CERC Plaques (c)

Memory limit: 1024 MB Time limit: 1.00 s

CERC 2024 in Wroclaw is approaching, and all hands are on deck to help with organization. Even Wroclaw's dwarfs are helping! As a member of the organizing committee, each dwarf was given a plaque, so everyone can identify him. Dwarfs are very creative creatures, so each of them came up with an unique *nickname* that they want to be displayed on the plaque. A nickname is correct if its first four letters match with first four letters of the dwarf's name (we treat lowercase and uppercase letters as different). For example, dwarf Mathew can have a plaque that reads `Mathy`, but he can not have a plaque that reads `Matty` or `MATHY`.

Dwarf the Sloppy printed the plaques. Since he is, well, sloppy, he made no notes which plaque is whose. To make things worse, some of the plaques may contain errors. Help Sloppy to figure out which plaque belongs to whom: You will be given the list of all the dwarfs' names and the list of all nicknames on the plaques. Write a program which decides whether there exists an assignment of the plaques to the names such that the plaque contains a proper nickname of the assigned name. If such an assignment exists, your program should also print it.

Input

The first line of the input contains a single integer N, the number of dwarfs. Each of the following N lines contains a single dwarf's name, which is a string of lowercase and uppercase English letters.

Each of the following N lines contains a single nickname written on a plaque, which is a string of lowercase and uppercase English letters.

Output

The first line of output should contain a single word – `YES` if the assignment described above is possible and `NO` if there is no such an assignment.

If the answer is `YES`, then the following N lines should contain the correct assignment: Each of the lines should contain the name of the dwarf and the nickname assigned to him, separated by a single space. If there are many possible assignments, print any of them.

Limits

$1 \leq N \leq 100\,000$, each name and nickname contains at least 4 and at most 400 000 letters, the sum of all lengths of the names and the sum of all lengths of nicknames does not exceed 400 000, it is guaranteed that no name and no nickname appears twice.

Examples

Input	Output
3 Writy Buggy Solvy Bogg Write Solvy	NO

Input	Output
4 Slopy Mathy Thinky Cody Thinky Math Slopppy Codythesecond	YES Cody Codythesecond Mathy Math Slopy Slopppy Thinky Thinky