# Reader Log: “Silicon Shelf”

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Phase: CS 340: Project Step 6 (Group, on Ed Discussions)

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Project URL: http://flip3.engr.oregonstate.edu:9036/index.html

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## Executive Summary

## 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), ON DELETE SET NULL
  + bookID: FK(Books.bookID), ON DELETE SET NULL
  + readingClubID: FK (ReadingClubs.clubID), DEFAULT NULL, ON DELETE SET NULL
  + statusID: FK (ReadingStatus.status), ON DELETE SET 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
  + 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

Diagram

Description automatically generated

## Example Data Inserted for Step 3:

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 |

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

| 1 | 1 | 1 | 0 |

| 2 | 6 | 1 | 0 |

| 3 | 3 | 1 | 0 |

| 4 | 4 | 3 | 1 |

| 5 | 5 | 3 | 0 |

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

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 |

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

## Screen Captures of UI

Home Page with information about the present state of the application for administrators and development aim for users.

A screenshot of a computer

Description automatically generated

Administrator landing page with diagram and links to all entities.

A screenshot of a computer

Description automatically generated

Books entity: CREATE / RETRIEVE / UPDATE / DELETE

Books is in a M:N relationship with Readers through the ReadingLog intersection table. Note that both UPDATE and DELETE are present here.

A screenshot of a computer

Description automatically generated

ClubMembers entity: CREATE / RETRIEVE / DELETE

A screenshot of a computer

Description automatically generated

ReadingClubs entity: CREATE / RETRIEVE / UPDATE / DELETE

ReadingClubs is in a M:N relationship with Readers through the ClubMembers intersection table. Note that both UPDATE and DELETE are present here.

A screenshot of a computer

Description automatically generated

ReadingLogs entity: CREATE / RETRIEVE

A screenshot of a computer

Description automatically generated

Readers entity: CREATE/ RETRIEVE / UPDATE / DELETE

Readers is in a M:N relationship with Books through the ReadingLog intersection table and with ReadingClubs through the ClubMembers intersection table. Note that both UPDATE and DELETE are present here.

A screenshot of a computer

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ReadingStatus entity: CREATE / RETRIEVE / UPDATE / DELETE

A screenshot of a computer

Description automatically generated