Day 9 Morning Assignment

By

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NB Healthcare and Technology

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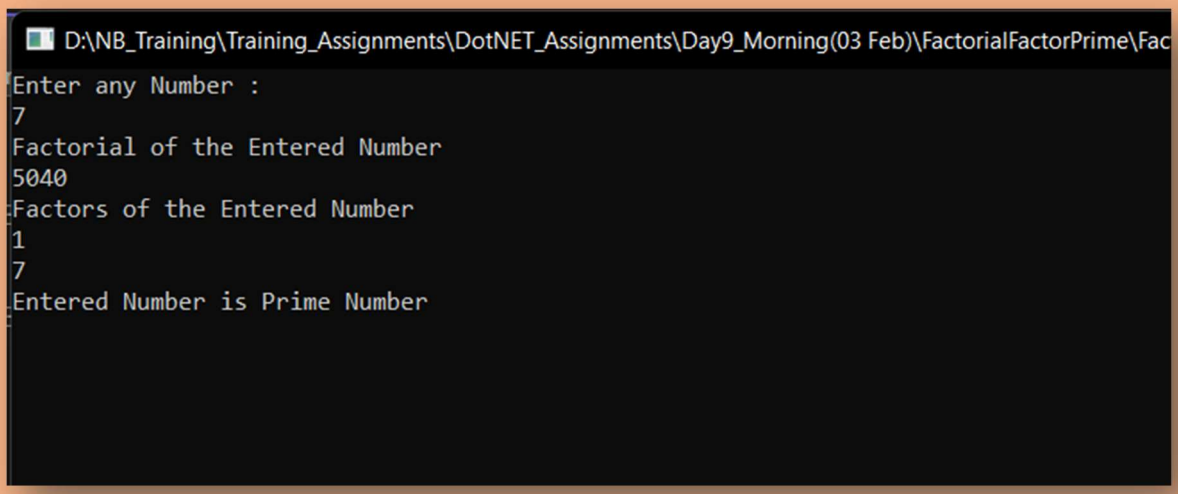
1. Write a C# program to read input from user and print
   a. factorial of a number
   b. factors of a number
   c. check if it prime or not

Code :

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

namespace FactorialFactorPrime
{
    /*****************************************************************************
        * Author : Varun Sai Kumar Chegoni.
        * Purpose : Write a C# program to read input from user and print
Factorial,Factors,IsprimeorNot
       *****************************************************************************/
    class Factorial
    {
        private int input;
        public void ReadInput()
        {
            Console.WriteLine("Enter any Number : ");
            input = Convert.ToInt32(Console.ReadLine());
        }
        public void PrintFactorial()
        {
            int fact = 1;
            for(int i =1 ; i <= input; i++)
            {
                fact = fact * i;
            }
            Console.WriteLine(fact);
        }

        public void PrintFactors()
        {
            for(int i =1 ; i <= input;i++)
            {
                if(input % i == 0)
                    Console.WriteLine(i);
            }
        }
        public bool IsPrimeorNot()
        {
            int count = 0;
            for (int i =1 ; i <= input;i++)
            {
                if (input % i == 0)
                    count++;
            }
            if (count == 2)
                return true;
            else
                return false;
        }
    }
    internal class Program
    {
        static void Main(string[] args)
```

```
        {
            Factorial obj = new Factorial();
            obj.ReadInput();
            Console.WriteLine("Factorial of the Entered Number");
            obj.PrintFactorial();
            Console.WriteLine("Factors of the Entered Number");
            obj.PrintFactors();
            if (obj.IsPrimeorNot())
                Console.WriteLine("Entered Number is Prime Number");
            else
                Console.WriteLine("Entered Number is not a Prime Number");

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

Output :



