Recruiting agency

A recruiting agency tracked the life of some clients. We have data about N successful recruits: in S as salary, M as month, and L as a name string (not empty) format. This means that the person got its salary (in hundred-thousand HUF, integer) for M months. Some people managed to get a job several times with the help of the agency.

Write a program that solves the following subtasks:

a) Who had the highest income?

b) Give the overall income of each person.

c) Give the name of a person who managed to get each job for a higher salary than the previous salary. If there is no such person, the output should be "NONE".

d) List all the people whose salary was more than C. C is in hundred-thousand HUF. If a person had more than one job with such a salary, their name should only appear once.

Input

The first line of the *standard input* contains the count of data ($1 \le N \le 50$) and the C ($1 \le C \le 10$) amount for task d). The next N lines each contain the salary ($1 \le S_i \le 10$), the month ($1 \le M_i$), and the name of the person (not empty, might be more than one word).

Output

Task a): The name of the first person with the highest salary.

Task b): The first line should be the count of people. The next lines should contain the name of a person, and the sum of all their salary in HUF. The names should be in the order of first appearance of the input. There should be a space between the name and the sum.

Task c): The name of the first person whose salary was monotonically increasing. If there was no such person, the output should be "NONE".

Task d): The first line should contain the count of people whose salary was more than C. The next lines should contain a name each. The names should be in the order of their first appearance in the input.

Example

Input	*Output*
7 5 1 9 Modest Kevin 8 2 Plain Erika 3 6 Modest Kevin 1 1 Plain Erika 5 2 Modest Kevin 6 1 Bar Bara 7 6 Bar Bara	# Plain Erika # 3 Modest Kevin 3700000 Plain Erika 1700000 Bar Bara 4800000 # Modest Kevin # 2 Plain Erika Bar Bara

Limits

Time limit: 0.1 second

Memory limit: 32 MB

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