

CLASS DIAGRAM

LIBRARY

- **Attributes:**
 - book: List<Book>
 - author: List<Author>
 - patrons: List<Patron>
- **Methods:**
 - +searchBooksByTitle(title: String): List<Book>
 - +searchBooksByAuthor(authorName: String): List<Book>
 - +searchBookByISBN(ISBN: String): Book
 - +borrowBook(book: Book, patron: Patron)
 - +returnBook(book: Book, patron: Patron)
 - +addBook(book: Book)
 - +removeBook(book: Book)
 - +addAuthor(author: Author)
 - +removeAuthor(author: Author)
 - +addPatron(patron: Patron)
 - +removePatron(patron: Patron)
 - +searchPatronByName(name: String): Patron

BOOK

- **Attributes:**
 - title: String
 - author: Author
 - ISBN: String
 - publisher: String
 - numCopies: Int
 - status: Status

- **Methods:**
 - +getTitle(): String
 - +getAuthor(): Author
 - +getISBN(): String
 - +getPublisher(): String
 - +getNumCopies(): Int
 - +getStatus(): Status
 - +setStatus(status: Status)
 - +decrementCopies()
 - +incrementCopies()
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AUTHOR

- **Attributes:**
 - name: String
 - birthdate: String
 - **Methods:**
 - +getAuthorName(): String
 - +getBirthdate(): String
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PATRON

- **Attributes:**
 - name: String
 - address: String
 - phoneNumber: String
 - borrowedBooks: List<Book>
 - fines: double
- **Methods:**
 - +getName(): String
 - +getAddress(): String

- +getPhoneNumber(): String
 - +getBorrowedBooks(): List<Book>
 - +calculateFines(): double
 - +addBorrowedBook(book: Book)
 - +removeBorrowedBook(book: Book)
 - +addFines(amount: double)
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STATUS

- **Enum Values:**

- AVAILABLE
- CHECKED_OUT
- OVERDUE