Sequence

Ivancho got bored at school as usual and had to think of his own ways to entertain himself. He got a piece of paper and wrote **N** numbers on it - from **0** to **N - 1** in this order. He defined two operations over this sequence:

1. Move the number X right **after** the number Y.
2. Move the number X right **before** the number Y.

For example, if **N = 5** we start with

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 0 | **1** | 2 | **3** | 4 |

Apply the operation **1 1 3** to obtain

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **0** | 2 | **3** | 1 | 4 |

Apply the operation **2 3 0** to obtain

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 3 | 0 | 2 | 1 | 4 |

Ivancho played around with the sequence for a while, applying M operations in total. After that he decided to reorder his current sequence so that the numbers follow in decreasing order - from **N - 1** to **0**. Ivancho would like to know what is the smallest possible number of operations (as defined above) that he must apply to achieve his goal.

**Input:** On the first line of the input file **sequence.in** are written the integers **N** and **М**. Each of the next **M** lines describes the single operation applied by Ivancho - “1 X Y” for operation 1 or “2 X Y” for operation 2.

**Output:** On the only line of the output **sequence.out** print the smallest number of operations Ivancho needs to do in order to sort his final sequence in decreasing order.

**Constraints:**

2 <= **N** <= 1 000 000

0 <= **M** <= 500 000

0 <= X, Y <= N - 1

X is different from Y

**Time limit:** 1.5 sec

**Memory limit:** 256 MB

**Example:**

|  |  |
| --- | --- |
| **sequence.in** | **sequence.out** |
| 5 21 1 32 3 0 | 2 |

Please have a look at the example from the statement.

The required sequence 4 3 2 1 0 can be obtained after moving 0 and 4 for example.