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Github link: <https://github.com/sabahseif/BITA-23-079-TZ-SABAH>

Question:1 Installation of Android Studio and configuration,test case hello world

2.UI Design and Implementation Test Case calculator

```
package com.example.helloworld
import android.os.Bundle
import android.widget.Button
import android.widget.TextView
import androidx.appcompat.app.AppCompatActivity

class MainActivity : AppCompatActivity() {

    private lateinit var txtResult: TextView
    private var result = 0
    private var inStr = "0"
    private var lastOperator = ' '

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

        txtResult = findViewById(R.id.txtResultId)
        txtResult.text = "0"

        val buttons = listOf(
            R.id.btnNum0Id, R.id.btnNum1Id, R.id.btnNum2Id, R.id.btnNum3Id,
            R.id.btnNum4Id,
            R.id.btnNum5Id, R.id.btnNum6Id, R.id.btnNum7Id, R.id.btnNum8Id,
            R.id.btnNum9Id,
            R.id.btnAddId, R.id.btnSubId, R.id.btnMulId, R.id.btnDivId,
            R.id.btnClearId, R.id.btnEqualId
        )

        val listener = ButtonClickListener()

        buttons.forEach {
            findViewById<Button>(it).setOnClickListener(listener)
        }

        inner class ButtonClickListener : android.view.View.OnClickListener {
            override fun onClick(view: android.view.View) {
                val btn = view as Button
                when (view.id) {
                    R.id.btnNum0Id, R.id.btnNum1Id, R.id.btnNum2Id,
                    R.id.btnNum3Id,
                    R.id.btnNum4Id, R.id.btnNum5Id, R.id.btnNum6Id,
                    R.id.btnNum7Id, R.id.btnNum8Id, R.id.btnNum9Id -> {
                        val digit = btn.text.toString()
                        inStr = if (inStr == "0") digit else inStr + digit
                        txtResult.text = inStr
                        if (lastOperator == '=') {
                            result = 0
                            lastOperator = ' '
                        }
                    }
                }
            }
        }
    }
}
```

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```
        }
    }

    R.id.btnAddId -> {
        compute()
        lastOperator = '+'
    }

    R.id.btnSubId -> {
        compute()
        lastOperator = '-'
    }

    R.id.btnMulId -> {
        compute()
        lastOperator = '*'
    }

    R.id.btnDivId -> {
        compute()
        lastOperator = '/'
    }

    R.id.btnEqualId -> {
        compute()
        lastOperator = '='
    }

    R.id.btnClearId -> {
        result = 0
        inStr = "0"
        lastOperator = ' '
        txtResult.text = "0"
    }
}

private fun compute() {
    val inNum = inStr.toInt()
    inStr = "0"
    result = when (lastOperator) {
        ' ' -> inNum
        '+' -> result + inNum
        '-' -> result - inNum
        '*' -> result * inNum
        '/' -> result / inNum
        '=' -> result
        else -> result
    }
    txtResult.text = result.toString()
}
```

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```
    }
}

<?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"
    tools:context=".MainActivity">

    <TextView
        android:id="@+id/txtResultId"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:background="#cccccc"
        android:gravity="end"
        android:padding="16dp"
        android:textSize="32sp"
        android:textColor="#000000"
        android:text="0" />

    <TableLayout
        android:id="@+id/tableId"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_below="@id/txtResultId"
        android:stretchColumns="*>

        <TableRow>
            <Button android:id="@+id/btnNum7Id" android:text="7"/>
            <Button android:id="@+id/btnNum8Id" android:text="8"/>
            <Button android:id="@+id/btnNum9Id" android:text="9"/>
            <Button android:id="@+id/btnDivId" android:text="/" />
        </TableRow>

        <TableRow>
            <Button android:id="@+id/btnNum4Id" android:text="4"/>
            <Button android:id="@+id/btnNum5Id" android:text="5"/>
            <Button android:id="@+id/btnNum6Id" android:text="6"/>
            <Button android:id="@+id/btnMulId" android:text="*" />
        </TableRow>

        <TableRow>
            <Button android:id="@+id/btnNum1Id" android:text="1"/>
            <Button android:id="@+id/btnNum2Id" android:text="2"/>
            <Button android:id="@+id/btnNum3Id" android:text="3"/>
            <Button android:id="@+id/btnSubId" android:text="-" />
        </TableRow>

    </TableLayout>

</RelativeLayout>
```

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```
        <TableRow>
            <Button android:id="@+id/btnNum0Id" android:text="0"/>
            <Button android:id="@+id/btnClearId" android:text="C"/>
            <Button android:id="@+id/btnEqualId" android:text="="/>
            <Button android:id="@+id/btnAddId" android:text="+"/>
        </TableRow>

    </TableLayout>

</RelativeLayout>
```

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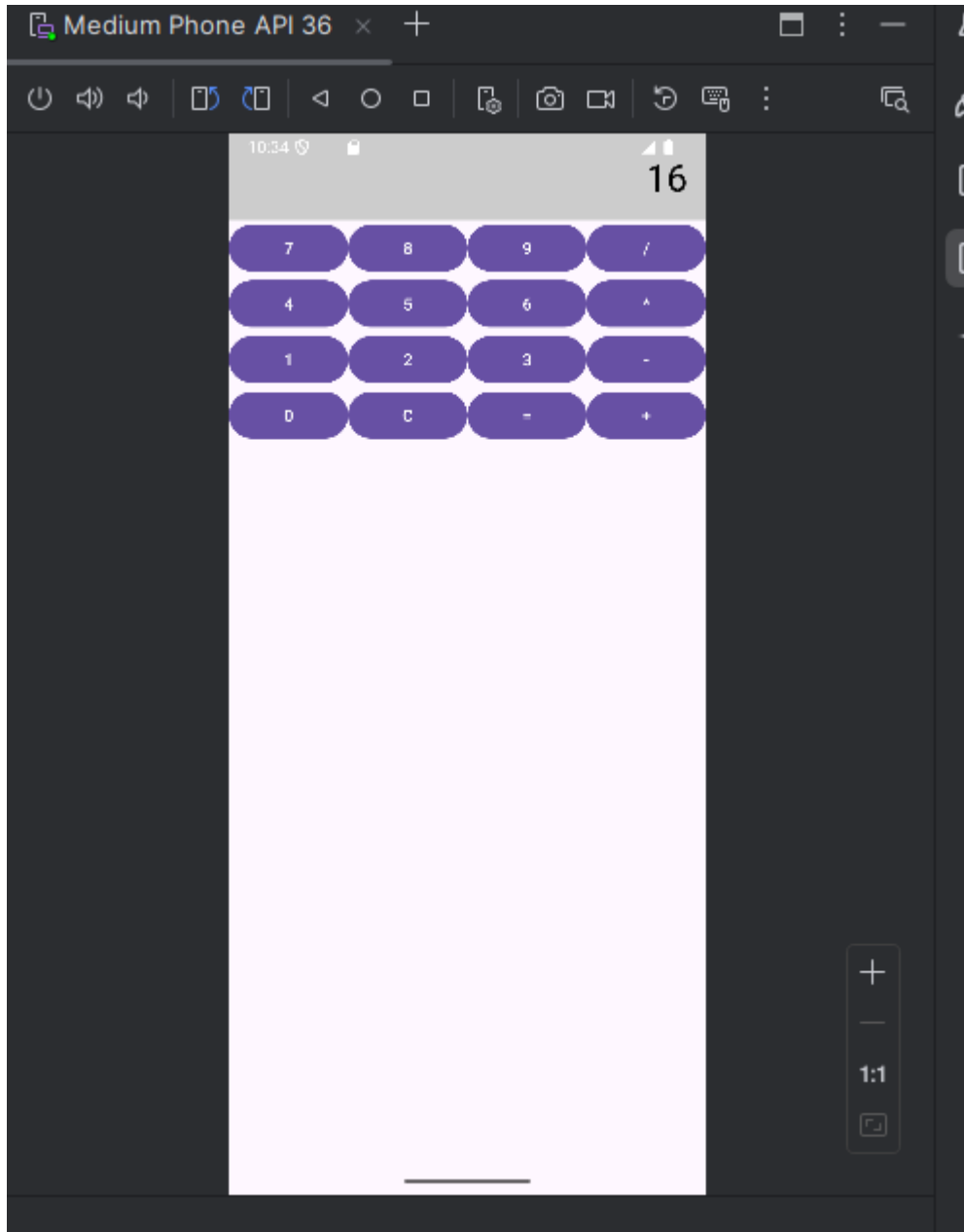
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