

F Mascot Naming

When organizing a big event, organizers often handle side tasks outside their expertise. For example, the chief judge of EUC 2025 must find a name for the event's official mascot while satisfying certain constraints:

- The name must include specific words as subsequences*, such as the event name and location. You are given the list $s_1, s_2, \ldots, s_n$ of the n required words.
- The name must not contain as a subsequence* the name t of last year's mascot.

Please help the chief judge find a valid mascot name or determine that none exists.

* A string x is a *subsequence* of a string y if x can be obtained from y by erasing some characters (at any positions) while keeping the remaining characters in the same order. For example, `abc` is a subsequence of `axbycz` but not of `acbxyz`.

Input

The first line contains an integer n ($1 \le n \le 200\,000$) — the number of words that shall appear as subsequences.

The i-th of the following n lines contains the string s_i ($1 \le |s_i| \le 200\,000$, s_i consists of lowercase English letters) — the i-th word in the list of words that shall appear as subsequences. The total length of these n words is at most 200 000, i.e., $|s_1| + |s_2| + \cdots + |s_n| \le 200\,000$.

The last line contains the string t ($1 \le |t| \le 200\,000$, t consists of lowercase English letters) — the name of last year's mascot.

Output

Print `YES` if there is a valid name for the mascot. Otherwise, print `NO`.

If there is a valid name, on the next line print a valid name. The string you print must have length at most 1 000 000 and must consist of lowercase English letters. One can prove that if a valid name for the mascot exists, then there is one satisfying these additional constraints.

If there are multiple solutions, print any of them.

Samples

Sample input 1	Sample output 1
2 porto euc prague	YES poretuco

Explanation of sample 1.
The words that must appear as subsequences are `porto` and `euc`, while the word that must not appear as a subsequence is `prague`. There are many valid names for the mascot, e.g., `poretuco` or `xxxpppeortoucyyyy`.

If `poretuco` is chosen as the name of the mascot, observe that `porto` and `euc` are subsequences (highlighted in `PORe TucO` and `porEtUCo`, respectively), while `prague` is not, as desired.

The string `poretuc` is not a valid mascot name because it does not contain the word `porto` as a subsequence. Also the string `poretucoague` is not a valid mascot name because it contains `prague` as a subsequence.

Sample input 2	Sample output 2
6 credit debit money rich bank capitalism trap	YES moncrdebditeychankpitalism

Sample input 3	Sample output 3
2 axiom choice io	NO

Sample input 4	Sample output 4
4 aaa aab abb bbb ba	YES aaabbb