Database Systems, CSCI 4380-01
Homework # 7
Due Thursday October 17, 2019 at 11:59:59 PM

Homework Statement. This homework is worth 3% of your total grade. If you choose to skip it, Midterm #2 will be worth 3% more. For this homework, we will be using the same schema as Homeworks 5 and 6. There are two differences:

- I have added a new table `hotel_regions(id, region, county)` that lists the region and county of about two third of the hotels in the database.
- The database is a different and a larger subset of the database, called `hw7`. As a result, please pay particular attention to the efficency of your queries.

1 Problem Description

Write the following queries in SQL. In all your queries, use the simplest possible expression possible. These queries might require advanced expressions.

Query 1 Return the region, county pairs where the mean airbnb price for `Entire home/apt` for that region and county is lower than the mean hotel price. Compute the price of a hotel as `(high_price+low_price)/2`.

Return the name of the region and county, and for that county: the average airbnb price for `Entire home/apt`, the average of median rental prices in August 2019 (divided by 30). Round the average prices.

Only return region, county pairs with matching data from listings, hotels and rental prices. Compute the price of a hotel as `(high_price+low_price)/2`.

Query 2 Return the region, county pairs in which more than 5% of listings have at least one review containing one of the following words: `noise, noisy, loud`.

Return the name of the region, county and the percentage of listings of containing one of the words above (up to 3 decimal points).

Order results in the decreasing order of the percentage value.

Query 3 For each region and county in the `rental_prices` with at least 1000 listings, return the number of hotels, number of listings and the average median rental price for August 2019.

Order results by region and county.

Query 4 For each region in Manhattan, return the name of the region, the average percentage increase in median rental prices yearly (for August yearmonth and `'All Homes'` hometype only) starting with 2014 and the number of AirBnb listings in that region. Order by percentage increase descending.

(Studies show that presence of AirBnb in a city increases the rents for locals and decreases the availability of places to rent. Listings have increased significantly in 2014.)

To compute the average percentage for a specific region, compute the median price difference of any two consecutive years (2013-2014, 2014-2015, 2015-2016, etc.) as follows:

Suppose P1, P2 are prices for two consecutive years for a specific region and P1 comes after P2. Then we have: `(P1-P2)/P1`. We take the average of these values.

SUBMISSION INSTRUCTIONS. You will use SUBMITTY for this homework.

Submit a single ASCII text file named `username_hw7ans.sql` that contains all your queries to SUBMITTY. The script should have the same format as hw5 and hw6.