The Place That Sends You Mad

Amal wanted to get a permit for his chicken farm and went to a government office. Unsurprisingly, he couldn't get the permit because of the queue. So, he wants to find the minimum time that the whole queue can be served.

These are Amal's findings:

1. The queue leads to the officer contains n people, and each person has a positive integer a_i, and that is the time that is needed to complete the permit.
2. The government official can serve two citizens simultaneously. However, if one takes a_x time and the other takes a_y time, the time needed to work both of them will be equal to $\max(a_x, a_y)$.
3. Getting a permit in this office is an uninterruptable process, and therefore if two citizens simultaneously come to the office, both will finish simultaneously.

The process is such that if the queue has more than one person waiting, two of the three people in front of the queue will be sent to the office simultaneously. If the queue has only one person, that person can directly go to the official alone.

Input Format

The first line contains a single number, n: the citizens in the queue. The second line contains the space-separated integers $a_1, a_2, a_3, \ldots, a_n$.

Constraints

- $0 \leq n \leq 10^3$
- $0 \leq a_i \leq 10^6$

Output Format

Print a single number, the minimum time to serve all the n citizens.

Sample Input 0

```
2
26 10
```

Sample Output 0

```
26
```

Sample Input 1

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4
2 4 6 8
```

Sample Output 1

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12
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