

# Mock CCC '18 Contest 3 S4 - A Graph Problem

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**Time limit:** 0.6s    **Memory limit:** 1G

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Given an undirected weighted graph where there is an edge between every pair of distinct vertices of nonnegative integer weight, let  $a_i$  be the sum of the weights of the edges incident on vertex  $i$ .

Given a sequence of integers  $b_1$  through  $b_N$ , determine if it is possible to construct a graph of  $n$  vertices such that  $a_i = b_i$  for every vertex in the graph.

## Constraints

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$$1 \leq N \leq 50$$

$$1 \leq b_i \leq 10^9$$

There is no opportunity for partial credit on this problem.

## Input Specification

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The first line contains a single integer,  $N$ .

Each of the next  $N$  lines contains a single integer,  $b_1$  through  $b_N$  in order.

## Output Specification

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Output  YES if it is possible to construct such a graph. Output  NO otherwise.

## Sample Input 1

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```
3
1
1
2
```

## Sample Output 1

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```
YES
```

## Sample Input 2

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3  
1  
1  
3

## Sample Output 2

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NO