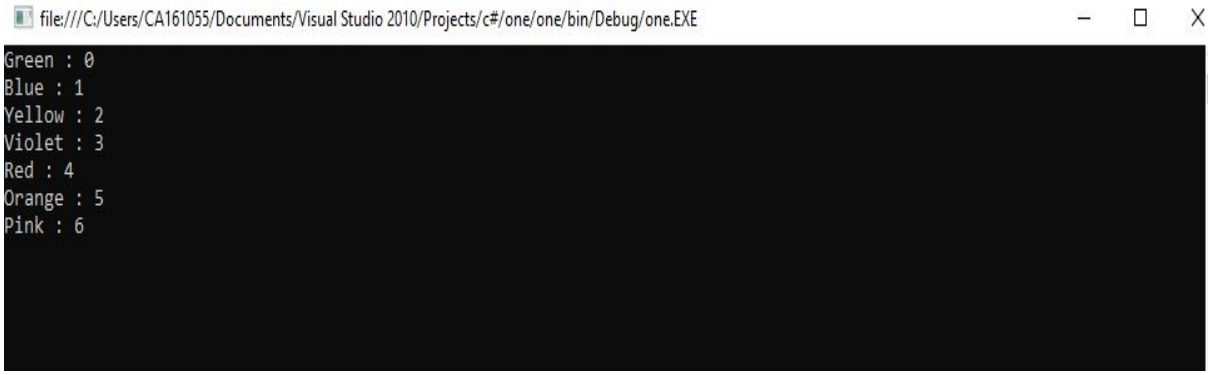
1) Describe the enumerations programming constructs, which provides a human-readable form of a series of related constant values in C#..

```
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

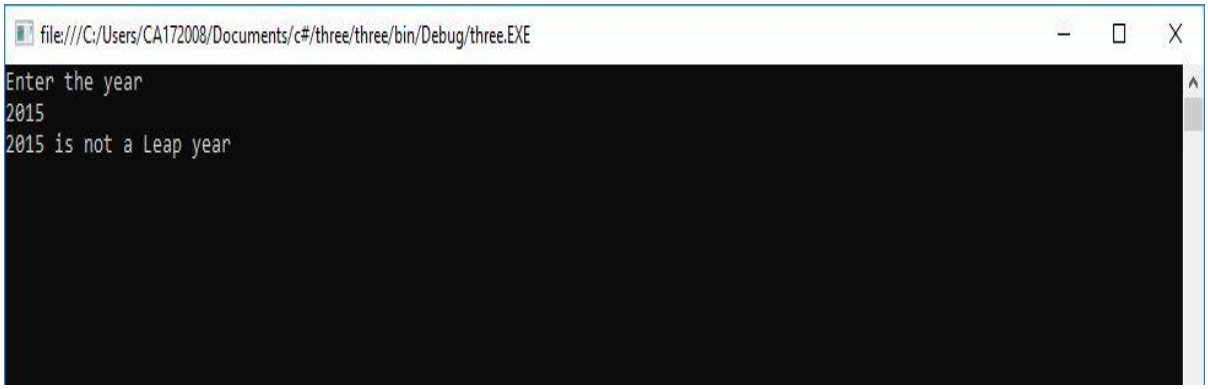
```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;

namespace ProgramTwo
{
   class Program
   {
      static void Main(string[] args)
      {
         long year;
         Console.WriteLine("Enter the year");
         year = Int64.Parse(Console.ReadLine());

         if (checkYear(year))
            Console.WriteLine("{0} is a Leap year", year);
         else
            Console.WriteLine("{0} is not a Leap year", year);

