

Contest Duration: 2025-05-03(Sat) 22:00 (<http://www.timeanddate.com/worldclock/fixedtime.html?iso=20250503T2100&p1=248>) - 2025-05-03(Sat) 23:40 (<http://www.timeanddate.com/worldclock/fixedtime.html?iso=20250503T2240&p1=248>) (local time) (100 minutes)

[Back to Home \(/home\)](#)

[🏠 Top \(/contests/abc404\)](#)

[📋 Tasks \(/contests/abc404/tasks\)](#)

[🔍 Clarifications \(/contests/abc404/clarifications\)](#)

[📊 Results ▾](#)

[🏆 Standings \(/contests/abc404/standings\)](#)

[🏆 Virtual Standings \(/contests/abc404/standings/virtual\)](#)

[📖 Editorial \(/contests/abc404/editorial\)](#)

[💬 Discuss \(https://codeforces.com/blog/entry/142558\)](https://codeforces.com/blog/entry/142558)



## G - Specified Range Sums

[Editorial \(/contests/abc404/tasks/abc404\\_g/editorial\)](#)



Time Limit: 2 sec / Memory Limit: 1024 MiB

Score : 600 points

### Problem Statement

You are given an integer  $N$  and length- $M$  integer sequences  $L = (L_1, L_2, \dots, L_M)$ ,  $R = (R_1, R_2, \dots, R_M)$ , and  $S = (S_1, S_2, \dots, S_M)$ .

Determine whether there exists a length- $N$  **positive integer sequence**  $A$  satisfying the following condition. If such a sequence exists, find the minimum possible sum of  $A$ .

$$\bullet \sum_{j=L_i}^{R_i} A_j = S_i \text{ for all } i (1 \leq i \leq M).$$

### Constraints

- All input values are integers.
- $1 \leq N, M \leq 4000$
- $1 \leq L_i \leq R_i \leq N$
- $1 \leq S_i \leq 10^9$

### Input

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

2026-01-02 (Fri)  
05:23:30 +11:00

$$\begin{array}{ccc} N & M & \\ L_1 & R_1 & S_1 \\ L_2 & R_2 & S_2 \\ \vdots & & \\ L_M & R_M & S_M \end{array}$$

## Output

If there does not exist a length- $N$  positive integer sequence  $A$  satisfying the condition, print -1.

Otherwise, print the minimum possible sum of  $A$  as an integer.

### Sample Input 1

[Copy](#)

```
5 3
1 2 4
2 3 5
5 5 5
```

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### Sample Output 1

[Copy](#)

```
12
```

[Copy](#)

For example,  $A = (1, 3, 2, 1, 5)$  satisfies the condition.

Its sum is 12, which is the minimum possible.

### Sample Input 2

[Copy](#)

```
1 2
1 1 1
1 1 2
```

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### Sample Output 2

[Copy](#)

```
-1
```

[Copy](#)

Sometimes no such  $A$  exists.

## Sample Input 3

[Copy](#)

```
9 6
8 9 8
3 6 18
2 4 19
5 6 8
3 5 14
1 3 26
```

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## Sample Output 3

[Copy](#)

```
44
```

[Copy](#)

'#telegram)

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