

NB Healthcare Technologies Pvt Ltd

Day 16 Morning Assignment (14 – Feb- 2022)

By

Vamsi Krishna Mandapati

1. WACP to print Hello World Hint: Think object oriented

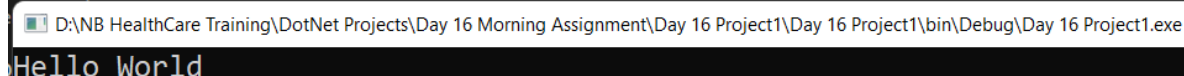
Code:

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

namespace Day_16_Project1
{
    class Greetings
    {
        public void HelloWorld()
        {
            Console.WriteLine("Hello World");
        }
    }
    internal class Program
    {
        static void Main(string[] args)
        {
            Greetings g = new Greetings();
            g.HelloWorld();

            Console.ReadLine();
        }
    }
}
```

Output:



D:\NB HealthCare Training\DotNet Projects\Day 16 Morning Assignment\Day 16 Project1\Day 16 Project1\bin\Debug\Day 16 Project1.exe

Hello World

2. WACP to read a 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;

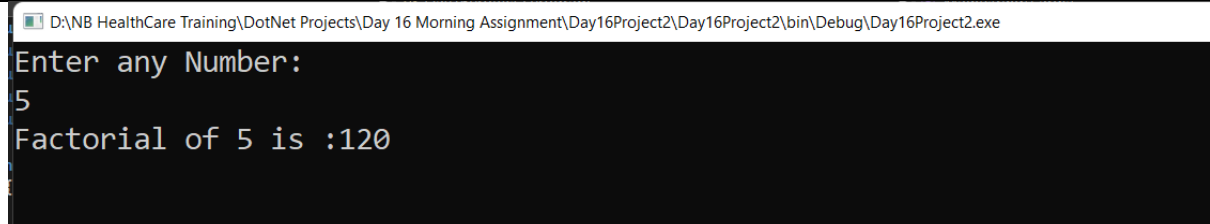
namespace Day16Project2
{
    class Mathematics
    {
        int input;

        public int ReadData()
        {
            Console.WriteLine("Enter any Number:");
            input = Convert.ToInt32(Console.ReadLine());
            return input;
        }

        public int GetFactorial()
        {
            int fact = 1;
            for(int i = 1; i <= input; i++)
            {
                fact = fact * i;
            }
            return fact;
        }
    }
    internal class Program
    {
        static void Main(string[] args)
        {
            Mathematics m = new Mathematics();
            int input = m.ReadData();
            int Result = m.GetFactorial();
            Console.WriteLine("Factorial of {0} is :{1}", input, Result);
            Console.ReadLine();
        }
    }
}

```

Output:



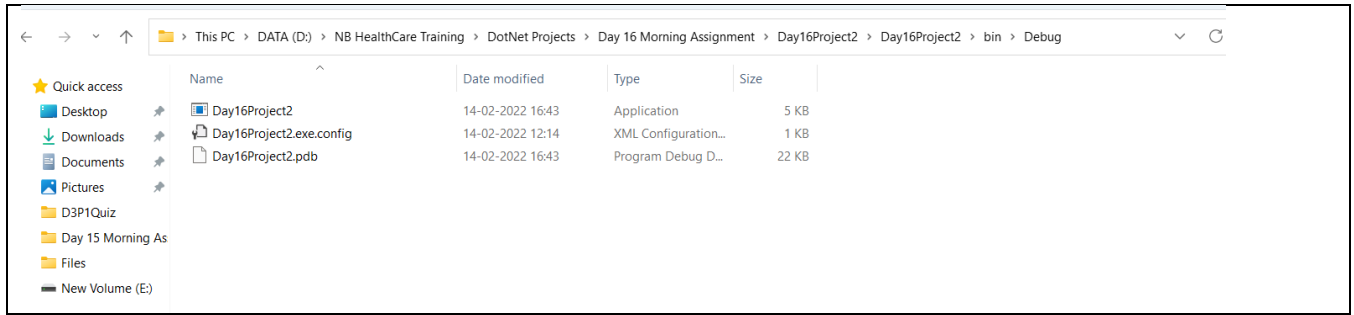
```

D:\NB HealthCare Training\DotNet Projects\Day 16 Morning Assignment\Day16Project2\Day16Project2\bin\Debug\Day16Project2.exe
Enter any Number:
5
Factorial of 5 is :120

