C - Sum of Min Query

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Time Limit: 2 sec / Memory Limit: 1024 MiB

Score : 300 points

Problem Statement

You are given length-N integer sequences: $A = (A_1, A_2, \ldots, A_N)$ and $B = (B_1, B_2, \ldots, B_N)$.

You are given Q queries to process in order. The i-th query $(1 \leq i \leq Q)$ is described as follows:

> You are given a character c_i and integers X_i, V_i. If $c_i =$ A, change A_{X_i} to V_i; if $c_i =$ B, change B_{X_i} to V_i. Then, output $\sum_{k=1}^{N} \min(A_k, B_k)$.

Constraints

- $1 \leq N, Q \leq 2 \times 10^5$
- $1 \leq A_i, B_i \leq 10^9$
- c_i is either A or B.
- $1 \leq X_i \leq N$
- $1 \leq V_i \leq 10^9$
- All input values are integers.

Input

The input is given from Standard Input in the following format:

$$
\begin{array}{llll}
N & Q & & \\
A_1 & A_2 & \ldots & A_N \\
B_1 & B_2 & \ldots & B_N \\
c_1 & X_1 & V_1 & \\
c_2 & X_2 & V_2 & \\
\vdots & & & \\
c_Q & X_Q & V_Q &
\end{array}
$$

Output

Output Q lines. The i-th line $(1 \leq i \leq Q)$ should contain the answer to the i-th query.

Sample Input 1 Copy

Copy

```
4 3
3 1 4 1
2 7 1 8
A 2 3
B 3 3
A 1 7
```

Sample Output 1 Copy

Copy

```
7
9
9
```

After the 1st query, $A = (3, 3, 4, 1), B = (2, 7, 1, 8)$. Therefore, output $\min(3, 2) + \min(3, 7) + \min(4, 1) + \min(1, 8) = 7$ on the 1st line.

After the 2nd query, $A = (3, 3, 4, 1), B = (2, 7, 3, 8)$. Therefore, output $\min(3, 2) + \min(3, 7) + \min(4, 3) + \min(1, 8) = 9$ on the 2nd line.

After the 3rd query, $A = (7, 3, 4, 1), B = (2, 7, 3, 8)$. Therefore, output $\min(7, 2) + \min(3, 7) + \min(4, 3) + \min(1, 8) = 9$ on the 3rd line.

Sample Input 2 Copy

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```
1 3
1
1000000000
A 1 1
A 1 1
A 1 1
```

Sample Output 2 Copy

```
1
1
1
```

Sample Input 3 Copy

```
5 3
100 100 100 100 100
100 100 100 100 100
A 4 21
A 2 99
B 4 57
```

Sample Output 3 Copy

```
421
420
420
```

/#telegram)

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