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## Algorithms Lab

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### Exercise 1 – Risky Sports Betting

Betina and Winson have recently discovered their new favorite pastime: betting on sport leagues. They especially enjoy bets against all odds that a certain underdog team will win its league. To get a better idea of the quality of the individual teams, Betina and Winson start betting only after the season has progressed sufficiently. They want to avoid betting on teams that stand no chance at all, however it is often difficult to see which of the teams are theoretically still capable of becoming a champion. This is where you come in.



**Problem** Given the number  $t$  of teams, the current standings of the league and all remaining matchups, determine which teams can still become a champion of the league. A team is said to be a champion when it has the most or is tied for the most points in a season. The team winning a matchup is awarded one point and there are no draws.

**Input** The first line of the input contains the number of test cases  $n \approx 100$ ,  $n$  test cases follow. Each test case starts with a line containing the number of teams  $1 \leq t \leq 100$  and the number of remaining matchups  $0 \leq m \leq 100$  separated with a single space. The next  $t$  lines contain an integer  $0 \leq p \leq 10^8$  and a string *name* consisting of at most 50 alphanumeric ('A'-'Z', 'a'-'z', '0'-'9') characters each (again separated by a single space), meaning that the specified team has scored  $p$  points in the season so far. Finally another  $m$  lines of the form "*name1* vs. *name2*" follow, each specifying one matchup that still has to be played.

**Output** For every test case output a single line containing the names of the teams that can still win the league ordered lexicographically (based on ASCII code, i.e. 'Z' < 'a') and separated with single spaces.

### Sample Input

```
2
8 12
4 Valais
3 Nimzowitsch
3 Winterthur
2 Birsfelden
2 Niederrohrdorf
1 Wollishofen
1 Lugano
0 Basel
Niederrohrdorf vs. Basel
Nimzowitsch vs. Birsfelden
Winterthur vs. Valais
Lugano vs. Wollishofen
Birsfelden vs. Basel
Valais vs. Lugano
Winterthur vs. Nimzowitsch
Wollishofen vs. Niederrohrdorf
Lugano vs. Basel
Wollishofen vs. Winterthur
Nimzowitsch vs. Valais
Niederrohrdorf vs. Birsfelden
14 14
12 Y
11 V
3 T
5 U
9 K
7 O
8 R
3 X
6 D
2 P
2 H
1 E
4 W
12 G
R vs. K
X vs. D
G vs. U
P vs. D
R vs. X
V vs. G
H vs. W
P vs. H
V vs. P
V vs. T
W vs. K
W vs. X
G vs. T
P vs. Y
```

**Sample Output**

Birsfelden Niederrohrdorf Nimzowitsch Valais Winterthur  
G V Y