



RIPHAH
INTERNATIONAL UNIVERSITY

Computer Organization & Assembly Language

LAB 10

Submitted to:

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Submitted by:

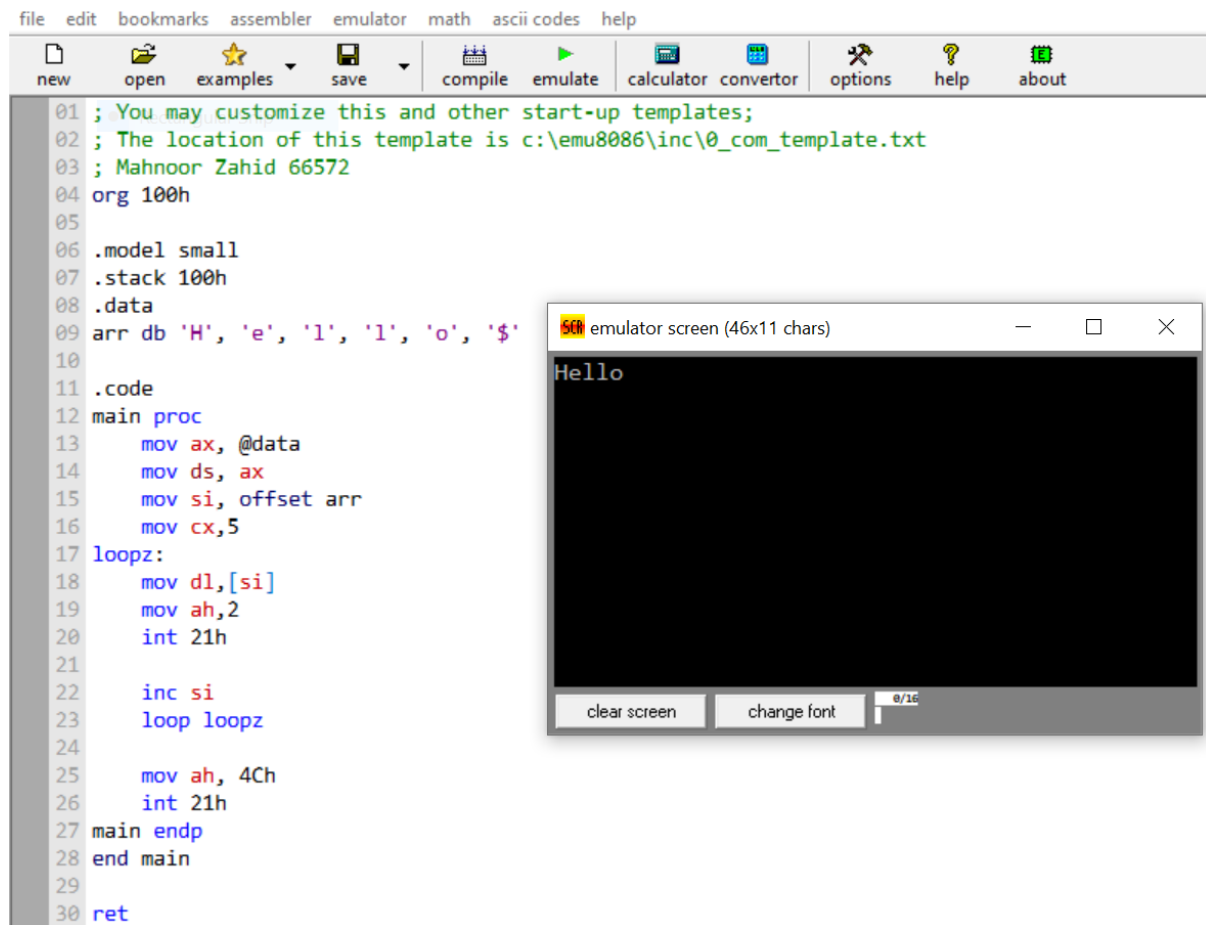
Mahnoor Zahid

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BSCS-3

Task 1

emu8086 - assembler and microprocessor emulator 4.08



The screenshot shows the emu8086 interface with the following assembly code in the main window:

```
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 .model small
07 .stack 100h
08 .data
09 arr db 'H', 'e', 'l', 'l', 'o', '$'
10
11 .code
12 main proc
13     mov ax, @data
14     mov ds, ax
15     mov si, offset arr
16     mov cx, 5
17 loopz:
18     mov dl, [si]
19     mov ah, 2
20     int 21h
21
22     inc si
23     loop loopz
24
25     mov ah, 4Ch
26     int 21h
27 main endp
28 end main
29
30 ret
```

The 'emu8086 screen (46x11 chars)' window shows the output:

```
Hello
```

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

```
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 .model small
06 .stack 100h
07 .data
08 arr db 5 DUP('#'),'$',
09
10 .code
11 main proc
12     mov ax, @data
13     mov ds, ax
14     mov si, offset arr
15     mov cx, 5
16
17 displayloop:
18     mov dl, [si]
19     mov ah, 2
20     int 21h
21     inc si
22     loop displayloop
23
24     mov ah, 4Ch
25     int 21h
26 main endp
27 end main
28
29 ret
```

