Pairs

SEASON 9 – FOURTH ROUND

You are given 2*N numbers. Your task is to divide them into pairs, such that the sum of the absolute difference of the numbers in each pair is minimal.

Input

From the first line of the input file `pairs.in` N is entered.

From the next line 2*N numbers are entered.

Output

In the output file `pairs.out` print the minimum sum of the differences.

Constraints

$1 \leq N \leq 100\ 000$

$0 \leq \text{each of the numbers} \leq 10^{18}$

Time limit: 0.4 seconds
Memory limit: 256 MB

Example

Input (pairs.in)	Output (pairs.out)	Explanation
3 5 7 1 6 9 5	7	When the pairs are (7;9), (6;5) and (1;5) the sum of the differences is 2 + 1 + 4 = 7 and that is the minimum possible sum.