Efe's Problem

Efe works for a company that commissions Efe with many projects. Every project has **[start, end]** dates. Efe can expedite the start day of a project by **1** day by giving **1** to the company he works for. Also, he can postpone the project's end date by **1** day by giving **1** too.

F-day is a lucky day for Efe, and Efe wants to make all his projects cover **F-day**. In short, $\mathbf{start} \leq \mathbf{F} \leq \mathbf{end}$ must be for each project [**start**, **end**] interval. At least how much \mathbf{b} should Efe give to his company to reach his goal?

There will be given \mathbf{Q} queries. There are two types of queries.

The first one is in [1 F] format; it gives the lucky day for Efe and asks how much he should pay at least to make all intervals cover this day.

The second queries starting with **2**.

[2 project_index 0] query expedite the start date of the project_indexth project by 1 day.

[2 project index 1] postpone the end date of the project indexth project by 1 day.

Queries starting with 2 do not expect a response, and these changes are effective for all future [1 F] format queries.

To explain the second query: Query $[2\ 3\ 0]$ expedite the start date of 3^{rd} project by 1 day. The $[2\ 5\ 1]$ query moves the end date of the 5^{th} job forward by 1 day.

Input Format

N, Q in the first line

Then N lines [start, end] intervals of the projects

Finally, **Q** line **[query]** that are in the explained formats

Constraints

 $N \le 10^5$

 $Q \le 10^5$

 $0 \le start \le 10^9$

 $0 \le \text{end} \le 10^9$

Output Format

Total charges for each of the $[1\ F]$ queries

Sample Input:

Copy

Submit Solution

✓ Points: 1

O Time limit: 1.2s

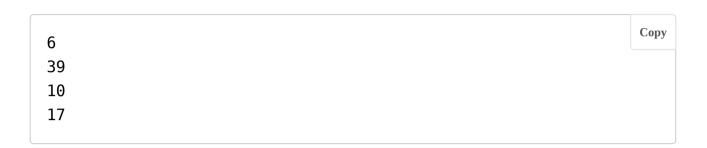
Java 8: 3.0s Python: 5.0s

All submissions

Best submissions

3 6			
1 3			
5 8			
8 10			
1 4			
1 20			
2 2 0			
1 1			
2 3 1			
1 13			

Sample Output:



Sample Explanation

In this testcase, there will be 3 projects and 6 queries in total.

The projects can be seen in the next 3 lines as $[1\ 3]$, $[5\ 8]$ and $[8\ 10]$ respectively.

The query $[1 \ 4]$ requires $1\ b$ for the 1^{st} project, $1\ b$ for the 2^{nd} project, and $4\ b$ for the 3^{rd} project. 6 should be printed as output for this query.

The query **[1 20]** requires **17** for the **1**st project, **12** for the **2**nd project and 10 for the **3**rd project. **39** should be printed as output.

The query [2 2 0] changes project interval of 2nd project from [5 8] to [4 8].

The query $[1\ 1]$ requires $0\ b$ for the 1^{st} project, $3\ b$ for the 2^{nd} project and $7\ b$ for the 3^{rd} project. 10 should be printed as output.

The query $[2\ 3\ 1]$ changes the project interval of 3^{rd} project from $[8\ 10]$ to $[8\ 11]$.

The query $[1\ 13]$ requires $10\$ for the 1^{st} project, $5\$ for the 2^{nd} project and $2\$ for the 3^{rd} project. 17 should be printed as output.

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