

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)

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

[Top \(/contests/abc421\)](#)

[Tasks \(/contests/abc421/tasks\)](#)

[Clarifications \(/contests/abc421/clarifications\)](#) [Results ▾](#)

[Standings \(/contests/abc421/standings\)](#)

[Virtual Standings \(/contests/abc421/standings/virtual\)](#) [Editorial \(/contests/abc421/editorial\)](#)

[Discuss \(<https://codeforces.com/blog/entry/145931>\)](#)



G - Increase to make it Increasing

[Editorial \(/contests/abc421/tasks/abc421_g/editorial\)](#)

/

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
A1 A2 ... AN
L1 R1
L2 R2
:
LM RM
```

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

[Copy](#)

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

[Copy](#)

Sample Output 1

[Copy](#)

```
4
```

[Copy](#)

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

[Copy](#)

2026-01-02 (Fri)

05:29:35 +11:00

[Copy](#)

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

Sample Output 2

[Copy](#)

```
-1
```

[Copy](#)

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

Sample Input 3

[Copy](#)

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

[Copy](#)

Sample Output 3

[Copy](#)

```
0
```

[Copy](#)

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

Sample Input 4

[Copy](#)

```
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
```

[Copy](#)

Sample Output 4

Copy

79

Copy

'#telegram)

url=https%3A%2F%2Fatcoder.jp%2Fcontests%2Fabc421%2Ftasks%2Fabc421_g%3Flang%3Den&title=G%20-%20Increasing%20)

[Rule \(/contests/abc421/rules\)](#) [Glossary \(/contests/abc421/glossary\)](#)

[Terms of service \(/tos\)](#) [Privacy Policy \(/privacy\)](#) [Information Protection Policy \(/personal\)](#) [Company \(/company\)](#)

[FAQ \(/faq\)](#) [Contact \(/contact\)](#)

Copyright Since 2012 ©AtCoder Inc. (<http://atcoder.co.jp>) All rights reserved.