         Console.ReadLine();
      }

      static bool checkYear(long year)
      {
         if (year % 400 == 0)
            return true;
         else if (year % 100 == 0)
            return false;
         else if (year % 4 == 0)
            return true;
         else
            return false;
      }
   }
}
```

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

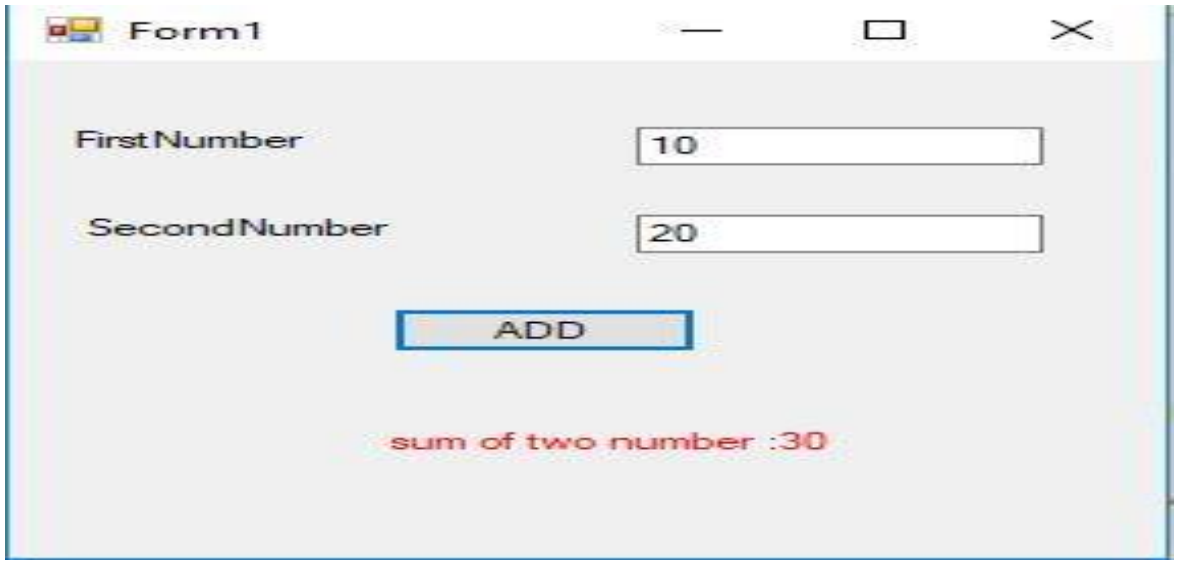

file:///C:/Users/CA172008/Documents/c#/three/three/bin/Debug/three.EXE
Enter the year
2015
2015 is not a Leap year

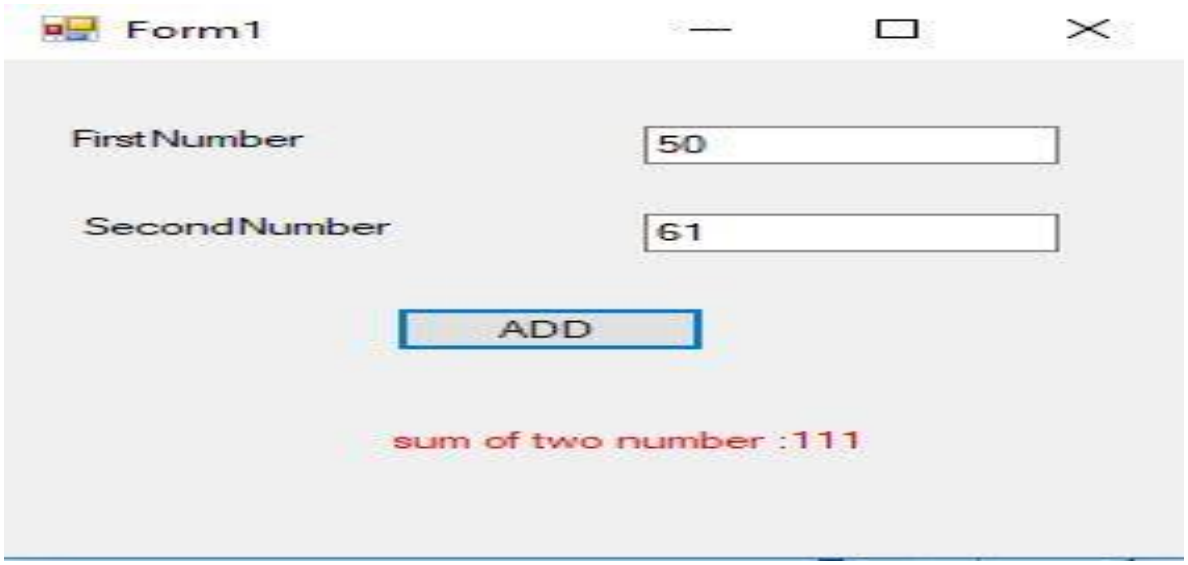

file:///C:/Users/CA172008/Documents/c#/three/three/bin/Debug/three.EXE
Enter the year
2008
2008 is a Leap year

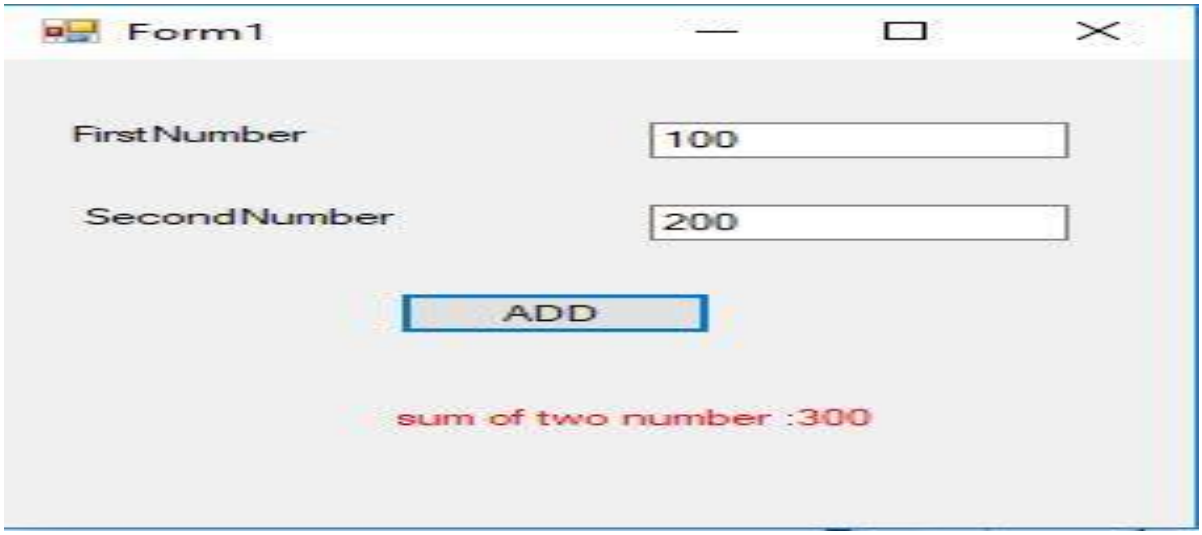
3) Program to display the addition using the windows application.

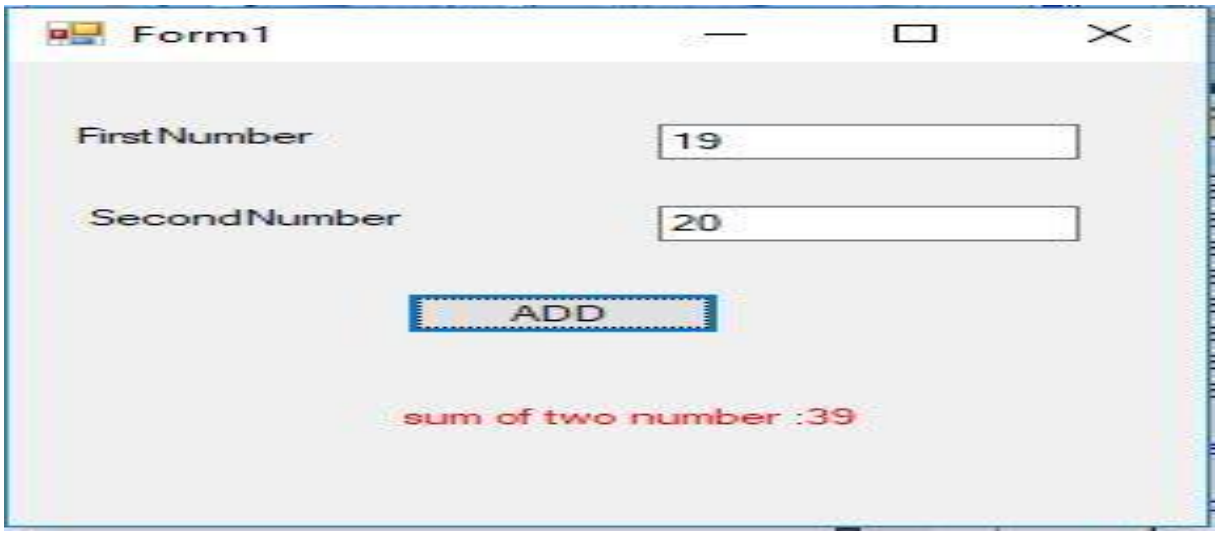
```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Windows.Forms;

    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;
             label3.Text = "sum of two number :" + sum;

          }
       }
    }
```

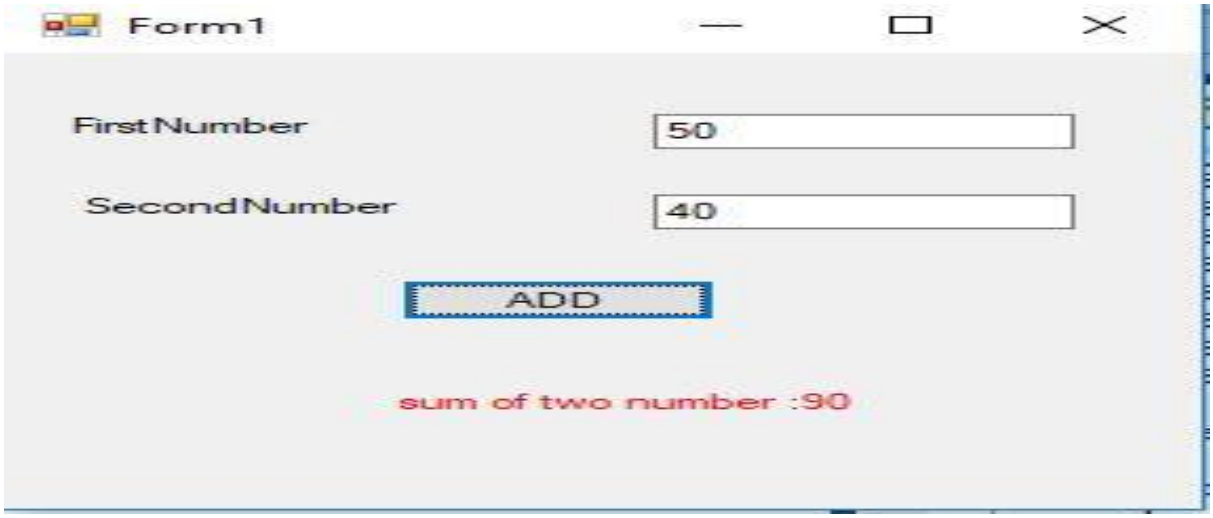
OUTPUT


Form1
First Number
10
Second Number
20
ADD
sum of two number :30


Form1
First Number
50
Second Number
61
ADD
sum of two number :111


Form1
First Number
100
Second Number
200
ADD
sum of two number :300

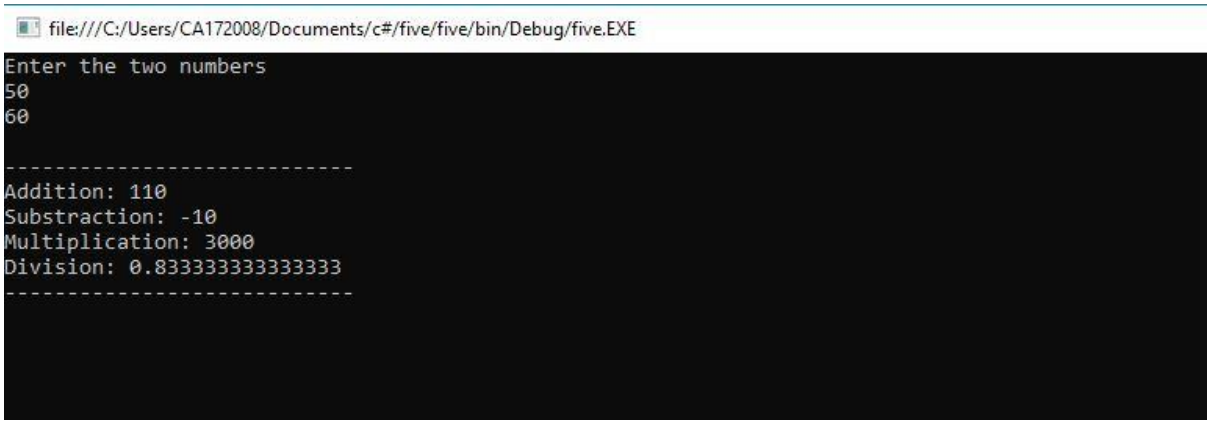

Form1
First Number
19
Second Number
20
ADD
sum of two number :39


Form1
First Number
50
Second Number
40
ADD
sum of two number :90

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();
      }
   }
}
```

