Real Time Feed

Background

The server storing the code for an important realtime data processing feed has had a catastrophic malfunction. As a developer on the data team, you have been tasked with rewriting the process before market open in 2 hrs.

Input

1. Data will be provided as comma-delimited strings representing a price quote.
2. The first row will be an integer representing the number of quotes that will be following.
3. All quotes will be ordered with Time ascending.
4. Time can span multiple days.

Row Schema:

Time	Symbol	ExchangeID	Price
Datetime of the quote in YYYY-mm-dd HH:MM:SS format	Ticker of instrument	ID of the exchange giving the quote	Current price

Sample input:

```
8
2017-01-03 16:18:50,AAPL,2,142.64
2017-01-03 16:25:22,AMD,1,13.86
2017-01-03 16:25:25,AAPL,1,141.64
2017-01-03 16:25:28,AMZN,1,845.61
2017-01-03 16:28:50,AAPL,1,140.64
2017-01-03 16:29:59,FB,1,140.34
2017-01-04 16:29:32,AAPL,3,143.64
2017-01-04 16:30:50,AAPL,1,141.64
```

Output

For this problem, assume the following:

1. All exchanges open at 09:30:00 and close at 16:30:00 everyday

Desired behavior:

1. After exchanges close at 16:30:00
    1. Print "Last Quote Time = <Time of the last quote received before 16:30:00>"
    2. Calculate and print the following data for each Symbol as a comma-delimiter string. If a Symbol received quotes with different ExchangeIDs, then perform the calculation using only quotes with the smallest ExchangeID for that Symbol.
        1. Time
            1. Most recent Time for that (Symbol, ExchangeID) pair in YYYY-mm-dd HH:MM:SS format
        2. Symbol
        3. ExchangeID
        4. Open

        1. Most recent Price for the (Symbol, ExchangeID) before exchange open. If a Symbol does not have a quote before exchange open, then it is the first quote that occurs between exchange open and close. All Symbols will have at least one quote between exchange open and close
    5. High
        1. Maximum Price that occurred for the (Symbol, ExchangeID) between the Times associated with the Open and Last
    6. Low
        1. Minimum Price that occurred for the (Symbol, ExchangeID) between the Times associated with the Open and Last
    7. Last
        1. Most recent Price for the (Symbol, ExchangeID) before exchange close.
2. Rows should be printed in alphabetical order based on Symbol
3. Quotes are only valid for the YYYY-MM-DD they are issued. **Do not use quotes from any previous date to calculate Open, High, Low, Last**
4. There should not be any trailing whitespace in the output

Sample output:

```
Last Quote Time = 2017-01-03 16:29:59
2017-01-03 16:28:50,AAPL,1,141.64,141.64,140.64,140.64
2017-01-03 16:25:22,AMD,1,13.86,13.86,13.86,13.86
2017-01-03 16:25:28,AMZN,1,845.61,845.61,845.61,845.61
2017-01-03 16:29:59,FB,1,140.34,140.34,140.34,140.34
Last Quote Time = 2017-01-04 16:29:32
2017-01-04 16:29:32,AAPL,3,143.64,143.6,143.6,143.6
```