
Evolution of molecules

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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

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

Sample output

```
3
999999999
42
23
3
```

Problem information

Author :

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