

E. HQ

time limit per test: 2 seconds
memory limit per test: 256 megabytes
input: standard input
output: standard output

The famous joke programming language HQ9+ has only 4 commands. In this problem we will explore its subset — a language called HQ...

Input

The only line of the input is a string between 1 and 10^6 characters long.

Output

Output "Yes" or "No".

Examples

input
HHHH
output
Yes

input
HQHQH
output
No

input
HHQHHQH
output
No

input
HHQQHHQQHH
output
Yes

Note

The rest of the problem statement was destroyed by a stray raccoon. We are terribly sorry for the inconvenience.