

Product

SEASON 6 – ROUND FOUR – 150 points



Unfortunately, there is no Ivancho in this problem so prepare for a boring statement.

We are given N integers. We divide them in two groups and find the sum of either group. Finally, we multiply the two sums. The goal is to find a partition that would result in a maximal product.

Input

The first line of the input file `product.in` contains the single integer N . The second line contains N more integers – the given numbers.

Output

In the output file `product.out` write three lines. On the first line, output the found maximum, the number of integers in the first group and the number of integers in the second group. On the next two lines, you must write the N integers from the input – the first of these lines containing the numbers in the first group, the second line – the numbers in the second group. The order of the groups and the numbers in each group can be arbitrary.

Notice: an empty group is not allowed.

Constraints

$$2 \leq N \leq 200$$

The N numbers are between 1 and 100

Time limit: 0.5 sec

Memory limit: 256 MB

Example

Input (<code>product.in</code>)	Output (<code>product.out</code>)
5	180 3 2
10 1 8 1 7	1 1 10
	7 8