```

3. For the console application created in 2nd task add screen shot of the .exe file location

Path of the .exe file of Task-2

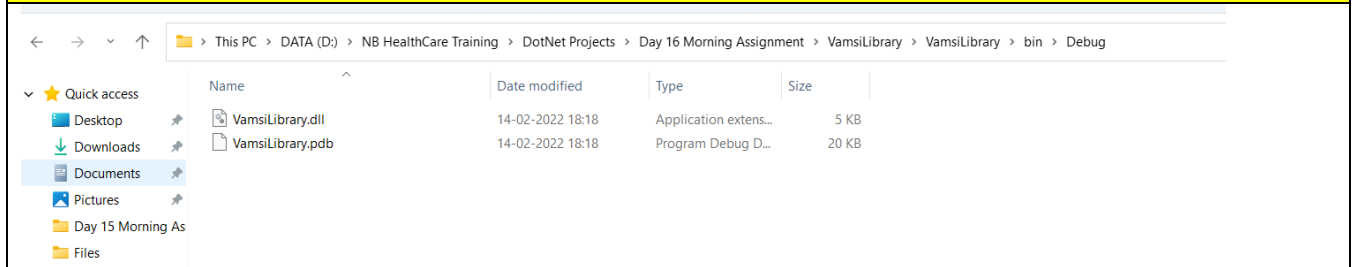


4. Create a Class Library Project with name as <YourName>Library (Example : MeganadhLibrary)

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)





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

- a. Mathematics
- b. Physics
- c. Chemistry

and add methods as discussed in the class

refer all the three classes in a console application.

VamsiLibrary:

Mathematics:

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

namespace VamsiLibrary
{
    public class Mathematics
    {
        int input;

        public void ReadData()
        {
            Console.WriteLine("Enter any Number:");
            input = Convert.ToInt32(Console.ReadLine());
        }

        public int GetFactorial()
        {
            int fact = 1;
            for (int i = 1; i <= input; i++)
            {
                fact = fact * i;
            }
            return fact;
        }
    }
}
```

Chemistry:

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

namespace VamsiLibrary
{
    public class Chemistry
    {
        public string GetBenzene()
        {
            return "C6H6";
        }

        public string GetWater()
        {
            return "H2O";
        }
    }
}
```

```

        public string GetMethane()
        {
            return "CH4";
        }
    }
}

```

Physics:

```

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

namespace VamsiLibrary
{
    public class Physics
    {
        public int FinalVelocity(int u,int a, int t)
        {
            return u + a * t;
        }
    }
}

```

Code: Day16Project3

```

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

namespace Day16Project3
{
    internal class Program
    {
        static void Main(string[] args)
        {
            Mathematics m = new Mathematics();
            m.ReadData();
            Console.WriteLine(m.GetFactorial());

            Console.WriteLine("*****");

            Chemistry c = new Chemistry();
            Console.WriteLine(c.GetWater());
            Console.WriteLine(c.GetWater());
            Console.WriteLine(c.GetMethane());

            Console.WriteLine("*****");

            int u = 5;
            int a = 10;

```

```

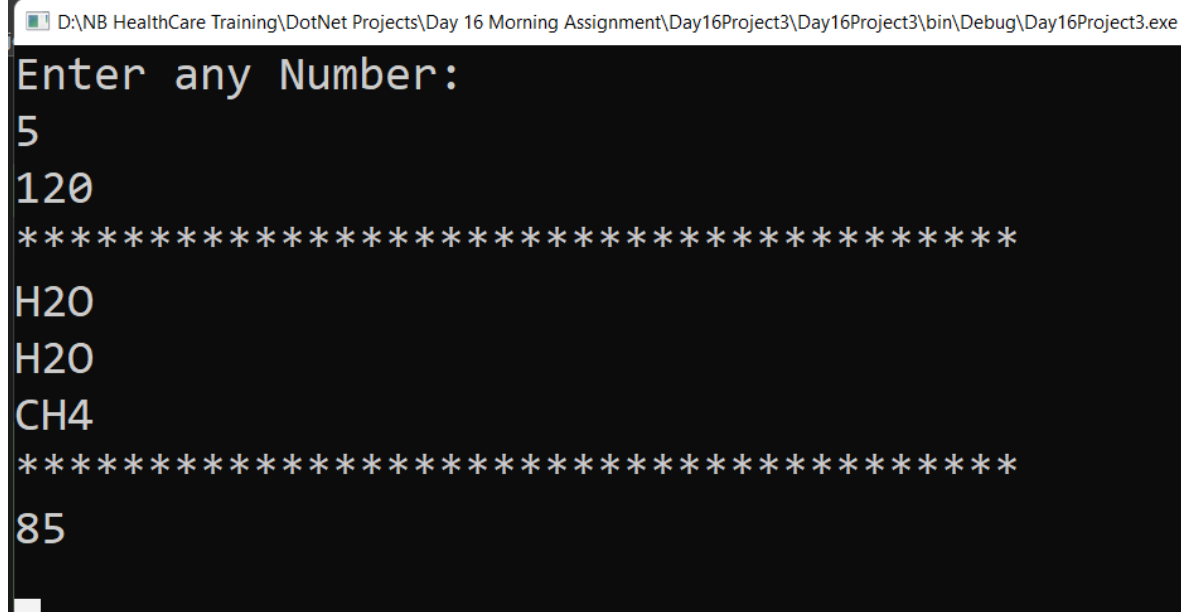
        int t = 8;
        Physics p = new Physics();
        Console.WriteLine(p.FinalVelocity(u,a,t));

        //We can access methods using class name , by declaring methods
        and classes of library class as static without using objects

        Console.ReadLine();
    }
}

```

Output:



The screenshot shows a console window with the following output:

```

D:\NB HealthCare Training\DotNet Projects\Day 16 Morning Assignment\Day16Project3\Day16Project3\bin\Debug\Day16Project3.exe
Enter any Number:
5
120
*****
H2O
H2O
CH4
*****
85
_

```

6. WACP 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 Day16Project6
{
    class MultiplicationTable
    {
        int input, i;
        public void ReadData()
        {
            Console.WriteLine("Enter a Number");
            input = Convert.ToInt32(Console.ReadLine());
        }
        public void PrintData()
        {
            for (i = 1; i <= 10; i++)

```

```

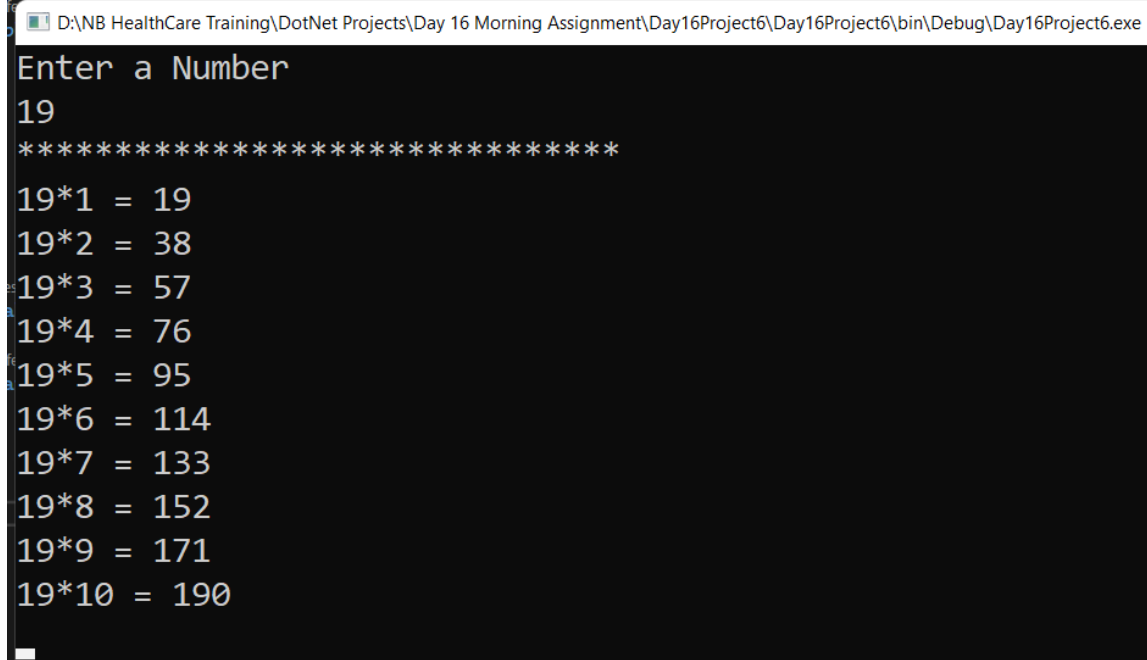
        {
            Console.WriteLine("{0}*{1} = {2}", input, i, input * i);
        }
    }

    internal class Program
    {
        static void Main(string[] args)
        {
            MultiplicationTable mt = new MultiplicationTable();
            mt.ReadData();
            Console.WriteLine("*****");
            mt.PrintData();