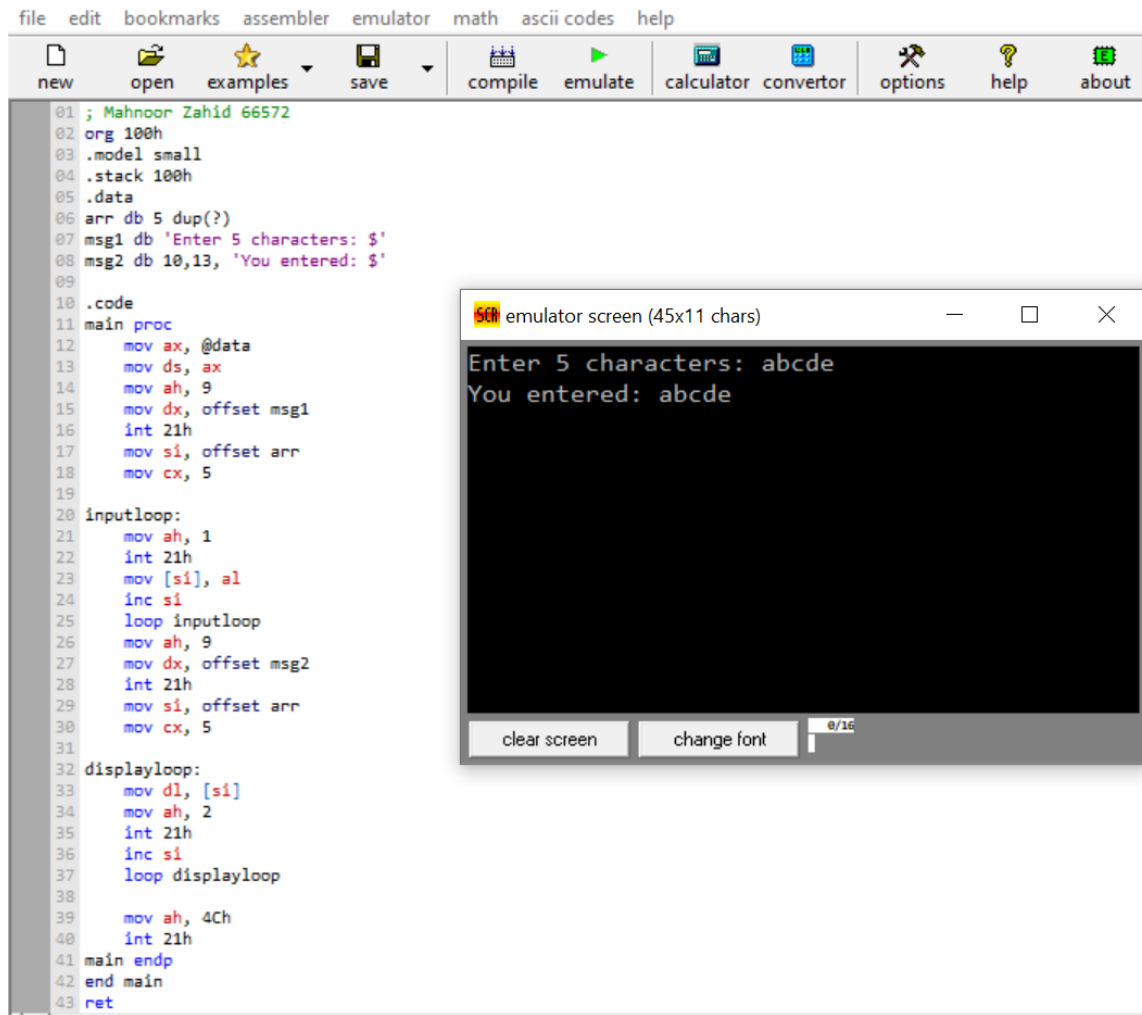
emu8086 screen (37x9 chars)

#####

clear screen change font 0/16

Task 3

emu8086 - assembler and microprocessor emulator 4.08



The screenshot displays the emu8086 emulator window. The main window has a menu bar with 'file', 'edit', 'bookmarks', 'assembler', 'emulator', 'math', 'ascii codes', and 'help'. Below the menu is a toolbar with icons for 'new', 'open', 'examples', 'save', 'compile', 'emulate', 'calculator', 'converter', 'options', 'help', and 'about'. The assembly code is loaded in the main editor, and the 'emulate' button has been clicked, opening a separate window titled 'emu8086 screen (45x11 chars)'. This window shows the program's output: 'Enter 5 characters: abcde' and 'You entered: abcde'. The code in the main window is as follows:

```
01 ; Mahnoor Zahid 66572
02 org 100h
03 .model small
04 .stack 100h
05 .data
06 arr db 5 dup(?)
07 msg1 db 'Enter 5 characters: $'
08 msg2 db 10,13, 'You entered: $'
09
10 .code
11 main proc
12     mov ax, @data
13     mov ds, ax
14     mov ah, 9
15     mov dx, offset msg1
16     int 21h
17     mov si, offset arr
18     mov cx, 5
19
20 inputloop:
21     mov ah, 1
22     int 21h
23     mov [si], al
24     inc si
25     loop inputloop
26     mov ah, 9
27     mov dx, offset msg2
28     int 21h
29     mov si, offset arr
30     mov cx, 5
31
32 displayloop:
33     mov dl, [si]
34     mov ah, 2
35     int 21h
36     inc si
37     loop displayloop
38
39     mov ah, 4Ch
40     int 21h
41 main endp
42 end main
43 ret
```