COSC 2P32 – Winter 2015 - Assignment 1
Due Date – Tuesday Feb 3rd – 4pm, Late Date (25% penalty)– Friday Feb 6th – 4pm

The main purpose of this assignment is to demonstrate the concepts that you have learned in lecture about ER Diagrams, Relational Schema and SQL Statements.

**Part A - ER Diagram**
(Exercise 2.6 from textbook - pg 53 - 54)

Computer Sciences Department frequent fliers have been complaining to Niagara Airport officials about the poor organization at the airport. As a result, the officials decided that all information related to the airport should be organized using a DBMS, and you have been hired to design the database.

Your first task is to organize the information about all the airplanes stationed and maintained at the airport. The relevant information is as follows:

- Every airplane has a registration number, and each airplane is of a specific model.
- The airport accommodates a number of airplane models, and each model is identified by a model number (e.g., DC-10) and has a capacity and a weight.
- A number of technicians work at the airport. You need to store the name, SIN (Social Insurance Number), address, phone number, and salary of each technician.
- Each technician is an expert on one or more plane model(s), and his or her expertise may overlap with that of other technicians. This information about technicians must also be recorded.
- Traffic controllers must have an annual medical examination. For each traffic controller, you must store the date of the most recent exam.
- All airport employees (including technicians) belong to a union. You must store the union membership number of each employee. You can assume that each employee is uniquely identified by a social insurance number.
- The airport has a number of tests that are used periodically to ensure that airplanes are still airworthy. Each test has a Federal Aviation Administration (FAA) test number, a name, and a maximum possible score.
- The FAA requires the airport to keep track of each time a given airplane is tested by a given technician using a given test. For each testing event, the information needed is the date, the number of hours the technician spent doing the test, and the score the airplane received on the test.

Draw an ER diagram for the airport database. Be sure to indicate the various attributes of each entity and relationship set; also specify the key and participation constraints for each relationship set. Specify any necessary overlap and covering constraints as well (in English).
Part B - Relational Schema and SQL Statements
(Exercise 3.16 from textbook - pg 97)

Translate your ER diagram from above into a relational schema, and show the SQL statements needed to create the relations, using only key and null constraints. If your translation cannot capture any constraints in the ER diagram, explain why.

Assignment Submission

• Include a copy of your answers. Pages should be stapled together at the upper left-hand corner of the page.
• Your answers should be placed in a 9" x 12" sealed envelope. A standard assignment coverpage should be printed, signed and stapled to the front of the outside of the envelope. Note: Assignments not including a coversheet will NOT be marked.
• The submission should be placed in the Assignment Box outside of J332, in the slot labelled 2P32, before the due time indicated above. Only one submission (i.e. to the box) should be made per assignment.
• It is strongly advised that you keep all rough work. Keep this as backup until the end of the semester.