Vishwakarma Institute of Technology
Department of Engineering Sciences and Humanities (DESH)

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Division: O

Batch: 2

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Subject: Mobile Application Development

Assignment 3

Problem Statement:Develop a native calculator application.

MainActivity.java code:

```
package com.example.calci;

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 num1;
 EditText num2;
 TextView result;
 Button plus;
 Button minus;
 Button multiply;
 Button division;
 Button mod;
 Button sin;
 Button cos;
 Button tan;
 Button pow;
```

```
Button clear;

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

num1 = findViewById(R.id.editTextNumber3);
num2 = findViewById(R.id.editTextNumber);
result = findViewById(R.id.textView);
plus = findViewById(R.id.plus);
minus = findViewById(R.id.minus);
division = findViewById(R.id.division);
multiply = findViewById(R.id.multiply);
mod = findViewById(R.id.mod);
sin = findViewById(R.id.sin);
cos = findViewById(R.id.cos);
tan = findViewById(R.id.tan);
pow = findViewById(R.id.pow);
clear = findViewById(R.id.clear);

plus.setOnClickListener(new View.OnClickListener() {
@Override
public void onClick(View v) {
performOperation('+');
}
});

minus.setOnClickListener(new View.OnClickListener() {
@Override
public void onClick(View v) {
performOperation('-');
}
});

multiply.setOnClickListener(new View.OnClickListener() {
@Override
public void onClick(View v) {
performOperation('*');
}
});

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

```
@Override
 public void onClick(View v) {
 performOperation('/');
 }
 });

 mod.setOnClickListener(new View.OnClickListener() {
@Override
 public void onClick(View v) {
 performOperation('%');
 }
 });

 sin.setOnClickListener(new View.OnClickListener() {
@Override
 public void onClick(View v) {
 performTrigonometricOperation('s');
 }
 });

 cos.setOnClickListener(new View.OnClickListener() {
@Override
 public void onClick(View v) {
 performTrigonometricOperation('c');
 }
 });

 tan.setOnClickListener(new View.OnClickListener() {
@Override
 public void onClick(View v) {
 performTrigonometricOperation('t');
 }
 });

 pow.setOnClickListener(new View.OnClickListener() {
@Override
 public void onClick(View v) {
 performOperation('^');
 }
 });

 clear.setOnClickListener(new View.OnClickListener() {
@Override
```

```
public void onClick(View v) {
clearInputs();
}
});
}

private void performOperation(char operation) {

double n1 = Double.parseDouble(num1.getText().toString());
double n2 = Double.parseDouble(num2.getText().toString());

double resultValue = 0;

// Implement the logic for the operation
switch (operation) {
case '+':
resultValue = n1 + n2;
break;
case '-':
resultValue = n1 - n2;
break;
case '*':
resultValue = n1 * n2;
break;
case '/':
resultValue = n1 / n2;
break;
case '%':
resultValue = n1 % n2;
break;
case '^':
resultValue = Math.pow(n1, n2);
break;
// Add cases for other operations if needed  }

result.setText(String.valueOf(resultValue));

}

private void performTrigonometricOperation(char operation) {

double n1 = Double.parseDouble(num1.getText().toString());
double resultValue = 0;
```

```
// Implement the logic for trigonometric operations
switch (operation) {
 case 's':
 resultValue = Math.sin(Math.toRadians(n1));
break;
 case 'c':
 resultValue = Math.cos(Math.toRadians(n1));
break;
 case 't':
 resultValue = Math.tan(Math.toRadians(n1));  break;
 }

 result.setText(String.valueOf(resultValue));


