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**CS 330 Computer Architecture/Assembly Language**

**Programing Assignment 4**

**3/9/18**

Source Code:

%include "along32.inc"

global main

section .data

msg db "Enter an int: ", 0x0 sortMsg db "The ints sorted in ascending order: ", 0x0

noData db "No data was entered.", 0xa, 0x0

TMI db "Too much data was entered. Array overflowed.", 0xa, 0x0

zeroMsg db "A zero was entered.", 0xa, 0x0

comma dd " ~ ", 0

length dd 0

section .bss

arrayNums resd 100

section .text

main:

mov edx, msg

call WriteString

call Crlf

call readarray

mov edx, zeroMsg

call WriteString

call Crlf

mov edx, sortMsg

call WriteString

call Crlf

call writearray

call Crlf

error:

jmp exit

readarray:

read:

call ReadInt

cmp eax, 0

je exitreadloop

call sortarray

mov ebx, [length]

cmp ebx, 100

je exitreadloop

jmp read

exitreadloop:

ret

sortarray:

mov ebx, [length]

mov [arrayNums + ebx \*4], eax

inc ebx

mov [length], ebx

sort:

mov ecx, ebx

dec ecx

cmp ecx, 0

jl endsortloop

cmp eax, [arrayNums + ecx \*4]

jg endsortloop

mov edx, [arrayNums + ecx \*4]

mov [arrayNums + ecx \* 4], eax

mov [arrayNums + ebx \*4], edx

dec ebx

jmp sort

endsortloop:

ret

writearray:

mov ebx, 0

write:

mov eax, [arrayNums + ebx\*4]

call WriteInt

mov edx, comma

call WriteString

inc ebx

cmp ebx, [length]

je endloop

jmp write

endloop:

ret

exit:

mov eax, 1

int 0x80