DAY9 MORNING ASSIGNMENT

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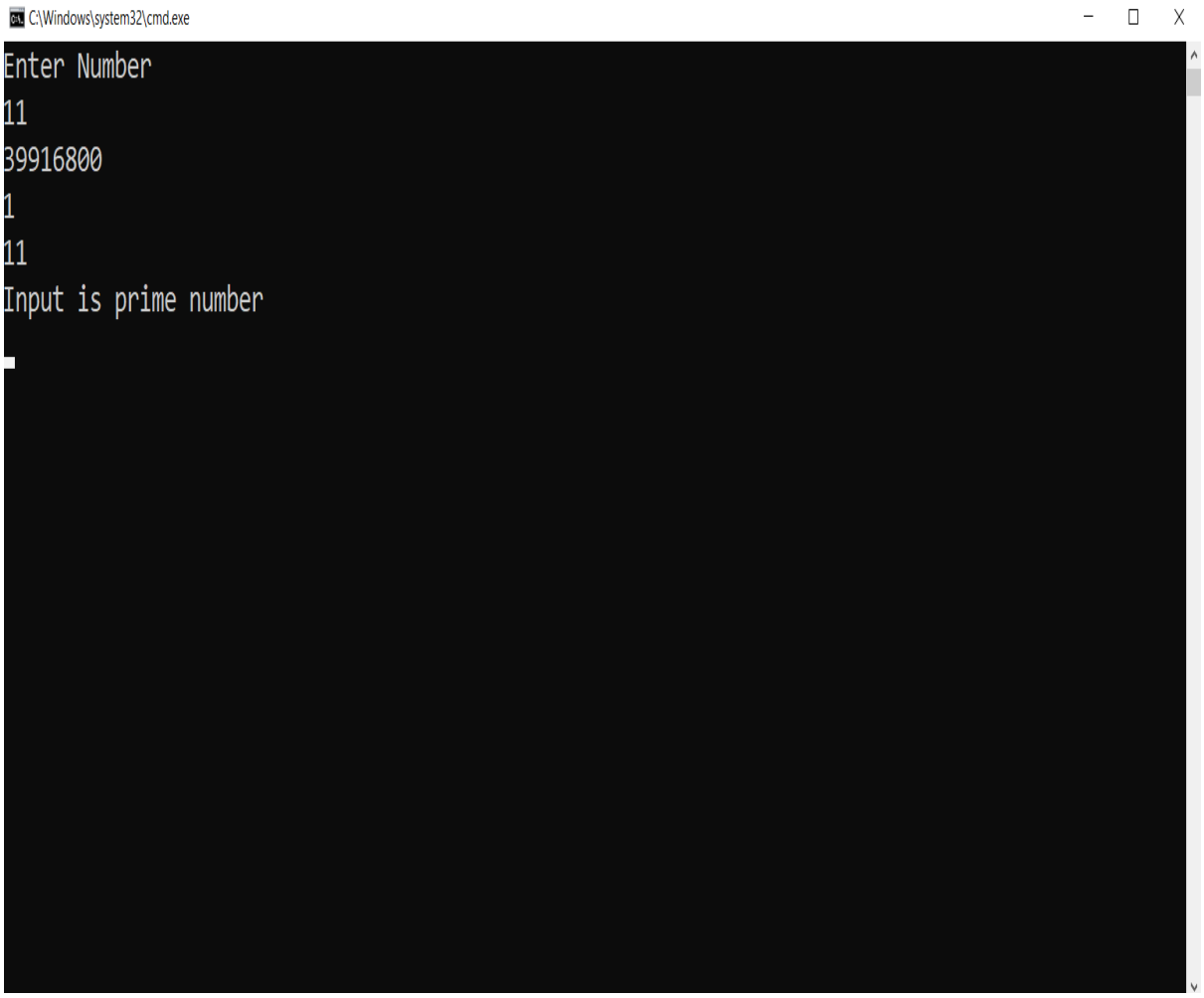
1. **Write a C# program to read input from user and print**
   a. **factorial of a number**
   b. **factors of a number**
   c. **check if it prime or not**

