## Population Counter

So many people! It’s hard to count them all. But that’s your job as a statistician. You get raw data for a given city and you need to aggregate it.

On each input line, you’ll be given data in format: **"**city|country|population**"**. There will be **no redundant whitespaces anywhere** in the input. Aggregate the data **by country and by city** and print it on the console.

For each country, print its **total population** and on separate lines, the data for each of its **cities**. **Countries should be ordered by their total population in descending order** and within each country, the **cities should be ordered by the same criterion**.

If two countries/cities have the same population, keep them **in the order in which they were entered.** Check out the examples; follow the output format strictly!

### Input

* The input data should be read from the console.
* It consists of a variable number of lines and ends when the command "**report**" is received.
* The input data will always be valid and in the format described. There is no need to check it explicitly.

### Output

* The output should be printed on the console.
* Print the aggregated data for each country and city in the format shown below.

### Constraints

* The name of the city, country and the population count will be separated from each other by **a pipe ('|')**.
* The **number of input lines** will be in the range [2 … 50].
* A city-country pair will not be repeated.
* The **population count** of each city will be an integer in the range [0 … 2 000 000 000].
* Allowed working time for your program: 0.1 seconds. Allowed memory: 16 MB.

### Examples

|  |  |
| --- | --- |
| **Input** | **Output** |
| Sofia|Bulgaria|1000000  Report  Sofia|Bulgaria|2000000000  Vratsa|Bulgaria|2000000000  report | Bulgaria (total population: 1000000)  =>Sofia: 1000000 |

|  |  |
| --- | --- |
| **Input** | **Output** |
| Sofia|Bulgaria|1  Veliko Tarnovo|Bulgaria|2  London|UK|4  Rome|Italy|3  report | UK (total population: 4)  =>London: 4  Bulgaria (total population: 3)  =>Veliko Tarnovo: 2  =>Sofia: 1  Italy (total population: 3)  =>Rome: 3 |