Problem B
Tree Balance

Input file: *testdata.in*
Time limit: 1 seconds

Problem Description

We have n nodes, each of them has its node number i and weight w_i for the i-th node. We want to construct a binary tree by these nodes such that the sequence of node numbers of in-order traversal is from 1 to n. Figure 1 is a possible tree when n is 5. The sequence of the node number of inorder traversal of the tree is 1, 2, 3, 4, 5.
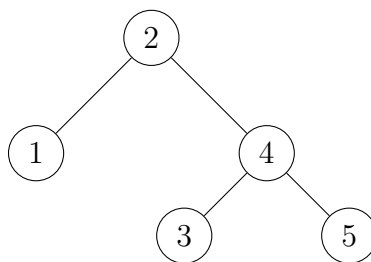

Figure 1: Example of possible tree when n is 5. Note that the weight of each node is not shown here.

There are many trees meet the requirement. Define $S(T)$ as the sum of the weights of all nodes in the tree T, $V(T)$ as the skewing value of the tree T, where $V(T) = (S(T_L) - S(T_R))^2 + V(T_L) + V(T_R)$. For an empty tree E we define $V(E) = S(E) = 0$. Can you tell us the minimum skewing value of these trees?

Technical Specification

- $1 \le N \le 100$

- $0 \leq w_i \leq 1000$

Input Format

There are multiple test cases in the input. Each test case starts with a line containing the number of nodes N. Then followed with a line, containing the weights of the N nodes, separated by a white space.

Output Format

For each test cases, output the minimum skewing value of the N nodes in a line.

Sample Input

```
1
4
4
1 2 3 4
```

Sample Output

```
0
2
```