

Round B China New Grad Test 2014

A. Sudoku Checker[B. Meet and party](#)[C. Hex](#)[D. Dragon Maze](#)[E. Ignore all my comments](#)[Questions asked](#)

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 216/468 users correct (46%)
0pt	Not attempted

Top Scores

TankEngineer	100
Nekosyndrome	100
I521530	100
W.Junqiao	100
LTzycLT	100
iloahz	100
drazil	87
navi	85
wishstudio	85
redsniper	76

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

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 $N^2 \times N^2$ 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 N^2 , once each.
- Each column contains each number from **1** to N^2 , once each.
- Divide the $N^2 \times N^2$ matrix into N^2 non-overlapping $N \times N$ sub-matrices. Each sub-matrix contains each number from **1** to 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 N^2 lines describe a completed Sudoku solution, with each line contains exactly 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

$1 \leq T \leq 100$.

Small dataset

N = 3.

Large dataset

$3 \leq \mathbf{N} \leq 6$.

Sample

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

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