University Database System

for

Database Management Systems Course

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1. University Database System

In this project, you will create a simplified University Database System. This system will track courses, instructors and textbooks. The requirements for this system follow.

- At least one and maybe many instructors will teach a course.
- An instructor can teach from zero to many courses.
- Each course has at least one, the primary, and maybe many assigned textbooks.
- A specific textbook may be used in more than one course.
- Some books may not be used in any course
- We must track ID, name, and salary for instructor.
- We must track Course_ID, Course name and credit_hours for each course.
- We must track ISBN, Title, Author name and cost for each textbook.

2 Project Assignment

Your group is assigned the tasks of translating the above requirements into an Entity Relationship Diagram of the conceptual design for the University system. Additionally, you must translate the Entity Relationship Diagram into a schema of the logical design for the database. The schema must be normalized to 3rd normal form. SQL Scripts must be prepared to physically implement the database for this system and the instructor must be able to run these scripts and successfully create the required tables on the UMBC Oracle system. Finally, your group must provide an application that uses either JDBC, php-MySQL or C-API for sqlite to access the University database and perform the following functions: bulk load data into tables from csv files, erase the tables, insert a record into the tables, delete a record from the tables, and select records from the tables.

3. Logistics

You may want to have an initial face-to-face meeting and several checkpoint face-to-face meetings. Additionally, you can accomplish your task using appropriate collaboration tools. These include:

- Blackboard Discussion Board, Blogs and Wikis
- E-mail
- Instant messaging, texting
- Phone conferences
- Skype
- Others that may better suit your team style

UMBC provides Java programming and Oracle database environments on its gl.umbc.edu environment and the examples in class will make use of this system. Optional exercises in class explored the use Python-sqlite, C-sqlite, and php-MySQL. You may use these alternate environments for your project.

4. Rubric

The following sections list the minimum elements that must be present in each of the team deliverables.

4.1 Entity Relationship Analysis

- 25%

4.2 Translation of ER to logical schema and Normalization

- 25%

4.3 SQL Scripts

- 25%

4.4 JDBC/ODBC Program

- 25%

5. Submitting the Deliverables

Please reply back to me with the designated submitter. The designated submitter will submit the project deliverables: 1.) your E-R diagram; 2.) your table schemas; 3.) your sql scripts to create the tables; and 4.) your java-jdbc program. I will check that person's directory for your work.

The designated submitter should submit the project. Assuming the following files:

- proj_analysis.doc - you E-R diagram, table schema, and create table sql scripts
- cmsc461.java - your loading program
- loadTable1.txt - your load data for table 1
- loadTable2.txt - your load data for table 2
- and so on for any other files

The submit statement would be:

submit cs461_rayg PROJ proj_analysis.doc cmsc461.java loadTable1.txt loadTable2.txt

You can also email me the files.

The project is due on Monday, November 23.