Eight Directions Crossword

What is an Eight Directions Crossword? It's a filled crossword in which all the words are hidden in eight directions (up, down, left and right and also up-left, down-right etc.) You have to find these hidden words in each crossword.

Đuro has made an N x N eight-directions-crossword. His crossword is a bit strange: you are given only one word and you have to find it in a crossword. To make things more difficult, you can skip some letters in the crossword while looking for the given word. More precisely, the given word is the subsequence of not necesarily consecutive letters in a row, column or a diagonal of the crossword in one of the eight directions.

Now you discover that, under these conditions, you can read the given word in the crossword in multiple ways. How many?

Input

In the first line of the input there is an integer N (2 ≤ N ≤ 1000), the crossword dimension, followed by space and the given word you are to find. This word has 2-10 letters.

N lines follow, representing the crossword. All letters in the crossword and in the given word are small letters of the English alphabet.

Output

Print the required number of ways. (This number will fit into int64 in Pascal or long long in C/C++.)

Example

input	input	input
2 aa	3 aa	8 silba
aa	aaa	siolobba
aa	aaa	oooaoooo
	aaa	oooboooo
		aooooooo
		oboloooo
		oolooooo
		oooioooo
		ooossooo

output	output	output
12	56	4