

Problem H

Horizontally visible segments



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There is a number of disjoint vertical line segments in the plane. We say that two segments are horizontally visible if they can be connected by a horizontal line segment that does not have any common points with other vertical segments. Three different vertical segments are said to form a triangle of segments if each two of them are horizontally visible. How many triangles can be found in a given set of vertical segments?

Task

Write a program which for each data set:

- reads the description of a set of vertical segments,
- computes the number of triangles in this set,
- writes the result.

Input

The first line of the input contains exactly one positive integer d equal to the number of data sets, $1 \leq d \leq 20$. The data sets follow.

The first line of each data set contains exactly one integer n , $1 \leq n \leq 8\,000$, equal to the number of vertical line segments.

Each of the following n lines consists of exactly 3 nonnegative integers separated by single spaces: y'_i, y''_i, x_i — y -coordinate of the beginning of a segment, y -coordinate of its end and its x -coordinate, respectively. The coordinates satisfy $0 \leq y'_i < y''_i \leq 8\,000$, $0 \leq x_i \leq 8\,000$. The segments are disjoint.

Output

The output should consist of exactly d lines, one line for each data set. Line i should contain exactly one integer equal to the number of triangles in the i -th data set.

Example

For the input:

```
1
5
0 4 4
0 3 1
3 4 2
0 2 2
0 2 3
```

the correct answer is:

```
1
```