Lab 2

Design a user interface for an office directory.

The user will input a name (either the first name or the last name). Your program are expected to output the corresponding full-names and office room numbers, based on the information stored in the directory.

For example, assume that Prof. Jiang's office is Room 520. When a user inputs "Jiang" or "Xiaohong", your program should print "Jiang Xiaohong 520".

Your Task

After the program begins, it should:

1. Prompt the user to type a name. Print the string "Type a name and press Enter: " on the computer screen. Then wait for the user to input a string and press the **<Enter>** key.
2. Search for the full-names and room numbers in the directory. For each person whose first name or last name is as same as the input one, print his or her full name and room number in one row. If there is no matched information, print "No Found".
3. Halt.

The Directory

The directory is a linked-list. Each node contains a pointer, which points to the next node, expect the last node. The pointer of the last node points to x0000.

Each nodes in the directory consists of four elements:

Node structure
The pointer for the next node
The pointer to an ASCII string representing the room number
The pointer to an ASCII string representing the first name
The pointer to an ASCII string representing the last name

The content of the directory will be provided when checking. Your program should not modify the content.

Requirements & Notes

- Write your program in LC-3 assembly language.
- Your program should start at location x3000.

- The **address** of the first node has been stored in address x4000 already. All other nodes and strings are stored between address x4001 and xEFFF.
- The ASCII code of **<Enter>** key may be **different** on different operating system.
- The directory doesn't contain two nodes with the same full-name.
- For the input name, the first character is upper-case, and the rest are lower-case.
- The input is typed without using <Backspace> and <Delete>. The length of input is between 1 and 15 characters.

Sample

```
Type a name and press Enter: Patt
Yale Patt 101
----- Halting the processor -----

Type a name and press Enter: Jiang
Jiang Xiaohong 502
Jiang Zengkai 127
----- Halting the processor -----

Type a name and press Enter: Qiu
Not Found
----- Halting the processor -----
```

- In the output, the first name, last name and room number should be separated by a space.
- Any different pairs of full-name and room number should be printed in the different lines.
- You should print the first name first and the last name last.

Grading

Lab 2 takes 5 points of the total score, consisting of Check part (60%) and Report part (40%).

Due: July 17, Friday

- **Check** (60% of each lab)
  - Find a TA to check your code in person, TAs may ask you questions when grading your lab assignment, you will get 100%, 80% or 60% of the checking score according to your response.
  - You can try again if you fail in checking, but there will be a penalty of -10% (of checking part) for each try.
- **Report** (40% of each lab)
  - English report should be concise and carrying main ideas. Try to use the report to convince TAs that you complete the task by yourself.
  - Your lab report should contains the following contents:
    - Your algorithm. The complexity of your algorithm will not affect your score.
    - Brief explanation of your code.
    - Source code with sufficient comments. Comments begin with semicolon ';'.

- **Penalty**
    - Delay: -10% per day. If more than 5 days, -100%.
    - Cheating: -100% of this lab. Besides, -10% of the total score.