Shiritori
Problem ID: a10p04shiritori

Shiritori is a word game in which the players are required to say a word which begins with the final letter of the previous word. "Shiritori" literally means "taking the end".

For this problem, we will play a slightly different version of Shiritori. Keep a list l_1 of valid words and another list l_0 of invalid words. Whenever the user inputs a word that does not begin with the final letter of the last valid word, we will add it to l_0 and ask for another word. If the word does begin with the final letter of the last valid word, or if it is the first word, we will add it to l_1. The game ends when the user enters x. The program should convert all input into lowercase, so the comparison should be case-insensitive.

After the game ends, the program should print out l_1 and l_0. Note that the first word will never be x

Input

The input consists of at least two lines, each line containing one word.

A word is a defined as series of english letters, each word is composed of 1 to 100 letters.

Output

The output consists of two lines.

The first line contains all of the words in l_1, seperated by a space. It l_1 is empty, print an empty line.

The second line contains the all of the words in l_0, seperated by a space. If l_0 is empty, print an empty line.

All output should be lowercase.

Sample Input 1	Sample Output 1
shard deer word real league estranged eat tested dormant tandoori ymca improv vim x	shard deer real league estranged dormant tandoori improv vim word eat tested ymca

Sample Input 2

```
a
ab
abc
bc
cd
cc
cad
dx
xd
dg
areallylongwordthatslessthanonehundredcharactersasspecifiedbytheproblemstatementitsstillve
gorillagorillagorillagorilla
x
```

Sample Output 2

```
a ab bc cd dx xd dg gorillagorillagorillagorilla
abc cc cad areallylongwordthatslessthanonehundredcharactersasspecifiedbytheproblemstatemen
```

Sample Input 3

```
rajio
onigiri
risu
sumou
udon
x
```

Sample Output 3

```
rajio onigiri
risu sumou udon
```