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Objective: Use your requirements document to develop a comprehensive Entity-Relationship (ER) model that accurately represents the data requirements and relationships for your database project. This model will serve as a blueprint for your database design, capturing the essential entities, relationships, and constraints based on the requirements you have gathered. No formal template is required, but the following sections should be included in a requirement document (the *italic* parts are subsections).

Introduction [5 points]. *Project Overview*: Write a brief paragraph summarizing the purpose and primary functions of your database. This should align with the overall goals and objectives outlined in your requirements document. *Scope*: Provide a concise paragraph defining the boundaries of your project. The last two subsections establish continuity with the rest of the project. *Glossary*: Create a list of key terms and acronyms used in your project. Define each term clearly to ensure that all stakeholders have a common understanding of the terminology.

Project Overview
The purpose of our database is to provide both library administrators and users with accurate information about the library's available resources. End users want the ability to search for items such as books, magazines, and digital media. Library staff may also search for these items to verify stock, but in addition, they will receive feedback about which items have been checked out. This helps staff monitor borrowing activity and anticipate what the library should expect to be returned.

Scope
The library database will manage and track the collection of physical and digital media (Books, Magazines, DVDs, CDs, and Video Games) along with the interactions between users and staff. End users (Library Users) will be able to search for available items to check out, while staff members (Library Staff) will have access to administrative functions such as restocking, reshelving, and tracking checkouts and returns.

The system ensures:

- Accurate cataloging of all library items with detailed metadata
- Tracking of user borrowing history
- Staff oversight of checkouts, returns, and restocking processes
- Availability of search functions for both users and staff
- Maintenance of accurate stock levels

Glossary:

Book – A physical printed work with attributes including ISBN, Title, multiple Authors, Page Count, Genre, Edition, and Quantity in stock.

Magazine: A periodical publication identified by ISBN, Title, Issue number, Publisher, and Page Count.

DVD: A digital video disc item with attributes such as Title, unique DVD_ID, Genre, Length, Actor(s), and Director.

CD: A compact disc with attributes including Title, Track listing, CD_ID, and Author.

Video Game: A digital or physical game with Name, Genre, Rating, and Release Date.

Library User: A person registered to borrow items from the library. Attributes: First Name, Last Name, Start Date, End Date, and User ID.

Library Staff: A staff member responsible for managing library resources. Attributes: First Name, Last Name, Start Date, End Date, ID, and Position.

Check Out: The process of a Library User borrowing an item (Book, DVD, CD, or Video Game).

Reshelving: The act of a Library Staff member returning an item to stock after a user has checked it out.

Restocked Date: The date when an item is returned and made available again.

Search: A function available to both Users and Staff for finding items in the library's collection.

Identify ER Modeling Components [15 points]. *Identify Entities*: List all the major entities that will be part of your database. This includes the initial entities in the project description, the ones you identified during the requirements engineering, and the additional ones during your team brainstorming. *Define Attributes*: For each entity, list its attributes and specify the data types or constraints. For example, the `Book` entity might have attributes such as `ISBN`, `Title`, `Author`, `Genre, Price,` and `Stock Quantity`. *Define Relationships*: Determine how the entities are related to each other. Define the multiplicity (one-to-one, one-to-many, many-to-many) and any constraints. For example, a `Book` can be written by one or more `Author`, and a `Purchase` can include multiple `Book`.

Book (ISBN, Title, Author, Page_count, Genre, Edition, Quantity, Quantity_Available)

Magazine(ISBN, Title, Issue, Publisher, Category, Page_count, Quantity, Quantity_Available)

DVD (DVD_ID, Title, Genre, Length, Actor, Director, Quantity, Quantity_Available)

CD (CD_ID, Title, Tracks, Author, Category, Quantity, Quantity_Available)

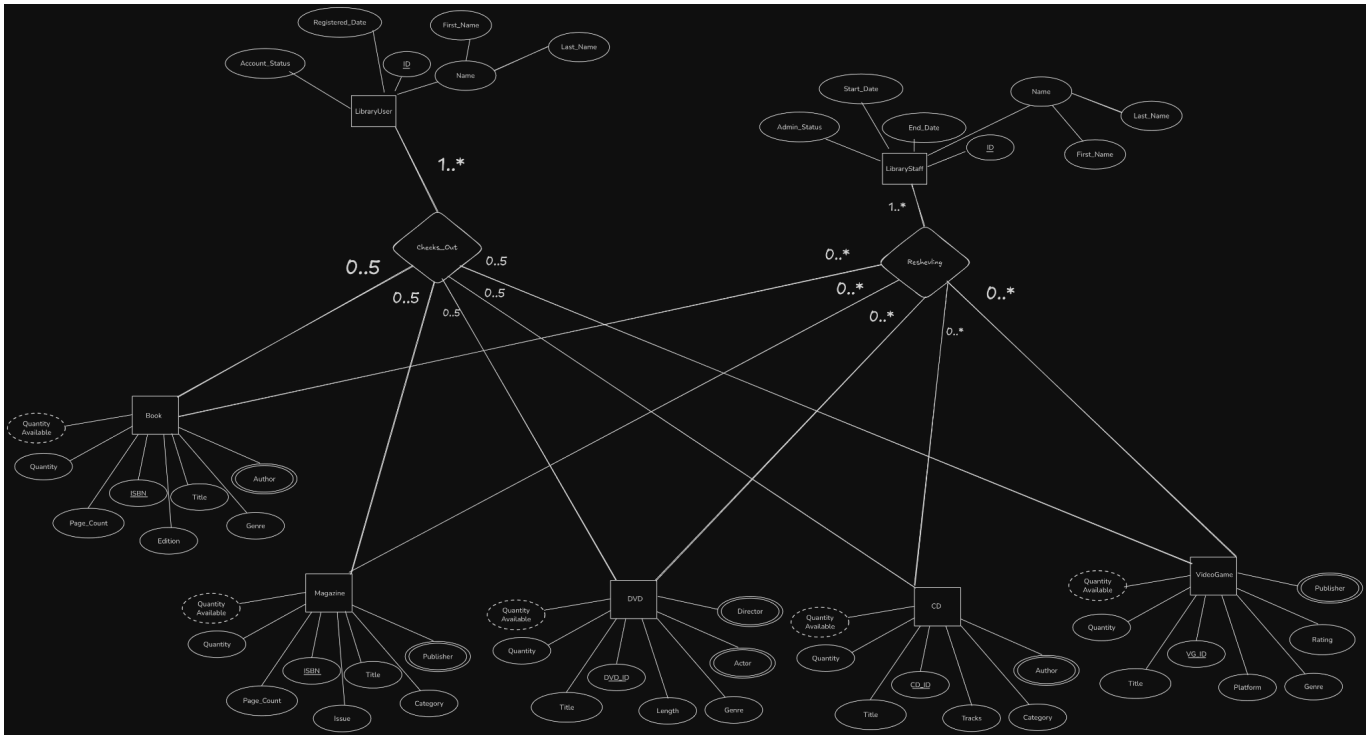
VideoGames (VG_ID, Title, Genre, Rating, Platform, Publisher, Quantity, Quantity_Available)

LibraryUser (User_ID, FirstName, LastName, Account_Status, Registered_Date)

LibraryStaff (Staff_ID, FirstName, LastName, Start_date, End_date, Admin_Status)

User Checks out (Book, CD, DVD, Video Game, Magazine). The maximum that one user can check out is five of any given media. You could therefore checkout 5 games, 5 books, and 5 CDs all at the same time since the max is 5 each.

Library Staff reshelves (Book, DVD, CD, Games, and Magazines). One library staff can restock many items.



Create the ER Model [30 points]: Use a diagramming tool (we're using excalidraw)

- All identified entities and their attributes
- Primary keys for each entity
- All relevant relationships between entities with appropriate cardinality in `min..max` format
- Any additional constraints or notes that are relevant (but not directly presented in the ER model)

ER Model notes:

MEETING 3 OCT 1st NOTES

Wednesday, October 1, 2025
4:01 PM

Meeting Date: Wednesday, October 1st

Meeting Time: 4:00 PM to 4:40 PM

Meeting Location: Table in Front of 2300 in LEEP2

Objectives:
- Finished Project Artifact 3
- Introduced & Began Project Artifact 4 & 5

Team Members:
Daniel Neugent – Present
- Tasks/Roles Assigned: Project Manager/Lead & Backend
- Set up SQLite file

Tanner Gurley – Present
- Tasks/Roles Assigned: Team Meeting Logs & Integration
- Regen data to fit data constraints

Mariam Oraby – Present
- Tasks/Roles Assigned: Quality Assurance & Testing
- Finishing up for some of the docs

Jake Bernard – Present
- Tasks/Roles Assigned: Front End

Jacob Fonyi – Present
- Tasks/Roles Assigned: Backend

Github Link: https://github.com/l33tdaniel/databases-447-queryreaders

Meeting Notes:

- Finished Artifact 3 and made it ready to turn in
- Went over Artifact 4 and decided to wait on more instruction to design data dictionary and relational schema mapping
- Started working on Artifact 5 since most of know how to write SQL
- Decided to use SQLite so we don't have to connect to a server and since our database is going to be pretty lightweight
- Generated some test data need to regen more to fit constraints