DMOPC '18 Contest 1 P2 - Sorting

Time limit: 2.0s **Memory limit:** 256M

You are given a natural number K and a permutation P of the numbers $1, 2, \ldots, N$. Since P is a permutation, it has length N and each number from 1 to N appears exactly once. You are allowed to swap two elements if their positions are exactly K apart. In other words, you may swap P_i and P_j only if $|i - j| = K$. Determine if P can be sorted from least to greatest.

Constraints

$1 \leq K < N \leq 100$

Subtask 1 [40%]

$1 \leq K \leq 2$

Subtask 2 [60%]

$1 \leq K < 100$

Input Specification

The first line will contain two space-separated integers, N and K.
The next line will contain N space-separated integers, $P_1, P_2, \ldots, P_N$.

Output Specification

Output `YES` if it may be sorted and `NO` otherwise.

Sample Input 1

```
5 1
1 4 3 2 5
```

Sample Output 1

```
YES
```

Explanation for Sample 1

Swap P_3 and P_4. The sequence is now `1 4 2 3 5`.
Swap P_2 and P_3. The sequence is now `1 2 4 3 5`.
Swap P_3 and P_4. The sequence is now `1 2 3 4 5`, which is sorted.

Sample Input 2

```
5 2
5 4 3 2 1
```

Sample Output 2

```
YES
```

Explanation for Sample 2

Swap P_2 and P_4. The sequence is now `5 2 3 4 1`.
Swap P_1 and P_3. The sequence is now `3 2 5 4 1`.
Swap P_3 and P_5. The sequence is now `3 2 1 4 5`.
Swap P_1 and P_3. The sequence is now `1 2 3 4 5`, which is sorted.

Sample Input 3

```
5 3
5 4 3 2 1
```

Sample Output 3

```
NO
```