Exercise 3

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1. Consider the following code:

```
        section .data
varA:   db      10h
        db      20h, 30h
varB:   dd      405060h
varC:   dw      70h

section .text
        mov     eax, [varA]
        mov     ebx, varC
        mov     cx, [varB + 2]
        mov     dh, [varB - 2]
```

a. Assume that the data segment starts at address **04004000h** when loaded into main memory. Show the content of this data segment. You must display the locations of variables (labels), the content of each memory cell in hexadecimal notation, and memory addresses.
b. What will be the values of `EAX`, `EBX`, `CX`, and `DH` in hexadecimal after executing the instructions in the code section?

2. Consider the following data section (assuming `$$ = 0x4004000`)

```
        section .data
xarr    dd      1000h, 2000h, 3000h, 4000h
num     equ     ($ - xarr)
yvar    dd      xarr
```

a. What is the constant value of **num** after compilation?

b. Does **num** indicate the number of elements in the array **xarr**? If not, then modify the definition of **num** in order to hold the number of elements.

c. What will be the value of EAX after executing the following instruction:

```
        mov     eax, [xarr]
```

d. What will be the value of EAX after executing the following instruction:

```
        mov     eax, [yvar]
```