EE306: Programming Assignment 1

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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.

Problem Statement

The objective is to write an LC-3 **assembly** program that updates the status (Open or Closed) of restaurants on campus, depending on the current input.

For this assignment, we will monitor and update the status of only these five restaurants on campus:

1. Starbucks
2. Chick-Fil-A
3. Panda Express
4. Taco Cabana
5. Blanton Cafe

The current status of each of the restaurants is stored in consecutive memory locations in the LC-3 memory, starting from x4000 in the following format:

Address	Most significant Byte (Status)	Least significant Byte (ID)
x4000	'O'	x01
x4001	'C'	x02
x4002	'C'	x03
x4003	'O'	x04
x4004	'C'	x05

As shown above, each location contains the ID of the restaurant (identical to the number listed above) in the least significant byte and the status – Open (ASCII value of 'O') or Closed (ASCII value of 'C') in the most significant byte. **Note the case**.

In order to update the status of any of these restaurants, your program must read the **input** available at the **address pointed by x3500**. For instance, if the location x3500 contains x4100, this means that location x4100 contains the **input**.

Address	Most-Significant Byte	Least-Significant Byte
x3500	x41	x00
x4100	‘O’	x04

The input is in the following format: The most significant byte holds the status (**O**pen or **C**losed) and the least significant byte holds the unique ID of the place.

Your program should **start at x3000**. The task is to read the given input status at the **location pointed by x3500 in the memory** and update the status of the corresponding restaurant in the status table.

For example, if the status of the memory before execution is:

Address	Data
x3500	x3700
…	…
x3700	x4F03
…	…
x4000	x4301
x4001	x4F02
x4002	x4303
x4003	x4F04
x4004	x4F05

The input status is to update the place with ID = x03 to **O**pen**.** Hence, the status of the memory after the execution of the program will be:

Address	Data
x3500	x3700
…	…
x3700	x4F03
…	…
x4000	x4301
x4001	x4F02
x4002	**x4F03**
x4003	x4F04
x4004	x4F05

Notes:

1. The status input is not at x3500 but at the location pointed by x3500.
2. If the input ID is not valid then none of the status should be changed.
3. Halt the program after you update the status.
4. Remember to start your program from address x3000.
5. The input pointer at x3500 will never coincide with the locations x4000 – x4004.

Github link to assignment: https://classroom.github.com/a/uW4ab-b2