

Electi Lamps

Input file: **standard input**
Output file: **standard output**
Time limit: 1 second
Memory limit: 256 megabytes

There are N lamps located along a street at positions X_i , each with a power level P_i . The i -th lamp lights up an area within the range $[X_i - P_i, X_i + P_i]$ when turned on. Initially, some lamps are turned on, and some are turned off. The initial state of the i -th lamp is denoted by T_i : if $T_i = 1$, the lamp is on; if $T_i = 0$, the lamp is off. The positions of the lamps are sorted in increasing order, i.e., $X_i < X_{i+1}$ for all $1 \leq i < N$.

For each lamp i ($1 \leq i < N$), you need to determine a value $F(i)$, which is the minimum total distance you must walk to achieve the following:

- All lamps before position X_i are considered destroyed and do not exist.
- If the i -th lamp was initially off, it is turned on.
- You start at position X_i and want to walk to position X_N . Along the way, you must turn off every lamp except for the one at position X_N .

If you cannot reach position X_N while ensuring all lamps except lamp N are turned off, then $F(i) = 0$.

The task is to compute the sum of $F(i)$ for all i ($1 \leq i < N$), modulo 998244353.

Note: You can only walk in areas illuminated by the lamps.

Input

The first line contains one integer T ($1 \leq T \leq 10^3$), the number of test cases.

Then, for each test case:

- The first line contains one integer N ($1 \leq N \leq 10^6$).
- Then, N lines follow. In the i -th of these lines, there are three space-separated integers X_i , P_i , and T_i ($1 \leq X_i \leq 10^{12}$, $1 \leq P_i \leq 10^{12}$, $T_i \in \{0, 1\}$).
- It is guaranteed that $X_i < X_{i+1}$ for all $1 \leq i < N$.

The total sum of N across all test cases does not exceed 10^6 .

Output

For each test, print one line consisting of one integer, the answer.

Example

| standard input | standard output |
|----------------|-----------------|
| 2 | 8 |
| 3 | 0 |
| 3 1 0 | |
| 5 2 0 | |
| 6 2 1 | |
| 3 | |
| 1 8 1 | |
| 4 7 1 | |
| 6 1 0 | |

Note

In the first example:

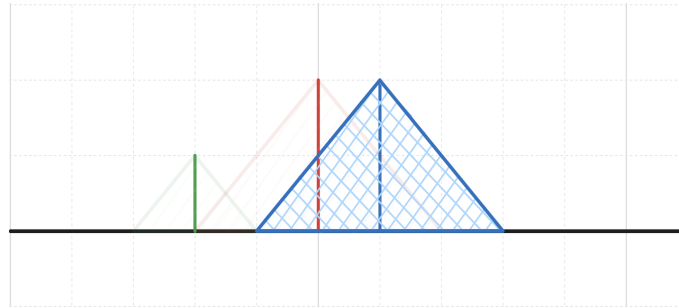


Figure 1. Initial state of Lamps.

Now let's look at what happens when you start at the first lamp.

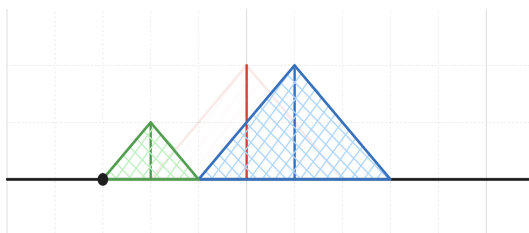


Figure 2. The starting lamp is turned on.

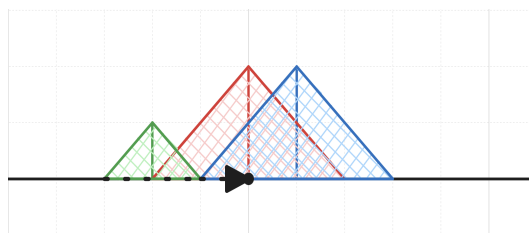


Figure 3. Move to lamp 2 and turn it on.

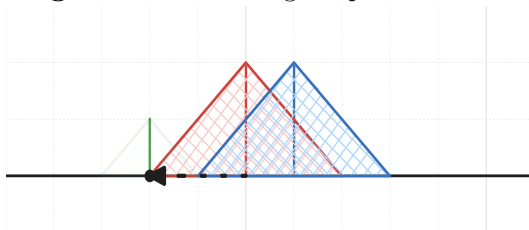


Figure 4. Go back to lamp 1 and turn it off.



Figure 5. Go to lamp 3 and turn off lamp 2.