D. Dasha and Very Difficult Problem

time limit per test: 2 seconds
memory limit per test: 256 megabytes
input: standard input
output: standard output

Dasha logged into the system and began to solve problems. One of them is as follows:

Given two sequences a and b of length n each you need to write a sequence c of length n, the i-th element of which is calculated as follows: $c_i = b_i - a_i$.

About sequences a and b we know that their elements are in the range from l to r. More formally, elements satisfy the following conditions: $l \leq a_i \leq r$ and $l \leq b_i \leq r$. About sequence c we know that all its elements are distinct.

Dasha wrote a solution to that problem quickly, but checking her work on the standard test was not so easy. Due to an error in the test system only the sequence a and the *compressed sequence* of the sequence c were known from that test.

Let's give the definition to a *compressed sequence*. A *compressed sequence* of sequence c of length n is a sequence p of length n, so that p_i equals to the number of integers which are less than or equal to c_i in the sequence c. For example, for the sequence $c = [250, 200, 300, 100, 50]$ the compressed sequence will be $p = [4, 3, 5, 2, 1]$. Pay attention that in c all integers are distinct. Consequently, the *compressed sequence* contains all integers from 1 to n inclusively.

Help Dasha to find any sequence b for which the calculated *compressed sequence* of sequence c is correct.

Input

The first line contains three integers n, l, r $(1 \leq n \leq 10^5, 1 \leq l \leq r \leq 10^9)$ — the length of the sequence and boundaries of the segment where the elements of sequences a and b are.

The next line contains n integers $a_1, a_2, ..., a_n$ $(l \leq a_i \leq r)$ — the elements of the sequence a.

The next line contains n distinct integers $p_1, p_2, ..., p_n$ $(1 \leq p_i \leq n)$ — the *compressed sequence* of the sequence c.

Output

If there is no the suitable sequence b, then in the only line print "-1".

Otherwise, in the only line print n integers — the elements of any suitable sequence b.

Examples

input
5 1 5
1 1 1 1 1
3 1 5 4 2

output
3 1 5 4 2

input
4 2 9
3 4 8 9
3 2 1 4

output
2 2 2 9

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

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-1
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Note

Sequence b which was found in the second sample is suitable, because calculated sequence $c = [2 - 3, 2 - 4, 2 - 8, 9 - 9] = [-1, -2, -6, 0]$ (note that $c_i = b_i - a_i$) has compressed sequence equals to $p = [3, 2, 1, 4]$.