

Acronym

Input file: **standard input**
Output file: **standard output**
Time limit: 2 seconds
Memory limit: 1024 megabytes

Aga loves secrets and word games. Tomorrow is her name day (*imieniny* in Polish). Her friend Ania is decorating a greeting card but would like to include a sentence (a sequence of words) whose first letters form a hidden code. Such a concatenation (joining) of the first letters is called an acronym.

Ania has already come up with the following example sentences for the occasion:

- WONDERFUL IMMENSE SUPERB HAPPINESS with the acronym WISH.
- LIVE LAUGH LOVE with the acronym LLL.
- AKRONIM NA IMIENINY AGI with the acronym ANIA.
- BABY AND BABY YETI with the acronym BABY.

The last example shows that words in the sentence can repeat; we can also use the acronym within a sentence.

Ania has to decide on an acronym, so she asked for your help. You are given a dictionary, i.e. a set of n different permitted words. Check if it is possible to construct a sentence from these words such that the first letters of each word in the sentence form a word also in the dictionary. Provide an example of such a sentence or output -1 if it is impossible.

Input

The first line contains an integer n ($1 \leq n \leq 200$), denoting the number of words in the dictionary.

Each of the following n lines contains one word s_i consisting of at least 2 and at most 8 uppercase English alphabet letters A-Z. The words in the input are pairwise distinct.

Output

If no such sentence exists, output the number -1 in a single line.

Otherwise, in the first line, output the number of words in the found sentence, and in the second line, output the sentence as a sequence of words separated by spaces.

If multiple sentences meet the criteria, output any one of them.

Examples

standard input	standard output
5 ANIA IMIENINY AGI AKRONIM NA	4 AKRONIM NA IMIENINY AGI
1 XX	2 XX XX

Note

In the first example test many other sentences are also valid, for example: NA ANIA or ANIA NA IMIENINY ANIA. However, sentences like AKRONIM NA IMIENINY ANI and AKRONIM NA IMIENINY are incorrect since the word ANI is not in the dictionary.

In the second example test the sentence **XX XX** is the only correct answer.