In Class Lab #1 - MySQL DBMS [Part 2]

Due Date: Friday, October 4, 2019 (11:59 PM) [Work from Part 1 and Part 2]

Purpose: This lab gives you hands-on experience with the MySQL database management system.
Turn-ins: A single text file containing all of the output required in the lab directions.
Submission: Upload your text file to Sakai →Assignments → In Class Lab #1 - MySQL DBMS
Resources: Lab computer (with XAMPP and MySQL installed), Lecture notes/handouts, Text Book

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Resuming from Last Class: Importing your SQL Dump File

1. If you created a MySQL database dump from Part 1, you can copy your **university_dump.sql** file from your G: Drive to the working directory: C:\xampp\mysql\bin. Otherwise, you will have to re-run the code in your Notepad++ file from yesterday. The following steps will help you get started.
2. In the windows command prompt, switch to the MySQL directory. `cd c:\xampp\mysql\bin`
3. Open the MySQL Database system `mysql –h localhost –u root`
4. You need to re-grant permissions: `GRANT ALL ON university.* to 'root'@'localhost';`
5. You need to re-create the database: `CREATE DATABASE university;`
6. Start using the database: `USE university;`
7. If you have a database dump file, import the dump file that you created: `source university_dump.sql`
8. Using DESCRIBE commands and "SELECT * FROM" commands ensure that your database has been restored properly.
9. Open your output Notepad text file and resume where you left.

Querying the database:

1. Create SELECT commands for each of the following queries.
   a. **OUTPUT:** Copy each of your SELECT commands AND its output to the text file.
   b. Queries:
      i. Retrieve all of the names of all freshman (class=1) students majoring in 'CS'.
      ii. Retrieve the names of all courses taught by Professor Anderson (without duplicate results).
      iii. For each section taught by Anderson, retrieve the course number, semester, year and names of students who took the section (order the results by year[descending] and then by course number[ascending]).
      iv. Retrieve the name and transcript of each sophomore (class=2) student majoring in 'CS'. A transcript includes course name, course number, credit hours, semester, year, and grade for each course completed by the student.

2. Create SELECT commands for the following queries of the COMPANY database.
    a. Switch to the COMPANY database with the command: USE COMPANY;
    b. **OUTPUT:** Copy each of your SELECT commands AND its output to the text file.
    c. Queries:
        i. List the names of all employees who have a dependent with the same gender.
        ii. Find the names of all employees who are directly supervised by 'Franklin Wong'.
        iii. Retrieve the names of all employees in department 5 who work more than 10 hours per week on the "ProductX" project.

Closing MySQL and exporting a database:

3. Close MySQL by entering: `\q`

4. Since the lab machines are wiped on reboot, it may be necessary to export the contents of a database to a file. There exists a "dump" feature of MySQL, which dumps the contents of a database to a file using SQL commands. This file can later be imported to MySQL using the same source command that was used previously.

    a. IMPORTANT: The file format of the mysqldump output file differs from the SQL source file used in the previous section. DO NOT USE this dump file as a template for your Assignment #2. Use company.sql as a template.

    b. Run the following command at the windows command line prompt:
        i. `mysqldump university –u root –h localhost > university_dump.sql`

    c. Copy the `university_dump.sql` file to your G: Drive for later use.

Submitting your Lab Report:

5. After you have completed all the above steps and copied the required output to a text file, upload this file to Sakai Assignments → "Lab #1 - MySQL"

6. You are now officially a database programmer. Hooray!

Helpful Commands for MySQL:

- Show all databases: `SHOW DATABASES;`
- Show all tables in a database: `SHOW TABLES;`
- View the configuration of a table: `DESCRIBE tablename;`
- Show all rows in a table: `SELECT * FROM tablename;`
- Removing an entire database: `DROP DATABASE dbname;`
- Removing an entire table from the database: `DROP TABLE tablename;`
- Removing all the rows/tuples from a table: `DELETE FROM tablename;`