Prefixes   P82232_en

Consider a collection of words. Sometimes, it is possible to identify each word uniquely from its prefix. For instance, if the collection is {`love`, `hero`, `here`, `half`, `yet`}, a word that starts with `l` must be `love`. In the same way, if we know that a word starts with `y`, it must be `yet`. However, to identify the word `half` we need the prefix `ha`, to identify the word `hero` as well as `here` we need to write the whole words.

Your program must print the words in increasing order according to the lenght of the shortest prefix that identifies them. In a event of a tie, it must print the words in lexicographical order.

Input

The input consists of various cases. Each case starts with its number of words $n \geq 2$. n words follow, each one contains between 1 and 20 lowercase letters. All the words of a collection will be indentifiable with some of its prefixes (eventually, the whole word). That is, no given word will not be prefix of other word of the same case.

Output

For each case, your program must print the prefixes (with the words that they indentify to) in increasing order by length and, in a event of a tie, in lexicographical order. it must separate the output of different cases with a line with 10 dashes.

Scoring

- **Test1:** Tests with $n \leq 10$.   45 Points

- **Test2:** Tests with $n \leq 10000$.   55 Points

Sample input 1

```
5
hero
here
half
love
yet

2
hello
bye
```

Sample output 1

```
l love
y yet
ha half
here here
hero hero
----------
b bye
h hello
```

Problem information

Author: Salvador Roura
Translator: Carlos Molina

Generation: 2026-01-25T11:56:34.824Z