



## Cards

### TASK

Adam has a fancy for numbers. Once he found a batch of empty paper cards in his drawer, wrote random numbers on both sides of each card and thought of the following puzzle: what smallest possible value can be obtained by putting all cards in an arbitrary order (and upturned if necessary) to the expression of the following form:

$$\square - \square + \square - \square + \square - \square + \dots - \square$$

After a while Adam came up with a solution. Could you do that too? Write a program to solve the puzzle described above.

### INPUT

The input file name is `CARDS.IN`. The first line contains the number of cards  $N$  ( $2 \leq N \leq 100\,000$ ,  $N$  is an even integer). Each of the following  $N$  lines contains two integers  $a_i$  and  $b_i$  ( $-2000 \leq a_i, b_i \leq 2000$ ;  $i = 1 \dots N$ ). These are the numbers written on separate sides of the  $i$ -th card.

### OUTPUT

The output file name is `CARDS.OUT`. The first and the only line should contain the minimal value that can be obtained by putting all the cards to the expression as described above.

### EXAMPLE

INPUT	OUTPUT	EXPLANATION
6	-34	Cards are put to the expression in this order: 1 <sup>st</sup> , 2 <sup>nd</sup> , 3 <sup>rd</sup> , 5 <sup>th</sup> , 4 <sup>th</sup> , 6 <sup>th</sup> .
-8 12		
0 5		
7 -3		$(-8) - 5 + (-3) - 7 + (-7) - 4 = -$
10 -7		34
-2 7		
1 4		
10	-155	Cards are put to the expression in this order: 2 <sup>nd</sup> , 1 <sup>st</sup> , 4 <sup>th</sup> , 3 <sup>rd</sup> , 5 <sup>th</sup> , 8 <sup>th</sup> , 6 <sup>th</sup> , 9 <sup>th</sup> , 7 <sup>th</sup> , 10 <sup>th</sup> .
70 70		
62 73		
81 65		$62 - 70 + 59 - 81 + 40 - 76 + 35 -$
59 77		85 + 57 - 96 = -155
99 40		
35 88		
80 57		
76 67		
85 57		
53 96		