Springoalla
Problem ID: springoalla

Springoalla loves to run. She knows of n running trails and knows the exact time it would take her to run the trail start to finish. The first time she runs in a trail, she familiarizes herself with it. More specifically, she memorizes where in the track the half-way point is. During subsequent runs on the trail, she is able to run back after half the track. Then, she will only spend half the time in the track. For example she can run a half 20 minute trail in 10 minutes, but only after first running the entire trail once.

Springoalla wants to run for at least t minutes without running for too long. Given the time it takes to run each trail, compute the minimum number of minute $t_s \geq t$ she must run. If there are several ways to run t_s minutes, she wants to run as few trails n_s as possible, where each time she starts to run counts once, even if she runs a whole or half a trail.

Input

The first line of input contains the integers n and t, where $1 \leq n \leq 1\,000$ is the number of trails and $1 \leq t \leq 100\,000$ is the time Springoalla wants to run. The second line contains n integers l_i, where $1 \leq l_i \leq 40\,000$ is an even integer: the number of minutes it takes to run trail i. Note that t is not necessarily even.

Output

First output the integers t_s and n_s, the time Springoalla must run and the number of trails. Then output n integers, where the i'th is the number of minutes she should spend on trail i. If there are several solutions with the same t_s and n_s you may output any one of them.

Scoring

Your solution will be tested on a set of test case groups. To get the points for a group, you need to pass all the test cases in the group.

Group	Points	Constraints
1	20	$n \leq 10, t \leq 1\,000$
2	30	Springoalla only needs to run whole trails
3	50	No further constraints.

Sample Input 1
```
3 23
10 8 14
```

Sample Output 1
```
23 3
15 8 0
```

Sample Input 2
```
3 23
8 12 14
```

Sample Output 2
```
24 2
0 24 0
```

Sample Input 3
```
1 3
2
```

Sample Output 3
```
3 2
3
```

Sample Input 4
```
1 7
4
```

Sample Output 4
```
8 2
8
```