Problem 4 – Events

Your task is to design a state-of-the-art system for registering and displaying events. Events have **location**, **person** and **time**. Only a **valid** event can be registered. For an event to be valid, a specific format must be followed:

#person: @location hour:minutes

- The **person must** start with a '**#**', can contain **only** English alphabet letters and **must** end with '**:**'
- The **location must** start with '**@**' and can contain **only** English alphabet letters
- The **hour** must be a number between 0 and 23, the **minutes** between 0 and 59.
- **Hour** and **minutes** must be separated with '**:**'
- There **may** be whitespace between **person**, **location** and **time** and **nowhere** else

First, you will receive several lines of input, containing information about events that you need to register. At the end of the input, you will receive several locations, separated by a comma ','. You need to filter all the events that take place at those locations and print information about them.

Locations and **people** must be sorted **alphabetically**. The **event times** for each person must be displayed in **increasing** order.

Input
- On the first line you receive the integer N – the number of events to register.
- On the next N lines, you receive information about a single event in the above described format.
- On the last line, you receive several locations, separated by a comma ','.

Output
- Print all requested locations on a new line in format **{location}:**
- For each location, print information about its people and times in format **{person} -> {time1, time2}**
  - Each person and their times must be on a new line

Constraints
- All strings are **case-sensitive**
- Allowed time/memory: 0.25s/16MB

Input	Output
6 #Pesho: @Sofia 16:00 #Ani: @Sofia 22:00 #Ani: @Sofia 16:00 #Mincho: @Plovdiv16:00 #TriFon: @Plovdiv 22:00 #TriFon: @Plovd1v 23:00 Sofia,Plovdiv	Plovdiv: 1. Mincho -> 16:00 2. TriFon -> 22:00 Sofia: 1. Ani -> 16:00, 22:00 2. Pesho -> 16:00

Input	Output
6 #Pesho: @Sofia 16:00 #Minka: @Sofia 22:00 #Strahil: @Sofia 16:00 #TriFon: @Plovdiv 22:00 #trifon: @Plovdiv 23:00 #trifoN: @Plovdiv 23:00 Plovdiv,Burgas	Plovdiv: 1. TriFon -> 22:00 2. trifoN -> 23:00 3. trifon -> 23:00