Library Management System - handle the primary housekeeping functions of a library.

**Set of requirements::**

1. Any library member should be able to search books by their title, author, subject category.
2. Each book will have a unique identification number and other details including a rack number which will help to physically locate the book.
3. There could be more than one copy of a book, and library members should be able to check-out and reserve any copy
4. The librarian should be able to retrieve information like who took a particular book or what are the books checked-out by a specific library member.
5. There should be a maximum limit (3) on how many books a member can check-out.
6. There should be a maximum limit (15) on how many days a member can keep a book.
7. The system should be able to collect fines for books returned after the due date.
8. Members should be able to reserve books that are not currently available.
9. The system should be able to send notifications whenever the reserved books become available, as well as when the book is not returned within the due date.
10. Each book and member card will have a unique barcode. The system will be able to read barcodes from books and members’ library cards.

**Actors ::**

1. **Librarian:** Mainly responsible for adding and modifying books, book items, and users. The Librarian can also issue, reserve, and return book items. There can 2 levels of the access – basic access (regular activities of library)/super access(add other user/ overwrite/cancel )
2. **User/ Student:** All members can search the catalog, as well as check-out, reserve, renew, and return a book.
3. **System:** Mainly responsible for sending notifications for overdue books, canceled reservations, etc.

**Class Diagram::**

SuperAdmin

Child class of account

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addAdmin()

removeAdmin()

addUser()

removeUser()

blockAccount()

unblockAccount()

Account(base class)

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ID : string

Password: string

Status : bool

accType: enum

resetpassword()

Admin

Child class of account

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addBook()

removeBook()

getlocation()

searchbook()

User

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reserverBook()

returnBook()

lendbook()

System

getOverdue()

cancelReserve()

Book

Base class

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ISBN : string

Barcode: string

Title: string

Subject: string

Author: string

Genre: string

Language: string

Quantity : int

Price : string

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getString()

get

Library Card

Barcode: string

Card ID : string

Name: string

Status : bool

canIssue: bool

accType: enum

Search

ISBN : Sting

Author: String

Name:String

Totalbooks: Int

Location

barcode : string

location: string

number : int

getlocation()

BookStatus

Child class of book

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barcode : string

IsAvailable : bool

borrowed :date

duedate: date

getStatus()