National University of Computer and Emerging Sciences

Lab Manual

Computer Organization and Assembly Language



Lab 10

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| **Class** | CS3 |
| **Semester** | Fall 2022 |

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# Objectives

* Subroutines
* Display Memory
* String Instructions

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**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.

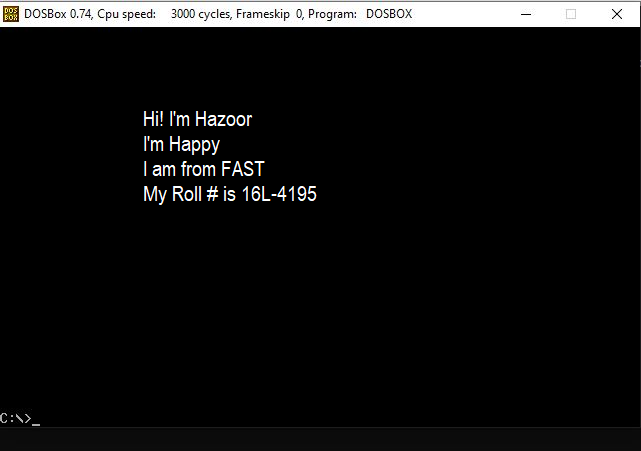
'msg1: Hi! I am YourName.'

'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

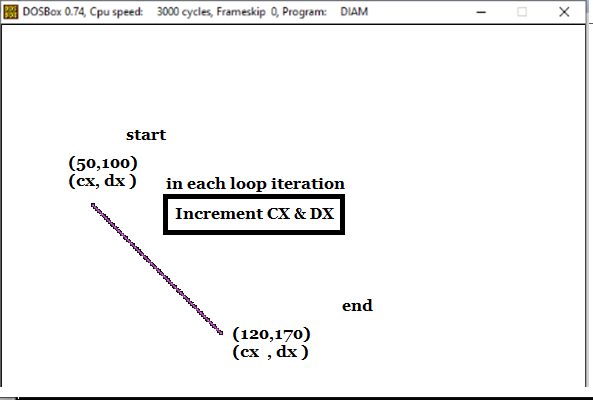
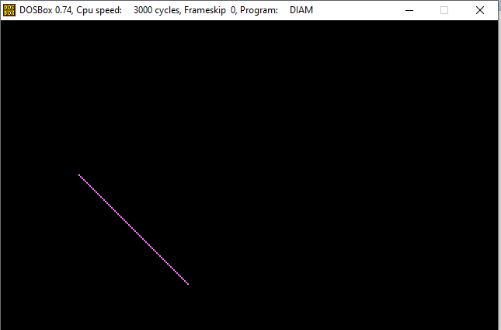
int 16h

mov ax, 0x4c00

int 21h

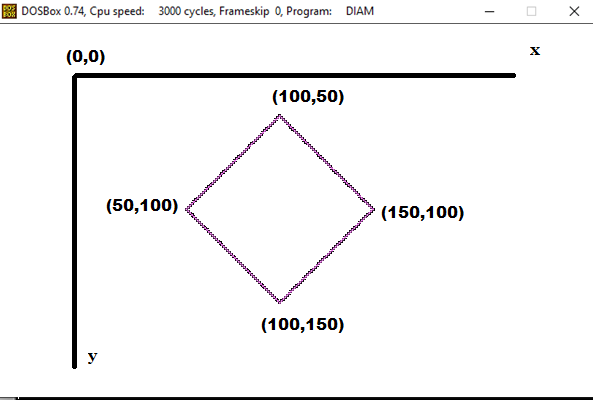
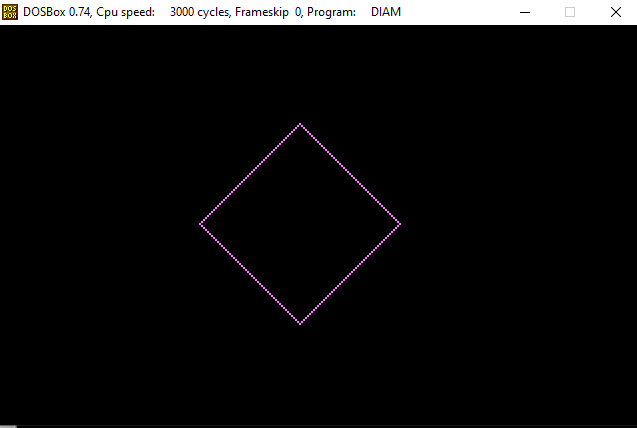
**Given**:

Start with given and in every loop iteration increment both Cx and Dx to reach .



**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

1. <https://www.youtube.com/watch?v=ylmCcDf3Oek>
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)](http://www.programmersheaven.com/download/21643/download.aspx)