

## Year 12 : Visual Basic Tutorial.

STUDY  
THIS

## Conditional Statements

**If** [Condition is true] **Then** [Statement]

The **Statement** will only be executed if the **Condition** is true.

The **Condition** must be an expression that is either **True** or **False**.

Eg.

```
If (txtMark.Text > 20) Then txtGrade.Text = "Winner!"
```

Sometimes, usually if more than one statement is to be executed, this may be written as a block...

Eg.

```
If (txtMark.Text > 20) Then
    txtGrade.Text = "Winner!"
    txtGrade.ForeColor = Color.Red
End If
```

Comparisons that can be used in the Conditions :

Comparison	Meaning
=	Equal to
<>	Not equal to
>	Greater than
<	Less than
>=	Greater than or equal to
<=	Less than or equal to

A more complex version of the Conditional statement...

**If** [Condition is true] **Then** [Statement1] **Else** [Statement2]

If the **Condition** is true then **Statement1** will be executed...if not, then **Statement2** will be executed.

Eg.

```
If (txtMark.Text > 50) Then
    txtGrade.Text = "Winner!"
    txtGrade.ForeColor = Color.Red
Else
    txtGrade.Text = "Loser!"
    txtGrade.ForeColor = Color.Black
    MsgBox("Try again!")
End If
```

### Testing several conditions....

Several conditional expressions may be evaluated using If..Then...ElseIf...Else..End If . The syntax for this is shown in the box below...

```
If (conditon1) Then
    Statements executed if conditon1 is true
ElseIf (condition2) Then
    Statements executed if conditon2 is true
ElseIf (condition3) Then
    Statements executed if condition3 is true
Else
    Statements executed if none of the conditions is true
End If
```

### Example :

A shop offers a 10% discount if a customer buys more than £100 worth of goods, 5% discount if a customer buys more than £50 worth and no discount otherwise.

The code for this may look something like...

```
If (TotalAmount > 100) Then
    Discount = 10
ElseIf (TotalAmount > 50) Then
    Discount = 5
Else
    Discount = 0
End If
```

### Select Case

Another method of selection is provided by the Select Case structure. Here is an example...

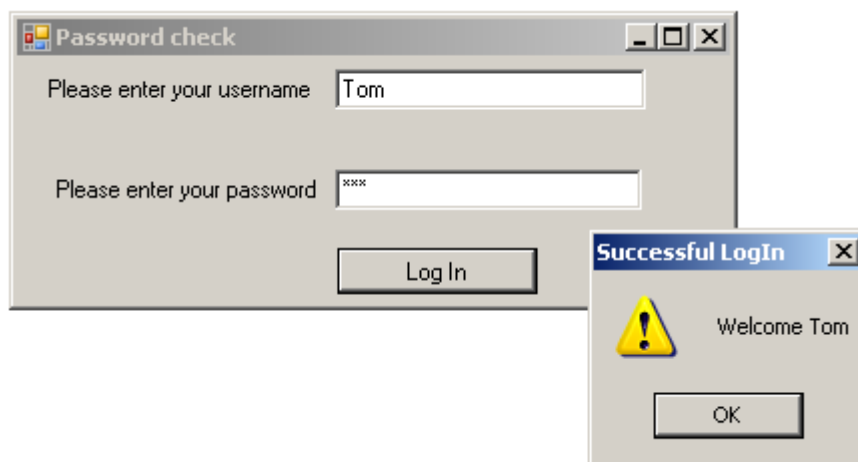
```
Select Case ExamGrade
    Case "A"
        Label1.Text = "Excellent"
    Case "B"
        Label1.Text = "Brave attempt"
    Case "C"
        Label1.Text = "Average"
    Case Else
        Label1.Text = "Room for improvement"
End Select
```

This is a better method when the action depends on the **value** of a **variable**. In the example above, the Text property of Label1 depends on the value of the variable **ExamGrade**.

**HANDS  
ON****Visual Basic Challenges 3**

- [1] When running a program, a user has to enter their name and a password. Write a program that outputs the message "Welcome" when the correct password is entered. You may choose the password yourself, but it should be hidden when it is being typed in (Check the properties of a TextBox carefully!)

Enhance the program so that the message is personalised. For example if the username is 'Tom' and the password is incorrect, the message "Welcome Tom" should be output.



- [2] Computing exam marks are graded as follows:

'A' if the mark is 80% or more,  
'B' if the mark is between 70 and 79,  
'C' if the mark is between 50 and 69,  
'D' for marks less than 50.

Write a program that allows a user to enter an exam mark and display the appropriate grade.

- [3] Write an application that allows the user to input a number between 1 and 30 and outputs it as a date in September.

Eg.     Input 2 and the output should be 'September 2nd'  
        Input 23 and the output should be 'September 23rd'

**STUDY  
THIS****Logical Operators**

The logical operators **AND**, **OR**, **XOR** and **NOT** can be used in conditional statements.

Logical operator	Meaning
<b>AND</b>	If both conditions are TRUE, the result is TRUE
<b>OR</b>	If either of the conditions is TRUE, or both, then the result is TRUE
<b>XOR</b>	If only one of the conditions is true (not both) then the result is TRUE
<b>NOT</b>	If the condition is TRUE, the result is FALSE. If the condition is FALSE, the result is TRUE

**Example :** Tom's password is 'Hedgehog'. He must enter his name and his password to gain access to a program...

```
If (txtName.Text = "Tom") And (txtPassword.Text = "Hedgehog")
Then
    MsgBox("Successful LogIn")
End If
```

**Example :** A message "Welcome" is displayed but not if it is Saturday or Sunday.

```
If Not ((Now.DayOfWeek.ToString = "Saturday") Or
(Now.DayOfWeek.ToString = "Sunday")) Then
    MsgBox("Welcome")
End If
```

**HINT :** It is good practice to put each condition in brackets to avoid confusion!

**Visual Basic Challenges 3 (continued)****HANDS  
ON**

- [4] A customer can buy a carpet online by entering the Length, Width and Type of carpet required. The types of carpet are summarised in this table...

Type	Cost per sq. metre	Discount
A	£12.49	10%
B	£10.99	5%

Write a carpet cost calculator program and test it with the following data...

**Test Data :**

- (1) Type A, 4.5 metres by 9.5 metres - Total cost = £480.55
- (2) Type B, 3 metres by 8 metres - Total Cost = £250.57