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SAP: 56108

SE-3 Fall 2024

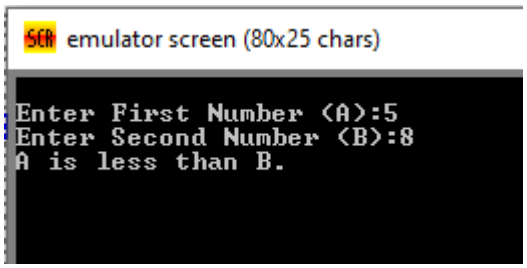
COAL LAB

Task 1:

```
.model small
.stack 100h

.data
    msg1 DB 10,13, "Enter First Number (A):$", 0
    msg2 DB 10,13, "Enter Second Number (B):$", 0
    msg_greater DB 10,13, "A is greater than B.$", 0
    msg_less DB 10,13, "A is less than B.$", 0
    msg_equal DB 10,13, "A is equal to B.$", 0

.code
main proc
    mov ax, @data
    mov ds, ax

    mov dx, offset msg1
    mov ah, 9
    int 21h

    mov ah, 1
    int 21h
    sub al, 30h
    mov cl, al

    mov dx, offset msg2
    mov ah, 9
```

```
    int 21h

    mov ah, 1
    int 21h
    sub al, 30h
    mov dl, al

    cmp cl, dl
    je equal
    jg greater
    jl less

greater:
    mov dx, offset msg_greater
    mov ah, 9
    int 21h
    jmp end_program

less:
    mov dx, offset msg_less
    mov ah, 9
    int 21h
    jmp end_program

equal:
    mov dx, offset msg_equal
    mov ah, 9
```

```
end_program:
    mov ah, 4Ch
    int 21h

main endp
end main
```

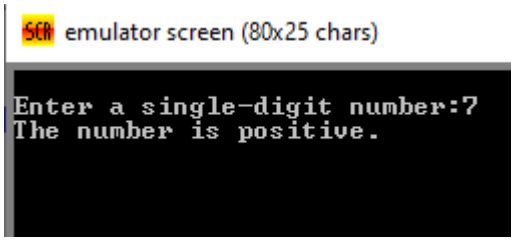


Task 2:

```
.model small
.stack 100h

.data
    msg1 DB 10,13, "Enter a single-digit number:$", 0
    msg_positive DB 10,13, "The number is positive.$", 0
    msg_zero DB 10,13, "The number is zero.$", 0
    msg_invalid DB 10,13, "Invalid input. Enter a digit between 0 and 9.$", 0

.code
main proc
    mov ax, @data
    mov ds, ax

    mov dx, offset msg1
```

```
    mov ah, 9
    int 21h

    mov ah, 1
    int 21h
    sub al, 30h

    cmp al, 0
    jl invalid_input
    cmp al, 9
    jg invalid_input

    cmp al, 0
    je is_zero

    mov dx, offset msg_positive
    mov ah, 9
    int 21h
    jmp end_program

is_zero:
    mov dx, offset msg_zero
    mov ah, 9
    int 21h
    jmp end_program

invalid_input:
```

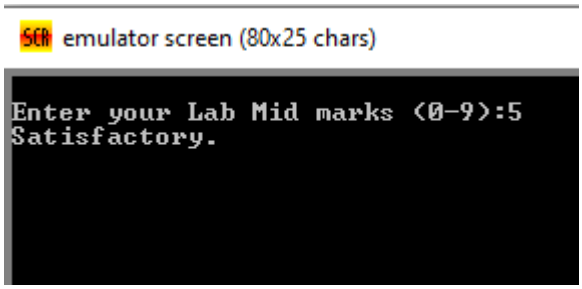
```
    mov dx, offset msg_invalid
    mov ah, 9
    int 21h

end_program:
    mov ah, 4Ch
    int 21h

main endp
end main
```



Task 3:

```
.model small
.stack 100h

.data
    msg1 DB 10,13, "Enter your Lab Mid marks (0-9):$", 0
    msg_hardwork DB 10,13, "Need hard work.$", 0
    msg_satisfactory DB 10,13, "Satisfactory.$", 0

.code
main proc
    mov ax, @data
    mov ds, ax
```

```
    mov dx, offset msg1
    mov ah, 9
    int 21h

    mov ah, 1
    int 21h
    sub al, 30h

    cmp al, 5
    jl hardwork

    mov dx, offset msg_satisfactory
    mov ah, 9
    int 21h
    jmp end_program

hardwork:
    mov dx, offset msg_hardwork
    mov ah, 9
    int 21h

end_program:
    mov ah, 4Ch
    int 21h

main endp
end main
```


SCR emulator screen (80x25 chars)
Enter your Lab Mid marks (0-9):5
Satisfactory.