            Console.ReadLine();
        }
    }
}

```

Output:



```

D:\NB HealthCare Training\DotNet Projects\Day 16 Morning Assignment\Day16Project6\Day16Project6\bin\Debug\Day16Project6.exe
Enter a Number
19
*****
19*1 = 19
19*2 = 38
19*3 = 57
19*4 = 76
19*5 = 95
19*6 = 114
19*7 = 133
19*8 = 152
19*9 = 171
19*10 = 190

```

7. WACP to check if the given is number is Palindrome or not

Code:

```

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

namespace Day16Project7
{
    class PalindromeNumber
    {
        int n, m, rem, rev = 0;

        public void ReadData()

```



```

    {
        Console.WriteLine("Enter any Number");
        n = Convert.ToInt32(Console.ReadLine());
    }

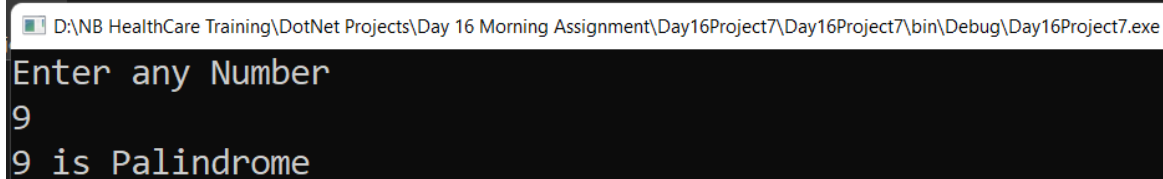
    public void PrintData()
    {
        m = n;
        while (m > 0)
        {
            rem = m % 10;
            m = m / 10;
            rev = rev * 10 + rem;
        }
        if (n == rev)
        {
            Console.WriteLine("{0} is Palindrome", n);
        }
        else
        {
            Console.WriteLine("{0} is Not a Palindrome", n);
        }
    }
}

internal class Program
{
    static void Main(string[] args)
    {
        PalindromeNumber pn = new PalindromeNumber();
        pn.ReadData();
        pn.PrintData();

        Console.ReadLine();
    }
}

```

Output:



```

D:\NB HealthCare Training\DotNet Projects\Day 16 Morning Assignment\Day16Project7\Day16Project7\bin\Debug\Day16Project7.exe
Enter any Number
9
9 is Palindrome

```

8. Create a solution "MyProject" (as discussed in class)
- Add three projects
 - a. YourNameLibrary (and add any class with methods)
 - b. PublicLibrary (add any class with methods)
 - c. ClientApp (and here refer above two libraries)

Note : If you are confused., see the video

VamsiKrishnaLibrary

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

namespace VamsiKrishnaLibrary
{
    public static class Multiplication
    {
        public static int Factorial(int n)
        {
            int fact = 1;
            for(int i = 1; i <= n; i++)
            {
                fact = fact * i;
            }
            return fact;
        }

        public static int Add(int a , int b)
        {
            return a + b;
        }

        public static int Mul(int a, int b)
        {
            return (a * b);
        }
    }
}
```

PublicLibrary

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

namespace PublicLibrary
{
    public static class Physics
    {
        public static int FinalVelocity(int u, int a, int t)
        {
            return u + a + t;
        }
    }
}
```

ClientApp

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

namespace ClientApp
{
    internal class Program
    {
        static void Main(string[] args)
        {
            Console.WriteLine(Multiplication.Factorial(5));
            Console.WriteLine(Physics.FinalVelocity(5,2,3));
            Console.ReadLine();
        }
    }
}
```

OutPut:

D:\NB HealthCare Training\DotNet Projects\Day 16 Morning Assignment\MyProject\ClientApp\bin\Debug\ClientApp.exe

