

Contest Duration: 2025-10-04(Sat) 22:00 (<http://www.timeanddate.com/worldclock/fixedtime.html?iso=20251004T2100&p1=248>) - 2025-10-04(Sat) 23:40 (<http://www.timeanddate.com/worldclock/fixedtime.html?iso=20251004T2240&p1=248>) (local time) (100 minutes)

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C - Upgrade Required

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Time Limit: 2 sec / Memory Limit: 1024 MiB

Score : 300 points

Problem Statement

There are N versions of a certain OS, numbered $1, 2, \dots, N$ in chronological order.

There are N PCs, and initially the OS version of the i -th PC is i .

Perform Q operations in order. The i -th operation is as follows:

- Upgrade all PCs whose current OS version is X_i or earlier to version $Y_i (> X_i)$. Then, print the number of PCs upgraded in this operation.

Note that for $i < Q$, the upgrades from the i -th operation are performed before proceeding to the $(i + 1)$ -th operation.

Constraints

- All input values are integers.
- $2 \leq N \leq 10^6$
- $1 \leq Q \leq 2 \times 10^5$
- $1 \leq X_i < Y_i \leq N$

Input

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

2026-01-02 (Fri)

05:31:04 +11:00

$$\begin{matrix} N & Q \\ X_1 & Y_1 \\ X_2 & Y_2 \\ \vdots & \\ X_Q & Y_Q \end{matrix}$$

Output

Output Q lines.

The i -th line should contain the number of PCs upgraded in the i -th operation.

Sample Input 1

[Copy](#)

```
8 5
2 6
3 5
1 7
5 7
7 8
```

[Copy](#)

Sample Output 1

[Copy](#)

```
2
1
0
3
7
```

[Copy](#)

This input contains five operations.

- Initially, the versions of the eight PCs are 1, 2, 3, 4, 5, 6, 7, 8.
- In the first operation, PCs with version 2 or earlier are upgraded to version 6.
 - This operation upgrades two PCs, and the versions of the PCs become 6, 6, 3, 4, 5, 6, 7, 8.
- In the second operation, PCs with version 3 or earlier are upgraded to version 5.
 - This operation upgrades one PC, and the versions of the PCs become 6, 6, 5, 4, 5, 6, 7, 8.
- In the third operation, PCs with version 1 or earlier are upgraded to version 7.
 - This operation upgrades zero PCs, and the versions of the PCs become 6, 6, 5, 4, 5, 6, 7, 8.
- In the fourth operation, PCs with version 5 or earlier are upgraded to version 7.
 - This operation upgrades three PCs, and the versions of the PCs become 6, 6, 7, 7, 7, 6, 7, 8.

- In the fifth operation, PCs with version 7 or earlier are upgraded to version 8.
 - This operation upgrades seven PCs, and the versions of the PCs become 8, 8, 8, 8, 8, 8, 8, 8.

'#telegram)

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