20MCA243 MOBILE APPLICATION DEVELOPMENT LAB

Lab Report Submitted By

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In Partial fulfillment for the Award of the Degree Of

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

AMAL JYOTHI COLLEGE OF ENGINEERING
KANJIRAPPALLY

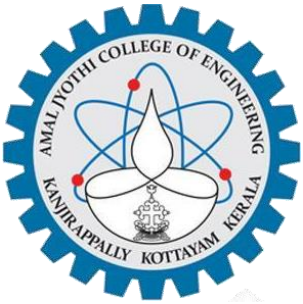
[Affiliated to APJ Abdul Kalam Technological University, Kerala. Approved by AICTE, Accredited by NAAC with 'A' grade. Koovapally, Kanjirappally, Kottayam, Kerala – 686518]

2021-2022

DEPARTMENT OF COMPUTER APPLICATIONS

AMAL JYOTHI COLLEGE OF ENGINEERING

KANJIRAPPALLY



CERTIFICATE

This is to certify that the lab report, "**20MCA243 MOBILE APPLICATION DEVELOPMENT LAB"** is the bonafide work of **ATHUL C AUGUSTIAN (Reg.No:AJC20MCA-2031)** in partial fulfillment of the requirements for the award of the Degree of Master of Computer Applications under APJ Abdul Kalam Technological University during the year 2021-22.

Ms. Nimmy Francis
Staff In-Charge

CONTENT

Program no:1

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

XML Code:

```
<?xml version="1.0" encoding="utf-8"?>
<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="@drawable/background"
    tools:context=".MainActivity">

    <TextView
        android:layout_width="match_parent"
        android:id="@+id/loginin"
        android:layout_height="wrap_content"
        android:text="Login"
        android:textColor="@color/black"
        android:textSize="35dp"
        android:textStyle="bold"
        android:layout_margin="50dp"
        android:gravity="center"/>

    <EditText
        android:layout_width="match_parent"
```

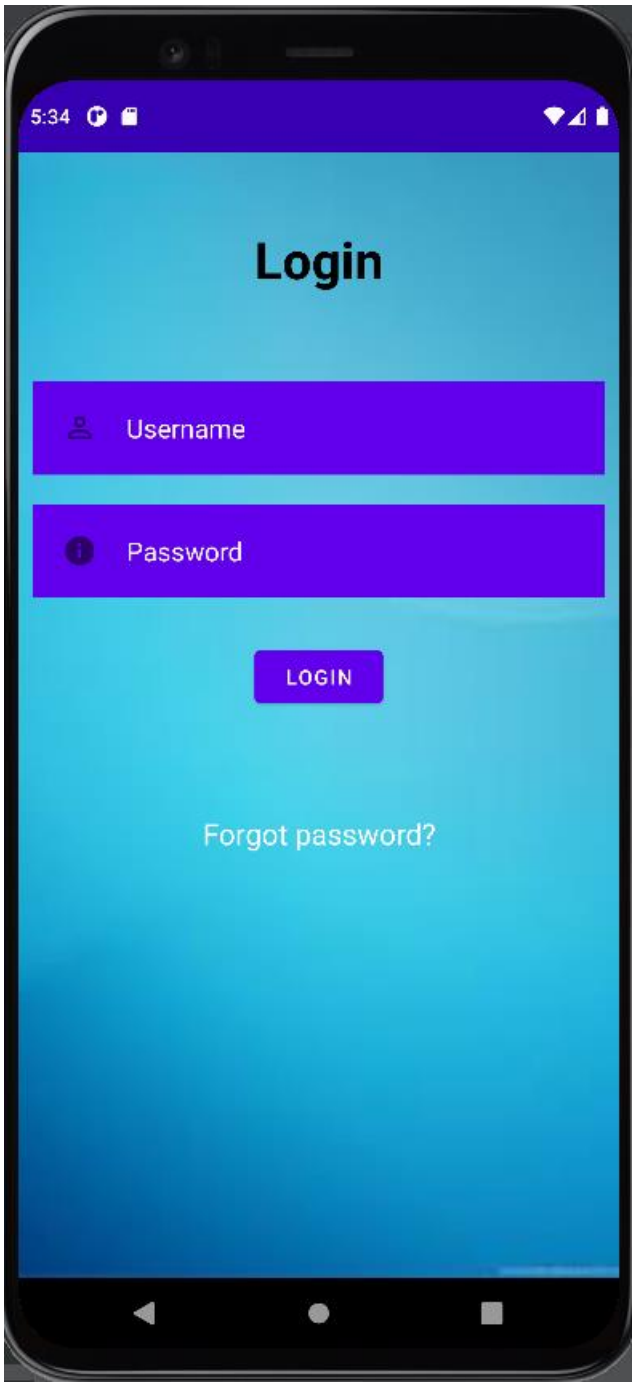
```
    android:layout_height="wrap_content"
    android:id="@+id/username"
    android:layout_below="@id/loginin"
    android:background="@color/purple_500"
    android:hint="Username"
    android:textColorHint="@color/white"
    android:textColor="@color/white"
    android:layout_margin="10dp"
    android:padding="20dp"
    android:drawableLeft="@drawable/ic_baseline_person_outline_24"
    android:drawablePadding="20dp"
    />

<EditText
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:id="@+id/password"
    android:layout_below="@id/username"
    android:background="@color/purple_500"
    android:hint="Password"
    android:textColorHint="@color/white"
    android:textColor="@color/white"
    android:layout_margin="10dp"
    android:padding="20dp"
    android:drawableLeft="@drawable/ic_baseline_info_24"
    android:drawablePadding="20dp"
    />
```

```
<com.google.android.material.button.MaterialButton
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:id="@+id/loginbtn"
    android:layout_below="@id/password"
    android:text="LOGIN"
    android:backgroundTint="@color/purple_500"
    android:layout_centerHorizontal="true"
    android:layout_margin="20dp"/>


<TextView
    android:layout_width="wrap_content"
    android:id="@+id/forgotpass"
    android:layout_below="@+id/loginbtn"
    android:layout_height="wrap_content"
    android:text="Forgot password?"
    android:textColor="@color/white"
    android:textSize="20dp"
    android:layout_margin="50dp"
    android:layout_centerHorizontal="true"
    android:gravity="center"/>


</RelativeLayout>
```

Java Code:

```
package com.example.login;
import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import android.widget.Button;
import android.widget.EditText;
import android.widget.TextView;
public class MainActivity extends AppCompatActivity {
 private TextView l;
 private EditText e1;
 private EditText e2;
 private Button b1;
 @Override
 protected void onCreate(Bundle savedInstanceState) {
 super.onCreate(savedInstanceState);
 setContentView(R.layout.activity_main);
b1=findViewById(R.id.b1);
 e1=findViewById(R.id.e1);
 e2=findViewById(R.id.e2);
 }
}
```

Output:



Program no:2

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

XML Code:

```
<?xml version="1.0" encoding="utf-8"?>
<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:gravity="center"
    android:padding="20dp"
    tools:context=".MainActivity">

    <EditText
        android:id="@+id/name"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:ems="10"
        android:inputType="textPersonName"
        android:paddingStart="20dp"
        android:paddingTop="20dp"
        android:paddingEnd="20dp"
        android:paddingBottom="20dp"
```

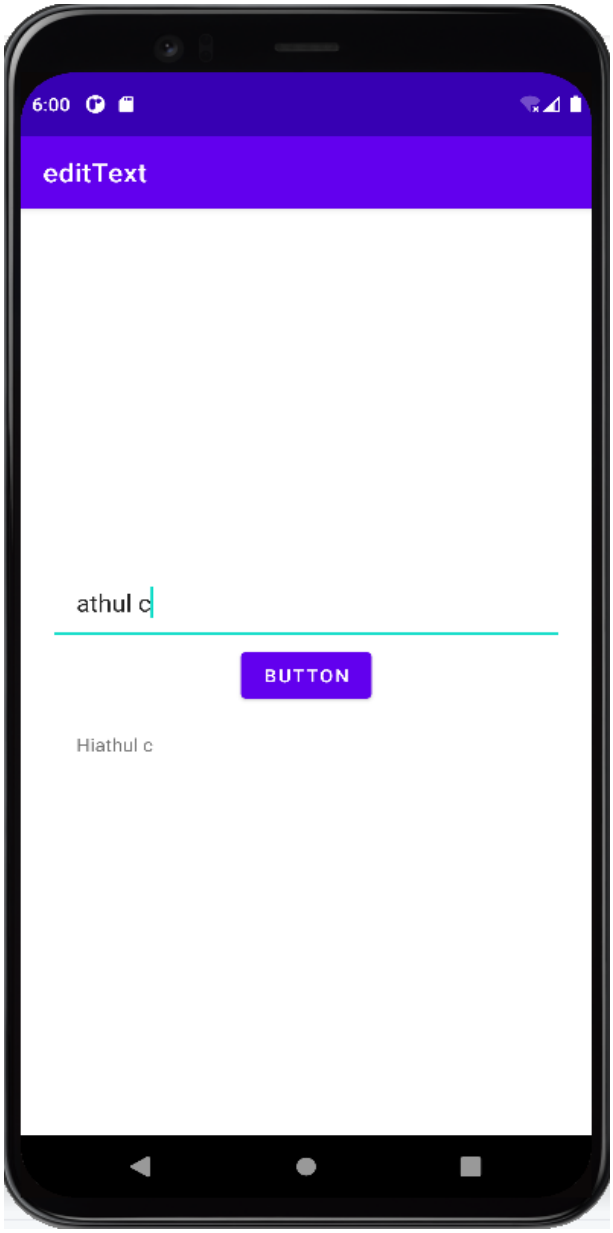
```
        android:text="Name" />

    <Button
        android:id="@+id/button"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_below="@id/name"
        android:layout_centerInParent="true"
        android:text="Button" />

    <TextView
        android:id="@+id/result"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_below="@id/button"
        android:paddingStart="20dp"
        android:paddingTop="20dp"
        android:paddingEnd="20dp"
        android:paddingBottom="20dp"
        android:text="TextView" />
</RelativeLayout>
```

Java Code:

```
package com.example.textview;
import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
```

```
import android.widget.EditText;
import android.widget.TextView;
public class MainActivity extends AppCompatActivity {
 private EditText t1;
 private TextView t2;
 private Button b1;
 @Override
 protected void onCreate(Bundle savedInstanceState) {
 super.onCreate(savedInstanceState);
 setContentView(R.layout.activity_main);
 t1=findViewById(R.id.text1);
 t2=findViewById(R.id.textView2);
 b1=findViewById(R.id.button);
 b1.setOnClickListener(new View.OnClickListener() {
 @Override
 public void onClick(View v) {
 String value = t1.getText().toString();
t2.setText(String.valueOf(value));
 }
 });
 }
}
```

Output:



Program no:3

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

XML Code:

```
<?xml version="1.0" encoding="utf-8"?>
<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="@drawable/background"
    tools:context=".MainActivity">

    <TextView
        android:layout_width="match_parent"
        android:id="@+id/loginin"
        android:layout_height="wrap_content"
        android:text="Login"
        android:textColor="@color/black"
        android:textSize="35dp"
        android:textStyle="bold"
        android:layout_margin="50dp"
```

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

<EditText
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:id="@+id/username"
    android:layout_below="@id/loginin"
    android:background="@color/purple_500"
    android:hint="Username"
    android:textColorHint="@color/white"
    android:textColor="@color/white"
    android:layout_margin="10dp"
    android:padding="20dp"
    android:drawableLeft="@drawable/ic_baseline_person_outline_24"
    android:drawablePadding="20dp"
    />

<EditText
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:id="@+id/password"
    android:layout_below="@id/username"
    android:background="@color/purple_500"
    android:hint="Password"
    android:textColorHint="@color/white"
    android:textColor="@color/white"
    android:layout_margin="10dp"
```

```
    android:padding="20dp"
    android:drawableLeft="@drawable/ic_baseline_info_24"
    android:drawablePadding="20dp"
    />

<com.google.android.material.button.MaterialButton
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:id="@+id/loginbtn"
    android:layout_below="@id/password"
    android:text="LOGIN"
    android:backgroundTint="@color/purple_500"
    android:layout_centerHorizontal="true"
    android:layout_margin="20dp"/>


