

activity_main.xml:

```
<?xml version="1.0" encoding="utf-8"?>
<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:background="@color/background_color"
    android:orientation="vertical"
    android:padding="16dp"
    tools:context=".MainActivity">
    <TextView
        android:id="@+id/calculatorTitle"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_gravity="center_horizontal"
        android:padding="8dp"
        android:text="SCIENTIFIC CALCULATOR"
        android:textColor="@color/title_color"
        android:textSize="25sp"
        android:layout_marginTop="35dp"
        android:textStyle="bold" />
    <TextView
        android:id="@+id/display"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_marginBottom="8dp"
        android:gravity="end"
        android:padding="16dp"
        android:text="0"
        android:textColor="@color/text_color"
        android:textSize="32sp" />
    <GridLayout
        android:layout_width="match_parent"
        android:layout_height="0dp"
        android:layout_gravity="center_horizontal"
        android:layout_weight="1"
        android:columnCount="4"
        android:rowCount="6"
        android:background="@color/dark_purple">
        <Button
            android:id="@+id/btnClear"
            android:layout_width="0dp"
            android:layout_height="0dp"
            android:layout_row="0"
            android:layout_column="0"
            android:layout_columnSpan="2"
            android:layout_margin="2dp"
            android:layout_rowWeight="1"
            android:layout_columnWeight="1"
            android:background="@drawable/ic_launcher_background"
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    android:backgroundTint="@color/button_color"
    android:text="C"
    android:textColor="@color/text_color"
    android:textSize="25sp" />
<Button
    android:id="@+id/btnDelete"
    android:layout_width="0dp"
    android:layout_height="0dp"
    android:layout_row="0"
    android:layout_column="2"
    android:layout_margin="2dp"
    android:layout_rowWeight="1"
    android:layout_columnWeight="1"
    android:background="@drawable/button_rounded"
    android:text="Del"
    android:textColor="@color/text_color"
    android:textSize="25sp" />
<Button
    android:id="@+id/btn7"
    android:layout_width="0dp"
    android:layout_height="0dp"
    android:layout_row="1"
    android:layout_column="0"
    android:layout_margin="2dp"
    android:layout_rowWeight="1"
    android:layout_columnWeight="1"
    android:background="@drawable/button_rounded"
    android:text="7"
    android:textColor="@color/text_color"
    android:textSize="30sp" />
<Button
    android:id="@+id/btn8"
    android:layout_width="0dp"
    android:layout_height="0dp"
    android:layout_row="1"
    android:layout_column="1"
    android:layout_margin="2dp"
    android:layout_rowWeight="1"
    android:layout_columnWeight="1"
    android:background="@drawable/button_rounded"
    android:text="8"
    android:textColor="@color/text_color"
    android:textSize="30sp" />
<Button
    android:id="@+id/btn9"
    android:layout_width="0dp"
    android:layout_height="0dp"
    android:layout_row="1"
    android:layout_column="2"
    android:layout_margin="2dp"
    android:layout_rowWeight="1"
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    android:layout_columnWeight="1"
    android:background="@drawable/button_rounded"
    android:text="9"
    android:textColor="@color/text_color"
    android:textSize="30sp" />
<Button
    android:id="@+id/btnMultiply"
    android:layout_width="0dp"
    android:layout_height="0dp"
    android:layout_row="1"
    android:layout_column="3"
    android:layout_margin="2dp"
    android:layout_rowWeight="1"
    android:layout_columnWeight="1"
    android:background="@drawable/button_rounded"
    android:text="*"
    android:textColor="@color/text_color"
    android:textSize="30sp" />
<Button
    android:id="@+id/btn4"
    android:layout_width="0dp"
    android:layout_height="0dp"
    android:layout_row="2"
    android:layout_column="0"
    android:layout_margin="2dp"
    android:layout_rowWeight="1"
    android:layout_columnWeight="1"
    android:background="@drawable/button_rounded"
    android:text="4"
    android:textColor="@color/text_color"
    android:textSize="30sp" />
<Button
    android:id="@+id/btn5"
    android:layout_width="0dp"
    android:layout_height="0dp"
    android:layout_row="2"
    android:layout_column="1"
    android:layout_margin="2dp"
    android:layout_rowWeight="1"
    android:layout_columnWeight="1"
    android:background="@drawable/button_rounded"
    android:text="5"
    android:textColor="@color/text_color"
    android:textSize="30sp" />
<Button
    android:id="@+id/btn6"
    android:layout_width="0dp"
    android:layout_height="0dp"
    android:layout_row="2"
    android:layout_column="2"
    android:layout_margin="2dp"
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    android:layout_rowWeight="1"
    android:layout_columnWeight="1"
    android:background="@drawable/button_rounded"
    android:text="6"
    android:textColor="@color/text_color"
    android:textSize="30sp" />
<Button
    android:id="@+id/btnSubtract"
    android:layout_width="0dp"
    android:layout_height="0dp"
    android:layout_row="2"
    android:layout_column="3"
    android:layout_margin="2dp"
    android:layout_weight="1"
    android:background="@drawable/button_rounded"
    android:text="-"
    android:textColor="@color/text_color"
    android:textSize="30sp" />
<Button
    android:id="@+id(btn1"
    android:layout_width="0dp"
    android:layout_height="0dp"
    android:layout_row="3"
    android:layout_column="0"
    android:layout_margin="2dp"
    android:layout_weight="1"
    android:background="@drawable/button_rounded"
    android:text="1"
    android:textColor="@color/text_color"
    android:textSize="30sp" />
<Button
    android:id="@+id/btn2"
    android:layout_width="0dp"
    android:layout_height="0dp"
    android:layout_row="3"
    android:layout_column="1"
    android:layout_margin="2dp"
    android:layout_weight="1"
    android:background="@drawable/button_rounded"
    android:text="2"
    android:textColor="@color/text_color"
    android:textSize="30sp" />
<Button
    android:id="@+id/btn3"
    android:layout_width="0dp"
    android:layout_height="0dp"
    android:layout_row="3"
    android:layout_column="2"
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    android:layout_margin="2dp"
    android:layout_rowWeight="1"
    android:layout_columnWeight="1"
    android:background="@drawable/button_rounded"
    android:text="3"
    android:textColor="@color/text_color"
    android:textSize="30sp" />
<Button
    android:id="@+id/btnAdd"
    android:layout_width="0dp"
    android:layout_height="0dp"
    android:layout_row="3"
    android:layout_column="3"
    android:layout_margin="2dp"
    android:layout_rowWeight="1"
    android:layout_columnWeight="1"
    android:background="@drawable/button_rounded"
    android:text="+"
    android:textColor="@color/text_color"
    android:textSize="30sp" />
<Button
    android:id="@+id/btn0"
    android:layout_width="0dp"
    android:layout_height="0dp"
    android:layout_row="4"
    android:layout_column="0"
    android:layout_columnSpan="2"
    android:layout_margin="2dp"
    android:layout_rowWeight="1"
    android:layout_columnWeight="1"
    android:background="@color/button_color"
    android:text="0"
    android:textColor="@color/text_color"
    android:textSize="30sp" />
<Button
    android:id="@+id/btnDecimal"
    android:layout_width="0dp"
    android:layout_height="0dp"
    android:layout_row="4"
    android:layout_column="2"
    android:layout_margin="2dp"
    android:layout_rowWeight="1"
    android:layout_columnWeight="1"
    android:background="@drawable/button_rounded"
    android:text="."
    android:textColor="@color/text_color"
    android:textSize="30sp" />
<Button
    android:id="@+id/btnSin"
    android:layout_width="0dp"
    android:layout_height="0dp"
```

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    android:layout_row="5"
    android:layout_column="0"
    android:layout_margin="2dp"
    android:layout_rowWeight="1"
    android:layout_columnWeight="1"
    android:background="@drawable/button_rounded"
    android:text="sin"
    android:textColor="@color/text_color"
    android:textSize="20sp" />
<Button
    android:id="@+id/btnCos"
    android:layout_width="0dp"
    android:layout_height="0dp"
    android:layout_row="5"
    android:layout_column="1"
    android:layout_margin="2dp"
    android:layout_rowWeight="1"
    android:layout_columnWeight="1"
    android:background="@drawable/button_rounded"
    android:text="cos"
    android:textColor="@color/text_color"
    android:textSize="20sp" />
<Button
    android:id="@+id/btnTan"
    android:layout_width="0dp"
    android:layout_height="0dp"
    android:layout_row="5"
    android:layout_column="2"
    android:layout_margin="2dp"
    android:layout_rowWeight="1"
    android:layout_columnWeight="1"
    android:background="@drawable/button_rounded"
    android:text="tan"
    android:textColor="@color/text_color"
    android:textSize="20sp" />
<Button
    android:id="@+id/btnParenthesisClose"
    android:layout_width="0dp"
    android:layout_height="0dp"
    android:layout_row="5"
    android:layout_column="3"
    android:layout_margin="2dp"
    android:layout_rowWeight="1"
    android:layout_columnWeight="1"
    android:background="@drawable/button_rounded"
    android:text=")"
    android:textColor="@color/text_color"
    android:textSize="30sp" />
</GridLayout>
</LinearLayout>
```

MainActivity.java:

```
package com.example.scientificcalculator;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.TextView;
import androidx.appcompat.app.AppCompatActivity;
public class MainActivity extends AppCompatActivity {
    private TextView display;
    private StringBuilder expression = new StringBuilder();
    private ArithmeticParser parser = new ArithmeticParser();
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        display = findViewById(R.id.display);
        setupNumberButton(R.id.btn0);
        setupNumberButton(R.id.btn1);
        setupNumberButton(R.id.btn2);
        setupNumberButton(R.id.btn3);
        setupNumberButton(R.id.btn4);
        setupNumberButton(R.id.btn5);
        setupNumberButton(R.id.btn6);
        setupNumberButton(R.id.btn7);
        setupNumberButton(R.id.btn8);
        setupNumberButton(R.id.btn9);
        setupOperatorButton(R.id.btnAdd, "+");
        setupOperatorButton(R.id.btnSubtract, "-");
        setupOperatorButton(R.id.btnMultiply, "*");
        setupOperatorButton(R.id.btnDivide, "/");
        setupSpecialButton(R.id.btnDecimal, ".");
        setupSpecialButton(R.id.btnClear, "C");
        setupSpecialButton(R.id.btnDelete, "Del");
        setupSpecialButton(R.id.btnExit, "=");
        setupFunctionButton(R.id.btnSin, "sin");
        setupFunctionButton(R.id.btnCos, "cos");
        setupFunctionButton(R.id.btnTan, "tan");
        setupSpecialButton(R.id.btnParenthesisOpen, "(");
        setupSpecialButton(R.id.btnParenthesisClose, ")");
    }
    private void setupNumberButton(int buttonId) {
        Button button = findViewById(buttonId);
        button.setOnClickListener(v -> appendToExpression(button.getText().toString()));
    }
    private void setupOperatorButton(int buttonId, String operator) {
        Button button = findViewById(buttonId);
        button.setOnClickListener(v -> appendToExpression(" " + operator + " "));
    }
    private void setupSpecialButton(int buttonId, String action) {
        Button button = findViewById(buttonId);
        button.setOnClickListener(v -> {
```

```

switch (action) {
    case "C":
        expression.setLength(0);
        break;
    case "Del":
        if (expression.length() > 0) {
            expression.deleteCharAt(expression.length() - 1);
            display.setText(expression.toString());
        }
        return;
    case "=":
        try {
            String result = String.valueOf(parser.parse(expression.toString()));
            display.setText(result);
            expression.setLength(0);
            expression.append(result);
        } catch (Exception e) {
            display.setText("Error");
        }
        return;
    case "(":
        appendToExpression("(");
        return;
    case ")":
        int openCount = 0;
        int closeCount = 0;
        for (int j = 0; j < expression.length(); j++) {
            if (expression.charAt(j) == '(') openCount++;
            if (expression.charAt(j) == ')') closeCount++;
        }
        if (openCount > closeCount) {
            appendToExpression(")");
        }
        return;
    } display.setText(expression.toString());
});
}
private void setupFunctionButton(int buttonId, String function) {
    Button button = findViewById(buttonId);
    button.setOnClickListener(v -> appendToExpression(function + "("));
}
private void appendToExpression(String text) {
    if (text.equals("(") || text.equals(")")) {
        expression.append(text);
        String currentText = display.getText().toString();
        display.setText(currentText + text);
    } else {
        String currentText = display.getText().toString();
        display.setText(currentText + text);
        expression.append(text);
    }
}
}

```

