

5.4

The Do Until and For Next Loops

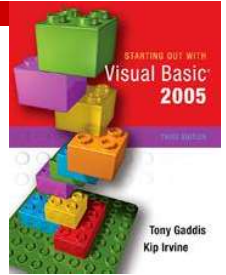
A Do Until Loop Iterates Until Its Test Expression Is True

The For...Next Loop Is Designed to Use a Counter Variable and Iterates a Specific Number of Times



Do Until vs. Do While

- A *Do While* loop
 - Repeats as long as its test expression is true
 - Ends when its test expression becomes false
- A *Do Until* loop
 - Repeats as long as its test expression is false
 - Ends when its test expression becomes true
- The Do Until loop has a pretest and posttest form just as a Do While loop



Do Until: Pretest & Posttest Forms

- Pretest:

```
Do Until expression  
    statement(s)
```

```
Loop
```

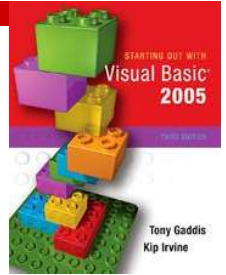
- Posttest:

```
Do
```

```
    statement(s)
```

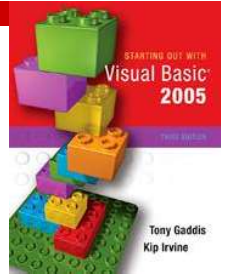
```
Loop Until expression
```

- Tutorial 5-6 provides a hands-on example of a pretest Do Until loop



Do Until Loop – Test Score Average

```
strInput = InputBox("How many test scores do you " _  
    & "want to average?", "Enter a Value")  
intNumScores = CInt(strInput)  
    \ Store the starting values in total and count  
sngTotal = 0  
intCount = 1  
    \ Get the test scores  
Do Until intCount > intNumScores  
    strInput = InputBox("Enter the value for test score " _  
        & intCount.ToString, "Test Score Needed")  
    sngTotal = sngTotal + CSng(strInput)  
    intCount = intCount + 1  
Loop  
    \ Calculate the average  
If intNumScores > 0 then  
    sngAverage = sngTotal / intNumScores  
Else  
    sngAverage = 0.0  
End If
```

