Permuting Two Arrays

HackerRank

There are two n-element arrays of integers, A and B. Permute them into some A' and B' such that the relation $A'[i] + B'[i] \geq k$ holds for all i where $0 \leq i < n$.

There will be q queries consisting of A, B, and k. For each query, return `YES` if some permutation A', B' satisfying the relation exists. Otherwise, return `NO`.

Example
$A = [0, 1]$
$B = [0, 2]$
$k = 1$

A valid A', B' is $A' = [1, 0]$ and $B' = [0, 2]$: $1 + 0 \geq 1$ and $0 + 2 \geq 1$. Return `YES`.

Function Description

Complete the *twoArrays* function in the editor below. It should return a string, either `YES` or `NO`.

twoArrays has the following parameter(s):

- *int k:* an integer
- *int A[n]:* an array of integers
- *int B[n]:* an array of integers

Returns
- *string:* either `YES` or `NO`

Input Format

The first line contains an integer q, the number of queries.

The next q sets of 3 lines are as follows:

- The first line contains two space-separated integers n and k, the size of both arrays A and B, and the relation variable.
- The second line contains n space-separated integers $A[i]$.
- The third line contains n space-separated integers $B[i]$.

Constraints

- $1 \leq q \leq 10$
- $1 \leq n \leq 1000$
- $1 \leq k \leq 10^9$

- $0 \leq A[i], B[i] \leq 10^9$

Sample Input

```
STDIN       Function
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2           q = 2
3 10        A[] and B[] size n = 3, k = 10
2 1 3       A = [2, 1, 3]
7 8 9       B = [7, 8, 9]
4 5         A[] and B[] size n = 4, k = 5
1 2 2 1     A = [1, 2, 2, 1]
3 3 3 4     B = [3, 3, 3, 4]
```

Sample Output

```
YES
NO
```

Explanation

There are two queries:

1. Permute these into $A' = [1, 2, 3]$ and $B' = [9, 8, 7]$ so that the following statements are true:
   - $A[0] + B[0] = 1 + 9 = 10 \geq k$
   - $A[1] + B[1] = 2 + 8 = 10 \geq k$
   - $A[2] + B[2] = 3 + 7 = 10 \geq k$
2. $A = [1, 2, 2, 1]$, $B = [3, 3, 3, 4]$, and $k = 5$. To permute A and B into a valid A' and B', there must be at least three numbers in A that are greater than 1.