Code:

```
class Mathsoperations
    {
        private int input;

        public void ReadInput()
        {
            Console.WriteLine("Enter Number");
            input = Convert.ToInt32(Console.ReadLine());
        }
        /// <summary>
        /// factorial of a number
        /// </summary>
        public void Factorial()
        {
            int fact = 1;
            for(int i=1; i <= input; i++)
            {
                fact *= i;
            }
            Console.WriteLine(fact);
        }
        /// <summary>
        /// factors of a number
        /// </summary>

        public void PrintFactors()
        {
            for(int i=1;i<=input;i++)
            {
                if(input%i==0)
                    Console.WriteLine(i);
            }
        }
        /// <summary>
        /// prime number or not
        /// </summary>
        /// <returns>Is prime</returns>

        public bool IsPrime()
        {
            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)
    {
        Mathsoperations obj = new Mathsoperations();
        obj.ReadInput();
        obj.Factorial();
        obj.PrintFactors();
        if(obj.IsPrime())
            Console.WriteLine("Input is prime number");
        else
            Console.WriteLine("input is not prme number");

        Console.ReadLine();
    }
}
```

Output:



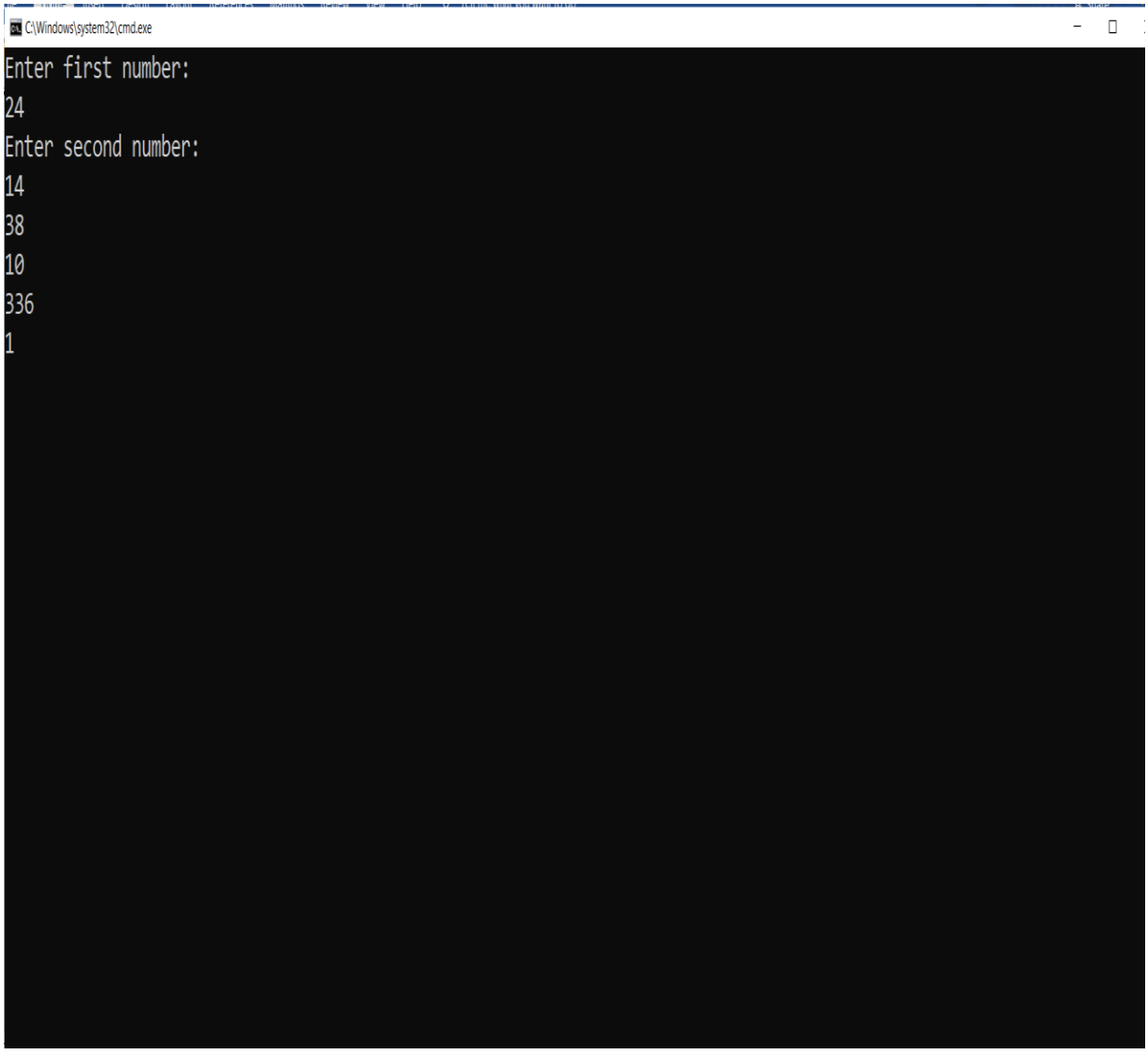
2. **Write C# program to read two numbers from use and print**
   a. **sum of two numbers**
   b. **difference of two numbers**
   c. **product of two numbers**
   d. **division of two numbers.**