120

10

9. Add one more project (windows application)

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

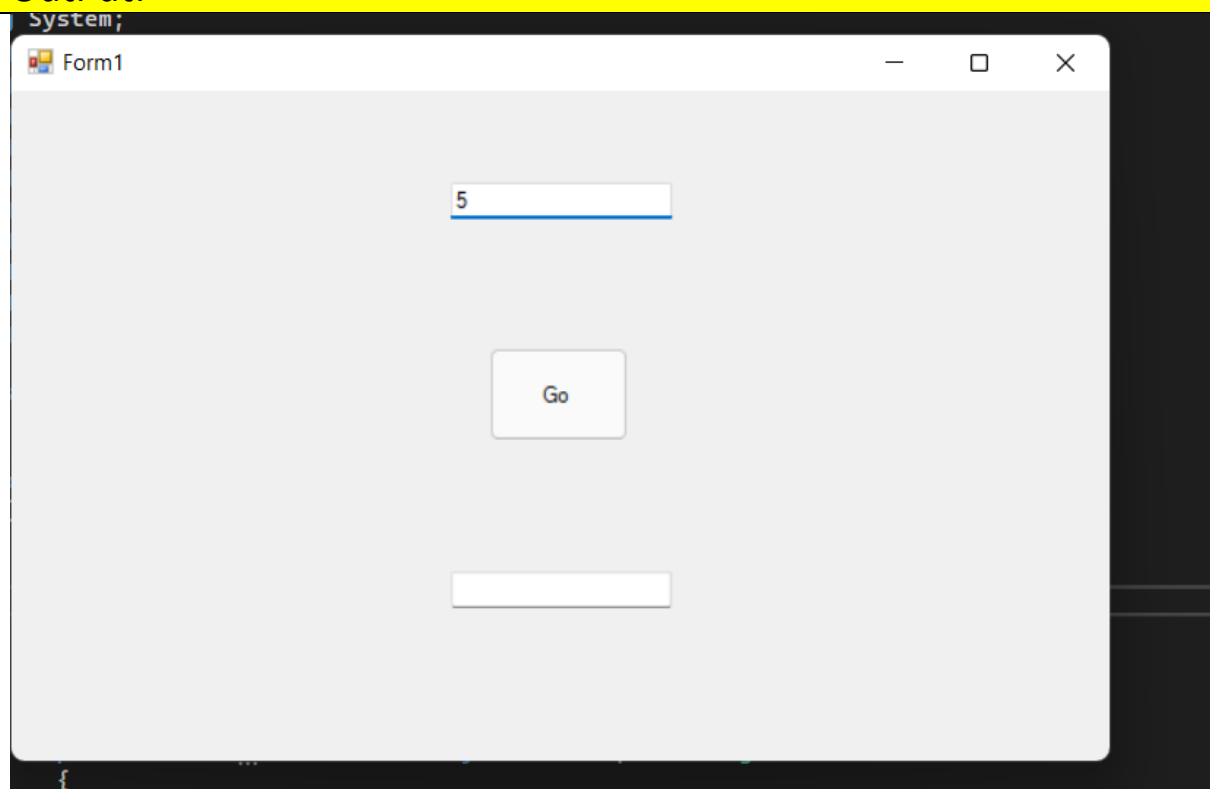
Code:

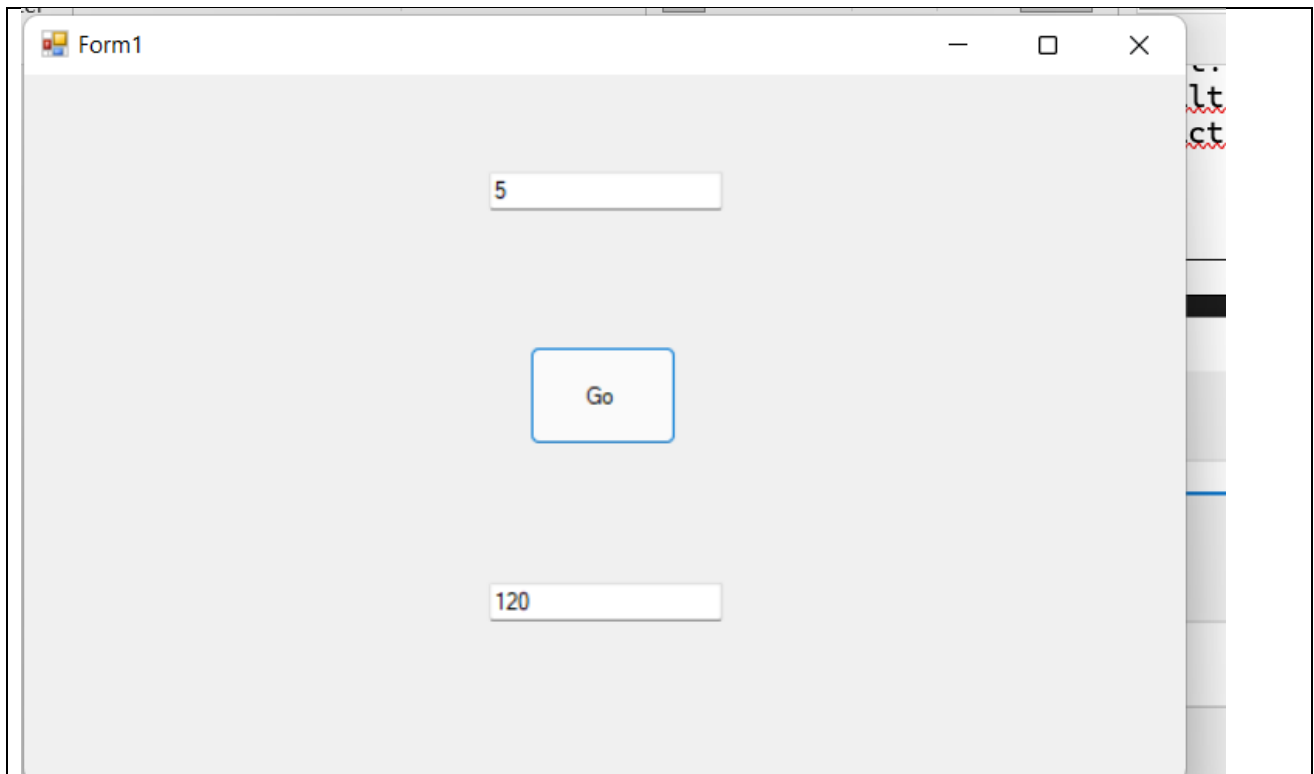
```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Threading.Tasks;
using System.Windows.Forms;
using VamsiKrishnaLibrary;
using PublicLibrary;
```

```
namespace Day16Project9
{
    public partial class Form1 : Form
    {
        public Form1()
        {
            InitializeComponent();
        }

        private void button1_Click(object sender, EventArgs e)
        {
            int input = Convert.ToInt32(textBox1.Text);
            int factorial = Multiplication.Factorial(input);
            textBox2.Text = factorial.ToString();
        }
    }
}
```