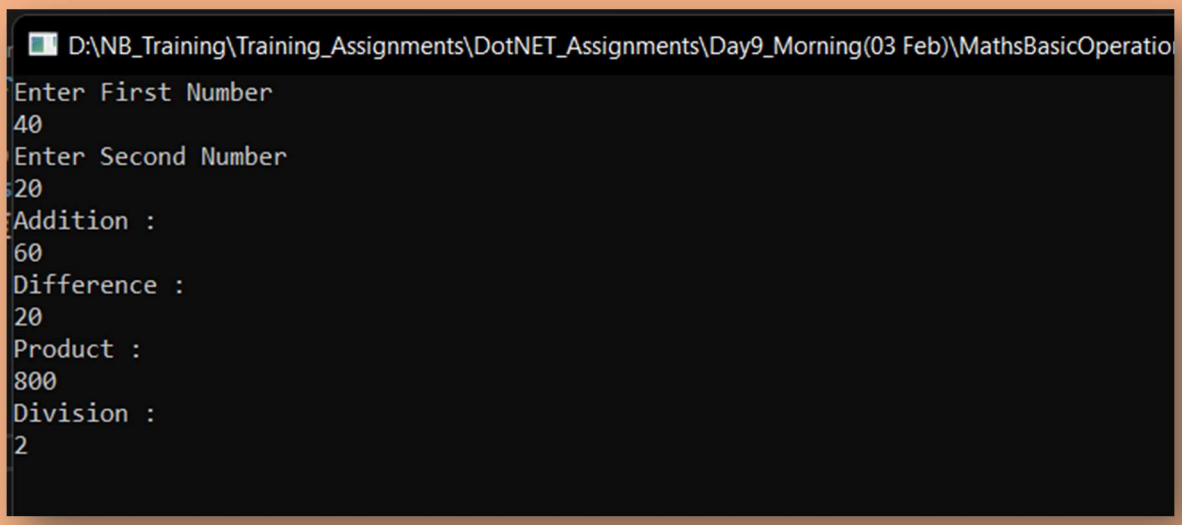
2. Write C# program to read two numbers from use and print
   a. sum of two numbers
   b. difference of two numbers
   c. product of two numbers
   d. division of two numbers.

Code :

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

namespace MathsBasicOperations
{
    /*****************************************************************************
        * Author : Varun Sai Kumar Chegoni.
        * Purpose : Write C# program to read two numbers from use and print Addition,
Differece, Product, Division.
       *****************************************************************************/

    public class MathsOperations
    {
        private int a;
        private int b;
        public void ReadInput()
        {
            Console.WriteLine("Enter First Number");
            a = Convert.ToInt32(Console.ReadLine());
            Console.WriteLine("Enter Second Number");
            b = Convert.ToInt32(Console.ReadLine());
        }
        public int AddNumbers()
        {
            return a + b;
        }
        public int DiffNumbers()
        {
            return a - b;
        }
        public int ProdNumbers()
        {
            return a * b;
        }
        public int DivNumbers()
        {
            return a / b;
        }
    }

    internal class Program
    {
        static void Main(string[] args)
        {
            MathsOperations mo = new MathsOperations();
            mo.ReadInput();
            Console.WriteLine("Addition : ");
            Console.WriteLine(mo.AddNumbers());
            Console.WriteLine("Difference : ");
            Console.WriteLine(mo.DiffNumbers());
            Console.WriteLine("Product : ");
            Console.WriteLine(mo.ProdNumbers());
```

```
            Console.WriteLine("Division : ");
            Console.WriteLine(mo.DivNumbers());

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

Output :

