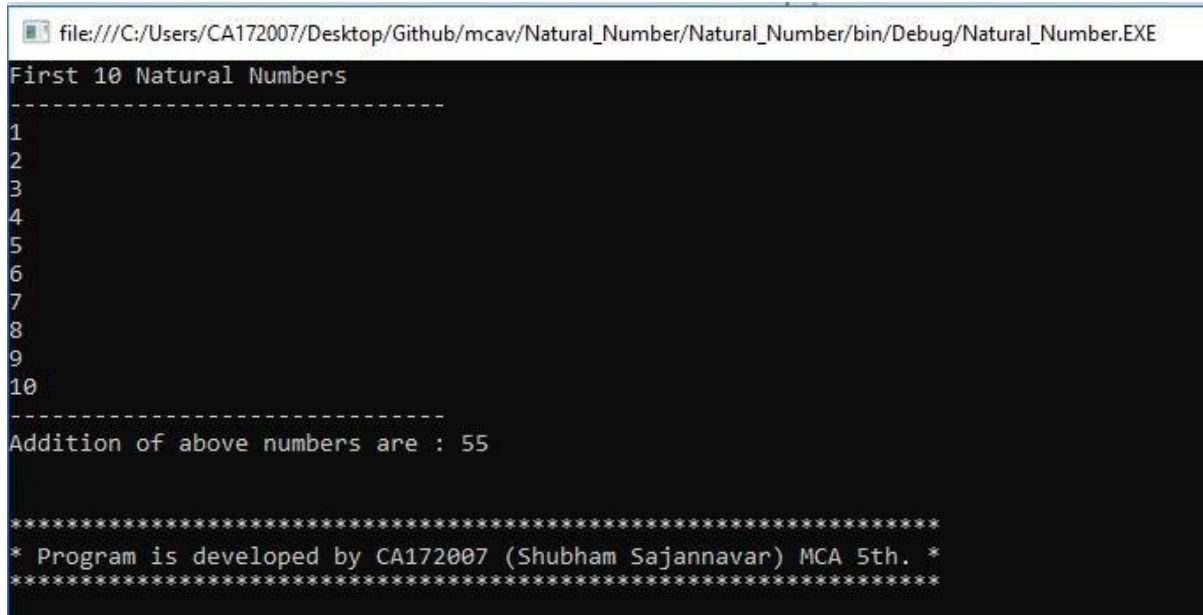


1) Program to display the first 10 natural numbers and their sum using console application.

```
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

Addition

Program is developed by CA172007 (Shubham Sajannavar) MCA 5th.

Addition Using Window Application

Addition

Enter First No

Enter Second No

Addition

Program is developed by CA172007 (Shubham Sajannavar) MCA 5th.

Addition Using Window Application

Addition

Enter First No 1001111

Enter Second No 20022222

Addition 21023333

Program is developed by CA172007 (Shubham Sajannavar) MCA 5th.

Addition Using Window Application

Addition

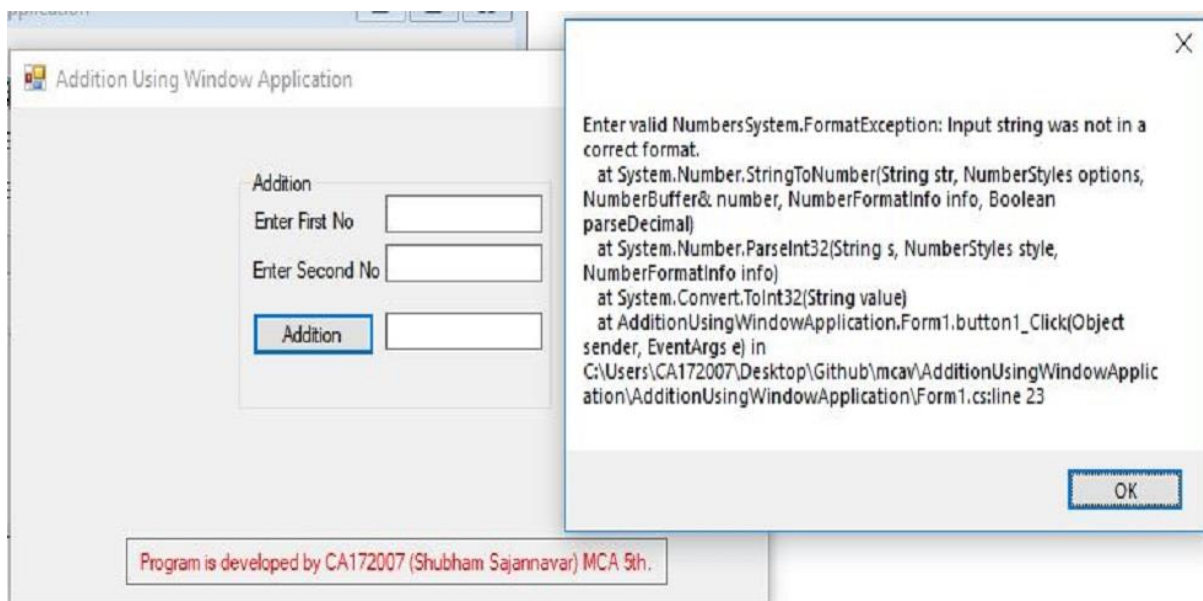
Enter First No

Enter Second No

Addition

Enter valid Numbers

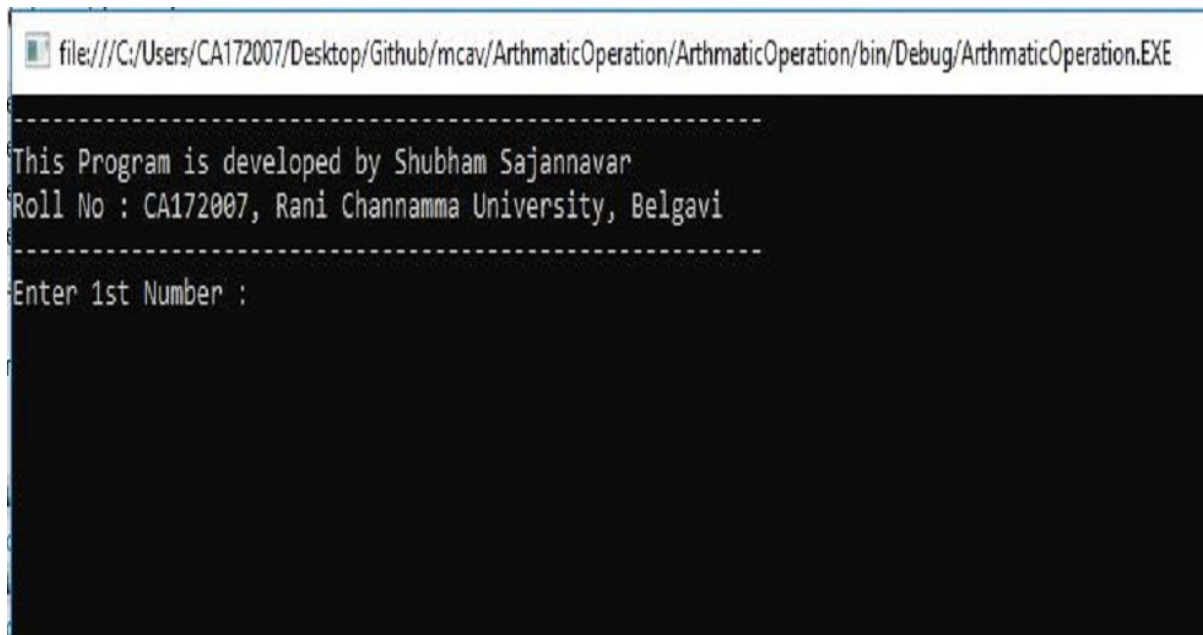
Program is developed by CA172007 (Shubham Sajannavar) MCA 5th.



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

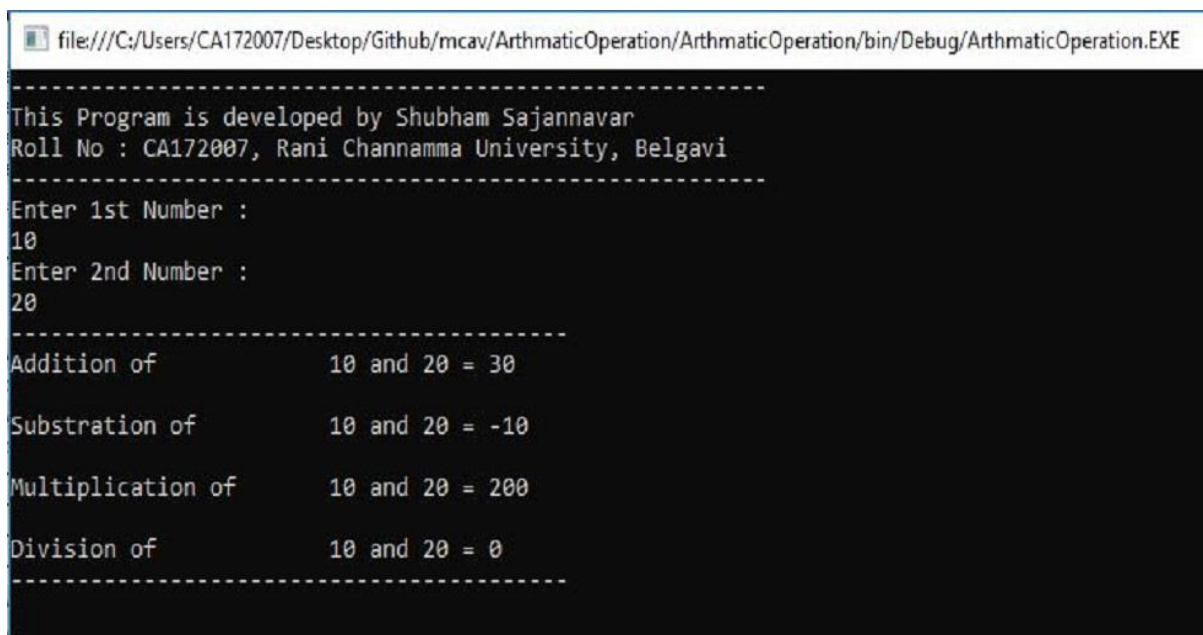
```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;

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("\nSubstraction 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/ArithmeticOperation/ArithmeticOperation/bin/Debug/ArithmeticOperation.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/ArithmeticOperation/ArithmeticOperation/bin/Debug/ArithmeticOperation.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
Substraction 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
Substraction 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

Substraction of 1520 and 6565 = -5045

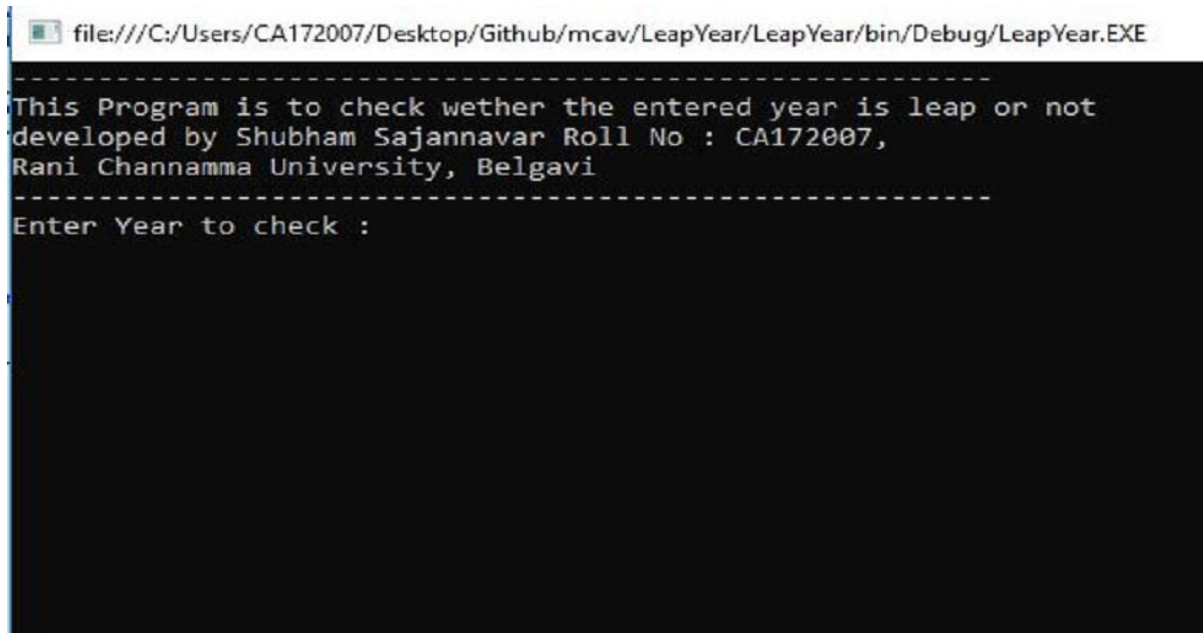
Multiplication of 1520 and 6565 = 9978800

Division of 1520 and 6565 = 0

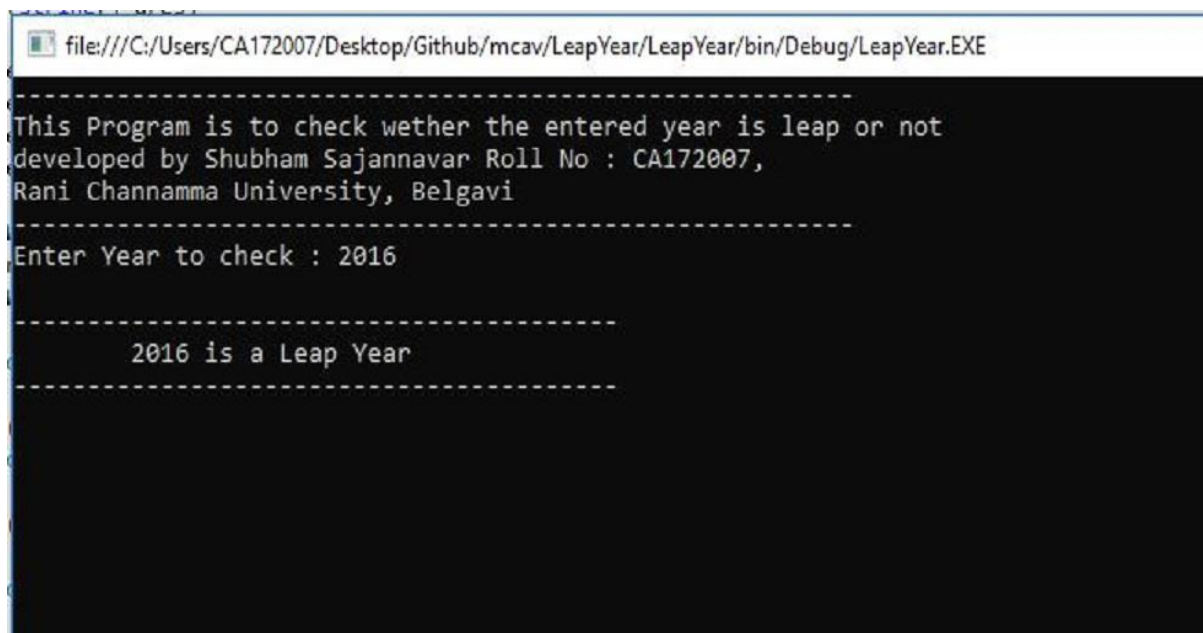
4) Check whether the Entered Year is a Leap or Not.

```
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 : 2017

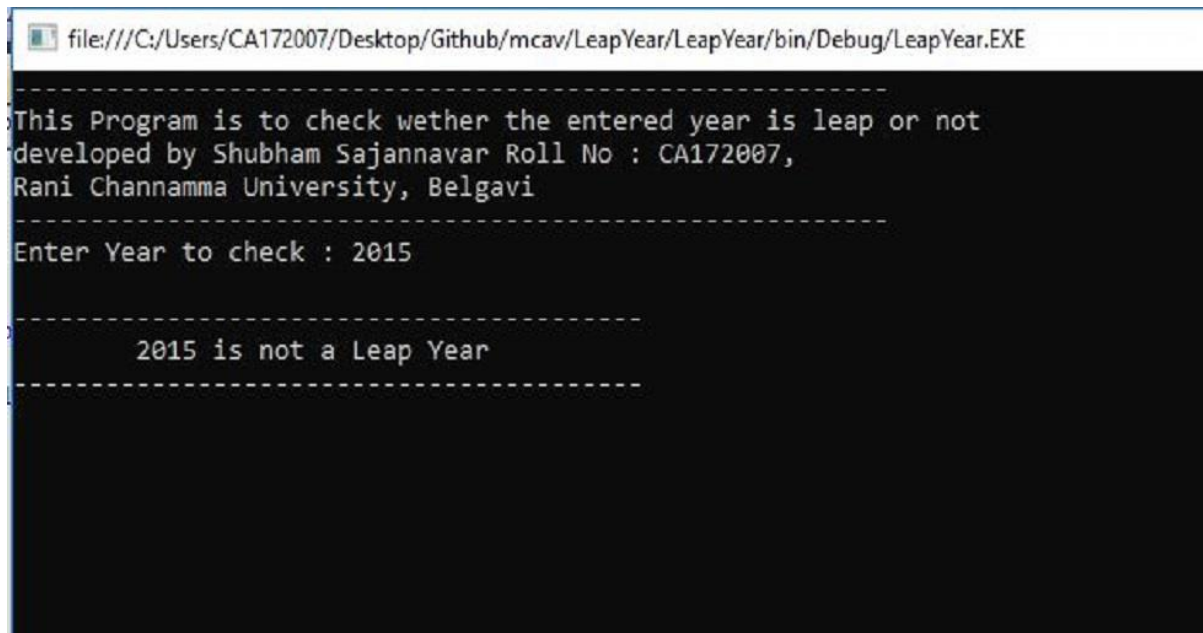
```
-----  
2017 is not a Leap Year  
-----
```

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 : 2015

-----
2015 is not 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;
                }
            }
        }
    }
}
```



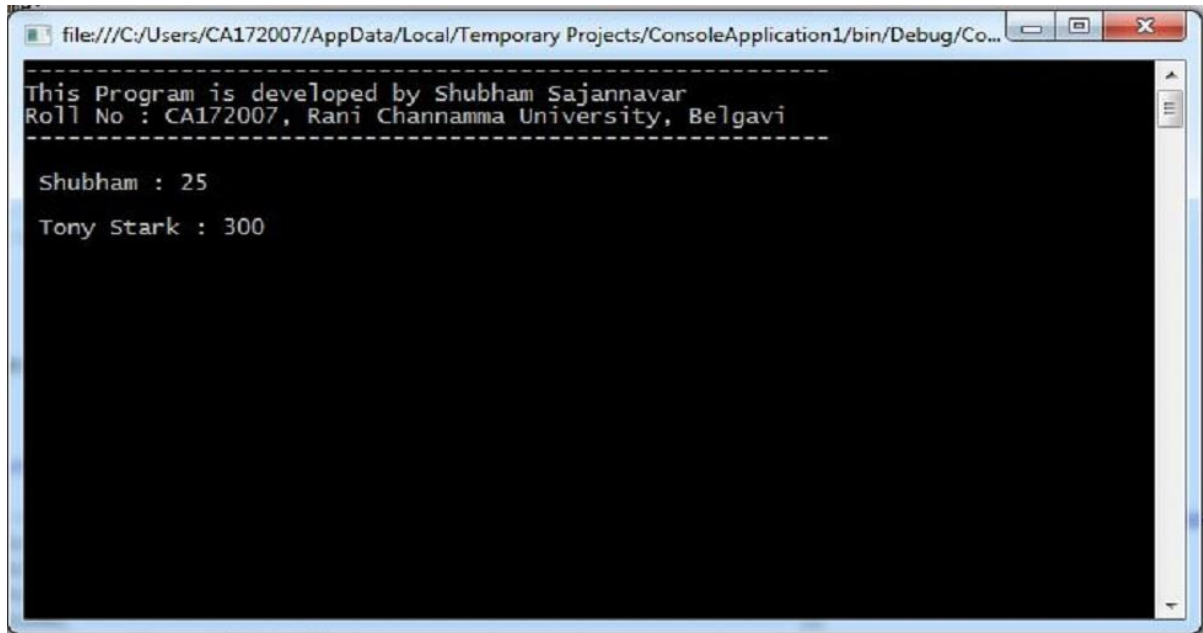
```
static void Main(string[] args)
{
    Console.WriteLine("-----");
    Console.WriteLine("This Program is developed by Shubham Sajannavar");
    Console.WriteLine("Roll No : CA172007, Rani Channamma University,
    Belgavi");
    Console.WriteLine("-----");
    PropertiesDemo p = new PropertiesDemo();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

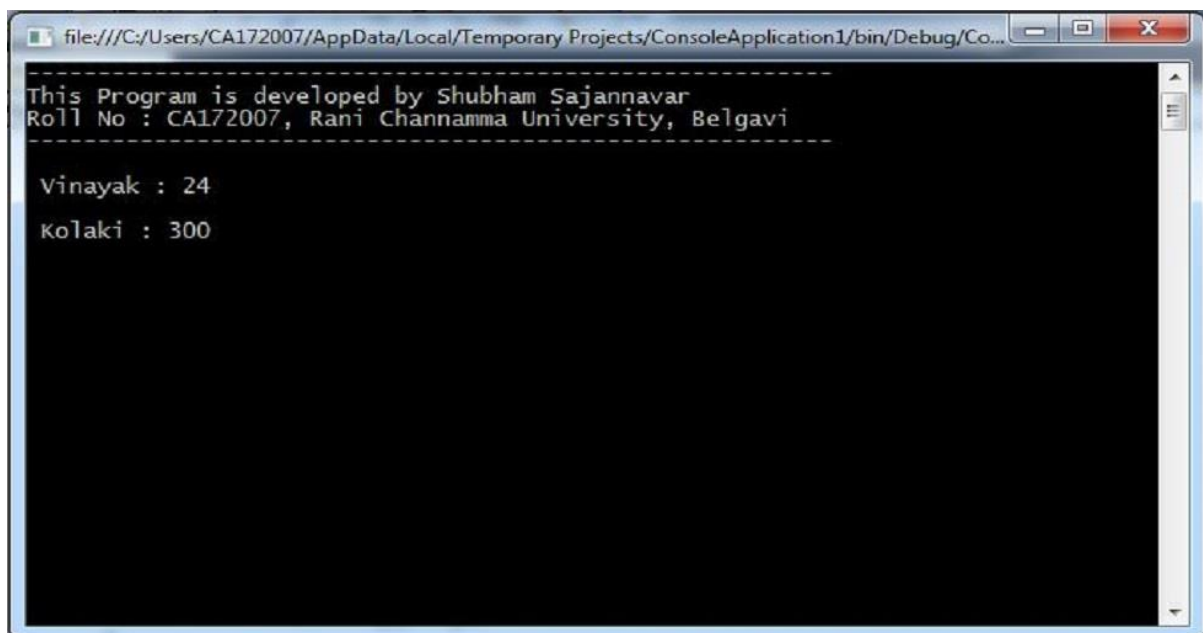
    Console.ReadLine();

}
}
}
```

OUTPUT

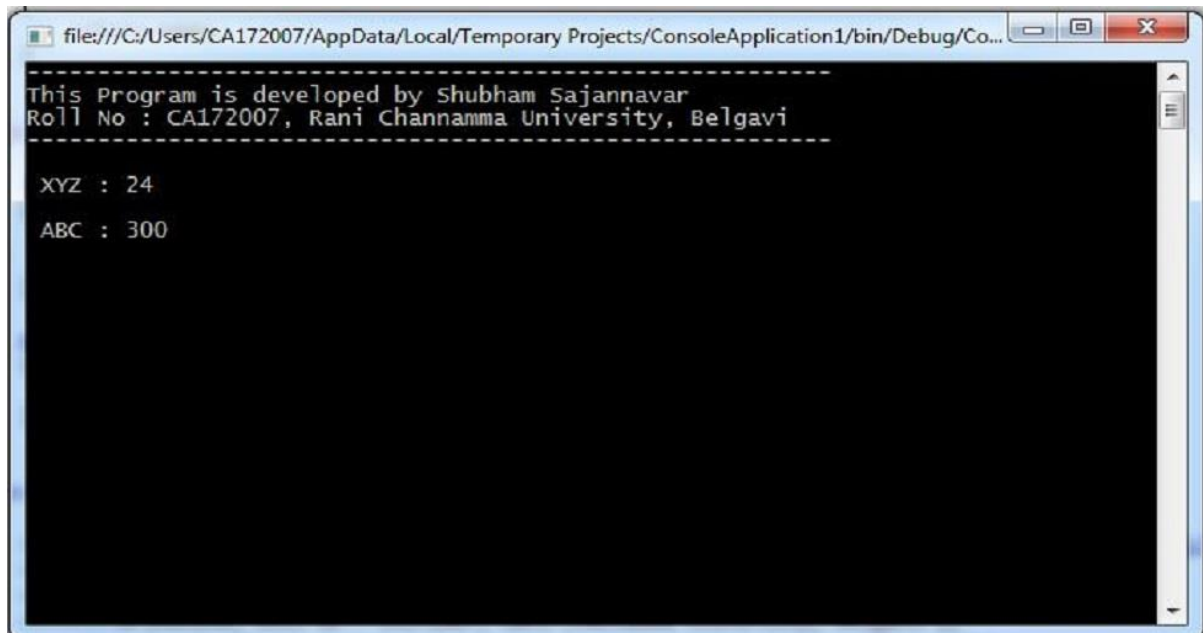
```
file:///C:/Users/CA172007/AppData/Local/Temporary Projects/ConsoleApplication1/bin/Debug/Co...
-----
This Program is developed by Shubham Sajannavar
Roll No : CA172007, Rani Channamma University, Belgavi
-----

Shubham : 25
Tony Stark : 300
```



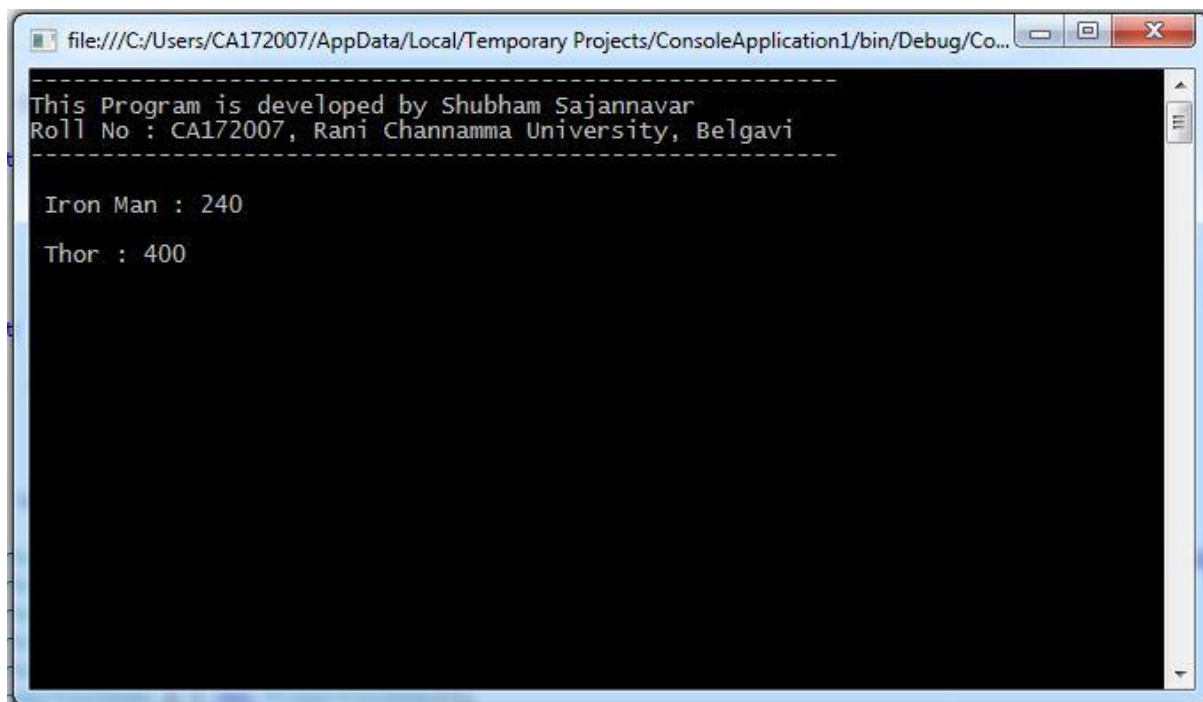
```
file:///C:/Users/CA172007/AppData/Local/Temporary Projects/ConsoleApplication1/bin/Debug/Co...
-----
This Program is developed by Shubham Sajannavar
Roll No : CA172007, Rani Channamma University, Belgavi
-----

Vinayak : 24
kolaki : 300
```



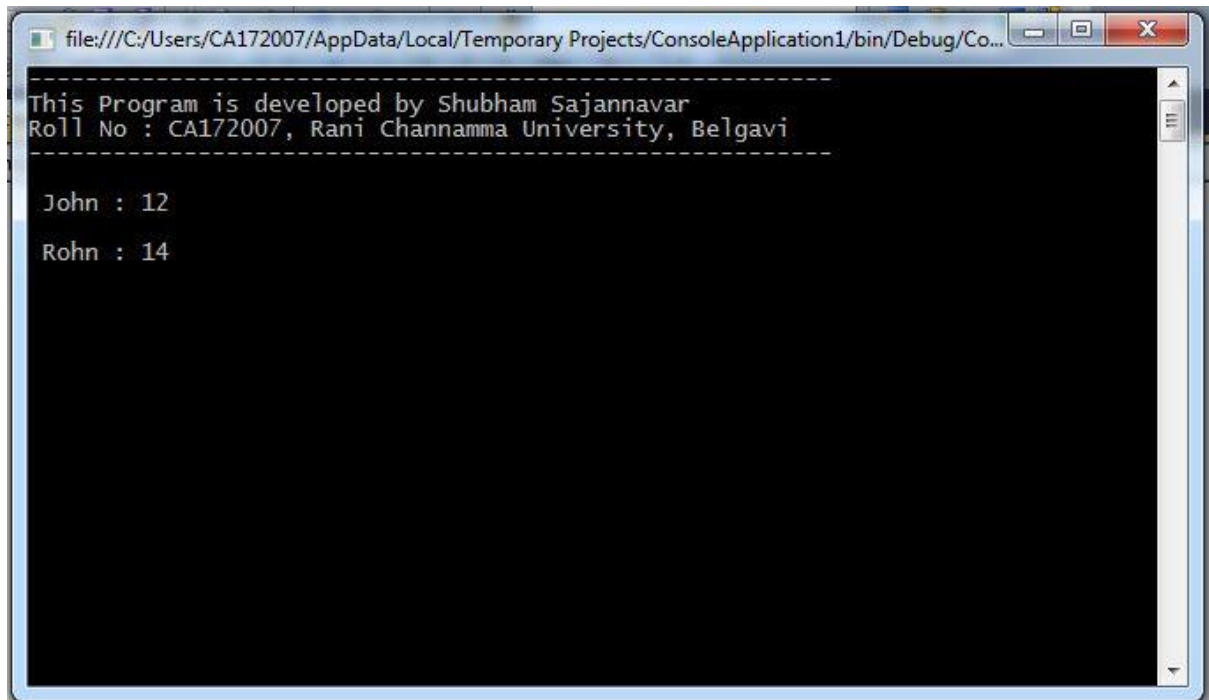
A screenshot of a Windows console window titled "file:///C:/Users/CA172007/AppData/Local/Temporary Projects/ConsoleApplication1/bin/Debug/Co...". The window has a black background with white text. The text is as follows:

```
-----  
This Program is developed by Shubham Sajannavar  
Roll No : CA172007, Rani Channamma University, Belgavi  
-----  
  
XYZ : 24  
ABC : 300
```



A screenshot of a Windows console window titled "file:///C:/Users/CA172007/AppData/Local/Temporary Projects/ConsoleApplication1/bin/Debug/Co...". The window has a black background with white text. The text is as follows:

```
-----  
This Program is developed by Shubham Sajannavar  
Roll No : CA172007, Rani Channamma University, Belgavi  
-----  
  
Iron Man : 240  
Thor : 400
```



The screenshot shows a Windows console window titled "file:///C:/Users/CA172007/AppData/Local/Temporary Projects/ConsoleApplication1/bin/Debug/Co...". The console output is as follows:

```
-----  
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.

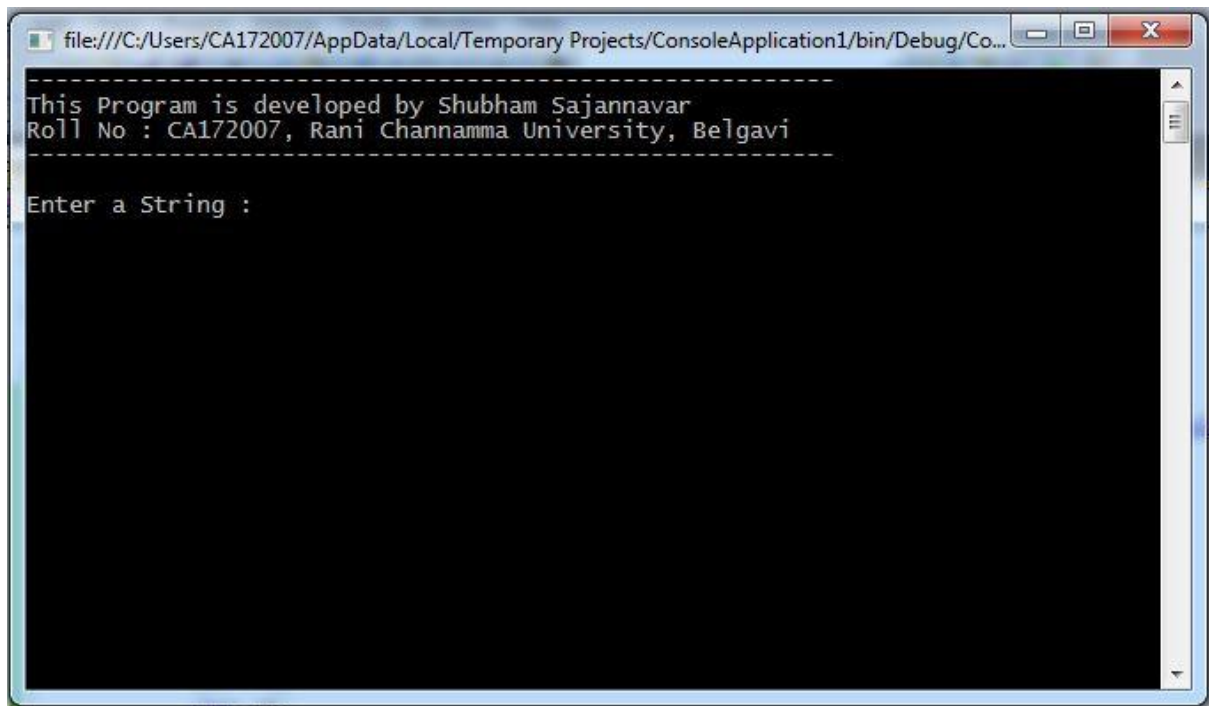
```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;

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;

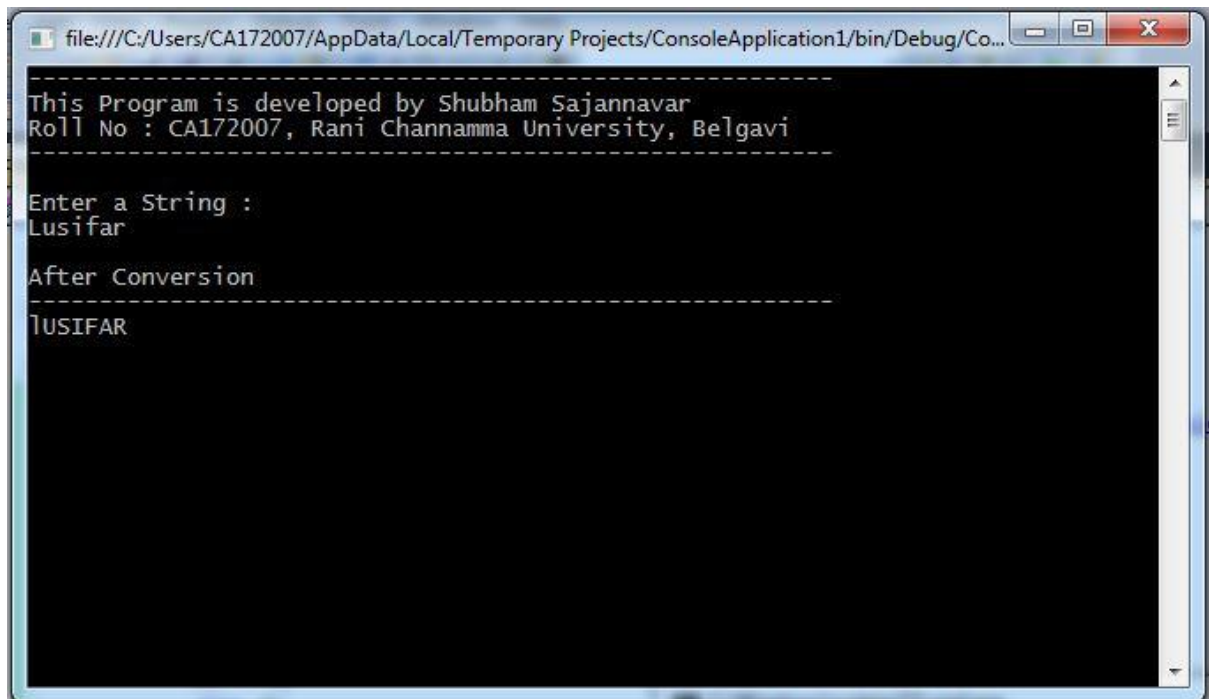
            Console.WriteLine("\nEnter a String :");
            str = Console.ReadLine();
            len = str.Length;
            arr1 = str.ToCharArray(0,len);
            Console.WriteLine("\nAfter Conversion");

            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

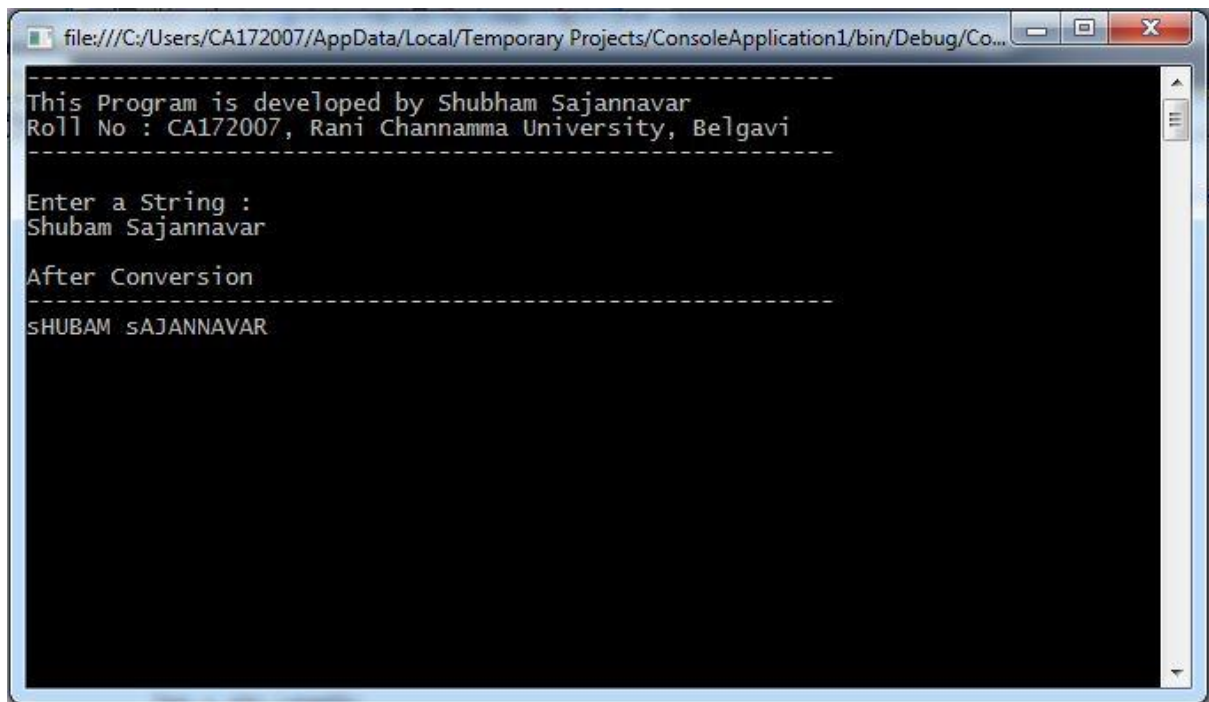
A screenshot of a Windows console application window. The title bar shows the file path: file:///C:/Users/CA172007/AppData/Local/Temporary Projects/ConsoleApplication1/bin/Debug/Co... The console output is as follows:

```
-----  
This Program is developed by Shubham Sajannavar  
Roll No : CA172007, Rani Channamma University, Belgavi  
-----  
Enter a String :
```



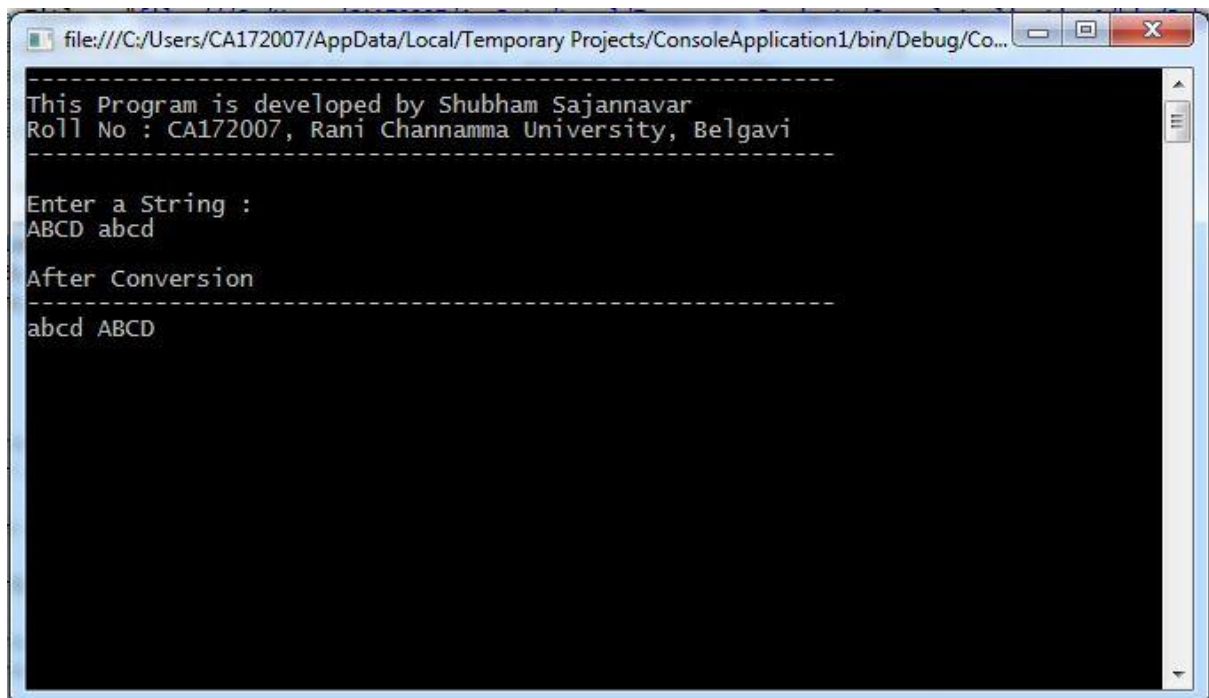
A screenshot of the same Windows console application window, showing the program's output after user input. The console output is as follows:

```
-----  
This Program is developed by Shubham Sajannavar  
Roll No : CA172007, Rani Channamma University, Belgavi  
-----  
Enter a String :  
Lusifar  
After Conversion  
-----  
LUSIFAR
```



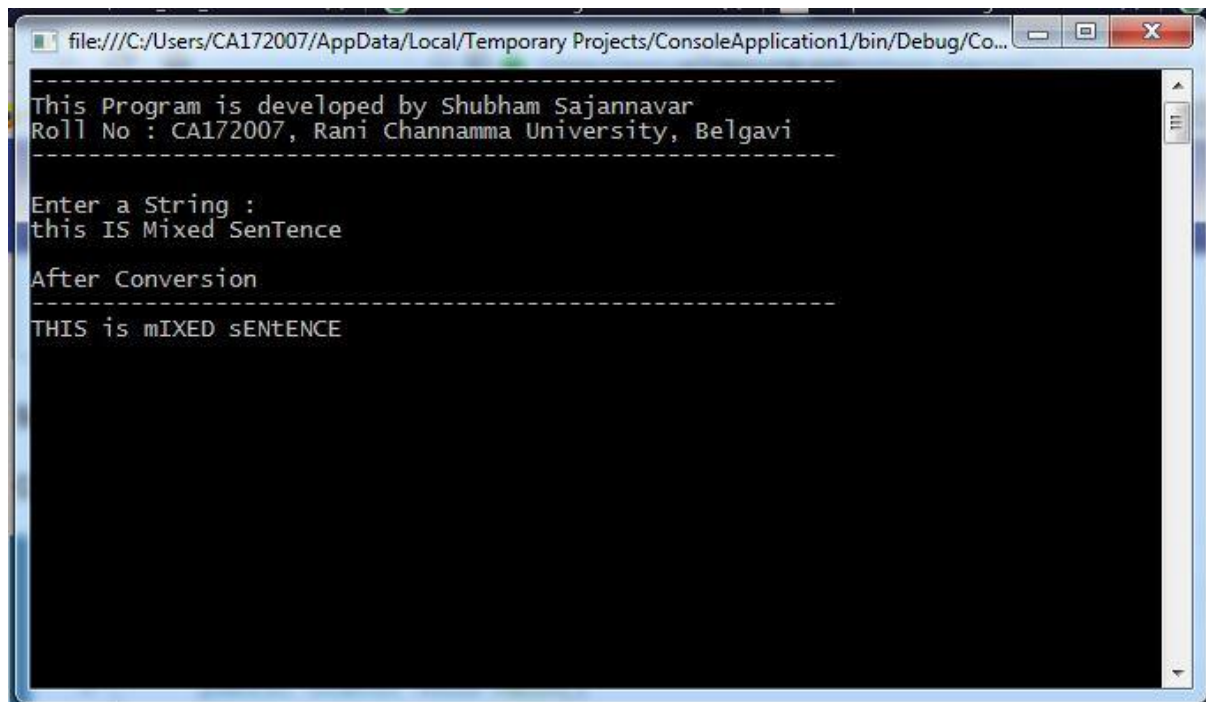
A screenshot of a Windows console application window. The title bar shows the file path: file:///C:/Users/CA172007/AppData/Local/Temporary Projects/ConsoleApplication1/bin/Debug/Co... The console output is as follows:

```
-----  
This Program is developed by Shubham Sajannavar  
Roll No : CA172007, Rani Channamma University, Belgavi  
-----  
  
Enter a String :  
Shubham Sajannavar  
  
After Conversion  
-----  
sHUBAM sAJANNAVAR
```



A screenshot of a Windows console application window, similar to the one above. The title bar shows the same file path. The console output is as follows:

```
-----  
This Program is developed by Shubham Sajannavar  
Roll No : CA172007, Rani Channamma University, Belgavi  
-----  
  
Enter a String :  
ABCD abcd  
  
After Conversion  
-----  
abcd ABCD
```



The screenshot shows a Windows console application window with the following text:

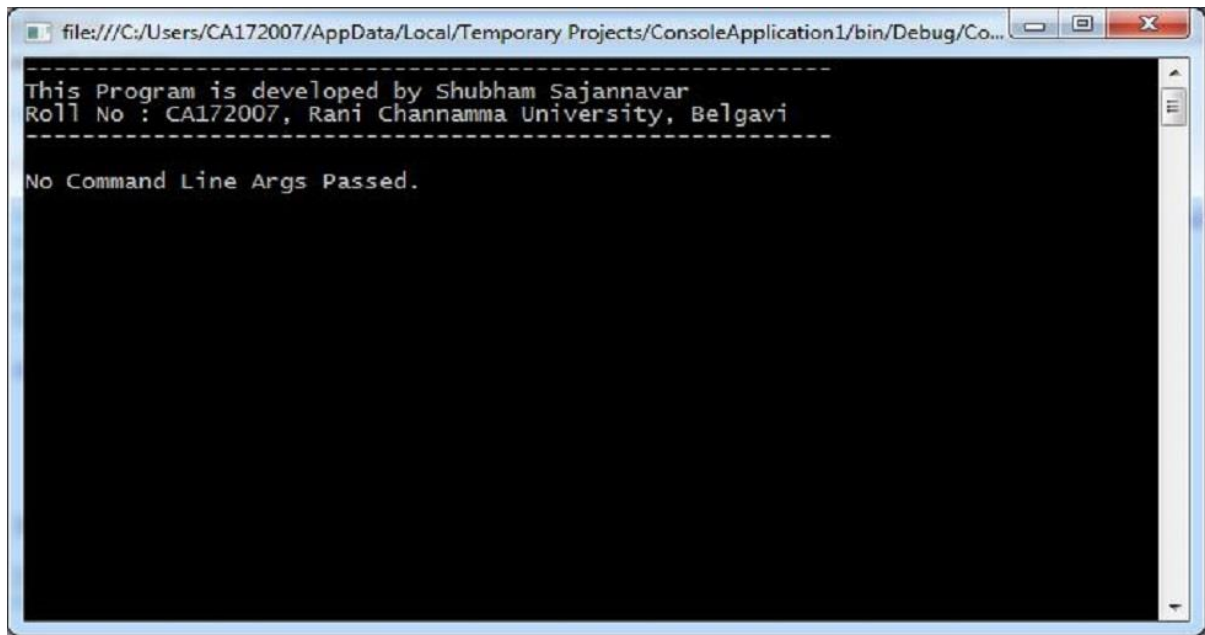
```
file:///C:/Users/CA172007/AppData/Local/Temporary Projects/ConsoleApplication1/bin/Debug/Co...
-----
This Program is developed by Shubham Sajannavar
Roll No : CA172007, Rani Channamma University, Belgavi
-----
Enter a String :
this IS Mixed SenTence
After Conversion
-----
THIS is mIXED sENTENCE
```


7) Demonstrate Command line arguments processing.

