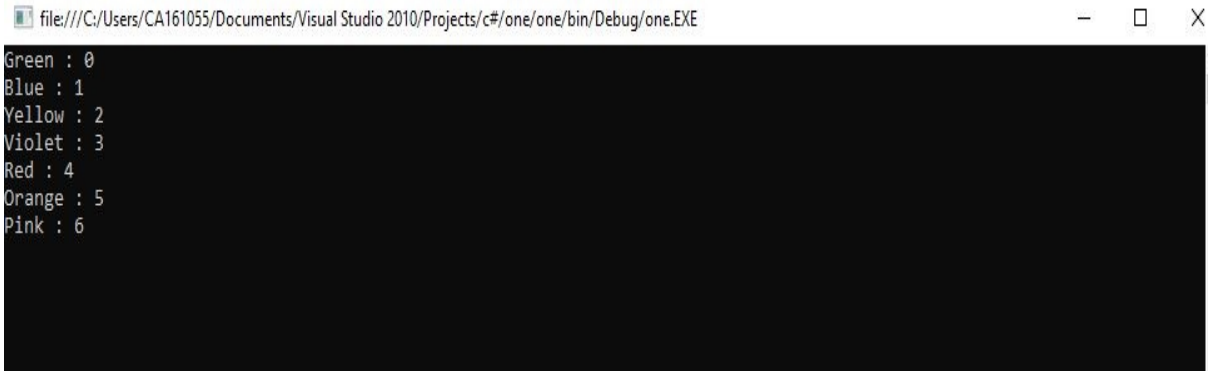
1) Describe the enumerations programming constructs, which provides a human-readable form of a series of related constant values in C#..

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


namespace EnumerationDemo
{
   class ProgramOne
   {
      enum Colors
      {

         Green,
         Blue,
         Yellow,
         Violet,
         Red,
         Orange,
         Pink

      }

      static void Main(string[] args)
      {

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

      }

   }

}
```

OUTPUT


file:///C:/Users/CA161055/Documents/Visual Studio 2010/Projects/c#/one/one/bin/Debug/one.EXE
Green : 0
Blue : 1
Yellow : 2
Violet : 3
Red : 4
Orange : 5
Pink : 6

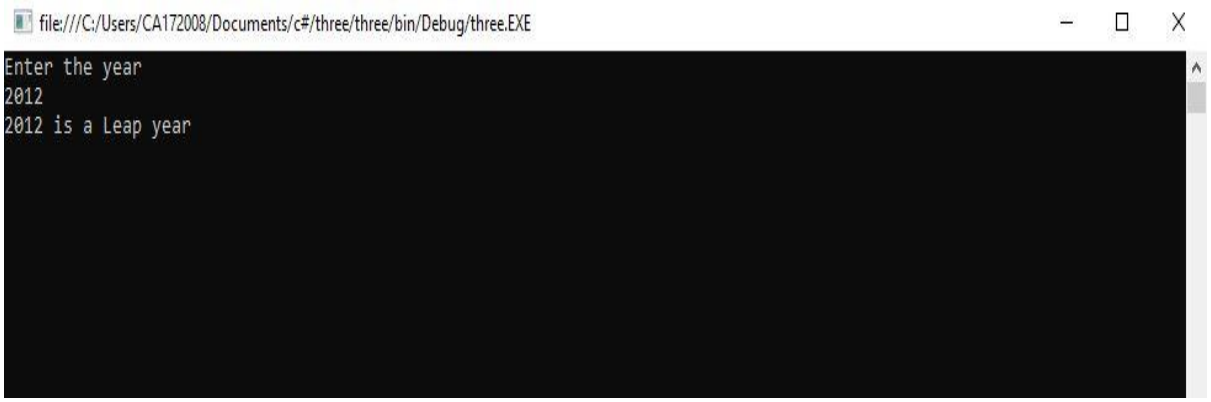
2) Check Whether the Entered Year is a Leap Year or Not

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

namespace ProgramTwo
{
   class Program
   {
      static void Main(string[] args)
      {
     try {
        Console.Write("Enter The Year : \n");
        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.ReadKey();
      }
   }
}
```

OUTPUT


file:///C:/Users/CA172008/Documents/c#/three/three/bin/Debug/three.EXE
Enter the year
2017
2017 is not a Leap year


file:///C:/Users/CA172008/Documents/c#/three/three/bin/Debug/three.EXE
Enter the year
2002
2002 is not a Leap year


file:///C:/Users/CA172008/Documents/c#/three/three/bin/Debug/three.EXE
Enter the year
2012
2012 is a Leap year

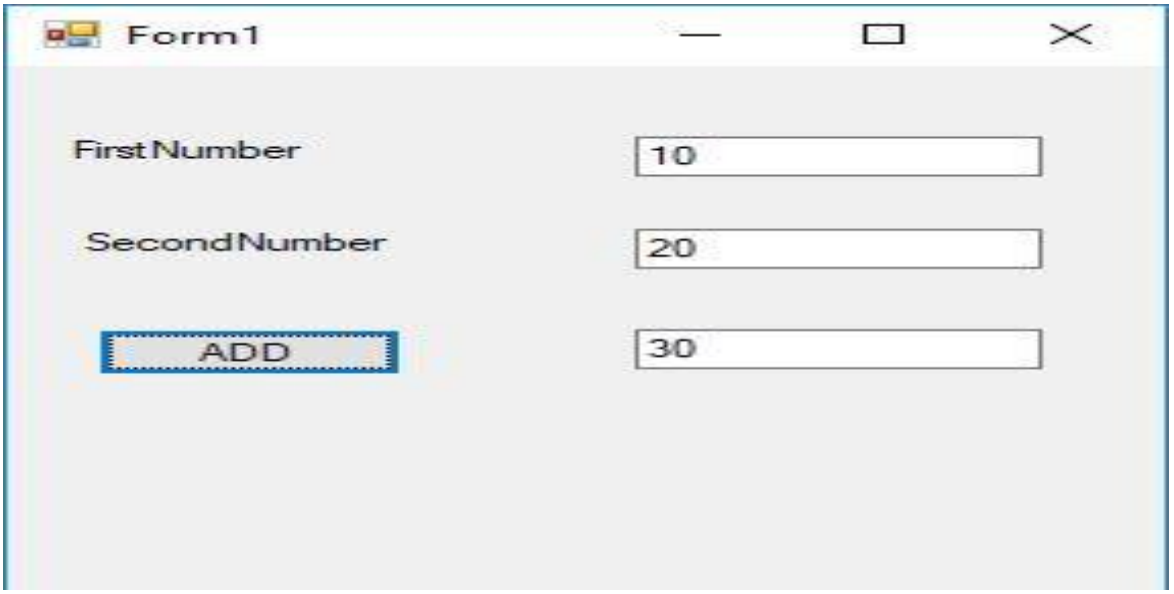

file:///C:/Users/CA172008/Documents/c#/three/three/bin/Debug/three.EXE
Enter the year
2008
2008 is a Leap year

