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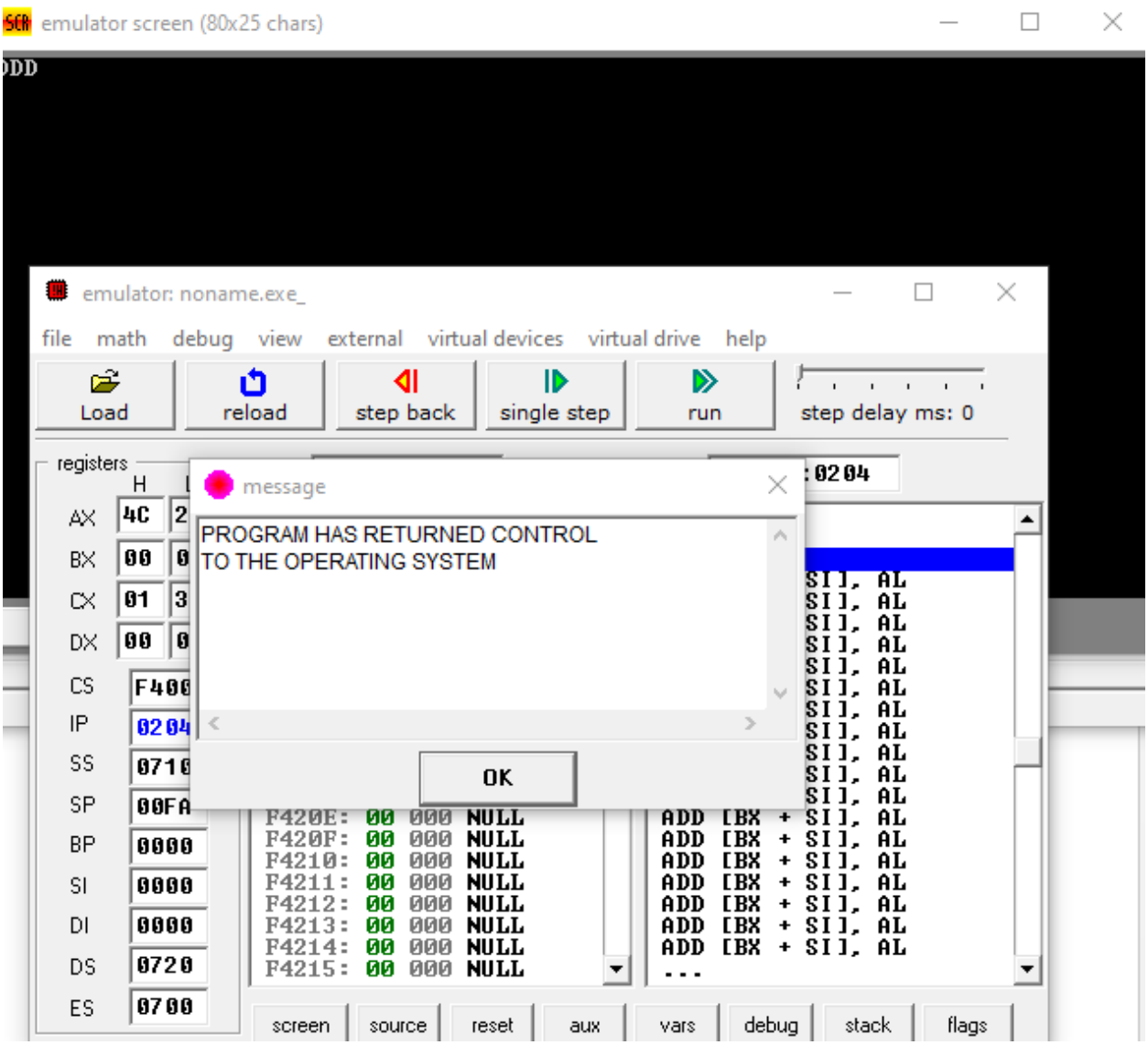
Q.1: Write program to find even or odd number and store in memory

```
.model small
.stack 100h
.data
   number db 5       ; Change this value to test
   even_msg db 'EVEN$'
   odd_msg  db 'ODD$'

.code
main:
   mov ax, @data
   mov ds, ax

   mov al, number     ; Load the number
   and al, 1          ; Check least significant bit

   cmp al, 0
   je show_even       ; If 0, it's even
   jne show_odd       ; Else, it's odd

show_even:
   lea dx, even_msg
   mov ah, 09h
   int 21h
   jmp exit

show_odd:
   lea dx, odd_msg
   mov ah, 09h
   int 21h

exit:
```

```
    mov ah, 4ch
    int 21h
end main
```

