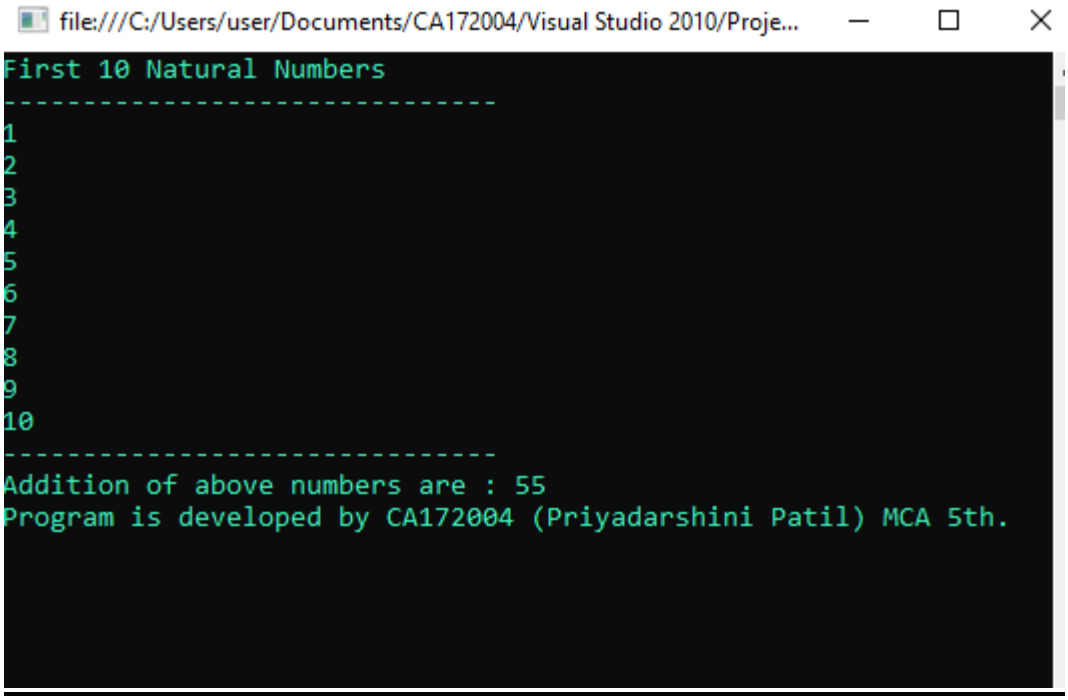
1) Program to display the first 10 natural numbers and their sum using console application.

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

namespace Natural_Number
{
   class Program
   {
      static void Main(string[] args)
      {
            int add=0;
            Console.WriteLine("First 10 Natural Numbers");
            Console.WriteLine("-------------------------------");
            for(int i=1; i<=10; i++){
            Console.WriteLine(+i);
            add = add + i;
            if (i == 10) {
            Console.WriteLine("-------------------------------");
            Console.WriteLine("Addition of above numbers are : "+add);
       }
   }
 Console.WriteLine("Programis developed by CA172004(Priyadarshini Patil)MCA 5th.");
Console.ReadKey();
      }
   }
}
```

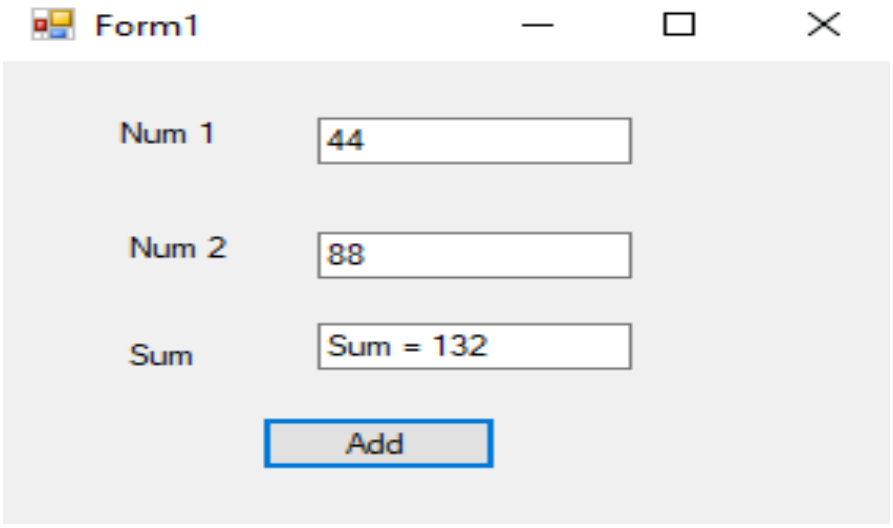
OUTPUT

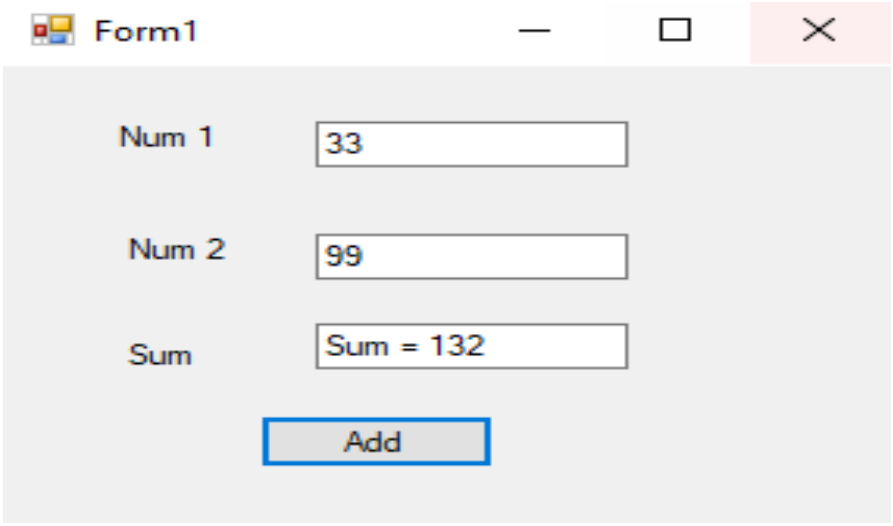

file:///C:/Users/user/Documents/CA172004/Visual Studio 2010/Proje...
First 10 Natural Numbers
1
2
3
4
5
6
7
8
9
10
Addition of above numbers are : 55
Program is developed by CA172004 (Priyadarshini Patil) MCA 5th.

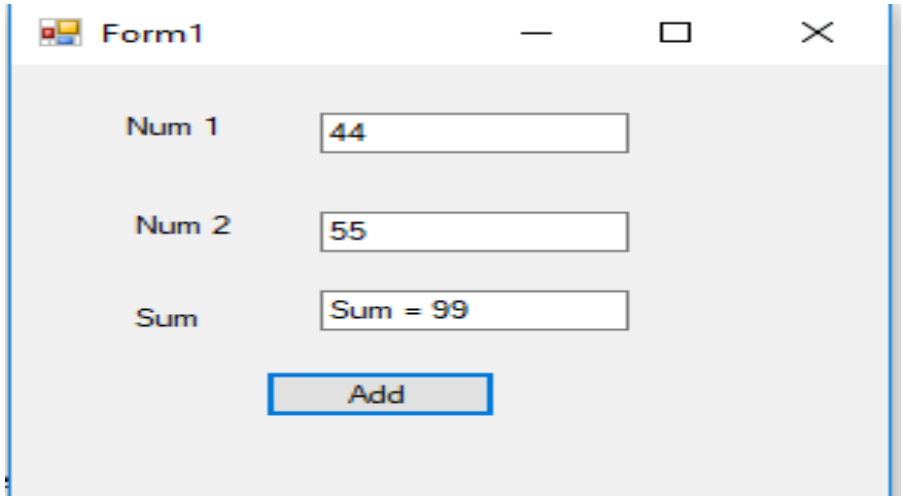
2) Program to display the addition using the windows application.

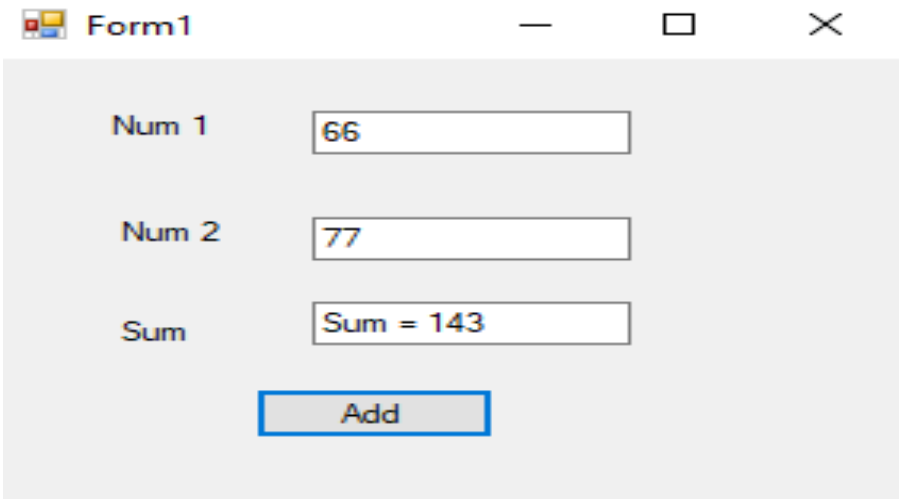
```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Windows.Forms;

namespace WindowsFormsApplication6
{
   public partial class Form1 : Form
   {
      public Form1()
      {
         InitializeComponent();
      }

      private void button1_Click(object sender, EventArgs e)
      {
         try
         {
            int a = Convert.ToInt16(textBox1.Text);
            int b = Convert.ToInt16(textBox2.Text);

            int sum = a + b;

