Gifts

It‘s this time of the year again – Ivancho’s birthday. He’s received a huge amount of presents. Since he can’t open and try them all out in one day, he decides to split them in two parts – open one today and the other tomorrow.

Ivancho know the weight of each present so he wants to split them by weight but that will take him a whole day of calculations. That’s why he asks you to write a program **gifts** which splits the presents for him by a given number of presents and their weights. The two piles of presents must have as close as possible total weights.

Input: The first row of the input file **gifts.in** contains a positive integer **N** – the number of the presents. The following row contain **N** positive integers $\mathbf{K_i}$ – the weight of each present separated by spaces.

Output: The output file **gifts.out** should contain one positive integer – the larger total sum of weights of the two piles.

Limits:
2 <= **N** <= 4000
1 <= $\mathbf{K_i}$ <= 100
1 <= **i** <= **N**

Time limit: 2 sec
Memory limit: 256 MB

Preliminary tests: 4
Final tests: 10

Sample test:

gifts.in	**gifts.out**
5 1 4 10 3 5	12

Explanation:
To split the five weights in two when each part has to have as close as possible weight to the other, we can group them like this: [1, 10] and [3, 4, 5] respectively having sums of 11 and 12.