Evolution of molecules   X74560_en

In an experiment with n molecules of several integer weights, a curious phenomenon has been detected: repeatedly, the lightest and the heaviest molecules are combined, they disappear, and generate a new molecule with the average of the two weights (rounded down if necessary). The process finishes when only one molecule exists.

For example, if the initial weights are 1, 3, 4 and 8, first of all 1 and 8 are combined and generate a molecule with weight $\lfloor (1 + 8)/2 \rfloor = 4$. We now have 3, 4 and 4, and 3 and 4 are combined, generating a new molecule with weight $\lfloor (3 + 4)/2 \rfloor = 3$. Now we only have 3 and 4, which are combined to generate one with weight 3, which is the final result.

Write a program that efficiently simulates this process and writes the weight of the last molecule.

Input

The input consists of several cases. Each case begins with the number of molecules n, followed by n weights, which are integers between 1 and 10^9. You can assume that $1 \leq n \leq 10^5$.

Output

For each case, write the weight of the last molecule.

Observation

We advise you not to use multisets to solve this problem.

Sample input 1

```
4   1  3  4  8
2   1000000000  999999999
1   42
3   23  23  23
5   5  4  1  2  3
```

Sample output 1

```
3
999999999
42
23
3
```

Problem information

Author: Salvador Roura

Generation: 2026-01-25T22:12:58.055Z