**Assignment number:1**

**Subject: MICROPROCESSOR LAB**

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Class: ***SECOND YEAR ENGINEERING***

Division: ***B***

Roll no: ***222008***

Batch: ***B1***

**PROBLEM STATEMENT:**

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

**Code:**

%macro scall 4

mov rax,%1

mov rdi,%2

mov rsi,%3

mov rdx,%4

syscall

%endmacro

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

section .data

msg db 10,"Positive Count="

msgl equ $-msg

msg2 db 10,"Negative Count="

msg2l equ $-msg2

new db "",10

newl equ $-new

arr dw 43H,05H,23H,-98H,10H;

section .bss

pcnt resb 2

ncnt resb 2

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

section .text

global \_start

\_start:

;\*\*\*\*\*\*\*\*\*\*\*Find out positive and Negative Numbers From Given Array\*\*\*\*\*\*\*\*\*\*\*\*

mov byte[pcnt],0

mov byte[ncnt],0

mov rcx,5

mov rbx,arr

rev:

mov rax,[rbx]

bt rax,63 ;bit test instruction if MSB bit is 0 then number is positive and if 1 it is negative.

jnc pcount

inc byte[ncnt]

jmp next

pcount:

inc byte[pcnt]

next:

inc rbx

dec rcx

jnz rev

;\*\*\*\*\*\*\*\*\*Display Positive Count\*\*\*\*\*\*\*\*\*\*\*\*\*

scall 1,1,msg,msgl

mov al,byte[pcnt]

cmp al,09h

jbe next1

add al,07h

next1:

add al,30h

mov byte[pcnt],al

scall 1,1,pcnt,2

;\*\*\*\*\*\*\*\*Display Negative Count\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

scall 1,1,msg2,msg2l

mov al,byte[ncnt]

cmp al,09h

jne next2

add al,07h

next2:

add al,30h

mov byte[ncnt],al

scall 1,1,ncnt,2

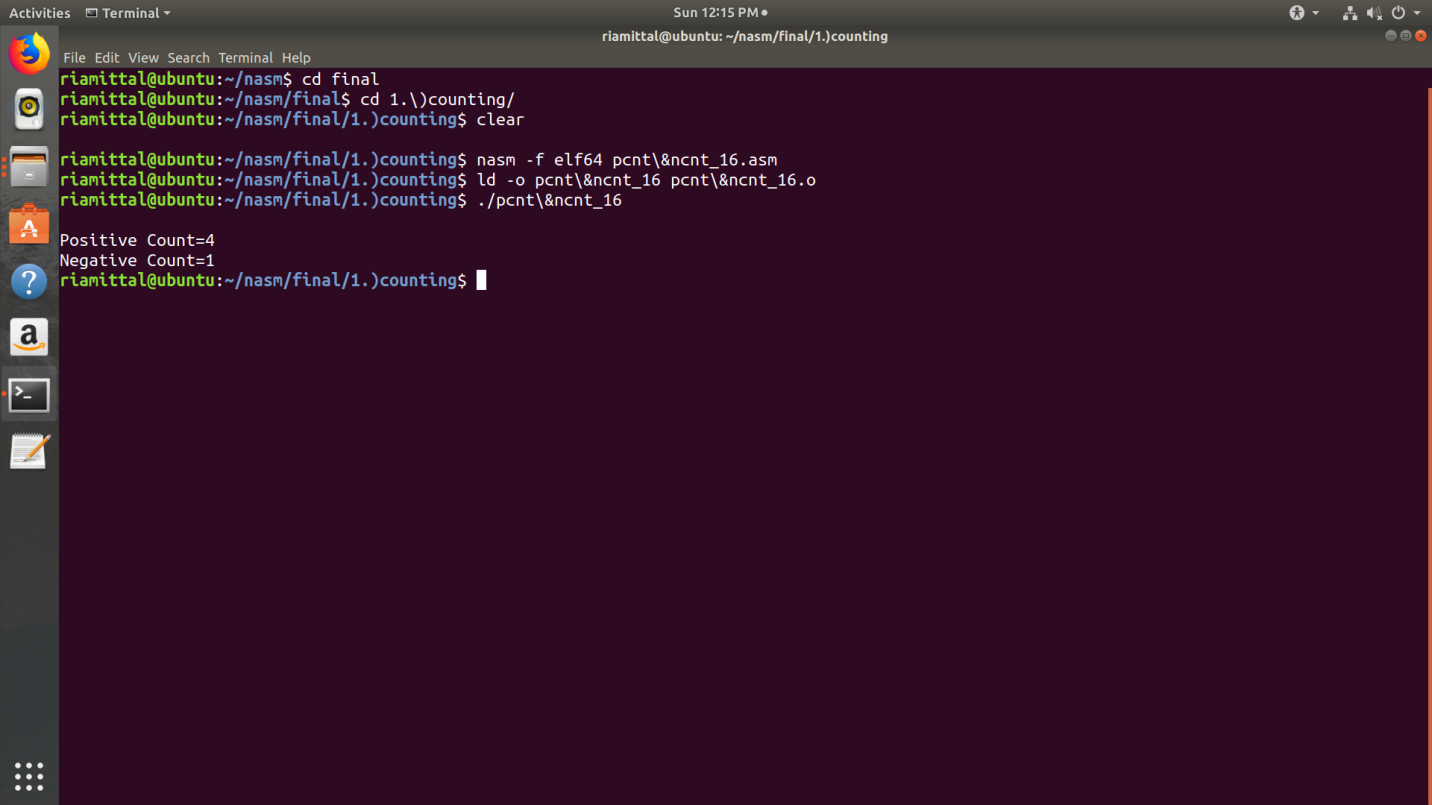
scall 1,1,new,newl

mov rax,60

mov rdi, 0

syscall

;-----------------------END--------------------

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