DEPARTMENT OF COMPUTER &
SOFTWARE ENGINEERING

COLLEGE OF E&ME, NUST, RAWALPINDI

Microprocessor and Microcontroller Based Design

Lab 01

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Objectives:

The objective of this lab session is to develop the understanding of string input/output operations using DOS **INT 21H** function calls, flags register and some control statements

Related Topic/Chapter in theory class:
None

Hardware/Software required:
Hardware: PC
Software Tool: emu8086 v2.57

Tasks:
1. Prompt the user for entering his first name. Set the maximum limit to nine characters. Define buffer of appropriate size and store the input taken from user in it. Attach screenshots of how the whole buffer looks like before and after the input is taken. Before and after screenshots must be in both hex and char format. (Total 4 screenshots required along with code)

Solution:

```
org 100h

.data

BUFFER DB 08, 09 DUP(?)

 msg1 db 13,10, "Enter Your first name: $"


.code

 main proc
;mov ax,@data
;mov dx,ax


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

MOV AH, 0AH
MOV DX, OFFSET BUFFER
INT 21H
; Read from keyboard the word "AMINA" first 5 bits into buffer



 mov ah,4ch
int 21h
main endp
```
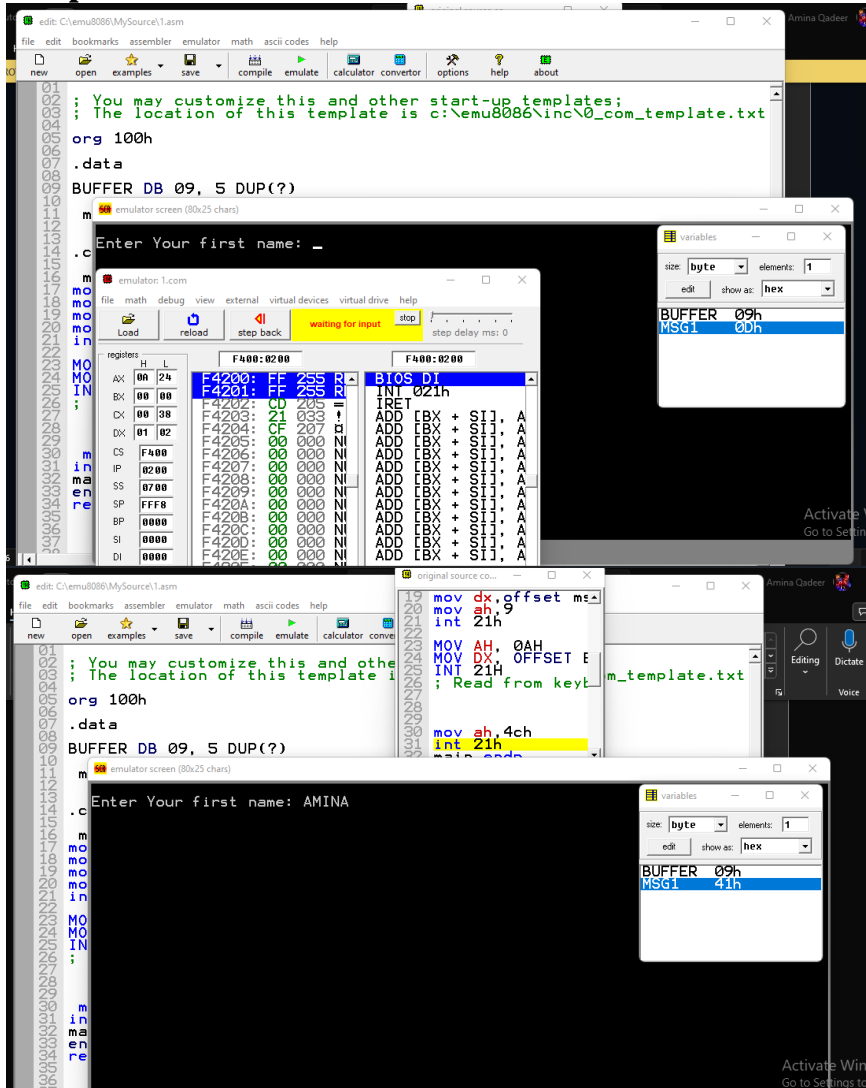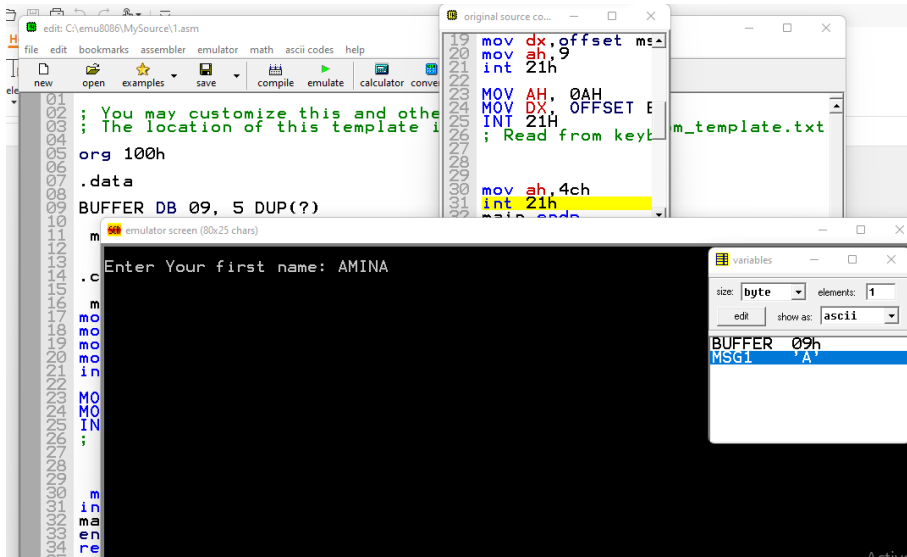
end main
ret

Output:

2. **Prompt the user twice to input his first and last name into two separately defined buffers. When both the inputs are received, your code should display the complete name with a space between first and last name. Everything on console should be intuitive and readable. (Paste the code and screenshot of console)**

Solution:

```
org 100h
```

```
.data
```

```
BUFFER1 DB 08, 09 DUP(?)
```

BUFFER2 DB 08, 09 DUP(?)

msg1 db 13,10, "Enter Your first name: $"

msg2 db 13,10, "Enter Your last name: $"

msg3 db 13,10, "Your Full name is: $"

space db 20h

.code

main proc

;mov ax,@data

;mov dx,ax

; Read from keyboard the word "AMINA" first 5 bits into buffer

mov dx,offset msg1

mov ah,9

int 21h

MOV AH, 0AH

MOV DX, OFFSET BUFFER1

INT 21H

; Read from keyboard the word "QADEER" first 6 bits into buffer

mov dx,offset msg2

mov ah,9

int 21h

MOV AH, 0AH

MOV DX, OFFSET BUFFER2

INT 21H

mov dx,offset msg3

mov ah,9

int 21h

;read from buffer1

MOV AH, 0AH

MOV DX, OFFSET BUFFER1+2

INT 21H

;space

mov dx,offset space

mov ah,9

```
int 21h


;read from buffer2

MOV AH, 0AH

MOV DX, OFFSET BUFFER2+2

INT 21H




mov ah,4ch

int 21h

main endp

end main

ret
```

Output:
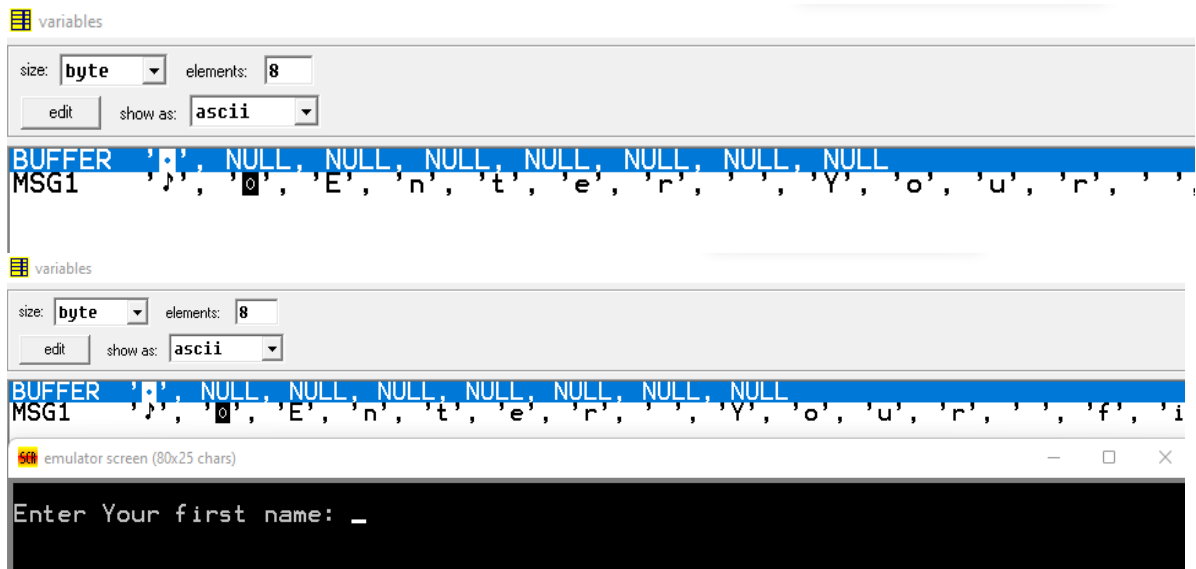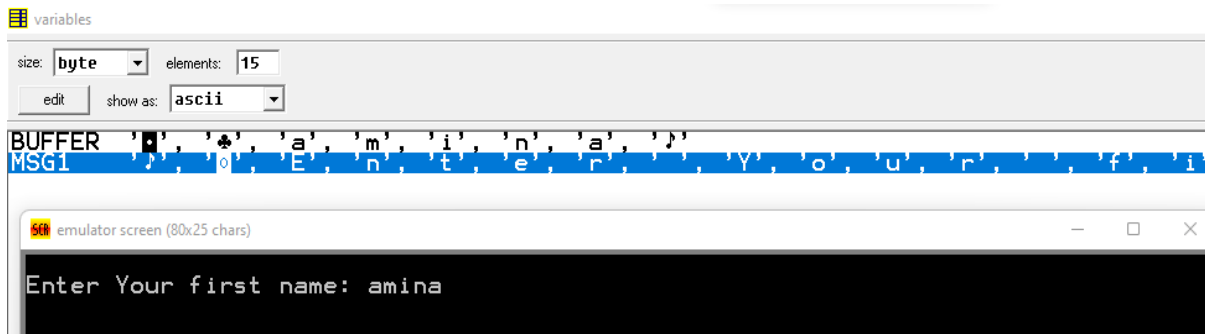
Conclusion:

Reading a string is accomplished by function 0AH, INT 21H. DOS function 0AH will accept a string of text entered at the keyboard and copy that string into a memory buffer. DOS 0AH is invoked with DX pointing to an input buffer, whose size should be at least **three bytes** longer than the largest input string anticipated