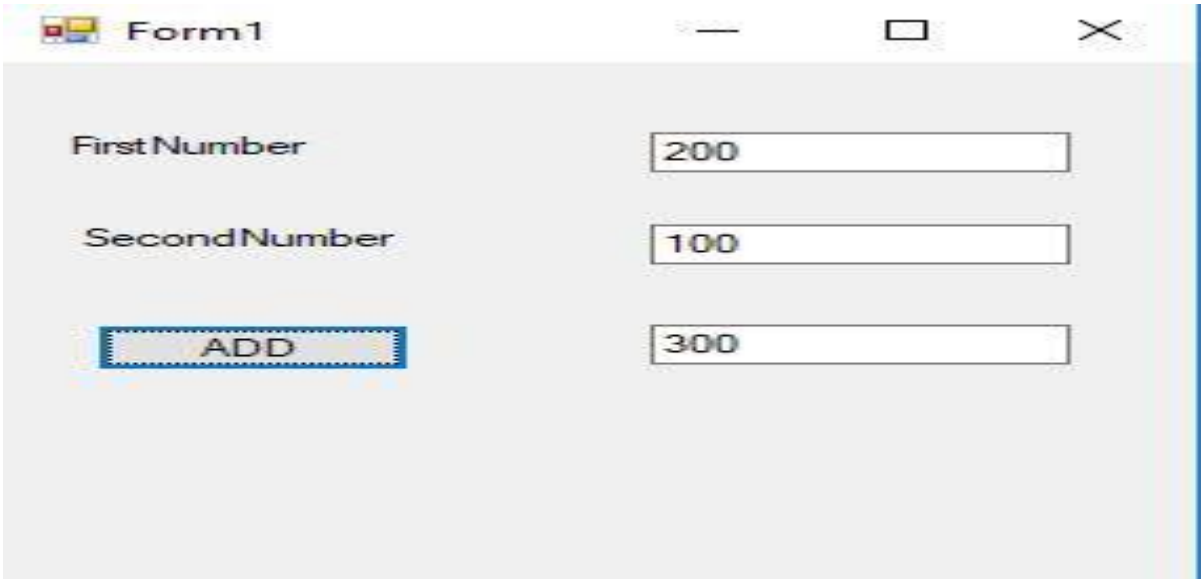

file:///C:/Users/CA172008/Documents/c#/three/three/bin/Debug/three.EXE
Enter The Year :
abcdsd
Enter valid year

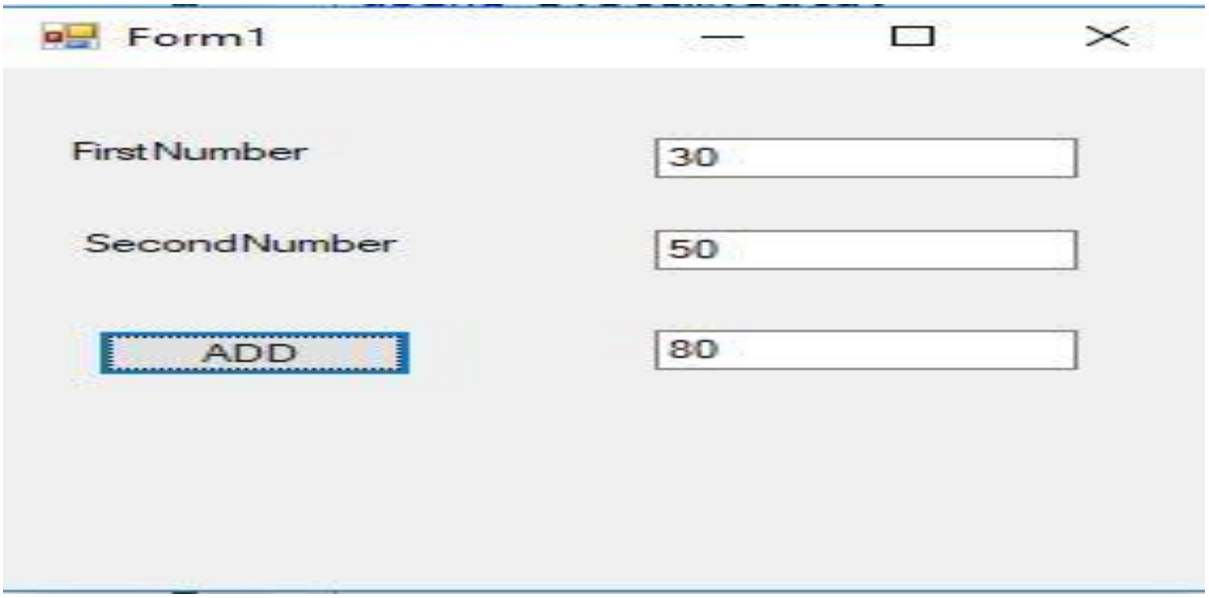
3) Program to display the addition using the windows application.

