

Day 16(14-02-2022) Assignment

By

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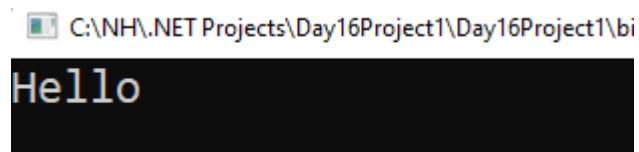
Q1. Write a C# program to print Hello
Hint: Think Object Oriented

Code:

```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
using System.Threading.Tasks;

namespace Day16Project1
{
    /*****
    *Author: Sudha Kumari Sugasani
    *Purpose: Program to print Hello in object oriented way
    * *****/
    class Hello
    {
        /// <summary>
        /// This method is used to print Hello
        /// </summary>
        public static void PrintHello()
        {
            Console.WriteLine("Hello");
        }
    }
    internal class Program
    {
        static void Main(string[] args)
        {
            Hello.PrintHello();
            Console.ReadLine();
        }
    }
}
```

Output:



C:\NH\.NET Projects\Day16Project1\Day16Project1\bi

Hello

Q2. Write a C# program to read number from user and print factorial of it.
Hint: Think Object Oriented

Code:

```
using System;
using System.Collections.Generic;
using System.Linq;
```


```

using System.Text;
using System.Threading.Tasks;

namespace Day16Project2
{
    /*****
    * Author:Sudha Kumari Sugasani
    * Purpose:Program to read a number from user and print
    *         factorial of it
    * *****/
    class Mathematics
    {
        int input;
        /// <summary>
        /// This method will read input from user
        /// </summary>
        public void Readdata()
        {
            Console.WriteLine("Enter input");
            input=Convert.ToInt32(Console.ReadLine());
        }
        /// <summary>
        /// This method will return factorial of a number
        /// </summary>
        /// <returns>factorial</returns>
        public int GetFactorial()
        {
            int factorial = 1;
            for(int i = 1; i <=input;i++)
            {
                factorial=factorial*i;
            }
            return factorial;
        }
    }
    internal class Program
    {
        static void Main(string[] args)
        {
            Mathematics obj=new Mathematics();
            obj.Readdata();
            Console.WriteLine($"Factorial of given number is
{obj.GetFactorial()}");
            Console.ReadLine();
        }
    }
}

```

Output:

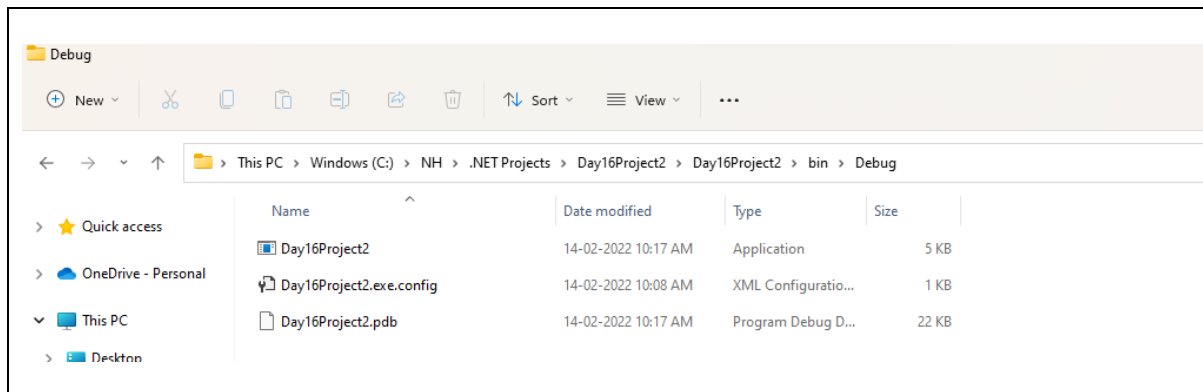
 C:\NH\NET Projects\Day16Project2\Day16Project2\bin\Debug\Day16Project2.exe

```

Enter input
6
Factorial of given number is 720

```

Q3.Put the screenshot of console application created in task 2.



