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Github link: <https://github.com/Khadijaidrissa01/appcalculator.git>

Question 1

Test case hello world

Answer

```
<?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!"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

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

MAINACTIVITY

```
package com.example.helloworld
```

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

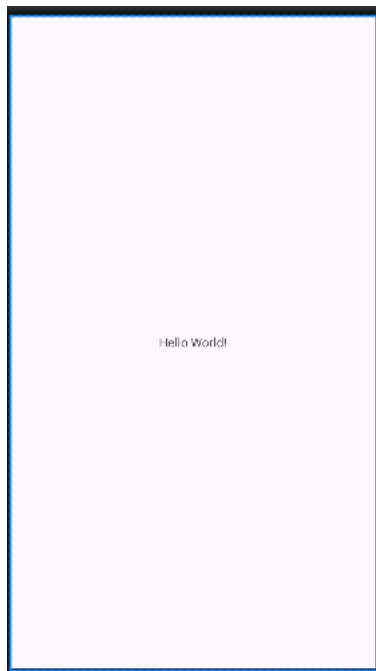
```
class MainActivity : AppCompatActivity() {
    override fun onCreate(savedInstanceState: Bundle?) {
        super.onCreate(savedInstanceState)
        enableEdgeToEdge()
        setContentView(R.layout.activity_main)
```

```

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
}
}
}

```

OUTPUT



Question 2

UI Design and implementation test case calculator

Answer

Activity main

```

<?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>
```

```
<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>
```

```
Mainactivity
```

```
package com.example.calculatorapp
```

```
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 = ''
                    }
                }
            }
        }
    }
}

```

```

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()
}

```

```
}  
}
```

OUTPUT

0

7

8

9

/

4

5

6

*

1

2

3

-

0

C

=

+

