

20MCA243 MOBILE APPLICATION DEVELOPMENT LAB

Lab Report Submitted By

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Reg. No.: AJC20MCA-2001

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]

2020-2022

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 **ABHISHEK SCARIYA M B (Reg.No:AJC20MCA-2001)** in partial fulfillment of the requirements for the award of the Degree of Master of Computer Applications under APJ Abdul Kalam Technological University during the year 2021-22.

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Program no:1

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

XML Code:

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

<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"
    android:orientation="vertical">

    <TextView
        android:id="@+id/l1"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:ems="10" android:gravity="center"
        android:text="Login"
        android:textColor="#630DFB"
        android:textSize="50dp"
        tools:layout_editor_absoluteX="31dp"
        tools:layout_editor_absoluteY="39dp" />

    <EditText
        android:id="@+id/e1"
```

```
android:layout_width="match_parent"
android:layout_height="wrap_content"
android:ems="10"
android:inputType="textPersonName"
android:minHeight="48dp" android:text="User
Name" />
<EditText
android:id="@+id/e2"
android:layout_width="match_parent"
android:layout_height="wrap_content"
android:ems="10"
android:inputType="textPassword"
android:minHeight="48dp"
android:text="Password" />
<Button
android:id="@+id/b1"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_gravity="right"
android:text="Login" />
</LinearLayout>
```

Java Code:

```
package com.example.login_2;

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;

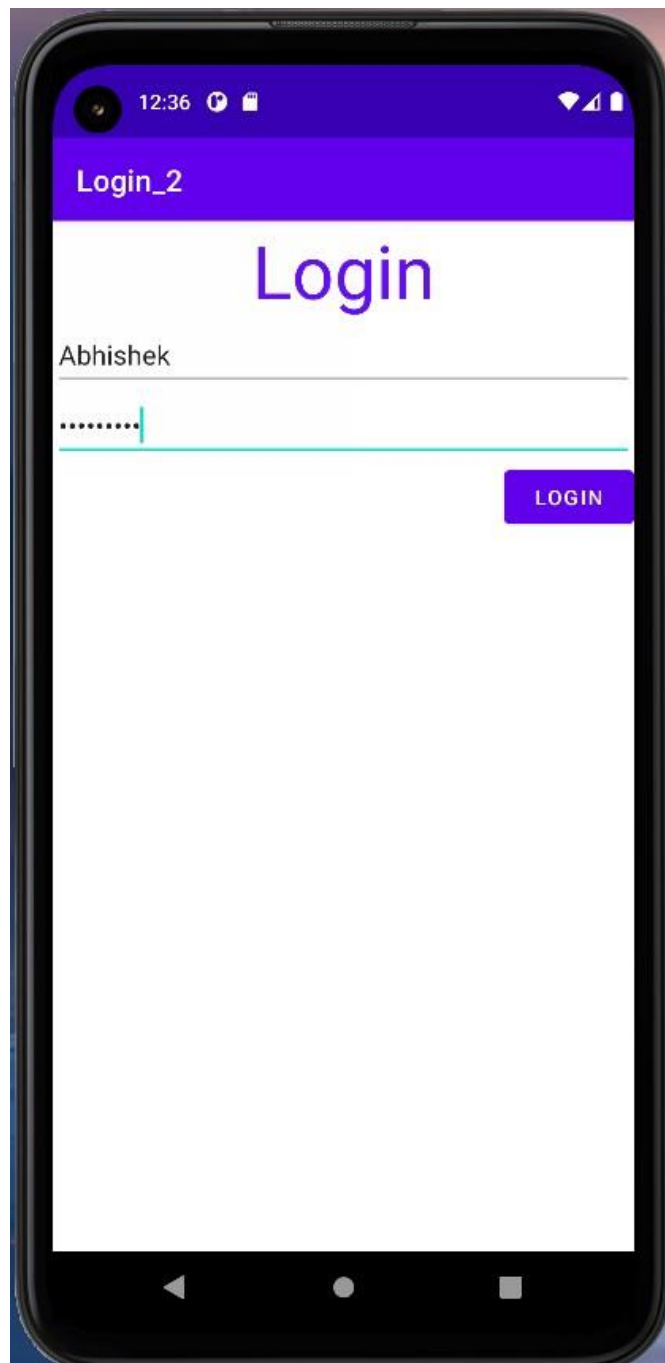
    private EditText e2;

    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 buttonclick.

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:orientation="vertical"
    android:background="#DFF6C4">
    <EditText android:id="@+id/text1"
        android:layout_width="261dp"
        android:layout_height="78dp"
        android:hint="Write here!"
        android:textSize="25dp"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintLeft_toLeftOf="parent"
        app:layout_constraintRight_toRightOf="parent" app:layout_constraintTop_toTopOf="parent"
    />

    <Button
```

```

    android:id="@+id/button"

    android:layout_width="match_parent"
    android:layout_height="71dp"
    android:gravity="center" android:text="Print"
/>

<TextView android:id="@+id/textView2"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintLeft_toLeftOf="parent"
    app:layout_constraintRight_toRightOf="parent" app:layout_constraintTop_toTopOf="parent"
/>

</LinearLayout>

```

Java Code:

```

package com.example.myapplication;

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

import android.view.View; import
android.widget.Button; import
android.widget.EditText; 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));

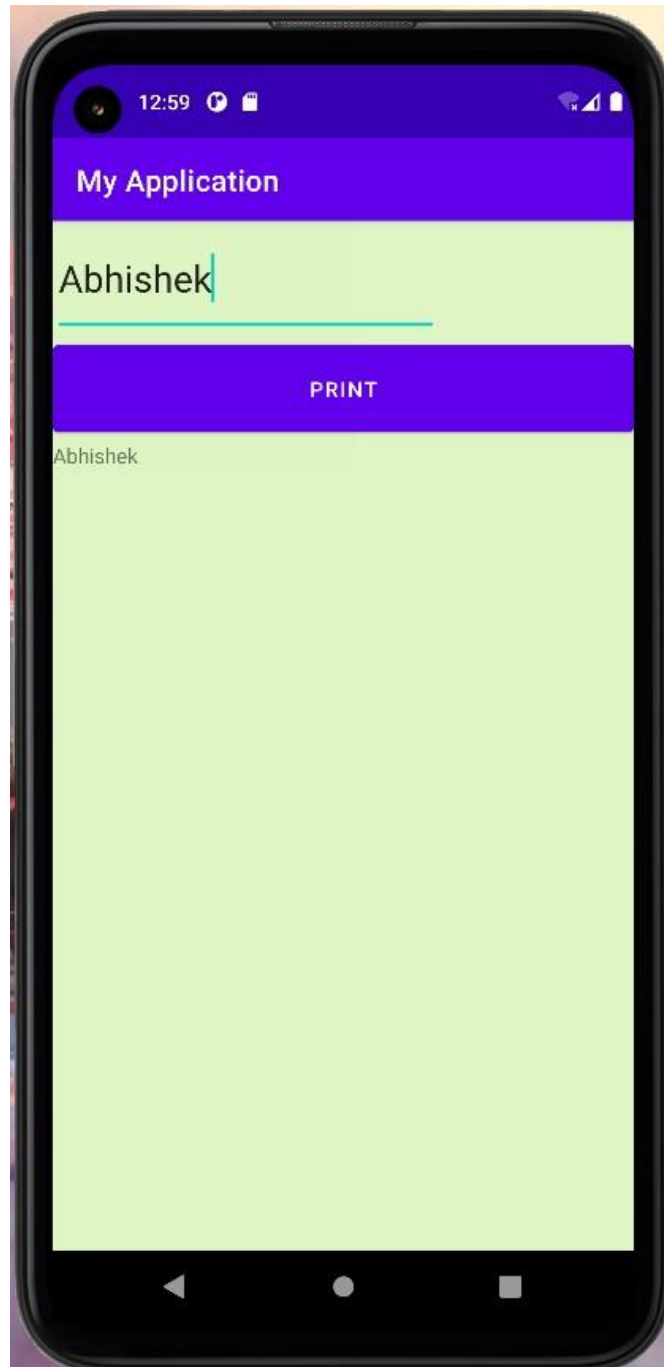
    }

    });

}

}
```

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"?>

<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"
    xmlns:card_view="http://schemas.android.com/apk/res-auto"
    tools:context=".MainActivity"
    android:orientation="vertical"
    android:background="#000">

    <androidx.cardview.widget.CardView
        android:layout_margin="64dp"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        card_view:cardCornerRadius="8dp"
        card_view:cardElevation="8dp"
        android:background="#fff">

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

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

```
android:orientation="vertical"
```

```
android:padding="24dp">
```

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

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

```
    android:text="Login" android:textSize="36sp"
```

```
    android:textAlignment="center"
```

```
    android:layout_gravity="center_horizontal" />
```

```
<TextView android:layout_width="wrap_content"
```

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

```
    android:textSize="22sp" android:text="username"
```

```
    android:textColor="@color/black"/>
```

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

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

```
    android:inputType="text"
```

```
    android:id="@+id/activity_main_usernameEditText" />
```

```
<TextView android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:textSize="22sp" android:text="password"
    android:textColor="@color/black"/>

<EditText android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:inputType="textPassword"
    android:id="@+id/activity_main_passwordEditText" />

<Button
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:id="@+id/activity_main_loginButton"
    android:text="login" android:textSize="22sp"/>
</LinearLayout>
</androidx.cardview.widget.CardView>
</LinearLayout>
```

Java Code:

```
package com.example.myapplication;

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

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

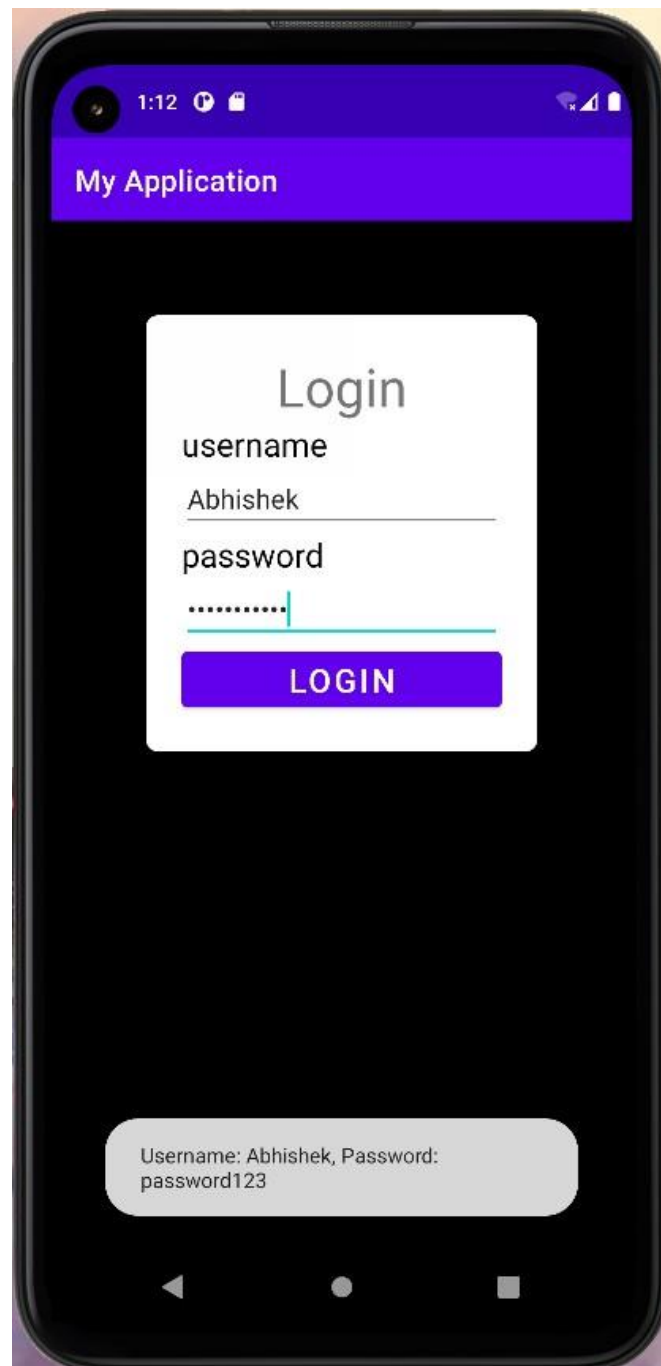
public class MainActivity extends AppCompatActivity {private
    EditText usernameEditText;
    private EditText passwordEditText;
    private Button loginButton;

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

        usernameEditText = findViewById(R.id.activity_main_usernameEditText);
        passwordEditText = findViewById(R.id.activity_main_passwordEditText);
        loginButton = findViewById(R.id.activity_main_loginButton);
```



```
loginButton.setOnClickListener(new View.OnClickListener() {  
    @Override  
    public void onClick(View v) {  
        if (usernameEditText.getText().length() > 0 &&  
passwordEditText.getText().length() > 0) {  
            String toastMessage = "Username: " +  
usernameEditText.getText().toString() + ", Password: " +  
passwordEditText.getText().toString();  
            Toast.makeText(getApplicationContext(), toastMessage,  
Toast.LENGTH_SHORT).show();  
        } else {  
            String toastMessage = "Username or Password are not populated";  
            Toast.makeText(getApplicationContext(), toastMessage,  
Toast.LENGTH_SHORT).show();  
        }  
    }  
});  
}
```

Output:

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_margin
            Horizontal="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_margin  
        Horizontal="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></LinearLayout>
```

Java Code:

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

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

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

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

```
android.widget.Button; import
```

```
android.widget.EditText; 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;

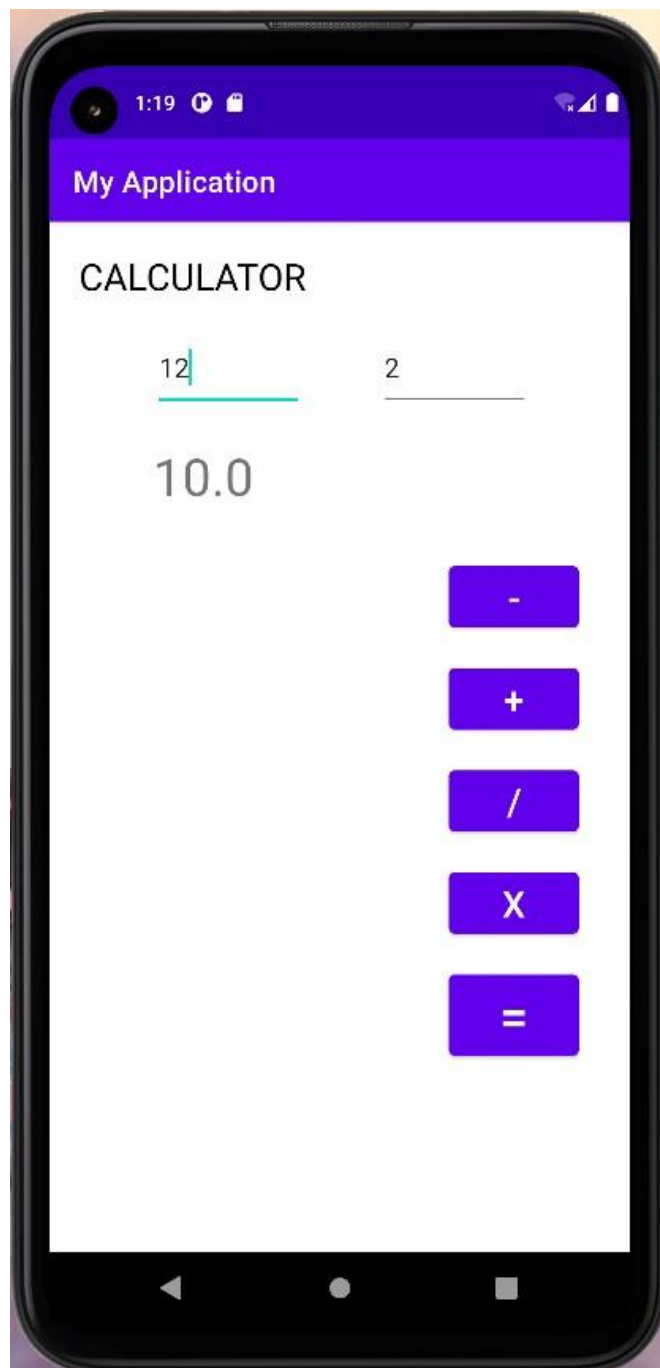
    }

});

}

}
```

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.myapplication;

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 activity2if
    (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;
    }

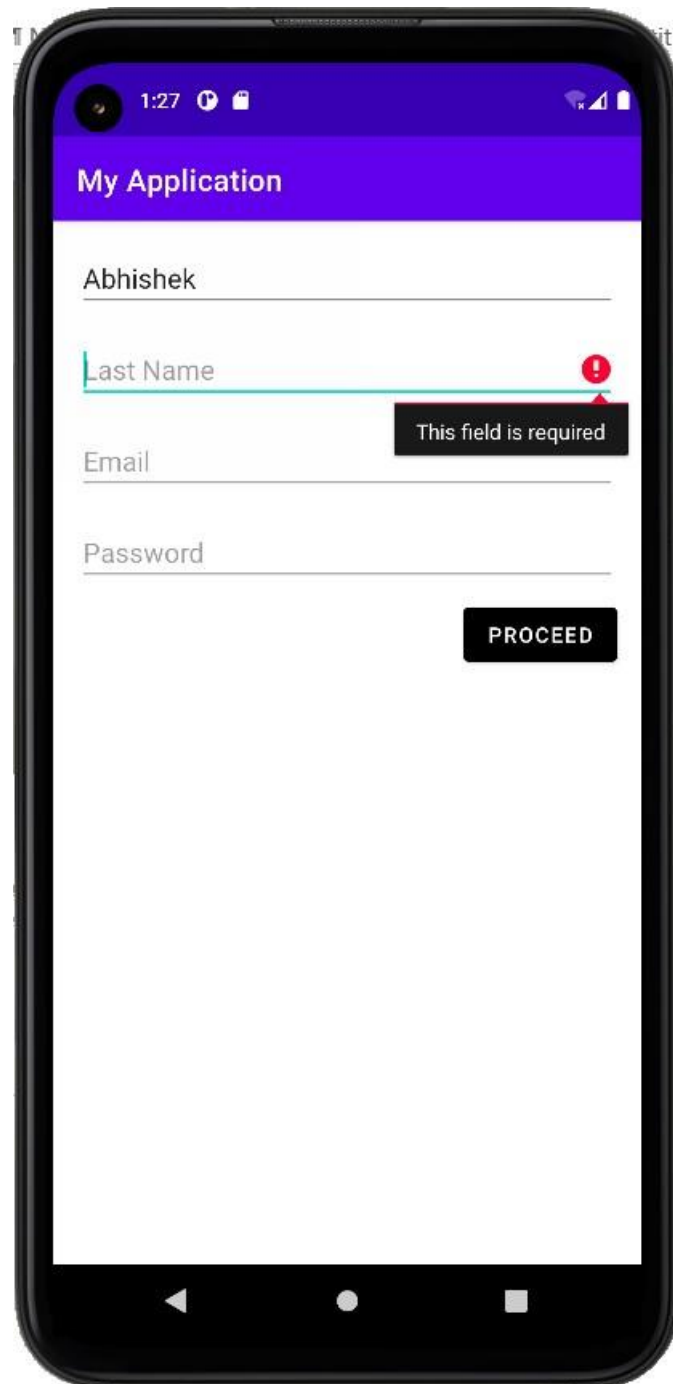
    if (etLastName.length() == 0) {
        etLastName.setError("This field is required");return
        false;
    }

    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:

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"?>

<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/textView3"
        android:layout_width="60dp"
        android:layout_height="17dp"
        android:text="Name"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.091"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.222" />
```

```
<EditText
    android:id="@+id/name"
    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="0.756"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.215" />
```

```
<TextView android:id="@+id/textView4"
    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="0.096"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.325" />
```

```
<EditText  
    android:id="@+id/em"  
    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="0.761"  
    app:layout_constraintStart_toStartOf="parent"  
    app:layout_constraintTop_toTopOf="parent"  
    app:layout_constraintVertical_bias="0.319" />
```

```
<TextView android:id="@+id/textView5"  
    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="0.09"  
    app:layout_constraintStart_toStartOf="parent"  
    app:layout_constraintTop_toTopOf="parent"  
    app:layout_constraintVertical_bias="0.435" />
```

<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="0.761"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.431" />
```

<Button

```
    android:id="@+id/sav"
    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="0.413"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
```

```

        app:layout_constraintVertical_bias="0.562" />

<TextView android:id="@+id/textView6"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Enter Your Details"
    android:textSize="25sp"
    android:textStyle="bold"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.464"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.133" />
</androidx.constraintlayout.widget.ConstraintLayout>

```

MainActivity2

```

<?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/textView2"  
    android:layout_width="wrap_content"  
    android:layout_height="wrap_content"  
    android:text="Your Details Using Intent"  
    android:textStyle="bold"  
    android:textSize="20sp"  
    app:layout_constraintBottom_toBottomOf="parent"  
    app:layout_constraintEnd_toEndOf="parent"  
    app:layout_constraintHorizontal_bias="0.498"  
    app:layout_constraintStart_toStartOf="parent"  
    app:layout_constraintTop_toTopOf="parent"  
    app:layout_constraintVertical_bias="0.146" />
```

```
<TextView  
    android:id="@+id/dis"  
    android:layout_width="wrap_content"  
    android:layout_height="wrap_content"  
    android:textStyle="italic"  
    android:textSize="15sp"  
    app:layout_constraintBottom_toBottomOf="parent"  
    app:layout_constraintEnd_toEndOf="parent"
```

```

app:layout_constraintHorizontal_bias="0.498"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toTopOf="parent"
app:layout_constraintVertical_bias="0.233" />

```

```

<TextView android:id="@+id/textView3"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Your Details Using Shared Preference"
    android:textSize="20sp"
    android:textStyle="bold" app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.771"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.467" />

```

```

<TextView
    android:id="@+id/dis1"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:textSize="15sp"

```

```

        android:textStyle="italic" app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.527"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.571" />
</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.content.SharedPreferences;import
android.os.Bundle;
import android.view.View; import
android.widget.Button; import
android.widget.EditText; import
android.widget.TextView;
public class MainActivity extends AppCompatActivity {
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);ActionBar
        a=getSupportActionBar(); a.setTitle("Welcome");
        Button sub=findViewById(R.id.sav); EditText
        nam=findViewById(R.id.name);EditText
        email=findViewById(R.id.em); EditText
        phone=findViewById(R.id.ph);

```

```

sub.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {
        Intent i=new Intent(MainActivity.this,MainActivity2.class);String
        user= nam.getText().toString(); i.putExtra("Name",user);
        String E_mail=email.getText().toString();
        i.putExtra("Email",E_mail);
        String Phones=phone.getText().toString();
        i.putExtra("Phone",Phones); startActivity(i);
        SharedPreferences sharedPreferences =
getSharedPreferences("MySharedPref",MODE_PRIVATE);
        SharedPreferences.Editor myEdit = sharedPreferences.edit();
        myEdit.putString("name", nam.getText().toString());
        myEdit.putString("email", email.getText().toString());
        myEdit.putString("phone", phone.getText().toString());
        myEdit.apply();
    }
});
}
}

```

MainActivity2

```

package com.example.myapplication;

import androidx.appcompat.app.ActionBar;
import androidx.appcompat.app.AppCompatActivity;import
android.content.Intent;
import android.content.SharedPreferences;import
android.os.Bundle;
import android.widget.TextView;

```

```

import com.example.myapplication.R;

public class MainActivity2 extends AppCompatActivity {
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);

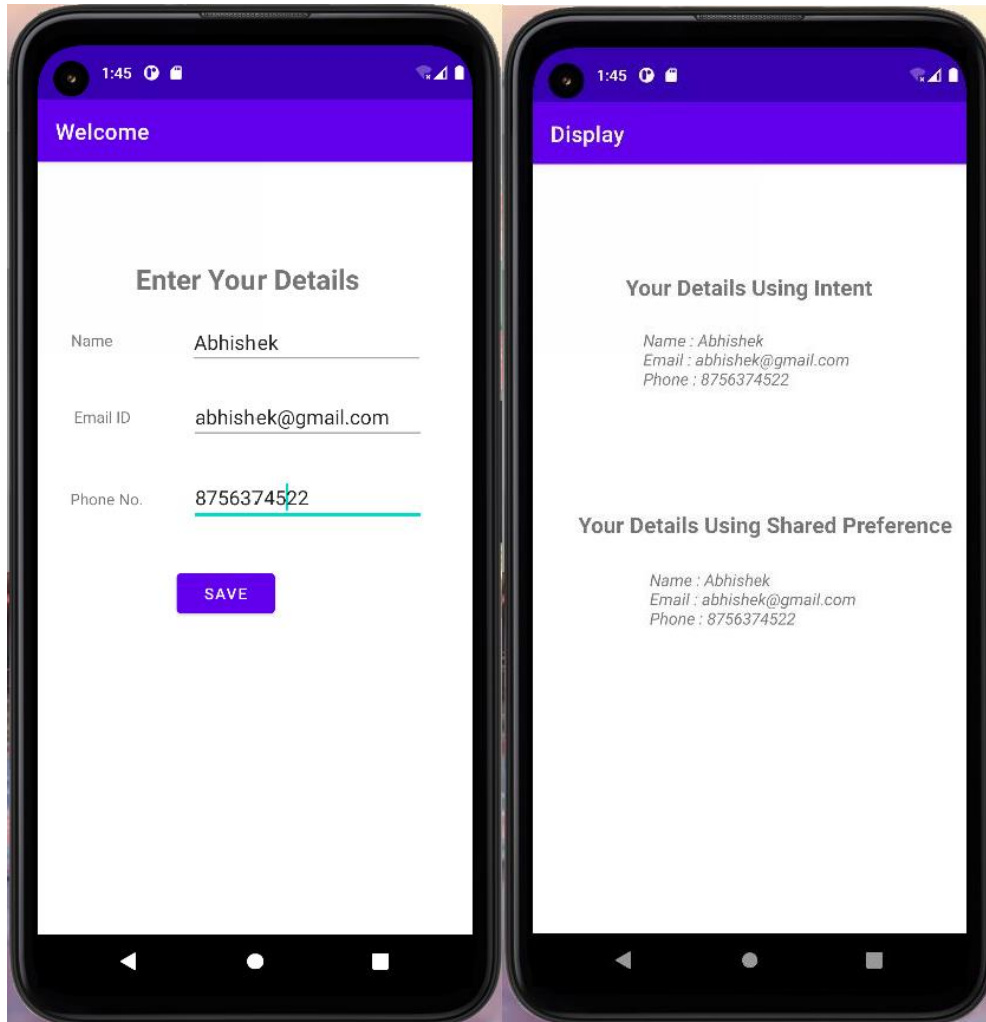
        setContentView(R.layout.activity_main2); ActionBar
        a=getSupportActionBar(); a.setTitle("Display");
        TextView diss=findViewById(R.id.dis);
        TextView diss1=findViewById(R.id.dis1); Intent
        i=getIntent();
        String name=i.getStringExtra("Name"); String
        email=i.getStringExtra("Email"); String
        phone=i.getStringExtra("Phone");
        diss.setText("Name : "+name+"\nEmail : "+email+"\nPhone : "+phone);

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

        String Name=sharedPreferences.getString("name",""); String
        Email=sharedPreferences.getString("email",""); String
        Phone=sharedPreferences.getString("phone","");
        diss1.setText("Name : "+Name+"\nEmail : "+Email+"\nPhone : "+Phone);

    }
}

```

Output:

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.myapplication;

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); }
}

```

bg_button.xml:

```

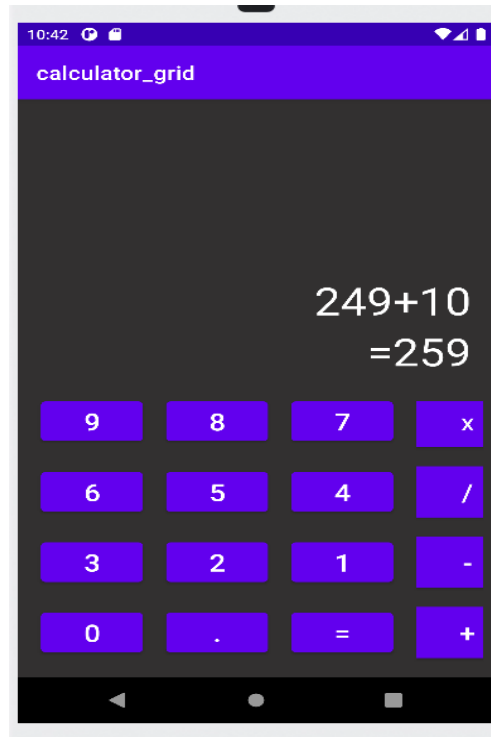
<?xml version="1.0" encoding="utf-8"?>

<shape xmlns:android="http://schemas.android.com/apk/res/android">
    <corners android:radius="100dp"/>

</shape>

```

Output:



Program no: 8

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

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="@color/white"
    tools:context=".MainActivity">

    <LinearLayout

        android:layout_width="match_parent"
        android:layout_height="match_parent"
        android:background="#29487D"
        android:gravity="center|top"
        android:orientation="vertical">

        <LinearLayout android:layout_width="wrap_content"

            android:layout_height="wrap_content"
            android:layout_marginTop="70dp"
            android:layout_marginBottom="100dp"
```

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

```
<TextView
```

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

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

```
    android:fontFamily="@font/fb"
```

```
    android:text="facebook"
```

```
    android:textSize="36dp"
```

```
    android:padding="10dp"
```

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

```
</LinearLayout>
```

```
<LinearLayout
```

```
    android:layout_width="match_parent"
```

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

```
    android:padding="15dp"
```

```
    android:orientation="vertical"
```

```
    android:layout_margin="20dp">
```

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

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

```
        android:hint="Email or Phone"
```

```
        android:layout_marginBottom="30dp"
```

```
        android:textColorHint="#594F4F"
```

```
android:background="@drawable/bg_box"/>
```

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

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

```
    android:layout_marginBottom="30dp"
```

```
    android:background="@drawable/bg_box"
```

```
    android:hint="password"
```

```
    android:textColorHint="#594F4F"/>
```

```
<Button
```

```
    android:layout_width="match_parent"
```

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

```
    android:text="Log In"
```

```
    android:background="@color/design_default_color_primary"
```

```
    android:textAllCaps="false"/>
```

```
</LinearLayout>
```

```
<LinearLayout
```

```
    android:layout_width="match_parent"
```

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

```
    android:orientation="horizontal"
```

```
    android:layout_marginTop="180dp"
```

```
    android:layout_gravity="bottom"
```

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

```
<TextView
```

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

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

```
    android:gravity="end"
```

```
    android:textStyle="bold"
```

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

```
    android:layout_marginRight="75dp"
```

```
    android:layout_weight="50"
```

```
    android:text="SignUp for Facebook"/>
```

```
<TextView android:layout_width="wrap_content"
```

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

```
    android:gravity="end"
```

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

```
    android:layout_marginEnd="50dp"
```

```
    android:layout_weight="1"
```

```
    android:textStyle="bold" android:text="?"/>
```

```
</LinearLayout>
```

```
</LinearLayout>
```

```
</LinearLayout>
```

Java Code:

```
package com.example.facebook;

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

public class MainActivity extends AppCompatActivity {

    @Override

    protected void onCreate(Bundle savedInstanceState) {

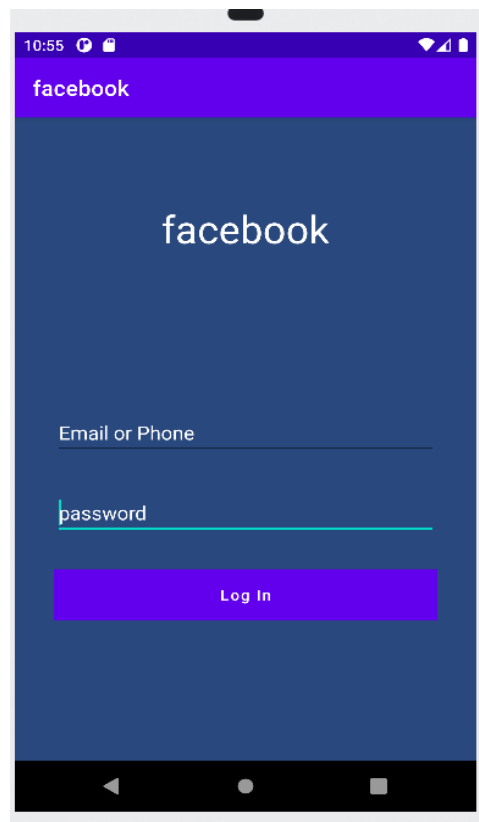
        super.onCreate(savedInstanceState);

        setContentView(R.layout.activity_main);

        getSupportActionBar().hide();

    }

}
```

Output:

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.myapplication;

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();

