Problem E. Elephants wearing hats

There are n elephants numbered by integers from 1 to n, standing on a circle. Each elephant is wearing a hat. Elephant i $(1 \leq i \leq n)$ looks at other elephants, and says "There are exactly c_i different colors among the $n-1$ hats worn by the elephants except myself."

Given the sequence $c_1, c_2, \ldots, c_n$, write a program that determines whether there exists a sequence of colors of hats that is consistent with the sentences that the elephants said.

Input

Your input consists of an arbitrary number of records, but no more than 5.

Each record consists of two lines. The first line contains an integer n $(2 \leq n \leq 100{,}000)$ The second line contains n integers $c_1, c_2, \ldots, c_n$ $(1 \leq c_i \leq n-1)$, each separated by a space.

The end of input is indicated by a line containing only the value -1.

Output

For each input record, print "YES" (without quotes) if there exists a sequence of colors of hats that is consistent with the sentences that the elephants said, and print "NO" (without quotes) otherwise.

Example

Standard input	Standard output
3 2 1 2 4 2 2 2 2 3 1 2 1 -1	YES YES NO

Explanation of the example

For the first example: If the colors are black, white and black hats, respectively, it is consistent with c_1, c_2, c_3.

For the third example: From elephant 1, we know that elephant 2 and elephant 3 has same color of hats. From elephant 3, we know that elephant 1 and elephant 2

has same color of hats. Therefore all elephants have the same color of hats. However elephant 2 says there are at least 2 different hats, which is a contradiction.

Time Limit

1 second.