Code:

```
class MathsTask
    {
        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());
        }
        /// <summary>
        /// Addition of two numbers
        /// </summary>
        /// <returns>Sum</returns>
        public int AddNumbers()
        {
            return a + b;
        }
        /// <summary>
        /// Subtraction of two numbers
        /// </summary>
        /// <returns>Sub</returns>

        public int SubNumbers()
        {
            return a - b;
        }
        /// <summary>
        /// Product of two numbers
        /// </summary>
        /// <returns>Product</returns>

        public int MultiplyNumbers()
        {
            return a * b;
        }
        /// <summary>
        /// Divison of two numbers
        /// </summary>
        /// <returns>Division</returns>

        public int Dividenumbers()
        {
            return a / b;
        }
    }
    internal class Program
    {
        static void Main(string[] args)
        {
            MathsTask mt = new MathsTask();
```

```
            mt.ReadInput();
            Console.WriteLine(mt.AddNumbers());
            Console.WriteLine(mt.SubNumbers());
            Console.WriteLine(mt.MultiplyNumbers());
            Console.WriteLine(mt.Dividenumbers());

            Console.ReadLine();
        }
    }
```

Output:

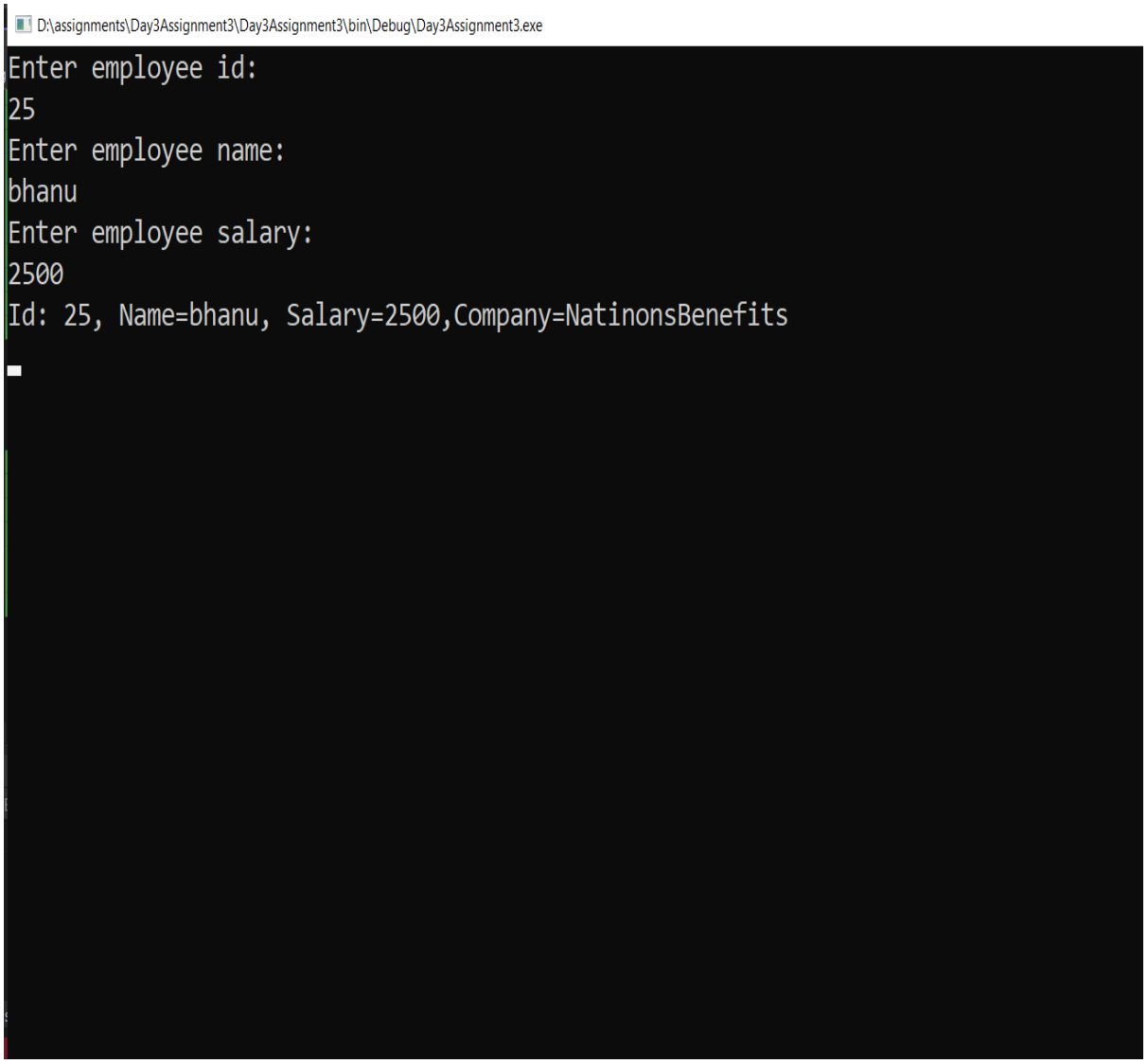


3. Create an employee class with below variables
id, name, salary, company
write methods to read data and print data.

Code:

```
class Employee
    {
        public int id;
        public string name;
        public int salary;
        public string company;

        /// <summary>
        /// Read employee data
        /// </summary>

        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());

            company = "NatinonsBenefits";
        }
        /// <summary>
        /// Print Employee data
        /// </summary>
        public void PrintData()
        {
            Console.WriteLine($"Id: {id}, Name={name},
Salary={salary},Company={company}");
        }

    }
    internal class Program
    {
        static void Main(string[] args)
        {
            Employee emp = new Employee();
            emp.ReadData();
            emp.PrintData();

            Console.ReadLine();

        }
    }
```

Output:


D:\assignments\Day3Assignment3\Day3Assignment3\bin\Debug\Day3Assignment3.exe
Enter employee id:
25
Enter employee name:
bhanu
Enter employee salary:
2500
Id: 25, Name=bhanu, Salary=2500,Company=NatinonsBenefits

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

DIFFEERENCE BETWEEN NORMAL VARIBALE AND STATIC VARIABLE

NORMAL VARIABLE	*STATIC VARIABLE*
Instance variables are declared in a class, but outside a method, constructor or any block.	***Static variables are also known as class variables. It declared with the static keyword in a class, but outside a method, constructor or a block.***
Instance variables are created when an object is created with the use of the keyword 'new' and destroyed when the object is destroyed.	***Static variables are created when the program stars and destroyed when the program stops.***
