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 **Ki** – 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 <= **Ki** <= 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.