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AIML 'A'

LAB EXPERIMENT : 09

9) Develop an Android application using controls like Button, TextView, EditText for designing a calculator having basic functionality like Addition, Subtraction, multiplication, and Division.

# AIM:

The aim of this project is to create a simple calculator application for Android using basic UI elements (Button, EditText, TextView) that can perform basic arithmetic operations such as addition, subtraction, multiplication, and division.

# ALGORITHM:

## Define the UI Elements:

* + Use EditText for the user to input numbers.
  + Use TextView to display the result.
  + Use Button for the operations (addition, subtraction, multiplication, and division).

## Design Layout:

* + Arrange the buttons and input fields in the XML layout.

## Get User Input:

* + When a user inputs numbers and clicks an operation button, capture the numbers from the EditText fields.

## Perform Calculation:

* + Based on the operation selected (addition, subtraction, multiplication, or division), perform the respective operation using the input numbers.

## Display Result:

* + Show the result of the operation in the TextView.

# SOURCE CODE:

package com.example.calculator;

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

import androidx.appcompat.app.AppCompatActivity;

public class MainActivity extends AppCompatActivity {

private EditText editTextNum1, editTextNum2; private TextView resultTextView;

private Button addButton, subtractButton, multiplyButton, divideButton;

@Override

protected void onCreate(Bundle savedInstanceState) { super.onCreate(savedInstanceState); setContentView(R.layout.activity\_main);

editTextNum1 = findViewById(R.id.editTextNum1); editTextNum2 = findViewById(R.id.editTextNum2); resultTextView = findViewById(R.id.resultTextView);

addButton = findViewById(R.id.addButton); subtractButton = findViewById(R.id.subtractButton); multiplyButton = findViewById(R.id.multiplyButton); divideButton = findViewById(R.id.divideButton);

addButton.setOnClickListener(new View.OnClickListener() { @Override

public void onClick(View v) { performOperation("add");

}

});

subtractButton.setOnClickListener(new View.OnClickListener() { @Override

public void onClick(View v) { performOperation("subtract");

}

});

multiplyButton.setOnClickListener(new View.OnClickListener() { @Override

public void onClick(View v) { performOperation("multiply");

}

});

divideButton.setOnClickListener(new View.OnClickListener() { @Override

public void onClick(View v) { performOperation("divide");

}

});

}

private void performOperation(String operation) { String num1Str = editTextNum1.getText().toString(); String num2Str = editTextNum2.getText().toString();

if (num1Str.isEmpty() || num2Str.isEmpty()) { Toast.makeText(MainActivity.this, "Please enter both numbers",

Toast.LENGTH\_SHORT).show(); return;

}

double num1 = Double.parseDouble(num1Str);

double num2 = Double.parseDouble(num2Str); double result = 0;

switch (operation) { case "add":

result = num1 + num2; break;

case "subtract":

result = num1 - num2; break;

case "multiply":

result = num1 \* num2; break;

case "divide":

if (num2 != 0) {

result = num1 / num2;

} else {

Toast.makeText(MainActivity.this, "Cannot divide by zero", Toast.LENGTH\_SHORT).show();

return;

}

break;

}

resultTextView.setText("Result: " + result);

}

}

# 2. ACTIVITY\_MAIN.XML

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

<LinearLayout xmlns:android="<http://schemas.android.com/apk/res/android>" android:layout\_width="match\_parent"

android:layout\_height="match\_parent" android:orientation="vertical" android:padding="16dp">

<EditText android:id="@+id/editTextNum1" android:layout\_width="match\_parent" android:layout\_height="wrap\_content" android:hint="Enter number 1" android:inputType="numberDecimal" />

<EditText android:id="@+id/editTextNum2" android:layout\_width="match\_parent" android:layout\_height="wrap\_content" android:hint="Enter number 2" android:inputType="numberDecimal" />

<TextView android:id="@+id/resultTextView" android:layout\_width="wrap\_content" android:layout\_height="wrap\_content" android:text="Result: " android:textSize="18sp" android:layout\_marginTop="20dp"/>

<LinearLayout android:layout\_width="match\_parent" android:layout\_height="wrap\_content" android:orientation="horizontal" android:layout\_marginTop="20dp"

android:gravity="center">

<Button android:id="@+id/addButton"

android:layout\_width="wrap\_content" android:layout\_height="wrap\_content" android:text="Add" />

<Button android:id="@+id/subtractButton" android:layout\_width="wrap\_content" android:layout\_height="wrap\_content" android:text="Subtract" android:layout\_marginLeft="10dp" />

<Button android:id="@+id/multiplyButton" android:layout\_width="wrap\_content" android:layout\_height="wrap\_content" android:text="Multiply" android:layout\_marginLeft="10dp" />

<Button android:id="@+id/divideButton" android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content" android:text="Divide" android:layout\_marginLeft="10dp" />

</LinearLayout>

</LinearLayout>

# RESULT:

That's the basic implementation for a simple calculator in Android using Button, TextView, and

EditText

OUTPUT:

