COP5725 – Project: Relational Schema and SQL

Due Date

March 17th 2011 **before 5:10pm**. Late submissions will not be accepted. Note that this date differs from the date originally specified in the project description.

Submission

PDF file through the course website. Only one submission per team is necessary.

Details

In this part of the project you will generate the relational schema that will be used to define the database for your application. You must complete the following:

1. Modify your original E/R (from the first submission) and improve it to fulfill the requirements specification. If no improvements are needed then there is nothing to be done for this item. Note that having obtained a perfect score in the first deliverable does not mean that improvements are not possible. Look closely and objectively at your original design. If you do make changes to your original design, resubmit. The resubmission will not be graded. The grade will be solely based on the following 6 items.
2. Transform the attached E/R into its relational representation. The attached E/R represents one possible database design based on the requirements specified in the project description.
3. Transform the improved E/R from item (1) above (or your original E/R if no improvements were made), into its relational representation.
4. Answer the following:
    a. What are the advantages of your schema (item 3) versus the schema resulting from item 2 above? Think of the advantages in terms of expressive power of the design, how close it fulfills the specification, and how it might affect the system implementation and maintenance in the future.
    b. What are the advantages of the schema from item 2 versus the schema resulting from your E/R diagram (item 3)?
5. For both (2) and (3) above, define sets of functional dependencies that describe the dependencies between attributes in each relation.
6. Decompose both schemas to BCNF. You must show your work and prove that the resulting schemas are in BCNF.
7. Answer (4) again, but now using the schemas resulting from item 6 above.
8. Provide the set of SQL DDL statements for creating your database tables based on ONE of the schemas resulting from (6).

Grading

The part of the project is worth 15% of the project grade. The project is worth 35% of the course grade.