

Problem F. Forbidden Puzzle

Input file: *standard input*
Output file: *standard output*
Time limit: 1 second
Memory limit: 512 mebibytes

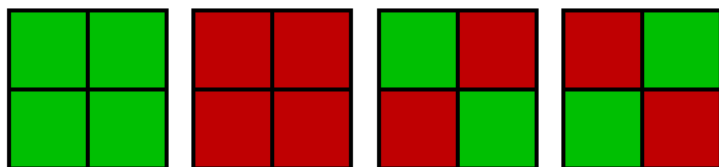
In this task you are asked to determine if a puzzle has at least one valid solution.

The puzzle contains an $N \times N$ grid. Initially, $4N - 4$ cells on the edge are colored either red or green, and the other cells are colored white. Each segment that divides two adjacent white cells are colored either black or gray.

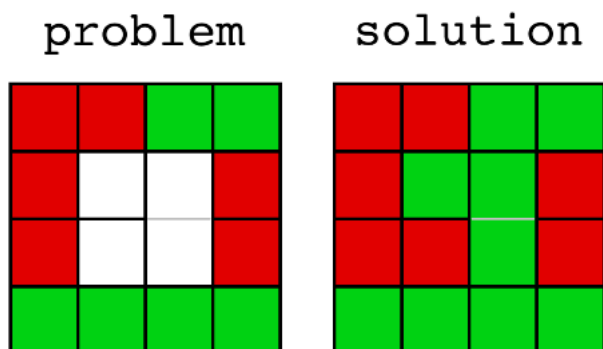
In order to solve this puzzle, you must color each white cell with red or green such that:

- Two adjacent cells that are separated by a gray line must be colored with the same color.
- The final grid must not contain “forbidden patterns”.

There are four forbidden patterns. They are shown in the picture below:



The following picture shows one possible problem of the puzzle and a valid solution:



You are given the information of the puzzle as follows. The cell that is the i -th from the top and the j -th from the left is labelled as (i, j) . For each edge cell (i, j) , $s_{i,j}$ is either ‘o’ or ‘x’, and these characters represent green and red, respectively. For each non-edge cell (i, j) , $s_{i,j}$ is an uppercase letter. If two adjacent non-edge cells are labeled with the same character, they are separated by a gray line. Otherwise they are separated by a black line.

Determine whether the given puzzle has at least one solution.

Input

N
 $s_{1,1} \dots s_{1,N}$
 \vdots
 $s_{N,1} \dots s_{N,N}$

- $3 \leq N \leq 30$
- If (i, j) is one of the $4N - 4$ edge cells, $s_{i,j}$ is either ‘o’ or ‘x’.

- If (i, j) is not an edge cell, $s_{i,j}$ is an uppercase letter.

Output

If the puzzle has at least one valid solution, print “YES”. Otherwise print “NO”.

Example

standard input	standard output
5 ooxx oBABx oABAx xBABo xooxx	NO