CSE 370 – Database Systems

Assignment 1

Fall 2024

Marks

Full Name (in Block Letter): _____

ID: _____ Section: _____ Signature: _____

Date: _____ Marks: 20

Question 1:

You have been assigned by a startup to assist in designing and implementing a database system for an app named "Bookworms".

- The app involves readers, individuals having their unique readerID, name, multiple contact numbers, and email addresses stored within the database. Each email is composed of an initial and a domain.

- Additionally, the app includes authors. Authors have a unique authorID, name, a brief biography, and awards stored in the system.

- Readers can own multiple books, and each book, identified by ISBN_no and copy_no, has info like title, genre, price and publication year. Books can have contributions from multiple authors, and every author must have written at least one book.

- The app also incorporates information about book clubs. Book clubs have a unique clubID, a name, and details about the club's genre preference. A book club must have multiple members, and a reader must belong to at least one book club.

- A book club organizes multiple reading sessions, each with a unique serial number (such as 1, 2, 3,...) within the club. While sessions in different clubs can have the same serial number, within the same club, they are unique. Reading sessions also have a budget, multiple discussion points, themes and notes, and a designated chair of the reading session.

- Readers join different reading Sessions, and we keep track of when they join using a timestamp composed of the date and time. Also readers get points for joining a reading Session.

- Additionally, readers can be reading partners to each other.

- Readers can borrow books, and details like borrowDate, returnDate, and the specified timespan for borrowing are recorded. Each transaction involves a reader borrowing one or more books and the same book can be borrowed by multiple readers over a period of time. While borrowing books, readers have to pay a certain amount. The amount is calculated from the price of the book and the point stored for the reader.

Design an ER diagram for the Book Club Management app, adhering to the provided data requirements and incorporating appropriate symbols for relationships and entities.
Do not assume any attributes/entities/relationships/multivalued/composite other than the ones mentioned above. For participation constraints/cardinality ratios, if they are not hinted at in the question, you may assume according to your logical reasoning.

Question 2:

Design a database schema for an "Event Management System". The system should facilitate the management of events, attendees, venues, organizers, and tickets.

In your EER diagram, you have the creative freedom to design entities, attributes, and relationships as you see fit, while adhering to the following constraints:

[8 points]

In your EER diagram, you have the creative freedom to design entities, attributes, and relationships as you see fit, while adhering to the following constraints:

- *Include at least one disjoint-total specialization/generalization.*
- Include at least one overlapping-partial specialization/generalization.
- Incorporate a minimum of four regular/strong entities (excluding subclasses).
- Implement at least one recursive relationship.
- Integrate at least one Many-to-Many (M:N) relationship.
- Include at least one One-to-Many (1:N) relationship.
- Incorporate at least one weak entity.

Ensure that your EER diagram is logically accurate, vividly realistic, and comprehensive, effectively representing the database required for an Event Management System.