

### 3. Rounding (sendid)

1 second

40 points

Juta's mom gave her a shopping list and some cash. As we know, when paying in cash, the amounts are rounded to the nearest multiple of five cents. This means that a purchase cost where the number of cents ends with the digit 1, 2, 6 or 7 is rounded down, and a cost where the number of cents ends with 3, 4, 8 or 9 is rounded up. Juta knows that a penny saved is a penny earned, and wants to group the items on her shopping list so that the total amount she spends is the smallest possible.

Help Juta group the items into purchases to minimize the total cost.

**Input.** The first line contains  $N$ , the number of items on the shopping list ( $1 \leq N \leq 10^5$ ).

The following  $N$  lines describe the items. Each of those lines contains  $T_i$ , the name of the item (1 to 20 lowercase letters of the Latin alphabet), and two integers  $E_i$  and  $S_i$ , meaning that the price of the item  $T_i$  is  $E_i$  euros and  $S_i$  cents ( $0 \leq E_i \leq 100$ ,  $0 \leq S_i \leq 99$ ).

It is known that the names of the items are distinct.

**Output.** The first line should contain the minimum total cost: space-separated integers  $E$  and  $S$ , where  $E$  is the number of euros and  $S$  the number of cents. The amount should be shown with  $0 \leq S \leq 99$ .

The following lines should describe how the minimum total cost could be achieved. If Juta can achieve this by grouping the items into  $M$  purchases, the description should be on  $M$  lines. Each line should describe one purchase as a space-separated list of the names of the items to be purchased together. If there are several ways to achieve the minimum total cost, any one of them may be given.

**Grading.** In this task, each test case is graded separately. The test cases are divided into groups where the following additional conditions hold:

0. (0 points) The examples from the task statement.
1. (2 points)  $N \leq 3$ .
2. (2 points)  $0 \leq S_i \leq 2$ .
3. (3 points) The number of cents in the price of each item ends with 0, 1, 2, 5, 6 or 7.
4. (5 points)  $S_i = 99$  (that is, the prices of all items have the form  $E$  euros and 99 cents).
5. (5 points)  $N \leq 6$ .
6. (8 points)  $N \leq 100$  and it is known that the minimum total cost can be achieved by maintaining the order in which the items are given in the shopping list and splitting the list into some number of purchases.
7. (15 points) No additional constraints.

In this task, the first line of output (the total cost) gives half of the value of each test case and the remaining lines (the grouping of items into purchases) give the other half.

Example.	Input	Output
	3	10 0
	juustusai 1 1	juustusai
	kook 4 2	kook
	maasikad 5 2	maasikad

In this example, it is best to buy all items separately. This way, Juta will pay less than the real price for each item, and the total cost is  $1 + 4 + 5 = 10$  euros. If Juta grouped any two items, the numbers of cents in the purchases would be either 3 and 2 or 4 and 1, and her total cost would be 10 euros and 5 cents. If she bought all items at once, she would also pay 10 euros and 5 cents. This example satisfies the conditions of test groups 0, 1, 2, 3, 5, 6 and 7.

Example.	Input	Output
	3	9 20
	banaan 0 33	jogurt
	jogurt 0 92	banaan kommikarp
	kommikarp 7 99	

In this example Juta should buy **banaan** and **kommikarp** together and **jogurt** separately. This way she pays 2 cents less than the sum of the prices of the items for each purchase. This example satisfies the conditions of test groups 0, 1, 5 and 7.

Example.	Input	Output
	6	16 75
	porgand 0 87	porgand
	kanaliha 4 23	makaronid
	leib 1 18	kanaliha kohv
	kohv 8 99	leib pulgakomm
	makaronid 1 10	
	pulgakomm 0 43	

One option is to buy **porgand** and **makaronid** separately, paying 85 cents and 1 euro 10 cents, respectively. Combining **kanaliha** and **kohv**, Juta pays 13 euros and 20 cents for this purchase. Finally, **leib** and **pulgakomm** together will cost her 1 euro and 60 cents. Thus, the total cost is 16 euros and 75 cents.

For the same result, Juta could also make three purchases: **porgand** separately, **kanaliha** and **leib** together, and finally **kohv**, **makaronid** and **pulgakomm** together.

This example satisfies the conditions of test groups 0, 5, 6 and 7.