            textBox3.Text = "Sum = " + sum;
         }
         catch (Exception ex)
         {
            textBox3.Text = "Error";
         }
      }
   }
}
```

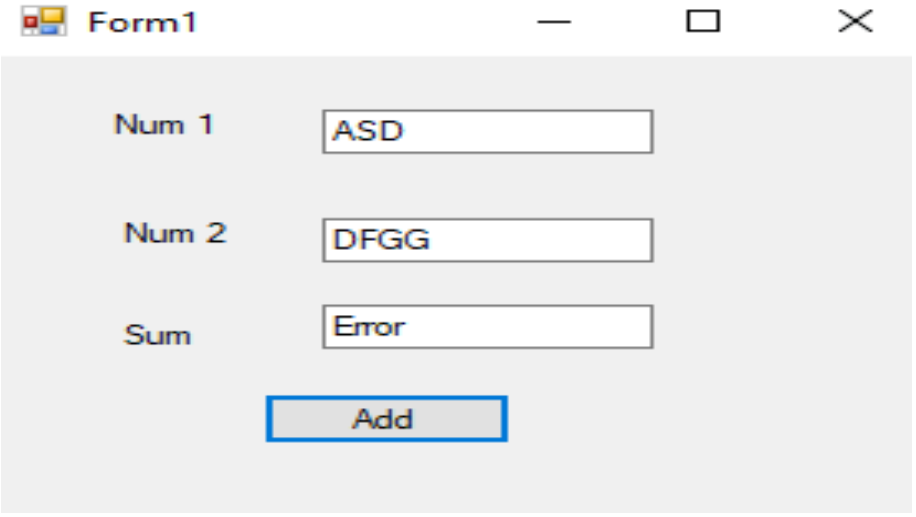
OUTPUT


Form1
Num 1
44
Num 2
88
Sum
Sum = 132
Add


Form1
Num 1
33
Num 2
99
Sum
Sum = 132
Add


Form1
Num 1
44
Num 2
55
Sum
Sum = 99
Add

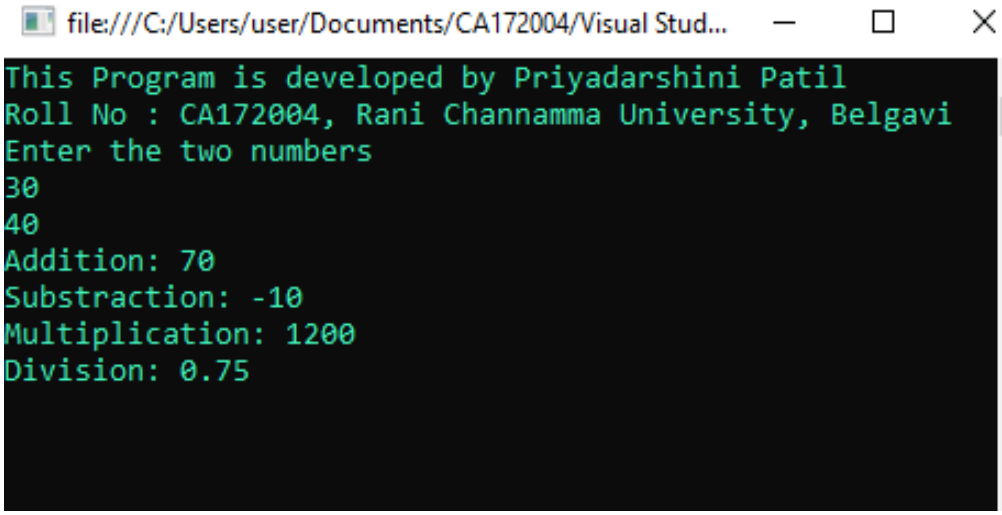

Form1
Num 1
66
Num 2
77
Sum
Sum = 143
Add

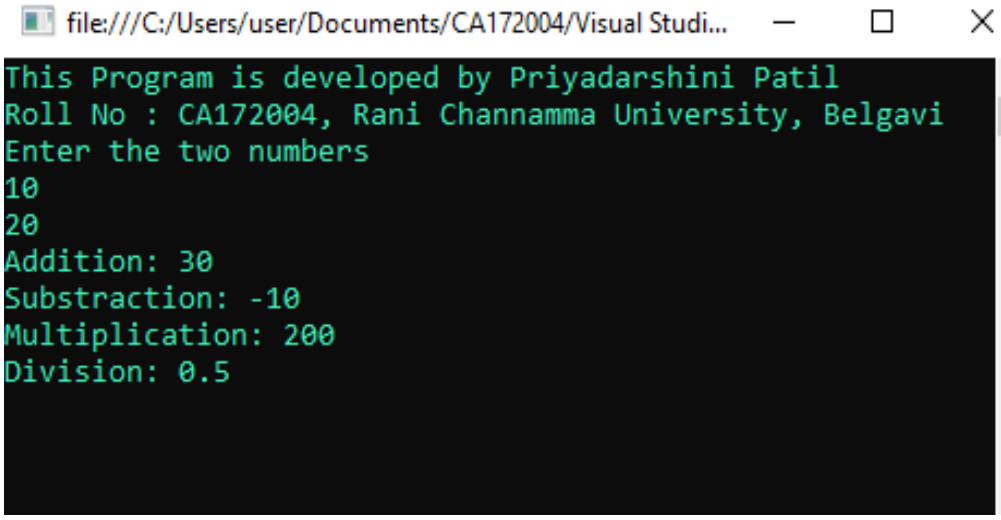

Form1
Num 1
ASD
Num 2
DFGG
Sum
Error
Add

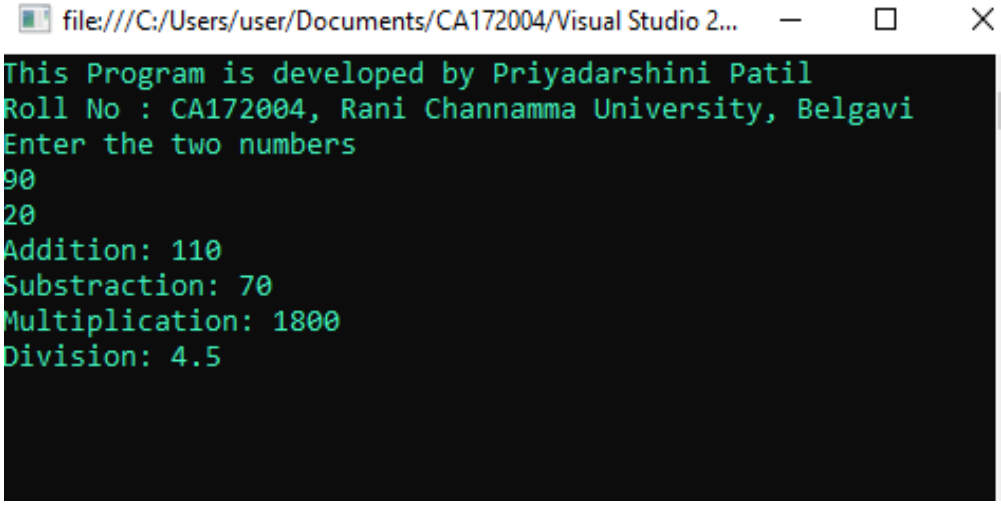
3) Program to display the addition, subtraction, multiplication and division of two number using console applications.

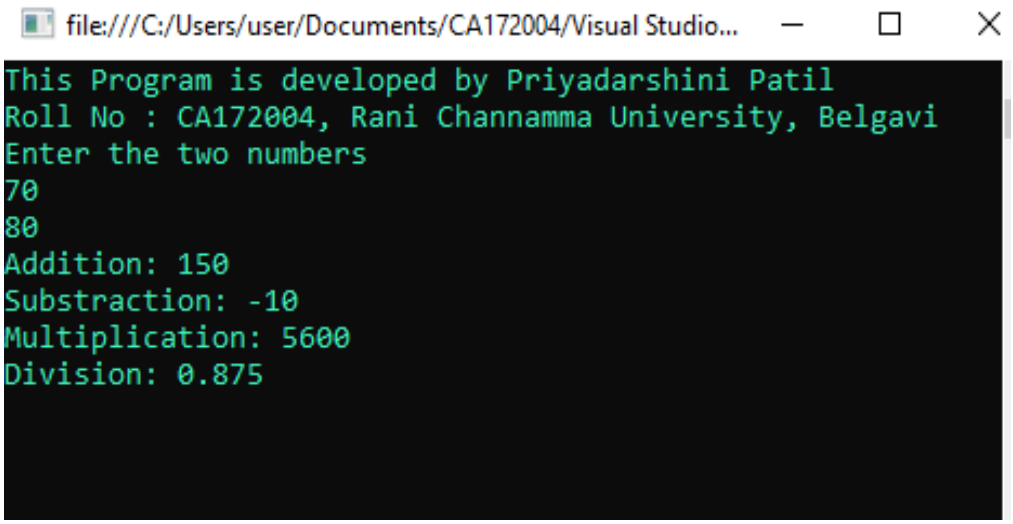
```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;

namespace program
{
   class Program
   {
      static void Main(string[] args)
      {
         double num1, num2;
         double sum, sub, mul, div;
         Console.WriteLine("This Program is developed by Priyadarshini Patil ");
         Console.WriteLine("Roll No : CA172004, Rani Channamma University,
    Belgavi");
         Console.WriteLine("Enter the two numbers");
         num1 = Double.Parse(Console.ReadLine());
         num2 = Double.Parse(Console.ReadLine());

         sum = num1 + num2;
         sub = num1 - num2;
         mul = num1 * num2;
         div = num1 / num2;

