

B. Substrings Sort

time limit per test: 1 second

memory limit per test: 256 megabytes

input: standard input

output: standard output

You are given n strings. Each string consists of lowercase English letters. Rearrange (reorder) the given strings in such a way that for every string, all strings that are placed before it are its *substrings*.

String a is a *substring* of string b if it is possible to choose several *consecutive* letters in b in such a way that they form a . For example, string "for" is contained as a *substring* in strings "codeforces", "for" and "therefore", but is not contained as a *substring* in strings "four", "fofo" and "rof".

Input

The first line contains an integer n ($1 \leq n \leq 100$) — the number of strings.

The next n lines contain the given strings. The number of letters in each string is from 1 to 100, inclusive. Each string consists of lowercase English letters.

Some strings might be equal.

Output

If it is impossible to reorder n given strings in required order, print "NO" (without quotes).

Otherwise print "YES" (without quotes) and n given strings in required order.

Examples

input
5 a aba abacaba ba aba
output
YES a ba aba aba abacaba

input
5 a abacaba ba aba abab
output
NO

input
3 qwerty

qwerty qwerty
output
YES qwerty qwerty qwerty

Note

In the second example you cannot reorder the strings because the string "abab" is not a *substring* of the string "abacaba".