CSCE 156 – Lab 07: SQL I

Handout

0. Prior to the Laboratory

1. Review the laboratory handout.
2. Create a MySQL account and change the account password using the following directions at:
   http://www.cse.unl.edu/grad/resources/faq_details.php?category=CSCE_Resources#MysqldatabaseAccount
3. Review the supplemental SQL Cheat Sheet for the Album Database
4. Review the following materials:

Topic		Link
Information About Databases and Tables		http://dev.mysql.com/doc/refman/5.6/en/getting-information.html
Connecting to MySQL from the command line		http://dev.mysql.com/doc/refman/5.6/en/connecting-disconnecting.html
Retrieving data		**http://www.w3schools.com/sql/sql_select.asp**
Conditional clause		**http://www.w3schools.com/sql/sql_where.asp**
Inserting data		http://www.w3schools.com/sql/sql_insert.asp
Deleting data		http://www.w3schools.com/sql/sql_delete.asp
Updating data		http://www.w3schools.com/sql/sql_update.asp
Some functions	**count()**	http://www.w3schools.com/sql/sql_func_count.asp
	max()	http://www.w3schools.com/sql/sql_func_max.asp
	min()	http://www.w3schools.com/sql/sql_func_min.asp
Joining tables	**inner join**	**http://www.w3schools.com/sql/sql_join_inner.asp**
	left join	**http://www.w3schools.com/sql/sql_join_left.asp**
	right join	**http://www.w3schools.com/sql/sql_join_right.asp**

1. Lab Objectives & Topics

Upon completion of this lab you should be able to:

- Connect to a database and execute queries
- Perform basic Create, retrieve, update, and delete (CRUD) operations
- Understand more complex queries using Joins and Aggregate functions

2. Problem Statement

You will be connecting to the remote MySQL server on CSE and executing through the command line interface. The queries you will be performing involve a database that contains data about various music albums and the artists involved. The database structure is illustrated in the ER (Entity-Relation) diagram in Figure 1.
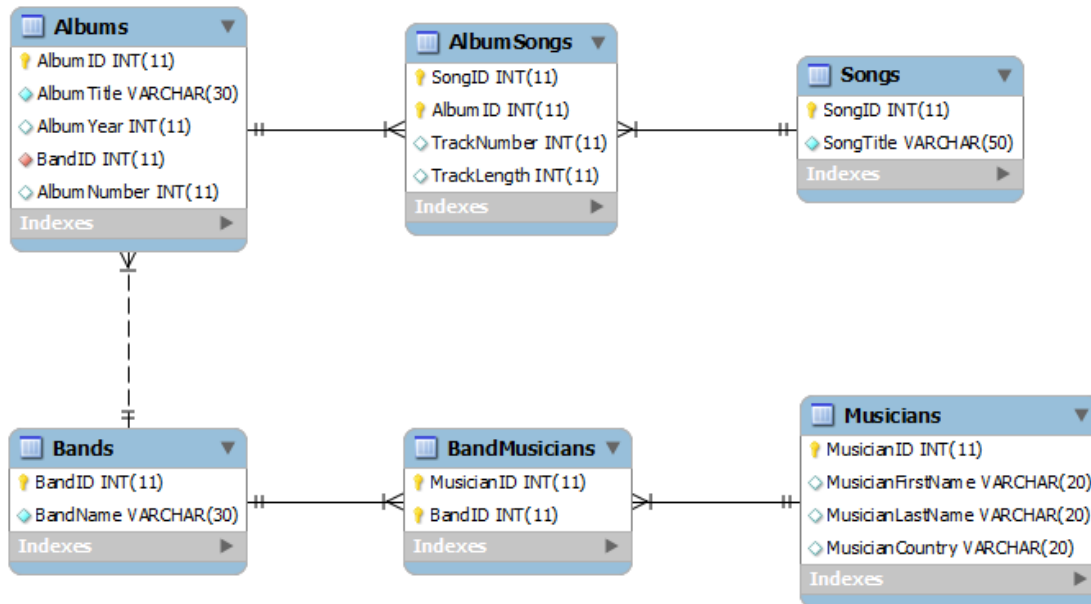

Figure 1: The Albums Database

Importing the Database

You will need to "install" the Albums database and data into your own database on CSE. Note: database in this sense is just a collection of related tables; on CSE you only have access to one actual database— the database named after your CSE login. To import the Albums database, take the following steps.

Instructions

1. Download the Albums.sql file (a DDL file—Data Description Language) from Blackboard to your Z drive
2. Review the contents of this file but do not change it
3. Connect to CSE through PuTTY
4. From the directory containing the Albums.sql file, execute the following:
   ```
   mysql –u username –p username < Albums.sql
   ```
   where username is replaced with your CSE login; enter your MySQL password. This redirects the contents of the Albums.sql file (a collection of SQL commands) to the mysql command line interface, creating all the tables and inserting all the data necessary.
5. Start the mysql command line interface:
   ```
   mysql –u username –p username
   ```

6. From the command line, you can now execute basic SQL queries. To verify that the database was installed correctly, execute:
   `SHOW TABLES;`
   The six Album-related tables should be listed. You can view the structure of a table by using:
   `DESCRIBE TableName`
7. Complete the worksheet and have a lab instructor sign off on it.

MySQL Workbench

After importing your database, you may continue to work from the command line mysql client for the remainder of the lab. However, if you are CLI-averse an alternative is to use MySQL Workbench, a GUI-based MySQL client.

1. Launch MySQL Workbench
2. From the quick launch menu select "Open Connection to Start Querying"
3. Enter the host name (cse.unl.edu), username (your cse login) and enter your sql password
4. Click OK
5. You can now enter queries and execute them (follow the menu options)

SQL Supplemental Cheat Sheet

For your benefit, we have created a supplemental SQL cheat sheet that you may reference. It contains many of the major types of queries along with a practical application using the Album database.