         Console.WriteLine("Addition: {0}", sum);
         Console.WriteLine("Substraction: {0}", sub);
         Console.WriteLine("Multiplication: {0}", mul);
         Console.WriteLine("Division: {0}", div);
         Console.ReadLine();
      }
   }
}
```

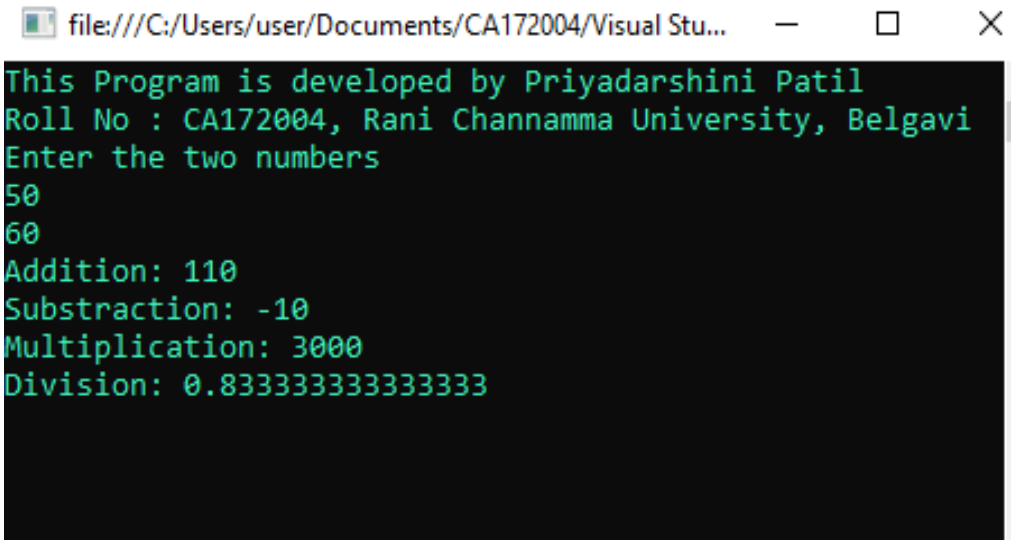
OUTPUT


file:///C:/Users/user/Documents/CA172004/Visual Stud...
This Program is developed by Priyadarshini Patil
Roll No : CA172004, Rani Channamma University, Belgavi
Enter the two numbers
30
40
Addition: 70
Substraction: -10
Multiplication: 1200
Division: 0.75


file:///C:/Users/user/Documents/CA172004/Visual Studi...
This Program is developed by Priyadarshini Patil
Roll No : CA172004, Rani Channamma University, Belgavi
Enter the two numbers
10
20
Addition: 30
Substraction: -10
Multiplication: 200
Division: 0.5


file:///C:/Users/user/Documents/CA172004/Visual Studio 2...
This Program is developed by Priyadarshini Patil
Roll No : CA172004, Rani Channamma University, Belgavi
Enter the two numbers
90
20
Addition: 110
Substraction: 70
Multiplication: 1800
Division: 4.5

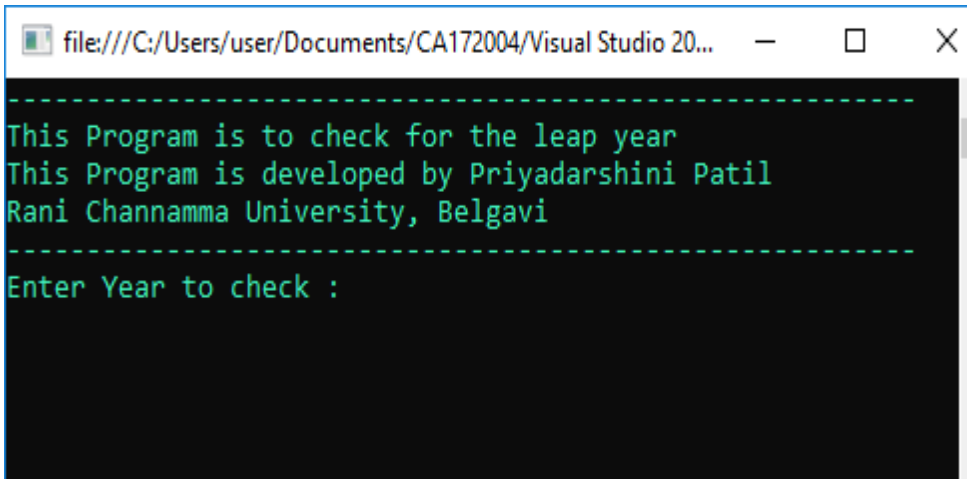

file:///C:/Users/user/Documents/CA172004/Visual Studio...
This Program is developed by Priyadarshini Patil
Roll No : CA172004, Rani Channamma University, Belgavi
Enter the two numbers
70
80
Addition: 150
Substraction: -10
Multiplication: 5600
Division: 0.875

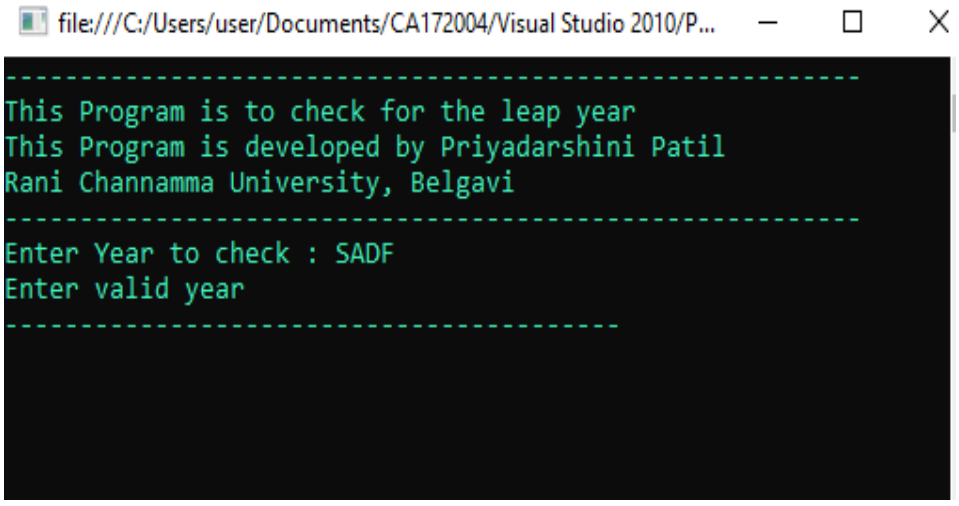

file:///C:/Users/user/Documents/CA172004/Visual Stu...
This Program is developed by Priyadarshini Patil
Roll No : CA172004, Rani Channamma University, Belgavi
Enter the two numbers
50
60
Addition: 110
Substraction: -10
Multiplication: 3000
Division: 0.833333333333333

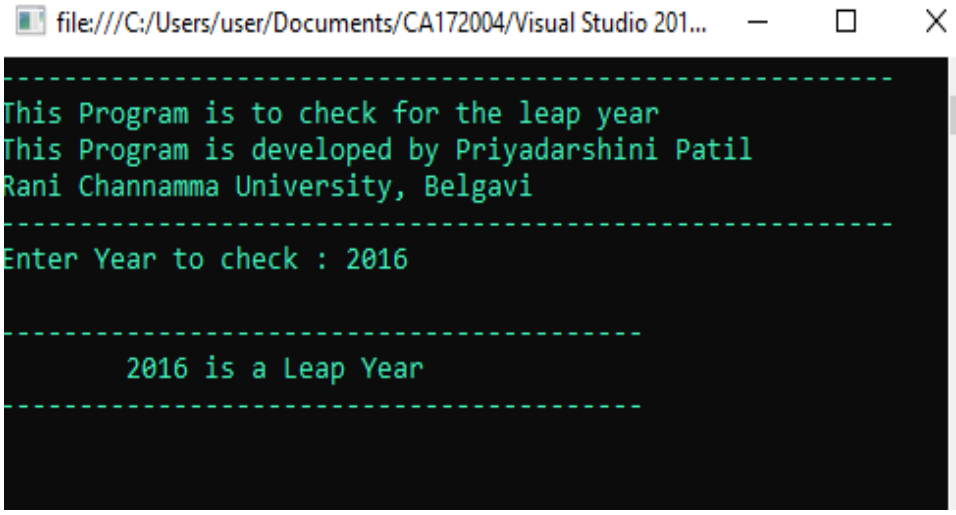
4) Check whether the Entered Year is a Leap or Not.

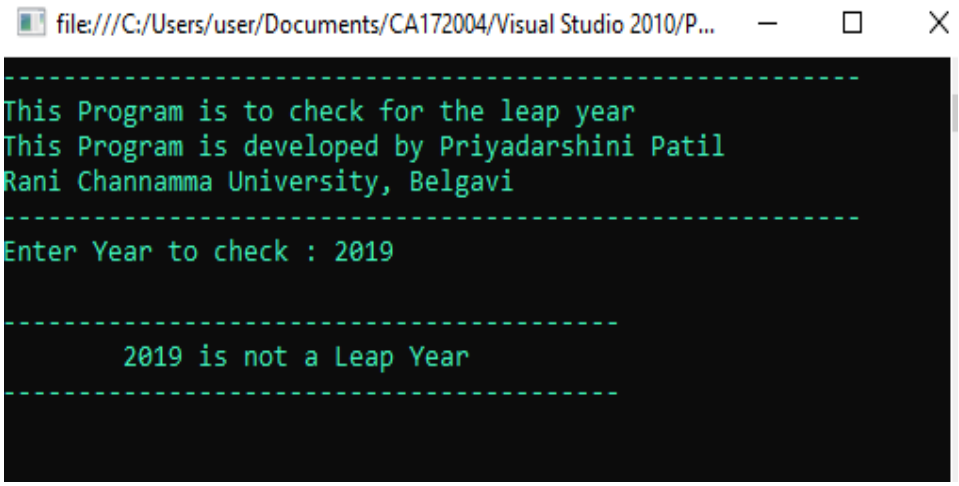
```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;

