Powers of words P83564_en

Vint-i-unè Concurs de Programació de la UPC - Semifinal (2023-06-28)

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

```
abba
xyz
ww
oppoop
aaaaaaaaiiii
```

Sample output

```
baba
NO
ww
popopo
iiaaaaiiaaaa
```

Problem information

Author : Salvador Roura
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