Task Anagramistica

Biljana loves making crosswords. Her favourite type is the so called *anagram crossword*, where each clue is an anagram of the required solution.

She has a set of n words that she thinks would be good candidates for her next puzzle. We say that two words are similar if one can be obtained from the other by rearranging the letters (i.e. they are anagrams). She wants to select a subset of her words, such that there are **exactly** k **pairs of similar words** in that subset. Help Biljana determine the number of such subsets.

Input

The first line contains integers n ($1 \le n \le 2000$) and k ($0 \le k \le 2000$), the number of words and the required number of similar pairs.

Each of the following n lines contains a word consisting of at most 10 lowercase letters. All words will be distinct.

Output

Output the number of described subsets modulo $10^9 + 7$.

Scoring

Subtask	Points	Constraints
1	10	$1 \le n \le 15$
2	30	$0 \le k \le 3$
3	70	No additional constraints.

Examples

input	input	input
3 1	5 2	6 3
ovo	trava	mali
ono	vatra	lima
voo	vrata	imal
output	leo ole	je sve
2	output	ej
	3	output
		6

Clarification of the first example:

Subsets with exactly one similar pair are {ovo, ono, voo} and {ovo, voo}.