ML Assignment

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Batch: S4 Comp

Assignment 7:

Code:

```
section .data
    msg1: db 'GDTR contents :', 0xa
    len1: equ $ - msg1
    msg2: db 'LDTR contents:', 0xa
    len2: equ $ - msg2
    msg3: db 'IDTR contents :', 0xa
    len3: equ $ - msg3
    msg4: db 'TR contents:', 0xa
    len4: equ $ - msg4
    msg5: db 'MSW contents:', 0xa
    len5: equ $ - msg5
    msg6: db 'We are in protected mode.!!', 0xa
    len6: equ $ - msg6
    msg7: db ' ', 0xa
    len7: equ $ - msg7
    msg8: db 'We are not in protected mode.!!', 0xa
    len8: equ $ - msg8
    msg9: db ' : ', 0xa
    len9: equ $ - msg9

section .bss
    gdt: resd 01
         resw 01
    ldt: resw 01
    idt: resd 01
```

```asm
        resw 01
    tr: resw 01
    msw: resw 01
    result: resw 01


section .text
global _start


_start:
    smsw [msw]
    sgdt [gdt]
    sldt [ldt]
    sidt [idt]
    str [tr]


    mov ax, [msw]
    bt ax, 0
    jc next


    mov rax, 1
    mov rdi, 1
    mov rsi, msg8
    mov rdx, len8
    syscall
    jmp exit


next:
    mov rax, 1
    mov rdi, 1
    mov rsi, msg6
    mov rdx, len6
    syscall


    ; GDTR
```

```asm
        mov rax, 1
        mov rdi, 1
        mov rsi, msg1
        mov rdx, len1
        syscall
        mov bx, word [gdt + 4]
        call HtoA
        mov bx, word [gdt + 2]
        call HtoA
        mov rax, 1
        mov rdi, 1
        mov rsi, msg9
        mov rdx, len9
        syscall
        mov bx, word [gdt]
        call HtoA

; LDTR
        mov rax, 1
        mov rdi, 1
        mov rsi, msg7
        mov rdx, len7
        syscall
        mov rax, 1
        mov rdi, 1
        mov rsi, msg2
        mov rdx, len2
        syscall
        mov bx, word [ldt]
        call HtoA

; IDTR
        mov rax, 1
        mov rdi, 1
```

```asm
        mov rsi, msg7
        mov rdx, len7
        syscall
        mov rax, 1
        mov rdi, 1
        mov rsi, msg3
        mov rdx, len3
        syscall
        mov bx, word [idt + 4]
        call HtoA
        mov bx, word [idt + 2]
        call HtoA
        mov rax, 1
        mov rdi, 1
        mov rsi, msg9
        mov rdx, len9
        syscall
        mov bx, word [idt]
        call HtoA

        ; TR
        mov rax, 1
        mov rdi, 1
        mov rsi, msg7
        mov rdx, len7
        syscall
        mov rax, 1
        mov rdi, 1
        mov rsi, msg4
        mov rdx, len4
        syscall
        mov bx, word [tr]
        call HtoA
```

```asm
    ; MSW
    mov rax, 1
    mov rdi, 1
    mov rsi, msg7
    mov rdx, len7
    syscall
    mov rax, 1
    mov rdi, 1
    mov rsi, msg5
    mov rdx, len5
    syscall
    mov bx, word [msw]
    call HtoA

    ; EXIT
exit:
    mov rax, 60
    mov rdi, 0
    syscall

HtoA:
    mov rcx, 4
    mov rdi, result
dup1:
    rol bx, 4
    mov al, bl
    and al, 0fh
    cmp al, 09h
    jg p3
    add al, 30h
    jmp p4
p3:
    add al, 37h
p4:
```
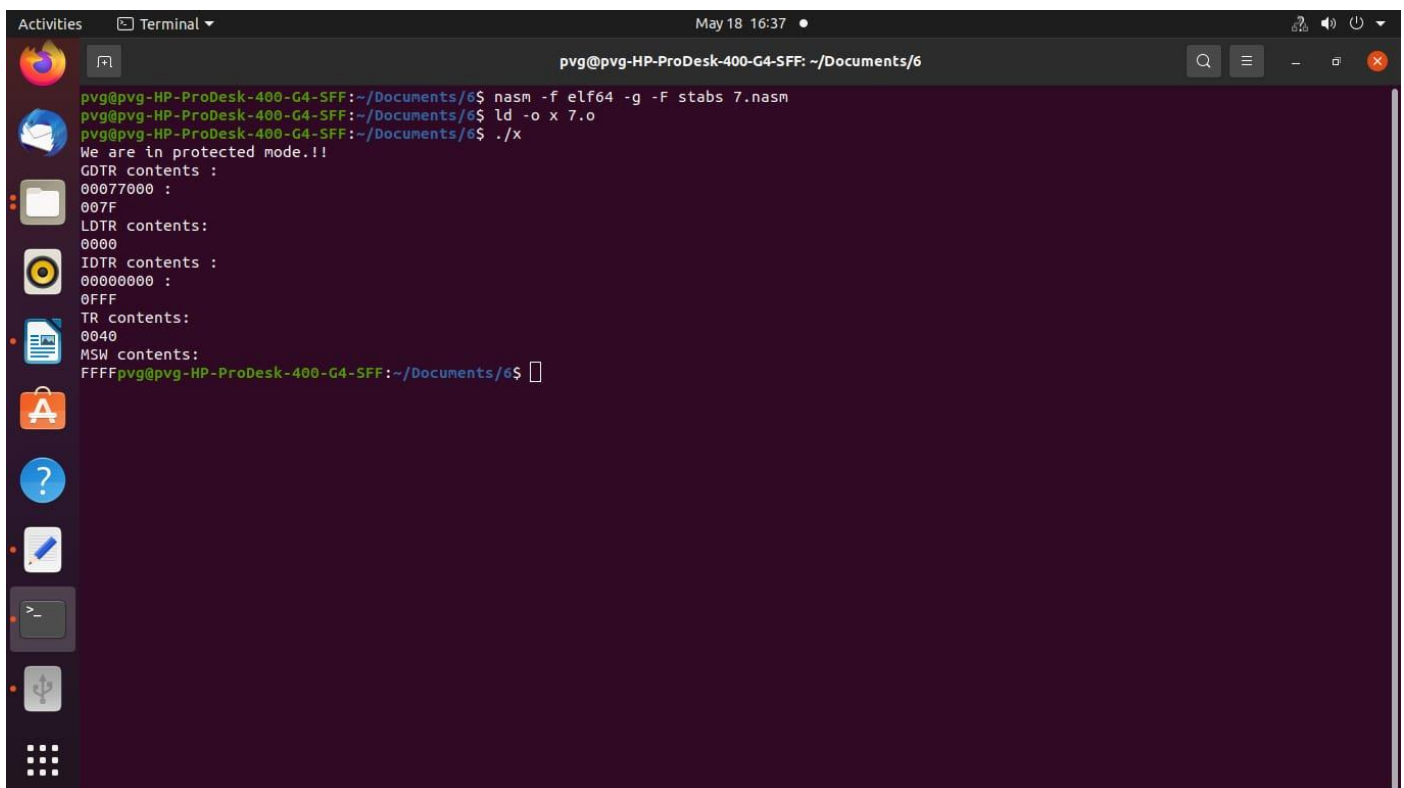
```
mov [rdi], al

inc rdi

loop dup1

mov rax, 1

mov rdi, 1

mov rsi, result

mov rdx, 4

syscall

ret
```

Output: