Problem J
Jammer Jam

Swimming for exercise involves assigning swimmers to lanes suited to their fitness level.

We know the velocity of each swimmer in metres per hour. The swimmers start in any order but inevitably they will eventually become stuck behind the slowest swimmer in the lane and start matching their pace.

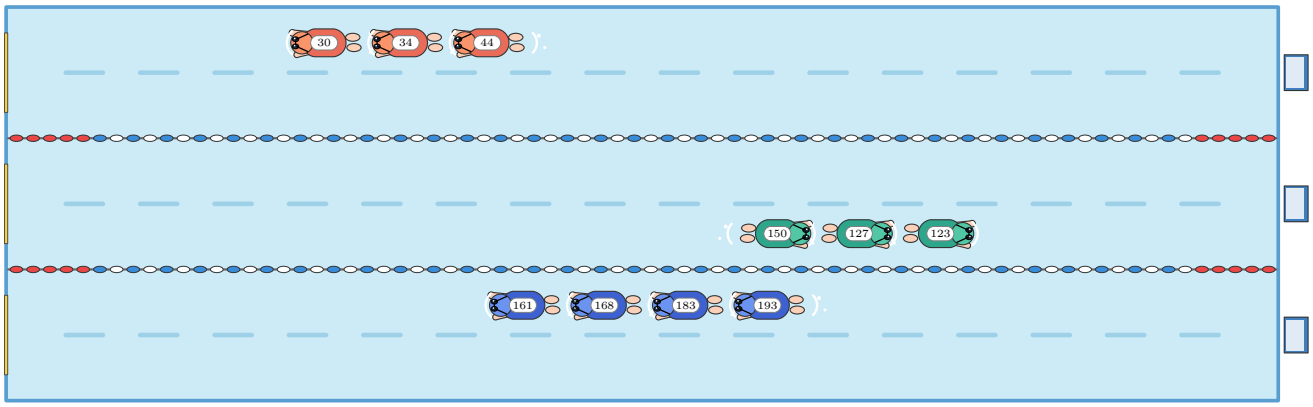


Figure J.1: Illustration of Sample Input 3.

If we can assign swimmers to l lanes, how can we ensure that the average speed of all of the swimmers in the pool (measured in metres per hour) is as high as possible? Output this average speed and an assignment of swimmers to lanes.

Input

- One line containing the number of swimmers n and the number of lanes l ($1 \leq l \leq n \leq 3\,000$).
- One line containing n integers giving speeds $a_1 \ldots a_n$ of the swimmers, in metres per hour ($1 \leq a \leq 10^6$).

Output

Output the maximum achievable average speed (mean metres per hour) on one line, followed by a possible assignment of swimmers to lanes to achieve this on the next line. The ith integer on this line is the lane number for the ith swimmer, $1 \leq a \leq l$.

The output must be accurate to an absolute or relative error of 10^{-6}.

Sample Input 1	Sample Output 1
3 2 100 200 50	100 1 2 1

Sample Input 2

```
4 2
11 22 34 47
```

Sample Output 2

```
22.5
1 1 2 2
```

Sample Input 3

```
10 3
34 123 127 161 168 30 44 150 183 193
```

Sample Output 3

```
110.3
1 2 2 3 3 1 1 2 3 3
```