<TextView
    android:layout_width="wrap_content"
    android:id="@+id/forgotpass"
    android:layout_below="@+id/loginbtn"
    android:layout_height="wrap_content"
    android:text="Forgot password?"
    android:textColor="@color/white"
    android:textSize="20dp"
    android:layout_margin="50dp"
    android:layout_centerHorizontal="true"
    android:gravity="center"/>
```

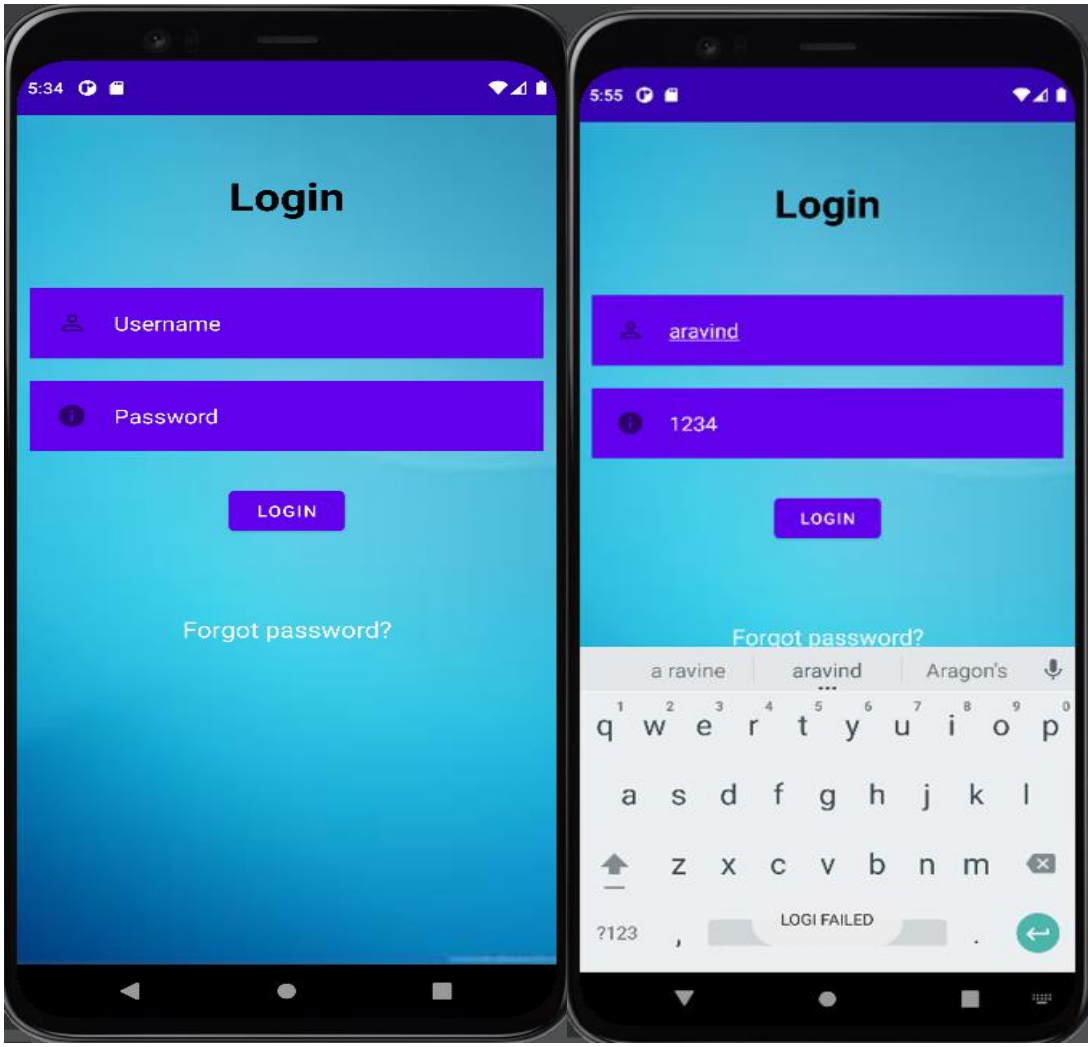
```
</RelativeLayout>
```

Java Code:

```
package com.example.gui;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;
import android.view.View;
import android.widget.TextView;
import android.widget.Toast;

import com.google.android.material.button.MaterialButton;

public class MainActivity extends AppCompatActivity {

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



        TextView username=(TextView) findViewById(R.id.username);
```

```
        TextView password=(TextView) findViewById(R.id.password);


        MaterialButton loginbtn = (MaterialButton) findViewById(R.id.loginbtn);


        loginbtn.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                if (username.getText().toString().equals("admin") &&
password.getText().toString().equals("admin")) {
                    Toast.makeText(MainActivity.this, "LOGIN SUCESSFUL",
Toast.LENGTH_SHORT).show();


                } else {
                    Toast.makeText(MainActivity.this, "LOGI FAILED",
Toast.LENGTH_SHORT).show();


                }
            }
        });
        }
    }
```

Output:


5:34
Login
Username
Password
LOGIN
Forgot password?
5:55
Login
aravind
1234
LOGIN
Forgot password?
a ravine
aravind
Aragon's
LOGI FAILED

Program no:4

Aim: Implementing basic arithmetic operations of a simple calculator

XML Code:

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

```
<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="/"
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>
```

Java Code:

```
package com.example.calculator;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;

import android.view.View;

import android.widget.Button;

import android.widget.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

    protected void onCreate(Bundle savedInstanceState) {

        super.onCreate(savedInstanceState);
```

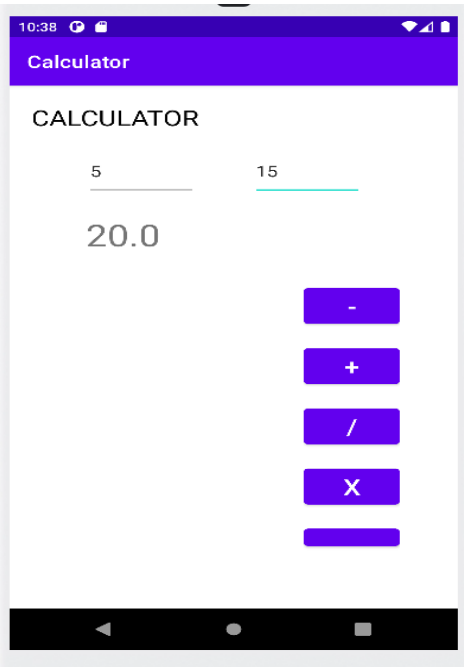
```
setContentView(R.layout.activity_main);
// for text views
no1 = findViewById(R.id.first_no);
no2 = findViewById(R.id.second_no);

// 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;
```

```
            }
        }
    });
    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;
        }
    }
});

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 no:5

Aim Implement validations on various UI controls

XML Code:

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

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

    <EditText
```

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

<EditText
    android:id="@+id/email"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_marginStart="16dp"
    android:layout_marginTop="16dp"
    android:layout_marginEnd="16dp"
    android:hint="Email"
    android:inputType="textEmailAddress" />

<EditText
    android:id="@+id/password"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_marginStart="16dp"
    android:layout_marginTop="16dp"
    android:layout_marginEnd="16dp"
    android:hint="Password"
```

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

  <LinearLayout
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_marginTop="8dp"
    android:gravity="end"
    android:orientation="horizontal">

    <Button
      android:id="@+id/cancelButton"
      style="@style/Widget.AppCompat.Button.Borderless"
      android:layout_width="wrap_content"
      android:layout_height="wrap_content"
      android:layout_marginEnd="4dp"
      android:text="CANCEL"
      android:textColor="@color/white" />

    <Button
      android:id="@+id/proceedButton"
      android:layout_width="wrap_content"
      android:layout_height="wrap_content"
      android:layout_marginEnd="16dp"
      android:backgroundTint="@color/black"
      android:text="PROCEED"
      android:textColor="@android:color/white"
      tools:ignore="ButtonStyle" />
```

```
    </LinearLayout>
</LinearLayout>
```

Java Code:

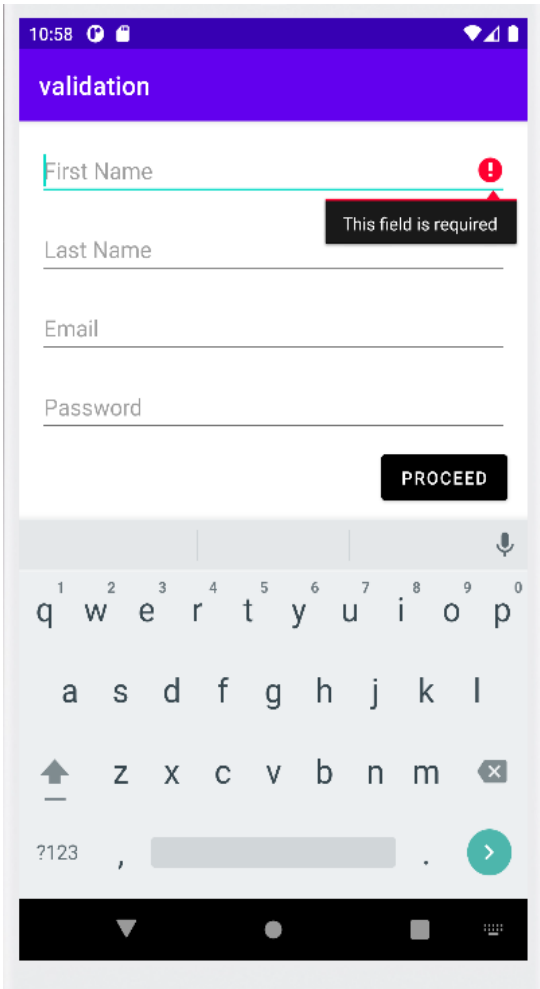
```
package com.example.validation;
import androidx.appcompat.app.AppCompatActivity;
import android.content.Intent;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;

public class MainActivity extends AppCompatActivity {

    // two buttons
    Button bCancel, bProceed;

    // four text fields
    EditText etFirstName, etLastName, etEmail, etPassword;

    // one boolean variable to check whether all the text fields
    // are filled by the user, properly or not.
    boolean isAllFieldsChecked = false;

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

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

// register buttons with their proper IDs.
bProceed = findViewById(R.id.proceedButton);
bCancel = findViewById(R.id.cancelButton);

// register all the EditText fields with their IDs.
etFirstName = findViewById(R.id.firstName);
etLastName = findViewById(R.id.lastName);
etEmail = findViewById(R.id.email);
etPassword = findViewById(R.id.password);

// handle the PROCEED button
bProceed.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {

        // store the returned value of the dedicated function which checks
        // whether the entered data is valid or if any fields are left blank.
        isAllFieldsChecked = CheckAllFields();

        // the boolean variable turns to be true then
        // only the user must be proceed to the activity2
        if (isAllFieldsChecked) {
            Intent i = new Intent(MainActivity.this, MainActivity2.class);
            startActivity(i);
        }
```

```
        }
    });

    // if user presses the cancel button then close the
    // application or the particular activity.
    bCancel.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View v) {
            MainActivity.this.finish();
            System.exit(0);
        }
    });
}

// function which checks all the text fields
// are filled or not by the user.
// when user clicks on the PROCEED button
// this function is triggered.
private boolean CheckAllFields() {
    if (etFirstName.length() == 0) {
        etFirstName.setError("This field is required");
        return false;
    }

    if (etLastName.length() == 0) {
        etLastName.setError("This field is required");
        return false;
```

```
        }

        if (etEmail.length() == 0) {
            etEmail.setError("Email is required");
            return false;
        }

        if (etPassword.length() == 0) {
            etPassword.setError("Password is required");
            return false;
        } else if (etPassword.length() < 8) {
            etPassword.setError("Password must be minimum 8 characters");
            return false;
        }

        // after all validation return true.
        return true;
    }
}
```

Output:


10:58
validation
First Name
This field is required
Last Name
Email
Password
PROCEED
?123

Program no:6

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

XML Code:

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

    <TextView
        android:textSize="25dp"
        android:textColor="#1403FF"
        android:layout_gravity="center"
        android:gravity="center"
        android:layout_margin="20dp"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Register"
        />
    <EditText
        android:id="@+id/editext_name"
```

```
        android:hint="enter your name"
        android:layout_margin="20dp"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"/>

    <EditText
        android:id="@+id/editext_email"
        android:hint="email id"
        android:layout_margin="20dp"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"/>

    <Button
        android:id="@+id/button_save"
        android:textColor="#fff"
        android:background="#4CAF50"
        android:layout_margin="20dp"
        android:layout_gravity="center"
        android:text="OK"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        />


</LinearLayout>
```

