Program 3.

Create an android application to find the factorial of a given number.

Xml code:

```xml
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
    android:orientation="vertical"
    android:layout_width="fill_parent"
    android:layout_height="fill_parent"
    android:weightSum="1">
    <LinearLayout
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:id="@+id/linearLayout1"
        android:layout_marginLeft="10pt"
        android:layout_marginRight="10pt"
        android:layout_marginTop="3pt">
        <EditText
            android:layout_weight="1"
            android:layout_height="wrap_content"
            android:layout_marginRight="5pt"
            android:id="@+id/etNum1"
            android:layout_width="wrap_content"
            android:inputType="numberDecimal">
        </EditText>
    </LinearLayout>
    <LinearLayout
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:id="@+id/linearLayout2"
        android:layout_marginTop="3pt"
        android:layout_marginLeft="5pt"
        android:layout_marginRight="5pt">
        <Button
            android:layout_height="wrap_content"
            android:layout_width="match_parent"
            android:layout_weight="1"
            android:text="Calculate Factorial"
            android:textSize="8pt"
            android:id="@+id/btnAdd">
        </Button>
    </LinearLayout>
    <TextView
        android:layout_height="wrap_content"
        android:layout_width="match_parent"
        android:layout_marginLeft="5pt"
        android:layout_marginRight="5pt"
        android:textSize="12pt"
        android:layout_marginTop="3pt"
        android:id="@+id/tvResult"
        android:gravity="center_horizontal"
        android:layout_weight="0.07">
    </TextView>
</LinearLayout>
```

Java code:

```java
package com.example.factorialapplication;

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

public class MainActivity extends AppCompatActivity implements
View.OnClickListener{


    EditText etNum1;

    Button btnAdd;

    TextView tvResult;

    String oper = "";

    /** Called when the activity is first created. */
    @Override
    public void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);

        // find the elements
        etNum1 = (EditText) findViewById(R.id.etNum1);

        btnAdd = (Button) findViewById(R.id.btnAdd);
        tvResult = (TextView) findViewById(R.id.tvResult);

        // set a listener
        btnAdd.setOnClickListener(this);

    }

    @Override
    public void onClick(View v) {
        // TODO Auto-generated method stud
        float num1=0;
        float fact=1;
        float result = 0;

        // check if the fields are empty

        num1=Float.parseFloat(etNum1.getText().toString());

        // read EditText and fill variables with numbers

        // defines the button that has been clicked and performs the
corresponding operation
        // write operation into oper, we will use it later for output
```

```
        switch (v.getId()) {
            case R.id.btnAdd:
                oper = "+";
                for(int i=1;i<=num1;i++)
                {
                    fact=fact*i;
                }
                result=fact;
                break;
            default:
                break;
        }

        // form the output line
        tvResult.setText("Factorial of"+ " " + num1  + " = " + result);
    }
}
```

Output: