Date: 15/09/2022
Lab Session No.: 07

Task 7: Testing visual c# using NUnit.
Aim: To perform Armstrong and Fibonacci number testing visual c# using NUnit.
Procedure:
Steps:

1. Creating Class Library.
   - Click on File and select New project
   - Click on Visual C# and give it the name "ClassLibrary1" and click OK
2. Add the following code

```csharp
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
namespace armst{
    public class armstrong{
        public int isArmstrong(int x){
            int sum = 0;int tempX = x;
            int temp = 0;int length = x.ToString().Length;
            while (x != 0){
                temp = x % 10;
                x = x / 10;
                sum += (int)Math.Pow(temp, length);
            }
            if (sum == tempX)
                return 1;
            else
                return 0;
        }
    }//198W1A0525
    public class fibonaccicheck{
        public bool isPerfectSquare(int x){
            int s = (int)Math.Sqrt(x);
            return (s * s == x);
        }
        public bool check(int n){
            return isPerfectSquare(5*n*n+4) || isPerfectSquare(5*n*n-4);}
        public int isFibonacci(int n){
            if( check(n))
                return 1;
            else
                return 0;
        }
    }//198W1A0525
}
```

3   Add new class Library
   - Right click on your Project in Solution explorer.
   - Click on Add and New Project and name it "ClassLibrary2"
   - Type the following code

```csharp
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
using NUnit.Framework;
using armst;
namespace classLibrary2{
    [TestFixture]
    public class Class1{
```

```
                            [Test]
                            public void TCase1(){
                                armstrong a = new armstrong();
                                fibonaccicheck f = new fibonaccicheck();
                                Assert.AreEqual(1, a.isArmstrong(153));
                                Assert.AreEqual(0, a.isArmstrong(154));
                                Assert.AreEqual(0, f.isFibonacci(25));
                                Assert.AreEqual(1, f.isFibonacci(5));
                            }
                            [Test]
                            public void Tcase2(){
                                armstrong a = new armstrong();
                                fibonaccicheck f = new fibonaccicheck();
                                Assert.AreEqual(0, a.isArmstrong(157));
                                Assert.AreEqual(1, a.isArmstrong(370));
                                Assert.AreEqual(1, f.isFibonacci(21));
                                Assert.AreEqual(0, f.isFibonacci(20));}
                    }}
```

4   Add references
   - Right Click on "References" in solution explorer and click on Add references
   - Add the Existing Project i.e "ClassLibrary1" and also nunit.framework.dll
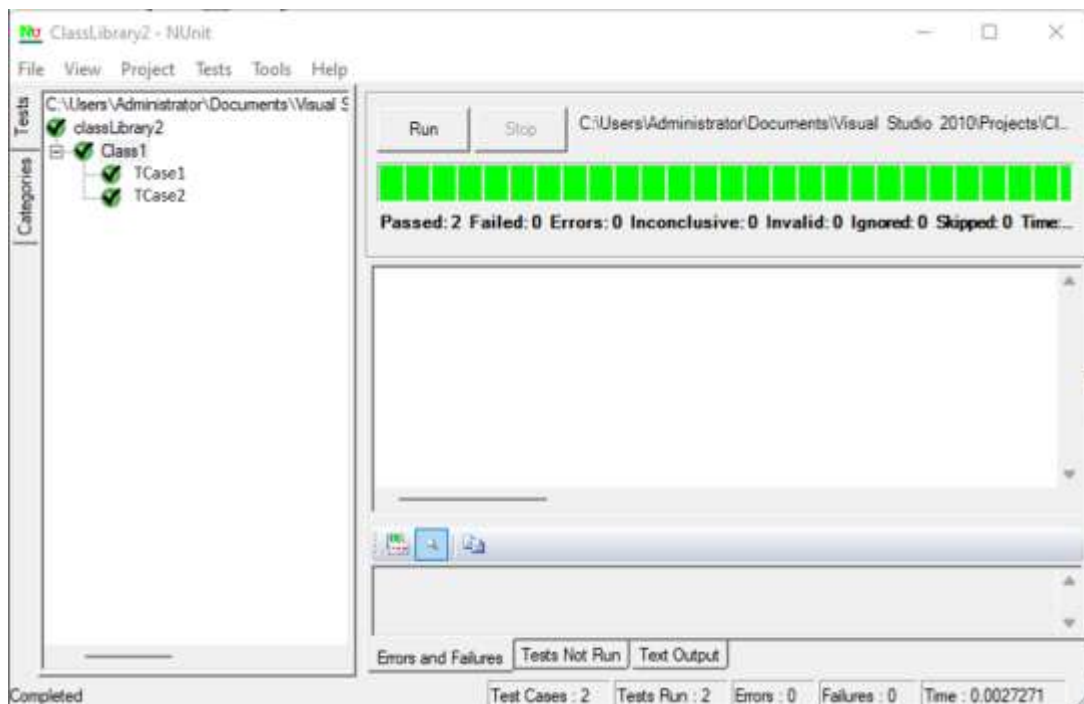   - Click on OK
5   Build Solution
   - Click on Build
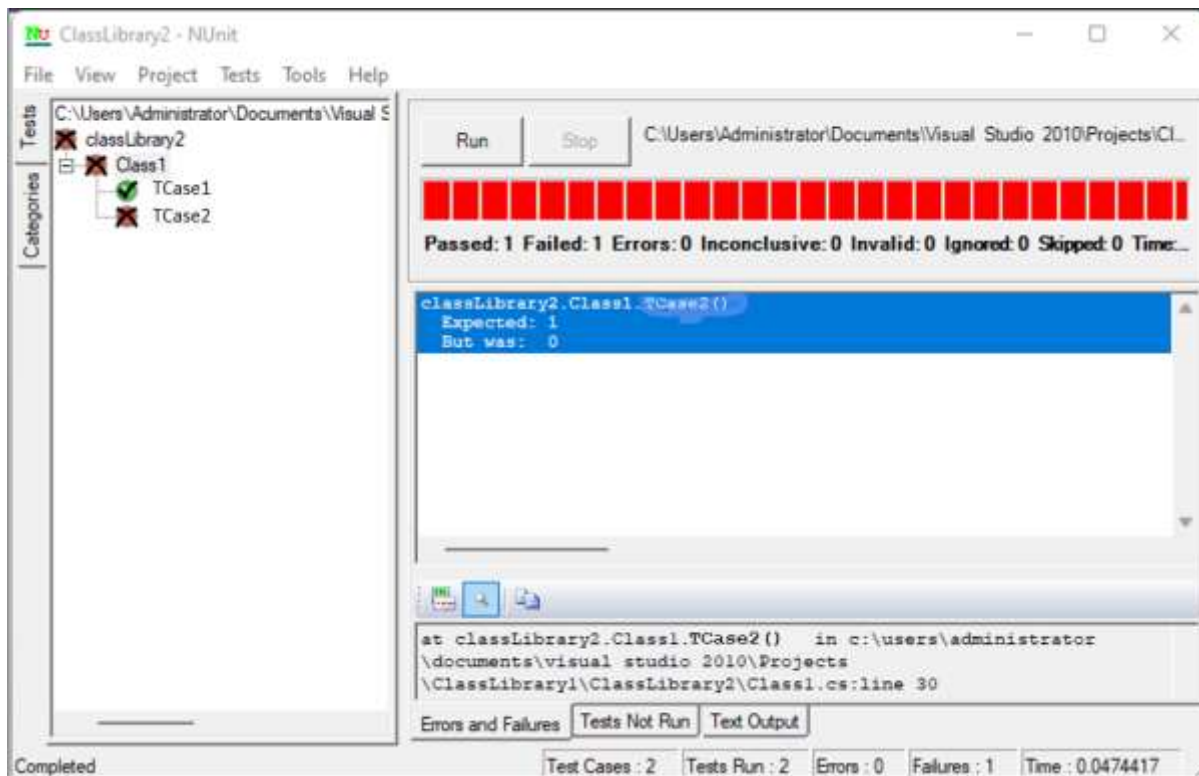   - Now click on Build Solution
6   Testing using NUnit
   - Open NUnit and click on File
   - Click on Open project and select your existing project ("ClassLibrary1")
   - Select your test code folder ("ClassLibrary2")
   - Click on bin and then on debug and then on testing .dll file ("ClassLibrary.dll")
     \Visual Studio 2010\Projects\ClassLibrary1\ClassLibrary2\bin\Debug\ClassLibrary2.dll
   - Click on Run

Output:
Pass Case

Fail Case

Test suite design:

Project Name: NUnit Testing	
Test case id: ID_7	**Test Designed by:** K.Dakshinya
Test Priority: low	**Test Designed Date**: 15/09/2022
Module Name: Nunit Testing	**Test Executed by**: K.Dakshinya
Test Title: Blackbox testing	**Test Executed Date**: 15/09/2022
Description: Test case for problem using NUnit Testing	**Test Executed Date**: 15/09/2022

Pre-Condition: User should give two input numbers and one expected output						
Stage	**Test Steps**	**Test Data**	**Expected Result**	**Actual Result**	**status (Pass/Fail)**	**Remarks**
1	Armstrong	153	1	1	Pass	Nil
2	Fibonacci	20	0	1	Fail	Nil
Post condition: Expected result should match with value returned by function						

Result: Performing checking of Armstrong and Fibonacci number testing visual c# using NUnit has been implemented successfully.

MARKS: _____   **STAFF SIGNATURE:** _____