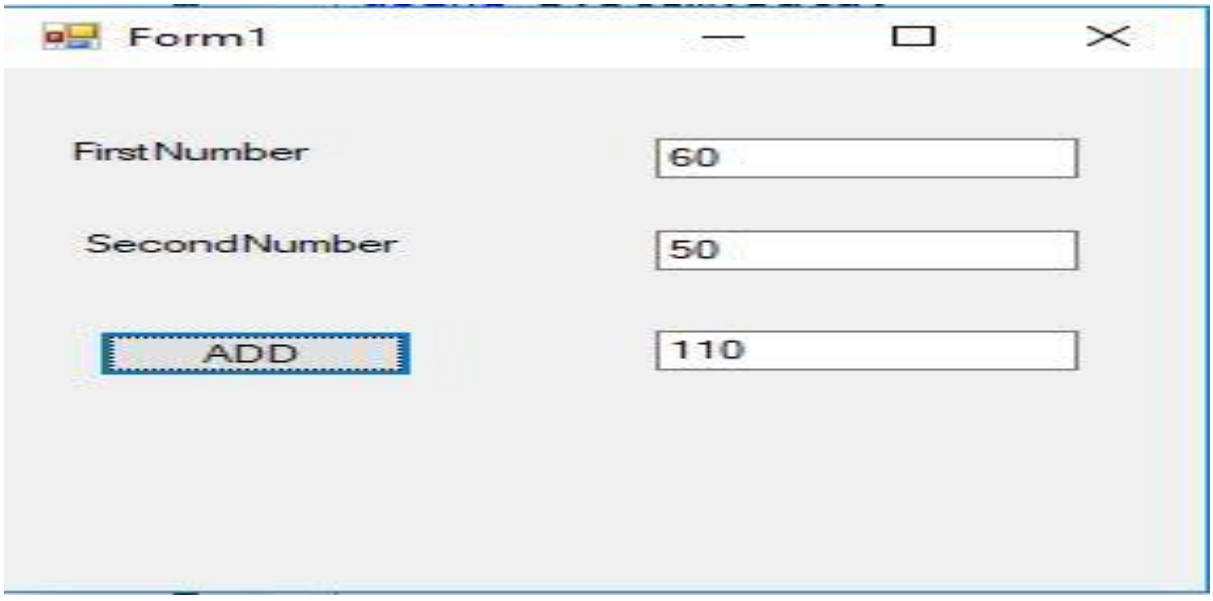
```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Windows.Forms;

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

          private void button1_Click(object sender, EventArgs e)
          {
             int num1 = Int16.Parse(textBox1.Text);
             int num2 = Int16.Parse(textBox2.Text);

             int sum = num1 + num2;

             textBox3.Text = "sum of two number :" + sum;

          }
       }
    }
```

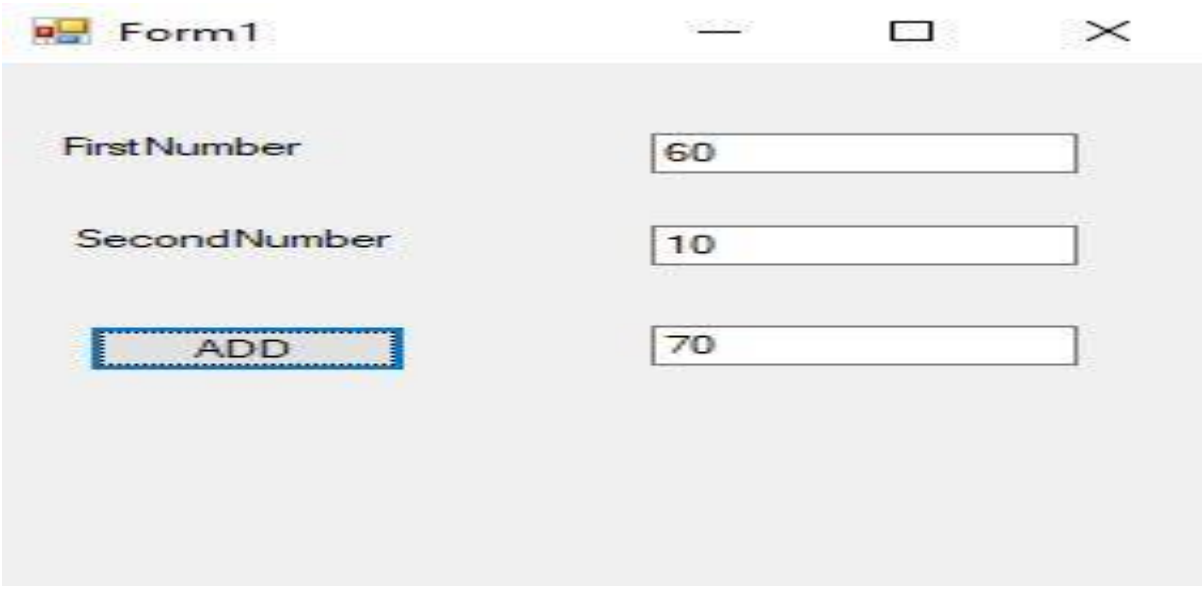
OUTPUT


Form1
First Number
10
Second Number
20
ADD
30


Form1
First Number
200
Second Number
100
ADD
300


Form1
First Number
30
Second Number
50
ADD
80

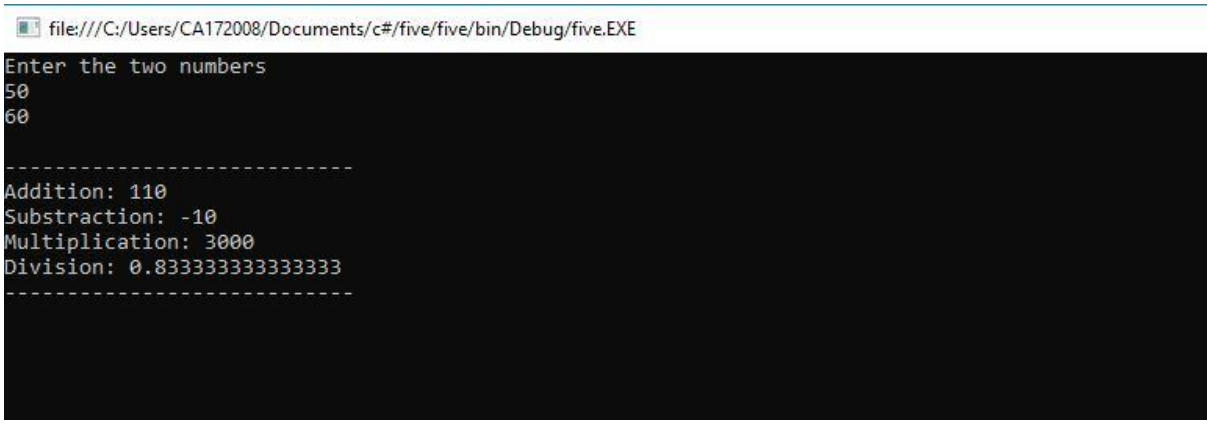

Form1
First Number
60
Second Number
50
ADD
110


Form1
First Number
60
Second Number
10
ADD
70

4) 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 ProgramFive
{
   class Program
   {
      static void Main(string[] args)
      {
         double num1, num2;
         double sum, sub, mul, div;

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

OUTPUT


file:///C:/Users/CA172008/Documents/c#/five/five/bin/Debug/five.EXE
Enter the two numbers
50
60

Addition: 110
Substraction: -10
Multiplication: 3000
Division: 0.833333333333333


file:///C:/Users/CA172008/Documents/c#/five/five/bin/Debug/five.EXE
Enter the two numbers
10
60

Addition: 70
Substraction: -50
Multiplication: 600
Division: 0.166666666666667


file:///C:/Users/CA172008/Documents/c#/five/five/bin/Debug/five.EXE
Enter the two numbers
80
100

Addition: 180
Substraction: -20
Multiplication: 8000
Division: 0.8


file:///C:/Users/CA172008/Documents/c#/five/five/bin/Debug/five.EXE
Enter the two numbers
30
40

Addition: 70
Substraction: -10
Multiplication: 1200
Division: 0.75


file:///C:/Users/CA172008/Documents/c#/five/five/bin/Debug/five.EXE
Enter the two numbers
20
40

Addition: 60
Substraction: -20
Multiplication: 800
Division: 0.5
---

5) 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 ProgramSix
{
   class Program
   {
      static void Main(string[] args)
      {
         int sum = 0;
         Console.WriteLine("------------------");
         Console.WriteLine("First 10 natural numbers");
         Console.WriteLine("------------------");


         for (int i = 1; i <= 10; i++)
         {
            sum += i;
            Console.WriteLine(i);
         }
         Console.WriteLine("------------------");
         Console.WriteLine("Sum: {0}", sum);
         Console.WriteLine("------------------");
         Console.ReadLine();
      }
   }
}
```

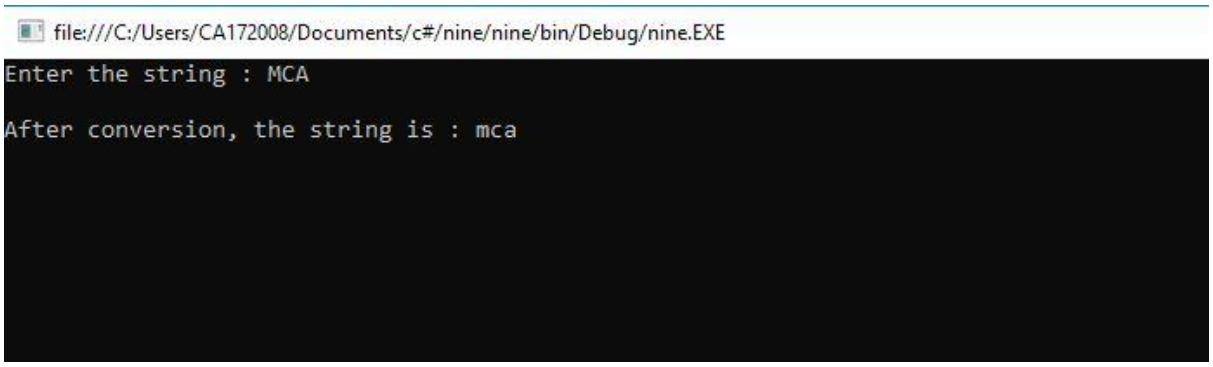
OUTPUT


file:///C:/Users/CA172008/Documents/c#/six/six/bin/Debug/six.EXE
First 10 natural numbers
1
2
3
4
5
6
7
8
9
10
Sum: 55

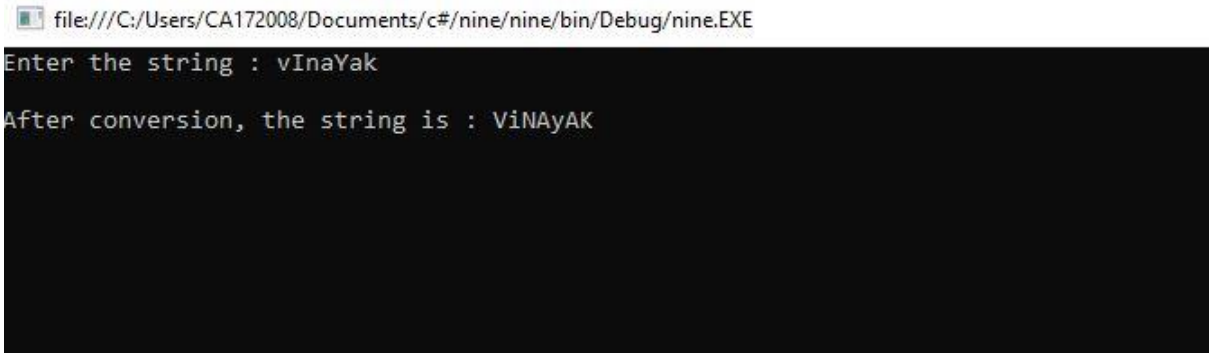
6) Write a program to convert input string from lower to upper and upper to lower case.

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

namespace LowUp
{
   class Program
   {
      static void Main(string[] args)
      {
      string str1;
      char[] arr1;
      int l,i;
      l=0;
      char ch;
      Console.Write("Input the string : ");
      str1 = Console.ReadLine();
      l=str1.Length;
      arr1 = str1.ToCharArray(0, l);

      Console.Write("\nAfter conversion, the string is : ");
      for (i = 0; i < l; i++)
      {
         ch = arr1[i];
         if (Char.IsLower(ch))
            Console.Write(Char.ToUpper(ch));
         else
            Console.Write(Char.ToLower(ch));
      }
         Console.ReadLine();
      }
   }
}
```

OUTPUT


file:///C:/Users/CA172008/Documents/c#/nine/nine/bin/Debug/nine.EXE
Enter the string : MCA
After conversion, the string is : mca


file:///C:/Users/CA172008/Documents/c#/nine/nine/bin/Debug/nine.EXE
Enter the string : hello
After conversion, the string is : HELLO


file:///C:/Users/CA172008/Documents/c#/nine/nine/bin/Debug/nine.EXE
Enter the string : vInaYak
After conversion, the string is : ViNAyAK

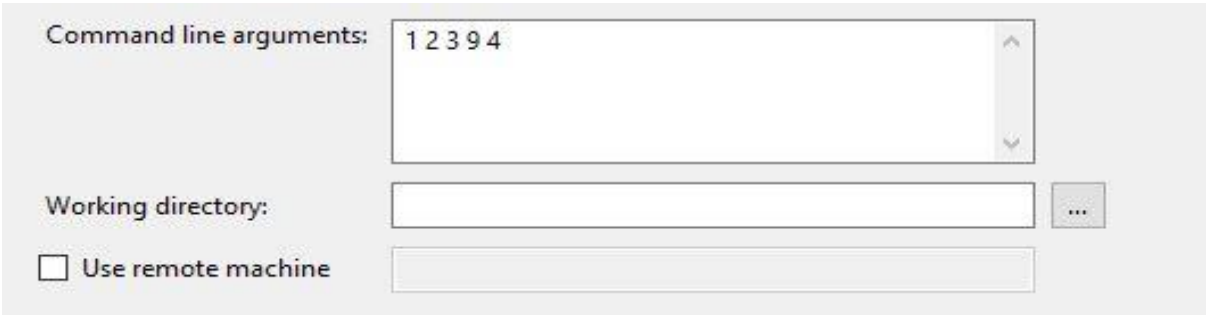

file:///C:/Users/CA172008/Documents/c#/nine/nine/bin/Debug/nine.EXE
Enter the string : ProGram
After conversion, the string is : pROgRAM

