

# Careful Declaration

(problem given at CTU Open 2008)

“Do not panic!” That is not only the inscription on a famous book cover, but it is also a message that every bank needs to deliver to its clients during a crisis, however negligible that might be. If the clients started to panic, that would mean the end for the bank. To reassure people, banks and governments issue declarations stating that there is *really* nothing to worry about. However, it is very important that such declarations be consistent. In fact, it was decided that a bank and the government might formulate their declarations independently, but then those declarations would be merged into a single one that will be issued together. The problem is that both the bank and the government insist that the common declaration must contain the whole text of their original declaration.

Your task is to create a joint declaration for tonight’s press conference, making sure that the joint text contains all the words from the two original texts, in the same order, and also that the declaration is as short as possible.

## Input

The input contains several test cases, each consisting of two lines of text giving two original declarations, respectively. Both lines contain at least one and at most two thousand words separated by a space. The words are made of between one and ten lowercase letters of the English alphabet (a–z). There is a single dot (“.”) after the last word of each declaration, also preceded by one space. There is one additional line with a single dot after the last test case in the input.

## Output

Output a single line of text for each test case. The line should contain a sequence of words terminated by a single dot “.” all separated by a space. The sequence must have the following properties: (1) Both input texts are subsequences of the output text, i.e., all words of each original text appear in the output in the same order, although possibly interleaved by other words; (2) Among all such possible texts, the output must contain the smallest possible number of words; and (3) If there are multiple minimal-length texts, the output must be the lexicographically *smallest* one. A word  $w_1$  is lexicographically smaller than a word  $w_2$  if  $w_1$  would precede  $w_2$  in a regular dictionary, or more precisely, if either  $w_1$  is shorter and a prefix of  $w_2$ , or the  $i$ -th letter of  $w_1$  precedes the  $i$ -th letter of  $w_2$  in the alphabet, where  $i$  is the leftmost position in which  $w_1$  differs from  $w_2$ . Similarly, a text  $T_1$  is lexicographically smaller than a text  $T_2$ , if the leftmost words that are different in  $T_1$  and  $T_2$  are such that the word in  $T_1$  is lexicographically smaller than the one in  $T_2$ .

## Examples

### Sample input 1

```
all our banks are sound and safe .
all deposits in our bank are safe do not worry .
everything fine firmly under control .
deposits in bank abc are fine like nothing is .
.
```

### Sample output 1

```
all deposits in our bank banks are sound and safe do not worry .
deposits everything in bank abc are fine firmly like nothing is under control .
```

## **Limits**

Time limit is 6 seconds.

Memory limit is 1024 megabytes.