Name:	Rithesh Shetty
Roll No:	54
Class/Sem:	SE/IV
Experiment No.:	3
Title:	Program for drawing square using Assembly Language.
Date of Performance:	06/02/2024
Date of Submission:	13/02/2024
Marks:	
Sign of Faculty:	

Aim: Program for drawing square using Assembly Language.

Theory: INT 10h is a video service bios interrupt. It includes services like setting the video mode, character and string output and reading and writing pixels in graphics mode. To use the BIOS interrupt load ah with the desired sub-function. Load other required parameters in other registers and make a call to INT 10h.

INT 10h/AH = 0ch -Write graphics pixel.

Input:
AL = pixel colour
CX = column
DX = row

Algorithm:
1. Start

2. Initialize ax to 0013h for graphics mode.

3. Set the Counter bx to 60 h.

4. Initialize the co-ordinates cx and dx to 60h.

5. Set the Color.

6. Set Display Mode function by making ah = 0ch.

7. Increment cx and Decrement bx.

8. Repeat step 7 until bx = 0.

9. Initialize the counter by making bx = 60h.

10. Set the color.

11. Set Display Mode function by making ah = 0ch.

12. Increment dx & Decrement bx.

13. Repeat step 12 until bx = 0.

14. Initialize the counter by making bx = 60h.

15. Set the Color.

16. Set Display Mode function by making ah = 0ch.

17. Decrement cx and Decrement bx.

18. Repeat step 17 until bx = 0.

19. Initialize the counter by making bx = 60h.

20. Set the color.

21. Set Display Mede function by making ah = 0ch.

22. Decrement dx & Decrement bx.

23. Repeat step 22 until bx = 0.

24. To end the program use DOS interrupt:

   1) Load ah = 4ch.

   2) Call int 21h.

25. Stop.

Code:

```
MOV AX,0013H
INT 10H

MOV BX,60H
MOV CX,60H
MOV DX,60H

MOV AL,02H

L1:MOV AH,0CH

INC CX
DEC BX
INT 10H

JNZ L1
MOV BX,60H

L2:MOV AH,0CH

INC DX
DEC BX
INT 10H

JNZ L2

MOV BX,60H
```

L3:MOV AH,0CH

DEC CX
DEC BX
INT 10H

JNZ L3
MOV BX,60H

L4:MOV AH,0CH

DEC DX
DEC BX
INT 10H

JNZ L4
MOV BX,60H

L5:MOV AH,0CH

INC CX
INC DX
DEC BX
INT 10H

JNZ L5
MOV BX,60H
MOV CX,60H

L6:MOV AH,0CH
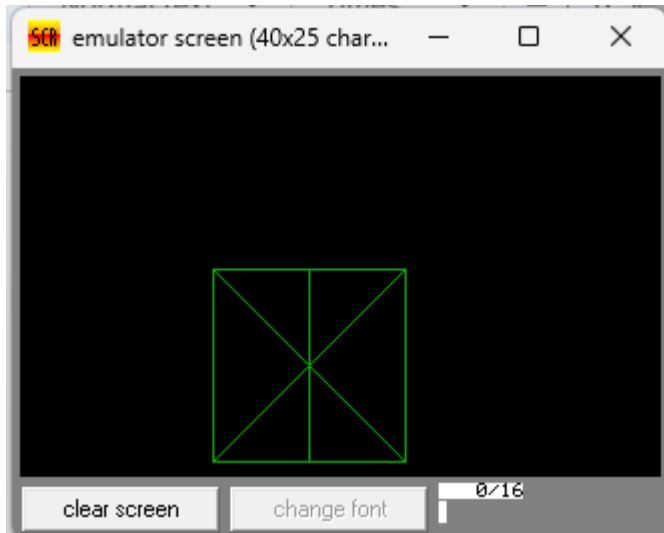
INC CX
DEC DX
DEC BX
INT 10H

JNZ L6
MOV BX,60H
MOV CX,90H

L7:MOV AH,0CH

INC DX
DEC BX
INT 10H

JNZ L7

Output:

Conclusion:

1. Explain the use of int 10.

   - `int 10h` in microprocessor programming is a BIOS interrupt allowing direct interaction with video hardware. It facilitates text and graphics display, cursor control, color manipulation, and querying video mode. It supports legacy software and low-level tasks, remaining relevant despite modern OS advancements. Overall, `int 10h` is essential for programming user interfaces and graphics in early IBM PC-compatible systems.

2. Explain hardware interrupts.
   - Hardware interrupts are signals sent by hardware devices to the CPU to request its attention. They interrupt the normal execution flow of the CPU, allowing it to handle time-sensitive tasks efficiently. When an interrupt occurs, the CPU suspends its current operation, saves its state, and jumps to a specific memory location called an interrupt handler to handle the interrupt request. Once the interrupt is serviced, the CPU resumes its previous task. Hardware interrupts enable efficient multitasking and allow devices to communicate with the CPU without constant polling, improving system responsiveness and performance.