

Q.1] Construct an Android application to accept a number and calculate and display Factorial of a given number in TextView.

activity_main.xml (Layout file):

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

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

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

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

```
    android:layout_height="match_parent"
```

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

```
<EditText
```

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

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

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

```
    android:layout_marginTop="32dp"
```

```
    android:hint="Enter a number"
```

```
    android:inputType="number"
```

```
    android:layout_centerHorizontal="true" />
```

```
<Button
```

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

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

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

```
    android:layout_below="@id/editTextNumber"
```

```
    android:layout_marginTop="16dp"
```

```
    android:text="Calculate"
```

```
android:layout_centerHorizontal="true" />
```

```
<TextView
```

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

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

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

```
    android:layout_below="@id/buttonCalculate"
```

```
    android:layout_marginTop="16dp"
```

```
    android:textSize="18sp"
```

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

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

```
    android:layout_centerHorizontal="true" />
```

```
</RelativeLayout>
```

```
MainActivity.java:
```

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

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

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

```
import android.widget.EditText;
```

```
import android.widget.TextView;
```

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

```
public class MainActivity extends AppCompatActivity {
```

```
    EditText editTextNumber;
```

```
Button buttonCalculate;
```

```
TextView textViewResult;
```

```
@Override
```

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

```
    super.onCreate(savedInstanceState);
```

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

```
    editTextNumber = findViewById(R.id.editTextNumber);
```

```
    buttonCalculate = findViewById(R.id.buttonCalculate);
```

```
    textViewResult = findViewById(R.id.textViewResult);
```

```
    buttonCalculate.setOnClickListener(new View.OnClickListener() {
```

```
        @Override
```

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

```
            calculateFactorial();
```

```
        }
```

```
    });
```

```
}
```

```
private void calculateFactorial() {
```

```
    String input = editTextNumber.getText().toString();
```

```
    if (!input.isEmpty()) {
```

```
        int number = Integer.parseInt(input);
```

```
        int factorial = 1;
```

```
        for (int i = 1; i <= number; i++) {
```

```
            factorial *= i;
```

```
    }  
    textViewResult.setText("Factorial of " + number + " is " + factorial);  
} else {  
    textViewResult.setText("Please enter a number.");  
}  
}  
}
```