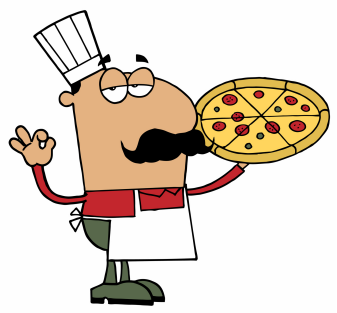
Problem B - Zé Manel is making pizzas

Problem

Zé Manel found a part-time job in a new take-away pizzeria close to the University. His job seems to be very easy: Collect the orders, put the pizzas in the ovens and, once cooked, give them to the clients. However, clients are starting to complain because of the amount of time that they have to wait for the pizza. Since the owner does not have enough money to buy a new oven, he asked Zé Manel to find a way of improving the usage of the two existing ovens.

Since Zé Manel likes challenges, he went back home and thought about it. In the next day, Zé Manel went to the owner and explained that he could improve the satisfaction of the clients in general if the workload of the two ovens is as balanced as possible for a given set of orders. One way of balancing the workload is to assign pizzas to the two ovens such that the absolute difference between their total cooking time is as small as possible.

Now, Zé Manel has to implement the code for assigning the workload. However, this is not so simple as it seems..



Input

The first line gives the number of pizzas (*N*). The next *N* lines gives the cooking time for each pizza as a real number with two decimal places. Other tests cases may follow.

Output

Print the minimal absolute difference of total cooking time of the two ovens (a real number with two decimal places).

Constraints

$1 \leq N \leq 60$.

Example

Input:

```
4
1.41
1.73
2.00
2.23
6
1.20
1.36
1.59
2.49
2.51
3.23
```

Output:

```
0.09
0.02
```
