Tugas Pendahuluan Modul 12

Konstruksi Perangkat Lunak

PRODI REKAYASA PERANGKAT LUNAK
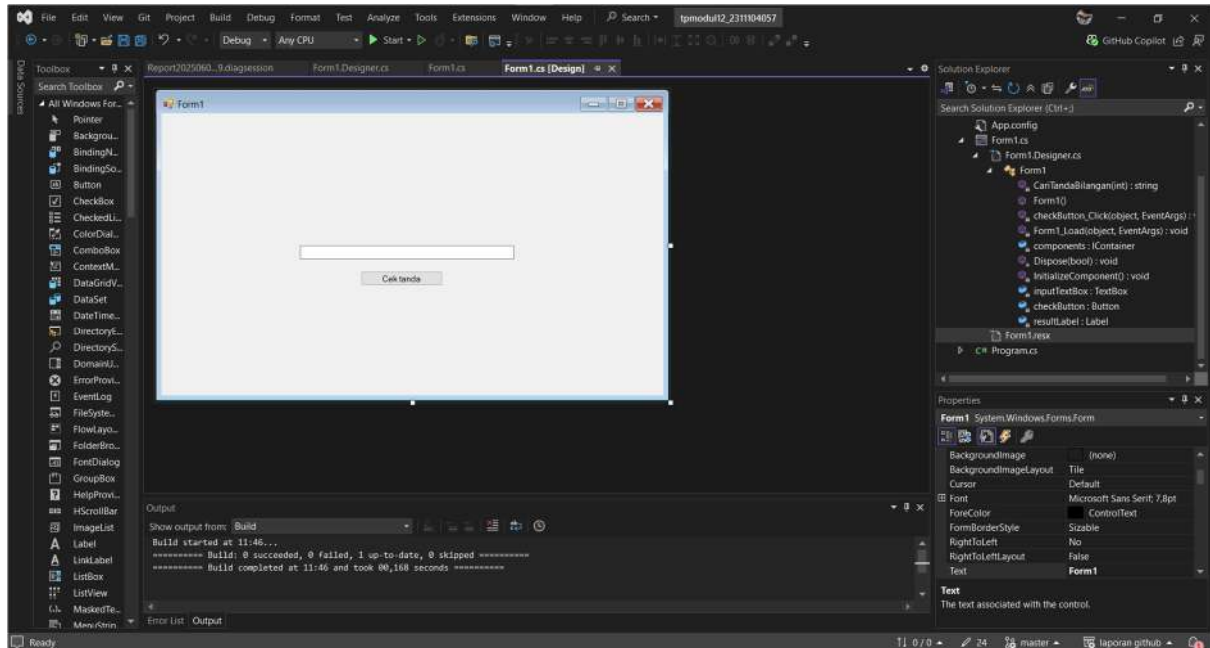

Nama :

Reyner Atira Prasetyo

2311104057
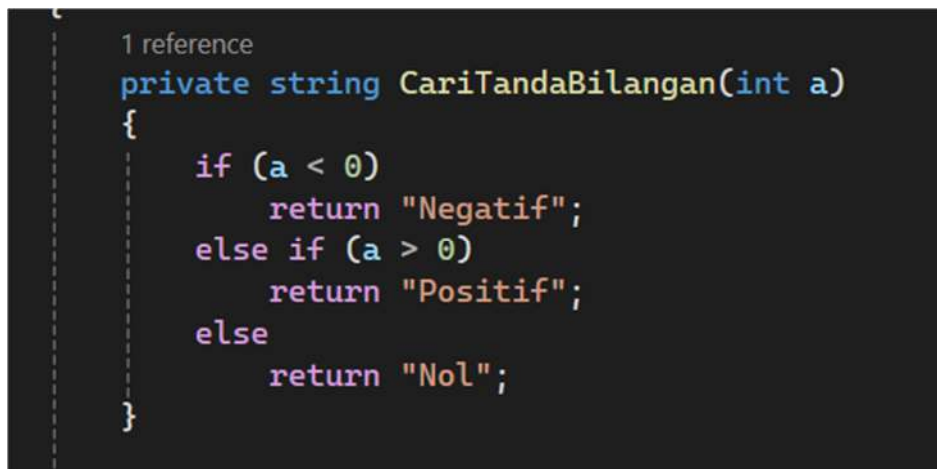
S1SE-07-02

DIREKTORAT TELKOM UNIVERSITY

PURWOKERTO

Tugas Pendahuluan Modul 12

1. Initialize project dan membuat GUI

2. Membuat fungsi untuk mencari tanda bilangan

```csharp
1 reference
private string CariTandaBilangan(int a)
{
    if (a < 0)
        return "Negatif";
    else if (a > 0)
        return "Positif";
    else
        return "Nol";
}
```

