## Program 3.

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

MainActivity.java

```java
package com.example.factorial;

import androidx.appcompat.app.AppCompatActivity;

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

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
```

```java
        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);
    }
}
```

activity_main.xml

```xml
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="fill_parent"
    android:layout_height="fill_parent"
    android:orientation="vertical"
    android:weightSum="1">

    <LinearLayout
        android:id="@+id/linearLayout1"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_marginLeft="10pt"
        android:layout_marginTop="3pt"
        android:layout_marginRight="10pt">

        <EditText
            android:id="@+id/etNum1"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_marginRight="5pt"
            android:layout_weight="1"
            android:inputType="numberDecimal"></EditText>
    </LinearLayout>

    <LinearLayout
        android:id="@+id/linearLayout2"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_marginLeft="5pt"
        android:layout_marginTop="3pt"
```

```xml
            android:layout_marginRight="5pt">

            <Button
                android:id="@+id/btnAdd"
                android:layout_width="match_parent"
                android:layout_height="wrap_content"
                android:layout_weight="1"
                android:text="RESULT"
                android:textSize="8pt"></Button>
    </LinearLayout>

    <TextView
        android:id="@+id/tvResult"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_marginLeft="5pt"
        android:layout_marginTop="3pt"
        android:layout_marginRight="5pt"
        android:layout_weight="0.07"
        android:gravity="center_horizontal"
        android:textSize="12pt"></TextView>
</LinearLayout>
```

**OUTPUT :**