//Michael Weyman

/\*\*This program is used to sort an array in alphabetical order\*/

#include <stdio.h>

void main(){

int a[] = {123456, 342100, 87539, 606006, 443322, 198371, 99109, 88018, 707007};

int number = 9; //number stored in array

int four = 4; //constant used to traverse array

int one = 1; //constant

int zero = 0; //constant

int i = 0; //counter for printing array

\_\_asm{

mov ecx, one //initialize the loop counter

top: cmp ecx, number // check if counter is less than number

jl start

jmp end // if counter is not less than number leave loop

start: mov eax, ecx // prepare for multiplication

mov edx, zero

mul four

sub eax, four

mov ebx, eax // store location

mov edx, a[ebx + 4] // store temp

whi: cmp ebx, zero // check if location > 0

jge next

jmp xout

next: cmp a[ebx], edx // check if a[location] > temp

jg here

jmp xout

here: mov eax, a[ebx] // store a[location] into a[location + 1]

mov a[ebx+4], eax

sub ebx, 4

jmp whi // jump to top of while

xout: mov a[ebx+4], edx // set temp to a[location + 1]

add ecx, one //incrament counter

jmp top //jump to top of for loop

end: nop

}

while(i < (number)){ //prints out array

printf("%i ", a[i]);

i += 1;

}

}

Output:

Original array: (123456, 342100, 87539, 606006, 443322, 198371, 99109, 88018, 707007)

Output: 87539 88018 99109 123456 198371 342100 443322 606006 707007

Original array: (100, 99, 97, 95, 90, 87, 86, 83, 81, 77, 74, 69, 63, 50, 44, 43, 39, 31, 29, 12)

Output: 12 29 31 39 43 44 50 63 69 74 77 81 83 86 87 90 95 97 99 100