Day 9 Morning Assignment

By Manoj Karnatapu - NBHealthCareTechnologies

Assignment 1

Create a Class to Read inputs and print Factorial, Factors & is Prime or Not.

Code

```
using System;

// Author : Manoj.Karnatapu
// Purpose : Create a Class To Read inputs and print Factorial, Factors & isPrime or Not.

// For Reference, Please Do Check, Day9Project1 in the Same Repository.

namespace Day9Project1
{
    class MathsOperations
    {
        private int input;
        private int i;

        public void ReadData()
        {
            Console.Write("Enter any Number to find Some Mathematical Calculations :  ");
            input = Convert.ToInt32(Console.ReadLine());
        }

        /// <summary>
        /// This Method Finds Factorial of Given Number
        /// </summary>
        public void Factorial()
        {
            int fact = 1;

            for(int i = 1; i <= input; i++)
            {
                fact *= i;
            }

            Console.WriteLine($"\nThe Factorial of Given Number {input} is : {fact}");
        }

        /// <summary>
        /// This Method Finds Factors of a Given Number
        /// </summary>
        public void Factors()
        {
            Console.Write($"\nThe Factors of Given Number {input} is : \n");
            for(int i = 1; i <= input; i++)
            {
                if(input%i == 0)
                    Console.Write("\t{0}",i);
            }
        }

        /// <summary>
        /// This Method Finds Wether Given Number is Prime Or Not?
        /// </summary>
        public void IsPrime()
```

