

# CGS 2545: Database Concepts Fall 2010

## Database Project Overview Includes Labs #8 - #9, and #10

Course Instructor : Dr. Mark Llewellyn

Lab Instructor : Soumyabrata Dey

School of Electrical Engineering and Computer Science  
University of Central Florida



# Database Project Overview

- The lab work for the remainder of the semester deals with developing your own database project.
- The ultimate objective of this project is to produce a complete database that will have some use to you.
- Note that you will be able to continue to use your database and enhance its features and usefulness after the course has ended. You might like to add features/capabilities to your database that are not required for our project.



# Project – Phase 1

- The first phase of the project is the design phase. The objective of this phase is to define a real-world scenario to model and create a set of normalized relational schemas to represent the real-world in the database.
- Write up a brief description of the real-world scenario that you would like to model. Describe the various entities and the relationships that exist amongst them. Explain why you chose this scenario.
- Identify any business rules that describe/govern the way the real-world entities/relationships behave. Be fairly general here recalling the various restrictions you've dealt with in Access (think input masks and restrictions here more than complex rules).
- Construct an ER diagram for your real-world scenario.
- As a basic guideline for the scope and complexity of your project; you should have somewhere between 4-8 entities and 5-10 relationships between them.



# Project – Phase 1

- Some possible example databases that would work for this project are:
  - CD collection db: includes albums, titles, artists, genres, favorites, etc. and who sings what titles, which CDs appear in favorites listing, etc.
  - DVD collection db: includes movies, actors/actresses, studios, genres, etc. and which actor/actress appears in which movies, etc.
  - Small business db: includes customers, items in inventory, suppliers, invoices, etc. and which customers ordered what items, where items come from, what items are needed in inventory.
  - Pet grooming db: includes client's name (pet and owner perhaps), grooming required, schedule, mobile or in house, etc.
- Just try to pick something in which you are interested and it will make for a more enjoyable project.



# Project – Phase 1

- Once your ERD is complete, the next step in this phase of the project is the conversion of your ERD into a set of relational schemas using the technique we covered in class (see the notes for Chapter 5 – Part 1).
- Identify all functional dependencies that exist in your schemas and decompose N3NF schemas into 3NF schemas using the technique covered in Chapter 5 – Part 2. Verify that your schemas are all in 3NF.
- Submit the brief description of your database, the ERD, and the set of normalized schemas as the deliverables for Phase 1.



# Project – Phase 2

- In Phase 2 you will implement your database in Access.
- Create your database with the following naming convention:

**LastnameFirstname.mdb** or **LastnameFirstname.accdb**

- Step 1: Create the database by defining all of the tables that resulted from your Phase 1 work. See Labs #5 and #6 for details on database and table creation.
- Step 2: Use the “Show relationships” tool in Access to build the Access-level ERD. (See Lab #6 for more details.)
- Step 3: Create forms for each table in the database to allow for the entering of data into the tables. Vary the format of your forms somewhat so that they don’t all look the same. See Lab #3 for details on creating forms.
- Step 4: Populate the tables (using the forms you created in Step 3) with some sample data. You just need to add some representative data, you do not need to fully populate the tables.



# Project – Phase 3

- In Phase 3 you create the queries and user interface for your database.
  - Step 1: Create a switchboard for your database that gives the user access to all of the tables, forms, and reports that you have created . See Lab #4 for details on switchboards.
  - Step 2: Develop the queries for your database that a user would like to execute against the database. For each table in your database, you should generate at least two queries. See Labs #2 and #7 for more details on query construction. For each relationship in your ER diagram you should generate at least two queries about the relationship.
  - Step 3: Develop the reports for your database. See Lab #3 for more details on reports. Generate at least 3 different reports based upon the data in your database. The forms should be quite different in their design and information they contain.
- At the end of this phase you will have a complete, functional database implemented in Access. Congratulations!



# Project Schedule

Phase	Due Date	Deliverables	Points
1 (Lab #8)	Tuesday November 16 <sup>th</sup> by 11:55 pm WebCourses time	<ol style="list-style-type: none"> <li>1. A brief description of your real-world scenario.</li> <li>2. An ER diagram of your scenario.</li> <li>3. A set of 3NF relational schemas for your scenario.</li> </ol>	50
2 (Lab #9)	Tuesday November 23 <sup>rd</sup> by 11:55 pm WebCourses time	<ol style="list-style-type: none"> <li>1. An Access database named either <b>LastNameFirstName.acb</b> or <b>LastNameFirstName.accdb</b></li> <li>2. Database includes Access-level ERD.</li> <li>3. Database includes forms for each table.</li> <li>4. Database is populated with sample data.</li> </ol>	50
3 (Lab #10)	Tuesday November 30 <sup>th</sup> by 11:55 pm WebCourses time	<ol style="list-style-type: none"> <li>1. An Access database named either <b>LastNameFirstName.acb</b> or <b>LastNameFirstName.accdb</b></li> <li>2. Database includes a switchboard.</li> <li>3. Database includes at least two (2) queries for each table and each relationship in your database.</li> <li>4. Database includes at least three (3) reports.</li> </ol>	50