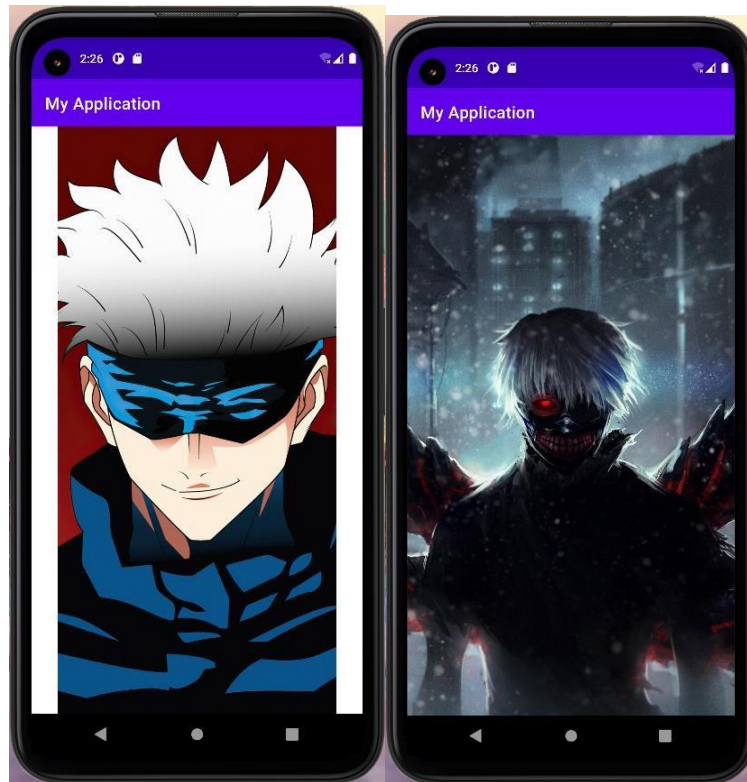
        switch (id){

```



```
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.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);

        ll.setAdapter(adapter);

        ll.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:

Program no: 11

Aim: Implement Intent to navigate between multiple activities

XML Code:

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

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

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

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

```

app:layout_constraintHorizontal_bias="0.437"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toTopOf="parent"
app:layout_constraintVertical_bias="0.148" />

```

```
<EditText
```

```

    android:id="@+id/address"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:ems="10" android:hint="Address"
    android:inputType="textPersonName"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.437"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.313" />

```

```
<EditText
```

```

    android:id="@+id/email"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:ems="10"

```



```

    android:hint="Email" android:inputType="textPersonName"
    android:onClick="callActivity"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.437"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.475" />

```

```
<Button
```

```

    android:id="@+id/button"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Submit"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.454"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.609" />

```

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

Activity2

```

<?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/view3"
        android:layout_width="189dp"
        android:layout_height="36dp"
        android:textAlignment="center"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.459"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.398" />

    <TextView android:id="@+id/view1"
        android:layout_width="189dp"

```

```
android:layout_height="36dp"
android:textAlignment="center"
app:layout_constraintBottom_toBottomOf="parent"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintHorizontal_bias="0.459"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toTopOf="parent"
app:layout_constraintVertical_bias="0.22" />
```

```
<TextView android:id="@+id/view2"
    android:layout_width="189dp"
    android:layout_height="36dp"
    android:textAlignment="center"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.459"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.306" />
```

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

Java Code:

```

package com.example.myapplication;

import androidx.appcompat.app.AppCompatActivity;import
android.content.Intent;

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

public class MainActivity extends AppCompatActivity { Button
    b1;

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

        b1 = findViewById(R.id.button); b1.setOnClickListener(new
        View.OnClickListener() {
            @Override
            public void onClick(View view) {
                callActivity(view);
            }
        });
    }
}

```

```

    }

    public void callActivity(View view) {

        Intent i = new Intent(MainActivity.this, MainActivity2.class); final
        EditText editText1 = (EditText)findViewById(R.id.name);String msg =
        editText1.getText().toString();

        final EditText editText2 = (EditText)findViewById(R.id.address);String add
        = editText2.getText().toString();

        final EditText editText3 = (EditText)findViewById(R.id.email);String em
        = editText3.getText().toString();

        i.putExtra("Value1", msg);
        i.putExtra("Value2", add);
        i.putExtra("Value3", em);
        startActivity(i);
    }
}

```

Activity 2

```

package com.example.myapplication;

import androidx.appcompat.app.AppCompatActivity;

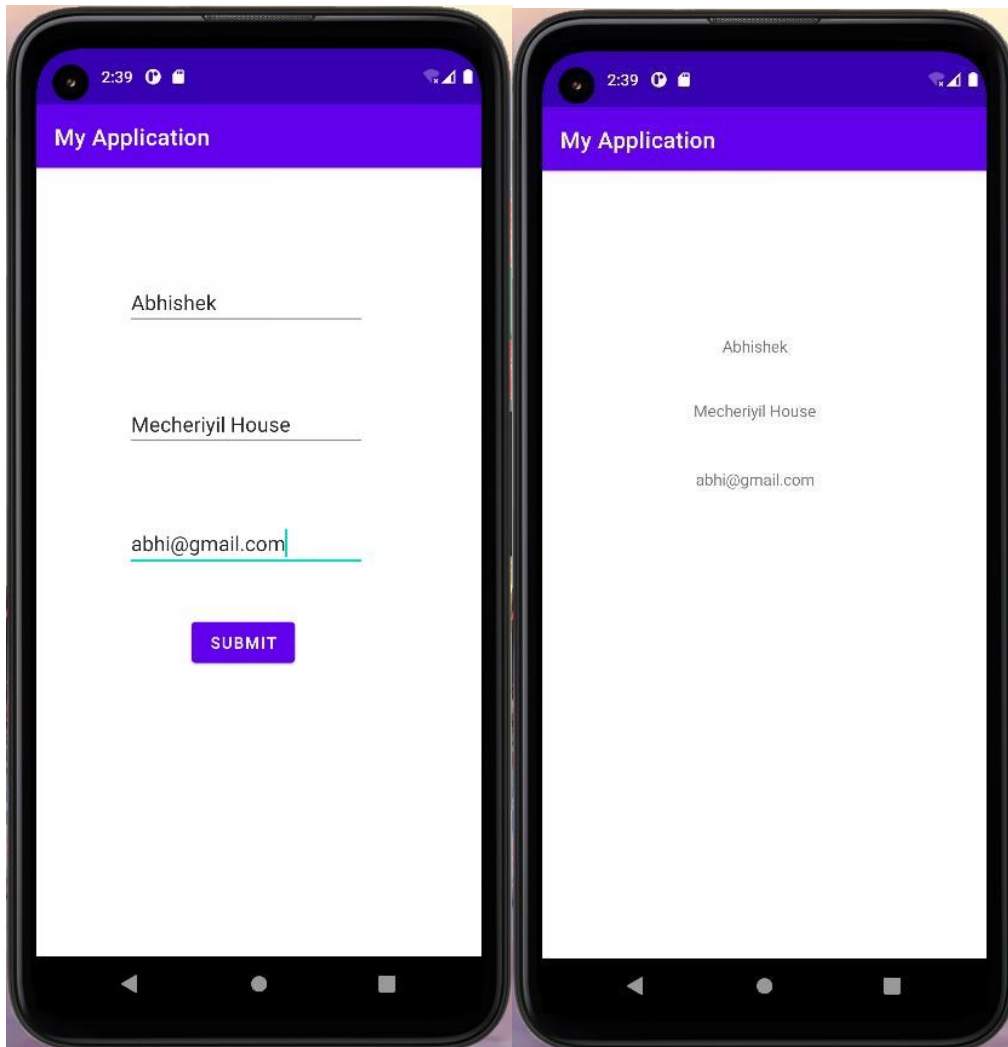
import android.os.Bundle;
import android.widget.TextView;

public class MainActivity2 extends AppCompatActivity {

    TextView view1;

```

```
TextView view2;
TextView view3;
@Override
protected void onCreate(Bundle savedInstanceState) {
    super.onCreate(savedInstanceState);
    setContentView(R.layout.activity_main2);
    view1 = (TextView) findViewById(R.id.view1);view2 =
    (TextView) findViewById(R.id.view2);view3 =
    (TextView) findViewById(R.id.view3);Bundle extras =
    getIntent().getExtras();
    String value1 = extras.getString("Value1");String
    value2 = extras.getString("Value2");String value3
    = extras.getString("Value3");
    view1.setText(value1); view2.setText(value2);
    view3.setText(value3);
}
}
```

