

SYSTEM PROGRAMMING LAB

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CSE, IV SEM

Question 2 : Write an assembly language program to find addition and subtraction of two numbers where the addition and subtraction functions must be defined as a macro..

section .text

global _start

%macro Addition 2 ;for addition

mov eax, %1

sub eax, '0'

mov ebx, %2

sub ebx, '0'

add eax, ebx

add eax, '0'

mov [addnum], eax

%endmacro

%macro Subtraction 2 ;for subtraction

mov eax, %1

sub *eax, '0'*

mov *ebx, %2*

sub *ebx, '0'*

sub *eax, ebx*

add *eax, '0'*

mov *[subnum], eax*

%endmacro

_start:

Addition [x],[y]

Subtraction [x],[y]

mov *ecx, msg1*

mov *edx, len1*

mov *ebx, 1*

mov *eax*, 4

int 0x80

mov *ecx*, *addnum*

mov *edx*, 1

mov *ebx*, 1

mov *eax*, 4

int 0x80

mov *ecx*, *msg2*

mov *edx*, *len2*

mov *ebx*, 1

mov *eax*, 4

int 0x80

mov *ecx*, *subnum*

mov *edx*, 1

mov ebx, 1

mov eax, 4

int 0x80

mov eax, 1

int 0x80

section .data

x db '5'

y db '1'

msg1 db "Sum of x and y is "

len1 equ \$ - msg1

msg2 db " ----- Subtraction of y from x is "

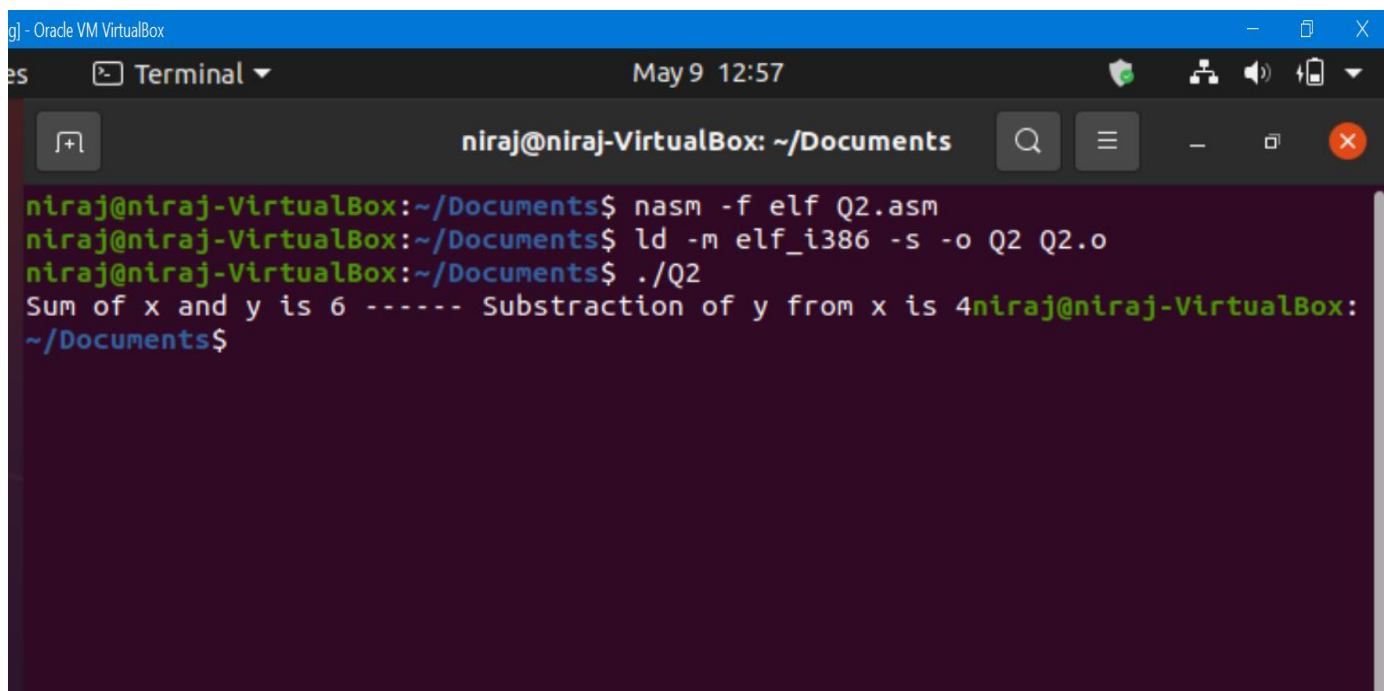
len2 equ \$ - msg2

segment .bss

addnum resb 1

subnum resb 1

OUTPUT –



The screenshot shows a terminal window titled "Oracle VM VirtualBox" with a blue header bar. The window contains a terminal session for a user named "niraj" on a host named "niraj-VirtualBox". The current directory is "~/Documents". The terminal shows the following commands and output:

```
niraj@niraj-VirtualBox:~/Documents$ nasm -f elf Q2.asm
niraj@niraj-VirtualBox:~/Documents$ ld -m elf_i386 -s -o Q2 Q2.o
niraj@niraj-VirtualBox:~/Documents$ ./Q2
Sum of x and y is 6 ----- Substraction of y from x is 4niraj@niraj-VirtualBox:~/Documents$
```

The output of the program is "Sum of x and y is 6 ----- Substraction of y from x is 4". The terminal window has a standard Linux-style interface with a search bar, a menu icon, and window control buttons (minimize, maximize, close) in the top right corner.