

While Loop and Do While Loop

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While Loop flow chart diagram

While Loop pseudocode

```
While condition  
    statement  
    statement  
    etc.  
End While
```

Note

condition must be made to evaluate true for first loop.

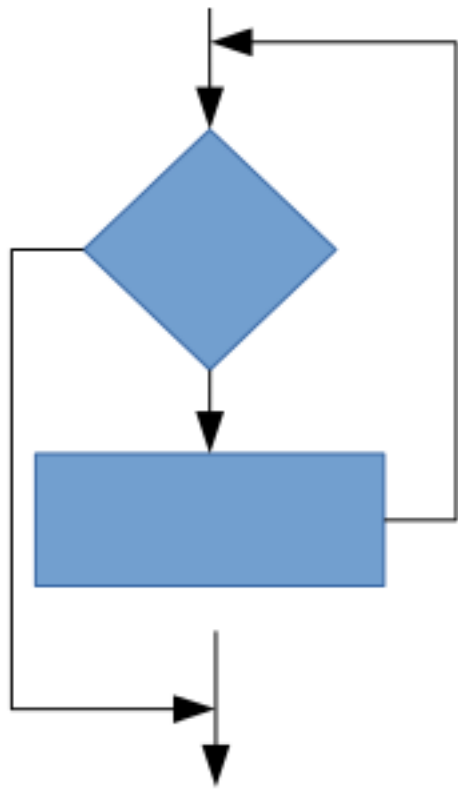


Figure 1: While loop flowchart

Conditions

```
keepGoing == "y"  
x < 3  
x < 3 && keepGoing == "y"
```

- What compound condition would you do for an upper and lower case “Y”?
- What type of result should a condition expression return?

Sample 1 While Loop

```
Declare Integer x = 3  
While x > 1  
    Display "Hi There ", x  
    Set count = count - 1  
End While
```

Output

```
Hi There 3  
Hi There 2  
etc.
```

What do you notice that we put before the while loop?

Sample 2 While Loop

```
Declare String doAgain = "Y"  
While doAgain == "Y"  
    Display "Hi There"  
End While
```

Output is an infinite loop!

```
Hi There  
Hi There  
etc.
```

How would you fix this?

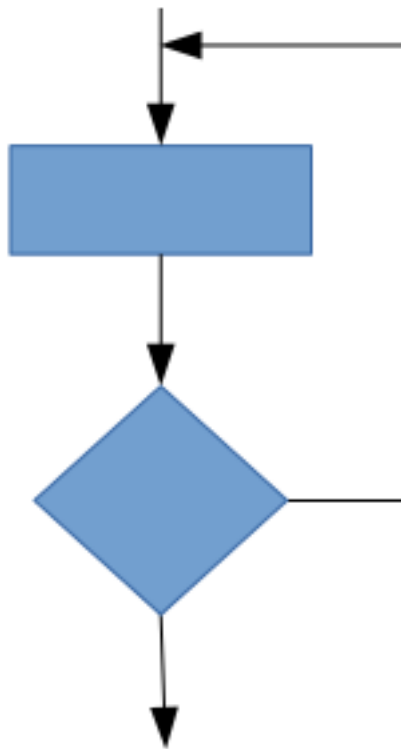


Figure 2: Do While flowchart

Do While Loop flow chart diagram

Do While Loop pseudocode

```
Do
    statement
    statement
    etc.
While condition
```

Sample 1 Do While Loop

```
Declare Integer x = 3
Do
    Display "Hi There ", x
    Set count = count - 1
While x > 1
```

Output is the same as the while loop!

```
Hi There 3
Hi There 2
```

Sample 2 Do While Loop

```
Declare String keepGoing

Do
    Display "Hi There "
    Input keepGoing
While keepGoing == "y"
```

Notice how *keepGoing* is not preinitialized.

```
Hi There
y
Hi There
n
```

Sample 3 Do While Loop

```
Declare Integer x = -1
```

```

Do
    Display "Hi There ", x
    Set count = count - 1
While x > 1

```

Output

```

Hi There -1

```

What happened? Why did the number go negative?

