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TE COMP 32
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Experiment No 7

Aim: To create a basic calculator using Android studio

Theory:

- A calculator is a device or software application that performs arithmetic and mathematical operations.
- In this experiment, the focus is on creating a simple calculator using Android studio.
- The calculator will support basic arithmetic operations such as addition, subtraction, multiplication and division.
- Following functions are used in this experiment:

1) onCreate Method
=) This is a lifecycle method in Android, called when the activity is first created.
- It is where you set up the initial state of your activity, including UI elements and event handlers.

2) attachButtonClickListener(int buttonId) Method
=) A custom method to attach click listeners to buttons.
- It takes a button ID as parameter, finds the button in the layout, and sets a

click listener on it.

3) handleButtonClick (String buttonText)
⇒ Called only when any digit or operation button is clicked.
- Appends the click button's text to the 'inputStringBuilder', representing the current user input.
- Then, it updates the displays to show the current input.

4) updateDisplay() method
⇒ Updates the 'textViewDisplay' with the current content of the 'inputStringBuilder'.
- Called after each button click to keep the displayed input up to date.

5) handleEqualButtonClick() Method
⇒ Called when the equal button is clicked.
- Tries to evaluate the expression represented by current input string.

- Conclusion
⇒ The program to create a basic calculator in android studio was successfully implemented.

Pain (A+)

Code:

(activity_main.xml)

```
<LinearLayout
    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:orientation="vertical"
    tools:context=".MainActivity">

    <EditText
        android:id="@+id/number1"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:inputType="numberDecimal"
        android:hint="Enter first number" />

    <EditText
        android:id="@+id/number2"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:inputType="numberDecimal"
        android:hint="Enter second number" />

    <LinearLayout
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:orientation="horizontal">

        <Button
            android:id="@+id/addButton"
            android:layout_width="0dp"
            android:layout_height="wrap_content"
            android:layout_weight="1"
            android:text="Add" />

        <Button
            android:id="@+id/subtractButton"
            android:layout_width="0dp"
```

```
            android:layout_height="wrap_content"
            android:layout_weight="1"
            android:text="Subtract" />

        <Button
            android:id="@+id/multiplyButton"
            android:layout_width="0dp"
            android:layout_height="wrap_content"
            android:layout_weight="1"
            android:text="Multiply" />

        <Button
            android:id="@+id/divideButton"
            android:layout_width="0dp"
            android:layout_height="wrap_content"
            android:layout_weight="1"
            android:text="Divide" />
    </LinearLayout>

    <TextView
        android:id="@+id/result"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:textSize="24sp"
        android:text="Result will be displayed here" />

</LinearLayout>
```

(MainActivity.java)

```
package com.example.mcc_exp5;

import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.TextView;

public class MainActivity extends AppCompatActivity {

    EditText number1, number2;
```

```
    Button addButton, subtractButton, multiplyButton, divideButton;
    TextView result;

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

        number1 = findViewById(R.id.number1);
        number2 = findViewById(R.id.number2);
        addButton = findViewById(R.id.addButton);
        subtractButton = findViewById(R.id.subtractButton);
        multiplyButton = findViewById(R.id.multiplyButton);
        divideButton = findViewById(R.id.divideButton);
        result = findViewById(R.id.result);

        addButton.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                double num1 =
Double.parseDouble(number1.getText().toString());
                double num2 =
Double.parseDouble(number2.getText().toString());
                double res = num1 + num2;
                result.setText("Result: " + res);
            }
        });

        subtractButton.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                double num1 =
Double.parseDouble(number1.getText().toString());
                double num2 =
Double.parseDouble(number2.getText().toString());
                double res = num1 - num2;
                result.setText("Result: " + res);
            }
        });

        multiplyButton.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
```

```
                double num1 =
Double.parseDouble(number1.getText().toString());
                double num2 =
Double.parseDouble(number2.getText().toString());
                double res = num1 * num2;
                result.setText("Result: " + res);
            }
        });

        divideButton.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                double num1 =
Double.parseDouble(number1.getText().toString());
                double num2 =
Double.parseDouble(number2.getText().toString());
                double res = num1 / num2;
                result.setText("Result: " + res);
            }
        });
    }
}
```

Output: