# Reader Log: “Silicon Shelf”

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Phase: CS 340: Project Step 2 Draft Version (Group, on Ed Discussions)

Due Thursday, 5/04/23

Submittal: projectgroup36\_step2\_DRAFT.zip to Ed Discussion, link posted to group canvas page.

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## Overview

Silicon Shelf is a platform for tracking personal reading lists as well as coordinating reading with friends via reading clubs. A single user can add books to their own log, manage their reading list with status updates, track dates which they started and completed each book. Users may create and join reading clubs. This allows them to add a book to all their club members’ reading logs. With an anticipated 10,000 monthly active users and an average yearly enqueue rate of 10 books per user, a robust relational database is needed.

## Database Outline

### Readers (Object Entity)

* + readerID: INT, AUTO\_INCREMENT, NOT NULL, PK
  + name: VARCHAR(50), NOT NULL
  + email: VARCHAR(50), NOT NULL
  + relations:
    - M:M Books through ReadingLogs
    - M:M ReadingClubs through ClubMembers

### Books (Object Entity)

* + bookID: INT, AUTO\_INCREMENT, NOT NULL, PK
  + title: VARCHAR(50), NOT NULL
  + author: VARCHAR(50), NOT NULL
  + year: DATE()
  + relations:
    - M:M Readers through ReadingLog
    - M:M ReadingClubs through ReadingLog

### ReadingClubs (Object Entity)

* + clubID: INT, AUTO\_INCREMENT, NOT NULL, PK
  + clubName: VARCHAR(50), NOT NULL
  + relations:
    - M:M Readers through ClubMembers
    - M:M Books through ClubMembers

### ReadingLogs (Transaction Entity)

* + logID: INT, AUTO\_INCREMENT, NOT NULL, PK
  + readerID: FK(Readers.readerID), NOT NULL
  + bookID: FK(Books.bookID), NOT NULL
  + readingClubID: FK (ReadingClubs.clubID), DEFAULT NULL
  + statusID: FK (ReadingStatus.status), NOT NULL
  + timeStamp: DATETIME, DEFAULT, (CURRENT\_TIMESTAMP)
  + relations:
    - 1:M Readers
    - 1:M Books
    - 1:M ReadingClubs
    - 1:M ReadingStatus

### ClubMembers (Composite Entity)

* + clubMemberID: INT, NOT NULL, AUTO \_INCREMENT, PK
  + readerID: FK(Readers.readerID), NOT NULL, ON DELETE CASCADE
  + clubID: FK(ReadingClubs.clubID), NOT NULL, ON DELETE CASCADE
  + isCoordinator: BOOL, DEFAULT 0
  + relations:
    - M:1 Readers
    - M:1 ReadingClubs

### ReadingStatus (Category Entity)

* + status: INT, NOT NULL, AUTO\_INCREMENT PK
  + status: VARCHAR(50), NOT NULL

## Entity-Relationship Diagram (ERD)

Diagram

Description automatically generated

## Schema

Graphical user interface

Description automatically generated with low confidence

## Step 1 Feedback

Peer Review by Jacob Ogle:

“

Hey Nice and Josh, great idea on the database and I think this will turn into a great project.

I really think this is a well thought out system and should be pretty fun to design a web application around. I think using a database as a priority queue will be interesting to implement. Would a reader be allowed to set multiple different books with similar priorities or would the application allow certain rankings.

For suggestions, they are kind of nit-picky but they're just suggestions 😄. I would possibly bump the varchar sizes up a bit. For example, in the ReadingClubs entity it might be nice to have the varchar size set to something like (50). Same with name, email. etc. ”

Peer Review by John Lofgren:

“

* Does the overview describe what problem is to be solved by a website with DB back end?
  + Yes. It is a website for tracking books and the features it will have directly contribute to that goal.
* Does the overview list specific facts?
  + Yes! I think it was sparse on detailing the "numbers" each feature would have, but the diagram later on does a great job of showing how the DB is going to work.
* Are at least four entities described and does each one represent a single idea to be stored a s a list?
  + Yes there are at least four and match requirements.
* Does the outline of entity details describe the purpose of each, list attribute datatypes and constraints and describe relationships between entities?
  + Yes it meets all requirements.
* Are 1:M relationships correctly formulated? Is there at least one M:M relationship? Does the ERD present a logical view of the database?
  + Yes they are.
* Is there consistency in a) naming between overview and entity/attributes b) entities plural, attributes singular c) use of capitalization for naming?
  + Yes naming conventions are standardized. Only inconsistency is email address is listed on the ERD, but nowhere else and it does not follow the camelcase used elsewhere.

Overall: The intro could probably be more descriptive of your overall plan, but it is a nitpick. I think that your ERD is great and really pulls your whole plan together. When I saw it and then went back and read your descriptions it all clicked for me. The only variable I didn't get is maxRosterSize. More from a user standpoint then a database. If its a reading club and you want it to be exclusive, then the Coordinator can approve or disapprove applicants, and if they don't care if its exclusive, then I am not sure they would care about the maxroster.“

TA Feedback by Amelia Kawasaki

“

Hey team, nice step 1 draft. I would recommend providing more detail in your project outline and also revising your ERD. The ERD should be less of a technical blueprint (aka a schema diagram) and more of a high-level logical overview of the database entities and their relationships. ERD diagrams often leave out the finer details such as attributes and intersection tables as its main focus is to demonstrate the rough structure and interconnectivity of the database tables. I would also consider removing some of the extra intersection tables from your project. I worry that implementing so many of these tables further in the quarter will be incredibly time consuming. I enjoy the effort you both put into the draft but I don't want you to have to spend all of your time on this class in the future!”

## Actions Taken from Step 1 Feedback Step

* Removed maxRosterSize attribute from ReadingClubs entity per John Lofgren.
* Increased VARCHAR size on all attributes from 32 to 50 per Jacob Ogle.
* Corrected email address on ERD to email for naming consistency per John Lofgren.
* Expanded Overview to include more details regarding functionality.

## Updates from Step 1 Draft to Final

* Additional proof read, spelling correct.
* Formatted text.
* Added Table of Contents to top of draft.
* Page layout edits.
* Scaled ERD.

## Changes made to Step 2 Draft

* Identified and removed redundancies:
  + Removed Recommendations Entity
  + Removed ReadingQueues Entity
  + Added ReadingStatus category Entity
  + Updated relationships on all entities
* Added default values for some key attributes
* Added clubID FK to ReadingLogs entity
* Added isActive to ClubMembers entity
* Reverse-engineered ERD from Schema submitted in Step 1 (per TA feedback)

## Example Data Inserted for Step 2:

Sample data for Readers:

+----------+----------------------+---------------------------------------+

| readerID | name | email |

+----------+----------------------+---------------------------------------+

| 1 | Joseph McReading | j.mcreads@notreal.com |

| 2 | Sarah Jessica Booker | sjb@supercom.net |

| 3 | Mr. Adultman | doing.business@thebusinessfactory.com |

| 4 | Daniel Abraham | daniel.abraham@ghmail.com |

| 5 | Ro Himbo | rohimbo@derpinout.com |

| 6 | Jeroshi Yoshi | jer.yo@jeryo.cnet |

| 7 | Samuel Hackins | samuel.hackins@g.mail.com |

+----------+----------------------+---------------------------------------+

Sample data for Books:

+--------+---------------------------+------------------+------------+

| bookID | title | author | year |

+--------+---------------------------+------------------+------------+

| 1 | Leviathan Wakes | James S.A. Corey | 2011-00-00 |

| 2 | Gray's Anatomy | Henry Gray | 1858-00-00 |

| 3 | The Bell Jar | Sylvia Plath | 1963-00-00 |

| 4 | Finite and Infinite Games | James P. Carse | 1986-00-00 |

+--------+---------------------------+------------------+------------+

Sample data for ReadingClubs:

+--------+---------------------+

| clubID | clubName |

+--------+---------------------+

| 1 | Tequila Mockingbird |

| 2 | Gone with the Gin |

| 3 | Nihilists Anonymous |

+--------+---------------------+

Sample data for ReadingStatus:

+----------+----------+

| statusID | status |

+----------+----------+

| 1 | Enqueued |

| 2 | Reading |

| 3 | Finished |

+----------+----------+

Sample data for ClubMembers:

+--------------+----------+--------+---------------+----------+

| clubMemberID | readerID | clubID | isCoordinator | isActive |

+--------------+----------+--------+---------------+----------+

| 1 | 1 | 1 | 0 | 1 |

| 2 | 6 | 1 | 0 | 1 |

| 3 | 3 | 1 | 0 | 1 |

| 4 | 4 | 3 | 1 | 1 |

| 5 | 5 | 3 | 0 | 1 |

+--------------+----------+--------+---------------+----------+

Sample data for ReadingLogs:

+-------+----------+--------+---------------+----------+---------------------+

| logID | readerID | bookID | readingClubID | statusID | timeStamp |

+-------+----------+--------+---------------+----------+---------------------+

| 1 | 1 | 2 | 1 | 1 | 2023-05-02 10:22:38 |

| 2 | 6 | 1 | NULL | 3 | 2023-05-02 10:22:38 |

| 3 | 4 | 1 | 3 | 2 | 2023-05-02 10:22:38 |

| 4 | 2 | 3 | NULL | 1 | 2023-05-02 10:22:38 |

| 5 | 5 | 1 | 3 | 2 | 2023-05-02 10:22:38 |

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