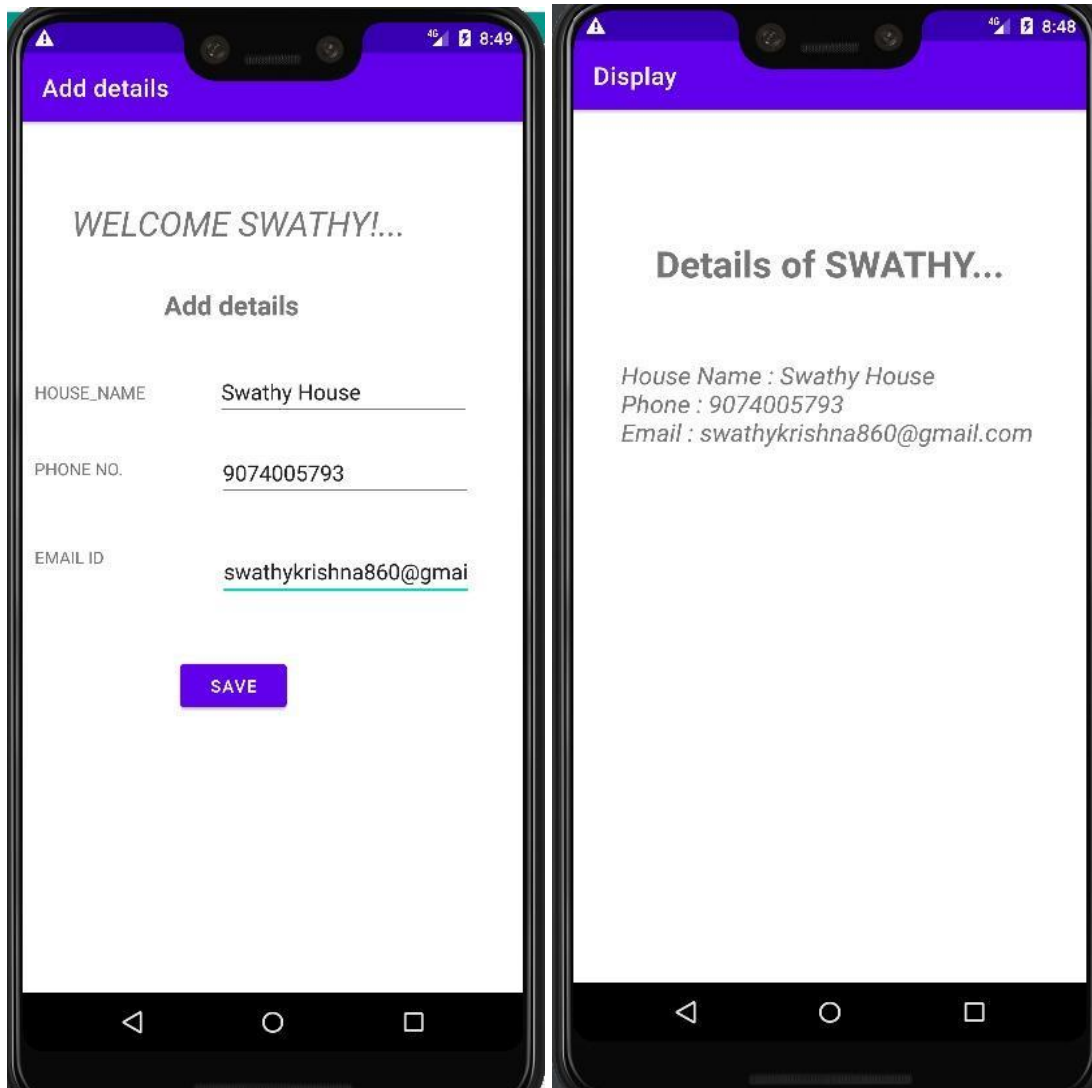
PROGRAM 2

Aim: Program to implement activity lifecycle

CODE

Activity_main.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:layout_width="wrap_content"
android:layout_height="wrap_content"
android:text="Hello World!"
app:layout_constraintBottom_toBottomOf="parent"
app:layout_constraintLeft_toLeftOf="parent"
app:layout_constraintRight_toRightOf="parent"
app:layout_constraintTop_toTopOf="parent" />
</androidx.constraintlayout.widget.ConstraintLayout>
```

```
Java Code:
package example.javatpoint.com.activitylifecycle;
import android.app.Activity;
import android.os.Bundle;
import android.util.Log;
public class MainActivity extends Activity {
@Override
protected void onCreate(Bundle savedInstanceState) {
```

```java
super.onCreate(savedInstanceState);


setContentView(R.layout.activity_main);

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

}

@Override

protected void onStart() {

super.onStart();

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

}

@Override

protected void onResume() {

super.onResume();

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

}

@Override

protected void onPause() {

super.onPause();

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

}

b1.setOnClickListener(new View.OnClickListener()

{

@Override

public void onClick (View v){

String s1 = e1.getText().toString();

String s2 = e2.getText().toString();

Intent i = new Intent(getApplicationContext(), MainActivity3.class);

startActivity(i);

}

@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


```
I/OpenGLRenderer: Davey! duration=2589ms; Flags=0, IntendedVsync=10926173922804, Vsync=10928723922702, OldestInputEvent=922337203685
D/lifecycle: onCreate invoked
D/lifecycle: onStart invoked
    onResume invoked
D/lifecycle: onPause invoked
D/lifecycle: onStop invoked
D/lifecycle: onDestroy invoked
```

PROGRAM 3

Aim: Implementing basic arithmetic operations of a simple calculator

CODE

MainActivity.java

```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"
android:padding="20dp"
android:orientation="vertical"
android:background="@color/pastel">

<TextView
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:text="CALCULATOR"
android:textSize="25sp"
android:layout_marginBottom="16dp"
android:textColor="@android:color/black" />

<LinearLayout
android:layout_width="match_parent"
android:layout_height="wrap_content"
android:orientation="horizontal"
android:layout_marginBottom="20dp">

<EditText
android:id="@+id/first_no"
android:layout_width="102dp"
android:layout_height="59dp"
android:ems="10"
android:layout_marginHorizontal="50dp"
android:hint="Enter" />

<EditText
android:id="@+id/second_no"
android:layout_width="102dp"
android:layout_height="59dp"
android:ems="10"
android:hint="Enter" />

</LinearLayout>
```

```xml
<LinearLayout
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:orientation="horizontal"
android:layout_marginBottom="20dp">

<TextView
android:textSize="35sp"
android:id="@+id/answer"
android:layout_width="102dp"
android:layout_height="59dp"
android:layout_marginHorizontal="50dp"
android:hint="ans" />

</LinearLayout>

<LinearLayout
android:orientation="vertical"
android:layout_marginLeft="250dp"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_marginBottom="30dp">

<Button
android:id="@+id/sub"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:text="-"
android:textSize="25sp"
android:layout_marginBottom="16dp" />

<Button
android:id="@+id/add"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_marginBottom="16dp"
android:text="+"
android:textSize="25sp"
tools:ignore="OnClick" />

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

```xml
android:textSize="25sp"
android:layout_marginBottom="16dp" />

<Button
android:id="@+id/mul"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_marginBottom="16dp"
android:text="X"
android:textSize="25sp"/>

<Button
android:id="@+id/equals"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_marginBottom="16dp"
android:text="="
android:textSize="35sp"/>
</LinearLayout>

</LinearLayout>
```

MainActivity.java

```java
package com.example.calculator;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;

import android.view.View;

import android.widget.Button;

import android.widget.EditText;

import android.widget.TextView;

import android.widget.Toast;

public class MainActivity extends AppCompatActivity {

    EditText no1 , no2;

    Button add ,mul ,div , sub,equal;

    TextView answer;

    double ans = 0;

    @Override
```

```java
protected void onCreate(Bundle savedInstanceState) {

    super.onCreate(savedInstanceState);

    setContentView(R.layout.activity_main);

    // for text views

    no1 = findViewById(R.id.first_no);

    no2 = findViewById(R.id.second_no);


    // for button with operations

    add = findViewById(R.id.add);

    mul = findViewById(R.id.mul);

    div = findViewById(R.id.div);

    sub = findViewById(R.id.sub);

    // for equal to button

    equal = findViewById(R.id.equals);

    // for answer field

    answer = findViewById(R.id.answer);

    add.setOnClickListener(new View.OnClickListener() {

        @Override

        public void onClick(View v) {

            String num1 = no1.getText().toString();

            String num2 = no2.getText().toString();

            if (num1.isEmpty() || num2.isEmpty()) {

                Toast.makeText(getApplicationContext(),"Enter
Numbers",Toast.LENGTH_SHORT).show();

            }

            else {

                double a = Double.parseDouble(no1.getText().toString());

                double b = Double.parseDouble(no2.getText().toString());

                ans = a + b;

            }

        }
```

```java
        });

        sub.setOnClickListener(new View.OnClickListener() {

            @Override

            public void onClick(View v) {

                String num1 = no1.getText().toString();

                String num2 = no2.getText().toString();

                if (num1.isEmpty() || num2.isEmpty()) {

                    Toast.makeText(getApplicationContext(),"Enter
Numbers",Toast.LENGTH_SHORT).show();

                }

                else {

                    double a = Double.parseDouble(no1.getText().toString());

                    double b = Double.parseDouble(no2.getText().toString());

                    ans = a - b;

                }

            }

        });

        mul.setOnClickListener(new View.OnClickListener() {

            @Override

            public void onClick(View v) {

                String num1 = no1.getText().toString();

                String num2 = no2.getText().toString();

                if (num1.isEmpty() || num2.isEmpty()) {

                    Toast.makeText(getApplicationContext(),"Enter
Numbers",Toast.LENGTH_SHORT).show();

                }

                else {

                    double a = Double.parseDouble(no1.getText().toString());

                    double b = Double.parseDouble(no2.getText().toString());

                    ans = a * b;

                }
```

```java
        }
    });
    div.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View v) {
            String num1 = no1.getText().toString();
            String num2 = no2.getText().toString();
            if (num1.isEmpty() || num2.isEmpty()) {
                Toast.makeText(getApplicationContext(), "Enter Numbers",
Toast.LENGTH_SHORT).show();
            } else {
                double a = Double.parseDouble(no1.getText().toString());
                double b = Double.parseDouble(no2.getText().toString());
                if (b != 0)
                    ans = a / b;
                else
                    Toast.makeText(getApplicationContext(), "Enter Valid Numbers",
Toast.LENGTH_SHORT).show();
            }
        }
    });
    equal.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View v) {
            String ans1 = String.valueOf(ans);
            answer.setText(ans1);
            ans= 0;
        }
    });
    }
}
```

OUTPUT

PROGRAM 4

Aim: Implement validations on various UI controls

CODE

Activity_main.xml

```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"
```

```xml
        android:hint="Last Name"

        android:inputType="text" />


    <EditText

        android:id="@+id/email"

        android:layout_width="match_parent"

        android:layout_height="wrap_content"

        android:layout_marginStart="16dp"

        android:layout_marginTop="16dp"

        android:layout_marginEnd="16dp"

        android:hint="Email"

        android:inputType="textEmailAddress" />


    <EditText

        android:id="@+id/password"

        android:layout_width="match_parent"

        android:layout_height="wrap_content"

        android:layout_marginStart="16dp"

        android:layout_marginTop="16dp"

        android:layout_marginEnd="16dp"

        android:hint="Password"

        android:inputType="textPassword" />


    <LinearLayout

        android:layout_width="match_parent"

        android:layout_height="wrap_content"

        android:layout_marginTop="8dp"

        android:gravity="end"

        android:orientation="horizontal">
```

```xml
<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;
```

```java
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);
        }
    }
});

// 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.
```

```java
    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

 CODE

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=".MainActivity">


    <Button

        android:id="@+id/btn"

        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="0.444"

        app:layout_constraintStart_toStartOf="parent"

        app:layout_constraintTop_toTopOf="parent"

        app:layout_constraintVertical_bias="0.513" />


    <TextView

        android:id="@+id/textView2"

        android:layout_width="wrap_content"

        android:layout_height="wrap_content"

        android:text="TextView"

        app:layout_constraintBottom_toBottomOf="parent"

        app:layout_constraintEnd_toEndOf="parent"
```

```
    app:layout_constraintHorizontal_bias="0.473"

    app:layout_constraintStart_toStartOf="parent"

    app:layout_constraintTop_toTopOf="parent"

    app:layout_constraintVertical_bias="0.411" />


  <EditText

    android:id="@+id/et"

    android:layout_width="wrap_content"

    android:layout_height="wrap_content"

    android:ems="10"

    android:inputType="textPersonName"

    android:text="Name"

    app:layout_constraintBottom_toBottomOf="parent"

    app:layout_constraintEnd_toEndOf="parent"

    app:layout_constraintHorizontal_bias="0.557"

    app:layout_constraintStart_toStartOf="parent"

    app:layout_constraintTop_toTopOf="parent"

    app:layout_constraintVertical_bias="0.313" />


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

MainActivity.java

```
package com.example.myapplication50;


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;


public class MainActivity extends AppCompatActivity {
```

```java
    EditText e;
    Button b;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        EditText e =findViewById(R.id.et);
        Button b=findViewById(R.id.btn);
        SharedPreferences sp =getSharedPreferences("Shared",MODE_PRIVATE);
        b.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                String val =e.getText().toString();
                sp.edit().putString("abc",val).commit();
                Intent i =new Intent(MainActivity.this,MainActivity2.class);
                startActivity(i);

            }
        });

    }
}
```

MainActivity2.java

```java
package com.example.myapplication50;

import androidx.appcompat.app.AppCompatActivity;

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

public class MainActivity2 extends AppCompatActivity {
    TextView tt;
```

```java
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main2);
        SharedPreferences sp= getSharedPreferences("Share",MODE_PRIVATE);
        TextView tt=findViewById(R.id.tvw);
        String se =sp.getString("abc","No data found");
        tt.setText(se);
    }
}
```
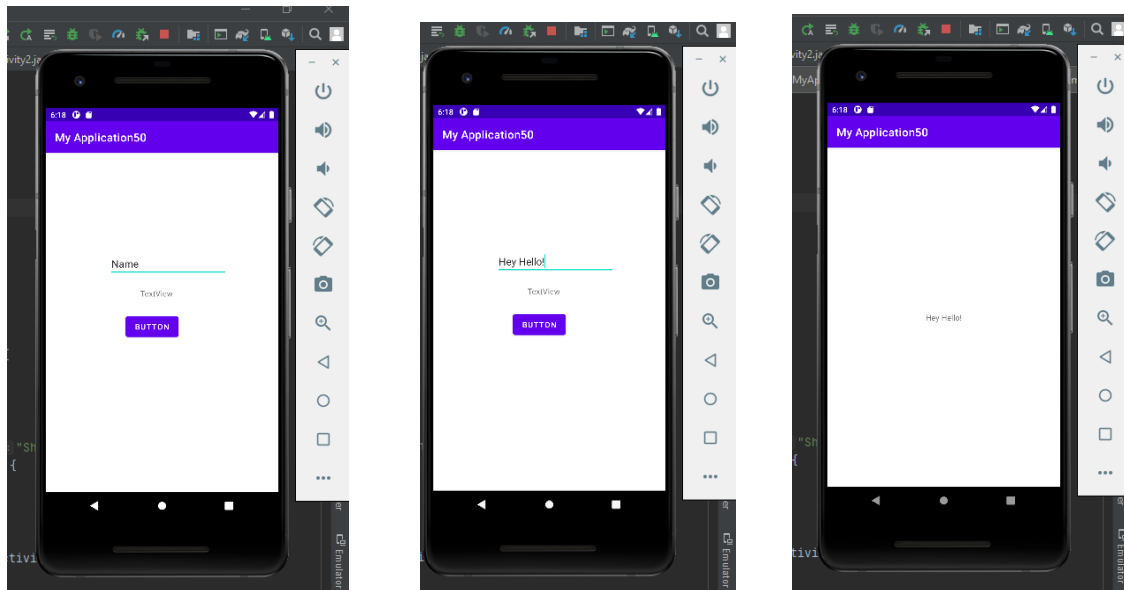
Activity_main2.xml

```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=".MainActivity2">

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

OUTPUT

PROGRAM 6

Aim: Design a simple Calculator using GridLayout and Cascaded LinearLayout

CODE

Activity_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"
    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"
            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" />


<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>
```

MainActivity.java

```
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
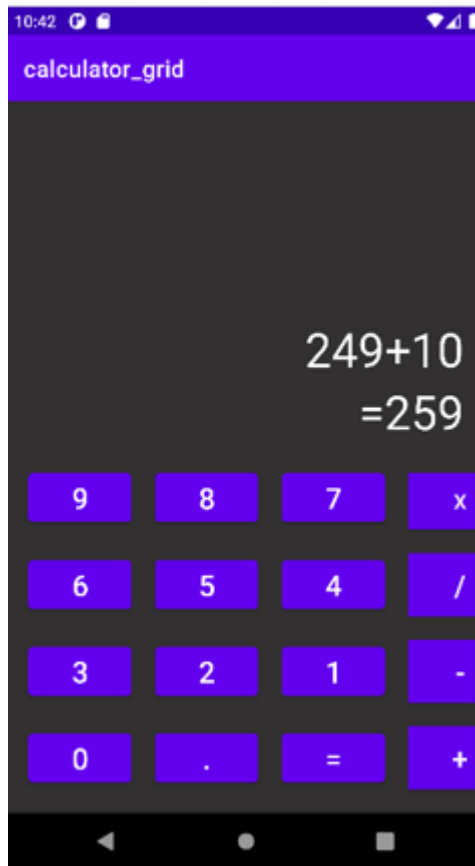
PROGRAM 7

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

CODE

Activity_main.xml

```xml
<?xml version="1.0" encoding="utf-8"?>
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:background="#29385D"
    tools:context=".MainActivity">

    <TextView
        android:layout_width="341dp"
        android:layout_height="96dp"
        android:layout_alignParentStart="true"
        android:layout_alignParentEnd="true"
        android:layout_alignParentBottom="true"
        android:layout_marginBottom="374dp"
        android:fontFamily="helvetica"
        android:text="FACEBOOK"
        android:textAlignment="center"
        android:textColor="@color/white"
        android:textSize="40dp"
        android:textStyle="bold"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintLeft_toLeftOf="parent"
        app:layout_constraintRight_toRightOf="parent"
        app:layout_constraintTop_toTopOf="parent"
```

app:layout_constraintVertical_bias="0.968" />

<Button

   android:id="@+id/b1"

   android:layout_width="300dp"

   android:layout_height="wrap_content"

   android:layout_marginLeft="50dp"

   android:layout_marginTop="355dp"

   android:background="@color/teal_200"

   android:text="LOGIN" />

<EditText

   android:id="@+id/et1"

   android:layout_width="300dp"

   android:layout_height="wrap_content"

   android:ems="10"

   android:layout_marginLeft="50dp"

   android:layout_marginTop="250dp"

   android:inputType="textPersonName"

   android:hint="email or password" />

<EditText

   android:id="@+id/et2"

   android:layout_width="300dp"

   android:layout_height="wrap_content"

   android:ems="10"

   android:layout_marginLeft="50dp"

   android:layout_marginTop="300dp"

   android:inputType="textPersonName"

   android:hint="password" />

```xml
<TextView

    android:id="@+id/textView2"

    android:layout_width="wrap_content"

    android:layout_height="wrap_content"

    android:layout_marginLeft="105dp"

    android:layout_marginTop="430dp"

    android:text="Don't have an account? Sign Up."

    android:textAlignment="center"/>

<TextView

    android:id="@+id/textView3"

    android:layout_width="wrap_content"

    android:layout_height="wrap_content"

    android:layout_marginLeft="150dp"

    android:layout_marginTop="408dp"

    android:text="Forgot password"

    android:textAlignment="center"/>
```

`</RelativeLayout>`

Mainactivity.java

```java
package com.example.facebookapp;

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.example.facebookapp.R;

public class MainActivity extends AppCompatActivity {
    EditText et1, et2;
    Button b1;


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


        b1=findViewById(R.id.b1);
        et1=findViewById(R.id.et1);
        et2=findViewById(R.id.et2);
        b1.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                String email=et1.getText().toString();
                String pass=et2.getText().toString();
                if(email.equals("")){
                    Toast.makeText(MainActivity.this, "Enter Username",
                        Toast.LENGTH_LONG).show();
                }
                else if(pass.equals("")){
                    Toast.makeText(MainActivity.this, "Enter Password",
                        Toast.LENGTH_LONG).show();
                }
                else if (email.equals("swathy@gmail") && pass.equals("swathy123")) {
```

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

                    i.putExtra("name", email);

                    startActivity(i);

            }       else {

                    String toastMessage = "Username and Password doesn't match.";

                    Toast.makeText(getApplicationContext(), toastMessage,
Toast.LENGTH_LONG).show();

                }

            }




        });



    }
}
```

Activity2.java

```
package com.example.facebookapp;


import androidx.appcompat.app.AppCompatActivity;


import android.content.Intent;

import android.os.Bundle;

import android.widget.TextView;


public class MainActivity2 extends AppCompatActivity {

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

    @Override

    protected void onCreate(Bundle savedInstanceState) {

        super.onCreate(savedInstanceState);

        setContentView(R.layout.activity_main2);
```

```java
        Intent j=getIntent();

        String email=j.getStringExtra("name");

        tv.setText("Welcome:"+email);

    }

}
```

Activity_main2.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="#29487D"

    tools:context=".MainActivity2">


    <TextView

        android:id="@+id/tv"

        android:layout_width="284dp"

        android:layout_height="53dp"

        android:text="tv"

        android:textStyle="bold"

        android:textSize="60dp"

        app:layout_constraintBottom_toBottomOf="parent"

        app:layout_constraintEnd_toEndOf="parent"

        app:layout_constraintStart_toStartOf="parent"

        app:layout_constraintTop_toTopOf="parent" />
</androidx.constraintlayout.widget.ConstraintLayout>
```
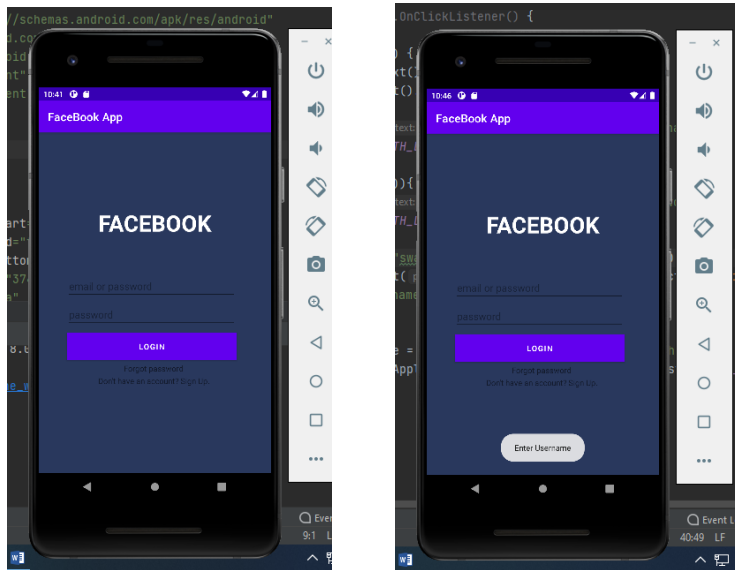
OUTPUT

PROGRAM 8

Aim: Develop an application that toggles image using FrameLayout

CODE

MainActivity.java

```java
package com.example.myapp50;

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 iv1=findViewById(R.id.iv1);
        ImageView iv2=findViewById(R.id.iv2);

        iv1.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                iv2.bringToFront();
            }
        });
        iv2.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                iv1.bringToFront();
            }
        });
```
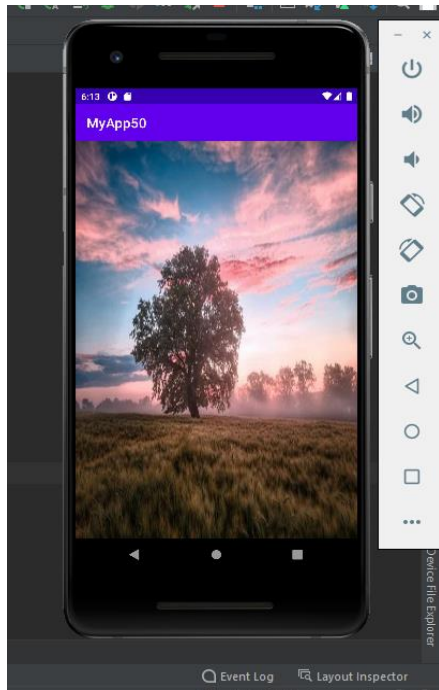
```
    }
}
```

Activity_main.xml

```
<FrameLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:orientation="vertical"
    android:layout_width="match_parent"
    android:layout_height="match_parent">
    <ImageView
        android:id="@+id/iv1"
        android:src = "@drawable/img_1"
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        android:scaleType="fitXY" />
    <ImageView
        android:id="@+id/iv2"
        android:src = "@drawable/img"
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        android:scaleType="fitXY" />

</FrameLayout>
```

OUTPUT
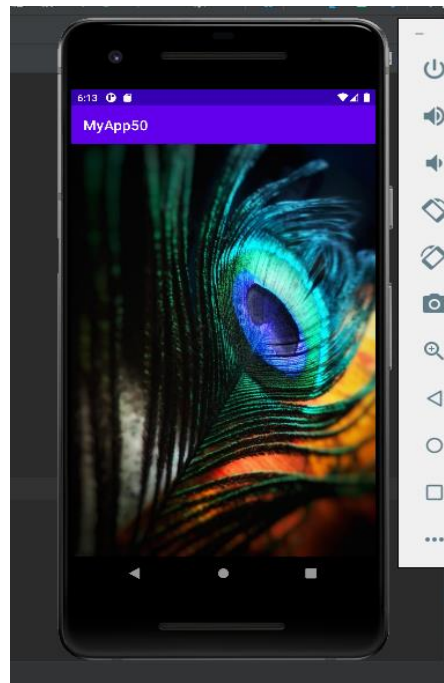
PROGRAM 9

Aim: Implement Adapters and perform exception handling

CODE

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=".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;

import java.util.ArrayList;
import java.util.List;
```

```java
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();
      }
    }
  }
}
```

OUTPUT

PROGRAM 10

Aim: Implement Intent to navigate between multiple activities

CODE

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=".MainActivity">


    <Button

        android:id="@+id/button2"

