## Problem C. LaLa and Lamp

| Input file: | standard input |
| :--- | :--- |
| Output file: | standard output |
| Time limit: | 3 seconds |
| Memory limit: | 1024 megabytes |

When LaLa laid down on her pet Leo's back to fall asleep, she noticed that the lamp is all messed up, which must have been the act of her sister LiLi.

The lamp can be modeled as a regular triangular grid where each cell contains a bulb which is either on or off.

LaLa wants to turn off the lamp (that is, set the state of all bulbs to off). LaLa can pick any of the three directions parallel to the side of a lamp, pick any row parallel to that direction, and then flip the state of all the bulbs in the row (on to off and off to on) with her magic. LaLa also could just walk over to the lamp and manually turn every bulb off, but she would prefer not to.

Write a program that determines whether LaLa can turn off the lamp with her magic.

## Input

The input is given in the following format:

| $N$ |
| :---: |
| $S_{0}$ |
| $S_{1}$ |
| $\vdots$ |
| $S_{N-1}$ |

where $N$ is the number of bulbs in a side of the lamp, and $S_{i}$ is the binary string of length $i+1$ representing the initial states of bulbs in the $i$-th row, where the $j$-th character of $S_{i}$ is ' 1 ' if and only if the $j$-th bulb is on.
The input satisfies the following constraint:

- $N$ is an integer.
- $2 \leq N \leq 2000$


## Output

If LaLa can turn off the lamp with magic, print a single string "Yes". Otherwise, print a single string "No". You may print each character in either case (lower or upper).

## Example

|  | standard input | standard output |
| :--- | :--- | :--- |
| 6 | Yes |  |
| 0 |  |  |
| 00 |  |  |
| 000 |  |  |
| 0110 |  |  |
| 00100 |  |  |

## Note

The following illustrates a sequence of magic LaLa should cast to turn off the lamp given in the sample. Empty circles denote the bulbs that are off, yellow circles denote the bulbs that are on, and red line is the choosen row for magic.

| $\begin{gathered} \text { stapo } \\ 00 \\ 000 \\ 0000 \\ 000000 \end{gathered}$ | $\begin{gathered} \operatorname{steq} 1 \\ 00 \\ 000 \\ 0000 \\ 00000 \\ 000000 \end{gathered}$ |  |
| :---: | :---: | :---: |
|  |  |  |

