NAME :- KHUSHI GUPTA

COURSE :- BCA (INDUSTRY INTEGRATED)

SEMESTER :- 5   SECTION :- A

UNIVERSITY ROLL NO. :- 1921084

ROLL NO. :- 28

SUBJECT :- MOBILE APPLICATION DEVELOPMENT

PROBLEM : Create a simple application to implement simple calculator in android.

SOURCE CODE:

activity main.xml –

```xml
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout
xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">
    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginLeft="114dp"
        android:layout_marginTop="58dp"
        android:layout_marginRight="114dp"
        android:layout_marginBottom="502dp"
        android:text=" Calculator"
        android:textColor="@color/black"
        android:textStyle="bold"
        android:textSize="30dp"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

    <EditText
        android:id="@+id/e1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginRight="280dp"
        android:layout_marginTop="70dp"
        android:layout_marginBottom="416dp"
        android:background="@android:color/white"
        android:hint="Number1(0)"
        android:inputType="number"
        android:textSize="20dp"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

    <EditText
        android:id="@+id/e2"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginRight="280dp"
        android:layout_marginTop="112dp"
        android:layout_marginBottom="374dp"
        android:background="@android:color/white"
```

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```xml
        android:hint="Number2(0)"
        android:inputType="number"
        android:textSize="20dp"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

    <TextView
        android:id="@+id/tv1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginRight="320dp"
        android:layout_marginTop="151dp"
        android:layout_marginBottom="287dp"
        android:background="@android:color/white"
        android:text="Result"
        android:textColorLink="#673AB7"
        android:textSize="25dp"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

    <Button
        android:id="@+id/b1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginStart="16dp"
        android:layout_marginTop="292dp"
        android:layout_marginEnd="307dp"
        android:layout_marginBottom="263dp"
        android:backgroundTint="@android:color/holo_purple"
        android:onClick="doSum"
        android:text="+"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

    <Button
        android:id="@+id/b2"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginStart="210dp"
        android:layout_marginTop="292dp"
        android:layout_marginEnd="113dp"
        android:layout_marginBottom="263dp"
        android:backgroundTint="@android:color/holo_purple"
        android:onClick="doSub"
        android:text="-"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />
```

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```xml
<Button
    android:id="@+id/b3"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginStart="307dp"
    android:layout_marginTop="292dp"
    android:layout_marginEnd="16dp"
    android:layout_marginBottom="263dp"
    android:backgroundTint="@android:color/holo_purple"
    android:onClick="doDiv"
    android:text="/"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.0"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent" />

<Button
    android:id="@+id/b4"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginStart="16dp"
    android:layout_marginTop="356dp"
    android:layout_marginEnd="307dp"
    android:layout_marginBottom="199dp"
    android:backgroundTint="@android:color/holo_purple"
    android:onClick="doMul"
    android:text="x"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent" />

<Button
    android:id="@+id/b5"
    android:layout_width="92dp"
    android:layout_height="48dp"
    android:layout_marginStart="113dp"
    android:layout_marginTop="356dp"
    android:layout_marginEnd="206dp"
    android:layout_marginBottom="199dp"
    android:backgroundTint="@android:color/holo_purple"
    android:onClick="doMod"
    android:text="%(mod)"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent" />

<Button
    android:id="@+id/b6"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginStart="113dp"
    android:layout_marginTop="292dp"
    android:layout_marginEnd="210dp"
```

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```xml
        android:layout_marginBottom="263dp"
        android:backgroundTint="@android:color/holo_purple"
        android:onClick="doPow"
        android:text="n1^n2"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"/>

</androidx.constraintlayout.widget.ConstraintLayout>
```

MainActivity.java –

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```java
package com.example.calculator;

import androidx.appcompat.app.AppCompatActivity;

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

public class MainActivity extends AppCompatActivity {

    EditText et1, et2;
    TextView txtv1;
    int num1, num2;

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

        // defining the edit text 1 to e1
        et1 = (EditText) findViewById(R.id.e1);

        // defining the edit text 2 to e2
        et2 = (EditText) findViewById(R.id.e2);

        // defining the text view to t1
        txtv1 = (TextView) findViewById(R.id.tv1);

        // taking input from text box 1
        String s1 = et1.getText().toString();

        // taking input from text box 2
        String s2 = et2.getText().toString();

        // condition to check if box is not empty
        if ((s1.equals(null) && s2.equals(null))
                || (s1.equals("") && s2.equals(""))) {

            String result = "Please enter a value";
            txtv1.setText(result);

            return false;
        } else {
            // converting string to int.
            num1 = Integer.parseInt(s1);

            // converting string to int.
            num2 = Integer.parseInt(s2);
        }

        return true;
```