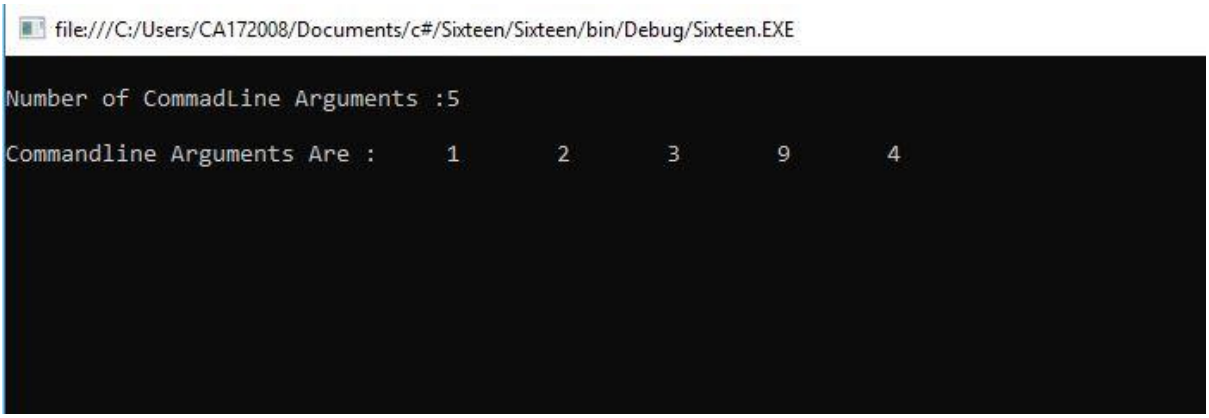

file:///C:/Users/CA172008/Documents/c#/nine/nine/bin/Debug/nine.EXE
Enter the string : C Sharp
After conversion, the string is : c sHARP

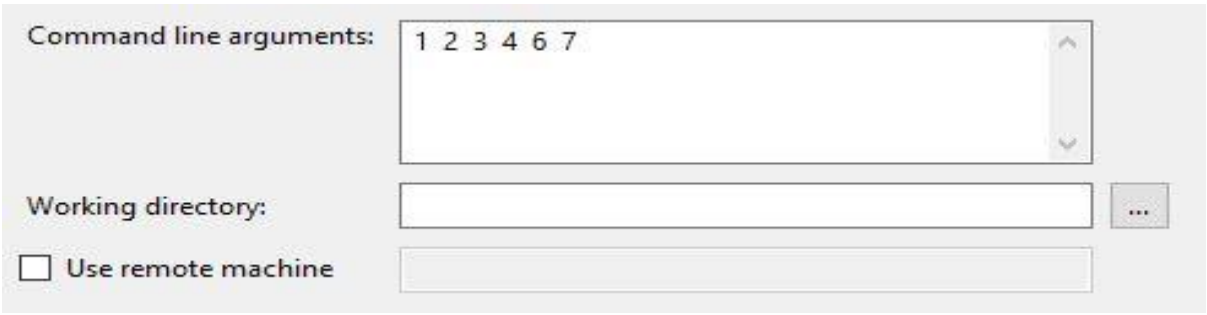
7) Demonstrate Command line arguments processing.

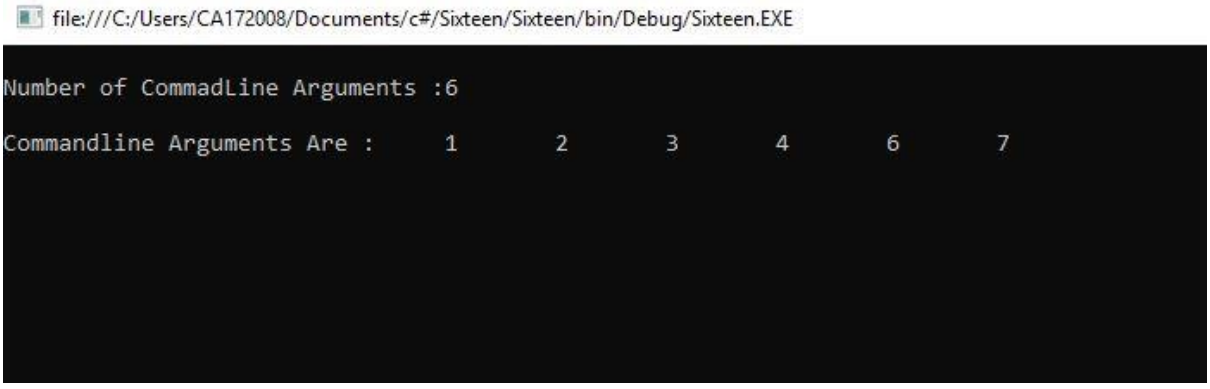
```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
namespace Sixteen
{
   class Program
   {
      static void Main(string[] args)
      {
         Console.WriteLine("\nNumber of CommadLine Arguments :" + args.Length);
         Console.Write("\nCommandline Arguments Are :\t");
         for (int i = 0; i < args.Length; i++)
         {
            Console.Write(args[i] + "\t");
         }
         Console.ReadLine();
      }
   }
}
```

