题目描述

* Write a computer program that could be used to track, by lab, which user is logged into which computer:

| **Lab Number** | **Computer Station Numbers** |
| --- | --- |
| 1 | 1-5 |
| 2 | 1-6 |
| 3 | 1-4 |
| 4 | 1-3 |

* You run four computer labs. Each lab contains computer stations that are numbered as the above table.
* Each user has a unique ID number. The ID starting with three characters (for example, SWE or DMT), and followed by three digits (like, 001).
* Whenever a user logs in, the user’s ID, lab number, and the computer station number are transmitted to your system. For example, if user SWE001 logs into lab 2 station 3, then your system receives (SWE001, 2, 3) as input data. Similarly, when a user SWE001 logs off a station, then your system receives the user id SWE001.
* If a user who is already logged into a computer attempts to log into a second computer, display "invalid login".

If a user attempts to log into a computer which is already occupied, display "invalid login".

If a user who is not included in the database attempts to log out, display "invalid logoff".

输入格式

If user SWE001 is logged into lab 2 station 3 and user DMT001 is logged into lab 1 station 4, use + for logging in,

- for logging off, and = for end of input:

+ SWE001 2 3

+ DMT001 1 4

- SWE001

=

输出格式

The status of all labs (who is logged into which computer). Otherwise, display invalid login or invalid logoff.

You need to display the status of all labs even when the input is invalid.

样例输入

+ SWE100 1 1

+ DMT200 2 6

+ SWE400 1 1

+ SWE400 4 3

+ SWE400 2 1

+ SWE700 2 3

- SWE700

- DMT700

+ SWE800 1 6

+ SWE900 5 1

- SWE700

=

样例输出

1 1: SWE100 2: empty 3: empty 4: empty 5: empty

2 1: empty 2: empty 3: empty 4: empty 5: empty 6: empty

3 1: empty 2: empty 3: empty 4: empty

4 1: empty 2: empty 3: empty

1 1: SWE100 2: empty 3: empty 4: empty 5: empty

2 1: empty 2: empty 3: empty 4: empty 5: empty 6: DMT200

3 1: empty 2: empty 3: empty 4: empty

4 1: empty 2: empty 3: empty

invalid login

1 1: SWE100 2: empty 3: empty 4: empty 5: empty

2 1: empty 2: empty 3: empty 4: empty 5: empty 6: DMT200

3 1: empty 2: empty 3: empty 4: empty

4 1: empty 2: empty 3: empty

1 1: SWE100 2: empty 3: empty 4: empty 5: empty

2 1: empty 2: empty 3: empty 4: empty 5: empty 6: DMT200

3 1: empty 2: empty 3: empty 4: empty

4 1: empty 2: empty 3: SWE400

invalid login

1 1: SWE100 2: empty 3: empty 4: empty 5: empty

2 1: empty 2: empty 3: empty 4: empty 5: empty 6: DMT200

3 1: empty 2: empty 3: empty 4: empty

4 1: empty 2: empty 3: SWE400

1 1: SWE100 2: empty 3: empty 4: empty 5: empty

2 1: empty 2: empty 3: SWE700 4: empty 5: empty 6: DMT200

3 1: empty 2: empty 3: empty 4: empty

4 1: empty 2: empty 3: SWE400

1 1: SWE100 2: empty 3: empty 4: empty 5: empty

2 1: empty 2: empty 3: empty 4: empty 5: empty 6: DMT200

3 1: empty 2: empty 3: empty 4: empty

4 1: empty 2: empty 3: SWE400

invalid logoff

1 1: SWE100 2: empty 3: empty 4: empty 5: empty

2 1: empty 2: empty 3: empty 4: empty 5: empty 6: DMT200

3 1: empty 2: empty 3: empty 4: empty

4 1: empty 2: empty 3: SWE400

invalid login

1 1: SWE100 2: empty 3: empty 4: empty 5: empty

2 1: empty 2: empty 3: empty 4: empty 5: empty 6: DMT200

3 1: empty 2: empty 3: empty 4: empty

4 1: empty 2: empty 3: SWE400

invalid login

1 1: SWE100 2: empty 3: empty 4: empty 5: empty

2 1: empty 2: empty 3: empty 4: empty 5: empty 6: DMT200

3 1: empty 2: empty 3: empty 4: empty

4 1: empty 2: empty 3: SWE400

invalid logoff

1 1: SWE100 2: empty 3: empty 4: empty 5: empty

2 1: empty 2: empty 3: empty 4: empty 5: empty 6: DMT200

3 1: empty 2: empty 3: empty 4: empty

4 1: empty 2: empty 3: SWE400