

Exercises: Sets and Dictionaries Advanced

Problems for exercises and homework for the ["C# Advanced" course @ SoftUni](#).

Problem 1. Unique Usernames

Write a program that reads from the console a sequence of **N usernames** and keeps a collection only of the **unique** ones. On the **first** line you will be given an integer **N**. On the next **N** lines you will receive **one** username **per line**. Print the collection on the console in **order of insertion**:

Examples

Input	Output
6 Ivan Ivan Ivan Pesho Ivan NiceGuy1234	Ivan Pesho NiceGuy1234

Problem 2. Sets of Elements

Write a program that prints a **set of elements**. On the first line you will receive two numbers - **n** and **m**, which represent the lengths of two separate sets. On the next **n + m** lines you will receive **n** numbers, which are the numbers in the **first** set, and **m** numbers, which are in the **second** set. Find all the **unique elements** that appear in **both of them** and **print** them in the order in which they appear in the **first** set - **n**.

For example:

Set with length $n = 4$: {1, **3**, **5**, 7}

Set with length $m = 3$: {**3**, 4, **5**}

Set that contains all the **elements** that repeat in **both sets** -> {**3**, **5**}

Examples

Input	Output
4 3 1 3 5 7 3	3 5

4 5	
2 2 1 3 1 5	1

Problem 3. Periodic Table

Write a program that keeps all the **unique** chemical **elements**. On the first line you will be given a number **n** - the **count** of input **lines** that you are going to receive. On the next **n** lines you will be receiving **chemical compounds**, separated by a **single space**. Your task is to print all the **unique ones** in **ascending order**:

Examples

Input	Output
4 Ce O Mo O Ce Ee Mo	Ce Ee Mo O
3 Ge Ch O Ne Nb Mo Tc O Ne	Ch Ge Mo Nb Ne O Tc

Problem 4. Even Times

Write a program that **prints** a **number** from a collection, which appears an **even number** of **times** in it. On the first line, you will be given **n** – the **count** of **integers** you will receive. On the next **n** lines you will be receiving **the numbers**. It is **guaranteed** that **only one** of them **appears** an **even number** of times. Your task is to **find** that **number** and **print** it in the end.

Examples

Input	Output
3 2 -1 2	2

5 1 2 3 1 5	1
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Problem 5. Count Symbols

Write a program that reads some **text** from the console and **counts** the **occurrences** of **each** character in it. Print the results in **alphabetical** (lexicographical) order.

Examples

Input	Output
SoftUni rocks	: 1 time/s S: 1 time/s U: 1 time/s c: 1 time/s f: 1 time/s i: 1 time/s k: 1 time/s n: 1 time/s o: 2 time/s r: 1 time/s s: 1 time/s t: 1 time/s
Did you know Math.Round rounds to the nearest even integer?	: 9 time/s .: 1 time/s ?: 1 time/s D: 1 time/s M: 1 time/s R: 1 time/s a: 2 time/s d: 3 time/s e: 7 time/s g: 1 time/s h: 2 time/s i: 2 time/s k: 1 time/s n: 6 time/s o: 5 time/s r: 3 time/s s: 2 time/s t: 5 time/s u: 3 time/s v: 1 time/s w: 1 time/s y: 1 time/s

Problem 6. Wardrobe

Write a program that helps you decide what **clothes** to wear from your **wardrobe**. You will receive the **clothes**, which are currently in your wardrobe, sorted by their **color** in the following **format**:

```
"{color} -> {item1},{item2},{item3}..."
```

If you receive a certain color, which already **exists** in your wardrobe, just **add** the clothes to **its records**. You can also receive **repeating items** for a certain **color** and you have to keep their **count**.

In the end, you will receive a **color** and a piece of **clothing**, which you will **look for** in the wardrobe, separated by a space in the following format:

```
"{color} {clothing}"
```

Your task is to print all the **items** and their **count** for **each color** in the following format:

```
"{color} clothes:
* {item1} - {count}
* {item2} - {count}
* {item3} - {count}
...
* {itemN} - {count}"
```

If you find the **item** you are **looking for**, you need to print **"(found!)"** next to it:

```
"* {itemN} - {count} (found!)"
```

Input

- On the **first line**, you will receive **n** – the **number of lines** of clothes, which you will receive.
- On the next **n** lines, you will receive the **clothes** in the **format described** above.

Output

- Print the **clothes** from your wardrobe in the **format described** above.

Examples

Input	Output
4 Blue -> dress,jeans,hats Gold -> dress,t-shirt,boxers White -> briefs,tanktop Blue -> gloves Blue dress	Blue clothes: * dress - 1 (found!) * jeans - 1 * hats - 1 * gloves - 1 Gold clothes: * dress - 1 * t-shirt - 1 * boxers - 1 White clothes: * briefs - 1

	* tanktop - 1
4 Red -> hat Red -> dress,t-shirt,boxers White -> briefs,tanktop Blue -> gloves White tanktop	Red clothes: * hat - 1 * dress - 1 * t-shirt - 1 * boxers - 1 White clothes: * briefs - 1 * tanktop - 1 (found!) Blue clothes: * gloves - 1
5 Blue -> shoes Blue -> shoes,shoes,shoes Blue -> shoes,shoes Blue -> shoes Blue -> shoes,shoes Red tanktop	Blue clothes: * shoes - 9

Problem 7. *The V-Logger

Create a program that keeps information about **vloggers** and their **followers**. The **input** will come as a sequence of strings, where each string will represent a **valid** command. The commands will be presented in the following format:

- "{vloggername}" **joined The V-Logger** – keep the vlogger in your records.
 - Vloggernames **consist of only one word**.
 - If the **given vloggername** already **exists**, **ignore** that command.
- "{vloggername} **followed** {vloggername}" – The first vlogger followed the second vlogger.
 - If **any** of the **given vloggernames** **does not exist** in your collection, **ignore** that command.

- **"Statistics"** - Upon receiving this command, you have to print a statistic about the vloggers.

Each vlogger has an unique **vloggername**. **Vloggers** can **follow other vloggers** and a vlogger **can follow as many other vloggers as he wants**, but he **cannot** follow **himself** or follow someone he is **already a follower of**. You need to print the **total count** of **vloggers** in your collection. Then you have to print the **most famous vlogger** – the one with the most followers, with **his followers**. If more than one vloggers have the **same number** of **followers**, print the one **following less** people and his **followers** should be printed in **lexicographical order** (in case the vlogger has **no followers**, print just the first line, which is described **below**). Lastly, print the **rest vloggers**, ordered by the **count** of followers in **descending** order,

then by the number of vloggers he follows in **ascending order**. The **whole output must be** in the following format:

"The V-Logger has a total of {registered vloggers} vloggers in its logs.

1. {mostFamousVlogger} : {followers} followers, {followings} following

* {follower1}

* {follower2} ...

{No}. {vlogger} : {followers} followers, {followings} following

{No}. {vlogger} : {followers} followers, {followings} following..."

Input

- The input will come in the format described above.

Output

- On the first line, print **the total count of vloggers** in the format described above.
- On the second line, print the **most famous** vlogger in the format described above.
- On the **next** lines, print all of the **rest** vloggers in the format described above.

Constraints

- There will be **no invalid** input.
- There will be no situation where **two vloggers** have **equal** count of **followers** and **equal** count of **followings**
- Allowed time/memory: **100ms/16MB**.

Examples

Input	Output
EmilConrad joined The V-Logger VenomTheDoctor joined The V-Logger Saffrona joined The V-Logger Saffrona followed EmilConrad Saffrona followed VenomTheDoctor EmilConrad followed VenomTheDoctor VenomTheDoctor followed VenomTheDoctor Saffrona followed EmilConrad Statistics	The V-Logger has a total of 3 vloggers in its logs. 1. VenomTheDoctor : 2 followers, 0 following * EmilConrad * Saffrona 2. EmilConrad : 1 followers, 1 following 3. Saffrona : 0 followers, 2 following
JennaMarbles joined The V-Logger JennaMarbles followed Zoella AmazingPhil joined The V-Logger JennaMarbles followed AmazingPhil Zoella joined The V-Logger JennaMarbles followed Zoella	The V-Logger has a total of 5 vloggers in its logs. 1. AmazingPhil : 2 followers, 0 following * JennaMarbles * Zoella

Zoella followed AmazingPhil Christy followed Zoella Zoella followed Christy JacksGap joined The V-Logger JacksGap followed JennaMarbles PewDiePie joined The V-Logger Zoella joined The V-Logger Statistics	2. Zoella : 1 followers, 1 following 3. JennaMarbles : 1 followers, 2 following 4. PewDiePie : 0 followers, 0 following 5. JacksGap : 0 followers, 1 following
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