# Problem A. Heshen’s Account Book

## Description

Jin Yong was the most famous and popular Chinese wuxia (The one who fight bad people by his Wukong i.e. Wushu and Kongfu) novelist who lived in Hong Kong. Between 1955 and 1972, he wrote 14 novels which earned him a reputation as one of the greatest and most popular Chinese writers. Over 100 million copies of his works have been sold worldwide，not including a countless number of pirated copies. Jin Yong’s works seem to have magic. Once you begin to read a novel of his, you just can’t stop until you finish it.

Last month, Jin Yong passed away at the age of 94. Many Jin Yong’s fans in PKU held a meeting to memorize him. Jin Yong’s fans always like to discuss or argue or even quarrel about whose Wukong are better among the wuxia characters of his novel. During the meeting, this happened again:

Every fans said some words like "Qiao Feng's Wukong is better than Guo Jing's". Obviously, those words may contradict each other and then cause quarrels. As a boring and girlfriendless male programmer of EECS school, you always want to make some things. So you are eager to point out the contradictions as soon as possible. That means, you want to find out the first one whose words contradict the words said by others before him.

Please note that if A is better than B, and B is better than C, then of course A must be better than C.

## Input

There are no more than 15 test cases.

For each test case:

The first line is an integer n( 1 <= n <=20), meaning that there are n sentences.

The following n lines are those n sentences which is in the format below:

s1 s2

This means someone said that s1's Wukong was better than s2's. Both s1 and s2 are names of Jin Yong's characters which consists of only English letters. It's guaranteed that s1 and s2 are different, and their length is no more than 30. Names are case sensitive.

## Output

For each test case, print the first sentence which cause a contradiction. If there are no contradiction, print 0 instead.

## Sample Input

```
2
BrokenReputation ExtinctNun
HelloLaught EnvelopeNotFlat
6
LandOverWind LonelyLight
FireMonk CutTheForest
CutTheForest LookCrazy
```

MakeFoxRush LetMeGo
HeroAunt UniqueLand
LookCrazy FireMonk

## Sample Output

0
LookCrazy FireMonk

## Hint

DON'T try to figure out who are those names in the sample and waste your time.

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# Problem B. Heshen's Account Book

## Description

Heshen was an official of the Qing dynasty. He made a fortune which could be comparable to a whole country's wealth by corruption. So he was known as the most corrupt official in Chinese history. But Emperor Qianlong liked, or even loved him so much that was not punished during Qianlong's regime even everybody knew he was totally corrupted.

After Qianlong quit his job, his son Jiaqing took the throne. The new Emperor hated Heshen very much, so he threw Heshen into jail and awarded him death immediately after Qianlong died. Of course Jiaqing would not forget to raid Heshen's house for money --- that was the story of "Heshen fell, Jiaqing full."

Jiaqing's man got a notebook from Heshen's home which was obviously an account book.But the text of the book was written in English! Jiaqing thought all numbers in that account book should stand for money. Please find out all numbers for Jiaqing.

The text of the account book consists only lower case letters, spaces, and digits ('0' – '9'). One or several consecutive digits form a number. But Jiaqing only cared about the ACTUAL numbers among all numbers. Only if a number DOESN'T satisfy any of the conditions below, it is an ACTUAL number:

1) The character to the left of the number is a lower case letter, for example: a123
2) The character to the right of the number is a lower case letter, for example: 123b
3) The number has one or more extra leading zeros, such as 01 , 0012….

Please note that if the last character of a line is a digit, and the first character of the next line is also a digit, those two digits are considered consecutive.

## Input

There are no more than 200 lines. The length of each line is no more than 1000 characters. And it is guaranteed that every number's length is no more than 18.

There may be spaces at the end of a line, and those spaces matter.

No blank lines in the input. A line consisting of only spaces is not a blank line.

## Output

Print all ACTUAL numbers in a single line in the original order.

Then, count the number of ACTUAL numbers of each line, and print them. A number X only belongs to the line which contains the first digit of X.

## Sample Input

```
a19 01 17b
12 bdc 13
23 14 344 bc
```

## Sample Output

12 1323 14 344
0
2
2

## Sample Explanation

We assume there is no spaces at the end of each line in the Sample Input.

In the sample input, the '3' at the end of the second line and the '2' at the beginning of the third line are considered consecutive, so "1323" is a number. But this number only belongs to the second line, so the third line has only 2 numbers —— 14 and 344..