CSCI 6622: Database Systems | Spring 2019
Course Project
Due 04/28/19

Instructions

- This is a project that must be completed by each individual in the class; group work is <u>NOT</u> permitted.

- The project will be considered one week late if handed in by 05/05/19; it will be considered two weeks late if handed in by 05/12/19. ***PROJECTS HANDED IN AFTER 05/12/19 WILL NOT BE ACCEPTED***.

- All materials must be submitted via Blackboard per the instructions listed below.

- The database you create must be implemented in MySQL. Databases created in other database management systems will not be accepted.

Office Supplies Database

Your task is to create a relational database for a company that sells office supplies. The company sells items in three categories: writing supplies (pens, pencils, markers, etc.) paper supplies (copy paper, pads, envelopes, etc.), and basic supplies (labels, staplers, paper clips, rubber bands, scissors, etc.). Each customer is identified by a unique customer ID number and the database stores the customer's name, street address, state and ZIP code. A customer can place any number of orders with the company; it is common for customers to place more than one order in a single day. All prices in the database are tracked in US dollars ($). You can assume that all customers are located in the United States.

When you create this database in MySQL, you will populate it with a relational instance that contains sufficient data to answer the following queries:

1. List all items sold by the company, sorted alphabetically by category and the alphabetically by item name.

2. List the names of all customers who bought pens in quantities of 100 or greater in any order.

3. List the names of all customers who bought both envelopes and labels (either in the same order or different orders).

4. List all customers who bought copy paper but did not buy any other item.

5. List the names of the customer (or customers) who spent the greatest dollar amount in a single order.

6. List each category, the name of the customer who has spent the most on items in that category, and the total amount of money that customer spent *in that category*.

7. List the names of all customers in the 06460 ZIP code that bought both staplers and paper clips in a single order.

8. List the name and ZIP code for all customers who have spent more than $500 (this could be spent over several different orders, not just a single order).

9. List each state and show the amount of money spent by customers in that state, in descending order (from highest to lowest money spent).

10. Show the ZIP code where the largest number of orders were placed (i.e., the highest count of orders placed).

You need to turn in the following materials on Blackboard for this project:

1. You must submit a word processing document that contains the following items:

   a. A description of any assumptions you're making in the design of this database.

   b. An Entity-Relationship (ER) diagram of your database using the format shown in class. This should be either created in a graphics program or neatly drawn on paper and photographed. All graphics should be inserted into your word-processing document (not attached separately).

   c. A relational schema with all primary and foreign keys indicated in the manner of Elmasri Figure 5.7.

2. You must submit a MySQL dump file (.sql file) that will import the database and relational instance you created for this project. The dump file should follow these guidelines:

   a. The database you create should be named as follows:
   [your UNH username]_project. For example, a student with the UNH username jsmith2 would name the database as ***jsmith2_project***. Your dump file should create a database with this name when it is imported.

   b. The dump file should be created as a self-contained file with the following name:
   [your UNH username]_dump.sql. For example, a student with the UNH username jsmith2 would name the dump file as ***jsmith2_dump.sql***. This dump file should create the entire database schema and populate it with data from the relational instance you design to illustrate your queries.

     c.   The database created from this dump file should not create any views (just tables and data).

3.   You must submit a script file (.sql file) that executes the 10 queries described above. The script file you submit should follow these guidelines:

     a.   Your script file should be named as follows: [your UNH username]_queries.sql. For example, a student with the UNH username jsmith2 would name the script file as **_jsmith2_queries.sql_**.

     b.   Your script file should include the necessary syntax to ensure that it runs queries against the specific database you created for this project (for example, a database named _jsmith2_project_).

     c.   Please ensure the relational instance you provide in the MySQL dump file contains enough data to answer all 10 queries. In particular, none of your queries should return an empty table when executed.

     d.   You may use views or temporary tables to answer your queries. If you do this, your script file must contain the proper SQL syntax for creating these.

PLEASE NOTE: As with all assignments where you are turning in files to create databases and execute queries on them, I strongly encourage you to test your database import and script file several times to make sure everything works as expected before you submit materials for your project. If your submitted database fails to import or the queries in your script file fail to execute, you will lose points off your final grade.