

Round 3 2009

[A. EZ-Sokoban](#)

[B. Alphabetomials](#)

C. Football Team

[D. Interesting Ranges](#)

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Submissions

EZ-Sokoban

7pt	Not attempted 231/262 users correct (88%)
10pt	Not attempted 158/219 users correct (72%)

Alphabetomials

4pt	Not attempted 186/225 users correct (83%)
20pt	Not attempted 37/71 users correct (52%)

Football Team

8pt	Not attempted 36/138 users correct (26%)
19pt	Not attempted 16/36 users correct (44%)

Interesting Ranges

9pt	Not attempted 24/41 users correct (59%)
23pt	Not attempted 1/3 users correct (33%)

Top Scores

bmerry	77
qizichao	77
winger	68
Ahyangyi	68
misof	50
rem	50
kia	50
mystic	50
marek.cygan	50
dzhulgakov	50

Problem C. Football Team

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 8 points	<div>Solve C-small</div>
Large input 19 points	<div>Solve C-large</div>

Problem

A football team will be standing in rows to have a photograph taken. The location of each player will be given by two integers x and y , where y gives the number of the row, and x gives the distance of the player from the left edge of the row. The x values will be all different.

In order to make the photo more interesting, you're going to make sure players who are near each other have shirts of different colors. To do this, you set the following rule:
For each player P :

- The closest player to the right of P in the same row, if there is such a player, must have a different shirt color.
- The closest player to the right of P in the previous row, if there is such a player, must have a different shirt color.
- The closest player to the right of P in the next row, if there is such a player, must have a different shirt color.

More formally, if there is a player at (x_1, y_1) and (x_2, y_2) , where $x_1 < x_2$, then those two players must have different shirt colors if:

- $y_1 - 1 \leq y_2 \leq y_1 + 1$, and
- there is no x_3 such that there is a player at (x_3, y_2) and $x_1 < x_3 < x_2$.

Find the minimum number of distinct shirt colors required so that this is possible.

Input

The first line of input contains a single integer T , the number of test cases. Each test case starts with a line that contains an integer N , the number of players, followed by N lines of the form

x y

each specifying the position of one player.

Output

For each test case, output

Case #X: c

where X is the test case number, starting from 1, and c is the minimum number of colors required.

Limits

$1 \leq T \leq 100$
 $1 \leq x \leq 1000$
The values of x will all be different.

Small dataset

$1 \leq y \leq 15$
 $1 \leq N \leq 100$

Large dataset

$1 \leq y \leq 30$
 $1 \leq N \leq 1000$

Sample

Input	Output
3	Case #1: 1
3	Case #2: 2

```
10 10 Case #3: 3
8 15
12 7
5
1 1
2 1
3 1
4 1
5 1
3
1 1
2 2
3 1
```

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