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 ($1 \le |s| \le 1000$).

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

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
saddastawat 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".

Codeforces Round #305 (Div. 2)
Finished

→ Virtual participation

Virtual contest is a way to take part in past contest, as close as possible to participation on time. It is supported only ACM-ICPC mode for virtual contests. If you've seen these problems, a virtual contest is not for you - solve these problems in the archive. If you just want to solve some problem from a contest, a virtual contest is not for you - solve this problem in the archive. Never use someone else's code, read the tutorials or communicate with other person during a virtual contest.

Start virtual contest

→ Problem tags

brute force implementation

No tag edit access

→ Contest materials

- Announcement
- Tutorial