Q4. Create a Class Library Project with name as
<YourName>Library (Example : MeganadhLibrary)

Create a class Mathematics as discussed in the class.
[Add methods for reading number and finding factorial]

Re-Build the project and you will a .dll file.
(Put the screen shot of this)

Copy the dll file to your desktop
(put the screen shot of this)

Code:

```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
using System.Threading.Tasks;

namespace SudhaLibrary
{
    /*****
     * Author:Sudha Kumari Sugasani
     * Purpose:Creating a class Library
     * *****/
    internal class Mathematics
    {
        int input;
        /// <summary>
        /// This method will read input from user
        /// </summary>
        public void Readdata()
        {
            Console.WriteLine("Enter input");
            input = Convert.ToInt32(Console.ReadLine());
        }
        /// <summary>
        /// This method will return factorial of a number
        /// </summary>
        /// <returns>factorial</returns>
        public int GetFactorial()
        {
            int factorial = 1;
            for (int i = 1; i <= input; i++)
            {
                factorial = factorial * i;
            }
        }
    }
}
```

```

    }
    return factorial;
}
}
}

```

Output:

The screenshot shows the Visual Studio IDE with the file `Mathematics.cs` open. The code defines a class `SudhaLibrary.Mathematics` with two methods: `Readdata()` and `GetFactorial()`. The `Readdata()` method prompts the user to enter input and converts it to an integer. The `GetFactorial()` method calculates the factorial of the input number. The output window at the bottom shows the build process, indicating that the project was successfully rebuilt.

```

12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
SudhaLibrary
/// <summary>
/// This method will read input from user
/// </summary>
0 references
public void Readdata()
{
    Console.WriteLine("Enter input");
    input = Convert.ToInt32(Console.ReadLine());
}
/// <summary>
/// This method will return factorial of a number
/// </summary>
/// <returns>factorial</returns>
0 references
public int GetFactorial()
{
    int factorial = 1;
    for (int i = 1; i <= input; i++)
    {
        factorial = factorial * i;
    }
    return factorial;
}

```

Output

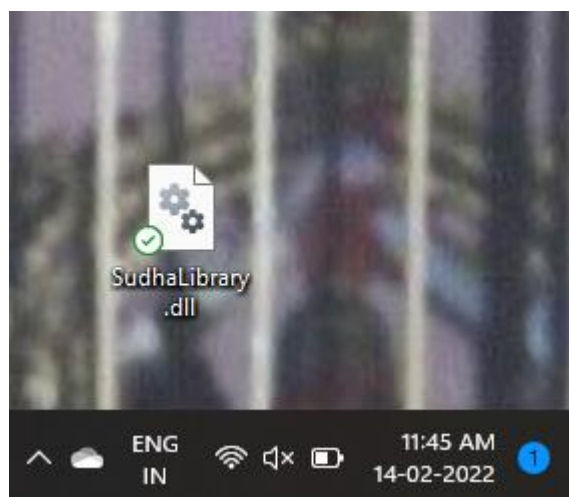
Show output from: Build

Rebuild started...

1>----- Rebuild All started: Project: SudhaLibrary, Configuration: Debug Any CPU -----

1> SudhaLibrary -> C:\NH\NET Projects\SudhaLibrary\SudhaLibrary\bin\Debug\SudhaLibrary.dll

===== Rebuild All: 1 succeeded, 0 failed, 0 skipped =====



Q5. Create a class library with three classes in it:

- Mathematics
- Physics
- Chemistry

and add methods as discussed in the class

Refer all the three classes in a console application.

Code:

1.Chemistry class code:

```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
using System.Threading.Tasks;

namespace SudhaSugasanLibrary
{
    public class Chemistry
    {
        /// <summary>
        /// This method will return the formula for Benzene
        /// </summary>
        /// <returns>String</returns>
        public static string GetBenzene()
        {
            return "C6H6";
        }
        /// <summary>
        /// This method will return the formula for Water
        /// </summary>
        /// <returns>String</returns>
        public static string GetWater()
        {
            return "H2O";
        }
        /// <summary>
        /// This method will return the formula for Methane
        /// </summary>
        /// <returns>String</returns>
        public static string GetMethane()
        {
            return "CH4";
        }
    }
}
```

