



RIPHAH
INTERNATIONAL UNIVERSITY

Computer Organization & Assembly Language

LAB 13

Submitted to:

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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  
04 org 100h  
05 .model small  
06 .stack 100h  
07 .data  
08 .code  
09 main proc  
10     mov ax, @data  
11     mov ds, ax  
12  
13     mov cx, 5  
14     mov bx, 1  
15  
16 loop:  
17     push cx  
18  
19     mov cx, bx  
20     call Stars  
21  
22     call newline  
23  
24     inc bx  
25  
26     pop cx  
27     loop loop  
28  
29     mov ah, 4Ch  
30     int 21h  
31 main endp  
32 Stars proc  
33 Starsloop:  
34     mov dl, '*'  
35     mov ah, 2  
36     int 21h  
37     loop Starsloop  
38     ret  
39 Stars endp  
40 newline proc  
41     mov dl, 10  
42     mov ah, 2  
43     int 21h  
44     mov dl, 13  
45     mov ah, 2  
46     int 21h  
47     ret  
48 newline endp  
49  
50 end main
```

emulator screen (46x17 chars)

```
*****  
*****  
*****  
*****
```

clear screen change font 0/16

Task 2

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  
04 string macro p1  
05     mov dx, offset p1  
06     mov ah, 9  
07     int 21h  
08     string endm  
09  
10  
11 .data  
12 str1 db 'Mahnoor Zahid$'  
13 str2 db '66572$'  
14  
15  
16 .code  
17 main proc  
18     mov ax, @data  
19     mov ds, ax  
20  
21     string str1  
22     call print  
23  
24     string str2  
25     call print  
26  
27 main endp  
28 print proc  
29     mov dl, 10  
30     mov ah, 2  
31     int 21h  
32  
33     mov dl, 13  
34     mov ah, 2  
35     int 21h  
36  
37     ret  
38 print endp  
39 end main  
40 ret
```

emulator screen (48x16 chars)

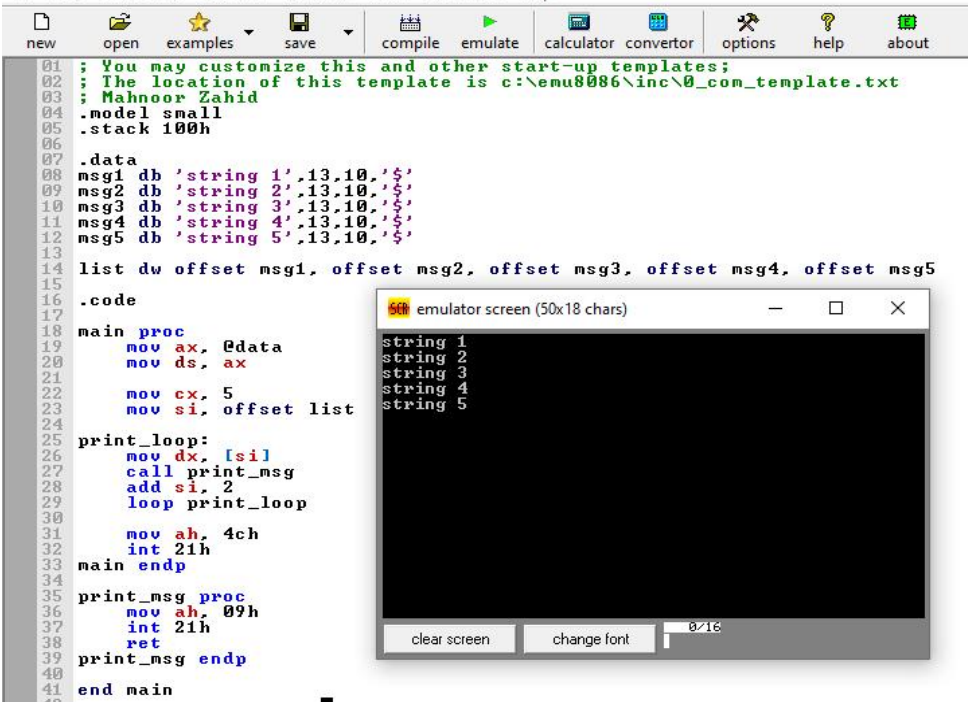
```
Mahnoor Zahid  
66572
```

clear screen change font 0/16

Task 3

emu8086 - assembler and microprocessor emulator 4.08

file edit bookmarks assembler emulator math ascii codes help



```
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
04 .model small
05 .stack 100h
06
07 .data
08 msg1 db 'string 1',13,10,'$'
09 msg2 db 'string 2',13,10,'$'
10 msg3 db 'string 3',13,10,'$'
11 msg4 db 'string 4',13,10,'$'
12 msg5 db 'string 5',13,10,'$'
13
14 list dw offset msg1, offset msg2, offset msg3, offset msg4, offset msg5
15
16 .code
17
18 main proc
19     mov ax, @data
20     mov ds, ax
21
22     mov cx, 5
23     mov si, offset list
24
25 print_loop:
26     mov dx, [si]
27     call print_msg
28     add si, 2
29     loop print_loop
30
31     mov ah, 4ch
32     int 21h
33 main endp
34
35 print_msg proc
36     mov ah, 09h
37     int 21h
38     ret
39 print_msg endp
40
41 end main
```

emulator screen (50x18 chars)

```
string 1
string 2
string 3
string 4
string 5
```

clear screen change font 0/16