While Do Big Task

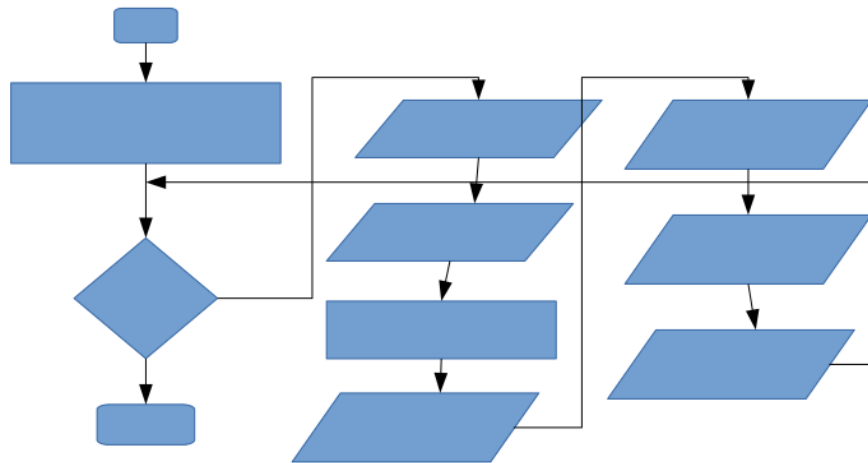


Figure 3: While Do big task

pseudocode for Do While Big Task

```

// Variable declarations
Declare Real sales, commission
Declare String keepGoing = "y"
// Constant for the commission rate
Constant Real COMMISSION_RATE = 0.10
While keepGoing == "y"
    // Get the amount of sales.
    Display "Enter the amount of sales."
    Input sales

```

```

// Calculate the commission.
Set commission = sales * COMMISSION_RATE
// Display the commission
Display "The commission is $", commission
Display "Do you want to calculate another"
Display "commission? (Enter y for yes.)"
Input keepGoing
End While

```

Breaking into a module

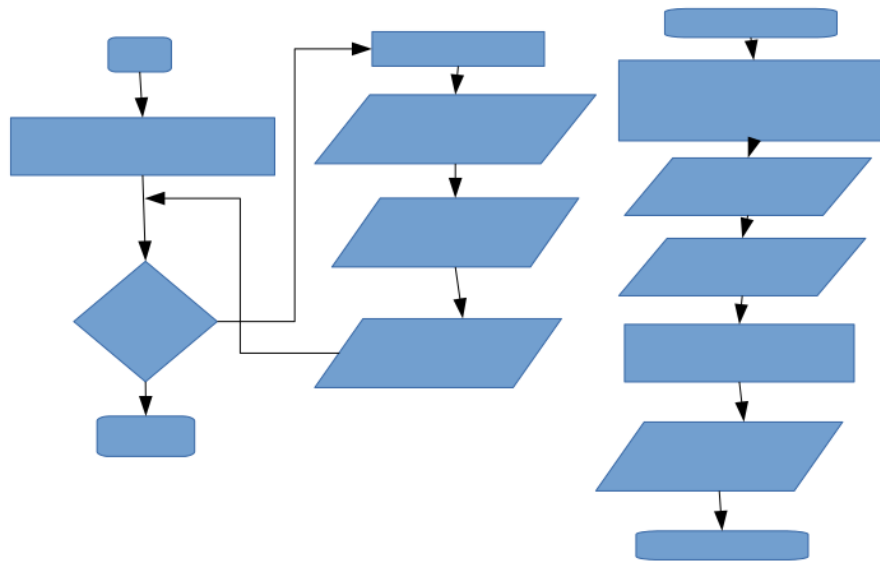


Figure 4: While Loop with a Module

Module pseudocode

```

100 Module main()
101     // Local variable
102     Declare String keepGoing = "y"
103
104     // Calculate commissions as many
105     // times as needed.
106     While keepGoing == "y"
107         // Display a salesperson's commission.

```

```

108         Call showCommission()
109         // Do it again?
110         Display "Do you want to calculate another"
111         Display "commission? (Enter y for yes.)"
112         Input keepGoing
113     End While
114 End Module
115
116 // The showCommission module gets the
117 // amount of sales and displays the
118 // commission.
119 Module showCommission()
120     // Local variables
121     Declare Real sales, commission
122     // Constant for the commission rate
123     Constant Real COMMISSION_RATE = 0.10
124     // Get the amount of sales.
125     Display "Enter the amount of sales."
126     Input sales
127     // Calculate the commission.
128     Set commission = sales * COMMISSION_RATE
129     // Display the commission
130     Display "The commission is $", commission
131 End Module

```

Exercise

Write the previous While loop using a Do While loop

Questions?!