Concordia University
Dept. of Computer Science & Software Engineering
COMP 353 – Databases
Winter 2018
Warm-up Project

Project Title: Project Management System -- PMS
Due: February 14, 2018
Points: 6%

Below is a relational database design for forming teams by students to do projects in a course. You are required to develop a web-based database application system in order to facilitate, view, track, and manage various information about students, team memberships, projects, and demos, and also help evaluating queries and transactions against the database, described below. You should use MySQL database management system to which you have access. You need to submit a report which in addition to describing details of your stems and codes, it includes the database instance used in order to evaluate queries and transactions and report the results.

The Database Design:

The database contains the following relations/tables: Students (SID, Name, gender, email), Projects (PID, Name), Teams (TID, LeaderID, NoOfMembers), Members (SID, TID, date-Joined, role), Demos (SID, TID, Date, time, grade). Members is a 1-M relationship from Students to Teams. The team leader is the SID of one of the team members. We have the following constraints:

- Every student has to be a member of exactly one team.
- Each team is assigned one demo slot, identified by date and time.
- No team may have more than 4 members.
- The leader of a team is unique if exists. It will be null otherwise.

Implementation Requirement:

Develop a web-based database application system under MySQL to support the following queries and transactions, in addition to create the tables and/or modify the schemas. The transactions include typical insert, delete and update tuples in these tables. Create appropriate data and store them in the database. The system should support the following queries. Make sure that each table in the database has suitable, "sufficient" number of tuples so that queries have meaningful and reasonable size outputs. To be specific, you should store at least 50 tuples for Students, >10 for Teams, 2 for Projects, 20 tuples for demos on two different dates. The queries should be implemented using SQL. No GUI is needed for this warm-up project. The queries to be implemented should at least include the following:

1. Which student(s) is not a member of any team?
2. For each team, list its members.
3. Who was not present in the demo of a team?

4. List the teams which that have <4 members.
5. Given a TID, list the names of the members.
6. Given a date, list all the teams that have demos on that day.
7. For each team that is not complete (<4 members), list the TID and the capacity to increase. (That is, if a team has 1 member, the capacity to increase would be 3).
8. Given a student Name or ID, find his/her team ID.
9. Given a student Name or ID, find the names and SID of his/her teammates.

What you should hand in:

You should print and hand in a report (soft copy) that includes the E/R model for this database (or its revised schema, if deemed necessary) together with reasonable assumption(s) and constraints you made. List all relations, attribute, and the appropriate data types considered. Identify key attribute(s) for each table and show the relationships among the tables. Your report should also include your formulation of the SQL statements above and the outputs obtained.

Note: In your project report, include as the cover page, the Originality form signed by EVERY member of the team members. Also include the following information: Your team ID given by Stan, Names and Student IDs of your team members.