 }

 private void clearInputs() {
 num1.setText("");
 num2.setText("");
 result.setText("");
 }
}
```

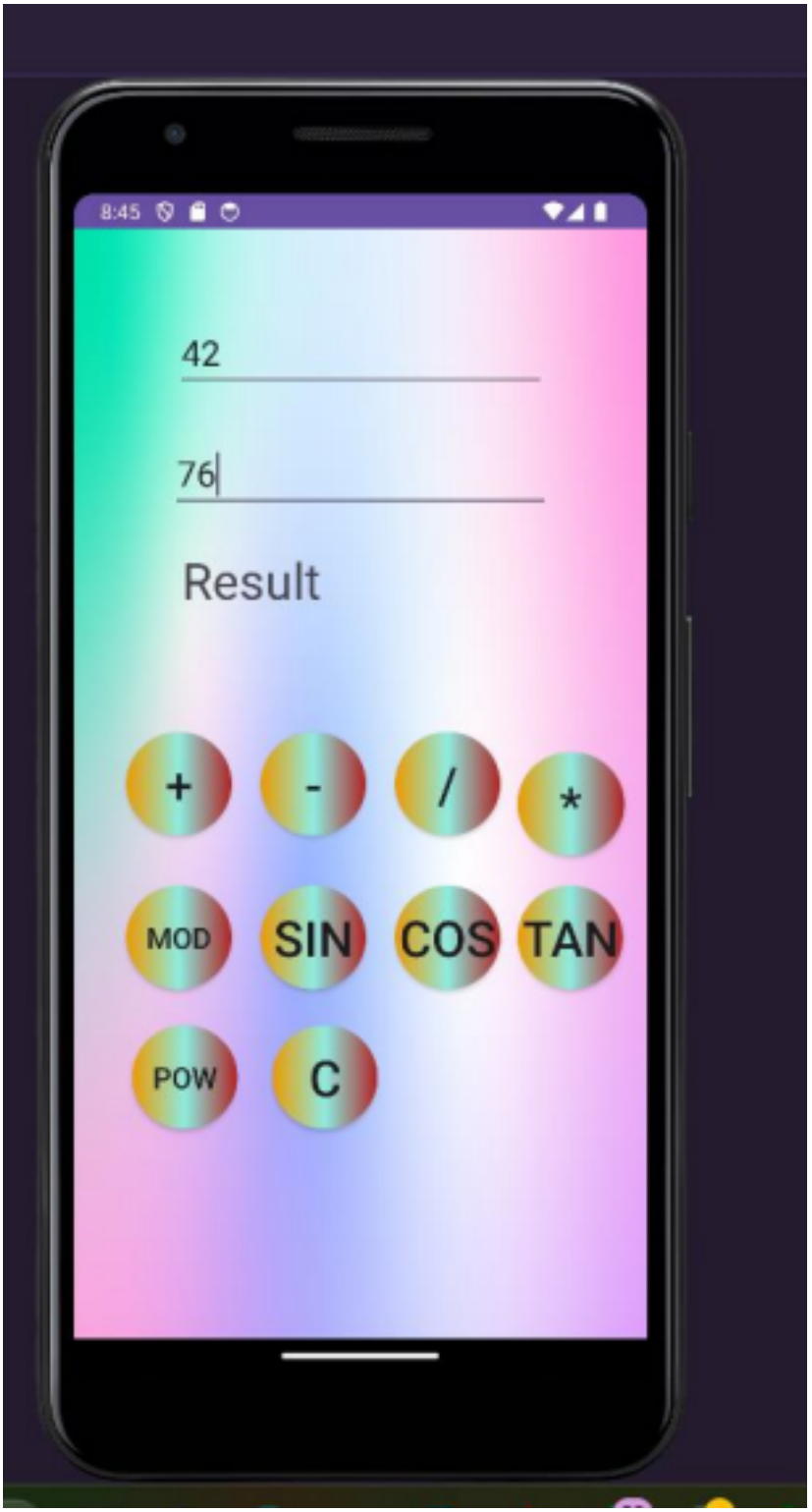
XML code:

```
<?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"
 android:background="@drawable/img"
 tools:context=".MainActivity">

 <EditText
 android:id="@+id/editTextNumber"
 android:layout_width="260dp"
 android:layout_height="51dp"
 android:ems="10"
 android:hint="Entere Second Number"
 android:inputType="number"
 android:textSize="24sp"
 app:layout_constraintBottom_toBottomOf="parent"
 app:layout_constraintEnd_toEndOf="parent"
 app:layout_constraintStart_toStartOf="parent"
 app:layout_constraintTop_toTopOf="parent"
 app:layout_constraintVertical_bias="0.202" />

 <EditText
 android:id="@+id/editTextNumber3"
 android:layout_width="254dp"
 android:layout_height="52dp"
 android:ems="10"
 android:hint="Entere First Number"
 android:inputType="number"
 android:textSize="24sp"
 app:layout_constraintBottom_toBottomOf="parent"
 app:layout_constraintEnd_toEndOf="parent"
 app:layout_constraintStart_toStartOf="parent"
 app:layout_constraintTop_toTopOf="parent"
 app:layout_constraintVertical_bias="0.084" />

 <TextView
 android:id="@+id/textView"
```

```
 android:layout_width="245dp"
 android:layout_height="0dp"
 android:layout_marginTop="217dp"
 android:layout_marginBottom="66dp"
 android:text="Result"
 android:textSize="34sp"
 app:layout_constraintBottom_toTopOf="@+id/multiply"
 app:layout_constraintEnd_toEndOf="parent"
 app:layout_constraintStart_toStartOf="parent"
 app:layout_constraintTop_toTopOf="parent" />

