COP 4710 – Database Systems – Spring 2004

Term Project

Overview

In this project you will design a database and implement a practical application using the knowledge you will gain throughout this course. The project will be completed in phases, progressing from conceptual design, logical design, normalization, and implementation. Your database should be implemented in Microsoft Access, Oracle, or MySQL. Completion of the project requires submission of different components at various due dates throughout the semester as well as the submission of a final report and system demonstration.

Groups

This project can be done in groups of one, two, or three. There are no penalties for working alone on this project. However, projects submitted by groups consisting of three members will be expected to be somewhat larger and exhibiting more features than those submitted by groups of one or two. Any changes in the groups composition, once the groups have been formed will need my approval.

The Project

Phase	Description	Due Date	Points
1	Group formation	January 28th	0
2	Identification of "real-world scenario"	February 6th	10
3	Conceptual design	February 20th	10
4	Logical Design with Normalization	March 5th	20
5	Implementation	April 2nd	20
6	Demonstration of completed system	begin April 6th	20
7	Final report	April 14th	20

Phase 1
Email the names of the members of your group by 5pm on January 28th.

Phase 2

Identify the "real-world scenario" that you wish to model in your database. This can be any real or imaginary scenario that you wish to model. The project will probably be easiest to visualize if you restrict yourselves to a business environment, but this is not required.

Think about what products/services your business will sell. The business constraints and requirements. Identify the information you will need to collect to support your database system.

Example scenario: You are hired to design a database system for a small grocery store. Your job is to design, construct, and maintain a database that will keep track of inventory, do billing, generate reports, etc. The relevant information would include products, services, inventory, employees, suppliers. Reports might include invoices in, invoices out, purchase orders, catering orders, customers, etc.

Your report for this phase should include the following:
1. A description of the database application that your group has selected for the project. This should include the nature of the business (i.e., manufacturing, services, …).
2. An analysis of the data requirements of the business. This should describe all of the relevant information that needs to be collected.
3. The types of applications that need to be supported (loads, updates, retrievals, reports, …).

Phase 3

In this phase of the project you will construct your E-R diagram according to the techniques discussed in class. Completion of this phase requires the submission of a neat, readable, and complete E-R diagram depicting your conceptual design. The ERD must capture all of the constraints that are possible using the E-R modeling concepts and notations. Any constraints or requirements of the business that cannot be modeled by the E-R notation should be clearly stated in English.

Restrictions:
1. The schema of your database must have at least 5 entity types, four relationship types, a weak entity type, a superclass/subclass relationship, and a ternary relationship. This is a minimum requirement for groups of three students…more is suggested.

Phase 4

This phase involves the conversion of the ERD into a set of relational schemas to produce the database schema. This phase also includes the normalization of the relational schemas. Successful completion of this phase requires the submission of the resulting normalized relational database schema.

Phase 5

This phase deals with the implementation of the database using Access, Oracle, or MySQL. The database will be populated with sufficient amount of data to generate meaningful results for the various queries and applications that are also constructed during this phase.

Successful completion of this phase requires the submission of your entire database implementation. All data files and applications should be included with this submission.

Phase 6

During this phase your group will schedule a time to meet with me and demonstrate your system. I will put a schedule of times on the course web page at a later time for you to select.

Restrictions:
1. Every member of the group must be present at the demonstration.
2. Every member of the group must present some part of the project.
3. Depending on how many groups we ultimately have, this may be something we'll do in class. More details on this later.

Phase 7

This phase of the project consists of completing a written report describing the details of your project. It will be a compilation of the reports you've submitted during the earlier phases of the project, plus descriptions of additional features and a "how-to-use" your database manual. I will provide more details on this phase later in the term.

Grading

The term project is 20% of your overall grade in the course. The project will be scored in two parts. The first part is a total grade for the project that will be computed from the grades on the individual phases based on the points for each phase that were shown above. The second part will be a peer evaluation component. Each member of the group will submit to me an evaluation of the other member's contributions to the project (this will be kept confidential). Based upon the peer evaluation reports, points may be deducted from your score on the project.