

Topic: 2.3.4 Iteration

Iteration is a control structure in which a group of statements is executed repeatedly – either a set number of times or until a specific condition is true.

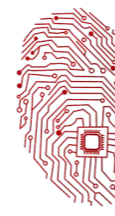
FOR-NEXT

This is an unconditional loop in which the number of repetitions is set at the beginning.

```
FOR X = 1 TO 5
    Answer = X*3
    OUTPUT X, Answer
NEXT
```

Pseudocode	VB Syntax	Example
<pre>FOR <identifier>-<value1> TO <value2> <statement(s)> ENDFOR or alternatively: FOR <identifier>-<value1> TO <value2> STEP <value3> <statement(s)> ENDFOR</pre>	<pre>For counter [As datatype] = start To end [Step step] [statements] [Continue For] [Exit For] [statements] Next [counter]</pre>	<pre>For index As Integer = 1 To 5 Debug.Write(index.ToString& " ") Next Debug.WriteLine("") ' Output: 1 2 3 4 5</pre>





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WHILE-ENDWHILE

This is a conditional loop, which has a test at the start and repeats until the condition is false:

```
X = 0
WHILE X < 6 DO
    X = X + 1
    Answer = X*3
    OUTPUT X, Answer
ENDWHILE
```

Pseudocode	VB Syntax	Example
<pre>WHILE <condition> <statement(s)> ENDWHILE</pre>	<pre>While condition [statements] [Continue While] [statements] [Exit While] [statements] End While</pre>	<pre>Dim index As Integer = 0 While index <= 10 Debug.Write(index.ToString& " ") index += 1 End While Debug.WriteLine("") ' Output: 0 1 2 3 4 5 6 7 8 9 10</pre>





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REPEAT-UNTIL

This is a conditional loop, which has a test at the end and repeats until the condition is true:

```
X = 0
REPEAT
    X = X + 1
    Answer = X*3
    OUTPUT X, Answer
UNTIL X > 4
```

Pseudocode	VB Syntax	Example
REPEAT <statement(s)> UNTIL <condition>	Do { While Until } condition [statements] [Continue Do] [statements] [Exit Do] [statements] Loop -or- Do [statements] [Continue Do] [statements] [Exit Do] [statements] Loop { While Until } condition	Dim index As Integer = 0 Do Debug.Write(index.ToString & " ") index += 1 Loop Until index > 10 Debug.WriteLine("") ' Output: 0 1 2 3 4 5 6 7 8 9 10

