



RIPHAH
INTERNATIONAL UNIVERSITY

Computer Organization & Assembly Language

LAB 09

Submitted to:

Ma'am Rehana

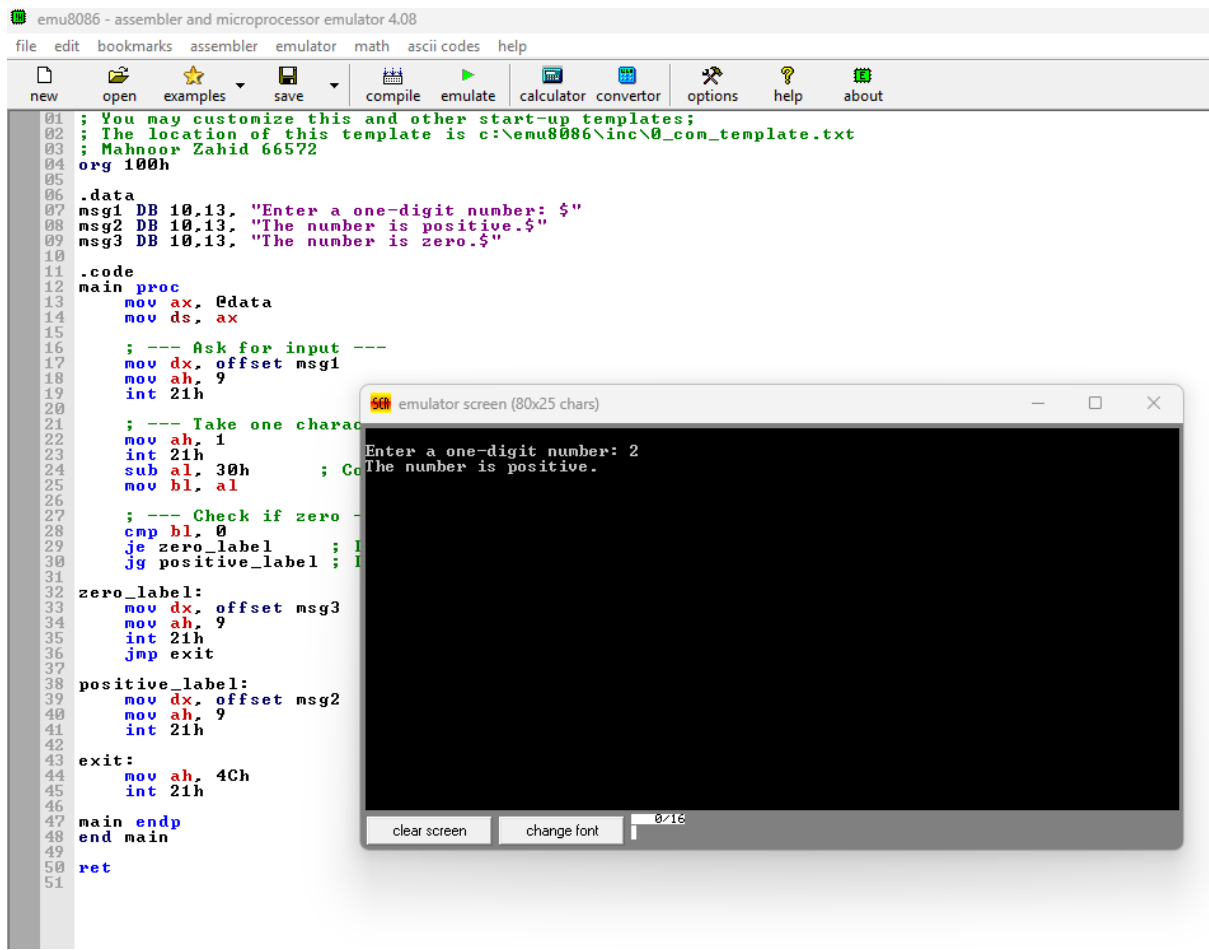
Submitted by:

Mahnoor Zahid

66572

BSCS-3

Task 1



emu8086 - assembler and microprocessor emulator 4.08

file edit bookmarks assembler emulator math ascii codes help

new open examples save compile emulate calculator convertor options help about

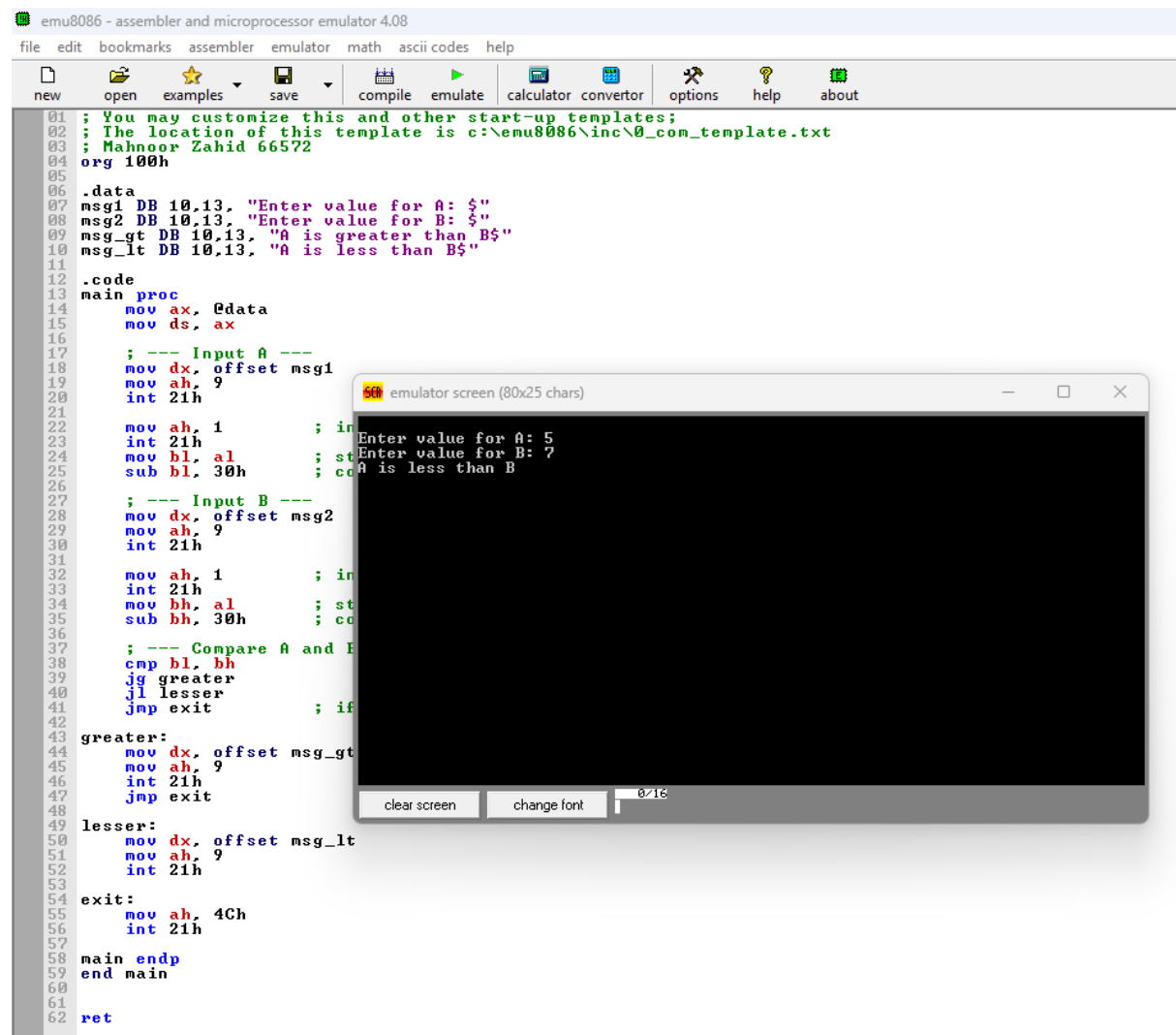
```
01 ; You may customize this and other start-up templates;
02 ; The location of this template is c:\emu8086\inc\0_com_template.txt
03 ; Mahnoor Zahid 66572
04 org 100h
05
06 .data
07 msg1 DB 10,13, "Enter a one-digit number: $"
08 msg2 DB 10,13, "The number is positive.$"
09 msg3 DB 10,13, "The number is zero.$"
10
11 .code
12 main proc
13     mov ax, @data
14     mov ds, ax
15
16     ; --- Ask for input ---
17     mov dx, offset msg1
18     mov ah, 9
19     int 21h
20
21     ; --- Take one character ---
22     mov ah, 1
23     int 21h
24     sub al, 30h ; Convert to decimal
25     mov bl, al
26
27     ; --- Check if zero or positive ---
28     cmp bl, 0
29     je zero_label ; If zero, jump to zero_label
30     jg positive_label ; If greater, jump to positive_label
31
32 zero_label:
33     mov dx, offset msg3
34     mov ah, 9
35     int 21h
36     jmp exit
37
38 positive_label:
39     mov dx, offset msg2
40     mov ah, 9
41     int 21h
42
43 exit:
44     mov ah, 4Ch
45     int 21h
46
47 main endp
48 end main
49
50 ret
51
```

emulator screen (80x25 chars)

```
Enter a one-digit number: 2
The number is positive.
```

clear screen change font 0/16

Task 2



```
01 ; You may customize this and other start-up templates;
02 ; The location of this template is c:\emu8086\inc\0_com_template.txt
03 ; Mahnoor Zahid 66572
04 org 100h
05
06 .data
07 msg1 DB 10,13, "Enter value for A: $"
08 msg2 DB 10,13, "Enter value for B: $"
09 msg_gt DB 10,13, "A is greater than B$"
10 msg_lt DB 10,13, "A is less than B$"
11
12 .code
13 main proc
14     mov ax, @data
15     mov ds, ax
16
17     ; --- Input A ---
18     mov dx, offset msg1
19     mov ah, 9
20     int 21h
21
22     mov ah, 1           ; input A
23     int 21h
24     mov bl, al          ; store A in BL
25     sub bl, 30h         ; convert to decimal
26
27     ; --- Input B ---
28     mov dx, offset msg2
29     mov ah, 9
30     int 21h
31
32     mov ah, 1           ; input B
33     int 21h
34     mov bh, al          ; store B in BH
35     sub bh, 30h         ; convert to decimal
36
37     ; --- Compare A and B ---
38     cmp bl, bh
39     jg greater
40     jl lesser
41     jmp exit            ; if equal, skip comparison
42
43 greater:
44     mov dx, offset msg_gt
45     mov ah, 9
46     int 21h
47     jmp exit
48
49 lesser:
50     mov dx, offset msg_lt
51     mov ah, 9
52     int 21h
53
54 exit:
55     mov ah, 4Ch
56     int 21h
57
58 main endp
59 end main
60
61
62 ret
```

emulator screen (80x25 chars)

```
Enter value for A: 5
Enter value for B: 7
A is less than B
```

clear screen change font 0/16