

Control structures

Control structures in Visual Basic take two primary forms: if-statements and loops. With an if-statement, you can evaluate an expression, and perform one task if that expression is (True) and perform another if its (False). This allows your program to respond to different values and inputs, which allows for far more advanced calculations and a far wider range of possible behaviors. Loops, on the other hand, allow you to repeat the same task a given number of times, making it possible to go far beyond basic arithmetic to achieve aims.

The If-Then Statement

VB6 uses the same simplistic and easily comprehensible syntax for If-Then Statements as in (BASIC) language. The If-Then Statement can be written as:

If (Expression) Then (code to execute)

For more understanding let us take an example:

Ex: Write a program to calculate the value of (K) by using the equations below:

$$K = \sqrt{q} \quad \text{for } q > 0$$

$$K = q^2 \quad \text{for } q < 0$$

$$K = 2q^2 + 1 \quad \text{for } q = 0$$

Input the value of (q) by (input box function) appears in the location (7500, 4000), print the results on the form by the font (Arial), (Bold) with the size (12), let the program carry out results continuously. Use (If Then) statement to solve the example, use (s) to stop the input of the values of (q).

So:

- 1- Design part: No design part for such example.

2- Coding part: The coding part might be written as below:

```
Private Sub Form_Activate( )  
    Font.Name = "arial"  
    Font.Bold = True  
    Font.Size = 12  
  
    start:  
  
    q = InputBox("input q", "input", , 7500, 4000)  
  
    If q = "s" Then Exit Sub  
  
    If q > 0 Then k = Sqr(q): Print "q="; q, "k="; k: GoTo 10  
  
    If q < 0 Then k = q ^ 2: Print "q="; q, "k="; k: GoTo 10  
  
    k = 2 * (q ^ 2) + 1: Print "q="; q, "k="; k  
  
10 GoTo start  
  
End Sub
```

Ex: Design a program to take (25) integer random numbers in the range (1 - 1000), divide each number by (5) and use (Cint function) for the results, print the dividing results on the form and print the word (Even) for the even dividing results or (Odd) for the odd dividing results, use the font (Arial), (Bold) with the size (12). Use (If Then) statement to solve the example. Let the program carry out results continuously.

So:

- 1- Design part: No design part for such example.
- 2- Coding part: The coding part might be written as below:

Private Sub Form_Activate()

Font.Name = "arial"

Font.Bold = True

Font.Size = 12

n = 1

start:

a = Rnd * 1000

a = Int(a)

d = a / 5

d = CInt(d)

If d / 2 = Int(d / 2) Then Print "a="; a, "d="; d, "Even": GoTo 100

Print "a="; a, "d="; d, "Odd"

100 If n > 25 Then Exit Sub

n = n + 1

GoTo start

End Sub

Ex: Design a program to print on the form the numbers (50, 100, 150, 200, 250, ...2000), print each number by (10), and use (Int function) for the results, print the dividing results on the form and print the word (Even) for the even dividing results, use the font (Arial), (Bold) with the size (12). Let the program carry out results continuously.

So:

1- Design part: No design part for such example.

2- Coding part: The coding part might be written as below:

Private Sub Form_Activate()

Font.Name = "arial"

Font.Bold = True

Font.Size = 12

n = 50

start:

d = n / 10

d = Int(d)

If d / 2 = Int(d / 2) Then Print "n="; n, "d="; d, "Even": GoTo 100

100 If n > 2000 Then Exit Sub

n = n + 50

GoTo start

End Sub