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```java
    }

    // a public method to perform addition
    public void doSum(View v) {

        // get the input numbers
        if (getNumbers()) {
            int sum = num1 + num2;
            txtv1.setText(Integer.toString(sum));
        }
    }

    // a public method to perform power function
    public void doPow(View v) {

        // get the input numbers
        if (getNumbers()) {
            double sum = Math.pow(num1, num2);
            txtv1.setText(Double.toString(sum));
        }
    }

    // a public method to perform subtraction
    public void doSub(View v) {

        // get the input numbers
        if (getNumbers()) {
            int sum = num1 - num2;
            txtv1.setText(Integer.toString(sum));
        }
    }

    // a public method to perform multiplication
    public void doMul(View v) {

        // get the input numbers
        if (getNumbers()) {
            int sum = num1 * num2;
            txtv1.setText(Integer.toString(sum));
        }
    }

    // a public method to perform Division
    public void doDiv(View v) {

        // get the input numbers
        if (getNumbers()) {

            // displaying the text in text view assigned as t1
            double sum = num1 / (num2 * 1.0);
            txtv1.setText(Double.toString(sum));
        }
    }

    // a public method to perform modulus function
    public void doMod(View v) {
```
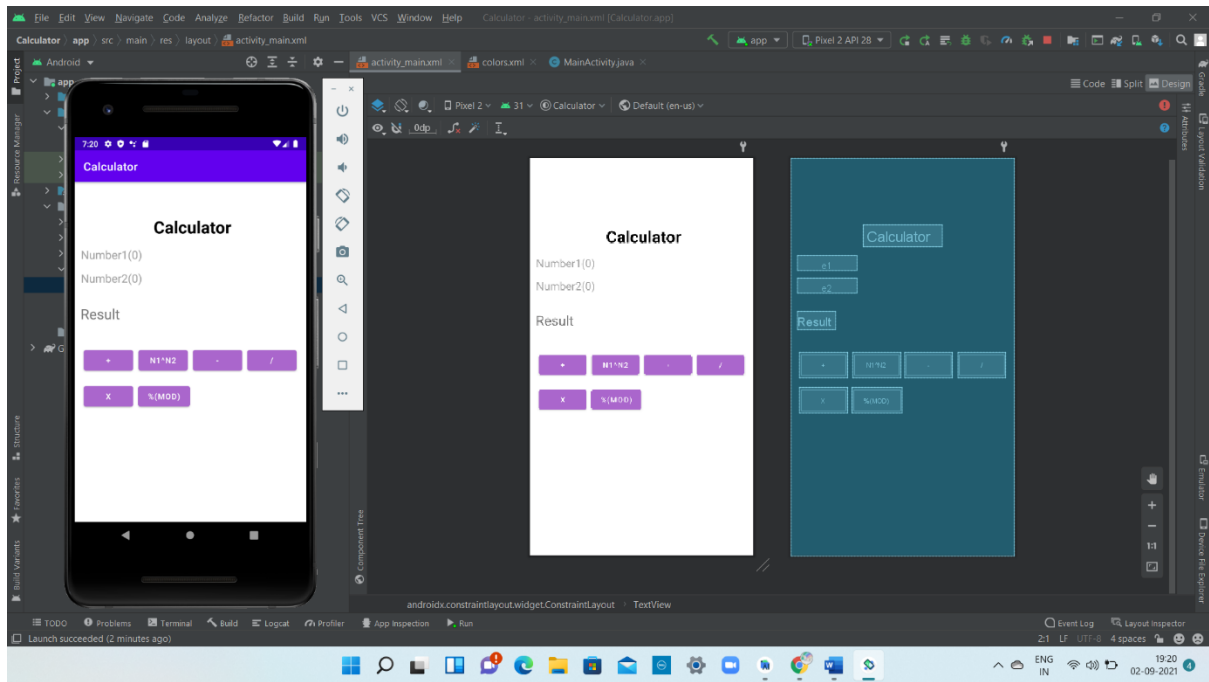
