ASSIGNMENT NO 9

PROBLEM STATEMENT:

Write X86/64 ALP to perform overlapped block transfer with string specific instructions Block containing data can be defined in the data segment.

SOURCE CODE:

```
section .data
        menumsg db 10,10,'***Overlap block transfer***',10
                db 10,'1.Block transfer without string '
                db 10,'2.Block transfer with string '
                db 10,'3.exit   '
        menumsg_len equ $-menumsg
        wrmsg db 10,10,'Wrong choice entered',10,10
        wrmsg_len equ $-wrmsg
        bfrmsg db 10,'**Block contents before transfer: '
        bfrmsg_len equ $-bfrmsg
        afrmsg db 10,'**Block contents after transfer:'
        afrmsg_len equ $-afrmsg
        srcmsg db 10,'*_*Source block contents   '
        srcmsg_len equ $-srcmsg
        dstmsg db 10,'*_*Destination block contents   '
        dstmsg_len equ $-dstmsg
        srcblk db 01h,02h,03h,04h,05h
        dstblk times 3 db 0
        cnt equ 05
        spacechar db 20h
        lfmsg db 10,10

section .bss
        optionbuff resb 02
        dispbuff resb 02

%macro dispmsg 2
        mov eax,04
        mov ebx,01
        mov ecx,%1
        mov edx,%2
        int 80h
%endmacro

%macro accept 2
        mov eax,03
        mov ebx,00
        mov ecx,%1
        mov edx,%2
        int 80h
%endmacro

section .text
global _start
```

```
_start:
        dispmsg bfrmsg,bfrmsg_len
        call show
        menu:
                dispmsg menumsg,menumsg_len
                accept optionbuff,02
                cmp byte [optionbuff],'1'
                jne case2
                call wos                        ;wos=With Out String
                jmp exit1

        case2:
                cmp byte [optionbuff],'2'
                jne case3
                call ws                         ;ws=with string
                jmp exit1

        case3:
                cmp byte [optionbuff],'3'
                je exit
                dispmsg wrmsg,wrmsg_len
                jmp menu

        exit1:
                dispmsg afrmsg,afrmsg_len
                call show
```

```
          dispmsg lfmsg,2
exit:
          mov eax,01
          mov ebx,00
          int 80h

dispblk:
          mov rcx,cnt

rdisp:
          push rcx
          mov bl,[esi]
          call disp8
          inc esi
          dispmsg spacechar,1
          pop rcx
          loop rdisp
ret

wos:
          mov esi,srcblk + 04h
          mov edi,dstblk + 02h
          mov ecx,cnt
          x:
                    mov al,[esi]
                    mov [edi],al
```

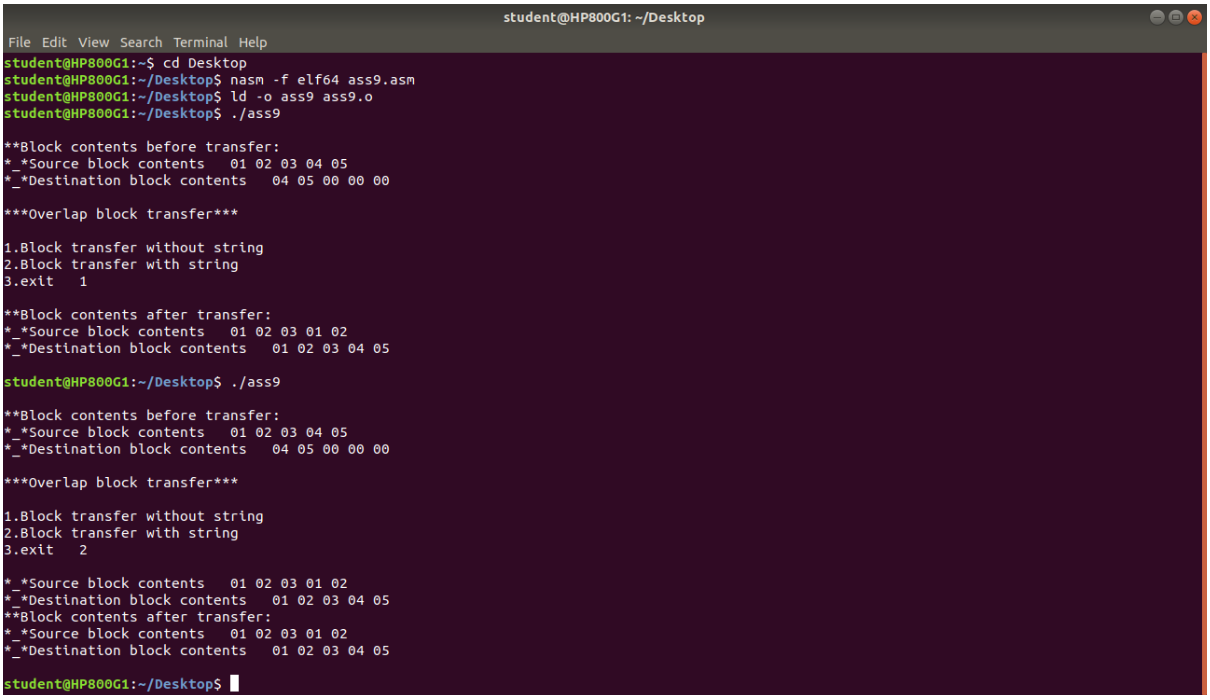
```
                dec esi
                dec edi
                loop x
                ret

ws:
        mov esi,srcblk + 04h
        mov edi,dstblk + 02h
        mov ecx,cnt
        std                             ;set direction flag
        rep movsb

show:
        dispmsg srcmsg,srcmsg_len
        mov esi,srcblk
        call dispblk
        dispmsg dstmsg,dstmsg_len
        mov esi,dstblk-02h
        call dispblk
        ret

disp8:
        mov ecx,02
        mov edi,dispbuff
        dub1:
                rol bl,4
        mov al,bl
        and al,0fh
        cmp al,09h
        jbe x1
        add al,07
x1:
        add al,30h
        mov [edi],al
        inc edi
        loop dub1
        dispmsg dispbuff,3
ret
```

OUTPUT:



student@HP800G1: ~/Desktop
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```
student@HP800G1:~$ cd Desktop
student@HP800G1:~/Desktop$ nasm -f elf64 ass9.asm
student@HP800G1:~/Desktop$ ld -o ass9 ass9.o
student@HP800G1:~/Desktop$ ./ass9

**Block contents before transfer:
*_*Source block contents   01 02 03 04 05
*_*Destination block contents   04 05 00 00 00

***Overlap block transfer***

1.Block transfer without string
2.Block transfer with string
3.exit   1

**Block contents after transfer:
*_*Source block contents   01 02 03 01 02
*_*Destination block contents   01 02 03 04 05

student@HP800G1:~/Desktop$ ./ass9

**Block contents before transfer:
*_*Source block contents   01 02 03 04 05
*_*Destination block contents   04 05 00 00 00

***Overlap block transfer***

1.Block transfer without string
2.Block transfer with string
3.exit   2

*_*Source block contents   01 02 03 01 02
*_*Destination block contents   01 02 03 04 05
**Block contents after transfer:
*_*Source block contents   01 02 03 01 02
*_*Destination block contents   01 02 03 04 05

student@HP800G1:~/Desktop$ 
```