3rd February 2022 Assignments

By

Ram Charan

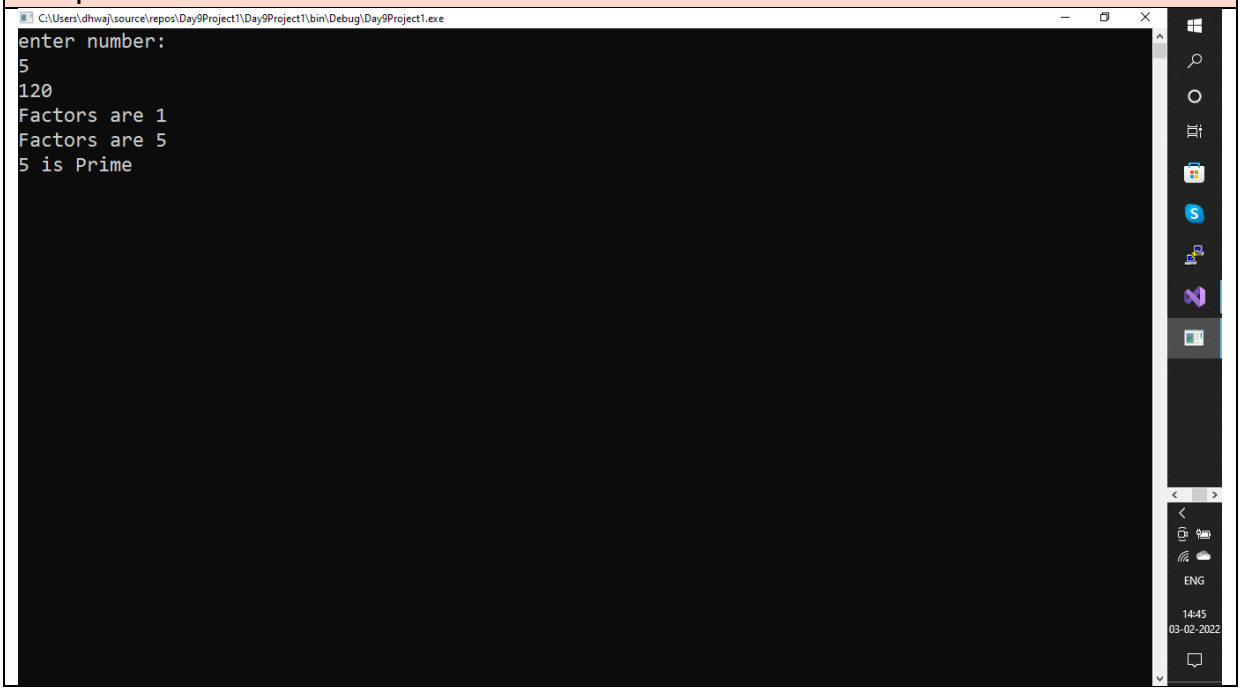
1.Write a C# Program to read input from user and print
a. Factorial
b. Factors
c.Prime or not

Code:

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

namespace Day9Project1
{
   //Author : Rc
   /*Purpose: Create class and object*/
   class MathsOperation
   {
      private int input;
      private int i;
      /// <summary>
      /// This method is to read input from user
      /// </summary>
      public void ReadData()
      {
         Console.WriteLine("enter number:");
         input=Convert.ToInt32(Console.ReadLine());
      }
      /// <summary>
      /// This method finds Factorial of a number
      /// </summary>
      /// <returns>factorial</returns>
      public int Factorial()
      {
         int fact = 1;
         for(int i = 1; i <=input; i++)
            fact=fact*i;
         return fact;
      }
      /// <summary>
      /// This method find the factors of a given number.
      /// </summary>
      public void Factors()
      {
         for (i = 1; i <= input; i++)
         {
            if (input % i == 0)
               Console.WriteLine("Factors are {0} ",i);
```

```
        }
    }
    /// <summary>
    /// This is method is to check whether given is Prime or not
    /// </summary>
    public void Prime()
    {
        int count = 0;
        for (int i = 1; i <= input; i++)
        {
            if (input % i == 0)
                count++;
        }
        if(count == 2)
            Console.WriteLine("{0} is Prime",input);
        else
            Console.WriteLine("not a prime");
    }
}
internal class Program
{
    static void Main(string[] args)
    {
        //object creation
        MathsOperation obj = new MathsOperation();//default Constructor
        obj.ReadData();
        Console.WriteLine(obj.Factorial());
        obj.Factors();
        obj.Prime();

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

Output:



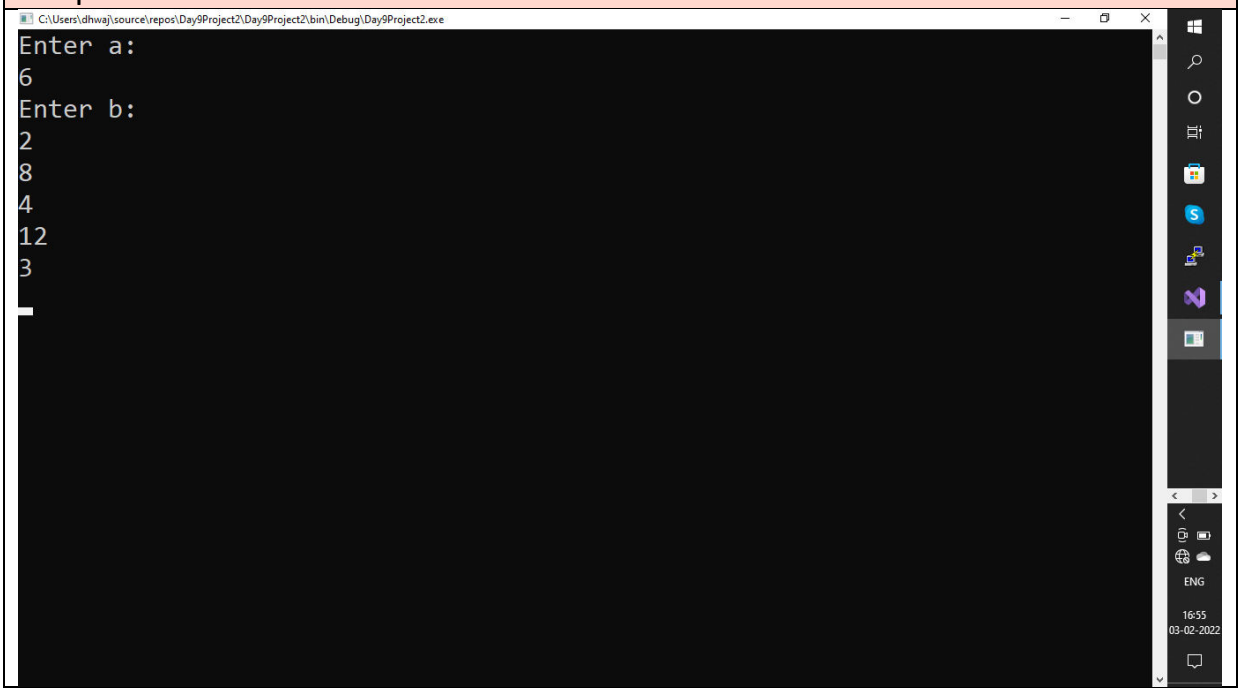
2.Write a C# program to read 2 numbers from user and print
a.sum of two numbers
b.Difference between 2 numbers
c.Product of 2 numbers
d.division of 2 numbers

Code:

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

namespace Day9Project2
{
   //Author: Rc
   /*Purpose: Create class and do maths opertaions using objects.**/
   class MathTask
   {
      //variable declaration
      public int a, b;
      /// <summary>
      /// This method reads input from user
      /// </summary>
      public void ReadData()
      {
         Console.WriteLine("Enter a:");
         a = Convert.ToInt32(Console.ReadLine());
         Console.WriteLine("Enter b:");
         b = Convert.ToInt32(Console.ReadLine());
      }
      /// <summary>
      /// This method is to find the sum
      /// </summary>
      /// <returns>sum</returns>
      public int Sum()
      {
         return a + b;
      }
      /// <summary>
      /// This method is to find Difference
      /// </summary>
      /// <returns>Difference</returns>
      public int Difference()
      {
         return a - b;
      }
      /// <summary>
      /// This method is used to Multiply
      /// </summary>
      /// <returns>Prouduct</returns>
      public int Multiply()
      {
         return a * b;
      }
```

```
        /// <summary>
        /// This method is used to Divide
        /// </summary>
        /// <returns>Quotient</returns>
        public int Division()
        {
            return a / b;
        }
    }
    internal class Program
    {
        static void Main(string[] args)
        {
            //Object creation
            MathTask obj=new MathTask();
            obj.ReadData();
            Console.WriteLine(obj.Sum());
            Console.WriteLine(obj.Difference());
            Console.WriteLine(obj.Multiply());
            Console.WriteLine(obj.Division());

            Console.ReadLine();