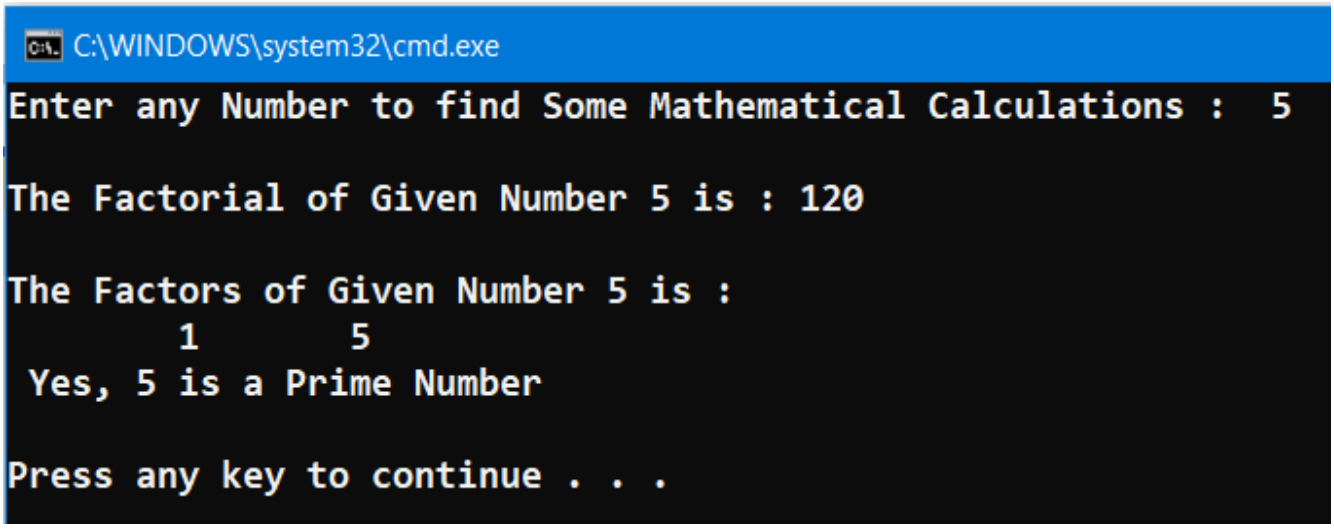
```
        {

            for(i = 2;i < input; i++)
            {
                if (input % i == 0)
                    break;
            }

            if(i == input)
                Console.WriteLine($"\n Yes, {input} is a Prime Number");
            else
                Console.WriteLine($"\n No, {input} is NOT a Prime Number");
        }
    }
    internal class Program
    {
        static void Main(string[] args)
        {
            MathsOperations m1 = new MathsOperations();
            m1.ReadData();
            m1.Factorial();
            m1.Factors();
            m1.IsPrime();

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

Output



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Assignment 2

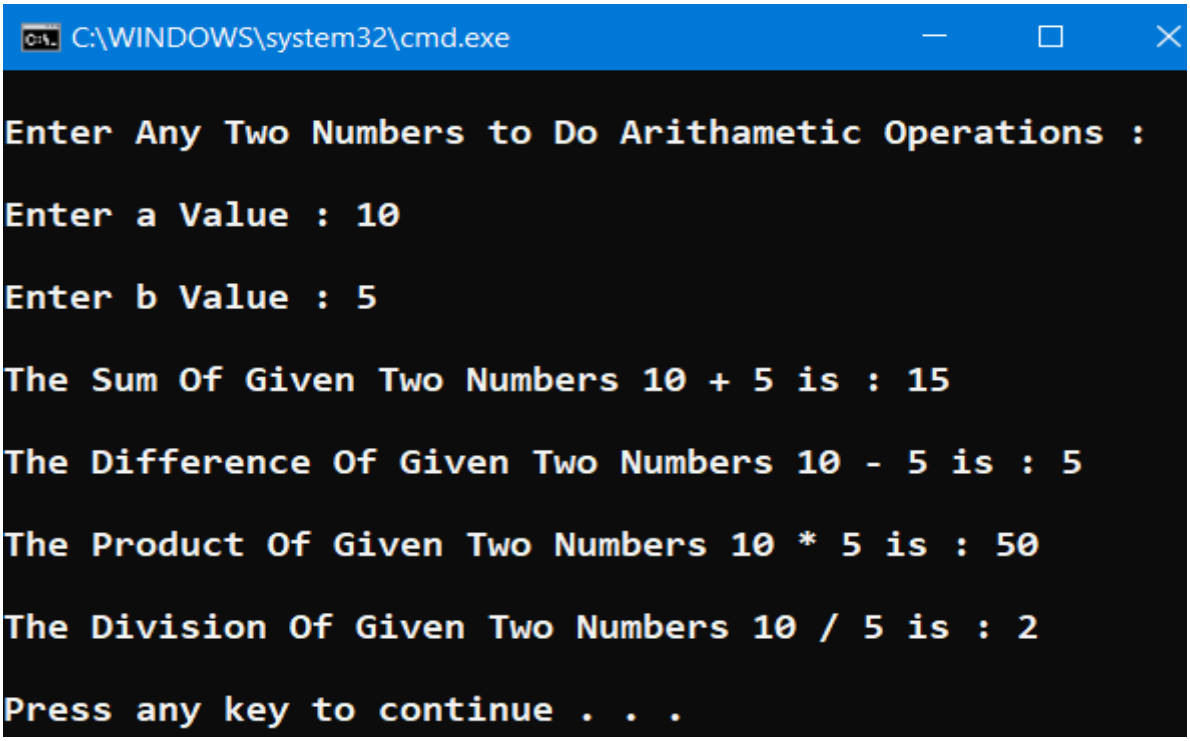
Create a Class to Read Two inputs and print Sum, Difference, Product & Division.

Code

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

// Author : Manoj.Karnatapu
// Purpose : Create a Class to Read Two inputs and print Sum, Difference, Product &
Division.

// For Reference Please Do Check, Day9Project2 in the Same Repository.

namespace Day9Project2
{
    class MathsTask
    {
        private int a, b;
        private int temp;

        public void ReadData()
        {
            Console.WriteLine("\nEnter Any Two Numbers to Do Arithametic Operations : \n");
            Console.Write("Enter a Value : ");
            a = Convert.ToInt32(Console.ReadLine());
            Console.Write("\nEnter b Value : ");
            b = Convert.ToInt32(Console.ReadLine());
        }
        /// <summary>
