Powers of words P83564_en

Let t be a string and k be a natural number. We define t^k as the result of concatening t exactly k times. For instance, the third power of "`abbc`" is "`abbcabbcabbc`".

Given a string s, rearrange its letters so that the result is the k-th power of some string t, where $k \geq 2$.

Input

Input consists of several strings, each with between 2 and 10^5 lowercase letters.

Output

For each given string, print a way to rearrange its letters so that the result is t^k, for some string t and some $k \geq 2$. If there is more than one solution, choose the alphabetically largest. If there is no solution, print "`NO`".

Sample input 1

```
abba
xyz
ww
oppoop
aaaaaaaaiiii
```

Sample output 1

```
baba
NO
ww
popopo
iiaaaaiiaaaa
```

Problem information

Author: Salvador Roura

Generation: 2026-01-25T12:00:14.494Z