CSCI 366 (Database)
Dr. Schwartz
Lab 1 – Connections and Early SQL
50 points

Description: This lab will make sure that our accounts and vms are set up for MySQL. You'll create a new database, create new tables and write and perform some simple queries. We will use two different front-ends to MySQL so that you can see which you prefer. **Be sure to place your SQL statements and the results/answers in a file as you go along.**

Be sure to download the handout from autolab

Adminer
We will first use the web-based tool Adminer to access MySQL. This is very similar to PHPMyAdmin, in case you've heard of that.

- Open your favorite web browser and go to your VM. URL is <myVille username>.millersville.edu.
- Select adminer from the icons there
- Login. Use the username *admin* and the password !<myVille username>123! (yes, you should change this asap so that others can't wreak havoc with your db or vm! See the separate handout for how to do this.)
- Select "create new database"
- Choose a name for your database – your last name could be a reasonable choice. Select utf8_general_ci as the character encoding.
- In a separate tab, open the text file at SQLCreateTrack.txt (from autolab handout)
- In the adminer window, select SQL Command from the lefthand pane. Copy and paste the text file contents into the window and then click "Execute".
- You should see a bunch of green checkmarks showing successful execution of the queries and a new table called "track" in the lefthand pane.

Exercises
Complete the following exercises and record your answers in your handin.sql file (this is what you will be submitting for this lab – download the template from the "Handout" option in AutoLab). Note that you can do an export and copy and paste the results into the handin.sql file.

1. (4 pts) Perform the following SQL query and give your results:
   ```
   SELECT * from track WHERE trklength > 6;
   ```
   Note that you can use the export option to give you a text version of the results that you can paste into the file that you will submit. Paste the results *inside* the comment block where it says "PASTE RESULTS HERE". This question is not autograded, so you will not see points for it. The point total for autolab is 46 (rather than 50).
2. (5 pts) For the next few questions, write SQL commands for the given queries. Report details (all columns) of tracks between 3 and 4 minutes long (including tracks with length exactly 3 or 4).
3. (8 pts) On what track number and how long is "Java Jive"?
4. (8 pts) What is the average length of the tracks in the table?

MySQL Workbench

On your machine, locate the MySQL Workbench application and open it (this software is free – you can download it to your home machine as well).

- Choose the option to add a new connection (this will be a TCP/IP connection)
- Under the Manage DB Connections window:
    - give your connection a name,
    - hostname should be the URL to your VM (see above)
    - your username is root, and
    - the password is either the default given above or your new password if you've set one
    - Click OK.
- Double-click on your new connection (in the SQL Development area)
- This will open a SQL Editor tab – find your database in the overview
- In the editor pane, enter "use <dbname>" so that your database is being used (click the lightning bolt to execute)

Exercises

Continue to add your answers to the handin.sql file you downloaded while using adminer – you'll just submit one file for the whole lab.

We're now going to be working with a ship domain. For this example, a ship has a registration code (a mix of letters and numbers), a name, gross tonnage (integer), and a year of construction. Ships are classified as cargo or passenger. Select appropriate data types for these fields (you will probably want to refer to the insert statements in at SQLInsertShip.txt (from autolab handout) to double-check maximum lengths, whether decimal places are needed, etc.

5. (9 pts) Write a CREATE TABLE statement for the table described above (call the table ship – name the columns RegCode, ShipName, Tonnage, Year, and Type in this order). The registration code uniquely identifies the ship.

After you create the table, copy and paste the insert statements from the text file given above into the SQL query window and execute them. Or you could import and execute the file. Now's your time to experiment a bit with the workbench. Note that the insert statements assume that you created the columns in the table in the order given above. If you didn't, you'll need to drop and recreate your table.

6. (8 pts) What are the registration codes of any ships where the ship NAME contains an 'A' or an 'a'? (not case sensitive)
7. (8 pts) What is the name of the ship with the maximum tonnage?

Submission

Please submit your .sql file to autolab. You can submit as many times as you like. The file will be autograded when you submit. I will, however, be checking over your answers to be sure that you approached problems in the specified way. Note that grades assigned by AutoLab can be adjusted if I spot problems.