# F. Runner's Problem

time limit per test: 4 seconds
memory limit per test: 256 megabytes
input: standard input
output: standard output

You are running through a rectangular field. This field can be represented as a matrix with $3$ rows and $m$ columns. $(i, j)$ denotes a cell belonging to $i$-th row and $j$-th column.

You start in $(2, 1)$ and have to end your path in $(2, m)$. From the cell $(i, j)$ you may advance to:

- $(i - 1, j + 1)$ — only if $i > 1$,
- $(i, j + 1)$, or
- $(i + 1, j + 1)$ — only if $i < 3$.

However, there are $n$ obstacles blocking your path. $k$-th obstacle is denoted by three integers $a_k$, $l_k$ and $r_k$, and it forbids entering any cell $(a_k, j)$ such that $l_k \le j \le r_k$.

You have to calculate the number of different paths from $(2, 1)$ to $(2, m)$, and print it modulo $10^9 + 7$.

## Input

The first line contains two integers $n$ and $m$ ($1 \le n \le 10^4$, $3 \le m \le 10^{18}$) — the number of obstacles and the number of columns in the matrix, respectively.

Then $n$ lines follow, each containing three integers $a_k$, $l_k$ and $r_k$ ($1 \le a_k \le 3$, $2 \le l_k \le r_k \le m - 1$) denoting an obstacle blocking every cell $(a_k, j)$ such that $l_k \le j \le r_k$. Some cells may be blocked by multiple obstacles.

## Output

Print the number of different paths from $(2, 1)$ to $(2, m)$, taken modulo $10^9 + 7$. If it is impossible to get from $(2, 1)$ to $(2, m)$, then the number of paths is $0$.

### Example

**input**

```
2 5
1 3 4
2 2 3
```

**output**

```
2
```