Ex. No. : 02 **Date: 26/01/25**

Register No.: 221701005 **Name: ADHITHYA PG**

Simple Calculator

Aim

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

Procedure:

Step 1 : File -> NewProject

Provide the application name and Click “Next”

Step 2 : Select the target android devices

Select the minimum SDK to run the application. Click “Next”.

Step 3 : Choose the activity for the application (By default choose “Blank Activity).

Click “Next”.

Step 4 : Enter activity name and click "Finish".

Step 5 : Edit the program.

Step 6 : Run the application, 2-ways to run the application.

1. Running through emulator
2. Running through mobile device

AndroidManifest.xml

```
<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
  xmlns:tools="http://schemas.android.com/tools">

  <application
    android:allowBackup="true"
    android:dataExtractionRules="@xml/data_extraction_rules"
    android:fullBackupContent="@xml/backup_rules"
    android:icon="@mipmap/ic_launcher"
    android:label="@string/app_name"
    android:roundIcon="@mipmap/ic_launcher_round"
    android:supportsRtl="true"
    android:theme="@style/Theme.Exp1"
    tools:targetApi="31">
    <activity
      android:name=".MainActivity"
      android:exported="true"
      android:theme="@style/Theme.Exp1">
      <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 version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
   android:orientation="vertical"
   android:layout_width="match_parent"
   android:layout_height="match_parent"
   android:gravity="center"
   android:padding="16dp">

   <EditText
      android:id="@+id/tvInput"
      android:layout_width="match_parent"
      android:layout_height="wrap_content"
      android:hint="Enter Expression"
      android:textSize="24sp" />

   <TextView
      android:id="@+id/tvResult"
      android:layout_width="match_parent"
      android:layout_height="wrap_content"
      android:text="Result"
      android:textSize="24sp"
      android:padding="8dp"
      android:gravity="center"/>

   <GridLayout
      android:layout_width="match_parent"
      android:layout_height="wrap_content"
      android:columnCount="4"
      android:rowCount="5"
      android:paddingTop="16dp">

      <Button android:id="@+id/btn7" android:text="7"
style="@style/Widget.AppCompat.Button.Colored"/>
      <Button android:id="@+id/btn8" android:text="8"
style="@style/Widget.AppCompat.Button.Colored"/>
      <Button android:id="@+id/btn9" android:text="9"
style="@style/Widget.AppCompat.Button.Colored"/>
      <Button android:id="@+id/btnDivide" android:text="/"
style="@style/Widget.AppCompat.Button.Colored"/>

      <Button android:id="@+id/btn4" android:text="4"
style="@style/Widget.AppCompat.Button.Colored"/>
      <Button android:id="@+id/btn5" android:text="5"
style="@style/Widget.AppCompat.Button.Colored"/>
      <Button android:id="@+id/btn6" android:text="6"
style="@style/Widget.AppCompat.Button.Colored"/>
      <Button android:id="@+id/btnMultiply" android:text="*"
style="@style/Widget.AppCompat.Button.Colored"/>
```

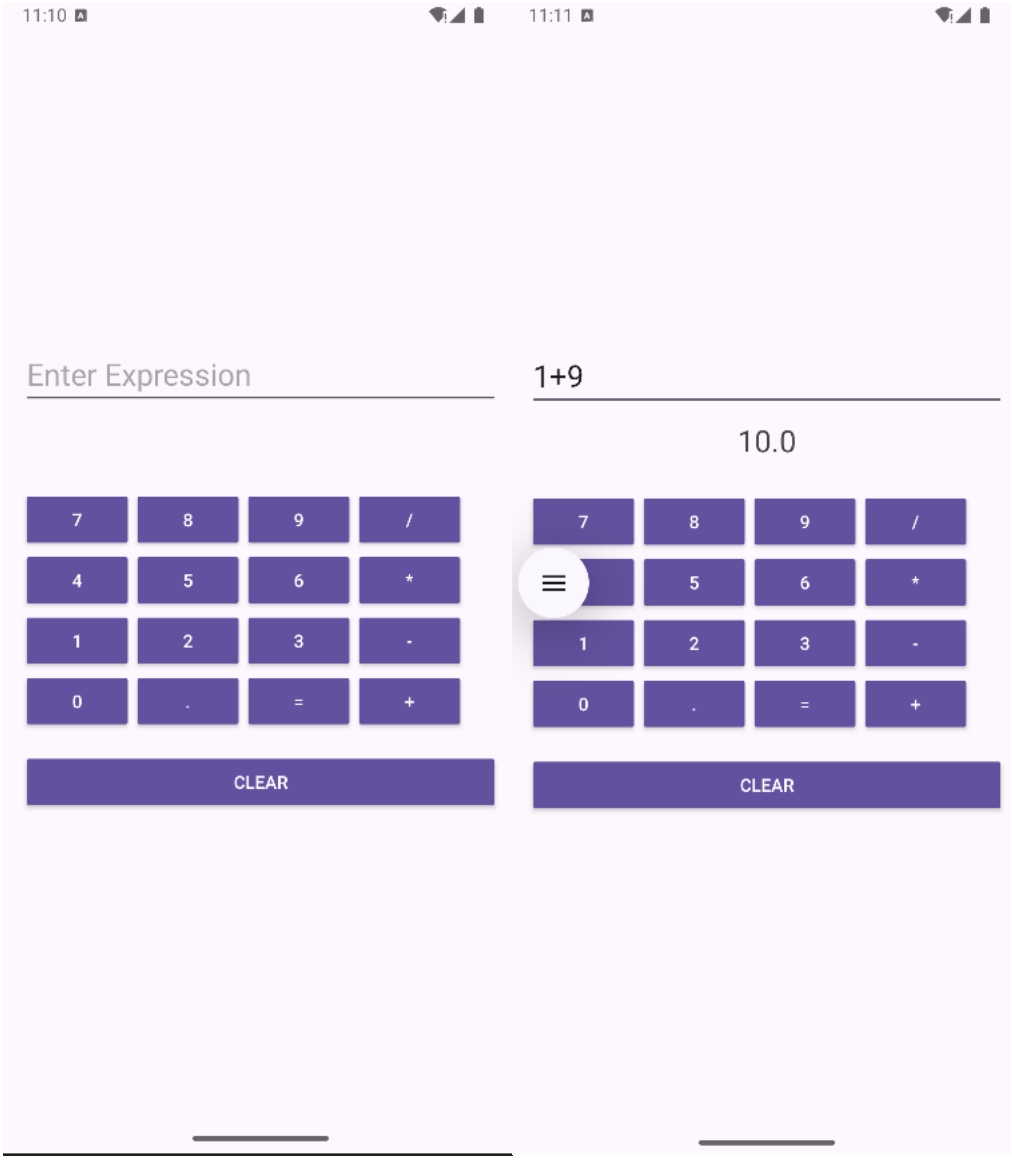
```
<Button android:id="@+id/btn1" android:text="1"
style="@style/Widget.AppCompat.Button.Colored"/>
    <Button android:id="@+id/btn2" android:text="2"
style="@style/Widget.AppCompat.Button.Colored"/>
    <Button android:id="@+id/btn3" android:text="3"
style="@style/Widget.AppCompat.Button.Colored"/>
    <Button android:id="@+id/btnSubtract" android:text="-"
style="@style/Widget.AppCompat.Button.Colored"/>

    <Button android:id="@+id/btn0" android:text="0"
style="@style/Widget.AppCompat.Button.Colored"/>
    <Button android:id="@+id/btnDot" android:text="."
style="@style/Widget.AppCompat.Button.Colored"/>
    <Button android:id="@+id/btnEquals" android:text="="
style="@style/Widget.AppCompat.Button.Colored"/>
    <Button android:id="@+id/btnAdd" android:text="+"
style="@style/Widget.AppCompat.Button.Colored"/>

  </GridLayout>

  <Button
    android:id="@+id/btnClear"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:text="Clear"
    android:layout_marginTop="16dp"
    style="@style/Widget.AppCompat.Button.Colored"/>
</LinearLayout>
```

.

MainActivity.kt

```
package com.example.exp2

import android.os.Bundle
import android.widget.Button
import android.widget.EditText
import android.widget.TextView
import androidx.appcompat.app.AppCompatActivity
import net.objecthunter.exp4j.ExpressionBuilder

class MainActivity : AppCompatActivity() {

    private lateinit var input: String
    private lateinit var tvInput: EditText
    private lateinit var tvResult: TextView

    override fun onCreate(savedInstanceState: Bundle?) {
        super.onCreate(savedInstanceState)
        setContentView(R.layout.activity_main)

        input = ""
        tvInput = findViewById(R.id.tvInput)
        tvResult = findViewById(R.id.tvResult)

        val buttons = listOf(
            R.id.btn0, R.id.btn1, R.id.btn2, R.id.btn3, R.id.btn4,
            R.id.btn5, R.id.btn6, R.id.btn7, R.id.btn8, R.id.btn9,
            R.id.btnAdd, R.id.btnSubtract, R.id.btnMultiply, R.id.btnDivide, R.id.btnDot
        )

        buttons.forEach { id ->
            findViewById<Button>(id).setOnClickListener {
                val btn = it as Button
                input += btn.text
                tvInput.setText(input)
            }
        }

        val btnClear = findViewById<Button>(R.id.btnClear)
        btnClear.setOnClickListener {
            input = ""
            tvInput.setText("")
            tvResult.text = ""
        }

        val btnEquals = findViewById<Button>(R.id.btnEquals)
        btnEquals.setOnClickListener {
            try {
                val expression = ExpressionBuilder(input).build()
                val result = expression.evaluate()
                tvResult.text = result.toString()
            } catch (e: Exception) {
                tvResult.text = "Error"
            }
        }
    }
}
```

Output



Result

Experiment has been successfully executed