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Avoiding Overlaps

Input: Standard Input
Output: Standard Output

Given N regular rectangles in a sequence. Following this sequence you have to draw every rectangles if it does not overlap with any rectangle which has been drawn already. Calculate the total area of drawn rectangles.

Note: A rectangle is regular if and only if it's sides are all parallel to the axis.

Input

The first line of the input contains the number of test cases T ($1 \leq T \leq 100$). Each case starts with a single line containing N($0 \leq N \leq 10000$), the number of rectangles in the sequence. Next N lines will represent the sequence of rectangles. Each of the next N lines will represent one rectangle having four integers x1, y1, x2, y2 (-100 < x1, y1, x2, y2 < 100, x1<x2, y1<y2), here (x1, y1) is the lower left corner of the rectangle and (x2, y2) is the upper right corner of the rectangle.

Output

For each test case, print the case number and a single integer, the total area covered by rectangles you drew.

Sample Input

Sample Input	Output for Sample Input
1 3 -1 -1 1 1 0 0 10 10 1 0 2 2	Case 1: 6

Warning: The size of input file is around 12 MB.

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