namespace LeapYear
{
   class Program
   {
      static void Main(string[] args)
      {
         Console.WriteLine("-----------------------------------------------------");
         Console.WriteLine("This Program is to check for the leap year");
         Console.WriteLine("This Program is developed by Priyadarshini Patil ");
         Console.WriteLine("Rani Channamma University, Belgavi");
         Console.WriteLine("-----------------------------------------------------");
         try {
            Console.Write("Enter Year to check : ");
            long year = Convert.ToInt64(Console.ReadLine());
            Console.WriteLine("\n---------------------------------------");
            if (year % 400 == 0) {
               Console.WriteLine("\t{0} is a Leap Year",year);
            }
            else if (year % 100 == 0) {
               Console.WriteLine("\t{0} is not a Leap Year", year);
            }
            else if (year % 4 == 0)
            {
               Console.WriteLine("\t{0} is a Leap Year", year);
            }
            else {
               Console.WriteLine("\t{0} is not a Leap Year", year);
            }
         }
         catch(Exception ex) {
            Console.WriteLine("Enter valid year");
         }
         Console.WriteLine("---------------------------------------");
         Console.ReadKey();
      }
   }
}
```

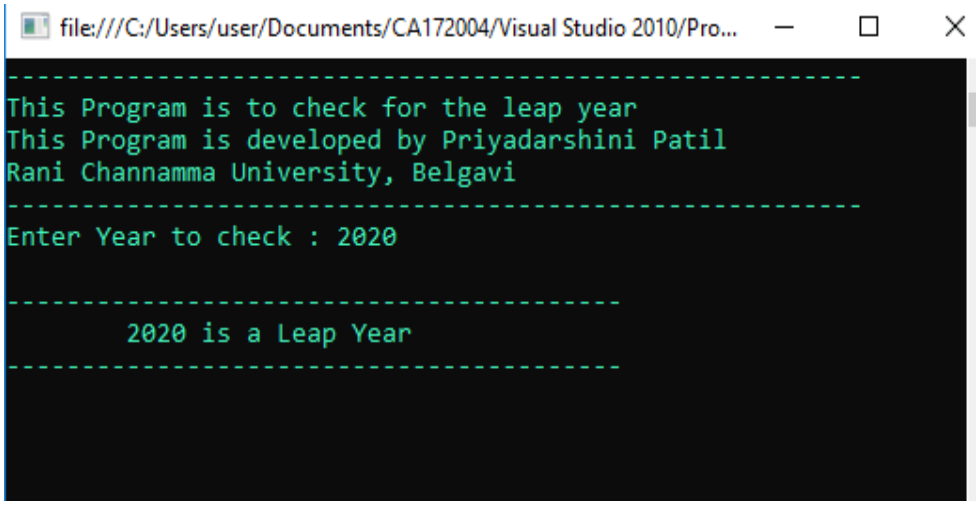
OUTPUT


file:///C:/Users/user/Documents/CA172004/Visual Studio 20...
This Program is to check for the leap year
This Program is developed by Priyadarshini Patil
Rani Channamma University, Belgavi
Enter Year to check :


file:///C:/Users/user/Documents/CA172004/Visual Studio 2010/P...
This Program is to check for the leap year
This Program is developed by Priyadarshini Patil
Rani Channamma University, Belgavi
Enter Year to check : SADF
Enter valid year


file:///C:/Users/user/Documents/CA172004/Visual Studio 201...
This Program is to check for the leap year
This Program is developed by Priyadarshini Patil
Rani Channamma University, Belgavi
Enter Year to check : 2016
2016 is a Leap Year


file:///C:/Users/user/Documents/CA172004/Visual Studio 2010/P...
This Program is to check for the leap year
This Program is developed by Priyadarshini Patil
Rani Channamma University, Belgavi
Enter Year to check : 2019
2019 is not a Leap Year

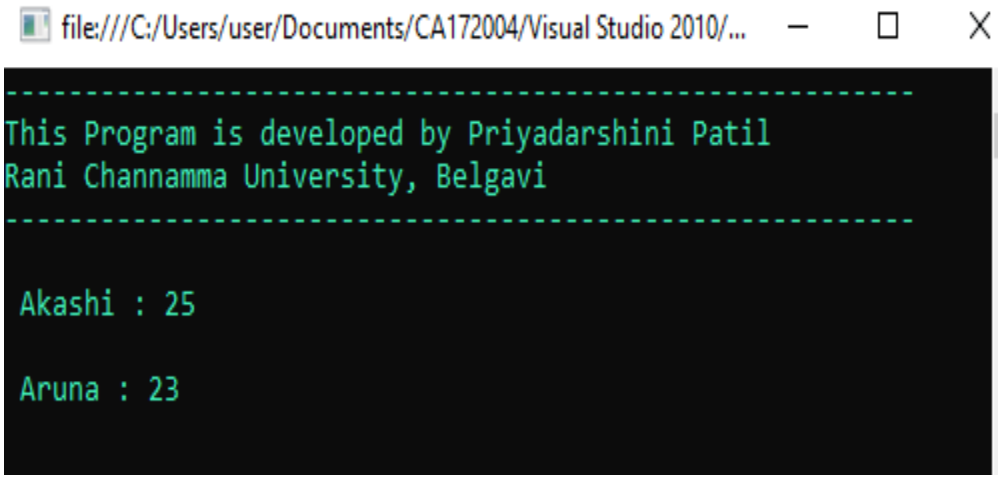

file:///C:/Users/user/Documents/CA172004/Visual Studio 2010/Pro...
This Program is to check for the leap year
This Program is developed by Priyadarshini Patil
Rani Channamma University, Belgavi
Enter Year to check : 2020
2020 is a Leap Year

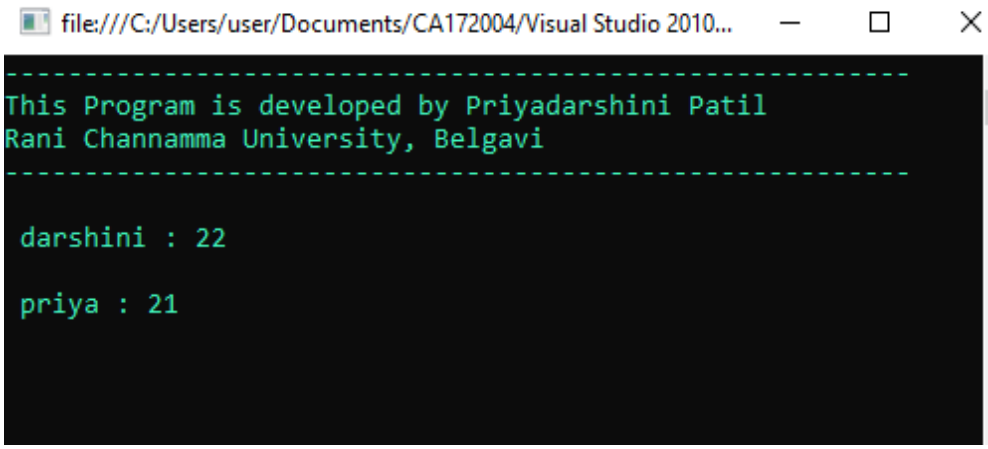
5) Program to illustrate the use of different properties in C#.

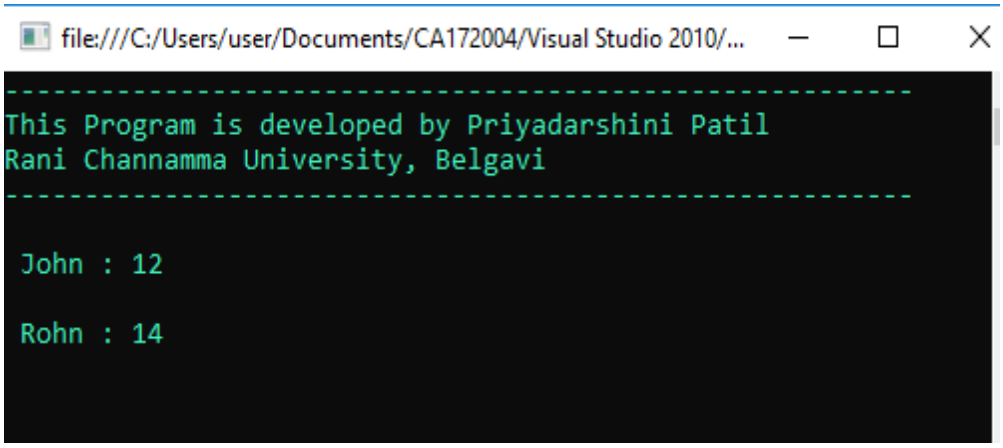
```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;

namespace ConsoleApplication1
{
   class Program
   {
      class PropertiesDemo
      {
         private string name;
         private int age;

         public string Name
         {
            set
            {
               name = value;
            }
            get
            {
               return name;
            }
         }

         public int Age
         {
            set
            {
               if (value > 0)
                  age = value;
            }

            get
            {
               return age;
            }
         }
```

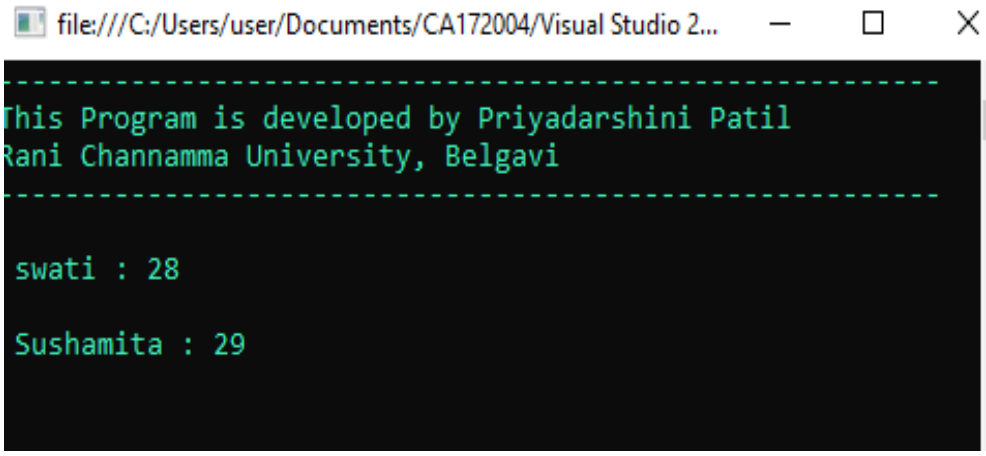
```
        static void Main(string[] args)
        {
            Console.WriteLine("-----------------------------------------------------------");
            Console.WriteLine("This Program is developed by Priyadarshini patil");
            Console.WriteLine("Roll No : CA172004, Rani Channamma University,
            Belgavi");
            Console.WriteLine("-----------------------------------------------------------");
            PropertiesDemo p = new PropertiesDemo();
            p.Name = "John";
            p.Age = 12;

