Check Mapping

Consider a function $f: A \rightarrow B$ which maps members of set A to a set B. For simplicity, we let A be a set of integers from 1 to N, inclusively. The function f can be described by a sequence S of N integers $< d_1, d_2, d_3, \ldots, d_n >$ which indicates that $f(i) = d_i$.

Given a sequence S, write a program to determine whether f is a permutation, that is, f is both 1-1 (injective) and onto (surjective) and that the set A is equal to the set B. A function f is said to be 1-1 when $f(x_1) = f(x_2)$ implies $x_1 = x_2$. A function is said to be onto when, for every y in B, there is an x such that $f(x) = y$.

Input

- The first line contains one integer N (1 <= N <= 100,000) which describes the set A as {1..N}
- The second line contains N integers, $d_1, d_2, d_3, \ldots, d_n$, which describes the sequence S where $-2 * 10^9 \leq d_i \leq 2 * 10^9$

Output

There is exactly one line. The line must be "YES" if and only if the function describes by S is a permutation, otherwise, the line must be "NO".

Example

Input	Output
4 4 1 3 2	YES
7 -1 -2 3 0 2 3 4	NO
5 5 4 3 1 3	NO