Problem A. Acronym

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 ($1 \le n \le 200$), 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.