            PropertiesDemo d = new PropertiesDemo();
            d.Name = "Rohn";
            d.Age = 14;

            Console.WriteLine("\n {0} : {1}", p.Name, p.Age);
            Console.WriteLine("\n {0} : {1}", d.Name, d.Age);

            Console.ReadLine();

        }
    }
  }
}
```

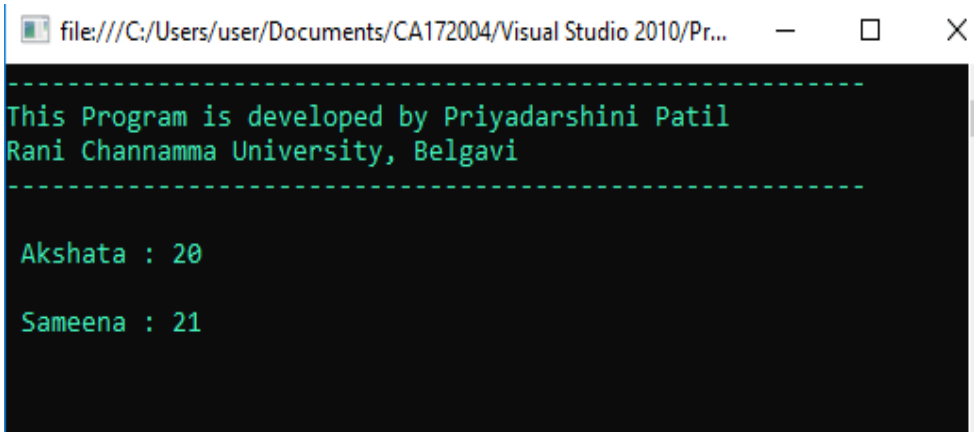
OUTPUT


file:///C:/Users/user/Documents/CA172004/Visual Studio 2010/...
This Program is developed by Priyadarshini Patil
Rani Channamma University, Belgavi
Akashi : 25
Aruna : 23


file:///C:/Users/user/Documents/CA172004/Visual Studio 2010...
This Program is developed by Priyadarshini Patil
Rani Channamma University, Belgavi
darshini : 22
priya : 21


file:///C:/Users/user/Documents/CA172004/Visual Studio 2010/...
This Program is developed by Priyadarshini Patil
Rani Channamma University, Belgavi
John : 12
Rohn : 14

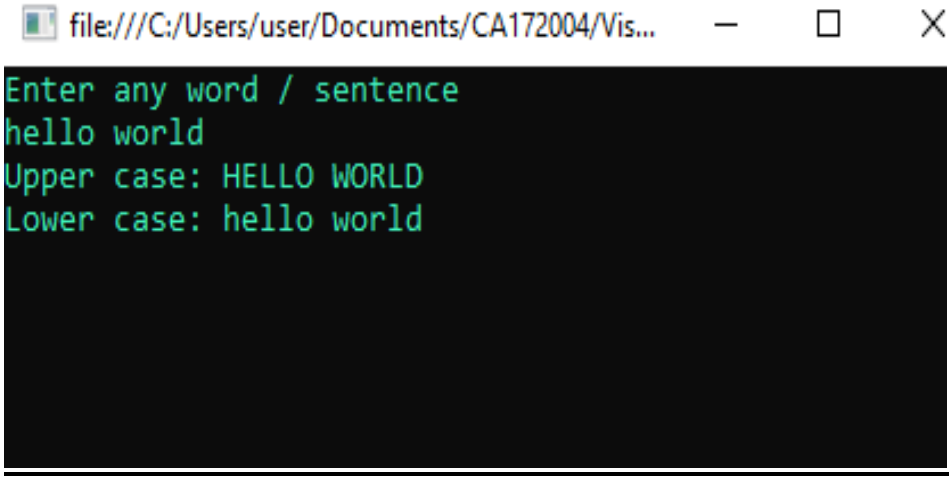

file:///C:/Users/user/Documents/CA172004/Visual Studio 2...
This Program is developed by Priyadarshini Patil
Rani Channamma University, Belgavi
swati : 28
Sushamita : 29

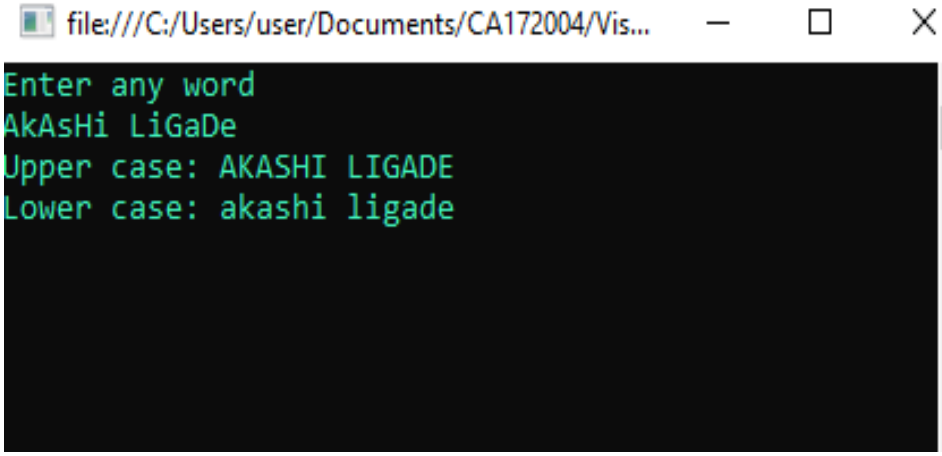

file:///C:/Users/user/Documents/CA172004/Visual Studio 2010/Pr...
This Program is developed by Priyadarshini Patil
Rani Channamma University, Belgavi
Akshata : 20
Sameena : 21

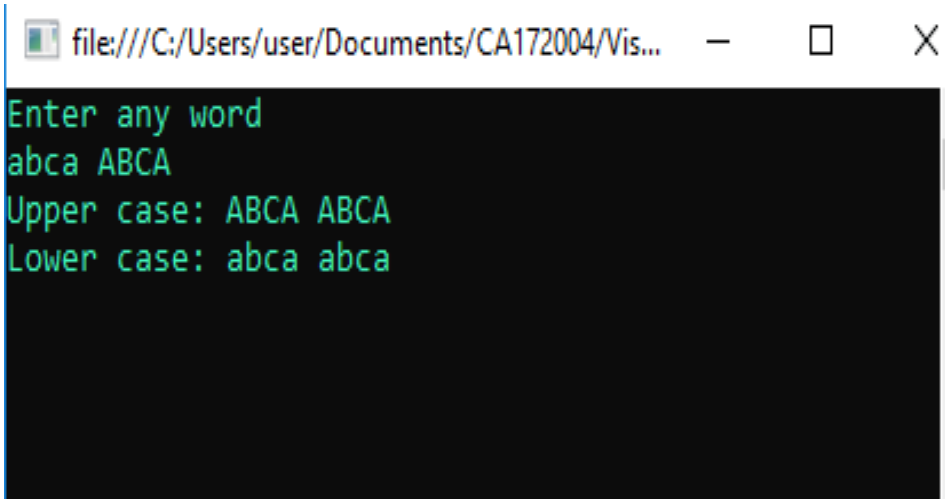
6) Write a program to convert input string from lower to upper and upper to lower case.

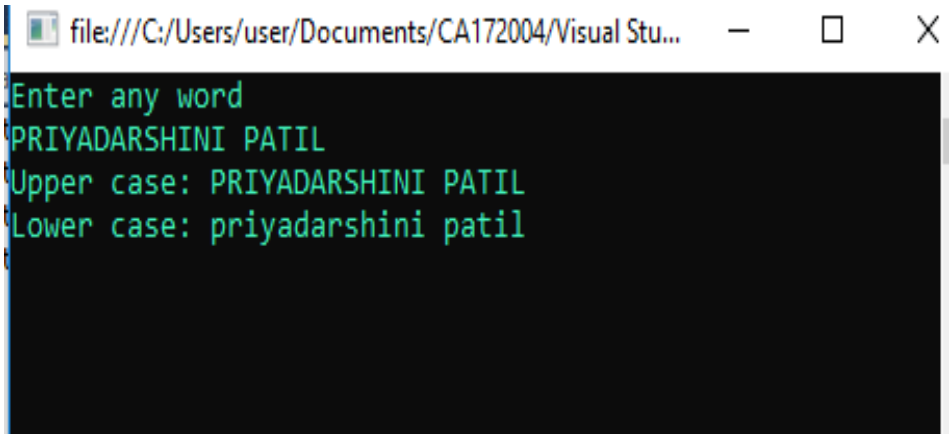
```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;

