Array

Time limit: *1280 ms*
Memory limit: *264 MB*

This problem was co-authored by Huawei.

There is an array of n integers $a_1, a_2, a_3, ..., a_n$. This array follows m rules. In each rule, you are given three integers l, r, and k, indicating that $(\sum_{i=l}^{r} a_i)\%p = k$. You need to find an array satisfying all rules.

Standard Input

The first line contains 3 integers n, m and p, indicating the length of the array, the number of rules and the modulo.

The next m lines each contain 3 integers l, r and k, for the rule: $(\sum_{i=l}^{r} a_i)\%p = k$.

Standard Output

Output an array of n integers $a_1, a_2, a_3, ..., a_n$ satisfying all rules. This array must be the lexicographically smallest array out of all arrays satisfying the previous conditions. If there is no solution, output $None$.

Constraints and notes

- $1 \leq m \leq 3000$
- $1 \leq l \leq r \leq n \leq 10^5$
- $p \leq 10^9 + 7$
- $0 \leq k < p$

Input	Output
5 1 7 2 3 3	0 0 3 0 0
20 5 19 2 7 15 5 19 0 3 6 1 6 9 1 7 19 17	0 0 0 18 0 2 14 0 4 0 0 0 0 0 0 0 0 0 18 0
20 3 1000000007 2 5 6511 2 15 165151 6 15 134131351	None