

SWE2004 : Principles in Programming (Spring 2016)

Programming Lab #1

Due-date : March 14, 14:45PM

Q & A : erielsy at gmail.com

Description

A common but insecure method of encrypting text is to permute the letters of the alphabet. That is, in the text, each letter of the alphabet is consistently replaced by some other letter. So as to ensure that the encryption is reversible, no two letters are replaced by the same letter. Your task is to decrypt several encoded lines of text, assuming that each line uses a different set of replacements, and that all words in the decrypted text are from a dictionary of known words.

Input

The input consists of a line containing an integer n , followed by n lower case words, one per line, in alphabetical order. These n words comprise the dictionary of words which may appear in the decrypted text. Following the dictionary are several lines of input. Each line is encrypted as described above.

There are no more than 1000 words in the dictionary. No word exceeds 16 letters. The encrypted lines contain only lower case letters and spaces and do not exceed 80 characters in length.

Output

Decrypt each line and print it to standard output. If there is more than one solution, any will do. If there is no solution, replace every letter of the alphabet by an asterisk.

Sample Input

6

and

dick

jane

puff

spot

yertle

bjvg xsb hxs n xsb qymm xsb r qat xsb pnetfn

xxxx yy zzzz www yyyy aaa bbbb ccc ddddd

Sample Output

dick and jane and puff and spot and yertle

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