

A. Mike and Fax

time limit per test: 1 second

memory limit per test: 256 megabytes

input: standard input

output: standard output

While Mike was walking in the subway, all the stuff in his back-bag dropped on the ground. There were several fax messages among them. He concatenated these strings in some order and now he has string s .

He is not sure if this is his own back-bag or someone else's. He remembered that there were exactly k messages in his own bag, each was a *palindrome* string and all those strings had the same length.

He asked you to help him and tell him if he has worn his own back-bag. Check if the given string s is a concatenation of k *palindromes* of the same length.

Input

The first line of input contains string s containing lowercase English letters ($1 \leq |s| \leq 1000$).

The second line contains integer k ($1 \leq k \leq 1000$).

Output

Print "YES"(without quotes) if he has worn his own back-bag or "NO"(without quotes) otherwise.

Examples

input
saba 2
output
NO

input
saddastavvat 2
output
YES

Note

Palindrome is a string reading the same forward and backward.

In the second sample, the faxes in his back-bag can be "saddas" and "tavvat".