Friends

This question is graded for 1%.

Problem Statement

Tom just moved to a new town GamesVille. As an introvert, Tom finds it very hard to make new friends, but since Tom is an avid computer gamer, going to a local gaming café might make it easier. In fact, the online gaming community in GamesVille is very close knit, and bonds are easily formed. If two people are inside the same café simultaneously, friendships are instantly created. Friendships are even formed if people meet each other in the door just as one leaves, and another enters.

Due to the pandemic, everyone is required to write down the exact time they intend to arrive at and leave a particular gaming café on an online form a day before going to the café. Do note that the time written down in the form is in microseconds, as everyone in GamesVille are true competitive gamers and are able to finish games in magnitudes of microseconds. All these information is aggregated and released on the café's website with the appropriate anonymisation measures carried out.

Tom wants to make as many friends as possible, given all these information. However, there are N gaming cafés in GamesVille with their own schedule of visits, and Tom gets a headache if he games too much, so he decides to limit his daily visit to at most M microseconds. Note that it is possible for M to be 0, if Tom enters and leaves at the same time. Tom can only visit one gaming café for the day. What is the maximum number of friends you can get?

Input

The first line of the input contains two space separated integers N ($1 <= N <= 10$) and M ($0 <= M <= 8.64 \times 10^{10}$).

This is followed by N descriptions of the visit schedule for each gaming café. The description for each gaming café starts with a line containing the name of the café, S, ($1 <= |S| <= 15$) and one integer K ($1 <= K <= 100000$), which is the number of unique visitors to the café. S and K are separated by a space, and S does not contain whitespaces. The next K lines describe the microseconds each unique visitor intends to enter and leave the particular gaming café. Specifically, the i^{th} line consists of two space separated integers a_i and b_i ($0 <= a_i <= b_i <= 8.64 \times 10^{10}$), where a_i and b_i are the intended arrival and departure times for the i^{th} visitor respectively.

Output

Output the maximum number of friends as a single integer, followed by the name of the café where the maximum number of friends can be made on a new line. If there is a tie in the maximum number of friends, output the names of all possible cafés in lexicographical ordering.

Sample Input 1

```
1 2
GAMINGCAFE 6
0 2
1 8
5 9
2 4
7 8
10 10
```

Sample Output 1

```
4
GAMINGCAFE
```

Sample Input 2

```
2 2
PCROOM 2
0 2
2 4
GAMERSUNITE 3
7 10
11 13
20 25
```

Sample Output 2

```
2
GAMERSUNITE
PCROOM
```

Explanation

For Sample Input 2, Tom can make 2 friends at the first café PCROOM if he arrives at 1 and leaves at 3. Tom can make 2 friends at the second café GAMERSUNITE if he arrives at 9 and leaves at 11. Do note that while there are other possible arrival and departure times where Tom can make 2 friends at GAMERSUNITE, there is no combination of arrival and departure times given M = 2 such that Tom can make 3 friends at GAMERSUNITE.