

Famous Architect



The state is planning to build a new line of sky-touching buildings and has tasked Ammar with designing it's layout because he is known to be the most outstanding architects in the industry. The following are the **requirements** which have been specified:

- There are **N** buildings with specified heights h_1, h_2, \dots, h_n .
- The buildings must be arranged in a straight line in some order.
- One of the sky-touching buildings is the **tower** and needs to be in the center.
- There are two sky-touching buildings which are **hotels** and need to place at the ends so that they are easily accessible to outsiders.

Note: If the number of sky-touching building s is even, the tower can be at either of the centers.

To make the design look good, Ammar wants to reduce the irregularity in heights between side by side sky-touching buildings. Formally, he wants to minimize the sum of the absolute height differences of adjacent sky-touching buildings. Your task is to help him find the accurate arrangement which satisfies the given requirements.

Input Format

- First line contains an integer **N** representing number of sky-touching buildings.
- Second line contains N space separated integers **$h_1, h_2, h_3 \dots h_n$** . The first integer represents the height of the **tower**. The second and third integers represent the height of the **two hotels**. The remaining integers represent the heights of the other sky-touching buildings.

Constraints

$$5 \leq N \leq 50 \quad 10 \leq h_i \leq 100$$

Output Format

One line containing an integer which is the minimum possible sum of absolute differences between adjacent sky-touching buildings among all possible arrangements which satisfy the requirements given in the problem statement.

Sample Input 0

```
5
13 17 11 12 10
```

Sample Output 0

```
10
```

Explanation 0

One optimal way to line up is 17, 12, 13, 10, 11 making the sum of the absolute differences $5 + 1 + 3 + 1 = 10$.

