

DAY 9 : Morning Assignment

By
Vihar D.

Assignment 1

Create a class to read the inputs and print factorial, factors & is prime or not.

Answer :

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

namespace print_fact_fac_prime
{
    class Math_ops
    {
        private int input;
        private int i;
        public void ReadData()
        {
            Console.Write("Enter any Number to find Some Mathematical Calculations : ");
            input = Convert.ToInt32(Console.ReadLine());
        }

        //Print factorial-----
        public void Factorial()
        {
            int fact = 1;
            for (int i = 1; i <= input; i++)
            {
                fact *= i;
            }
            Console.WriteLine($"The Factorial of Given Number {input} is : {fact}");
        }
    }
}
```

```

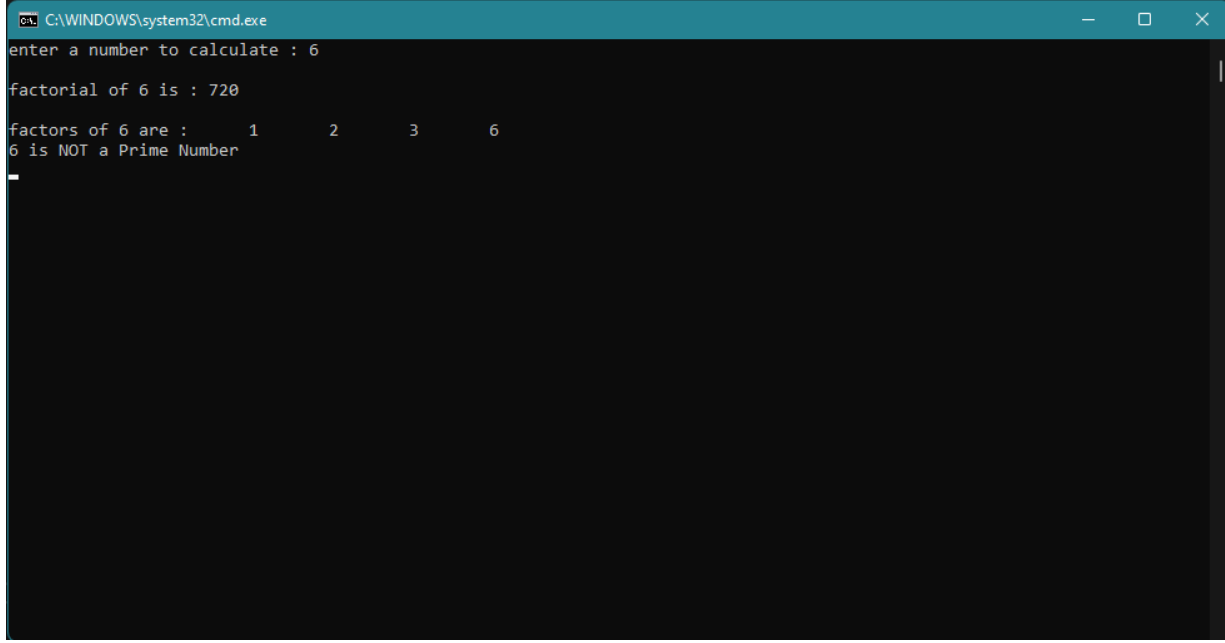
//Print factors-----
public void Factor()
{
    Console.WriteLine($"The Factors of Given Number {input} is : ");
    for (int i = 1; i <= input; i++)
    {
        if (input % i == 0)
            Console.WriteLine($"{i}");
    }
}

//Print prime or not-----
public void Prime()
{
    for (i = 2; i < input; i++)
    {
        if (input % i == 0)
            break;
    }
    if (i == input)
        Console.WriteLine($"{input} is a Prime Number");
    else
        Console.WriteLine($"{input} is NOT a Prime Number");
}

internal class Program
{
    static void Main(string[] args)
    {
        Math_ops m1 = new Math_ops();
        m1.ReadData();
        m1.Factorial();
        m1.Factor();
        m1.Prime();
        Console.ReadLine();
    }
}

```

Output :



```
C:\WINDOWS\system32\cmd.exe
enter a number to calculate : 6
factorial of 6 is : 720
factors of 6 are :      1      2      3      6
6 is NOT a Prime Number
```

The screenshot shows a Windows command prompt window with a teal title bar. The window title is "C:\WINDOWS\system32\cmd.exe". The command prompt displays the following text: "enter a number to calculate : 6", "factorial of 6 is : 720", "factors of 6 are : 1 2 3 6", and "6 is NOT a Prime Number". A cursor is visible on the line "6 is NOT a Prime Number".

Assignment 2

Create a class to read 2 inputs and sum, difference, product & division

Answer :

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

namespace _2inputs_mathops
{
    class BasicMath
    {
        private int a, b;
        private int temp;
        public void ReadData()
        {
            Console.WriteLine("\nEnter 2 numbers : \n");
            Console.Write("Enter a value : ");
            a = Convert.ToInt32(Console.ReadLine());
            Console.Write("\nEnter value : ");
            b = Convert.ToInt32(Console.ReadLine());
        }

        //Addition-----
        public void add()
        {
            temp = a + b;
            Console.WriteLine($"Sum of {a} + {b} is : {temp}");
        }

        //Difference-----
        public void diff()
        {
            temp = a - b;
            Console.WriteLine($"Difference of {a} - {b} is : {temp}");
        }

        //Product-----
        public void prod()
```

```


{
    temp = a * b;
    Console.WriteLine($"Product of {a} * {b} is : {temp}");
}

//Division-----
public void div()
{
    temp = a / b;
    Console.WriteLine($"Division of {a} / {b} is : {temp}");
}
}

internal class Program
{
    static void Main(string[] args)
    {
        BasicMath m2 = new BasicMath();
        m2.ReadData();
        m2.add();
        m2.diff();
        m2.prod();
        m2.div();
        Console.ReadLine();
    }
}
}

```

Output :



```

C:\WINDOWS\system32\cmd.exe
Enter 2 numbers :
Enter a value : 15
Enter b value : 5
Sum of 15 + 5 is : 20
Difference of 15 - 5 is :10
Product of 15 * 5 is : 75
Division of 15 / 5 is : 3
_

```

Assignment 3

Create an Employee class with 4 variables using one static variable and write the methods to read and print data.

Answer :

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

namespace emp4var
{
    class Employee
    {
        public int id;
        public string name;
        public int salary;
        public static string company = "NB Health Tech";

        public void ReadData()
        {
            Console.WriteLine("\nEnter employee id :");
            id = Convert.ToInt32(Console.ReadLine());

            Console.WriteLine("\nEnter employee name :");
            name = Console.ReadLine();

            Console.WriteLine("\nEnter employee salary :");
            salary = Convert.ToInt32(Console.ReadLine());
        }

        public void PrintData()
        {
            Console.WriteLine("\n");
            Console.WriteLine($" id : {id}, " +
                               $"name : {name}, " +
                               $"salary : {salary}, " +
                               $"company : {company}");
        }
    }
}
```

```
    }  
}  
internal class Program  
{  
    static void Main(string[] args)  
    {  
        Employee emp1 = new Employee();  
        Employee emp2 = new Employee();  
  
        //Read employee data-----  
        Console.WriteLine("\n*****Reading employee data*****");  
        emp1.ReadData();  
        emp2.ReadData();  
  
        //Print employee data-----  
        Console.WriteLine("\n*****Printing employee data*****");  
        emp1.PrintData();  
        emp2.PrintData();  
  
        Console.ReadLine();  
    }  
}
```

Output :

```
C:\WINDOWS\system32\cmd.exe

*****Reading employee data*****

Enter employee id :
5

Enter employee name :
vd

Enter employee salary :
5000

Enter employee id :
6

Enter employee name :
manoj

Enter employee salary :
7000

*****Printing employee data*****

id : 5, name : vd, salary : 5000, company : NB Health Tech

id : 6, name : manoj, salary : 7000, company : NB Health Tech
```


Assignment 4

Research and find the difference between normal variable and static variable.

Answer :

<u>Normal Variables</u>	<u>Static Variables</u>
<ul style="list-style-type: none">• Accessed using instance of a class	<ul style="list-style-type: none">• Accessed using class name
<ul style="list-style-type: none">• Cannot be accessed inside a static method	<ul style="list-style-type: none">• Accessed by static and normal variables
<ul style="list-style-type: none">• Used in the same instance of a class	<ul style="list-style-type: none">• Shared among all instances
<ul style="list-style-type: none">• Does not reduce the memory used	<ul style="list-style-type: none">• Reduces the unused memory usage
<ul style="list-style-type: none">• Similar to local variable	<ul style="list-style-type: none">• Similar to global variable

Assignment 5

Write 5 points about constructors. (which were discussed in the meeting session)

Answer :

- A constructor is used to initialize class variables while creating an object.
- Default constructor is declared inside a class with default values by default.
- Default constructor is deleted after the user-defined constructor is created.
- Constructor name should be the same as the class name.
- If a default constructor is needed along with the user-defined constructor, create a new default constructor with default values in the variables with their data types.

Assignment 6

Create an Employee class with 2 constructors and write the methods to read and write the given data

Answer :

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

namespace const2_emp
{
    internal class Program
    {
        class Employee
        {
            public int id;
            public string name;
            public int salary;
            public static string company = "NB HealthCare";

            //Default Constructor-----
            public Employee()
            {
                this.id = 0;
                this.name = null;
                this.salary = 0;
            }

            //Constructor with values-----
            public Employee(int eid, string ename, int esalary)
            {
                this.id = eid;
                this.name = ename;
                this.salary = esalary;
            }
        }
    }
}
```

```

//Reading Data-----
public void ReadData()
{
    Console.Write("\nEnter employee id : ");
    id = Convert.ToInt32(Console.ReadLine());

    Console.Write("\nEnter employee name : ");
    name = Console.ReadLine();

    Console.Write("\nEnter employee salary : ");
    salary = Convert.ToInt32(Console.ReadLine());
}

//Printing Data-----
public void PrintData()
{
    Console.WriteLine("\n");
    Console.WriteLine($" id : {id}, " +
        $"name : {name}, " +
        $"salary : {salary}, " +
        $"company :{company}");
}

static void Main(string[] args)
{
    Employee emp1 = new Employee();
    Employee emp2 = new Employee(61, "Vihar Dasari", 40000);

    emp1.ReadData();
    Console.WriteLine("\n***** Printing using default constructor *****");

    emp1.PrintData();
    Console.WriteLine("\n***** Printing using constructor *****");

    emp2.PrintData();
    Console.ReadLine();

}
}

```

Output :

```
C:\WINDOWS\system32\cmd.exe

Enter employee id : 1
Enter employee name : manoj
Enter employee salary : 10000

***** Printing using default constructor *****

id : 1,
name : manoj,
salary : 10000,
company :NB HealthCare

***** Printing using constructor *****

id : 61,
name : Vihar Dasari,
salary : 40000,
company :NB HealthCare
```