3. Implementasi ke button click

```
private void checkButton_Click(object sender, EventArgs e)
{
    if (int.TryParse(inputTextBox.Text, out int number))
    {
        resultLabel.Text = CariTandaBilangan(number);
    }
    else
    {
        try
        {
            // Attempt to parse the input to check for overflow
            Convert.ToInt32(inputTextBox.Text);
        }
        catch (OverflowException)
        {
            MessageBox.Show("Bilangan terlalu besar atau kecil untuk tipe data intege
            resultLabel.Text = string.Empty;
            return;
        }

        catch (FormatException)
        {
            MessageBox.Show("Input tidak valid. Silakan masukkan bilangan bulat.", "I
            resultLabel.Text = string.Empty;
            return;
        }
    }
}
```
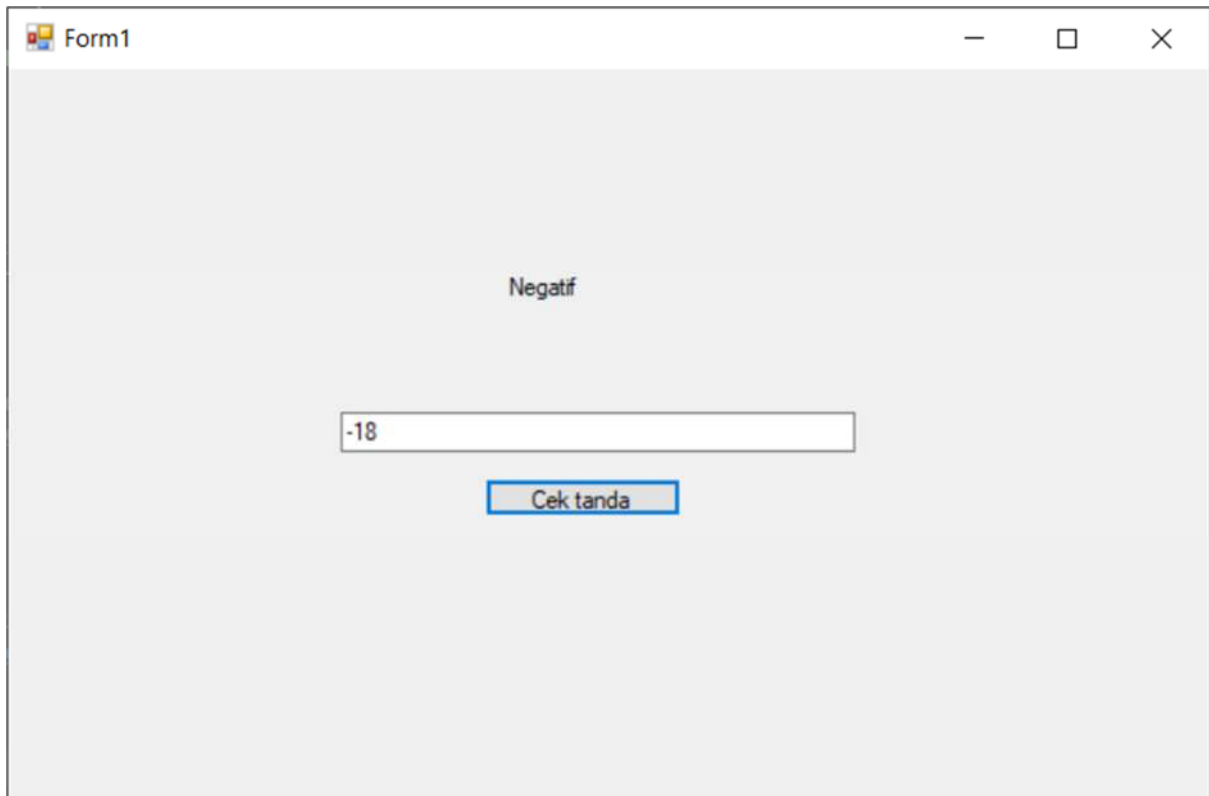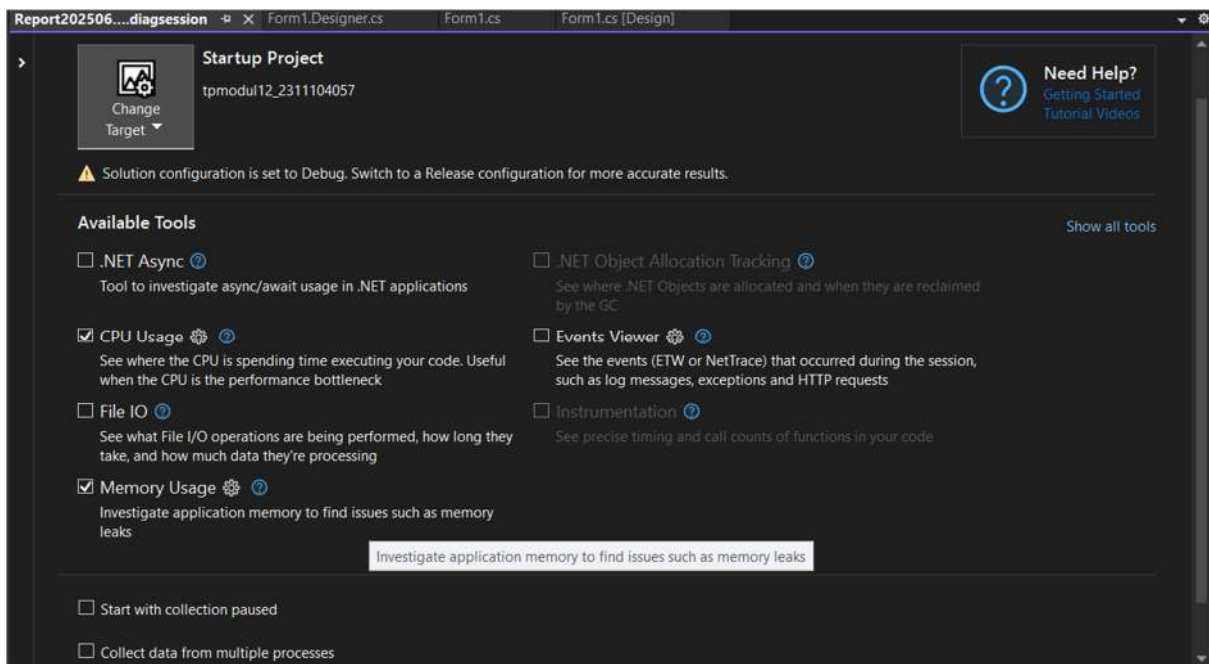
4. Hasil run