Java Code:

```
package com.example.sharedpreference;


import androidx.appcompat.app.AppCompatActivity;


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


public class MainActivity extends AppCompatActivity {


    EditText editText_name,editText_email;
    Button button_OK;
    SharedPreferences sharedPreferences;


    private static final String SHARED_PREF_NAME="mypref";
    private static final String KEY_NAME="name";
    private static final String KEY_EMAIL="email";



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

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

editText_name=findViewById(R.id.editext_name);
editText_email=findViewById(R.id.editext_email);
button_OK=findViewById(R.id.button_save);



sharedPreferences=getSharedPreferences(SHARED_PREF_NAME,MODE_PRIVATE);

String name=sharedPreferences.getString(KEY_NAME,null);

if(name != null)
{
   Intent intent=new Intent(MainActivity.this,HomeActivity.class);
   startActivity(intent);
}

button_OK.setOnClickListener(new View.OnClickListener() {
   @Override
   public void onClick(View v) {

      SharedPreferences.Editor editor=sharedPreferences.edit();
      editor.putString(KEY_NAME,editText_name.getText().toString());
      editor.putString(KEY_EMAIL,editText_email.getText().toString());
      editor.apply();
      Intent intent=new Intent(MainActivity.this,HomeActivity.class);
```

```
            startActivity(intent);


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


        }
    });




}
}
```

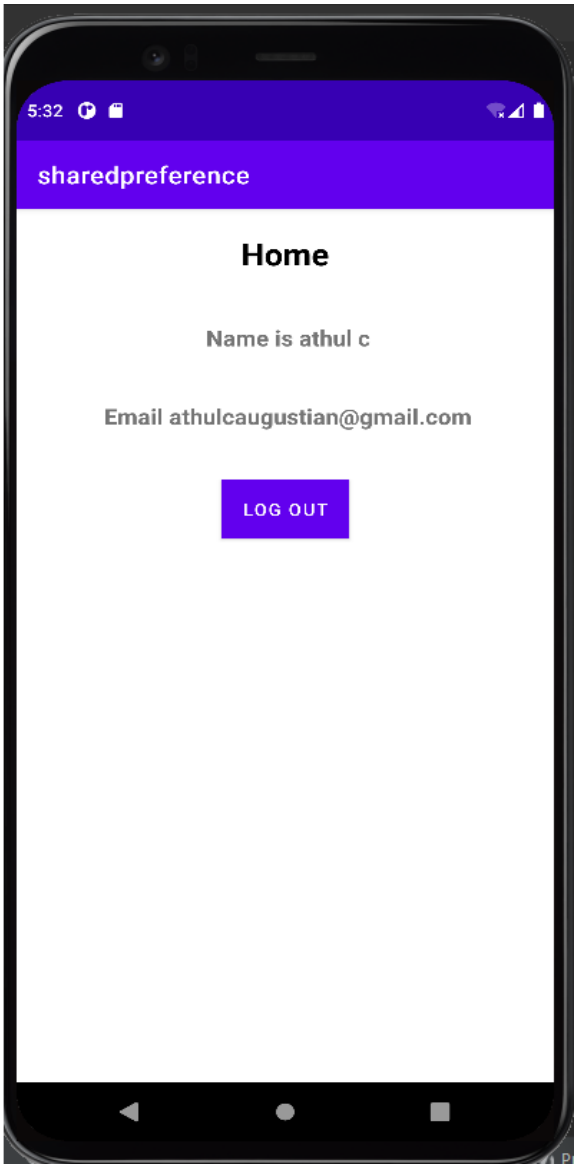
```
package com.example.sharedpreference;

import androidx.appcompat.app.AppCompatActivity;

import android.content.SharedPreferences;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.TextView;
import android.widget.Toast;
```

```
public class HomeActivity extends AppCompatActivity {
    TextView textView_name,textView_email;
    Button button_logout;
    SharedPreferences sharedPreferences;

    private static final String SHARED_PREF_NAME="mypref";
    private static final String KEY_NAME="name";
    private static final String KEY_EMAIL="email";



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



        textView_email=findViewById(R.id.text_email);
        textView_name=findViewById(R.id.text_fullname);
        button_logout=findViewById(R.id.button_logout);


sharedPreferences=getSharedPreferences(SHARED_PREF_NAME,MODE_PRIVATE);



        String name=sharedPreferences.getString(KEY_NAME,null);
        String email=sharedPreferences.getString(KEY_EMAIL,null);
```

```
        if(name != null || email != null){
            textView_name.setText(" Name is "+name);
            textView_email.setText(" Email " +email);
        }

        button_logout.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {

                SharedPreferences.Editor editor=sharedPreferences.edit();
                editor.clear();
                editor.commit();
                finish();
                Toast.makeText(HomeActivity.this, "log out
sucesss",Toast.LENGTH_SHORT).show();
            }
        });


    }
}
```

Output:


5:31
sharedpreference
Register
athul c
athulcaugustian@gmail.com
OK


5:32
sharedpreference
Home
Name is athul c
Email athulcaugustian@gmail.com
LOG OUT

Program no: 7

Aim: Design a simple Calculator using GridLayout and Cascaded LinearLayout

XML Code:

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

Java Code:

```
package com.example.grid_layout;
import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
public class MainActivity extends AppCompatActivity {
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
    }
```

Output:

Program no: 8

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

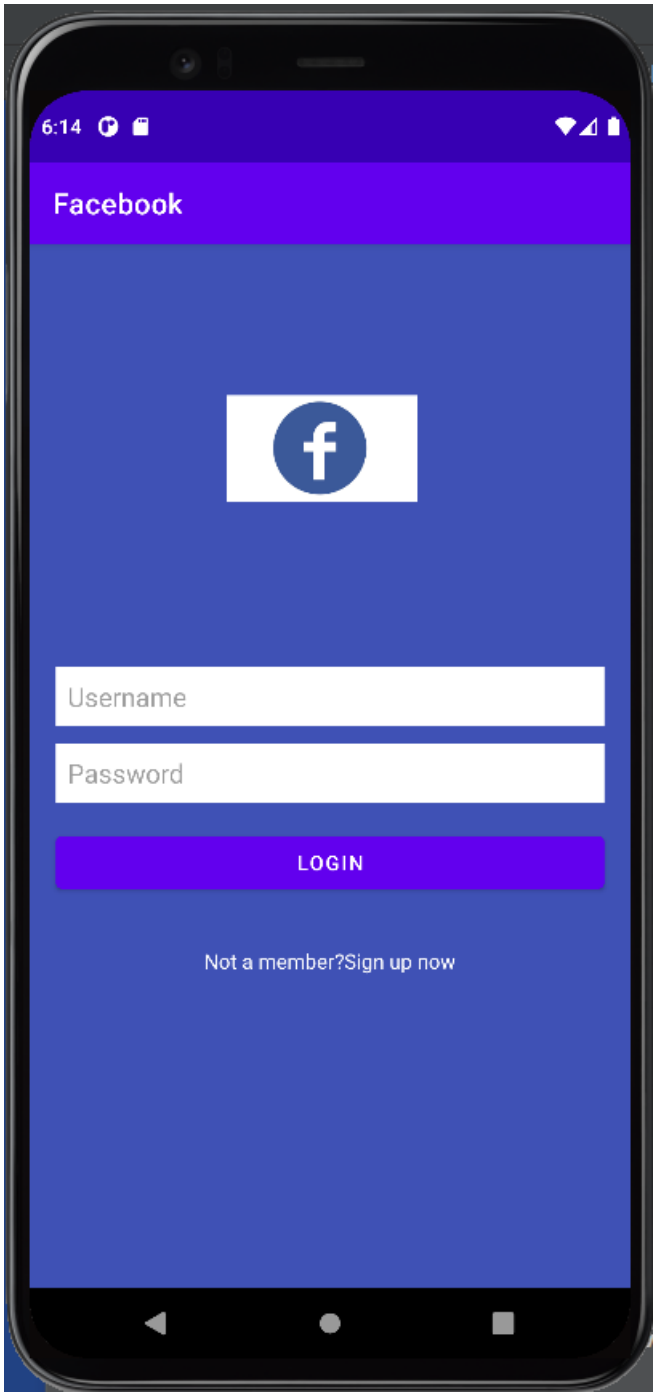
XML Code:

```
<?xml version="1.0" encoding="utf-8"?>
<RelativeLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
    android:id="@+id/activity_main"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:background="#3F51B5">


    <ImageView
        android:layout_width="130dp"
        android:layout_height="130dp"
        android:src="@drawable/fb_logo"
        android:layout_marginTop="75dp"
        android:layout_marginLeft="135dp"/>



    <EditText
        android:id="@+id/text1"
        android:hint="Username"
```

```
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_marginTop="290dp"
    android:layout_marginLeft="18dp"
    android:layout_marginRight="18dp"
    android:padding="8dp"
    android:background="#fff" />

<EditText
    android:id="@+id/text2"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_marginLeft="18dp"
    android:layout_marginRight="18dp"
    android:padding="8dp"
    android:background="#fff"
    android:hint="Password"
    android:layout_marginTop="12dp"
    android:layout_below="@+id/text1" />

<Button
    android:id="@+id/b1"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:text="Login"
    android:textColor="#fff"
    android:layout_below="@+id/text2"
```

```
        android:layout_marginTop="17dp"
        android:layout_alignStart="@+id/text2"
        android:layout_alignEnd="@+id/text2" />

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:id="@+id/text3"
        android:textColor="#fff"
        android:text="Not a member?Sign up now"
        android:layout_below="@+id/b1"
        android:layout_centerHorizontal="true"
        android:layout_marginTop="34dp" />
</RelativeLayout>
```

Output:


6:14
Facebook
Username
Password
LOGIN
Not a member?Sign up now

Program no: 9

Aim: Develop an application that toggles image using FrameLayout

XML Code:

```
<?xml version="1.0" encoding="utf-8"?>
<FrameLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:layout_gravity="center"
    android:background="@color/teal_700"
    tools:context=".MainActivity">
    <ImageView
        android:id="@+id/image2"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_gravity="center"
        android:src="@drawable/image2"
        android:visibility="gone"/>
    <ImageView
        android:id="@+id/image1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_gravity="center"
        android:src="@drawable/image1"/>
```

```
</FrameLayout>
```

Java Code:

```
package com.example.frame_layout;
import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View;
import android.widget.ImageView;
public class MainActivity extends AppCompatActivity implements View.OnClickListener {
    ImageView img1,img2;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        img1 =findViewById(R.id.image1);
        img2 =findViewById(R.id.image2);
        img1.setOnClickListener(this);
        img2.setOnClickListener(this);
    }

    public void onClick(View v)
    {
        int id=v.getId();
        switch (id){
            case R.id.image1:
                img1.setVisibility(View.GONE);
                img2.setVisibility(View.VISIBLE);
                break;
```

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

Output:

Program no: 10

Aim: Implement Adapters and perform exception handling

XML Code:

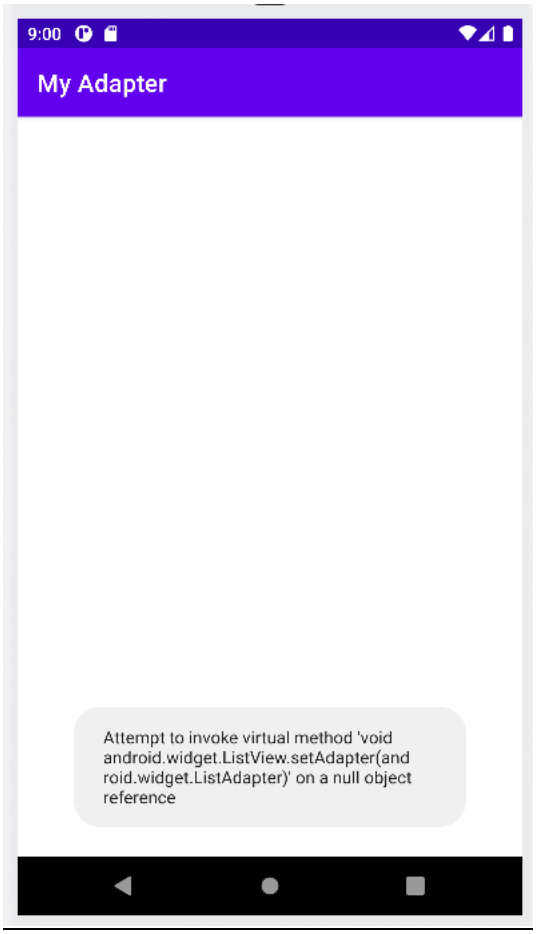
```
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout
xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
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

    <ListView
        android:layout_width="409dp"
        android:layout_height="354dp"
        tools:layout_editor_absoluteX="1dp"
        tools:layout_editor_absoluteY="1dp"
        android:id="@+id/list1"/>

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

Java Code:

```
package com.example.myadapter;


import androidx.appcompat.app.AppCompatActivity;


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


public class MainActivity extends AppCompatActivity implements
AdapterView.OnItemClickListener {


    ListView l1;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        String[] cars = {"BMW", "BENZ", "AUDI"};
        try {
```

```
        ArrayAdapter<String> adapter = new ArrayAdapter<String>(this,
R.layout.support_simple_spinner_dropdown_item, cars);
        l1.setAdapter(adapter);
        l1.setOnItemClickListener(this);
      }
      catch (Exception e)
      {
        Toast.makeText(this,e.getMessage(),Toast.LENGTH_SHORT).show();
      }
   }

   @Override
   public void onItemClick(AdapterView<?> adapterView, View view, int i, long l) {
      TextView tem=(TextView) view;

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

Output:


9:00
My Adapter
Attempt to invoke virtual method 'void android.widget.ListView.setAdapter(android.widget.ListAdapter)' on a null object reference

Program no: 11

Aim: Implement Intent to navigate between multiple activities (Explicit Intent)

XML Code:

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

    <EditText
        android:id="@+id/editTextIndex"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginTop="72dp"
        android:ems="10"
        android:inputType="textPersonName"
        android:text="Name"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.447"
        app:layout_constraintStart_toStartOf="parent"
```

```
        app:layout_constraintTop_toTopOf="parent" />

    <Button
        android:id="@+id/button"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Click"
        android:onClick="onIndexSendButtonClicked"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/editTextIndex" />
</androidx.constraintlayout.widget.ConstraintLayout>
```

Images.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=".Images">

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

```
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:srcCompat="@drawable/as"
        tools:layout_editor_absoluteX="0dp" />
</androidx.constraintlayout.widget.ConstraintLayout>
```

Java

```
package com.example.myapplication;

import androidx.appcompat.app.AppCompatActivity;

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

public class MainActivity extends AppCompatActivity {

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

    public void onIndexSendButtonClicked(View v) {
```

```
        Intent intent=new Intent(this,Images.class);
        EditText editText=(EditText) findViewById(R.id.editTextIndex);
        String index = editText.getText().toString();
        intent.putExtra("ImageIndex",index);
        startActivity(intent);
```

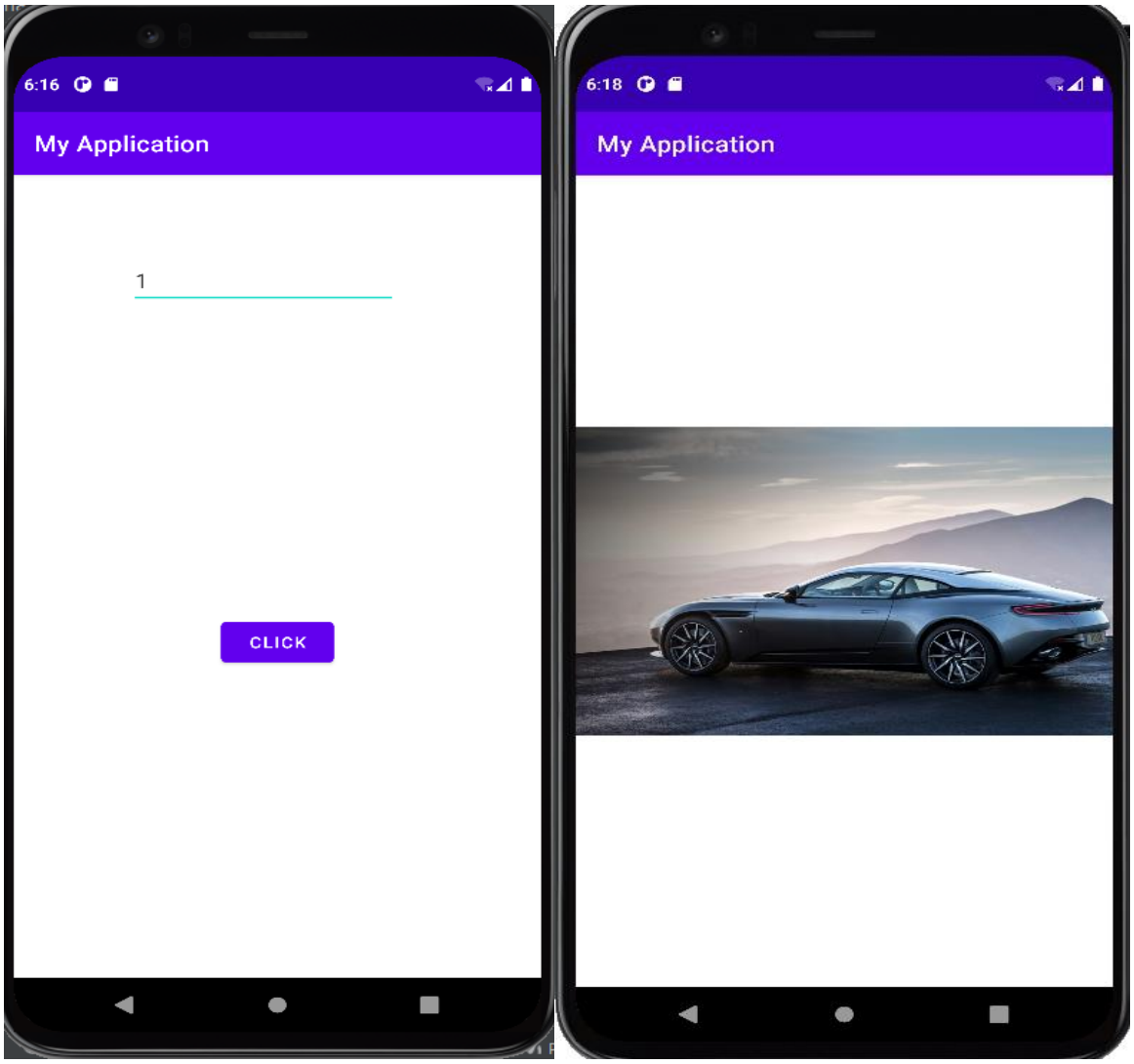
images.java

```
package com.example.myapplication;

import androidx.appcompat.app.AppCompatActivity;

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

public class Images extends AppCompatActivity {

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

        Bundle bundle=getIntent().getExtras();
        if (bundle != null)
```

```
    {
        String imgIndex = bundle.getString("ImageIndex");
        setImage(imgIndex);

    }
  }

  private void setImage(String index) {
    ImageView imgView=(ImageView)findViewById(R.id.cars);

    switch(index) {
        case "1":
            imgView.setImageResource(R.drawable.as);
            break;


        case "2":
            imgView.setImageResource(R.drawable.roma);
            break;

        default:
            imgView.setImageResource(R.drawable.as);

    }
  }
}
```

```
    }
}
```

Output:



Program no: 12

Aim: Develop an application that works with Implicit intents

XML Code:

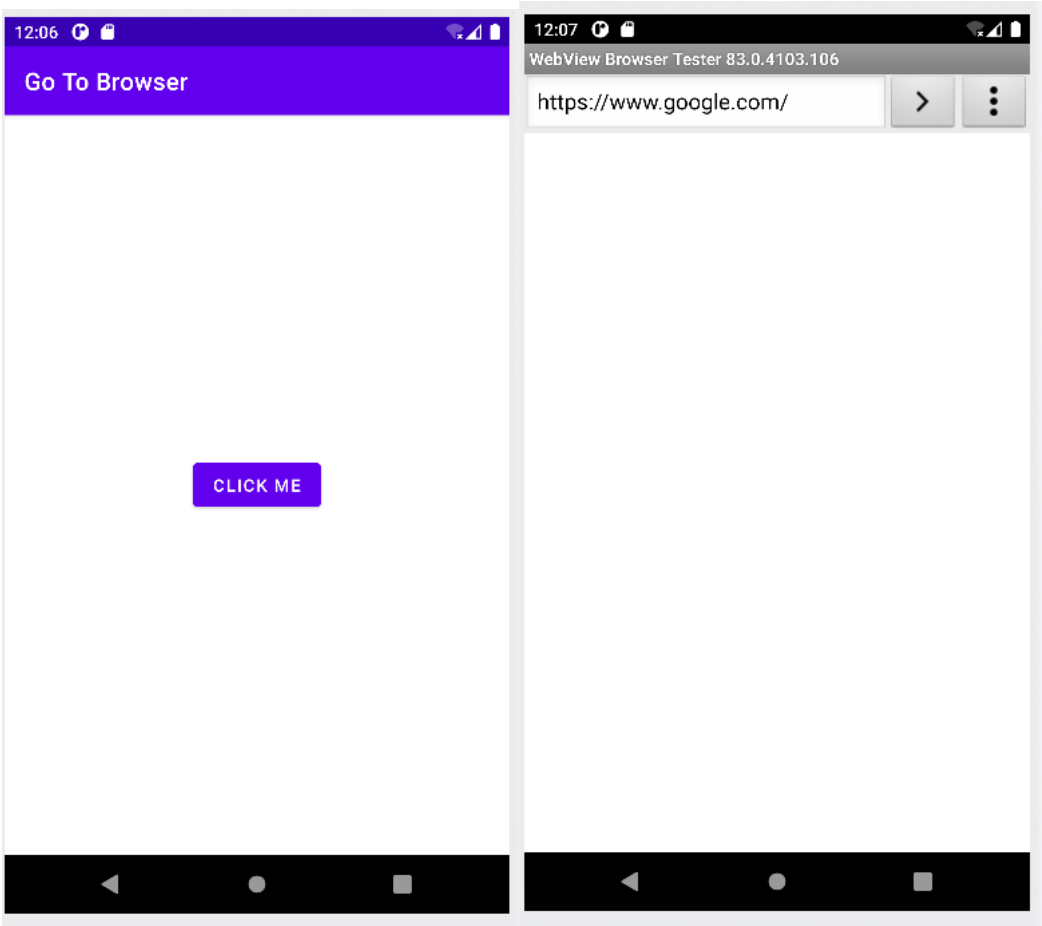
```
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout
xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
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

    <Button
        android:id="@+id/cm"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="CLICK ME"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />
</androidx.constraintlayout.widget.ConstraintLayout>
```

Java Code:

```
package com.example.myapplication;

import androidx.appcompat.app.ActionBar;

import androidx.appcompat.app.AppCompatActivity;

import android.content.Intent;

import android.net.Uri;

import android.net.UrlQuerySanitizer;

import android.os.Bundle;

import android.view.View;

import android.widget.Button;


public class MainActivity extends AppCompatActivity {


    @Override

    protected void onCreate(Bundle savedInstanceState) {

        super.onCreate(savedInstanceState);

        setContentView(R.layout.activity_main);

        ActionBar b=getSupportActionBar();

        b.setTitle("Go To Browser");

        Button click=findViewById(R.id.cm);

        click.setOnClickListener(new View.OnClickListener() {

            @Override

            public void onClick(View view) {

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

```
            startActivity(j);
        }
    });
  }
}
```

Output:



Program no: 13

Aim: Implement Options Menu to navigate to activities

XML Code:

```
<?xml version="1.0" encoding="utf-8"?>
<menu xmlns:android="http://schemas.android.com/apk/res/android">
   <item android:id="@+id/item1" android:title="about"
android:icon="@drawable/download"/>
   <item android:id="@+id/item2" android:title="help"/>
</menu>
```

Activitymain.xml

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

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

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

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

   android:layout_width="match_parent"

   android:layout_height="match_parent"

   tools:context=".MainActivity">


   <TextView

      android:layout_width="wrap_content"

      android:layout_height="wrap_content"

      android:text="Hello World!"

      app:layout_constraintBottom_toBottomOf="parent"

      app:layout_constraintLeft_toLeftOf="parent"

      app:layout_constraintRight_toRightOf="parent"

      app:layout_constraintTop_toTopOf="parent" />
```

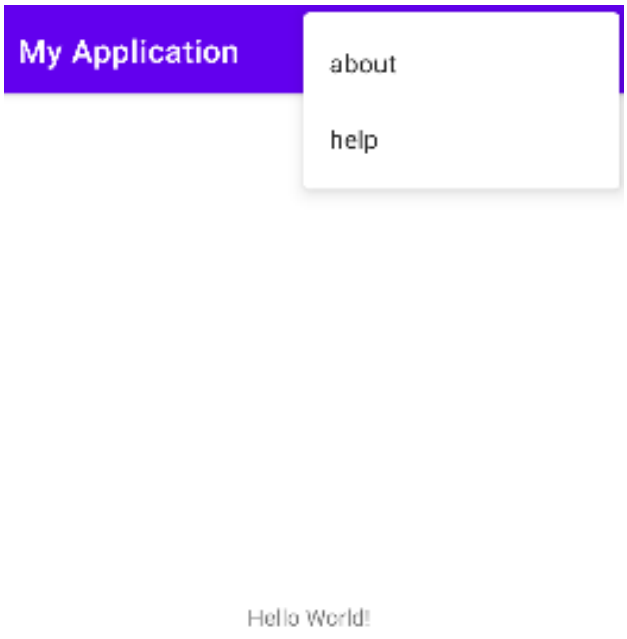
```
</androidx.constraintlayout.widget.ConstraintLayout>
```

Java Code:

```
package com.example.myapplication;
import androidx.appcompat.app.AppCompatActivity;
import android.annotation.SuppressLint;
import android.os.Bundle;
import android.view.Menu;
import android.view.MenuItem;
import android.widget.Toast;

public class MainActivity extends AppCompatActivity {

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

    @Override
    public boolean onCreateOptionsMenu(Menu menu) {
        getMenuInflater().inflate(R.menu.menuu, menu);
        return true;

    }
    @Override
    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;


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

Output:



Program no: 14

Aim: Develop an application that uses ArrayAdapter with ListView

XML Code:

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

    <ListView
        android:id="@+id/mobile_list"
        android:layout_width="match_parent"
        android:layout_height="wrap_content" >
    </ListView>

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

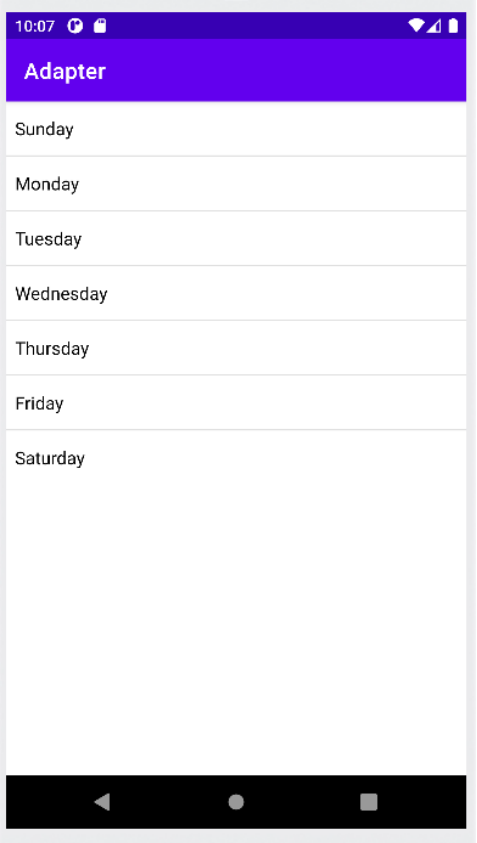
Java Code:

```
package com.example.adapter;
```

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

import android.os.Bundle;

import android.view.View;

import android.widget.AdapterView;

import android.widget.ArrayAdapter;

import android.widget.ListView;

import android.widget.TextView;

import android.widget.Toast;


public class MainActivity extends AppCompatActivity implements
AdapterView.OnItemClickListener {

 ListView l;

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

    @Override

    protected void onCreate(Bundle savedInstanceState) {

        super.onCreate(savedInstanceState);

        setContentView(R.layout.activity_main);

        l=findViewById(R.id.mobile_list);

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

        l.setAdapter(adapter);

        l.setOnItemClickListener(this);


    }


    @Override

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

```
        TextView temp=(TextView) view;

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

    }

}
```

Output:



Program no: 15

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

XML Code:

```
<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"
    tools:context=".MainActivity" >

    <GridView
        android:numColumns="auto_fit"
        android:gravity="center"
        android:columnWidth="100dp"
        android:stretchMode="columnWidth"
        android:layout_width="fill_parent"
        android:layout_height="fill_parent"
        android:id="@+id/grid"
        />
</LinearLayout>
```

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

```
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:padding="5dp" >

    <ImageView
        android:id="@+id/grid_image"
        android:layout_width="50dp"
        android:layout_height="50dp">
    </ImageView>

    <TextView
        android:id="@+id/grid_text"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginTop="15dp"
        android:textSize="9sp" >
    </TextView>
</LinearLayout>
```

Java Code:

```
package com.example.gridview_image_text_example;
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 CustomGrid extends BaseAdapter{
    private Context mContext;
    private final String[] web;
    private final int[] Imageid;

    public CustomGrid(Context c,String[] web,int[] Imageid ) {
        mContext = c;
        this.Imageid = Imageid;
        this.web = web;
    }

    @Override
    public int getCount() {
        // TODO Auto-generated method stub
        return web.length;
    }

    @Override
    public Object getItem(int position) {
        // TODO Auto-generated method stub
        return null;
    }
```

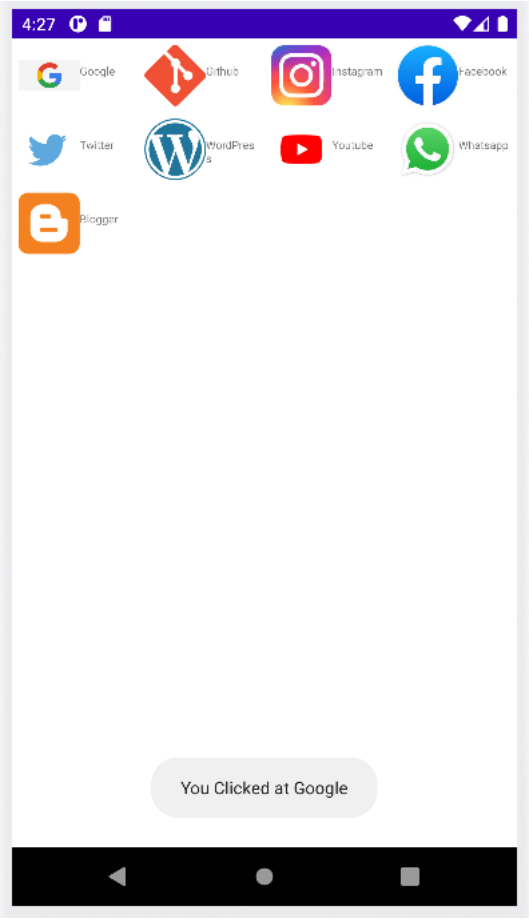
```
@Override
public long getItemId(int position) {
    // TODO Auto-generated method stub
    return 0;
}

@Override
public View getView(int position, View convertView, ViewGroup parent) {
    // TODO Auto-generated method stub
    View grid;
    LayoutInflater inflater = (LayoutInflater) mContext
            .getSystemService(Context.LAYOUT_INFLATER_SERVICE);

    if (convertView == null) {

        grid = new View(mContext);
        grid = inflater.inflate(R.layout.grid_single, null);
        TextView textView = (TextView) grid.findViewById(R.id.grid_text);
        ImageView imageView = (ImageView)grid.findViewById(R.id.grid_image);
        textView.setText(web[position]);
        imageView.setImageResource(Imageid[position]);
    } else {
        grid = (View) convertView;
    }

    return grid;
```

```
    }
}
package com.example.gridview_image_text_example;

import android.os.Bundle;
import android.app.Activity;
import android.view.View;
import android.widget.AdapterView;
import android.widget.GridView;
import android.widget.Toast;

public class MainActivity extends Activity {
    GridView grid;
    String[] web = {
            "Google",
            "Github",
            "Instagram",
            "Facebook",
            "Twitter",
            "WordPress",
            "Youtube",
            "Whatsapp",
            "Blogger"

    } ;
    int[] imageId = {
            R.drawable.image1,
```

```
        R.drawable.image2,
        R.drawable.image3,
        R.drawable.image4,
        R.drawable.image5,
        R.drawable.image6,
        R.drawable.image7,
        R.drawable.image8,
        R.drawable.image9,


};

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

    CustomGrid adapter = new CustomGrid(MainActivity.this, web, imageId);
    grid=(GridView)findViewById(R.id.grid);
    grid.setAdapter(adapter);
    grid.setOnItemClickListener(new AdapterView.OnItemClickListener() {

        @Override
        public void onItemClick(AdapterView<?> parent, View view,
                                int position, long id) {
            Toast.makeText(MainActivity.this, "You Clicked at " +web[+ position],
Toast.LENGTH_SHORT).show();
```

```
            }
        });


    }

}
```

Output:


4:27
Google
Github
Instagram
Facebook
Twitter
WordPres
s
Youtube
Whatsapp
Blogger
You Clicked at Google

Program no:16

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

XML Code:

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

<androidx.constraintlayout.widget.ConstraintLayout
xmlns:android="http://schemas.android.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_height="50dp"

        android:layout_width="160dp"

        android:layout_marginEnd="10dp"

        android:layout_marginStart="10dp"

        android:layout_marginBottom="10dp"

        android:layout_marginTop="10dp"

        app:layout_constraintStart_toStartOf="parent"

        app:layout_constraintTop_toTopOf="parent"/>


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

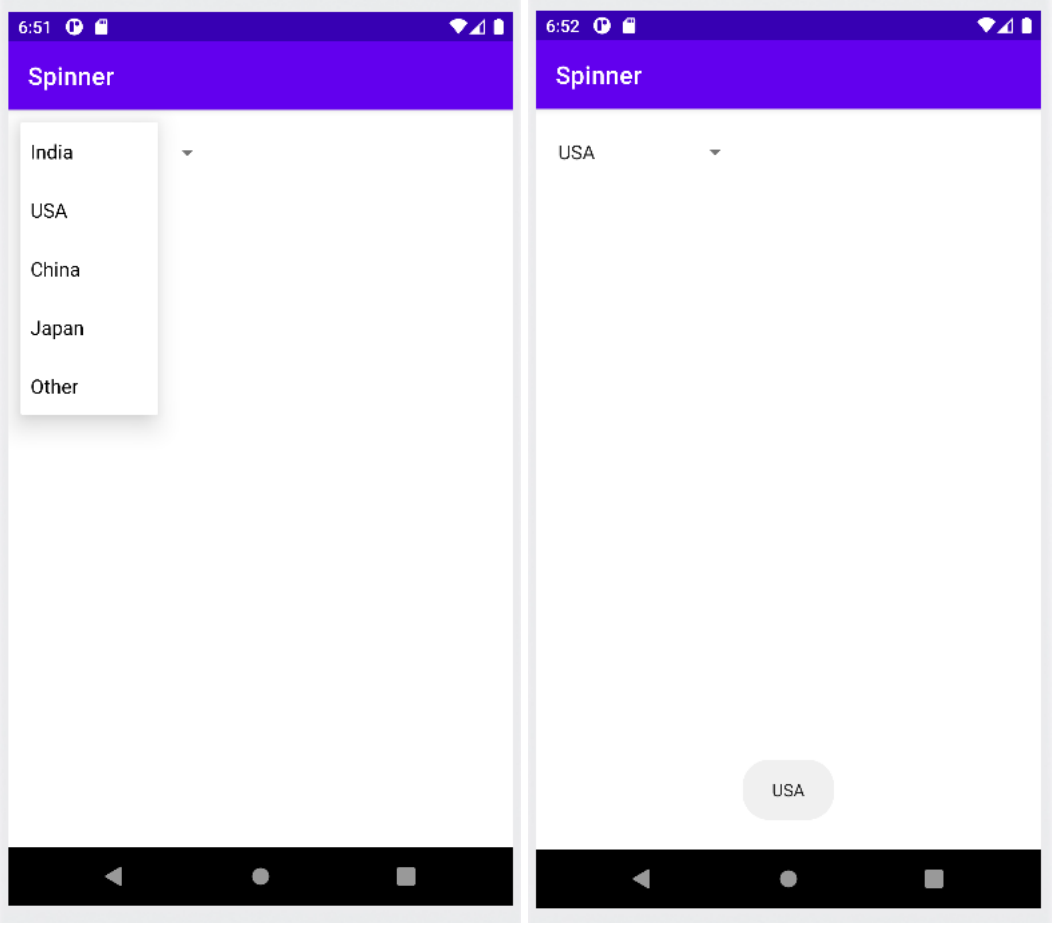
Java Code:

```
package com.example.spinner;
```

```
import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View;
import android.widget.AdapterView;
import android.widget.ArrayAdapter;
import android.widget.Spinner;
import android.widget.Toast;

public class MainActivity extends AppCompatActivity implements
        AdapterView.OnItemSelectedListener {
    String[] country = { "India", "USA", "China", "Japan", "Other"};

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        //Getting the instance of Spinner and applying OnItemSelectedListener on it
        Spinner spin = (Spinner) findViewById(R.id.spinner);
        spin.setOnItemSelectedListener(this);

        //Creating the ArrayAdapter instance having the country list
        ArrayAdapter aa = new
ArrayAdapter(this,android.R.layout.simple_spinner_item,country);
        aa.setDropDownViewResource(android.R.layout.simple_spinner_dropdown_item);
        //Setting the ArrayAdapter data on the Spinner
        spin.setAdapter(aa);
```

```
    }


    //Performing action onItemSelected and onNothing selected
    @Override
    public void onItemSelected(AdapterView<?> arg0, View arg1, int position, long id) {
        Toast.makeText(getApplicationContext(),country[position] ,
Toast.LENGTH_LONG).show();
    }
    @Override
    public void onNothingSelected(AdapterView<?> arg0) {
        // TODO Auto-generated method stub
    }
}
```

Output:



Program no:17

Aim: Apply themes via code and manifest file

XML Code:

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

    <EditText
        android:id="@+id/editTextTextPersonName"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:ems="10"
        android:inputType="textPersonName"
        android:text="Name"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        tools:layout_editor_absoluteX="100dp" />
</androidx.constraintlayout.widget.ConstraintLayout>
<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
    package="com.example.themes">
```

```
    <application
        android:allowBackup="true"
        android:icon="@mipmap/ic_launcher"
        android:label="@string/app_name"
        android:roundIcon="@mipmap/ic_launcher_round"
        android:supportsRtl="true"
        android:theme="@style/Theme.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>
```

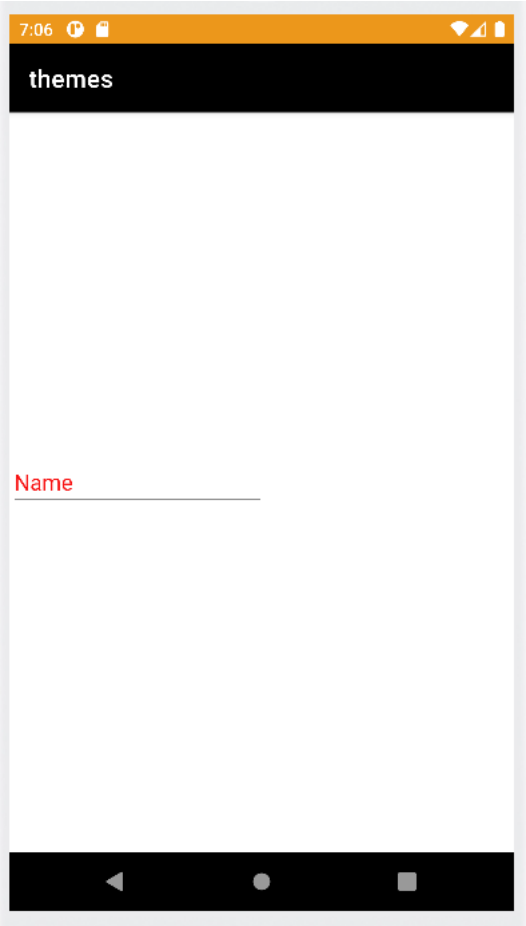
```
<?xml version="1.0" encoding="utf-8"?>
<resources>

    <color name="teal">#FF018786</color>
    <color name="black">#FF000000</color>
```

```
    <color name="yellow">#EC971B</color>
    <color name="red">#F80F0F</color>
</resources>

<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>
```

Java Code:

```
package com.example.themes;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;
public class MainActivity extends AppCompatActivity {
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
    }
}
```

Output:



Program no:18

Aim: Develop application using Fragments

XML Code:

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

    <RelativeLayout
        android:layout_width="match_parent"
        android:layout_height="0dp"
        android:layout_weight="1">

        <Button
            android:id="@+id/b1"
            android:layout_width="160dp"
            android:layout_height="50dp"
            android:layout_alignParentBottom="true"
            android:layout_marginStart="30dp"
            android:layout_marginBottom="30dp"
```

```
        android:backgroundTint="#2196F3"
        android:text="Fragment1" />

    <Button
        android:id="@+id/b2"
        android:layout_width="160dp"
        android:layout_height="50dp"
        android:layout_alignParentRight="true"
        android:layout_alignParentBottom="true"
        android:layout_marginStart="30dp"
        android:layout_marginBottom="30dp"
        android:backgroundTint="#FFC107"
        android:text="Fragment2" />

</RelativeLayout>

<FrameLayout
    android:id="@+id/frameLayout"
    android:layout_width="match_parent"
    android:layout_height="0dp"
    android:layout_weight="4"
    android:background="@color/purple_200"/>



</LinearLayout>
```

```
<?xml version="1.0" encoding="utf-8"?>
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:background="@color/teal_200"
    tools:context=".Fragment1">

    <!-- TODO: Update blank fragment layout -->
    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_centerInParent="true"
        android:background="#FFEB3B"
        android:text="Fragment1"
        android:textSize="30dp" />

</RelativeLayout>
<?xml version="1.0" encoding="utf-8"?>
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:background="#FFEB3B"
    tools:context=".Fragment2">

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

```
    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_centerInParent="true"
        android:background="#FAA3C1"
        android:text="Fragment2"
        android:textSize="30dp" />

</RelativeLayout>
```

Java Code:

```
package com.example.fragment;

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

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

public class MainActivity extends AppCompatActivity {
    Button b1,b2;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
```

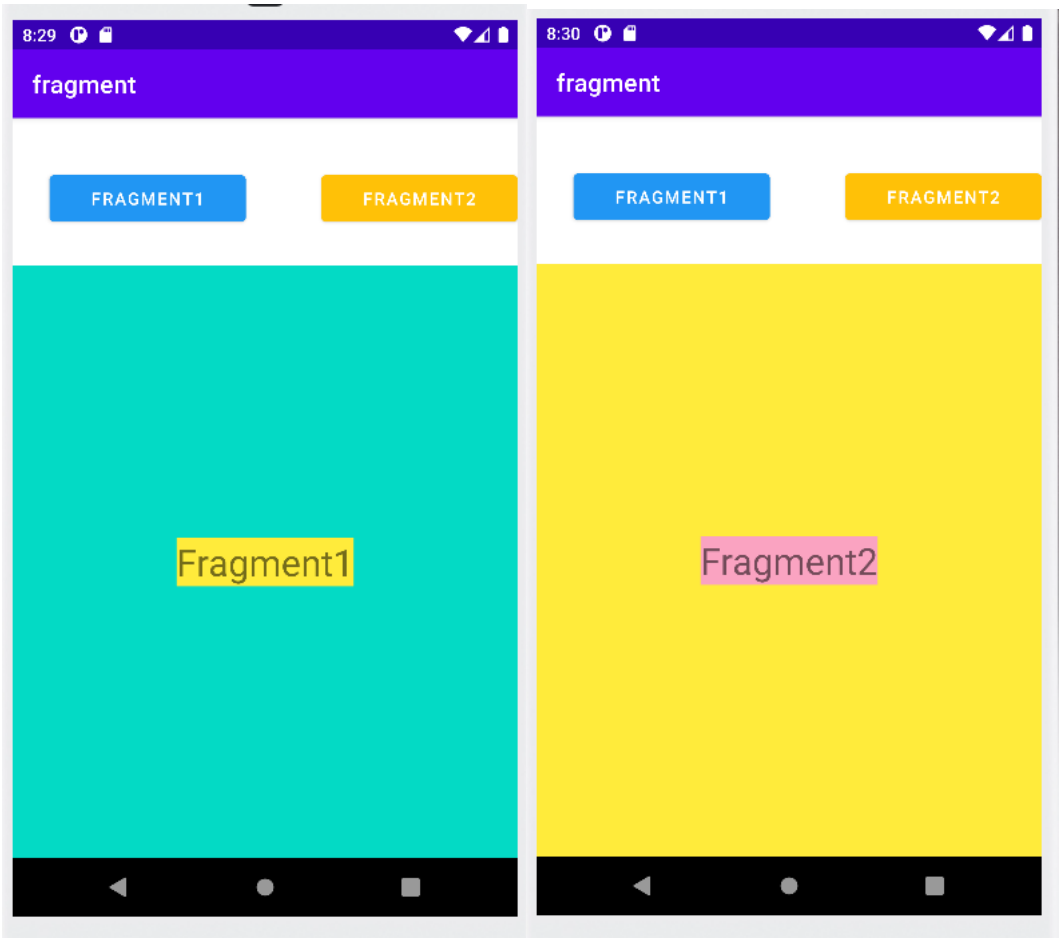
```
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);

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

        b1.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                replaceFragment(new Fragment1());
            }
        });
        b2.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                replaceFragment(new Fragment2());
            }
        });
    }

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

```
package com.example.fragment;
import android.os.Bundle;
import androidx.fragment.app.Fragment;
import android.view.LayoutInflater;
import android.view.View;
import android.view.ViewGroup;

public class Fragment1 extends Fragment {


    @Override
    public View onCreateView(LayoutInflater inflater, ViewGroup container,
                             Bundle savedInstanceState) {
        // Inflate the layout for this fragment
        return inflater.inflate(R.layout.fragment_1, container, false);
    }
}
```

```
package com.example.fragment;

import android.os.Bundle;

import androidx.fragment.app.Fragment;

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

```
import android.view.ViewGroup;



public class Fragment2 extends Fragment {


    @Override
    public View onCreateView(LayoutInflater inflater, ViewGroup container,
                             Bundle savedInstanceState) {
        // Inflate the layout for this fragment
        return inflater.inflate(R.layout.fragment_2, container, false);
    }
}
```

Output:



Program no:19

Aim: Implement Navigation drawer

XML Code:

MainActivity.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"
    tools:context=".MainActivity"

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

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

        <TextView
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        android:id="@+id/textview"
        android:text="Hi"
        android:textSize="360dp">

        </TextView>

        </LinearLayout>
```

```
    <com.google.android.material.navigation.NavigationView
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        app:menu="@menu/navigation_menu"
        android:id="@+id/navigation_view"
        android:layout_gravity="start">

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




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

Build.gradle

```
plugins {
    id 'com.android.application'
}

android {
    compileSdk 31

    defaultConfig {
        applicationId "com.example.navigationdrawer"
        minSdk 26
        targetSdk 31
        versionCode 1
        versionName "1.0"

        testInstrumentationRunner "androidx.test.runner.AndroidJUnitRunner"
    }

    buildTypes {
        release {
```

```
        minifyEnabled false
        proguardFiles getDefaultProguardFile('proguard-android-optimize.txt'), 'proguard-rules.pro'
    }
  }
  compileOptions {
    sourceCompatibility JavaVersion.VERSION_1_8
    targetCompatibility JavaVersion.VERSION_1_8
  }
}

dependencies {

  implementation 'androidx.appcompat:appcompat:1.4.1'
  implementation 'com.google.android.material:material:1.5.0'
  implementation 'androidx.constraintlayout:constraintlayout:2.1.3'
  testImplementation 'junit:junit:4.+'
  androidTestImplementation 'androidx.test.ext:junit:1.1.3'
  androidTestImplementation 'androidx.test.espresso:espresso-core:3.4.0'

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

Navigation.xml

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

  <item
    android:id="@+id/nav_account"
    android:title="My Account"/>

  <item
    android:id="@+id/nav_settings"
```

```
        android:title="Settings"/>
    <item
        android:id="@+id/nav_logout"
        android:title="LOGOUT"/>

</menu>
```

Java Code

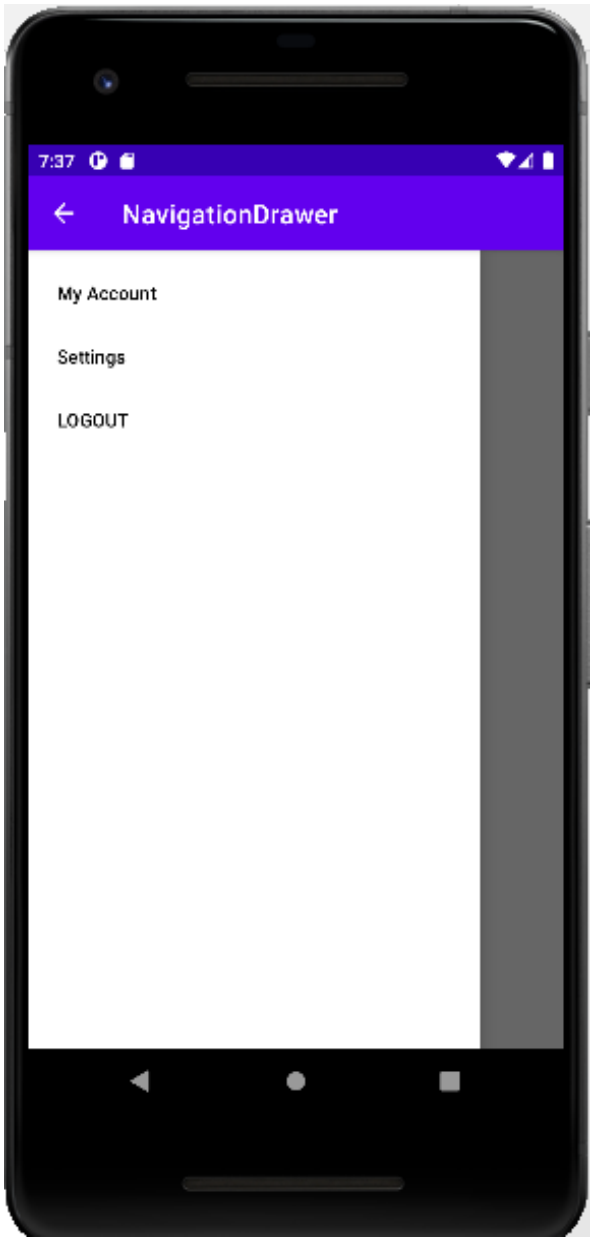
MainActivity.java

```
package com.example.navigationdrawer;

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;
import android.widget.Toast;

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

public class MainActivity extends AppCompatActivity implements
NavigationView.OnNavigationItemSelectedListener {
    public DrawerLayout drawerLayout;
    public ActionBarDrawerToggle actionBarDrawerToggle;

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


        drawerLayout=findViewById(R.id.drawer);
```

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


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

        getSupportActionBar().setDisplayHomeAsUpEnabled(true);

        //TO BIND NAVIGATION VIEW TO MAINACTIITY

        NavigationView navigationView=findViewById(R.id.navigation_view);
        navigationView.setNavigationItemSelectedListener(this);



    }

    @Override
    public boolean onOptionsItemSelected(@NonNull MenuItem item){
        if(actionBarDrawerToggle.onOptionsItemSelected(item))
        {
            return true;
        }
        return super.onOptionsItemSelected(item);
    }

    @Override
    public boolean onNavigationItemSelected(@NonNull MenuItem item) {
        int id=item.getItemId();

        if(id == R.id.nav_account){
            Toast.makeText(this, "Home Page", Toast.LENGTH_SHORT).show();
        }
        if(id == R.id.nav_settings){
            Toast.makeText(this, "Settings", Toast.LENGTH_SHORT).show();
```

```
        }
        if(id == R.id.nav_logout){
            Toast.makeText(this, "LOGOUT", Toast.LENGTH_SHORT).show();
        }
        return false;
    }
}
```

Output:


7:37
NavigationDrawer
My Account
Settings
LOGOUT

Program no: 20

Aim: Program to implement activity lifecycle.

XML Code:

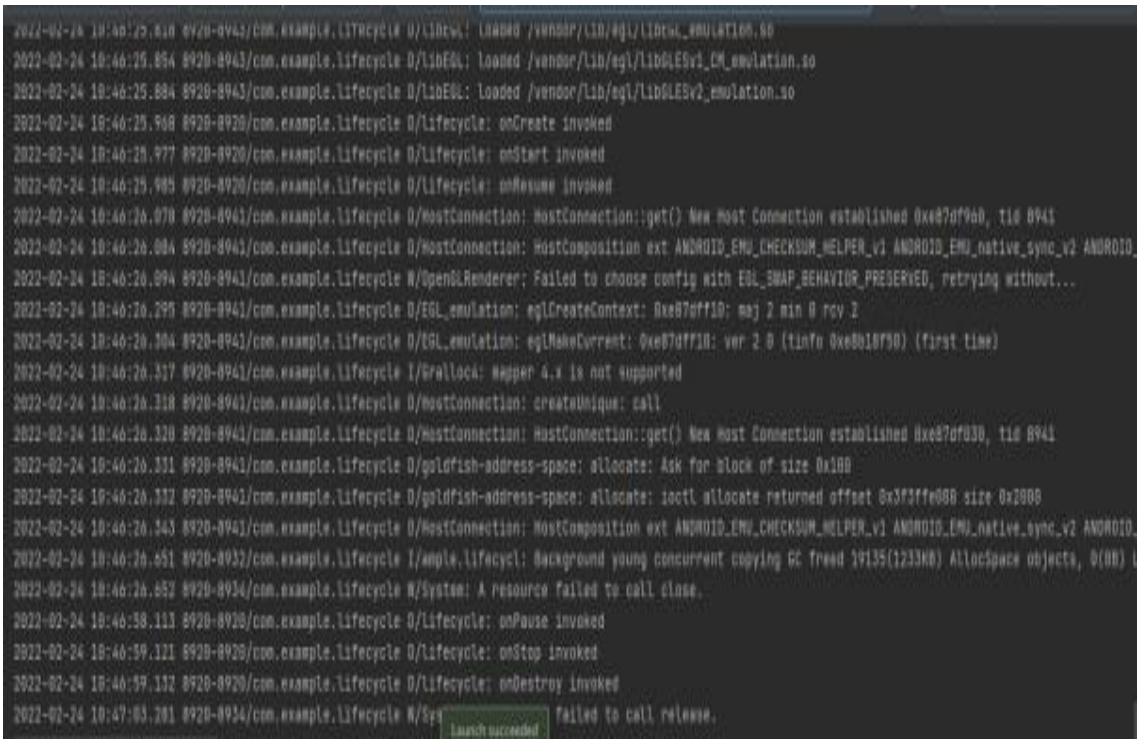
```
<?xml version="1.0" encoding="utf-8"?>
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
  xmlns:app="http://schemas.android.com/apk/res-auto"
  xmlns:tools="http://schemas.android.com/tools"
  android:layout_width="match_parent"
  android:layout_height="match_parent"
  android:padding="10dp"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

  <TextView
    android:id="@+id/txt"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginTop="20dp"
    android:textSize="34dp" />
</Relative layout>
```

Java Code:

```
package example.javatpoint.com.activitylifecycle;
import android.app.Activity;
import android.os.Bundle;
import android.util.Log;
public class MainActivity extends Activity
 {
 @Override
 protected void onCreate(Bundle savedInstanceState) {
super.onCreate(savedInstanceState); setContentView(R.layout.activity_main);
Log.d("lifecycle","onCreate invoked");
 }
 @Override
protected void onStart()
 {
 super.onStart();
Log.d("lifecycle","onStart invoked");
 }
 @Override
 protected void onResume()
```

```
{
 super.onResume();
 Log.d("lifecycle","onResume invoked");
 }
 @Override
protected void onPause()
 {
 super.onPause();
Log.d("lifecycle","onPause invoked");
 }
 @Override
protected void onStop()
 {
 super.onStop();
Log.d("lifecycle","onStop invoked");
 }
 @Override
protected void onRestart()
 {
 super.onRestart();
 Log.d("lifecycle","onRestart invoked");
 }
 @Override
protected void onDestroy()
 {
 super.onDestroy();
 Log.d("lifecycle","onDestroy invoked"); }
}
```

Output:


2022-02-24 10:46:25.854 8920-8941/com.example.lifecycle D/libEGL: loaded /vendor/lib/egl/libGLESv1_CM_emulation.so
2022-02-24 10:46:25.884 8920-8941/com.example.lifecycle D/libEGL: loaded /vendor/lib/egl/libGLESv2_emulation.so
2022-02-24 10:46:25.968 8920-8920/com.example.lifecycle D/Lifecycle: onCreate invoked
2022-02-24 10:46:25.977 8920-8920/com.example.lifecycle D/Lifecycle: onStart invoked
2022-02-24 10:46:25.985 8920-8920/com.example.lifecycle D/Lifecycle: onResume invoked
2022-02-24 10:46:26.070 8920-8941/com.example.lifecycle D/HostConnection: HostConnection::get() New Host Connection established 0xe87df9a0, tid 8941
2022-02-24 10:46:26.084 8920-8941/com.example.lifecycle D/HostConnection: HostComposition ext ANDROID_EMU_CHECKSUM_HELPER_v1 ANDROID_EMU_native_sync_v2 ANDROID_
2022-02-24 10:46:26.094 8920-8941/com.example.lifecycle W/OpenGLRenderer: Failed to choose config with EGL_SWAP_BEHAVIOR_PRESERVED, retrying without...
2022-02-24 10:46:26.295 8920-8941/com.example.lifecycle D/EGL_emulation: eglCreateContext: 0xe87dff10: maj 2 min 0 rcv 2
2022-02-24 10:46:26.304 8920-8941/com.example.lifecycle D/EGL_emulation: eglMakeCurrent: 0xe87dff10: ver 2 0 (tinfo 0xe8b18f50) (first time)
2022-02-24 10:46:26.317 8920-8941/com.example.lifecycle I/Gralloc4: mapper 4.x is not supported
2022-02-24 10:46:26.318 8920-8941/com.example.lifecycle D/HostConnection: createUnique: call
2022-02-24 10:46:26.320 8920-8941/com.example.lifecycle D/HostConnection: HostConnection::get() New Host Connection established 0xe87df030, tid 8941
2022-02-24 10:46:26.331 8920-8941/com.example.lifecycle D/goldfish-address-space: allocate: Ask for block of size 0x100
2022-02-24 10:46:26.332 8920-8941/com.example.lifecycle D/goldfish-address-space: allocate: ioctl allocate returned offset 0x3f3ffe000 size 0x2000
2022-02-24 10:46:26.343 8920-8941/com.example.lifecycle D/HostConnection: HostComposition ext ANDROID_EMU_CHECKSUM_HELPER_v1 ANDROID_EMU_native_sync_v2 ANDROID_
2022-02-24 10:46:26.651 8920-8932/com.example.lifecycle I/ample.lifecycl: Background young concurrent copying GC freed 19135(1233KB) AllocSpace objects, 0(0B)
2022-02-24 10:46:26.652 8920-8934/com.example.lifecycle W/System: A resource failed to call close.
2022-02-24 10:46:58.113 8920-8920/com.example.lifecycle D/Lifecycle: onPause invoked
2022-02-24 10:46:59.121 8920-8920/com.example.lifecycle D/Lifecycle: onStop invoked
2022-02-24 10:46:59.132 8920-8920/com.example.lifecycle D/Lifecycle: onDestroy invoked
failed to call release.
Launch succeeded

Program No:21

Aim: Program to implement various SQLite Operations.

