;------------------------------------------------------------------------------- ;Write X86/64 ALP to count number of positive and negative numbers from the array

;-------------------------------------------------------------------------------

%macro inout 4

mov rax,%1

mov rdi,%2

mov rsi,%3

mov rdx,%4

syscall

%endm

%macro exit 0

mov rax,60

mov rdi,0

syscall

%endm

global \_start

section .data

msg db 0Dh,0Ah,'No. of positive numbers : '

len equ $-msg

msg1 db 0Dh,0Ah,'No of negative numbers : '

len1 equ $-msg1

msgnull db 0Dh,0Ah,''

len3 equ $-msgnull

len2 equ 1

msgdis db 'The array contents are :'

lendis equ $-msgdis

arr dq 7231231212312312h,05231231212312312h,0A231231212312312h,7231231212312312h,05231231212312312h,0A231231212312312h,7231231212312312h,05231231212312312h,0A231231212312312h,0A231231212312312h

section .bss

temp resb 1

num\_cnt resb 1

ncnt resb 1

pcnt resb 1

numbyte resb 1

incr\_cnt resb 1

c resb 1

section .text

\_start:

mov byte[ncnt],00h

mov byte[pcnt],00h

mov rcx,rbx

call display\_array

mov rbx,rcx

mov rsi,arr

mov cl,0Ah

up:

mov rax,[rsi]

bt rax,63

jc neg

inc byte[pcnt]

jmp next

neg:

inc byte[ncnt]

next:

add rsi,8

dec cl

jnz up

cmp byte[pcnt],0Ah

jb less\_than\_9

add byte[pcnt],07

less\_than\_9:

add byte[pcnt],30h

cmp byte[ncnt],0Ah

jb less\_than\_9\_negcnt

add byte[ncnt],07

less\_than\_9\_negcnt:

add byte[ncnt],30h

inout 1,1,msg,len

inout 1,1,pcnt,1

inout 1,1,msg1,len1

inout 1,1,ncnt,1

inout 1,1,msgnull,len3

exit

display\_array:

inout 1,1,msgdis,lendis

inout 1,1,msgnull,len3

mov byte[num\_cnt],0Ah

mov rsi,arr

add rsi,4Fh

next\_num:

mov byte[incr\_cnt],08h

same\_num:

mov byte[c],02h

mov al,byte[rsi]

mov byte[temp],al

nibsep:

cmp byte[c],01h

je norotate

rol al,04

norotate:

and al,0Fh

cmp al,0Ah

jb dn

add al,07h

dn:

add al,30h

mov byte[numbyte],al

mov rbx,rsi

inout 1,1,numbyte,1

mov rsi,rbx

mov al,byte[temp]

dec byte[c]

jnz nibsep

dec rsi ;goto next byte

dec byte[incr\_cnt]

jnz same\_num

mov rbx,rsi

inout 1,1,msgnull,len3

mov rsi,rbx

dec byte[num\_cnt]

jnz next\_num

ret

**OUTPUT :**

The array contents are :

A231231212312312

A231231212312312

5231231212312312

7231231212312312

A231231212312312

5231231212312312

7231231212312312

A231231212312312

5231231212312312

7231231212312312

No. of positive numbers : 6

No of negative numbers : 4