# C - Upgrade Required

Editorial (/contests/abc426/tasks/abc426_c/editorial) / 

Time Limit: 2 sec / Memory Limit: 1024 MiB

Score : $300$ points

## Problem Statement

There are $N$ versions of a certain OS, numbered $1, 2, \ldots, N$ 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:

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

## Output

Output $Q$ lines.

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

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## Sample Input 1 Copy

Copy

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

## Sample Output 1 Copy

Copy

```
2
1
0
3
7
```

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 $8, 8, 8, 8, 8, 8, 8$.

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