Dance Teacher (`dance`)

Bori is a folk dance teacher at her school. Her group of children are busy preparing for the March 15 celebratory performance. The children dance in pairs: they stand up in two rows, and child i in the front row pairs up with child i in the back row. The question is whether the pairs will look *good* on stage.

Figure 1: A folk dance.

Bori has two lists containing the heights (in centimeters) of the children in the front and in the back row (in the order they stand up for the dance). Each child in the front row is shorter than their pair in the back row. Bori knows that a pair looks good together if the child in the front row is just a "little" shorter than the child in the back row: the difference in their heights must be at most D centimeters. The dance is *beautiful* iff every pair looks good together.

Your task is to help Bori determine whether the dance performance will be beautiful.

> ☞ Among the attachments of this task you may find a template file `dance.*` with a sample incomplete implementation.

Input

The first line contains the integer N, the number of children in each row.

The second line contains the integer D, the maximum height difference of the pairs.

The third line contains N integers $A_0, A_1, \ldots, A_{N-1}$, the heights of the children in the front row.

The forth line contains N integers $B_0, B_1, \ldots, B_{N-1}$, the heights of the children in the back row.

Output

You need to print YES if the dance will be beautiful. Otherwise you need to print NO.

Constraints

- $1 \le N \le 10\,000$.
- $1 \le D \le 100$.
- $50 \le A_i < B_i \le 200$ for each $i = 0 \ldots N-1$.

Scoring

Your program will be tested against several test cases grouped in subtasks. In order to obtain the score of a subtask, your program needs to correctly solve all of its test cases.

– **Subtask 1** (0 points)　　　Examples.

– **Subtask 2** (10 points)　　　$N = 1$, $D = 1$.

– **Subtask 3** (20 points)　　　$N = 1$.

– **Subtask 4** (30 points)　　　$D = 1$.

– **Subtask 5** (40 points)　　　No additional limitations.

Examples

input	output
4 10 110 170 120 130 120 175 121 139	YES
4 9 110 170 120 130 120 175 121 139	NO

Explanation

In the **first sample case** the height differences are $10, 5, 1, 9$, respectively. Since all of them are less than or equal to $D = 10$, the answer is YES.

In the **second sample case** the answer is NO, as now we have the same heights with $D = 9$.