

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 an 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.

Sample Input

```
2
4
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
```

Sample Output

```
yes
no
```