School

Problem Statement:

Little Timmy is hosting a Cool Kids Contest at his elementary school! There are n students that participate in this contest, each with a name A, age B, and coolness C. The names of each student is distinct, and ages of each student is also distinct. Students can have negative coolness. n is always a power of 2.

Timmy will make q commands of the following form:

Command	Description
QUERY X	Outputs the name of the coolest student that has age <= X, and their coolness. If there is a tie, output the name of student with the smaller age.
INCREMENT Y Z	Increment the coolness of the student with name Y by Z.
DECREMENT Y Z	Decrement the coolness of the student with name Y by Z.

(It is guaranteed that X >= the minimum age of all students. It is guaranteed that student Y is in the contest. Z <= 2^31-1)

Input:

In a single line, the integer n. (1 <= n <= 2^20)
The following n lines contain a string A, age B and coolness C, of each student. (1 <= A.length <= 20, 1 <= B <= 2^31-1, -2^31 <= C <= 2^31 - 1)
The next line will contain an integer q. (1 <= q <= 10^6)
The following q lines will contain a query as stated in the table.

Output:

For each QUERY X command, print the name A of the coolest student with age <= X, and their coolness C in a single line, space separated.

Example:

Sample Input:

```
8
A 1 1
B 2 2
C 3 3
D 4 4
E 5 5
F 6 6
G 7 7
H 8 8
7
QUERY 4
QUERY 8
```

```
INCREMENT C 5
QUERY 2
QUERY 100
DECREMENT C 7
QUERY 3
```

Sample Output:

```
D 4
H 8
B 2
C 8
B 2
```

Explanation:

At first, you have students A, B, C, D … H with coolness and age of 1, 2 … 8.
QUERY 4 returns student D, as D is the coolest student with age at most 4.
QUERY 8 returns student H, as H is the coolest student with age at most 8.
INCREMENT C 5 increases C's coolness from 3 to 8.
QUERY 2 returns student B, as B is the coolest student with age at most 2.
QUERY 100 returns C as both C and H are the coolest student with age at most 100, however, C has a smaller age, thus C is returned.
DECREMENT C 7 decreases C's coolness from 8 to 1.
QUERY 3 returns student B, as B is the coolest student with age at most 3.