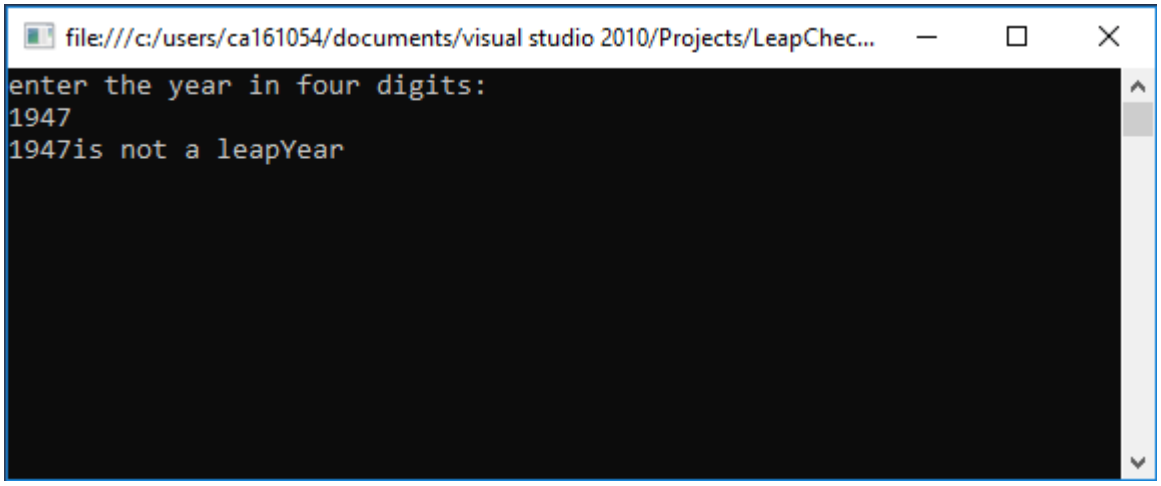
## 1) Check Whether the Entered Year is a Leap Year or No.

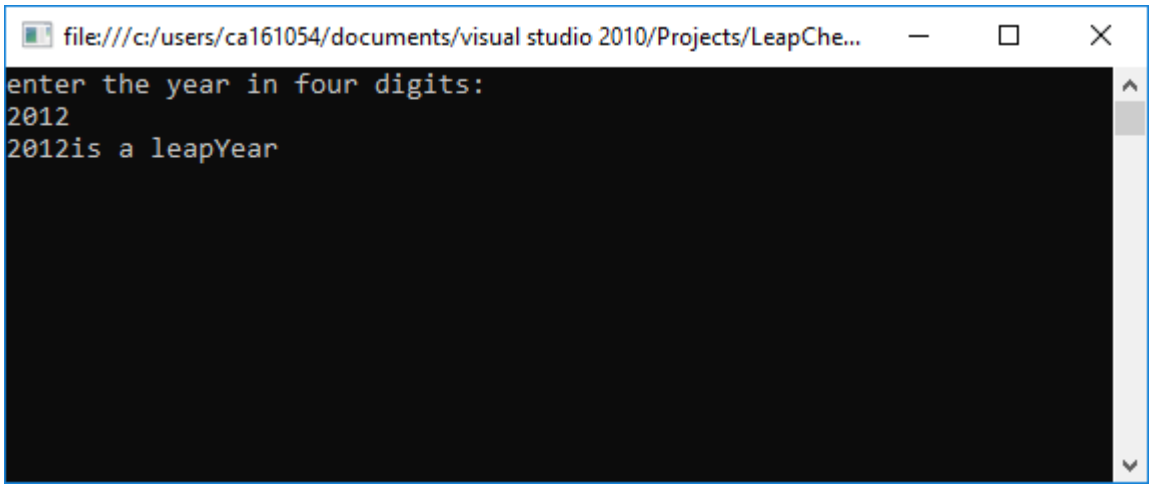
```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;

namespace ConsoleApplication4
{
class Leapyear
{
    static void Main(string[] args)
    {
            int year;
            Console.WriteLine("enter the year in four digits:");
            year = Convert.ToInt32(Console.ReadLine());
            if (year == 0)
            {
                    Console.WriteLine("Entered Year is Invalid");

            }

            else

            {

                    if ((year % 4 == 0 && year % 100 != 0) || (year % 4 == 0))
                    {
                            Console.WriteLine(year + "is a leapYear");
                    }
                    else
                    {
                            Console.WriteLine(year + "is not a leapYear");
                    }
                    }
                    Console.ReadLine();
                    }
            }
    }
```

## Output

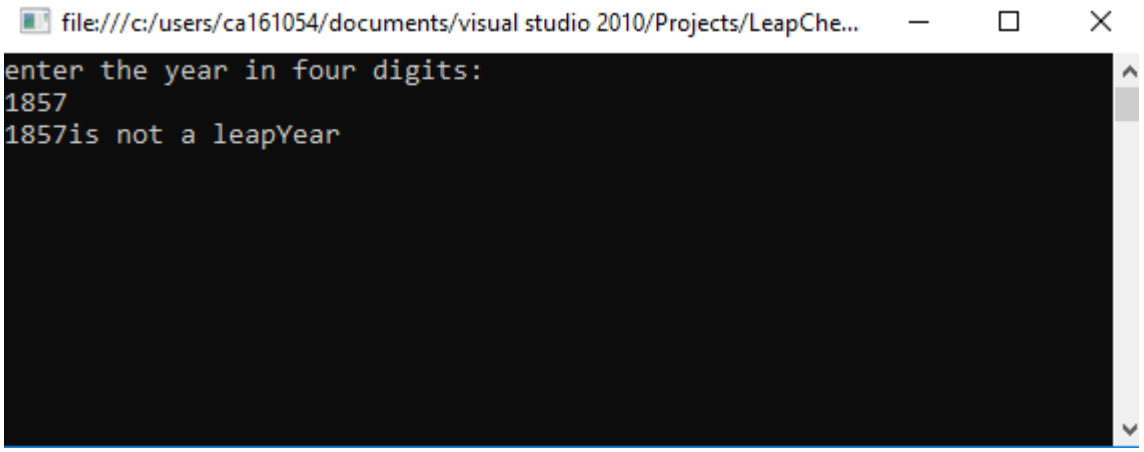
**1)**


file:///c:/users/ca161054/documents/visual studio 2010/Projects/LeapChec...
enter the year in four digits:
1947
1947is not a leapYear

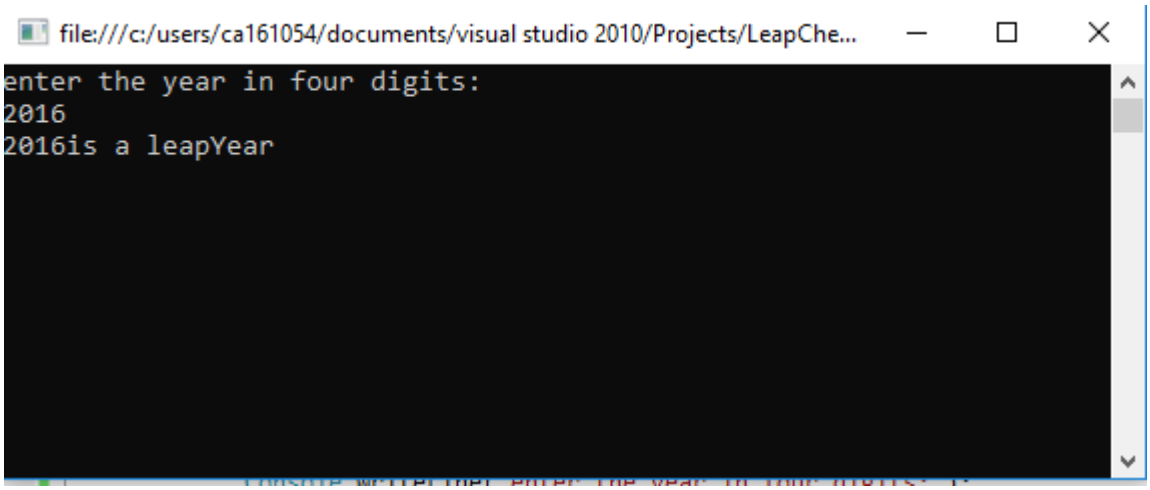
**2)**


file:///c:/users/ca161054/documents/visual studio 2010/Projects/LeapChe...
enter the year in four digits:
2012
2012is a leapYear

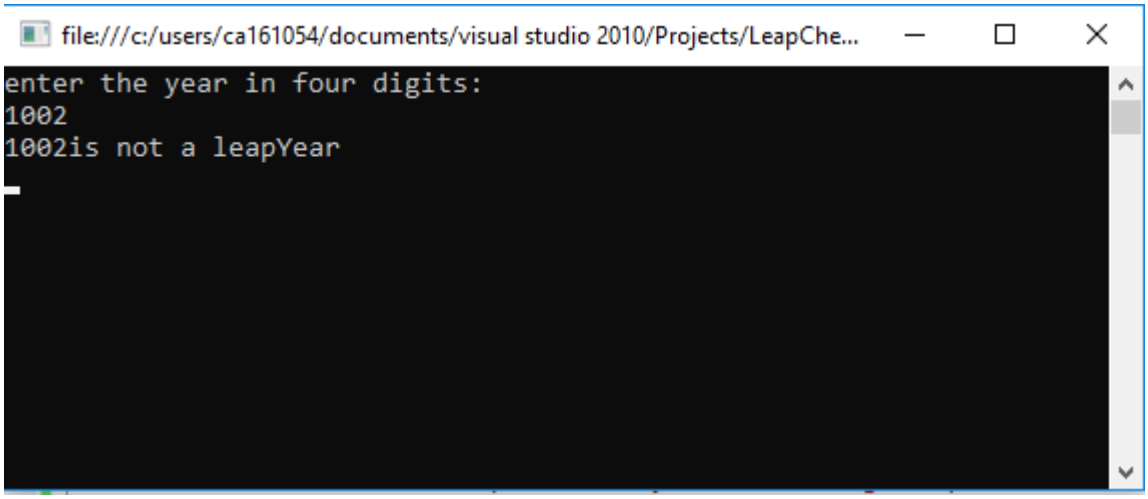
**3)**


file:///c:/users/ca161054/documents/visual studio 2010/Projects/LeapChe...
enter the year in four digits:
1857
1857is not a leapYear

**4)**


file:///c:/users/ca161054/documents/visual studio 2010/Projects/LeapChe...
enter the year in four digits:
2016
2016is a leapYear

**5)**


file:///c:/users/ca161054/documents/visual studio 2010/Projects/LeapChe...
enter the year in four digits:
1002
1002is not a leapYear

## 2) Describe Arrays and Strings methods with suitable C# program

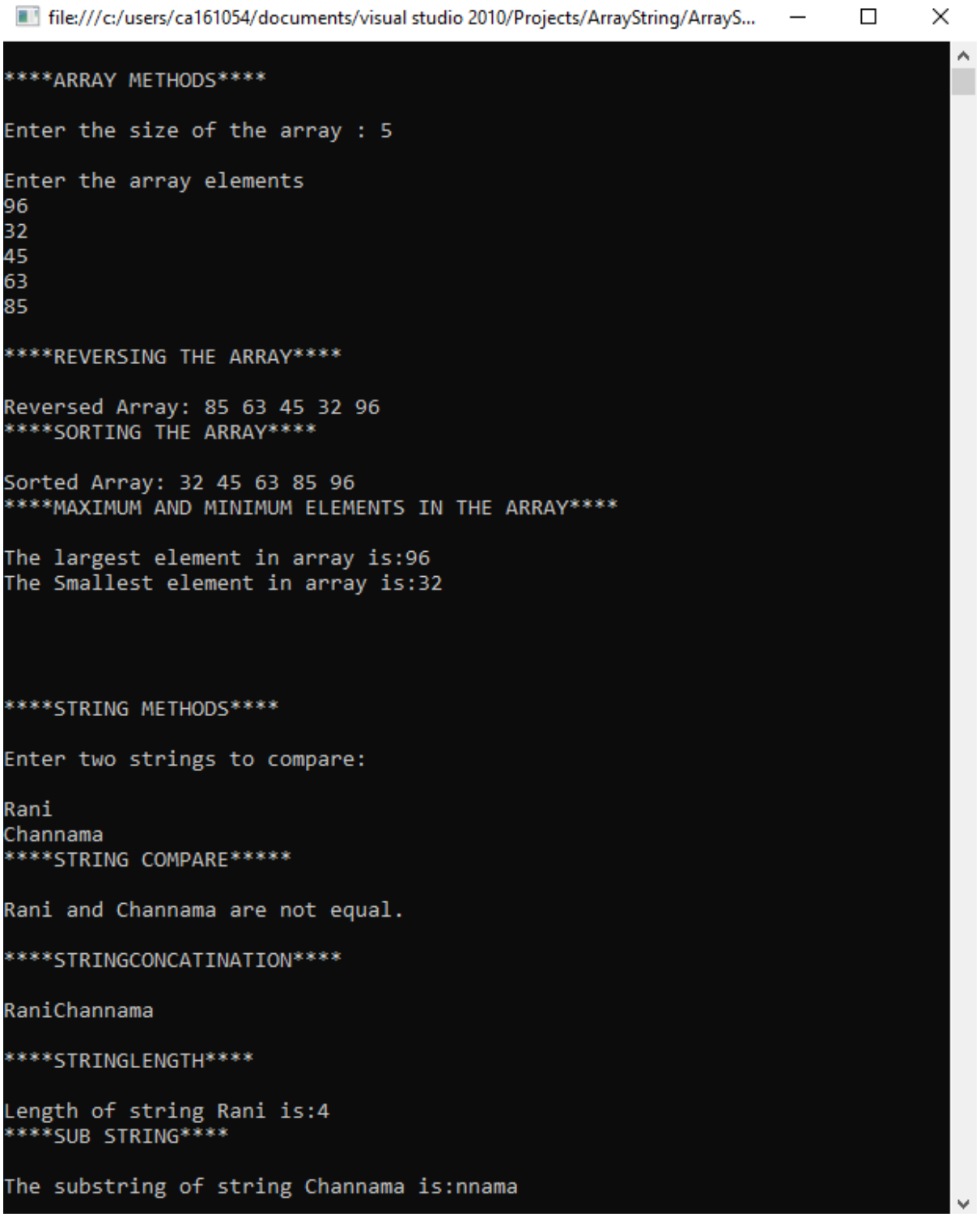
```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
namespace ConsoleApplication9
{
class Program
{
    static void Main(string[] args)
     {
            Console.WriteLine("\n****ARRAY METHODS****\n");
            int[] a;
            Console.Write("Enter the size of the array : ");
            a = new int[int.Parse(Console.ReadLine())];
            Console.WriteLine("\nEnter the array elements ");
            for (byte i = 0; i <a.Length; i++)
            a[i] = int.Parse(Console.ReadLine());
            Console.WriteLine();
            // reverse the array
            Console.WriteLine("****REVERSING THE ARRAY****\n");
            Array.Reverse(a);
            Console.Write("Reversed Array: ");
            foreach (int i in a)
            {
                  Console.Write(i + " ");
            }
                  Console.WriteLine();
             //sort the array
            Console.WriteLine("****SORTING THE ARRAY****\n");
            Array.Sort(a);
            Console.Write("Sorted Array: ");
            foreach (int i in a)
```

```
        {
            Console.Write(i + " ");
        }
        Console.WriteLine("\n****MAXIMUM AND MINIMUM ELEMENTS IN
THE ARRAY****\n");
        int mx = a.Max();
        Console.WriteLine("The largest element in array is:{0}", mx);
        int mn = a.Min();
        Console.WriteLine("The Smallest element in array is:{0}", mn);
        Console.WriteLine("\n\n\n\n****STRING METHODS****\n");
        string str1;
        string str2;
        Console.WriteLine("Enter two strings to compare:\n");
        str1 = Console.ReadLine();
        str2 = Console.ReadLine();
        Console.WriteLine("****STRING COMPARE*****\n");
        if (String.Compare(str1, str2) == 0)
        {
            Console.WriteLine(str1 + " and " + str2 + " are equal.");
        }
        else
        {
            Console.WriteLine(str1 + " and " + str2 + " are not equal.");
        }
            Console.WriteLine("\n****STRINGCONCATINATION****\n");
            stringstr = String.Concat(str1, str2);
            Console.WriteLine(str);
            Console.WriteLine("\n****STRINGLENGTH****\n");
            int n = str1.Length;
            Console.Write("Length of string {0} ", str1);
            Console.Write("is:{0}", n);
            Console.WriteLine("\n****SUB STRING****\n");
            String substr = str2.Substring(3);
```