OutPut:





10. Research and write what is the use of partial classes in C#

Partial Class:

A partial class is **a special feature of C#**. It provides a special ability to implement the functionality of a single class into multiple files and all these files are combined into a single class file when the application is compiled. A partial class is created by using a partial keyword.

If the class file is becoming too lengthy then create one more class file with same class name .make sure that both class classes have partial keyword.

Important points:

- When you want to chop the functionality of the class, method, interface, or structure into multiple files, then you should use *partial* keyword and all the files are mandatory to be available at compile time for creating the final file.
- The *partial* modifier can only present instantly before the keywords like struct, class, and interface.
- Every part of the partial class definition should be in the same

assembly and [namespace](#), but you can use a different source file name.

- 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.
- The user is also allowed to use nested partial types.
- Dissimilar parts may have dissimilar base types, but the final type must inherit all the base types.

Advantages :

- With the help of partial classes, multiple developers can work simultaneously in the same class in different files.
- With the help of a partial class concept, you can split the UI of the design code and the business logic code to read and understand the code.
- When you were working with automatically generated code, the code can be added to the class without having to recreate the source file like in Visual studio.
- You can also maintain your application in an efficient manner by compressing large classes into small ones.

Rules for Partial Classes:

- All the partial class definitions must be in the same assembly and namespace.
- All the parts must have the same accessibility like public or private, etc.
- If any part is declared abstract, sealed or base type then the whole class is declared of the same type.
- Different parts can have different base types and so the final class will inherit all the base types.
- The Partial modifier can only appear immediately before the keywords class, struct, or interface.
- Nested partial types are allowed.

ConsoleApp/Program.cs

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

namespace ConsoleApp
{
    internal class Program
    {
        static void Main(string[] args)
        {
            Console.WriteLine(Multiplication.Add(8,9));
            Console.WriteLine(Multiplication.Mul(8, 9));
            Console.WriteLine(Multiplication.Division(6,3));
            Console.ReadLine();
        }
    }
}
```

Multiplication:

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

namespace VamsiKrishnaLibrary
{
    public static partial class Multiplication
    {
        public static int Add(int a, int b)
        {
            return a + b;
        }

        public static int Mul(int a, int b)
        {
            return (a * b);
        }
    }
}
```


Multiplication2:

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

namespace VamsiKrishnaLibrary
{
```

```
public static partial class Multiplication
{
    public static int Division(int a, int b)
    {
        return a / b;
    }
}
```

Output:

 D:\NB HealthCare Training\DotNet Projects\Day 16 Morning Assignment\MyProject2\ConsoleApp\bin\Debug\ConsoleApp.exe

17
72
2