

No event in category

A lot of events happened this day during our history. Many of these events were recorded by giving the year, the event, and its category. The data are given in chronological order (strictly monotonously), but we do not know whether the order is increasing or decreasing.

Write a program that gives how many categories are there to which no event belongs, and what these categories are.

Input

The first line of the *standard input* contains the count of events ($2 \leq N \leq 100$) and the count of categories ($1 \leq CC \leq 10$). The next N lines each contain the data of an event. First, the year ($1 \leq Y \leq 2013$), then the category of the event ($1 \leq C_i \leq CC$), and then the event itself (not empty). After the list of the events, there comes the upper and lower boundaries of a year-interval ($0 < \text{Year1} < \text{Year2} < 2013$). Last, the categories are listed: CC lines each containing a word.

Output

The first line of the *standard output* should contain the count of categories to which no event belongs, and the list of these categories (in the same order as the input).

Example

<i>Input</i>	<i>Output</i>
4	1 catastrophe
4	
862	
1	
Jutland	
1205	
2	
II. Andras	
1453	
3	
Konstantinapoly	
1522	
3	
Lost	
1000 1500	
foundation	
coronation	
war	
catastrophe	

Limits

Time limit: 0.1 second

Memory limit: 32 MB

Evaluation: In 40% of tests, the count of data is ≤ 20