Interview Question

Problem Description

Given a list of patient demographics for several patients, we want to be able to group the data by patients with the same name. The demographics provided are (in order): Patient ID, Patient Name, Patient Sex, Patient Date Of Birth. For example, here's a sample input:

```
PID1,POND^AMY,F,19890224
PID2,WILLIAMS^RORY,M,19881102
PID3,POND^AMY,F,19890224
PID4,POND^AMY,F,20010911
```

The expected output is:

```
0:
PID1,POND^AMY,F,19890224
PID3,POND^AMY,F,19890224
PID4,POND^AMY,F,20010911
1:
PID2,WILLIAMS^RORY,M,19881102
```

You can use whatever language you are comfortable. We will evaluate the program for correctness, efficiency, and readability.

Input

The program you write to do the grouping should accept a file as a parameter. The patient demographics fields are comma delimited, with newlines being used to designate new patients.

```
PATIENT ID, PATIENT NAME, PATIENT SEX, PATIENT DATE OF BIRTH
```

You can assume that the provided input file is legal.

The format of the patient name is as follows:

`LAST NAME^FIRST NAME^MIDDLE NAME`

The middle name component is optional and may be omitted, but last and first name will always be present. We should consider patients with the same first and last name to the grouped together, even if the middle names don't match. Matches should also be case insensitive. So for the following input:

```
PID1,CLARA^OSWALD,F,19890224
PID2,CLARA^oswald^COLEMAN,F,19890224
```

the expected output would group these two together:

```
0:
PID1,CLARA^OSWALD,F,19890224
PID2,CLARA^oswald^COLEMAN,F,19890224
```

Output

A grouping of all the patients based on the first and last name of the patient. For each group, the output should look as follows:

```
N:
PATIENT ID, PATIENT NAME, PATIENT SEX, PATIENT DATE OF BIRTH (of match
#1)
PATIENT ID, PATIENT NAME, PATIENT SEX, PATIENT DATE OF BIRTH (of match
#2)
...
```

Where N is just incremented for each group. The output should be printed to standard out. The groups can be outputted in any order.

Complete Example

Input:

```
PID1,POND^AMY,F,19890224
PID2,WILLIAMS^RORY,M,19881102
PID3,POND^AMY,F,19890224
PID4,CLARA^OSWALD,F,19890224
PID5,POND^AMY,F,20010911
PID6,CLAR^OSWALD,F,19890224
PID7,POND^AMELIA,F,20010911
PID8,CLARA^oswald,F,19890224
PID9,TYLER^ROSE,F,20000101
PID10,NOBLE^DONNA,F,19780405
PID11,TYLER^ROSE,F,20000101
PID12,NOBLE^DONN,F,19780405
PID13,TYLER^ROSE,F,20000102
PID14,CLARA^OSWALD^COLEMAN,F,19890224
```

Output

```
0:
PID1,POND^AMY,F,19890224
PID3,POND^AMY,F,19890224
PID5,POND^AMY,F,20010911
1:
PID2,WILLIAMS^RORY,M,19881102
2:
PID4,CLARA^OSWALD,F,19890224
PID8,CLARA^oswald,F,19890224
PID14,CLARA^OSWALD^COLEMAN,F,19890224
3:
PID6,CLAR^OSWALD,F,19890224
4:
PID7,POND^AMELIA,F,20010911
5:
PID9,TYLER^ROSE,F,20000101
PID11,TYLER^ROSE,F,20000101
PID13,TYLER^ROSE,F,20000102
6:
PID10,NOBLE^DONNA,F,19780405
7:
PID12,NOBLE^DONN,F,19780405
```