 <androidx.appcompat.widget.AppCompatButton
 android:id="@+id/plus"
 android:layout_width="72dp"
 android:layout_height="71dp"
 android:layout_marginStart="36dp"
 android:background="@drawable/circle"
 android:text="+"
 android:textSize="34sp"
 app:layout_constraintBottom_toBottomOf="parent"
 app:layout_constraintStart_toStartOf="parent"
 app:layout_constraintTop_toTopOf="parent" />

 <androidx.appcompat.widget.AppCompatButton
 android:id="@+id/multiply"
 android:layout_width="73dp"
 android:layout_height="71dp"
 android:layout_marginStart="304dp"
 android:layout_marginBottom="330dp"
 android:background="@drawable/circle"
 android:text="*"
 android:textSize="34sp"
 app:layout_constraintBottom_toBottomOf="parent"
 app:layout_constraintStart_toStartOf="parent"
 app:layout_constraintTop_toBottomOf="@+id/textView" />

 <androidx.appcompat.widget.AppCompatButton
 android:id="@+id/division"
 android:layout_width="72dp"
 android:layout_height="71dp"
 android:layout_marginStart="220dp"
 android:background="@drawable/circle"
 android:text="/"
 android:textSize="34sp"
 app:layout_constraintBottom_toBottomOf="parent"
 app:layout_constraintStart_toStartOf="parent"
 app:layout_constraintTop_toTopOf="parent" />

 <androidx.appcompat.widget.AppCompatButton
 android:id="@+id/minus"
 android:layout_width="72dp"
 android:layout_height="71dp"
 android:layout_marginStart="128dp"
 android:background="@drawable/circle"
 android:text="-"
 android:textSize="34sp"
 app:layout_constraintBottom_toBottomOf="parent"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toTopOf="parent" />

<androidx.appcompat.widget.AppCompatButton
android:id="@+id/clear"
 android:layout_width="72dp"
 android:layout_height="71dp"
 android:layout_marginStart="136dp"
android:background="@drawable/circle"
android:text="C"
 android:textSize="34sp"
 app:layout_constraintBottom_toBottomOf="parent"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toTopOf="parent"
app:layout_constraintVertical_bias="0.792" />

<androidx.appcompat.widget.AppCompatButton
android:id="@+id/pow"
 android:layout_width="72dp"
 android:layout_height="71dp"
 android:layout_marginStart="40dp"
 android:background="@drawable/circle"
android:text="pow"
 android:textSize="20sp"
 app:layout_constraintBottom_toBottomOf="parent"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toTopOf="parent"
app:layout_constraintVertical_bias="0.792" />

<androidx.appcompat.widget.AppCompatButton
```

```
android:id="@+id/tan"
 android:layout_width="72dp"
 android:layout_height="71dp"
 android:layout_marginStart="304dp"
android:background="@drawable/circle"
android:text="tan"
 android:textSize="34sp"
 app:layout_constraintBottom_toBottomOf="parent"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toTopOf="parent"
app:layout_constraintVertical_bias="0.653" />

<androidx.appcompat.widget.AppCompatButton
android:id="@+id/cos"
 android:layout_width="72dp"
 android:layout_height="71dp"
 android:layout_marginStart="220dp"
android:background="@drawable/circle"
android:text="cos"
 android:textSize="34sp"
 app:layout_constraintBottom_toBottomOf="parent"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toTopOf="parent"
app:layout_constraintVertical_bias="0.653" />

<androidx.appcompat.widget.AppCompatButton
android:id="@+id/sin"
 android:layout_width="72dp"
 android:layout_height="71dp"
 android:layout_marginStart="128dp"
android:background="@drawable/circle"
android:text="sin"
 android:textSize="34sp"
 app:layout_constraintBottom_toBottomOf="parent"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toTopOf="parent"
app:layout_constraintVertical_bias="0.653" />

<androidx.appcompat.widget.AppCompatButton
android:id="@+id/mod"
 android:layout_width="72dp"
 android:layout_height="71dp"
 android:layout_marginStart="36dp"
 android:background="@drawable/circle"
android:text="mod"
 android:textSize="20sp"
 app:layout_constraintBottom_toBottomOf="parent"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toTopOf="parent"
app:layout_constraintVertical_bias="0.653" />

</androidx.constraintlayout.widget.ConstraintLay
```

out> **ScreenShot of app:**


8:45
42
76
Result
+
-
/
*
MOD
SIN
COS
TAN
POW
C


8:46
42
76
2.32780217822
27206E123
+
-
/
*
MOD
SIN
COS
TAN
POW
C