

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

using System;

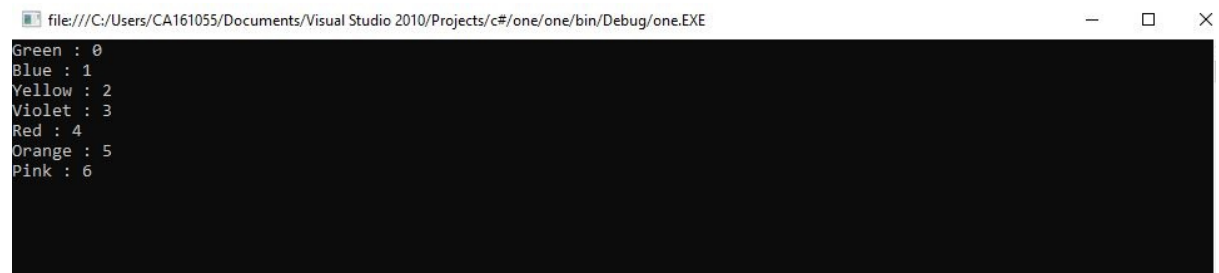
using System.Collections.Generic;

using System.Linq;

using System.Text;

```
namespace EnumerationDemo
{
    class ProgramOne
    {
        enum Colors
        {
            Green,
            Blue,
            Yellow,
            Violet,
            Red,
            Orange,
            Pink
        }

        static void Main(string[] args)
        {
            foreach (var color in Enum.GetValues(typeof(Colors)))
            {
                Console.WriteLine("{0} : {1}", color, (int)color);
            }
            Console.Read();
        }
    }
}
```

**OUTPU**

A screenshot of a Windows console window titled "file:///C:/Users/CA161055/Documents/Visual Studio 2010/Projects/c#/one/one/bin/Debug/one.EXE". The window has standard Windows window controls (minimize, maximize, close) in the top right corner. The console output is as follows:

```
Green : 0
Blue : 1
Yellow : 2
Violet : 3
Red : 4
Orange : 5
Pink : 6
```

