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Github link: <https://github.com/dyda98/MyCalculator.git>

Question1: Installation ,test case hello word

Answer Code:

Activity main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout
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:id="@+id/main"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Hello World!"
        android:textSize="50sp"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

</androidx.constraintlayout.widget.ConstraintLayout>
```

[String.xml,value.xml]

String

```
<resources>
    <string name="app_name">Hello</string>
</resources>
```

Color

```
<?xml version="1.0" encoding="utf-8"?>
<resources>
    <color name="black">#FF000000</color>
    <color name="white">#FFFFFFFF</color>
</resources>
```

MainActivity.kit

```

package com.example.hello

import android.os.Bundle
import androidx.activity.enableEdgeToEdge
import androidx.appcompat.app.AppCompatActivity
import androidx.core.view.ViewCompat
import androidx.core.view.WindowInsetsCompat

class MainActivity : AppCompatActivity() {
    override fun onCreate(savedInstanceState: Bundle?) {
        super.onCreate(savedInstanceState)
        enableEdgeToEdge()
        setContentView(R.layout.activity_main)
        ViewCompat.setOnApplyWindowInsetsListener(findViewById(R.id.main)) {
v, insets ->
            val systemBars =
insets.getInsets(WindowInsetsCompat.Type.systemBars())
            v.setPadding(systemBars.left, systemBars.top, systemBars.right,
systemBars.bottom)
            insets
        }
    }
}

```

Answer



Hello World!

Question2:UI Design and implementation Test Case Calculator

Answer Code:

Activity main.xml

```

<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout
    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:id="@+id/main"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:padding="16dp"
    tools:context=".CalculatorActivity">

    <TextView
        android:id="@+id/tvInput"
        android:layout_width="0dp"
        android:layout_height="100dp"
        android:gravity="end|bottom"
        android:text="0"
        android:textSize="36sp"
        android:textColor="@android:color/black"
        android:background="#E0E0E0"
        android:padding="16dp"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintEnd_toEndOf="parent" />

    <GridLayout
        android:id="@+id/gridLayout"
        android:layout_width="0dp"
        android:layout_height="0dp"
        android:layout_marginTop="16dp"
        android:columnCount="4"
        android:rowCount="4"
        android:alignmentMode="alignMargins"
        android:useDefaultMargins="true"
        app:layout_constraintTop_toBottomOf="@id/tvInput"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintEnd_toEndOf="parent">

        <Button android:id="@+id/btn7" android:text="7"
android:textSize="24sp" />
        <Button android:id="@+id/btn8" android:text="8"
android:textSize="24sp" />
        <Button android:id="@+id/btn9" android:text="9"
android:textSize="24sp" />
        <Button android:id="@+id/btnDivide" android:text="÷"
android:textSize="22sp" />

        <Button android:id="@+id/btn4" android:text="4"
android:textSize="24sp" />
        <Button android:id="@+id/btn5" android:text="5"
android:textSize="24sp" />
        <Button android:id="@+id/btn6" android:text="6"

```

```

        android:textSize="24sp" />
        <Button android:id="@+id/btnMultiply" android:text="x"
android:textSize="22sp" />

        <Button android:id="@+id/btn1" android:text="1"
android:textSize="24sp" />
        <Button android:id="@+id/btn2" android:text="2"
android:textSize="24sp" />
        <Button android:id="@+id/btn3" android:text="3"
android:textSize="24sp" />
        <Button android:id="@+id/btnMinus" android:text="-"
android:textSize="22sp" />

        <Button android:id="@+id/btn0" android:text="0"
android:textSize="24sp" />
        <Button android:id="@+id/btnClear" android:text="C"
android:textSize="20sp" />
        <Button android:id="@+id/btnEqual" android:text="="
android:textSize="22sp" />
        <Button android:id="@+id/btnPlus" android:text="+"
android:textSize="22sp" />

    </GridLayout>

</androidx.constraintlayout.widget.ConstraintLayout>

```

[String.xml,value.xml]

String

```

<resources>
    <string name="app_name">MyCalculator</string>
</resources>

```

Color

```

<?xml version="1.0" encoding="utf-8"?>
<resources>
    <color name="purple_200">#FFBB86FC</color>
    <color name="purple_500">#FF6200EE</color>
    <color name="purple_700">#FF3700B3</color>
    <color name="teal_200">#FF03DAC5</color>
    <color name="teal_700">#FF018786</color>
    <color name="black">#FF000000</color>
    <color name="white">#FFFFFFFF</color>
</resources>

```

MainActivity.kit

```

package com.example.mycalculator

import android.os.Bundle
import android.util.Log
import android.view.View
import android.widget.Button
import android.widget.TextView
import androidx.activity.enableEdgeToEdge
import androidx.appcompat.app.AppCompatActivity
import androidx.core.view.ViewCompat
import androidx.core.view.WindowInsetsCompat

class CalculatorActivity : AppCompatActivity() {

    private lateinit var tvInput: TextView
    private var currentInput: String = ""
    private var operator: String? = null
    private var operand1: Double? = null
    private var operand2: Double? = null

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

        enableEdgeToEdge()
        setContentView(R.layout.activity_calculator)

        ViewCompat.setOnApplyWindowInsetsListener(findViewById(R.id.main)) {
v, insets ->
            val systemBars =
insets.getInsets(WindowInsetsCompat.Type.systemBars())
            v.setPadding(systemBars.left, systemBars.top, systemBars.right,
systemBars.bottom)
            insets
        }

        tvInput = findViewById(R.id.tvInput)

        findViewById<Button>(R.id.btn7).setOnClickListener {
appendToInput("7") }
        findViewById<Button>(R.id.btn8).setOnClickListener {
appendToInput("8") }
        findViewById<Button>(R.id.btn9).setOnClickListener {
appendToInput("9") }
        findViewById<Button>(R.id.btnDivide).setOnClickListener {
setOperator("/") }
        findViewById<Button>(R.id.btn4).setOnClickListener {
appendToInput("4") }
        findViewById<Button>(R.id.btn5).setOnClickListener {
appendToInput("5") }
        findViewById<Button>(R.id.btn6).setOnClickListener {
appendToInput("6") }
        findViewById<Button>(R.id.btnMultiply).setOnClickListener {
setOperator("*") }

```

```

        findViewById<Button>(R.id.btn1).setOnClickListener {
appendToInput("1") }
        findViewById<Button>(R.id.btn2).setOnClickListener {
appendToInput("2") }
        findViewById<Button>(R.id.btn3).setOnClickListener {
appendToInput("3") }
        findViewById<Button>(R.id.btnMinus).setOnClickListener {
setOperator("-") }
        findViewById<Button>(R.id.btn0).setOnClickListener {
appendToInput("0") }
        findViewById<Button>(R.id.btnClear).setOnClickListener { clearInput()
}

        findViewById<Button>(R.id.btnEqual).setOnClickListener {
calculateResult() }
        findViewById<Button>(R.id.btnPlus).setOnClickListener {
setOperator("+") }
    }

    private fun appendToInput(value: String) {
        currentInput += value
        tvInput.text = currentInput
    }

    private fun clearInput() {
        currentInput = ""
        operator = null
        operand1 = null
        operand2 = null
        tvInput.text = "0"
    }

    private fun setOperator(op: String) {
        if (currentInput.isNotEmpty()) {
            operand1 = currentInput.toDouble()
            operator = op
            currentInput = ""
        }
    }

    private fun calculateResult() {
        if (currentInput.isNotEmpty() && operand1 != null && operator !=
null) {
            operand2 = currentInput.toDouble()
            val result = when (operator) {
                "+" -> operand1!! + operand2!!
                "-" -> operand1!! - operand2!!
                "*" -> operand1!! * operand2!!
                "/" -> if (operand2 != 0.0) operand1!! / operand2!! else
Double.NaN // Prevent division by zero
                else -> 0.0
            }

            tvInput.text = result.toString()

```

```
        operand1 = null
        operand2 = null
        operator = null
        currentInput = ""
    } else {
        tvInput.text = "Error"
    }
}
}
```

Answer