        /// This Method is Used To Calculate Addition Of Two Numbers
        /// </summary>
        public void Addition()
        {
            temp = a + b;
            Console.WriteLine($"\nThe Sum Of Given Two Numbers {a} + {b} is : {temp}");
        }
        /// <summary>
        /// This Method is Used To Calculate the Difference of Two Numbers
        /// </summary>
        public void Difference()
        {
            temp = a - b;
            Console.WriteLine($"\nThe Difference Of Given Two Numbers {a} - {b} is :
{temp}");
        }
        /// <summary>
        /// This Method is Used To Calculate the Product of Two Numbers
        /// </summary>
        public void Product()
        {
            temp = a * b;
            Console.WriteLine($"\nThe Product Of Given Two Numbers {a} * {b} is : {temp}");
        }
        /// <summary>
        /// This Method is Used To Calculate the Division of Two Numbers
        /// </summary>
        public void Division()
        {
            temp = a / b;
            Console.WriteLine($"\nThe Division Of Given Two Numbers {a} / {b} is :
{temp}");
        }
    }
    internal class Program
    {
        static void Main(string[] args)
```

```
        {
            MathsTask m2 = new MathsTask();
            m2.ReadData();
            m2.Addition();
            m2.Difference();
            m2.Product();
            m2.Division();

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

Output



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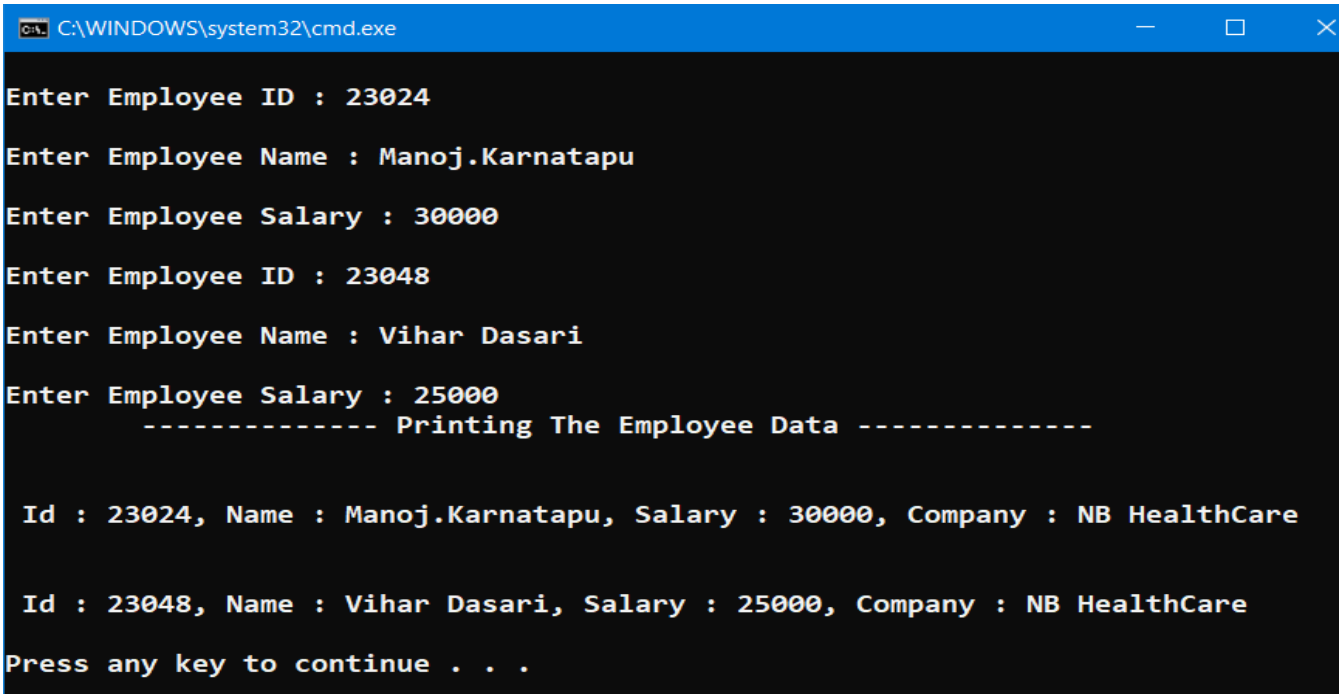
Assignment 3

Create an Employee Class with 4 variables, using one static variable and write methods to read & print data.

Code

```
using System;
// Author : Manoj.Karnatapu
//Purpose : Create an Employee Class with 4 variables, using one static variable and write
methods to read & print data.

// For Reference, Check Day9Project3 in the Same Repository.

namespace Day9Project3
{
    class Employee
    {
        public int id;
        public string name;
        public int salary;
        public static string company = "NB HealthCare";

        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());
        }
        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();

            // Reading Data From the User
            emp1.ReadData();
            emp2.ReadData();

            Console.WriteLine("\n\t---------- Printing The Employee Data ----------");
            // Printing Data
            emp1.PrintData();
            emp2.PrintData();

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

Output



Assignment 4

Research and find the difference between Normal Variable and Static Variable.

Answer

Normal Variables	Static Variables
Normal variables can be accessed using instance of a class	Static Variables can be accessed using class name.
Normal variables cannot be accessed inside a static method.	Static variables can be accessed by static and normal methods.
Normal variables are used in same instance of a class	Static variables are shared among all instances.
Normal Variables are like local variable.	Static variables are like Global Variable.
Normal Method do not reduce the memory used.	Static Method reduces the unnecessary memory usage

Assignment 5

Write 5 points about Constructors, which are Discussed in the Class.

Answer

1. A Constructor is used to initialize class variables while creating an object.
2. By default, we will have default Constructor declared inside a class, with Default values.
3. After creating user defined Constructor, the default Constructor will be removed/deleted officially.
4. If you need a default Constructor along with the user defined Constructor, create one own default constructor with default values to the variables by their data types.
5. Constructor name, should be same as your class name.
6. If you are using same variable naming convention in the Constructor Parameters as like of the class variables, we use this keyword to differentiate with the class level variables (this.Id = Id;).

Assignment 6

Create an Employee Class with, two constructors and write methods to read & print data.

Code

```
using System;

// Author : Manoj.Karnatapu
//Purpose : Create an Employee Class with, two constructors and write methods to read &
print data.

// For Reference, Check Day9Project4 in the Same Repository.

namespace Day9Project4
{
    internal class Program
    {
        class Employee
        {
            public int id;
            public string name;
            public int salary;
            public static string company = "NB HealthCare";

            /// <summary>
            /// This is a Default Constructor
            /// </summary>
            public Employee()
            {
                this.id = 0;
                this.name = null;
                this.salary = 0;
            }
            /// <summary>
            /// This is a Constructor with Values of
            /// </summary>
            /// <param name="eid">Employee Id</param>
            /// <param name="ename">Employee Name</param>
            /// <param name="esalary">Employee Salary</param>
            public Employee(int eid, string ename, int esalary)
            {
                this.id = eid;
                this.name = ename;
                this.salary = esalary;
            }


            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());
            }
            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(230489, "Manoj.Karnatapu", 30000);

            // Reading Data From the User
```

```
            emp1.ReadData();
            Console.WriteLine("\n\t---------- Printing The Employee Data Using Default
Constructor ----------");
            emp1.PrintData();

            // Printing Data Using Constructor
            Console.WriteLine("\n\t---------- Printing The Employee Data Using Constructor
----------");
            emp2.PrintData();

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

Output