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, **start** ≤ **F** ≤ **end** must be for each project **[start, end]** interval. At least how much **₺** should Efe give to his company to reach his goal?

There will be given **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_index**th project by **1** day.

[2 project_index 1] postpone the end date of the **project_index**th 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.

Submit Solution

Points: 1

Time limit: 1.2s
Java 8: 3.0s
Python: 5.0s

All submissions

Best submissions

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 ≤ 10^5

Q ≤ 10^5

0 ≤ **start** ≤ 10^9

0 ≤ **end** ≤ 10^9

Output Format

Total charges for each of the **[1 F]** queries

Sample Input:

Copy

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

Sample Output:

Copy

```
6
39
10
17
```

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₺** for the **1st** project, **1₺** for the **2nd** project, and **4₺** for the **3rd** project. **6** should be printed as output for this query.

The query **[1 20]** requires **17₺** for the **1st** project, **12₺** for the **2nd** project and 10₺ for the **3rd** 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₺** for the **1st** project, **3₺** for the **2nd** project and **7₺** for the **3rd** project. **10** should be printed as output.

The query **[2 3 1]** changes the project interval of **3rd** project from **[8 10]** to **[8 11]**.

The query **[1 13]** requires **10₺** for the **1st** project, **5₺** for the **2nd** project and **2₺** for the **3rd** project. **17** should be printed as output.

Request clarification