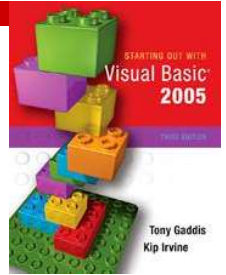


For...Next Loop

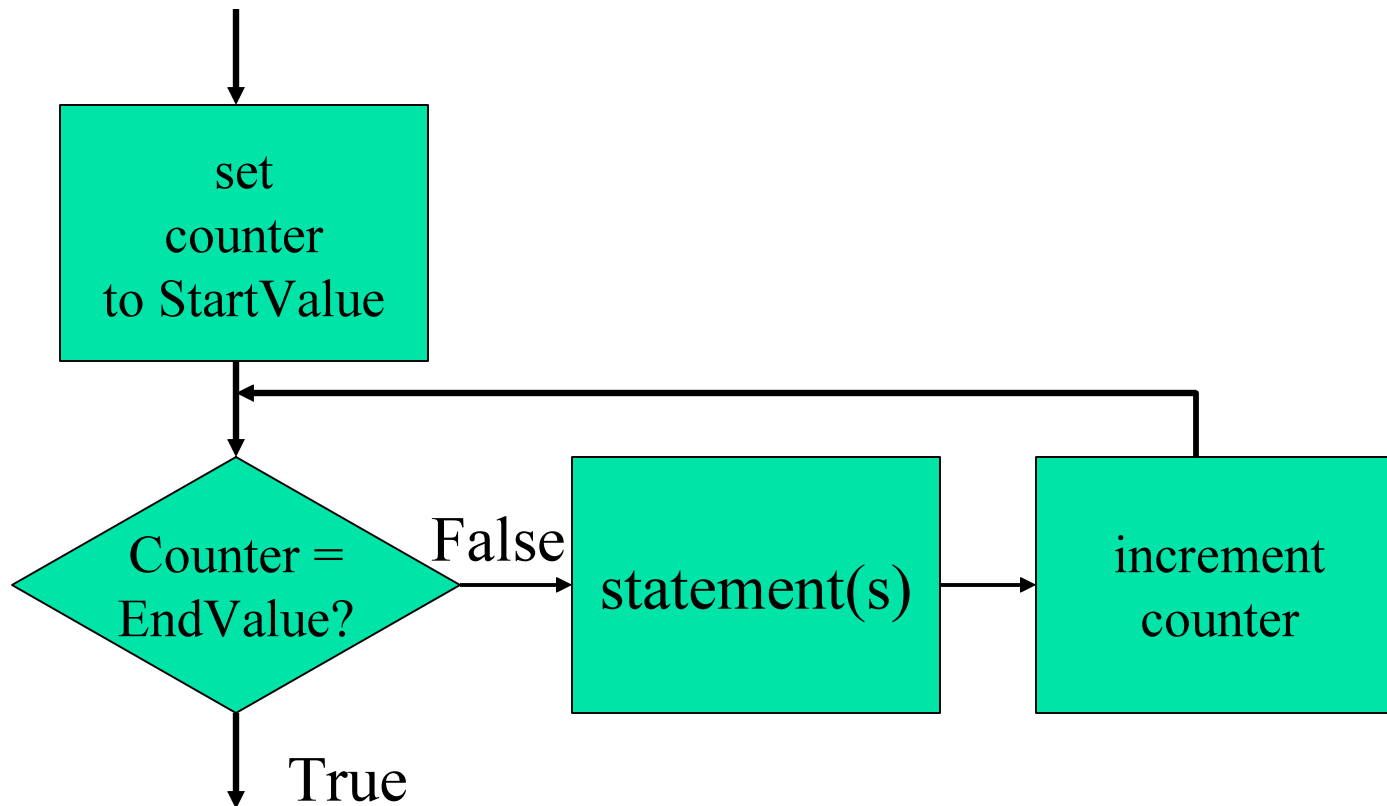
- Ideal for loops that require a counter

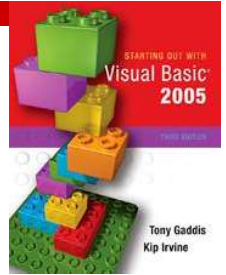
```
For CounterVariable = StartValue To EndValue [Step]  
statement  
Next [CounterVariable]
```

- *For*, *To*, and *Next* are keywords
- *CounterVariable* tracks number of iterations
- *StartValue* is initial value of counter
- *EndValue* is counter number of final iteration
- Optional *Step* allows a counter increment other than 1 for each iteration of the loop



For...Next Flowchart



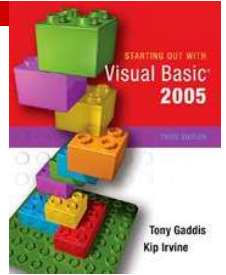


For...Next Example

- The following code from Tutorial 5-7 uses a For...Next loop to place the squares of the numbers 1 through 10 in a ListBox

```
For intCount = 1 To 10
    intSquare = CInt(intCount ^ 2)
    strTemp = "The square of " & intCount.ToString _
        & " is " & intSquare.ToString
    lstOutput.Items.Add(strTemp)
Next intCount
```

- Tutorial 5-8 uses a For...Next loop to move a PictureBox control around a window



More on the *StepValue*

- It's optional and if not specified, defaults to 1
- The following loop iterates 11 times with counter values 0, 10, 20, ..., 80, 90, 100

```
For x = 0 To 100 Step 10
    MessageBox.Show("x is now " & x.ToString)
Next x
```

- StepValue may be negative, causing the loop to count downward

```
For x = 10 To 1 Step -1
    MessageBox.Show("x is now " & x.ToString)
Next x
```