G - Takahashi's Expectation 2

Editorial (/contests/abc427/tasks/abc427_g/editorial)

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Time Limit: 2 sec / Memory Limit: 1024 MiB

Score : 625 points

Problem Statement

Takahashi will receive some presents from now on.

He has an integer parameter called mood, and the mood changes each time he receives a present. Each present has an integer parameter called value P, and Takahashi's mood changes according to this parameter as follows:

- If the value P of the received present is greater than or equal to the mood value, he is delighted with the present, and the mood increases by A.
- If the value P of the received present is less than the mood value, he is disappointed with the present, and the mood decreases by B.

Initially, there are N presents that Takahashi is scheduled to receive, and the value of the i-th present he will receive $(1 \leq i \leq N)$ is P_i.

You are given Q queries consisting of two types: addition queries and question queries. Process all of them in order, and answer all question queries.

The i-th query is represented by two integers T_i, X_i, and it is an addition query if $T_i = 1$, and a question query if $T_i = 2$.

In an addition query, add a new present with value X_i to the end of the presents to be received.

In a question query, answer the following question:

> Find Takahashi's mood after receiving all the presents he is scheduled to receive when his mood is initially X_i.

Constraints

- $1 \leq N \leq 2 \times 10^5$
- $1 \leq A \leq 10^9$
- $1 \leq B \leq 10^9$
- $-10^9 \leq P_i \leq 10^9$ $(1 \leq i \leq N)$
- $1 \leq Q \leq 2 \times 10^5$
- $T_i = 1$ or $T_i = 2$ $(1 \leq i \leq Q)$
- There exists an integer i $(1 \leq i \leq Q)$ such that $T_i = 2$.
- If $T_i = 1$, then $-10^9 \leq X_i \leq 10^9$. $(1 \leq i \leq Q)$
- If $T_i = 2$, then $-10^{12} \leq X_i \leq 10^{12}$. $(1 \leq i \leq Q)$
- All input values are integers.

Input

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

$$
\begin{array}{l}
N \quad A \quad B \\
P_1 \quad P_2 \quad \ldots \quad P_N \\
Q \\
T_1 \quad X_1 \\
T_2 \quad X_2 \\
\vdots \\
T_Q \quad X_Q
\end{array}
$$

Output

Let q be the number of question queries, and print q lines. The i-th line $(1 \leq i \leq q)$ should contain the answer to the i-th question query.

Sample Input 1 Copy

2026-01-02 (Fri)
05:31:41 +11:00

```
4 31 41
59 -26 53 58
5
2 9
1 79
2 32
1 38
2 462
```

Sample Output 1

```
61
43
216
```

Initially, the values of the presents Takahashi is scheduled to receive are $59, -26, 53, 58$, in the order he will receive them.

The five queries are as follows:

- When his mood is initially 9, his mood changes as $9 \to 40 \to -1 \to 30 \to 61$ each time he receives a present, so print the final mood 61.
- A present with value 79 is added to the presents he is scheduled to receive, and the values of the presents he is scheduled to receive become $59, -26, 53, 58, 79$.
- When his mood is initially 32, his mood changes as $32 \to 63 \to 22 \to 53 \to 84 \to 43$ each time he receives a present, so print the final mood 43.
- A present with value 38 is added to the presents he is scheduled to receive, and the values of the presents he is scheduled to receive become $59, -26, 53, 58, 79, 38$.
- When his mood is initially 462, his mood changes as $462 \to 421 \to 380 \to 339 \to 298 \to 257 \to 216$ each time he receives a present, so print the final mood 216.

Sample Input 2

```
3 1000000000 1000000000
1000000000 0 -1000000000
3
2 -1000000000000
2 0
2 1000000000000
```

Sample Output 2

```
-997000000000
-1000000000
997000000000
```

Note that the absolute value of the input and the values to be output may be 2^{32} or greater.

Sample Input 3 Copy

```
20 8489 1428
6312 -9511 1048 -5301 -2588 -7097 -3342 5209 7493 3378 -5300 6592 7862 -8118 8109 1116 5
10
1 1694
2 -9723
2 -5195
2 -1384
1 1149
2 9845
2 -7720
2 8329
2 -4652
2 -5672
```

Sample Output 3 Copy

```
9874
14402
8296
8180
10449
6664
3600
12497
```

'#telegram)

url=https%3A%2F%2Fatcoder.jp%2Fcontests%2Fabc427%2Ftasks%2Fabc427_g%3Flang%3Den&title=G%20-n%202)

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