

Dividing Money

Mr. Kejriwal has got "N" no. of cheques, each cheque has A_i amount of money written on it ($1 \leq i \leq N$). Now he has to distribute this money for party works in two areas. He has to divide the cheques into two parts such that the difference of sum of money for the two parts is minimum. Can you tell him the minimum difference possible?

Input

The first line will contain "N" the no. of cheques. The next line will contain "N" integers A_i ($1 \leq i \leq N$) where A_i denotes the amount of money written on the i th cheque.

Output

Output a single integer denoting the minimum difference possible.

Constraints

$1 \leq N \leq 100$

$0 \leq A_i \leq 1000$

Example

Input:

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5  
6 5 3 3 8
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Output:

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1
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In the example sets (6,3,3) and (5,8) equals to 12 and 13 respectively, so the minimum possible difference is 1.