

### Variable declaration

double douNum;	① Data Type + Variable
douNum = 777;	① Use "=" when substituting a value.
string strName = "Test";	② Declaration and assignment.
int iID = 157, iPW = 653;	③ ②+④
bool bFlg, bFLG;	④ If the data types are the same, they can be declared together.
bFlg = true;	⑤ Be case-sensitive.
bFLG = false;	⑤ Be case-sensitive.

### Type of data type

sbyte	Signed 8bit	-128~127	System.SByte
byte	Unsigned 8bit	0~255	System.Byte
short	Signed 16bit	-32,768~32,767	System.Int16
ushort	Unsigned 16bit	0~65,535	System.UInt16
int	Signed 32bit	-2,147,483,648~2,147,483,647	System.Int32
uint	Unsigned 32bit	0~4,294,967,295	System.UInt32
long	Signed 64bit	-9,223,372,036,854,775,808~9,223,372,036,854,775,807	System.Int64
ulong	Unsigned 64bit	0~18,446,744,073,709,551,615	System.UInt64
float	32bit	$\pm 1.5 \times 10^{(-45)} \sim \pm 3.4 \times 10^{(38)}$	System.Single
double	64bit	$\pm 5.0 \times 10^{(-324)} \sim \pm 1.7 \times 10^{(308)}$	System.Double
decimal	128bit	$\pm 1.0 \times 10^{(-28)} \sim \pm 7.9 \times 10^{(28)}$	System.Decimal
char	16bit	0~65535 Unicode	System.Char
bool	bool type	True or False	System.Boolean
string	string type	0~2 billion this Unicode	System.String
object	object type	Any type	System.Object

### Variable Scope

```

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 WFA_C_SharpeSample001
{
    public partial class Form1 : Form
    {
        string strMessage = "Message, please..."; // Member Variable
        private string strBtnText = "Enter"; // Member Variable
        public string strShowMsg; // Member Variable

        public Form1()
        {
            InitializeComponent();
        }

        private void Form1_Load(object sender, EventArgs e)
        {
            string strShow = "Show"; // Local Variable
            lbl1.Text = strMessage;
            lbl2.Text = strShow;
            textBox1.Text = "";
            checkBox1.Text = strShow;
            button1.Text = strBtnText;
        }

        private void button1_Click(object sender, EventArgs e)
        {
            if (checkBox1.Checked == true)
            {
                strShowMsg = textBox1.Text;
                lbl2.Text = strShowMsg;
            }
            else
            {
                string strInit = ""; // Local Variable
                lbl2.Text = strInit;
            }
        }
    }
}
    
```

### Access modifier type

public	Access from outside is also OK.
protected	Only in Class and from Derived Class.
internal	Only in the same assembly.
private	Only in the class in which it is declared.

### Literal

Literal	Data that directly expresses a value.	Bool Literal	True or False
Prefix	Add to the front.	Char Literal	Enclose with " .
Suffix	Add to the end.	String Literal	Enclose with " " .
Number Literal	L or l : long	U or u : uint or ulong	UL or ul : ulong
Real number	F or f : float	D or d : double	M or m : decimal

Point : Numerical types other than decimal type are binary numbers. Decimal type is decimal.

Perfect accuracy : Decimal, Other than that : double, Memory savings : float

### Cast

Implicit type conversion	int → double : OK	Explicit type conversion	double dNum → int iNum = dNum : OK
Implicit cast	double → int : NG	Explicit cast	
string strNum → int	int.Parse(strNum);	int iNum → string	iNum.ToString();

Caution :

Digit loss (floating point only)

Information loss (floating point only)

Rounding error (both fixed and floating point)

Truncation error (both fixed and floating point)

### Naming convention

Hungarian notation	Data type + word	strName
Pascal format	Capitalize each word.	UserName
Camel format	The initials of the first word are lowercase. The initials of the latter words are capital letters.	userFirstName
Snake format	Underbar when connecting words.	user_first_name

