National University of Computer and Emerging Sciences

Lab Manual

Computer Organization and Assembly Language

Lab 10

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Class	CS3
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Objectives

- Subroutines
- Display Memory
- String Instructions

Contents

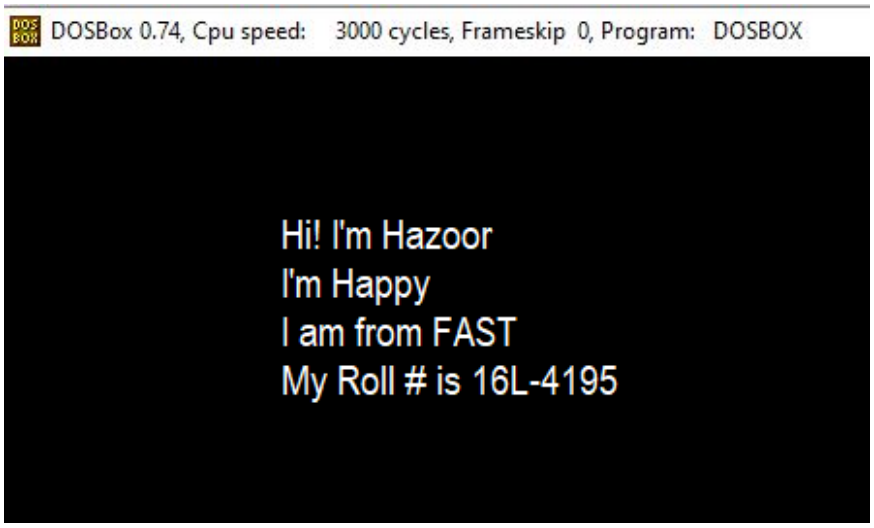
Note for all questions: You can make as many memory variables, subroutines as you need. Must read all the manual before starting.

ACTIVITY 1: [50 Marks]

Write a program that prints and prints the following messages: one message per keypress.

'msg1: Hi! I am YourName.'
'msg2: I am YourMode(Happy, Sad, etc).'
'msg3: I Study at FAST.'
'msg4: My Roll No is YourRoll#.'

Expected output after 4 key presses

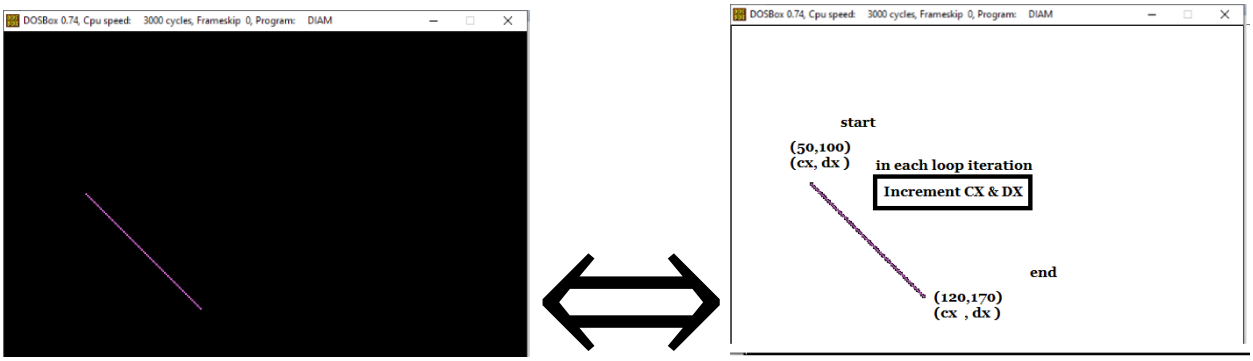


ACTIVITY 2: [50 Marks]

```
[org 0x0100]
jmp code
w equ 70          ; width offset
x equ 50          ; starting x coordinate of line
y equ 100         ; starting y coordinate of line
c equ 60          ; color
code:   mov ah, 0
        mov al, 13h
        int 10h
; draw diagonal 11:
            mov cx,  x
            mov dx,  y
            mov al,  c
u1:         inc dx
            mov ah, 0ch      ; put pixel
            int 10h
            inc cx
            cmp cx, x+w
            jbe u1
;wait for keypress
  mov ah,00
  int 16h
mov ax, 0x4c00
int 21h
```

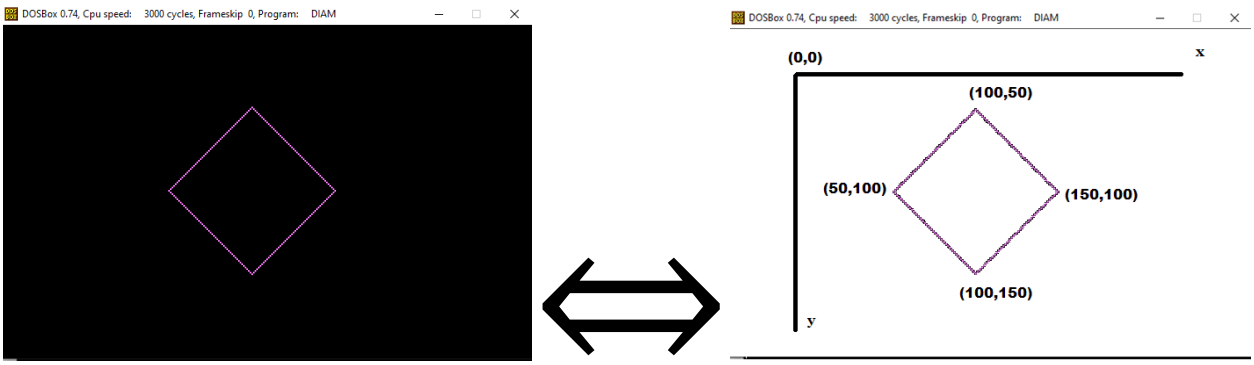
Given:

Start with given $(x, y) = (50,100)$ and in every loop iteration increment both Cx and Dx to reach $(x + w, y + w) = (120,170)$.



Required:

Similarly, you need to draw 4 lines as above satisfying the coordinates and increment or decrement as per requirement of the line as shown below.



REFERENCES

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[2] http://www.dosbox.com/download.php?main=1
[3] http://sourceforge.net/projects/nasm
[4] http://www.nasm.us/
[5] http://www.programmersheaven.com/download/21643/download.aspx (AFD)