EE306 Introduction to Computing

Lab 2 (due on 3/26, 9pm, on GitHub)
Course Instructor: Dr. Nina Telang

All Lab assignments must be completed individually. You are not permitted to seek help or clarification from anyone other than the instructor or the TAs.

Your file should be named exactly after your EID, for example, xy1234.asm. Your program will not be graded if you fail to follow the file naming convention.

Purpose: The purpose of this assignment is to write a program in **LC-3 assembly language** code to find the largest and smallest of three 8-bit unsigned numbers. The three unsigned numbers are specified in successive memory locations, the lowest address of which is at x4000. Each 8-bit unsigned number is stored in bits [7:0]. Do not assume that bits [15:8] are zeros.

Your program should store the largest of these three unsigned numbers in the memory location below the three numbers, and the smallest of the three unsigned numbers in the memory location below the largest number.

Example: Consider the following test case shown in the table below. This shows a few locations in the LC-3 memory.

Address	**Content**
…	…
x4000	x4500
…	…
…	…
x4500	x8A7B
x4501	xE492
x4502	x017E
x4503	…
x4504	…
x4505	…
…	…
…	…
…	…

After a successful run of your program, the LC-3 memory should look like:

Address	**Content**
…	…
x4000	x4500
…	…
…	…
x4500	x8A7B
x4501	xE492

x4502	x017E
x4503	x0092
x4504	x007B
x4505	…
…	…
…	…
…	…

In this example test case, besides locations x4503 and x4504, all other memory locations have been left unchanged.

Notes:

- The first line of your program must specify the memory address of the first instruction of your program. The LC-3 simulator will place your program starting at that address. For this assignment, you should place your program starting at **x3000** (i.e. the first line of your program needs to be .ORIG x3000).
- The address of the first number of the three numbers will be at x4000.
- You can assume that the test cases will be somewhere within x4001 to xFDFF.
- If the three numbers are identical, then both the largest and smallest numbers will be the same.
- Use the LC3Edit program to type in your programs. Your program needs to be in LC-3 assembly language. Please ask any TA or Dr. Telang if you have any questions.
- **Your file should be named exactly after your EID, for example, xy1234.asm. Your program will not be graded if you fail to follow the file naming convention.**