

Problem 1 - Fort Knox has been robbed!

The perpetrators of this heinous act slipped away with billions of dollars in gold bullion, in this, the largest theft in the nation's history.

It is unknown exactly who the criminals were, but based on a comprehensive investigation as well as tips from various confidential sources, the FBI has compiled a list of suspects.

It is believed with certainty that to have planned, tested, and successfully executed such a slick and efficient operation, the perpetrators had to have lived in the same city for a long period of time. Additionally, it is believed that there were no less than 3 individuals involved, and chances are, there were many more.

Following is an excerpt of the FBI's current suspect list. This unordered list includes where each suspect lived and from what dates. You can use this data to develop your program which, once finalized, will be used on the entire suspect list to narrow down the search, and ultimately bring these criminals to justice!

Example Input:

```
OSCAR,Morocco,10/02/2006,05/18/2007
OSCAR,Casablanca,05/19/2007,08/26/2009
XENA,Morocco,01/01/2005,10/10/2006
TILULA,Hattiesburg,03/15/1990,09/15/2001
NATHAN,Morocco,05/10/2002,09/15/2010
XENA,Casablanca,01/22/1991,04/04/2003
TILULA,Morocco,08/19/2006,11/10/2010
NATHAN,Hattiesburg,12/01/1988,12/01/2001
```

Your mission (if you choose to accept it) is to develop a program that will determine which suspects lived in the same city, at the same time.

The program's output should consist of the following data columns in the following order (do not include column names/headers):

1. Suspects – a concatenated/delimited list of suspects that lived in the same city for a period of time, sorted by name (ascending). This suspect name list should be delimited by a semi-colon [;].
2. City name – the name of the city the suspects commonly lived in.
3. Start date – the date the group of suspects began living in the common city.
4. End date – the date the group of suspects stopped living in the common city.

Each output record should be:

1. Unique.
2. Internally delimited by a comma [,] (each data column delimited by a comma).
3. Terminated by a newline character.
4. Primarily sorted by the number of perpetrators (descending).
5. Within the primary sort, sorting should be done on the suspects, city, start date, and end date columns (ascending). For example, if there are multiple records with 4 perpetrators, the records in this set should be sorted across the row (suspects, city, start date, end date).

To recap:

- Within each row order the suspect names in ascending order.
- Group by the number of suspects so that all rows with four suspects are together, those with three suspects are together, those with two suspects are together, etc.
- Within the group sort by the suspects column first, then by the city column, the start date column, and lastly by the end date column.

Other information:

1. Suspects can only live in one place at one time.
2. Account for leap years if necessary (standard Gregorian style).
3. Suspects' names and cities are unique (e.g. 2 different suspects will not be named "Bob", and 2 different cities going by the name "Paris" will not be used).
4. When sorting characters, all characters should be treated as uppercase.
5. Dates are/should be in standard MM/DD/YYYY format.
6. All text in the output should be in the same case it was in in the input.
7. Gaps may exist between time periods of residence for an individual (e.g. all residence time periods for an individual may not be contiguous)
8. Multiple, fully contiguous time periods in the same city will not exist, though people are known to move back to a location after living in another for a while...

Example Output:

```
NATHAN;OSCAR;TILULA;XENA,Morocco,10/02/2006,10/10/2006
NATHAN;OSCAR;TILULA,Morocco,10/02/2006,05/18/2007
NATHAN;TILULA;XENA,Morocco,08/19/2006,7/10/2006
NATHAN;TILULA;XENA,Morocco,08/19/2006,10/10/2006
OSCAR;TILULA;XENA,Cairo,11/02/2006,10/10/2006
OSCAR;TILULA;XENA,Morocco,09/02/2006,10/10/2006
OSCAR;TILULA;XENA,Morocco,10/02/2006,10/10/2006
```