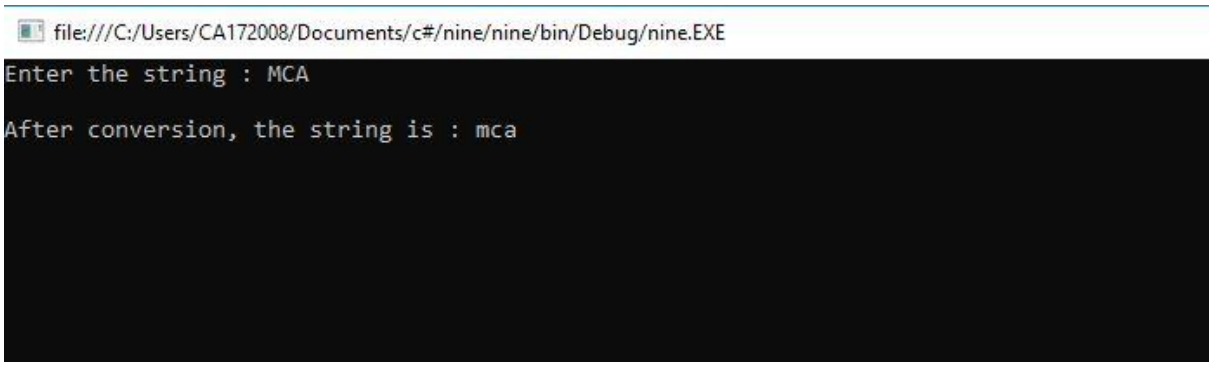
OUTPUT


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

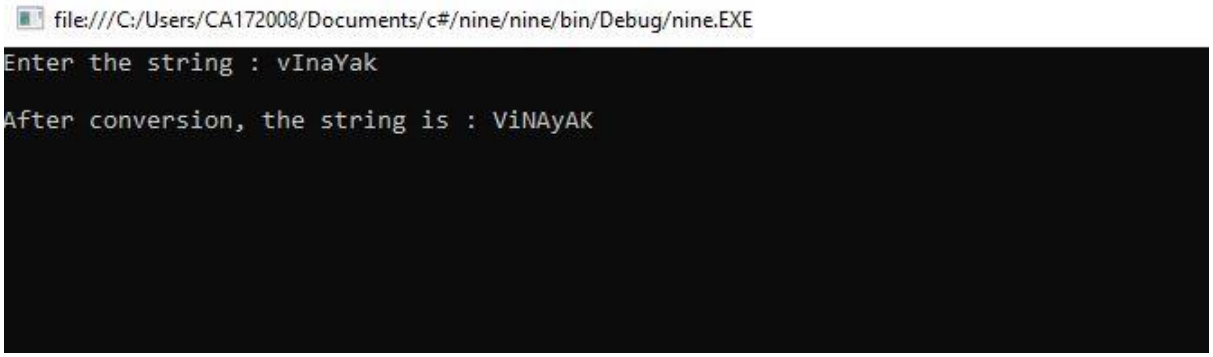
6) Write a program to convert input string from lower to upper and upper to lower case.

```
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

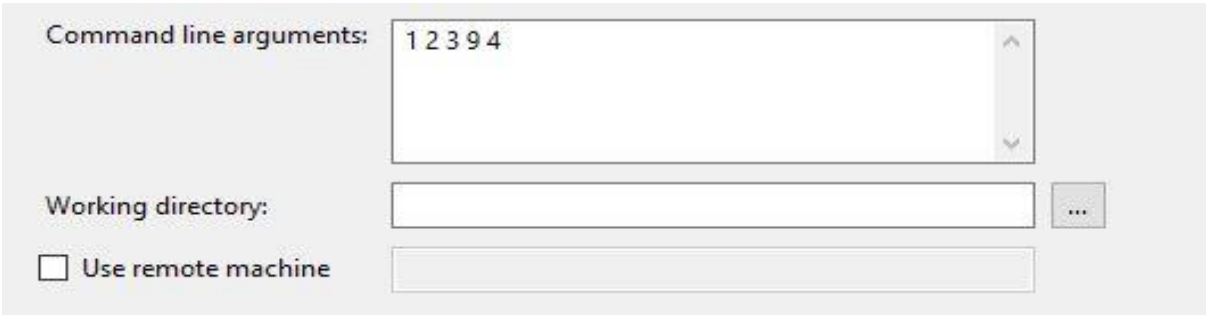

file:///C:/Users/CA172008/Documents/c#/nine/nine/bin/Debug/nine.EXE
Enter the string : ProGram
After conversion, the string is : pROgRAM

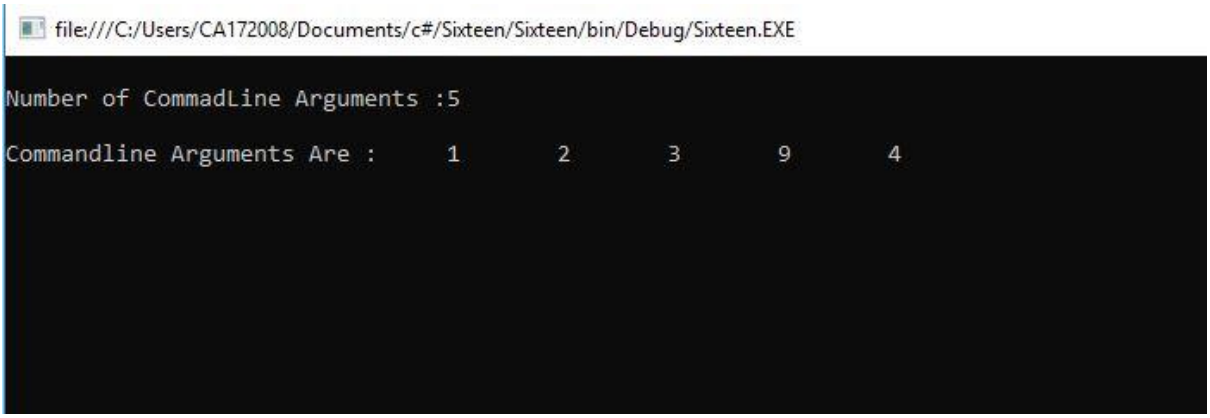

file:///C:/Users/CA172008/Documents/c#/nine/nine/bin/Debug/nine.EXE
Enter the string : C Sharp
After conversion, the string is : c sHARP

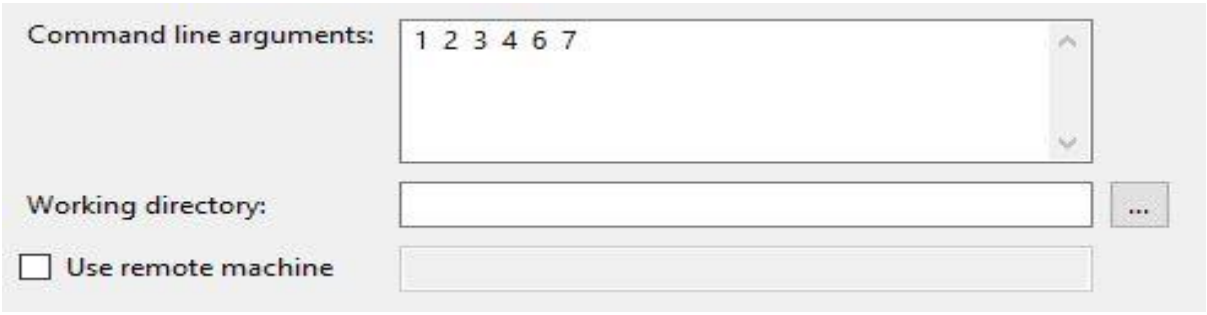
7) Demonstrate Command line arguments processing.

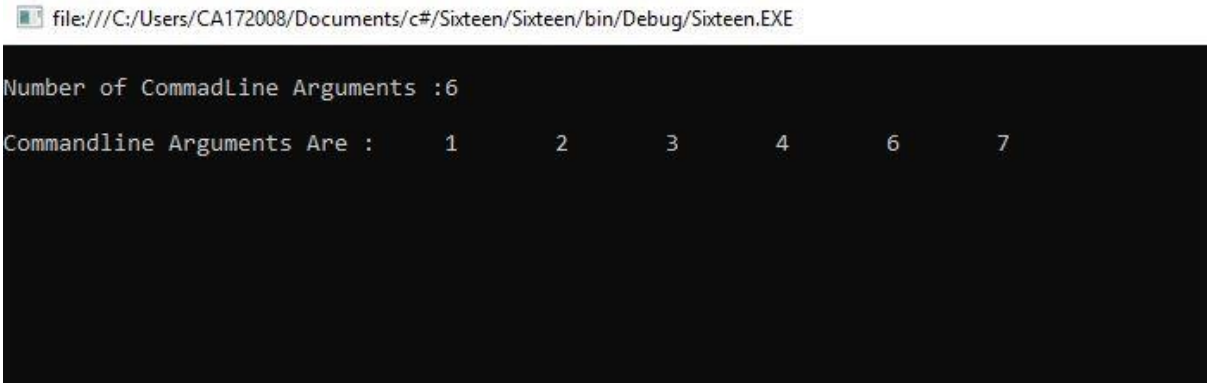
```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
namespace Sixteen
{
   class Program
   {
      static void Main(string[] args)
      {
         Console.WriteLine("\nNumber of CommadLine Arguments :" + args.Length);
         Console.Write("\nCommandline Arguments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

