# Problem E. 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<br>2<br>abc<br>abcd<br>4<br>bbcaa<br>cabb<br>acabbbb<br>a<br>3<br>ab<br>aab<br>bbaaaaab<br>3<br>ab<br>aab<br>bbaaaaaa | NO<br>YES<br>abbca<br>abbc<br>abbcabb<br>a<br>YES<br>ab<br>aba<br>abaabaab<br>NO |