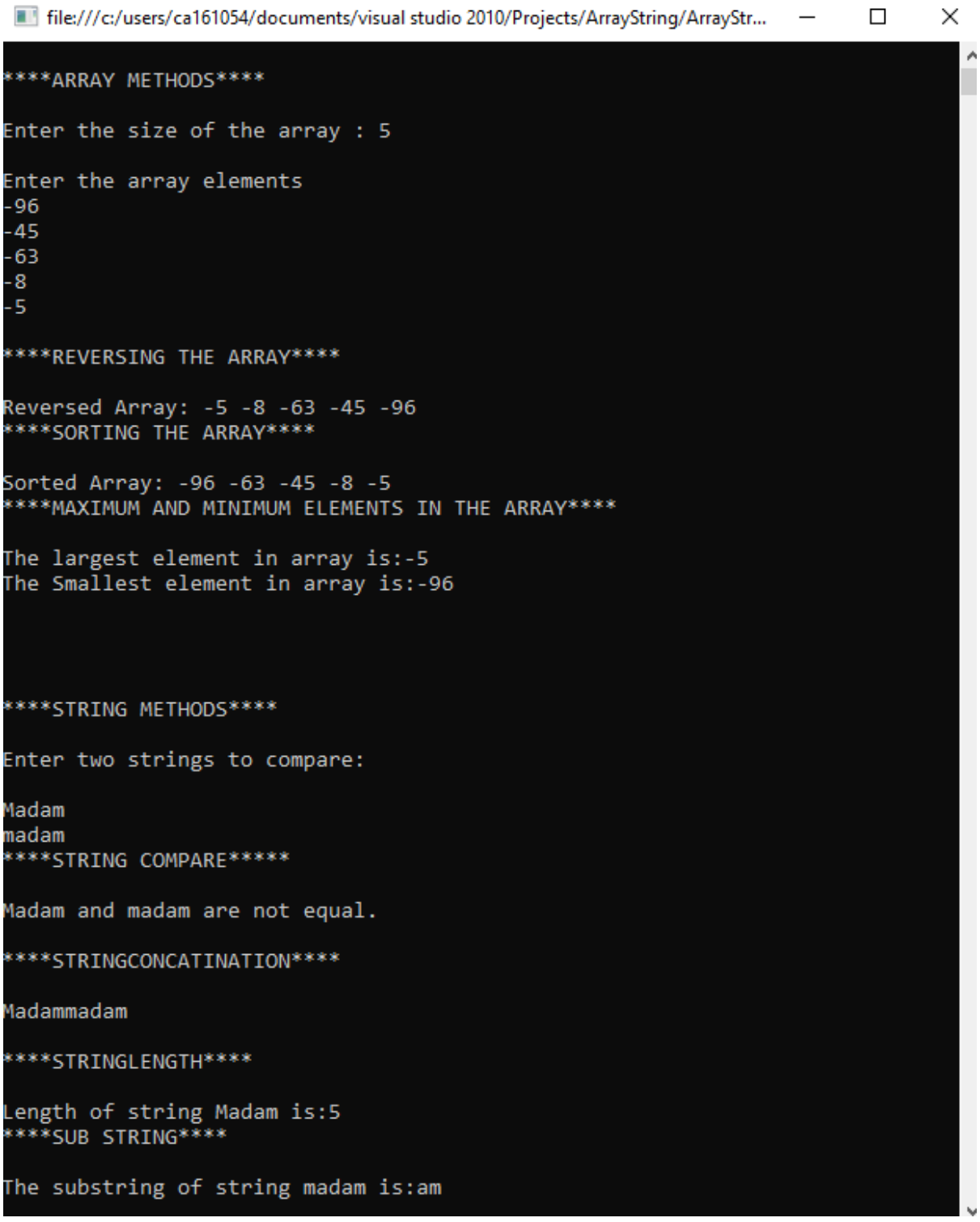
```
                Console.Write("The substring of string {0}", str2);
                Console.Write(" is:{0}\n", substr);
                Console.ReadLine();
                 }
            }
        }
```

## Output

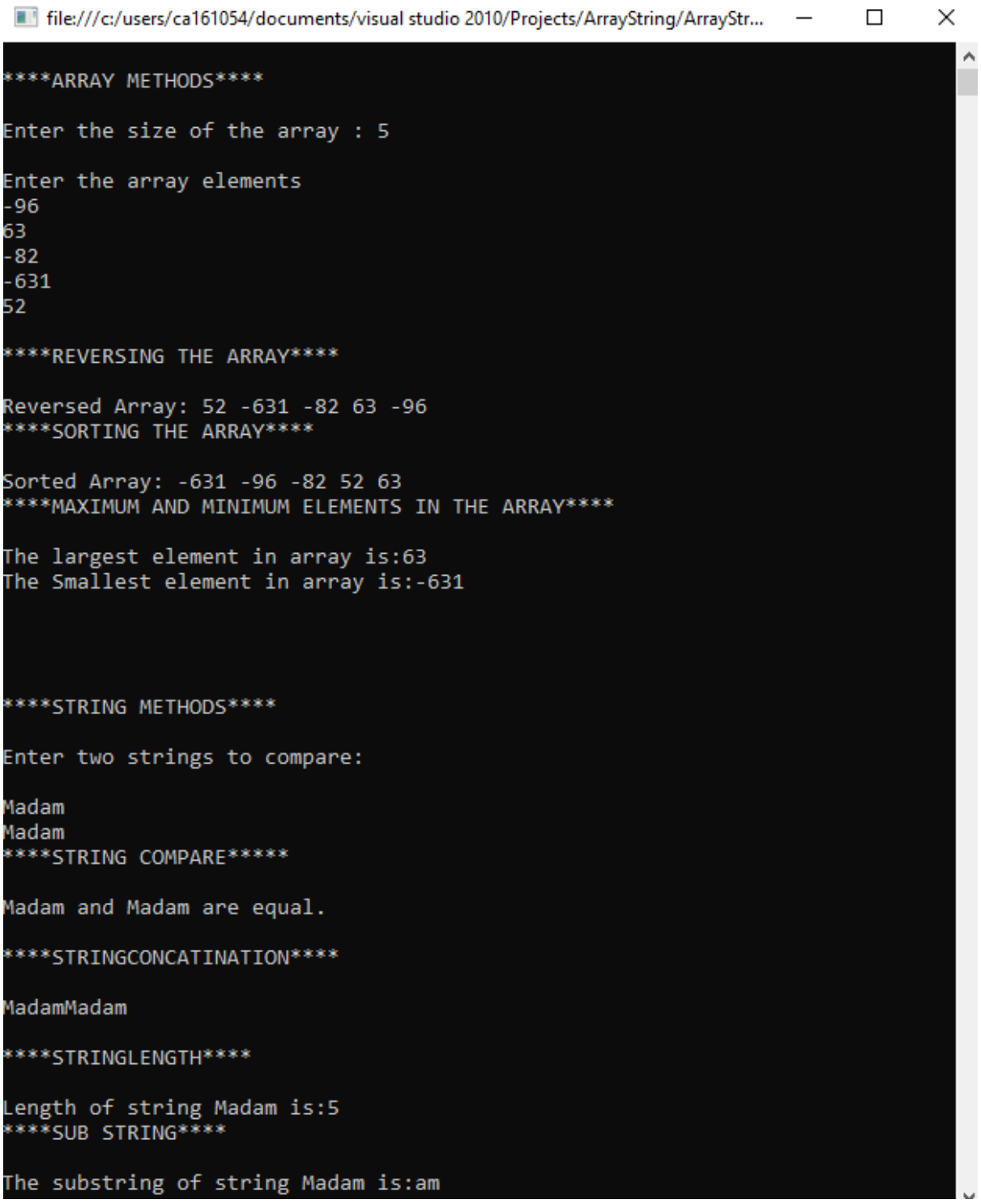
**1)**


file:///c:/users/ca161054/documents/visual studio 2010/Projects/ArrayString/ArrayS...
****ARRAY METHODS****
Enter the size of the array : 5
Enter the array elements
96
32
45
63
85
****REVERSING THE ARRAY****
Reversed Array: 85 63 45 32 96
****SORTING THE ARRAY****
Sorted Array: 32 45 63 85 96
****MAXIMUM AND MINIMUM ELEMENTS IN THE ARRAY****
The largest element in array is:96
The Smallest element in array is:32
****STRING METHODS****
Enter two strings to compare:
Rani
Channama
****STRING COMPARE*****
Rani and Channama are not equal.
****STRINGCONCATINATION****
RaniChannama
****STRINGLENGTH****
Length of string Rani is:4
****SUB STRING****
The substring of string Channama is:nnama

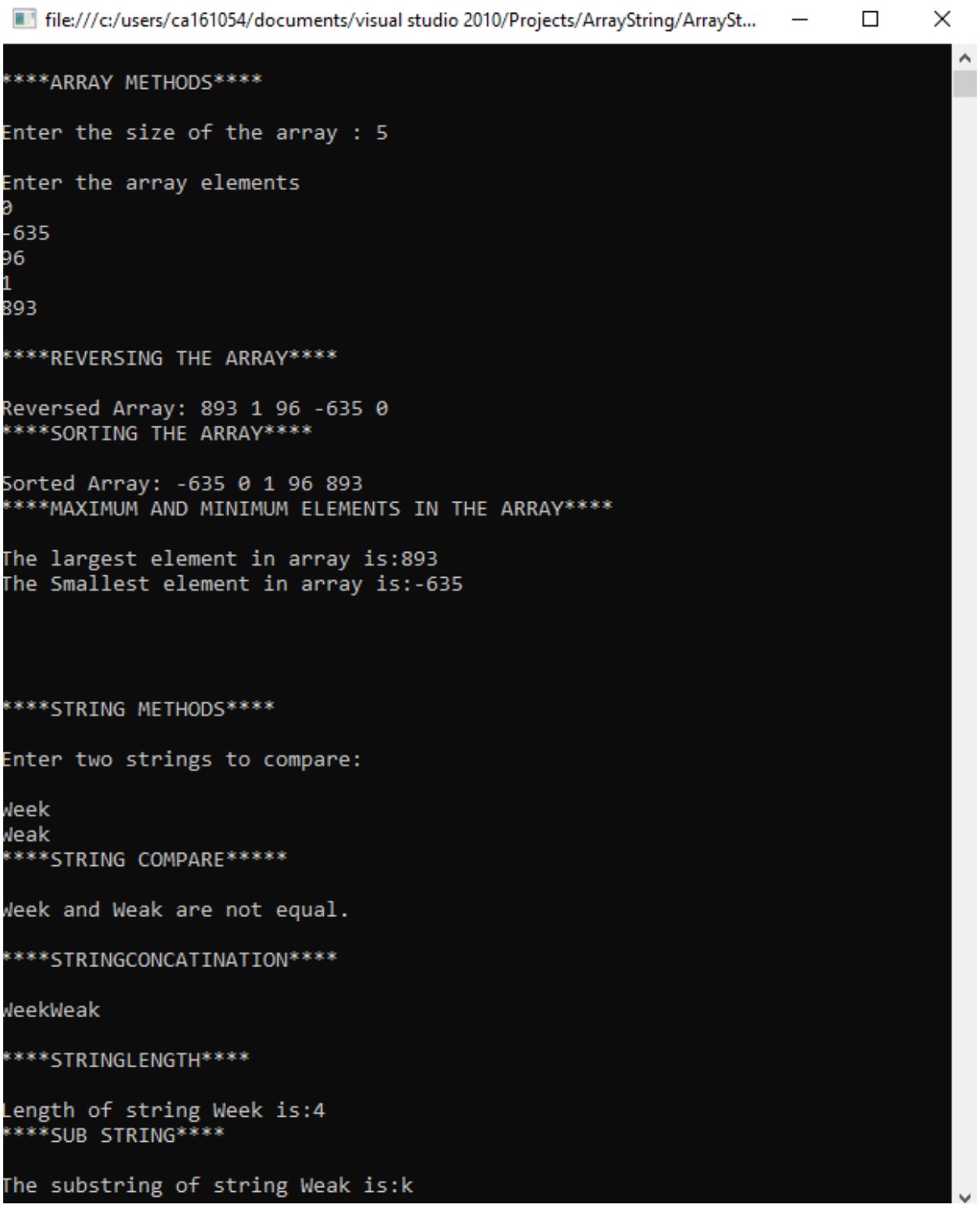
**2)**


file:///c:/users/ca161054/documents/visual studio 2010/Projects/ArrayString/ArrayStr...
****ARRAY METHODS****
Enter the size of the array : 5
Enter the array elements
-96
-45
-63
-8
-5
****REVERSING THE ARRAY****
Reversed Array: -5 -8 -63 -45 -96
****SORTING THE ARRAY****
Sorted Array: -96 -63 -45 -8 -5
****MAXIMUM AND MINIMUM ELEMENTS IN THE ARRAY****
The largest element in array is:-5
The Smallest element in array is:-96
****STRING METHODS****
Enter two strings to compare:
Madam
madam
****STRING COMPARE*****
Madam and madam are not equal.
****STRINGCONCATINATION****
Madammadam
****STRINGLENGTH****
Length of string Madam is:5
****SUB STRING****
The substring of string madam is:am

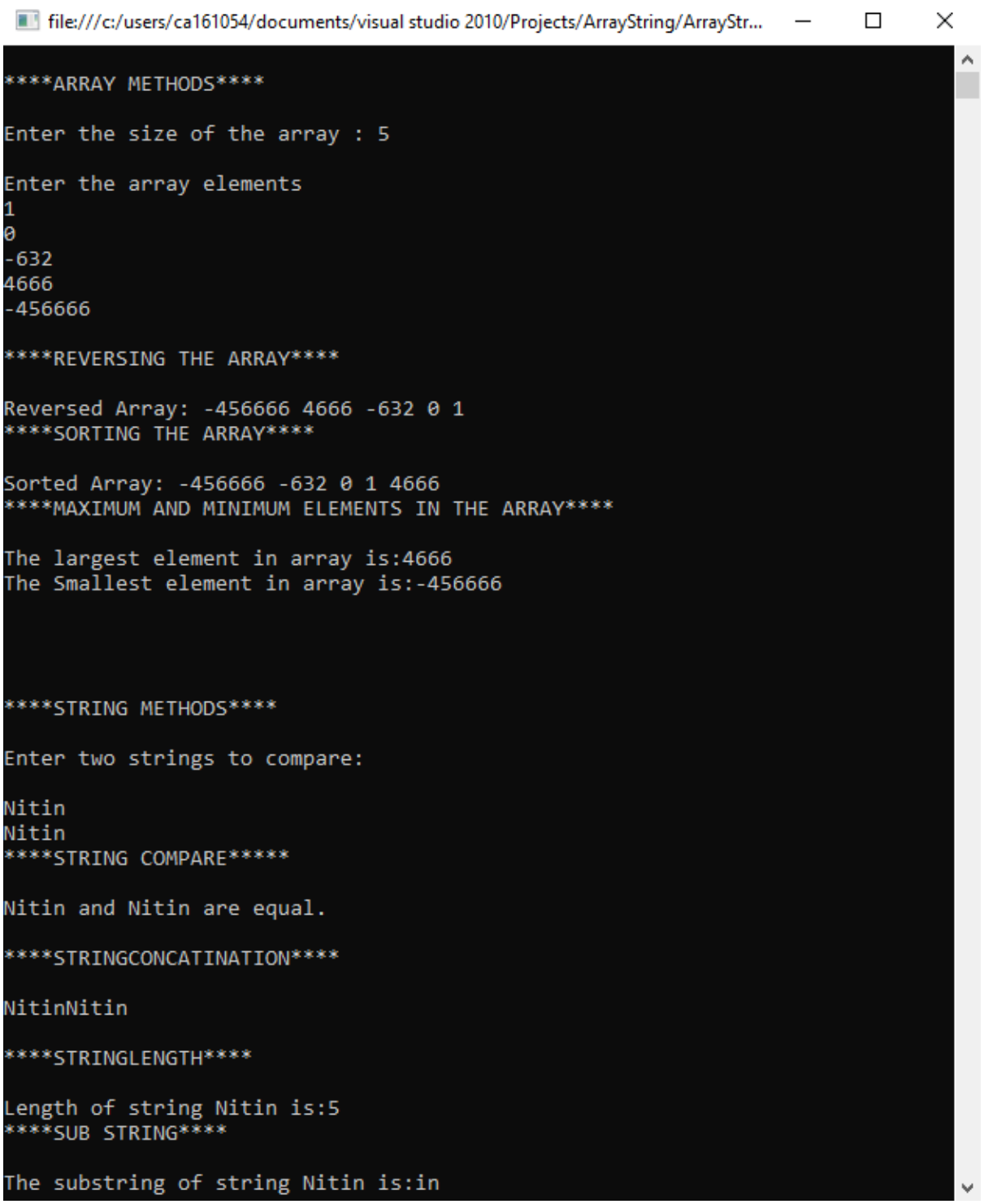
**3)**


file:///c:/users/ca161054/documents/visual studio 2010/Projects/ArrayString/ArrayStr...
****ARRAY METHODS****
Enter the size of the array : 5
Enter the array elements
-96
63
-82
-631
52
****REVERSING THE ARRAY****
Reversed Array: 52 -631 -82 63 -96
****SORTING THE ARRAY****
Sorted Array: -631 -96 -82 52 63
****MAXIMUM AND MINIMUM ELEMENTS IN THE ARRAY****
The largest element in array is:63
The Smallest element in array is:-631
****STRING METHODS****
Enter two strings to compare:
Madam
Madam
****STRING COMPARE*****
Madam and Madam are equal.
****STRINGCONCATINATION****
MadamMadam
****STRINGLENGTH****
Length of string Madam is:5
****SUB STRING****
The substring of string Madam is:am

**4)**


file:///c:/users/ca161054/documents/visual studio 2010/Projects/ArrayString/ArraySt...
****ARRAY METHODS****
Enter the size of the array : 5
Enter the array elements
0
-635
96
1
893
****REVERSING THE ARRAY****
Reversed Array: 893 1 96 -635 0
****SORTING THE ARRAY****
Sorted Array: -635 0 1 96 893
****MAXIMUM AND MINIMUM ELEMENTS IN THE ARRAY****
The largest element in array is:893
The Smallest element in array is:-635
****STRING METHODS****
Enter two strings to compare:
Week
Weak
****STRING COMPARE*****
Week and Weak are not equal.
****STRINGCONCATINATION****
WeekWeak
****STRINGLENGTH****
Length of string Week is:4
****SUB STRING****
The substring of string Weak is:k

**5)**

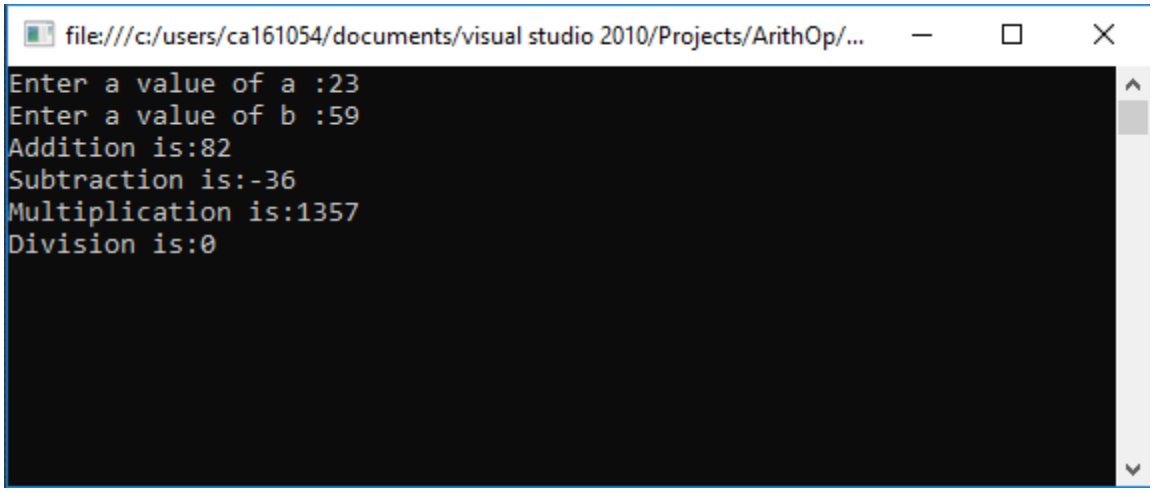

file:///c:/users/ca161054/documents/visual studio 2010/Projects/ArrayString/ArrayStr...
****ARRAY METHODS****
Enter the size of the array : 5
Enter the array elements
1
0
-632
4666
-456666
****REVERSING THE ARRAY****
Reversed Array: -456666 4666 -632 0 1
****SORTING THE ARRAY****
Sorted Array: -456666 -632 0 1 4666
****MAXIMUM AND MINIMUM ELEMENTS IN THE ARRAY****
The largest element in array is:4666
The Smallest element in array is:-456666
****STRING METHODS****
Enter two strings to compare:
Nitin
Nitin
****STRING COMPARE*****
Nitin and Nitin are equal.
****STRINGCONCATINATION****
NitinNitin
****STRINGLENGTH****
Length of string Nitin is:5
****SUB STRING****
The substring of string Nitin is:in

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

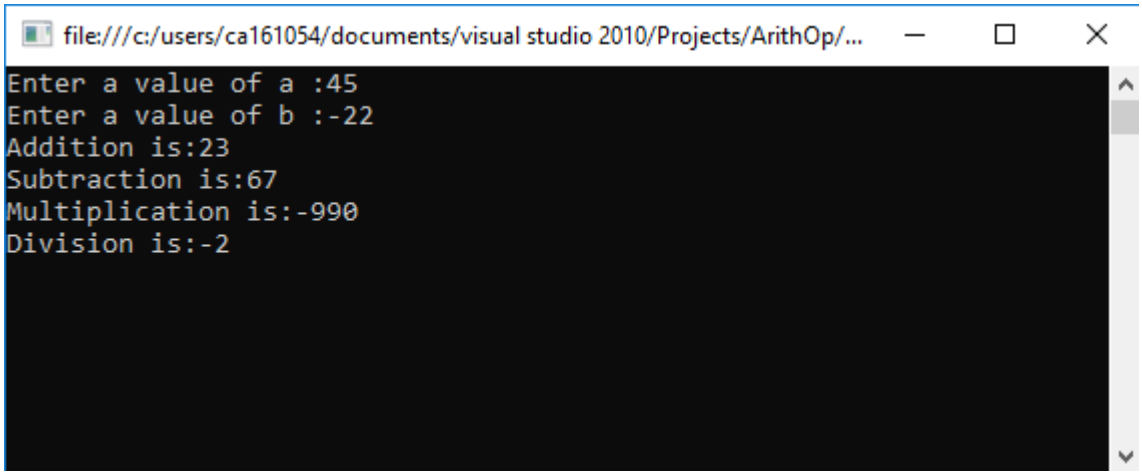
```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
namespace ConsoleApplication5
{
    class Program
    {
        static void Main(string[] args)
        {
            int a, b,Add,Sub,Mul,Div;
            Console.Write("Enter a value of a :");
            a = int.Parse(Console.ReadLine());
            Console.Write("Enter a value of b :");
            b = int.Parse(Console.ReadLine());
            Add = a + b;
            Console.Write("Addition is:" + Add+"\n");
            Console.Read();
            Sub = a - b;
            Console.Write("Subtraction is:" + Sub+"\n");
            Console.Read();
            Mul = a * b;
            Console.Write("Multiplication is:" + Mul+"\n");
            Console.Read();
            Div = a / b;
            Console.Write("Division is:" + Div+"\n");
            Console.Read();
            }
        }
    }
```

## Output

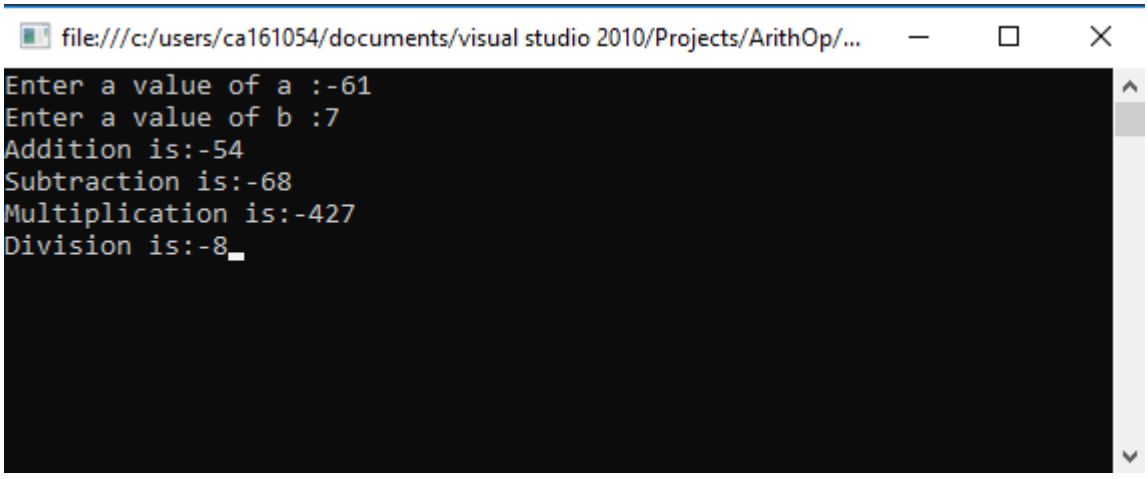
**1)**


file:///c:/users/ca161054/documents/visual studio 2010/Projects/ArithOp/...
Enter a value of a :23
Enter a value of b :59
Addition is:82
Subtraction is:-36
Multiplication is:1357
Division is:0

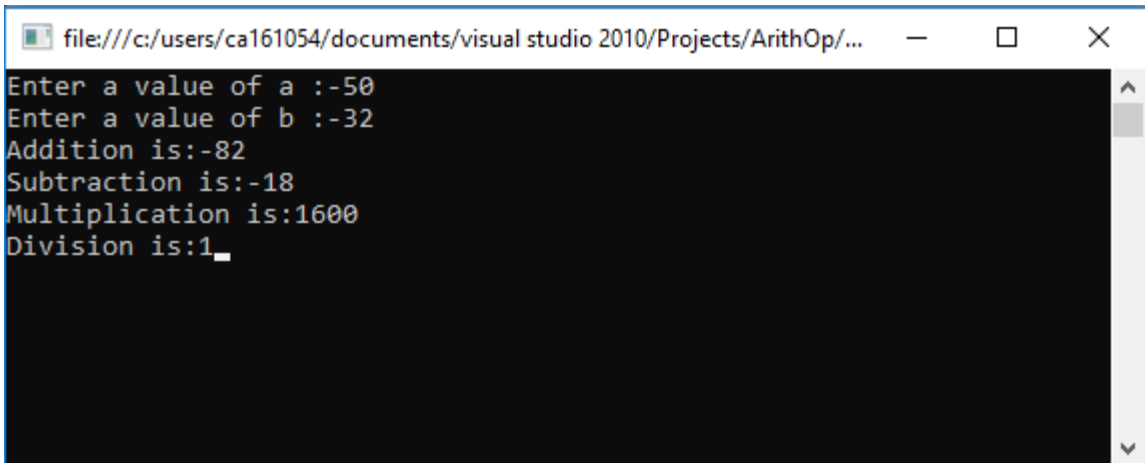
**2)**


file:///c:/users/ca161054/documents/visual studio 2010/Projects/ArithOp/...
Enter a value of a :45
Enter a value of b :-22
Addition is:23
Subtraction is:67
Multiplication is:-990
Division is:-2

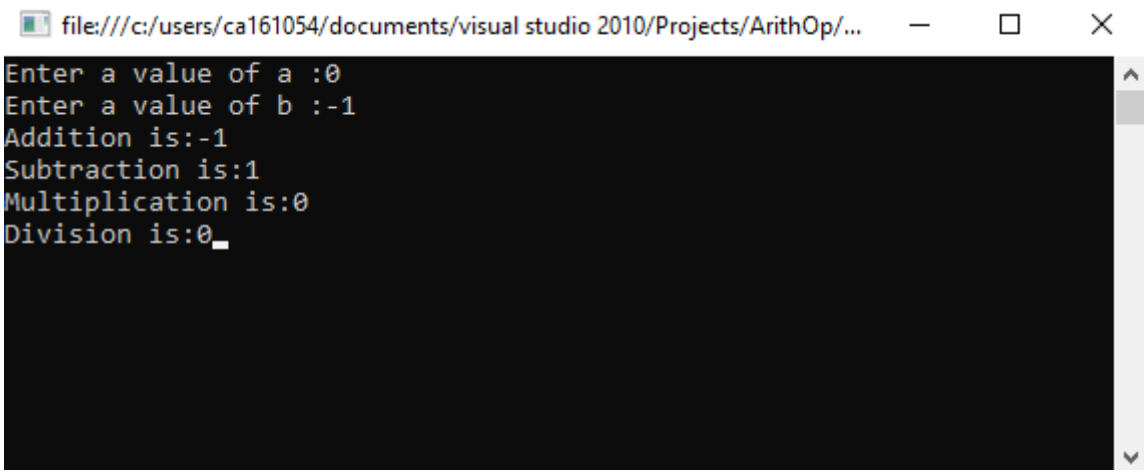
**3)**


file:///c:/users/ca161054/documents/visual studio 2010/Projects/ArithOp/...
Enter a value of a :-61
Enter a value of b :7
Addition is:-54
Subtraction is:-68
Multiplication is:-427
Division is:-8

**4)**


file:///c:/users/ca161054/documents/visual studio 2010/Projects/ArithOp/...
Enter a value of a :-50
Enter a value of b :-32
Addition is:-82
Subtraction is:-18
Multiplication is:1600
Division is:1

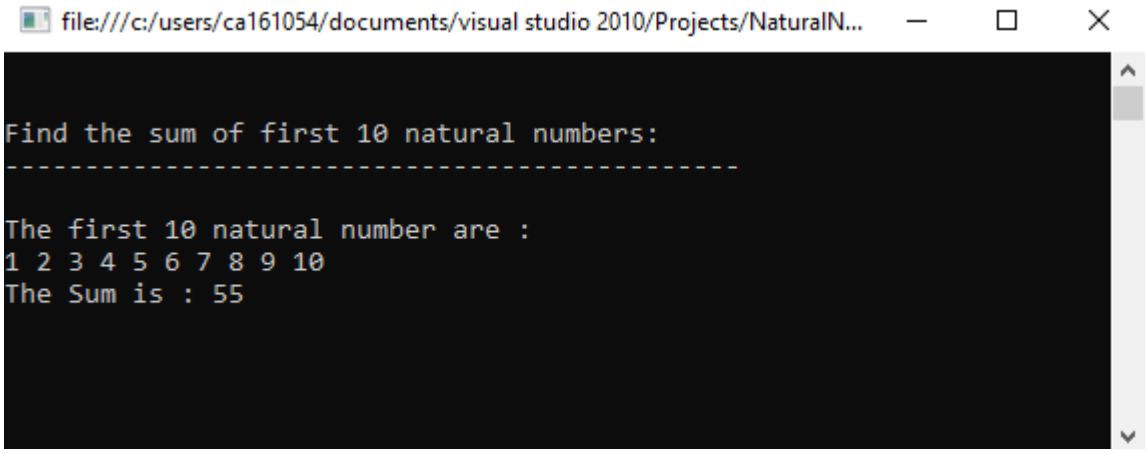
**5)**


file:///c:/users/ca161054/documents/visual studio 2010/Projects/ArithOp/...
Enter a value of a :0
Enter a value of b :-1
Addition is:-1
Subtraction is:1
Multiplication is:0
Division is:0

## 4) 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;
public class Exercise2
{
    public static void Main()
      {
            int j, sum = 0;
            Console.Write("\n\n");
            Console.Write("Find the sum of first 10 natural numbers:\n");
            Console.Write("-----------------------------------------------");
            Console.Write("\n\n");
            Console.Write("The first 10 natural number are :\n");
            for (j = 1; j <= 10; j++)
            {
                  sum = sum + j;
                  Console.Write("{0} ", j);
            }
                  Console.Write("\nThe Sum is : {0}\n", sum);
            }
    }
```

## Output

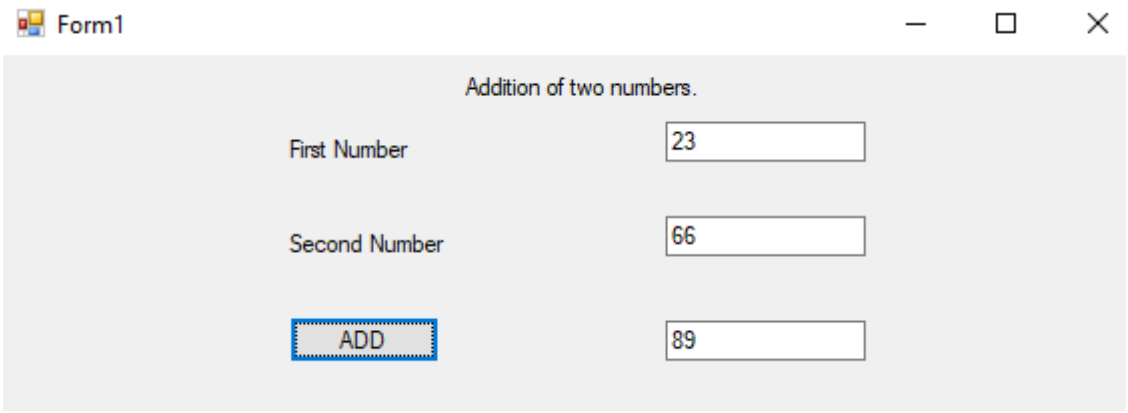

file:///c:/users/ca161054/documents/visual studio 2010/Projects/NaturalN...
Find the sum of first 10 natural numbers:
---
The first 10 natural number are :
1 2 3 4 5 6 7 8 9 10
The Sum is : 55

## 5) Program to display the addition using the windows application.

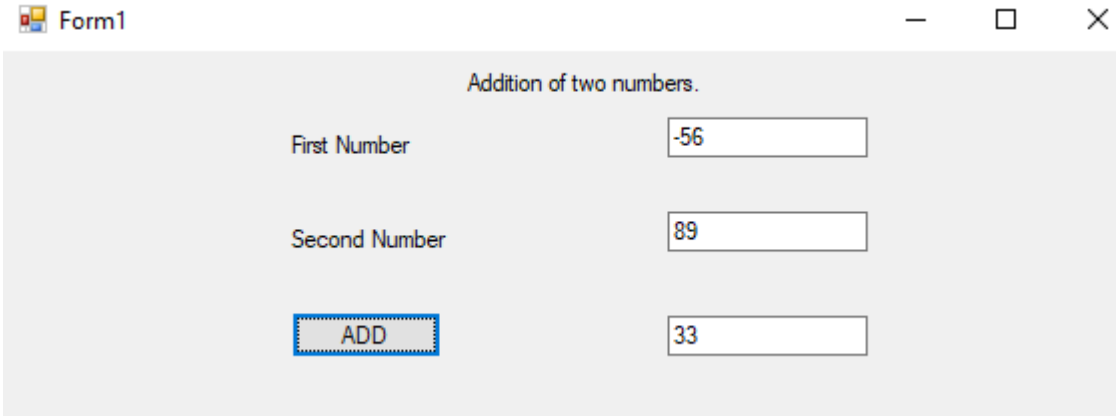
```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Windows.Forms;
namespace FormNew
{
        public partial class Form1 : Form
        {
        public Form1()
        {
                InitializeComponent();
        }
                private void button1_Click(object sender, EventArgs e)
                {
                                        textBox3.Text = (Double.Parse(textBox1.Text)
                + Double.Parse(textBox2.Text)).ToString();
                }
        }
    }
```

## Output

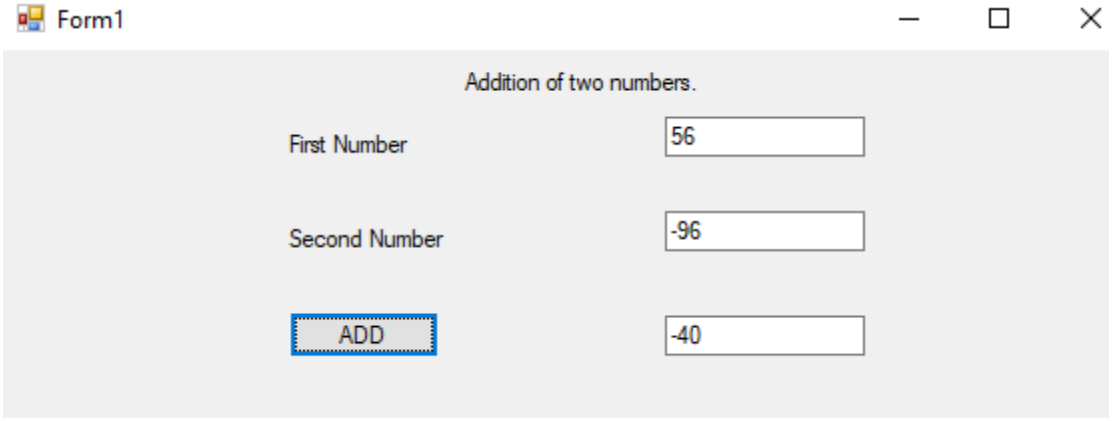
**1)**


Form1
Addition of two numbers.
First Number
23
Second Number
66
ADD
89

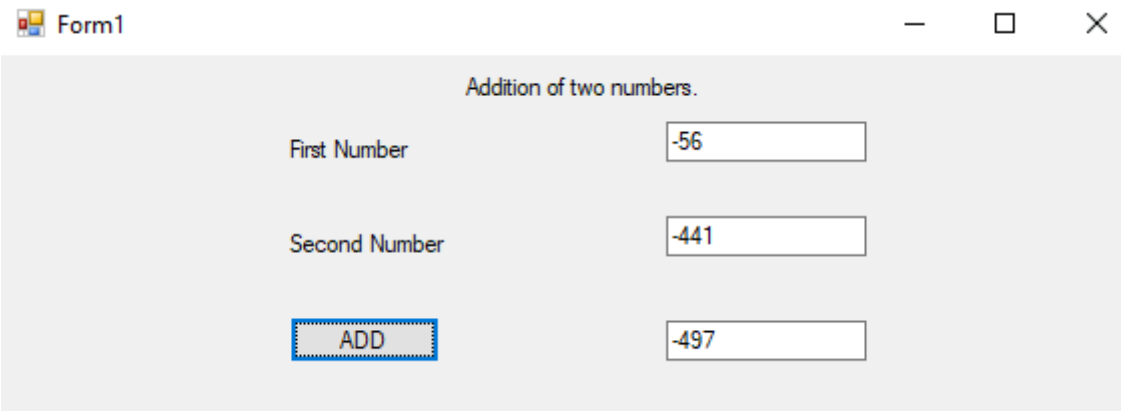
**2)**


Form1
Addition of two numbers.
First Number
-56
Second Number
89
ADD
33

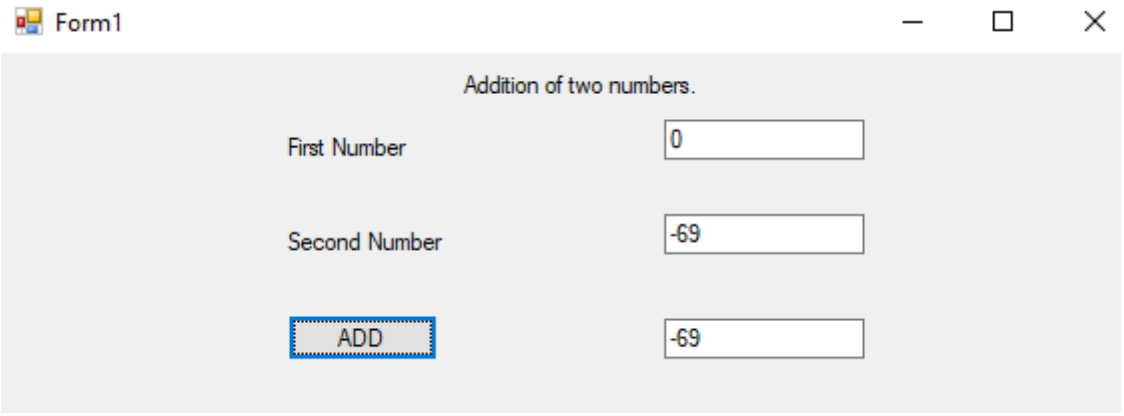
**3)**


Form1
Addition of two numbers.
First Number
56
Second Number
-96
ADD
-40

**4)**


Form1
Addition of two numbers.
First Number
-56
Second Number
-441
ADD
-497

**5)**


Form1
Addition of two numbers.
First Number
0
Second Number
-69
ADD
-69

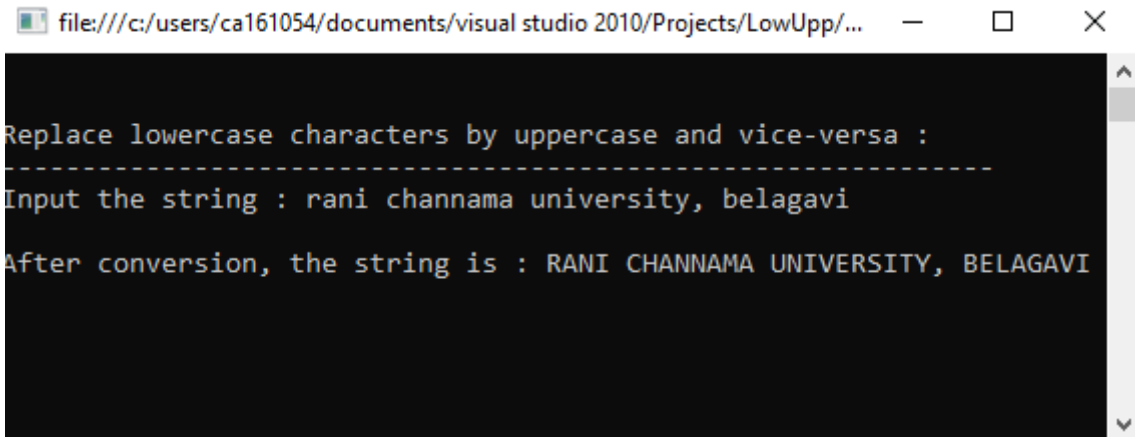
**6) Write a program to convert input string from lower to upper and upper to lower case.using System;**

```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
namespace  LowUpp
{
        public class Exercise15
        {
                public static void Main(){
                string str1;
                char[] arr1;
                int l, i;
                l = 0;
                char ch;
                Console.Write("\n\nReplace lowercase characters by uppercase and
                vice-versa :\n");
                Console.Write("-----------------------------------------------------------n");
                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.Write("\n\n");
```

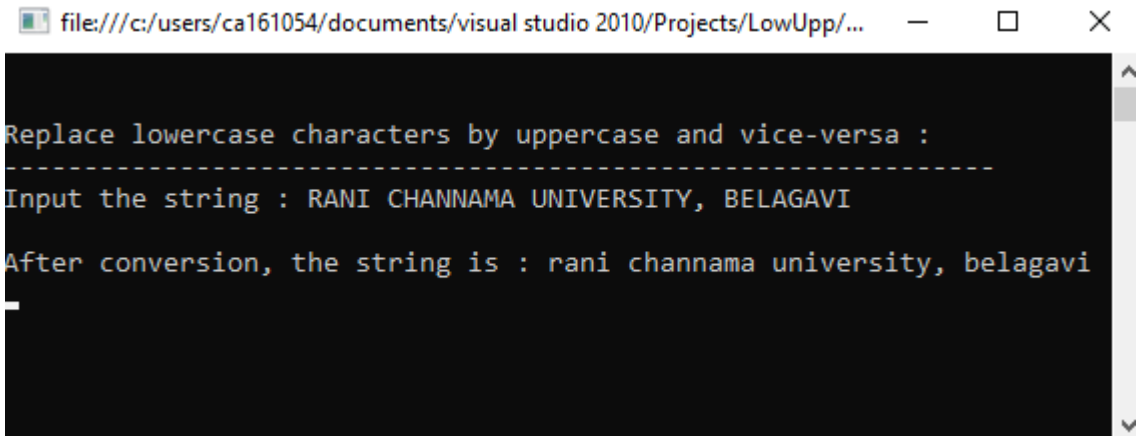
```
                    Console.ReadLine();
                    }
                }
            }
```

## Output

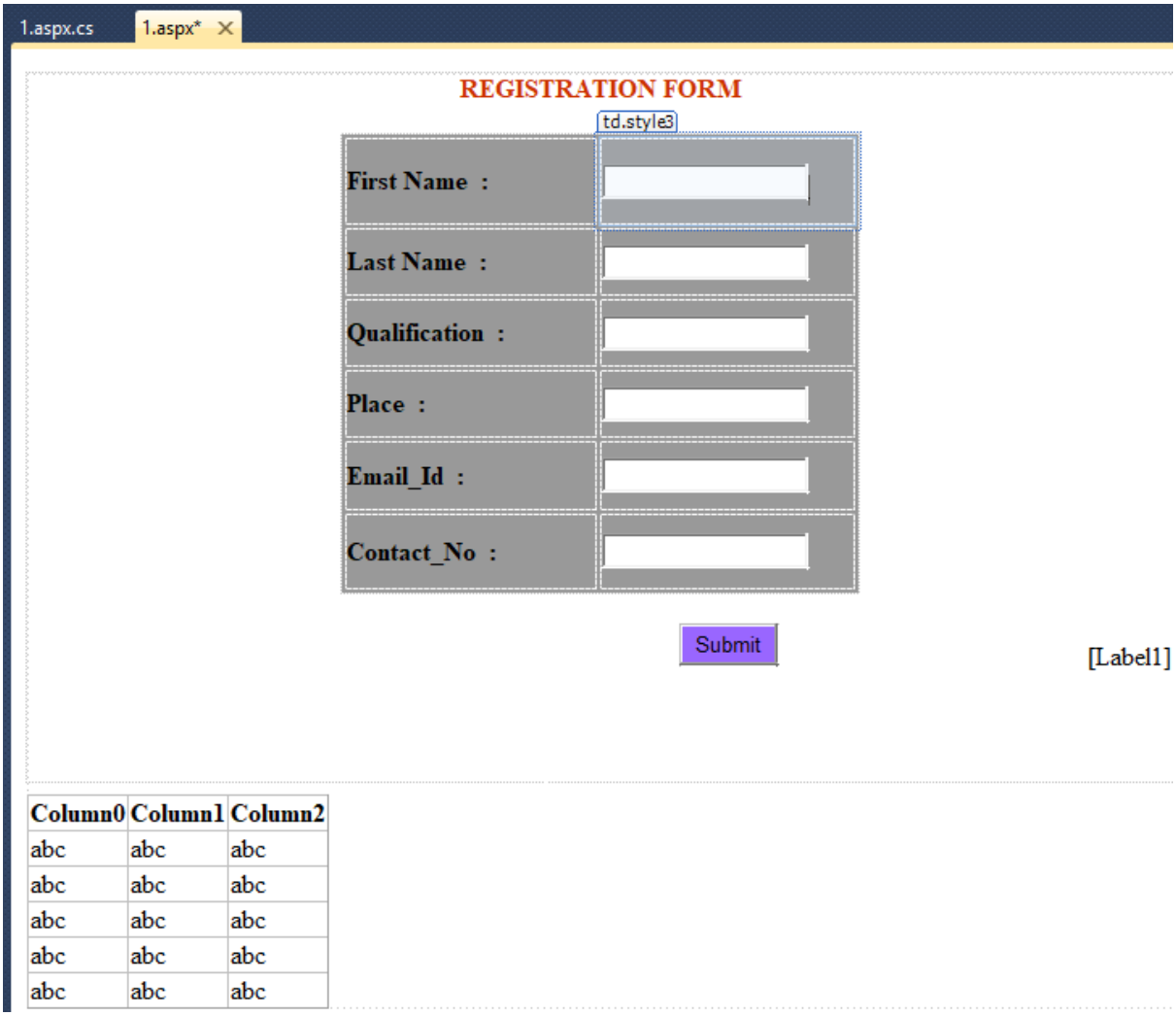
### 1) Lower To Upper Conversion:




### 2) Upper To Lower Conversion:



**7) Work with Form using ASP.Net.**



**//1.aspx**

```
<%@ Page Language="C#" AutoEventWireup="true" CodeFile="1.aspx.cs" Inherits="_1"
%>

<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">

<html xmlns="http://www.w3.org/1999/xhtml">
<head runat="server">
   <title></title>
   <style type="text/css">
      .style1
      {
         color: #CC3300;
         text-align: center;
      }
      .style2
      {
         width: 45%;
         height: 284px;
      }
      .style3
      {
         height: 54px;
         width: 183px;
      }
      .style4
      {
         height: 54px;
         width: 217px;
      }
      .style5
      {
         width: 217px;
      }
      .style6
      {
         width: 217px;
         height: 46px;
      }
      .style7
      {
         height: 46px;
         width: 183px;
      }
      .style8
      {
         width: 183px;
      }
   </style>
```

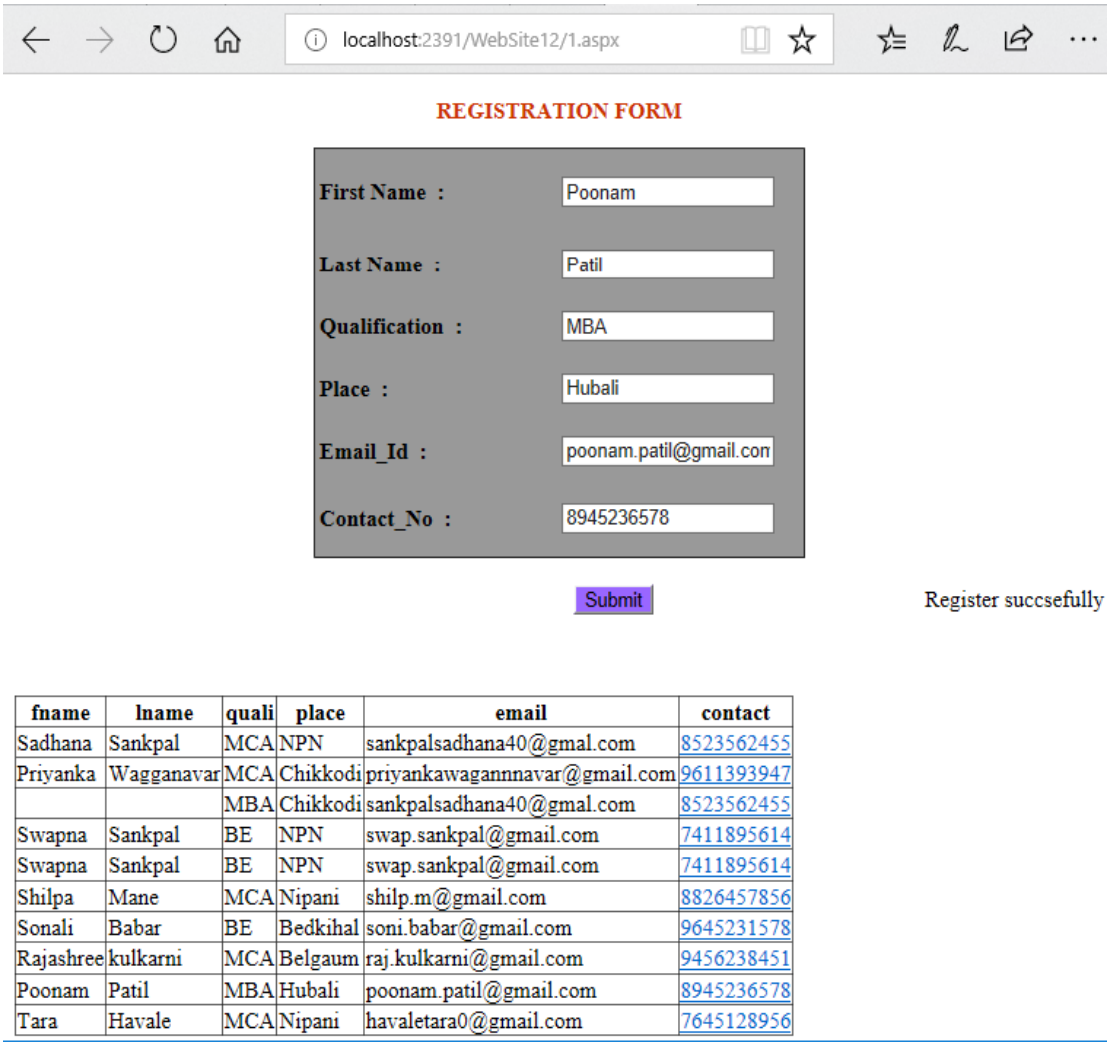
```
</head>
<body bgcolor ="White" style="height: 439px; width: 711px" text="#000000">
   <form id="form1" runat="server">
   <p class="style1">
      <strong>REGISTRATION FORM</strong></p>
   <table align="center" bgcolor="#999999" class="style2" frame="box">
      <tr>
         <td class="style4">
            <strong>First Name  :</strong></td>
         <td class="style3">
            <asp:TextBox ID="TextBox6" runat="server"></asp:TextBox>
         </td>
      </tr>
      <tr>
         <td class="style5">
            <strong>Last Name  :</strong></td>
         <td class="style8">
            <asp:TextBox ID="TextBox7" runat="server"></asp:TextBox>
         </td>
      </tr>
      <tr>
         <td class="style5">
            <strong>Qualification  :</strong></td>
         <td class="style8">
            <asp:TextBox ID="TextBox8" runat="server"></asp:TextBox>
         </td>
      </tr>
      <tr>
         <td class="style5">
            <strong>Place  :</strong></td>
         <td class="style8">
            <asp:TextBox ID="TextBox9" runat="server"></asp:TextBox>
         </td>
      </tr>
      <tr>
         <td class="style5">
            <strong>Email_Id  :</strong></td>
         <td class="style8">
            <asp:TextBox ID="TextBox10" runat="server"></asp:TextBox>
         </td>
      </tr>
      <tr>
         <td class="style6">
            <strong>Contact_No  :</strong></td>
         <td class="style7">
            <asp:TextBox ID="TextBox11" runat="server"></asp:TextBox>
         </td>
      </tr>
   </table>
   <br />
```

```
 
   <asp:Button ID="Button1" runat="server" BackColor="#9966FF"
      onclick="Button1_Click1" Text="Submit" />
 
   <asp:Label ID="Label1" runat="server"></asp:Label>
   <br />
   <br />
   <br />
   <br />
   <asp:GridView ID="GridView1" runat="server">
   </asp:GridView>
   </form>
</body>
</html>
```

**//1.aspx.cs**

```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Web;
using System.Web.UI;
using System.Web.UI.WebControls;
using System.Data.SqlClient;
using System.Data;

public partial class _1 : System.Web.UI.Page
{
        SqlCommand cmd = new SqlCommand();
        SqlConnection con = new SqlConnection();

        protected void Page_Load(object sender, EventArgs e)
        {
                con.ConnectionString = ("Data source=CS-05;initial catalog=registration;user
                id=sa;password=Password@123;");
                con.Open();
        }


        protected void Button1_Click1(object sender, EventArgs e)
        {
                SqlCommand cmd = new SqlCommand("insert into
        T1"+"(fname,lname,quali,place,email,contact)values(@fname,@lname,@quali,@plac
        e,@email,@contact)",con);
        cmd.Parameters.AddWithValue("@fname",TextBox6.Text);
        cmd.Parameters.AddWithValue("@lname",TextBox7.Text);
        cmd.Parameters.AddWithValue("@quali",TextBox8.Text);
        cmd.Parameters.AddWithValue("@place",TextBox9.Text);
        cmd.Parameters.AddWithValue("@email",TextBox10.Text);
        cmd.Parameters.AddWithValue("@contact",TextBox11.Text);
        cmd.ExecuteNonQuery();

        SqlDataAdapter SQLAdapter = new SqlDataAdapter("select * from T1", con);
        DataTable DTT = new DataTable();
        SQLAdapter.Fill(DTT);

        GridView1.DataSource = DTT;
        GridView1.DataBind();


        Label1.Text = "Register succsefully";

    }
  }
```

## Output



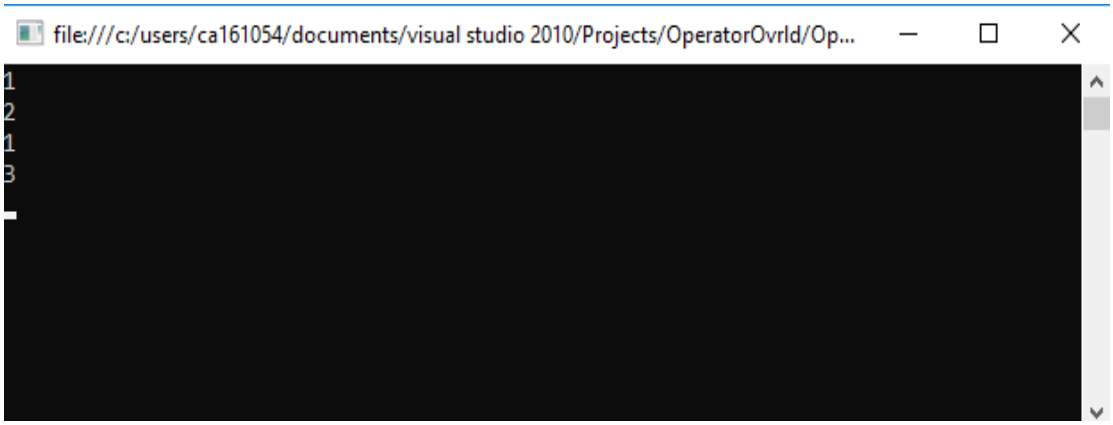

| fname | lname | quali | place | email | contact |
|---|---|---|---|---|---|
| Sadhana | Sankpal | MCA | NPN | sankpalsadhana40@gmal.com | 8523562455 |
| Priyanka | Wagganavar | MCA | Chikkodi | priyankawagannnavar@gmail.com | 9611393947 |
| | | MBA | Chikkodi | sankpalsadhana40@gmal.com | 8523562455 |
| Swapna | Sankpal | BE | NPN | swap.sankpal@gmail.com | 7411895614 |
| Swapna | Sankpal | BE | NPN | swap.sankpal@gmail.com | 7411895614 |
| Shilpa | Mane | MCA | Nipani | shilp.m@gmail.com | 8826457856 |
| Sonali | Babar | BE | Bedkihal | soni.babar@gmail.com | 9645231578 |
| Rajashree | kulkarni | MCA | Belgaum | raj.kulkarni@gmail.com | 9456238451 |
| Poonam | Patil | MBA | Hubali | poonam.patil@gmail.com | 8945236578 |
| Tara | Havale | MCA | Nipani | havaletara0@gmail.com | 7645128956 |

## 8) Perform operator overloading.

```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
class Overload
{
        Public int value;
        public static overload operator +(overload a, overload b)
        {
                Overload overload = new Overload();
                overload.value = a.value + b.value;
                return overload;
        }
        public static overload operator ++(overload c)
        {
                c.value++;
                return c;
        }
}
class Program
{
        static void Main()
        {
                Overload d = new Overload();
                d++;
                Console.WriteLine(d.value);
                d++;
                Console.WriteLine(d.value);
                overload g = new overload();
                g++;
                Console.WriteLine(g.value);
                overload t = d + g;
```

```
            Console.WriteLine(t.value);
            Console.ReadLine();
            }
    }
```

## Output


file:///c:/users/ca161054/documents/visual studio 2010/Projects/OperatorOvrld/Op...
1
2
1
3

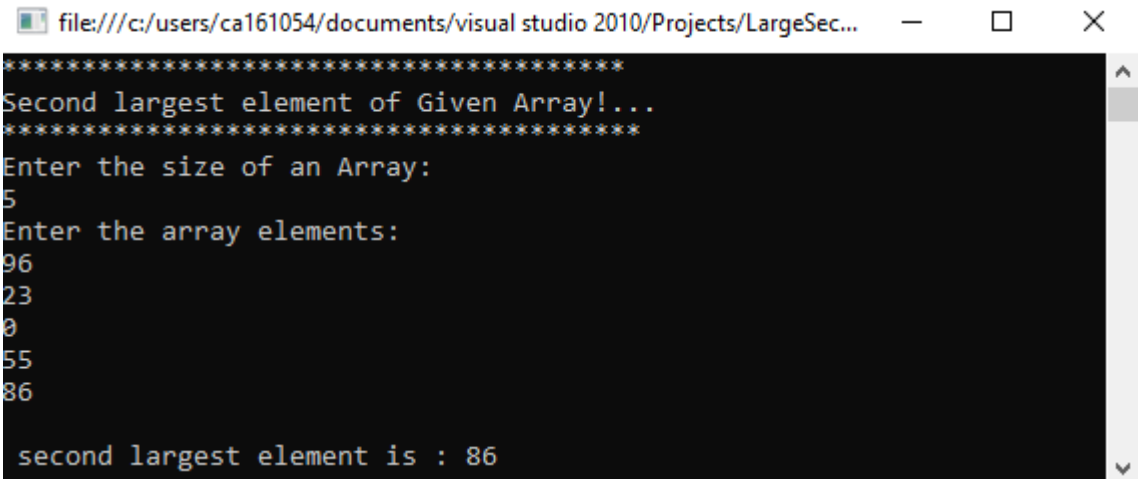
## 9) Find the second largest element in a single dimensional array.

```
using System;
using System.Collections.Generic;
using System.Text;
namespace Secondlarge
{
        class Program
        {
         static void Main(string[]args)
        {
        int n, i, temp;
        Console.WriteLine("*****************************************");
        Console.WriteLine("Second largest element of Given Array!...");
        Console.WriteLine("*****************************************");
        Console.WriteLine("Enter the size of an Array:");
           n = Convert.ToInt32(Console.ReadLine());
        Console.WriteLine("Enter the array elements:");
        int[] arr = new int[n];
        for (i = 0; i < n; i++)
           {
        arr[i] = Convert.ToInt32(Console.ReadLine());
            }
                int l1, l2;
                l1 = arr[0];
                l2 = arr[1];
                if (l1 < l2)
                {
                        temp = l1;
                        l1 = l2;
                        l2 = temp;
                }
                for (i = 2; i < n; i++)
                {
```

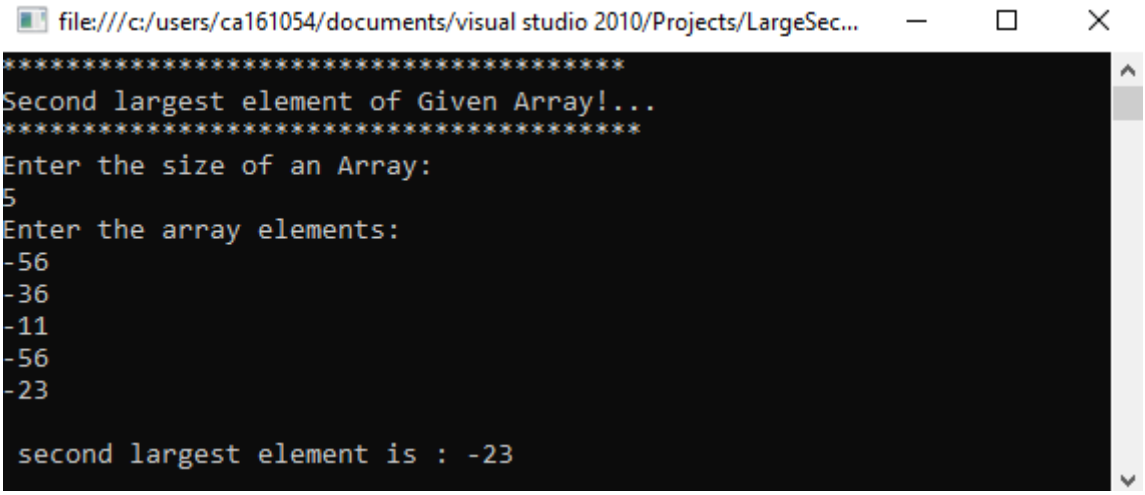
```
                    if (arr[i] > l2)
                    l2 = arr[i];
                    if (l2 > l1)
                    {
                        temp = l2;
                        l2 = l1;
                        l1 = temp;
                    }
                }
                Console.WriteLine("\n second largest element is : " + l2);
                Console.ReadLine();
            }
        }
    }
```

## Output

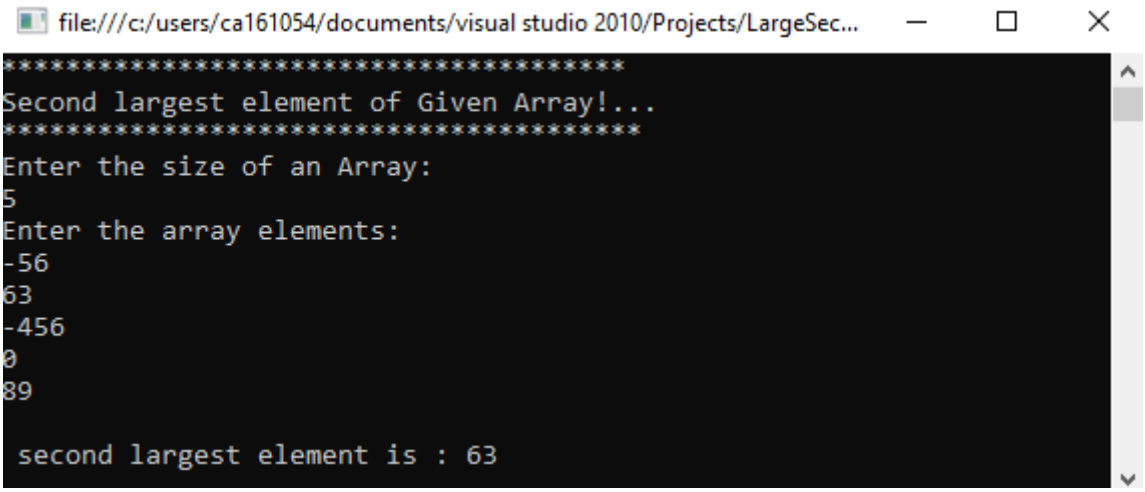
**1)**


file:///c:/users/ca161054/documents/visual studio 2010/Projects/LargeSec...
Second largest element of Given Array!...
Enter the size of an Array:
5
Enter the array elements:
96
23
0
55
86
second largest element is : 86

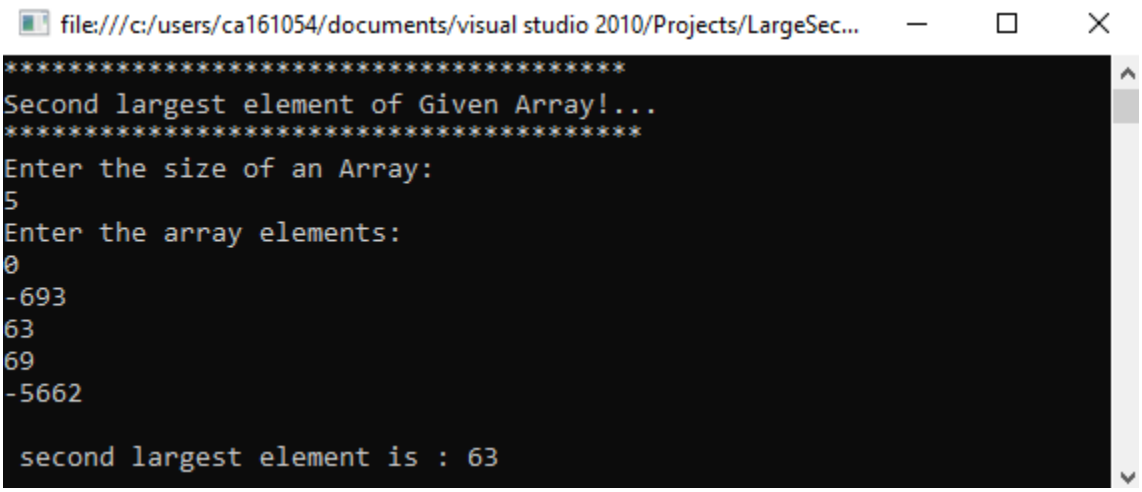
**2)**


file:///c:/users/ca161054/documents/visual studio 2010/Projects/LargeSec...
Second largest element of Given Array!...
Enter the size of an Array:
5
Enter the array elements:
-56
-36
-11
-56
-23
second largest element is : -23

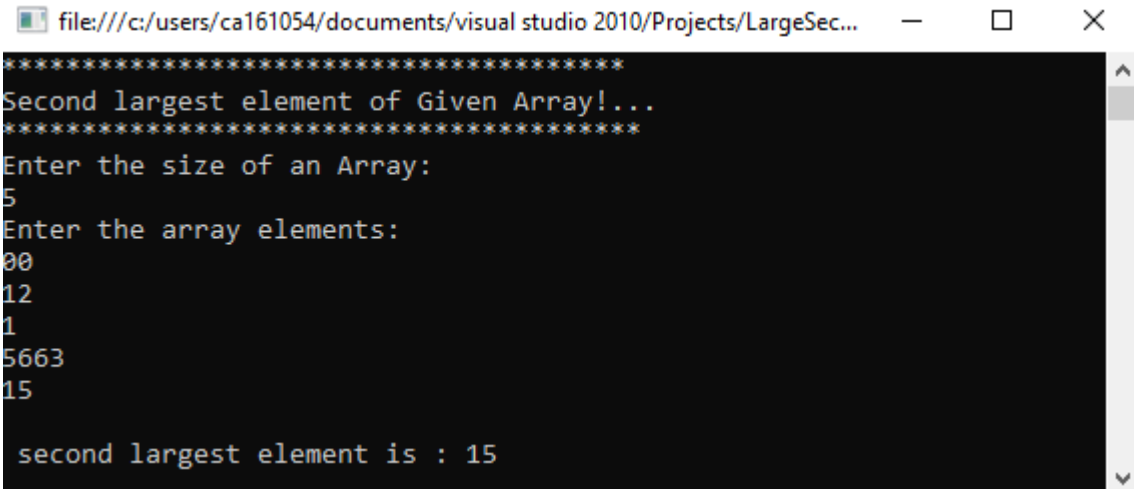
**3)**


file:///c:/users/ca161054/documents/visual studio 2010/Projects/LargeSec...
Second largest element of Given Array!...
Enter the size of an Array:
5
Enter the array elements:
-56
63
-456
0
89
second largest element is : 63

**4)**


file:///c:/users/ca161054/documents/visual studio 2010/Projects/LargeSec...
Second largest element of Given Array!...
Enter the size of an Array:
5
Enter the array elements:
0
-693
63
69
-5662
second largest element is : 63

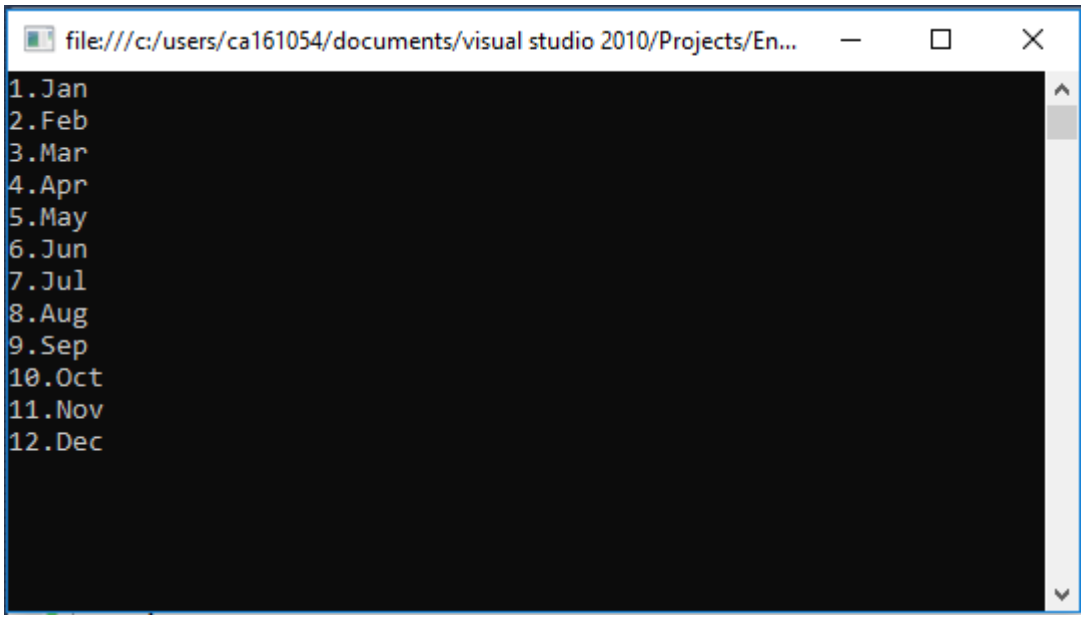
**5)**


file:///c:/users/ca161054/documents/visual studio 2010/Projects/LargeSec...
Second largest element of Given Array!...
Enter the size of an Array:
5
Enter the array elements:
00
12
1
5663
15
second largest element is : 15

**10) 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 Enumeration
{
   class Program
   {
      enum Month { Jan = 1, Feb, Mar, Apr, May, Jun, Jul, Aug, Sep, Oct, Nov, Dec }
      static void Main(string[] args)
      {
         for (int i = 0; i < 12; i++)
         {
            Console.WriteLine("{0}.{1}", (int)Month.Jan + i, Month.Jan + i);
         }
         Console.ReadLine();
      }
   }
}
```