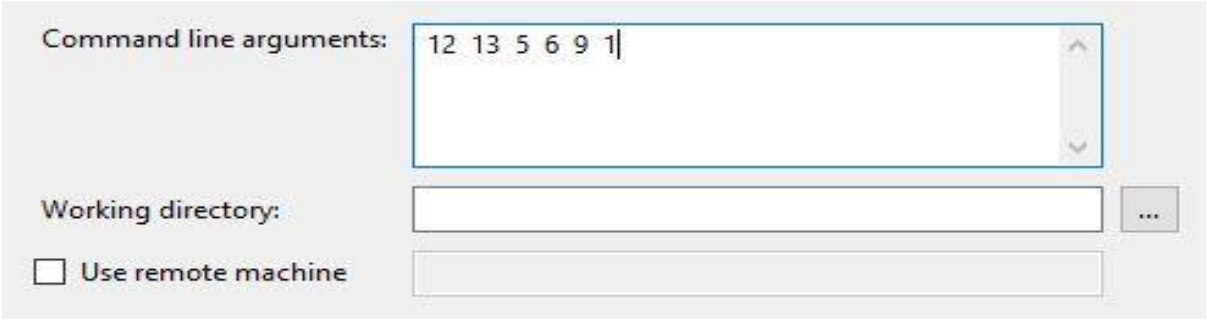
OUTPUT


Command line arguments:
1 2 3 9 4
Working directory:
...
Use remote machine


file:///C:/Users/CA172008/Documents/c#/Sixteen/Sixteen/bin/Debug/Sixteen.EXE
Number of CommadLine Arguments :5
Commandline Arguments Are : 1 2 3 9 4

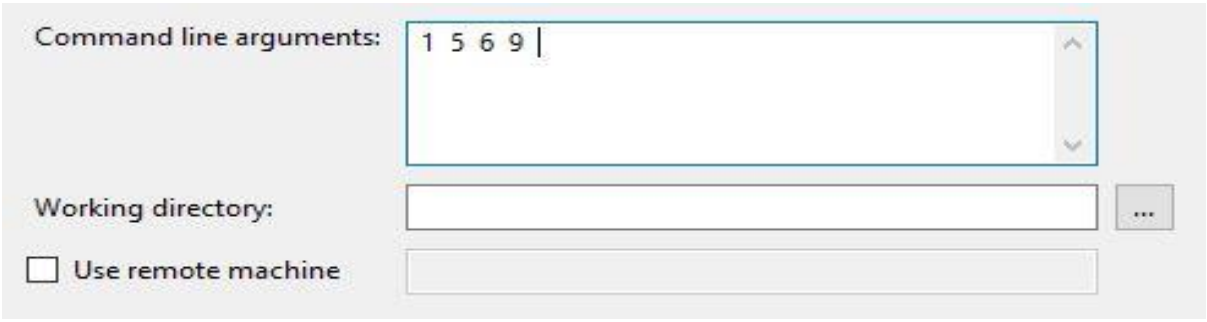

Command line arguments:
1 2 3 4 6 7
Working directory:
...
Use remote machine


file:///C:/Users/CA172008/Documents/c#/Sixteen/Sixteen/bin/Debug/Sixteen.EXE
Number of CommadLine Arguments :6
Commandline Arguments Are : 1 2 3 4 6 7



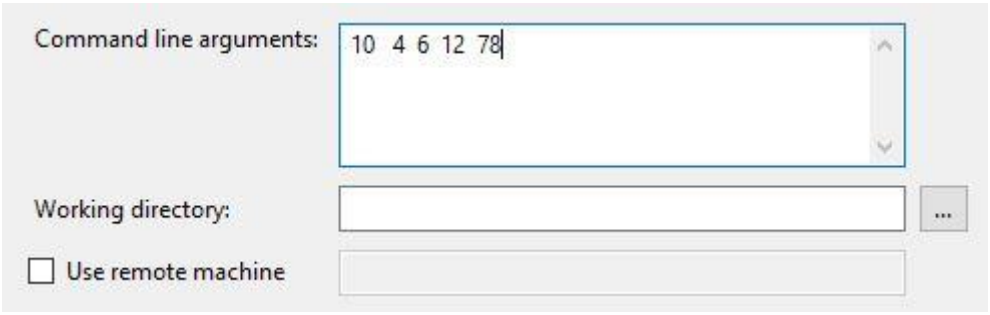
file:///C:/Users/CA172008/Documents/c#/Sixteen/Sixteen/bin/Debug/Sixteen.EXE

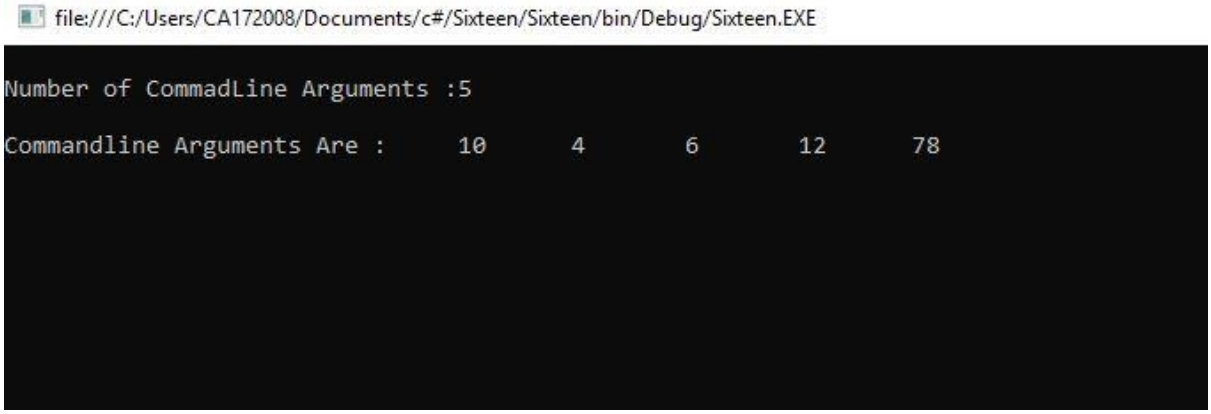
```
Number of CommadLine Arguments :6

Commandline Arguments Are :     12      13      5       6       9       1
```



file:///C:/Users/CA172008/Documents/c#/Sixteen/Sixteen/bin/Debug/Sixteen.EXE

```
Number of CommadLine Arguments :4

Commandline Arguments Are :     1       5       6       9
```

