

## Homework Assignment #2 [56 pts]

You are expected to do your own work on all homework assignments. You may (and are encouraged to) engage in *general* discussions with your classmates regarding the assignments, but specific details of a solution, including the solution itself, must always be your own work. (See the statement of Academic Dishonesty on the Syllabus (/ics312\_spring2021/morea/GettingStarted/reading-syllabus.html).)

### How to turn in?

Assignments need to be turned in via Laulima (<https://laulima.hawaii.edu/portal>). Check the Syllabus (/ics312\_spring2021/morea/GettingStarted/reading-syllabus.html) for the late assignment policy for the course.

### What to turn in?

You should turn in a single **plain text or PDF** file named README.txt or README.pdf with your answers to the assignment's questions.

## Exercise #1 [24pts]: Memory Layout

Consider the following .data segment:

```
A      db      "c", "af", 27o, 0
B      dd      1011b
C      times 2 dw      -27
D      db      043h, 0AAh
E      dw      043AAh
F      dw      -34o, 0
```

**Question #1 [18pts]** What are the contents of the 21 memory bytes starting at address A, **in hex**, on a machine that uses **Little Endian**?

**Question #2 [6pts]:** For each label say if it would lead to different byte orders on a Big Endian machine (answer "yes" if it would, "no" if it wouldn't).

## Exercise #2 [32pts]: Memory and Registers

Consider the following .data segment:

```
L1      L2      L3      L4      L5
04 FE 3A AA 50 41 03 FE FF FF FF 12 42 03 F2 F4
```

and the following program fragment:

```
mov    eax, L2
mov    ebx, L3
inc    ebx
mov    ebx, [ebx]
add    eax, ebx
mov    ebx, [eax]
mov    [L4], bx
mov    ax, [L5]
mov    cx, [L2]
add    ax, cx
mov    ecx, L1
add    ecx, 2
mov    [ecx], ax
```

After the code finishes executing, what are the contents of the 16 memory bytes starting at address L1, on a machine using **Little Endian**?

*Show your work for each instruction, as done for the examples in the lecture notes.*