



RIPHAH
INTERNATIONAL UNIVERSITY

Computer Organization & Assembly Language

LAB 07

Submitted to:

Ma'am Rehana

Submitted by:

Mahnoor Zahid

66572

BSCS-3

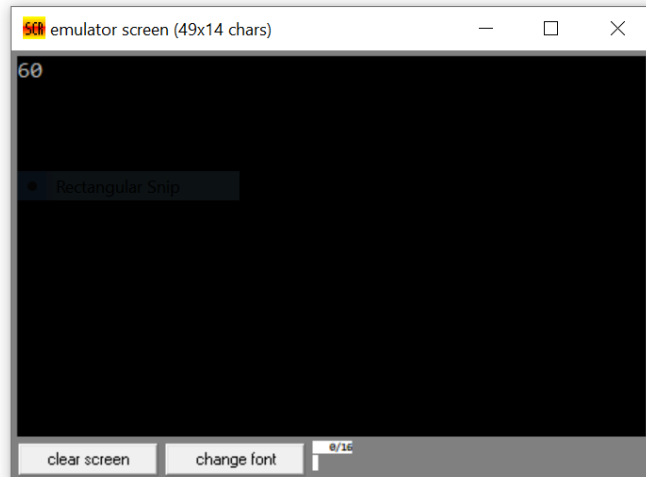
Class Task 1

emu8086 - assembler and microprocessor emulator 4.08

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```
01
02 ; You may customize this and other start-up templates;
03 ; The location of this template is c:\emu8086\inc\0_com_template.txt
04 ; Mahnoor Zahid
05 ;66572
06 org 100h
07
08 quotient db ?
09 reminder db ?
10
11 main proc
12 mov ax,30
13 mov bl,5
14 div bl
15 mov quotient,al
16 mov reminder,ah
17
18 mov dl,quotient
19 add dl,48
20 mov ah,2
21 int 21h
22
23 mov dl,reminder
24 add dl,48
25 mov ah,2
26 int 21h
27
28 main endp
29 end main
30 ret
31
```



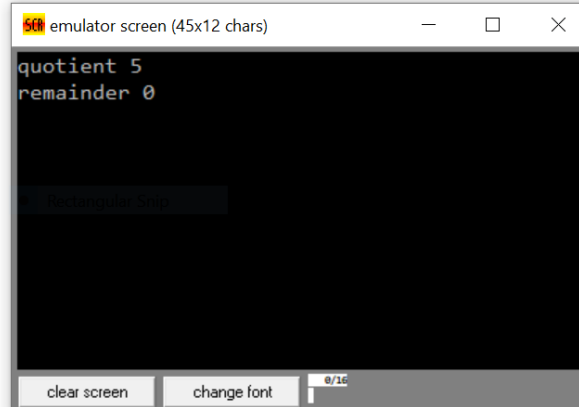
Class Task 2

emu8086 - assembler and microprocessor emulator 4.08

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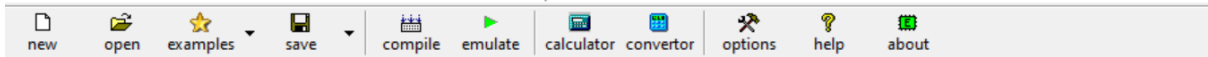
```
01 ;Mahnoor Zahid
02 ;66572
03 ;program to divide two digits
04 .model small
05 .data
06 rm DB "remainder $"
07 qt DB "quotient $"
08 .code
09 main proc
10
11 mov ax,25
12 mov bl,5
13 div bl
14 mov cl, al
15 mov ch, ah
16 mov ax,@data
17 mov ds,ax
18 mov dx, offset qt
19 mov ah,9
20 int 21h
21 mov dl, cl
22 add dl,48
23 mov ah,2
24 int 21h
25 mov dx, 10
26 mov ah, 2
27 int 21h
28 mov dx,13
29 mov ah, 2
30 int 21h
31 mov ax, @data
32 mov ds, ax
33 mov dx, offset rm
34 mov ah,9
35 int 21h
36 mov dl, ch
37 add dl, 48
38 mov ah,2
39 int 21h
40 mov ah,4ch
41 int 21h
42
43 ret
```



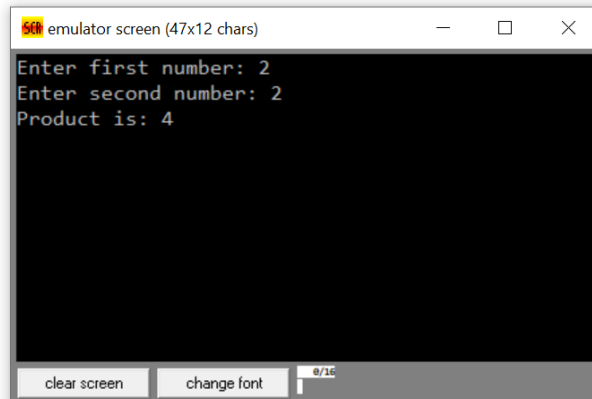
Lab Task 1

emu8086 - assembler and microprocessor emulator 4.08

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```
01 ;Mahnoor Zahid 66572
02 .model small
03 .stack 100h
04 .data
05 msg1 db 'Enter first number: $'
06 msg2 db 00h,0Ah,'Enter second number: $'
07 msg3 db 00h,0Ah,'Product is: $'
08 num1 db ?
09 num2 db ?
10 result db ?
11
12 .code
13 main proc
14 mov ax, @data
15 mov ds, ax
16 mov ah, 09h
17 int 21h
18 mov ah, 01h
19 int 21h
20 sub al, 30h
21 mov num1, al
22 mov dx, offset msg2
23 mov ah, 09h
24 int 21h
25 mov ah, 01h
26 int 21h
27 sub al, 30h
28 mov num2, al
29 mov al, num1
30 mov bl, num2
31 mul bl
32 mov result, al
33 mov dx, offset msg3
34 mov ah, 09h
35 int 21h
36 mov dl, result
37 add dl, 30h
38 mov ah, 02h
39 int 21h
40 mov ah, 4Ch
41 int 21h
42
43 ret
```



