COMP 3380 – Databases: Concepts and Usage

Department of Computer Science
The University of Manitoba
Fall 2006

Assignment 2

Course Number: COMP 338 (Section A01)
Instructor: Dr. Carson K. Leung **Due Date: Thu, Nov 02, 2006**
Hand-in: In class (at 11:30 in EITC E2-105)

Instructions:

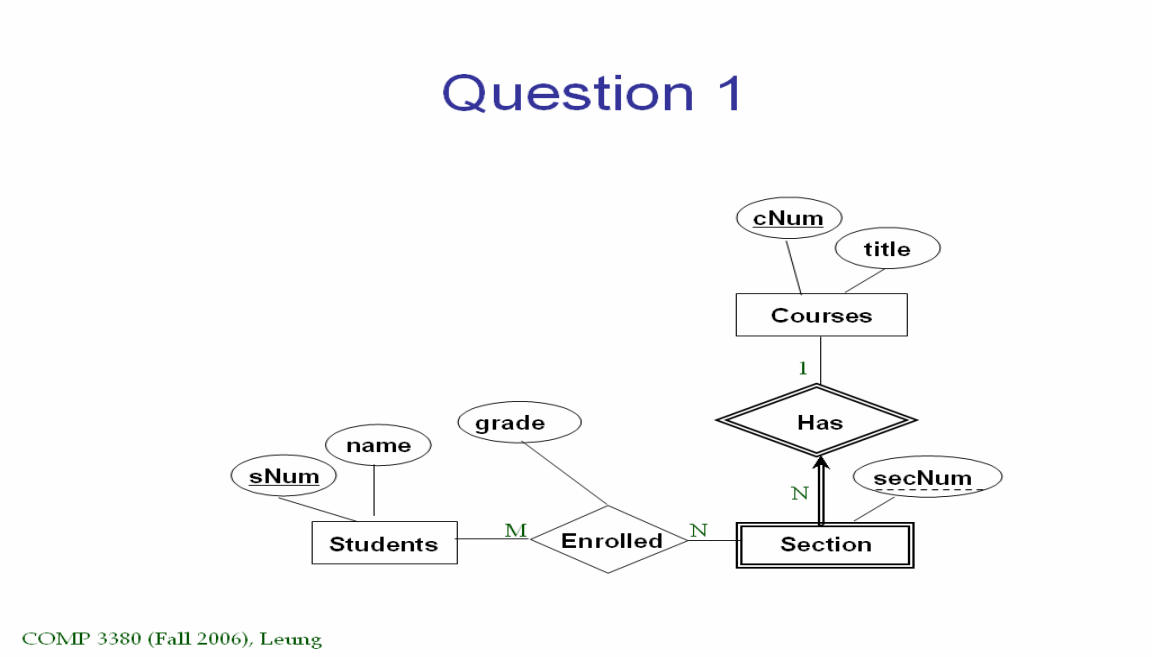
- Submit all answers on 8.5" x 11" paper in a letter-size folder.
- Clearly indicate your name, student number, and section on the outside of the folder.
- Include a *signed* Honesty Declaration as the *first page* of your assignment.

Questions:

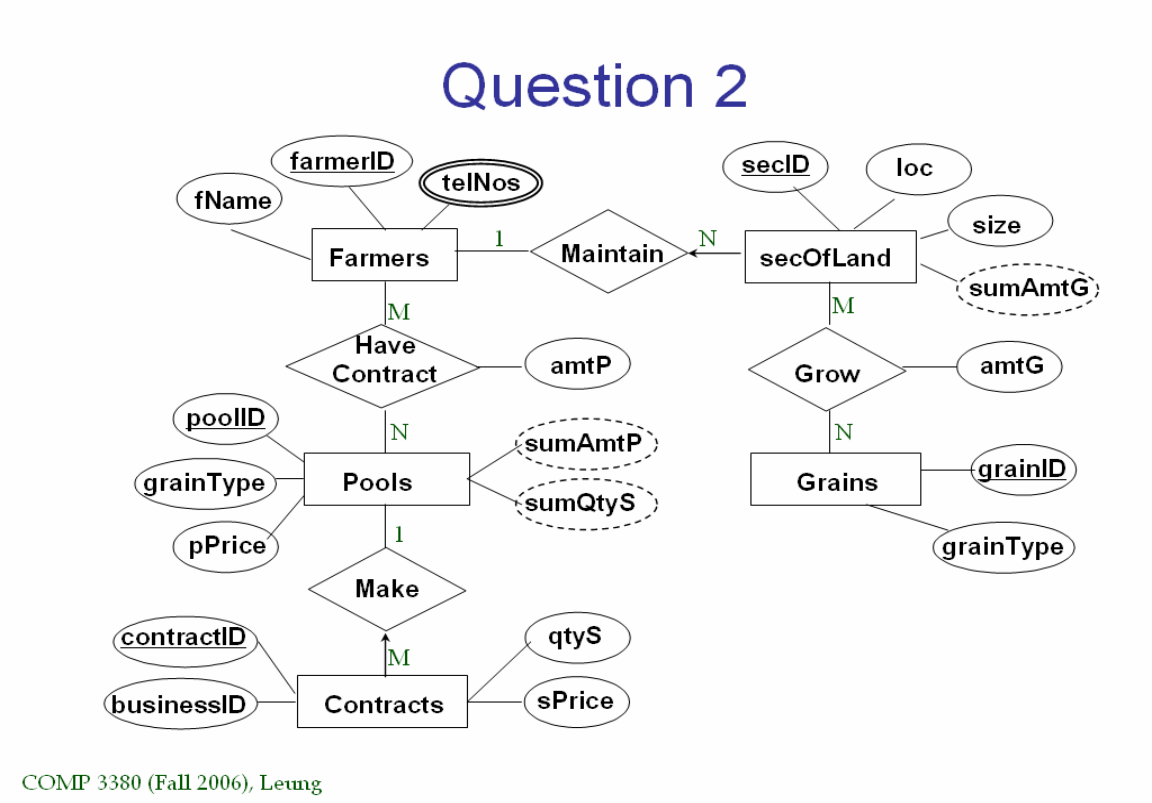
1. For the simple student database that was provided for Assignment 1, add the following information: "Each section of a course is instructed by one professor. A professor may instruct any number of sections, including multiple sections of the same course. Information about each professor includes the professor ID (unique), name, and office location."

   Hand in a copy of the relational database schema with integrity constraints (primary keys and foreign keys) included.

   Optional: You may implement the relational database schema described above using HSQLDB (or any other equivalent DBMS) and hand in a printed copy of the database schema with appropriate SQL commands.



2. Using the ER diagram that was provided as the sample solution to Assignment 1 for the farmer-pool question, convert the database into a relational database. You must clearly indicate all primary keys, candidate keys, foreign keys, and functional dependencies. The relational model may be drawn on paper or implemented using the appropriate SQL commands.



3. Place the following 1NF-relation R (i.e., where all attributes are atomic) in *2NF*.

   R (A1, A2, A3, A4, A5, A6, A7, A8)
   A1 A2 → A4
   A2 → A5 A6
   A3 → A7
   A7 → A8

   Hand in the collection of relations in either written or typed form.
   Hint: One of the relations in your collection is R1 (A1, A2, A3).

4. Place the relation R above (in Question 3) in *3NF*. Hand in the collection of relations in either written or typed form.

--- End of Assignment 2 ---