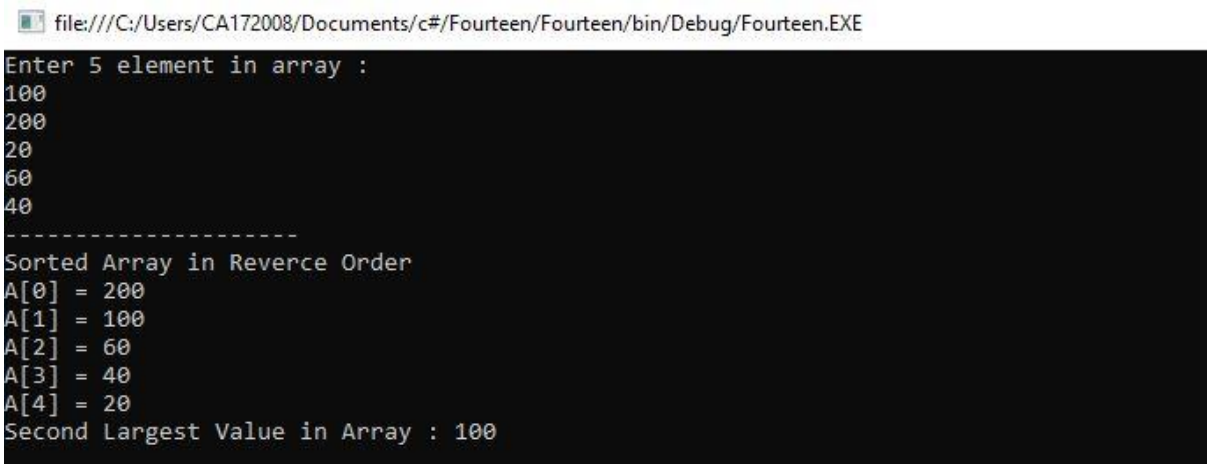

Command line arguments:
10 4 6 12 78
Working directory:
...
Use remote machine


file:///C:/Users/CA172008/Documents/c#/Sixteen/Sixteen/bin/Debug/Sixteen.EXE
Number of CommadLine Arguments :5
Commandline Arguments Are : 10 4 6 12 78

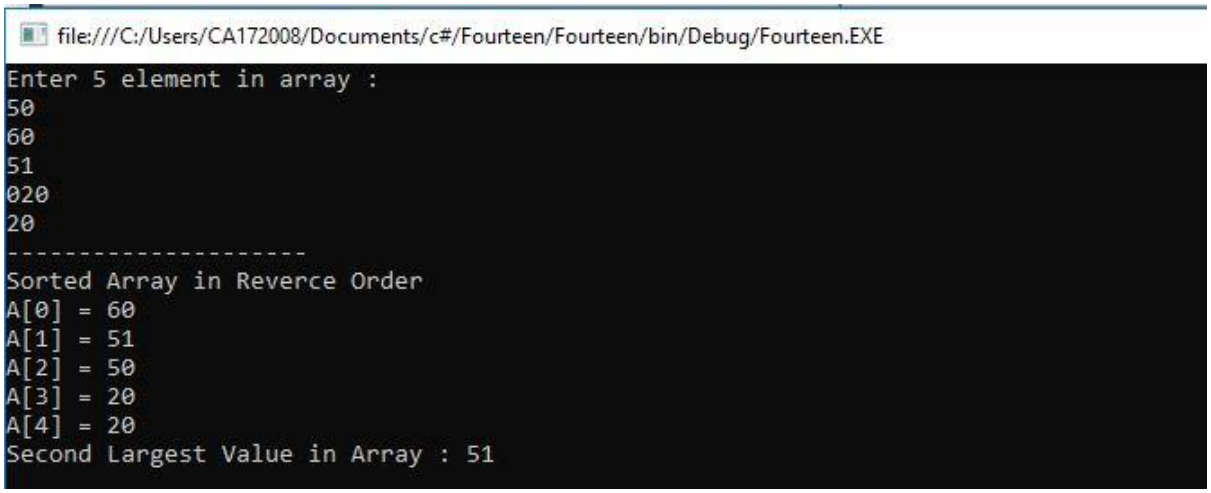
8) Find the second largest element in a single dimensional array.

