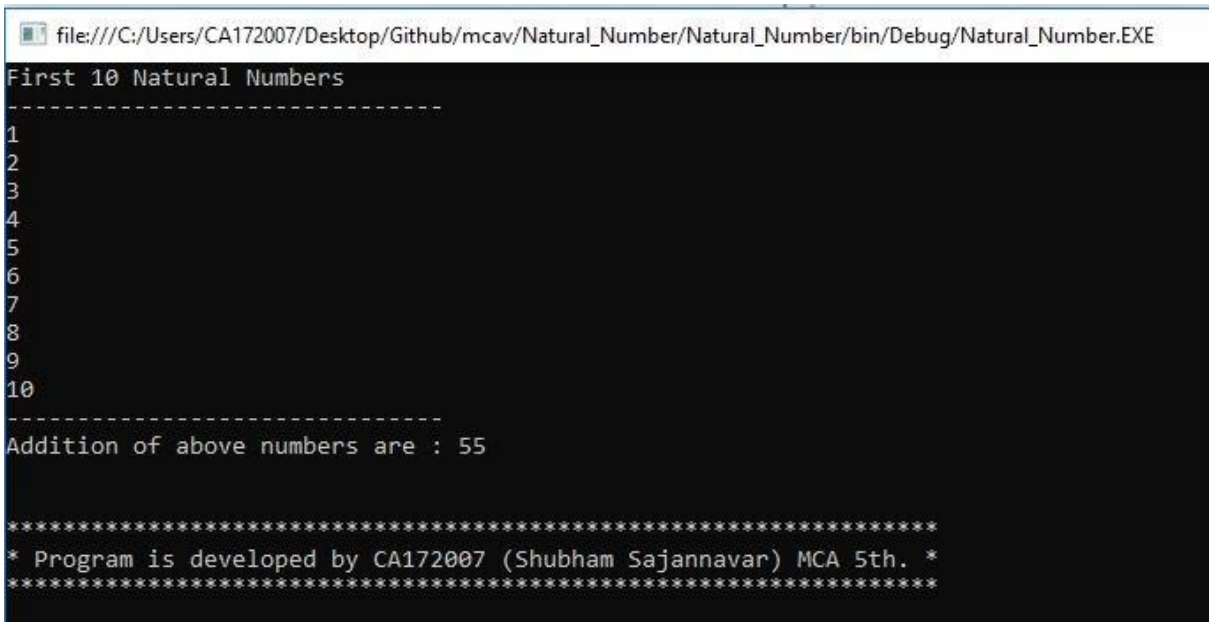
1) Program to display the first 10 natural numbers and their sum using console application.

```
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("Program is developed by CA172007 (Shubham Sajannavar)
     MCA 5th.");
       Console.ReadKey();
      }
   }
}
```

OUTPUT

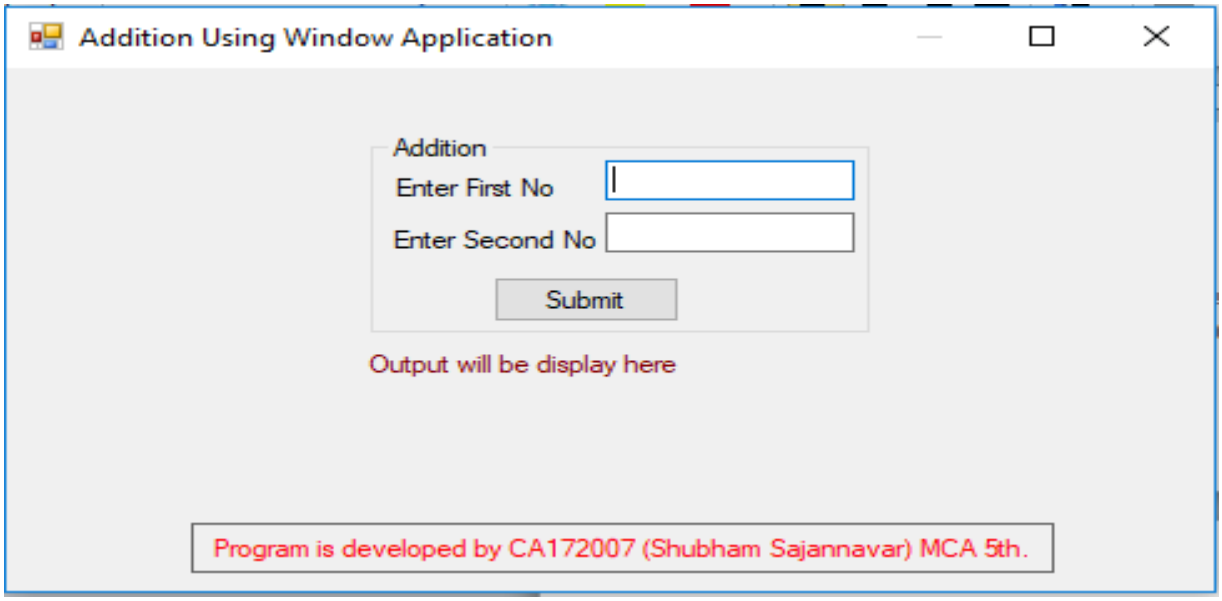

file:///C:/Users/CA172007/Desktop/Github/mcav/Natural_Number/Natural_Number/bin/Debug/Natural_Number.EXE
First 10 Natural Numbers
1
2
3
4
5
6
7
8
9
10
Addition of above numbers are : 55
* Program is developed by CA172007 (Shubham Sajannavar) MCA 5th. *

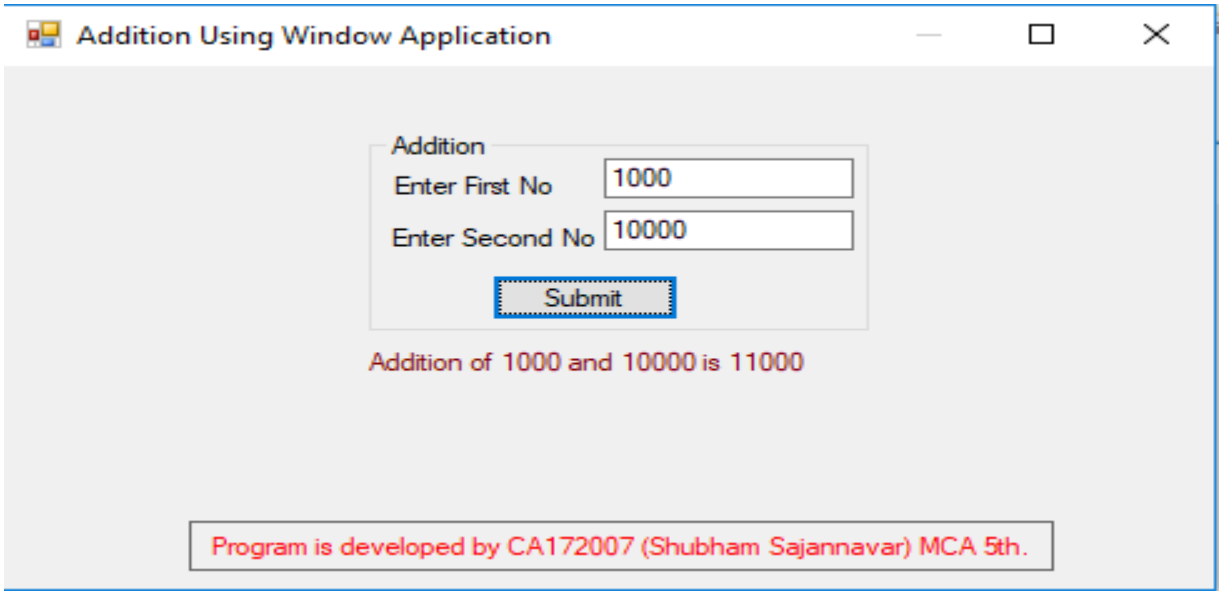
2) Program to display the addition using the windows application.

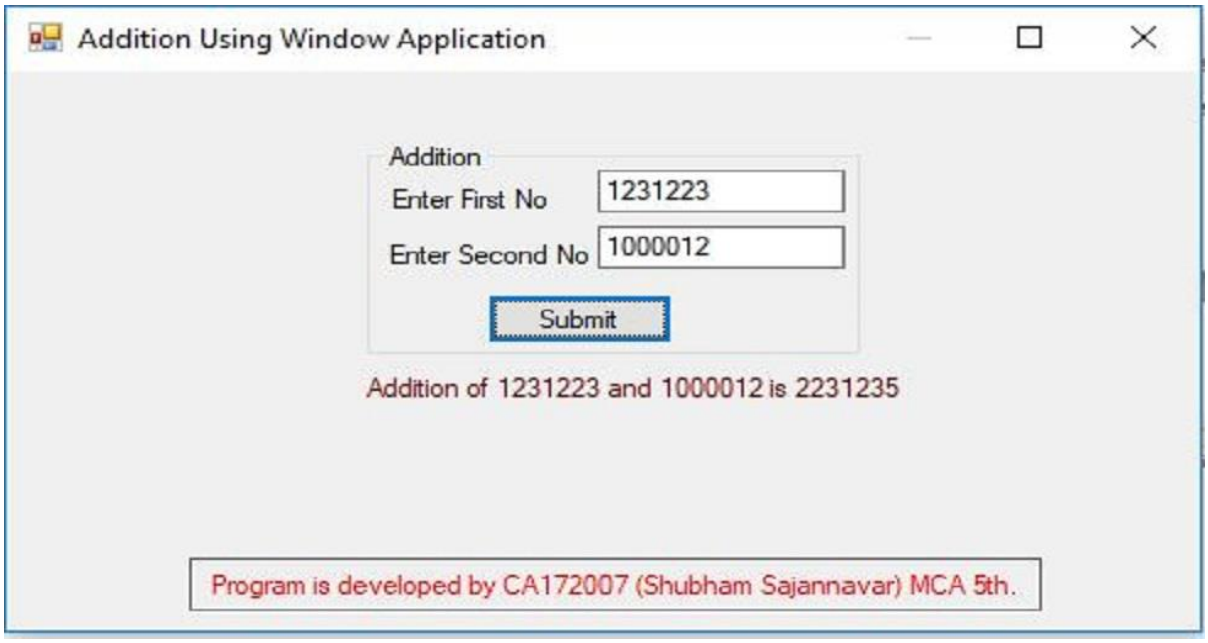
```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Windows.Forms;

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

      private void button1_Click(object sender, EventArgs e)
      {
         try
         {
            int a = Convert.ToInt32(textBox1.Text);
            int b = Convert.ToInt32(textBox2.Text);
            int c = a + b;
            label3.Text = ("Addition of " + a + " and " + b + " is " + c);
         }
         catch (Exception ex) {
            MessageBox.Show("Enter valid Numbers"+ex);
            label3.Text=("Enter valid Numbers");
         }
      }
```

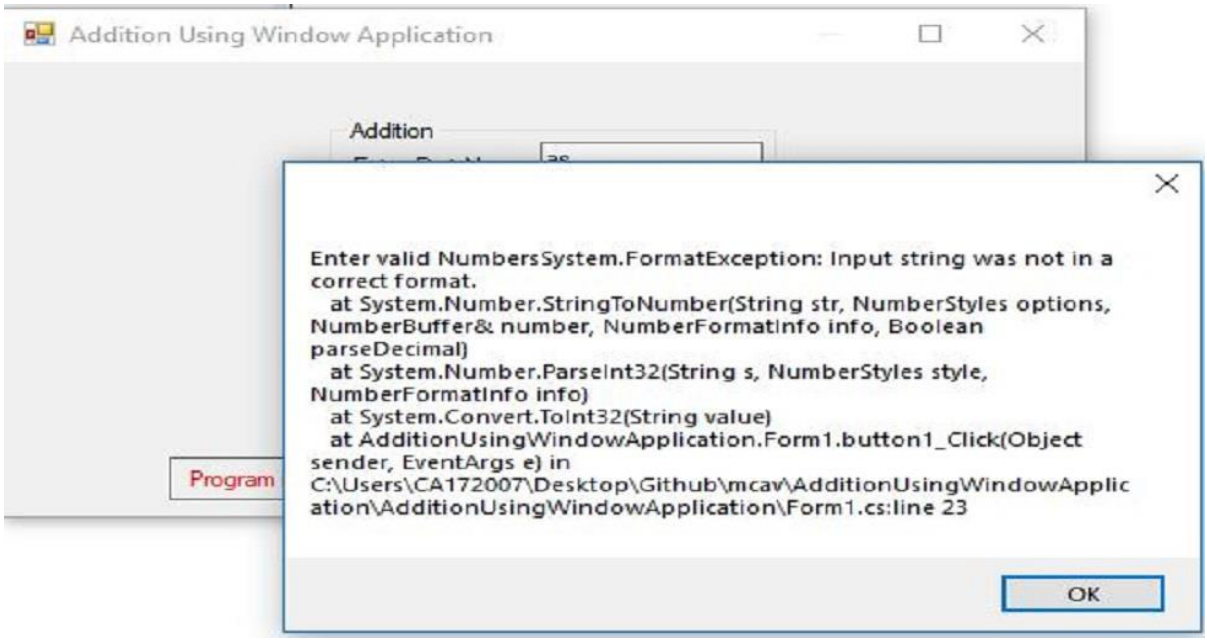
```
        private void Form1_Load(object sender, EventArgs e)
        {
            label3.ForeColor = Color.Maroon;
            label4.ForeColor = Color.Red;
            label3.Text = "Output will be display here";
            label4.Text = "Program is developed by CA172007 \n(Shubham Sajannavar) MCA 5th.";
        }
    }
}
```

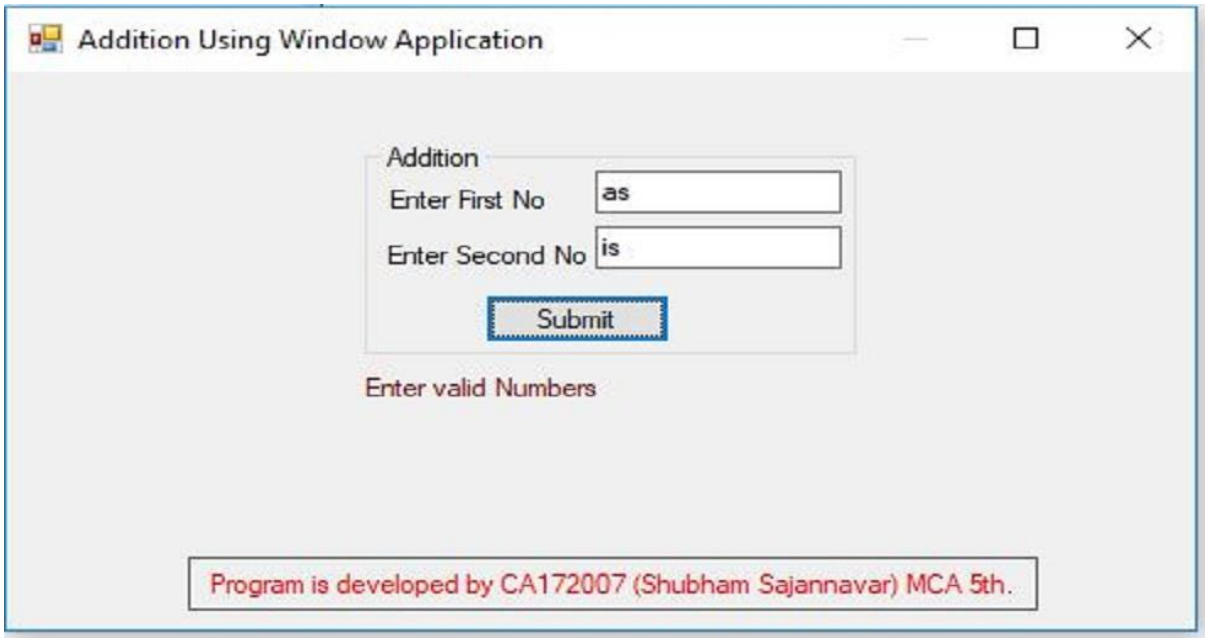
OUTPUT


Addition Using Window Application
Addition
Enter First No
Enter Second No
Submit
Output will be display here
Program is developed by CA172007 (Shubham Sajannavar) MCA 5th.


Addition Using Window Application
Addition
Enter First No
1000
Enter Second No
10000
Submit
Addition of 1000 and 10000 is 11000
Program is developed by CA172007 (Shubham Sajannavar) MCA 5th.


Addition Using Window Application
Addition
Enter First No
1231223
Enter Second No
1000012
Submit
Addition of 1231223 and 1000012 is 2231235
Program is developed by CA172007 (Shubham Sajannavar) MCA 5th.

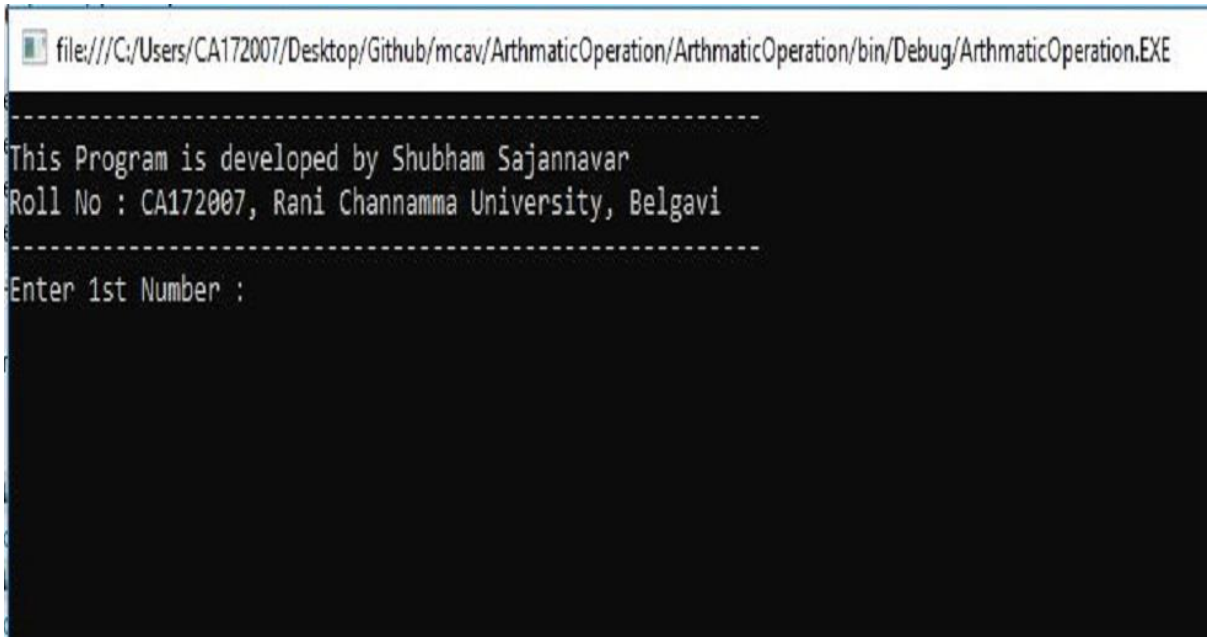

Addition Using Window Application
Addition
Program
Enter valid NumbersSystem.FormatException: Input string was not in a correct format.
at System.Number.StringToNumber(String str, NumberStyles options, NumberBuffer& number, NumberFormatInfo info, Boolean parseDecimal)
at System.Number.ParseInt32(String s, NumberStyles style, NumberFormatInfo info)
at System.Convert.ToInt32(String value)
at AdditionUsingWindowApplication.Form1.button1_Click(Object sender, EventArgs e) in C:\Users\CA172007\Desktop\Github\mcav\AdditionUsingWindowApplication\AdditionUsingWindowApplication\Form1.cs:line 23
OK

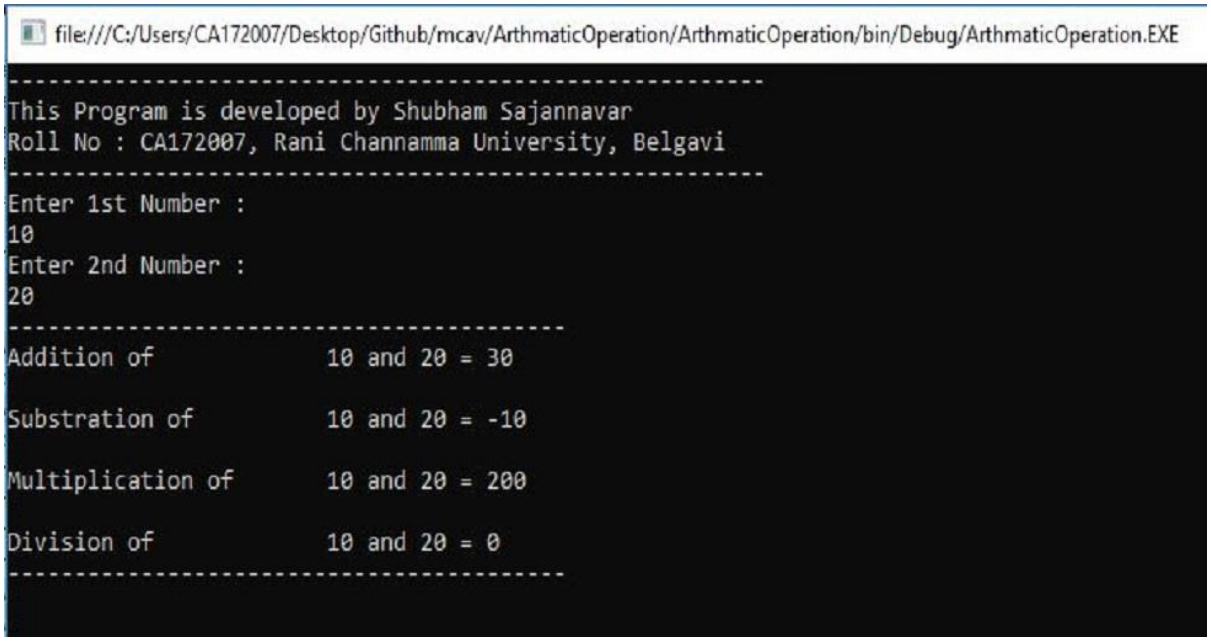

Addition Using Window Application
Addition
Enter First No
as
Enter Second No
is
Submit
Enter valid Numbers
Program is developed by CA172007 (Shubham Sajannavar) MCA 5th.

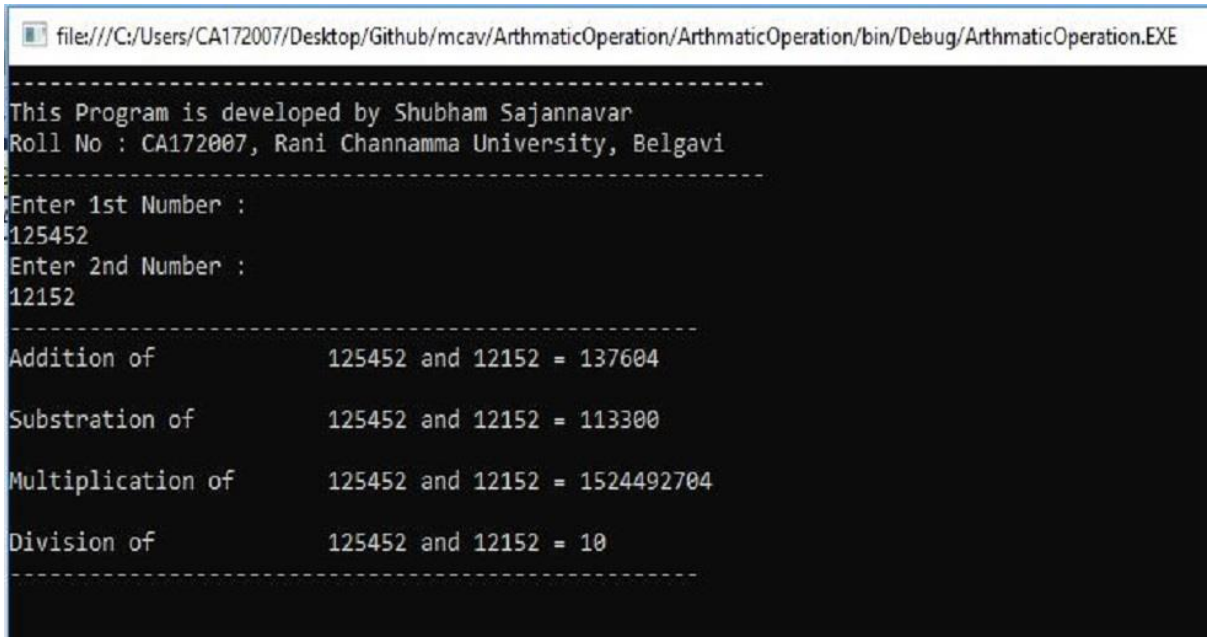
3) Program to display the addition, subtraction, multiplication and division of two number using console applications.

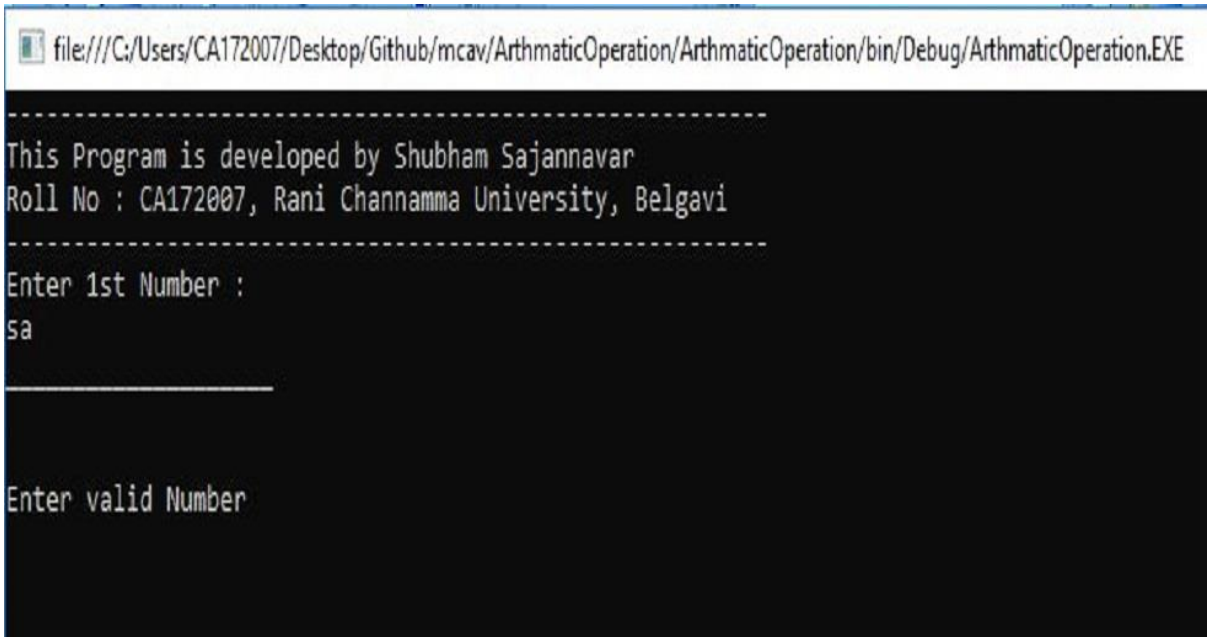
```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;

namespace ArthmaticOperation
{
   class Program
   {
      static void Main(string[] args)
      {
         Console.WriteLine("This Program is developed by Shubham Sajannavar");
         Console.WriteLine("Roll No : CA172007, Rani Channamma University, Belgavi");
         int add, sub, mul,num1,num2;
         float div;
         try
         {
            Console.WriteLine("Enter 1st Number : ");
            num1 = Convert.ToInt32(Console.ReadLine());
            Console.WriteLine("Enter 2nd Number : ");
            num2 = Convert.ToInt32(Console.ReadLine());
            add = num1 + num2;
            sub = num1 - num2;
            mul = num1 * num2;
            div = num1 / num2;
            Console.WriteLine("Addition of  " +num1 + " and " + num2 + " = " + add);
            Console.WriteLine("\nSubstration of " + num1 + " and " + num2 + " = " + sub);
            Console.WriteLine("Multiplication of " +num1+ " and " + num2 + " = " + mul);
            Console.WriteLine("\nDivision of \t\t" + num1 + " and " + num2 + " = " + div);
         }
         catch (Exception ex) {
            Console.WriteLine("Enter valid Number");
         }
            Console.ReadKey();

      }
   }
}
```

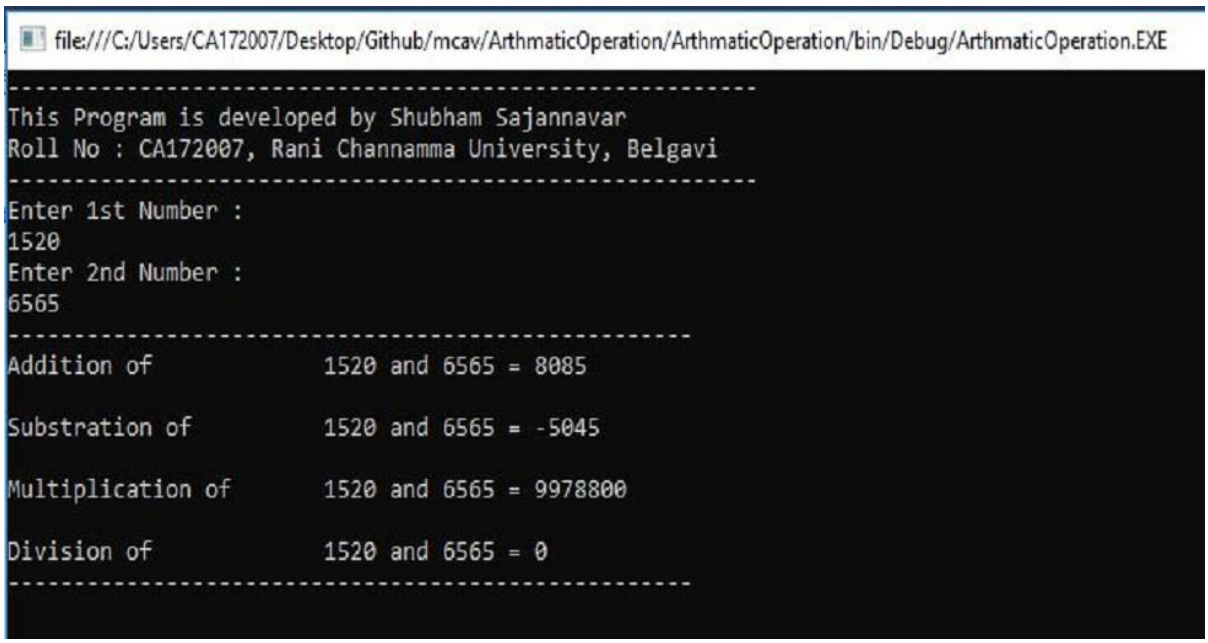
OUTPUT


file:///C:/Users/CA172007/Desktop/Github/mcav/ArthmaticOperation/ArthmaticOperation/bin/Debug/ArthmaticOperation.EXE
This Program is developed by Shubham Sajannavar
Roll No : CA172007, Rani Channamma University, Belgavi
Enter 1st Number :


file:///C:/Users/CA172007/Desktop/Github/mcav/ArthmaticOperation/ArthmaticOperation/bin/Debug/ArthmaticOperation.EXE
This Program is developed by Shubham Sajannavar
Roll No : CA172007, Rani Channamma University, Belgavi
Enter 1st Number :
10
Enter 2nd Number :
20
Addition of 10 and 20 = 30
Substration of 10 and 20 = -10
Multiplication of 10 and 20 = 200
Division of 10 and 20 = 0


file:///C:/Users/CA172007/Desktop/Github/mcav/ArthmaticOperation/ArthmaticOperation/bin/Debug/ArthmaticOperation.EXE
This Program is developed by Shubham Sajannavar
Roll No : CA172007, Rani Channamma University, Belgavi
Enter 1st Number :
125452
Enter 2nd Number :
12152
Addition of 125452 and 12152 = 137604
Substration of 125452 and 12152 = 113300
Multiplication of 125452 and 12152 = 1524492704
Division of 125452 and 12152 = 10

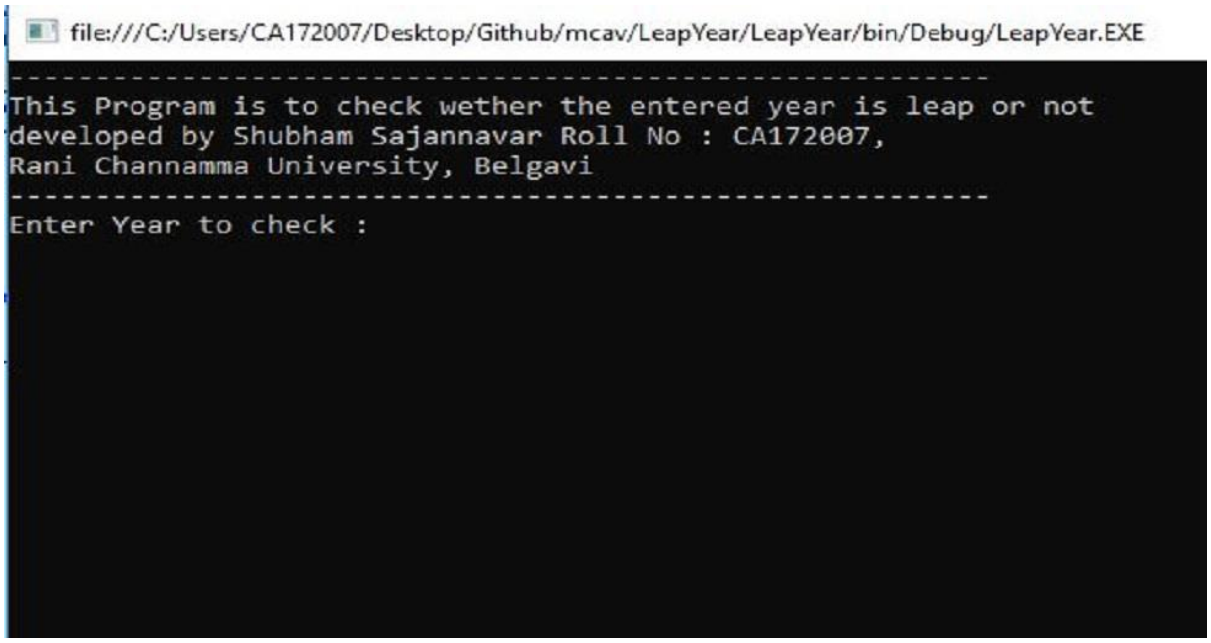

file:///C:/Users/CA172007/Desktop/Github/mcav/ArthmaticOperation/ArthmaticOperation/bin/Debug/ArthmaticOperation.EXE
This Program is developed by Shubham Sajannavar
Roll No : CA172007, Rani Channamma University, Belgavi
Enter 1st Number :
sa
Enter valid Number

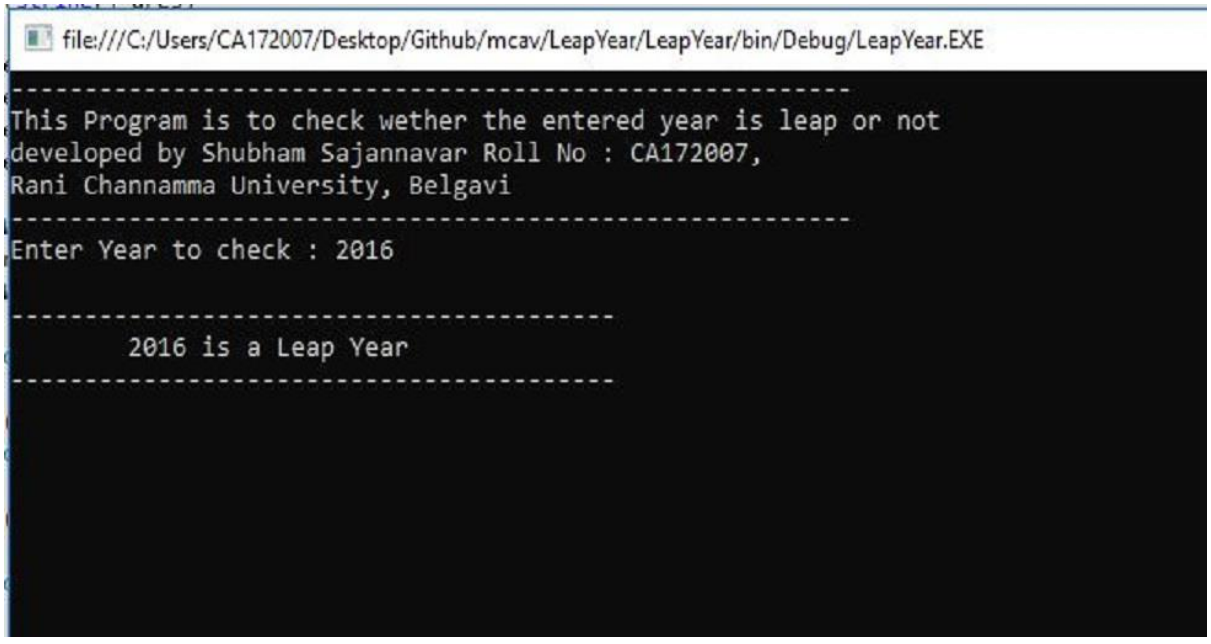

file:///C:/Users/CA172007/Desktop/Github/mcav/ArthmaticOperation/ArthmaticOperation/bin/Debug/ArthmaticOperation.EXE
This Program is developed by Shubham Sajannavar
Roll No : CA172007, Rani Channamma University, Belgavi
Enter 1st Number :
1520
Enter 2nd Number :
6565
Addition of 1520 and 6565 = 8085
Substration of 1520 and 6565 = -5045
Multiplication of 1520 and 6565 = 9978800
Division of 1520 and 6565 = 0

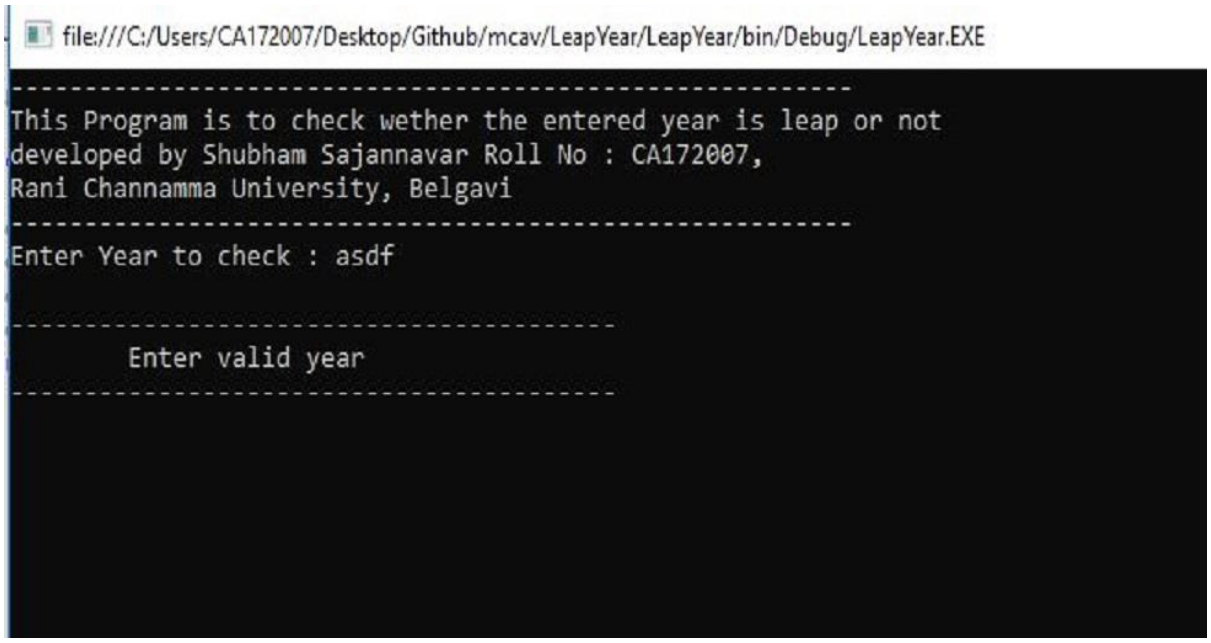
4) Check whether the Entered Year is a Leap or Not.

```
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("Developed by Shubham Sajannavar Roll No : CA172007,");
     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();
      }
   }
}
```

