Campus Test
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Practice Mode

Round B China New Grad Test 2014

- Submissions

Sudoku Checker

5pt	Not attempted **1471/2010 users** correct (73%)
9pt	Not attempted **1146/1443 users** correct (79%)

Meet and party

9pt	Not attempted **496/823 users** correct (60%)
15pt	Not attempted **47/409 users** correct (11%)

Hex

12pt	Not attempted **19/260 users** correct (7%)
13pt	Not attempted **14/18 users** correct (78%)

Dragon Maze

8pt	Not attempted **336/594 users** correct (57%)
12pt	Not attempted **229/330 users** correct (69%)

Ignore all my comments

17pt	Not attempted

Problem A. Sudoku Checker

This contest is open for practice. You can try every problem as many times as you like, though we won't keep track of which problems you solve. Read the Quick-Start Guide to get started.

Small input 5 points	Solve A-small
Large input 9 points	Solve A-large

Problem

Sudoku is a popular single player game. The objective is to fill a 9x9 matrix with digits so that each column, each row, and all 9 non-overlapping 3x3 sub-matrices contain all of the digits from 1 through 9. Each 9x9 matrix is partially completed at the start of game play and typically has a unique solution.

5	3			7				
6			1	9	5			
	9	8					6	
8				6				3
4			8		3			1
7				2				6
	6					2	8	
			4	1	9			5
				8			7	9

	217/469 users correct (46%)
0pt	Not attempted **67/71 users** correct (94%)

Top Scores	
TankEngineer	100
Nekosyndrome	100
l521530	100
W.Junqiao	100
LTzycLT	100
iloahz	100
drazil	87
navi	85
wishstudio	85
redsniper	76

5	3	4	6	7	8	9	1	2
6	7	2	1	9	5	3	4	8
1	9	8	3	4	2	5	6	7
8	5	9	7	6	1	4	2	3
4	2	6	8	5	3	7	9	1
7	1	3	9	2	4	8	5	6
9	6	1	5	3	7	2	8	4
2	8	7	4	1	9	6	3	5
3	4	5	2	8	6	1	7	9

Given a completed $\mathbf{N^2}$x$\mathbf{N^2}$ Sudoku matrix, your task is to determine whether it is a *valid* solution. A *valid* solution must satisfy the following criteria:

- Each row contains each number from **1** to $\mathbf{N^2}$, once each.
- Each column contains each number from **1** to $\mathbf{N^2}$, once each.
- Divide the $\mathbf{N^2}$x$\mathbf{N^2}$ matrix into $\mathbf{N^2}$ non-overlapping **N**x**N** sub-matrices. Each sub-matrix contains each number from **1** to $\mathbf{N^2}$, once each.

You don't need to worry about the uniqueness of the problem. Just check if the given matrix is a valid solution.

Input

The first line of the input gives the number of test cases, **T**. **T** test cases follow. Each test case starts with an integer **N**. The next $\mathbf{N^2}$ lines describe a completed Sudoku solution, with each line contains exactly $\mathbf{N^2}$ integers. All input integers are positive and less than 1000.

Output

For each test case, output one line containing "Case #x: y", where x is the case number (starting from 1) and y is "Yes" (quotes for clarity only) if it is a valid solution, or "No" (quotes for clarity only) if it is invalid. Note that the judge is case-sensitive, so answers of "yes" and "no" will not be accepted.

Limits

$1 \leq \mathbf{T} \leq 100$.

Small dataset

N = 3.

Large dataset

3 ≤ **N** ≤ 6.

Sample

Input	Output
3 3 5 3 4 6 7 8 9 1 2 6 7 2 1 9 5 3 4 8 1 9 8 3 4 2 5 6 7 8 5 9 7 6 1 4 2 3 4 2 6 8 5 3 7 9 1 7 1 3 9 2 4 8 5 6 9 6 1 5 3 7 2 8 4 2 8 7 4 1 9 6 3 5 3 4 5 2 8 6 1 7 9 3 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 3 5 3 4 6 7 8 9 1 2 6 7 2 1 9 5 3 4 8 1 9 8 3 4 2 5 6 7 8 5 9 7 6 1 4 2 3 4 2 6 8 999 3 7 9 1 7 1 3 9 2 4 8 5 6 9 6 1 5 3 7 2 8 4 2 8 7 4 1 9 6 3 5 3 4 5 2 8 6 1 7 9	Case #1: Yes Case #2: No Case #3: No