

Goals

N coins numbered from 0 to $N-1$ are lined up with their **heads** side up.

You are given Q operations, each of which consists in **flipping** (heads/tails) all the coins between two indices L and R (inclusive).

How many coins have their **tails** side up after all the operations have been executed?

Input

Line 1: Two space-separated integers N and Q .

Next Q lines: Two space-separated integers L and R .

Output

A single integer corresponding to the number of tails up coins after all the operations.

Constraint

$$1 \leq N \leq 10^6$$

$$1 \leq Q \leq 500$$

$$\text{For each operation, } 0 \leq L \leq R < N$$

Example

Input

10	5
0	1
3	4
2	3
1	8
1	9

Output

5
