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Scarecrow Sort

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Scarecrow Sort

2.0/2.0 points (graded)

Input file:	scarecrow.in
Output file:	scarecrow.out
Time limit:	2 seconds
Memory limit:	256 megabytes

The “Scarecrow sort” is a very old game, which was played by children of computer scientists in medieval Russia. We restored the description of this game from ancient birch-bark perforated cards specially for this course.

The player has to sort n matryoshkas, located in a row, by their size. However, before the game starts, the elder guys insert a big wooden stick in the sleeves of the player, so, as a result, the player has her hands fixed wide, so she indeed looks like a scarecrow.

Because of this stick, the only kind of thing the player is allowed to do is to pick two matryoshkas, which are located at the distance k apart from each other (that is, the i -th and the $(i + k)$ -th), then turn back and put them back into the row, thus swapping them.

Given a sequence of matryoshkas and the value of k . Your task is to determine whether the player can sort this sequence.

Input

The first line contains two numbers n, k ($1 \leq n, k \leq 10^5$) – the number of matryoshkas and the scarecrow width. The second line contains n integer numbers, which specify the sizes of matryoshkas. These numbers do not exceed 10^9 by the absolute value.

Output

Print “YES” if it is possible to sort the matryoshka sequence in a non-decreasing order, and print “NO” otherwise.

Examples

scarecrow.in	scarecrow.out
3 2 2 1 3	NO
Download	Download
5 3 1 5 3 4 1	YES
Download	Download

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Topic: 06: 3rd Week Problems / Scarecrow Sort

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