## Graphics :-

Two concepts → Graph
→ Graphics.

·) Screen is made up of pixels.

- Two point connect/ multiple points connect together, fill then, image is created, process is called graphics.

Graph :- Connect points / Relationship b/w points or objects.

Graphics :- to draw graph using computer is called Computer graphics i.e. graphics.

1). In assembly graphics, deep understanding
2). Draw shapes, write text.
3) Games codes.

## Graphics In Assembly.

1). Interrupt used for graphics,

`int 10h`

2). We know that, mov ah, 2

↙
AH set function / Service Routine.

Same as different functions in Graphics mode, give it in AH & called int 10H after it.

3). Graphics API functions / Service Routines.

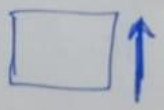
00h : Set Video mode
01h : Set cursor lines
02h : Set cursor position
03h : Get cursor position & size
06h : Scroll window up
07h : Scroll window down.
08h : Read character & attribute
09h : Write character & attribute
0Ah : Write character
10h (AL=03h) : Toggle blinking / intensity bit
0Fh : Get video mode
13h : Write string in teletype mode.

4) Program to draw box,

function used for BOX / Square / Rectangle.

```
mov ah, 06h
int 10h
```
] function to draw Box.
↳ Scroll up on DOSBox screen.

5). For Set height



. How many lines up to h fill.
. With Al.

Al : Number of lines to be scrolled, lines to be filled.

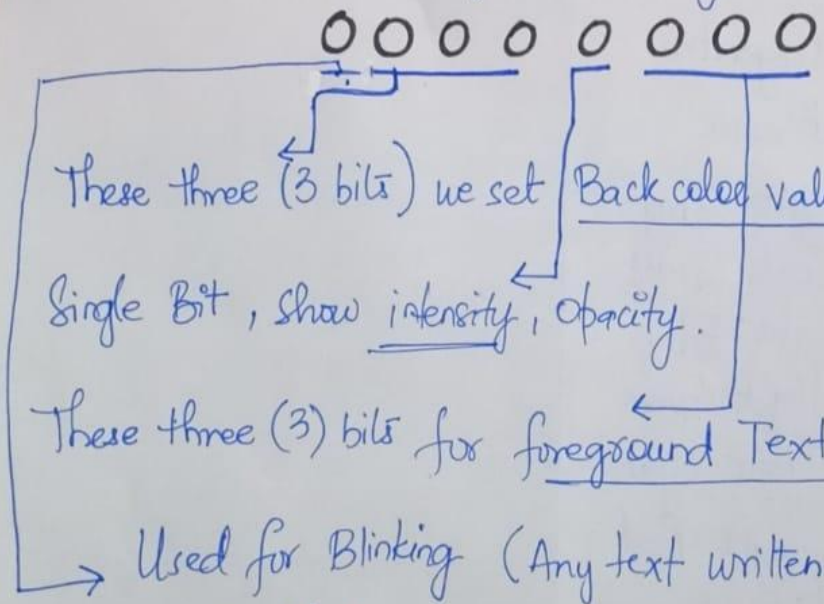
e.g. mov al, 5 → 5# of lines scroll up & filled.

6). If write mov al, 00h, full screen filled

7). For Set Color : Used bh.

Mov bh, Color Value.

• Color value should given in binary, because of 8 bits.




Remember ① Because box not blink, If not writing text (only text will blink), If not writing text the value set 0 or 1, no matter.

② Set 000 for foreground text color if only draw Box

# Back Color Value in Binary.

| Binary | Color |
|---|---|
| 0000 | Black |
| 0001 | Blue |
| 0010 | Green |
| 0011 | Cyan |
| 0100 | Red |
| 0101 | Magenta |
| 0110 | Brown |
| 0111 | Light Gray |
| 1000 | Dark Gray |
| 1001 | Light Blue |
| 1010 | Light Green |
| 1011 | Light Cyan |
| 1100 | Light Red |
| 1101 | Light Magenta |
| 1110 | Yellow |
| 1111 | White |

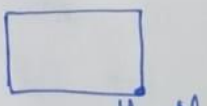
Give Colour as, Mov bh, 00010000b
for Blue color intensity & text set 0.

8). Starting Position of Box :- Need to give points.
- Set starting quadrants of Box.
- Set points in ch, cl.

CH : Top Row of Window.
CL : Left Most Column of Window


If Mov ch, 0
Mov cl, 0
} set first Corner of Screen.

9). Bottom :-
DH : Bottom row of Window
DL : Right most Column of Window



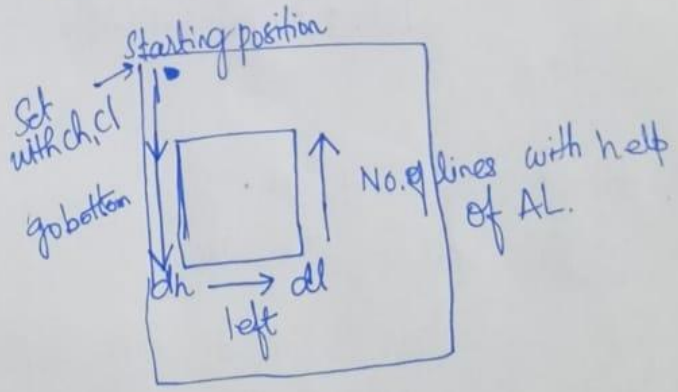

10). Height set by al,
Width set by dh, dl

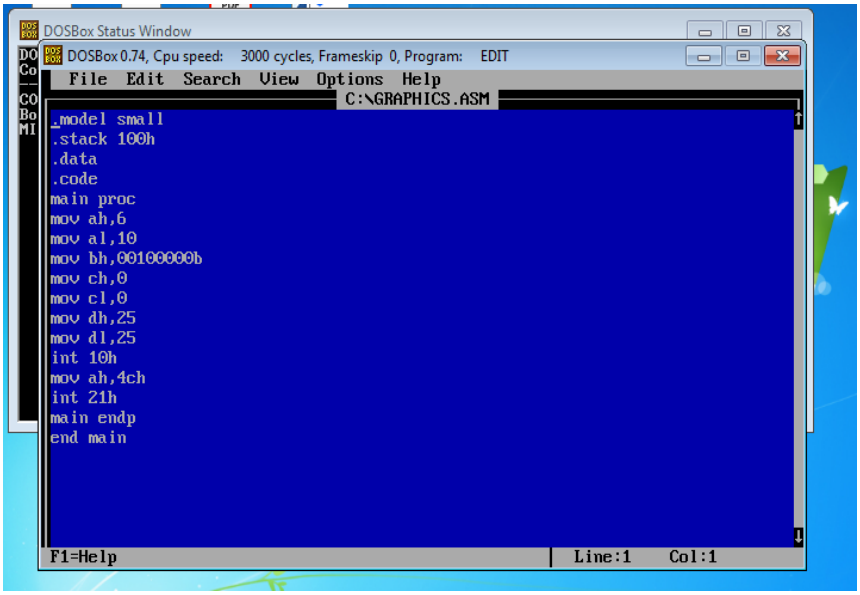
If given Mov dh, 24
Mov dl, 24.

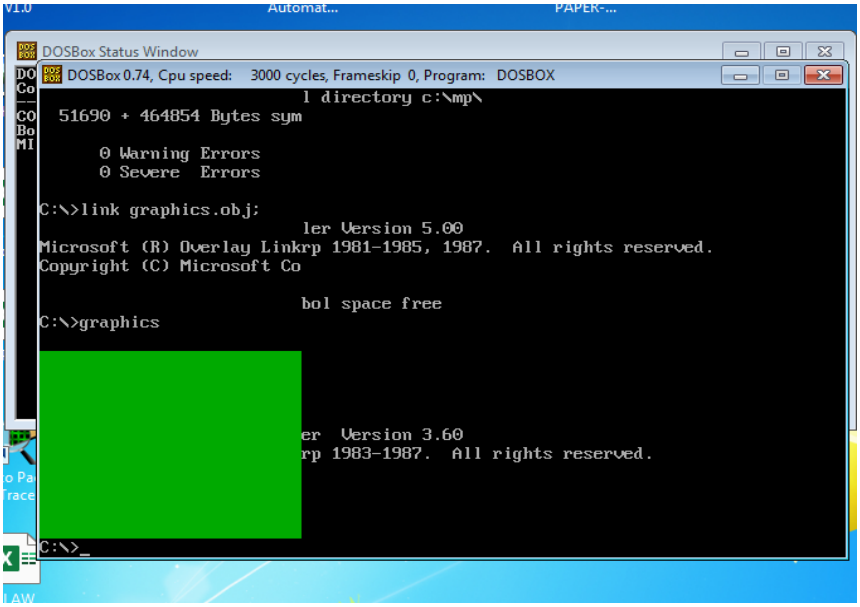
11). If write Mov dx, 184fh
full screen quadrants fill.

```
.model small

.code
main proc.
mov ah, 6      ⟶ Set function first
mov al, 10     ⟶ No. of lines set.
mov bh, 00010000b ⟶ Set Color.
mov ch, 0
mov cl, 0      } starting position.
mov dh, 25
mov dl, 25     } set Bottom & left.
int 10h        ⟶ Call Interrupt.
mov ah, 4ch
int 21h
main endp
end main
```




DOSBox Status Window
DOSBox 0.74, Cpu speed: 3000 cycles, Frameskip 0, Program: EDIT
File Edit Search View Options Help
C:\GRAPHICS.ASM
.model small
.stack 100h
.data
.code
main proc
mov ah,6
mov al,10
mov bh,00100000b
mov ch,0
mov cl,0
mov dh,25
mov dl,25
int 10h
mov ah,4ch
int 21h
main endp
end main
F1=Help
Line:1 Col:1


DOSBox Status Window
DOSBox 0.74, Cpu speed: 3000 cycles, Frameskip 0, Program: DOSBOX
l directory c:\mp\
51690 + 464854 Bytes sym
0 Warning Errors
0 Severe Errors
C:\>link graphics.obj;
ler Version 5.00
Microsoft (R) Overlay Linkrp 1981-1985, 1987. All rights reserved.
Copyright (C) Microsoft Co
bol space free
C:\>graphics
er Version 3.60
rp 1983-1987. All rights reserved.
C:\>_