

Testing Round #12

A. Divisibility

time limit per test: 1 second
memory limit per test: 256 megabytes
input: standard input
output: standard output

Find the number of k -divisible numbers on the segment $[a, b]$. In other words you need to find the number of such integer values x that $a \leq x \leq b$ and x is divisible by k .

Input

The only line contains three space-separated integers k , a and b ($1 \leq k \leq 10^{18}$; $-10^{18} \leq a \leq b \leq 10^{18}$).

Output

Print the required number.

Examples

input
1 1 10
output
10
input
2 -4 4
output
5

B. Restaurant

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

A restaurant received n orders for the rental. Each rental order reserve the restaurant for a continuous period of time, the i -th order is characterized by two time values — the start time l_i and the finish time r_i ($l_i \leq r_i$).

Restaurant management can accept and reject orders. What is the maximal number of orders the restaurant can accept?

No two accepted orders can intersect, i.e. they can't share even a moment of time. If one order ends in the moment other starts, they can't be accepted both.

Input

The first line contains integer number n ($1 \leq n \leq 5 \cdot 10^5$) — number of orders. The following n lines contain integer values l_i and r_i each ($1 \leq l_i \leq r_i \leq 10^9$).

Output

Print the maximal number of orders that can be accepted.

Examples

input
2 7 11 4 7
output
1

input
5 1 2 2 3 3 4 4 5 5 6
output
3

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

C. Subsequences

time limit per test: 1 second
memory limit per test: 256 megabytes
input: standard input
output: standard output

For the given sequence with n different elements find the number of increasing subsequences with $k + 1$ elements. It is guaranteed that the answer is not greater than $8 \cdot 10^{18}$.

Input

First line contain two integer values n and k ($1 \leq n \leq 10^5, 0 \leq k \leq 10$) — the length of sequence and the number of elements in increasing subsequences.

Next n lines contains one integer a_i ($1 \leq a_i \leq n$) each — elements of sequence. All values a_i are different.

Output

Print one integer — the answer to the problem.

Examples

input
5 2 1 2 3 5 4
output
7