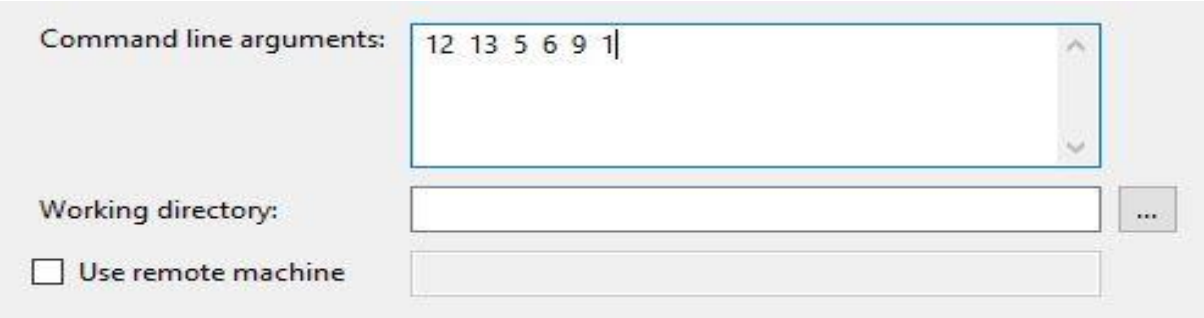
OUTPUT


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

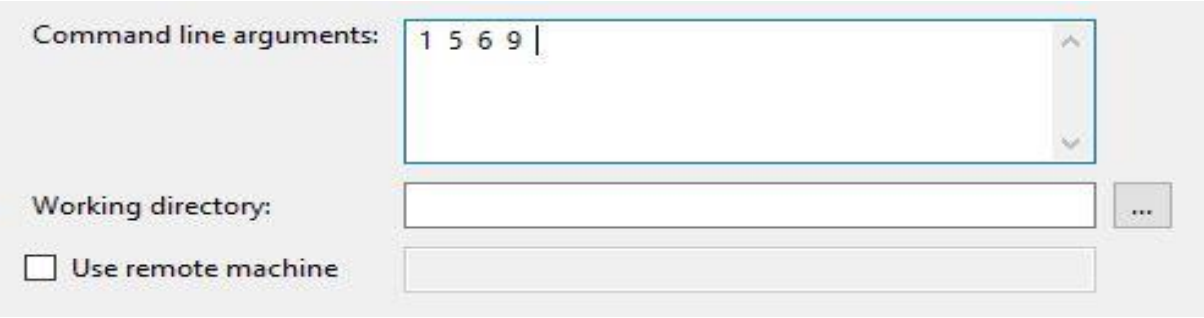

Command line arguments:
1 2 3 4 6 7
Working directory:
...
Use remote machine


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



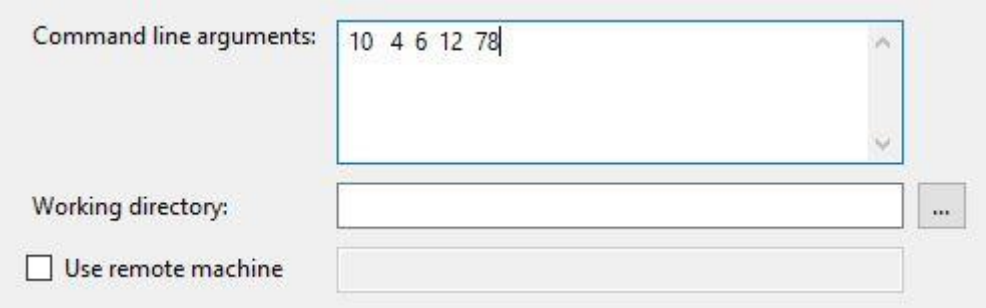
file:///C:/Users/CA172008/Documents/c#/Sixteen/Sixteen/bin/Debug/Sixteen.EXE

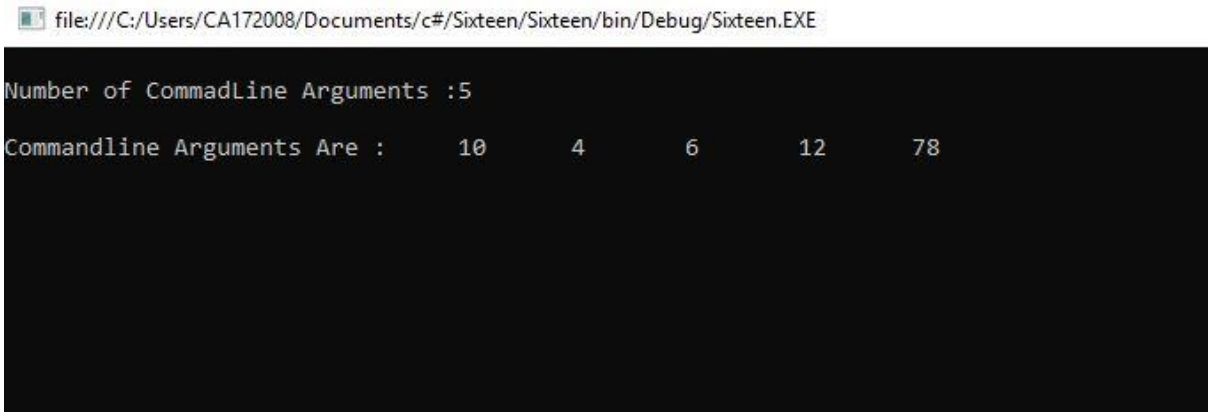
```
Number of CommadLine Arguments :6

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
```

