Problem C. СТАНКЕВ** ANDREW

Input file:	*standard input*
Output file:	*standard output*
Time limit:	2 seconds
Memory limit:	512 mebibytes

Cyclic shift of a sequence s by k $(0 \le k < |s|)$ positions is the following sequence $s_k s_{k+1} \dots s_{|s|-1} s_0 s_1 \dots s_{k-1}$. Note that 0-indexing is used. For example, cyclic shift by 0 positions is equal to the original sequence.

There is a permutation which is initially equal to the identity permutation $(0, 1, \dots, n-1)$.

Process a number of the following queries. Replace a subarray of the permutation by its cyclic shift by some number of positions. Formally you are given l, r, k, such that $0 \le l < r \le n,\ 1 \le k < r - l$ and replace the subarray between indices l and r (a half-interval, l-th element is included, r-th is not) by its cyclic shift by k positions. For example, applying this operation to the permutation $[1, 0, 3, 4, 2]$ with parameters $l = 1, r = 4, k = 1$ results in a permutation $[1, 3, 4, 0, 2]$.

After each query find the cyclic shift of the permutation which contains the minimal number of inversions.

The changes of the permutation persist and are not reverted between queries.

Input

The first line contains two integers n and q $(2 \le n \le 10^5, 1 \le q \le 10^5)$, length of the permutation and the number of queries, respectively.

q lines follow. i-th of them contains three integers l_i, r_i, k_i $(0 \le l_i < r_i \le n,\ 1 \le k_i < r_i - l_i)$, parameters of the i-th query.

Output

Print q lines. i-th of them should contain an integer k $(0 \le k < n)$, such that after the first i queries cyclic shift of the permutation by k positions contains the minimal number of inversions among cyclic shifts. If there are multiple possible k print the smallest one.

Examples

standard input	standard output
8 1 1 7 3	4
7 5 1 7 2 0 5 1 2 6 3 0 5 4 0 7 5	5 4 5 3 0

Note

In the first example after the modification the permutation is $[0, 4, 5, 6, 1, 2, 3, 7]$. Its cyclic shift with the minimal number of inversions is $[1, 2, 3, 7, 0, 4, 5, 6]$.