Period of a String

Input file:	*standard input*
Output file:	*standard output*
Time limit:	1 second
Memory limit:	1024 mebibytes

Randias has n strings $s_1, s_2, \ldots, s_n$.

For two strings $a = \overline{a_0 a_1 \ldots a_{p-1}}$ and $b = \overline{b_0 b_1 \ldots b_{q-1}}$, if for all i $(0 \le i < q)$, $b_i = a_{i \bmod p}$, we say that a is a period of b.

Now, Randias can perform the following operation:

- Choose one string s_i and choose two indices j and k $(0 \le j, k < |s_i|)$, then swap $s_{i,j}$ and $s_{i,k}$.

He can perform this operation **any** number of times. After all the operations, he wants the following to be true: for each $1 < i \le n$, string s_{i-1} is a period of s_i.

Help him to find the possible final strings, or determine it is impossible.

Input

Each test contains multiple test cases. The first line contains a single integer t $(1 \le t \le 10^4)$ denoting the number of test cases. For each test case:

The first line contains a single integer n $(1 \le n \le 10^5)$.

Then follow n lines. The i-th of these lines contains the string s_i $(1 \le |s_i| \le 5 \cdot 10^6)$. It is guaranteed that the strings only contain lowercase English letters.

It is guaranteed that the sum of n does not exceed 10^5, and the sum of $|s_i|$ does not exceed $5 \cdot 10^6$.

Output

For each test case, if it is possible to make s_{i-1} a period of s_i for all i after some operations, output "`YES`" (without quotes) on the first line. Then output n strings in n lines. The i-th string s'_i represents the i-th string after all operations. If there are multiple answers, output any one of them.

If it is impossible to do that, output "`NO`" (without quotes) on the first line.

Example

standard input	*standard output*
4 2 abc abcd 4 bbcaa cabb acabbbb a 3 ab aab bbaaaaab 3 ab aab bbaaaaaa	NO YES abbca abbc abbcabb a YES ab aba abaabaab NO