System for Occupancy Agreement Processing (SOAP)

for

Database Management Systems Course

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1. SOAP

1.1 Background on SOAP

Government agencies are assigned space by the General Services Administration (GSA). The GSA requires an occupancy agreement with each agency before formal space assignments are made, and before any allocation of funding for space is granted the customer agency. Each government agency must conclude an occupancy agreement before the GSA makes any contractual commitments for the agency's space request. The System for Occupancy Agreement Processing is an application that captures the relational model between GSA offices, customer agencies and occupancy agreements.

1.2 SOAP Requirements

- The GSA is organized into offices. Each office is located in a certain city and is identified by a unique name. The GSA monitors the total square footage managed by each office.
- GSA customer agencies are identified by their agency_id values. The GSA stores each agencies name, address, city, and phone number.
- Agencies may have rental agreements. A rental agreement is managed by one office.
- Every rental agreement is assigned a unique identifier.
- An agency may have zero, one or more rental agreements with the GSA, and one or more agencies can be a party to a rental agreement. For example, the U.S. Courts and the U.S. Marshalls service may share a rental agreement.
- The GSA maintains a record of a rental agreement rent amount, and end date.

1.3 Group SOAP Project

2 Project Assignment

Your group is assigned the tasks of translating the above requirements into an Entity Relationship Diagram for the conceptual design of the SOAP 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 Java/JDBC, C-Sqlite, Python/Bottle or PhP/MySql to access the SOAP 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. World class database systems are available from vendors such as Microsoft and Oracle at no cost. For example, Microsoft offers SQL Server Express at no cost. Additionally, the sqlite database is available too you.

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%