Ex. No. 12 **Develop a Mobile application for simple needs (Mini**

Aim:

To develop a Simple Android Application for Native Calculator.

Procedure:

Creating a New project:

- Open Android Studio and then click on **File -> New -> New project**.
- Then type the Application name as **"exno12"**and click Next.
- Then **select the Minimum SDK** as shown below and click Next.
- Then **select the Empty Activity** and click Next.
- Finally click **Finish**.
- It will take some time to build and load the project.

Designing layout for the Android Application:

- Click on **app -> res -> layout -> activity_main.xml**.

Code for Activity_main.xml:

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout
  xmlns:android="http://schemas.android.com/apk/res/android"
  android:orientation="vertical"
  android:layout_width="match_parent"
  android:layout_height="match_parent"
  android:layout_margin="20dp">

<LinearLayout
    android:id="@+id/linearLayout1"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_margin="20dp">

<EditText
      android:id="@+id/editText1"
      android:layout_width="match_parent
      "
      android:layout_height="wrap_conten
      t"
```

```
        android:layout_weight="1"
        android:inputType="numberDecimal"
        android:textSize="20sp" />

<EditText
        android:id="@+id/editText2"
        android:layout_width="match_parent
        "
        android:layout_height="wrap_conten
        t"android:layout_weight="1"
        android:inputType="numberDecimal"
        android:textSize="20sp" />

</LinearLayout>

<LinearLayout
    android:id="@+id/linearLayout2"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_margin="20dp">

<Button
        android:id="@+id/Add"
        android:layout_width="match_parent
        "
        android:layout_height="wrap_conten
        t"android:layout_weight="1"
        android:text="+"
        android:textSize="30sp"/>

<Button
        android:id="@+id/Sub"
        android:layout_width="match_paren
        t"
        android:layout_height="wrap_conten
        t"android:layout_weight="1"
        android:text="-"
        android:textSize="30sp"/>

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

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

```
        android:layout_height="wrap_content"
        android:layout_weight="1"
        android:text="*"
        android:textSize="30sp"/>

<Button
        android:id="@+id/Div"
        android:layout_width="match_parent
        "
        android:layout_height="wrap_conten
        t"android:layout_weight="1"
        android:text="/"
        android:textSize="30sp"/>

</LinearLayout>

<TextView
    android:id="@+id/textView"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_marginTop="50dp"
    android:text="Answer is"
    android:textSize="30sp"
    android:gravity="center"/>

</LinearLayout>
```

- Now click on Design and your application will look as given below.
- So now the designing part is completed.

Java Coding for the Android Application:

- Click on **app -> java -> com.example.exno12 -> MainActivity**.

Code for
MainActivity.java:

```
packagecom.example.exno1
2;import android.os.Bundle;
//import android.support.v7.app.AppCompatActivity;
import android.text.TextUtils;
import android.view.View;
import android.view.View.OnClickListener;
```

```
import android.widget.Button;
import android.widget.EditText;
import
android.widget.TextView;
import androidx.appcompat.app.AppCompatActivity;
public class MainActivity extends AppCompatActivity implements OnClickListener
{
  //Defining the
  ViewsEditText
  Num1; EditText
  Num2; Button
  Add;
  Button Sub;
  Button Mul;
  Button Div;
  TextView
  Result;

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

    //Referring the Views
    Num1 = (EditText)
    findViewById(R.id.editText1);  Num2  =
    (EditText)  findViewById(R.id.editText2);  Add
    = (Button) findViewById(R.id.Add);
    Sub  =  (Button)
    findViewById(R.id.Sub);  Mul  =
    (Button)  findViewById(R.id.Mul); Div
    = (Button) findViewById(R.id.Div);
    Result = (TextView) findViewById(R.id.textView);

    // set a listener
    Add.setOnClickListener(this);
    Sub.setOnClickListener(this);
    Mul.setOnClickListener(this);
    Div.setOnClickListener(this);
  }
```

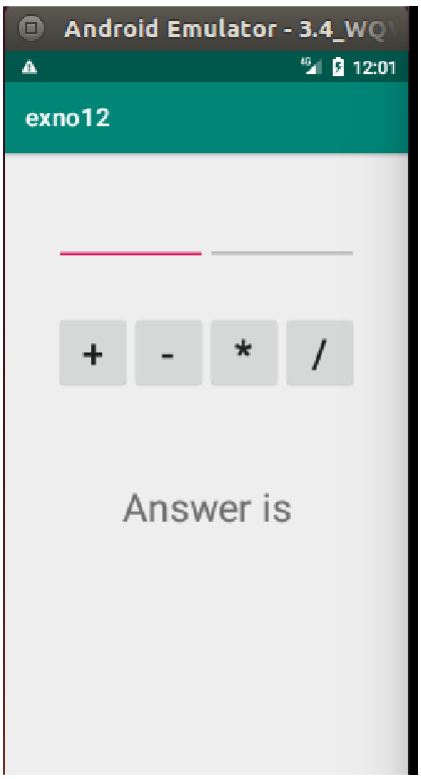
```
@Override
public void onClick (View v)
{
```