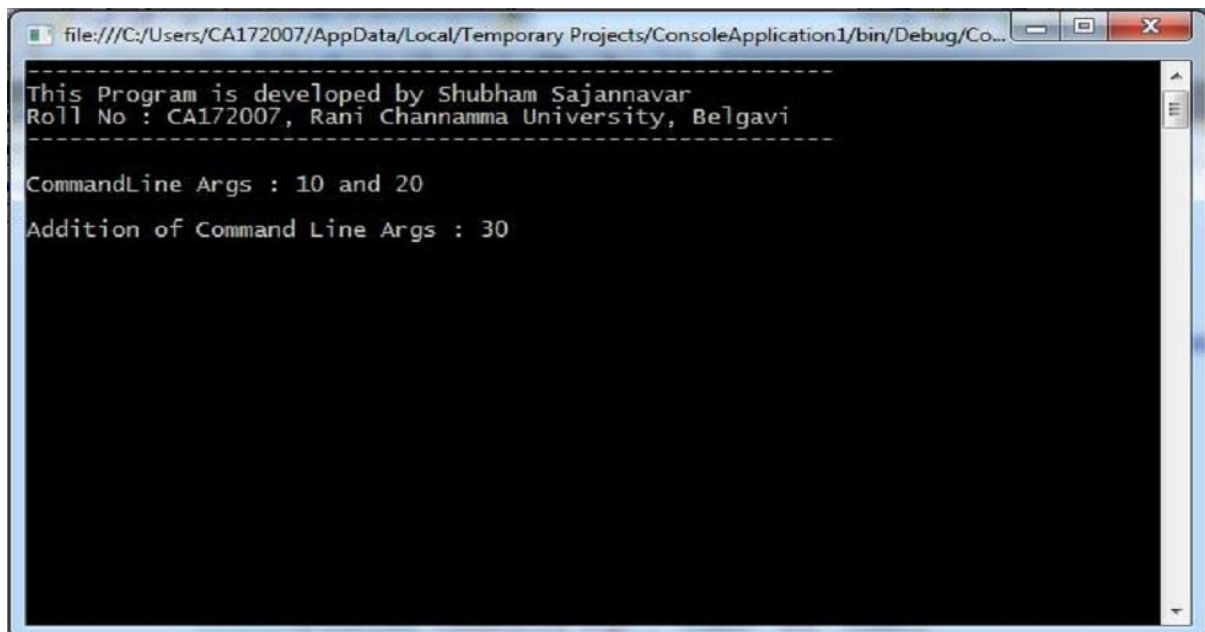
```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;

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;

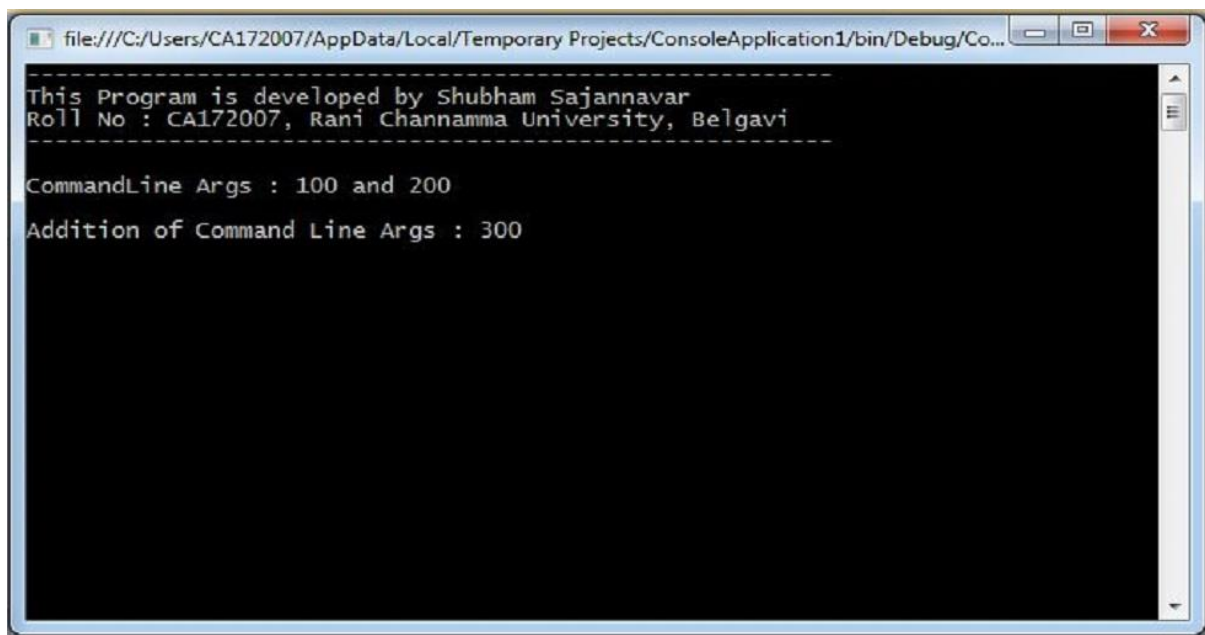
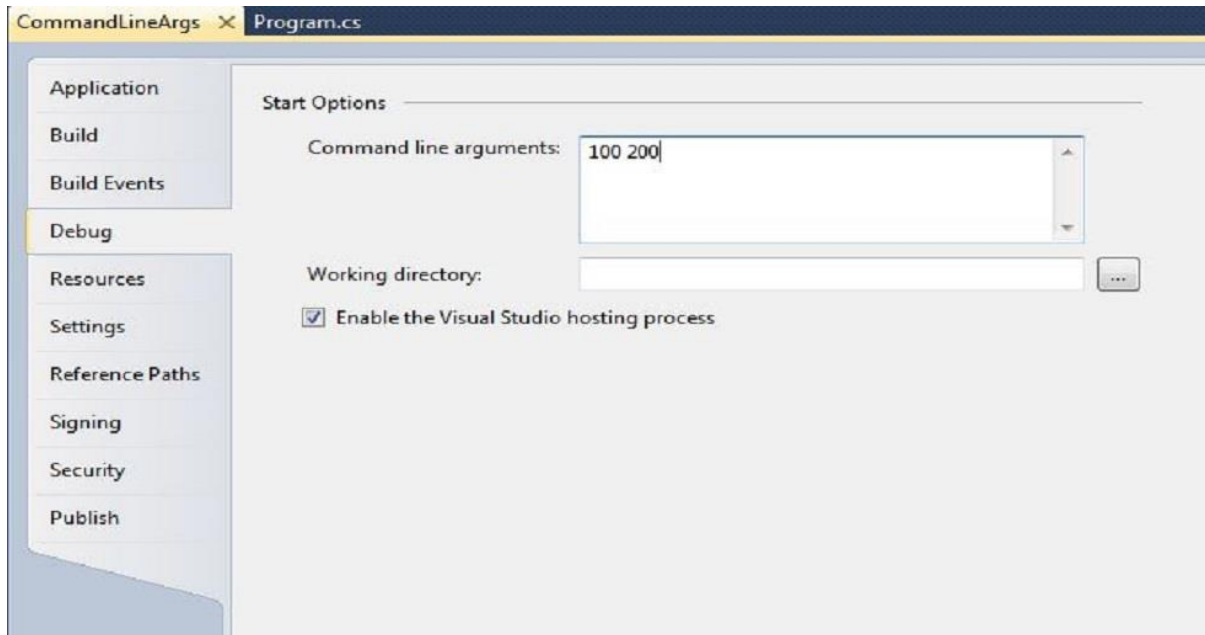
                    Console.WriteLine("CommandLine Args : " + num1 + " and " + num2);
                    Console.WriteLine("\nAddition of Command Line Args : {0}", sum);
                }
                else
                {
                    Console.WriteLine("No Command Line Args Passed.");
                }
   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

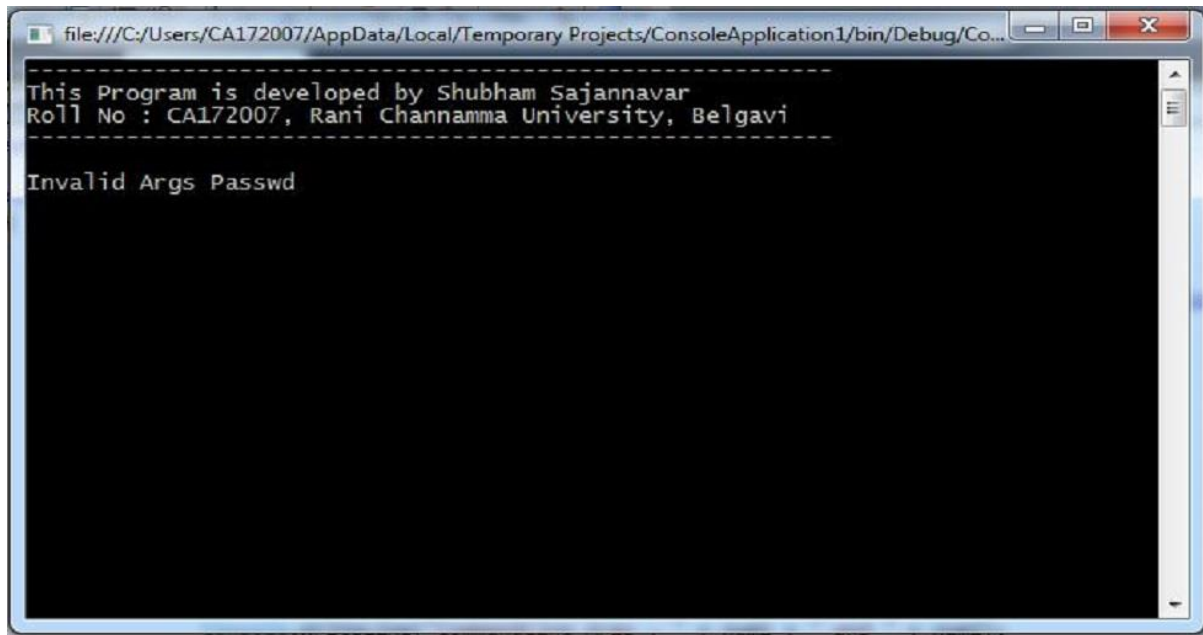
OUTPUT

```
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
```





The screenshot shows a Windows console window titled "file:///C:/Users/CA172007/AppData/Local/Temporary Projects/ConsoleApplication1/bin/Debug/Co...". The console output is as follows:

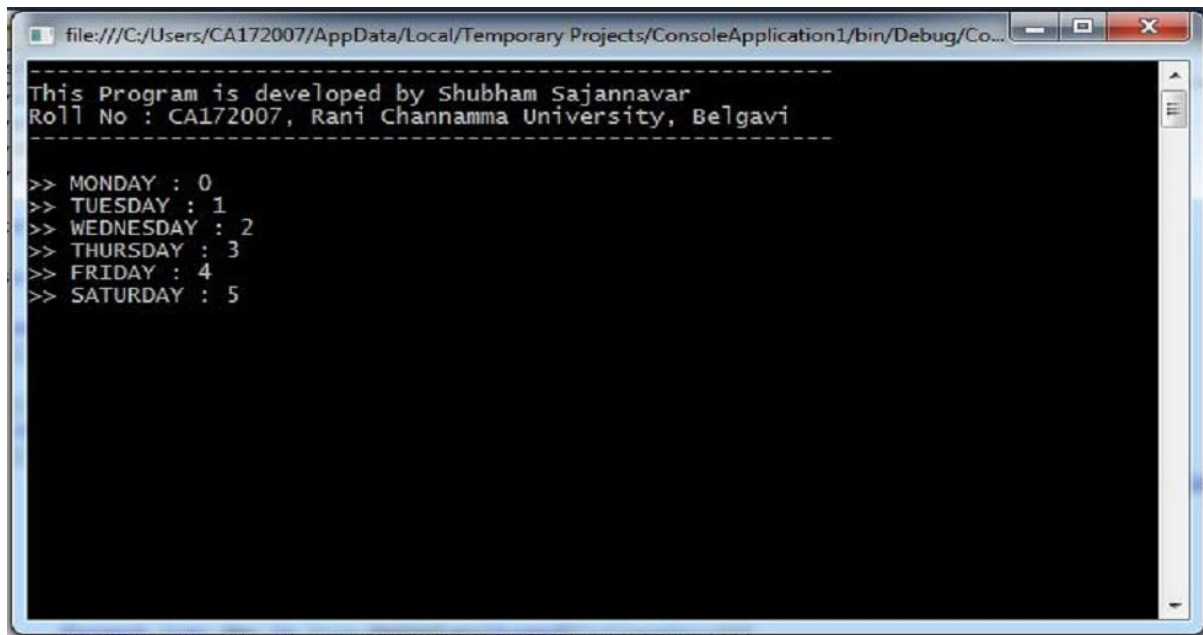
```
-----  
This Program is developed by Shubham Sajannavar  
Roll No : CA172007, Rani Channamma University, Belgavi  
-----  
Invalid Args Passwd
```

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();
        }
    }
}
```

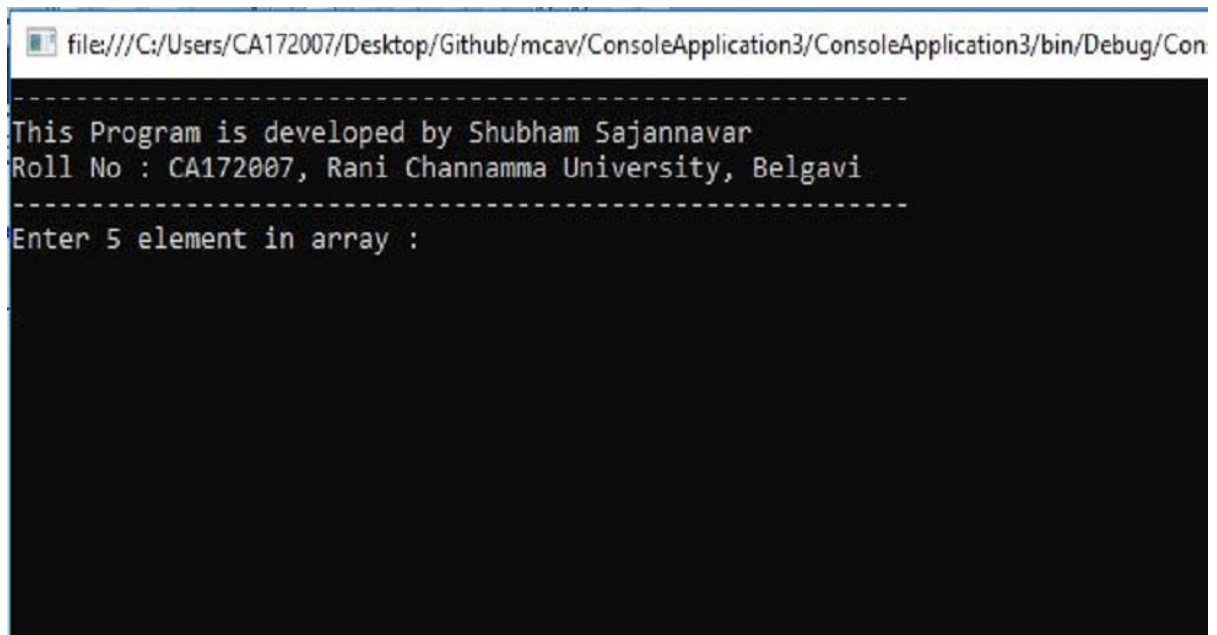
OUTPUTA screenshot of a Windows console window titled "file:///C:/Users/CA172007/AppData/Local/Temporary Projects/ConsoleApplication1/bin/Debug/Co...". The console displays the following text:

```
-----  
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
```

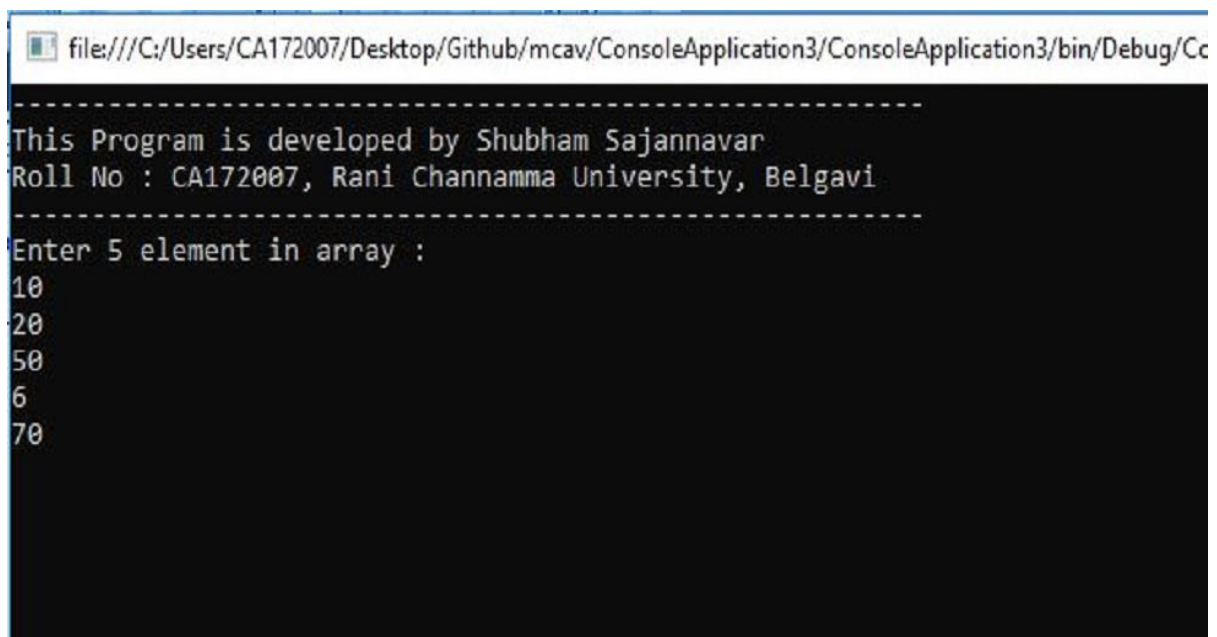
9) Find the second largest element in single dimensional array.

```
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 Reverse 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
20
50
6
70
```



```
file:///C:/Users/CA172007/Desktop/Github/mcav/ConsoleApplication3/ConsoleApplication3/bin/Debug/ConsoleAppli

-----
This Program is developed by Shubham Sajannavar
Roll No : CA172007, Rani Channamma University, Belgavi
-----
Enter 5 element in array :
10
20
50
6
70
-----
Sorted Array in Reverse Order
-----
A[0] = 70
A[1] = 50
A[2] = 20
A[3] = 10
A[4] = 6
-----
Second Largest Value in Array : 50
```

```
file:///C:/Users/CA172007/Desktop/Github/mcav/ConsoleApplication3/ConsoleApplication3/bin/Debug/Conso

-----
This Program is developed by Shubham Sajannavar
Roll No : CA172007, Rani Channamma University, Belgavi
-----
Enter 5 element in array :
10
50
20
50
pp
-----
Provide Valid Array Element.
Only Numeric Values are allowed.
-----
```

```
file:///C:/Users/CA172007/Desktop/Github/mcav/ConsoleApplication3/ConsoleApplication3/bin/Debug/Conso
-----
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 Reverse Order
-----
A[0] = 900
A[1] = 500
A[2] = 300
A[3] = 200
A[4] = 100
-----
Second Largest Value in Array : 500
```