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LIBRARY MANAGEMENT SYSTEM

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ABSTRACT

- **Web-based Library Management System**
- **Replaces manual library operations**
- **Supports multiple user roles (User, Admin)**
- **Implements borrowing, reservations, fines, and notifications**



Techniques & Tools Used

Backend – Java & Spring Boot

Backend Technologies

- **Java & Spring Boot**
 - Rapid backend development
 - RESTful API creation
- **Spring Data JPA**
 - Database access
 - Object-Relational Mapping (ORM)
- **Maven**
 - Dependency & build management (`pom.xml`)

Techniques & Tools Used

Frontend Backend Technologies

- **React.js: Component-based UI**
- **React Router: Client-side routing**
- **Context API: Global state management**
- **(authentication, user information)**
- **Axios / Fetch: HTTP requests to backend**
- **CSS Modules: Scoped component styling**



Techniques & Tools Used

Database

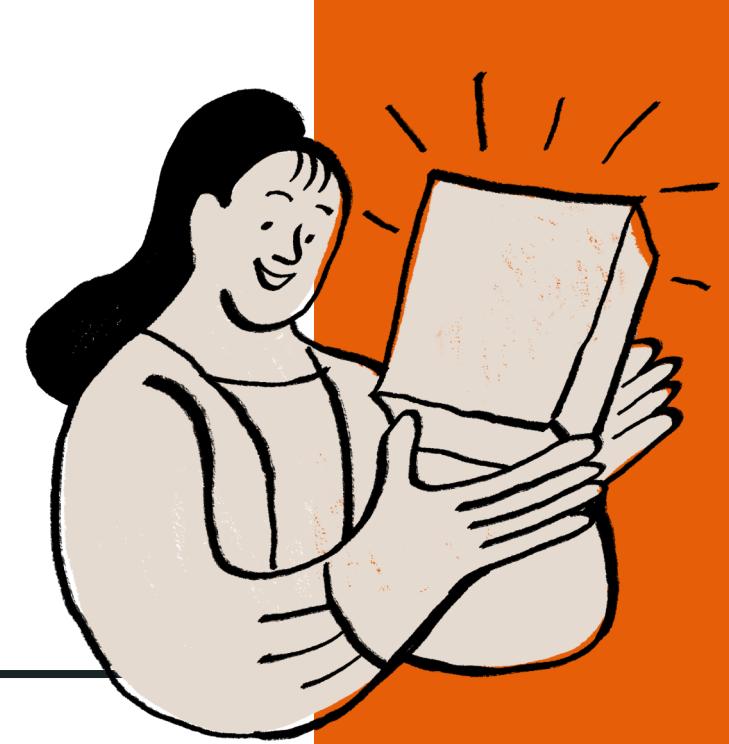
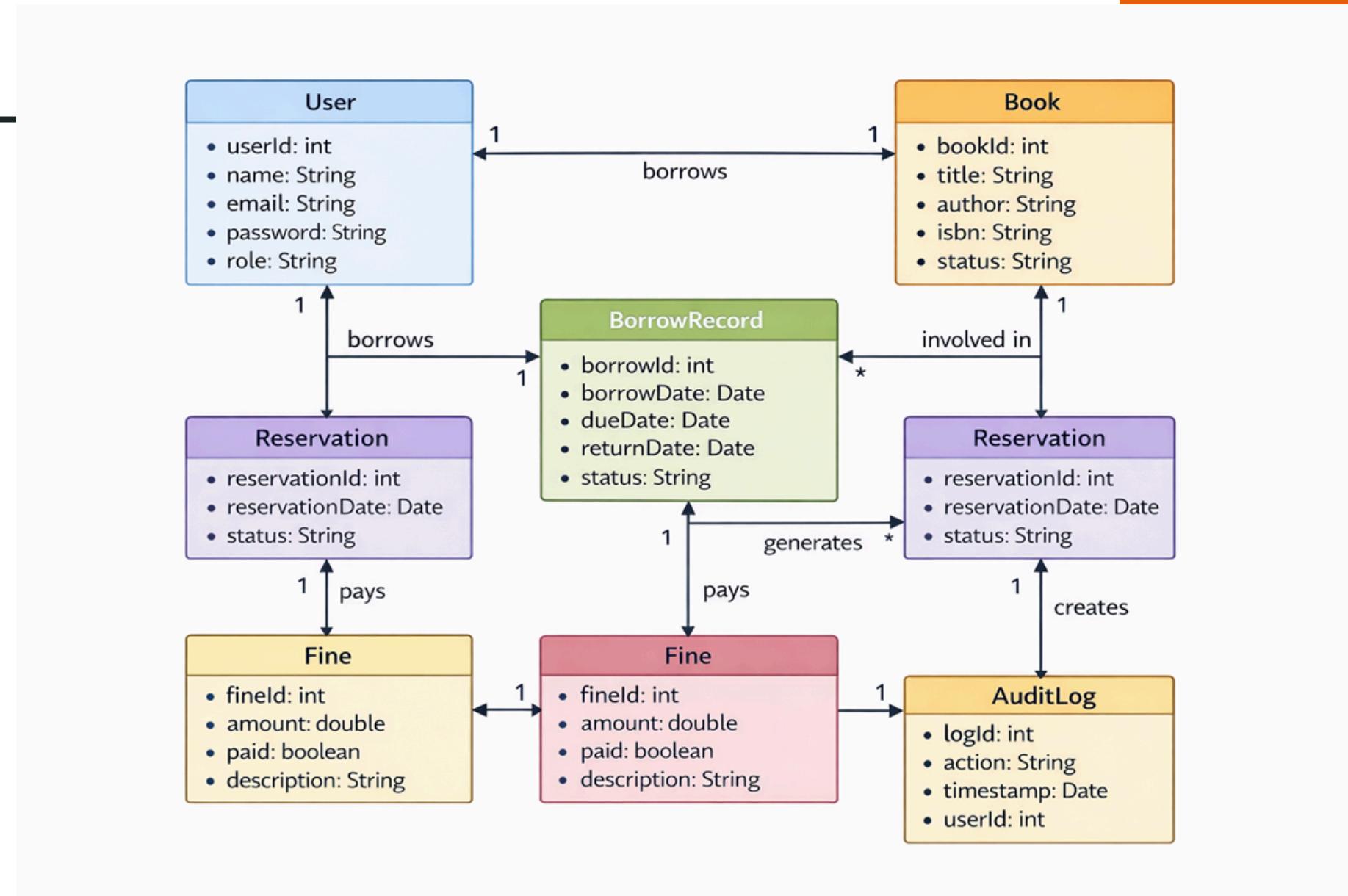
- SQL: Schema definition
- MySQL: Relational database system

