CCSC:MW Programming Competition

Symmetricity of Puzzle

Who doesn't like symmetric puzzle? But how to check it?

You can align the center of the puzzle with the (0, 0) or origin of Cartesian plane. Let's assume the cells of the puzzle is represented by a binary matrix of size **N x N** where **1** indicates that the cell is colored and **0** indicates no color.

For instance: Take a 5x5 matrix as follows:

01110
01010
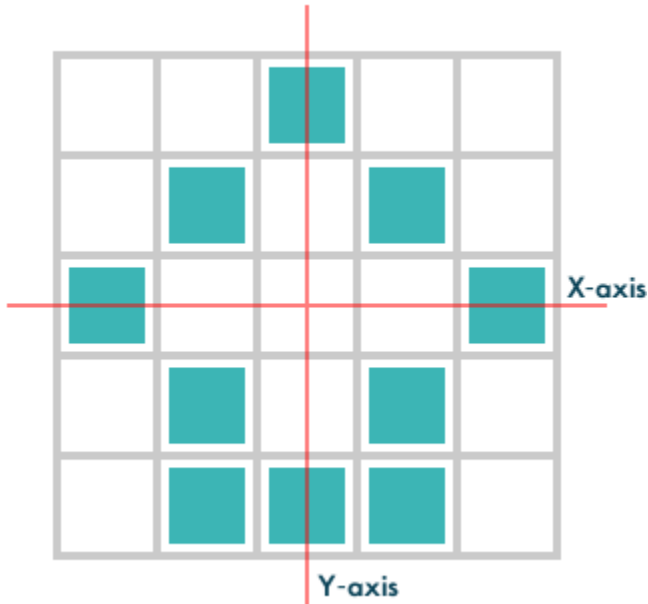10001
01010
01110

Graphically it is represented as follows:
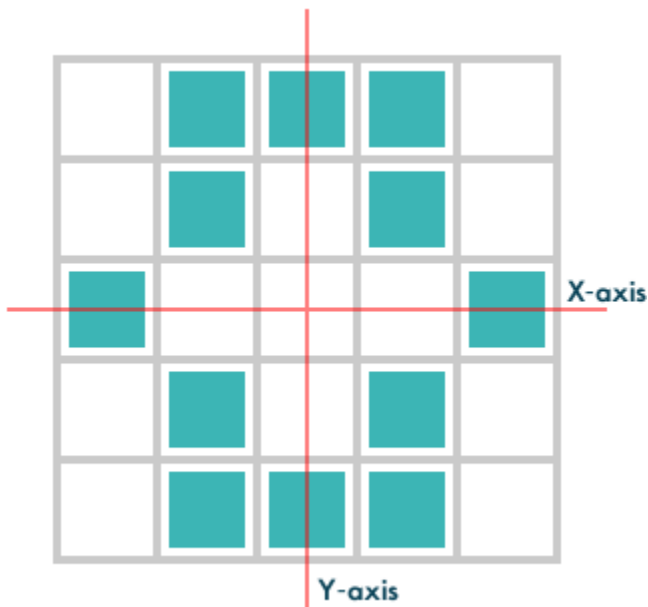
We can see that the puzzle is symmetric about both X-axis and Y-axis.

Let's take another example of 5x5 matrix:

00100
01010
10001
01010

01110

Graphically it is represented as follows:

Though this puzzle is symmetric about Y-axis but it is **not symmetric** about X-axis and hence the puzzle is not symmetric.

Input

First line contains **T** - number of test cases.
T test cases follow.
First line of each test case contains the **N** - size of matrix.
Next N lines contains **binary strings** of length **N**

Output

Print **YES (**if the puzzle is symmetric**)** or **NO** (if the puzzle is not symmetric) in a new line for each test case

Example 1

Input:

5
2
11
11
4
0101
0110
0110

0101
4
1001
0000
0000
1001
5
01110
01010
10001
01010
01110
5
00100
01010
10001
01010
01110

Output:

YES
NO
YES
YES
NO