

## EX 2

### ANDROID MANIFEST

```
<?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.Calci"
        tools:targetApi="31">
        <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>
```

### ACTIVITY MAIN

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout
    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:orientation="vertical"
    tools:context=".MainActivity"
    tools:ignore="HardcodedText">

    <LinearLayout
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:orientation="vertical"
        android:padding="20dp">

        <TextView
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:textSize="25sp"
            android:id="@+id/input"
            android:text=""/>

        <TextView
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:textSize="40sp"
            android:id="@+id/output"
            android:text=""/>
    </LinearLayout>
```

```
<TableLayout
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:stretchColumns="*">

    <TableRow android:paddingBottom="10dp">
        <Button
            android:text="7"
            android:layout_width="match_parent"
            android:layout_height="wrap_content" android:id="@+id/button7"
            android:onClick="numberAction"/>

        <Button
            android:text="8"
            android:layout_width="match_parent"
            android:layout_height="wrap_content" android:id="@+id/button8"
            android:onClick="numberAction"/>

        <Button
            android:text="9"
            android:layout_width="match_parent"
            android:layout_height="wrap_content" android:id="@+id/button9"
            android:onClick="numberAction"/>

        <Button
            android:text="/"
            android:layout_width="match_parent"
            android:layout_height="wrap_content" android:id="@+id/div"
            android:onClick="operatorAction"/>
    </TableRow>
    <TableRow android:paddingBottom="10dp">
        <Button
            android:text="4"
            android:layout_width="match_parent"
            android:layout_height="wrap_content" android:id="@+id/button4"
            android:onClick="numberAction"/>

        <Button
            android:text="5"
            android:layout_width="match_parent"
            android:layout_height="wrap_content" android:id="@+id/button5"
            android:onClick="numberAction"/>

        <Button
            android:text="6"
            android:layout_width="match_parent"
            android:layout_height="wrap_content" android:id="@+id/button6"
            android:onClick="numberAction"/>

        <Button
            android:text="x"
            android:layout_width="match_parent"
            android:layout_height="wrap_content" android:id="@+id/mul"
            android:onClick="operatorAction"/>
    </TableRow>
    <TableRow android:paddingBottom="10dp">
        <Button
            android:text="3"
            android:layout_width="match_parent"
            android:layout_height="wrap_content" android:id="@+id/button3"
            android:onClick="numberAction"/>

        <Button
            android:text="2"
            android:layout_width="match_parent"
            android:layout_height="wrap_content" android:id="@+id/button2"
            android:onClick="numberAction"/>

        <Button
            android:text="1"
            android:layout_width="match_parent"
            android:layout_height="wrap_content" android:id="@+id/button1"
```

```

        android:onClick="numberAction"/>
    <Button
        android:text="-"
        android:layout_width="match_parent"
        android:layout_height="wrap_content" android:id="@+id/sub"
        android:onClick="operatorAction"/>
</TableRow>

<TableRow android:paddingBottom="10dp">
    <Button
        android:text="."
        android:layout_width="match_parent"
        android:layout_height="wrap_content" android:id="@+id/dot"
        android:onClick="numberAction"/>

    <Button
        android:text="0"
        android:layout_width="match_parent"
        android:layout_height="wrap_content" android:id="@+id/button0"
        android:onClick="numberAction"/>

    <Button
        android:text="="
        android:layout_width="match_parent"
        android:layout_height="wrap_content" android:id="@+id/equals"
        android:onClick="equalsAction"/>

    <Button
        android:text="+"
        android:layout_width="match_parent"
        android:layout_height="wrap_content" android:id="@+id/add"
        android:onClick="operatorAction"/>
</TableRow>
<TableRow android:paddingBottom="10dp">
    <Button
        android:text="Clear"
        android:layout_width="match_parent"
        android:layout_weight="3"
        android:layout_height="wrap_content" android:id="@+id/clear"
        android:onClick="clearAction"/>

</TableRow>
</TableLayout>

</LinearLayout>

```

## MAIN ACTIVITY

```

package com.example.calci

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

class MainActivity : AppCompatActivity() {
    private var addOperation = false
    private var addDecimal = true
    private lateinit var textViewInput: TextView
    private lateinit var textViewResult: TextView

    override fun onCreate(savedInstanceState: Bundle?) {
        super.onCreate(savedInstanceState)
    }
}

```

```

        setContentView(R.layout.activity_main)

        textViewInput = findViewById(R.id.input)
        textViewResult = findViewById(R.id.output)

    }

    fun numberAction(view: View) {
        if (view is Button) {
            if (view.text == ".") {
                textViewInput.append(view.text)
                addOperation = false
            } else
                textViewInput.append(view.text)

            addOperation = true
        }
    }

    fun operatorAction(view: View) {
        if (view is Button && addOperation) {
            textViewInput.append(view.text)
            addOperation = false
            addDecimal = true
        }
    }

    fun clearAction(view: View) {
        textViewResult.text = ""
        textViewInput.text = ""
    }

    fun equalsAction(view: View) {
        textViewResult.text = calculateResult()
    }

    private fun calculateResult(): String {
        val digitsOperator = digitsOperator()
        if(digitsOperator.isEmpty()) return ""

        val timesDivision=divCalculate(digitsOperator)
        if(timesDivision.isEmpty()) return ""

        val result=addSubtract(timesDivision)
        return result.toString()
    }

    private fun addSubtract(passedList: MutableList<Any>): Float {
        var result=passedList[0] as Float
        for(i in passedList.indices){
            if(passedList[i] is Char && i!=passedList.lastIndex)
            {
                val operator=passedList[i]
                val nextDigit=passedList[i+1] as Float
                if(operator=='+')
                    result+=nextDigit
                if(operator=='-')
                    result-=nextDigit
            }
        }
        return result
    }

    private fun divCalculate(passedList: MutableList<Any>): MutableList<Any> {

```

```

        var list=passedList
        while (list.contains('x') || list.contains('/')){
            list=calcddiv(list)
        }
        return list
    }

    private fun calcddiv(passedList: MutableList<Any>): MutableList<Any> {
        val newList = mutableListOf<Any>()
        var restartIndex = passedList.size
        for (i in passedList.indices) {
            if (passedList[i] is Char && i != passedList.lastIndex && i <
restartIndex) {
                val operator = passedList[i]
                val prevDigit = passedList[i-1] as Float
                val nextDigit = passedList[i+1] as Float
                when (operator) {
                    'x' -> {
                        newList.add(prevDigit * nextDigit)
                        restartIndex = i + 1
                    }

                    '/' -> {
                        newList.add(prevDigit / nextDigit)
                        restartIndex = i + 1
                    }

                    else -> {
                        newList.add(prevDigit)
                        newList.add(operator)
                    }
                }
            }
            if (i>restartIndex)
                newList.add(passedList[i])
        }
        return newList
    }

    private fun digitsOperator():MutableList<Any>{
        val list= mutableListOf<Any>()
        var currentDigit=""
        for(character in textViewInput.text){
            if(character.isDigit() || character == '.')
                currentDigit+=character
            else{
                list.add(currentDigit.toFloat())
                currentDigit=""
                list.add(character)
            }
        }
        if (currentDigit!="")
            list.add(currentDigit.toFloat())
        return list
    }
}

```