

B. Kayaking

time limit per test: 2 seconds
memory limit per test: 256 megabytes
input: standard input
output: standard output

Vadim is really keen on travelling. Recently he heard about kayaking activity near his town and became very excited about it, so he joined a party of kayakers.

Now the party is ready to start its journey, but firstly they have to choose kayaks. There are $2 \cdot n$ people in the group (including Vadim), and they have exactly $n - 1$ tandem kayaks (each of which, obviously, can carry two people) and 2 single kayaks. i -th person's weight is w_i , and weight is an important matter in kayaking — if the difference between the weights of two people that sit in the same tandem kayak is too large, then it can crash. And, of course, people want to distribute their seats in kayaks in order to minimize the chances that kayaks will crash.

Formally, the instability of a single kayak is always 0, and the instability of a tandem kayak is the absolute difference between weights of the people that are in this kayak. Instability of the whole journey is the total instability of all kayaks.

Help the party to determine minimum possible total instability!

Input

The first line contains one number n ($2 \leq n \leq 50$).

The second line contains $2 \cdot n$ integer numbers w_1, w_2, \dots, w_{2n} , where w_i is weight of person i ($1 \leq w_i \leq 1000$).

Output

Print minimum possible total instability.

Examples

input
2 1 2 3 4
output
1

input
4 1 3 4 6 3 4 100 200
output
5