Reader Log: "Silicon Shelf"

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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

- ❖ (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
    - maxRosterSize: INT
    - relations:
        - M:M Readers through ClubMembers

- ❖ ReadingLogs (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
    - isCoordinator: BOOL
    - relations:
        - M:1 Readers
        - M:1 ReadingClubs

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

- queueIE: INT, not NULL, PK
- 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)

Diagram Key

- Object Entitty
- Transaction Entity
- Composite Entity

Silicon Shelf ERD (crow's feet)

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ReadingClubs

PK	clubID	INT
	clubName	VARCHAR(32)
	maxRosterSize	INT

Readers

PK	readerID	INT
	name	VARCHAR(32)
	email address	VARCHAR(32)

Books

PK	bookID	INT
	title	VARCHAR(64)
	author	VARCHAR(32)
	year	DATE()

ClubMembers

FK	clubID	INT
FK	readerID	INT
	isCoordinator	BOOL

ReadingLogs

PK	logID	INT
FK	readerID	INT
FK	bookID	INT
	status	VARCHAR(32)
	dateStarted	DATE()
	dateCompleted	DATE()

ReadQueues

PK	queueID	INT
FK	readerID	INT
FK	bookID	INT
	priority	INT

Recommendations

FK	recommendedBy	INT
FK	recommendedTo	INT
FK	bookID	INT
	recommendationAccepted	BOOL