5. Memory profiling

|	ID	Time	Objects (Diff)	Heap Size (Diff)	Label
	1	8.51s	2.353 (n/a)	190,00 KB (n/a)	Idle
	2	18.50s	2.377 (+24 ↑)	190,63 KB (+0,63 KB ↑)	Mengetik
	3	27.07s	2.386 (+9 ↑)	191,21 KB (+0,59 KB ↑)	Test Positif
	4	41.38s	2.386 (+0)	191,21 KB (+0,00 KB)	Test Negatif
	5	54.57s	2.494 (+108 ↑)	200,25 KB (+9,04 KB ↑)	Test Overflow
	6	62.63s	2.496 (+2 ↑)	200,40 KB (+0,15 KB ↑)	Test Format exception

Tidak ada perubahan memori saat mengecek angka positif dan negatif secara berurutan
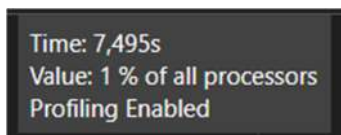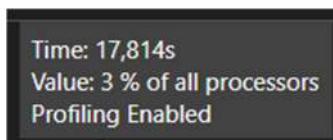
6. CPU profiling

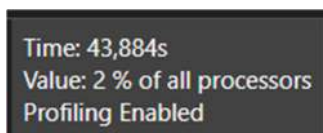CPU startup run
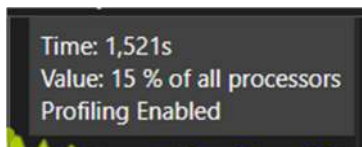
CPU idle
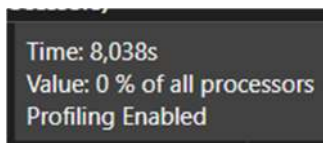
CPU mengetik

CPU test positif

CPU test negatif

CPU test overflow

```
Time: 53,117s
Value: 3 % of all processors
Profiling Enabled
```

CPU test format exception

```
Time: 1:01,127min
Value: 2 % of all processors
Profiling Enabled
```

