# Reader Log

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## Overview

Silicon Shelf is a platform for tracking personal reading lists as well as coordinating reading with friends. A database-driven website will allow users to manage reading queues, establish book clubs, and recommend books to other users. With 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) Details of a reader (user) who may read books, queue books to be read, participate in a book club, and recommend books.

* + readerID: INT, auto-inc, not NULL, PK
  + name: VARCHAR(), not NULL
  + relations:
    - M:M Books through ReadingLog
    - M:M ReadingClubs through ClubMembers
    - M:M Books through ReadQueues
    - 1:M Recommendations

### Books (Object Entity) Details of a book.

* + bookID: INT, auto-inc, not NULL, PK
  + title: VARCHAR(), not NULL
  + author: VARCHAR(), not NULL
  + year: DATE()
  + relations:
    - M:M Readers through ReadingLog
    - M:M Readers through ReadQueues
    - 1:M Recommendations

### ReadingClubs (Object Entity) Must be coordinated by one Reader, may specify a maximum roster size. Enrollment in a club’s roster serves as an interface to populate Recommendations or ReadQueues to groups of Readers.

* + clubID: INT, auto-inc, not NULL, PK
  + clubName: VARCHAR(), not NULL
  + coordinator: FK(Readers.readerID)
  + maxRosterSize: INT
  + relations:
    - M:M Readers through ClubMembers

### ReadingLog (Composite Transaction Entity) Records the status of a Book being read by a Reader.

* + logID: INT, auto-inc, not NULL, PK
  + readerID: FK(Readers.readerID), not NULL
  + bookID: FK(Books.bookID), not NULL
  + status: VARCHAR()
  + dateStarted: DATE()
  + dateCompleted: DATE()
  + relations:
    - 1:M Readers
    - 1:M Books

### Recommendations (Transaction Entity) Using Recommendations, a Reader may see a list of suggested books by different Readers.

* + recommendedBy: FK(Readers.readerID), not NULL
  + recommendedTo: FK(Readers.readerID), not NULL
  + bookID: FK(BookID), not NULL
  + recommendationAccepted: BOOL
  + relations:
    - M:1 Books
    - M:1 Readers

### ClubMembers (Composite Entity) Records membership in a club.

* + clubID: FK(ReadingClubs.clubID), not NULL
  + readerID: FK(Readers.readerID), not NULL
  + relations:
    - M:1 Readers
    - M:1 ReadingClubs

### ReadQueues (Composite Entity) Records books in a queue.

* + readerID: FK(Readers.readerID), not NULL
  + bookID: FK(Books.bookID) , not NULL
  + priority: INT, default = 1
  + relations:
    - M:1 Readers
    - M:1 Books

## Entity-Relationship Diagram (ERD)