Lab Task 2

emu8086 - assembler and microprocessor emulator 4.08

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```
01 ;Mahnoor Zahid 66572
02 .model small
03 .stack 100h
04 .data
05 msg1 db 'Enter a number (0-9): $'
06 msg2 db 0Dh,0Ah, 'Square of the number is: $'
07 num db ?
08 result db ?
09
10 .code
11 main proc
12 mov ax, @data
13 mov ds, ax
14
15 mov dx, offset msg1
16 mov ah, 09h
17 int 21h
18 mov ah, 01h
19 int 21h
20
21 sub al, 30h
22 mov num, al
23 mov al, num
24 mov bl, num
25 mul bl
26 mov result, al
27
28 mov dx, offset msg2
29 mov ah, 09h
30 int 21h
31
32 mov dl, result
33 add dl, 30h
34 mov ah, 02h
35 int 21h
36
37 mov ah, 4Ch
38 int 21h
39 main endp
40 end main
41
42 ret
43
```

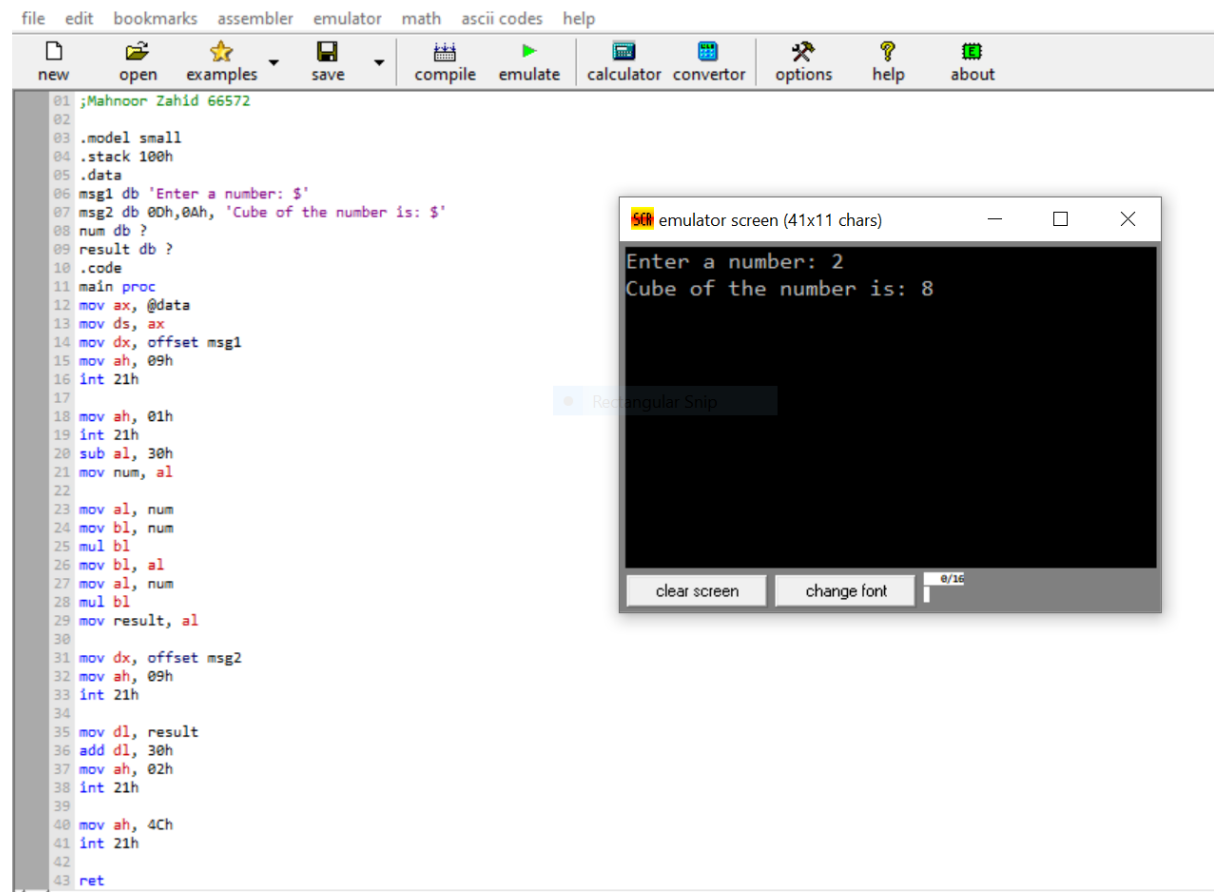
emu8086 emulator screen (42x11 chars)

Enter a number (0-9): 3
Square of the number is: 9

clear screen change font e/1c

Lab Task 3

emu8086 - assembler and microprocessor emulator 4.08



The screenshot displays the emu8086 emulator interface. The main window shows assembly code being edited. The code defines two messages, 'Enter a number: \$' and 'Cube of the number is: \$', and implements a program that prompts the user for a