2.Mathematics class Code

```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
using System.Threading.Tasks;

namespace SudhaSugasanLibrary
{
    public class Mathematics
    {
        int input;
        /// <summary>
        /// This method will read input from user
        /// </summary>
        public void Readdata()
        {
            Console.WriteLine("Enter input");
            input = Convert.ToInt32(Console.ReadLine());
        }
    }
}
```

```

    }
    /// <summary>
    /// This method will return factorial of a number
    /// </summary>
    /// <returns>factorial(int)</returns>
    public int GetFactorial()
    {
        int factorial = 1;
        for (int i = 1; i <= input; i++)
        {
            factorial = factorial * i;
        }
        return factorial;
    }
}

```

3. Physics class code:

```

using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
using System.Threading.Tasks;

namespace SudhaSugasaniLibrary
{
    public class Physics
    {
        /// <summary>
        /// This method will return FinalVelocity
        /// </summary>
        /// <param name="u">int</param>
        /// <param name="t">int</param>
        /// <param name="a">int</param>
        /// <returns>Final Velocity(int)</returns>
        public static int FinalVelocity(int u,int t,int a)
        {
            return u + a * t;
        }
    }
}

```

Console App Code:

```

using System;
using SudhaSugasaniLibrary;
using System.Collections.Generic;
using System.Linq;
using System.Text;
using System.Threading.Tasks;

namespace Day16Project3
{
    /*****
    * Author:Sudha Kumari Sugasani
    * Purpose:Program to refer library classes in console application
    * *****/
    internal class Program
    {
        static void Main(string[] args)
        {
            Mathematics m1 = new Mathematics();

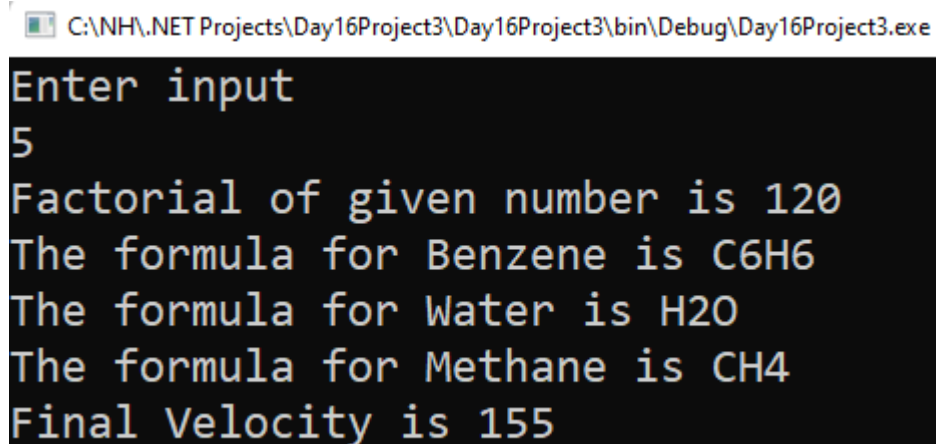
```

```

        m1.Readdata();
        Console.WriteLine($"Factorial of given number is
{m1.GetFactorial()}");
        Console.WriteLine($"The formula for Benzene is
{Chemistry.GetBenzene()}");
        Console.WriteLine($"The formula for Water is
{Chemistry.GetWater()}");
        Console.WriteLine($"The formula for Methane is
{Chemistry.GetMethane()}");
        Console.WriteLine($"Final Velocity is
{Physics.FinalVelocity(5,10,15)}");
        Console.ReadLine();
    }
}
}

```

Output :



```

C:\NH\ .NET Projects\Day16Project3\Day16Project3\bin\Debug\Day16Project3.exe
Enter input
5
Factorial of given number is 120
The formula for Benzene is C6H6
The formula for Water is H2O
The formula for Methane is CH4
Final Velocity is 155

```

Q6. Write a C# program to print multiplication table of a number.

Code:

```

using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
using System.Threading.Tasks;

namespace Day16Project4
{
    /*****
    *Author:Sudha Kumari Sugasani
    *Purpose:Program to print multiplication table of
    *         a number in object oriented way.
    * *****/
    class Table
    {
        public int input;
        /// <summary>
        /// This method is used to read data from user
        /// </summary>
        public void ReadData()
        {
            Console.WriteLine("Enter a number");
            input = Convert.ToInt32(Console.ReadLine());

```

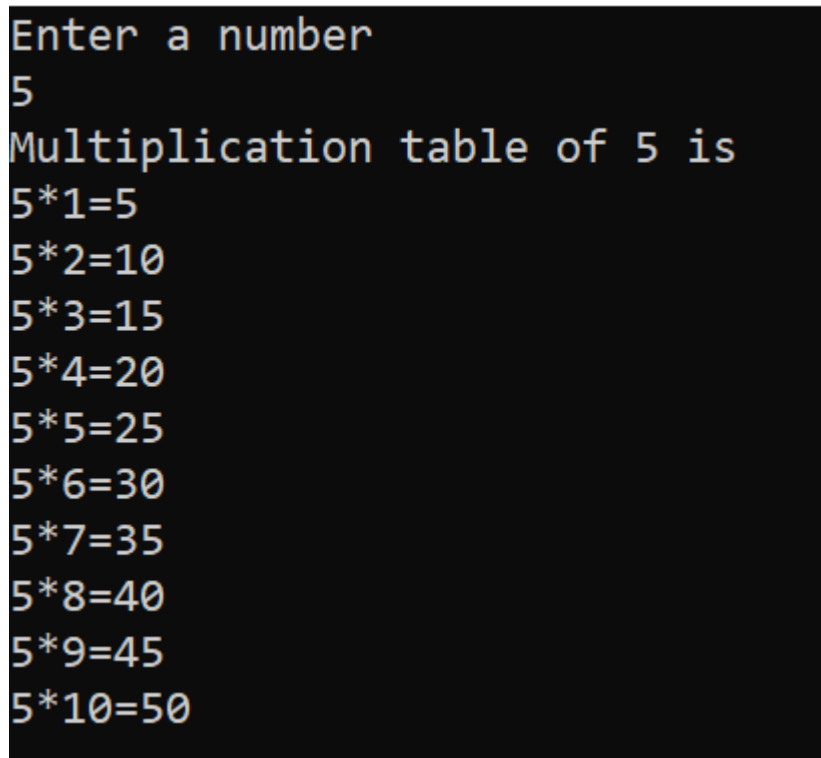
```

    }
    /// <summary>
    /// This method is used to print Multiplication table
    /// </summary>
    public void GetMultiplicationTable()
    {
        Console.WriteLine($"Multiplication table of {input} is");
        for (int i = 1; i <= 10; i++)
        {
            Console.WriteLine(input+"*"+i+"="+ (input*i));
        }
    }
}
internal class Program
{
    static void Main(string[] args)
    {
        Table t1 = new Table();
        t1.ReadData();
        t1.GetMultiplicationTable();
        Console.ReadLine();
    }
}

```

Output:

C:\NH\.NET Projects\Day16Project4\Day16Project4\bin\Debug\Day16Pr



```

Enter a number
5
Multiplication table of 5 is
5*1=5
5*2=10
5*3=15
5*4=20
5*5=25
5*6=30
5*7=35
5*8=40
5*9=45
5*10=50

```

Q7. Write a C# program to check if the given number is Palindrome or not

Code:

```

using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;

```



```

using System.Threading.Tasks;

namespace Day16Project5
{
    /*****
     * Author:Sudha Kumari Sugasani
     * Purpose:Program to check given umber is Palindrome
     *         not in Object Oriented Way
     * *****/
    class Palindrome
    {
        int input;
        /// <summary>
        /// Read data from user
        /// </summary>
        public void ReadData()
        {
            Console.WriteLine("Enter a number");
            input = Convert.ToInt32(Console.ReadLine());
        }
        /// <summary>
        /// Checking the given number is Palindrome or not
        /// </summary>
        public void CheckPalindromeorNot()
        {
            int n, rem = 0, rev = 0;
            n = input;
            while(n>0)
            {
                rem = n % 10;
                n = n / 10;
                rev = rev * 10 + rem;
            }
            if(input==rev)
            {
                Console.WriteLine($"{input} is a Palindrome");
            }
            else
            {
                Console.WriteLine($"{input} is not a Palindrome");
            }
        }
    }

    internal class Program
    {
        static void Main(string[] args)
        {
            Palindrome p1 = new Palindrome();
            p1.ReadData();
            p1.CheckPalindromeorNot();
            Console.ReadLine();
        }
    }
}

```

Output:

C:\NH\.NET Projects\Day16Project5\Day16Project5\

```
Enter a number
121
121 is a Palindrome
```

Q8. Create a solution "MyProject" (as discussed in class)

Add three projects

- YourNameLibrary (and add any class with methods)
- PublicLibrary (add any class with methods)
- ClientApp (and here refer above two libraries)

a.Sudha Library

Code:

```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
using System.Threading.Tasks;

namespace SudhaLibrary
{
    /**
     * Author:Sudha Kumari Sugasani
     * Purpose:Creating Sudha library adding classes and methods in it
     * *****/
    public static class Mathematics
    {
        /// <summary>
        /// This method will give sum of two numbers
        /// </summary>
        /// <param name="a">int</param>
        /// <param name="b">int</param>
        /// <returns>sum(int)</returns>
        public static int Add(int a,int b)
        {
            return a + b;
        }
        /// <summary>
        /// This method will give product of two numbers
        /// </summary>
        /// <param name="a">int</param>
        /// <param name="b">int</param>
        /// <returns>Product(int)</returns>
        public static int Mul(int a,int b)
        {
            return a * b;
        }
        /// <summary>
        /// This method will return division of two numbers
        /// </summary>
        /// <param name="a">int</param>
        /// <param name="b">int</param>
        /// <returns>Div(int)</returns>
        public static int Div(int a,int b)
```

```

        {
            return a / b;
        }
        /// <summary>
        /// This method will return Modular division of two numbers
        /// </summary>
        /// <param name="a">int</param>
        /// <param name="b">int</param>
        /// <returns>ModularDivision(int)</returns>
        public static int ModDiv(int a,int b)
        {
            return a % b;
        }
    }
}

```

b.PublicLibrary

Code:

```

using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
using System.Threading.Tasks;

namespace PublicLibrary
{
    /*****
    * Author:Sudha Sugasani
    * Purpose:Creating PublicLibrary and adding class,methods in it
    * *****/
    public class Physics
    {
        /// <summary>
        /// This method is used to find speed
        /// </summary>
        /// <param name="distance">int</param>
        /// <param name="time">int</param>
        /// <returns>Speed(int)</returns>
        public static int Speed(int distance,int time)
        {
            return distance / time;
        }
    }
}

```

C.ClientApp

Code:

```

using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
using System.Threading.Tasks;
using SudhaLibrary;
using PublicLibrary;

namespace ClientApp
{
    /*****
    * Author:Sudha Sugasani
    * Purpose:Creating a class(clientapp) and referring
    *          libraries(SudhaLibrary,PublicLibrary) in it
    *****/
}

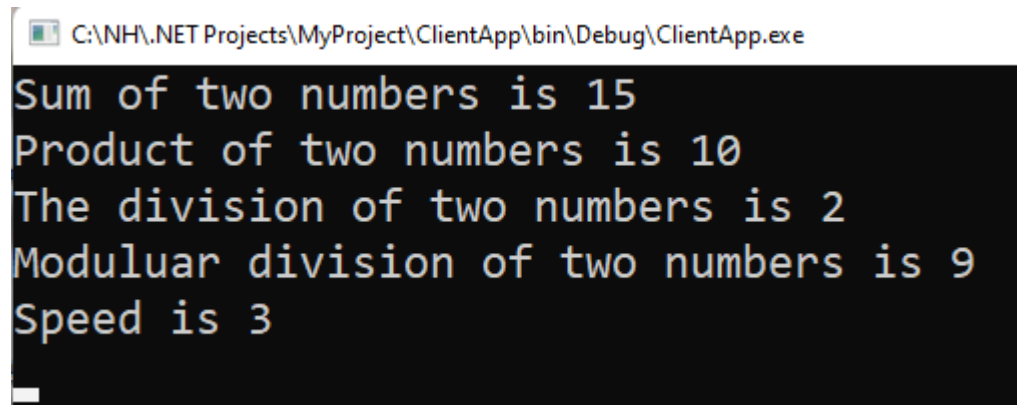
```

```

* *****/
internal class Program
{
    static void Main(string[] args)
    {
        Console.WriteLine($"Sum of two numbers is
{Mathematics.Add(5,10)}");
        Console.WriteLine($"Product of two numbers is
{Mathematics.Mul(5,2)}");
        Console.WriteLine($"The division of two numbers is
{Mathematics.Div(10,5)}");
        Console.WriteLine($"Moduluar division of two numbers is
{Mathematics.ModDiv(20,11)}");
        Console.WriteLine($"Speed is {Physics.Speed(15,5)}");
        Console.ReadLine();
    }
}

