

Almost Large

Input file: **standard input**
Output file: **standard output**
Time limit: 2 seconds
Memory limit: 1024 megabytes

You are given a set of non-negative integers of size N , denoted as $S = \{S_1, S_2, \dots, S_N\}$.

There is a variable x , initially set to S_1 . You can perform the following operation any number of times:

- Choose one element from S and denote it as y . Replace x with y if the following **condition** is satisfied:
 - **Condition:** Let X_j and Y_j be the digits at the 3^j place in the ternary representations of x and y , respectively. The number of indices j such that $X_j > Y_j$ must be at most 1.

Determine whether it is possible to make $x = S_N$ after performing some operations.

Input

The input is given from Standard Input in the following format:

N
 $S_1 S_2 \dots S_N$

- All values in the input are integers.
- $2 \leq N \leq 2 \times 10^5$
- $0 \leq S_i < 3^{12}$ ($1 \leq i \leq N$)
- $S_i \neq S_j$ ($1 \leq i < j \leq N$)

Output

Output **Yes** if it is possible to make $x = S_N$, otherwise output **No**.

Examples

standard input	standard output
2 21 14	Yes
2 12 1	No
5 5 15 45 135 405	Yes

Note

In the first example, you can transform $x = 21$ to $x = 14$ as follows:

- Initially, $x = 21$. Choose $y = 14$ and perform the operation.
 - In ternary representation, $(X_2, X_1, X_0) = (2, 1, 0)$ for x , and $(Y_2, Y_1, Y_0) = (1, 1, 2)$ for y .
 - There is only one index $j = 2$ where $X_j > Y_j$, so replace x with 14.