Ex.No: 14 Date :	**Develop a Mobile application for simple needs (Mini Project)**

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.
- After completion it will look as given below.

Designing layout for the Android Application:

- Click on **app -> res -> layout -> activity_main.xml**.
- Now click on Text as shown below.
- Then delete the code which is there and type the code as given below.

Code for Activity_main.xml:

```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">
```

```xml
<EditText android:id="@+id/editText1"
    android:layout_width="match_paren
    t"
    android:layout_height="wrap_conte
    nt" android:layout_weight="1"
    android:inputType="numberDecimal"
    android:textSize="20sp" />


<EditText android:id="@+id/editText2"
    android:layout_width="match_parent"
    android:layout_height="wrap_content
    " 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">
```

```xml
<Button android:id="@+id/Add"
    android:layout_width="match_paren
    t"
    android:layout_height="wrap_conte
    nt" android:layout_weight="1"
    android:text="+"
    android:textSize="30sp"/>


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


<Button android:id="@+id/Mul"
    android:layout_width="match_pare
    nt"
    android:layout_height="wrap_content"
    android:layout_weight="1"
    android:text="*"
    android:textSize="30sp"/>


<Button android:id="@+id/Div"
    android:layout_width="match_paren
    t"
    android:layout_height="wrap_conte
    nt" 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**.
- Then delete the code which is there and type the code as given below.

Code for

MainActivity.java:

```java
packagecom.example.exno12
; 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
  Views EditText
  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);
```

```java
    //Referring the Views
    Num1       =       (EditText)       findViewBy-
    Id(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 re-
    sult = 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
    output switch (v.getId())
    {         case
     R.id.Add:
       oper    =    "+";
     result  =  num1  +
     num2; break; case
     R.id.Sub:
       oper    =    "-";
     result  =  num1  -
```
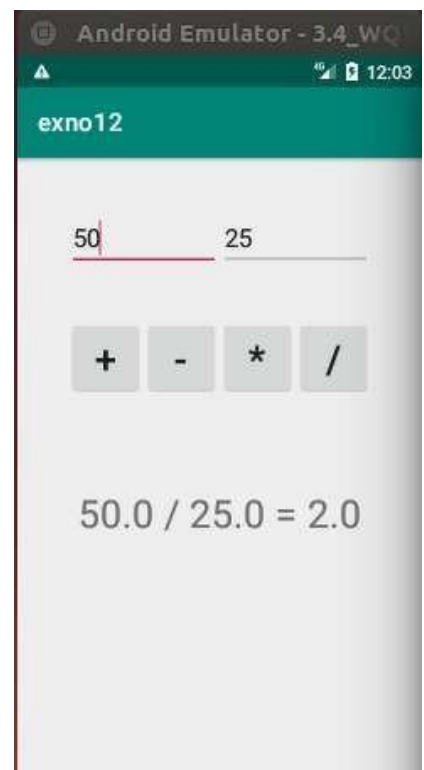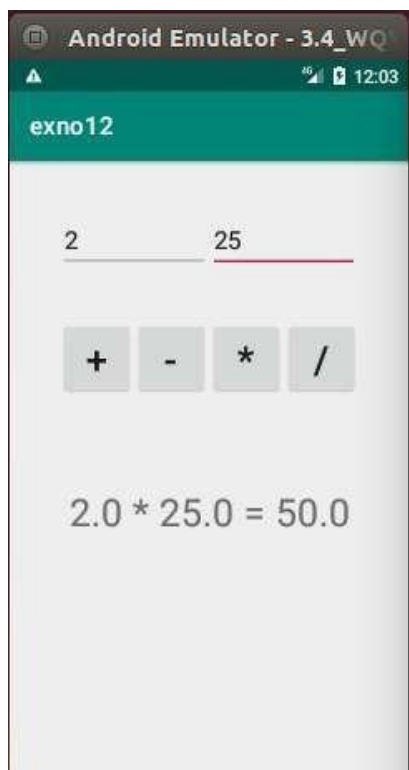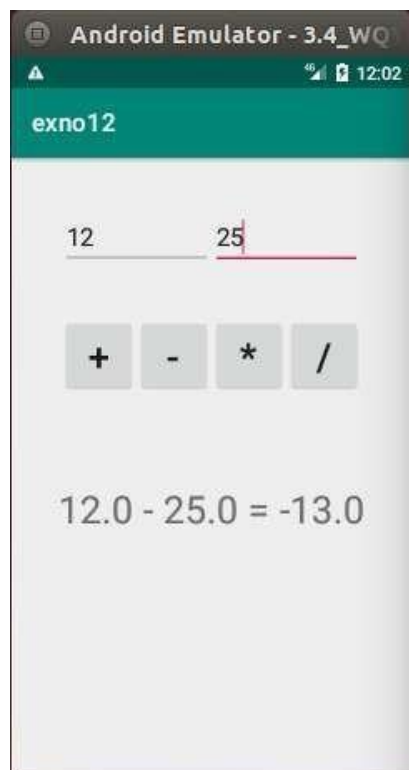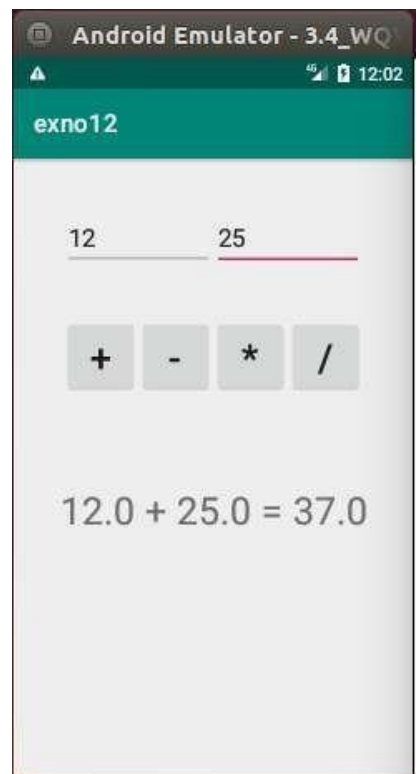
```
    num2; break; case
    R.id.Mul:
      oper    =    "*";
      result = num1 *
      num2; break;
    case      R.id.Div:
      oper    =    "/";
      result = num1 /
      num2; break;
     default
       :
       break
       ;
   }
   // form the output line
   Result.setText(num1 + " " + oper + " " + num2 + " = " + result);
  }
}
```

•So now the Coding part is also completed.

•Now run the application to see the output. **Output:**

Result:

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