We can access instance variables through object references.	***Static variables can be accessed directly using class name.***
Instance variables are initialized for 0 times if no instance is created and n times if n instances are created.	***A static variable can be initialized for only time.***
Syntax: *Class Abc* *{* *int a;* *}*	***Syntax:*** ***Class Abc*** ***{*** ***static int a;*** ***}***

5. Write 5 points discussed about constructor

Constructor

- A Constructor is used to initialize class variables while creating an object.
- By default, we will have default constructor which will initialize to default values.
- The moment the programmer create user define constructor the default constructor will be gone.
- If you need a default constructor with the user define constructor, create your own default constructor.
- Constructor name should be same as your class name.
- If your using same variables in constructor variables as that of the class variables, use this. to differentiate with the class variables.
  EX: this.id = id

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

Code:

```
internal class Program
    {
        class Employee
        {
            private int id;
            private string name;
            private int salary;

            public static string company = "NationsBenefits";

            /// <summary>
            /// Default Constructor
            /// </summary>

            public Employee()
            {
                this.id = 0;
                this.name = null;
                this.salary = 0;
            }

            /// <summary>
            /// User Define Constructor
            /// </summary>

            public Employee(int id, string name, int salary)
            {
                this.id = id;
                this.name = name;
                this.salary = salary;
            }

            /// <summary>
            /// Get input employee details
            /// </summary>

            public void ReadData()
            {
                Console.Write("Enter Emloyee Id: ");
                id = Convert.ToInt32(Console.ReadLine());
                Console.Write("Enter Emloyee Name: ");
                name = Console.ReadLine();
                Console.Write("Enter Emloyee Salary: ");
                salary = Convert.ToInt32(Console.ReadLine());
            }

            /// <summary>
            /// Print the employee details
            /// </summary>
            public void Printdata()
            {
                Console.WriteLine($"Employee Id: {id}, Employee Name: {name},
Employee Salary: {salary}, Company name: {company}.");
            }
        }
```

```
        static void Main(string[] args)
        {
            Employee emp = new Employee();
            emp.ReadData();
            emp.Printdata();


            Employee emp1 = new Employee(22, "Bhanu", 5000);
            emp1.Printdata();

            Console.ReadLine();

        }
    }
```

Output: