B. Datatypes

time limit per test: 2 seconds
memory limit per test: 256 megabytes
input: standard input
output: standard output

Tattah's youngest brother, Tuftuf, is new to programming.

Since his older brother is such a good programmer, his biggest dream is to outshine him. Tuftuf is a student at the German University in Cairo (GUC) where he learns to write programs in Gava.

Today, Tuftuf was introduced to Gava's unsigned integer datatypes. Gava has n unsigned integer datatypes of sizes (in bits) $a_1, a_2, \ldots a_n$. The i-th datatype have size a_i bits, so it can represent every integer between 0 and $2^{a_i} - 1$ inclusive.

Tuftuf is thinking of learning a better programming language. If there exists an integer x, such that x fits in some type i (in a_i bits) and $x \cdot x$ does not fit in some other type j (in a_j bits) where $a_i < a_j$, then Tuftuf will stop using Gava.

Your task is to determine Tuftuf's destiny.

Input

The first line contains integer n ($2 \le n \le 10^5$) — the number of Gava's unsigned integer datatypes' sizes. The second line contains a single-space-separated list of n integers ($1 \le a_i \le 10^9$) — sizes of datatypes in bits. Some datatypes may have equal sizes.

Output

Print "YES" if Tuftuf will stop using Gava, and "NO" otherwise.

Examples

input
3 64 16 32

output
NO

input
4 4 2 1 3

output
YES

Note

In the second example, $x = 7$ (111_2) fits in 3 bits, but $x^2 = 49$ (110001_2) does not fit in 4 bits.