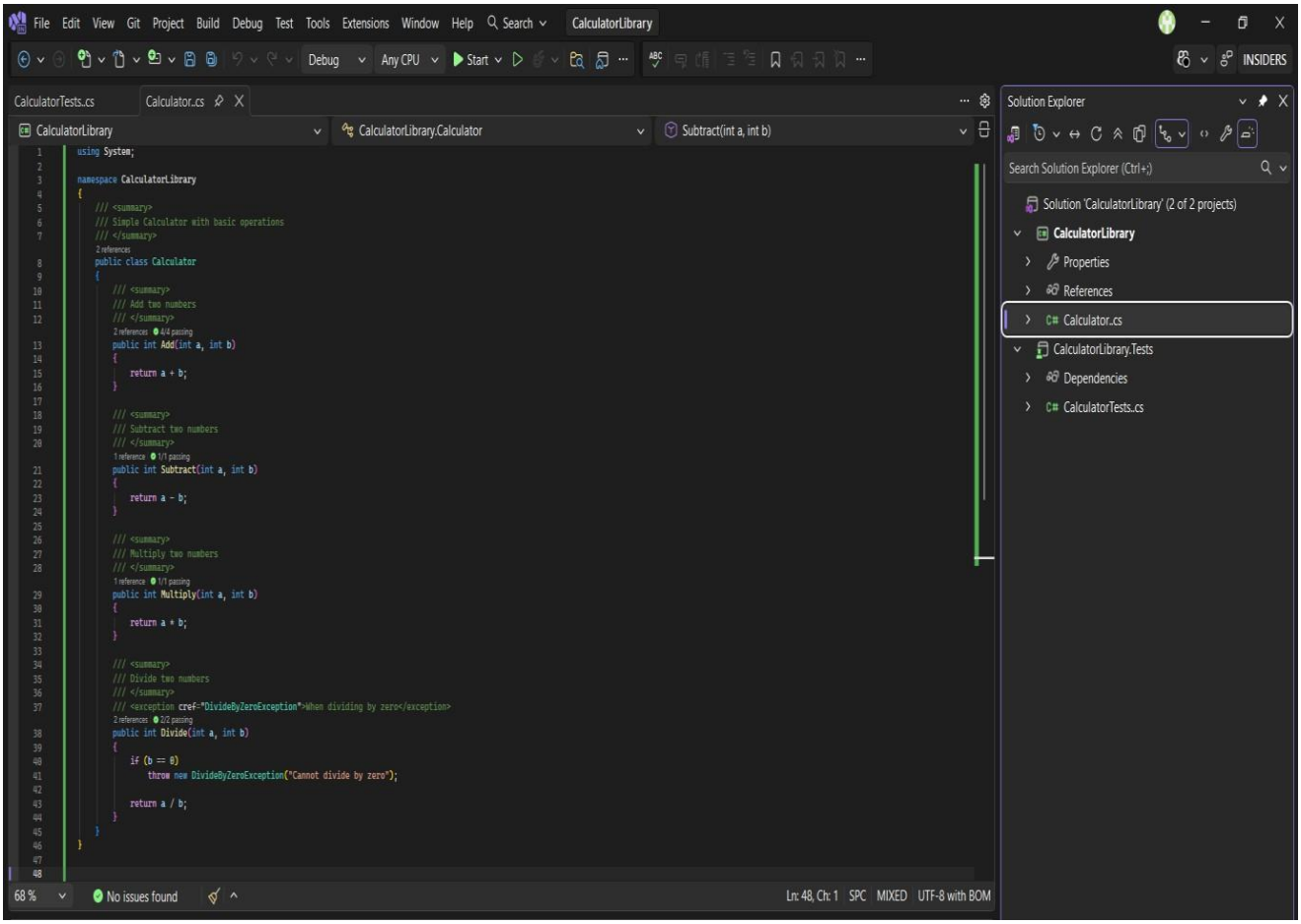
STEP 1: Create Calculator Class Library

1. Click Create a new project
2. Select Class Library (.NET)
3. Click Next
4. Project name: CalculatorLibrary
5. Click Create

STEP 2: Add Calculator Class

1. In Solution Explorer
2. Open Class .cs
3. Rename it to Calculator .cs



```
 using System;
namespace CalculatorLibrary
{
    /// <summary>
    /// Simple Calculator with basic operations
    /// </summary>
    public class Calculator
    {
        /// <summary>
        /// Add two numbers
        /// </summary>
        public int Add(int a, int b)
        {
            return a + b;
        }

        /// <summary>
        /// Subtract two numbers
        /// </summary>
        public int Subtract(int a, int b)
        {
            return a - b;
        }

        /// <summary>
        /// Multiply two numbers
```

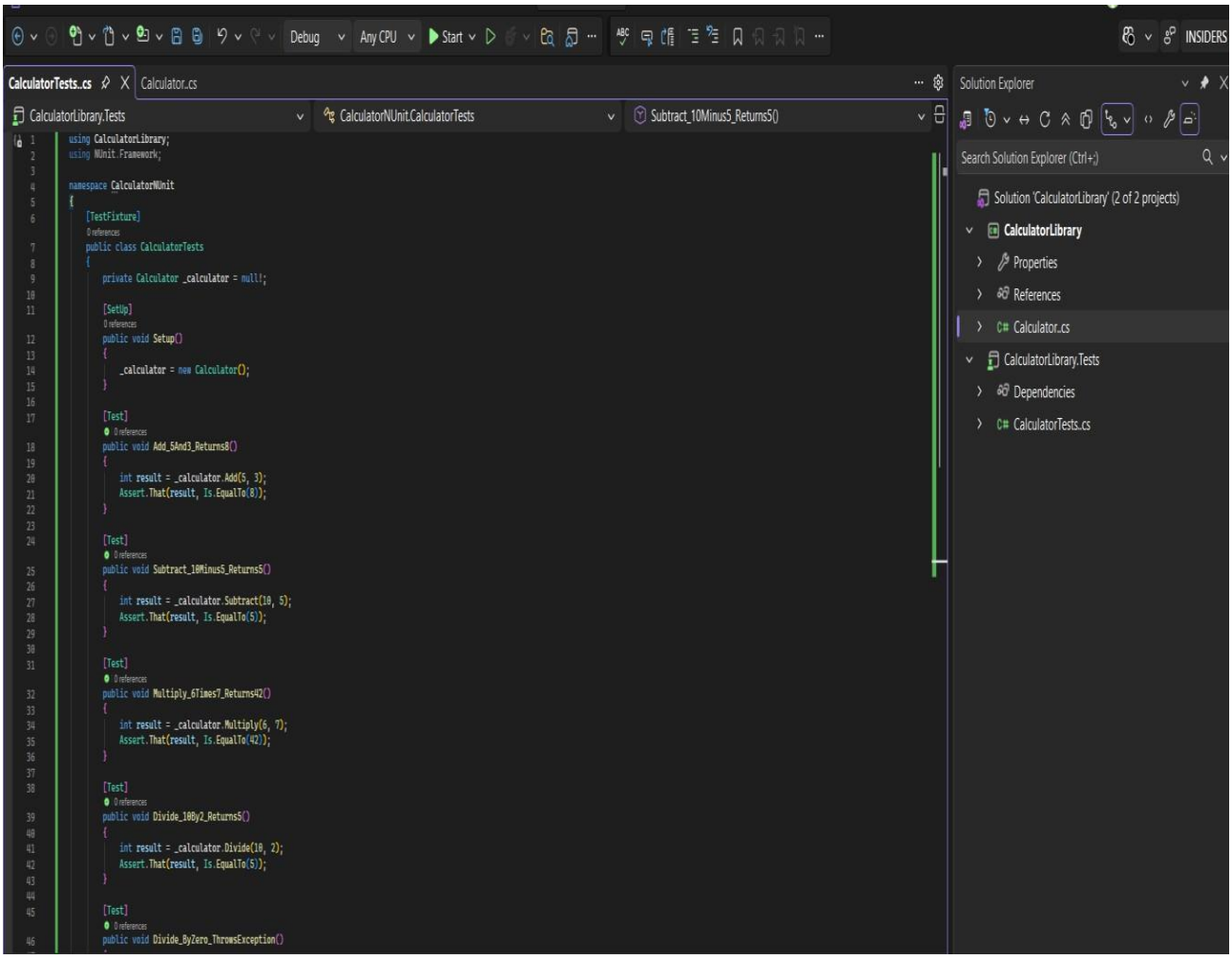
```
        /// </summary>
        public int Multiply(int a, int b)
        {
            return a * b;
        }

        /// <summary>
        /// Divide two numbers
        /// </summary>
        /// <exception cref="DivideByZeroException">When dividing by zero</exception>
        public int Divide(int a, int b)
        {
            if (b == 0)
                throw new DivideByZeroException("Cannot divide by zero");

            return a / b;
        }
    }
}
```

