

## 7709 Marathon

You've begun running long distances. Simplistically, the road on which athletes race is a straight, infinite line. At some point in time all participants split into  $n$  groups of  $k_i$  people each.

Each group at this point in time is at coordinate  $x_i$ . We know that if a group consists of  $D$  people, the group's speed is  $100/D$ . All groups move in the direction of coordinate's growth. If one team catches another, they merge and their speed changes accordingly (more than two groups can merge simultaneously).

Since the road is infinite, from some point in time no more merges are possible.

You, as a beginner, are interested in the number of groups remaining and the number of people in each of them.

### Input

The input file contains several test cases, each of them as described below.

The first line contains an integer  $n$  ( $1 \leq n \leq 10^5$ ). Each of the following  $n$  lines contains the number  $k_i$  of people in the corresponding group and its coordinate  $x_i$  ( $x_i$  — real numbers with no more than three decimal digits and their absolute values do not exceed  $10^4$ ,  $1 \leq k_i \leq 100$ , all the coordinates are different).

### Output

For each test case, the output must follow the description below.

The first line of output contains the number of groups  $m$ . The second line contains  $m$  integers the number of people in each of these groups, in any order.

### Sample Input

```
4
1 0
2 9000
4 1
3 10000
```

### Sample Output

```
2
5 5
```