

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 B. Meet and party

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
9 points

Solve B-small

Large input
15 points

Solve B-large

Problem

Little Sin lives in a Manhattan-grid city, a 2D plane where people can only go north, west, south or east along the grid. The distance from (x_1, y_1) to (x_2, y_2) is $|x_1 - x_2| + |y_1 - y_2|$.

Little Sin really likes to party and is hoping to host a house party in Manhattan this Sunday. Little Sin has collected a list of people who will attend, and now needs to decide at whose home she will host the party.

Little Sin invited all of the people in several rectangular areas, and all of those people have said yes. A rectangular area is denoted as (x_1, y_1, x_2, y_2) , where $x_1 \leq x_2$, $y_1 \leq y_2$. People who live in a rectangular area fill all integral points inside it. So there are a total of $(x_2 - x_1 + 1) * (y_2 - y_1 + 1)$ people in the rectangular area (x_1, y_1, x_2, y_2) .

Little Sin knows the coordinates of those rectangular areas. She wants the party to be hosted at the home of one of the people who is attending, but she also doesn't want everyone else to have to travel very far: she wants to minimize the sum of all distances from all attendees' houses to the party. Can you help her?

Input

The first line of the input gives the number of test cases, **T**. **T** test cases follow. Each test case starts with a line containing a single integer: the number of rectangular areas, **B**. **B** lines follow. Each line contains 4 integers: x_1 , y_1 , x_2 , y_2 , denoting the coordinates of a rectangular area of people Little Sin has invited to her party.

Output

For each test case, output one line containing "Case #t: x y d", where t is the case number (starting from 1) and (x, y) is the coordinates of the person whose home the party should be hosted. If there are multiple positions with the same minimum total distance, choose the one with the smallest x. If there are still multiple positions, choose the one with the smallest y. The value d is the sum of the distances from all attendees' houses to the point (x, y) .

Limits

 $1 \leq T \leq 10$. $|x_1|, |y_1|, |x_2|, |y_2| \leq 10^9$. $x_1 \leq x_2, y_1 \leq y_2$.

The rectangular areas within a test case don't intersect.

Small dataset

 $1 \leq B \leq 100$. $1 \leq \text{Total number of people in each test case} \leq 1000$.

Large dataset

 $1 \leq B \leq 1000$. $1 \leq \text{Total number of people in each test case} \leq 1000000$.

Sample

Input	Output
2	Case #1: 1 1 12
1	Case #2: -1 2 6
0 0 2 2	
3	
-1 2 -1 2	
0 0 0 0	
1 3 1 3	

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