CSC 675/775: Introduction to Database Systems

Assignment 4

Total Points: 75

For this assignment, you have to write a Java program that interfaces with the Chinook database (from HW2) using JDBC to provide a simple online music store. (You may use Python, Perl, or C++ instead of Java for this assignment. However, the instructions below assume Java. If you choose to use one of the other languages, then adjust the instructions accordingly.)

Part 1: Recall that the Chinook database is an SQLite database, so you will need SQLite JDBC Driver. The latest version of the driver can be downloaded from: https://bitbucket.org/xerial/sqlite-jdbc/downloads

Add the downloaded jar file to your class path.

Refer to the following resource to learn how to connect to a database from a Java program, and how to query and update database objects from a Java program:
http://www.tutorialspoint.com/sqlite/sqlite_java.htm

Note: Similar tutorials are available for Perl, Python, PHP, and C/C++ at:

https://www.tutorialspoint.com/sqlite/sqlite_perl.htm

https://www.tutorialspoint.com/sqlite/sqlite_python.htm

https://www.tutorialspoint.com/sqlite/sqlite_php.htm

https://www.tutorialspoint.com/sqlite/sqlite_c_cpp.htm

Part 2: Write an interactive Java program (GUI not needed) with the following functionalities. The program should start by providing the user with following 5 options.

1. (25 points) Obtain Album title(s) based on Artist name.
   When this option is selected the user should be prompted for an Artist name. The program should search the appropriate table(s) of the Chinook database for album titles by this artist. The output should consist of Album title and Album ID pairs.
   The output may be empty, and if so the user should receive a message to that effect.
   If there are multiple artists with the specified name then the results for all the matching artists should be displayed separated by headers containing artist's ID.

2. (Optional) Obtain Track(s) of an Album title.

   When this option is selected the user should be prompted for an Album title. The program should search the appropriate table(s) of the Chinook database for all the tracks in this album. The output should consist of Track name, Track ID, Genre name, and UnitPrice.

   The output may be empty and the user should receive a message to that effect.

   If there are multiple albums with the specified title then the results for all the matching album should be displayed separated by headers containing album ID.

   If the output is not empty then the user should be given the option of purchasing one of the listed tracks.

If this option is selected then prompt the user for the ID of the Track and the quantity that they wish to purchase.

Check if the entered Track ID is valid, that is, has to be one of the Track IDs from the last output.

Check if the quantity is valid – greater than 0.

If the inputs are valid then update the appropriate tables to record the purchase. Assume that the customer making this purchase has ID: 25 (Victor Stevens)

3. (25 points) Purchase History for a Customer

   When this option is selected the user should be prompted for a Customer ID. The program should search the appropriate table(s) of the Chinook database this customer's purchase history. The output should consist of Track name, Album name, Quantity, and Invoice date for the qualifying records.

   The output may be empty and the user should receive a message to that effect.

4. (25 points) Update Track Price – Individual

   When this option is selected the user should be prompted for a Track ID. The current unit price for this track should be displayed. Then prompt the user for the new price, update the appropriate record, and display the updated record.

5. (Optional) Update Track Price – Batch

   When this option is selected the user should be prompted for a percentage value. The valid range for the user input is -100% to 100%. The unit price of every track should be updated according to the specified percentage value. For example, if the current price of a track is $0.99 and if the user specifies -30% then the updated price of this track should be $0.693. Display the following information after the update: Track ID, Name, Previous Unit price, Updated Unit price.

Upload to ilearn your Java project containing the code.

Note: Your code should be correct, complete, and well-documented to receive full points.