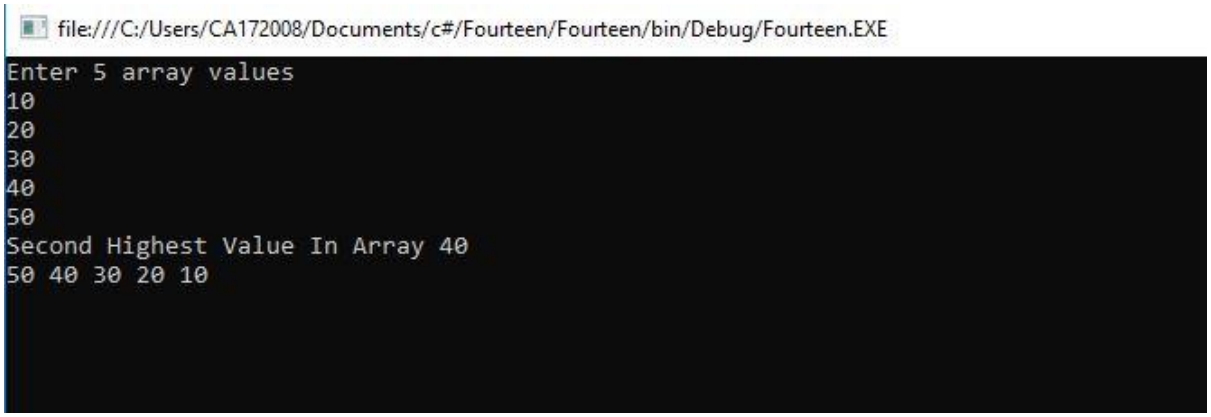

Command line arguments:
10 4 6 12 78
Working directory:
...
Use remote machine

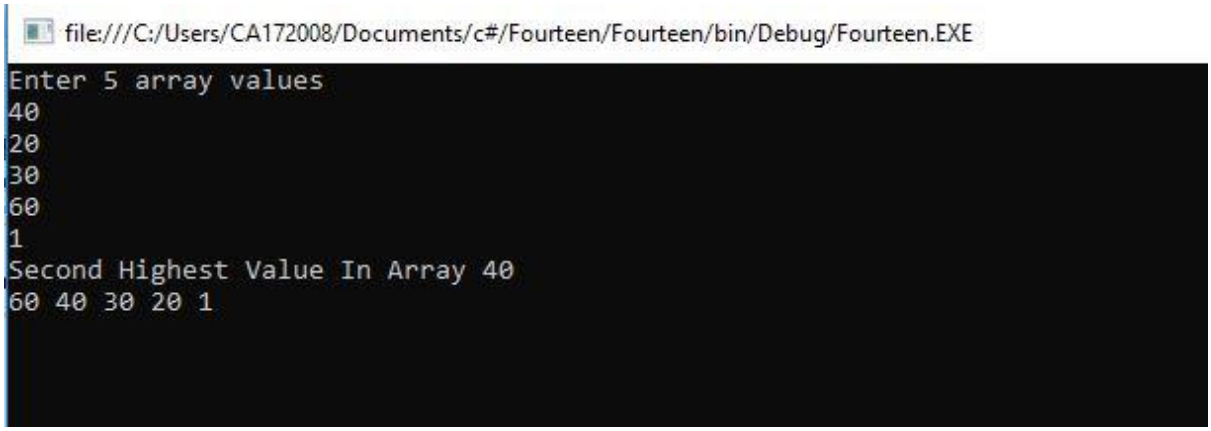

file:///C:/Users/CA172008/Documents/c#/Sixteen/Sixteen/bin/Debug/Sixteen.EXE
Number of CommadLine Arguments :5
Commandline Arguments Are : 10 4 6 12 78

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)
      {
         int[] arr = new int[5];
         Console.WriteLine("Enter 5 array values");
         for (int i = 0; i < 5; i++)
         {
            arr[i] = int.Parse(Console.ReadLine());
         }
         Array.Sort(arr);
         Array.Reverse(arr);
         Console.WriteLine("Second Highest Value In Array " + arr[1]);

         foreach (var result in arr)
         {
            Console.Write(result + " ");
         }
         Console.ReadLine();
      }
   }
}
```

OUTPUT


file:///C:/Users/CA172008/Documents/c#/Fourteen/Fourteen/bin/Debug/Fourteen.EXE
Enter 5 array values
10
20
30
40
50
Second Highest Value In Array 40
50 40 30 20 10


file:///C:/Users/CA172008/Documents/c#/Fourteen/Fourteen/bin/Debug/Fourteen.EXE
Enter 5 array values
40
20
30
60
1
Second Highest Value In Array 40
60 40 30 20 1


file:///C:/Users/CA172008/Documents/c#/Fourteen/Fourteen/bin/Debug/Fourteen.EXE
Enter 5 array values
1
20
60
40
80
Second Highest Value In Array 60
80 60 40 20 1


file:///C:/Users/CA172008/Documents/c#/Fourteen/Fourteen/bin/Debug/Fourteen.EXE
Enter 5 array values
1
2
3
4
5
Second Highest Value In Array 4
5 4 3 2 1


file:///C:/Users/CA172008/Documents/c#/Fourteen/Fourteen/bin/Debug/Fourteen.EXE
Enter 5 array values
100
20
50
61
01
Second Highest Value In Array 61
100 61 50 20 1

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