CSE 3241 Project Checkpoint 03 – SQL

You will be submitting several nicely formatted files for this checkpoint. Provide the following:

1. Provide a current version of your ER Diagram and Relational Model as per Project Checkpoint 02. **If you were instructed to change the model for Project Checkpoint 02, make sure you use the revised versions of your models**

2. Given your relational schema, create a text file containing the SQL code to create your database schema. Populate all tables in your DB with an appropriate number of records to test your queries and produce meaningful results. Recommended number of records per table is about 20. However, that number can fluctuate depending on table's role in your DB. Save all your SQL code including INSERT statements used to populate tables with data. If your DB is deleted, you have to be able to execute your SQL code as a script in proper order to fully recreate your DB including all tables, constrains, views, and data. **Ensure that your code runs and produces correct results in SQLiteOnline (sqliteonline.com) as we will be using that platform to test your code.** Save all CREATE / ALTER TABLE STATEMENTS in a file called ***"CreateQueries.txt"*** and all applicable INSERT statements in a file called ***"InsertQueries.txt".***

IMPORANT NOTE: For the following questions, if your relational schema cannot provide answers to these queries, revise your (E)ER Model, relational schema, and SQL code in question 2 above to contain the appropriate data for constructing and running all the queries outlined below. On the other hand, if your database contains needed source data but in non-aggregated form, you should NOT revise your model but instead figure out how to aggregate it for the queries!

3. Given your relational schema, provide the SQL to perform the following queries. If your schema cannot provide answers to these queries, revise your ER Model, your relational schema, and your SQL code in question 2 to contain the appropriate information for these queries. These queries should be provided in a plain text file named ***"SimpleQueries.txt".***

    a. Create a list of IP items and the stores selling those.
    b. Find the titles of all IP Items that cost less than $10.
    c. Generate a list of IP item titles and dates of purchase made by a given buyer (you choose how to designate a buyer).
    d. List all the buyers who purchased an IP Item from a given store (you choose how to designate a store) and the names of the IP Items they purchased.
    e. Find the buyer who has purchased the most IP Items and the total number of IP Items they have purchased.
    f. Create a list of stores who currently offer 5 or less IP Items for sale.
    g. Find the highest selling item, total number of units of that item sold, total dollar sales for that item, and the store/seller who sells it.
    h. Create a list of all payment types accepted, number of times each of them was used, and total amount charged to that type of payment.
    i. Retrieve the name and contact info of the customer who has the highest karma point balance.

4. For Project Checkpoint 02 question 4, you were asked to come up with three additional interesting queries that your database can provide. Provide the SQL to perform those queries. These queries should be provided in a plain text file named ***"ExtraQueries.txt".*** Each of your queries should include at least one of these.
   a. outer joins
   b. aggregate function (min, max, average, etc.)
   c. "extra" entities from CP01

5. Given your relational schema, provide the SQL for the following more advanced queries. These queries may require you to use techniques such as nesting, aggregation using having clauses, and other SQL techniques. These queries should be provided in a plain text file named ***"AdvancedQueries.txt".***

   a. Provide a list of buyer names, along with the total dollar amount each buyer has spent in the last year.
   b. Provide a list of buyer names and e-mail addresses for buyers who have spent more than the average buyer.
   c. Provide a list of the IP Item names and associated total copies sold to all buyers, sorted from the IP Item that has sold the most individual copies to the IP Item that has sold the least.
   d. Provide a list of the IP Item names and associated dollar totals for copies sold to all buyers, sorted from the IP Item that has sold the highest dollar amount to the IP Item that has sold the smallest.
   e. Find the most popular seller (i.e. the one who has sold the most IP Items)
   f. Find the most profitable seller (i.e. the one who has brought in the most money)
   g. Provide a list of buyer names for buyers who purchased anything listed by the most profitable seller.
   h. Provide the list of sellers who listed the IP Items purchased by the buyers who have spent more than the average buyer.
   i. Provide sales statistics (number of items sold, highest price, lowest price, and average price) for each type of IP item offered by a particular store.

6. Once you have completed all your work, create a ZIP archive containing:
   - A document showing your most current version of (E)ERD, relational schema, and relational algebra with CP02 feedback addressed
   - A binary version of your database, suitable for opening with the SQLiteOnline application (*sqlite, *.db).
   - Text formatted SQL files for questions 2-5:
     - CreateQueries.txt
     - InsertQueries.txt
     - SimpleQueries.txt
     - ExtraQueries.txt
     - AdvancedQueries.txt

Before submitting your work: Make sure that the information presented in your (E)ERD, relational schema, and all your queries is fully consistent, and all your queries execute correctly and produce expected results!