

Intervals

You are given n closed integer intervals $[a_i, b_i]$ and n integers c_1, \dots, c_n .

Task

Write a program that:

- reads the number of intervals, their endpoints and integers c_1, \dots, c_n from the standard input,
- computes the minimal size of a set Z of integers which has at least c_i common elements with interval $[a_i, b_i]$, for each $i = 1, 2, \dots, n$,
- writes the answer to the standard output.

Input

The input begins with the integer t , the number of test cases. Then t test cases follow.

For each test case the first line of the input contains an integer n ($1 \leq n \leq 50000$) - the number of intervals. The following n lines describe the intervals. Line $(i+1)$ of the input contains three integers a_i, b_i and c_i separated by single spaces and such that $0 \leq a_i \leq b_i \leq 50000$ and $1 \leq c_i \leq b_i - a_i + 1$.

Output

For each test case the output contains exactly one integer equal to the minimal size of set Z sharing at least c_i elements with interval $[a_i, b_i]$, for each $i = 1, 2, \dots, n$.

Example

Sample input:

```
1
5
3 7 3
8 10 3
6 8 1
1 3 1
10 11 1
```

Sample output:

```
6
```

Warning: enormous Input/Output data, be careful with certain languages