AIM:-

Develop a simple calculator to perform arithmetic and mathematical functions using Math class.

PROCEDURE:-

Step 1: Design the layout in activity_main.xml file

Step 2: Open styles.xml file and add a new style for toast message.

Step 3: Define function in MainActivity.kt to perform arithmetic and mathematical functions.

Step 4: Add an OnClickListener to the buttons and perform the corresponding operation.

PROGRAM CODE:-

AndroidManifest.xml:

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

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

    package="com.example.calculator">

    <application

        android:allowBackup="true"

        android:icon="@mipmap/ic_launcher"

        android:label="@string/app_name"

        android:roundIcon="@mipmap/ic_launcher_round"

        android:supportsRtl="true"
```

```xml
        android:theme="@style/AppTheme">

        <activity android:name=".MainActivity">

            <intent-filter>

                <action android:name="android.intent.action.MAIN" />

                <category android:name="android.intent.category.LAUNCHER" />

            </intent-filter>

        </activity>

    </application>

</manifest>
```

activity_main.xml:

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

<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">

    <EditText

        android:id="@+id/inputEditText"

        android:layout_width="match_parent"

        android:layout_height="wrap_content"

        android:layout_marginBottom="16dp"

        android:hint="Enter expression"
```

```xml
        android:inputType="text"

        android:singleLine="true" />

    <Button

        android:id="@+id/calculateButton"

        android:layout_width="wrap_content"

        android:layout_height="wrap_content"

        android:layout_below="@id/inputEditText"

        android:layout_centerHorizontal="true"

        android:text="Calculate" />

    <TextView

        android:id="@+id/resultTextView"

        android:layout_width="wrap_content"

        android:layout_height="wrap_content"

        android:layout_below="@id/calculateButton"

        android:layout_marginTop="16dp"

        android:text="Result: "

        android:textSize="20sp" />

</RelativeLayout>
```

MainActivity.kt:

```kotlin
package com.example.calculator

import androidx.appcompat.app.AppCompatActivity

import android.os.Bundle

import android.widget.Button
```

```kotlin
import android.widget.EditText

import android.widget.TextView

import kotlin.math.*

class MainActivity : AppCompatActivity() {

    override fun onCreate(savedInstanceState: Bundle?) {

        super.onCreate(savedInstanceState)

        setContentView(R.layout.activity_main)

        val inputEditText: EditText = findViewById(R.id.inputEditText)

        val calculateButton: Button = findViewById(R.id.calculateButton)

        val resultTextView: TextView = findViewById(R.id.resultTextView)

        calculateButton.setOnClickListener {

            val expression = inputEditText.text.toString()

            if (expression.isNotEmpty()) {

                try {

                    val result = evaluateExpression(expression)

                    resultTextView.text = "Result: $result"

                } catch (e: Exception) {

                    resultTextView.text = "Error: ${e.message}"

                }

            } else {

                resultTextView.text = "Please enter an expression"

            }

        }
```

```kotlin
    }

    private fun evaluateExpression(expression: String): Double {

        return when {

            expression.contains(Regex("[a-zA-Z]")) -> throw
IllegalArgumentException("Invalid characters")

            else -> evaluateMath(expression)

        }

    }

    private fun evaluateMath(expression: String): Double {

        return try {

            val result =
ScriptEngineManager().getEngineByName("rhino").eval(expression)

            result as Double

        } catch (e: Exception) {

            throw IllegalArgumentException("Invalid expression")

        }

    }

}
```
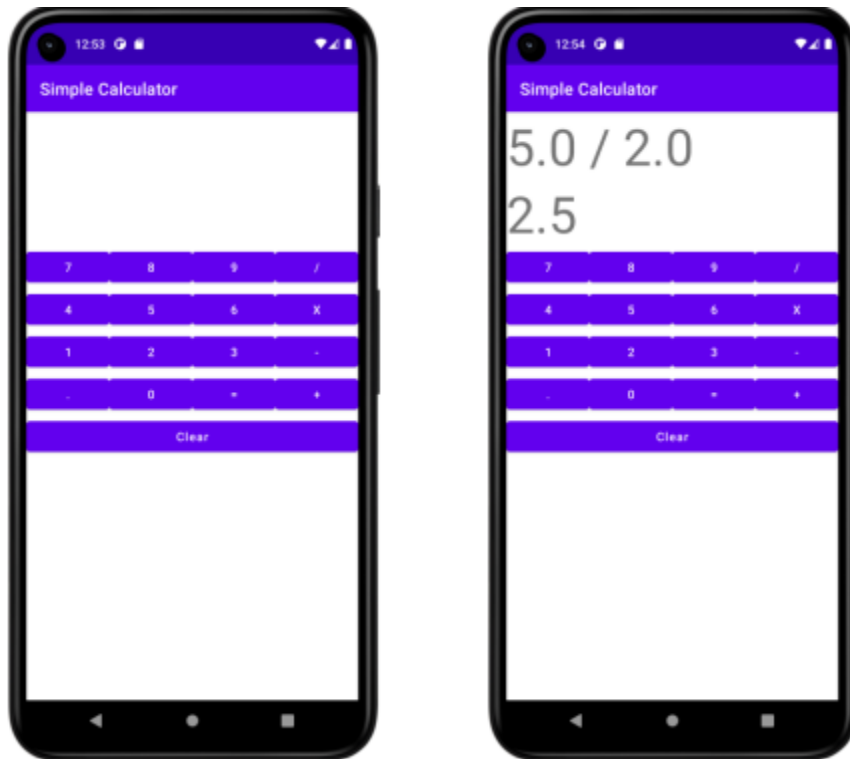
OUTPUT:-

RESULT:-

       Thus to develop a scientific calculator to perform arithmetic and mathematical functions using Math class is implemented and executed successfully.