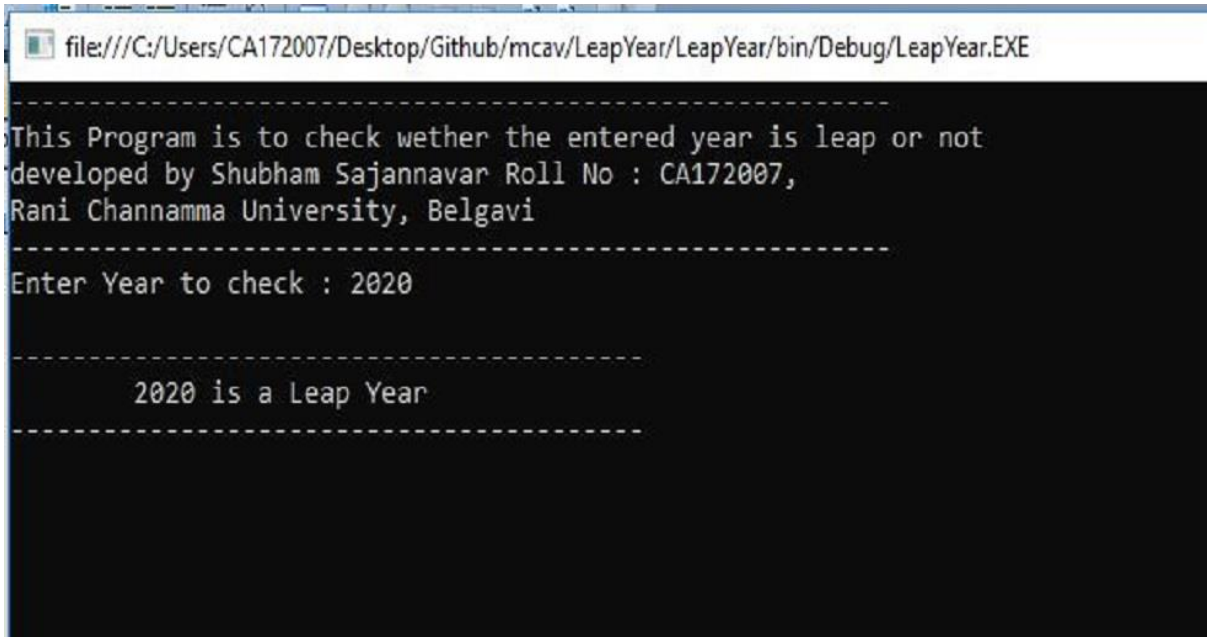
OUTPUT


file:///C:/Users/CA172007/Desktop/Github/mcav/LeapYear/LeapYear/bin/Debug/LeapYear.EXE
This Program is to check wether the entered year is leap or not
developed by Shubham Sajannavar Roll No : CA172007,
Rani Channamma University, Belgavi
Enter Year to check :


file:///C:/Users/CA172007/Desktop/Github/mcav/LeapYear/LeapYear/bin/Debug/LeapYear.EXE
This Program is to check wether the entered year is leap or not
developed by Shubham Sajannavar Roll No : CA172007,
Rani Channamma University, Belgavi
Enter Year to check : 2016
2016 is a Leap Year


file:///C:/Users/CA172007/Desktop/Github/mcav/LeapYear/LeapYear/bin/Debug/LeapYear.EXE
This Program is to check wether the entered year is leap or not
developed by Shubham Sajannavar Roll No : CA172007,
Rani Channamma University, Belgavi
Enter Year to check : asdf
Enter valid year

file:///C:/Users/CA172007/Desktop/Github/mcav/LeapYear/LeapYear/bin/Debug/LeapYear.EXE
This Program is to check wether the entered year is leap or not
developed by Shubham Sajannavar Roll No : CA172007,
Rani Channamma University, Belgavi
Enter Year to check : asdf
Enter valid year

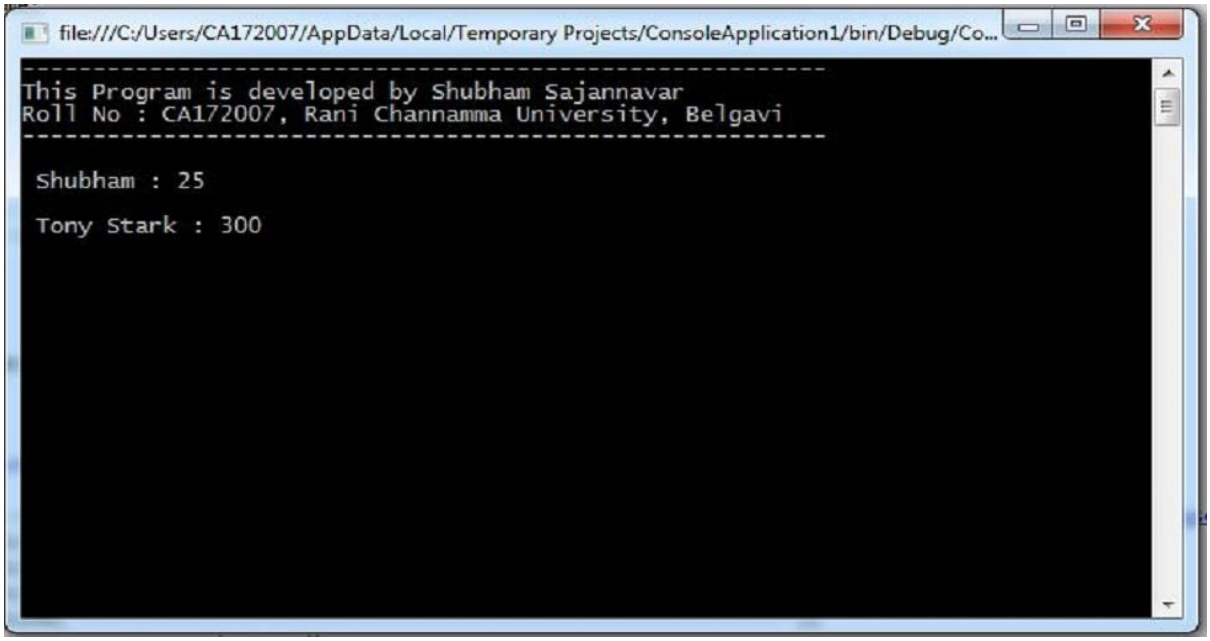

file:///C:/Users/CA172007/Desktop/Github/mcav/LeapYear/LeapYear/bin/Debug/LeapYear.EXE
This Program is to check wether the entered year is leap or not
developed by Shubham Sajannavar Roll No : CA172007,
Rani Channamma University, Belgavi
Enter Year to check : 2020
2020 is a Leap Year

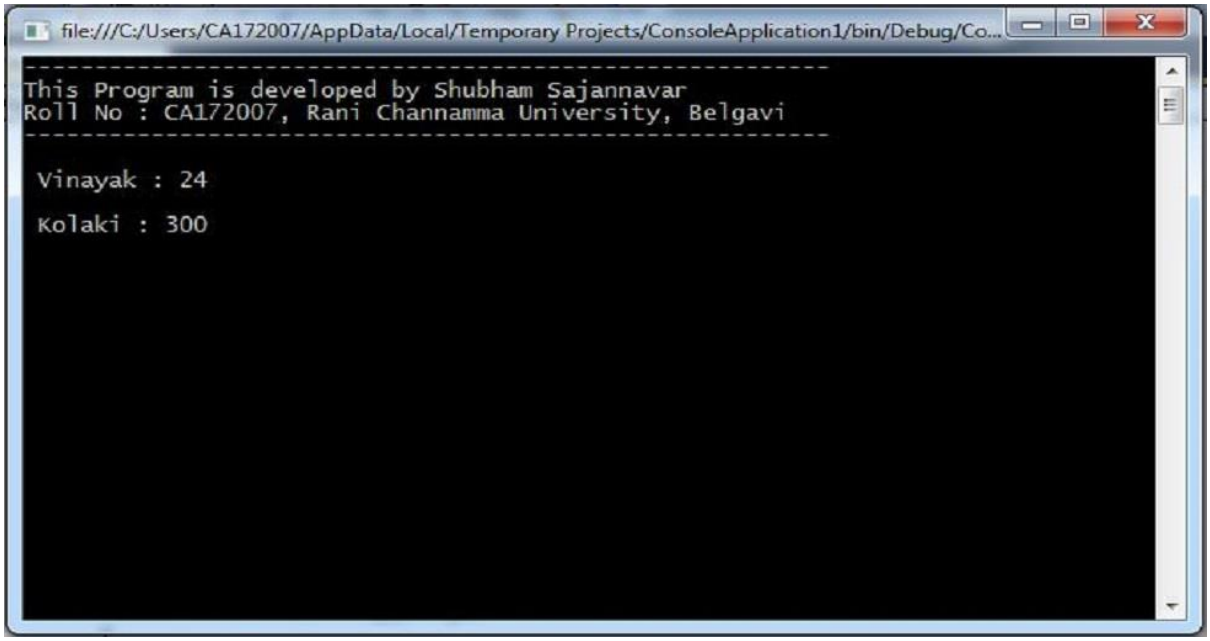
5) Program to illustrate the use of different properties in C#.

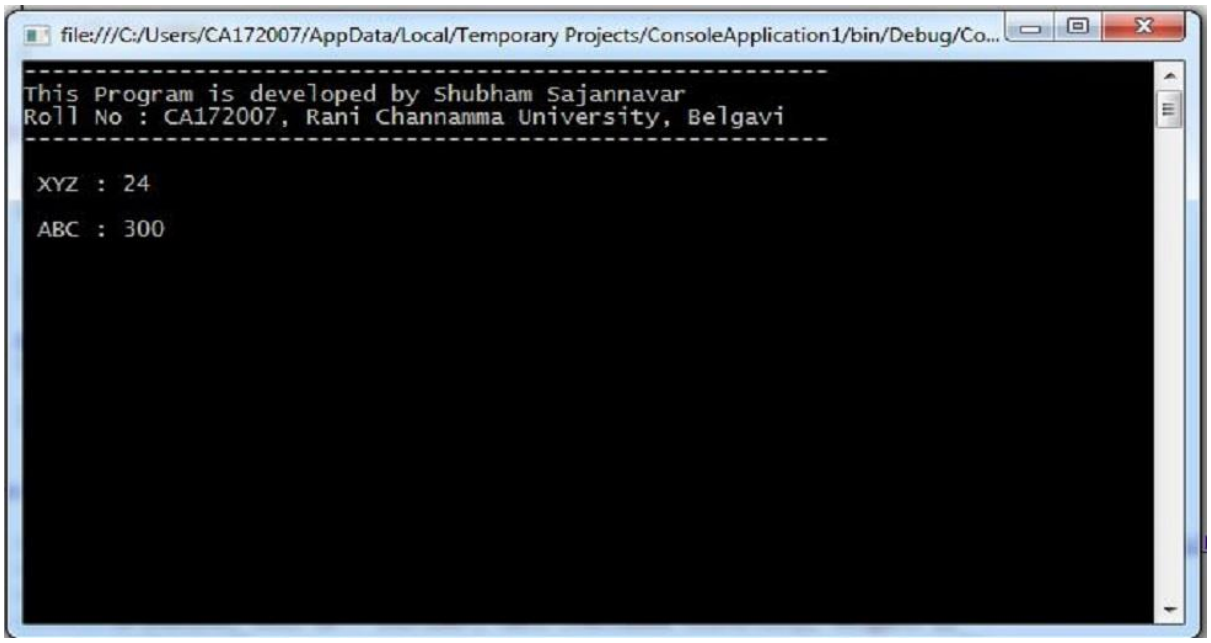
```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;

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;
            }
         }
```

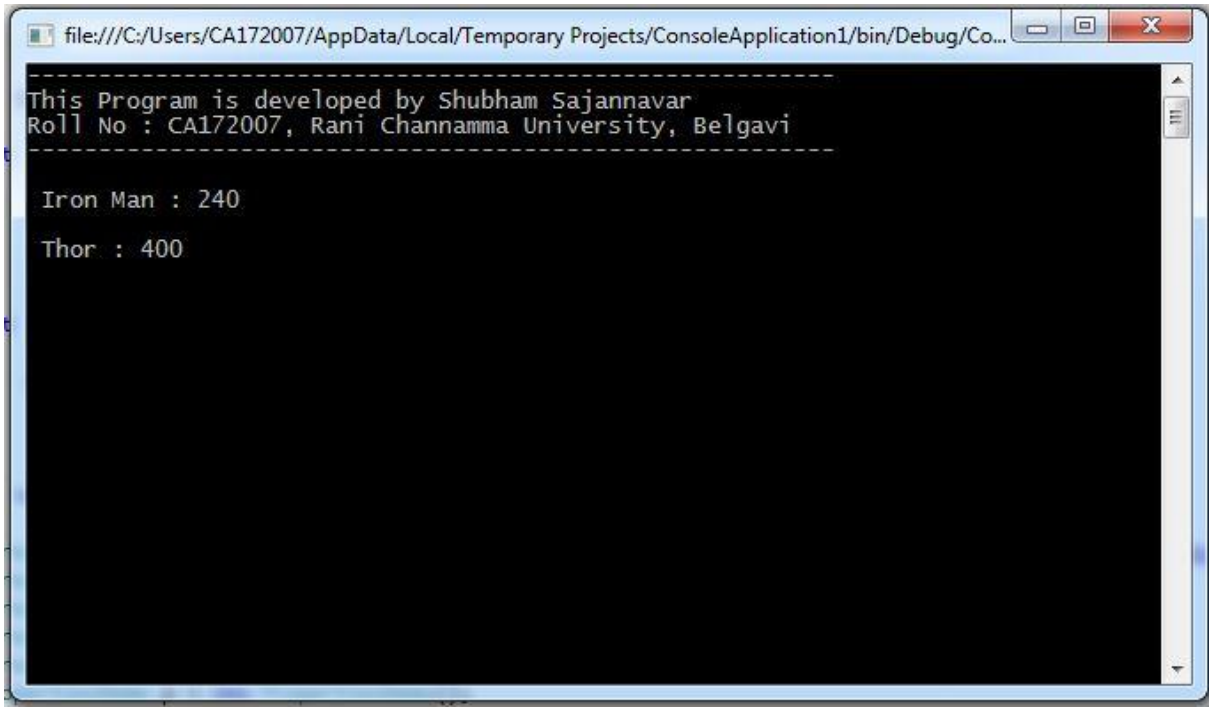
```
        static void Main(string[] args)
        {
            Console.WriteLine("-----------------------------------------------------------");
            Console.WriteLine("This Program is developed by Shubham Sajannavar");
            Console.WriteLine("Roll No : CA172007, Rani Channamma University,
            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();

        }
    }
  }
}
```