## Output

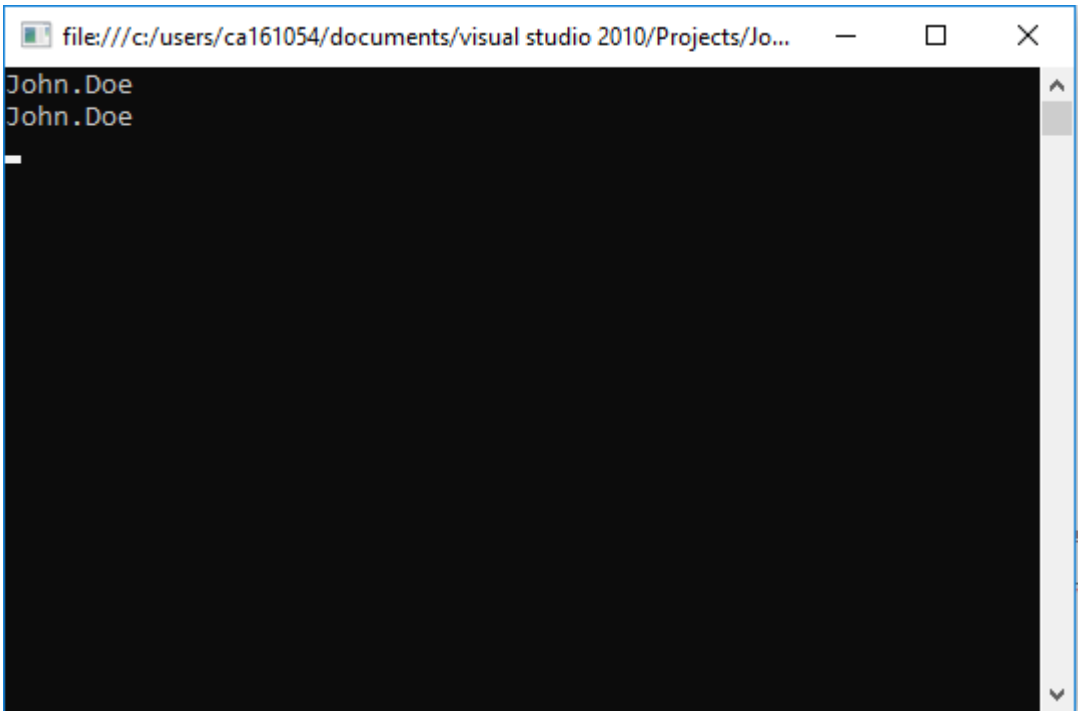

file:///c:/users/ca161054/documents/visual studio 2010/Projects/En...
1.Jan
2.Feb
3.Mar
4.Apr
5.May
6.Jun
7.Jul
8.Aug
9.Sep
10.Oct
11.Nov
12.Dec

**11) Create classes, they are reference types in C# and hence are allocated on the heap. Classes provide object-oriented constructs such as encapsulation, polymorphism, and inheritance. For instance, the program should print John. Doe twice, illustrating that objects are reference types, allocated on the heap implement the same using C#.**

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

namespace JoeDoe
{
   public class UseClasses
   {
      public static void Main()
      {
         Person hs = new Person("Hitesh", "Seth");
         Person jd = hs;
         jd.FirstName = "John";
         jd.LastName = "Doe";
         Console.WriteLine(hs.GetFullName());
         Console.WriteLine(jd.GetFullName());
         Console.ReadLine();
      }
   }
   public class Person
   {
      private string sFirstName, sLastName;
      public Person(string FirstName, string LastName)
      {
         this.sFirstName = FirstName;
         this.sLastName = LastName;
      }
```

```
        public string FirstName
        {
            get
            {
                return sFirstName;
            }
            set
            {
                sFirstName = value;
            }
        }
        public string LastName
        {
            get
            {
                return sLastName;
            }
            set
            {
                sLastName = value;
            }
        }
        public String GetFullName()
        {
            return this.FirstName + "." + this.LastName;
            Console.ReadLine();

        }
    }
}
```

**Output**


file:///c:/users/ca161054/documents/visual studio 2010/Projects/Jo...
John.Doe
John.Doe

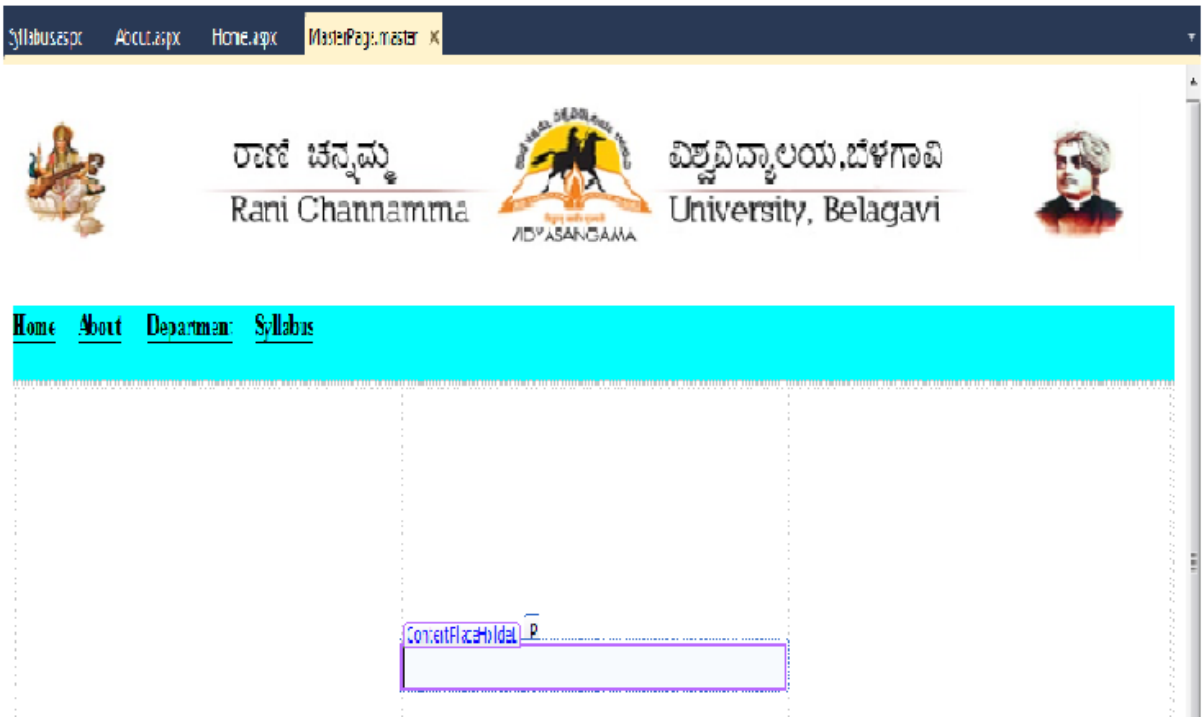
## 12) Work with Page using ASP.NET.

### Master Page Code

```
<%@ Master Language="C#" AutoEventWireup="true"
CodeFile="MasterPage.master.cs" Inherits="MasterPage" %>

<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">

<html xmlns="http://www.w3.org/1999/xhtml">
<head runat="server">
<title></title>
<asp:ContentPlaceHolder id="head" runat="server">
 </asp:ContentPlaceHolder>
 <img src="rcub1.jpg" style="width: 1043px; height: 80px" />
</head>
<body>
<form id="form1" runat="server">
<div style="background-color: #00FFFF; height: 37px;">
<asp:HyperLink ID="HyperLink1" runat="server"
style="color: #000000; font-weight: 700"
NavigateUrl="~/Home.aspx">Home</asp:HyperLink>
    
<asp:HyperLink ID="HyperLink2" runat="server"
style="color: #000000; font-weight: 700"
NavigateUrl="~/About.aspx">About</asp:HyperLink>
  
  
<asp:HyperLink ID="HyperLink3" runat="server"
style="color: #000000; font-weight: 700"
NavigateUrl="~/Department.aspx">Department</asp:HyperLink>
    
<asp:HyperLink ID="HyperLink4" runat="server"
```

```
style="color: #000000; font-weight: 700"
NavigateUrl="~/Syllabus.aspx">Syllabus</asp:HyperLink>
    
</div>
<div>
 <table style="width: 100%; height: 278px;">
<tr>
<td>
  </td>
<td>
      <asp:ContentPlaceHolder ID="ContentPlaceHolder1" runat="server">
         <p>
             </p>
      </asp:ContentPlaceHolder>
   </td>
   <td>
       </td>
</tr>
</table>
</div>
<div style="height: 28px; background-color: #00FFFF">
 