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

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.View;
```

```java
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.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);
            }
        });
    }
}
```
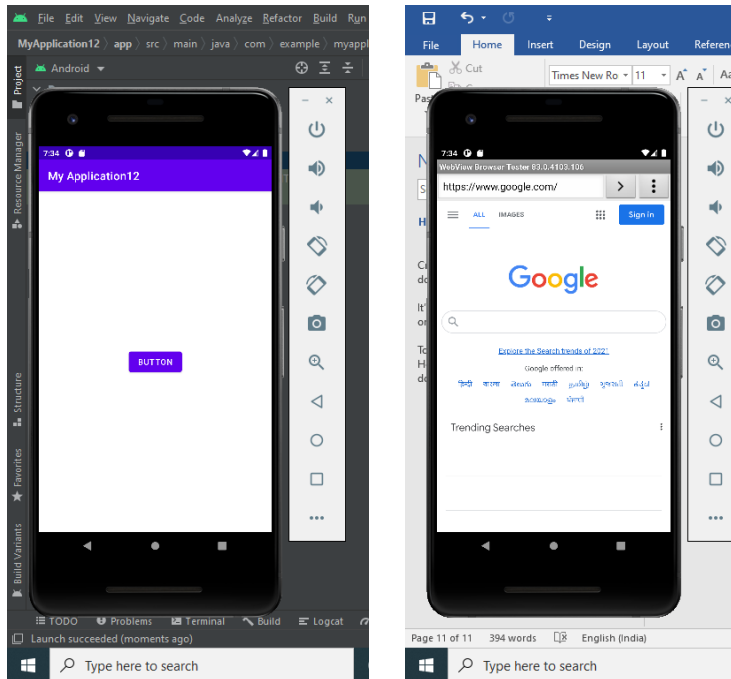
OUTPUT

PROGRAM 11

Aim: Develop application that works with explicit intents

CODE

activity_main.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/btn"

        android:layout_width="wrap_content"

        android:layout_height="wrap_content"

        android:layout_marginTop="340dp"

        android:layout_marginEnd="136dp"

        android:text="Button"

        app:layout_constraintEnd_toEndOf="parent"

        app:layout_constraintTop_toTopOf="parent" />


    <EditText

        android:id="@+id/etext"

        android:layout_width="wrap_content"

        android:layout_height="wrap_content"

        android:ems="10"

        android:inputType="textPersonName"

        android:text="Name"

        app:layout_constraintBottom_toBottomOf="parent"

        app:layout_constraintEnd_toEndOf="parent"
```

```
    app:layout_constraintHorizontal_bias="0.552"

    app:layout_constraintStart_toStartOf="parent"

    app:layout_constraintTop_toTopOf="parent"

    app:layout_constraintVertical_bias="0.288" />


  <EditText

    android:id="@+id/e2"

    android:layout_width="wrap_content"

    android:layout_height="wrap_content"

    android:ems="10"

    android:inputType="textEmailAddress"

    app:layout_constraintBottom_toBottomOf="parent"

    app:layout_constraintEnd_toEndOf="parent"

    app:layout_constraintHorizontal_bias="0.557"

    app:layout_constraintStart_toStartOf="parent"

    app:layout_constraintTop_toTopOf="parent"

    app:layout_constraintVertical_bias="0.396" />


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

MainActivity.java

```
package com.example.myapplication11;

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;
```

```java
public class MainActivity extends AppCompatActivity {

    Button button;

    EditText et;

    EditText e2;


    @Override

    protected void onCreate(Bundle savedInstanceState) {

        super.onCreate(savedInstanceState);

        setContentView(R.layout.activity_main);

        ActionBar action=getSupportActionBar();

        action.setTitle("New Activity");

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

        EditText et=findViewById(R.id.etext);

        EditText e2=findViewById(R.id.e2);

        button.setOnClickListener(new View.OnClickListener() {

            @Override

            public void onClick(View v) {

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

                String valname=et.getText().toString();

                i.putExtra("Username",valname);

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

                i.putExtra("Email",email);

                startActivity(i);

            }

        });

    }

}
```

Activity_main2.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=".MainActivity2">


    <TextView

        android:id="@+id/text2"

        android:layout_width="450dp"

        android:layout_height="33dp"

        android:text="TextView"

        app:layout_constraintStart_toStartOf="parent"

        tools:layout_editor_absoluteY="150dp" />
</androidx.constraintlayout.widget.ConstraintLayout>
```

MainActivity2.java

```java
package com.example.myapplication11;


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 {

TextView txt2;

    @Override

    protected void onCreate(Bundle savedInstanceState) {

        super.onCreate(savedInstanceState);

        setContentView(R.layout.activity_main2);

      TextView txt2=findViewById(R.id.text2);

      Intent i=getIntent();

      String intentname=i.getStringExtra("Username");

      String ename=i.getStringExtra("Email");
```

```
        txt2.setText(""+intentname+"\n"+ename);


    }
}
```

OUTPUT
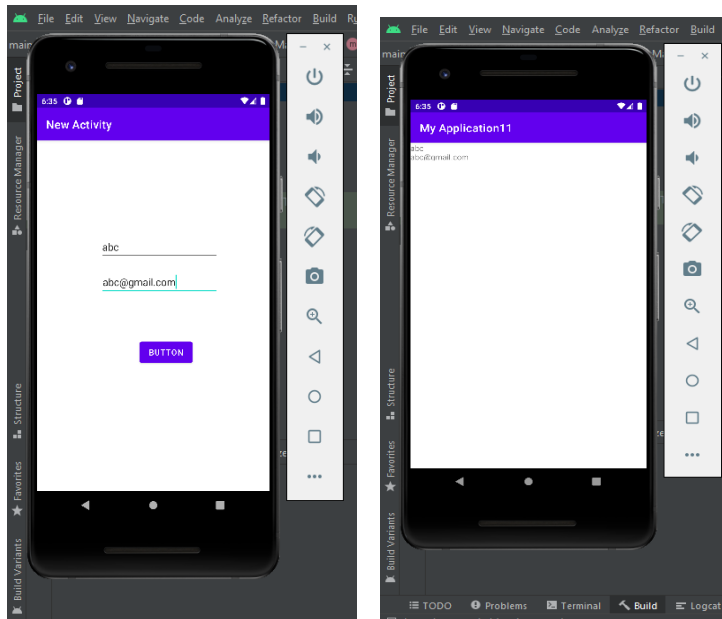
PROGRAM 12

Aim: Implement Options Menu to navigate to activities

CODE

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);
```

```java
    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);
    }
  }

}
```
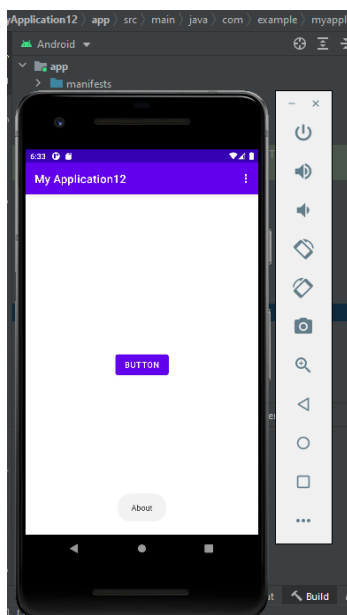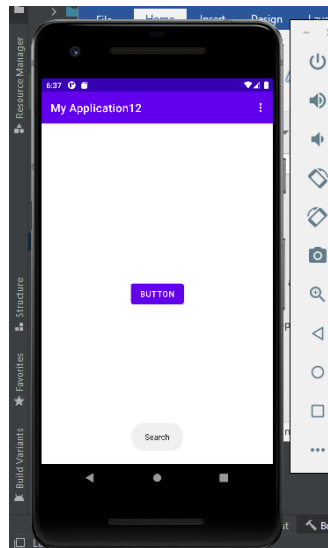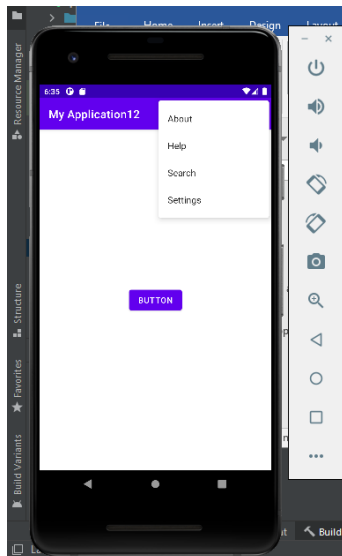
OUTPUT
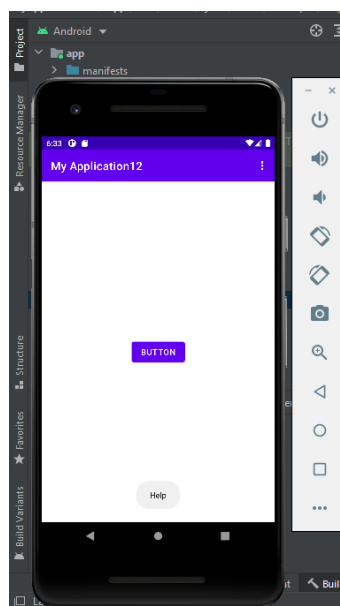
PROGRAM 13

Aim: Develop an application that uses ArrayAdapter with ListView.

CODE

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=".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" />

    <ListView
        android:id="@+id/list"
        android:layout_width="409dp"
        android:layout_height="729dp"
        android:layout_marginStart="1dp"
        android:layout_marginEnd="1dp"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        tools:layout_editor_absoluteY="1dp" />

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

MainActivity.java