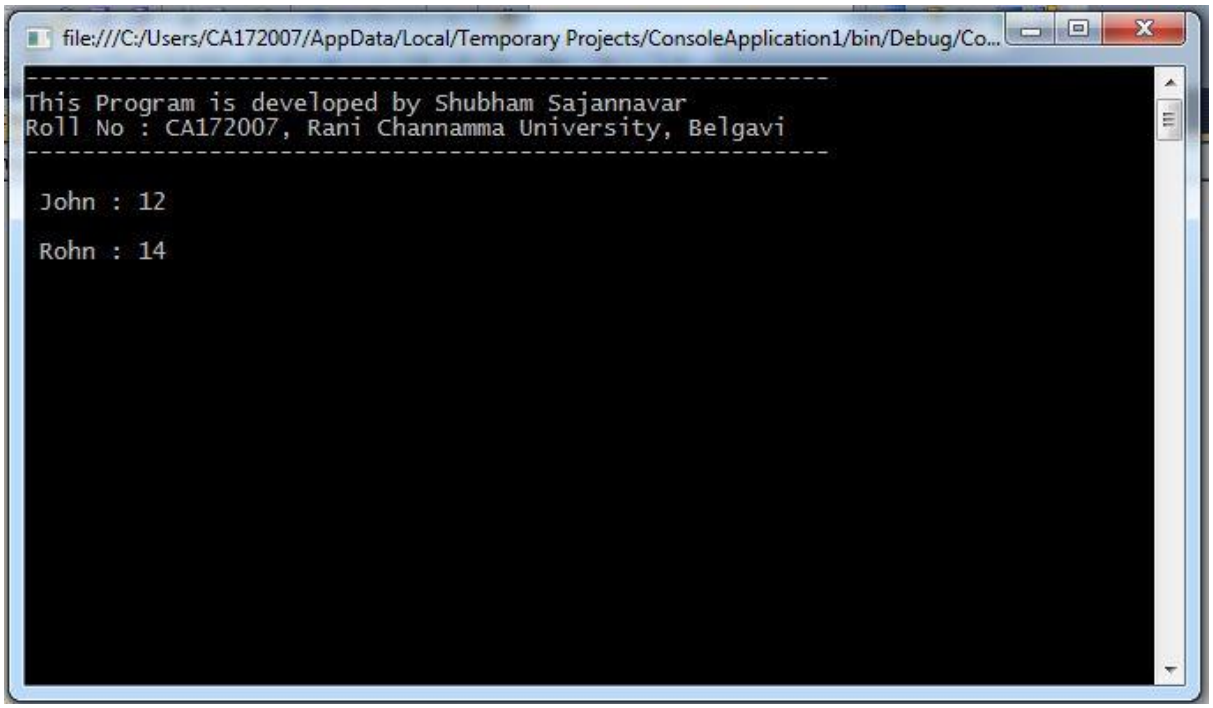
OUTPUT


file:///C:/Users/CA172007/AppData/Local/Temporary Projects/ConsoleApplication1/bin/Debug/Co...
This Program is developed by Shubham Sajannavar
Roll No : CA172007, Rani Channamma University, Belgavi
Shubham : 25
Tony Stark : 300


file:///C:/Users/CA172007/AppData/Local/Temporary Projects/ConsoleApplication1/bin/Debug/Co...
This Program is developed by Shubham Sajannavar
Roll No : CA172007, Rani Channamma University, Belgavi
Vinayak : 24
Kolaki : 300


file:///C:/Users/CA172007/AppData/Local/Temporary Projects/ConsoleApplication1/bin/Debug/Co...
This Program is developed by Shubham Sajannavar
Roll No : CA172007, Rani Channamma University, Belgavi
XYZ : 24
ABC : 300

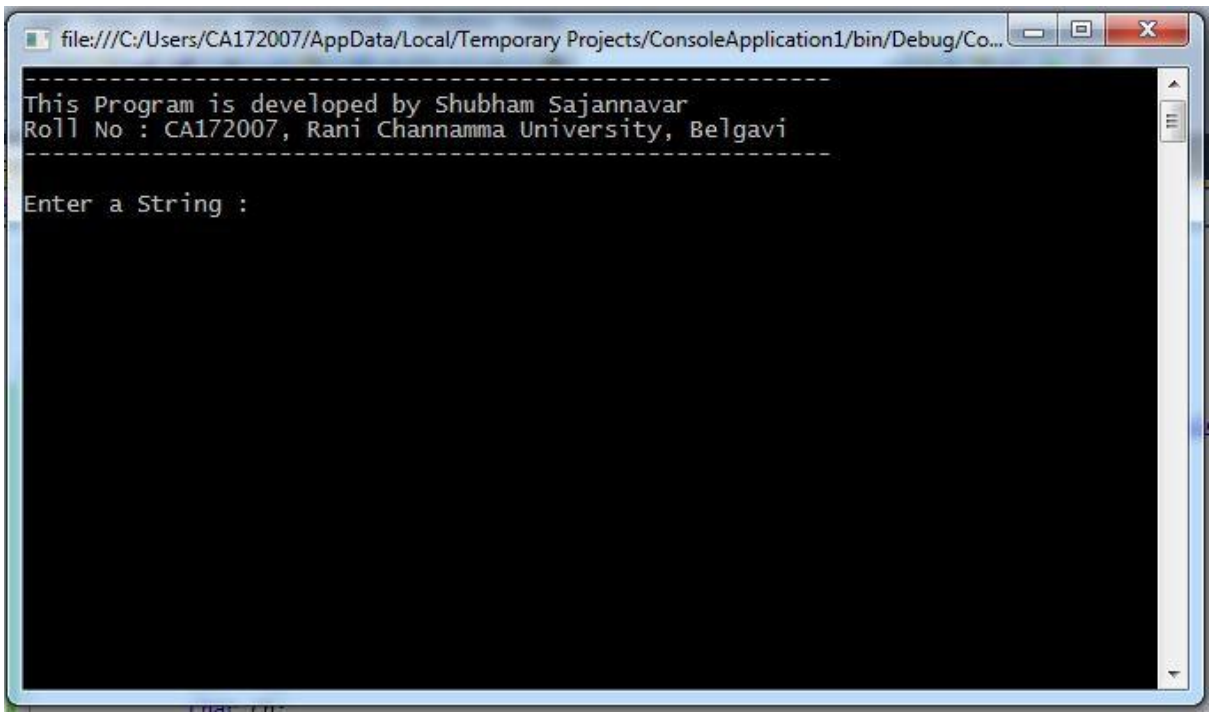

file:///C:/Users/CA172007/AppData/Local/Temporary Projects/ConsoleApplication1/bin/Debug/Co...
This Program is developed by Shubham Sajannavar
Roll No : CA172007, Rani Channamma University, Belgavi
Iron Man : 240
Thor : 400

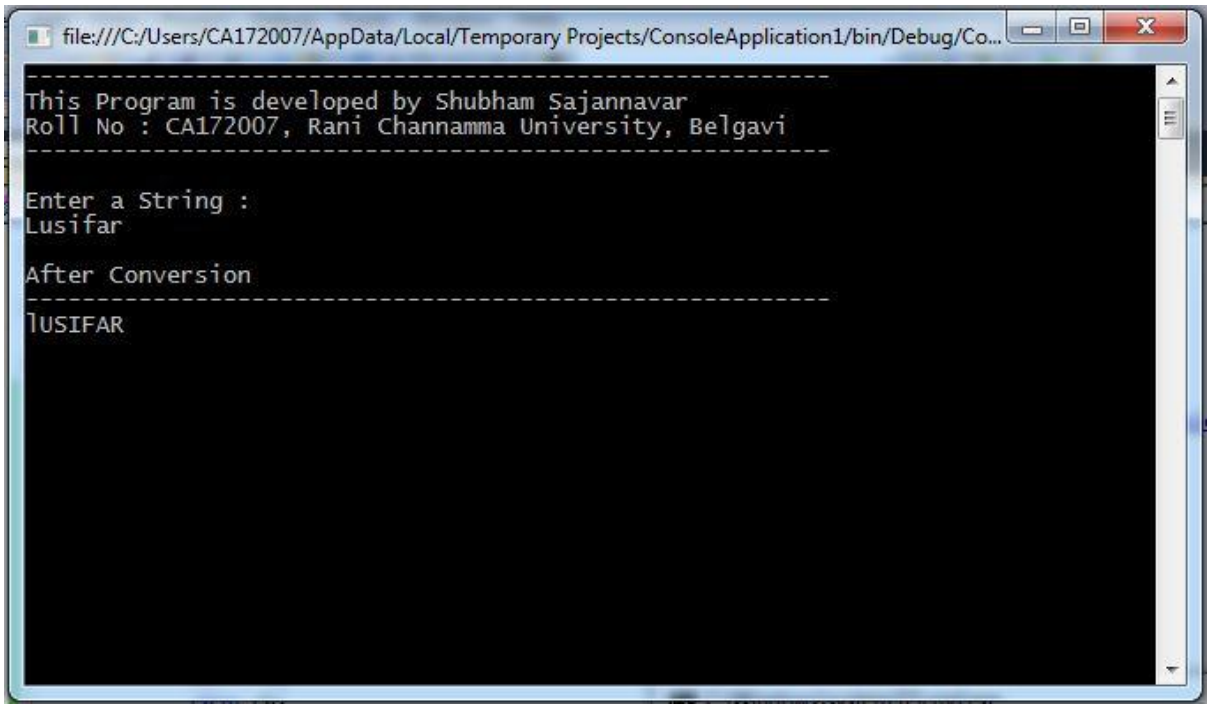

file:///C:/Users/CA172007/AppData/Local/Temporary Projects/ConsoleApplication1/bin/Debug/Co...
This Program is developed by Shubham Sajannavar
Roll No : CA172007, Rani Channamma University, Belgavi
John : 12
Rohn : 14

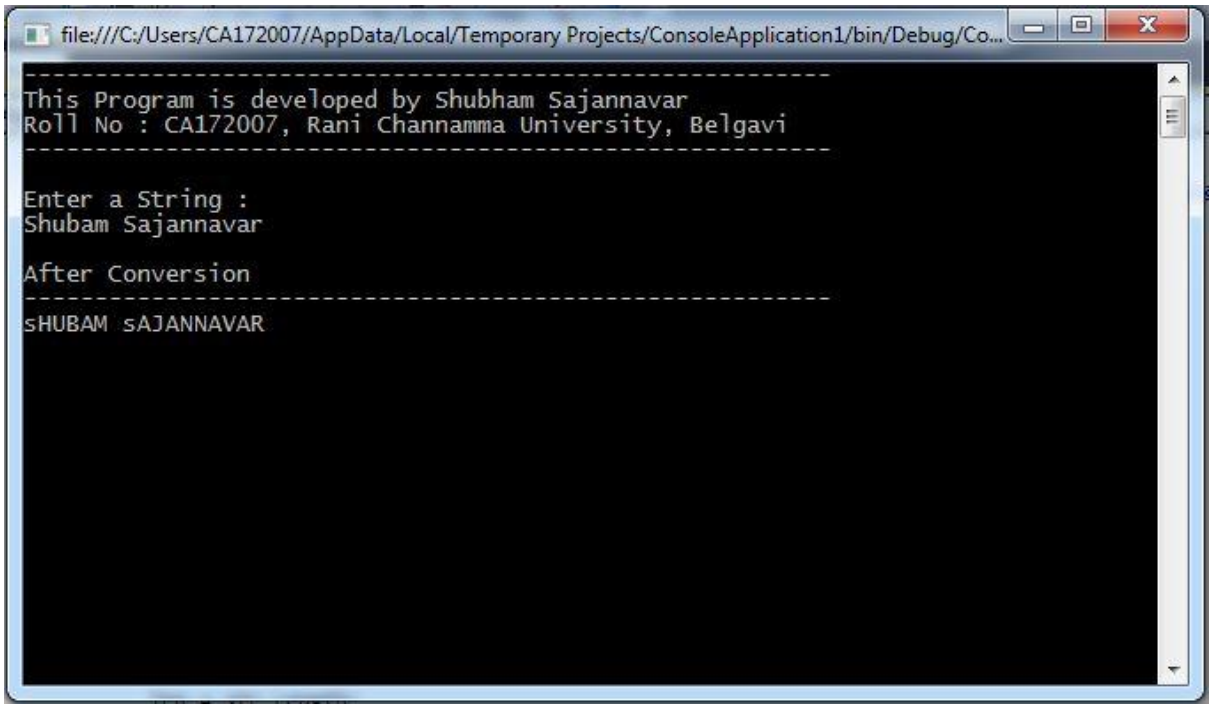
6) Write a program to convert input string from lower to upper and upper to lower case.