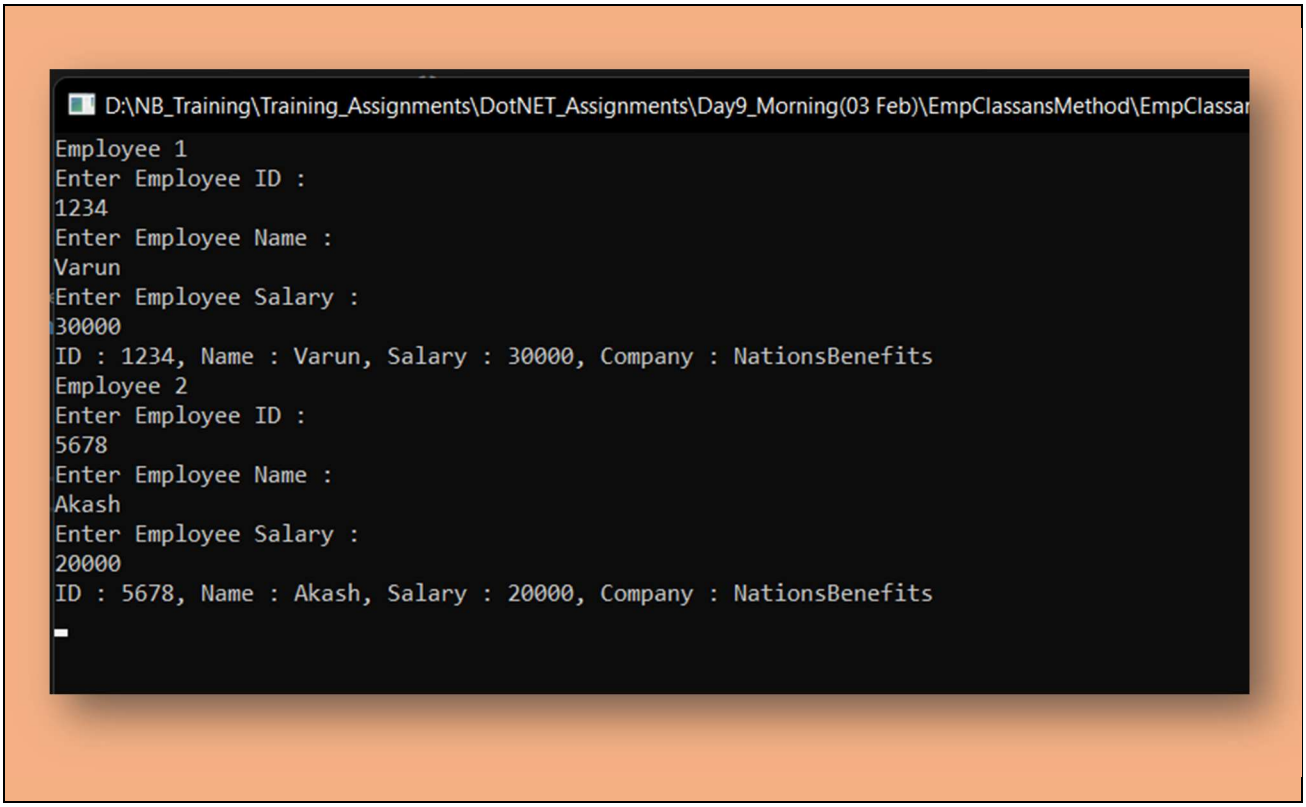


3. Create an employee class with below variables id, name, salary, company write methods to read data and print data.

Code :

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

namespace EmpClassansMethod
{
    /*****************************************************************************
        * Author : Varun Sai Kumar Chegoni.
        * Purpose : Create an employee class with variables id, name, salary, company
and read and print method
       *****************************************************************************/
    class Employee
    {
        public int id;
        public string name;
        public int salary;
        public static string company = "NationsBenefits";
        public void ReadData()
        {
            Console.WriteLine("Enter Employee ID : ");
            id = Convert.ToInt32(Console.ReadLine());
            Console.WriteLine("Enter Employee Name : ");
            name = Console.ReadLine();
            Console.WriteLine("Enter Employee Salary : ");
            salary = Convert.ToInt32(Console.ReadLine());
        }
        public void PrintData()
        {
            Console.WriteLine($"ID : {id}, Name : {name}, Salary : {salary}, Company
: {company}");
        }
    }

    internal class Program
    {
        static void Main(string[] args)
        {
            Console.WriteLine("Employee 1");
            Employee emp1 = new Employee();
            emp1.ReadData();
            emp1.PrintData();
            Console.WriteLine("Employee 2");
            Employee emp2 = new Employee();
            emp2.ReadData();
            emp2.PrintData();

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

Output :



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

Answer :

Key	Static Variable	Normal Variable
Access	A static variable can be accessed by static members as well as non-static member functions.	A normal variable can not be accessed by static member functions.
Sharing	A static variable acts as a global variable and is shared among all the objects of the class.	A normal variables are specific to instance object in which they are created.
Memory allocation	Static variables occupies less space and memory allocation happens once.	A normal variable may occupy more space. Memory allocation may happen at run time.
Keyword	A static variable is declared using static keyword.	A normal variable is not required to have any special keyword.