namespace labpgm9
{
   class Program
   {
      static void Main(string[] args)
      {
         string input;
         Console.WriteLine("Enter any word");
         input = Console.ReadLine();
         Console.WriteLine("Upper case: {0}", input.ToUpper());
         Console.WriteLine("Lower case: {0}", input.ToLower());
         Console.ReadLine();
      }
   }
}
```

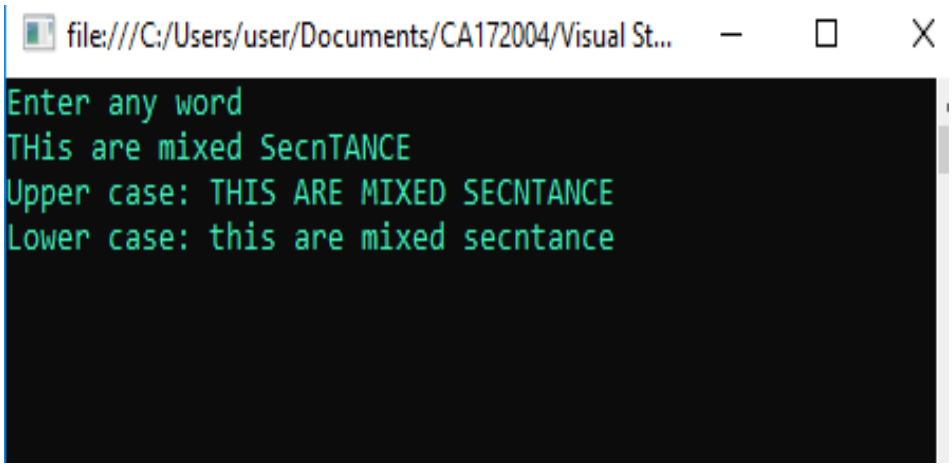
OUTPUT


file:///C:/Users/user/Documents/CA172004/Vis...
Enter any word / sentence
hello world
Upper case: HELLO WORLD
Lower case: hello world


file:///C:/Users/user/Documents/CA172004/Vis...
Enter any word
AkAsHi LiGaDe
Upper case: AKASHI LIGADE
Lower case: akashi ligade


file:///C:/Users/user/Documents/CA172004/Vis...
Enter any word
abca ABCA
Upper case: ABCA ABCA
Lower case: abca abca

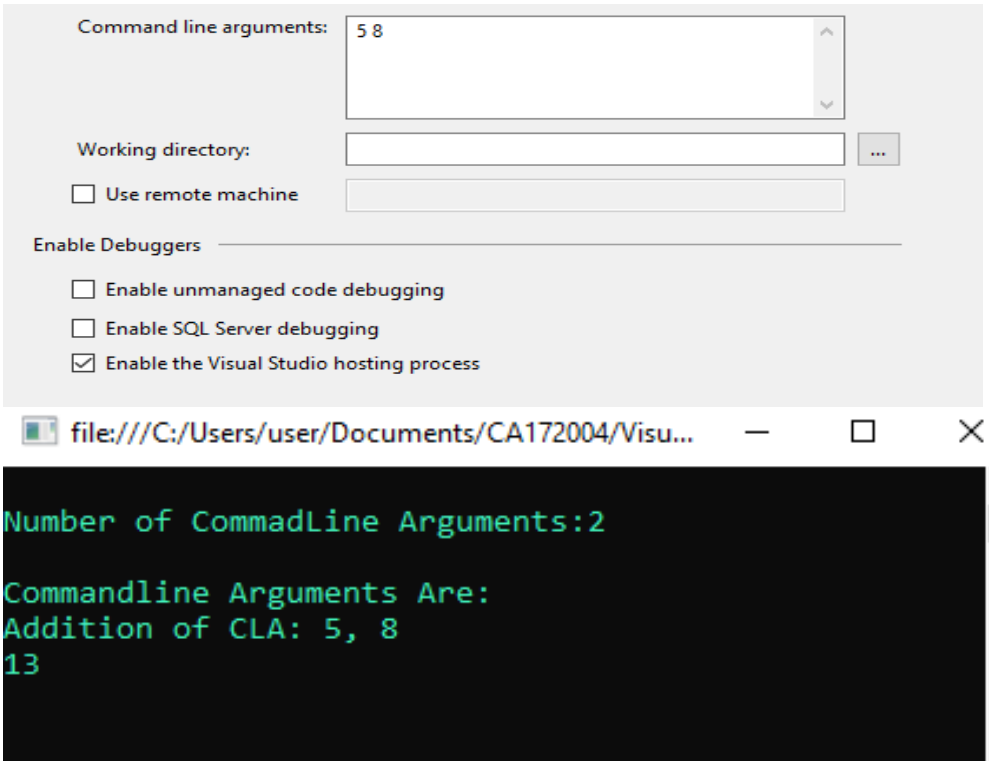

file:///C:/Users/user/Documents/CA172004/Visual Stu...
Enter any word
PRIYADARSHINI PATIL
Upper case: PRIYADARSHINI PATIL
Lower case: priyadarshini patil

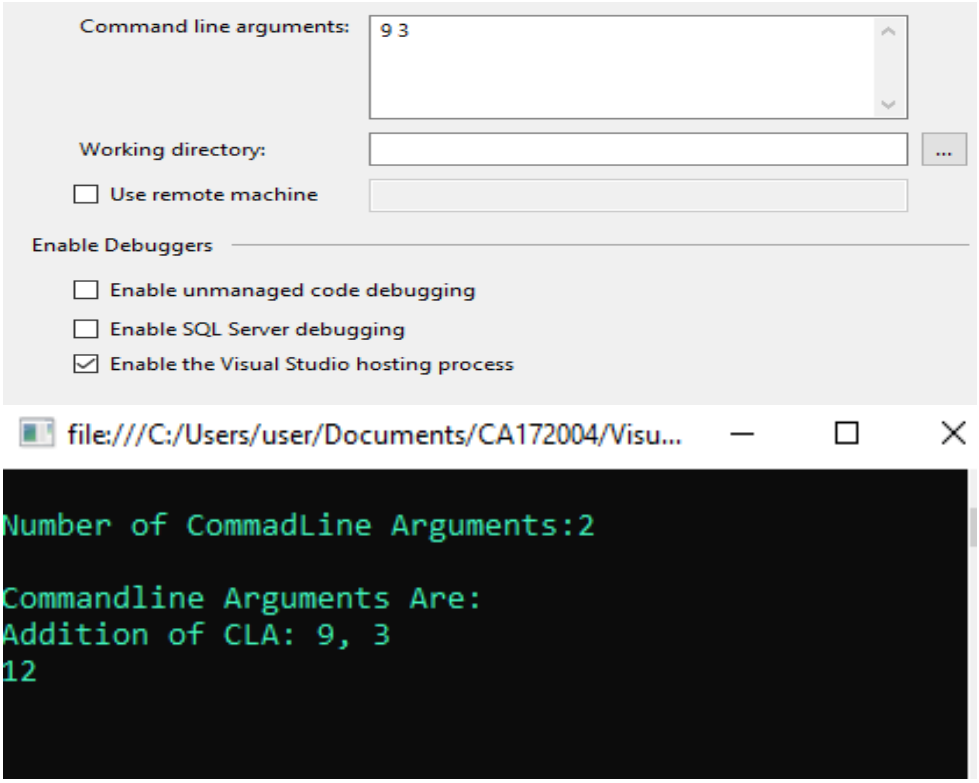

file:///C:/Users/user/Documents/CA172004/Visual St...
Enter any word
THis are mixed SecnTANCE
Upper case: THIS ARE MIXED SECNTANCE
Lower case: this are mixed secntance

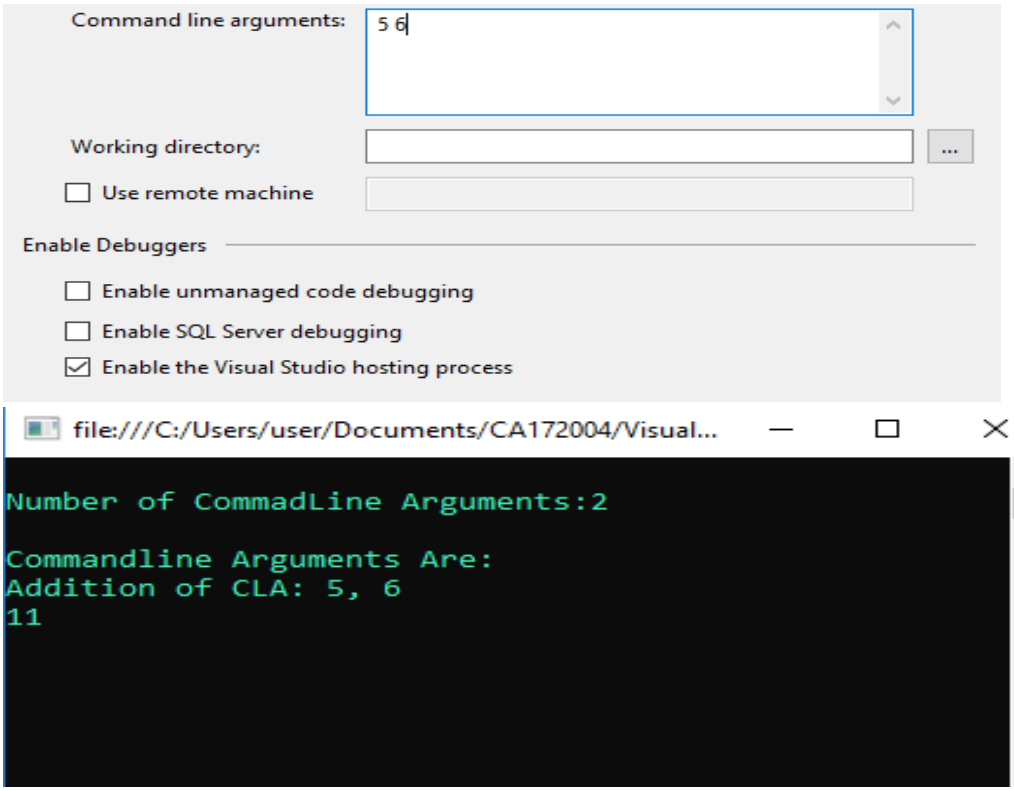
7) Demonstrate Command line arguments processing.

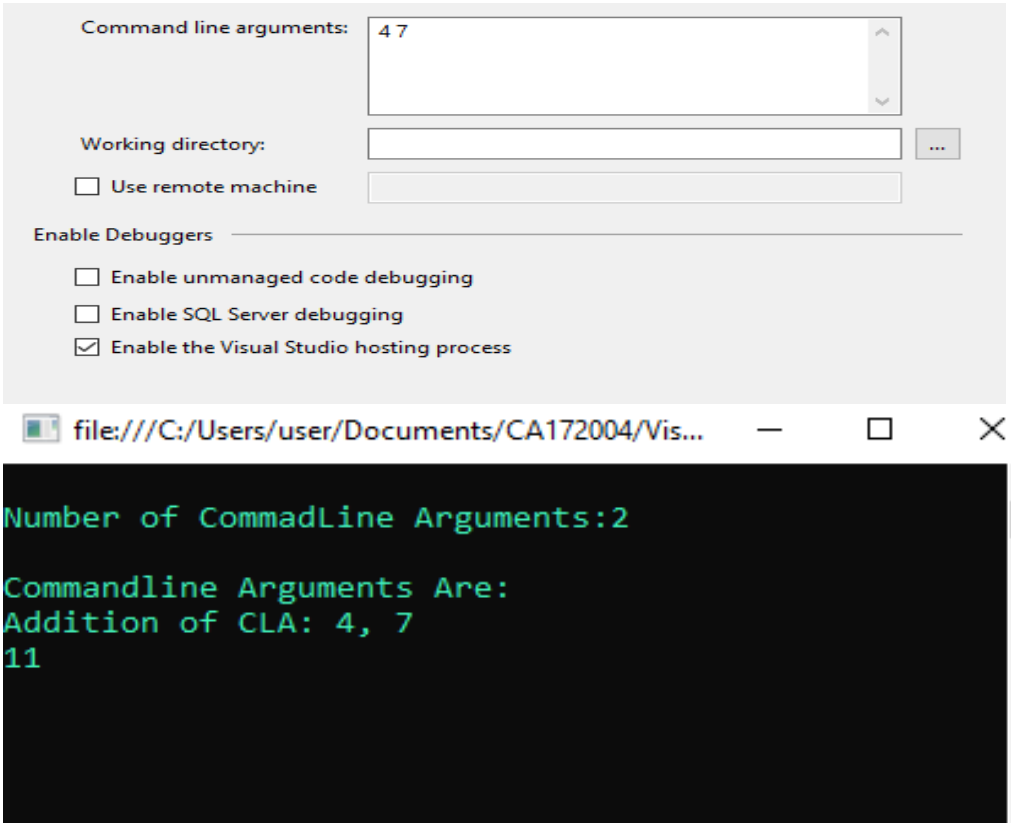
```
using System;