```java
package com.example.listview2;

import androidx.appcompat.app.AppCompatActivity;

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

```
import android.widget.ListView;
import android.widget.Toast;

public class MainActivity extends AppCompatActivity {
    ListView listView;
    String countries[]={"India","Africa","America"};

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

        listView=findViewById(R.id.list);
            ArrayAdapter arrayAdapater=new
ArrayAdapter<String>(MainActivity.this,R.layout.support_simple_spinner_dropdown_item,c
ountries);
            listView.setAdapter(arrayAdapater);

            listView.setOnItemClickListener(new AdapterView.OnItemClickListener() {
                @Override
                public void onItemClick(AdapterView<?> parent, View view, int position, long
id) {

                    Toast.makeText(getApplicationContext(),"You Clicked
"+countries[position],Toast.LENGTH_LONG).show();
                }
            });
    }
}
```
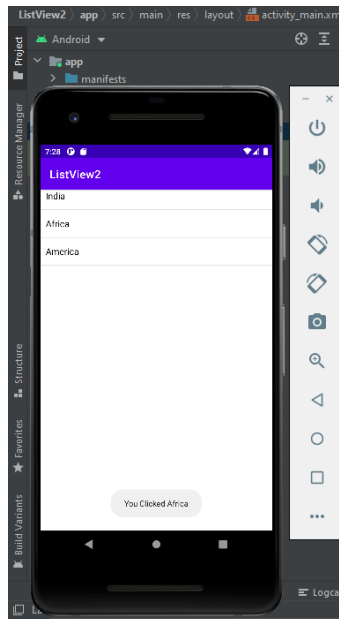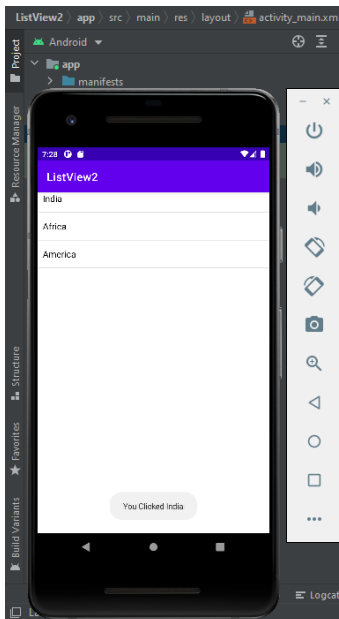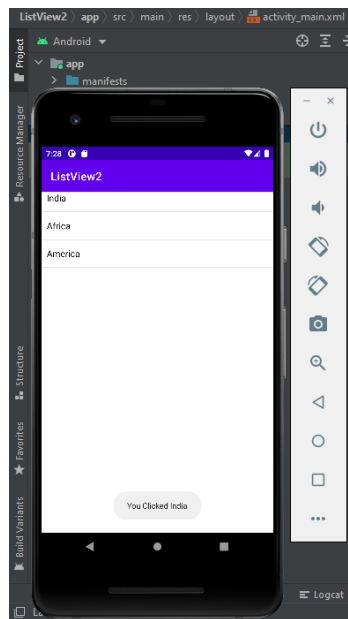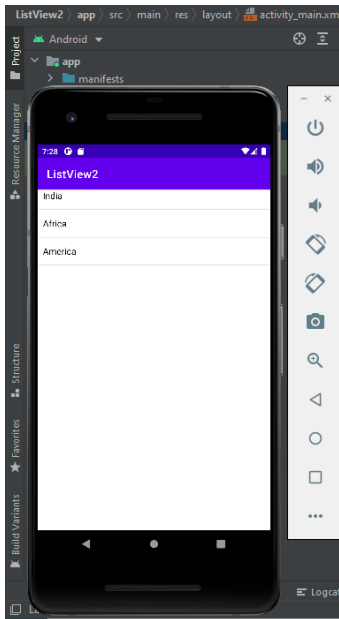
OUTPUT

PROGRAM 14

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

CODE

Activity_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/grid"
        android:numColumns="3"/>


</LinearLayout>
```

MainActivity.javapackage com.example.myapplicationimg;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;

import android.widget.CursorAdapter;

import android.widget.GridView;

import android.widget.ImageButton;

import android.widget.ImageView;

import android.widget.TextView;

```java
public class MainActivity extends AppCompatActivity {

    GridView gridView;

    ImageView im;

    TextView t;



    String con[]={"con1","con2","con3","con4","con5","con6","con7","con8"};


    int
img[]={R.drawable.img_1,R.drawable.img_2,R.drawable.img_3,R.drawable.img_4,R.drawable.img_5,R.drawable.img_6,R.drawable.img_7,R.drawable.img_8};


    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        gridView=findViewById(R.id.grid);
        im=findViewById(R.id.img);
        t=findViewById(R.id.t);
        CustomAdaptor customAdaptor =new CustomAdaptor(MainActivity.this,con,img);
        gridView.setAdapter(customAdaptor);
    }
}
```

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">
```

```xml
<ImageView
    android:layout_width="150dp"
    android:layout_height="150dp"
    android:id="@+id/img"/>


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

</LinearLayout>
```

```java
package com.example.myapplicationimg;


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 con[];

    int img[];
```

```
LayoutInflater layoutInflater;

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

    this.context=mainActivity;
    this.con=con;
    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 t=(TextView)convertView.findViewById(R.id.t);

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

t.setText(con[position]);

imageView.setImageResource(img[position]);

 return convertView;


  }
}
```

OUTPUT

PROGRAM 15

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

 CODE

MainActivity.java

```java
package com.example.spinner;

import androidx.appcompat.app.AppCompatActivity;

import android.content.Context;

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 implements
AdapterView.OnItemSelectedListener {
    String[] course={"BTECH","BCA","MCA","CIVIL","CSS"};

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        Spinner spin=(Spinner) findViewById(R.id.spinner);
        spin.setOnItemSelectedListener(this);
        ArrayAdapter a =new ArrayAdapter(this,android.R.layout.simple_spinner_item,course);
        a.setDropDownViewResource(android.R.layout.simple_spinner_dropdown_item);
        spin.setAdapter(a);
    }

    @Override
    public void onItemSelected(AdapterView<?> arg0, View arg1, int position, long id) {
```

```
        Toast.makeText(getApplicationContext(),course[position],
Toast.LENGTH_SHORT).show();

    }


    @Override

    public void onNothingSelected(AdapterView<?> arg1) {


    }

}
```

