

# Wooden Matrix

Input file: *standard input*  
Output file: *standard output*  
Time limit: 2 seconds  
Memory limit: 512 mebibytes

Consider a square matrix of size  $n \times n$  consisting of non-negative integers. The matrix is symmetric with respect to the main diagonal, and the main diagonal itself contains only zeroes. Such a matrix is called *wooden* if there is an undirected tree  $T$  on  $n$  vertices with edges of positive lengths such that each cell  $(i, j)$  of the matrix contains the distance between vertices  $i$  and  $j$  in this tree.

You are given a matrix. Check if it is wooden.

## Input

The first line contains an integer  $n$ : the size of the matrix ( $1 \leq n \leq 1000$ ). Each of the following  $n$  lines contains  $n$  integers  $d_{i,j}$ : the elements of the matrix ( $0 \leq d_{i,j} \leq 10^9$ ). The matrix is symmetric with respect to the main diagonal. There are zeros on the main diagonal and strictly positive integers outside it.

## Output

Print “Yes” or “No” depending on whether the matrix is wooden. Letter case does not matter.

## Examples

<i>standard input</i>	<i>standard output</i>
3 0 1 3 1 0 2 3 2 0	Yes
3 0 1 3 1 0 1 3 1 0	No