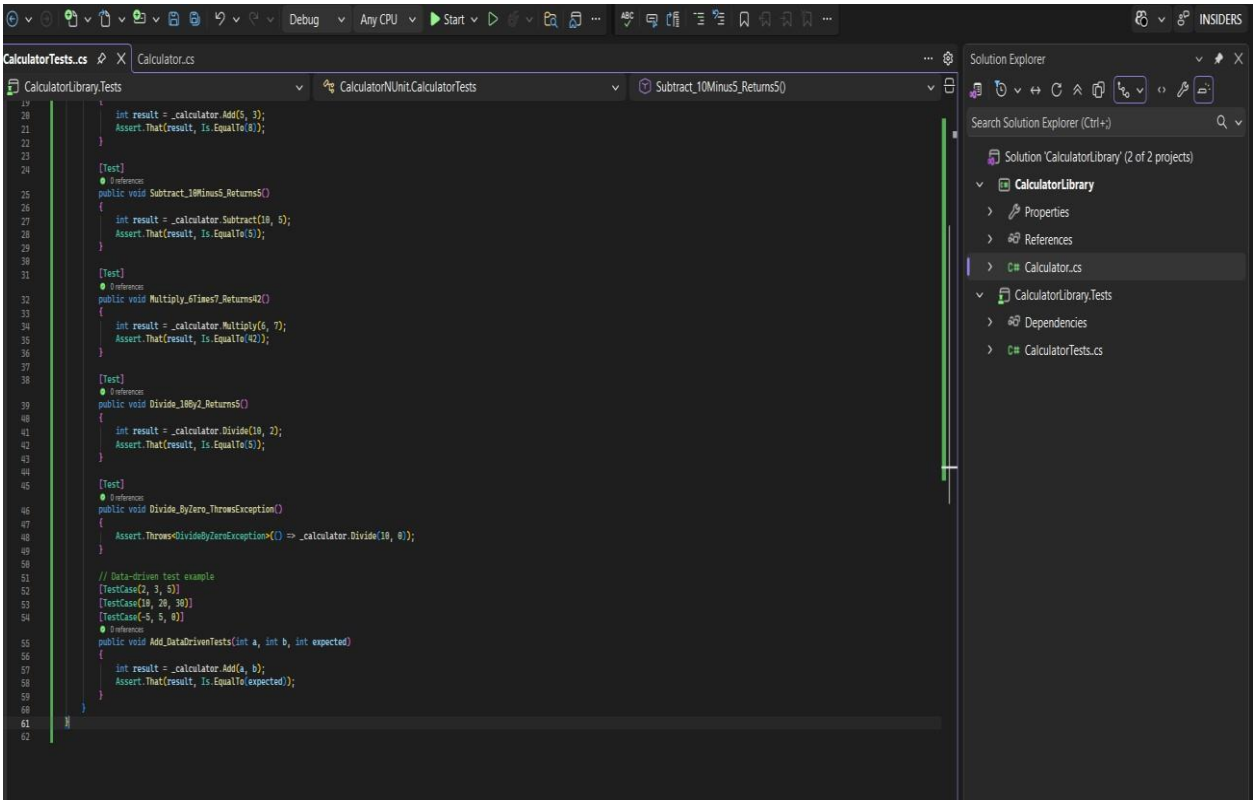
STEP 3: Create NUnit Test Project

1. Right-click Solution
2. Click Add → New Project
3. Select NUnit Test Project (.NET)
4. Click Next
5. Project name: CalculatorLibrary.Tests

STEP 4 : Add Reference to CalculatorLibrary

1. Right-click CalculatorLibrary.Tests
2. Click Add → Project Reference





CalculatorTests.cs Code:

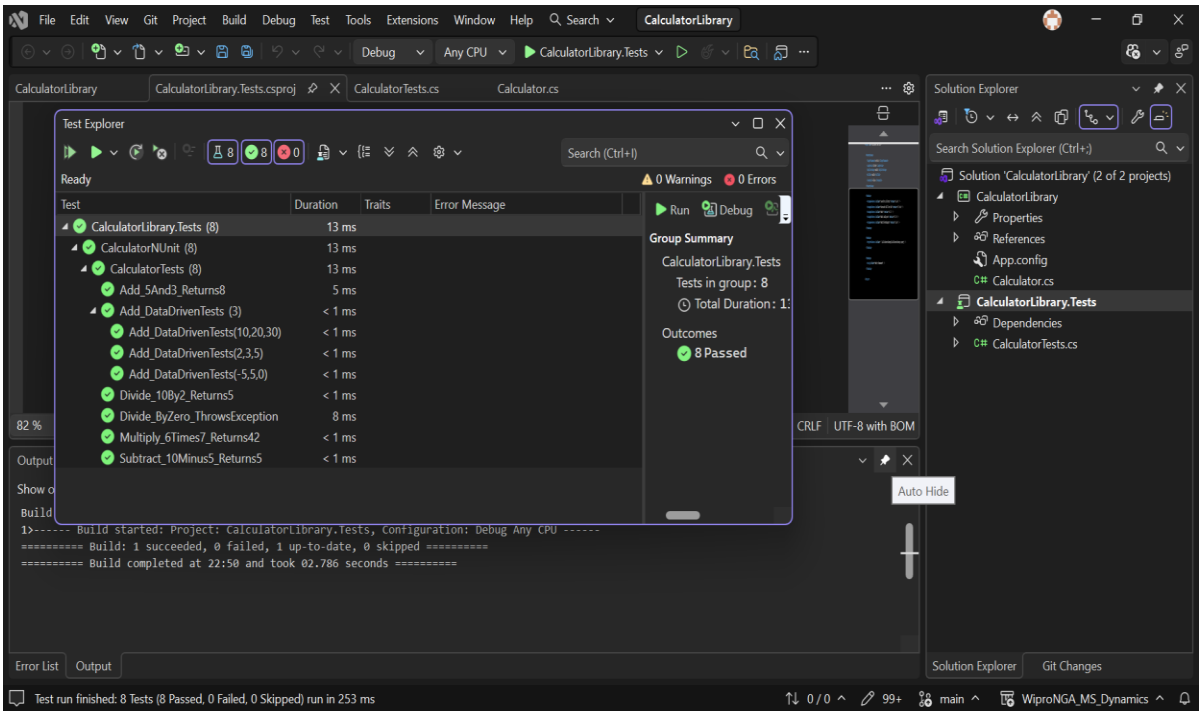
```
using CalculatorLibrary;
using NUnit.Framework;
namespace CalculatorNUnit
{
    [TestFixture]
    public class CalculatorTests
    {
        private Calculator _calculator = null!;

        [SetUp]
        public void Setup()
        {
```

```
    _calculator = new Calculator();
}

[Test]
public void Add_5And3_Returns8()
{
    int result = _calculator.Add(5, 3);
    Assert.That(result, Is.EqualTo(8));
}

[Test]
public void Subtract_10Minus5_Returns5()
{
    int result = _calculator.Subtract(10, 5);
    Assert.That(result, Is.EqualTo(5));
}

[Test]
public void Multiply_6Times7_Returns42()
{
    int result = _calculator.Multiply(6, 7);
    Assert.That(result, Is.EqualTo(42));
}

[Test]
public void Divide_10By2_Returns5()
```

```
    {
        int result = _calculator.Divide(10, 2);
        Assert.That(result, Is.EqualTo(5));
    }

    [Test]
    public void Divide_ByZero_ThrowsException()
    {
        Assert.Throws<DivideByZeroException>(() => _calculator.Divide(10, 0));
    }

    // Data-driven test example
    [TestCase(2, 3, 5)]
    [TestCase(10, 20, 30)]
    [TestCase(-5, 5, 0)]
    public void Add_DataDrivenTests(int a, int b, int expected)
    {
        int result = _calculator.Add(a, b);
        Assert.That(result, Is.EqualTo(expected));
    }
  }
}
```

Step 5 : Run Unit Tests

1. Menu → **Test → Test Explorer**
2. Click **Run All Tests**


File Edit View Git Project Build Debug Test Tools Extensions Window Help Search CalculatorLibrary
Debug Any CPU CalculatorLibrary.Tests
CalculatorLibrary
CalculatorLibrary.Tests.csproj
CalculatorTests.cs
Calculator.cs
Test Explorer
Ready
Search (Ctrl+I)
Test
Duration
Traits
Error Message
CalculatorLibrary.Tests (8) 13 ms
CalculatorNUnit (8) 13 ms
CalculatorTests (8) 13 ms
Add_5And3_Returns8 5 ms
Add_DataDrivenTests (3) < 1 ms
Add_DataDrivenTests(10,20,30) < 1 ms
Add_DataDrivenTests(2,3,5) < 1 ms
Add_DataDrivenTests(-5,5,0) < 1 ms
Divide_10By2_Returns5 < 1 ms
Divide_ByZero_ThrowsException 8 ms
Multiply_6Times7_Returns42 < 1 ms
Subtract_10Minus5_Returns5 < 1 ms
0 Warnings 0 Errors
Run Debug
Group Summary
CalculatorLibrary.Tests
Tests in group: 8
Outcomes
8 Passed
Solution Explorer
Search Solution Explorer (Ctrl+;)
Solution 'CalculatorLibrary' (2 of 2 projects)
CalculatorLibrary
Properties
References
App.config
Calculator.cs
CalculatorLibrary.Tests
Dependencies
CalculatorTests.cs
Auto Hide
1>------ Build started: Project: CalculatorLibrary.Tests, Configuration: Debug Any CPU ------
========== Build: 1 succeeded, 0 failed, 1 up-to-date, 0 skipped ==========
========== Build completed at 22:50 and took 02.786 seconds ==========
Error List
Output
Solution Explorer
Git Changes
Test run finished: 8 Tests (8 Passed, 0 Failed, 0 Skipped) run in 253 ms
main
WiproNGA_MS_Dynamics