Problem D. Another Range Sum Problem

TimeLimit: 1 second
MemoryLimit: 256 megabytes

You are given a sequence of n non-negative integers $a = [a_1, a_2, \ldots, a_n]$. Your task is to find a continuous subsegment $[l, r]$ $(1 \leq l \leq r \leq n)$ such that the sum of its elements is between v_{min} and v_{max} (inclusive).

Among all valid subsegments, you need to find the one that maximizes the **MEX** value of the elements in that subsegment. If there is no such subsegment that satisfies the sum condition, output -1.

The **MEX** (minimum excluded value) of a segment is the smallest non-negative integer that is **not** in the array. For example:

- The MEX of $[2, 2, 1]$ is 0 because 0 is not in the segment.
- The MEX of $[3, 1, 0, 1]$ is 2 because 0 and 1 are in the segment but 2 is not.
- The MEX of $[0, 1, 4, 2]$ is 3 because $0, 1$, and 2 are in the segment but 3 is not.

Input

The first line contains three integers n, v_{min}, and v_{max} $(1 \leq n \leq 4 \cdot 10^5,\ 0 \leq v_{min} \leq v_{max} \leq 1.6 \cdot 10^{11})$. The second line contains n integers $a_1, a_2, \ldots, a_n$ $(0 \leq a_i \leq n)$.

Output

Output a single integer — the maximum MEX value of a valid subsegment. If no valid subsegment exists, output -1.

Example

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