CIS 231 PROGRAMMING ASSIGNMENT 7: ARRAY SORTING

Make a program to sort numeric Ascii characters

OBJECTIVE: Write a program to **sort Ascii characters** in an array **so they appear in ascending order**. **Only use move instructions** (mov). Any addressing mode can be used.

Output from a properly working program is shown below:

```
sh-4.3$ demo
Before sorting: 7321056489
After sorting: 0123456789
sh-4.3$
```

PROCEDURE: Use the skeleton code below to get started:

```
1    ;;;;;;;;;;;;;;;;;;;;;    MACRO DEFINITIONS    ;;;;;;;;;;;;;;;;;;;;;
2    ; A macro with two parameters
3    ; Implements the write system call
4        %macro writestring 2
5            mov eax, 4   ;sys_write system call number
6            mov ebx, 1   ;file descriptor std_out
7            mov ecx, %1  ;message to write from parameter 1
8            mov edx, %2  ;message length from parameter 2
9            int 0x80
10       %endmacro
11
12   ;;;;;;;;;;;;;;;;;;;;;    DATA SEGMENT    ;;;;;;;;;;;;;;;;;;;;;
13   section .data
14   msg1 db 'Before sorting: '
15   lenmsg1 equ $-msg1
16   msg2 db 'After sorting: '
17   lenmsg2 equ $-msg2
18   asciinums db '7','3','2','1','0','5','6','4','8','9'
19   lenasciinums equ $-asciinums
20   crlf db 0x0d, 0x0a
21   lencrlf equ $ - crlf
22
23   section .text
24       global _start
25   _start:
26       writestring msg1, lenmsg1
27       writestring asciinums, lenasciinums
28       writestring crlf, lencrlf
29
30       ;fill in missing lines of code here
31
32       writestring msg2, lenmsg2
33       writestring asciinums, lenasciinums
34       writestring crlf, lencrlf
35
36       mov eax, 1           ;terminate program
37       int 0x80
```

WHAT TO TURN IN:

After correct operation of your program in has been verified:

1. Save your assembly source file
2. Upload your assembly source file to Programming Assignment 6 submission box on Canvas
3. Have a great day!