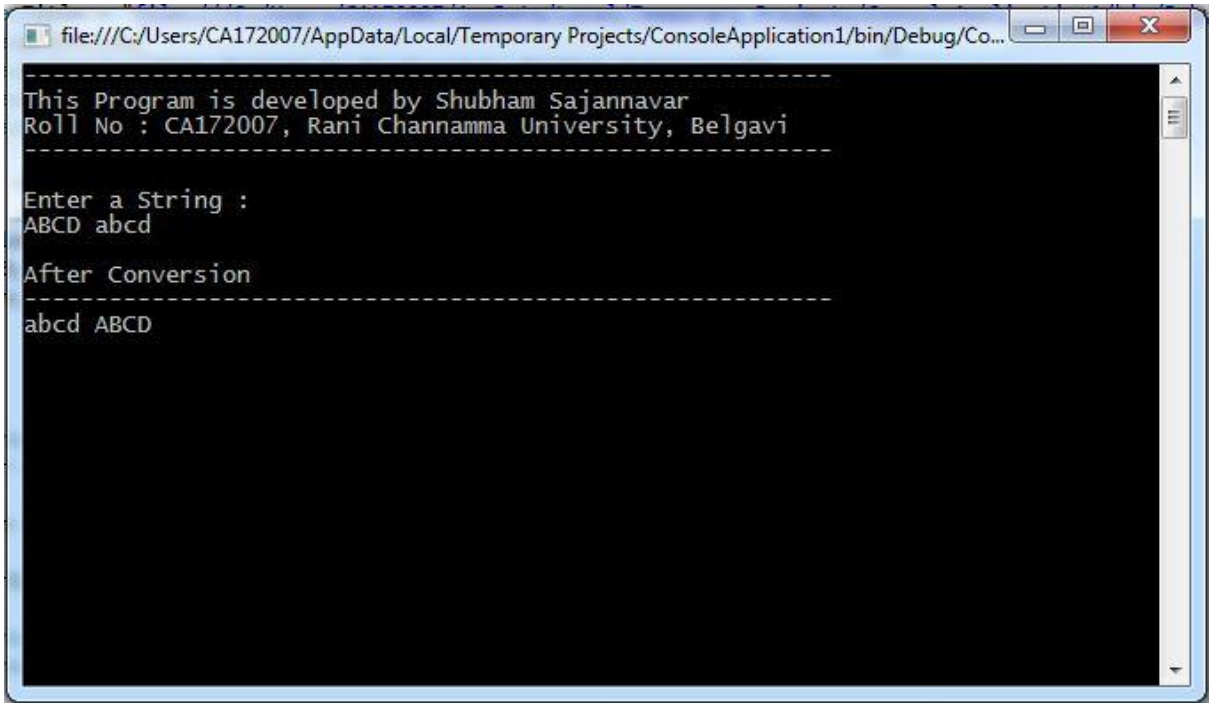
```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;

namespace ConsoleApplication1
{
   class Program
   {
      static void Main(string[] args)
      {
         Console.WriteLine("------------------------------------------------------------");
         Console.WriteLine("This Program is developed by Shubham Sajannavar");
         Console.WriteLine("Roll No : CA172007, Rani Channamma University,
         Belgavi");
         Console.WriteLine("------------------------------------------------------------");

         string str;
         char[] arr1;
         int i,len=0;
         char ch;

         Console.WriteLine("\nEnter a String :");
         str = Console.ReadLine();
         len = str.Length;
         arr1 = str.ToCharArray(0,len);
         Console.WriteLine("\nAfter Conversion");

         for (i = 0; i < len; i++) {
            ch=arr1[i];
            if(Char.IsLower(ch)){
               Console.Write(Char.ToUpper(ch));
            }else{
               Console.Write(Char.ToLower(ch));
            }
         }
         Console.ReadKey();
      }
   }
}
```

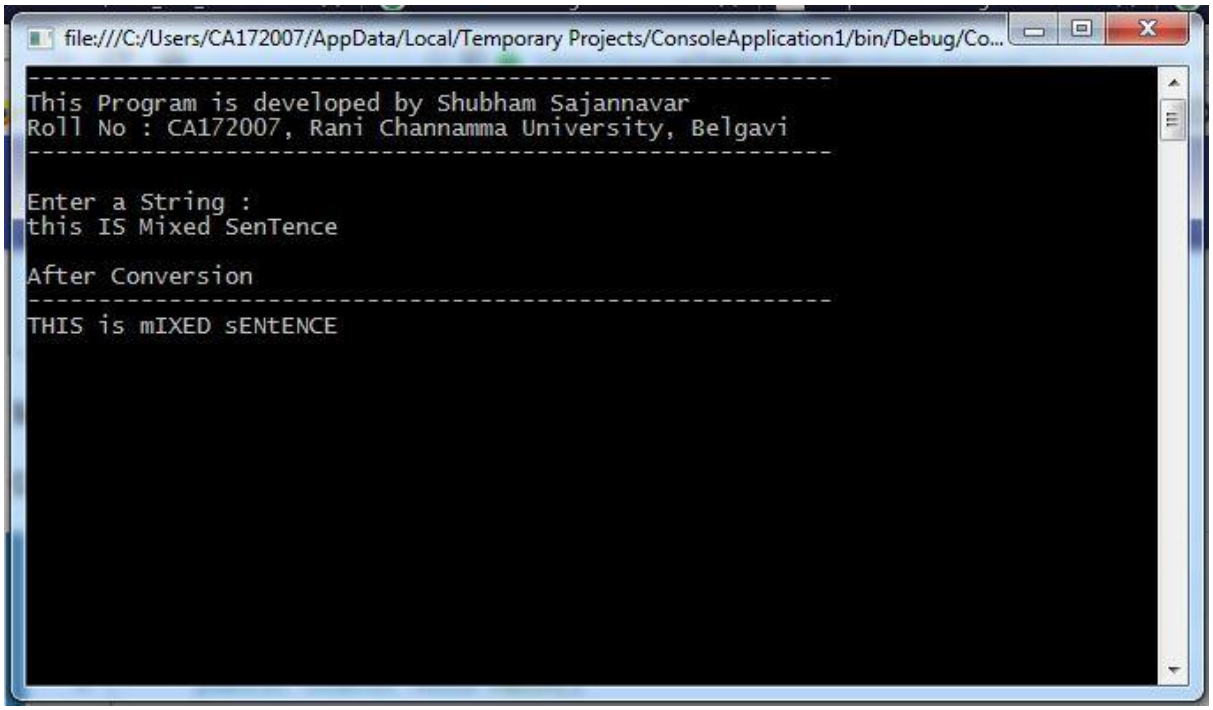
OUTPUT


file:///C:/Users/CA172007/AppData/Local/Temporary Projects/ConsoleApplication1/bin/Debug/Co...
This Program is developed by Shubham Sajannavar
Roll No : CA172007, Rani Channamma University, Belgavi
Enter a String :


file:///C:/Users/CA172007/AppData/Local/Temporary Projects/ConsoleApplication1/bin/Debug/Co...
This Program is developed by Shubham Sajannavar
Roll No : CA172007, Rani Channamma University, Belgavi
Enter a String :
Lusifar
After Conversion
lUSIFAR


file:///C:/Users/CA172007/AppData/Local/Temporary Projects/ConsoleApplication1/bin/Debug/Co...
This Program is developed by Shubham Sajannavar
Roll No : CA172007, Rani Channamma University, Belgavi
Enter a String :
Shubam Sajannavar
After Conversion
sHUBAM sAJANNAVAR

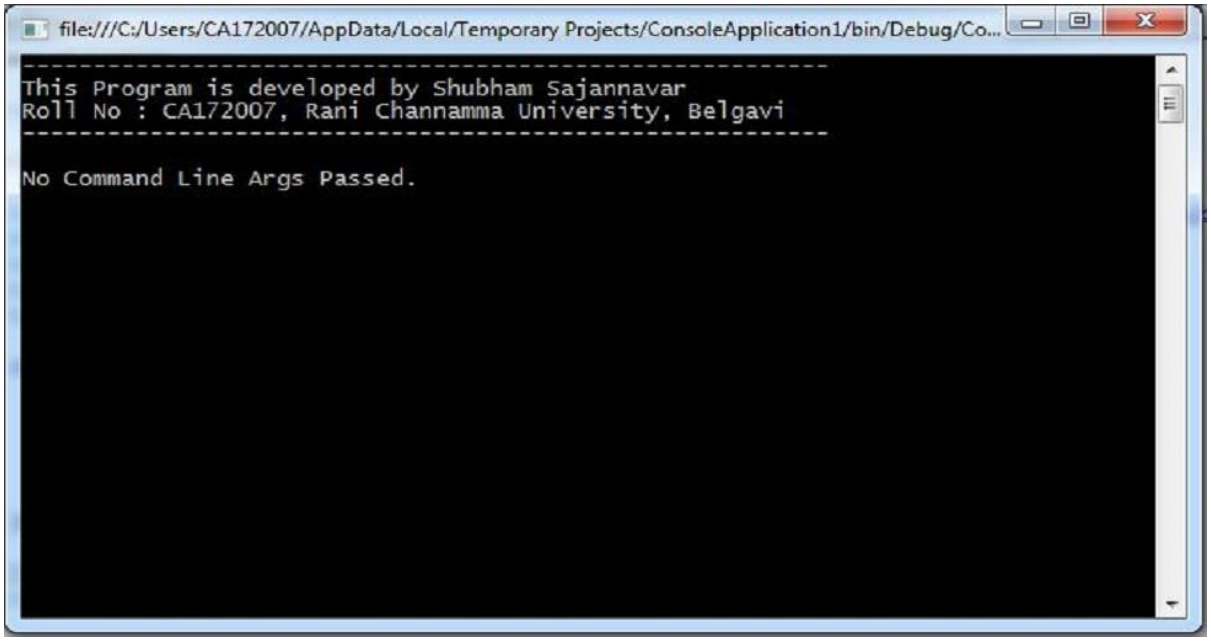

file:///C:/Users/CA172007/AppData/Local/Temporary Projects/ConsoleApplication1/bin/Debug/Co...
This Program is developed by Shubham Sajannavar
Roll No : CA172007, Rani Channamma University, Belgavi
Enter a String :
ABCD abcd
After Conversion
abcd ABCD

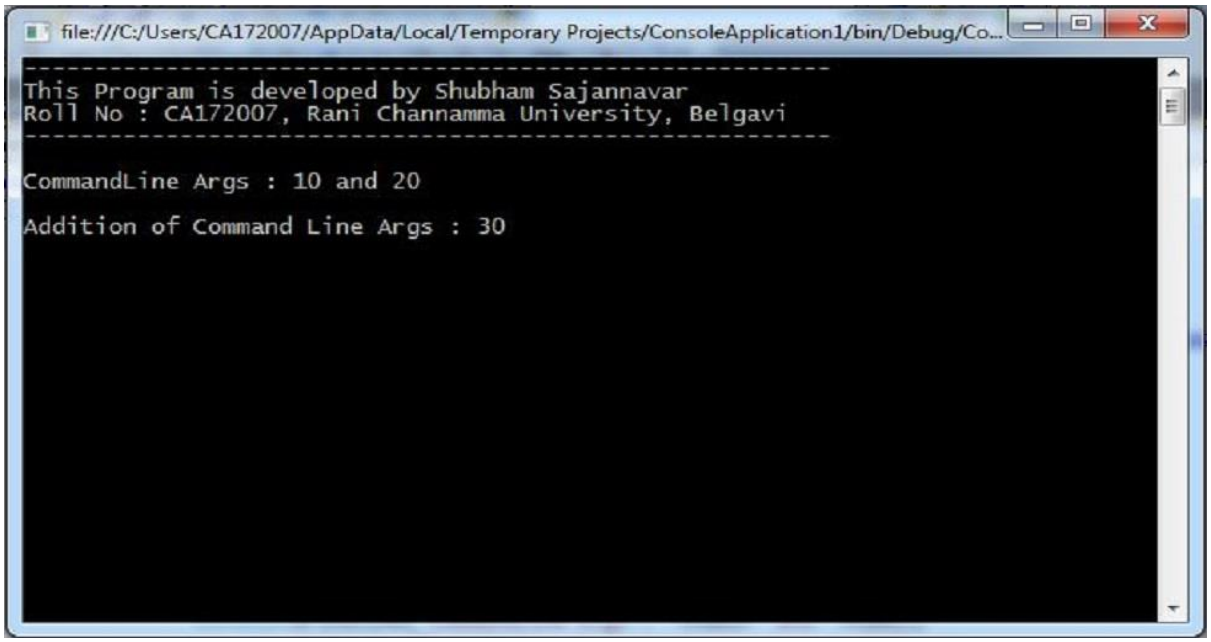

file:///C:/Users/CA172007/AppData/Local/Temporary Projects/ConsoleApplication1/bin/Debug/Co...
This Program is developed by Shubham Sajannavar
Roll No : CA172007, Rani Channamma University, Belgavi
Enter a String :
this IS Mixed SenTence
After Conversion
THIS is mIXED sENtENCE

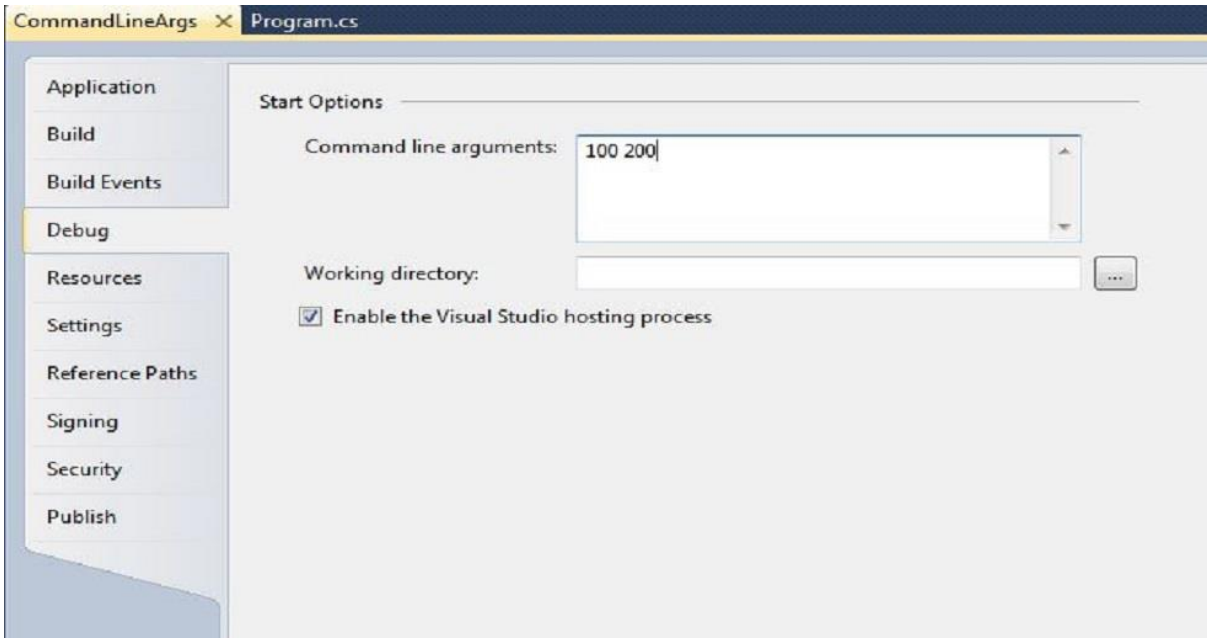
7) Demonstrate Command line arguments processing.

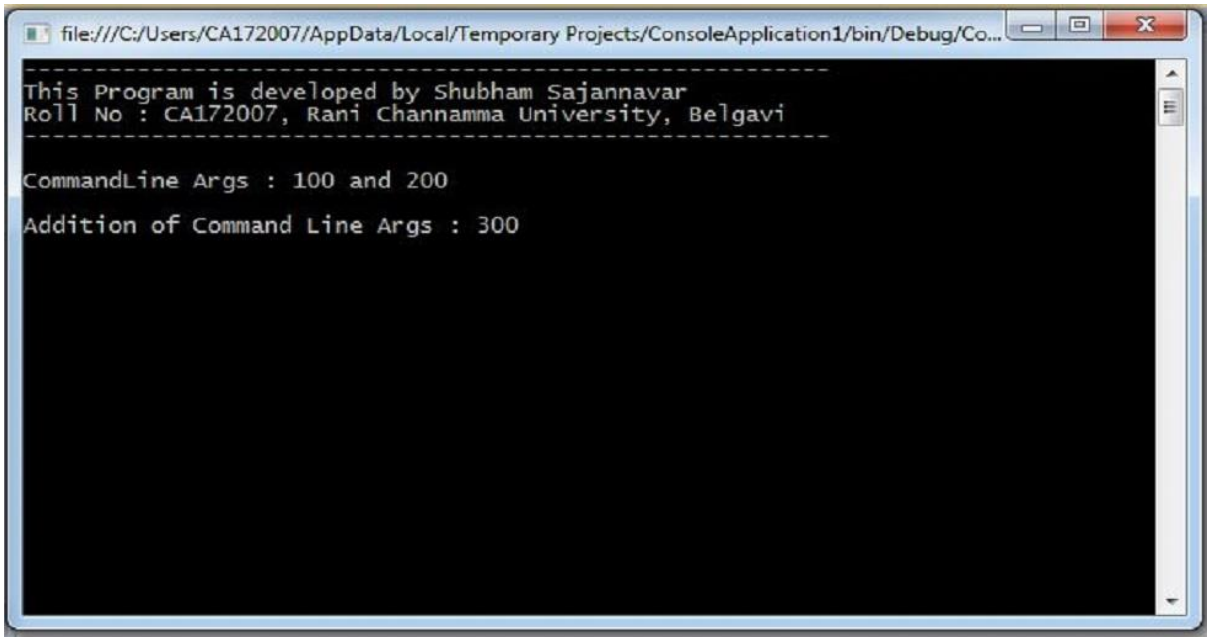
```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;

namespace CommandLineArgs
{
   class Program
   {
      static void Main(string[] args)
      {
         Console.WriteLine("------------------------------------------------------------");
         Console.WriteLine("This Program is developed by Shubham Sajannavar");
         Console.WriteLine("Roll No : CA172007, Rani Channamma University,
         Belgavi");
         Console.WriteLine("------------------------------------------------------------\n");
         try
         {
            if (args.Length >= 2)
            {
               int num1 = Int32.Parse(args[0]);
               int num2 = Int32.Parse(args[1]);
               int sum = num1 + num2;

               Console.WriteLine("CommandLine Args : " + num1 + " and " + num2);
               Console.WriteLine("\nAddition of Command Line Args : {0}", sum);
            }
            else
            {
               Console.WriteLine("No Command Line Args Passed.");
            }
         }
         catch (Exception ex) {
            Console.WriteLine("Invalid Args Passwd");
         }
         Console.ReadKey();
      }
   }
}
```

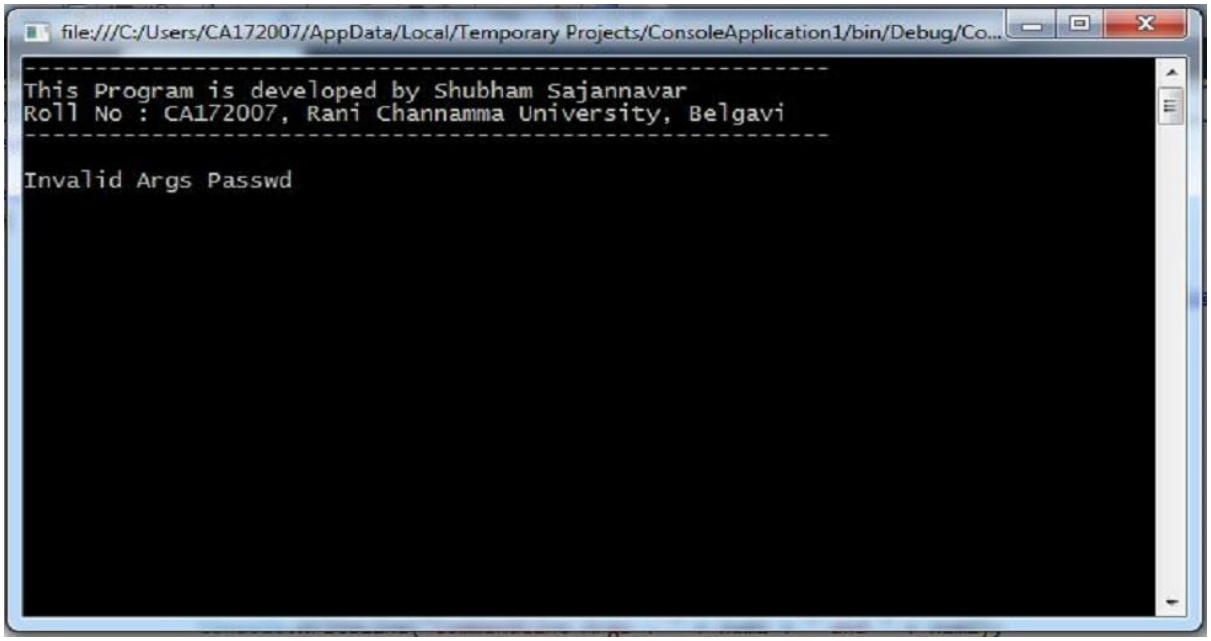
OUTPUT


file:///C:/Users/CA172007/AppData/Local/Temporary Projects/ConsoleApplication1/bin/Debug/Co...
This Program is developed by Shubham Sajannavar
Roll No : CA172007, Rani Channamma University, Belgavi
No Command Line Args Passed.


file:///C:/Users/CA172007/AppData/Local/Temporary Projects/ConsoleApplication1/bin/Debug/Co...
This Program is developed by Shubham Sajannavar
Roll No : CA172007, Rani Channamma University, Belgavi
CommandLine Args : 10 and 20
Addition of Command Line Args : 30


CommandLineArgs
Program.cs
Application
Build
Build Events
Debug
Resources
Settings
Reference Paths
Signing
Security
Publish
Start Options
Command line arguments:
100 200
Working directory:
...
Enable the Visual Studio hosting process

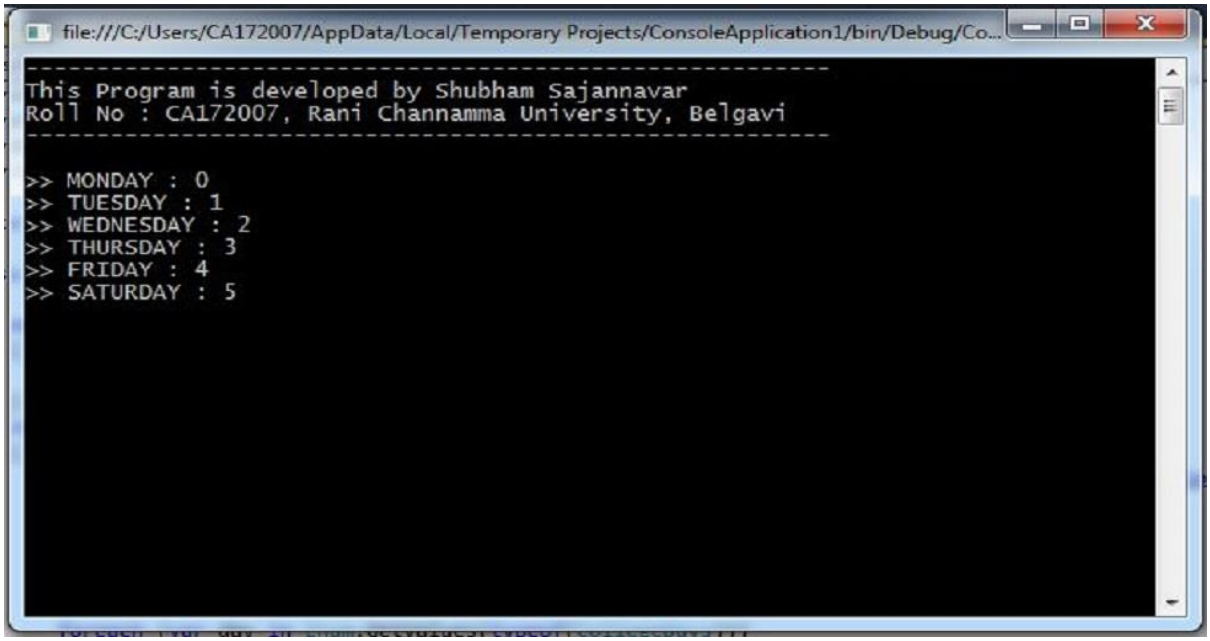

file:///C:/Users/CA172007/AppData/Local/Temporary Projects/ConsoleApplication1/bin/Debug/Co...
This Program is developed by Shubham Sajannavar
Roll No : CA172007, Rani Channamma University, Belgavi
CommandLine Args : 100 and 200
Addition of Command Line Args : 300


file:///C:/Users/CA172007/AppData/Local/Temporary Projects/ConsoleApplication1/bin/Debug/Co...
This Program is developed by Shubham Sajannavar
Roll No : CA172007, Rani Channamma University, Belgavi
Invalid Args Passwd

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 Enumerations
{
   class Program
   {
      enum CollegeDays
      {
         MONDAY, TUESDAY, WEDNESDAY, THURSDAY, FRIDAY, SATURDAY
      }
      static void Main(string[] args)
      {
         Console.WriteLine("------------------------------------------------------------");
         Console.WriteLine("This Program is developed by Shubham Sajannavar");
         Console.WriteLine("Roll No : CA172007, Rani Channamma University,
         Belgavi");
         Console.WriteLine("------------------------------------------------------------\n");