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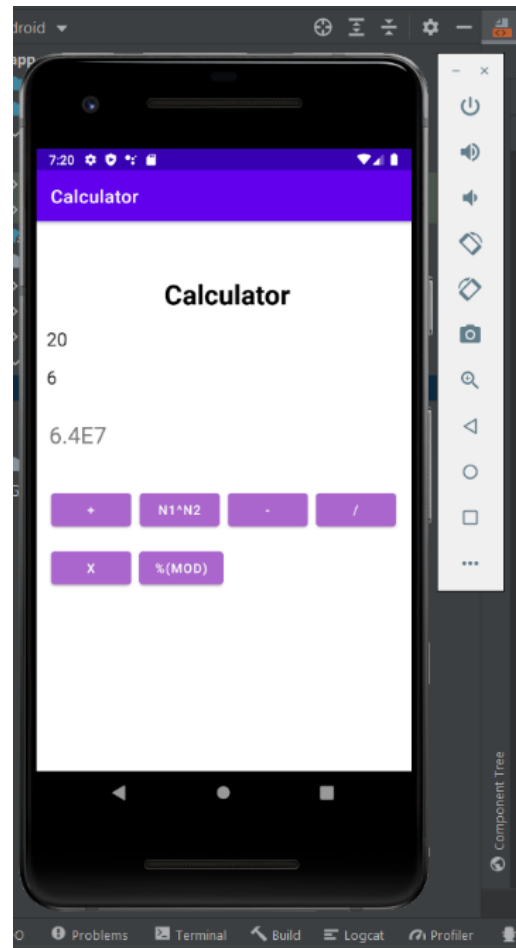
```java
        // get the input numbers
        if (getNumbers()) {
            double sum = num1 % num2;
            txtv1.setText(Double.toString(sum));
        }
    }
}
```

OUTPUT :

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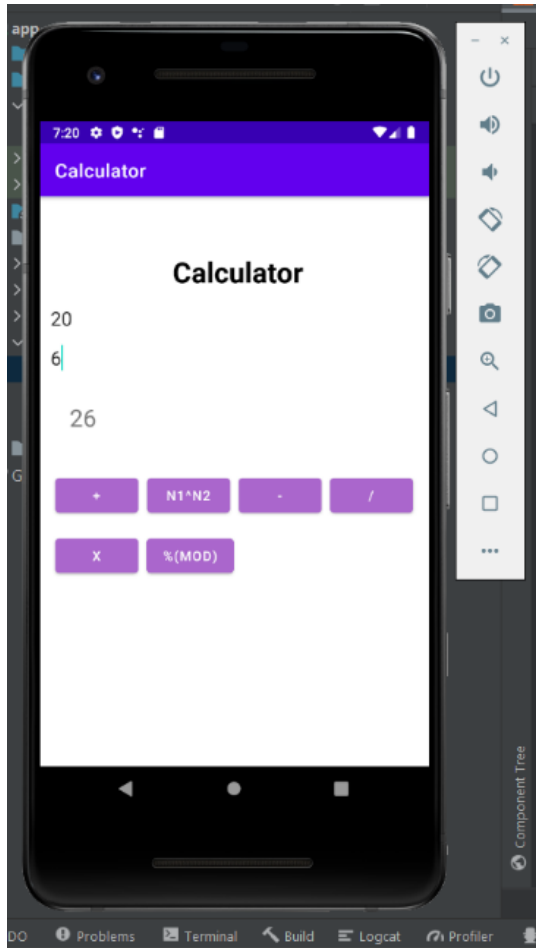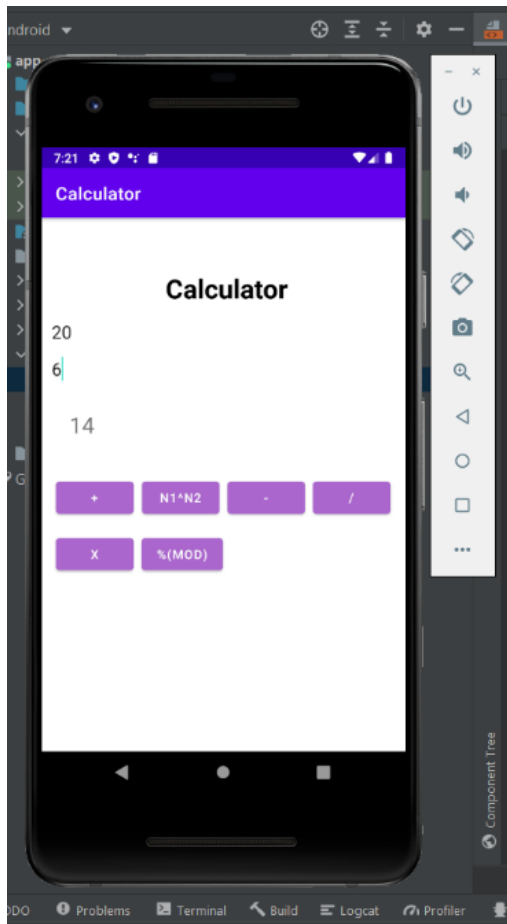ROLL NO. :- 28
SUBJECT :- MOBILE APPLICATION DEVELOPMENT

Design –

On clicking at "+" -   On clicking at "N1^N2" -
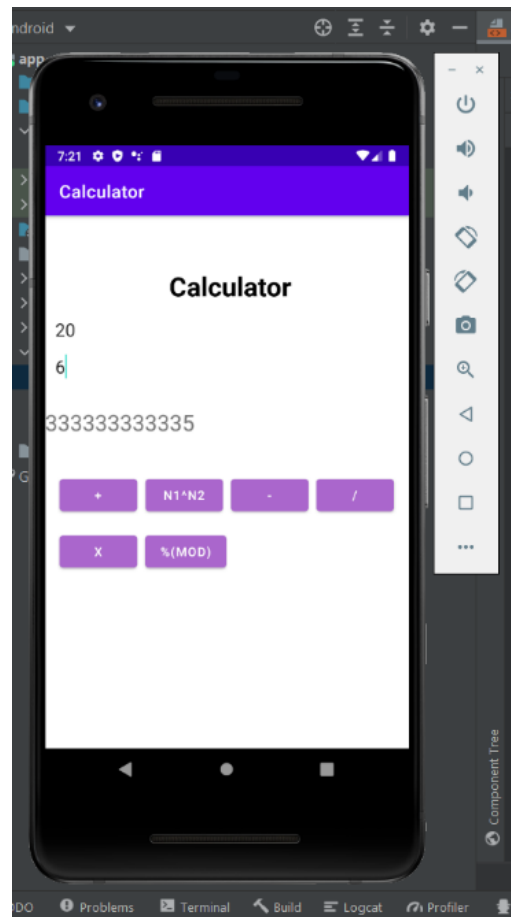
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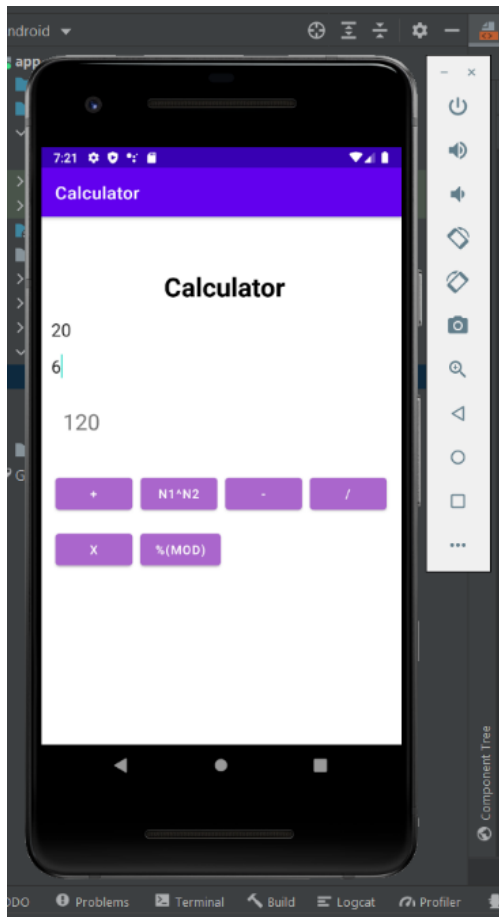On clicking at "-" -   On clicking at "/" -

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On clicking at "X" -   On clicking at "%(MOD)" -