XML code

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

  <EditText
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:hint="enter username"
    android:layout_marginTop="35dp"
    android:id="@+id/name"
    android:textSize="25dp"
    />
  <EditText
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:hint="mobile number"
    android:layout_marginTop="15dp"
    android:id="@+id/contact"
    android:textSize="25dp"
    />
  <EditText
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:hint="DOB"
    android:layout_marginTop="15dp"
    android:id="@+id/dob"
    android:textSize="25dp"
    />
  <Button
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="INSERT"
    android:layout_gravity="center"
    android:gravity="center"
```

```
    android:layout_marginTop="15dp"
    android:id="@+id/buttonInsert"
    />
  <Button
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="UPDATE"
    android:layout_gravity="center"
    android:gravity="center"
    android:layout_marginTop="15dp"
    android:id="@+id/buttonUpdate"
    />
  <Button
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="DELETE"
    android:layout_gravity="center"
    android:gravity="center"
    android:layout_marginTop="15dp"
    android:id="@+id/buttonDelete"

    />

  <Button
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="VIEW"
    android:layout_gravity="center"
    android:gravity="center"
    android:layout_marginTop="15dp"
    android:id="@+id/buttonView"

    />



</LinearLayout>
```

Java Code

MainActivity.java

```
package com.example.crud;

import androidx.appcompat.app.AlertDialog;
```

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

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

public class MainActivity extends AppCompatActivity {

  EditText name,contact,dob;
  Button insert,update,delete,view;
  DBHelper DB;


  @Override
  protected void onCreate(Bundle savedInstanceState) {
    super.onCreate(savedInstanceState);
    setContentView(R.layout.activity_main);
    name=findViewById(R.id.name);
    contact=findViewById(R.id.contact);
    dob=findViewById(R.id.dob);
    insert=findViewById(R.id.buttonInsert);
    update=findViewById(R.id.buttonUpdate);
    delete=findViewById(R.id.buttonDelete);
    view=findViewById(R.id.buttonView);
    DB=new DBHelper(this);


    insert.setOnClickListener(new View.OnClickListener() {
      @Override
      public void onClick(View v) {
        String nameTXT=name.getText().toString();
        String contactTXT=contact.getText().toString();
        String dobTXT=dob.getText().toString();

        Boolean checkinsertdata=DB.insertuserdata(nameTXT,contactTXT,dobTXT);
        if(checkinsertdata==true)
          Toast.makeText(MainActivity.this, "New Entry Inserted",
Toast.LENGTH_SHORT).show();
        else
          Toast.makeText(MainActivity.this, "unable to insert",
Toast.LENGTH_SHORT).show();
      }
    });
    update.setOnClickListener(new View.OnClickListener() {
      @Override
      public void onClick(View v) {
        String nameTXT=name.getText().toString();
```

```
            String contactTXT=contact.getText().toString();
            String dobTXT=dob.getText().toString();

            Boolean checkupdatedata=DB.updateuserdata(nameTXT,contactTXT,dobTXT);
            if(checkupdatedata==true)
                Toast.makeText(MainActivity.this, "Entry updated",
Toast.LENGTH_SHORT).show();
            else
                Toast.makeText(MainActivity.this, "Not updated",
Toast.LENGTH_SHORT).show();
        }
    });
    delete.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View v) {
            String nameTXT=name.getText().toString();

            Boolean checkdeletedata=DB.deletedata(nameTXT);
            if(checkdeletedata==true)
                Toast.makeText(MainActivity.this, "Entry deleted",
Toast.LENGTH_SHORT).show();
            else
                Toast.makeText(MainActivity.this, "Not deleted",
Toast.LENGTH_SHORT).show();
        }
    });
    view.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View v) {
            Cursor res=DB.getdata();
            if(res.getCount()==0){
                Toast.makeText(MainActivity.this, "No entry exists",
Toast.LENGTH_SHORT).show();
                return;
            }
            StringBuffer buffer=new StringBuffer();
            while(res.moveToNext()){
                buffer.append("Name:"+res.getString(0)+"\n");
                buffer.append("Contact:"+res.getString(1)+"\n");
                buffer.append("Date of Birth:"+res.getString(2)+"\n");
            }
            AlertDialog.Builder builder=new AlertDialog.Builder(MainActivity.this);
            builder.setCancelable(true);
            builder.setTitle("User Entries");
            builder.setMessage(buffer.toString());
            builder.show();

        }
    });
```

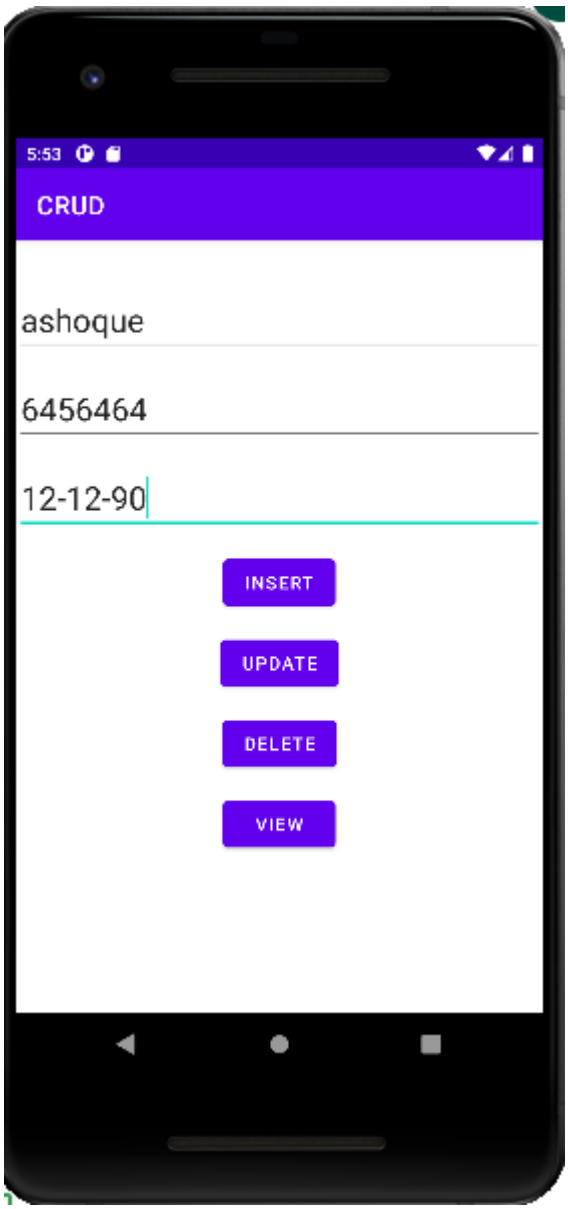
```
  }
}
```

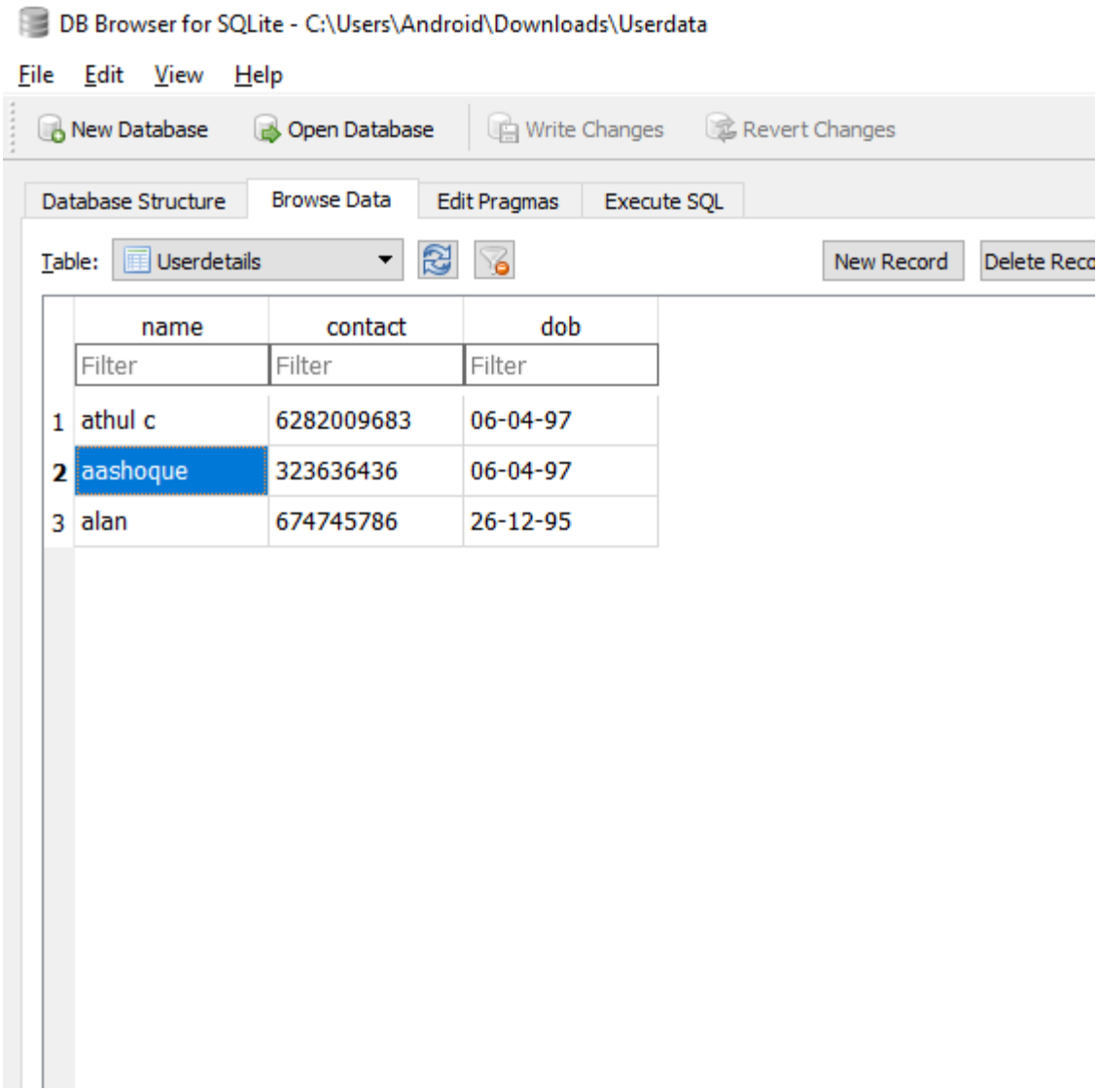
DBHelper.java

```
package com.example.crud;

import android.content.ContentValues;
import android.content.Context;
import android.database.Cursor;
import android.database.sqlite.SQLiteDatabase;
import android.database.sqlite.SQLiteOpenHelper;

public class DBHelper extends SQLiteOpenHelper {
  public DBHelper(Context context){
    super(context,"Userdata",null,1);
  }

  @Override
  public void onCreate(SQLiteDatabase DB) {
    DB.execSQL(" create table Userdetails ( name TEXT primary key, contact TEXT,dob
TEXT) ");

  }

  @Override
  public void onUpgrade( SQLiteDatabase DB, int oldVersion,int newVersion) {
    DB.execSQL(" drop table if exists Userdetails ");
  }

  public Boolean insertuserdata(String name,String contact,String dob) {
    SQLiteDatabase DB = this.getWritableDatabase();
    ContentValues contentValues = new ContentValues();
    contentValues.put("name", name);
    contentValues.put("contact", contact);
    contentValues.put("dob", dob);
    long result = DB.insert("Userdetails", null, contentValues);
    if (result == -1) {
      return false;

    } else {
      return true;
    }
  }

  public Boolean updateuserdata(String name,String contact,String dob)
  {
    SQLiteDatabase DB=this.getWritableDatabase();
```

```
    ContentValues contentValues=new ContentValues();
    contentValues.put("Contact",contact);
    contentValues.put("dob",dob);
    Cursor cursor=DB.rawQuery(" Select * from Userdetails where name=?",new String[]
{name});
    if(cursor.getCount() > 0) {
       long result = DB.update(" Userdetails ", contentValues, "name=?", new
String[]{name});
       if (result == -1) {
          return false;
       } else {
          return true;

       }
    }
       else
       {
          return false;

       }
    }

    public Boolean deletedata(String name){
    SQLiteDatabase DB = this.getWritableDatabase();
    Cursor cursor = DB.rawQuery(" Select * from Userdetails where name=?", new
String[]{name});
    if (cursor.getCount() > 0) {
       long result = DB.delete("Userdetails ", "name=?", new String[]{name});
       if (result == -1) {
          return false;

       } else {
          return true;
       }
    } else {
       return false;
    }
  }
  public Cursor getdata () {
       SQLiteDatabase DB=this.getWritableDatabase();
       Cursor cursor=DB.rawQuery(" Select * from Userdetails ",null);
       return cursor;
  }

}
```

OUTPUT




DB Browser for SQLite - C:\Users\Android\Downloads\Userdata
File Edit View Help
New Database
Open Database
Write Changes
Revert Changes
Database Structure
Browse Data
Edit Pragmas
Execute SQL
Table: Userdetails
New Record
Delete Reco
name
contact
dob
Filter
Filter
Filter
1 athul c 6282009683 06-04-97
2 aashoque 323636436 06-04-97
3 alan 674745786 26-12-95