CSE 370– Database Systems

Assignment 1

Summer 2024

Question 1 [CO2]: [10]

You are going to design a database management system for a bookstore. The data requirements for the system are given below:

a. The bookstore sells various books. Each book has a unique ISBN, title, author(s), publication year, genre, and price. Some books may fall under multiple genres.
b. Authors have a unique Author ID, name, biography, nationality, and birth dates. Authors may collaborate on multiple books together, and these collaborations are recorded.
c. Customers can register on the bookstore website. Each customer has a unique Customer ID, name, email, address, and phone number.
d. Orders are placed by customers. Each order has a unique Order ID, date, customer who placed it, and total amount. An order can contain multiple books, each with a specified quantity.
e. Authors can run promotions. Each promotion has a name, start date, end date, and discount percentage applicable to certain genres. None of these attributes are guaranteed to be unique, different authors may even have the same name for the promotions. However, note that the same author will not reuse the same name for their own promotions.
f. Books can be reviewed by customers. Each review includes a unique Review ID, book reviewed, customer who wrote it, rating, and comments.
g. The bookstore manages inventory. Each book in inventory is tracked by a unique Inventory ID, quantity available, and location within the warehouse.

Given the above data requirements, **Construct an EER diagram** for the Online Bookstore Management System. DO NOT make any assumptions about multivalued/composite attributes. Write down all other assumptions(if any).

Question 2 [CO2]: [10]

A gym management company wants to create a database to manage their gyms, members, trainers, classes, and equipment. They have hired you to design the database to efficiently handle their operations.

Constraints and Requirements:

a. There should be at least one disjoint-total specialization/generalization.
b. There should be at least five entities (excluding subclasses).
c. There must be a recursive relationship.
d. There must be at least one M:N relationship.