

## Homework 5: Structured Query Language (SQL) (100 points)

**Due Date:** Tuesday, Feb 21 (5:00 PM)

### Submission

All HW assignments should contain both your student ID and your name and must be submitted online, formatted in SQL script form per the instructions provided on Piazza, through the associated dropbox on EEE. See the table below for the HW submission opportunities. Note that after 5 PM on Thursday no further HW submissions will be accepted. (We will be releasing the solution at that time.) Please strive to get all your work in on time! If possible, try to save the one dropped assignment for the end of the term when you are most likely to want/need it.

Date / Time	Grade Implications
Tuesday, Feb 21 (5:00 PM)	Full credit will be available
Wednesday, Feb 22 (5:00PM)	20 points will be deducted
Thursday, Feb 23 (5:00 PM)	40 points will be deducted

### Structured Query Language (SQL) [100 pts]

Congratulations! TopicalBirds is happy with your database design work and the expertise that you've demonstrated based on the relational algebra and calculus. Now it's time to get real – it's time to use MySQL and its implementation of the SQL query language to write a number of queries that they envision needing for their planned applications.

### Schema, Data, and Tools

TopicalBirds is happy using the relations resulting from HW #2. You can refer to the provided solution to remind yourself of their schemas. You will also be able to see the relations' schemas in MySQL Workbench when you are using it for this assignment. A new sample data set will be provided for you to use in testing your queries. More information about how to load the schema and associated sample data – and how to enter and run queries – can be found in the instructions linked from HW #5's entry on the course wiki page. You are to use MySQL for all of the queries in this assignment and turn in the queries and results per the provided instructions.

Write the following queries in SQL against the TopicalBirds.com test relations. Show the result of each query that you wrote where requested to do so. Please note that you will not get points for providing the result of a query on this assignment if your SQL query is syntactically incorrect (i.e., if it doesn't execute). Since you have a "live" system at your disposal, this should not be an issue – you will be able to run all of your queries that way. (For the last two problems, you may find one or more of the following hints helpful: (i) Given two date or time values, you can use the `timediff(val2, val1)` function to calculate the duration between them. (ii) To limit the number of results returned by a query, you can use the `LIMIT` clause in SQL. (iii) You can put a subquery in the `FROM` clause of a query and treat it (in the outer query) as though it were a stored table.)

1. [10pts] Print the name, gender, and birthdate of birds who live on "Alicia Pass" street.

a) [7pts] SQL Query:

b) [3pts] Result:

2. [10pts] Print the contact information (email and complete address) for users who have uttered at least one highly positive chirp (i.e., at least one chirp with a sentiment of 1.0).

a) [7pts] SQL Query:

b) [3pts] Result:

3. [10pts] Print the tag and name of the bird that uttered the most positive chirp about the topic 'battery'.

a) [7pts] SQL Query:

b) [3pts] Result:

4. [10pts] Print the tag, gender, and birthdate of those birds who have chirped about either of the topics "Surface" or "Kindle".

a) [7pts] SQL Query:

b) [3pts] Result:

5. [10pts] Print the tag, gender, and birthdate of those birds who have chirped about both of the topics “iPhone” and “gadget”.

a) [7pts] SQL Query:

b) [3pts] Result:

6. [10pts] Print the tags and business names of watchers who own no ads but are listening for chirps from at least one male bird.

a) [7pts] SQL Query:

b) [3pts] Result:

7. [10pts] Compute and print the number of topics that appear to be more interesting than the topic “Sprint” – i.e., topics with at least one user-specified interest level that’s higher than any of those for the topic “Sprint”.

a) [7pts] SQL Query:

b) [3pts] Result:

8. [10pts] To help in identifying potential Russian bot-birds, print the tags and email addresses of those birds who have done nothing but parrot chirps from bird “realDonaldTrump” (i.e., birds all of whose chirps are parroted Trump chirps).

a) [7pts] SQL Query:

b) [3pts] Result:

9. [10pts] Print the maximum watcher fee among watchers who have specified the highest possible level of interest (i.e., level 5) in two or more different topics.

a) [7pts] SQL Query:

b) [3pts] Result:

10. [10pts] Find the 5 biggest parrots (i.e., the top 5 birds based on their parroted chirp counts) and print their bird tags and the associated parrot counts in descending order.

a) [7pts] SQL Query:

b) [3pts] Result:

11. [10pts *EXTRA CREDIT*] Find the 5 quickest acts of parroting (i.e., the top 5 cases of parroting based on the shortness of the time delay between the appearance of a chirp and the parroting of that chirp) and print the associated time delays, the chirper and parrot bird tags and chirp numbers, and also the chirp text, in ascending time delay order.

a) [7pts] SQL Query:

b) [3pts] Result: