


## 1. Program to convert temperature from Fahrenheit to Celsius

```
class Demo
{
    static public void Main()
    {
        double num;
        string val;
        Boolean flag = true;
        Console.Write("Please enter Temperature in Fahrenheit = ");
        val = Console.ReadLine();
        num = Convert.ToDouble(val);
        double temp = ((num - 32) * 5) / 9;
        Console.Write("Temperature in Celcius = "+temp);
        //Console.Write(temp);
    }
}
```



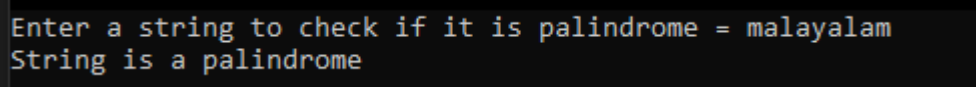
```
Microsoft Visual Studio Debug Console
Please enter Temperature in Fahrenheit = 100
Temperature in Celcius = 37.7777777777778
```

## 2. Program to check if a string is palindrome or not

```
class Demo
{
    static public void Main()
    {
        Console.Write("Enter a string to check if it is palindrome = ");
        string s = Console.ReadLine();
        char[] arr = s.ToCharArray();
        bool flag=true;

        for (int i=0;i<arr.Length/2;i++)
        {
            if (arr[i] != arr[arr.Length - i - 1])
            {
                flag = false;
                break;
            }
        }

        if (flag)
            Console.WriteLine("String is a palindrome");
        else
            Console.WriteLine("String is not a palindrome");
    }
}
```



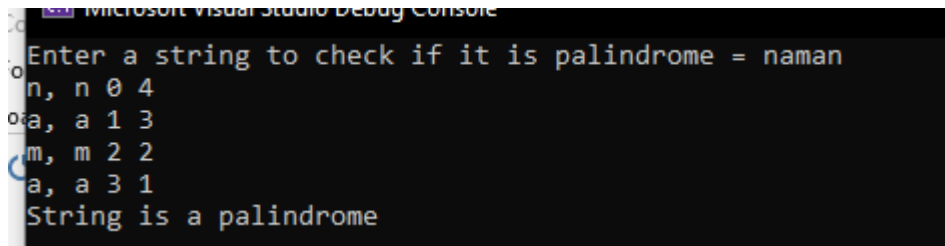
```
Enter a string to check if it is palindrome = malayalam
String is a palindrome
```

```

class Demo
{
    static public bool Palindrome(char[] arr, int i, int n)
    {
        Console.WriteLine(arr[i].ToString() + ", " + arr[n].ToString() + " " + i + " " + n);
        if (arr[i] != arr[n])
        {
            return false;
        }
        if (i < n + 1)
            Palindrome(arr, i + 1, n - 1);
        return true;
    }
    static public void Main()
    {
        Console.Write("Enter a string to check if it is palindrome = ");
        string s = Console.ReadLine();
        char[] arr = s.ToCharArray();
        bool flag = Palindrome(arr, 0, arr.Length - 1);

        if (flag)
            Console.WriteLine("String is a palindrome");
        else
            Console.WriteLine("String is not a palindrome");
    }
}

```



```

Microsoft Visual Studio Debug Console
Enter a string to check if it is palindrome = naman
n, n 0 4
a, a 1 3
m, m 2 2
a, a 3 1
String is a palindrome

```

### 3. Program to find out vowels of string

```

class Demo
{
    static public void Main()
    {
        Console.Write("Enter a string to count number of vowels = ");
        string s = Console.ReadLine();
        char[] arr = s.ToCharArray();
        int cnta=0, cnte=0, cnti=0, cnto=0, cntu=0;

        for (int i=0; i<arr.Length; i++)
        {
            switch (arr[i])
            {
                case 'a':
                case 'A':
                    cnta++;
                    break;
                case 'e':
                case 'E':
                    cnte++;

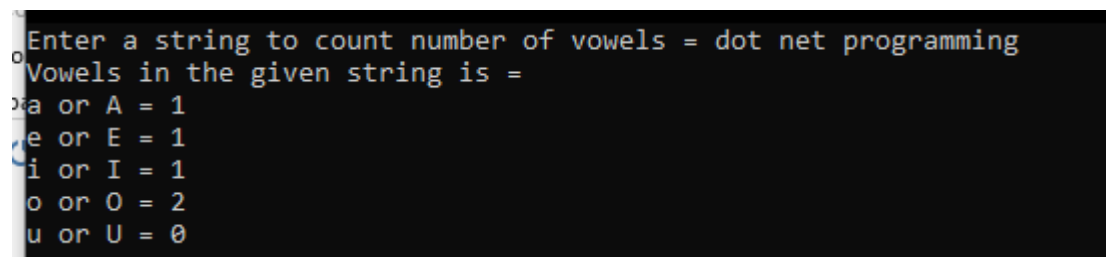
```

```

        break;
    case 'i':
    case 'I':
        cnti++;
        break;
    case 'o':
    case 'O':
        cnto++;
        break;
    case 'u':
    case 'U':
        cntu++;
        break;
    }
}

Console.WriteLine("Vowels in the given string is = ");
Console.WriteLine("a or A = " + cnta);
Console.WriteLine("e or E = " + cnte);
Console.WriteLine("i or I = " + cnti);
Console.WriteLine("o or O = " + cnto);
Console.WriteLine("u or U = " + cntu);
}
}

```



```

Enter a string to count number of vowels = dot net programming
Vowels in the given string is =
a or A = 1
e or E = 1
i or I = 1
o or O = 2
u or U = 0

```

#### 4. Fibonacci series of n numbers

```

class Demo
{
    static int Fibonacci(int n)
    {
        if (n == 0 || n == 1)
        {
            return n;
        }
        return (Fibonacci(n-2)+Fibonacci(n-1));
    }
    static public void Main()
    {
        Console.Write("Enter number = ");
        string s = Console.ReadLine();
        int num = Convert.ToInt32(s);
        for (int i = 0; i < num; i++)
        {
            Console.WriteLine(Fibonacci(i));
        }
    }
}

```

```
Enter number = 3
0
1
1
```

## 5. Factorial

```
class Demo
{
    static int Factorial(int n)
    {
        if (n == 0)
        {
            return 1;
        }
        return Factorial(n-1)*n;
    }
    static public void Main()
    {
        Console.Write("Enter number = ");
        string s = Console.ReadLine();
        int num = Convert.ToInt32(s);
        Console.WriteLine("Factorial of given number = "+ Factorial(num));
    }
}
```

```
Enter number = 4
Factorial of given number = 24
```

## 6. Program to input value in integer and print its corresponding text value

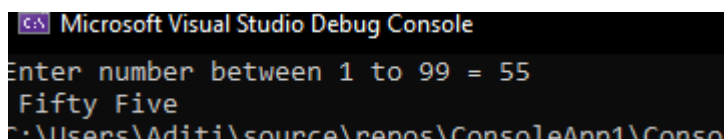
```
using System.ComponentModel.DataAnnotations;
```

```
class Demo
{
    static public void Main()
    {
        int v1=0, v2=0, value;
        bool f1 = false, f2 = false, f3 = false; //f1 = 1 to 9, f2 = 10 to 19, f3 = 20, 30, 40, etc.
        Console.Write("Enter number between 1 to 99 = ");
        string s = Console.ReadLine();
        value = Convert.ToInt32(s);
        if (value > 19)
        {
            f1 = true;
            f3 = true;
            v1 = value / 10;
            v2 = value % 10;
        }
        else if (value > 9)
        {
            f2 = true;
        }
    }
}
```

```

        v2 = value;
    }
    else
    {
        f1 = true;
        v2 = value;
    }
    if (f3)
    {
        switch (v1)
        {
            case 2: Console.Write(" Twenty"); break;
            case 3: Console.Write(" Thirty"); break;
            case 4: Console.Write(" Forty"); break;
            case 5: Console.Write(" Fifty"); break;
            case 6: Console.Write(" Sixty"); break;
            case 7: Console.Write(" Seventy"); break;
            case 8: Console.Write(" Eighty"); break;
            case 9: Console.Write(" Ninety"); break;
        }
    }
    if (f2)
    {
        switch (v2)
        {
            case 10: Console.Write(" Ten"); break;
            case 11: Console.Write(" Eleven"); break;
            case 12: Console.Write(" Twelve"); break;
            case 13: Console.Write(" Thirteen"); break;
            case 14: Console.Write(" Fourteen"); break;
            case 15: Console.Write(" Fifteen"); break;
            case 16: Console.Write(" Sixteen"); break;
            case 17: Console.Write(" Seventeen"); break;
            case 18: Console.Write(" Eighteen"); break;
            case 19: Console.Write(" Nineteen"); break;
        }
    }
    if (f1)
    {
        switch (v2)
        {
            case 1: Console.Write(" One"); break;
            case 2: Console.Write(" Two"); break;
            case 3: Console.Write(" Three"); break;
            case 4: Console.Write(" Four"); break;
            case 5: Console.Write(" Five"); break;
            case 6: Console.Write(" Six"); break;
            case 7: Console.Write(" Seven"); break;
            case 8: Console.Write(" Eight"); break;
            case 9: Console.Write(" Nine"); break;
        }
    }
}
}
}

