# Lemmings Evolved

*Lemmings* is a legendary 2-D, highly successful video game create in the early 1990s. In this platform game, each level begins the very same way: a trap door opens from above and a steady line of fearless Lemmings enters the scene. Lemmings follow each other, in a very organized manner: always in a straight line. The level's goal is simple: conduct this line of Lemmings into the exit door (located on bottom of the scene), while bypassing a certain number of obstacles.

To welcome Lemmings into the wonderful new world of 3-D games, a new release of the game has just been announced featuring a major revolution: instead of a single line, we now have *two* lines of Lemmings running in parallel. Another exciting addition is that now you can win points when Lemmings fall through the exit door. Since Lemmings spend a large amount of their lives doing this, the game developers considered rewarding this action would be an extra motivation for players. Finally, the ultimate feature: the player controls how the two lines move. In other words, the lines can advance (independently or at the same time) as far as the player wishes, but these cannot move backwards.

Each Lemming is of a certain type, its *tribe*, and possesses a certain power value. There are many different tribes. Each line can have Lemmings of different tribes and Lemmings of the same tribe can have different power levels. Whenever two Lemmings stand by the exit door, they can fall together or separately. It two Lemmings of the same tribe fall together, the player wins an amount of points equal to the sum of the two Lemmings' power values. Otherwise, if Lemmings of different tribes are on the edge they can still fall together, but the player gets zero points.

## Task

Given two sequences of Lemmings, your task is to compute the maximum possible points a player can win when all the Lemmings fall. You should also compute the minimum number of pairs of Lemmings needed to achieve that score.

## Input

The first line is an integer with the number of game trials. For each sample, the next line has an integer $N_1$, the number of Lemmings on the first sequence. The following $N_1$ lines present the Lemming information: its tribe (an uppercase char) followed by its power value (a positive integer $P$). Then, comes a line with a single integer $N_2$, the number of Lemmings on the second sequence. The following $N_2$ lines contain the information of the Lemmings in the second sequence.

## Output

For each sample, a line starting with the maximum possible points, a white space, the minimum number of pairs, and finally a newline.

## Constraints

- $0 <$ number of game trials $\leq 10$
- $0 \leq N_1, N_2 \leq 1000$
- $0 < P$

## Sample Input

```
3
4
B 5000
A 1200
C 5
B 50
3
A 50000
B 10
C 600
3
X 500
Y 50
Z 450
3
Y 50
Z 450
X 500
1
B 1
0
```

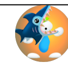
## Sample Output

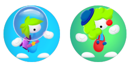
```
51805 2
1000 1
0 0
```

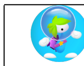
## Sample Explanation

Imagine we are given the following two sequences of Lemmings (and an initial score of zero), where each Lemming power value is indicated on the right:

$S_1 \triangleq$ 

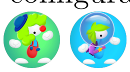
|  |  |  |
|---|---|---|
| 5000 | 1200 | 600 |

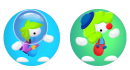
$S_2 \triangleq$ 

|  |  |
|---|---|
| 50000 | 10 |

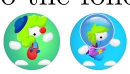
(Bare in mind that Lemmings of the same tribe might have different power levels).

We consider the exit door to be located on the right-hand side. Since you immediately realize there is no Lemming in the second sequence to pair with , you order it to move. The new configuration is then:

$S_1 \triangleq$ 

$S_2 \triangleq$ 

Now, you need to make a choice to maximize your final score. You order line $S_2$ to move, leading to the following situation:

$S_1 \triangleq$ 

$S_2 \triangleq$ 

You have a pair of  on the edge. They fall together and you sum up their power values, adding to you current score a total of 51200 points. Finally, you get to the following situation:

$S_1 \triangleq$ 

$S_2 \triangleq$

Sequence $S_2$ is now empty, so there is not much left to do. You can order the Lemming in $S_1$ to move, but your final score will be 51200.

Let us now analyze a different outcome, had you decided to move sequence $S_1$ when both sequences had two Lemmings. In such a case, you would be faced with the following:

$S_1 \triangleq$ 

$S_2 \triangleq$ 

Sure, you have a pair of  on the edge, hence you add their power values to your score. However, you would only get 5010 points. Another possibility would be to ask the single Lemming in $S_1$ to move alone. That would be even worse as you would finish with 0 points.

Finally, it is easy to check that you achieve maximum score by composing a single pair of Lemmings.