CSE 344 Section 4 Worksheet

Problem 1: Entity Relationships and Multiplicity

Draw an E/R diagram representing each scenario. Note that edges between entities can be labeled with constraints. Then state the multiplicity.

a) Every author writes at least one book, and every book has at least one author. *Entities: Author, Book*

See answer + explanation in the slides

b) US States and capitals. *Entities: State, Capital*

See answer + explanation in the slides

c) Every city has at most 5 parks. Assume parks are confined to one city (ie. they don't span across multiple cities). *Entities: City, Park*

See answer + explanation in the slides

Problem 2: E/R Diagrams

Odegaard Library is in need of a new database, and they have asked you to help design it. Here are some of the requirements for what information needs to be stored in this database:
- Each book has a unique ID, a title, an author, a genre (required), and a number of pages
- Readers who visit the library have a unique email address, a first name, a last name, and an age
- Readers can "check out" multiple books from the library at a time, and one book can be checked out multiple times. We should keep track of the day that each book was checked out
- To make it easier to recommend books to readers, we should assign a recommended age for each genre

A) Design an ER diagram for the new library database.

See answer + explanation in the slides

CSE 344 Section 4 Worksheet

B) Convert the ER diagram to a series of CREATE TABLE statements. Include primary key and foreign key statements.

See answer + explanation in the slides

Problem 3: Subclassing

Read the following scenario and draw the E/R diagram representing the relationships between the entities pet, dog, and cat:

- Each pet has the following attributes: name, age, color, breed
- A pet is uniquely identified by its name. No two pets have the same name
- A dog has the following attributes: name, age, color, breed, num_barks
- A cat entity has the following attributes: name, age, color, breed, num_purrs
- Note that since no two pets have the same name, if for example, a dog was named "Doby", no other dog nor cat would have that name.

See answer + explanation in the slides