<strong> Copyright Information Rcub.com</strong></div>
</form>
</body>
</html>
```

## Output


Syllabus.aspx
About.aspx
Home.aspx
MasterPage.master
ರಾಣಿ ಚನ್ನಮ್ಮ
Rani Channamma
VIDYASANGAMA
ವಿಶ್ವವಿದ್ಯಾಲಯ,ಬೆಳಗಾವಿ
University, Belagavi
Home
About
Departmen
Syllabus
ContentPlaceHolder1


ರಾಣಿ ಚನ್ನಮ್ಮ
Rani Channamma
VIDYASANGAMA
ವಿಶ್ವವಿದ್ಯಾಲಯ,ಬೆಳಗಾವಿ
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VIDYASANGAMA
ವಿಶ್ವವಿದ್ಯಾಲಯ.ಬೆಳಗಾವಿ
University, Belagavi
Home
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Syllabus
About University
Before the Rani Channamma University came into being in 2010, Karnatak University KRCPG Centre of Karnatak University, Dharwad was functioning at Belagavi. The said Karnatak University PG Centre was established at Belagavi in the year 1982, to provide an opportunity to develop access to the students for higher education hailing from North Karnataka Region. In the year 1994 the PG centre was shifted to the present campus of 172 acres of land located at Bhutramanahatti adjacent to the Pune-Bangalore National Highway – 4 at a distance of about 18 kms from Belgaum city. Karnatak University PG Centre has been declared as Rani Channamma University in the month of July, 2010 with the jurisdiction of Belagavi, Bijapur, and Bagalkot districts. It is catering to the needs of the people of North Karnataka by providing excellent opportunities for higher education.


ರಾಣಿ ಚನ್ನಮ್ಮ
Rani Channamma
VIDYASANGAMA
ವಿಶ್ವವಿದ್ಯಾಲಯ.ಬೆಳಗಾವಿ
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School Of Languages
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Department of Marathi
School Of Social Sciences
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Department Of Sociology
Department Of History
Department Of Social Work (MSW)
Department Of Journalism
School Of Applied Sciences
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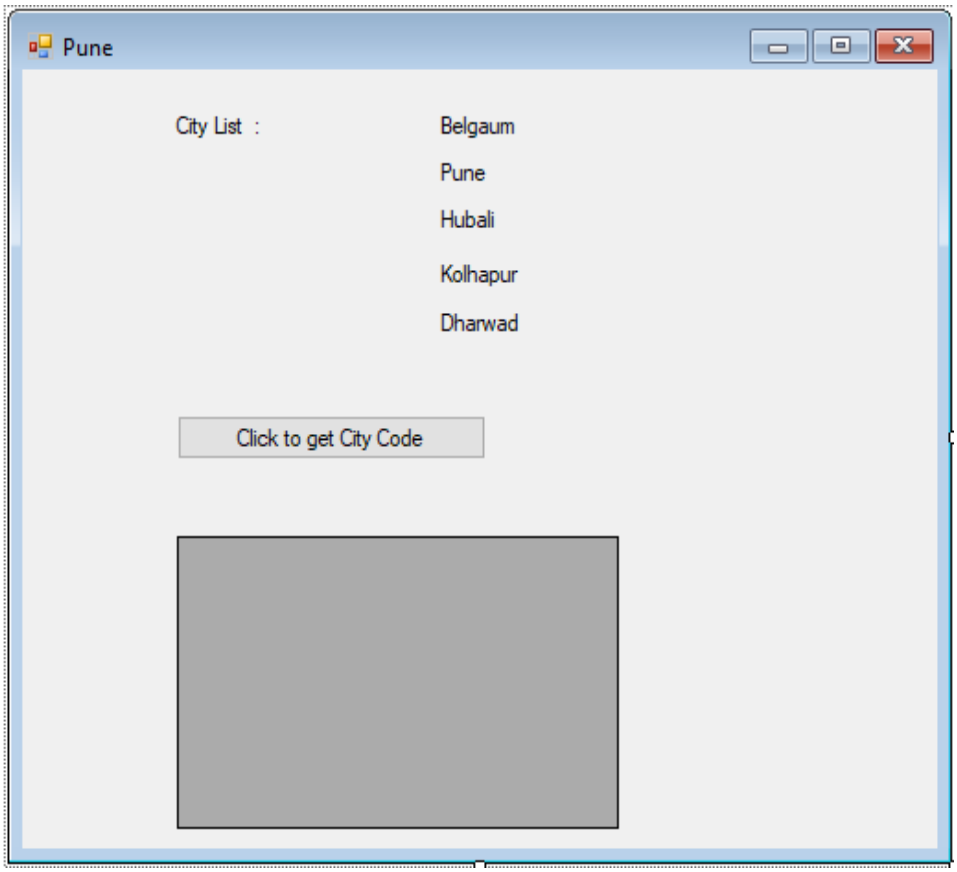
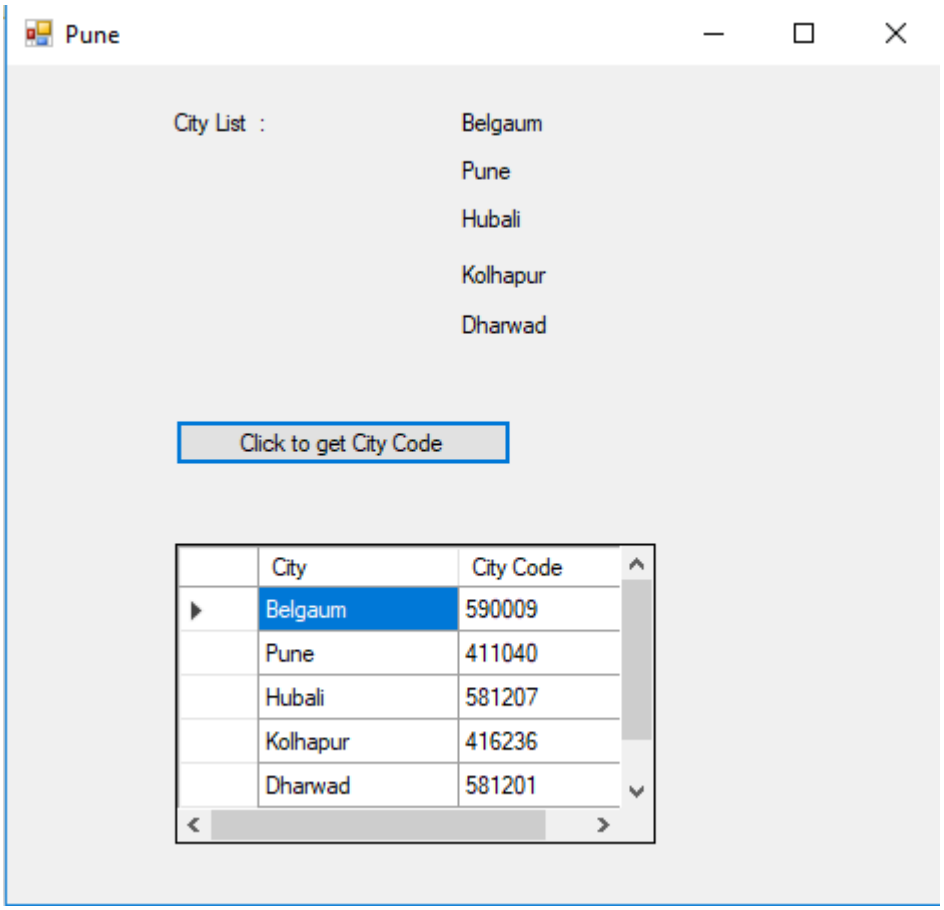
## 13) Describe access data source through ADO.NET.




```
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;
using System.Data.SqlClient;

namespace DataAccessADO
{
        public partial class Form1 : Form
        {
        DataSet ds = new DataSet();
```

```
            SqlConnection cs = new SqlConnection("Data Source=CS-05; Initial
Catalog=City; user id=sa;password=Password@123;");
            SqlDataAdapter da = new SqlDataAdapter();
        public Form1()
        {
            InitializeComponent();
        }

        private void button1_Click(object sender, EventArgs e)
        {
            da.SelectCommand = new SqlCommand("SELECT * FROM t1", cs);
            ds.Clear();
            da.Fill(ds);
            dgv.DataSource = ds.Tables[0];
        }
    }
}
```

## Output

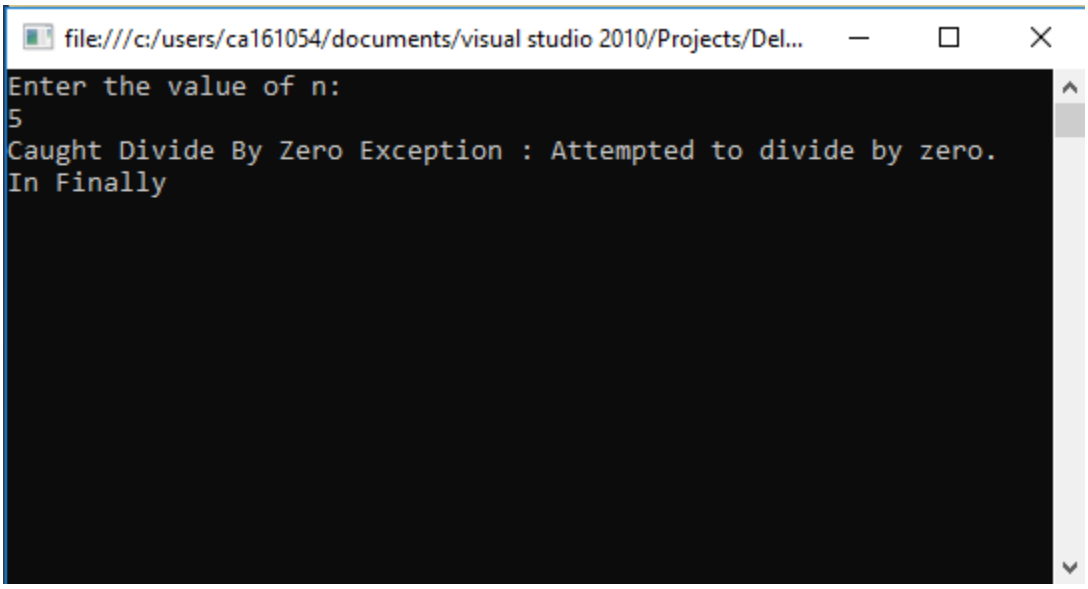

Pune
City List :
Belgaum
Pune
Hubali
Kolhapur
Dharwad
Click to get City Code
City
City Code
Belgaum
590009
Pune
411040
Hubali
581207
Kolhapur
416236
Dharwad
581201

## 14) Describe delegates, events, errors and exceptions.

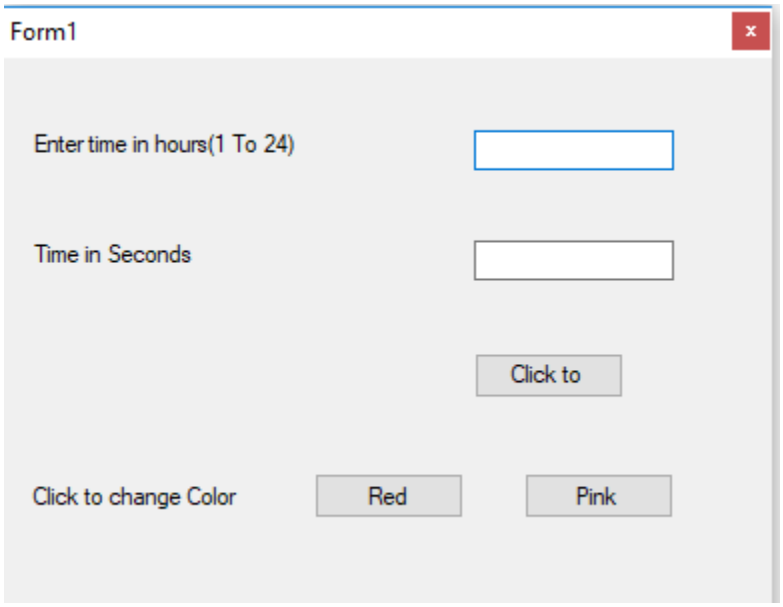
```
using System;
using System.Collections.Generic;
using System.Text;
namespace Delegates
{
        public delegate void devidezero(int n);
         class EventProgram
        {
                event devidezero MyEvent;
                public EventProgram(int n)
                {
                try
                {
                        Decimal dresult = Decimal.Divide(n, 0);
                        Console.WriteLine("Result is :{0}", dresult);
                }
    catch (DivideByZeroException exdiv)
    {
       Console.WriteLine("Caught Divide By Zero Exception : {0}", exdiv.Message);
    }
    catch (Exception ex)
    {
       Console.WriteLine("Caught Exception : {0}", ex.Message);
    }
    finally
    {
       Console.WriteLine("In Finally");
       Console.ReadLine();
    }
 }

 static void Main(string[] args)
```

```
        {
            int n;
            Console.WriteLine("Enter the value of n:");
            n = Convert.ToUInt16(Console.ReadLine());
            EventProgram obj1 = new EventProgram(n);
            obj1.MyEvent(n);
            Console.WriteLine();
        }
    }
}
```

**Output :**


file:///c:/users/ca161054/documents/visual studio 2010/Projects/Del...
Enter the value of n:
5
Caught Divide By Zero Exception : Attempted to divide by zero.
In Finally

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

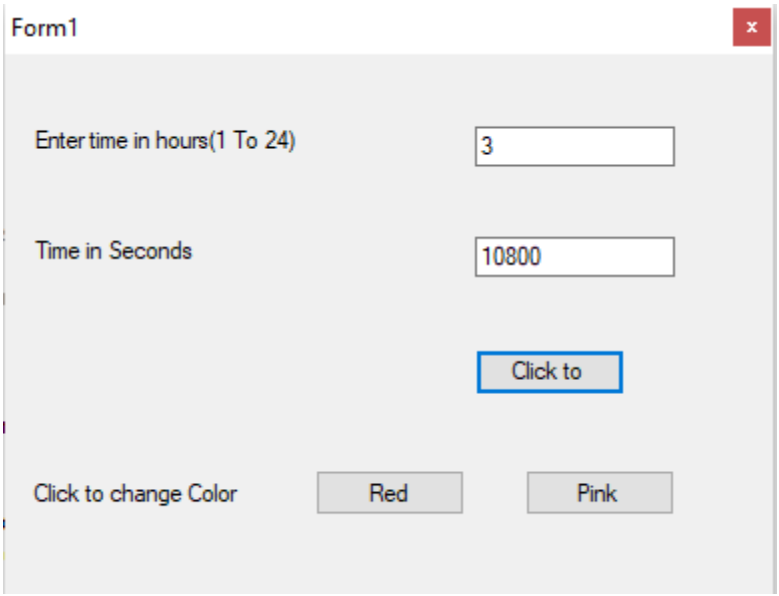


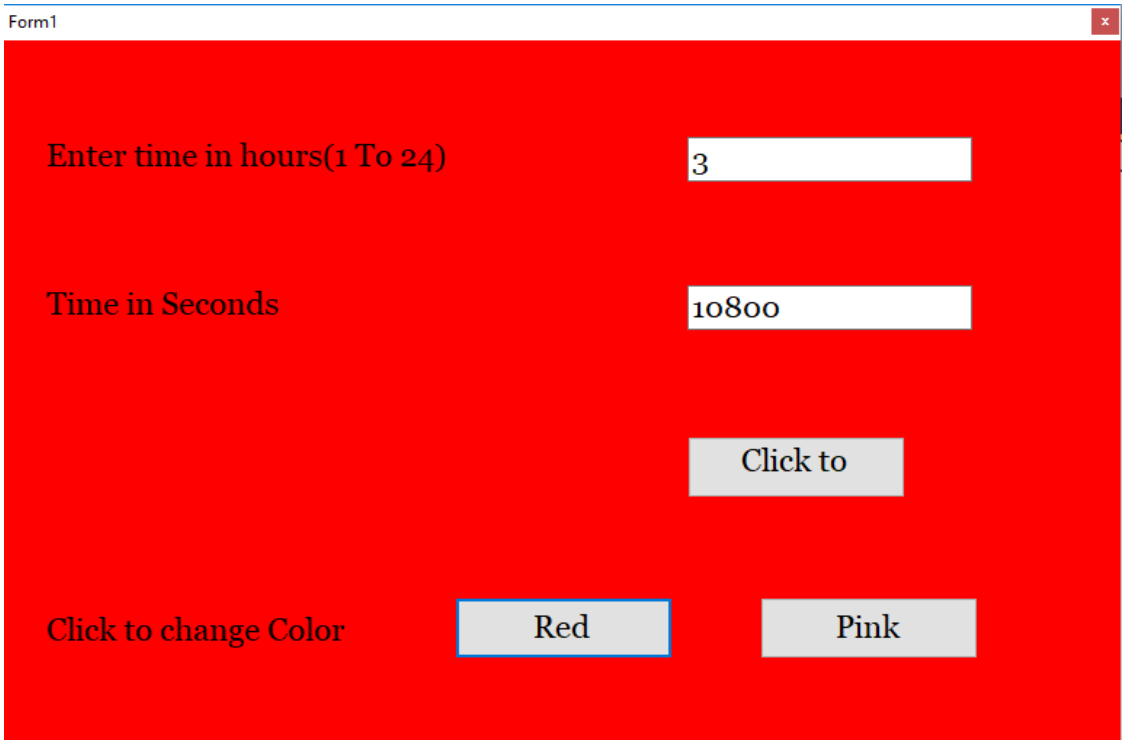

```
using System;
 using System.Collections.Generic;
 using System.ComponentModel;
 using System.Data;
 using System.Drawing;
 using System.Linq;
 using System.Text;
 using System.Windows.Forms;
 namespace Properties
 {
        public partial class Form1 : Form
        {
                private double seconds;
                public double Hours
                {
                get { return seconds; }
                 set
                {
                        if (value < 0 || value > 24)
```

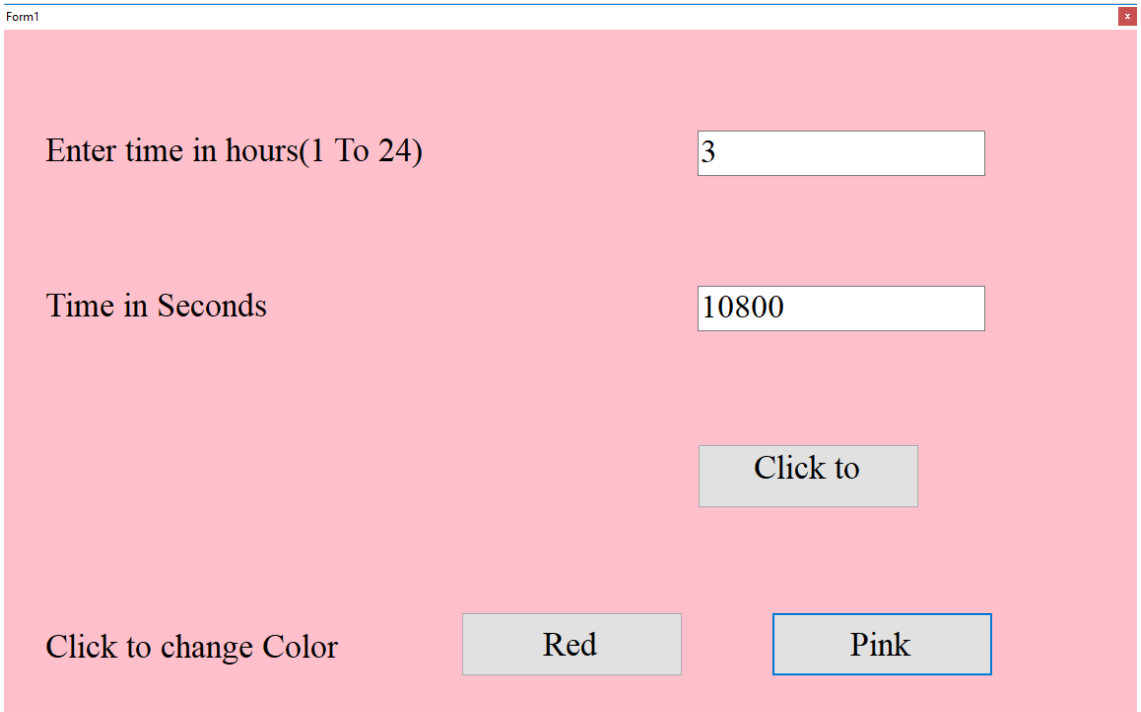
```
                    throw new ArgumentOutOfRangeException(
                    "{nameof(value)} must be between 0 and 24.");
                    seconds = value * 3600;
                }
            }
    public Form1()
    {
            InitializeComponent();
           this.StartPosition = FormStartPosition.CenterScreen;
           this.Size = new Size(400, 400);
           this.FormBorderStyle = FormBorderStyle.FixedToolWindow;
            this.MaximizeBox = false;
    }
private void button1_Click(object sender, EventArgs e)
{
           Form1 t = new Form1();
           t.Hours = Convert.ToDouble(textBox1.Text);
           textBox2.Text = Convert.ToString(t.Hours);
    }
    private void button2_Click(object sender, EventArgs e)
    {
           this.BackColor = Color.Red;
           this.Font = new Font("Georgia", 16);
    }
    private void button3_Click(object sender, EventArgs e)
    {
           this.BackColor = Color.Pink;
           this.Font = new Font("Times New Roman", 25);
    }
```

```
    }
}
```

## Output


Form1
Enter time in hours(1 To 24)
3
Time in Seconds
10800
Click to
Click to change Color
Red
Pink


Form1
Enter time in hours(1 To 24)
3
Time in Seconds
10800
Click to
Click to change Color
Red
Pink


Form1
Enter time in hours(1 To 24)
3
Time in Seconds
10800
Click to
Click to change Color
Red
Pink

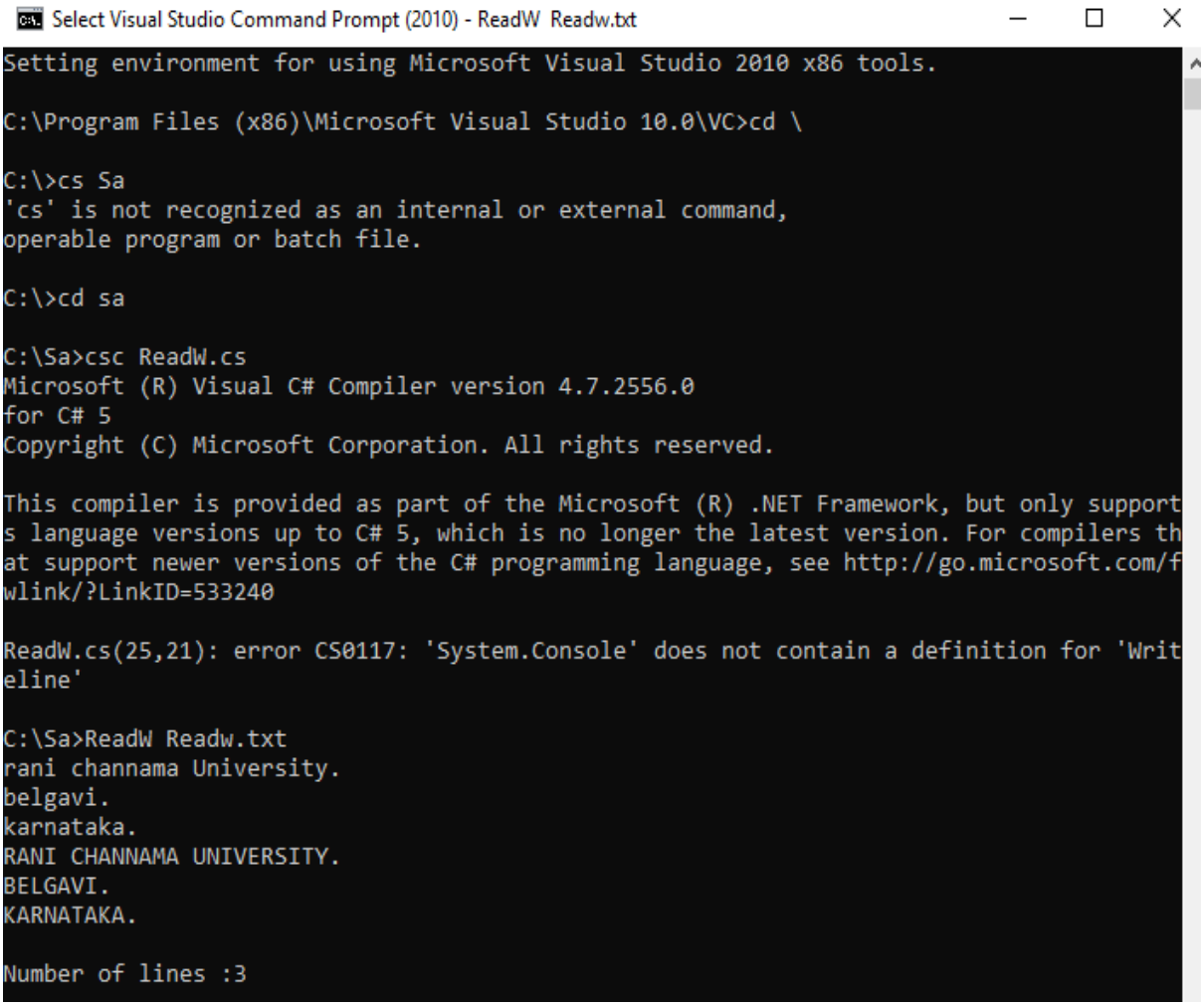
## 16) Demonstrate Command line arguments processing.

### ReadW.cs

```
using System.Collections.Generic;
using System.Linq;
using System.Text;
using System;
using System.IO;
using System.Threading.Tasks;
namespace ReadW

{
        class Program
        {
                public static void Main(string[] args)
                {
                        String path;
                        path = args[0];
                        String lines;
                        String lines1;
                        int n;
                        lines = File.ReadAllText(path);
                        Console.WriteLine(lines);
                        lines1 = lines.ToUpper();
                        Console.WriteLine("After Conversion");
                        Console.WriteLine(lines1);
                        Console.ReadLine();
                        Console.Writeline("Press enter to get total number of lines");
                        n = File.ReadLines(path).Count();
                        Console.WriteLine("Number of lines :" +n);
                        Console.ReadKey();
                }
        }
}
```

**ReadW.txt**


**Output**



## 17) Program to multiply to matrices using Rectangular arrays.

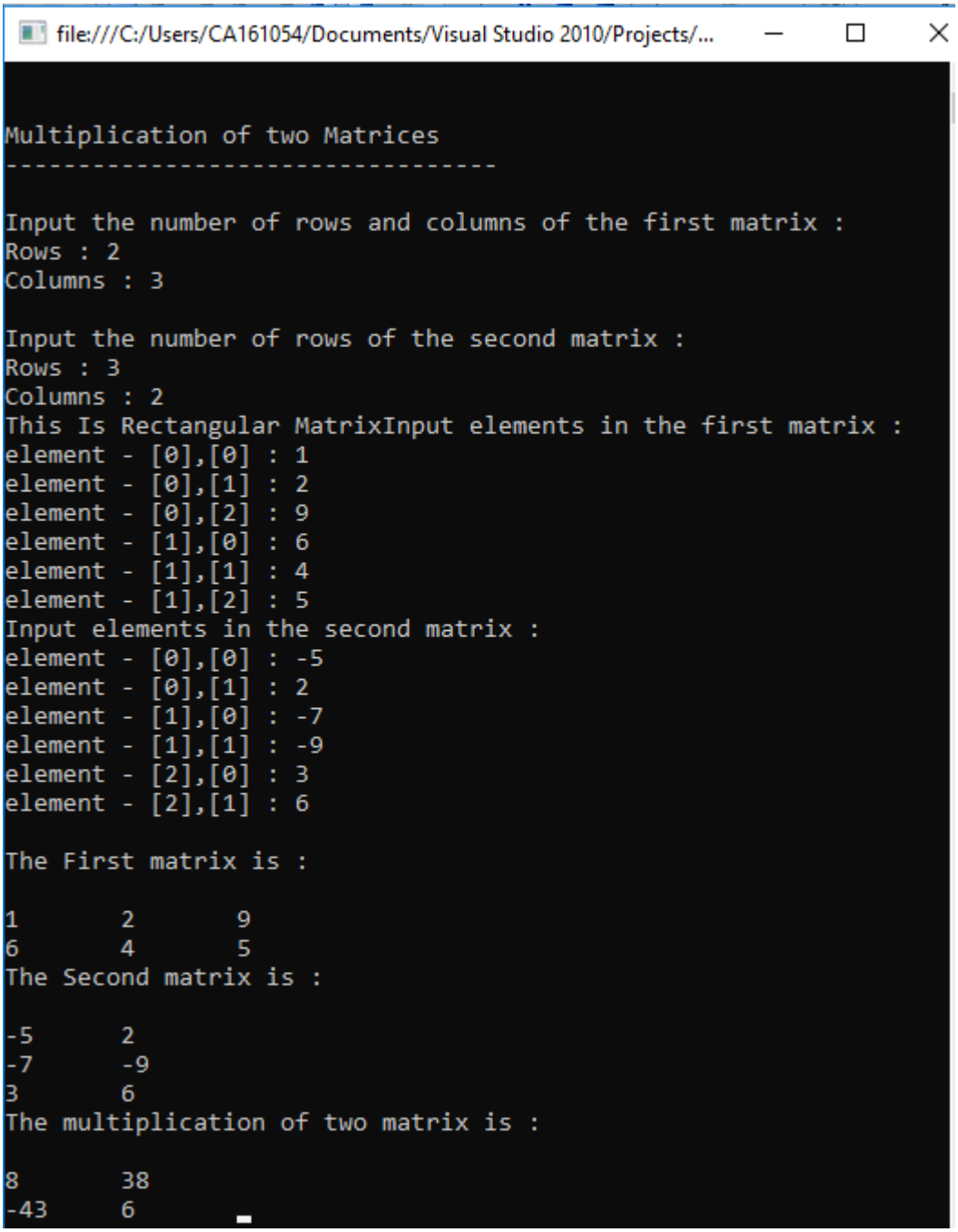
```
using System;
using System.Collections;
using System.Data;
public class MatrixMul
{
    public static void Main()
    {
                    int i, j, k, r1, c1, r2, c2, sum = 0;
                    int[,] arr1 = new int[50, 50];
                    int[,] brr1 = new int[50, 50];
                    int[,] crr1 = new int[50, 50];

                    Console.Write("\n\nMultiplication of two Matrices\n");
                    Console.Write("----------------------------------\n");
                    Console.Write("\nInput the number of rows and columns of the first
matrix :\n");
                    Console.Write("Rows : ");
                     r1 = Convert.ToInt32(Console.ReadLine());
                    Console.Write("Columns : ");
                    c1 = Convert.ToInt32(Console.ReadLine());
                    Console.Write("\nInput the number of rows of the second matrix :\n");
                    Console.Write("Rows : ");
                    r2 = Convert.ToInt32(Console.ReadLine());
                    Console.Write("Columns : ");
                    c2 = Convert.ToInt32(Console.ReadLine());
                    if (r1 != c1 && r2 != c2)
                    {
                            Console.Write("This Is Rectangular Matrix");
                    if (c1 != r2)
                            {
                            Console.Write("Mutiplication of Matrix is not possible.");
```

```
                    Console.Write("\nColumn of first matrix and row of second
matrix must be same.");
                }
            else
            {
            Console.Write("Input elements in the first matrix :\n");
            for (i = 0; i < r1; i++)
            {
                    for (j = 0; j < c1; j++)
                    {
                        Console.Write("element - [{0}],[{1}] : ", i, j);
                        arr1[i, j] =
Convert.ToInt32(Console.ReadLine());
                    }
        }
            Console.Write("Input elements in the second matrix :\n");
            for (i = 0; i < r2; i++)
            {
                    for (j = 0; j < c2; j++)
                    {
                        Console.Write("element - [{0}],[{1}] : ", i, j);
                        brr1[i, j] =
Convert.ToInt32(Console.ReadLine());
                    }
         }
            Console.Write("\nThe First matrix is :\n");
            for (i = 0; i < r1; i++)
            {
                    Console.Write("\n");
                    for (j = 0; j < c1; j++)
                    Console.Write("{0}\t", arr1[i, j]);
            }
            Console.Write("\nThe Second matrix is :\n");
```

```
            for (i = 0; i < r2; i++)
            {
                        Console.Write("\n");
                        for (j = 0; j < c2; j++)
                        Console.Write("{0}\t", brr1[i, j]);
            }
//multiplication of matrix
  for (i = 0; i < r1; i++)
            for (j = 0; j < c2; j++)
            crr1[i, j] = 0;
  for (i = 0; i < r1; i++)    //row of first matrix
  {
                  for (j = 0; j < c2; j++)    //column of second matrix
                  {
                        sum = 0;
                        for (k = 0; k < c1; k++)
                        sum = sum + arr1[i, k] * brr1[k, j];
                        crr1[i, j] = sum;
                   }
  }
  Console.Write("\nThe multiplication of two matrix is : \n");
  for (i = 0; i < r1; i++)
  {
                  Console.Write("\n");
                  for (j = 0; j < c2; j++)
                  {
                        Console.Write("{0}\t", crr1[i, j]);

                  }
  }
            }
  }
  else
```

```
            {
                Console.WriteLine("This is not a rectangular matrix");
            }

            Console.ReadLine();
            Console.Write("\n\n");

    }
}
```

## Output

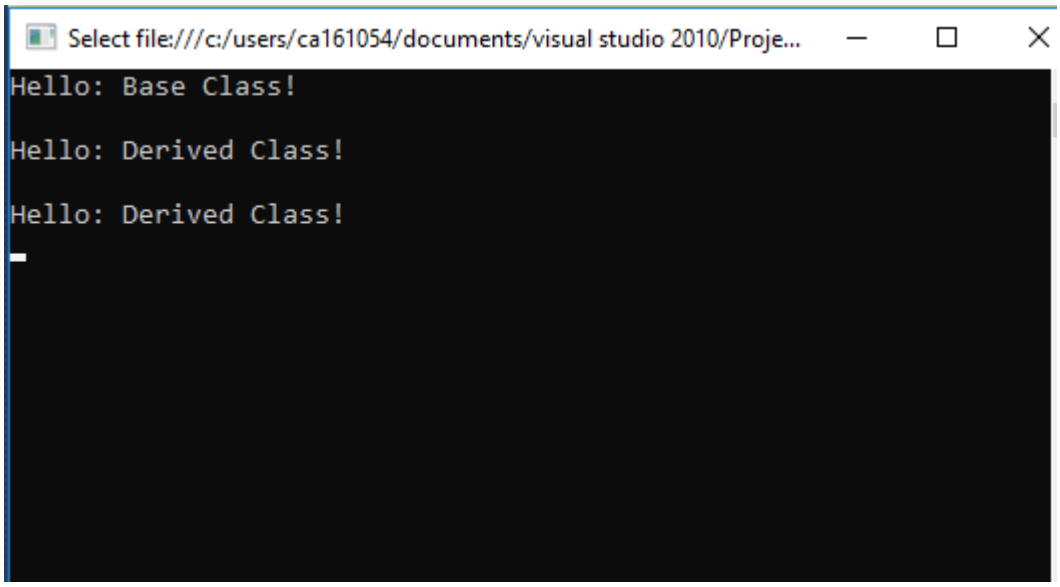

file:///C:/Users/CA161054/Documents/Visual Studio 2010/Projects/...
Multiplication of two Matrices
Input the number of rows and columns of the first matrix :
Rows : 2
Columns : 3
Input the number of rows of the second matrix :
Rows : 3
Columns : 2
This Is Rectangular MatrixInput elements in the first matrix :
element - [0],[0] : 1
element - [0],[1] : 2
element - [0],[2] : 9
element - [1],[0] : 6
element - [1],[1] : 4
element - [1],[2] : 5
Input elements in the second matrix :
element - [0],[0] : -5
element - [0],[1] : 2
element - [1],[0] : -7
element - [1],[1] : -9
element - [2],[0] : 3
element - [2],[1] : 6
The First matrix is :
1 2 9
6 4 5
The Second matrix is :
-5 2
-7 -9
3 6
The multiplication of two matrix is :
8 38
-43 6

## 18) Demonstrate Use of Virtual and override keyword in C# with a simple Program.

```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
namespace LastPrg
{
        class A
        {
                public virtual void show()
                {
                        Console.WriteLine("Hello: Base Class!");
                        Console.ReadLine();
                }
        }
        class B : A
        {
                public override void show()
                {
                        Console.WriteLine("Hello: Derived Class!");
                        Console.ReadLine();
                }
        }
        class Polymorphism
        {
                public static void Main()
                {
                        A a1 = new A();
                        a1.show();
                        B b1 = new B();
                        b1.show();
                        A a2 = new B();
```

```
                    a2.show();
                }
            }
        }
```

**Output**


Select file:///c:/users/ca161054/documents/visual studio 2010/Proje...
Hello: Base Class!
Hello: Derived Class!
Hello: Derived Class!