Gradebook
Problem ID: a14p03gradebook

Write a program that repeatedly asks for a student email and a grade, and when all grades have been entered, possibly multiple grades for the same email, the program calculates the average grade corresponding to each email.

You should use a dictionary to keep track of the grades corresponding to each email, keeping a list of grades as a value for each email that is given, so if the same email is entered twice, the new grade should be appended to the list.

Input

The input will come in triples, where in each triple, the first line will be an email address, the second line will be a grade and the third line will be a response indicating whether another email-grade pair will be entered.

Formal input specifications

Formally, the input will consist of $3n$ lines, $l_1, \ldots, l_{3n}$, where n is the number of grades that will be entered, with $1 \le n$. For each $i \in \{1, \ldots, n\}$, line l_{3i-2} will contain a string containing an email address e_i, line l_{3i-1} will contain an integer denoting a grade g_i, and line l_{3i} will contain a string giving a reply r_i to the question whether more grades will follow. The reply r_n will consist of the string n, indicating that no more grades are forthcoming. All other replies r_j for $j < n$ will be something other than n.

So line l_1 will contain an email e_1, line l_2 a grade g_1, line l_3 a reply r_1, line l_4 an email e_2 and so on, until the reply r_n will be n.

Test case restrictions

In the tests, n will be restricted to $n \le 1\,000\,000$. The length of each email address e_i will be restricted to $5 \le |e_i| \le 20$. Each grade q_j will be an integer restricted to $0 \le g_i \le 10$, and each reply r_j will be either y or n, with r_j being y for all $j < n$, and the last reply r_n being n.

Output

The program should display each email that was entered, along with the average grade corresponding to the email, the emails should be sorted in alphabetical order. The grade should be rounded to 2 decimal places.

Formal output specifications

Let m be the number of distinct emails in the list $e_1, \ldots, e_n$, and let $u_1, \ldots, u_m$ be a list of the m unique emails, ordered alphabetically. For each $j \in \{1, \ldots, m\}$, associate a grade g_i with u_j if $e_i = u_j$, and let a_j be the average value of the grades associated with u_j.

Then the output should consist of m lines, $\lambda_1, \ldots, \lambda_m$ and for each $j \in \{1, \ldots, m\}$, line λ_j should contain the email u_j and the average grade a_j, separated by a colon and a space:

- {u_j}:   {a_j}

Sample Input 1

```
JohnD@ru.is
3
y
JohnD@ru.is
10
y
JohnD@ru.is
7
y
MaryC@ru.is
9
y
MaryC@ru.is
8
n
```

Sample Output 1

```
JohnD@ru.is: 6.67
MaryC@ru.is: 8.5
```

Sample Input 2

```
student1@ru.is
10
y
student2@ru.is
5
y
student3@ru.is
1
n
```

Sample Output 2

```
student1@ru.is: 10.0
student2@ru.is: 5.0
student3@ru.is: 1.0
```

Sample Input 3

```
student1@ru.is
2
n
```

Sample Output 3

```
student1@ru.is: 2.0
```