namespace ProgramSixteen
{
   class Program
   {
      static void Main(string[] args)
      {
         if (args.Length >= 2)
         {
            int num1 = Int32.Parse(args[0]);
            int num2 = Int32.Parse(args[1]);
            int sum = num1 + num2;
            Console.WriteLine("\nNumber of CommadLine Arguments:" +  args.Length);
            Console.WriteLine("\nCommandline Arguments Are:\t");
            Console.WriteLine("Addition of CLA: {0}, {1}", num1, num2);
            Console.WriteLine("{0}", sum);
         } else
         {
            Console.WriteLine("No command line arguments to process");
         }
         Console.ReadLine();
      }
   }
   }
```

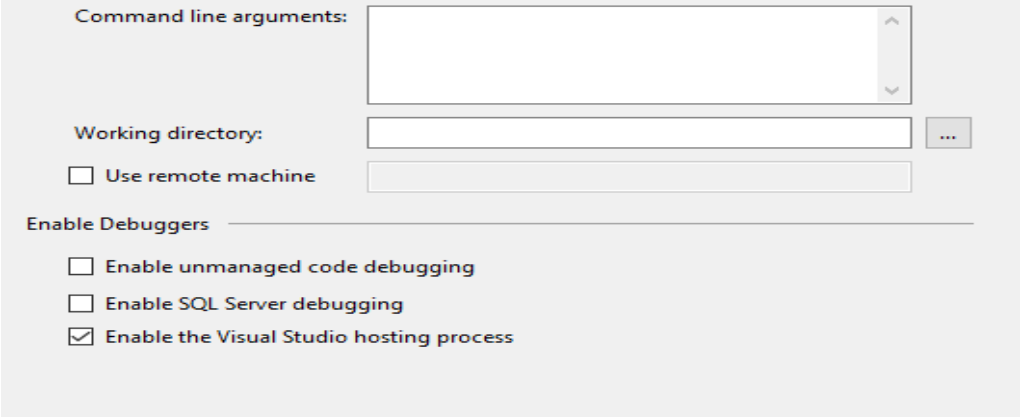
OUTPUT

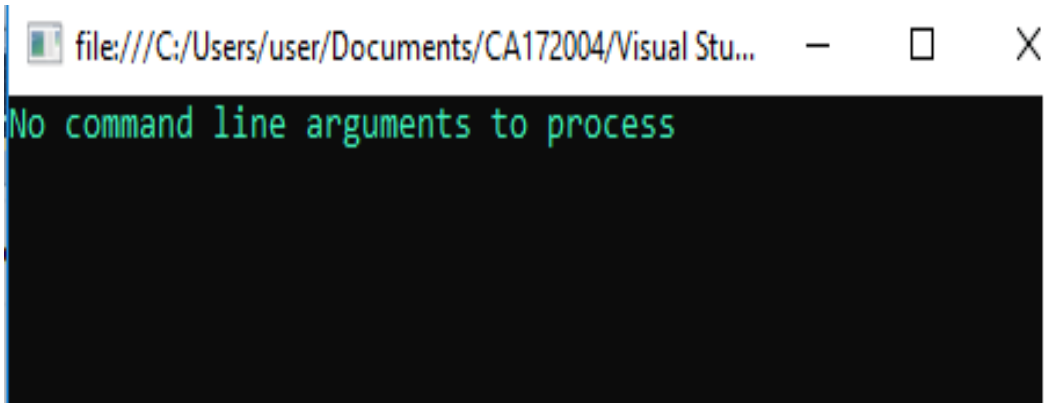

Command line arguments:
5 8
Working directory:
...
Use remote machine
Enable Debuggers
Enable unmanaged code debugging
Enable SQL Server debugging
Enable the Visual Studio hosting process
file:///C:/Users/user/Documents/CA172004/Visu...
Number of CommadLine Arguments:2
Commandline Arguments Are:
Addition of CLA: 5, 8
13


Command line arguments:
9 3
Working directory:
...
Use remote machine
Enable Debuggers
Enable unmanaged code debugging
Enable SQL Server debugging
Enable the Visual Studio hosting process
file:///C:/Users/user/Documents/CA172004/Visu...
Number of CommadLine Arguments:2
Commandline Arguments Are:
Addition of CLA: 9, 3
12


Command line arguments:
5 6
Working directory:
...
Use remote machine
Enable Debuggers
Enable unmanaged code debugging
Enable SQL Server debugging
Enable the Visual Studio hosting process
file:///C:/Users/user/Documents/CA172004/Visual...
Number of CommadLine Arguments:2
Commandline Arguments Are:
Addition of CLA: 5, 6
11


Command line arguments:
4 7
Working directory:
...
Use remote machine
Enable Debuggers
Enable unmanaged code debugging
Enable SQL Server debugging
Enable the Visual Studio hosting process
file:///C:/Users/user/Documents/CA172004/Vis...
Number of CommadLine Arguments:2
Commandline Arguments Are:
Addition of CLA: 4, 7
11

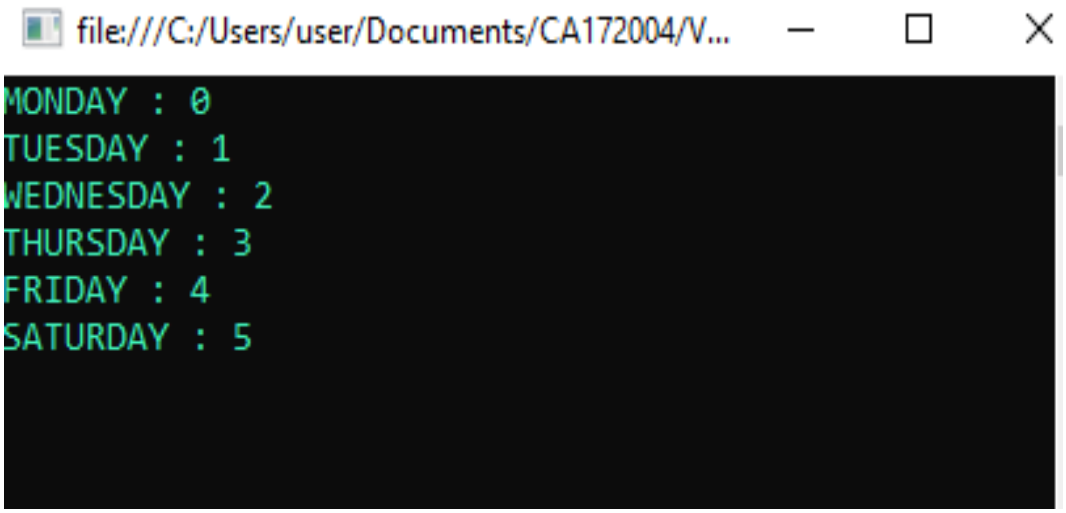

Command line arguments:
Working directory:
...
Use remote machine
Enable Debuggers
Enable unmanaged code debugging
Enable SQL Server debugging
Enable the Visual Studio hosting process


file:///C:/Users/user/Documents/CA172004/Visual Stu...
No command line arguments to process

8) Describe the enumerations programming constructs, which provides a human-readable form of a series of related constant values in C#.

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

namespace labpgm1
{
   class Program
      {
          enum CollegeDays
      {
         MONDAY, TUESDAY, WEDNESDAY, THURSDAY, FRIDAY,
SATURDAY
      }

      static void Main(string[] args)
      {

         foreach (var day in Enum.GetValues(typeof(CollegeDays)))
         {
            Console.WriteLine("{0} : {1}",day, (int) day);
         }
         Console.Read();
      }
   }
}
```

