A. Flea travel

A flea is sitting at one of the n hassocks, arranged in a circle, at the moment. After minute number k the flea jumps through k - 1 hassocks (clockwise). For example, after the first minute the flea jumps to the neighboring hassock. You should answer: will the flea visit all the hassocks or not. We assume that flea has infinitely much time for this jumping.

Input

The only line contains single integer: $1 \le n \le 1000$ — number of hassocks.

Output

Output "YES" if all the hassocks will be visited and "NO" otherwise.

Examples

input
1

output
YES

input
3

output
NO