A sports journalist has gained access to the results of a soccer league and wants to calculate the final standings. In this league, three points are given to the team winning a match, one point for each team in a draw, and none for a defeated team.

The standing of each team in the league shall be determined as follows:

1. greatest number of points obtained in all matches;

2. greatest goal difference in all matches (i.e., goals scored minus goals against);

3. greatest number of goals scored in all matches; and

4. greatest number of goals scored playing as visitor in all matches.

If two or more teams are equal on the basis of the above criteria, their rankings shall be determined by lexicographic order on the team's name (characters are sorted by ASCII value).

The journalist also wants to determine the number of occurrences of the classic *sports journalist's paradox*, namely, the number of matches in which the team losing the game has a better final standing than the one winning that game.

Input

The input consists of several test cases. The first line of each test case contains a natural number M indicating the number of matches $(1 \leq M \leq 64)$. Each one of the next M lines contains the results of the matches in the format

L X vs. Y V

where X is the number of goals scored by the local team with name L $(0 \leq X \leq 32, 1 \leq |L| \leq 100)$ and Y is the number of goals scored by the visitor team with name V $(0 \leq Y \leq 32, 1 \leq |V| \leq 100, V \neq L)$.

You can assume that each team name consists of uppercase characters 'A'..'Z', digits '0'..'9', periods (.), and can contain blanks. However, blanks do not appear at the beginning or end of a name.

Output

For each test case, print a line with the text

The paradox occurs X time(s).

where X is the number of paradoxes found by the end of the league. This line should be followed by the final standings in the format

1. $Name_1$
2. $Name_2$
...
N. $Name_N$

where N is the number of teams in the league and such that the i-th place in the final standings is occupied by the team with name $Name_i$.

Sample Input

```
13
B. DORTMUND 2 vs. 2 REAL MADRID
SP. PORTUGAL 2 vs. 0 LEGIA
SP. PORTUGAL 1 vs. 2 B. DORTMUND
REAL MADRID 5 vs. 1 LEGIA
B. DORTMUND 1 vs. 0 SP. PORTUGAL
LEGIA 3 vs. 3 REAL MADRID
MONACO 3 vs. 0 CSKA M.
SP. PORTUGAL 1 vs. 2 REAL MADRID
B. DORTMUND 8 vs. 4 LEGIA
REAL MADRID 2 vs. 2 B. DORTMUND
LEGIA 1 vs. 0 SP. PORTUGAL
MONACO 1 vs. 0 SP. PORTUGAL
CSKA M. 1 vs. 0 B. DORTMUND
2
TEAM 1 4 vs. 2 TEAM 2
TEAM 2 2 vs. 0 TEAM 1
```

Sample Output

```
The paradox occurs 2 time(s).
1. B. DORTMUND
2. REAL MADRID
3. MONACO
4. LEGIA
5. CSKA M.
6. SP. PORTUGAL
The paradox occurs 1 time(s).
1. TEAM 2
2. TEAM 1
```