RIPHAH INTERNATIONAL UNIVERSITY

COAL

FINAL GRAPHICS LAB TASK

AI 3-1

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CODE: -

```
mov al, 12h
mov ah, 0
int 10h


mov al, 2
mov ah, 0ch


; 1. WALLS & VERTICAL STRUCTURES

;########## Main House Walls #########

   ; [Main Left Wall]
mov cx, 70
mov dx, 100
mov bl, 180
call vertical_line

   ; [Shed Left Wall]
mov cx, 20
mov dx, 200
mov bl, 80
call vertical_line

   ; [Middle Wall]
mov cx, 250
mov dx, 100
mov bl, 180
call vertical_line
```

```
    ; [Right Extension Wall]
mov cx, 370
mov dx, 100
mov bl, 180
call vertical_line


; 2. HORIZONTAL STRUCTURES (ROOFS & GROUND)


;########## Right Extension Roof Lines #########

    ; [Right Extension Roof Bottom]
mov cx, 250
mov dx, 100
mov bl, 140
call horizontal_line

    ; [Right Extension Roof Top]
mov cx, 240
mov dx, 80
mov bl, 130
call horizontal_line

    ; [Ground Line]
mov cx, 20
mov dx, 280
mov bl, 250
call horizontal_line

    ; [Ground Line] Extension
```

```
mov cx, 270
mov dx, 280
mov bl, 100
call horizontal_line

    ; [Left Shed] Base Line That is above Ground
mov cx, 20
mov dx, 270
mov bl, 50
call horizontal_line


; 3. DIAGONAL ROOF SLOPES (EXTENSIONS)


    ; [Right Extension Roof Edge]
mov cx, 370
mov dx, 80
mov bl, 20
call r_diagonal_line

    ; [Shed Roof Slope]
mov cx, 70
mov dx, 150
mov bl, 50
call diagonal_line


; 4. CHIMNEY DETAILS


    ; [Chimney Left Vertical]
```

```
mov cx, 220
mov dx, 30
mov bl, 30
call vertical_line

   ; [Chimney Right Vertical]
mov cx, 240
mov dx, 30
mov bl, 50
call vertical_line

   ; [Chimney Cap Bottom]
mov cx, 210
mov dx, 30
mov bl, 40
call horizontal_line

   ; [Chimney Cap Left Edge]
mov cx, 250
mov dx, 25
mov bl, 5
call vertical_line

   ; [Chimney Cap Right Edge]
mov cx, 210
mov dx, 25
mov bl, 5
call vertical_line

   ; [Chimney Cap Top]
mov cx, 210
mov dx, 25
```

```
mov bl, 40
call horizontal_line



; 5. MAIN ROOF (TRIANGLES)



;########## Inner Roof Triangle #########

   ; [Main Roof Left Slope (Inner)]
mov cx, 160
mov dx, 10
mov bl, 90
call diagonal_line

   ; [Main Roof Right Slope (Inner)]
mov cx, 160
mov dx, 10
mov bl, 90
call r_diagonal_line

;########## Outer Roof Triangle #########

   ; [Main Roof Left Slope (Outer)]
mov cx, 160
mov dx, 0
mov bl, 95
call diagonal_line

   ; [Main Roof Right Slope (Outer)]
mov cx, 160
```

```
mov dx, 0
mov bl, 95
call r_diagonal_line

;########## (Roof Edges Diagonals) #########

   ; [Left Roof Diagonal]
mov cx, 65
mov dx, 93
mov bl, 5
call r_diagonal_line

   ; [Right Roof Diagonal]
mov cx, 255
mov dx, 93
mov bl, 5
call diagonal_line


; 6. DOOR & STEPS


;########## Door Frame #########

   ; [Door Left Jamb]
mov cx, 130
mov dx, 180
mov bl, 90
call vertical_line

   ; [Door Right Jamb]
mov cx, 190
```

```
mov dx, 180
mov bl, 90
call vertical_line

   ; [Door top]
mov cx, 130
mov dx, 180
mov bl, 60
call horizontal_line

;########## Steps #########

   ; [Step Top Surface]
mov cx, 120
mov dx, 270
mov bl, 80
call horizontal_line

   ; [Step Left Riser]
mov cx, 120
mov dx, 270
mov bl, 10
call vertical_line

   ; [Step Right Riser]
mov cx, 200
mov dx, 270
mov bl, 10
call vertical_line


; 7. WINDOWS
```

```
;########## Window 1 (Left) #########

   ; [Window 1 Left Frame]
mov cx, 275
mov dx, 150
mov bl, 30
call vertical_line

   ; [Window 1 Right Frame]
mov cx, 305
mov dx, 150
mov bl, 30
call vertical_line

   ; [Window 1 Top Frame]
mov cx, 275
mov dx, 150
mov bl, 30
call horizontal_line

   ; [Window 1 Bottom Frame]
mov cx, 275
mov dx, 180
mov bl, 30
call horizontal_line

   ; [Window 1 Vertical Crossbar]
mov cx, 290
mov dx, 150
mov bl, 30
```

```
call vertical_line

    ; [Window 1 Horizontal Crossbar]
mov cx, 275
mov dx, 165
mov bl, 30
call horizontal_line

;########## Window 2 (Right) #########

    ; [Window 2 Left Frame]
mov cx, 325
mov dx, 150
mov bl, 30
call vertical_line

    ; [Window 2 Right Frame]
mov cx, 355
mov dx, 150
mov bl, 30
call vertical_line

    ; [Window 2 Top Frame]
mov cx, 325
mov dx, 150
mov bl, 30
call horizontal_line

    ; [Window 2 Bottom Frame]
mov cx, 325
mov dx, 180
mov bl, 30
```

```
call horizontal_line

    ; [Window 2 Vertical Crossbar]
mov cx, 340
mov dx, 150
mov bl, 30
call vertical_line

    ; [Window 2 Horizontal Crossbar]
    mov cx, 325
    mov dx, 165
    mov bl, 30
    call horizontal_line


; EXIT & HELPER FUNCTIONS


    ; Wait for key press before exiting
mov ah, 00h
int 16h

    ; Return to text mode (03h)
mov ax, 0003h
int 10h

    ; Exit to DOS
mov ax, 4c00h
int 21h

;############# Functions ###########
```

```
horizontal_line:
int 10h
inc cx
dec bl
jne horizontal_line
ret

vertical_line:
int 10h
inc dx
dec bl
jne vertical_line
ret

diagonal_line:
int 10h
dec cx
inc dx
dec bl
jne diagonal_line
ret

r_diagonal_line:
int 10h
inc cx
inc dx
dec bl
jne r_diagonal_line
ret
```

DESCRIPTION: -

- **Goal: Draws a graphical house using 8086 Assembly.**
- **Setup: Switches to Video Mode 12h (640x480 graphics) using interrupt INT 10h.**
- **Technique: Uses four custom helper functions to draw lines (vertical, horizontal, and two diagonals) by looping and plotting individual pixels.**
- **Construction: Calls these functions with specific coordinates to outline the walls, roof, chimney, door, and windows.**
- **Exit: Pauses for a key press, restores text mode, and exits to DOS.**

OUTPUT: -