number, calculates its cube, and displays the result. The code uses standard x86 assembly instructions for memory management, arithmetic, and control flow. A secondary window titled 'emu8086 emulator screen (41x11 chars)' shows the output of the program, displaying the prompts and the calculated cube of the number 2, which is 8. The interface includes a menu bar with options like file, edit, and assemble, and a toolbar with icons for common actions like new, open, and compile.

```
01 ;Mahnoor Zahid 66572
02
03 .model small
04 .stack 100h
05 .data
06 msg1 db 'Enter a number: $'
07 msg2 db 0Dh,0Ah, 'Cube of the number is: $'
08 num db ?
09 result db ?
10 .code
11 main proc
12 mov ax, @data
13 mov ds, ax
14 mov dx, offset msg1
15 mov ah, 09h
16 int 21h
17
18 mov ah, 01h
19 int 21h
20 sub al, 30h
21 mov num, al
22
23 mov al, num
24 mov bl, num
25 mul bl
26 mov bl, al
27 mov al, num
28 mul bl
29 mov result, al
30
31 mov dx, offset msg2
32 mov ah, 09h
33 int 21h
34
35 mov dl, result
36 add dl, 30h
37 mov ah, 02h
38 int 21h
39
40 mov ah, 4Ch
41 int 21h
42
43 ret
```

emu8086 emulator screen (41x11 chars)

Enter a number: 2
Cube of the number is: 8

clear screen change font 0/16