```



The screenshot shows the Microsoft Visual Studio Debug Console. The first line is the prompt "Enter number between 1 to 99 = 55". The second line is the output "Fifty Five". The third line shows the file path "c:\Users\Aaditi\source\repos\ConsoleApp1\ConsoleApp1\Program.cs:19:19".

## 7. Program of conversion of number systems

```
using System;
using System.Runtime.Intrinsics.X86;

class Demo
{
    public static void Bin_To_Dec(string bin)
    {
        int cnt = 1, dec = 0;
        for (int i=bin.Length-1;i>=0;i--)
        {
            if (bin[i] == '1')
                dec += cnt;
            cnt *= 2;
        }
        Console.WriteLine(dec);
    }
    public static void Dec_To_Bin(int dec)
    {
        if (dec == 0)
            return;

        Dec_To_Bin(dec / 2);

        Console.Write(dec % 2);
    }
    public static void Dec_To_Oct(int d_oct)
    {
        if (d_oct == 0)
            return;

        Dec_To_Oct(d_oct / 8);

        Console.Write(d_oct % 8);
    }
    public static void Hex_To_Oct(string hexa)
    {
        string hex = "0123456789ABCDEF";
        int cnt = 1, dec = 0;
        for (int i = hexa.Length - 1; i >= 0; i--)
        {
            dec += (cnt * hex.IndexOf(hexa[i]));
            cnt *= 16;
        }
        // Console.WriteLine("{0} = {0}\n", dec);
        Dec_To_Oct(dec);

        return;
    }
    public static void Oct_To_Dec(string oct)
    {
        int cnt = 1, dec = 0;
        int octal = Convert.ToInt32(oct);
        for (int i = oct.Length - 1; i >= 0; i--)
        {
            // Console.WriteLine("{0}, {1}, {2}", oct[i], cnt, octal%10);
            dec = dec + (cnt * (octal % 10));
            cnt *= 8;
            octal /= 10;
        }
        Console.WriteLine(dec);
    }
}
```

```

    }
    public static void Main()
    {
        // Dec_To_Oct(1999);
        int ch = 0;
        do
        {
            Console.WriteLine("\nConversion \n1. Binary to decimal\n2. Decimal to Binary\n3. Hex to Octal\n4. Octal to
Dec\n5. Exit\nEnter your choice = ");
            string s = Console.ReadLine();
            ch = Convert.ToInt32(s);
            switch (ch)
            {
                case 1:
                    //binary to decimal conversion
                    Console.WriteLine("\nEnter binary number = ");
                    string bin = Console.ReadLine();
                    Bin_To_Dec(bin);
                    break;

                case 2:
                    //decimal to binary conversion
                    Console.WriteLine("\nEnter decimal number = ");
                    string s_dec = Console.ReadLine();
                    int dec = Convert.ToInt32(s_dec);
                    Console.WriteLine("\n");
                    Dec_To_Bin(dec);
                    break;

                case 3:
                    //hexadecimal to octal conversion
                    Console.WriteLine("\nEnter hexadecimal number = ");
                    string hex = Console.ReadLine();
                    Hex_To_Oct(hex);
                    break;

                case 4:
                    //octal to decimal
                    Console.WriteLine("\nEnter octal number = ");
                    string oct = Console.ReadLine();
                    Oct_To_Dec(oct);
                    break;

                case 5:
                    break;
            }
        } while (ch != 5);
    }
}

