Self-Check for Lecture #4

Solutions

Solve each problem using the following data segment:

```
.data
k DWORD ?
n DWORD ?
x DWORD ?
y DWORD ?
z DWORD ?
yes BYTE "Yes", 0
no BYTE "No", 0
maybe BYTE "Maybe", 0
```

Assume that variables have been initialized. Write MASM code to implement the following high-level pseudo-code decision structures.

1. if (k < n) print (yes);
   else print (no);

2. if (k < n) print (maybe);
   else if (k > n) print (no);
   else print (yes);

3. if ((x < y) AND (y < z)) print (yes);
   else print (no);

4. if ((x < y) OR (x > z)) print (no);
   else print (maybe);

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NOTE: You cannot cmp memory to memory. At least one of the operands must be a register or a constant.

1. mov eax, k
   cmp eax, n
   jl true
   mov edx, OFFSET no
   call WriteString
   jmp theEnd
true:                
   mov edx, OFFSET yes
   call WriteString
theEnd:               

2. mov eax, k
   cmp eax, n
   jl true_1
   jg true_2
   mov edx, OFFSET yes
   call WriteString
   jmp theEnd
true_1:      
   mov edx, OFFSET maybe
   call WriteString
   jmp theEnd
true_2:      
   mov edx, OFFSET no
   call WriteString
theEnd:               

3. mov eax, x
   cmp eax, y
   jge false
   mov ebx, z
   cmp y, ebx
   jge false
   mov edx, OFFSET yes
   call WriteString
   jmp theEnd
false:         
   mov edx, OFFSET no
   call WriteString
theEnd:               

4. mov eax, x
   cmp eax, y
   jl true
   cmp eax, z
   jg true
   mov edx, OFFSET maybe
   call WriteString
   jmp theEnd
true:                  
   mov edx, OFFSET no
   call WriteString
theEnd:               