2026/2027 SOUTHERN CALIFORNIA REGIONAL
INTERNATIONAL COLLEGIATE PROGRAMMING CONTEST

Problem 4
Vickrey Auction

Swamp County is selling surplus items it no longer needs. The County traditionally auctioned surplus items using a *sealed-bid* auction, in which bidders submitted secret, sealed bids for an item. At the end of the auction, all bids were opened. The bids were ranked first by the price offered (high to low), and among bids of the same price, the time submitted (earliest to latest). The item was sold to the highest-ranked bidder for the price offered.

In a sealed-bid auction, bidders worry that they may be over-paying, so they tend to bid less than they might actually be willing to pay. Swamp County is now planning to use the "Vickrey auction" method instead. This is also a sealed-bid auction, with bids ranked as before. The difference is that the highest-ranked bidder gets the item, but pays the amount of the second-ranked bid. This auction style encourages bidders to offer what they see as the true value of the item.

As bids are submitted, bidders are assigned private bidder numbers in ascending order starting with 1.

Your team is write a program that determines the winner and price to be paid in a Vickrey auction. Input to your program begins with n, the number of bidders. n lines follow with the sealed bids of the buyers from 1 to n in order. There will be at least 2 and not more than 100 bidders. Each bid B is expressed in integer dollars, $1 \leq B \leq 1000$.

Your program is to print a line with two values separated by a single space: the number of the winning bidder, followed by the amount the bidder will pay.

Sample Input 1

```
2
4
10
```

Output for Sample Input 1

```
2 4
```

Sample Input 2

```
2
2
1
```

Output for Sample Input 2

```
1 1
```

Problem 4
Vickrey Auction (continued)

Sample Input 3

```
8
99
13
127
71
101
127
65
99
```

Output for Sample Input 3

```
3 127
```