```

```
Conversion
1. Binary to decimal
2. Decimal to Binary
3. Hex to Octal
4. Octal to Dec
5. Exit
Enter your choice = 3

Enter hexadecimal number = 7CF
b717
Conversion
1. Binary to decimal
2. Decimal to Binary
3. Hex to Octal
4. Octal to Dec
5. Exit
Enter your choice = 1

Enter binary number = 1011
11

Conversion
1. Binary to decimal
2. Decimal to Binary
3. Hex to Octal
4. Octal to Dec
5. Exit
Enter your choice = 2

Enter decimal number = 12

1100

Conversion
1. Binary to decimal
2. Decimal to Binary
3. Hex to Octal
4. Octal to Dec
5. Exit
Enter your choice = 4

Enter octal number = 3717
1999

Conversion
1. Binary to decimal
2. Decimal to Binary
3. Hex to Octal
4. Octal to Dec
5. Exit
Enter your choice = 5

C:\Users\Aditi\source\repos\ConsoleApp1\ConsoleApp1\bin\Debug\net6.0\ConsoleApp1.exe (process 17524) exited with code 0. Press any key to close this window . . .
```

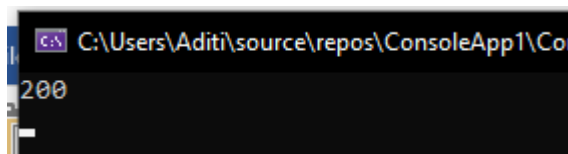


## Unit 2

### 1. WAP to multiply two values by using the concept of parameterized constructor

```
using System;
using System.Runtime.CompilerServices;

namespace Test
{
    class Calculation
    {
        int a, b;
        public Calculation(int x, int y)
        {
            a = x; b = y;
        }
        public int multiply()
        { return a * b; }
    }
    class Program
    {
        static void Main(string[] args)
        {
            Calculation i = new Calculation(10,20);
            Console.WriteLine(i.multiply());
            Console.ReadLine();
        }
    }
}
```



### 2. WAP to demonstrate operator overloading in C#

```
using System;

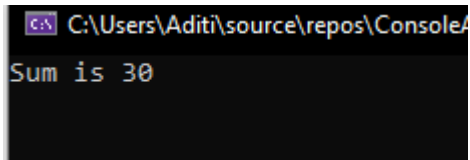
namespace Test
{
    class Distance
    {
        public int values;
        public static Distance operator +(Distance d1, Distance d2)
        {
            Distance d = new Distance();
            d.values = d1.values + d2.values;
            return d;
        }
    }
    class Program
    {
        static void Main(string[] args)
        {

```

```

        Distance d1 = new Distance();
        Distance d2 = new Distance();
        d1.values = 10;
        d2.values = 20;
        Distance d3 = d1 + d2;
        Console.WriteLine("Sum is {0}", d3.values);
        Console.Read();
    }
}
}

```



```

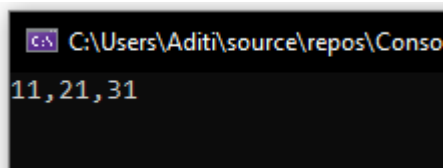
using System;

namespace Test
{
    class Calculation
    {
        int a, b, c;
        public Calculation()
        {
            a = b = c = 0;
        }
        public Calculation(int x, int y, int z)
        {
            this.a = x;
            this.b = y;
            this.c = z;
        }
        public static Calculation operator ++ (Calculation op1)
        {
            op1.a++;
            op1.b++;
            op1.c++;
            return op1;
        }
        public void ShowResult()
        {
            Console.WriteLine(a+" "+b+" "+c);
            Console.ReadLine();
        }
    }
}

class Program
{
    static void Main(string[] args)
    {
        Calculation i = new Calculation(10, 20, 30);
        i++;
        i.ShowResult();
        Console.ReadLine() ;
    }
}

```

```
}
```

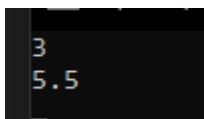


A screenshot of a Windows command prompt window. The title bar shows the path 'C:\Users\Aditi\source\repos\Conso'. The command prompt displays the output '11, 21, 31'.

### 3. WAP to add two values by using concept of function overloading

```
using System;
```

```
namespace Test
{
    class Calculation
    {
        int a, b;
        public int Addition(int a, int b)
        {
            return a + b;
        }
        public double Addition(double a, double b)
        {
            return a + b;
        }
    }
    class Program
    {
        static void Main(string[] args)
        {
            Calculation i = new Calculation();
            Console.WriteLine(i.Addition(1, 2));
            Console.WriteLine(i.Addition(2.5, 3.0));
            Console.ReadLine();
        }
    }
}
```



A screenshot of a Windows command prompt window. The command prompt displays the output '3' and '5.5' on two separate lines.

### 4. WAP to demonstrate the concept of multiple inheritance

```
using System;
```

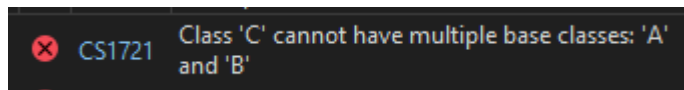
```
using System.Runtime.CompilerServices;
```

```
namespace Test
{
    class A
    {
        A() { Console.WriteLine("A's constructor"); }
        public void function() {
            Console.WriteLine("Base class A function called");
        }
    }
}
```

```

    }
}
class B
{
    B() { Console.WriteLine("B's constructor"); }
}
class C : A , B
{
    C() { Console.WriteLine("C's constructor"); }
}
class Program
{
    C obj = new C();
}
}

```



## 5. WAP to demonstrate the concept of multilevel inheritance

```

using System;
using System.Runtime.CompilerServices;

namespace Demo
{
    class A
    {
        public A() { Console.WriteLine("A's constructor"); }
    }
    class B : A
    {
        public B() { Console.WriteLine("B's constructor"); }
    }
    class C : A
    {
        public C() { Console.WriteLine("C's constructor"); }
    }
    class Program
    {
        static void Main(string[] args) {
            B objb = new B();
            C obj = new C(); }
    }
}

```

```

A's constructor
B's constructor
A's constructor
C's constructor

```

## 6. WAP to demonstrate the concept of hybrid inheritance

```

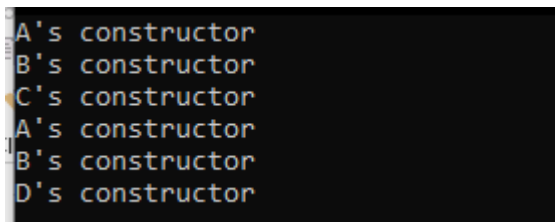
using System;
using System.Runtime.CompilerServices;

```

```

namespace Demo
{
    class A
    {
        public A() { Console.WriteLine("A's constructor"); }
    }
    class B : A
    {
        public B() { Console.WriteLine("B's constructor"); }
    }
    class C : B
    {
        public C() { Console.WriteLine("C's constructor"); }
    }
    class D : B
    {
        public D() { Console.WriteLine("D's constructor"); }
    }
    class Program
    {
        static void Main(string[] args) {
            C obj = new C();
            D objd = new D();
        }
    }
}

```



```

A's constructor
B's constructor
C's constructor
A's constructor
B's constructor
D's constructor

```

## 7. WAP to use collections

```

using System;
using System.Collections;
using System.Security.Cryptography;

namespace First_Prog
{
    class MainClass
    {
        public static void Main(string[] args)
        {
            ArrayList A1 = new ArrayList();

            A1.Add(10);
            A1.Add("Hello");
            A1.Add(true);

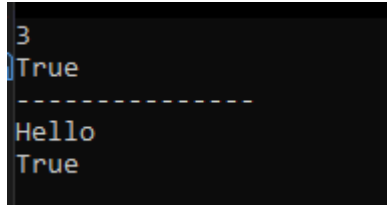
            Console.WriteLine(A1.Count);
            Console.WriteLine(A1.Contains(10));
            Console.WriteLine("-----");
        }
    }
}

```

```

        Console.WriteLine(AI[1]);
        AI.RemoveAt(1);
        Console.WriteLine(AI[1]);
    }
}
}

```



```

3
True
-----
Hello
True

```

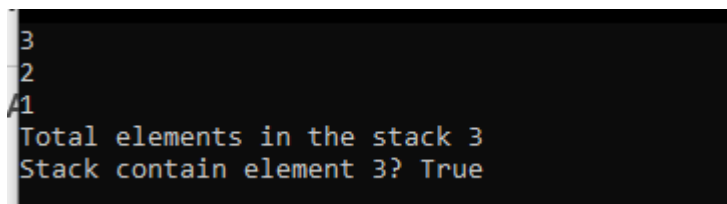
```

using System;
using System.Collections;
using System.Security.Cryptography;

namespace First_Prog
{
    class MainClass
    {
        public static void Main(string[] args)
        {
            Stack st = new Stack();
            st.Push(1);
            st.Push(2);
            st.Push(3);

            foreach (Object obj in st)
            {
                Console.WriteLine(obj);
            }
            Console.WriteLine("Total elements in the stack " + st.Count);
            Console.WriteLine("Stack contain element 3? " + st.Contains(3));
        }
    }
}

```



```

3
2
1
Total elements in the stack 3
Stack contain element 3? True

```

```

using System;
using System.Collections;
using System.Diagnostics;
using System.Security.Cryptography;

namespace First_Prog
{
    class MainClass
    {
        public static void Main(string[] args)
        {
            Stack st = new Stack();

```

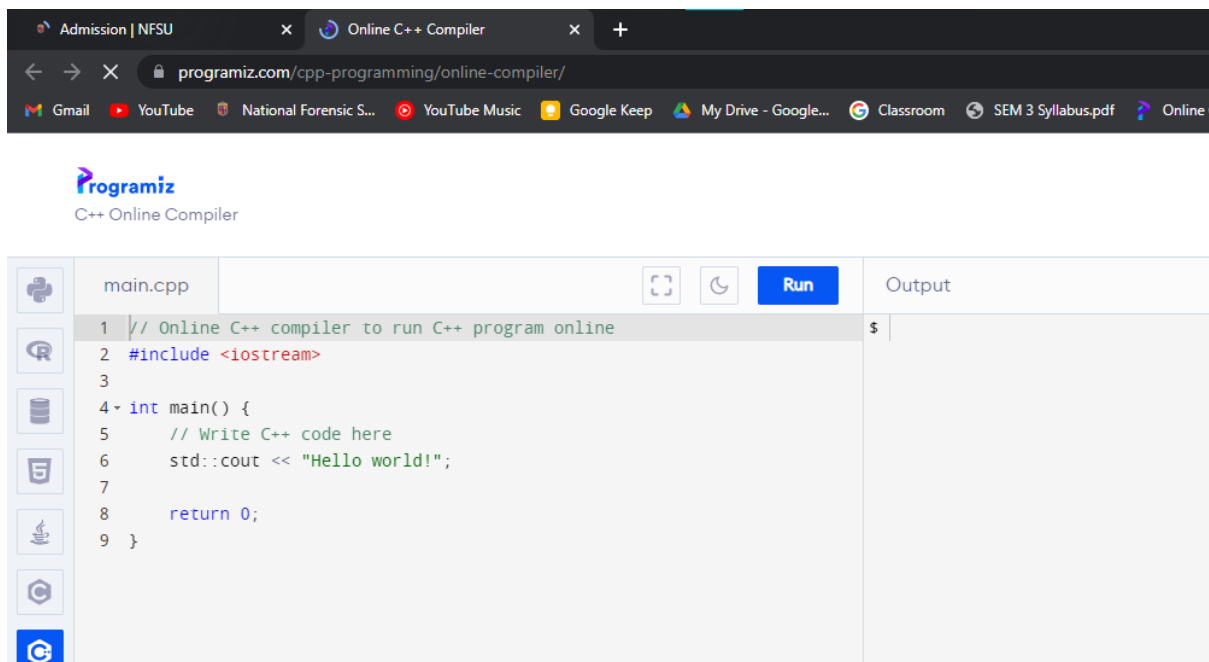
```

st.Push("https://www.nfsu.ac.in/admission");
st.Push("https://www.programiz.com/cpp-programming/online-compiler/");

//Process.Start("explorer", "https://www.nfsu.ac.in/admission");
//System.Diagnostics.Process.Start(https://www.nfsu.ac.in/admission);

foreach (Object obj in st)
{
    Process.Start("explorer", obj.ToString());
}
Console.WriteLine("Total elements in the stack " + st.Count);
Console.WriteLine("Stack contain element 3? " + st.Contains(3));
}
}
}

```



```

using System;
using System.Collections;
using System.Diagnostics;
using System.Security.Cryptography;

namespace First_Prog
{
    class MainClass
    {
        public static void Main(string[] args)
        {
            Hashtable ht = new Hashtable();

            ht.Add("1", "NFSU");
            ht.Add("2", "IIT GANDHINAGAR");
            ht.Add("3", "NIT SURAT");

            ICollection keys = ht.Keys;

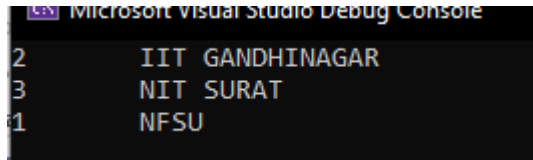
            foreach(String key in keys)

```

```

    {
        //Console.WriteLine(ht[key]);
        Console.WriteLine(key.ToString() + "\t" + ht[key].ToString());
    }
}
}
}

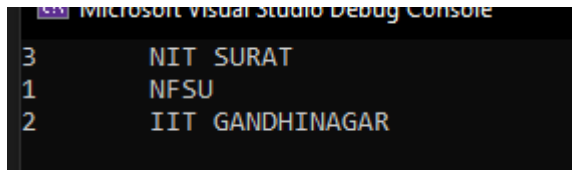
```



```

Microsoft Visual Studio Debug Console
2      IIT GANDHINAGAR
3      NIT SURAT
1      NFSU

```



```

Microsoft Visual Studio Debug Console
3      NIT SURAT
1      NFSU
2      IIT GANDHINAGAR

```

## UNIT 3

### 1. basic windows form application (windows form .net framework)

```

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

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

        private void button1_Click(object sender, EventArgs e)
        {
            string msg = "Hello";
            msg = msg + " " + tbFirstName.Text + " " + tbLastName.Text;
            lbMessage.Text = msg;
        }

        private void button2_Click(object sender, EventArgs e)
        {
            tbFirstName.Text = string.Empty; tbLastName.Text = string.Empty;
            lbMessage.Text = string.Empty;
        }
    }
}

```



```
}  
}  
}
```

Form1

Enter First Name: Aditi

Enter Last Name: Kulkarni

Hello Aditi Kulkarni

Submit Clear

Form1

Enter First Name:

Enter Last Name:

Submit Clear

Q. program for selecting and transferring items from listbox like counselling time's listbox or sql installation time choices listbox.

```

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

namespace WindowsFormsApp1
{
    public partial class Form1 : Form
    {
        public Form1()
        {
            InitializeComponent();

            private void add_Click(object sender, EventArgs e)
            {
                if (lbLeft.SelectedIndex != -1)
                {
                    lbRight.Items.Add(lbLeft.SelectedItem);
                    lbLeft.Items.Remove(lbLeft.SelectedItem);
                }
            }

            private void remove_Click(object sender, EventArgs e)
            {
                if (lbRight.SelectedIndex != -1)
                {
                    lbLeft.Items.Add(lbRight.SelectedItem);
                    lbRight.Items.Remove(lbRight.SelectedItem);
                }
            }
        }
    }
}

```