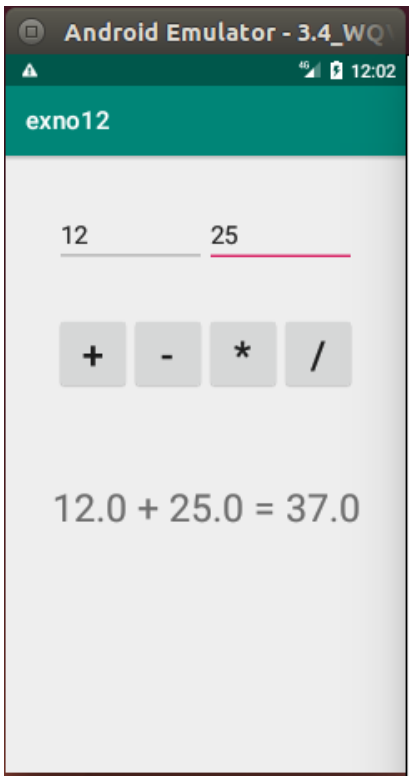
```
float num1 =
0; float num2
=    0;    float
result   =   0;
String oper =
"";
// check if the fields are empty
if                    (TextUtils.isEmpty(Num1.getText().toString())                    ||
    TextUtils.isEmpty(Num2.getText().toString()))return;

// read EditText and fill variables with numbers
num1 =
Float.parseFloat(Num1.getText().toString());num2
= Float.parseFloat(Num2.getText().toString());

// defines the button that has been clicked and performs the corresponding operation
// write operation into oper, we will use it later for
outputswitch (v.getId())
{
 case R.id.Add:
    oper = "+";
     result = num1 +
     num2;break;
 case R.id.Sub:
    oper = "-";
     result = num1 -
     num2;break;
 case R.id.Mul:
    oper = "*";
     result = num1 *
     num2;break;
 case R.id.Div:
    oper = "/";
     result = num1 /
     num2;break;
  default:
     break;
}
// form the output line
Result.setText(num1 + " " + oper + " " + num2 + " = " + result);
}
```

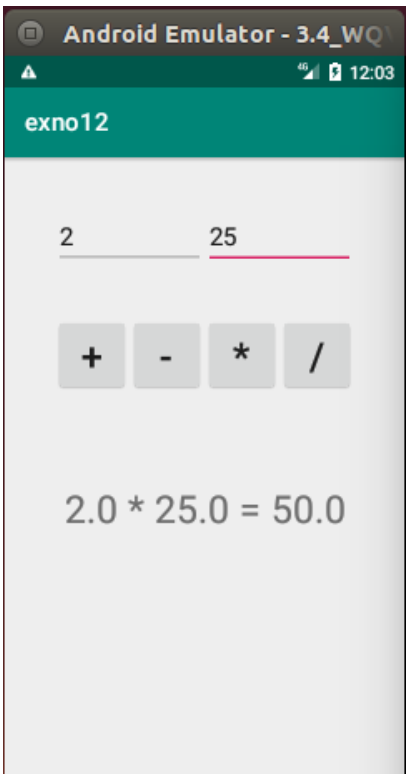
```
}
```

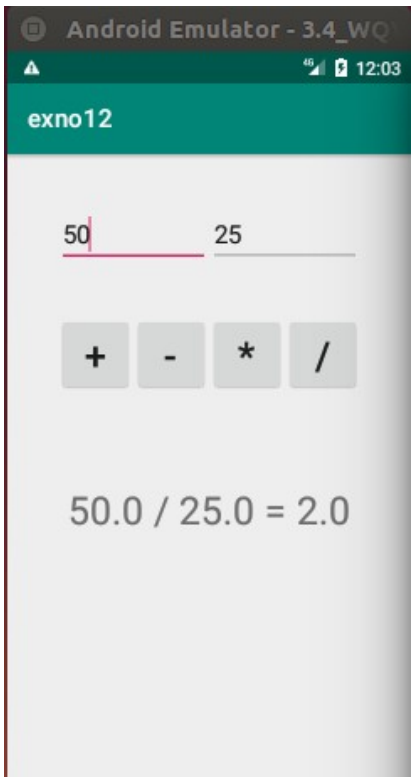
- Run the application to see the output.

Output:









Result:

Thus a Simple Android Application for Native Calculator is developed and executed successfully.