

## ➤ Loop Statements

A loop statement allows us to execute a statement or group of statements multiple times. VB.Net provides following types of loops to handle looping requirements.

Loop Type	Description
<u>Do Loop</u>	It repeats the enclosed block of statements while a Boolean condition is True or until the condition becomes True. It could be terminated at any time with the Exit Do statement.
<u>For...Next</u>	It repeats a group of statements a specified number of times and a loop index counts the number of loop iterations as the loop executes.
<u>While... End While</u>	It executes a series of statements as long as a given condition is True.
<u>Nested loops</u>	You can use one or more loops inside any another While, For or Do loop.

### 1. For .. Next Loop

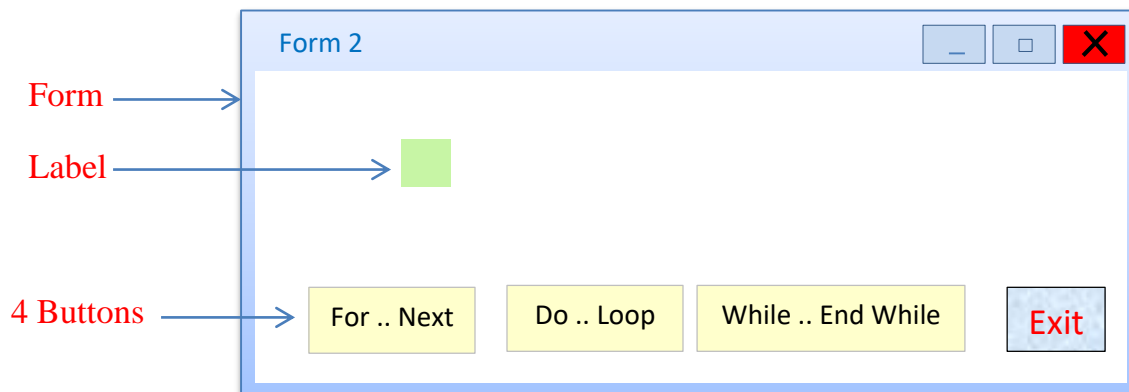
It repeats a group of statements a specified number of times and a loop index counts the number of loop iterations as the loop executes. It could be terminated at any time with the Exit For statement.

The syntax for this loop construct is –

```

For counter [ As datatype ] = start To end [ Step step ]
  [ statements ]
Next [ counter ]
```

*Example:* Design the following figure then write appropriate codes using VB2010



```
Public Class Form2
    Private Sub Button1_Click(... ...)
        Label1.text = ""
        For i As Integer = 1 To 21 Step 2
            Label1.Text = Label1.Text & i & Space(3)
        Next
    End Sub
End Class
```

When the above code is compiled and executed, it produces the following result –

```
1 3 5 7 9 11 13 15 17 19 21
```

### Using Exit For

```
Public Class Form2
    Private Sub Button1_Click( )
        Label1.Text = ""
        For i As Integer = 1 To 21 Step 2
            Label1.Text = Label1.Text & i & Space(3)
            If i >= 15 Then
                Exit For
            End If
        Next
    End Sub
End Class
```

## 2. Do .. Loop Statement

It repeats the enclosed block of statements while a boolean condition is True or until the condition becomes True. It could be terminated at any time with the Exit Do statement.

The syntax for this loop construct is –

```
Do { While | Until } condition
    [ statements ]
Loop
```

**OR**

```
Do
    [ statements ]
Loop { While | Until } condition
```

*Example:* Referencing to the For .. Next example. Do the following modification.

```
Private Sub Button2_Click()
    Dim i As Integer
    i = 1
    Label1.Text = ""
    Do While i <= 21
        Label1.Text = Label1.Text & i & Space(3)
        i = i + 2
    Loop
End Sub
```

```
Private Sub Button2_Click()
    Dim i As Integer
    i = 1
    Label1.Text = ""
    Do Until i > 21
        Label1.Text = Label1.Text & i & Space(3)
        i = i + 2
    Loop
End Sub
```

```
Private Sub Button2_Click()
    Dim i As Integer
    i = 1
    Label1.Text = ""
    Do
        Label1.Text = Label1.Text & i & Space(3)
        i = i + 2
    Loop While i <= 21
End Sub
```

```
Private Sub Button2_Click()
    Dim i As Integer
    i = 1
    Label1.Text = ""
    Do
        Label1.Text = Label1.Text & i & Space(3)
        i = i + 2
    Loop Until i > 21
End Sub
```

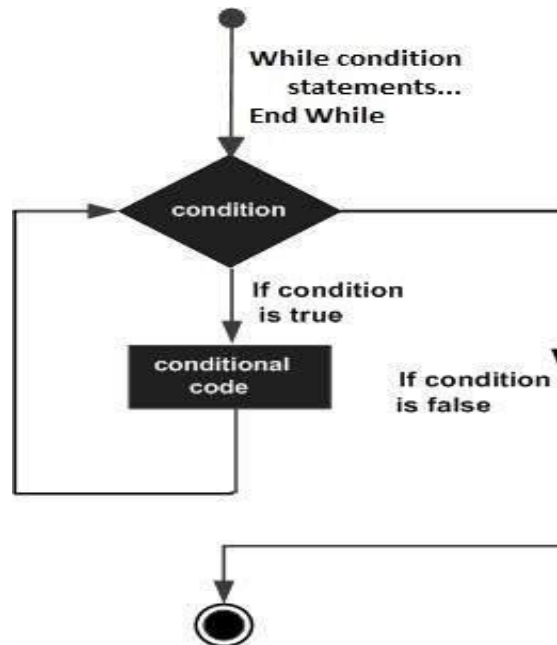
**Using Exit Do**

```
Public Class Form2
    Private Sub Button2_Click( )
        Dim i As Integer
        i = 1
        Label1.Text = ""
        Do While i <= 21
            Label1.Text = Label1.Text & i & Space(3)
            i = i + 2
            If i >= 15 Then
                Exit Do
            End If
        Loop
    End Sub
End Class
```

**H.W:** What the expected results for the above code?

**3. While .. End While**

It executes a series of statements as long as a given condition is True.



The syntax for this loop construct is –

```
While condition  
  [ statements ]  
End While
```

Here, statement(s) may be a single statement or a block of statements. The condition may be any expression. The loop iterates while the condition is true.

When the condition becomes false, program control passes to the line immediately following the loop.

**Note:** Here, key point of the *While* loop is that the loop might not ever run. When the condition is tested and the result is false, the loop body will be skipped and the first statement after the while loop will be executed.

**H.W:** Rewrite one of the above codes related to Do..Loop statement using While statement instead.