

Problem K. Sudoku

Input: Standard
Output: Standard
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My friend Gerson loves to resolve sudokus. A sudoku is a numeric puzzle formed by a grid of $n \times n$, divided in n grids of $\sqrt{n} \times \sqrt{n}$. Every row, column and grid must contain all the numbers from 1 to n , without repeat. Gerson can resolve 20 sudokus per day, the problem is that 19 of them are wrong. Can you make a program that given the solutions found by Gerson tell him if they are wrong or right?

Input

The first line of input contains a integer t , the number of test cases. Each case begins with an integer n ($1 \leq n \leq 25$), it is guaranteed that n have a square root. This line is followed by n lines, each one with n numbers $m_{i,j}$ separated by a blank space ($1 \leq m_{i,j} \leq n$, with $1 \leq i, j \leq n$).

Output

For each test case prints a single line with the word “yes” if the sudoku has been resolved correctly or “no” otherwise.

Example

Input	Output
2	yes
4	no
1 2 3 4	
3 4 1 2	
2 3 4 1	
4 1 2 3	
9	
1 2 3 4 5 6 7 8 9	
2 3 4 5 6 7 8 9 1	
3 4 5 6 7 8 9 1 2	
4 5 6 7 8 9 1 2 3	
5 6 7 8 9 1 2 3 4	
6 7 8 9 1 2 3 4 5	
7 8 9 1 2 3 4 5 6	
8 9 1 2 3 4 5 6 7	
9 1 2 3 4 5 6 7 8	