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

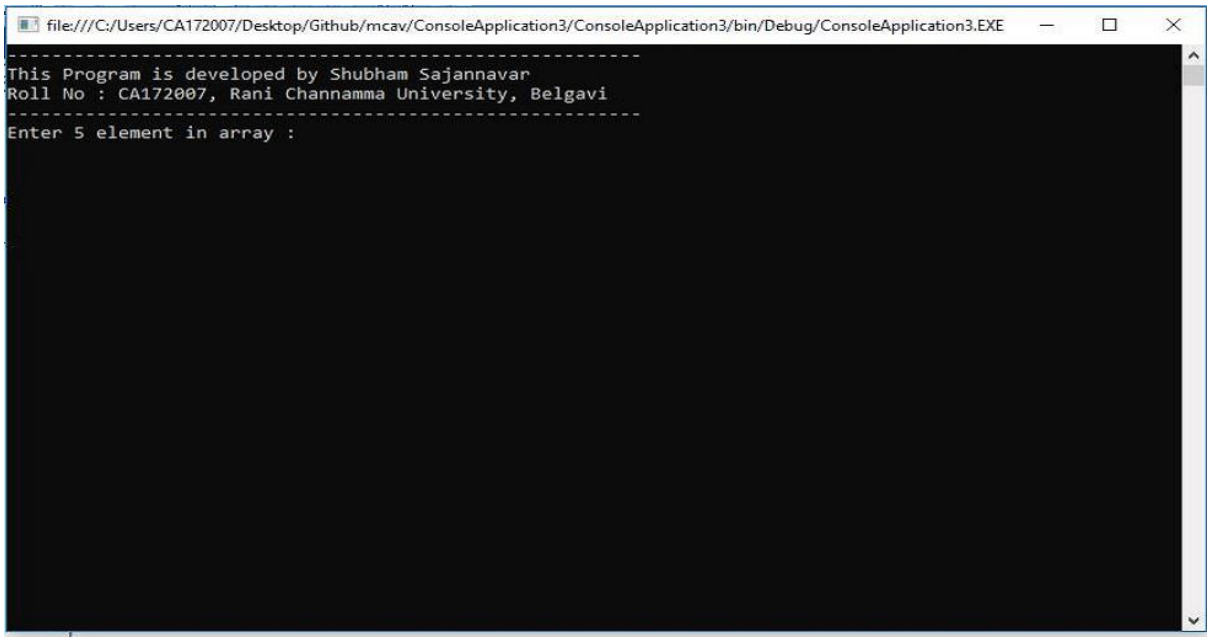
OUTPUT

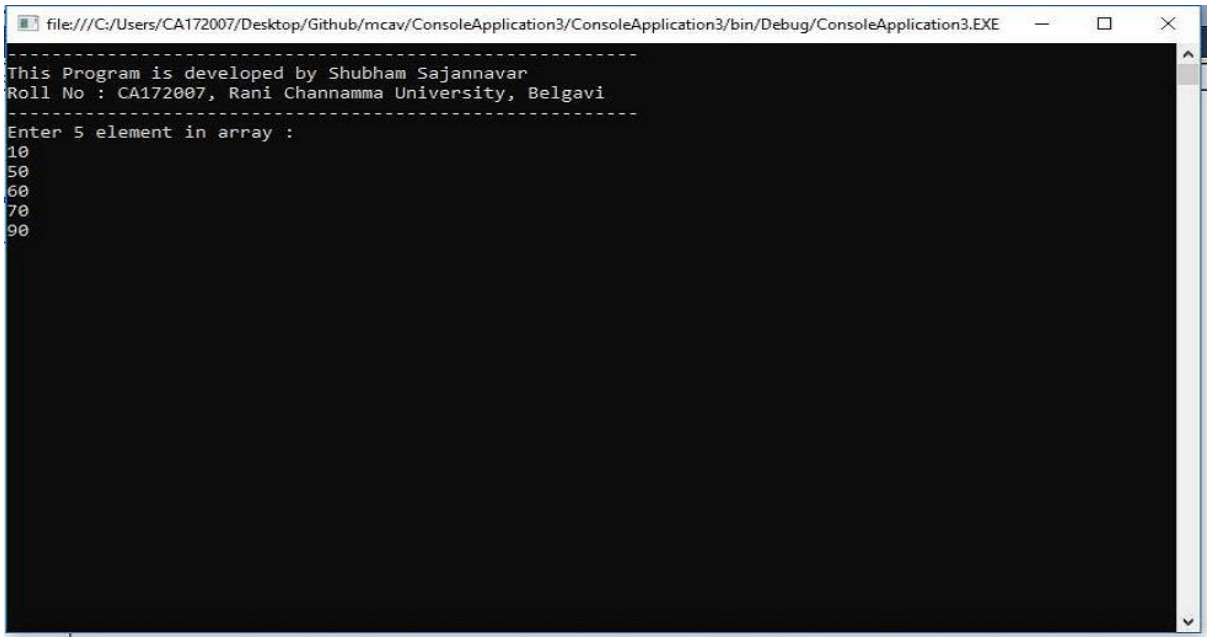

file:///C:/Users/CA172007/AppData/Local/Temporary Projects/ConsoleApplication1/bin/Debug/Co...
This Program is developed by Shubham Sajannavar
Roll No : CA172007, Rani Channamma University, Belgavi
>> MONDAY : 0
>> TUESDAY : 1
>> WEDNESDAY : 2
>> THURSDAY : 3
>> FRIDAY : 4
>> SATURDAY : 5

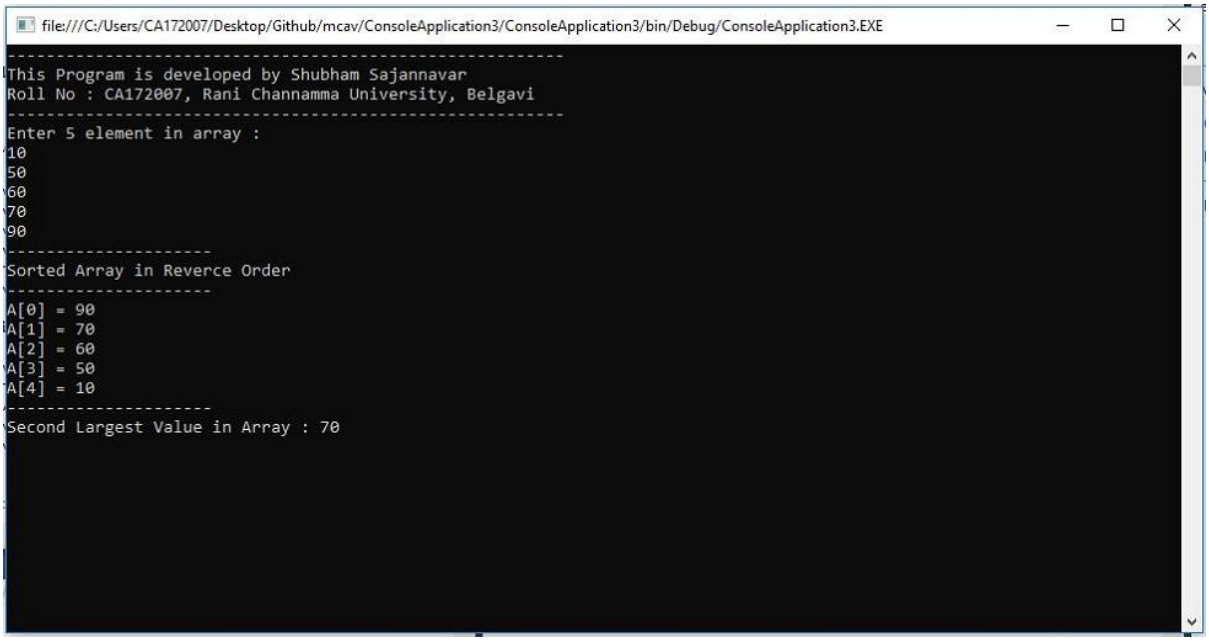
9) Find the second largest element in single dimensional array.

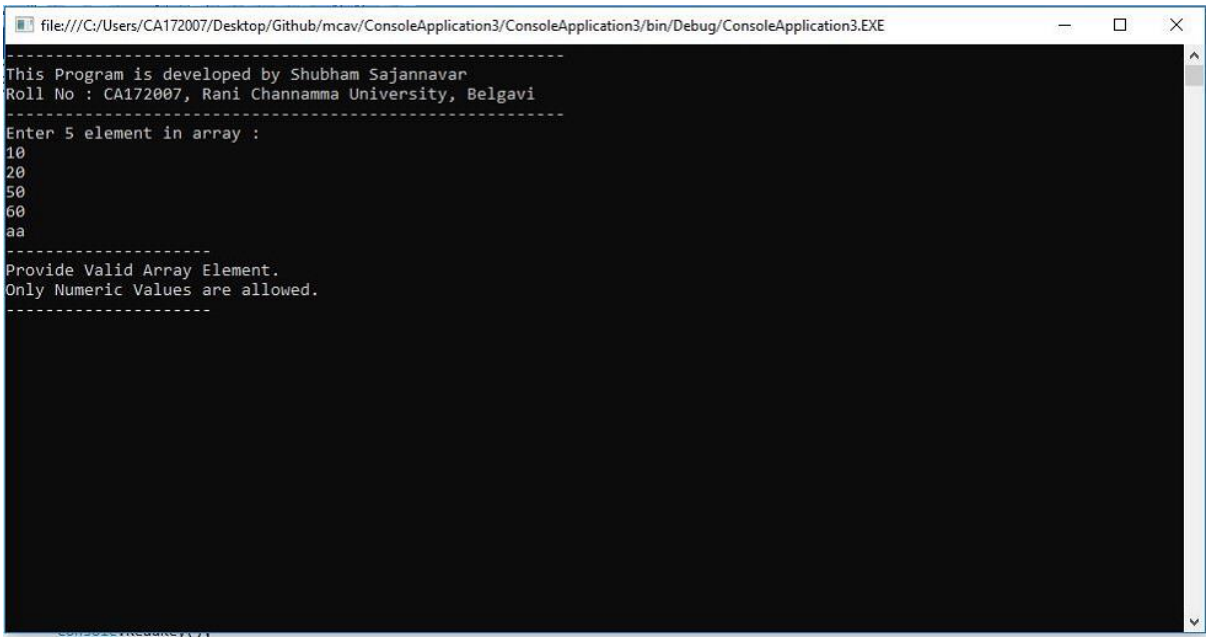
```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;

namespace ConsoleApplication3
{
   class Program
   {
      static void Main(string[] args)
      {
         try
         {
            Console.WriteLine("------------------------------------------------------------");
            Console.WriteLine("This Program is developed by Shubham Sajannavar");
            Console.WriteLine("Roll No : CA172007, Rani Channamma University,
            Belgavi");
            Console.WriteLine("------------------------------------------------------------");
            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();
      }
   }
}
```

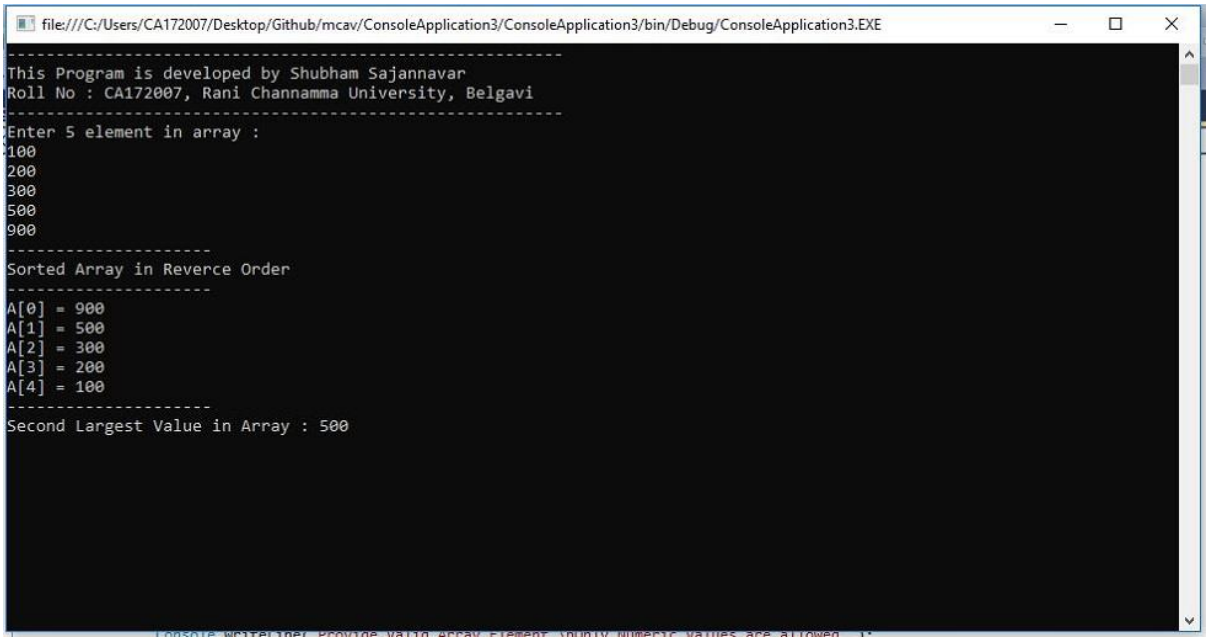
OUTPUT


file:///C:/Users/CA172007/Desktop/Github/mcav/ConsoleApplication3/ConsoleApplication3/bin/Debug/ConsoleApplication3.EXE
This Program is developed by Shubham Sajannavar
Roll No : CA172007, Rani Channamma University, Belgavi
Enter 5 element in array :


file:///C:/Users/CA172007/Desktop/Github/mcav/ConsoleApplication3/ConsoleApplication3/bin/Debug/ConsoleApplication3.EXE
This Program is developed by Shubham Sajannavar
Roll No : CA172007, Rani Channamma University, Belgavi
Enter 5 element in array :
10
50
60
70
90


file:///C:/Users/CA172007/Desktop/Github/mcav/ConsoleApplication3/ConsoleApplication3/bin/Debug/ConsoleApplication3.EXE
This Program is developed by Shubham Sajannavar
Roll No : CA172007, Rani Channamma University, Belgavi
Enter 5 element in array :
10
50
60
70
90
Sorted Array in Reverce Order
A[0] = 90
A[1] = 70
A[2] = 60
A[3] = 50
A[4] = 10
Second Largest Value in Array : 70


file:///C:/Users/CA172007/Desktop/Github/mcav/ConsoleApplication3/ConsoleApplication3/bin/Debug/ConsoleApplication3.EXE
This Program is developed by Shubham Sajannavar
Roll No : CA172007, Rani Channamma University, Belgavi
Enter 5 element in array :
10
20
50
60
aa
Provide Valid Array Element.
Only Numeric Values are allowed.


file:///C:/Users/CA172007/Desktop/Github/mcav/ConsoleApplication3/ConsoleApplication3/bin/Debug/ConsoleApplication3.EXE
This Program is developed by Shubham Sajannavar
Roll No : CA172007, Rani Channamma University, Belgavi
Enter 5 element in array :
100
200
300
500
900
Sorted Array in Reverce Order
A[0] = 900
A[1] = 500
A[2] = 300
A[3] = 200
A[4] = 100
Second Largest Value in Array : 500