CS3431: Project Description
B-term, 2011
Homework 1: Conceptual Design

Due Date: Nov. 8, 2011 (8:00 AM).

General Instructions

- The homework is to be done individually.
- In your ERD design, clearly indicate the keys and the cardinalities of the relationships.
- Any assumptions you make, which are not stated in the problem definition, need to written explicitly. The assumptions you add must be "***in addition***" to the specified requirements in the problem definition without deleting any of these requirements.
- Indicate if there is any information (constraints or other concepts) listed in the description that cannot be modeled by the ER model.

Problem 1 (Book publisher Database) [30 Points]

Design an ER diagram for a ***book publisher*** that represents books, authors, publishers, and their relationships. Your design should reflect the following requirements:

- Each publisher can publish multiple books, but each book is associated with only one publisher.
- Each author has written multiple books, and each book was written by at least one author.
- An author can sign contracts with multiple publishers, and each publisher is dealing with many authors. The contract between an author and a publisher contains some terms such as the number of books the author needs to provide, and the total payment from the publisher to the author. The contract also states for each book to be written, the due date for this book, the book type, e.g., comedy, sci-fi, children book, etc., and the partial payment to be paid by the publisher to the author on each due date.
- Books are further classified into two categories: novels and textbooks. A novel could have multiple sequels and a textbook could have multiple editions. Books of other types are also allowed.
- The minimum properties for authors are: ID (unique for all authors), name, address, DoB, multiple phone numbers. The minimum properties for publishers are: name (unique for all publishers), address, start year, phone number. The minimum properties for a book are: ISBN (unique for all books), title, publishing date, number of pages, price, type, e.g., comedy, Sci-fi, children, etc.

Problem 2 (Extended Book publisher Database) [20 Points]

Extend/modify the ER diagram you designed in Problem 1 to capture the following additional requirements.

- Customers can obtain books by two means:
  (1) Customers buy the books the need online, and for that we need to capture the date on which he/she bought the book, the website from which the book is bought, and the payment method, e.g., cache, credit card. A customer may buy the same book, i.e., same ISBN, multiple times.
  (2) Each author has up-to 50 gift copies of each book he/she writes. Customers may obtain a book by contacting the author and getting one of the gift books. In this case, we want to capture the gift-statement written by the author on the book for the customer, and the date.
  (3) The minimum properties of a customer are: ID (unique for all customers), name, address, DoB, and age.
  (4) If your ER diagram contains any multi-way relationships, then provide another alternative design that uses ONLY binary relationships.

Grading:
The maximum grade is 50 Points. Late submissions follow the rules stated on the website.

Deliverables:
Each student should deliver a report containing the required solution.

Submission:
Submit a hardcopy in the beginning of the class (8:00AM), or submit electronically via blackboard.wpi.edu website.