

The skyline of Singapore as viewed from the Marina Promenade (shown on the left) is one of the iconic scenes of Singapore. Country X would also like to create an iconic skyline, and it has put up a call for proposals. Each submitted proposal is a description of a proposed skyline and one of the metrics that country X will use to evaluate a proposed skyline is the amount of overlap in the proposed sky-line.

As the assistant to the chair of the skyline evaluation committee, you have been tasked with determining the amount of overlap in each proposal. Each proposal is a sequence of buildings, $\langle b_1, b_2, \dots, b_n \rangle$, where a building is specified by its left and right endpoint and its height. The buildings are specified in back to front order, in other words a building which appears later in the sequence appears in front of a building which appears earlier in the sequence.

The skyline formed by the first k buildings is the union of the rectangles of the first k buildings (see Figure 4). The overlap of a building, b_i , is defined as the total horizontal length of the parts of b_i , whose height is greater than or equal to the skyline behind it. This is equivalent to the total horizontal length of parts of the skyline behind b_i which has a height that is less than or equal to h_i , where h_i is the height of building b_i . You may assume that initially the skyline has height zero everywhere.

Input

The input consists of a line containing the number c of datasets, followed by c datasets, followed by a line containing the number ‘0’.

The first line of each dataset consists of a single positive integer, n ($0 < n < 100000$), which is the number of buildings in the proposal. The following n lines of each dataset each contains a description of a single building. The i -th line is a description of building b_i . Each building b_i is described by three positive integers, separated by spaces, namely, l_i , r_i and h_i , where l_i and r_j ($0 < l_i < r_i \leq 100000$) represents the left and right end point of the building and h_i ($0 < h_i \leq 10^9$) represents the height of the building.

Output

The output consists of one line for each dataset. The c -th line contains one single integer, representing the amount of overlap in the proposal for dataset c . You may assume that the amount of overlap for each dataset is at most 2000000.

Note: In the sample test case, the overlap of building b_1 , b_2 and b_3 are 6, 4 and 4 respectively. Figure 4 shows how to compute the overlap of building b_3 . The grey area represents the skyline formed by b_1 and b_2 and the black rectangle represents b_3 . As shown in the figure, the length of the skyline covered by b_3 is from position 3 to position 5 and from position 11 to position 13, therefore the overlap of b_3 is 4.

Sample Input

```
1
3
5 11 3
1 10 1
3 13 2
0
```

Sample Output

14



Skyline of Singapore at Night

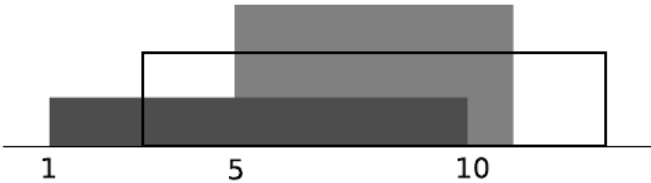


Figure 4: Computing Skyline Overlap