

Contest Duration: 2025-08-24(Sun) 22:00 (<http://www.timeanddate.com/worldclock/fixedtime.html?iso=20250824T2100&p1=248>) - 2025-08-24(Sun) 23:40 (<http://www.timeanddate.com/worldclock/fixedtime.html?iso=20250824T2240&p1=248>) (local time) (100 minutes)

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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: $A = (A_1, A_2, \dots, A_N)$ and $B = (B_1, B_2, \dots, B_N)$.

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 $c_i = \text{A}$, change A_{X_i} to V_i ; if $c_i = \text{B}$, 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.

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Input

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

```
N Q
A_1 A_2 ... A_N
B_1 B_2 ... B_N
c_1 X_1 V_1
c_2 X_2 V_2
⋮
c_Q X_Q V_Q
```

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

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

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Sample Output 1

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```
7
9
9
```

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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

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

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Sample Output 2

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```
1
1
1
```

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Sample Input 3

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

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Sample Output 3

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```
421
420
420
```

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