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

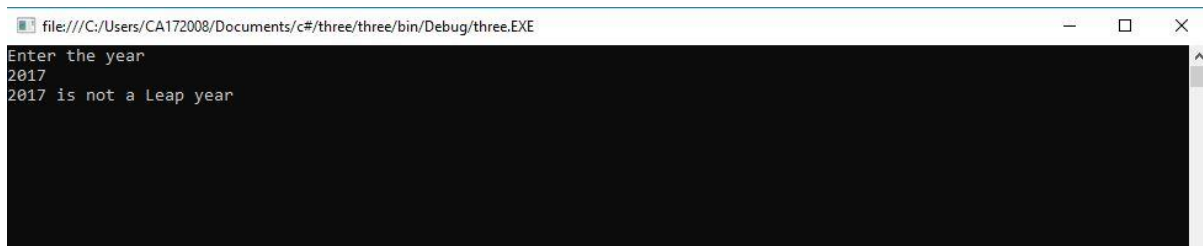
```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;

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

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

            Console.ReadLine();
        }

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

**OUTPUT**

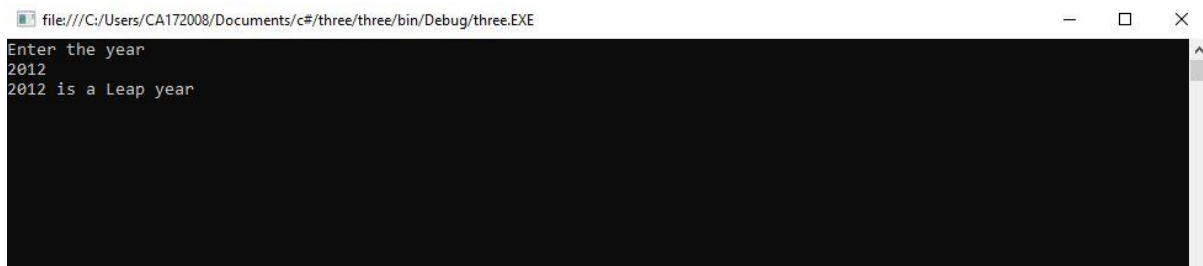
A screenshot of a Windows console window titled "file:///C:/Users/CA172008/Documents/c#/three/three/bin/Debug/three.EXE". The console has a black background with white text. It displays the prompt "Enter the year", the input "2017", and the output "2017 is not a Leap year".

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



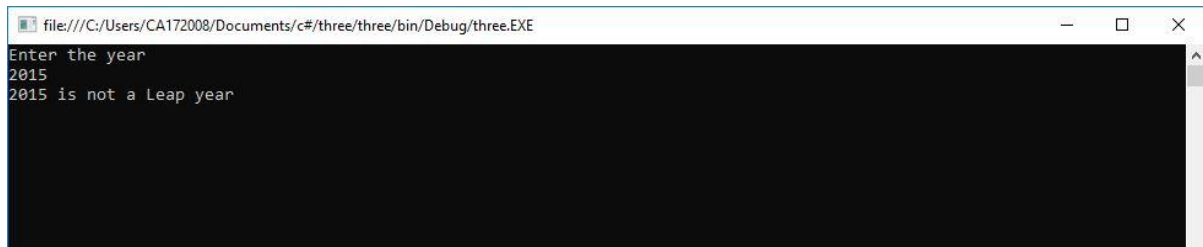
A screenshot of a Windows console window titled "file:///C:/Users/CA172008/Documents/c#/three/three/bin/Debug/three.EXE". The console has a black background with white text. It displays the prompt "Enter the year", the input "2002", and the output "2002 is not a Leap year".

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

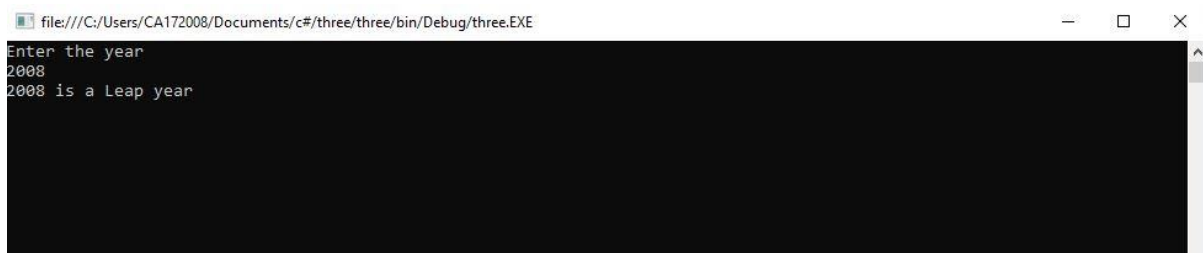


A screenshot of a Windows console window titled "file:///C:/Users/CA172008/Documents/c#/three/three/bin/Debug/three.EXE". The console has a black background with white text. It displays the prompt "Enter the year", the input "2012", and the output "2012 is a Leap year".

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



A screenshot of a Windows console window titled "file:///C:/Users/CA172008/Documents/c#/three/three/bin/Debug/three.EXE". The window has a black background with white text. The text displayed is: "Enter the year", "2015", and "2015 is not a Leap year".



A screenshot of a Windows console window titled "file:///C:/Users/CA172008/Documents/c#/three/three/bin/Debug/three.EXE". The window has a black background with white text. The text displayed is: "Enter the year", "2008", and "2008 is a Leap year".

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

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

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

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

            int sum = num1 + num2;
            label3.Text = "sum of two number :" + sum;
        }
    }
}
```

**OUTPUT**

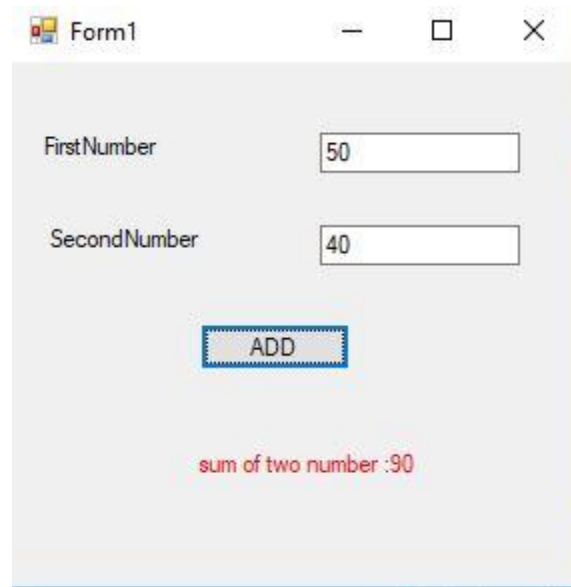
A screenshot of a Windows Form titled "Form1". It contains two text boxes labeled "FirstNumber" and "SecondNumber". The "FirstNumber" box contains the value "10" and the "SecondNumber" box contains the value "20". Below these boxes is a button labeled "ADD". Below the button, the text "sum of two number :30" is displayed in red.

A screenshot of a Windows Form titled "Form1". It contains two text boxes labeled "FirstNumber" and "SecondNumber". The "FirstNumber" box contains the value "50" and the "SecondNumber" box contains the value "61". Below these boxes is a button labeled "ADD". Below the button, the text "sum of two number :111" is displayed in red.

A screenshot of a Windows Form titled "Form1". It contains two text boxes labeled "FirstNumber" and "SecondNumber". The "FirstNumber" text box contains the value "100" and the "SecondNumber" text box contains the value "200". Below these text boxes is a button labeled "ADD". Below the button, the text "sum of two number :300" is displayed in red. The form has a standard Windows window border with minimize, maximize, and close buttons.

A screenshot of a Windows Form titled "Form1". It contains two text boxes labeled "FirstNumber" and "SecondNumber". The "FirstNumber" text box contains the value "19" and the "SecondNumber" text box contains the value "20". Below these text boxes is a button labeled "ADD". Below the button, the text "sum of two number :39" is displayed in red. The form has a standard Windows window border with minimize, maximize, and close buttons.





Form1

FirstNumber 50

SecondNumber 40

ADD

sum of two number :90

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

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

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

            Console.WriteLine("Enter the two numbers");
            num1 = Double.Parse(Console.ReadLine());
            num2 = Double.Parse(Console.ReadLine());

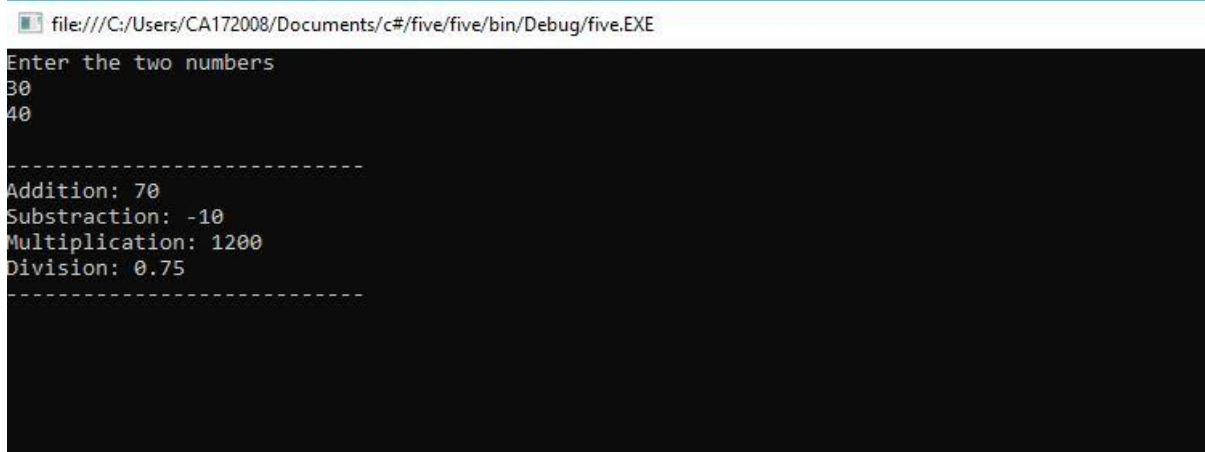
            sum = num1 + num2;
            sub = num1 - num2;
            mul = num1 * num2;
            div = num1 / num2;
            Console.WriteLine();
            Console.WriteLine("-----");
            Console.WriteLine("Addition: {0}", sum);
            Console.WriteLine("Substraction: {0}", sub);
            Console.WriteLine("Multiplication: {0}", mul);
            Console.WriteLine("Division: {0}", div);
            Console.WriteLine("-----");
            Console.ReadLine();
        }
    }
}
```

**OUTPUT**

```
file:///C:/Users/CA172008/Documents/c#/five/five/bin/Debug/five.EXE
Enter the two numbers
50
60
-----
Addition: 110
Substraction: -10
Multiplication: 3000
Division: 0.8333333333333333
-----
```

```
file:///C:/Users/CA172008/Documents/c#/five/five/bin/Debug/five.EXE
Enter the two numbers
10
60
-----
Addition: 70
Substraction: -50
Multiplication: 600
Division: 0.1666666666666667
-----
```

```
file:///C:/Users/CA172008/Documents/c#/five/five/bin/Debug/five.EXE
Enter the two numbers
80
100
-----
Addition: 180
Substraction: -20
Multiplication: 8000
Division: 0.8
-----
```



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

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



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


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

**5) Program to display the first 10 natural numbers and their sum using console application**

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

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

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

**OUTPUT** file:///C:/Users/CA172008/Documents/c#/six/six/bin/Debug/six.EXE

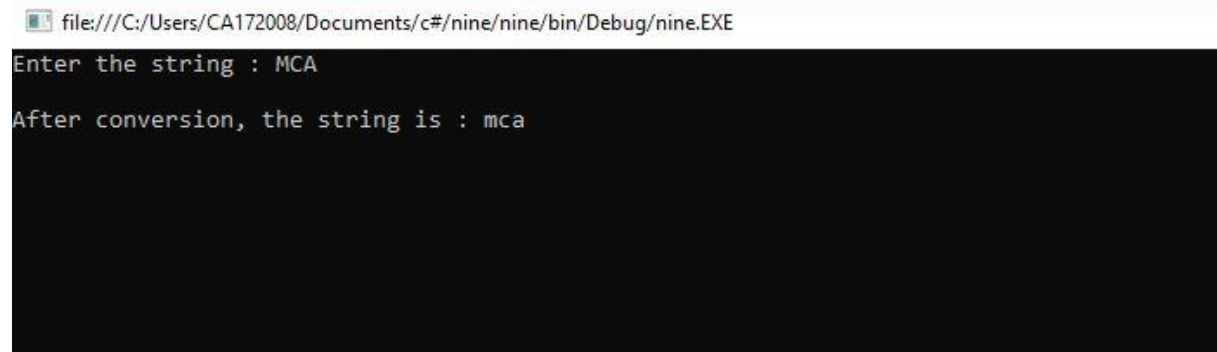
```
-----  
First 10 natural numbers  
-----  
1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
-----  
Sum: 55  
-----
```

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

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

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

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

**OUTPUT**

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

Enter the string : MCA

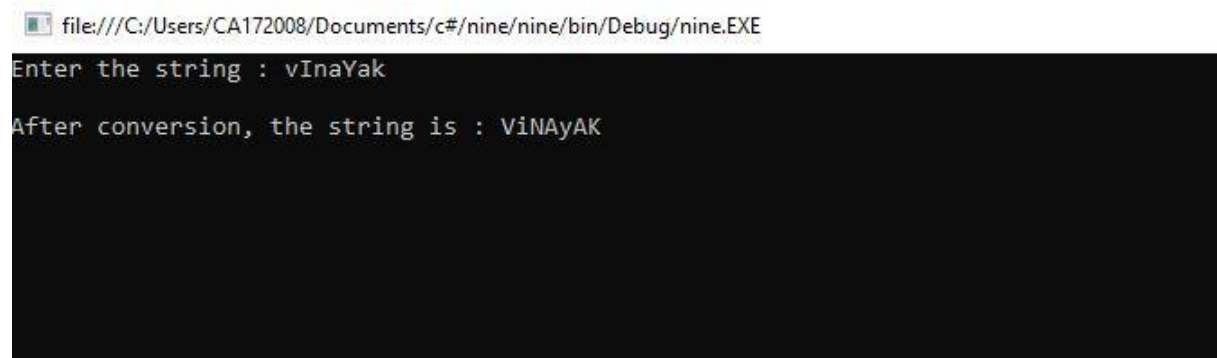
After conversion, the string is : mca



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

Enter the string : hello

After conversion, the string is : HELLO



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

Enter the string : vInaYak

After conversion, the string is : ViNAyAK



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

Enter the string : ProGram

After conversion, the string is : pROgRAM

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

Enter the string : C Sharp

After conversion, the string is : c sHARP

**7) Demonstrate Command line arguments processing.**

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

**OUTPUT**

Command line arguments:

Working directory:  ...

☐ Use remote machine

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

Number of CommadLine Arguments :5

Commandline Arguments Are :     1        2        3        9        4

Command line arguments:

Working directory:  ...

☐ Use remote machine

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

Number of CommadLine Arguments :6

Commandline Arguments Are :     1        2        3        4        6        7

Command line arguments:

Working directory:  ...

☐ Use remote machine

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

```
Number of CommadLine Arguments :6
Commandline Arguments Are :    12    13    5    6    9    1
```

Command line arguments:

Working directory:  ...

☐ Use remote machine

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

```
Number of CommadLine Arguments :4
Commandline Arguments Are :    1    5    6    9
```

Command line arguments:

Working directory:  ...

☐ Use remote machine

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

```
Number of CommadLine Arguments :5  
Commandline Arguments Are :    10    4    6    12    78
```

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

```
using System;
```


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

```
using System.Linq;
```


```
using System.Text;
```

```
namespace pgm14
{
    class Program
    {
        static void Main(string[] args)
        {
            int[] arr = new int[5];
            Console.WriteLine("Enter 5 array values");
            for (int i = 0; i < 5; i++)
            {
                arr[i] = int.Parse(Console.ReadLine());
            }
            Array.Sort(arr);
            Array.Reverse(arr);
            Console.WriteLine("Second Highest Value In Array " + arr[1]);


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

**OUTPUT** file:///C:/Users/CA172008/Documents/c#/Fourteen/Fourteen/bin/Debug/Fourteen.EXE


```
Enter 5 array values
10
20
30
40
50
Second Highest Value In Array 40
50 40 30 20 10
```

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

```
Enter 5 array values
40
20
30
60
1
Second Highest Value In Array 40
60 40 30 20 1
```

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

```
Enter 5 array values
1
20
60
40
80
Second Highest Value In Array 60
80 60 40 20 1
```


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

Enter 5 array values

1  
2  
3  
4  
5

Second Highest Value In Array 4

5 4 3 2 1

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

Enter 5 array values

100  
20  
50  
61  
01

Second Highest Value In Array 61

100 61 50 20 1



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

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

namespace Program
{
    class PropertiesDemo
    {
        private string name;
        private int age;

        public string Name
        {
            set
            {
                name = value;
            }
            get
            {
                return name;
            }
        }

        public int Age
        {
            set
            {
                if (value > 0)
                    age = value;
            }

            get
            {
                return age;
            }
        }

        static void Main(string[] args)
        {
            PropertiesDemo p = new PropertiesDemo();
            p.Name = "Vinayak";
            p.Age = 23;

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

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

**OUTPUT**

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

Vinayak : 23  
Zutti : 22