There are more than 8.000 municipalities in Spain. Each municipality has a number of councilors, which have to be elected in the upcoming municipal elections. The number of councilors elected from each political party must be proportional to the number of votes obtained by that party.

Obviously, this can be a little unfair. For example, assume that we have to elect 2 councilors in a certain municipality where party **A** has received 65 votes, and party **B** has received 35 votes. Then, both parties would obtain 50% of the councilors (one councilor for each party).

Therefore, in order to reduce these unfair situations, we decide that we will always elect 100 councilors for each municipality.

Given the number of votes for each party, you have to compute the number of councilors assigned to each party, assuming that the total number of councilors is 100.

You have to observe the **rule of proportionality**: the number of assigned councilors has to be proportional (the maximum possible) to the number of obtained votes. In other words, there exists a number of votes, x, such that when a party has x votes, then they win a councilor.

If two or more parties have exactly the same proportion to obtain a councilor, then you have to assign it to the first party in alphabetical order. For example, ifthree parties have 1/3 of the votes, then the first party in alphabetical order would have 34 councilors, and the other parties 33 councilors.

Input

The input can contain different test cases. The first line of the input indicates the number of test cases.

For each test case, the first line contains one natural number, P,indicating the number of existing political parties. You can assume that $P \leq 4$.

The following two lines contain the text:

```
BLANK B
INVALID I
```

Where B and I indicate the number of blank and invalid votes, respectively. Next, there are P lines, one for each party. Each line contains two values: a string without blank spaces, indicating the name of the party; and a number, indicating the number of votesfor that party.

You can assume that the number of votes for a party is always between 0 and 1000, inclusive.

Output

For each test case, you have to output the number of councilors obtained by each party, in the same order as they appear in the input. Thus, you have to output P lines, with the name of the party and the number of councilors assigned to that party, separated by a blank space.

Note: Observe that, in the last case, the number of votes to win a councilor is $x = 6.0695$. That is, a party wins a councilor for each 6.0695 votes obtained.

Sample Input

```
4
2
BLANK 0
INVALID 4
A 65
B 35
3
BLANK 203
INVALID 287
Pragmatics 50
Paradigmatics 50
Programatics 50
3
BLANK 22
INVALID 1000
SimpleMinds 5
UniqueThinking 3
RunWithMoney 6
4
BLANK 0
INVALID 92
One 261
Two 283
Three 61
Four 12
```

Sample Output

```
A 65
B 35
Pragmatics 33
Paradigmatics 34
Programatics 33
SimpleMinds 36
UniqueThinking 21
RunWithMoney 43
One 43
Two 46
Three 10
Four 1
```