5. Write 5 points discussed about constructor

Answer :

1. A constructor id used to initialize class variables by default C# will have one constructor which will initialize default values.
2. When created User defined constructor the default constructor will be gone. If need default constructor, then create a default constructor along with user defined constructor.
3. Constructor name should be same as class name.
4. If using same variables as class variables for constructor then with should differentiate the constructor variable by using this key word
5. For constructor we should not write any return type.

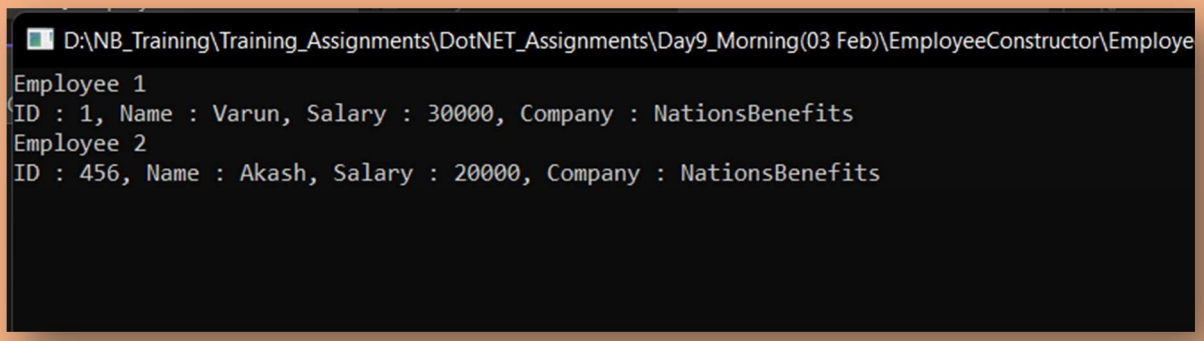
6. Create Employee class with two constructors as discussed in the class.

Code :

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

namespace EmpClassansMethod
{
    /*****************************************************************************
        * Author : Varun Sai Kumar Chegoni.
        * Purpose : Create an employee class with variables id, name, salary, company
with two constructors.s
       *****************************************************************************/
    class Employee
    {
        public int id;
        public string name;
        public int salary;
        public static string company = "NationsBenefits";
        public Employee (int eid, string ename, int esalary)
        {
            id = eid;
            name = ename;
            salary = esalary;
        }
        public Employee()
        {
            this.id = 456;
            this.name = "Akash";
            this.salary = 20000;
        }
        public void ReadData()
        {
            Console.WriteLine("Enter Employee ID : ");
            id = Convert.ToInt32(Console.ReadLine());
            Console.WriteLine("Enter Employee Name : ");
            name = Console.ReadLine();
            Console.WriteLine("Enter Employee Salary : ");
            salary = Convert.ToInt32(Console.ReadLine());
        }
        public void PrintData()
        {
            Console.WriteLine($"ID : {id}, Name : {name}, Salary : {salary}, Company
: {company}");
        }
    }

    internal class Program
    {
        static void Main(string[] args)
        {
            Console.WriteLine("Employee 1");
            Employee emp1 = new Employee(1,"Varun",30000);
            emp1.PrintData();
            Console.WriteLine("Employee 2");
            Employee emp2 = new Employee();
            emp2.PrintData();

            Console.ReadLine();
        }
```

```
    }
}
```

Output :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Employee 1
ID : 1, Name : Varun, Salary : 30000, Company : NationsBenefits
Employee 2
ID : 456, Name : Akash, Salary : 20000, Company : NationsBenefits