Output:

Program no: 12

Aim: Develop an application that works with explicit intents

XML Code:

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

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

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

```

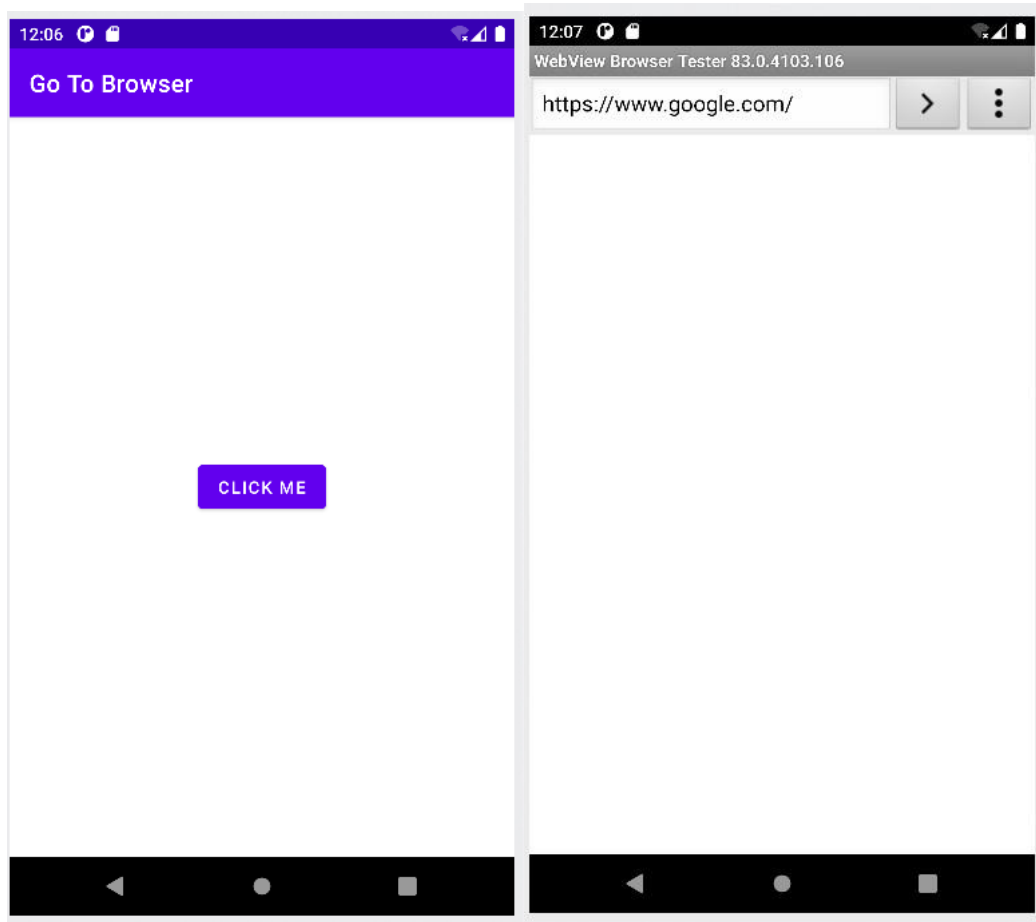
package com.example.myapplication; import
androidx.appcompat.app.ActionBar;
import androidx.appcompat.app.AppCompatActivity;import
android.content.Intent;
import android.net.Uri;
import android.net.UrlQuerySanitizer;
import android.os.Bundle;
import android.view.View; import
android.widget.Button;

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);

    }

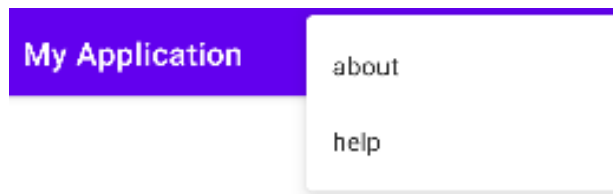
    @Override

    public boolean onCreateOptionsMenu(Menu menu) {

        getMenuInflater().inflate(R.menu.menuuu, 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:

Hello World!

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,d ays);

        l.setAdapter(adapter);

        l.setOnItemClickListener(this);

    }

    @Override

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

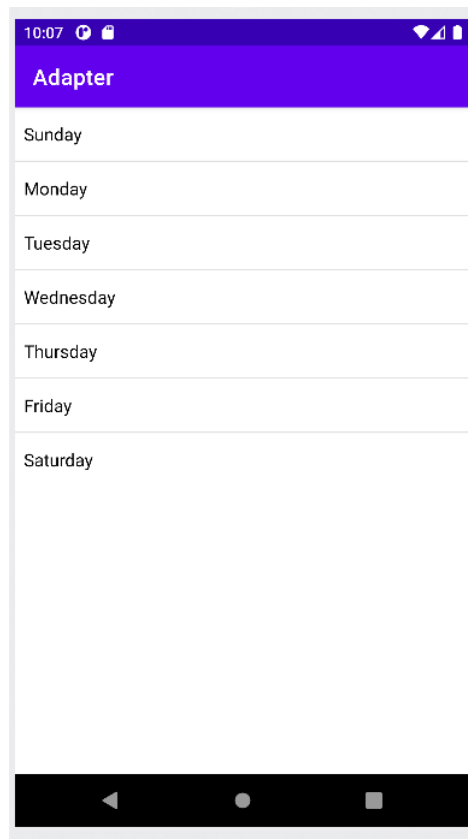
        TextView temp=(TextView) view;

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

    }

}

```

Output:

Program no: 15

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

XML Code:activity_main.xml

```
<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>
```

grid_single.xml

```
<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:

MainActivity.java

```
package com.example.myapp;

import android.content.Context;
import android.os.Bundle;
import android.app.Activity;
import android.view.LayoutInflater;
import android.view.View;
import android.view.ViewGroup;
import android.widget.AdapterView;
import android.widget.BaseAdapter;
import android.widget.GridView;
import android.widget.ImageView;
import android.widget.TextView;
import android.widget.Toast;

import com.example.myapp.CustomGrid;
import com.example.myapp.R;

public class MainActivity extends Activity {
    GridView grid;
    String[] web = {
        "pinterest",
        "facebook",
        "dialer",
        "penguin",
        "spear",
        "target",
        "potato",

        "snapchat",
        "spotify"
    };
    int[] imageId = {
        R.drawable.a,
        R.drawable.b,
        R.drawable.c,
        R.drawable.d,
        R.drawable.e,
        R.drawable.f,
        R.drawable.g,
        R.drawable.h,
        R.drawable.i,
```

```

};

@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();

        }
    });

}
}

```

CustomGrid.java

```

package com.example.myapp;
import android.content.Context;
import android.view.LayoutInflater;
import android.view.View;
import android.view.ViewGroup;
import android.widget.BaseAdapter;
import android.widget.ImageView;
import android.widget.TextView;

