Banknotes of foreign countries

A banknote collector has N different banknotes. We know the color, the country of origin and the value of each banknote. The country names and the colors may only contain the letters of the English alphabet and the underscore character ("_"), their maximum length is 50 characters.

Write a program that determines the following:

1. The banknote with the greatest value.
2. A country from which there is only one banknote.
3. The set of countries from where the banknotes originate.
4. The color that appears in the banknotes of the most countries.
5. A country whose every banknote has a lower value than any other country's banknote of the same color.

Input

The first line of the *standard input* contains the number of banknotes ($1 \leq N \leq 1000$). In the next N*3 lines, there is a description of a banknote in every 3 lines: the country, the color, and the value ($100 \leq V_i \leq 100\ 000$). There cannot be two banknotes with the same color from the same country.

Output

The *standard output* should contain a line with a single **# character** before the solution of **each subtask**. This # character line is followed by as many lines as needed for the output of a subtask. If you cannot solve a subtask, you should output only the line containing the # character. If the output format is not correct (less/more # characters are in the output), you will get "Output format error", even if you have correct solutions for some subtasks.

Subtask 1 (10 points): A single line should contain the country and the color of the banknote with the greatest value, separated by a space. (If there are multiple possible answers, print the one that occurs first in the input.)

Subtask 2 (20 points): Print a country that has only one banknote in the collection. (If there are multiple possible answers, print the one that occurs first in the input.) If there is no such country, then print the word NONE.

Subtask 3 (20 points): In the first line you should print the number of different countries (C). The next C lines should contain the names of the countries (in any order, each of them in a separate line).

Subtask 4 (20 points): Print the color which appears in the banknotes of the most countries. (If there are multiple possible answers, print the one that occurs first in the input.)

Subtask 5 (30 points): Print a country whose every banknote has a lower value than any other country's banknote of the same color. (If there are multiple possible answers, print the one that occurs first in the input.) If there is no such country, then print the word NONE.

Example

```
Input                          Output

5                              #
Romania                        Romania green
yellow                         #
1000                           Latvia
Hungary                        #
brown                          3
1200                           Romania
Romania                        Hungary
green                          Latvia
1500                           #
Latvia                         yellow
blue                           #
700                            Hungary
Hungary
yellow
800
```