

Androidmanifest.xml

```
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools">

    <application
        android:allowBackup="true"
        android:icon="@mipmap/ic_launcher"
        android:label="@string/app_name"
        android:roundIcon="@mipmap/ic_launcher_round"
        android:supportRtl="true"
        android:theme="@style/Theme.ScientificCalculator"
        tools:ignore="MissingApplicationIcon">

        <activity
            android:name=".MainActivity"
            android:exported="true">
            <intent-filter>
                <action android:name="android.intent.action.MAIN" />
                <category android:name="android.intent.category.LAUNCHER" />
            </intent-filter>
        </activity>

    </application>

</manifest>
```

MainActivity.java

```
package com.example.final_cal;

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

public class MainActivity extends AppCompatActivity {

    private EditText editText;
    private StringBuilder expression = new StringBuilder();
    private ExpressionEvaluator evaluator = new ExpressionEvaluator();

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

        editText = findViewById(R.id.editText);
        setupButtons();
    }

    private void setupButtons() {
        int[] buttonIds = {
            R.id.button_clear, R.id.button_mod, R.id.button_divide, R.id.button_multiply,
            R.id.button_sin, R.id.button_cos, R.id.button_tan, R.id.button_subtract,
            R.id.button_sqrt, R.id.button_pow, R.id.button_add, R.id.button_log,
            R.id.button_ln, R.id.button_equals,
            R.id.button_0, R.id.button_1, R.id.button_2, R.id.button_3,
            R.id.button_4, R.id.button_5, R.id.button_6, R.id.button_7,
            R.id.button_8, R.id.button_9
        };
    }

    for (int id : buttonIds) {
        Button button = findViewById(id);
        button.setOnClickListener(this::onButtonClick);
    }
}

private void onButtonClick(View view) {
    Button button = (Button) view;
    String buttonText = button.getText().toString();

    if (buttonText.equals("C")) {

```

```

        expression.setLength(0);
    } else if (buttonText.equals("=")) {
        calculateResult();
        return;
    } else {
        expression.append(buttonText);
    }
    updateDisplay();
}

private void updateDisplay() {
    editText.setText(expression.toString());
}

private void calculateResult() {
    try {
        String exp = expression.toString();
        double result = evaluator.evaluate(exp);
        expression.setLength(0);
        expression.append(result);
    } catch (Exception e) {
        expression.setLength(0);
        expression.append("Error");
    }
    updateDisplay();
}
}

```

Activity_Main.xml

```

<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:padding="16dp"
    tools:context=".MainActivity"
    android:background="#BB15D7">

    <TextView
        android:id="@+id/titleText"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_centerHorizontal="true"
        android:layout_marginBottom="16dp"
        android:text="CALCULATOR"
        android:textSize="24sp"
        android:textStyle="bold"
        android:textColor="#C81919" />

    <EditText
        android:id="@+id/editText"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_below="@id/titleText"
        android:layout_marginBottom="16dp"
        android:background="@drawable/edit_text_bg"
        android:gravity="center"
        android:inputType="none"
        android:textSize="32sp"
        android:textColor="@color/black"
        android:padding="16dp"
        android:backgroundTint="@color/colorPrimaryDark"
        android:focusable="false"
        android:cursorVisible="false"/>

    <GridLayout
        android:id="@+id/buttonGrid"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_below="@id/editText"
        android:columnCount="4"
        android:rowCount="6"
        android:padding="16dp"
        android:background="@color/white"

```

```
android:layout_marginTop="16dp">
```

```
<!-- First Row -->
```

```
<Button
    android:id="@+id/button_7"
    style="@style/CalculatorButton"
    android:text="7" />
```

```
<Button
    android:id="@+id/button_8"
    style="@style/CalculatorButton"
    android:text="8" />
```

```
<Button
    android:id="@+id/button_9"
    style="@style/CalculatorButton"
    android:text="9" />
```

```
<Button
    android:id="@+id/button_divide"
    style="@style/CalculatorButton"
    android:text="/" />
```

```
<!-- Second Row -->
```

```
<Button
    android:id="@+id/button_4"
    style="@style/CalculatorButton"
    android:text="4" />
```

```
<Button
    android:id="@+id/button_5"
    style="@style/CalculatorButton"
    android:text="5" />
```

```
<Button
    android:id="@+id/button_6"
    style="@style/CalculatorButton"
    android:text="6" />
```

```
<Button
    android:id="@+id/button_multiply"
    style="@style/CalculatorButton"
    android:text="*" />
```

```
<!-- Third Row -->
```

```
<Button
    android:id="@+id/button_1"
    style="@style/CalculatorButton"
    android:text="1" />
```

```
<Button
    android:id="@+id/button_2"
    style="@style/CalculatorButton"
    android:text="2" />
```

```
<Button
    android:id="@+id/button_3"
    style="@style/CalculatorButton"
    android:text="3" />
```

```
<Button
    android:id="@+id/button_subtract"
    style="@style/CalculatorButton"
    android:text="-" />
```

```
<!-- Fourth Row -->
```

```
<Button
    android:id="@+id/button_0"
    style="@style/CalculatorButton"
    android:text="0" />
```

```
<Button
    android:id="@+id/button_mod"
    style="@style/CalculatorButton"
    android:text="%" />
```

```
<Button
    android:id="@+id/button_clear"
    style="@style/CalculatorButton"
    android:text="C" />
```

```
<Button
    android:id="@+id/button_add"
    style="@style/CalculatorButton"
    android:text="+" />
```

```

<!-- Fifth Row -->
<Button
    android:id="@+id/button_sin"
    style="@style/CalculatorButton"
    android:text="sin" />
<Button
    android:id="@+id/button_cos"
    style="@style/CalculatorButton"
    android:text="cos" />
<Button
    android:id="@+id/button_tan"
    style="@style/CalculatorButton"
    android:text="tan" />
<Button
    android:id="@+id/button_pow"
    style="@style/CalculatorButton"
    android:text="^" />

<!-- Sixth Row -->
<Button
    android:id="@+id/button_sqrt"
    style="@style/CalculatorButton"
    android:text="√" />
<Button
    android:id="@+id/button_log"
    style="@style/CalculatorButton"
    android:text="log" />
<Button
    android:id="@+id/button_ln"
    style="@style/CalculatorButton"
    android:text="ln" />
<Button
    android:id="@+id/button_equals"
    style="@style/CalculatorButton"
    android:text="=" />
</GridLayout>
<TextView
    android:id="@+id/footer_text"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignParentBottom="true"
    android:layout_margin="28dp"
    android:text="DONE BY"
    android:layout_centerHorizontal="true"
    android:textSize="26sp"
    android:textColor="@android:color/black"
    android:fontFamily="ariel"
/>

<TextView
    android:id="@+id/footer_text"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignParentBottom="true"
    android:layout_margin="28dp"
    android:text="ABDUL JAMEEL"
    android:layout_centerHorizontal="true"
    android:textSize="26sp"
    android:textColor="@android:color/black"
    android:fontFamily="ariel"
/>
</RelativeLayout>

```