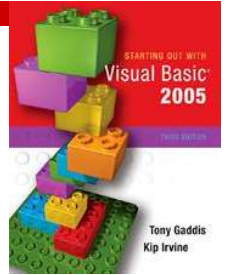


# 4.4

## The If...Then...Elseif Statement

The If...Then...Elseif Statement Is Like a Chain of If...Then...Else Statements  
They Perform Their Tests, One After the Other, Until One of Them Is Found to Be True



# Two Mutually Exclusive Choices

- The **If...Then...Else** has two choices
- The condition will be True or False
- So one of the two choices must be selected
- They are mutually exclusive



# Multiple Mutually Exclusive Choices

- The **If...Then...ElseIf** statement allows for an entire series of mutually exclusive choices
- In pseudo code:

```
If it is very cold Then
    Wear a coat
Elseif it is chilly
    Wear a light jacket
Elseif it is windy
    Wear a windbreaker
Elseif it is hot
    Wear no jacket
```



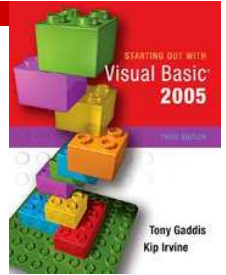
# Multiple Mutually Exclusive Choices

- Each of the series of conditions in an **If...Then...ElseIf** is tested in sequence
- When a condition is true, the remaining conditions are ignored
- The order of the conditions is vital
  - Wrong order can result in wrong decision
  - What if it's chilly *and* windy?
  - If windy is tested before chilly, you'd go out with a windbreaker when you need a jacket

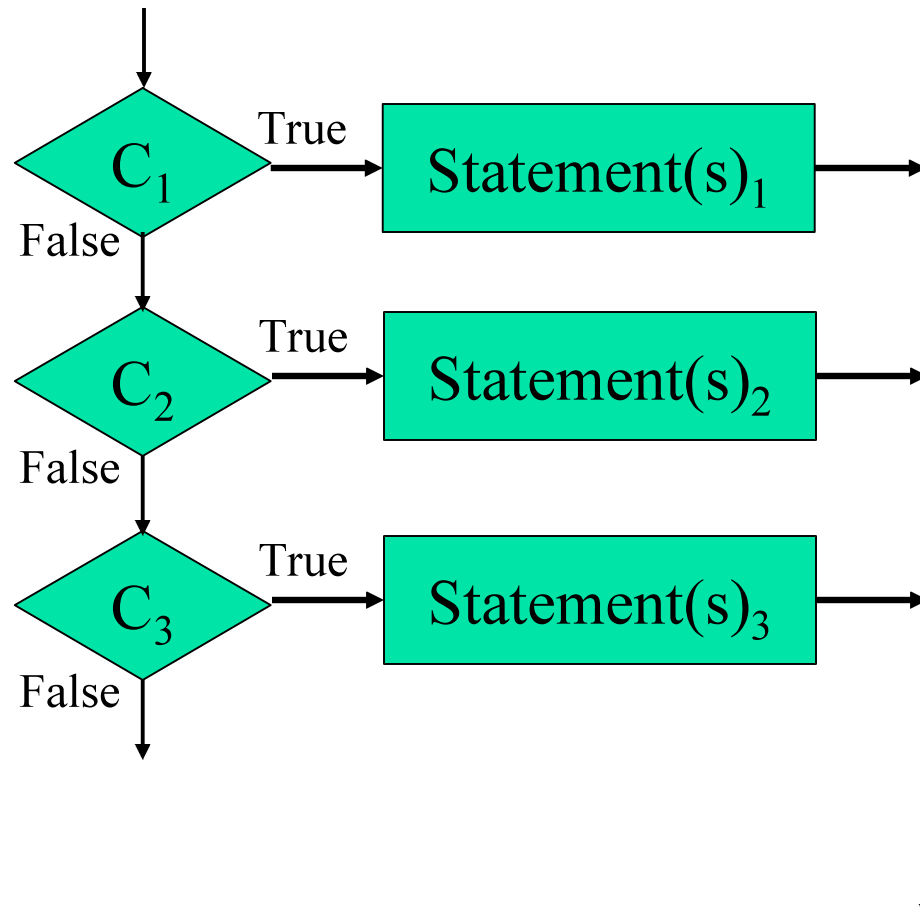


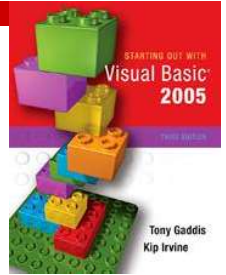
# In Visual Basic Syntax

```
If condition1 Then
    Statement(s)1
Elseif condition2 Then
    Statements(s)2
Elseif condition3 Then
    Statements3
...
End If
```



# In Flowchart Form

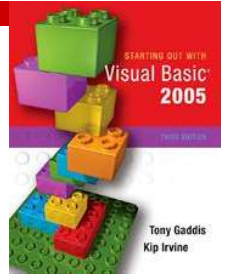




## Example of Elseif Usage

```
If sngAverage < 60 Then
    lblGrade.Text = "F"
ElseIf sngAverage < 70 Then
    lblGrade.Text = "D"
ElseIf sngAverage < 80 Then
    lblGrade.Text = "C"
ElseIf sngAverage < 90 Then
    lblGrade.Text = "B"
ElseIf sngAverage <= 100 Then
    lblGrade.Text = "A"
End If
```

- Does the order of these conditions matter?
- What happens if we reverse the order?

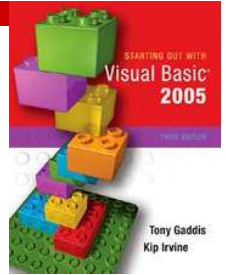


# The Same Code Without Elseif

```
If sngAverage < 60 Then
    lblGrade.Text = "F"
End If
If sngAverage < 70 Then
    lblGrade.Text = "D"
End If
If sngAverage < 80 Then
    lblGrade.Text = "C"
End If
If sngAverage < 90 Then
    lblGrade.Text = "B"
End If
If sngAverage <= 100 Then
    lblGrade.Text = "A"
End If
```

- Does this code function correctly? What is assigned to lblGrade for a 65 average? 75?





## The (Optional) Trailing Else

- A sequence of Elseif's may end with a plain Else, called a *trailing Else*
- If none of the conditions are True, the trailing Else statement(s) will be executed



## Use of a Trailing Else

- If average is greater than 100, lblGrade is assigned the text “Invalid”

```
If sngAverage < 60 Then
    lblGrade.Text = "F"
ElseIf sngAverage < 70 Then
    lblGrade.Text = "D"
ElseIf sngAverage < 80 Then
    lblGrade.Text = "C"
ElseIf sngAverage < 90 Then
    lblGrade.Text = "B"
ElseIf sngAverage <= 100 Then
    lblGrade.Text = "A"
Else
    lblGrade.Text = "Invalid"
End If
```