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


namespace pgm14
{
   class Program
   {
      static void Main(string[] args)
      {
         try
         {
            int[] arr = new int[5];
            Console.WriteLine("Enter 5 element in array : ");
            for (int i = 0; i < 5; i++)
            {
               arr[i] = int.Parse(Console.ReadLine());
            }
            Console.WriteLine("----------------------");
            Array.Sort(arr);
            Array.Reverse(arr);
            Console.WriteLine("Sorted Array in Reverce Order");
            for (int i = 0; i < 5; i++)
            {
               Console.WriteLine("A[" + i + "] = " + arr[i]);
            }
            Console.WriteLine("Second Largest Value in Array : " + arr[1]);
         }
         catch (Exception ex) {
           Console.WriteLine("Provide Valid Array Element.\nOnly Numeric Values are
           allowed.");
         }
         Console.ReadKey();
      }
   }
}
```

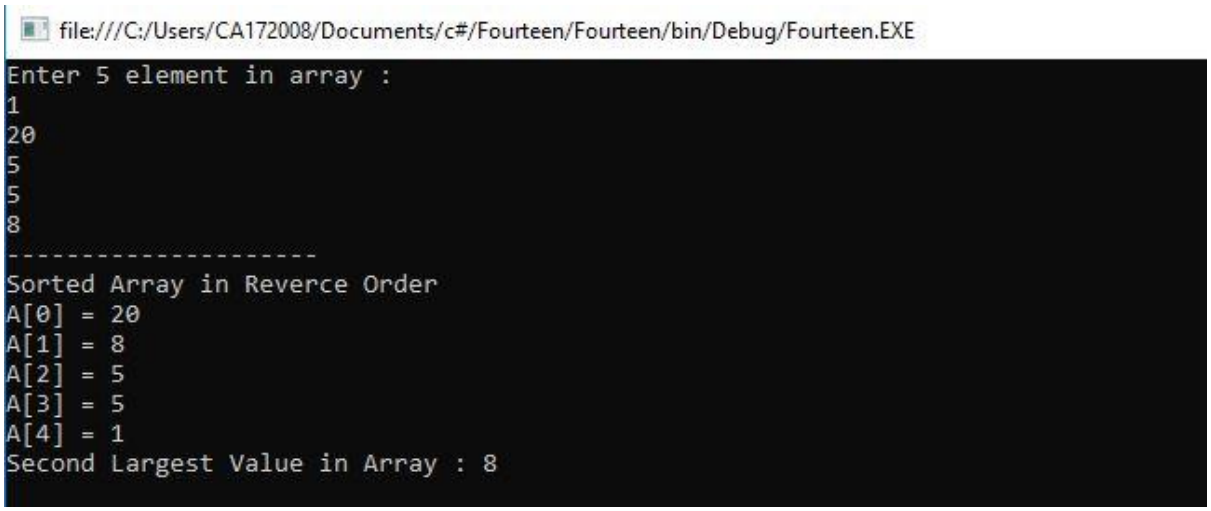
OUTPUT


file:///C:/Users/CA172008/Documents/c#/Fourteen/Fourteen/bin/Debug/Fourteen.EXE
Enter 5 element in array :
100
200
20
60
40

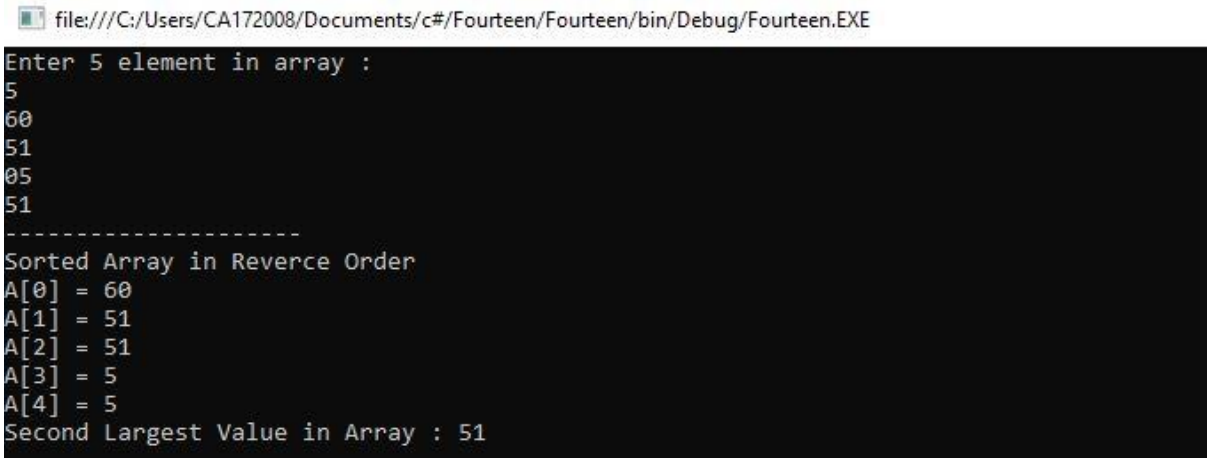
Sorted Array in Reverce Order
A[0] = 200
A[1] = 100
A[2] = 60
A[3] = 40
A[4] = 20
Second Largest Value in Array : 100


file:///C:/Users/CA172008/Documents/c#/Fourteen/Fourteen/bin/Debug/Fourteen.EXE
Enter 5 element in array :
50
60
51
020
20

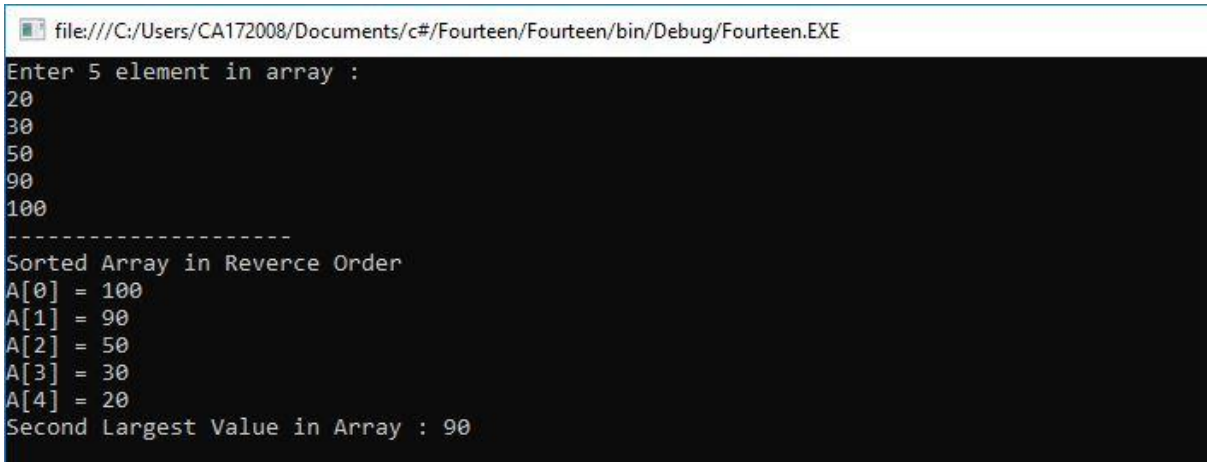
Sorted Array in Reverce Order
A[0] = 60
A[1] = 51
A[2] = 50
A[3] = 20
A[4] = 20
Second Largest Value in Array : 51


file:///C:/Users/CA172008/Documents/c#/Fourteen/Fourteen/bin/Debug/Fourteen.EXE
Enter 5 element in array :
1
20
5
5
8

Sorted Array in Reverce Order
A[0] = 20
A[1] = 8
A[2] = 5
A[3] = 5
A[4] = 1
Second Largest Value in Array : 8


file:///C:/Users/CA172008/Documents/c#/Fourteen/Fourteen/bin/Debug/Fourteen.EXE
Enter 5 element in array :
5
60
51
05
51

Sorted Array in Reverce Order
A[0] = 60
A[1] = 51
A[2] = 51
A[3] = 5
A[4] = 5
Second Largest Value in Array : 51


file:///C:/Users/CA172008/Documents/c#/Fourteen/Fourteen/bin/Debug/Fourteen.EXE
Enter 5 element in array :
20
30
50
90
100

Sorted Array in Reverce Order
A[0] = 100
A[1] = 90
A[2] = 50
A[3] = 30
A[4] = 20
Second Largest Value in Array : 90

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

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

namespace 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)
      {
         PropertiesDemo p = new PropertiesDemo();
         p.Name = "Vinayak";
         p.Age = 23;

         PropertiesDemo d = new PropertiesDemo();
         d.Name = "Zutti";
         d.Age = 22;
```

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

OUTPUT


file:///C:/Users/CA172008/Documents/c#/Fifteen/Fifteen/bin/Debug/Fifteen.EXE
Vinayak : 23
Zutti : 22


file:///C:/Users/CA172008/Documents/c#/Fifteen/Fifteen/bin/Debug/Fifteen.EXE
Akshay : 22
Shubham : 25


file:///C:/Users/CA172008/Documents/c#/Fifteen/Fifteen/bin/Debug/Fifteen.EXE
Sanjeev : 27
abhi : 21


file:///C:/Users/CA172008/Documents/c#/Fifteen/Fifteen/bin/Debug/Fifteen.EXE
Gourav : 27
Kolaki : 21


file:///C:/Users/CA172008/Documents/c#/Fifteen/Fifteen/bin/Debug/Fifteen.EXE
ranadive : 27
suraj : 21