PUSH


```
D:\KULIAH\SEMESTER 4\KPL Praktikum\laporan github git:(master)±2 (0.141s)
git add 12_Performance_Analysis_Unit_Testing_dan_Debugging/tp/

D:\KULIAH\SEMESTER 4\KPL Praktikum\laporan github git:(master)±13 (0.187s)
git commit -m "tp12 : membuat windows forms app"

[master 5540194] tp12 : membuat windows forms app
 12 files changed, 662 insertions(+)
 create mode 100644 12_Performance_Analysis_Unit_Testing_dan_Debugging/tp/tpmodul12_2311104057/tpmodul12_2311104057.sln
 create mode 100644 12_Performance_Analysis_Unit_Testing_dan_Debugging/tp/tpmodul12_2311104057/App.config
 create mode 100644 12_Performance_Analysis_Unit_Testing_dan_Debugging/tp/tpmodul12_2311104057/Form1.Designer.cs
 create mode 100644 12_Performance_Analysis_Unit_Testing_dan_Debugging/tp/tpmodul12_2311104057/Form1.cs
 create mode 100644 12_Performance_Analysis_Unit_Testing_dan_Debugging/tp/tpmodul12_2311104057/Form1.resx
 create mode 100644 12_Performance_Analysis_Unit_Testing_dan_Debugging/tp/tpmodul12_2311104057/Program.cs
 create mode 100644 12_Performance_Analysis_Unit_Testing_dan_Debugging/tp/tpmodul12_2311104057/Properties/AssemblyInfo.cs
 create mode 100644 12_Performance_Analysis_Unit_Testing_dan_Debugging/tp/tpmodul12_2311104057/Properties/Resources.Designer.cs
 create mode 100644 12_Performance_Analysis_Unit_Testing_dan_Debugging/tp/tpmodul12_2311104057/Properties/Resources.resx
 create mode 100644 12_Performance_Analysis_Unit_Testing_dan_Debugging/tp/tpmodul12_2311104057/Properties/Settings.Designer.cs
 create mode 100644 12_Performance_Analysis_Unit_Testing_dan_Debugging/tp/tpmodul12_2311104057/Properties/Settings.settings
 create mode 100644 12_Performance_Analysis_Unit_Testing_dan_Debugging/tp/tpmodul12_2311104057/tpmodul12_2311104057.csproj

D:\KULIAH\SEMESTER 4\KPL Praktikum\laporan github git:(master)±1 (3.231s)
git push

Enumerating objects: 33, done.
Counting objects: 100% (33/33), done.
Delta compression using up to 8 threads
Compressing objects: 100% (29/29), done.
Writing objects: 100% (32/32), 9.93 KiB | 1.99 MiB/s, done.
Total 32 (delta 5), reused 0 (delta 0), pack-reused 0 (from 0)
remote: Resolving deltas: 100% (5/5), completed with 1 local object.
To https://github.com/reyneratira/KPL_REYNER-ATIRA-PRASETYO_2311104057_S1SE-07-02.git
   9651b75..5540194  master -> master
```
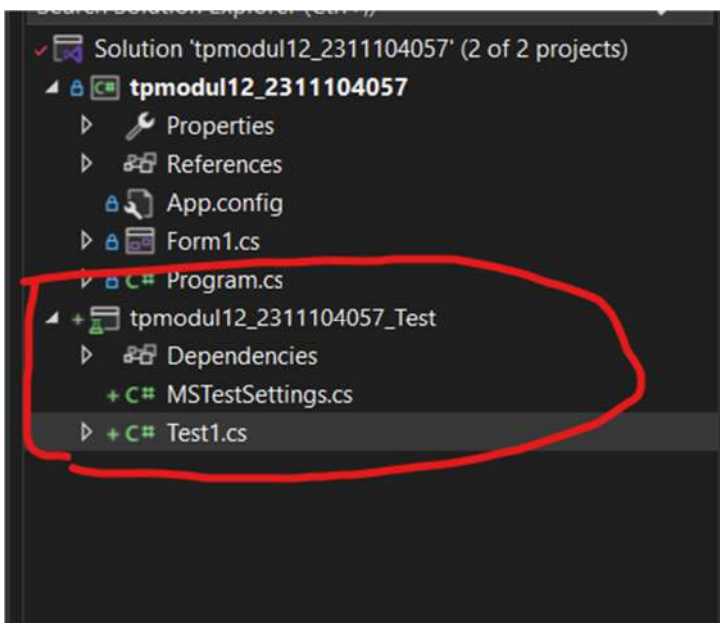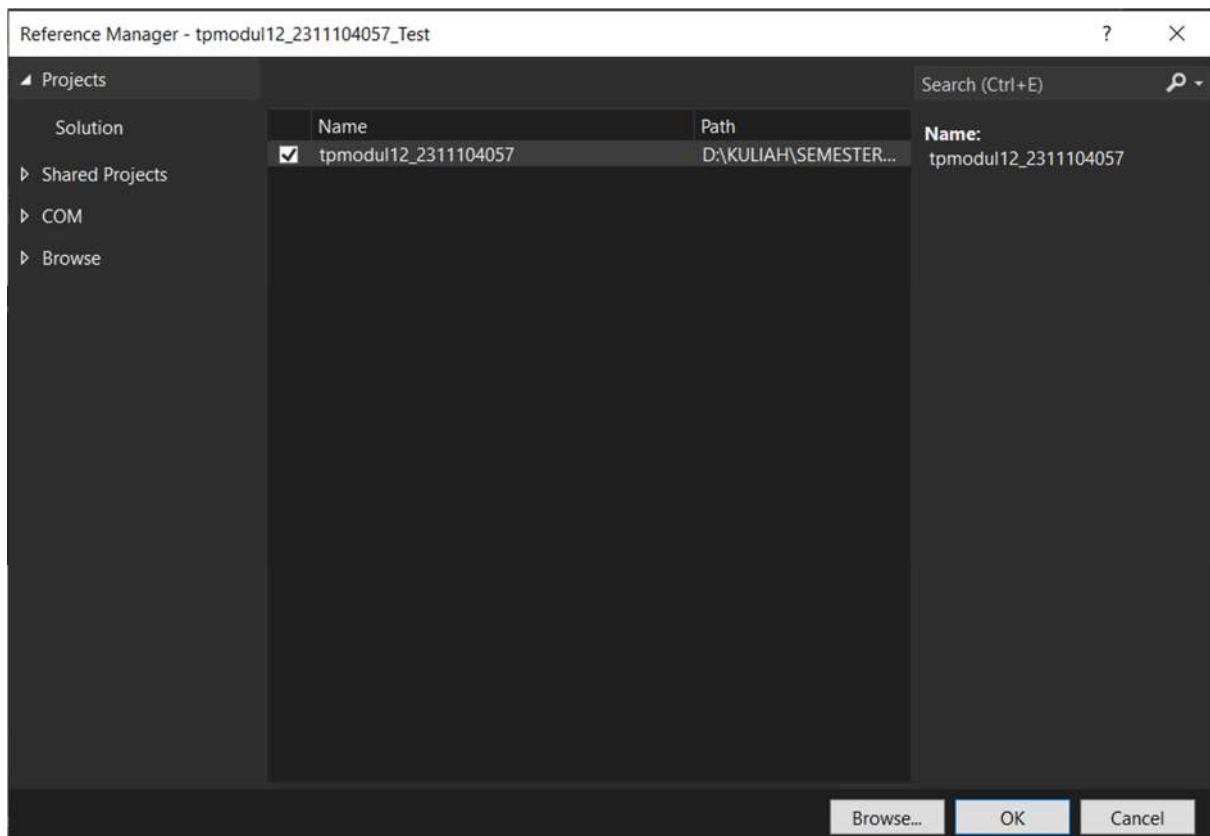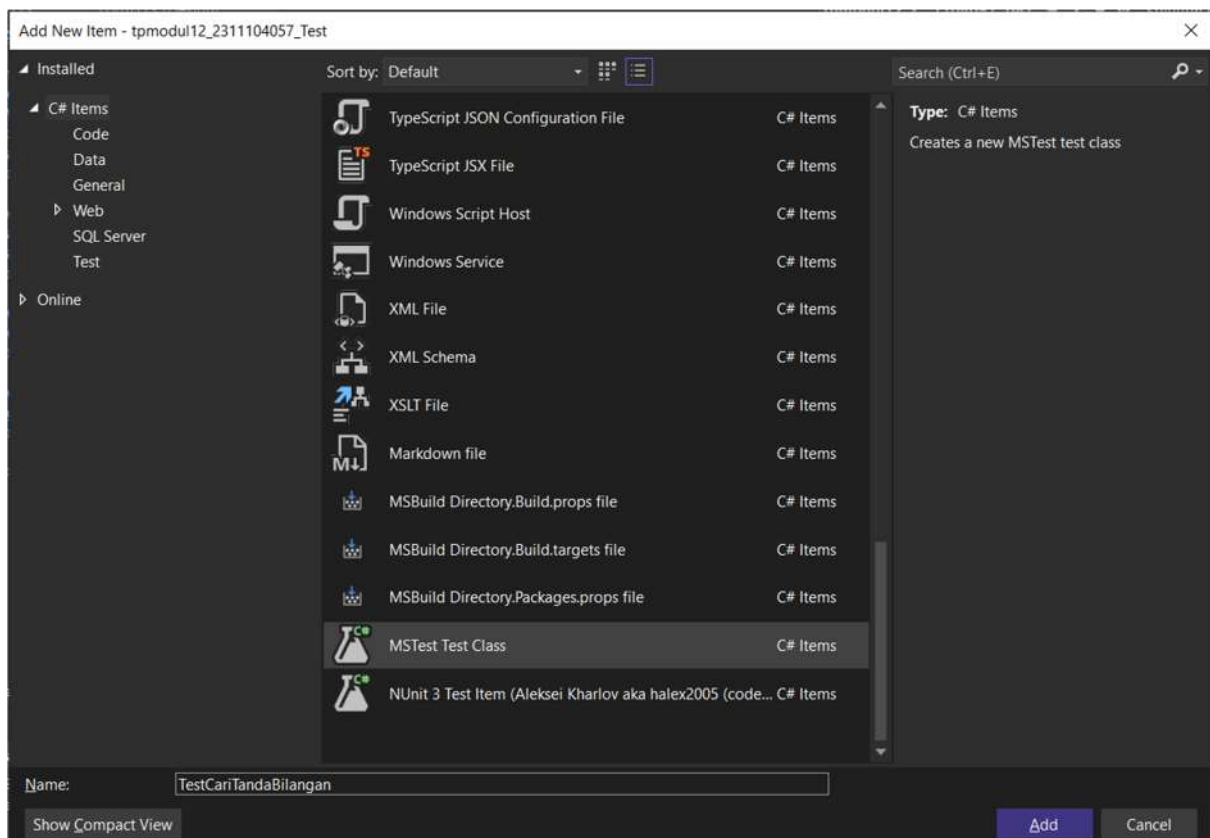
7. Membuat Unittest

