Problem A. Mr. Panda and Dominoes

Input file:	`standard input`
Output file:	`standard output`
Time limit:	12 seconds
Memory limit:	256 megabytes

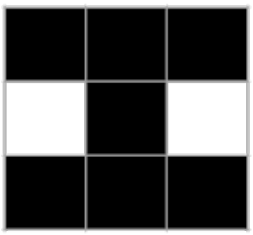
Mr. Panda likes creating and solving mathematical puzzles. One day, Mr. Panda came up with a puzzle when he was playing dominoes.

In a grid that consists of an infinite number of rows and columns, all cells are white except **N** given cells which are colored black. Mr. Panda wants to know how many dominoes there are in the gird.

A domino is a rectangle that meets the following requirements.

- The domino is formed of a continuous subset of the rows and columns of the grid.
- The domino has at least 1 row and 1 column.
- The cells on the edge of the domino are black. It means the topmost row, the bottommost row, the leftmost column and the rightmost column only consist of black cells.
- The aspect ratio of the domino is 2 : 1 or 1 : 2. It means, if the domino has k columns, it should have either $2k$ rows or $\frac{k}{2}$ rows (k is an even number in this case).

For example, in the chart below, the 3×3 grid on the left contains 6 dominos (4 dominos of 1×2 and 2 dominos of 2×1), and the 3×6 grid on the right contains 15 dominos (10 dominos of 1×2, 4 dominos of 2×1 and a domino of 3×6).



Because the grid is huge, Mr. Panda is too lazy to count the number of dominoes. Could you please help Mr. Panda find how many dominoes there are in the gird?

Input

The first line of input gives the number of test cases, **T**. **T** test cases follow.

Each test case starts with a line consists of an integer - **N**, the number of black cells in the gird.

Then, **N** lines follow. Each line consists of 2 integers $\mathbf{R_i}$ and $\mathbf{C_i}$, indicating row and column of a black cell in the grid.

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

$1 \leq \mathbf{N} \leq 1,000,000$

$1 \leq \mathbf{R_i}, \mathbf{C_i} \leq 1,000,000,000$

$\sum \mathbf{N} \leq 5,000,000$ over all test cases

For each test, no two black cells are in the same position

Output

For each test case, output one line containing "Case #x: y", where x is the test case number (starting from 1) and y is the number of dominos that Mr. Panda wants to know for the i-th input data set.

Example

standard input	standard output
2 7 1 1 1 2 1 3 2 2 3 1 3 2 3 3 14 1 1 1 2 1 3 1 4 1 5 1 6 2 1 2 6 3 1 3 2 3 3 3 4 3 5 3 6	Case #1: 6 Case #2: 15