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=".MainActivity">


    <Spinner

        android:id="@+id/spinner"

        android:layout_width="149dp"

        android:layout_height="40dp"

        android:layout_marginStart="8dp"

        android:layout_marginEnd="8dp"

        android:layout_marginBottom="8dp"

        app:layout_constraintBottom_toBottomOf="parent"

        app:layout_constraintEnd_toEndOf="parent"

        app:layout_constraintStart_toStartOf="parent"

        app:layout_constraintTop_toTopOf="parent"

        app:layout_constraintVertical_bias="0.409" />


</androidx.constraintlayout.widget.ConstraintLayout>
```
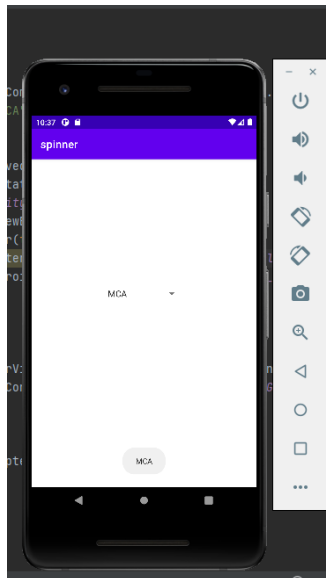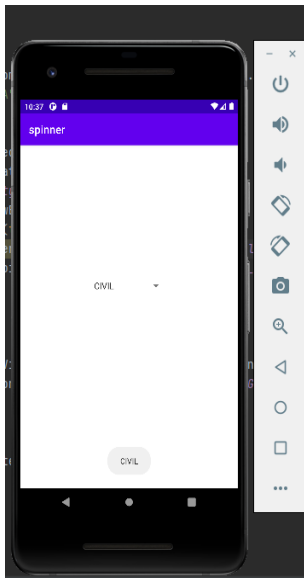
PROGRAM 16

Aim: Apply themes via code and manifest file

CODE

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=".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>
```
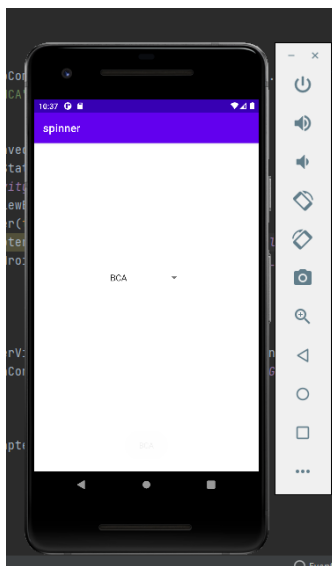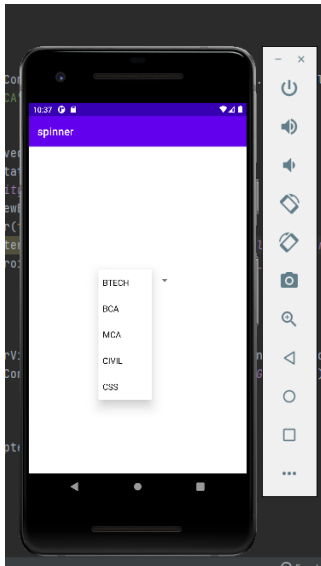
AndroidManifest.xml

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

```xml
    <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

```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

```
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

SWATHY KRISHNA P R

PROGRAM 17

Aim: Develop application using Fragments

CODE

Fragment

```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" />
```

```xml
    <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>
```

Mainactivity.java

```java
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;

public class MainActivity extends AppCompatActivity {
    Button btt,btt2;

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

```java
        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();
    }
}
```

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"
    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>
```

Fragment2.java

```
package com.example.nav;


import android.os.Bundle;


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

```java
import android.view.LayoutInflater;

import android.view.View;

import android.view.ViewGroup;

public class fragment2 extends Fragment {
    public View onCreateView(LayoutInflater inflater, ViewGroup container,
                    Bundle savedInstanceState) {
        // Inflate the layout for this fragment
        return inflater.inflate(R.layout.fragment_fragment2, container, false);
    }
```

Fragment1.java

```java
package com.example.nav;

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);
    }
}
```
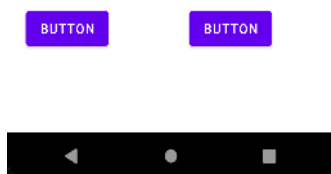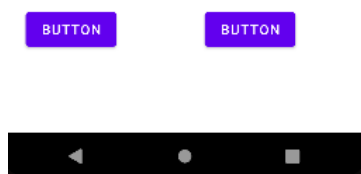
OUTPUT

Fragment 1

Fragment 2

PROGRAM 18

Aim: Implement Navigation drawer

CODE

MainActivity.java

```java
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);

    }


}
```

Activity_main.xml

```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 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>
```
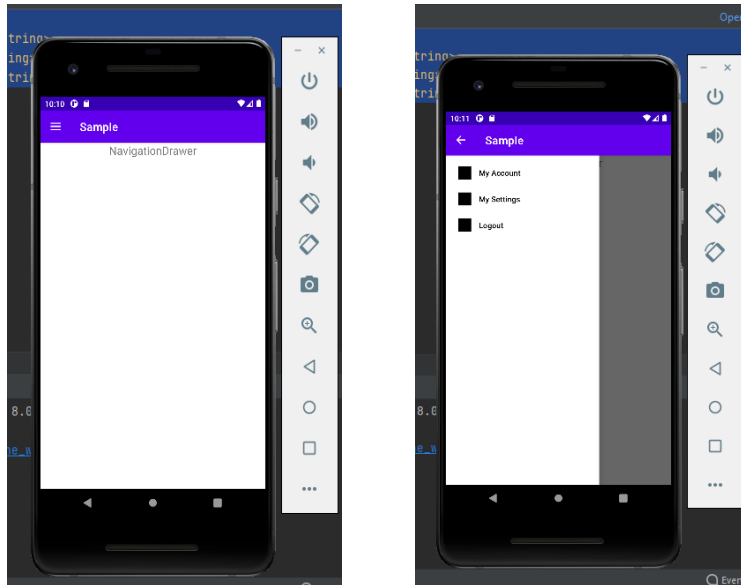
String.xml

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

OUTPUT

PROGRAM 19

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

CODE

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=".MainActivity">



    <TextView

        android:id="@+id/tv1"

        android:layout_width="58dp"

        android:layout_height="27dp"

        android:text="Name"

        app:layout_constraintBottom_toBottomOf="parent"

        app:layout_constraintEnd_toEndOf="parent"

        app:layout_constraintHorizontal_bias="0.152"

        app:layout_constraintStart_toStartOf="parent"

        app:layout_constraintTop_toTopOf="parent"

        app:layout_constraintVertical_bias="0.15"

        tools:ignore="MissingConstraints" />



    <EditText

        android:id="@+id/et1"

        android:layout_width="247dp"
```

```
    android:layout_height="43dp"

    app:layout_constraintBottom_toBottomOf="parent"

    app:layout_constraintEnd_toEndOf="parent"

    app:layout_constraintHorizontal_bias="0.329"

    app:layout_constraintStart_toStartOf="parent"

    app:layout_constraintTop_toTopOf="parent"

    app:layout_constraintVertical_bias="0.213"

    tools:ignore="MissingConstraints" />


<TextView

    android:id="@+id/tv2"

    android:layout_width="53dp"

    android:layout_height="30dp"

    android:text="Address"

    app:layout_constraintBottom_toBottomOf="parent"

    app:layout_constraintEnd_toEndOf="parent"

    app:layout_constraintHorizontal_bias="0.15"

    app:layout_constraintStart_toStartOf="parent"

    app:layout_constraintTop_toTopOf="parent"

    app:layout_constraintVertical_bias="0.292"

    tools:ignore="MissingConstraints" />


<EditText

    android:id="@+id/et2"

    android:layout_width="254dp"

    android:layout_height="46dp"

    app:layout_constraintBottom_toBottomOf="parent"

    app:layout_constraintEnd_toEndOf="parent"

    app:layout_constraintHorizontal_bias="0.343"

    app:layout_constraintStart_toStartOf="parent"
```

```
        app:layout_constraintTop_toTopOf="parent"

        app:layout_constraintVertical_bias="0.353"

        tools:ignore="MissingConstraints" />


    <Button

        android:id="@+id/bt"

        android:layout_width="76dp"

        android:layout_height="52dp"

        android:text="save"

        app:layout_constraintBottom_toBottomOf="parent"

        app:layout_constraintEnd_toEndOf="parent"

        app:layout_constraintHorizontal_bias="0.271"

        app:layout_constraintStart_toStartOf="parent"

        app:layout_constraintTop_toTopOf="parent"

        app:layout_constraintVertical_bias="0.456"

        tools:ignore="MissingConstraints" />


    <Button

        android:id="@+id/bt1"

        android:layout_width="85dp"

        android:layout_height="54dp"

        android:text="View"

        app:layout_constraintBottom_toBottomOf="parent"

        app:layout_constraintEnd_toEndOf="parent"

        app:layout_constraintHorizontal_bias="0.609"

        app:layout_constraintStart_toStartOf="parent"

        app:layout_constraintTop_toTopOf="parent"

        app:layout_constraintVertical_bias="0.455" />


    <Button
```

```
android:id="@+id/bt2"

android:layout_width="wrap_content"

android:layout_height="wrap_content"

android:text="Delete"

app:layout_constraintBottom_toBottomOf="parent"

app:layout_constraintEnd_toEndOf="parent"

app:layout_constraintHorizontal_bias="0.304"

app:layout_constraintStart_toStartOf="parent"

app:layout_constraintTop_toTopOf="parent"

app:layout_constraintVertical_bias="0.65" />


<EditText

android:id="@+id/et3"

android:layout_width="wrap_content"

android:layout_height="wrap_content"

android:ems="10"

android:inputType="textPersonName"

android:hint="EnterID"

app:layout_constraintBottom_toBottomOf="parent"

app:layout_constraintEnd_toEndOf="parent"

app:layout_constraintHorizontal_bias="0.323"

app:layout_constraintStart_toStartOf="parent"

app:layout_constraintTop_toTopOf="parent"

app:layout_constraintVertical_bias="0.552" />


<Button

android:id="@+id/bt5"

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="0.675"

        app:layout_constraintStart_toStartOf="parent"

        app:layout_constraintTop_toTopOf="parent"

        app:layout_constraintVertical_bias="0.65" />
</androidx.constraintlayout.widget.ConstraintLayout>
```

Mainactivity.java

```
package com.example.database;


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;


public class MainActivity extends AppCompatActivity {

    TextView t1;

    TextView t2;

    EditText e1;

    EditText e2;

    EditText e3;

    Button b;

    Button b2;

    Button b3;
```

```java
Button b4;
@Override
protected void onCreate(Bundle savedInstanceState) {
    super.onCreate(savedInstanceState);
    setContentView(R.layout.activity_main);
    t1=findViewById(R.id.tv1);
    t2=findViewById(R.id.tv2);
    e1=findViewById(R.id.et1);
    e2=findViewById(R.id.et2);
    e3=findViewById(R.id.et3);
    b=findViewById(R.id.bt);
    b2=findViewById(R.id.bt1);
    b3=findViewById(R.id.bt2);
    b4=findViewById(R.id.bt5);
    DB1 db1=new DB1(this);


    b.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View v) {
            String fn=e1.getText().toString();
            String ln=e2.getText().toString();
            db1.insert(fn,ln);
        }
    });
    b2.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View v) {
            Cursor cr= db1.viewDb();
            StringBuffer sb=new StringBuffer();
```

```java
        while(cr.moveToNext()){

            sb.append("Id:"+cr.getString(0)+"\n");

            sb.append("Name:"+cr.getString(1)+"\n");

            sb.append("Address:"+cr.getString(2)+"\n");

        }

Toast.makeText(getApplicationContext(),sb.toString(),Toast.LENGTH_LONG).show();
        }

    });

    b3.setOnClickListener(new View.OnClickListener() {

        @Override

        public void onClick(View v) {

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

            db1.deletDb(valDel);

        }

    });

    b4.setOnClickListener(new View.OnClickListener() {

        @Override

        public void onClick(View v) {

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

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

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

            db1.UpdateDb(valDel,fn,ln);


        }

    });


  }


}
```

DB1.java

package com.example.database;

import android.content.ContentValues;

import android.content.Context;

import android.database.Cursor;

import android.database.sqlite.SQLiteDatabase;

import android.database.sqlite.SQLiteOpenHelper;

import androidx.annotation.Nullable;

```java
public class DB1 extends SQLiteOpenHelper {
    private static String dbname="students";
    private static int dbVersion=1;


    SQLiteDatabase db;




    public DB1( Context context) {
        super(context, dbname, null , dbVersion);
    }


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


    }
```

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

    }

    public void insert(String name,String address)
    {
        db=getWritableDatabase();
        ContentValues meta=new ContentValues();
        meta.put("sname",name);
        meta.put("saddress",address);
        db.insert("stud_tble",null,meta);
    }
    public Cursor viewDb(){
        db=getReadableDatabase();
        Cursor cr=db.rawQuery("Select * from stud_tble",null);
        return cr;

    }
    public void deletDb(String valid){
        db=getWritableDatabase();
        db.delete("stud_tble","sid=?",new String[]{valid});

    }
    public void UpdateDb(String valDel,String fn,String ln)
    {
        db=getWritableDatabase();
        ContentValues cont=new ContentValues();
        cont.put("sname",fn);
        cont.put("saddress",ln);
        db.update("stud_tble",cont,"sid=?",new String[]{valDel});

    }
}
```

OUTPUT