8. Menambahkan project reference

9. Membuat test class

```csharp
        0 | 0 references
        public void TestNegatif()
        {
            Assert.AreEqual("Negatif", Utility.CariTandaBilangan(-10));
        }


        [TestMethod]
        0 references
        public void TestPositif()
        {
            Assert.AreEqual("Positif", Utility.CariTandaBilangan(5));
        }


        [TestMethod]
        0 references
        public void TestNol()
        {
            Assert.AreEqual("Nol", Utility.CariTandaBilangan(0));
        }


        [TestMethod]
        0 references
        public void TestInputBesar()
        {
            // Test untuk input yang terlalu besar
            Assert.ThrowsException<OverflowException>(() => Convert.ToInt32("2147483648"));
        }


        [TestMethod]
        0 | 0 references
        public void TestInputKecil()
        {
            // Test untuk input yang terlalu kecil
            Assert.ThrowsException<OverflowException>(() => Convert.ToInt32("-2147483649"));
        }


        [TestMethod]
```
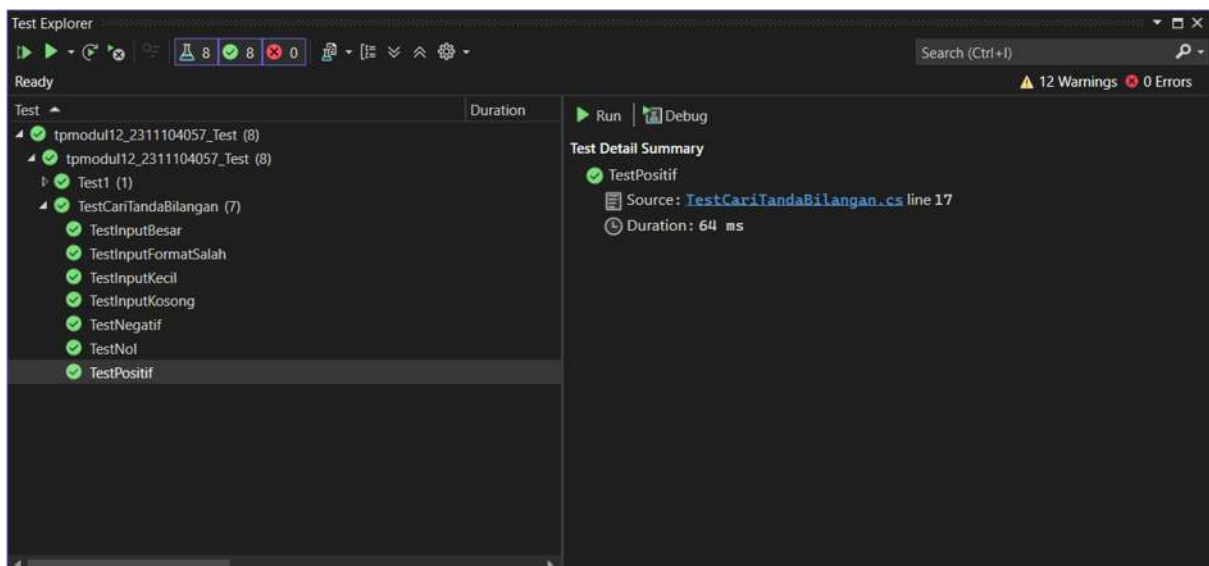
10. Hasil test run

PUSH

```
D:\KULIAH\SEMESTER_4\KPL_Praktikum\laporan_github git:(master)±4 (0.143s)
git add 12_Performance_Analysis_Unit_Testing_dan_Debugging/tp/

D:\KULIAH\SEMESTER_4\KPL_Praktikum\laporan_github git:(master)±7 (0.206s)
git commit -m "tp12 : menambahkan unittest"

[master 3d8e506] tp12 : menambahkan unittest
 6 files changed, 112 insertions(+), 12 deletions(-)
 create mode 100644 12_Performance_Analysis_Unit_Testing_dan_Debugging/tp/tpmodul12_2311104057/tpmodul12_2311104057_Test/MSTestSettings.cs
 create mode 100644 12_Performance_Analysis_Unit_Testing_dan_Debugging/tp/tpmodul12_2311104057/tpmodul12_2311104057_Test/Test1.cs
 create mode 100644 12_Performance_Analysis_Unit_Testing_dan_Debugging/tp/tpmodul12_2311104057/tpmodul12_2311104057_Test/TestCariTandaBilangan.cs
 create mode 100644 12_Performance_Analysis_Unit_Testing_dan_Debugging/tp/tpmodul12_2311104057/tpmodul12_2311104057_Test/tpmodul12_2311104057_Test.csp
roj

D:\KULIAH\SEMESTER_4\KPL_Praktikum\laporan_github git:(master)±1 (3.233s)
git push

Enumerating objects: 19, done.
Counting objects: 100% (19/19), done.
Delta compression using up to 8 threads
Compressing objects: 100% (12/12), done.
Writing objects: 100% (13/13), 2.07 KiB | 1.04 MiB/s, done.
Total 13 (delta 4), reused 0 (delta 0), pack-reused 0 (from 0)
remote: Resolving deltas: 100% (4/4), completed with 3 local objects.
To https://github.com/reyneratira/KPL_REYNER-ATIRA-PRASETYO_2311104057_S1SE-07-02.git
   5540194..3d8e506  master -> master
```