        }
    }
}
```

Output:



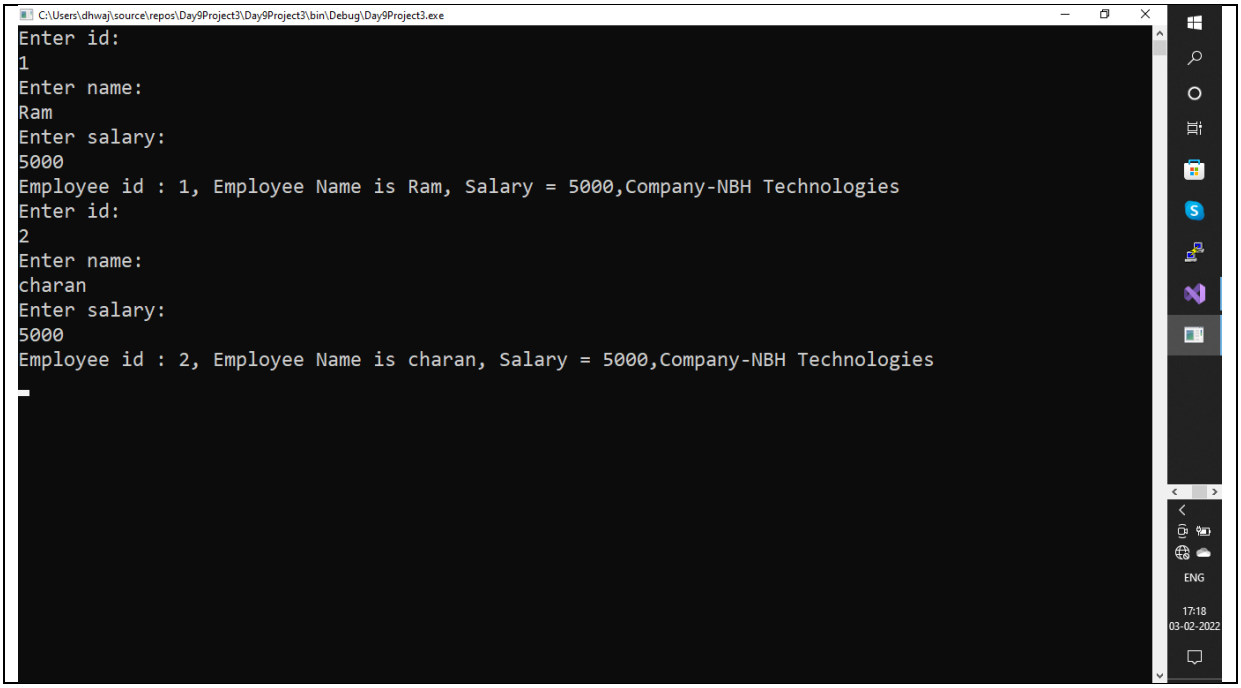
3.Create Employee class with variables id,name ,salary and write ReadData() and PrintData() methods.

Code:

```
using System;
```

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

namespace Day9Project3
{
   //Author :Rc
   /*Purpose: Create Employee with 2 methods */

   class Employee //Employee Class
   {
      //variable declaration
      public int id;
      public string name;
      public int salary;
      public static string company = "NBH Technologies";

      /// <summary>
      /// This method reads  input from user
      /// </summary>

      public void ReadData()
      {
         Console.WriteLine("Enter id:");
         id=Convert.ToInt32(Console.ReadLine());
         Console.WriteLine("Enter name:");
         name = Console.ReadLine();
         Console.WriteLine("Enter salary:");
         salary = Convert.ToInt32(Console.ReadLine());
      }
      /// <summary>
      /// This method prints Employee data
      /// </summary>
      public void PrintData()
      {
         Console.WriteLine($"Employee id : {id}, Employee Name is {name}, Salary = {salary},Company-
{company}");
      }
   }
   internal class Program
   {
      static void Main(string[] args)
      {
         //object1 creation
         Employee emp = new Employee();
         emp.ReadData();
         emp.PrintData();
         //object2 creation
         Employee emp1 = new Employee();
         emp1.ReadData();
         emp1.PrintData();

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

Output:



4.Write about Constructor.

- Constructor name is same as classname.
- We should not write any returntype.
- A Constructor is used to initialise class variables while creating objects.
- By default,we will have default constructor which will initialise to default values.
- After creating our own constructor ,default constructor will gone.
- If we need, default constructor after creating a own constructor then we will create default constructor exclusively.
- We can create any number of constructors.
- When class variables and constructor variables are same then we use “this” keyword.
- “this .“Keyword represents class variables or it assigns constructor variables to class variables

5.Create a class with 2 constructors

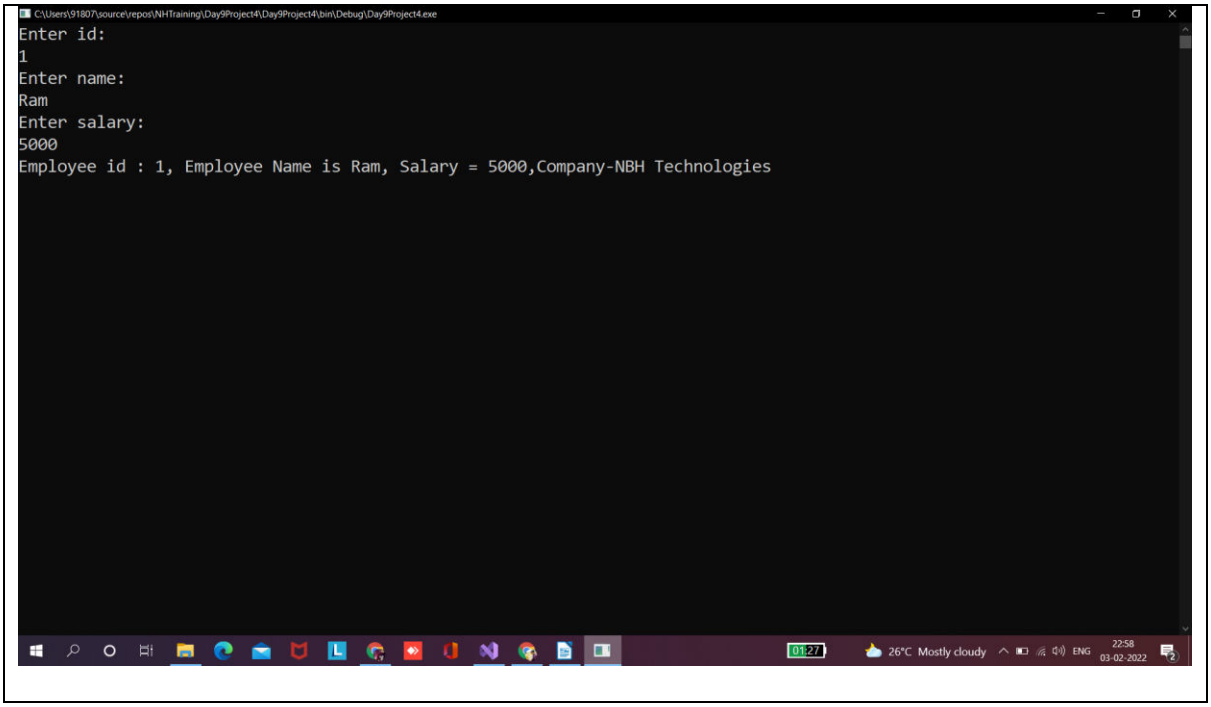
Code:

```
using System;
using System.Collections.Generic;
```

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

namespace Day9Project4
{
   //Author :Rc
   /*Purpose: Create Employee with 2 methods */

   class Employee //Employee Class
   {
      //variable declaration
      public int id;
      public string name;
      public int salary;
      public static string company = "NBH Technologies";
      // default constructor
      public Employee()
      {
         this.id = 0;
         this.name = null;
         this.salary = 0;
      }

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

      /// <summary>
      /// This method reads  input from user
      /// </summary>
```

```
        public void ReadData()
        {
            Console.WriteLine("Enter id:");
            id = Convert.ToInt32(Console.ReadLine());
            Console.WriteLine("Enter name:");
            name = Console.ReadLine();
            Console.WriteLine("Enter salary:");
            salary = Convert.ToInt32(Console.ReadLine());
        }
        /// <summary>
        /// This method prints Employee data
        /// </summary>
        public void PrintData()
        {
            Console.WriteLine($"Employee id : {id}, Employee Name is {name}, Salary = {salary},Company-
{company}");
        }
    }
    internal class Program
    {
        static void Main(string[] args)
        {
            //object1 creation
            Employee emp = new Employee();
            emp.ReadData();
            emp.PrintData();

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

Output:



6.Refer and write differences between Static Variable and normal variable.

STATIC VARIABLE	NORMAL VARIABLE
1.A static variable can accessed by static and non static methods.	1.It is not accessed by static methods.
2.It can be used anywhere	2. It is specific to object in which they are created.
3.It requires less memory	3. It requires more memory.
4.It is declared by using static keyword	4.It does not have any special keyword to declare.