**WEEK 2**

**NUNIT AND MOQ**

**-Dipanshu Modi**

**Superset ID: 6373703**

**Roll Number : 2205032**

**College : Kalinga Institute of Industrial Technology (KIIT), Bhubaneswar**

**Exercise – 1 (NUnit)**

**Code**(CalculatorTests.cs)**:**

using System;

using System.Collections.Generic;

using System.Linq;

using System.Text;

using System.Threading.Tasks;

using NUnit.Framework;

using CalcLibrary;

namespace CalcLibrary.Tests

{

    [TestFixture]

    public class CalculatorTests

    {

        private Calculator calculator;

        [SetUp]

        public void Setup()

        {

            calculator = new Calculator();

        }

        [TearDown]

        public void Teardown()

        {

            calculator = null;

        }

        [TestCase(2, 3, 5)]

        [TestCase(-1, 1, 0)]

        [TestCase(0, 0, 0)]

        public void Add\_WhenCalled\_ReturnsCorrectSum(int a, int b, int expected)

        {

            int result = calculator.Add(a, b);

            Assert.That(result, Is.EqualTo(expected));

        }

    }

}

**File Name** - Calculator.cs

using System;

using System.Collections.Generic;

using System.Linq;

using System.Text;

using System.Threading.Tasks;

namespace CalcLibrary

{

    public class Calculator

    {

        public int Add(int a, int b)

        {

            return a + b;

        }

    }

}

**Output:**

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**Exercise – 1 (Moq)**

**Code** (CustomerComm.cs,*Under Folder – CustomerCommLib)***:**

namespace CustomerCommLib

{

    public class CustomerComm

    {

        IMailSender \_mailSender;

        public CustomerComm(IMailSender mailSender)

        {

            \_mailSender = mailSender;

        }

        public bool SendMailToCustomer()

        {

*// Imagine real customer email and message*

            return \_mailSender.SendMail("cust123@abc.com", "Some Message");

        }

    }

}

**File Name** - MailSender.cs

using System.Net;

using System.Net.Mail;

namespace CustomerCommLib

{

    public interface IMailSender

    {

        bool SendMail(string toAddress, string message);

    }

    public class MailSender : IMailSender

    {

        public bool SendMail(string toAddress, string message)

        {

            MailMessage mail = new MailMessage();

            SmtpClient SmtpServer = new SmtpClient("smtp.gmail.com");

            mail.From = new MailAddress("your\_email\_address@gmail.com");

            mail.To.Add(toAddress);

            mail.Subject = "Test Mail";

            mail.Body = message;

            SmtpServer.Port = 587;

            SmtpServer.Credentials = new NetworkCredential("username", "password");

            SmtpServer.EnableSsl = true;

            SmtpServer.Send(mail);

            return true;

        }

    }

}

**Code** (CustomerCommTests.cs, *Under Folder – CustomerComm.Tests*)**:**

using NUnit.Framework;

using Moq;

using CustomerCommLib;

namespace CustomerComm.Tests

{

    [TestFixture]

    public class CustomerCommTests

    {

        private Mock<IMailSender>? \_mockMailSender;

        private CustomerCommLib.CustomerComm? \_customerComm;

        [OneTimeSetUp]

        public void Init()

        {

            \_mockMailSender = new Mock<IMailSender>();

            \_mockMailSender

                .Setup(x => x.SendMail(It.IsAny<string>(), It.IsAny<string>()))

                .Returns(true);

            \_customerComm = new CustomerCommLib.CustomerComm(\_mockMailSender.Object);

        }

        [Test]

        public void SendMailToCustomer\_ReturnsTrue()

        {

            bool result = \_customerComm!.SendMailToCustomer();

            Assert.That(result, Is.True);

        }

    }

}

**Output –**

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Name – Rishabh Shrivastav

Roll Number – 22053972

Superset ID - 6364580

College – Kalinga Institute of Industrial Technology (KIIT), Bhubaneswar