H Obfuscation

It is a well-known fact that if you mix up the letters of a word, while leaving the first and last letters in their places, words still remain readable. For example, the sentence "tihs snetncee mkaes prfecet sesne", makes perfect sense to most people.

If you remove all spaces from a sentence, it still remains perfectly readable, see for example: "thissentencemakesperfectsense", however if you combine these two things, first shuffling, then removing spaces, things get hard. The following sentence is harder to decipher: "tihssnetnceemkaesprfecetsesne".

You're given a sentence in the last form, together with a dictionary of valid words and are asked to decipher the text.

Input

On the first line one positive number: the number of testcases, at most 100. After that per testcase:

- One line with a string s: the sentence to decipher. The sentence consists of lowercase letters and has a length of at least 1 and at most $1\,000$ characters.
- One line with an integer n with $1 \leq n \leq 10\,000$: the number of words in the dictionary.
- n lines with one word each. A word consists of lowercase letters and has a length of at least 1 and at most 100 characters. All the words are unique.

Output

Per testcase:

- One line with the deciphered sentence, if it is possible to uniquely decipher it. Otherwise "`impossible`" or "`ambiguous`", depending on which is the case.

Sample in- and output

Input	Output
3 tihssnetnceemkaesprfecetsesne 5 makes perfect sense sentence this hitehre 2 there hello hitehre 3 hi there three	this sentence makes perfect sense impossible ambiguous