This homework is an extra credit assignment, worth up to 3% of your final grade. It must be done individually. The goal of this assignment is to explore one of the “advanced” SQL topics listed below. For this assignment, pick one of the topics below and do the following.

1. Read the book’s description of the features.

2. Read the corresponding MySQL documentation of the features (you’ll need to locate the documentation on your own). You are free to also use additional online resource (e.g., tutorials) as well.

3. Develop 3 different examples using the features. One example can be a “simple” example, but the other two should be non-trivial / more involved. The goal is to demonstrate that you have gained an understanding of the feature well enough that you can come up with a couple of interesting examples.

4. Write up your results and submit your example code. Your hard-copy write up should include a cover page, a design document that provides details in terms of what resources you used to learn about the feature, an overview of what the feature is, and a walk-through of the examples. Your walk through should explain your examples, explain how the examples work, and how you tested the examples to make sure they work properly. Your hard-copy should also include example runs showing that your code works.

Select one of the following topics to explore.

**Option 1:** Integrity Constraints (Sect. 4.4) and Triggers (Sect. 5.3). Note you will need three examples of “check” constraints and three examples of triggers for maintaining data integrity (as in Figs. 5.9–5.11).

**Option 2:** Functions and Procedures (Sect. 5.2).

**Option 3:** Windows and Advanced Aggregation (Sect. 5.5).

**Option 4:** Common Table Expressions and Recursion (Sect. 5.4). Note that you will need to install a newer version of MySQL on your own computer to test this out. Alternatively, CTEs and recursion are supported in SQLite, which you can use for this option as well.