Problem AE
Kangaroo Party

Time Limit: 1

A group of kangaroos live in houses on the number line. They all want to watch the Kangaroo Bowl!

Because not all of the kangaroos can fit a single house, they will designate two kangaroos to each host a party at their house. All other kangaroos will choose to go to the house that is closest to them, picking arbitrarily if they are the same distance from both.

A kangaroo expends $(a - b)^2$ units of energy to travel from location a to location b. Compute the minimum total units of energy expended if the two party house locations are chosen optimally.

Input

The first line of input contains a single integer n ($2 \leq n \leq 50$), which is the number of kangaroos.

Each of the next n lines contains a single integer x ($-1{,}000 \leq x \leq 1{,}000$), which is the location on the number line of the house of one of the kangaroos. Each location will be distinct.

Output

Output, on a single line, the minimum total units of energy expended by all the kangaroos, given that the party house locations are chosen optimally.

Sample Input 1	Sample Output 1
5 0 3 -3 10 11	19