

Contest Duration: 2021-04-17(Sat) 12:40 (<http://www.timeanddate.com/worldclock/fixedtime.html?iso=20210417T1610&p1=248>) - 2021-04-17(Sat) 14:40 (<http://www.timeanddate.com/worldclock/fixedtime.html?iso=20210417T1810&p1=248>) (local time) (120 minutes)

iso=20210417T1610&p1=248) - 2021-04-17(Sat) 14:40 (<http://www.timeanddate.com/worldclock/fixedtime.html?iso=20210417T1810&p1=248>) (local time) (120 minutes)

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## F - Max Matrix



Time Limit: 3 sec / Memory Limit: 1024 MB

Score : 600 points

### Problem Statement

We have a sequence  $a$  of length  $N$  and a sequence  $b$  of length  $M$ . Initially, every element in  $a$  and  $b$  is 0.

You are asked to process  $Q$  queries. In the  $i$ -th query, given three integers  $T_i$ ,  $X_i$ , and  $Y_i$ , do the following:

- if  $T_i = 1$ : replace  $a_{X_i}$  with  $Y_i$ ;
- if  $T_i = 2$ : replace  $b_{X_i}$  with  $Y_i$ .

Then, after processing each query, print the value  $\sum_{i=1}^N \sum_{j=1}^M \max(a_i, b_j)$ .

### Constraints

- $1 \leq N \leq 2 \times 10^5$
- $1 \leq M \leq 2 \times 10^5$
- $1 \leq Q \leq 2 \times 10^5$
- $T_i$  is 1 or 2.
- If  $T_i = 1$ ,  $1 \leq X_i \leq N$ .
- If  $T_i = 2$ ,  $1 \leq X_i \leq M$ .
- $1 \leq Y_i \leq 10^8$
- All values in input are integers.

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# Input

Input is given from Standard Input in the following format:

```
N M Q
T1 X1 Y1
T2 X2 Y2
T3 X3 Y3
⋮
TQ XQ YQ
```

# Output

Print  $Q$  integers as instructed in Problem Statement, with newline as separator.

## Sample Input 1

Copy

```
2 2 4
1 1 10
2 1 20
2 2 5
1 1 30
```

Copy

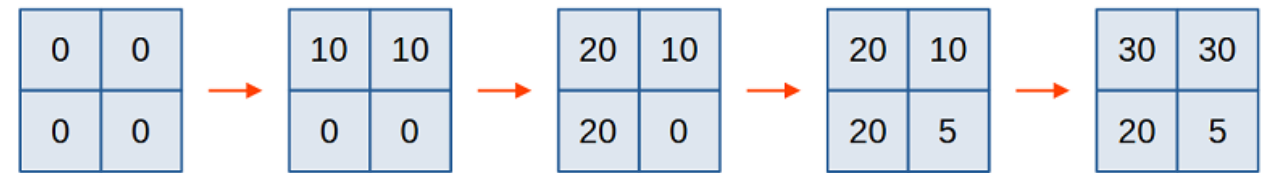
## Sample Output 1

Copy

```
20
50
55
85
```

Copy

If we write  $\max(a_i, b_j)$  at the  $i$ -th row and  $j$ -th column in a grid, the four queries will change it as follows:



## Sample Input 2

Copy

Copy

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```
3 3 5
1 3 10
2 1 7
1 3 5
2 2 10
2 1 1
```

Sample Output 2

Copy

```
30
44
31
56
42
```

Copy

Sample Input 3

Copy

```
200000 200000 4
2 112219 100000000
1 73821 100000000
2 26402 100000000
1 73821 100000000
```

Copy

Sample Output 3

Copy

```
200000000000000
399999000000000
599998000000000
599998000000000
```

Copy

The integers to be printed may not fit into a 32-bit integer type.

Language

Python (3.8.2)

Source Code

1

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\* at most 512 KiB

\* Your source code will be saved as `Main.extension`.



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