public class 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;
    }

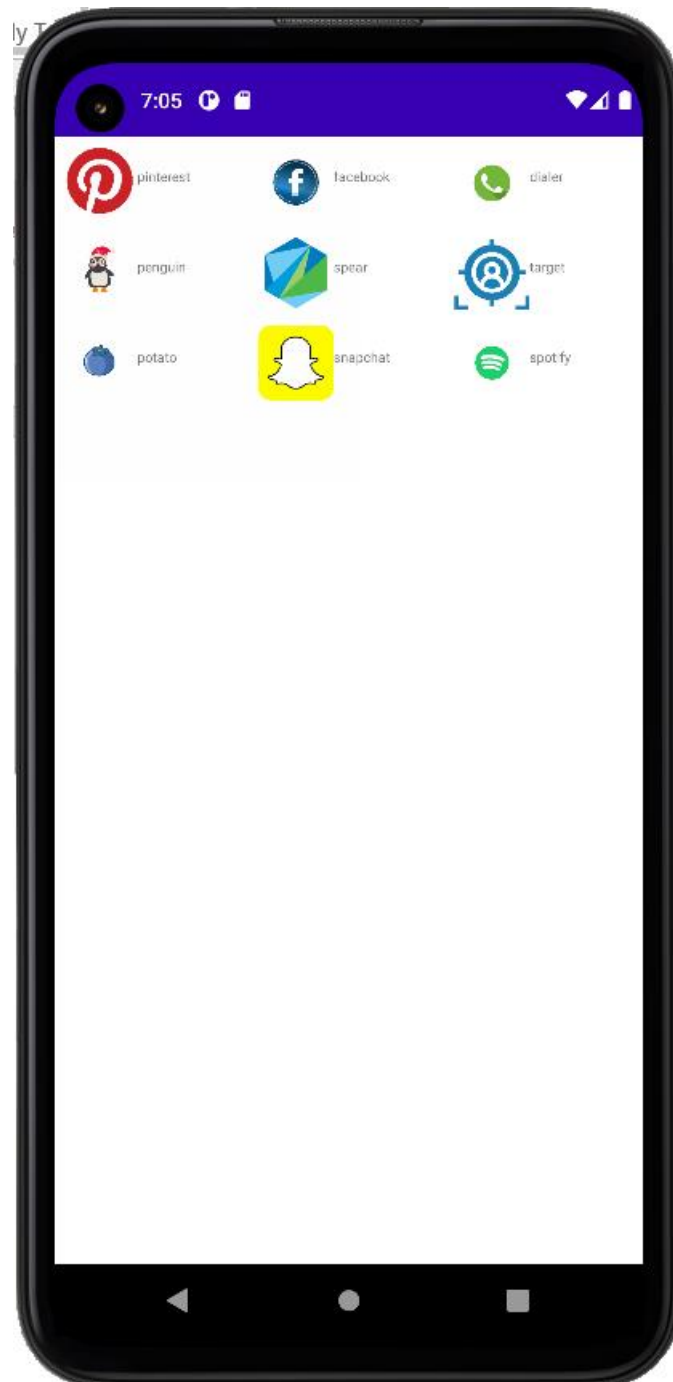
    @Override
    public View getView(int position, View convertView, ViewGroup parent) {
        // TODO Auto-generated method stub
        View grid;
        LayoutInflater inflater = (LayoutInflater) mContext
            .getSystemService(Context.LAYOUT_INFLATER_SERVICE);

        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;
    }
}

```

Output:

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

```
public class MainActivity extends AppCompatActivity implements
    AdapterView.OnItemClickListener {
    String[] country = { "Parasyte", "Jujutsu Kaisen", "Code Geass", "Death Note", "Others" };

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



```

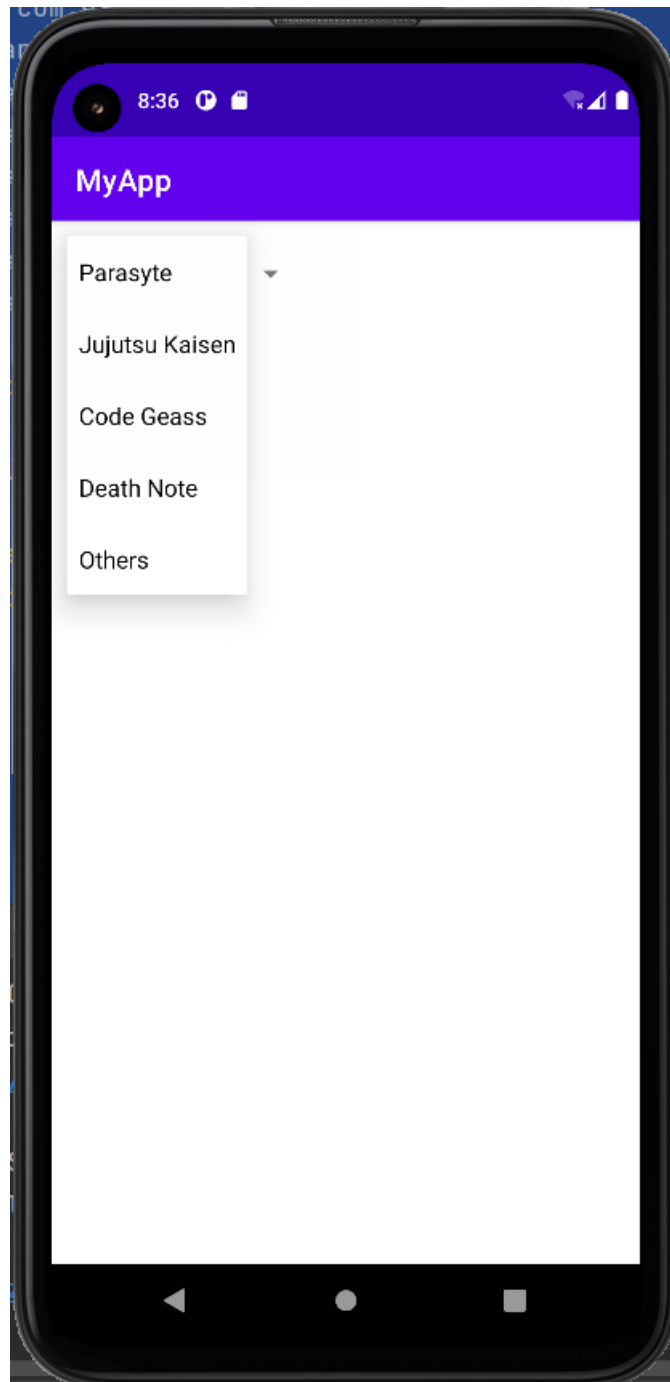
super.onCreate(savedInstanceState);
setContentView(R.layout.activity_main);
//Getting the instance of Spinner and applying OnItemSelectedListener on it
Spinner spin = (Spinner) findViewById(R.id.spinner);
spin.setOnItemSelectedListener(this);

//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=""
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        tools:layout_editor_absoluteX="100dp" />
</androidx.constraintlayout.widget.ConstraintLayout>

```

AndroidManifest.xml

```

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

    <application
        android:allowBackup="true"
        android:icon="@mipmap/ic_launcher"
        android:label="@string/app_name"
        android:roundIcon="@mipmap/ic_launcher_round"

        android:supportRtl="true"
        android:theme="@style/Theme.newstyle">
        <activity
            android:name=".MainActivity"
            android:exported="true">
            <intent-filter>
                <action android:name="android.intent.action.MAIN" />

```

```

        <category android:name="android.intent.category.LAUNCHER" />
    </intent-filter>
</activity>
</application>

</manifest>

```

themes.xml

```

<resources xmlns:tools="http://schemas.android.com/tools">
    <!-- Base application theme. -->
    <style name="Theme.newstyle"
parent="Theme.MaterialComponents.DayNight.DarkActionBar">
        <item name="colorPrimary">@color/black</item>
        <item name="colorPrimaryDark">@color/yellow</item>
        <item name="colorAccent">@color/teal</item>
        <item name="android:textColorPrimary">@color/red</item>
    </style>
</resources>

```

colors.xml

```

<?xml version="1.0" encoding="utf-8"?>
<resources>
    <color name="purple_200">#FFBB86FC</color>
    <color name="purple_500">#FF6200EE</color>
    <color name="purple_700">#FF3700B3</color>
    <color name="teal_200">#FF03DAC5</color>
    <color name="teal_700">#FF018786</color>
    <color name="black">#B30707</color>
    <color name="white">#FFFFFF</color>
    <color name="teal">#FF018786</color>

    <color name="yellow">#6377E4</color>
    <color name="red">#F80F0F</color>

</resources>

```

Java Code:

