

5 Apples

5.1 Problem Description

The people in city A want to share their apples. There are n people in city A, and they are numbered from 1 to n . The i -th person has b_i apples initially, and this person will be happy if and only if he/she has exactly e_i apples after sharing. It is guaranteed that the total number of apples will not change, which is $\sum_{i=1}^n b_i = \sum_{i=1}^n e_i$.

The city has n undirected roads. The i -th road connects the i -th and the $(i \bmod n + 1)$ -th person's house. The apples can be transported by these roads. Each road has a value l_i , denoting the cost of transporting a single apple from person i to $(i \bmod n + 1)$ or from person $(i \bmod n + 1)$ to i . Each apple can be transported by any road any number of times (including zero).

You need to find out a way to make all the people become happy and minimize the total cost of all the apples. And the cost of an apple is the total cost of all the roads it passed. Note that an apple can pass the same road more than one time, and the cost will be counted repeatedly.

The cost of some roads may be changed, and you need to find out all the answers.

5.2 Input

The first line contains a single integer T ($T \leq 100$) - the number of test cases.

For each test case:

The first line contains a single integer n ($2 \leq n \leq 5 \times 10^5$) - the number of people.

From the second line to the $(n + 1)$ -th line, each line contains three integers b_i, e_i, l_i ($0 \leq b_i, e_i \leq 10^9, 0 \leq l_i \leq 10^4$). It is guaranteed that $\sum_{i=1}^n b_i = \sum_{i=1}^n e_i \leq 10^9$.

The $(n + 2)$ -th line contains a single integer q ($0 \leq q \leq 5 \times 10^5$).

Then the next q lines, each line contains two integers x, y ($1 \leq x \leq n, 0 \leq y \leq 10^4$), means that l_x is changed to y . Please note that the change in l_x has aftereffects.

It is guaranteed that the sum of n and the sum of q do not exceed 2×10^6 .

5.3 Output

For each test case, output $(q + 1)$ lines:

Each line contains a single integer. The first integer denotes the answer without any changing, and the $(i + 1)$ -th integer ($1 \leq i \leq q$) denotes the answer after the i -th change.

5.4 Sample Input

2

4

4 1 4
5 1 4
1 9 1
9 8 1
0
2
1 2 1
2 1 2
3
1 3
1 2
2 1

5.5 Sample Output

23
1
2
2
1