Task: SWI
Christmas Chain

ORGANIZAÇÃO EDUCACIONAL FARIAS BRITO

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Every Christmas, Byteasar decorates his home with a chain of colorful lights. This year, however, for the very first time, he intends to pick the colors of the lights himself. His rigorous (and somewhat peculiar) aesthetic sense tells him (in a nutshell) that a chain is pretty if some of its fragments share the same configuration of lights. Moreover, Byteasar's wife asked that this year's chain be "diverse", which he understands to have as many colors as possible. Help Byteasar in determining how many colors of lights he will need.

Input

The first line of the input contains two integers, n and m ($n \geq 2$, $m \geq 1$), separated by a single space; these specify the number of lights in the chain and the number of Byteasar's aesthetic rules, respectively. We number successive lights in the chain from 1 to n. Each of the following m lines specifies one aesthetic rule (requirement) by three integers a_i, b_i, and l_i ($1 \leq a_i, b_i, l_i$; $a_i \neq b_i$; $a_i, b_i \leq n - l_i + 1$), separated by single spaces. Such triplet requires that the fragments of the chain consisting of the lights numbered $\{a_i, \ldots, a_i + l_i - 1\}$ and $\{b_i, \ldots, b_i + l_i - 1\}$ should be identical. In other words, the lights number a_i and b_i must be of the same color, as must the lights number $a_i + 1$ and $b_i + 1$, and so forth up to the lights number $a_i + l_i - 1$ and $b_i + l_i - 1$.

Output

Your program should print a single positive integer k to the output: the maximum number of different colors of lights that can appear in a chain that satisfies the aesthetic requirements given on input.

Example

For the input data:

```
10 3
1 6 3
5 7 4
3 8 1
```

the correct result is:

```
3
```

whereas for the following input data:

```
4 2
1 2 2
2 3 2
```

the correct answer is:

```
1
```

Explanation of the example: Let `a`, `b`, and `c` denote three distinct light colors. Then the following chain satisfies Byteasar's and his wife's requirements in the first example: `abacbababa`.

Grading

Subset	Constraints	Points
1	$n, m \leq 2000$	30
2	$n, m \leq 500\,000$, all values l_i are equal to 1	20
3	$n, m \leq 80\,000$	30
4	$n, m \leq 500\,000$	20