

Contest Duration: 2025-08-30(Sat) 22:00 (<http://www.timeanddate.com/worldclock/fixedtime.html?iso=20250830T2100&p1=248>) - 2025-08-30(Sat) 23:40 (<http://www.timeanddate.com/worldclock/fixedtime.html?iso=20250830T2240&p1=248>) (local time) (100 minutes)

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# G - Increase to make it Increasing

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Time Limit: 2 sec / Memory Limit: 1024 MiB

Score : 600 points

## Problem Statement

You are given a length- $N$  integer sequence  $A = (A_1, A_2, \dots, A_N)$ . You are also given  $M$  pairs of integers  $(L_1, R_1), (L_2, R_2), \dots, (L_M, R_M)$  ( $1 \leq L_i \leq R_i \leq N$ ).

You can perform the following operation on sequence  $A$  any number of times (possibly zero):

- Choose an integer  $i$  with  $1 \leq i \leq M$ , and add 1 to each of  $A_{L_i}, A_{L_i+1}, \dots, A_{R_i}$ .

Determine whether it is possible to make  $A$  non-decreasing, and if possible, find the minimum number of operations required.

## Constraints

- $1 \leq N \leq 300$
- $1 \leq M \leq 300$
- $1 \leq A_i \leq 300$
- $1 \leq L_i \leq R_i \leq N$
- All input values are integers.

# Input

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

```
 $N$   $M$   
 $A_1$   $A_2$  ...  $A_N$   
 $L_1$   $R_1$   
 $L_2$   $R_2$   
 $\vdots$   
 $L_M$   $R_M$ 
```

# Output

If it is possible to make  $A$  non-decreasing, print the minimum number of operations required. If it is impossible, print -1.

## Sample Input 1

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```
4 3  
4 2 3 2  
2 2  
2 3  
4 4
```

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## Sample Output 1

Copy

4

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For example, by performing operations four times as follows, you can make  $A$  non-decreasing:

- Choose  $i = 1$  and perform the operation.  $A$  becomes  $(4, 3, 3, 2)$ .
- Choose  $i = 3$  and perform the operation.  $A$  becomes  $(4, 3, 3, 3)$ .
- Choose  $i = 3$  and perform the operation.  $A$  becomes  $(4, 3, 3, 4)$ .
- Choose  $i = 2$  and perform the operation.  $A$  becomes  $(4, 4, 4, 4)$ .

Conversely, it is impossible to make  $A$  non-decreasing with three or fewer operations. Thus, print 4.

## Sample Input 2

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```
3 2
3 1 2
2 2
1 2
```

## Sample Output 2

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```
-1
```

[Copy](#)

No matter how you perform operations, it is impossible to make  $A$  non-decreasing.

## Sample Input 3

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

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## Sample Output 3

[Copy](#)

```
0
```

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$A$  is already non-decreasing, so no operations are needed.

## Sample Input 4

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```
8 12
35 29 36 88 58 15 25 99
5 5
1 6
3 8
8 8
4 8
7 7
5 7
3 3
2 6
1 6
6 7
5 7
```

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## Sample Output 4

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79

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'#telegram)

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