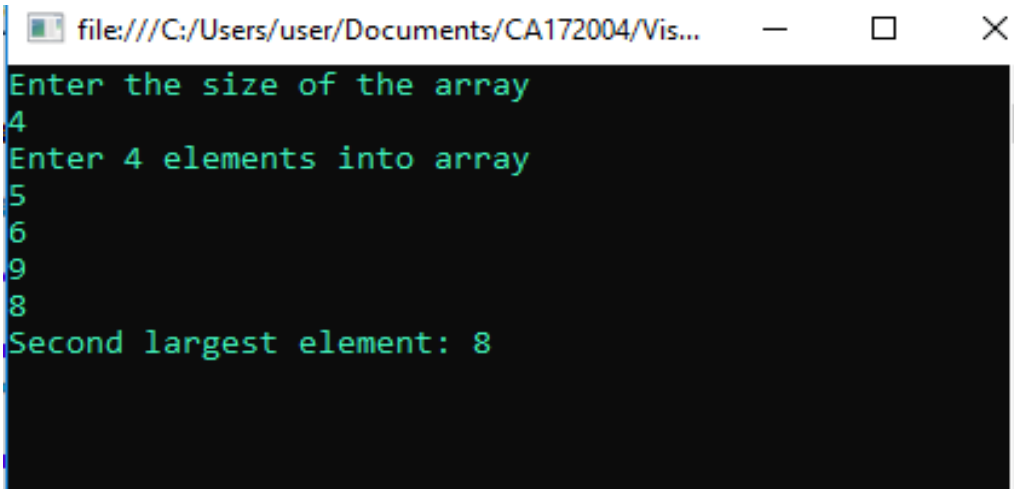
OUTPUT

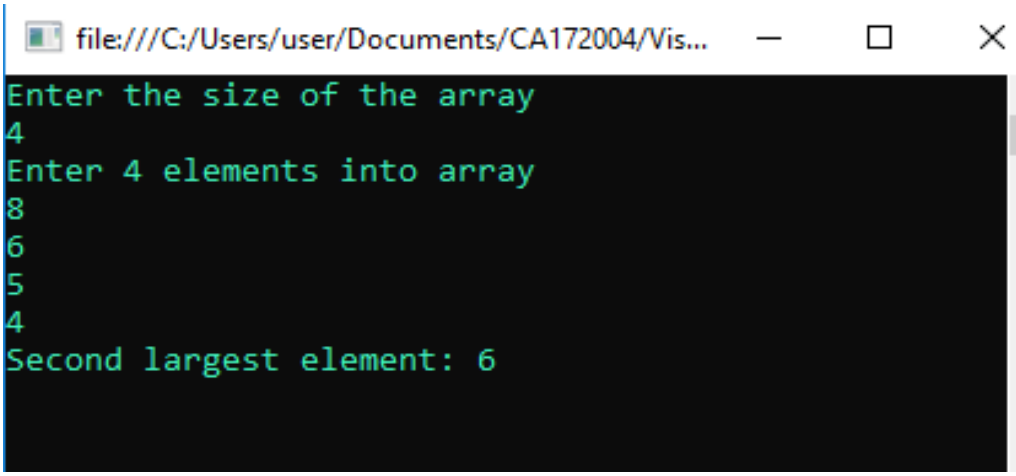

file:///C:/Users/user/Documents/CA172004/V...
MONDAY : 0
TUESDAY : 1
WEDNESDAY : 2
THURSDAY : 3
FRIDAY : 4
SATURDAY : 5

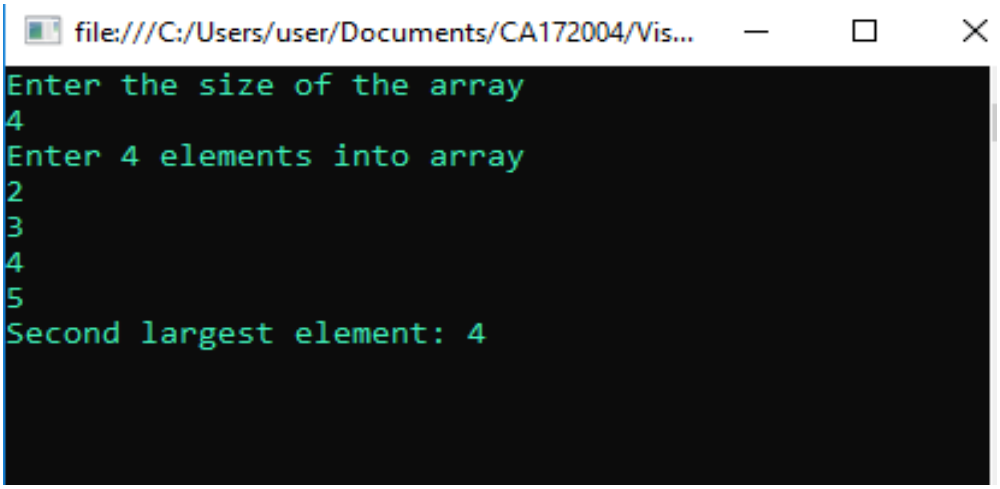
9) Find the second largest element in single dimensional array.

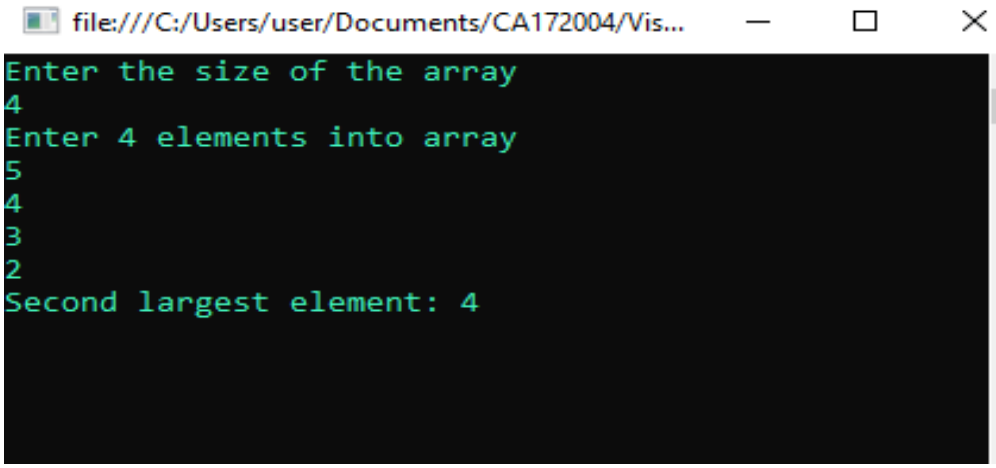
```
using System;

namespace ProgramFourteen
{
   class Program
   {
      static void Main(string[] args)
      {
         int n;
         Console.WriteLine("Enter the size of the array");
         n = Int16.Parse(Console.ReadLine());
         int[] array = new int[n];
         Console.WriteLine("Enter {0} elements into array", n);

         for (int i = 0; i < n; i++)
            array[i] = Int16.Parse(Console.ReadLine());


         for (int i = 0; i < n; i++) {
            int max = array[i];
            for (int j = 0; j < n; j++) {
                  if (array[j] > max) {
                     int t = array[j];
                     array[j] = array[i];
                     array[i] = t;
                  }

            }
         }

         Console.WriteLine("Second largest element: {0}", array[n - 2]);

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

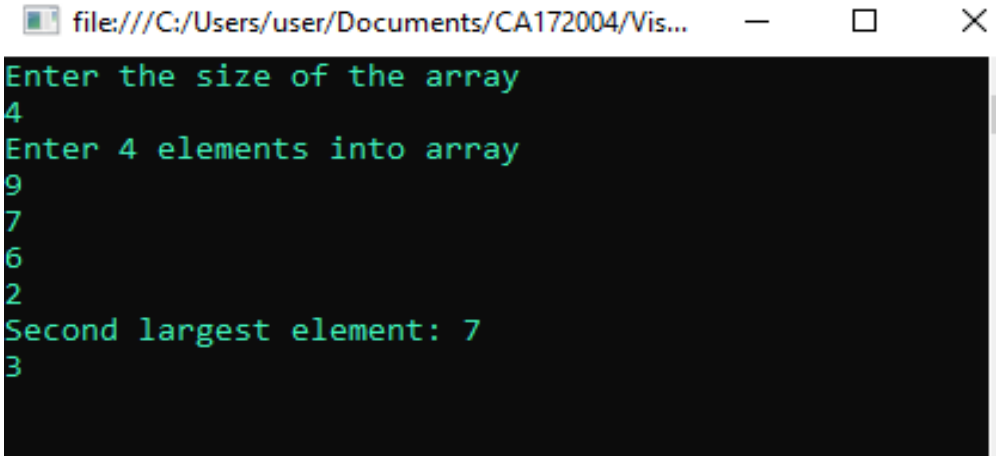
OUTPUT


file:///C:/Users/user/Documents/CA172004/Vis...
Enter the size of the array
4
Enter 4 elements into array
5
6
9
8
Second largest element: 8


file:///C:/Users/user/Documents/CA172004/Vis...
Enter the size of the array
4
Enter 4 elements into array
8
6
5
4
Second largest element: 6


file:///C:/Users/user/Documents/CA172004/Vis...
Enter the size of the array
4
Enter 4 elements into array
2
3
4
5
Second largest element: 4


file:///C:/Users/user/Documents/CA172004/Vis...
Enter the size of the array
4
Enter 4 elements into array
5
4
3
2
Second largest element: 4


file:///C:/Users/user/Documents/CA172004/Vis...
Enter the size of the array
4
Enter 4 elements into array
9
7
6
2
Second largest element: 7
3