Compound Words

Write a program that reads a list of words from standard input and prints out a sorted list of all unique compound words that can be made by concatenating two different words from the input list. If the same compound word can be formed more than one way, it should only be listed once in the output.

Input

Input is a list of words separated by whitespace (spaces and / or newlines). There may be more than one word on each input line. Each word is a sequence of lowercase letters a - z. Input ends at end of file.

Output

Your program should print out the sorted list of all unique compound words, one per line.

Sample Input 1

```
a bb
ab b
```

Sample Output 1

```
aab
ab
aba
abb
abbb
ba
bab
bba
bbab
bbb
```