```

Output:



C:\NH\NET Projects\MyProject\ClientApp\bin\Debug\ClientApp.exe

```

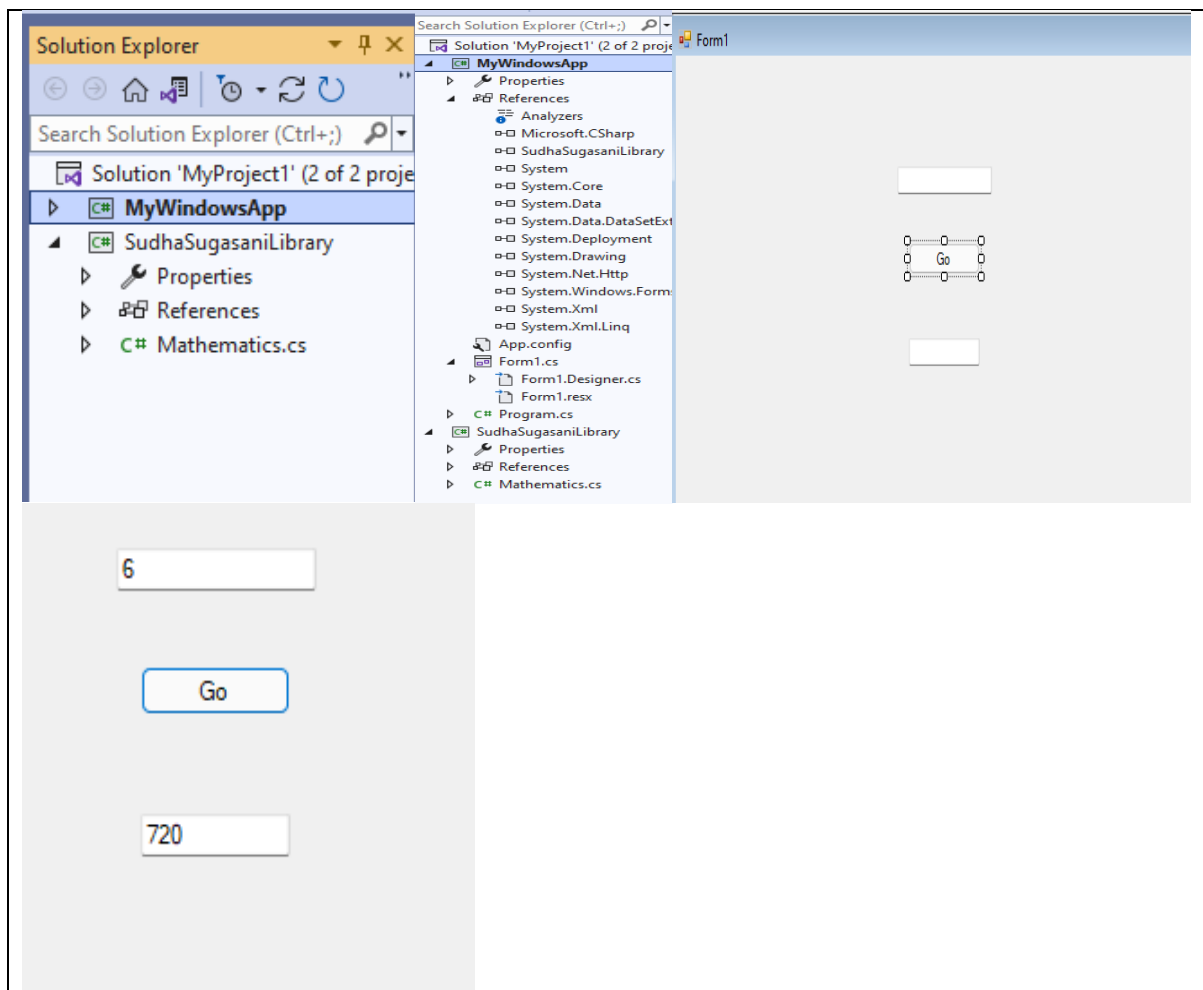
Sum of two numbers is 15
Product of two numbers is 10
The division of two numbers is 2
Moduluar division of two numbers is 9
Speed is 3

