C. Dawry

Some country **C** wants to form a football team of 11 players. To do so, they wrote a list of **N** possible players. For each player they wrote the player's name, the rating of the player and the league he plays at. The rating is a number between 1 and 10 inclusive. They asked you to form the team for them.

Given a number **L** and the **N** players with their information, you have to choose 11 players such that the summation of their ratings is more than or equals to **L** and the number of local players is maximized. A local player is a player that plays at the league of country **C**. In case of a tie, make a formation that maximizes the total rating of the players.

Input Format

The first line of input contains two integers **N** and **L**. The second line contains the name of the country **C**.

Each of the next **N** lines contains 2 strings and a number separated by a single space, $\mathbf{Name}_i$, $\mathbf{League}_i$ and $\mathbf{Rating}_i$ respectively. Where $\mathbf{Name}_i$ is the $\mathbf{i}^{th}$ player's name, $\mathbf{League}_i$ is the country that the $\mathbf{i}^{th}$ player plays at its league, and $\mathbf{Rating}_i$ is the $\mathbf{i}^{th}$ player's rating.

Player names and league names ($\mathbf{Name}_i$ and $\mathbf{League}_i$) contain only small and capital letters of English alphabet (a-z, A-Z). $\mathbf{Rating}_i$ is between 1 and 10 inclusive.

Output Format

Output on the first and only line, 2 space-separated integers **H** and **S**, where **H** is the number of local players in the chosen formation, and **S** is the total rating of the selected 11 players.

In case of a tie, or in other words, if there are 2 or more different formations which have the same value of **H**, output the maximum **S**.

If there's no way to select 11 players that have a total rating >= **L**, output "NO FORMATION"

Subtasks

Subtask 1 – 19 Points

- **N** = 11
- 1 ≤ **L** ≤ 110

Subtask 2 – 20 Points

- **N** = 12
- 1 ≤ **L** ≤ 110

Subtask 3 – 28 Points

- 11 ≤ **N** ≤ 18
- 1 ≤ **L** ≤ 110
- All players play in the league of country C.

Subtask 4 – 13 Points

- 11 ≤ **N** ≤ 18
- 1 ≤ **L** ≤ 110

Subtask 5 – 20 Points

- 11 ≤ **N** ≤ 30
- 1 ≤ **L** ≤ 110

Examples

#	Input	Output
1	13 85 Argentina Romero England 8 Mercado Argentina 4 Otamendi Spain 7 Ramiro England 8 Rojo England 6 Fernandez Spain 6 Mascherano Spain 8 Gaitan Portugal 6 Banega Spain 7 Dimaria France 9 Higuain Italy 9 Aguero England 10 Messi Spain 10	1 86
2	13 87 Argentina Romero England 8 Mercado Argentina 4 Otamendi Spain 7 Ramiro England 8 Rojo England 6 Fernandez Spain 6 Mascherano Spain 8 Gaitan Portugal 6 Banega Spain 7 Dimaria France 9 Higuain Italy 9 Aguero England 10 Messi Spain 10	0 88

3	13 100 Argentina Romero England 8 Mercado Argentina 4 Otamendi Spain 7 Ramiro England 8 Rojo England 6 Fernandez Spain 6 Mascherano Spain 8 Gaitan Portugal 6 Banega Spain 7 Dimaria France 9 Higuain Italy 9 Aguero England 10 Messi Spain 10	NO FORMATION

Examples Explanation

In the first example, these two formations have a total rating >= **L**.

```
Romero England 8
Mercado Argentina 4
Otamendi Spain 7
Ramiro England 8
Mascherano Spain 8
Gaitan Portugal 6
Banega Spain 7
Dimaria France 9
Higuain Italy 9
Aguero England 10
Messi Spain 10

Total Rating = 8 + 4 + 7 + 8 + 8 + 6
+ 7 + 9 + 9 + 10 + 10 = 86
Number of local players = 1
(Mercado)
```

```
Romero England 8
Otamendi Spain 7
Ramiro England 8
Fernandez Spain 6
Mascherano Spain 8
Gaitan Portugal 6
Banega Spain 7
Dimaria France 9
Higuain Italy 9
Aguero England 10
Messi Spain 10

Total Rating = 8 + 7 + 8 + 6 + 8 + 6
+ 7 + 9 + 9 + 10 + 10 = 88
Number of local players = 0
```

You should choose the formation on the left since it has more local players,

and the output is: `1 86.`

In the second example, it is the same as the first example except that **L** is now 87, so the formation on the left is not valid (since its total rating is 86, and 86 < 87).

But the formation on the right is valid (since its total rating is 88, and 88 >= 87), so we can choose it. But it has no local players. So, the output is: `0 88.`

In the third example, there is no formation that has a total rating >= 100, so the output is: `NO FORMATION`.