Screen shot



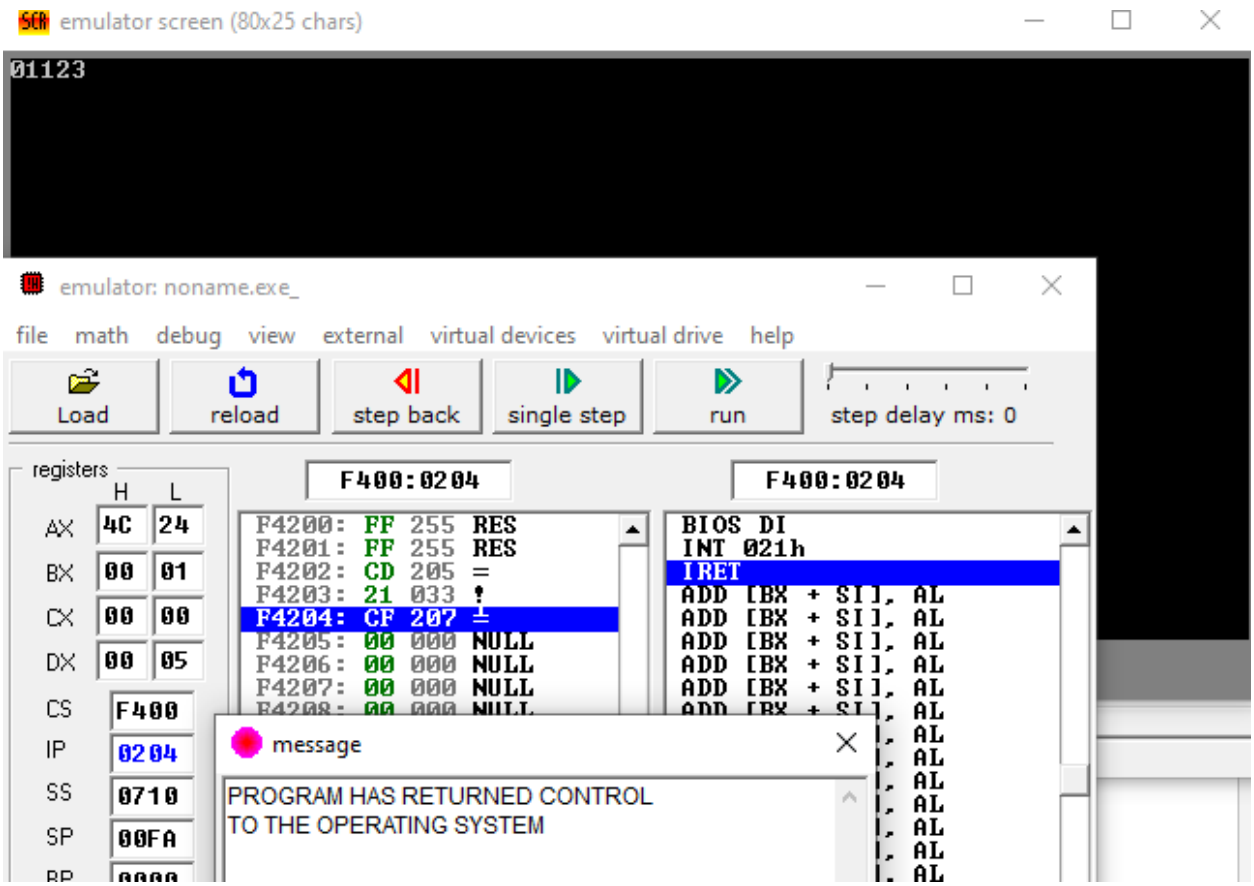
Q.2: Program to create first 5 numbers of Fibonacci series.

```
.model small
.stack 100h
.data
```

```
    fib db 5 dup(?)      ; Array to hold 5 Fibonacci numbers
    newline db 13, 10, '$'

.code
main:
    mov ax, @data
    mov ds, ax

    ; Initialize first two Fibonacci numbers
    mov al, 0
    mov [fib], al

    mov al, 1
    mov [fib+1], al

    ; Calculate remaining 3 Fibonacci numbers
    mov cx, 3
    mov si, offset fib
    add si, 1        ; SI at fib[1]

fibo_loop:
    mov al, [si]     ; fib[n-1]
    mov bl, [si-1]   ; fib[n-2]
    add al, bl
    mov [si+1], al   ; fib[n] = fib[n-1] + fib[n-2]

    inc si
    loop fibo_loop

    ; Print the Fibonacci numbers
    lea si, fib
    mov cx, 5

print_loop:
    mov al, [si]
```

```
    add al, 30h      ; Convert to ASCII
    mov dl, al
    mov ah, 02h
    int 21h

    inc si
    loop print_loop

    ; Newline
    lea dx, newline
    mov ah, 09h
    int 21h

    ; Exit program
    mov ah, 4ch
    int 21h
end main
```

Screen shot


emulator screen (80x25 chars)
01123
emulator: noname.exe_
file math debug view external virtual devices virtual drive help
Load
reload
step back
single step
run
step delay ms: 0
registers
H L
AX 4C 24
BX 00 01
CX 00 00
DX 00 05
CS F400
IP 0204
SS 0710
SP 00FA
F400:0204
F4200: FF 255 RES
F4201: FF 255 RES
F4202: CD 205 =
F4203: 21 033 !
F4204: CF 207 ╧
F4205: 00 000 NULL
F4206: 00 000 NULL
F4207: 00 000 NULL
F400:0204
BIOS DI
INT 021h
IRET
ADD [BX + SI], AL
message
PROGRAM HAS RETURNED CONTROL
TO THE OPERATING SYSTEM