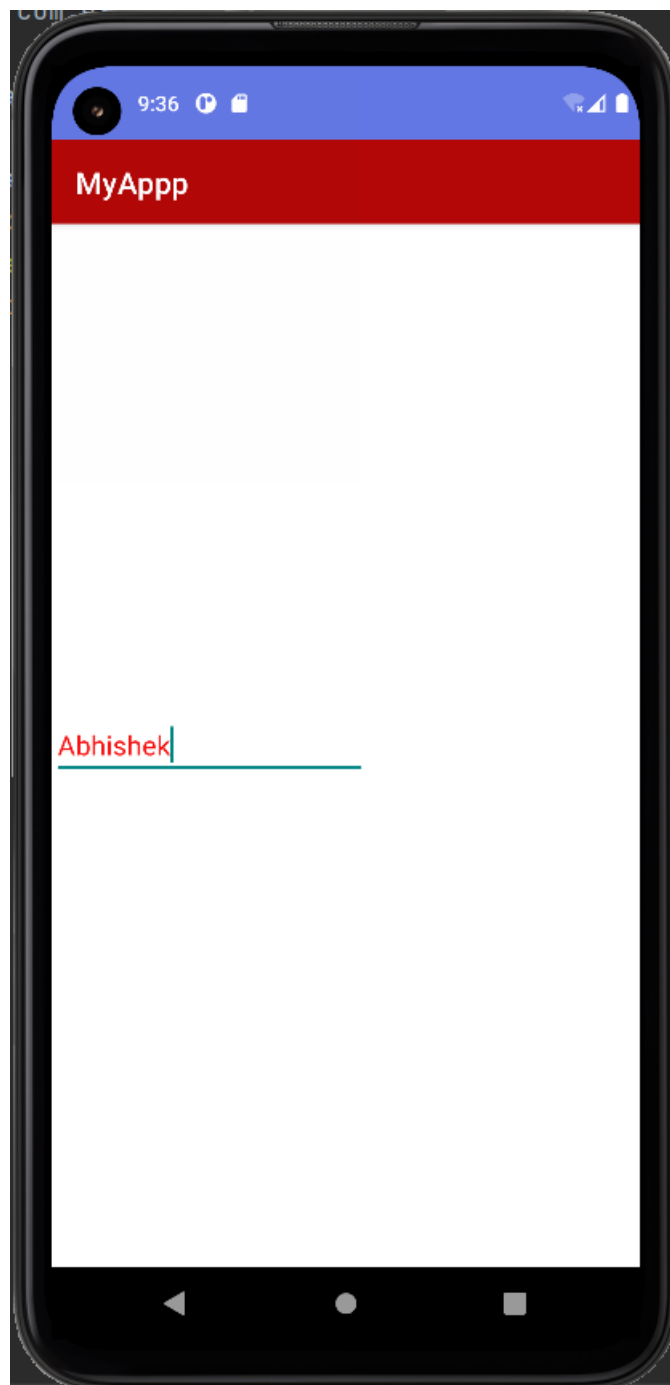
```

package com.example.myapplication;

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:**Activity_main.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">

    <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="#FF0000"
            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="#2B02E8"
            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/teal_700"/>

```

```
</LinearLayout>
```

Activity_fragment1.xml

```

<?xml version="1.0" encoding="utf-8"?>
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:background="#58CC7F"
    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="#884A9E"
        android:text="Fragment1"
        android:textSize="50dp" />

</RelativeLayout>

```

Activity_fragment2.xml

```

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

    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:background="#55AF59"
    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="#C155E8"
        android:text="Fragment2"
        android:textSize="50dp" />

```

</RelativeLayout>

Java Code:

MainActivity.java

```
package com.example.fragments;

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();
    }
}
```



```
}
```

Fragment1.java

```
package com.example.fragments;
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.activity_fragment1, container, false);
    }
}
```

Fragment2.java

```
package com.example.fragments;

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.activity_fragment2, container, false);
    }
}
```

Output:



Program no: 19**Aim:** Implement Navigation drawer**XML Code:**

```

<?xml version="1.0" encoding="utf-8"?>
<androidx.drawerlayout.widget.DrawerLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity"
    android:id="@+id/drawer">
    <LinearLayout
        android:layout_width="match_parent"
        android:layout_height="match_parent">
        <TextView
            android:layout_width="match_parent"
            android:layout_height="match_parent"
            android:text="Welcome"
            android:textSize="30dp">
        </TextView>
    </LinearLayout>
    <com.google.android.material.navigation.NavigationView
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        app:menu="@menu/menu"
        android:id="@+id/navigation_view"
        android:layout_gravity="start">
    </com.google.android.material.navigation.NavigationView>
</androidx.drawerlayout.widget.DrawerLayout>

```

menu.xml

```

<?xml version="1.0" encoding="utf-8"?>
<menu xmlns:android="http://schemas.android.com/apk/res/android">
    <item
        android:id="@+id/profile"
        android:title="Profile"/>
    <item
        android:id="@+id/chats"
        android:title="Chats"/>
    <item
        android:id="@+id/logout"
        android:title="log out"/>
</menu>

```

Java Code:

```

package com.example.myapplication;

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;

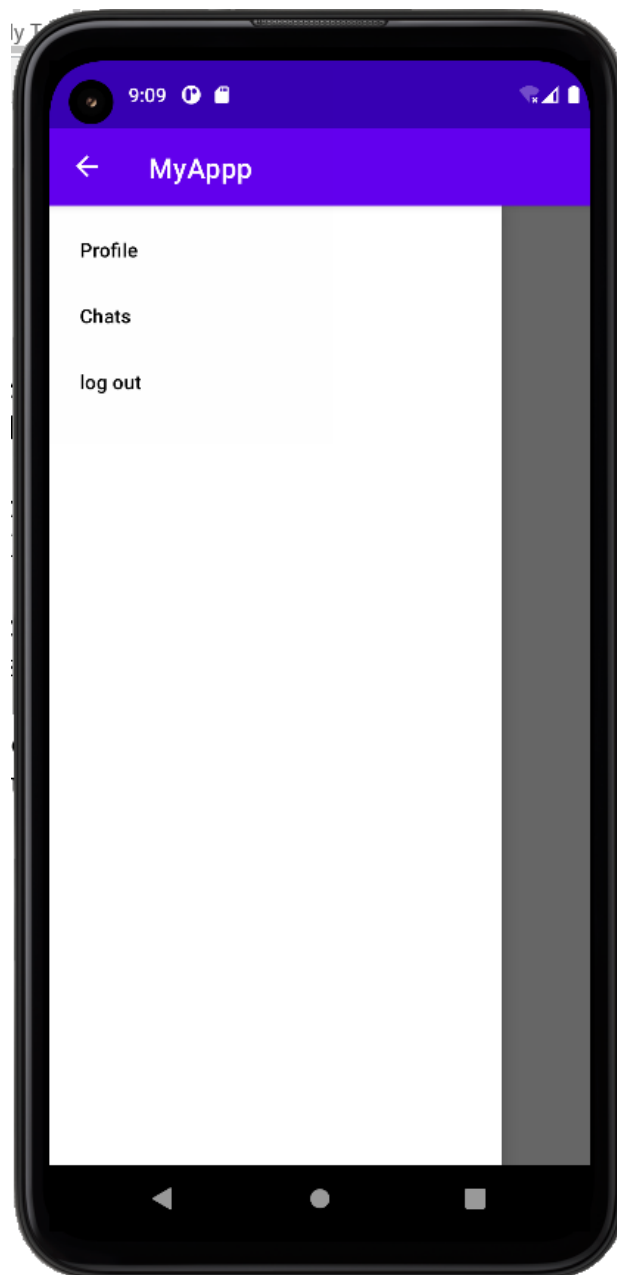
public class MainActivity extends AppCompatActivity implements
    NavigationView.OnNavigationItemSelectedListener {
    public DrawerLayout drawerLayout;
    public ActionBarDrawerToggle actionBarDrawerToggle;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        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);
        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 onNavigationItemSelectedListener(@NonNull MenuItem item) {
        int id=item.getItemId();
        if(id == R.id.profile){
            Toast.makeText(this, "Home Page", Toast.LENGTH_SHORT).show();
        }
        if(id == R.id.chats){
            Toast.makeText(this, "Settings Page",

```

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

Output:

Program no: 20

Aim: Program to implement activity lifecycle

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=".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) {
        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 no: 21

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

XML Code:Activity_main.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:padding="10dp"
    tools:context=".MainActivity">

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

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

    <EditText
        android:id="@+id/contact"
        android:layout_width="match_parent"
```

```

        android:layout_height="wrap_content"
        android:hint="Contact"
        android:textSize="24dp"
        android:layout_below="@+id/name"
        android:inputType="number"
    />
<EditText
    android:id="@+id/dob"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:hint="Date of birth"
    android:textSize="24dp"
    android:layout_below="@+id/contact"
    android:inputType="number"
/>
<Button
    android:id="@+id/buttonInsert"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:textSize="24dp"
    android:text="Insert new Data"
    android:layout_marginTop="30dp"
    android:layout_below="@+id/dob"
/>
<Button
    android:id="@+id/buttonUpdate"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:textSize="24dp"
    android:text="Update Data"

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

```

```

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

</RelativeLayout>

```

Java Code:

MainActivity.java

```

package com.example.mydatabaseapp;

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;
    DBmain 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 DBmain(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();

    }
});

```

```

    }
}

```

DBmain.java

```

package com.example.mydatabaseapp;

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

import androidx.annotation.Nullable;

public class DBmain extends SQLiteOpenHelper {
    public DBmain(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: