

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

RLMCA234

Mobile Application Development Lab

Lab Record Submitted by:

Martin Michael

Reg. No: AJC19MCA-I038



AMAL JYOTHI COLLEGE OF ENGINEERING KANJIRAPPALLY

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

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Course Outcomes

- CO1: Setup Android Platform and Android Studio IDE
- CO2: Mange UI Design Widget and Layouts, UI Events, Event Listeners
- CO3: Experiment Android Components, Activities, Intents, and Services
- CO4: Debug Android Applications using different Tools.
- CO5: Develop application with SQLite DB.
- CO6: Design and build functional Android applications.

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Program 1

Aim: To develop android simple Calculator

Activity main.xml

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

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

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

    <TextView

        android:id="@+id/fno"
        android:layout_width="142dp"
        android:layout_height="30dp"
        android:text="Enter First Number"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.059"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.089" />

    <EditText

        android:id="@+id/ed2"
        android:layout_width="193dp"
        android:layout_height="46dp"
        android:ems="10"
        android:inputType="textPersonName"
        android:text=""
```

```

        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.884"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.167" />
<EditText
    android:id="@+id/result"
    android:layout_width="196dp"
    android:layout_height="56dp"
    android:ems="10"
    android:inputType="textPersonName"
    android:text=""
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.497"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.827" />
<Button
    android:id="@+id/btnsubmit"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="ADD"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.276"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"

```

```

        app:layout_constraintVertical_bias="0.47" />
<Button
    android:id="@+id/b2"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="SUB"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.696"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.47" />
<Button
    android:id="@+id/b3"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="MULT"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.276"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.608" />
<Button
    android:id="@+id/b4"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="DIV"
    app:layout_constraintBottom_toBottomOf="parent"

```

```

        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.696"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.608" />
<TextView
    android:id="@+id/sno"
    android:layout_width="142dp"
    android:layout_height="30dp"
    android:text="Enter Second Number"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.059"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.165" />
<EditText
    android:id="@+id/ed1"
    android:layout_width="191dp"
    android:layout_height="38dp"
    android:ems="10"
    android:inputType="textPersonName"
    android:text=""
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.878"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.09" />

```

</androidx.constraintlayout.widget.ConstraintLayout>

MainActivity.java

```
package com.example.myfirstapp;

import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;

public class MainActivity extends AppCompatActivity {

    Button b1,b2,b3,b4;

    EditText ed1,ed2,ed3;

    int a,b,c;

    @Override

    protected void onCreate(Bundle savedInstanceState) {

        super.onCreate(savedInstanceState);

        setContentView(R.layout.activity_main);

        b1=(Button)findViewById(R.id.btnsubmit);

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

        b3=(Button)findViewById(R.id.b3);

        b4=(Button)findViewById(R.id.b4);

        ed1=(EditText) findViewById(R.id.ed1);

        ed2=(EditText) findViewById(R.id.ed2);

        ed3=(EditText) findViewById(R.id.result);

        b1.setOnClickListener(new View.OnClickListener() {

            @Override

            public void onClick(View view) {

                a=Integer.parseInt(ed1.getText().toString());
```



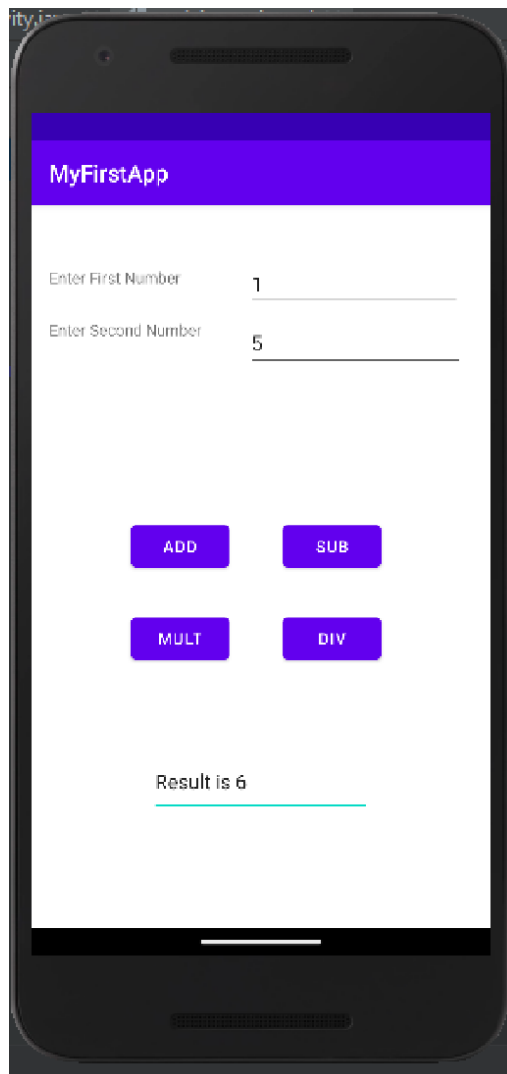
```

        b=Integer.parseInt(ed2.getText().toString());
        c=a+b;
        ed3.setText("Result is "+c);
    }
});
b2.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {
        a=Integer.parseInt(ed1.getText().toString());
        b=Integer.parseInt(ed2.getText().toString());
        c=a-b;
        ed3.setText("Result is "+c);
    }
});
b3.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {
        a=Integer.parseInt(ed1.getText().toString());
        b=Integer.parseInt(ed2.getText().toString());
        c=a*b;
        ed3.setText("Result is "+c);
    }
});
b4.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {
        a=Integer.parseInt(ed1.getText().toString());
        b=Integer.parseInt(ed2.getText().toString());
        c=a/b;

```

```
        ed3.setText("Result is "+c);  
    }  
    });  
}  
}
```

Output



Program 2

Aim: To create a temperature converter

Activity main.xml

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

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

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

    <TextView
        android:id="@+id/t1"
        android:layout_width="149dp"
        android:layout_height="48dp"
        android:text="ENTER TEMP HERE"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.045"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.292" />

    <EditText
        android:id="@+id/et1"
        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="0.92"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.291" />
<Button
    android:id="@+id/btn1"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="TO FARENHEIT"
    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="0.469" />
<Button
    android:id="@+id/btn2"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="TO CELSIUS"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.507"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.606" />
<TextView
    android:id="@+id/t2"

```

```

        android:layout_width="117dp"
        android:layout_height="36dp"
        android:text="RESULT"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.057"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.93" />
<EditText
    android:id="@+id/et2"
    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="0.92"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.934" />
</androidx.constraintlayout.widget.ConstraintLayout>

```

MainActivity.java

```

package com.example.temperatureconverter;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;

import android.view.View;

```

```

import android.widget.Button;
import android.widget.EditText;

public class MainActivity extends AppCompatActivity {

    Button b1,b2;

    EditText et1,et2;

    Double a,b;

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

        b1=(Button) findViewById(R.id.btn1);
        b2=(Button) findViewById(R.id.btn2);
        et1=(EditText) findViewById(R.id.et1);
        et2=(EditText) findViewById(R.id.et2);

        b1.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                a=Double.parseDouble(String.valueOf(et1.getText()));
                b=a*(1.8)+32;
                et2.setText("Result is "+b);
            }
        });

        b2.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                a=Double.parseDouble(String.valueOf(et1.getText()));
                b=(a-32)*(0.55555);
                et2.setText("Result is "+b);
            }
        });
    }
}

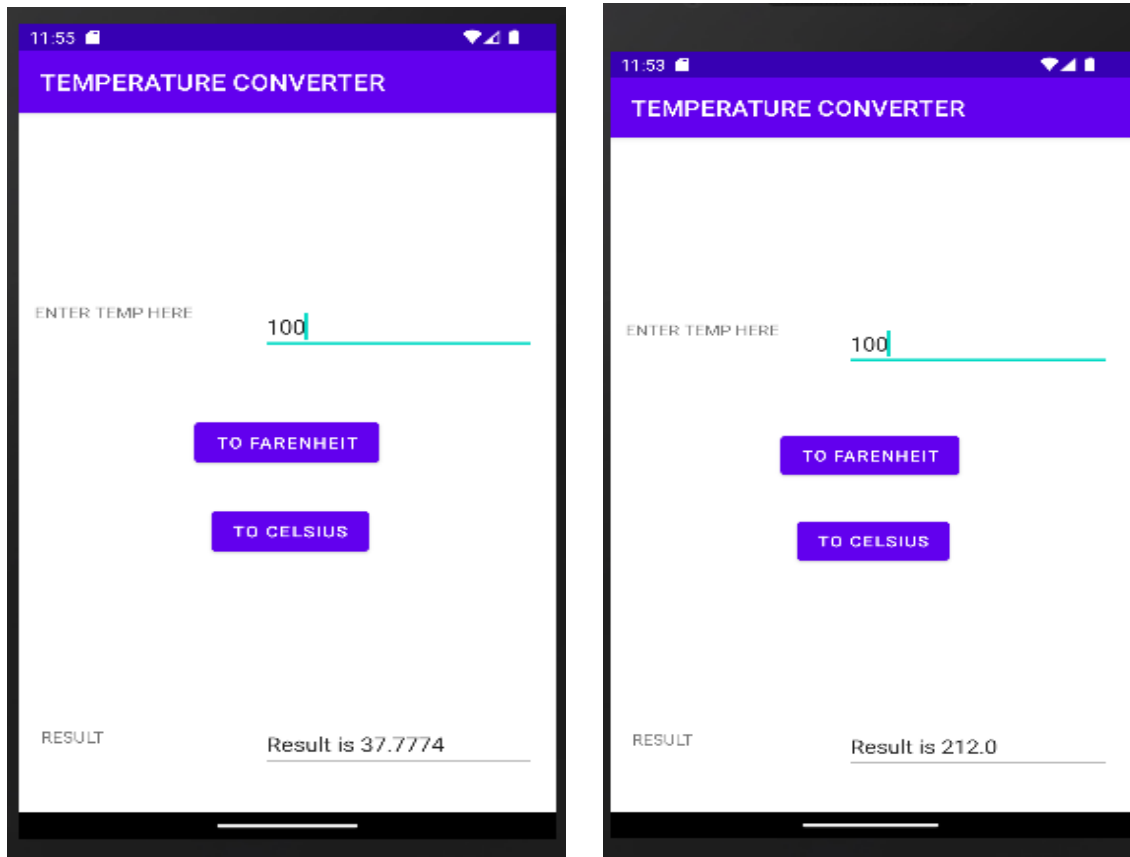
```

```

    });
}
}

```

Output



Program 3

AIM: Create explicit intent android project which contain a button that moves to next page of an activity

Activity main.xml

```

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

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

```

```

xmlns:app="http://schemas.android.com/apk/res-auto"
xmlns:tools="http://schemas.android.com/tools"
android:layout_width="match_parent"
android:layout_height="match_parent"
tools:context=".MainActivity">
<Button
    android:id="@+id/btn1"
    android:layout_width="232dp"
    android:layout_height="52dp"
    android:text="Go To Next Page"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent" />
</androidx.constraintlayout.widget.ConstraintLayout>

```

Activity second.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=".SecondActivity">
<Button
    android:id="@+id/btn2"
    android:layout_width="227dp"
    android:layout_height="60dp"

```



```

        android:text="Go To Home Page"

        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />
</androidx.constraintlayout.widget.ConstraintLayout>

```

MainActivity.java

```

package com.example.firstactivity;

import androidx.appcompat.app.AppCompatActivity;
import android.content.Intent;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;

public class MainActivity extends AppCompatActivity {

    Button bnext;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        bnext=(Button) findViewById(R.id.btn1);
        bnext.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                Intent in=new Intent(MainActivity.this,SecondActivity.class);
                startActivity(in);
            }
        });
    }
}

```

SecondActivity.java

```
package com.example.firstactivity;

import androidx.appcompat.app.AppCompatActivity;
import android.content.Intent;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;

public class SecondActivity extends AppCompatActivity {

    Button bback;

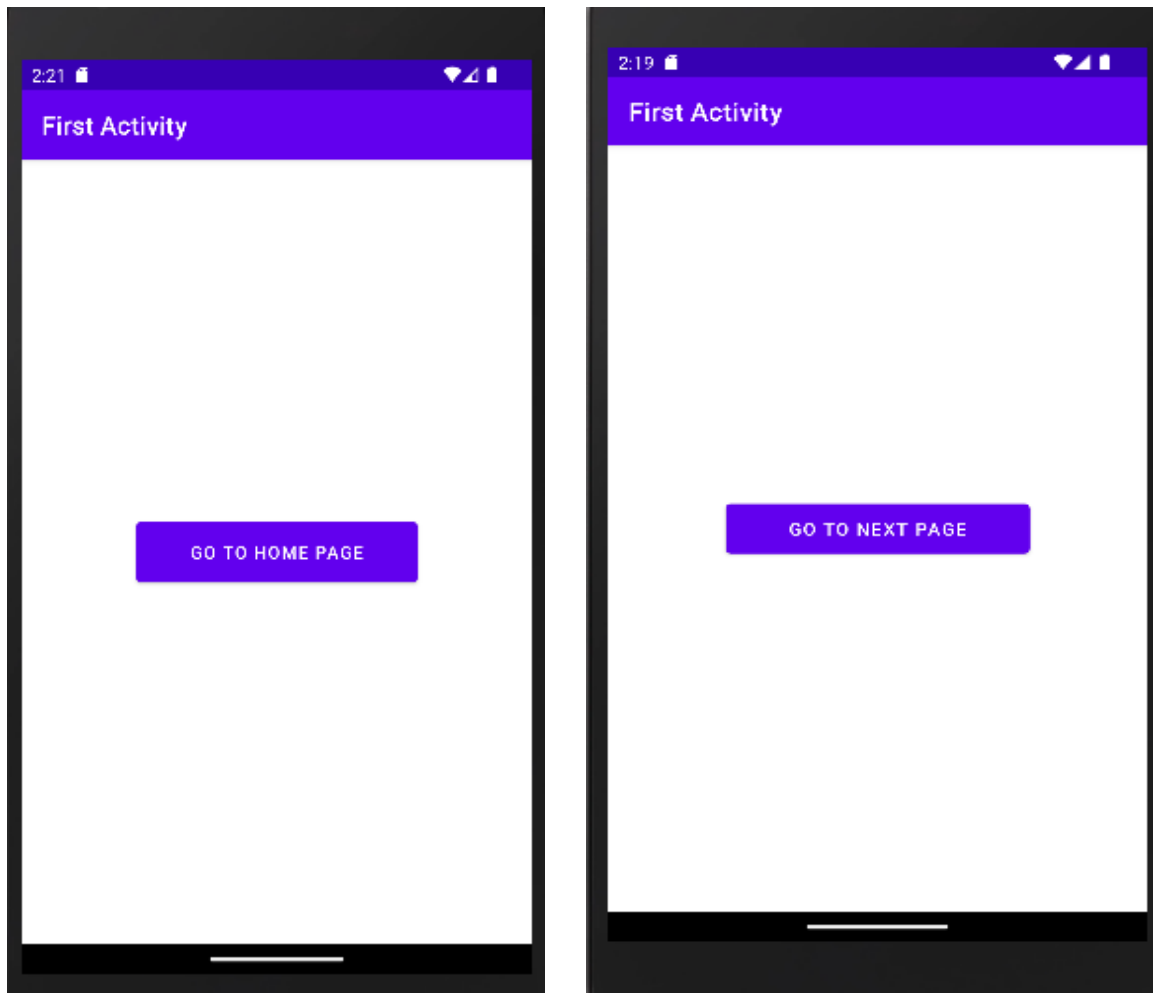
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_second);

        bback=(Button)findViewById(R.id.btn2);
        bback.setOnClickListener(new View.OnClickListener() {

            @Override
            public void onClick(View view) {

                Intent a=new Intent(SecondActivity.this,MainActivity.class);
                startActivity(a);
            }
        });
    }
}
```

Output



Program 4

AIM: Create implicit intent android project which contain a button that moves to next page of an activity

Activity main.xml

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

<androidx.constraintlayout.widget.ConstraintLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
```

```

android:layout_height="match_parent"
tools:context=".MainActivity">
<Button
    android:id="@+id/b3"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Message"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.492"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.704" />
<Button
    android:id="@+id/b1"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Browser"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.492"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.213" />
<Button
    android:id="@+id/b2"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Dial"

```

```
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.492"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.461" />
</androidx.constraintlayout.widget.ConstraintLayout>
```

MainActivity.java

```
package com.example.implicitindent;

import androidx.appcompat.app.AppCompatActivity;
import android.content.Intent;
import android.net.Uri;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;

public class MainActivity extends AppCompatActivity {

    Button btn1;
    Button btn2;
    Button btn3;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        btn1=(Button) findViewById(R.id.b1);
        btn2=(Button) findViewById(R.id.b2);
        btn3=(Button) findViewById(R.id.b3);
        btn1.setOnClickListener(new View.OnClickListener(){

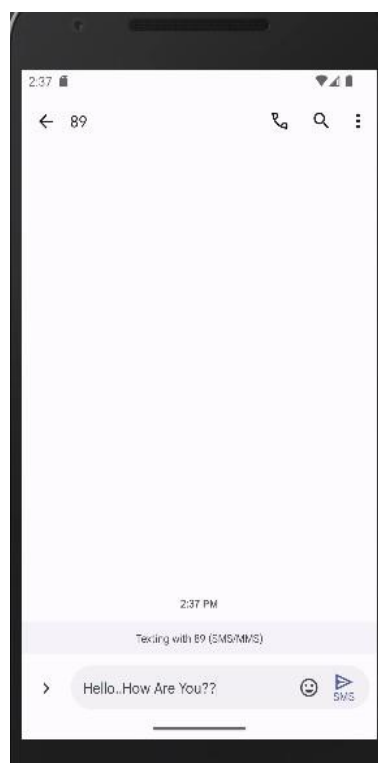
            @Override
            public void onClick(View v){
```

```

        Intent in=new Intent(Intent.ACTION_VIEW, Uri.parse("https://login.aesajce.in/"));
        startActivity(in);
    }
});
btn2.setOnClickListener(new View.OnClickListener(){
    @Override
    public void onClick(View v){
        Intent in=new Intent(Intent.ACTION_DIAL, Uri.parse("tel:987654321"));
        startActivity(in);
    }
});
btn3.setOnClickListener(new View.OnClickListener(){
    @Override
    public void onClick(View v){
        Intent in=new Intent(Intent.ACTION_SEND);
        in.setType("text/plain");
        in.putExtra(Intent.EXTRA_TEXT,"Hello..How Are You??");
        startActivity(in);
    }
});
}
}

```

Output



Program 5

AIM: Change background color on button click

Activity main.xml

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

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

    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:id="@+id/bg"
    android:layout_width="match_parent"
android:layout_height="match_parent"
    tools:context=".MainActivity">

    <Button
        android:id="@+id/btnblue"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="BLUE"
        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="0.642" />

    <Button
        android:id="@+id/btngreen"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="GREEN"
        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="0.404" />
<Button
    android:id="@+id/btnred"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="RED"
    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="0.207" />
</androidx.constraintlayout.widget.ConstraintLayout>

```

MainActivity.java

```

package com.example.colorchange;

import androidx.appcompat.app.AppCompatActivity;
import androidx.constraintlayout.widget.ConstraintLayout;
import android.content.Intent;
import android.graphics.Color;
import android.net.Uri;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;

public class MainActivity extends AppCompatActivity {

    Button b1,b2,b3;

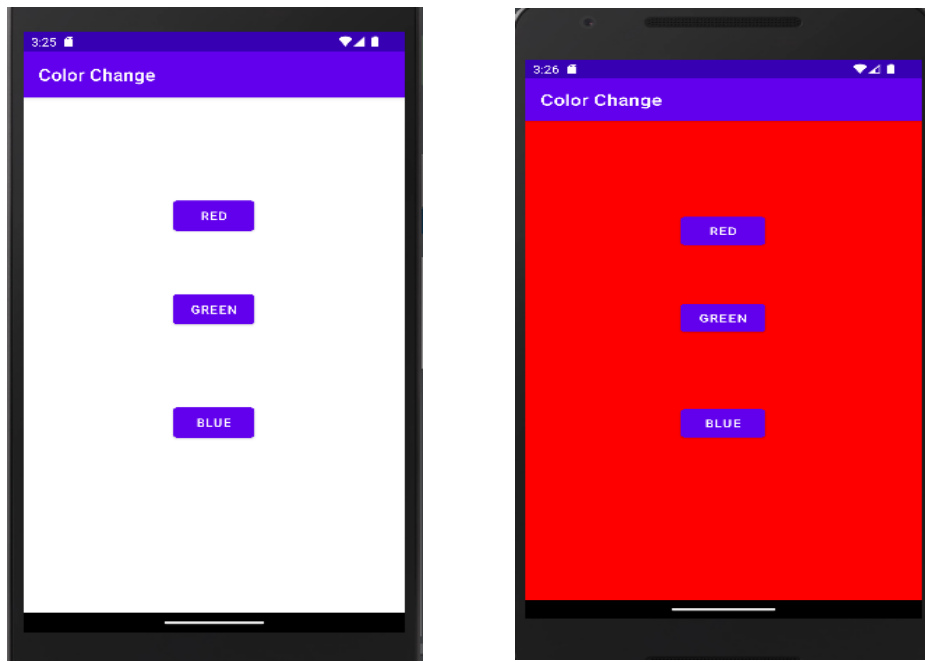
```

```

@Override
protected void onCreate(Bundle savedInstanceState) {
    super.onCreate(savedInstanceState);
    setContentView(R.layout.activity_main);
    ConstraintLayout cl =(ConstraintLayout) findViewById(R.id.bg);
    b1 =(Button) findViewById(R.id.btnred);
    b2 =(Button) findViewById(R.id.btngreen);
    b3 =(Button) findViewById(R.id.btnblue);
    b1.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View v) {
            cl.setBackgroundColor(Color.RED);
        }
    });
    b2.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View v) {
            cl.setBackgroundColor(Color.GREEN);
        }
    });
    b3.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View v) {
            cl.setBackgroundColor(Color.BLUE);
        }
    });
}
}

```

Output



Program 6

AIM: To check ARMSTRONG, FACTORIAL, ODD or EVEN

Activity_main.xml

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

<androidx.constraintlayout.widget.ConstraintLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:background="#FFFFFF"
    tools:context=".MainActivity">

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

```

        android:layout_height="wrap_content"
        android:text="OPERATIONS"
        android:textColor="#F44336"
        android:textSize="24sp"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.038" />
<TextView
    android:id="@+id/textView2"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Enter Number"
    android:textColor="#673AB7"
    android:textSize="20sp"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.135"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.193" />
<TextView
    android:id="@+id/result"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:background="#FF5722"
    android:textColor="#FFFFFF"
    android:textSize="20sp"

```

```

        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.359" />
<EditText
    android:id="@+id/number"
    android:layout_width="297dp"
    android:layout_height="47dp"
    android:ems="10"
    android:hint="Enter Number"
    android:inputType="textPersonName"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.342"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.274" />
<Button
    android:id="@+id/armstrong"
    android:layout_width="278dp"
    android:layout_height="59dp"
    android:backgroundTint="#4CAF50"
    android:text="Armstrong"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.436"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="@+id/textView"

```

```

        app:layout_constraintVertical_bias="0.435" />
<Button
    android:id="@+id/factorial"
    android:layout_width="278dp"
    android:layout_height="59dp"
    android:backgroundTint="#FF9800"
    android:text="FACTORIAL"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.436"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="@+id/textView"
    app:layout_constraintVertical_bias="0.568" />
<Button
    android:id="@+id/oddeven"
    android:layout_width="278dp"
    android:layout_height="59dp"
    android:backgroundTint="#03A9F4"
    android:text="ODD / EVEN"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.436"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="@+id/textView"
    app:layout_constraintVertical_bias="0.708" />
</androidx.constraintlayout.widget.ConstraintLayout>

```

MainActivity.java

```

package com.example.operations;

import androidx.appcompat.app.AppCompatActivity;

```

```

import android.annotation.SuppressLint;

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 {

    Button armstrong,factorial,oddeven;

    EditText number;

    TextView res;

    @Override

    protected void onCreate(Bundle savedInstanceState) {

        super.onCreate(savedInstanceState);

        setContentView(R.layout.activity_main);

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

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

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

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

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

        armstrong.setOnClickListener(new View.OnClickListener() {

            @Override

            public void onClick(View v) {

                int reminder=0,result=0,temp=0;

                int num=Integer.parseInt(number.getText().toString());

                temp = num;

                while(temp!=0)

                {

                    reminder=temp % 10;

                    result += (Math.pow(reminder,3));

```

```

        temp/=10;
    }
    if(result==num)
    {
        res.setText(num+" is an armstong number");
    }
    else
    {
        res.setText(num+" is not an armstrong number");
    }
}
});

factorial.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        int fact=1;
        int value=Integer.parseInt(number.getText().toString());
        for (int i=1;i<value;i++){
            fact*=i;
        }
        res.setText("Factorial is "+fact);
    }
});

oddeven.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        int value=Integer.parseInt(number.getText().toString());
        if(value%2==0){
            res.setText(value+" is an even number");

```

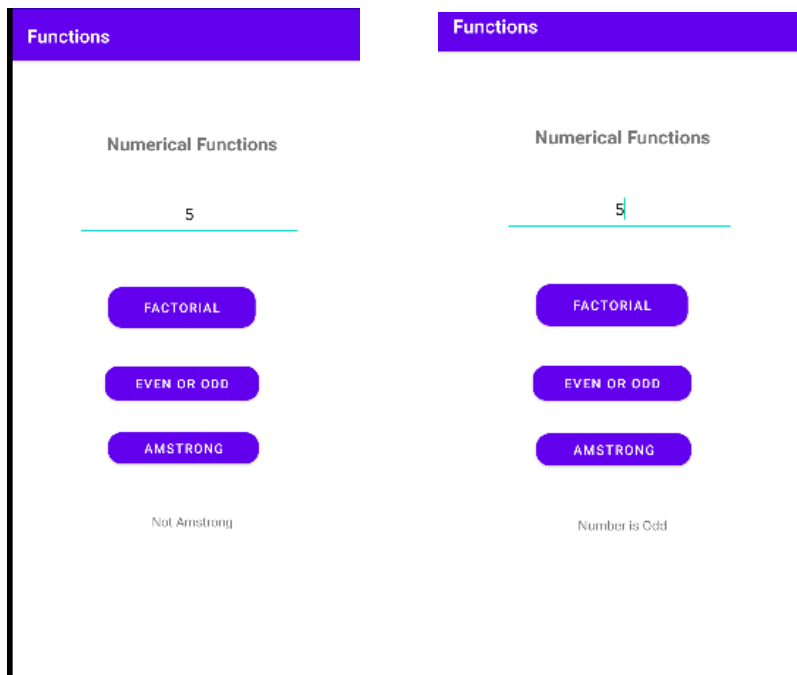


```

    }
    else{
        res.setText(value+" is an Odd number");
    }
}
});
}
}

```

Output



Program 7

AIM: Create explicit intent android project which take input from a registration page and displays the output on another page

Activity main.xml

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

```

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

    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:id="@+id/button"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">
<Button
    android:id="@+id/buttonmain"
    android:layout_width="130dp"
    android:layout_height="65dp"
    android:text="Next"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.469"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.81" />
<EditText
    android:id="@+id/editText"
    android:layout_width="234dp"
    android:layout_height="51dp"
    android:ems="10"
    android:inputType="textPersonName"
    android:text="Name"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.497"

```

```

        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.185" />
<EditText
    android:id="@+id/editTextAge"
    android:layout_width="228dp"
    android:layout_height="55dp"
    android:ems="10"
    android:inputType="textPersonName"
    android:text="Age"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.497"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.327" />
<Spinner
    android:id="@+id/spinner"
    android:layout_width="319dp"
    android:layout_height="45dp"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.63"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.673" />
<RadioGroup
    android:layout_width="125dp"
    android:layout_height="121dp"

```

```
app:layout_constraintBottom_toBottomOf="parent"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintHorizontal_bias="0.443"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toTopOf="parent"
app:layout_constraintVertical_bias="0.48">
```

```
<RadioButton
    android:id="@+id/radioButton"
    android:layout_width="121dp"
    android:layout_height="50dp"
    android:text="Male" />
```

```
<RadioButton
    android:id="@+id/radioBtn"
    android:layout_width="118dp"
    android:layout_height="60dp"
    android:text="Female" />
```

```
</RadioGroup>
```

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

Activity_second.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=".secondActivity">
    <Button
```

```

        android:id="@+id/button2"
        android:layout_width="137dp"
        android:layout_height="77dp"
        android:text="back Home"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.547" />
<EditText
    android:id="@+id/editTextName"
    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="0.497"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.217" />
<EditText
    android:id="@+id/editAge"
    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="0.497"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.311" />
<EditText
    android:id="@+id/editGender"
    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="0.497"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.402" />
</androidx.constraintlayout.widget.ConstraintLayout>

```

MainActivity.java

```

package com.example.mainintent;

import androidx.appcompat.app.AppCompatActivity;
import android.content.Intent;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.RadioButton;

public class MainActivity extends AppCompatActivity {

```

```

Button btn;

EditText nm, Age;

RadioButton m, f;

String Radioval;

@Override

protected void onCreate(Bundle savedInstanceState) {

    super.onCreate(savedInstanceState);

    setContentView(R.layout.activity_main);

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

    nm = (EditText) findViewById(R.id.editText);

    Age = (EditText) findViewById(R.id.editTextAge);

    m = (RadioButton) findViewById(R.id.radioButton);

    f = (RadioButton) findViewById(R.id.radioBtn);

    btn.setOnClickListener(new View.OnClickListener() {

        @Override

        public void onClick(View view) {

            if(m.isChecked()){

                Radioval=m.getText().toString();

            }

            else if(f.isChecked()){

                Radioval = f.getText().toString();

            }

            String nameval = nm.getText().toString();

            String age = Age.getText().toString();

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

            in.putExtra("Name",nameval);

            in.putExtra("Age", age);

            in.putExtra("Gender",Radioval);

            startActivity(in);

```

```

        }

    });

}
}

```

ActivitySecond.java

```

package com.example.mainintent;

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 secondActivity extends AppCompatActivity {

    Button btn;

    EditText nm,age,gender;

    @Override

    protected void onCreate(Bundle savedInstanceState) {

        super.onCreate(savedInstanceState);

        setContentView(R.layout.activity_second);

        Intent in = getIntent();

        btn = (Button) findViewById(R.id.button2);

        nm = (EditText) findViewById(R.id.editTextName);

        age = (EditText) findViewById(R.id.editAge);

        gender = (EditText) findViewById(R.id.editGender);

        String name = in.getStringExtra("Name");

        String ageVal = in.getStringExtra("Age");

        String genderVal = in.getStringExtra("Gender");

        nm.setText(name);
    }
}

```

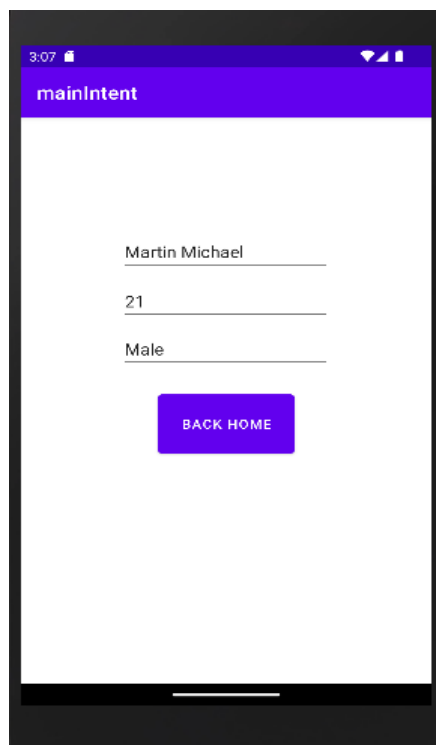
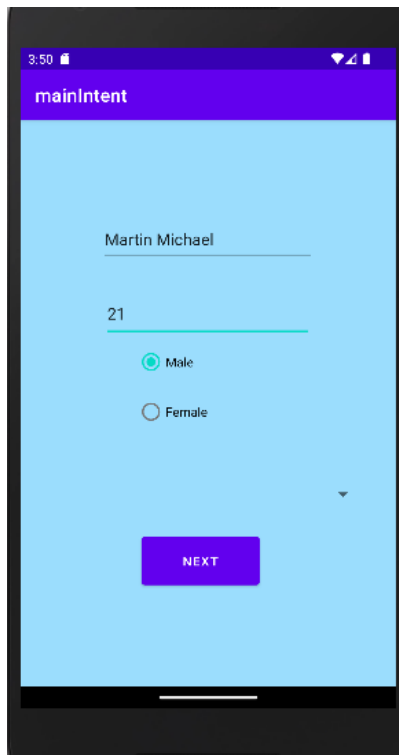


```

        age.setText(ageVal);
        gender.setText(genderVal);
    btn.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View view) {
            Intent in = new Intent(secondActivity.this,MainActivity.class);
            startActivity(in);
        }
    });
}
}

```

Output



Program 8

AIM: Date Picker

Activity main.xml

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

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

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

    <DatePicker
        android:id="@+id/simpleDP"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.491"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.083"
    />

    <TextView
        android:id="@+id/txtsimplifiedate"
        android:layout_width="104dp"
        android:layout_height="32dp"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.563"
```

```

        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.871" />
<Button
    android:id="@+id/btnsubmit"
    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="0.509"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.749" />
</androidx.constraintlayout.widget.ConstraintLayout>

```

MainActivity.java

```

package com.example.datepicker;

import androidx.appcompat.app.AppCompatActivity;
import android.graphics.Color;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.DatePicker;
import android.widget.TextView;
import android.widget.Toast;

public class MainActivity extends AppCompatActivity {

    DatePicker simpleDatePicker;

    Button submit;

```

```

TextView txtdate;

@Override

protected void onCreate(Bundle savedInstanceState) {

    super.onCreate(savedInstanceState);

    setContentView(R.layout.activity_main);

    DatePicker ssimpleDatePicker=(DatePicker)findViewById(R.id.simpleDP); // initiate a date picker

    ssimpleDatePicker.setBackgroundColor(Color.YELLOW);

    txtdate = (TextView) findViewById(R.id.txtsimplifiedate);

    simpleDatePicker = (DatePicker) findViewById(R.id.simpleDP);

    submit = (Button) findViewById(R.id.btnsubmit);

    // perform click event on submit button

    submit.setOnClickListener(new View.OnClickListener() {

        @Override

        public void onClick(View v) {

            // get the values for day of month , month and year from a date picker

            String day = "" + simpleDatePicker.getDayOfMonth();

            String month = "/" + (simpleDatePicker.getMonth() + 1);

            String year = "/" + simpleDatePicker.getYear();

            // display the values by using a toast

            // Toast.makeText(getApplicationContext(), day + "\n" + month + "\n" + year,
Toast.LENGTH_LONG).show();

            Toast.makeText(getApplicationContext(), day + "" + month + "" + year,
Toast.LENGTH_LONG).show();

            txtdate.setText(day + "" + month + "" + year);

        }

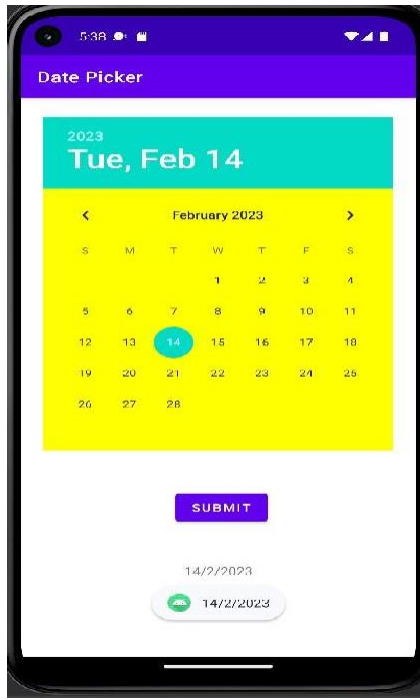
    });

}

}

```

Output



Program 9

AIM: Develop an application to illustrate android lifecycle.

Activity main.xml

```
package com.example.demo;

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

public class MainActivity extends AppCompatActivity {

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

```
@Override
protected void onStart() {
    super.onStart();
    Log.d("lifecycle", "onStart invoked");
}

@Override
protected void onResume() {
    super.onResume();
    Log.d("lifecycle", "onResume invoked");
}

@Override
protected void onPause() {
    super.onPause();
    Log.d("lifecycle", "onPause invoked");
}

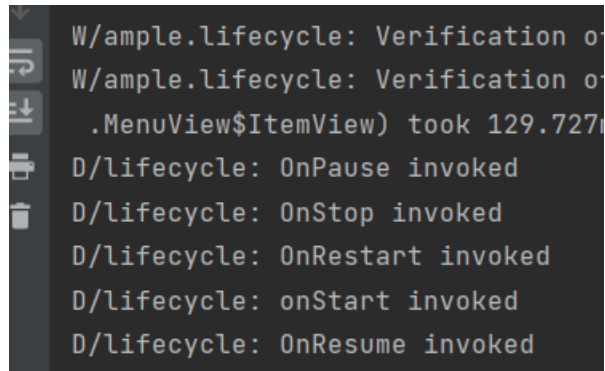
@Override
protected void onStop() {
    super.onStop();
    Log.d("lifecycle", "onStop invoked");
}

@Override
protected void onRestart() {
    super.onRestart();
    Log.d("lifecycle", "onRestart invoked");
}

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

```
}  
}
```

Output

A screenshot of the Android Studio logcat window. It shows a sequence of lifecycle events for an application. The events are: W/ample.lifecycle: Verification of..., W/ample.lifecycle: Verification of..., .MenuView\$ItemView) took 129.727..., D/lifecycle: onPause invoked, D/lifecycle: onStop invoked, D/lifecycle: onRestart invoked, D/lifecycle: onStart invoked, and D/lifecycle: onResume invoked. The logcat interface includes standard Android Studio icons on the left and a dark background with light-colored text.

```
W/ample.lifecycle: Verification of  
W/ample.lifecycle: Verification of  
.MenuView$ItemView) took 129.727  
D/lifecycle: onPause invoked  
D/lifecycle: onStop invoked  
D/lifecycle: onRestart invoked  
D/lifecycle: onStart invoked  
D/lifecycle: onResume invoked
```

Program 10

AIM: Develop an application to perform arithmetic operations with options Menu

Activity main.xml

```
<?xml version="1.0" encoding="utf-8"?>  
  
<androidx.constraintlayout.widget.ConstraintLayout  
xmlns:android="http://schemas.android.com/apk/res/android"  
  
xmlns:app="http://schemas.android.com/apk/res-auto"  
xmlns:tools="http://schemas.android.com/tools" android:layout_width="match_parent"  
android:layout_height="match_parent" tools:context=".MainActivity">  
  
<EditText android:id="@+id/n2"  
  
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="0.92"  
app:layout_constraintStart_toStartOf="parent" app:layout_constraintTop_toTopOf="parent"  
app:layout_constraintVertical_bias="0.386" />  
  
<EditText android:id="@+id/n3"  
  
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="0.855"  
app:layout_constraintStart_toStartOf="parent" app:layout_constraintTop_toTopOf="parent"  
app:layout_constraintVertical_bias="0.747" />  
  
<TextView android:id="@+id/textView3"
```

```

android:layout_width="wrap_content" android:layout_height="wrap_content" android:text="Result"
app:layout_constraintBottom_toBottomOf="parent" app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintHorizontal_bias="0.155" app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toTopOf="parent" app:layout_constraintVertical_bias="0.757" />

<TextView android:id="@+id/textView2"

android:layout_width="wrap_content" android:layout_height="wrap_content" android:text="Second
Number" app:layout_constraintBottom_toBottomOf="parent"
app:layout_constraintEnd_toEndOf="parent" app:layout_constraintHorizontal_bias="0.188"
app:layout_constraintStart_toStartOf="parent" app:layout_constraintTop_toTopOf="parent"
app:layout_constraintVertical_bias="0.391" />

<TextView android:id="@+id/textView"

android:layout_width="wrap_content" android:layout_height="wrap_content" android:text="First
Number" app:layout_constraintBottom_toBottomOf="parent"
app:layout_constraintEnd_toEndOf="parent" app:layout_constraintHorizontal_bias="0.188"
app:layout_constraintStart_toStartOf="parent" app:layout_constraintTop_toTopOf="parent"
app:layout_constraintVertical_bias="0.28" />

<EditText android:id="@+id/n1"

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="0.85"
app:layout_constraintStart_toStartOf="parent" app:layout_constraintTop_toTopOf="parent"
app:layout_constraintVertical_bias="0.263" />

</androidx.constraintlayout.widget.ConstraintLayout>

```

MainActivity.java

```

package com.example.menucalculator;

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

import android.os.Bundle; import android.view.Menu; import android.view.MenuItem; import
android.widget.EditText;

public class MainActivity extends AppCompatActivity { EditText t1,t2,t3;

@Override

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

t1=(EditText) findViewById(R.id.n1); t2=(EditText) findViewById(R.id.n2); t3=(EditText)
findViewById(R.id.n3);

```



```

}

@Override

public boolean onCreateOptionsMenu(Menu menu)

{

    getMenuInflater().inflate(R.menu.functions,menu); return true;

}

@Override

public boolean onOptionsItemSelected(MenuItem item)

{

    int a,b,c; a=Integer.parseInt(t1.getText().toString()); b=Integer.parseInt(t2.getText().toString());

    switch(item.getItemId())

    {

        case R.id.add: c=a+b; t3.setText(c);

        case R.id.Subtract: c=a-b; t3.setText(c);

        case R.id.Multiply: c=a*b; t3.setText(c);

        case R.id.Divide: c=a/b; t3.setText(c);

        default: return false;

    }

}

}

}

```

Functions.xml

```

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

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

<item android:id="@+id/add" android:title="ADD" />

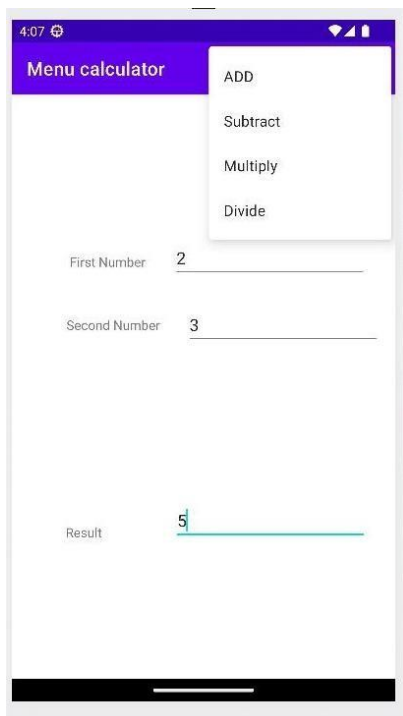

<item android:id="@+id/Subtract" android:title="Subtract" />

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

```

```
<item android:id="@+id/Divide" android:title="Divide" />
</menu>
```

Output



Program 11

AIM: Develop an application to show a list of fruits and vegetables in popup menu.

Activity_main.xml

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

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

```

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

<Button android:id="@+id/button"

android:layout_width="wrap_content" android:layout_height="wrap_content" android:text="Button"
tools:layout_editor_absoluteX="158dp" tools:layout_editor_absoluteY="341dp" />

</androidx.constraintlayout.widget.ConstraintLayout>

```

MainActivity.java

```

package com.example.popupmenu;

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

import android.view.MenuItem; import android.view.View; import android.widget.Button;

import android.widget.PopupMenu; import android.widget.Toast;

public class MainActivity extends AppCompatActivity { Button button;

@Override

protected void onCreate(Bundle savedInstanceState) { super.onCreate(savedInstanceState);
setContentView(R.layout.activity_main); button=(Button) findViewById((R.id.button));
button.setOnClickListener(new View.OnClickListener() {

@Override

public void onClick(View v) {

PopupMenu popup=new PopupMenu(MainActivity.this,button);
popup.getMenuInflater().inflate(R.menu.popupmenu,popup.getMenu());

popup.setOnMenuItemClickListener(new PopupMenu.OnMenuItemClickListener() { @Override

public boolean onMenuItemClick(MenuItem item) { Toast.makeText(MainActivity.this, "You Clicked" +
item.getTitle(),

Toast.LENGTH_SHORT).show();

return true;

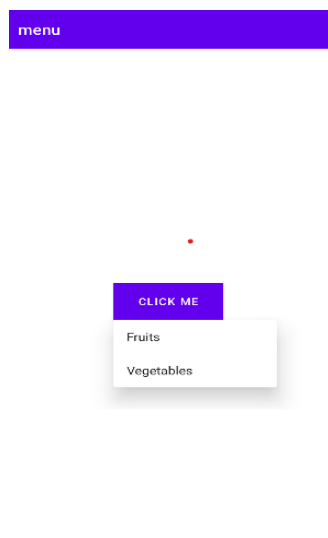
```

```
}  
  
});  
  
});  
  
}  
  
}  
  
popup.show();  
  
}
```

PopupMenu.xml

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

Output



Program 12

AIM:Develop an application to show phone contacts using context menu.

MainActivity.java

```
package com.test.app2;
import androidx.annotation.NonNull;
import androidx.appcompat.app.AppCompatActivity;
import android.content.Context;
import android.os.Bundle;
import android.view.ContextMenu;
import android.view.Menu;
import android.view.MenuInflater;
import android.view.MenuItem;
import android.view.View;
import android.widget.AdapterView;
import android.widget.Button;
import android.widget.ListView;
import android.widget.PopupMenu;
import android.widget.Toast;

public class MainActivity extends AppCompatActivity {
    ListView lv;
    Button b1;
    String contacts[] = {"Anandhu", "Amal", "Anit", "Ananthalakshmi"};

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        b1 = (Button) findViewById(R.id.btn1);
        b1.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                PopupMenu popup = new PopupMenu(MainActivity.this, b1);
                popup.getMenuInflater().inflate(R.menu.popupmenu, popup.getMenu());
                popup.setOnMenuItemClickListener(new PopupMenu.OnMenuItemClickListener() {
                    @Override
                    public boolean onMenuItemClick(MenuItem item) {
                        Toast.makeText(MainActivity.this, "You Clicked " + item.getTitle(),
Toast.LENGTH_LONG).show();
                        return true;
                    }
                });
            }
        });
    }
}
```

```

        popup.show();
    }
});
lv = (ListView) findViewById(R.id.lv);
ArrayAdapter<String> adapter = new ArrayAdapter<String>(this,
android.R.layout.simple_list_item_1, contacts);
lv.setAdapter(adapter);

registerForContextMenu(lv);
}

@Override
public void onCreateContextMenu(ContextMenu menu, View v, ContextMenu.ContextMenuInfo
menuinfo) {
    super.onCreateContextMenu(menu, v, menuinfo);
    MenuInflater inflater = getMenuInflater();
    inflater.inflate(R.menu.cmenu, menu);
    menu.setHeaderTitle("select the Action");
}

@Override
public boolean onContextItemSelected(Menuitem item) {
    if (item.getItemId() == R.id.cl) {
        Toast.makeText(getApplicationContext(), "Calling", Toast.LENGTH_SHORT).show();
    } else if (item.getItemId() == R.id.ms) {
        Toast.makeText(getApplicationContext(), "Message Sent", Toast.LENGTH_SHORT).show();
    } else {
        return false;
    }
    return true;
}

@Override
public boolean onCreateOptionsMenu(Menu menu)
{
    getMenuInflater().inflate(R.menu.opt1menu, menu);
    return true;
}

@Override
public boolean onOptionsItemSelected(Menuitem item)
{
    Toast.makeText(this, "Selected Item " + item.getTitle(), Toast.LENGTH_LONG).show();
    switch (item.getItemId()){
        case R.id.cp:
            return true;
    }
}

```

```

        case R.id.ps:
            return true;
        case R.id.ct:
            return true;
        case R.id.sh:
            return true;
        default:
            return super.onOptionsItemSelected(item);
    }
}
}

```

Activity main.xml

```

<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout
xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">
    <ListView
        android:id="@+id/lv"
        android:layout_width="347dp"
        android:layout_height="316dp"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.151" />
    <Button
        android:id="@+id/btn1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Click"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.458"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.721" />

```

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

Cmenu.xml

```
<?xml version="1.0" encoding="utf-8"?>
<menu xmlns:app="http://schemas.android.com/apk/res-auto"
      xmlns:android="http://schemas.android.com/apk/res/android">
    <item
        android:id="@+id/cl"
        android:title="Call" />
    <item
        android:id="@+id/ms"
        android:title="Message" />
</menu>
```

Opt1menu.xml

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

    <item
        android:id="@+id/cp"
        android:title="Copy" />
    <item
        android:id="@+id/ps"
        android:title="Paste" />
    <item
        android:id="@+id/ct"
        android:title="Cut" />
    <item
        android:id="@+id/sh"
        android:title="Share" />
</menu>
```

Mfile.xml

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

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

    <item
```



```

        android:id="@+id/one"

        android:title="Go Back" />

<item

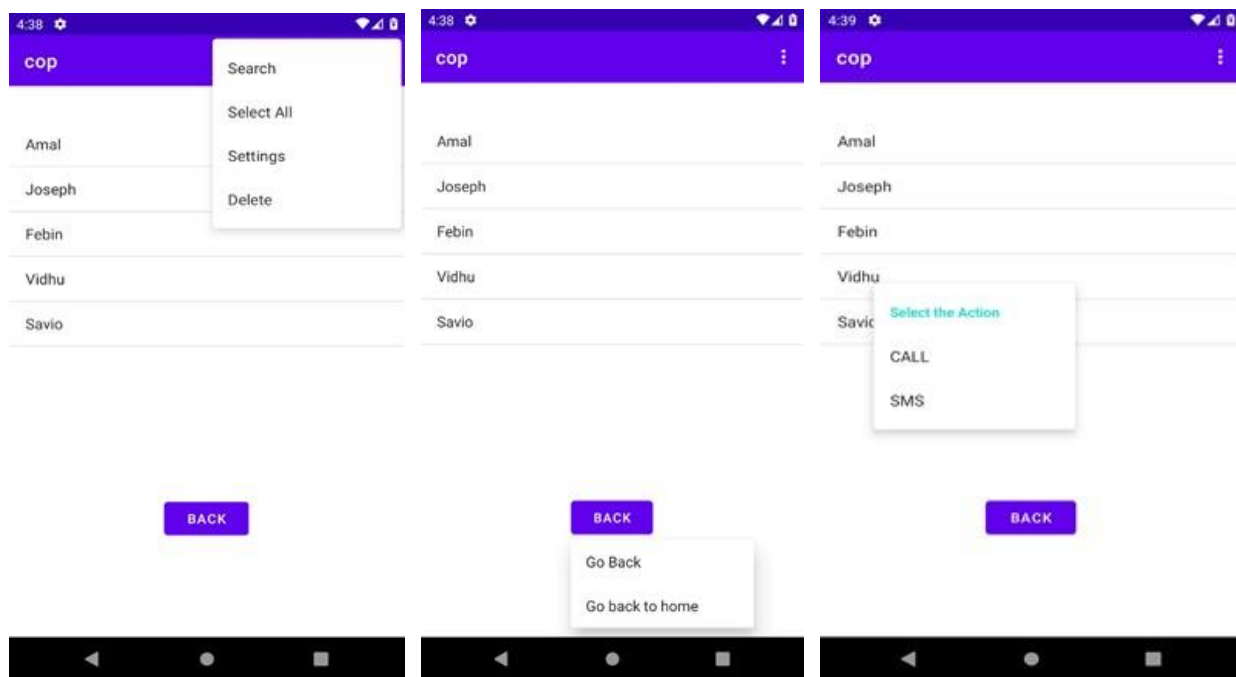
        android:id="@+id/two"

        android:title="Go back to home" />

</menu>

```

Output



Program 13

AIM: Develop an FM Radio with scan button to save the stations and select the saved stations using PREVIOUS and NEXT Buttons.

Activity main.xml

```

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

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

```

```

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

    <Button android:id="@+id/btn_pre" android:layout_width="90dp" android:layout_height="49dp"
    android:text="pre" android:textSize="16sp"

        app:layout_constraintBottom_toBottomOf="parent" app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.563" app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" app:layout_constraintVertical_bias="0.307" />

    <Button android:id="@+id/btn_nxt" android:layout_width="90dp" android:layout_height="49dp"
    android:text="nxt" android:textSize="16sp"

        app:layout_constraintBottom_toBottomOf="parent" app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.887" app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" app:layout_constraintVertical_bias="0.307" />

    <TextView android:id="@+id/head_txtv" android:layout_width="409dp"
    android:layout_height="80dp" android:background="#63F17B" android:gravity="center"
    android:text="FM Radio Frequency" android:textAlignment="gravity" android:textColor="#FFFFFF"
    android:textSize="24sp" android:textStyle="bold|italic"

        app:layout_constraintBottom_toBottomOf="parent" app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.011" app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" app:layout_constraintVertical_bias="0.003" />

    <EditText android:id="@+id/freq_edtxt" android:layout_width="253dp"
    android:layout_height="52dp" android:ems="10" android:gravity="center" android:hint="FM
    Frequency"

        android:inputType="textPersonName" app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent" app:layout_constraintHorizontal_bias="0.452"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/head_txtv" app:layout_constraintVertical_bias="0.072"
        />

    <Button android:id="@+id/btn_scan" android:layout_width="135dp" android:layout_height="53dp"
    android:text="Scan"

        app:layout_constraintBottom_toBottomOf="parent" app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.101" app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" app:layout_constraintVertical_bias="0.309" />

    <TextView android:id="@+id/list_txt"

        android:layout_width="149dp" android:layout_height="230dp" android:gravity="center|top"
        android:textSize="14sp" app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent" app:layout_constraintHorizontal_bias="0.9"

```

```
app:layout_constraintStart_toStartOf="parent" app:layout_constraintTop_toTopOf="parent"
app:layout_constraintVertical_bias="0.706" />
```

```
<TextView
```

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

```
    android:layout_width="149dp"
```

```
    android:layout_height="38dp"
```

```
    android:gravity="bottom|center"
```

```
    android:text="Channel List"
```

```
    android:textStyle="bold|italic"
```

```
    app:layout_constraintBottom_toBottomOf="parent"
```

```
    app:layout_constraintEnd_toEndOf="parent"
```

```
    app:layout_constraintHorizontal_bias="0.9"
```

```
    app:layout_constraintStart_toStartOf="parent"
```

```
    app:layout_constraintTop_toTopOf="parent"
```

```
    app:layout_constraintVertical_bias="0.455" />
```

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

MainActivity.java

```
package com.example.fm;
```

```
import androidx.appcompat.app.AppCompatActivity; import android.content.SharedPreferences;
```

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

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

```
public class MainActivity extends AppCompatActivity { EditText e1;
```

```
    Button b1,b2,b3; TextView t1;
```

```
    int counter = 0;
```

```
    @Override
```

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

```

        e1 = (EditText) findViewById(R.id.freq_edtxt); b1 = (Button) findViewById(R.id.btn_scan); b2 =
        (Button) findViewById(R.id.btn_pre);

        b3 = (Button) findViewById(R.id.btn_nxt); t1 = (TextView) findViewById(R.id.list_txt);

        SharedPreferences sp = getSharedPreferences("mychannel",MODE_PRIVATE); List<String> items =
        new ArrayList<String>();

        items.add("89.15");

        items.add("89.45");

        items.add("90.00");

        items.add("98.75");

        items.add("99.15");

        items.add("102.3");

        Set<String> itemsSet = new HashSet<String>(items); SharedPreferences.Editor ed = sp.edit();
        ed.putStringSet("items", itemsSet);

        ed.apply();

        b1.setOnClickListener(new View.OnClickListener() { @Override

        public void onClick(View view) {

            SharedPreferences sp = getSharedPreferences("mychannel",MODE_PRIVATE); Set<String>
            itemsSet = sp.getStringSet("items", new HashSet<String>()); List<String> itemsList = new
            ArrayList<String>(itemsSet);

            // Loop through the items and add them to the TextView StringBuilder stringBuilder = new
            StringBuilder();

            for (String item : itemsList) { stringBuilder.append(item).append("\n");

            }

            t1.setText(stringBuilder.toString());

            if (itemsList.size() > 0) { e1.setText(itemsList.get(counter));

            }

        }

    });

    b2.setOnClickListener(new View.OnClickListener() {

```

```

        @Override

        public void onClick(View view) {

            SharedPreferences sp = getSharedPreferences("mychannel",MODE_PRIVATE);
Set<String> itemsSet = sp.getStringSet("items", new HashSet<String>()); List<String> itemsList = new
ArrayList<String>(itemsSet);

            counter--;

            if (counter < 0) {

                counter = itemsList.size() - 1;

            }

        });

    }

    e1.setText(itemsList.get(counter));

    b3.setOnClickListener(new View.OnClickListener() { @Override

        public void onClick(View view) {

            SharedPreferences sp = getSharedPreferences("mychannel",MODE_PRIVATE); Set<String>
itemsSet = sp.getStringSet("items", new HashSet<String>()); List<String> itemsList = new
ArrayList<String>(itemsSet);

            counter++;

            if (counter >= itemsList.size()) { counter = 0;

            }

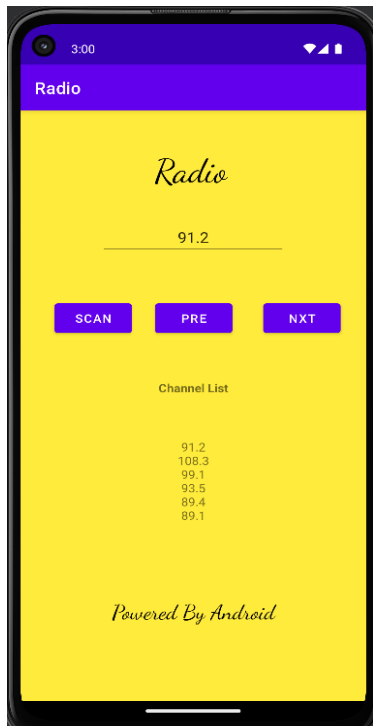
        });

    }

}

```

Output



Program 14

AIM: Develop an ordinary calculator with memory options.

Activity main.xml

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

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

```
<Button android:id="@+id/btnequal" android:layout_width="77dp" android:layout_height="54dp"
android:onClick="equalEvent" android:text="="
```

```
app:layout_constraintBottom_toBottomOf="parent"
```

```
app:layout_constraintEnd_toEndOf="parent" app:layout_constraintHorizontal_bias="0.889"
app:layout_constraintStart_toStartOf="parent" app:layout_constraintTop_toTopOf="parent"
app:layout_constraintVertical_bias="0.822" />
```

```
<Button android:id="@+id/btndiv" android:layout_width="61dp" android:layout_height="50dp"
android:text="/"
```

```

android:onClick="operatorEvent" app:layout_constraintBottom_toBottomOf="parent"
app:layout_constraintEnd_toEndOf="parent" app:layout_constraintHorizontal_bias="0.894"
app:layout_constraintStart_toStartOf="parent" app:layout_constraintTop_toTopOf="parent"
app:layout_constraintVertical_bias="0.433" />

<Button android:id="@+id/btnmul" android:layout_width="61dp" android:layout_height="50dp"
android:text="*" android:onClick="operatorEvent"

app:layout_constraintBottom_toBottomOf="parent" app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintHorizontal_bias="0.894" app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toTopOf="parent" app:layout_constraintVertical_bias="0.533" />

<Button android:id="@+id/btnadd" android:layout_width="61dp" android:layout_height="50dp"
android:text="+"

android:onClick="operatorEvent" app:layout_constraintBottom_toBottomOf="parent"
app:layout_constraintEnd_toEndOf="parent" app:layout_constraintHorizontal_bias="0.894"
app:layout_constraintStart_toStartOf="parent" app:layout_constraintTop_toTopOf="parent"
app:layout_constraintVertical_bias="0.628" />

<Button android:id="@+id/btndif" android:layout_width="61dp" android:layout_height="50dp"
android:text="-"

android:onClick="operatorEvent" app:layout_constraintBottom_toBottomOf="parent"
app:layout_constraintEnd_toEndOf="parent" app:layout_constraintHorizontal_bias="0.894"
app:layout_constraintStart_toStartOf="parent" app:layout_constraintTop_toTopOf="parent"
app:layout_constraintVertical_bias="0.715" />

<Button android:id="@+id/zero" android:layout_width="61dp"

android:layout_height="50dp" android:onClick="numberEvent" android:text="0"

app:layout_constraintBottom_toBottomOf="parent" app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintHorizontal_bias="0.308" app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toTopOf="parent" app:layout_constraintVertical_bias="0.823" />

<Button android:id="@+id/seven" android:layout_width="61dp" android:layout_height="50dp"

android:onClick="numberEvent" android:text="7"

app:layout_constraintBottom_toBottomOf="parent" app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintHorizontal_bias="0.088" app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toTopOf="parent" app:layout_constraintVertical_bias="0.715" />

<Button android:id="@+id/eight" android:layout_width="61dp" android:layout_height="50dp"

android:onClick="numberEvent" android:text="8"

app:layout_constraintBottom_toBottomOf="parent" app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintHorizontal_bias="0.308" app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toTopOf="parent" app:layout_constraintVertical_bias="0.715" />

```

```

<Button android:id="@+id/nine" android:layout_width="61dp"
android:layout_height="50dp" android:onClick="numberEvent" android:text="9"

app:layout_constraintBottom_toBottomOf="parent" app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintHorizontal_bias="0.548" app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toTopOf="parent" app:layout_constraintVertical_bias="0.715" />

<Button android:id="@+id/btn_mmc" android:layout_width="65dp" android:layout_height="49dp"

android:onClick="memoryClearEvent" android:text="MC"
app:layout_constraintBottom_toBottomOf="parent" app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintHorizontal_bias="0.686" app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toTopOf="parent" app:layout_constraintVertical_bias="0.364" />

<Button android:id="@+id/btn_mplus" android:layout_width="61dp"

android:layout_height="48dp" android:onClick="memoryPlusEvent"

android:text="M+" app:layout_constraintBottom_toBottomOf="parent"
app:layout_constraintEnd_toEndOf="parent" app:layout_constraintHorizontal_bias="0.088"
app:layout_constraintStart_toStartOf="parent" app:layout_constraintTop_toTopOf="parent"
app:layout_constraintVertical_bias="0.361" />

<Button android:id="@+id/btn_mmr" android:layout_width="67dp" android:layout_height="49dp"

android:onClick="memoryRecallEvent" android:text="MR"
app:layout_constraintBottom_toBottomOf="parent" app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintHorizontal_bias="0.482" app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toTopOf="parent" app:layout_constraintVertical_bias="0.362" />

<Button android:id="@+id/btn_mminus" android:layout_width="56dp" android:layout_height="48dp"

android:onClick="memoryMinusEvent" android:text="M-"
app:layout_constraintBottom_toBottomOf="parent" app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintHorizontal_bias="0.284" app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toTopOf="parent"

app:layout_constraintVertical_bias="0.361" />

<Button android:id="@+id/one"

android:layout_width="61dp" android:layout_height="50dp" android:onClick="numberEvent"
android:text="1"

app:layout_constraintBottom_toBottomOf="parent" app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintHorizontal_bias="0.088" app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toTopOf="parent" app:layout_constraintVertical_bias="0.499" />

<Button

```



```

android:id="@+id/two" android:layout_width="61dp" android:layout_height="50dp"
android:onClick="numberEvent" android:text="2"

app:layout_constraintBottom_toBottomOf="parent" app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintHorizontal_bias="0.308" app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toTopOf="parent" app:layout_constraintVertical_bias="0.499" />

<Button android:id="@+id/three" android:layout_width="61dp" android:layout_height="50dp"
android:onClick="numberEvent" android:text="3"

app:layout_constraintBottom_toBottomOf="parent" app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintHorizontal_bias="0.548" app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toTopOf="parent" app:layout_constraintVertical_bias="0.499" />

<Button android:id="@+id/four" android:layout_width="61dp"
android:layout_height="50dp" android:onClick="numberEvent" android:text="4"

app:layout_constraintBottom_toBottomOf="parent" app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintHorizontal_bias="0.088" app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toTopOf="parent" app:layout_constraintVertical_bias="0.606" />

<Button android:id="@+id/five"
android:layout_width="61dp" android:layout_height="50dp" android:onClick="numberEvent"
android:text="5"

app:layout_constraintBottom_toBottomOf="parent" app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintHorizontal_bias="0.308" app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toTopOf="parent"
app:layout_constraintVertical_bias="0.606" />

<Button android:id="@+id/six"
android:layout_width="61dp" android:layout_height="50dp" android:onClick="numberEvent"
android:text="6"

app:layout_constraintBottom_toBottomOf="parent" app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintHorizontal_bias="0.548" app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toTopOf="parent" app:layout_constraintVertical_bias="0.606" />

<EditText android:id="@+id/output" android:layout_width="386dp" android:layout_height="53dp"
android:ems="10" android:hint="Enter number:"

android:inputType="textPersonName" app:layout_constraintBottom_toBottomOf="parent"
app:layout_constraintEnd_toEndOf="parent" app:layout_constraintHorizontal_bias="0.154"
app:layout_constraintStart_toStartOf="parent" app:layout_constraintTop_toTopOf="parent"
app:layout_constraintVertical_bias="0.199" />

```

</androidx.constraintlayout.widget.ConstraintLayout>

MainActivity.java

```
package com.example.calc;

import androidx.appcompat.app.AppCompatActivity; import android.content.Context;
import android.content.SharedPreferences; import android.os.Bundle;
import android.view.View; import android.widget.EditText;

public class MainActivity extends AppCompatActivity { double memory = 0.0;
boolean isNewOperator = true; EditText edt1;

String operator = "+"; String initialNumber = "";

static final String PREFS_NAME = "MyPrefsFile"; static final String MEMORY_KEY = "memory";
@Override

protected void onCreate(Bundle savedInstanceState) {

super.onCreate(savedInstanceState); setContentView(R.layout.activity_main); edt1 =
findViewById(R.id.output);

SharedPreferences sharedPrefs = getSharedPreferences(PREFS_NAME, Context.MODE_PRIVATE);
memory = sharedPrefs.getFloat(MEMORY_KEY, 0); edt1.setText(String.valueOf(memory));
}

public void numberEvent(View view) { if (isNewOperator)
edt1.setText(""); isNewOperator = false;

String number = edt1.getText().toString(); if (view.getId() == R.id.one) {
number += "1";

} else if (view.getId() == R.id.two) { number += "2";
} else if (view.getId() == R.id.three) { number += "3";
} else if (view.getId() == R.id.four) { number += "4";
} else if (view.getId() == R.id.five) { number += "5";
} else if (view.getId() == R.id.six) { number += "6";
} else if (view.getId() == R.id.seven) { number += "7";
```

```

    } else if (view.getId() == R.id.eight) { number += "8";
    } else if (view.getId() == R.id.nine) { number += "9";
    } else if (view.getId() == R.id.zero) { number += "0";
    }
    edt1.setText(number);
}

public void operatorEvent(View view) { isNewOperator = true;
initialNumber = edt1.getText().toString();
if (view.getId() == R.id.btnmul) { operator = "*";
} else if (view.getId() == R.id.btndif) { operator = "-";
} else if (view.getId() == R.id.btndiv) { operator = "/";
} else if (view.getId() == R.id.btnadd) {
operator = "+";
}
}

public void equalEvent(View view) {
String newNumber = edt1.getText().toString(); int output = 0;
if (operator == "+")
output = Integer.parseInt(initialNumber) + Integer.parseInt(newNumber); if (operator == "/")
output = Integer.parseInt(initialNumber) / Integer.parseInt(newNumber); if (operator == "*")
output = Integer.parseInt(initialNumber) * Integer.parseInt(newNumber); if (operator == "-")
output = Integer.parseInt(initialNumber) - Integer.parseInt(newNumber); edt1.setText(output + "");
// Save memory to shared preferences
SharedPreferences sharedPrefs = getSharedPreferences(PREFS_NAME, Context.MODE_PRIVATE);
SharedPreferences.Editor editor = sharedPrefs.edit();
editor.putFloat(MEMORY_KEY, (float) output); editor.apply();
}

public void memoryPlusEvent(View view) { String number = edt1.getText().toString(); int value =
Integer.parseInt(number); memory += value;

```

```

}

public void memoryMinusEvent(View view) { String number = edt1.getText().toString(); int value =
Integer.parseInt(number); memory -= value;

}

public void memoryRecallEvent(View view) { edt1.setText(String.valueOf(memory));

}

public void memoryClearEvent(View view) { memory = 0;

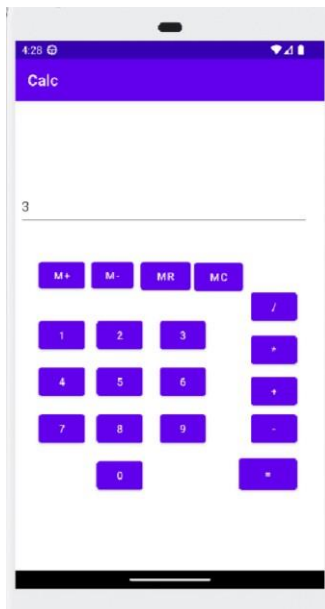
edt1.setText("");

}

}

```

OUTPUT



Program 15

AIM: Develop an alert dialog for confirmation on exit.

Activity main.xml

```

<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout

```

```

xmlns:android="http://schemas.android.com/apk/res/
android"
xmlns:app="http://schemas.android.com/apk/res-
auto"
xmlns:tools="http://schemas.android.com/tools"
android:layout_width="match_parent"
android:layout_height="match_parent"
tools:context=".MainActivity">
<Button
    android:id="@+id/alert_
    btn"
    android:layout_width="1
    77dp"
    android:layout_height="
    67dp"
    android:cursorVisible="tr
    ue"
    android:text="Delete"
    app:cornerRadius="15dp
    "

    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent" />
</androidx.constraintlayout.widget.ConstraintLayout>

```

MainActivity.java

```

package com.example.delalert;

import androidx.appcompat.app.AlertDialog;

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

import android.os.Bundle; import android.view.View; import android.widget.Button; import
com.example.delalert.R;

public class MainActivity extends AppCompatActivity { Button b1;

@Override

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

b1 = (Button) findViewById(R.id.alert_btn);

b1.setOnClickListener(new View.OnClickListener() { @Override

public void onClick(View view) {

```

```

AlertDialog.Builder builder = new AlertDialog.Builder(MainActivity.this); builder.setMessage("Do you
want to delete");

builder.setTitle("Alert!"); builder.setCancelable(false);

builder.setPositiveButton("Yes", (DialogInterface.OnClickListener) (dialog, which) -> {

// When the user click yes button then app will close finish();

});

builder.setNegativeButton("No", (DialogInterface.OnClickListener) (dialog, which) -> {

// If user click no then dialog box is canceled. dialog.cancel();

}

});

}

}

```

Output



Program 16

AIM:Develop a two tabbed window using Tabbed Activity and display proper messages when you switch between these tabs.

Activity_main.xml

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

<androidx.coordinatorlayout.widget.CoordinatorLayout
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">

<com.google.android.material.appbar.AppBarLayout android:layout_width="match_parent"
android:layout_height="wrap_content" android:theme="@style/Theme.Tabact.AppBarOverlay">

<TextView android:id="@+id/title"

android:layout_width="wrap_content" android:layout_height="wrap_content" android:gravity="center"
android:minHeight="?actionBarSize" android:padding="@dimen/appbar_padding"
android:text="@string/app_name"

android:textAppearance="@style/TextAppearance.Widget.AppCompat.Toolbar.Title" />

<com.google.android.material.tabs.TabLayout android:id="@+id/tabs"
android:layout_width="match_parent" android:layout_height="wrap_content" />

</com.google.android.material.appbar.AppBarLayout>

<androidx.viewpager.widget.ViewPager android:id="@+id/view_pager"
android:layout_width="match_parent" android:layout_height="match_parent"
app:layout_behavior="@string/appbar_scrolling_view_behavior" />

<com.google.android.material.floatingactionbutton.FloatingActionButton android:id="@+id/fab"

android:layout_width="wrap_content"

android:layout_height="wrap_content" android:layout_gravity="bottom|end"
android:layout_marginEnd="@dimen/fab_margin" android:layout_marginBottom="16dp"
app:srcCompat="@android:drawable/ic_dialog_email" />

</androidx.coordinatorlayout.widget.CoordinatorLayout>
```

Fragment_Main.xml

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

<androidx.constraintlayout.widget.ConstraintLayout
xmlns:android="http://schemas.android.com/apk/res/android"
xmlns:app="http://schemas.android.com/apk/res-auto"
xmlns:tools="http://schemas.android.com/tools" android:id="@+id/constraintLayout"
```

```

android:layout_width="match_parent" android:layout_height="match_parent"
tools:context=".ui.main.PlaceholderFragment">

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

android:layout_marginTop="@dimen/activity_vertical_margin"
app:layout_constraintBottom_toBottomOf="parent" app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintLeft_toLeftOf="parent"
app:layout_constraintTop_toTopOf="@+id/constraintLayout" tools:layout_constraintLeft_creator="1"
tools:layout_constraintTop_creator="1" />

</androidx.constraintlayout.widget.ConstraintLayout>

```

MainActivity.java

```

package com.example.tabb; import android.os.Bundle;

import com.example.tabb.databinding.ActivityMainBinding;

import com.google.android.material.floatingactionbutton.FloatingActionButton; import
com.google.android.material.snackbar.Snackbar;

import com.google.android.material.tabs.TabLayout; import androidx.viewpager.widget.ViewPager;
import androidx.appcompat.app.AppCompatActivity; import android.view.Menu;

import android.view.MenuItem; import android.view.View;

import com.example.tabb.ui.main.SectionsPagerAdapter; import
com.example.tabb.databinding.ActivityMainBinding; public class MainActivity extends
AppCompatActivity {

private ActivityMainBinding binding; @Override

protected void onCreate(Bundle savedInstanceState) { super.onCreate(savedInstanceState);

binding = ActivityMainBinding.inflate(getLayoutInflater()); setContentView(binding.getRoot());

SectionsPagerAdapter sectionsPagerAdapter = new SectionsPagerAdapter(this,
getSupportFragmentManager());

ViewPager viewPager = binding.viewPager; viewPager.setAdapter(sectionsPagerAdapter); TabLayout tabs
= binding.tabs; tabs.setupWithViewPager(viewPager); FloatingActionButton fab = binding.fab;
fab.setOnClickListener(new View.OnClickListener() {

@Override

public void onClick(View view) {

Snackbar.make(view, "Replace with your own action", Snackbar.LENGTH_LONG)

```

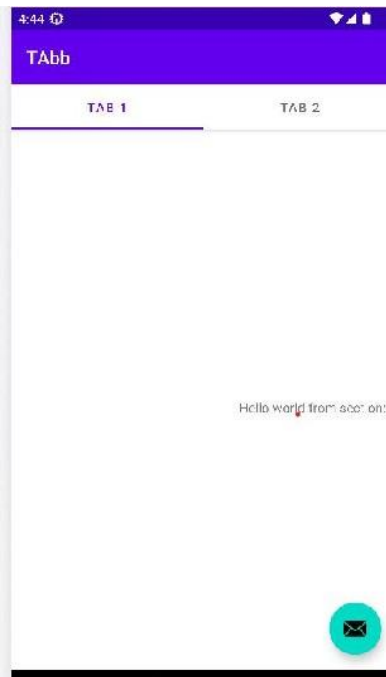


```

.setAction("Action", null).show();
}
});
}
}

```

Output



Program 17

AIM: Create and apply style in your sample UI.

Activity_main.xml

```

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

<androidx.constraintlayout.widget.ConstraintLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools" android:layout_width="match_parent"
    android:layout_height="match_parent" tools:context=".MainActivity">

```

```
<TextView android:layout_width="212dp" android:layout_height="139dp" android:text="style And theme!!!!!!!!!!!"
```

```
app:layout_constraintBottom_toBottomOf="parent" app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintStart_toStartOf="parent" app:layout_constraintTop_toTopOf="parent"
style="@style/MyColor"/>
```

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

MainActivity.java

```
package com.example.style;
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);
    }
}
```

STYLE.xml

```
<?xml version="1.0" encoding="utf-8"?>
<resources>
<style name="MyColor">
<item name="android:textSize">12pt</item>
<item name="android:textColor">#a83242</item>
</style>
<style name="AppTheme" parent="Theme.AppCompat">
<item name="backgroundColor">#000000</item>
</style> </resources>
```

Output



Program 18

AIM: Apply a style as a theme (eg: dark theme) in your project.

Activity main.xml

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

<androidx.constraintlayout.widget.ConstraintLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools" android:layout_width="match_parent"
    android:layout_height="match_parent" tools:context=".MainActivity">

    <TextView android:layout_width="212dp" android:layout_height="139dp" android:text="style And
    theme!!!!!!!!!!"

    app:layout_constraintBottom_toBottomOf="parent" app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintStart_toStartOf="parent" app:layout_constraintTop_toTopOf="parent"
    style="@style/MyColor"/>

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

MainActivity.java

```
package com.example.style2;

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);  
  
}  
}
```

AndroidManifest.xml

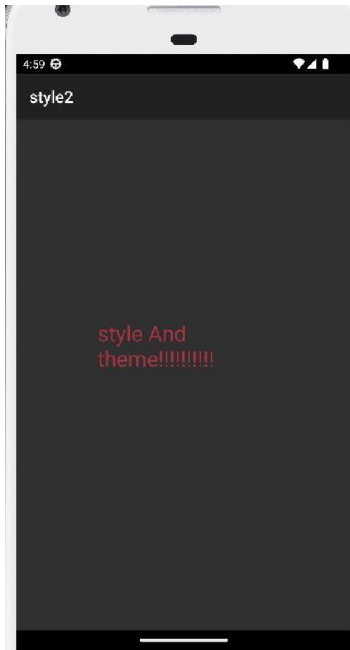
```
<manifest xmlns:android="http://schemas.android.com/apk/res/android"  
xmlns:tools="http://schemas.android.com/tools">  
  
<application android:allowBackup="true"  
  
    android:dataExtractionRules="@xml/data_extraction_rules"  
    android:fullBackupContent="@xml/backup_rules" android:icon="@mipmap/ic_launcher"  
    android:label="@string/app_name" android:supportsRtl="true" android:theme="@style/AppTheme"  
  
    tools:targetApi="31">  
  
    <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>
```

Style.xml

```
<?xml version="1.0" encoding="utf-8"?>  
  
<resources>  
  
    <style name="MyColor">  
  
        <item name="android:textSize">12pt</item>  
  
        <item name="android:textColor">#a83242</item>  
  
    </style>  
  
    <style name="AppTheme" parent="Theme.AppCompat">
```

```
<item name="backgroundColor">#000000</item>
</style>
</resources>
```

Output



Program 19

AIM: Develop an SQLite program for writing, reading, updating and deleting contacts details.

Activity main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout
xmlns:android="http://schemas.android.com/apk/res/android"
xmlns:app="http://schemas.android.com/apk/res-auto"
xmlns:tools="http://schemas.android.com/tools" android:layout_width="match_parent"
android:layout_height="match_parent" android:background="#95E636" tools:context=".MainActivity"
tools:layout_editor_absoluteX="2dp" tools:layout_editor_absoluteY="2dp">
<Button android:id="@+id/insertBtn"
android:layout_width="wrap_content" android:layout_height="wrap_content" android:text="Insert"
app:layout_constraintBottom_toBottomOf="parent" app:layout_constraintEnd_toEndOf="parent"
```

```
app:layout_constraintHorizontal_bias="0.182" app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toTopOf="parent" app:layout_constraintVertical_bias="0.584" />
```

```
<Button android:id="@+id/updateBtn"
```

```
android:layout_width="wrap_content" android:layout_height="wrap_content" android:text="Update"
app:layout_constraintBottom_toBottomOf="parent" app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintHorizontal_bias="0.801" app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toTopOf="parent" app:layout_constraintVertical_bias="0.584" />
```

```
<Button android:id="@+id/showBtn"
```

```
android:layout_width="wrap_content" android:layout_height="wrap_content" android:text="show"
app:layout_constraintBottom_toBottomOf="parent" app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintHorizontal_bias="0.789" app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toTopOf="parent" app:layout_constraintVertical_bias="0.72" />
```

```
<Button android:id="@+id/btnDelete"
```

```
android:layout_width="wrap_content" android:layout_height="wrap_content" android:text="Delete"
app:layout_constraintBottom_toBottomOf="parent" app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintHorizontal_bias="0.177" app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toTopOf="parent" app:layout_constraintVertical_bias="0.72" />
```

```
<EditText android:id="@+id/txt1" android:layout_width="205dp" android:layout_height="50dp"
android:ems="10" android:hint="Enter name"
```

```
android:inputType="textPersonName" android:textSize="20sp"
app:layout_constraintBottom_toBottomOf="parent" app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintHorizontal_bias="0.839" app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toTopOf="parent" app:layout_constraintVertical_bias="0.254" />
```

```
<EditText android:id="@+id/txt2" android:layout_width="204dp" android:layout_height="50dp"
android:ems="10" android:hint="Enter Id"
```

```
android:inputType="textPersonName" app:layout_constraintBottom_toBottomOf="parent"
app:layout_constraintEnd_toEndOf="parent" app:layout_constraintHorizontal_bias="0.835"
app:layout_constraintStart_toStartOf="parent"
```

```
app:layout_constraintTop_toTopOf="parent" app:layout_constraintVertical_bias="0.406" />
```

```
<TextView android:id="@+id/textView" android:layout_width="78dp" android:layout_height="43dp"
android:text="Name" android:textAlignment="center" android:textSize="20sp" android:textStyle="bold"
```

```
app:layout_constraintBottom_toBottomOf="parent" app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintHorizontal_bias="0.129" app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toTopOf="parent" app:layout_constraintVertical_bias="0.261" />
```

```

<TextView android:id="@+id/textView2" android:layout_width="91dp" android:layout_height="42dp"
android:text="ID" android:textAlignment="center" android:textSize="20sp" android:textStyle="bold"
app:layout_constraintBottom_toBottomOf="parent" app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintHorizontal_bias="0.134" app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toTopOf="parent" app:layout_constraintVertical_bias="0.413" />

<TextView android:id="@+id/textView3"
android:layout_width="wrap_content" android:layout_height="wrap_content" android:text="Student
Database" android:textAlignment="center" android:textColor="#D60606" android:textSize="25sp"
android:textStyle="bold|italic" app:layout_constraintBottom_toBottomOf="parent"
app:layout_constraintEnd_toEndOf="parent" app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toTopOf="parent" app:layout_constraintVertical_bias="0.076" />

</androidx.constraintlayout.widget.ConstraintLayout>

```

MainActivity.java

```

package com.example.student;

import androidx.appcompat.app.AppCompatActivity; import android.annotation.SuppressLint;
import android.content.ContentValues; import android.database.Cursor;
import android.database.sqlite.SQLiteDatabase; 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 { SQLiteDatabase db;
@SuppressLint("WrongConstant")

@Override

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

Button insert=(Button)findViewById(R.id.insertBtn); Button show=(Button)findViewById(R.id.showBtn);
Button update=(Button)findViewById(R.id.updateBtn); Button
delete=(Button)findViewById(R.id.btnDelete); EditText name=(EditText) findViewById(R.id.txt1); EditText
stdId=(EditText) findViewById(R.id.txt2);

try{

db=openOrCreateDatabase("StudentDB",SQLiteDatabase.CREATE_IF_NECESSARY,null);
db.execSQL("Create Table temps(id integer,name text)");

} catch (Exception e) { e.printStackTrace();

```

```

}

//      insert
insert.setOnClickListener(new View.OnClickListener() { @Override
public void onClick(View view) {
    ContentValues values = new ContentValues(); values.put("id",stdId.getText().toString());
    values.put("name",name.getText().toString());

    if((db.insert("temps",null,values))!=-1){
        Toast.makeText(MainActivity.this, "Record successfully inserted!", 2000).show();
    }else{
        Toast.makeText(MainActivity.this, "Insertion Failed", 2000).show();
    }
    stdId.setText("");
    name.setText("");
}
});

//      update
update.setOnClickListener(new View.OnClickListener() { @Override
public void onClick(View view) {
    ContentValues values = new ContentValues(); values.put("name", name.getText().toString()); String
    whereClause = "id = ?";

    String[] whereArgs = { stdId.getText().toString() };

    int rowsUpdated = db.update("temps", values, whereClause, whereArgs); if (rowsUpdated > 0) {
        Toast.makeText(MainActivity.this, "Record successfully updated!", Toast.LENGTH_SHORT).show();
    } else {
        Toast.makeText(MainActivity.this, "Update Failed", Toast.LENGTH_SHORT).show();
    }
    stdId.setText("");
    name.setText("");
}
}

```



```

}
});

//Delete

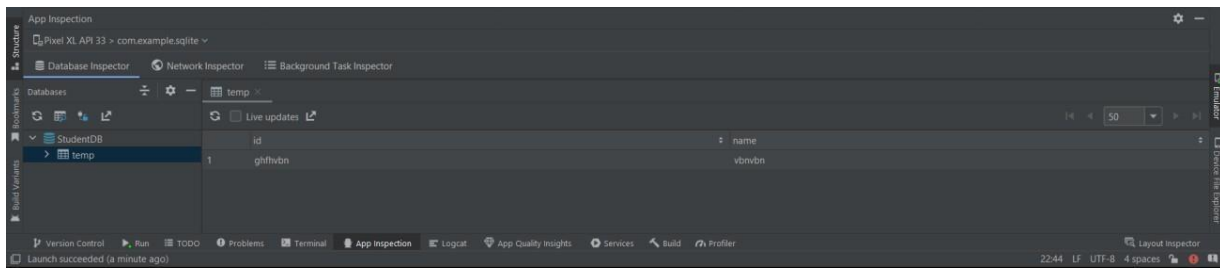
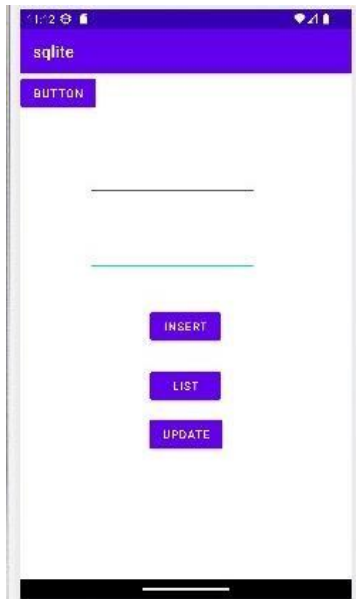
delete.setOnClickListener(new View.OnClickListener() { @Override
public void onClick(View view) { String whereClause = "id = ?";
String[] whereArgs = { stdId.getText().toString() };
int rowsUpdated = db.delete("temps", whereClause, whereArgs); if (rowsUpdated > 0) {
Toast.makeText(MainActivity.this, "Record successfully deleted!",
Toast.LENGTH_SHORT).show();
} else {
Toast.makeText(MainActivity.this, "Delete Failed", Toast.LENGTH_SHORT).show();
}
stdId.setText("");
name.setText("");
}
});

//      show

show.setOnClickListener(new View.OnClickListener() { @Override
public void onClick(View view) {
Cursor c=db.rawQuery("SELECT * from temps",null); c.moveToFirst();
while (!c.isAfterLast()){
Toast.makeText(MainActivity.this, c.getString(0)+" "+c.getString(1), 1000).show(); c.moveToNext();
}
c.close();
}
});
}
}

```

Output



MICRO PROJECT

Activity main.xml

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

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

    android:layout_width="match_parent"

    android:layout_height="match_parent"

    android:orientation="vertical"

    android:padding="16dp">

    <TextView

        android:layout_width="wrap_content"

        android:layout_height="wrap_content"

        android:text="Age" />

    <EditText

        android:id="@+id/ageEditText"

        android:layout_width="match_parent"

        android:layout_height="wrap_content"

        android:inputType="number"

        android:maxLength="2" />

    <TextView

        android:layout_width="wrap_content"

        android:layout_height="wrap_content"

        android:text="Gender" />

    <RadioGroup

        android:id="@+id/genderRadioGroup"

        android:layout_width="match_parent"

        android:layout_height="wrap_content"

        android:orientation="horizontal">

        <RadioButton

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

```

        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Male" />
<RadioButton
    android:id="@+id/femaleRadioButton"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Female" />
</RadioGroup>
<TextView
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Weight (kg)" />
<EditText
    android:id="@+id/weightEditText"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:inputType="numberDecimal"
    android:maxLength="5" />
<TextView
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Height (cm)" />
<EditText
    android:id="@+id/heightEditText"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:inputType="numberDecimal"
    android:maxLength="5" />

```

```

<TextView
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Activity Level" />
<Spinner
    android:id="@+id/activityLevelSpinner"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:entries="@array/activity_levels" />
<Button
    android:id="@+id/calculateButton"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Calculate" />

<TextView
    android:id="@+id/calorieTextView"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:textSize="20sp"
    android:textStyle="bold"
    android:paddingTop="16dp" />
</LinearLayout>

```

Activity_main.xml

```

package com.example.caloriecalc;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;

```

```

import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.RadioButton;
import android.widget.RadioGroup;
import android.widget.Spinner;
import android.widget.TextView;
import androidx.appcompat.app.AppCompatActivity;
public class MainActivity extends AppCompatActivity {
    private EditText ageEditText;
    private RadioGroup genderRadioGroup;
    private RadioButton maleRadioButton;
    private RadioButton femaleRadioButton;
    private EditText weightEditText;
    private EditText heightEditText;
    private Spinner activityLevelSpinner;
    private Button calculateButton;
    private TextView calorieTextView;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        ageEditText = findViewById(R.id.ageEditText);
        genderRadioGroup = findViewById(R.id.genderRadioGroup);
        maleRadioButton = findViewById(R.id.maleRadioButton);
        femaleRadioButton = findViewById(R.id.femaleRadioButton);
        weightEditText = findViewById(R.id.weightEditText);
        heightEditText = findViewById(R.id.heightEditText);
    }
}

```

```

activityLevelSpinner = findViewById(R.id.activityLevelSpinner);
calculateButton = findViewById(R.id.calculateButton);
calorieTextView = findViewById(R.id.calorieTextView);
calculateButton.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        calculateCalorie();
    }
});
}

private void calculateCalorie() {
    int age = Integer.parseInt(ageEditText.getText().toString());
    int weight = Integer.parseInt(weightEditText.getText().toString());
    int height = Integer.parseInt(heightEditText.getText().toString());
    double activityLevel = getActivityLevel(activityLevelSpinner.getSelectedItemPosition());
    double bmr;
    if (maleRadioButton.isChecked()) {
        bmr = 88.362 + (13.397 * weight) + (4.799 * height) - (5.677 * age);
    } else {
        bmr = 447.593 + (9.247 * weight) + (3.098 * height) - (4.330 * age);
    }
    double calorie = bmr * activityLevel;
    calorieTextView.setText("Your Daily Calorie Requirement is: " + calorie);
}

private double getActivityLevel(int position) {
    switch (position) {
        case 0:
            return 1.2;

```

```

    case 1:
        return 1.375;

    case 2:
        return 1.55;

    case 3:
        return 1.725;

    case 4:
        return 1.9;

    default:
        return 1.2;

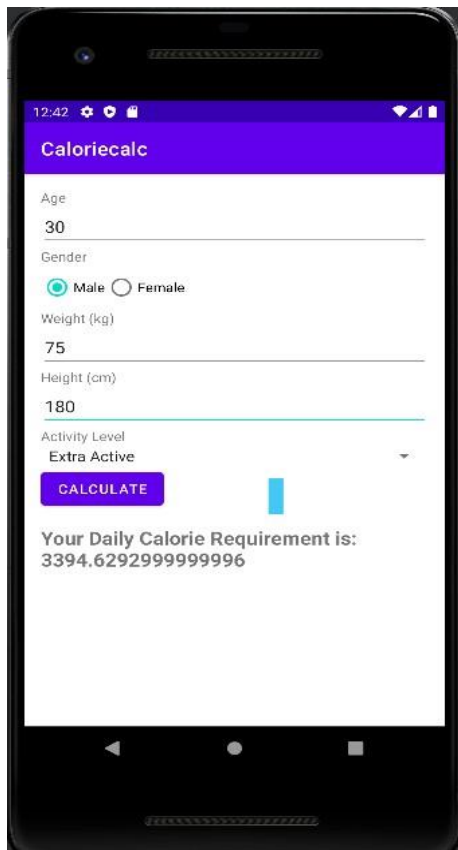
    }

}

}

```

Output



NOTES:

Launching emulator, editing emulator settings, emulator shortcuts

Launching emulator:

We can run and test Android App in AVD of Emulator in Android Studio. This is basically the best way to test App in Android before uploading on Google Play. Below are the steps to run an Android App in AVD of Emulator:

Step 1: Firstly, open the AVD Manager directly by the AVD icon in the Toolbar.

Step 2: Your Virtual Devices list will be opened on your Computer screen. After that you Select that AVD on which you want to run your App.

Step 3: After that your AVD / Emulator will open up. It will take time to start depending on your system configuration and pixel resolution of AVD. Choose less pixel resolution for faster loading of AVD.

Step 4: After that you can run app directly as shown in figure below. Click on run icon.

Step 5: You can also run app go to the Menu bar and Click on Run > Run app. (Shift+F10) shortcut key to run app in AVD of Emulator in android studio.

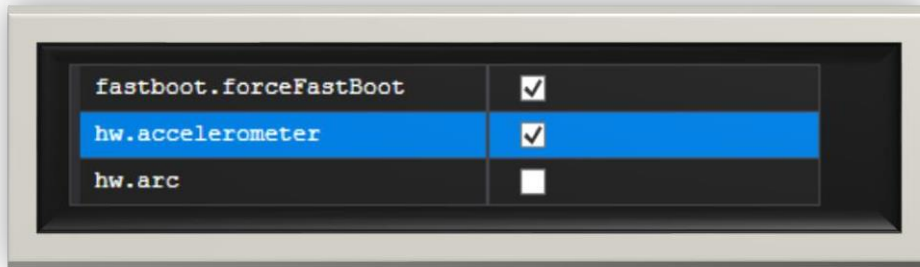
Step 6: After that Device chooser will be opened on your computer screen. Choose a running device and Click OK.

Step 7: Your Android app run in AVD / Emulator in android studio.

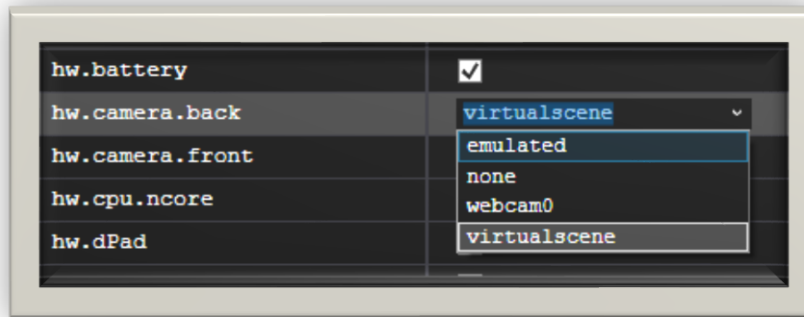
Editing emulator settings

You can change properties by using the following guidelines:

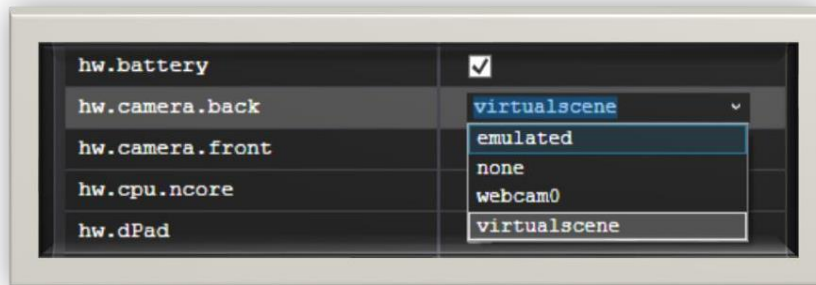
- To change a Boolean property, click the check mark to the right of the Boolean property:



- To change an enum (enumerated) property, click the down-arrow to the right of the property and choose a new value.



- To change a string or integer property, double-click the current string or integer setting in the value column and enter a new value.



Emulator shortcuts

Action	Shortcut keys
Home Button	Home key
Settings Button	F2
Start Button	Shift + F2
Back Button	Esc
Call or Dial Button	F3
Hang Up or End Call Button	F4
Search Button	F5
Trackball mode	F6
Power Button	F7
Toggle cell network	F8
Toggle code profiling	F9
Camera Button	Ctrl + F3
Volume Up	Ctrl + F5
Volume Down	Ctrl + F6
Switch layout orientation portrait or landscape backward	Ctrl + F11
Switch layout orientation portrait or landscape forwards	Ctrl + F12
Fullscreen mode	Alt + Enter

Different Layouts in Android Studio

i. Android UI Layouts

Android Layout is used to define the user interface that holds the UI controls or widgets that will appear on the screen of an android application or activity screen.

Each activity contains multiple user interface components and those components are the instances of the View and ViewGroup. All the elements in a layout are built using a hierarchy of View and ViewGroup objects.

A **View** is defined as the user interface which is used to create interactive UI components such as TextView, ImageView, EditText, RadioButton, etc., and is responsible for event handling and drawing. **ViewGroup** act as a base class for layouts and layouts parameters that hold other Views or ViewGroups and to define the layout properties. They are Generally Called layouts.

Types of Android Layout

- **Android Linear Layout:** LinearLayout is a ViewGroup subclass, used to provide child View elements one by one either in a particular direction either horizontally or vertically based on the orientation property.
- **Android Relative Layout:** RelativeLayout is a ViewGroup subclass, used to specify the position of child View elements relative to each other like (A to the right of B) or relative to the parent (fix to the top of the parent).
- **Android Constraint Layout:** ConstraintLayout is a ViewGroup subclass, used to specify the position of layout constraints for every child View relative to other views present. A ConstraintLayout is similar to a RelativeLayout, but having more power.
- **Android Frame Layout:** FrameLayout is a ViewGroup subclass, used to specify the position of View elements it contains on the top of each other to display only a single View inside the FrameLayout.
- **Android Table Layout:** TableLayout is a ViewGroup subclass, used to display the child View elements in rows and columns.

- **Android Web View:** WebView is a browser that is used to display the web pages in our activity layout.
- **Android ListView:** ListView is a ViewGroup, used to display scrollable lists of items in a single column.
- **Android Grid View:** GridView is a ViewGroup that is used to display a scrollable list of items in a grid view of rows and columns.

ii. Launching Emulator/Editing Emulator S

The **Android emulator** is an Android Virtual Device (AVD), which represents a specific Android device. We can use the Android emulator as a target device to execute and test our Android application on our PC. The Android emulator provides almost all the functionality of a real device.

To start the Android Emulator and run an application in our project:

In Android Studio, we need to create an Android Virtual Device (AVD) that the emulator can use to install and run your app. To create a new AVD:-

- Open the AVD Manager by clicking Tools > AVD Manager.
- Click on Create Virtual Device, at the bottom of the AVD Manager dialog. Then Select Hardware page appears.
- Select a hardware profile and then click Next. If we don't see the hardware profile we want, then we can create or import a hardware profile. The System Image page appears.
- Select the system image for the particular API level and click Next. This leads to open a Verify Configuration page.
- Change AVD properties if needed, and then click Finish.

In the toolbar, choose the AVD, which we want to run our app from the target device from the drop-down menu.
Click Run.

iii. Emulator Shortcuts

1. Main Device Keys

Keyboard Key Emulated Device

Key Esc Back Button

F2 Left Softkey / Menu / Settings button or Page up
 F3 Call/ dial Button
 F4 Hang up / end call button
 F5 Search Button
 Home Home Button
 Shift+f2 Right Softkey / Star button or Page down

2. Other Device Keys

Keyboard Key Emulated Device Key

Alt+Enter	Toggle fullscreen mode
Ctrl+F11	Switch layout orientation portrait/landscape backwards or 7 on note
Ctrl+F12	Switch layout orientation portrait/landscape forwards or 9 on on note
Ctrl+F3	Camera Button or Ctrl+5 on note
Ctrl+F5	Volume up or + on note
Ctrl+F6	Volume down or - on note
Del	Enter trackball mode while key is pressed
F6	Toggle trackball mode
F7	Power Button
F8	Toggle cell network
F9	Toggle code profiling requires –trace startup option

note: numeric keyboard with Num Lock off