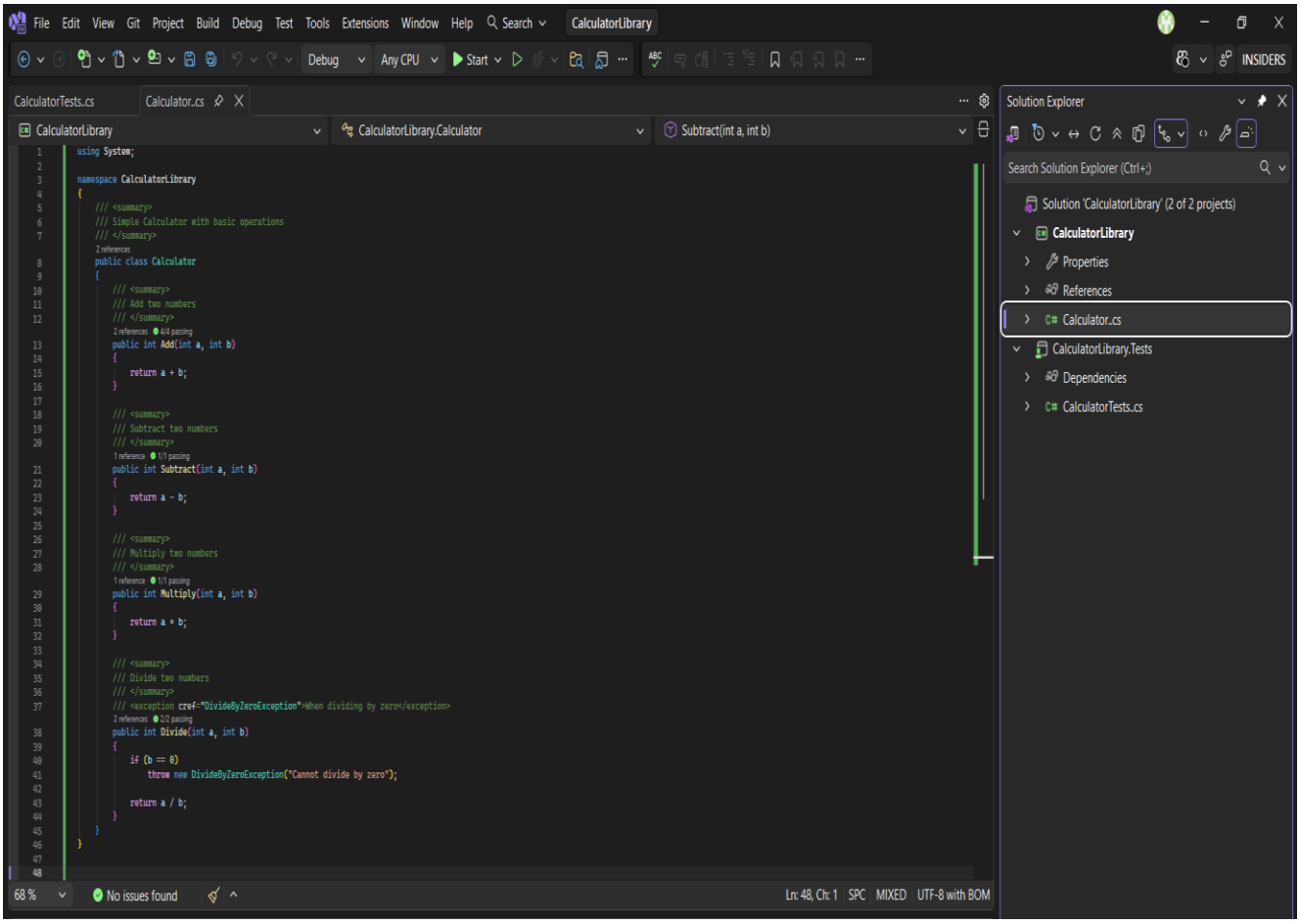
**STEP 1: Create Calculator Class Library**

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
```

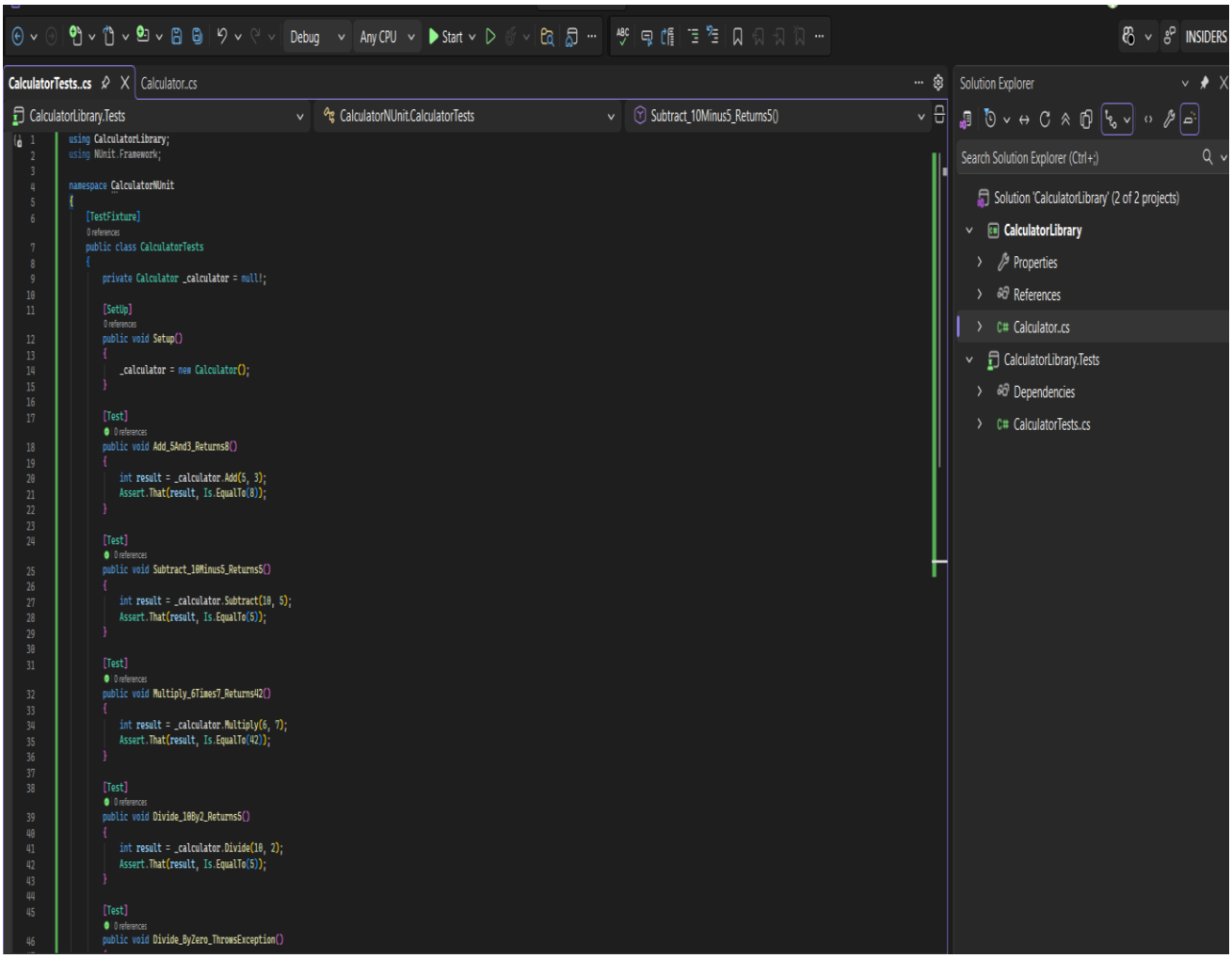
```
        /// </summary>
        public int Multiply(int a, int b)
        {
            return a * b;
        }

        /// <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;
        }
    }
}
```

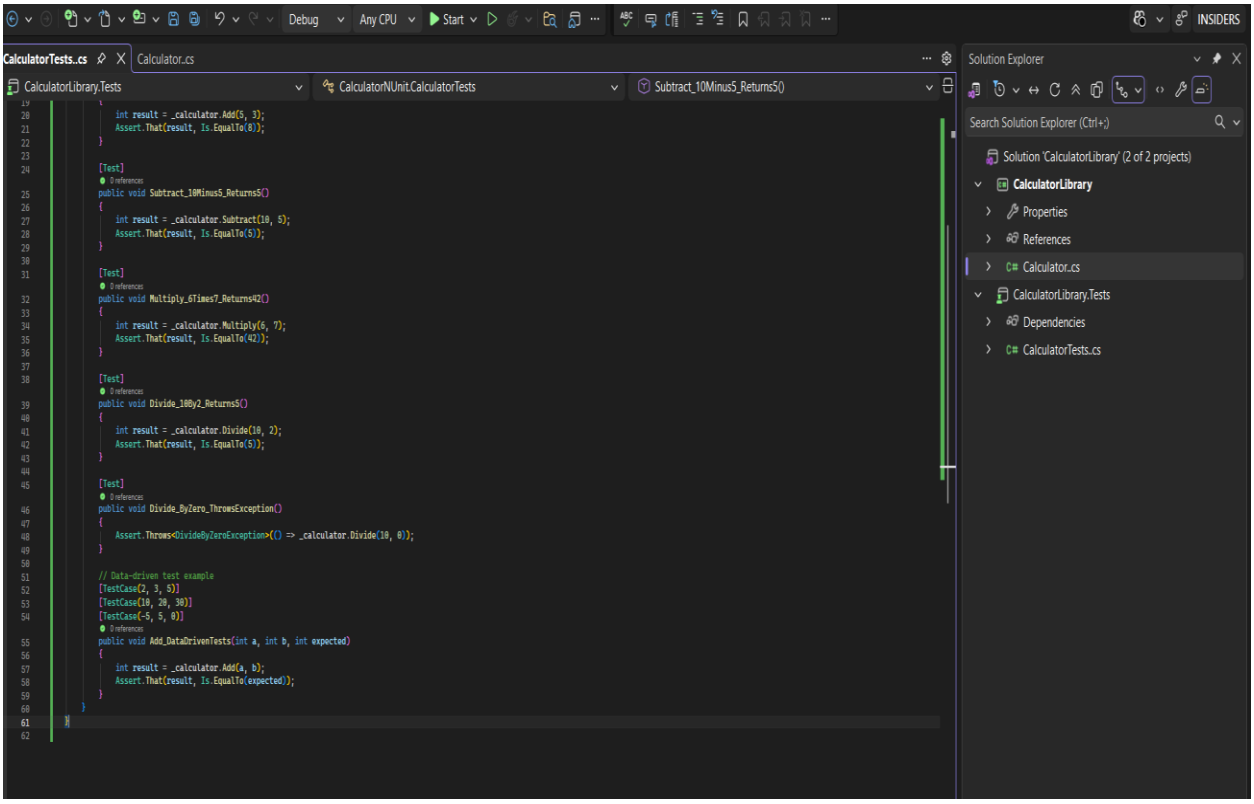
**STEP 3: Create NUnit Test Project**

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:**

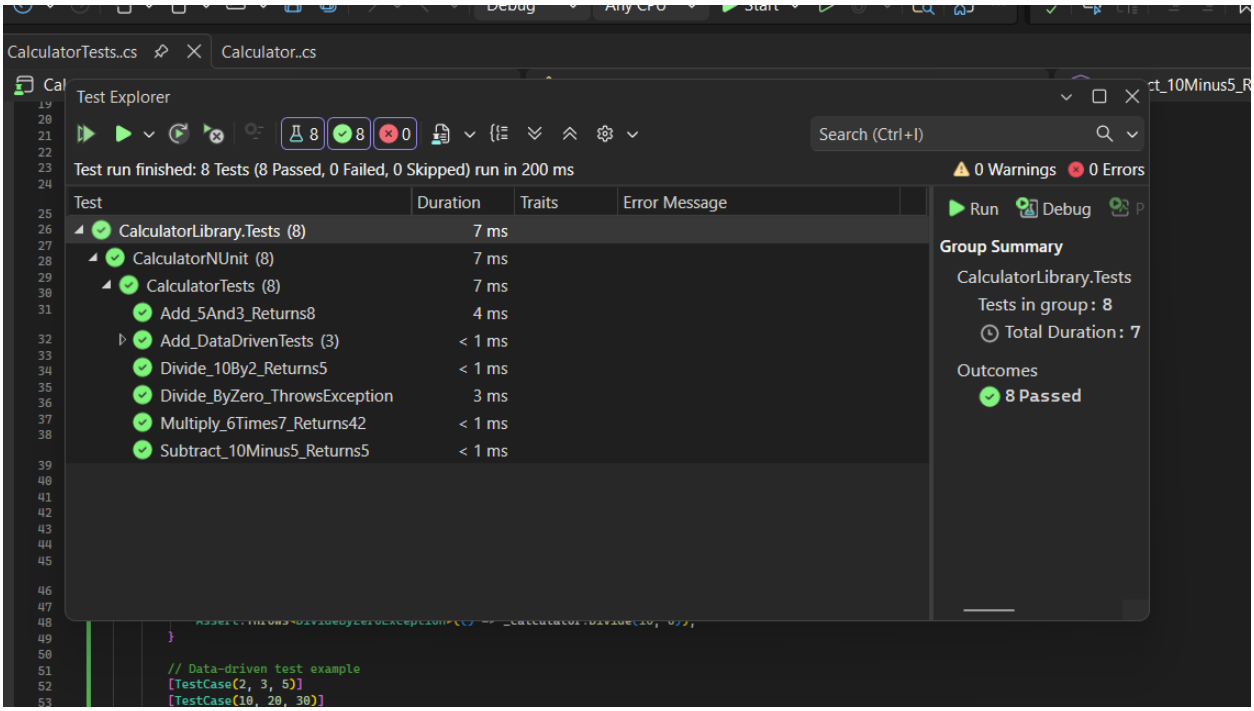
```
using CalculatorLibrary;
using NUnit.Framework;
namespace CalculatorNUnit
{
    [TestFixture]
    public class CalculatorTests
    {
        private Calculator _calculator = null!;

        [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**


CalculatorTests..cs
Calculator..cs
Test Explorer
8
8
0
Search (Ctrl+I)
Test run finished: 8 Tests (8 Passed, 0 Failed, 0 Skipped) run in 200 ms
0 Warnings
0 Errors
Test
Duration
Traits
Error Message
CalculatorLibrary.Tests (8) 7 ms
CalculatorNUnit (8) 7 ms
CalculatorTests (8) 7 ms
Add_5And3_Returns8 4 ms
Add_DataDrivenTests (3) < 1 ms
Divide_10By2_Returns5 < 1 ms
Divide_ByZero_ThrowsException 3 ms
Multiply_6Times7_Returns42 < 1 ms
Subtract_10Minus5_Returns5 < 1 ms
Run
Debug
Group Summary
CalculatorLibrary.Tests
Tests in group : 8
Total Duration : 7
Outcomes
8 Passed
// Data-driven test example
[TestCase(2, 3, 5)]
[TestCase(10, 20, 30)]