Mini Exam: Lists

You can check your solutions here: .

1. Names

Read a number **N** and then **N lines of names**. Print a **list** of all the names **ordered alphabetically**.

Examples

Input	Output
4 Hristofor Kolumb Hristo Gosho	Gosho Hristo Hristofor Kolumb

2. Order Students

Write a program that helps the teacher to organise the numbers of students who will make exam in different groups. For this you need to **append several groups** of numbers in the list of examined students.

- You will receive the groups in a single line separated by '**|**'.
- The numbers in the groups are separated by spaces (' ', **one or several**).
- Order the groups in the final list from the **last** given group to the **first**, and their values from **left** to **right**.

Examples

Input	Output
5 7 8 |4 2 6 | 9 10	9 10 4 2 6 5 7 8
1 | 4 8|7 0| 2 5 |3	3 2 5 7 0 4 8 1
1| 2 3 4 5 | 8 9	8 9 2 3 4 5 1

3. Check Students

Write a program that keeps track for the presence of students in the classroom. You are given the total **number** of students in the class on the first line of input. On the next lines you are given one of the following **messages**:

- **"{name} is not here!"**
- **"{name} is here!"**

If you receive the **first** message, you have to **add** the student in the **list of missing students** if he/she **is not** already there and if he/she is in the list print on the console: **"{name} is already in the list!"**. If you receive the **second** message, you have to **remove** the student if he/she **is** in the missing list and print: **"{name} is in class!"**. At the end print all the missing students.

Examples

Input	Output
4 Alisia is here! Gosho is not here! Ivan is not here!	Gosho is in class! Ivan

Gosho is here!	
5 Todor is not here! Ana is here! Todor is not here! Gogo is here! Didi is not here!	Todor is already in the list! Todor Didi

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