

An anagram is a word or phrase formed by rearranging the letters of another word or phrase. For example, “**carthorse**” is an anagram of “**orchestra**”. Blanks within a phrase are ignored in forming anagrams. Thus, “**orchestra**” and “**horse cart**” are also anagrams.

Write a program that reads a list of phrases and prints all pairs of anagrams occurring in the list.

Input

The input file will contain a single integer at the first line of the input, indicate the number of test case you need to test followed by a blank line.

Each test case will consist of from 1 to 100 lines. A completely empty or blank line signals the end of input. Each line constitutes one phrase.

Output

For each test case, output some number of lines (including possibly 0 if there are no anagrams in the list), each line containing two anagrammatic phrases separated by ‘=’.

Each anagram pair should be printed exactly once, and the order of the two phrases within a printed pair must be lexicographic, as well as the first phrases and the second ones in case some first are equal.

Two consecutive outputs for two consecutive input cases are separated by a single blank line.

Sample Input

```
1

carthorse
horse
horse cart
i do not know u
ok i now donut
orchestra
```

Sample Output

```
carthorse = horse cart
carthorse = orchestra
horse cart = orchestra
i do not know u = ok i now donut
```