Head and Tails (coding game)

Statement

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) will be flipped

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.

Constraints

1 ≤ N ≤ 10^15
1 ≤ Q ≤ 500

0 ≤ L ≤ R < N

example

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

output
5
```

My code

My idea

I wanted to create 3 arrays, one for all the coins, another for the head coins, and the last for the tails coins. At the begining tail array is emtpy and head and coins arrays are filled up by all the coins cause at the begining all coins are heads up.

For each turn I check if coinces in the [L, R] are in head or tail. Then I remove them from their array and insert them inside the other one.

At the end I just print the size of the tail array.

My code

```
import sys
import math

# Auto-generated code below aims at helping you parse
# the standard input according to the problem statement.

n, q = [int(i) for i in input().split()]
head = [i for i in range(n)]
tail = []
coins = [i for i in range(n)]
for i in range(q):
    l, r = [int(j) for j in input().split()]
    for i in range(n):
        if (i <= r and i >= l):
            if coins[i] in head:
                head.remove(coins[i])
                tail.append(coins[i])
            elif coins[i] in tail:
                tail.remove(coins[i])
                head.append(coins[i])
print(len(tail))
```

Problems with my code

- I parkour all the number from 0 to n [0, n [to search the [L, R]. I could just did

```
for i in range (l, n + 1):
```

Another way to solve it

It would be to, instead of picking up coins from one array to the other, just *= -1 the value of each coin concerned by an operation. At the end we just have to count the number of negative coins to know what are the coins tailed up.