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Objective: Document the requirements of your database project. 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*: Briefly describe the purpose of the database and its intended use. *Scope*: Define the boundaries of the project, including what will and will not be covered (this could be a one paragraph shortened version from Project Part 1, repeated to maintain continuity). The previous two subsections establish continuity. *Glossary*: Include a glossary of terms or acronyms (if any) used in the document.

This project aims to model the Lawrence Public Library as it transitions into the digital era by designing a database that supports the core functions of a modern library. The system will manage resources such as books, magazines, DVDs, CDs, and video games, while also maintaining library accounts for all registered members. By providing librarians with organized, accurate information, the database will enhance resource management and improve the overall library experience, capturing the evolving role of libraries in serving their communities.

Stakeholders [5 points]: Identify the database stakeholders, including end-users, administrators, and any other relevant parties. While some of these may need to be contrived, doing so demonstrates an understanding of the essential components of a requirements document.

The primary stakeholders of the database include library members and patrons, who access the system to view available resources such as books, movies, DVDs, and other media. Librarians are responsible for managing the database by adding new content, updating records, and monitoring resource availability. Library administrators oversee system operations, ensuring data accuracy, managing user accounts, and maintaining technology inventory. Additional stakeholders may include IT support staff who handle system maintenance and software updates, ensuring the database functions reliably for all users.

Requirements [30 points]: *Functional Requirements*: Specify the essential functions the database must perform. These functions can include user administration, data entry, retrieval, updates, deletions, and report generation. For report generation, refer to the sample queries/reports provided at the end of the project description for ideas. Additionally, as a team, brainstorm and propose other types of queries/reports that might be of interest to users. *Data Entities*: List and describe the main data entities and their attributes and their data types or constraints. Note: these should represent major

entities and their attributes (see the project description as the starting point); the list may be expanded upon when you develop the conceptual model.

The database will provide a user login system that separates users into different access levels. Administrators, such as library staff, will have elevated permissions, including the ability to add, update, and remove items, manage library memberships, and monitor overall system activity. End users, such as library members, will primarily have read-only access to view available resources, check item availability, and track due dates.

Each library item will have multiple attributes to support accurate tracking and reporting, including title, year of publication, publisher, series (if applicable), ISBN or call number, author/creator, genre, subjects, length (pages or runtime), physical location in the library, number of copies, and current availability status (checked out, on hold, or available). Checked-out items will display public due dates for user reference.

The system will support essential database operations, including user administration, data entry, retrieval, updates, deletions, and report generation. Reports may include inventory summaries, overdue items, usage statistics, and other queries proposed to enhance library management and improve user experience.

Optional: *Non-Functional Requirements*: Include performance metrics, security requirements, and any other constraints like compliance with regulations. You will not be expected to show that the non-functional properties hold.

Security is a top priority for this database. Role-Based Access Control (RBAC) will be implemented to ensure users only have permissions appropriate to their roles, preventing unauthorized data entry or modifications. This approach safeguards the integrity of the system by limiting administrative functions to library staff while providing read-only access to general library members.

Hardware and Software Requirements [5 points]: Specify the hardware and software requirements for the database system. Note: your database is likely to be standalone (running on MariaDB on EECS servers), on MySQL on one of your laptops, or on the cloud. Clearly define the expected hardware and software components. While this may seem trivial, including these details demonstrates an understanding of the essential parts of a requirements document.

The database will be hosted on the cloud using Railway, chosen for its simplicity, scalability, and low cost. The system will run a PostgreSQL database deployed within a Docker container, ensuring portability and ease of management. Since

the database is cloud-based, physical hardware requirements are minimal for end-users, limited to devices with internet access (e.g., desktops, laptops, or tablets) and a modern web browser for interacting with the system. On the server side, Railway's infrastructure will provide the necessary computing resources, storage, and reliability to support database operations.

Meeting Notes for A2:

Meeting Date: Wednesday, September 10th

Meeting Time: 4:00 PM to 4:30 PM

Meeting Location: Virtual and in ERC Lobby

Objectives:
- Finished Project Artifact 2
- Introduced & Began Project Artifact 3

Team Members:
Daniel Neugent – Present
- Tasks/Roles Assigned: Project Manager/Lead & Backend
- Boiler plate for Artifact 2
Tanner Gurley – Present
- Tasks/Roles Assigned: Team Meeting Logs & Integration
- Meeting Notes for Meeting 2
- Began working on Excalidraw ER
Mariam Waseem – Present
- Tasks/Roles Assigned: Quality Assurance & Testing
- Expanding on Artifact 2
Jake Bernard – Present
- Tasks/Roles Assigned: Front End
- Began working on Excalidraw ER
Jacob Fonyi – Present
- Tasks/Roles Assigned: Backend
- Began working on Excalidraw ER

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

Meeting Notes:

- Setting up diagramming tool so each person can work on our ER diagram independently. Decided on Excalidraw.
- Briefly talked about Railway as our application hosting website
- Worked on project artifacts 2 and 3
- Started on our ER model