```

Q9. Add one more project (windows application)

Add some 3 or 4 screen shots just to prove that you have done this.

Output:



Q10. Research and write what is the use of partial classes in C#
WRITE EXAMPLE CODE AND PUT SCREEN SHOTS

Partial Class:

- If the class file is becoming too lengthy with so many methods, create one more file with same class name in both places we have to use partial keyword.
- Every part of the partial class definition should have the same accessibility as private, protected, etc.
- If any part of the partial class is declared as an abstract, sealed, or base, then the whole class is declared of the same type.

Code for partial class1:

```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
using System.Threading.Tasks;

namespace SudhaSLibrary
{
    /*****
     * Author:Sudha Sugasani
     * Purpose:Example for partial class
     * *****/
}
```

```

public partial class Mathematics
{
    /// <summary>
    /// This method will return the sum of two numbers
    /// </summary>
    /// <param name="a">int</param>
    /// <param name="b">int</param>
    /// <returns>Sum(int)</returns>
    public int Add(int a,int b)
    {
        return a + b;
    }
    /// <summary>
    /// This method will return difference of two numbers
    /// </summary>
    /// <param name="a">int</param>
    /// <param name="b">int</param>
    /// <returns>Difference(int)</returns>
    public int Sub(int a,int b)
    {
        return a - b;
    }
    /// <summary>
    /// This method will return Product of two numbers
    /// </summary>
    /// <param name="a">int</param>
    /// <param name="b">int</param>
    /// <returns>product(int)</returns>
    public int Mul(int a,int b)
    {
        return a * b;
    }
}
}

```

Code for Partial Class2:

```

using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
using System.Threading.Tasks;

namespace SudhaSLibrary
{
    /**
     * Author:Sudha Sugasani
     * Purpose:Example for partial class
     * *****/
    public partial class Mathematics
    {
        /// <summary>
        /// This method will return Division of two numbers
        /// </summary>
        /// <param name="a">int</param>
        /// <param name="b">int</param>
        /// <returns>Division(int)</returns>
        public int Division(int a,int b)
        {
            return a / b;
        }
        /// <summary>
        /// This method will return ModularDivision of two numbers
    }
}

```

```

    /// </summary>
    /// <param name="a">int</param>
    /// <param name="b">int</param>
    /// <returns>ModularDivision(int)</returns>
    public int ModularDivision(int a,int b)
    {
        return a % b;
    }
}

```

Code for Console App:

```

using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
using System.Threading.Tasks;
using SudhaSLibrary;

namespace ClientApp
{
    /*****
    * Author:Sudha Sugasani
    * Purpose:Example for Partial class
    * *****/
    internal class Program
    {
        static void Main(string[] args)
        {
            Mathematics m1 = new Mathematics();
            Console.WriteLine($"The Sum of two numbers is {m1.Add(5,10)}");
            Console.WriteLine($"The difference of two numbers is
{m1.Sub(10,5)}");
            Console.WriteLine($"The Product of two number is {m1.Mul(2,3)}");
            Console.WriteLine($"Division of two numbers is
{m1.Division(24,6)}");
            Console.WriteLine($"Modular division of two numbers is
{m1.ModularDivision(27,5)}");
            Console.ReadLine();
        }
    }
}

```

Output:

```

C:\NH\...NET Projects\MyProject2\ClientApp\bin\Debug\ClientApp.exe
The Sum of two numbers is 15
The difference of two numbers is 5
The Product of two number is 6
Division of two numbers is 4
Modular division of two numbers is 2

```