- **User & Admin authentication**
- **Book management (CRUD)**
- **Borrowing and returning books**
- **Book reservations**
- **Fine calculation for overdue books**
- **Automated email notifications**
- **Admin dashboard & reports**

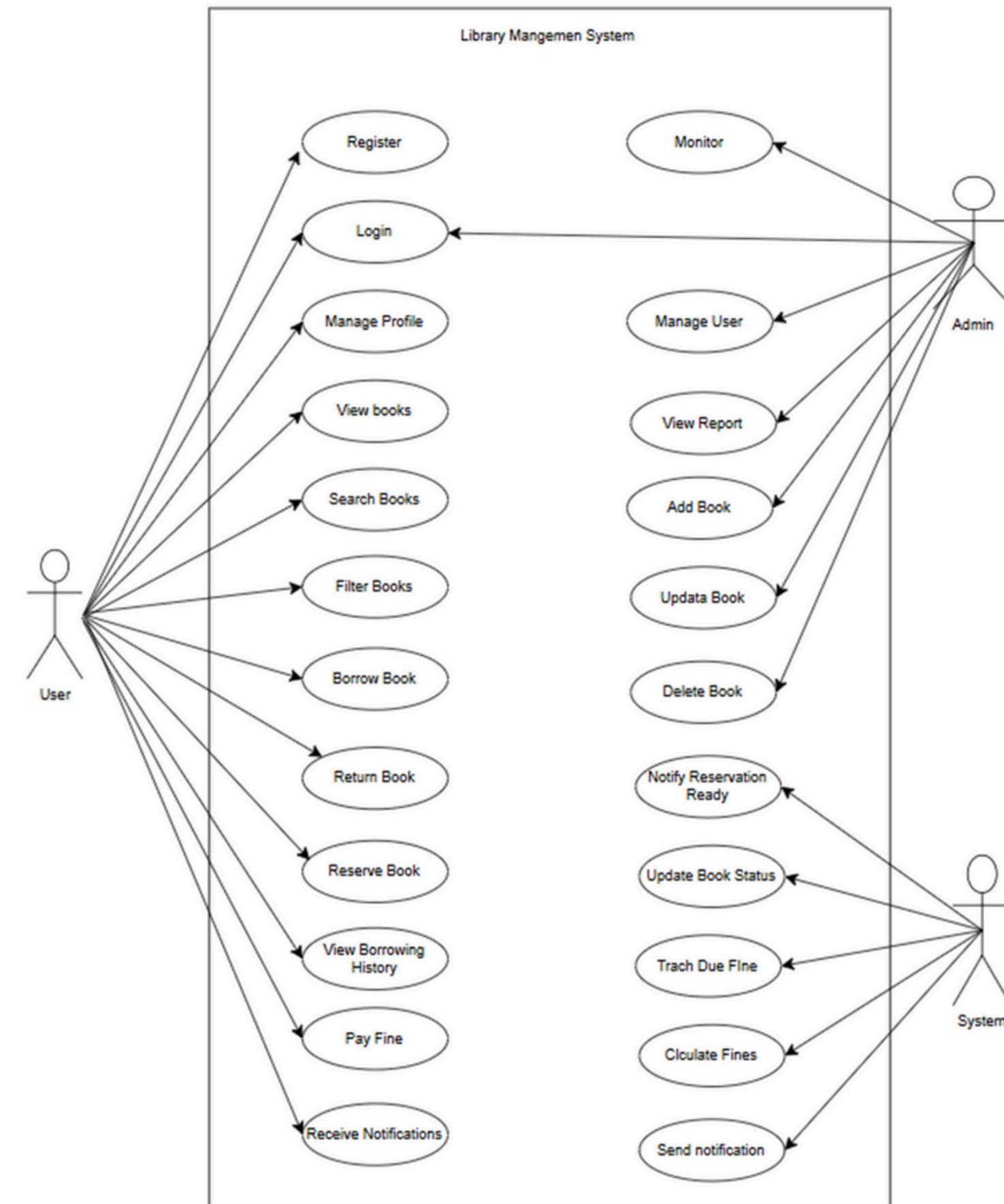


KEY FEATURES

CLASS DIAGRAM



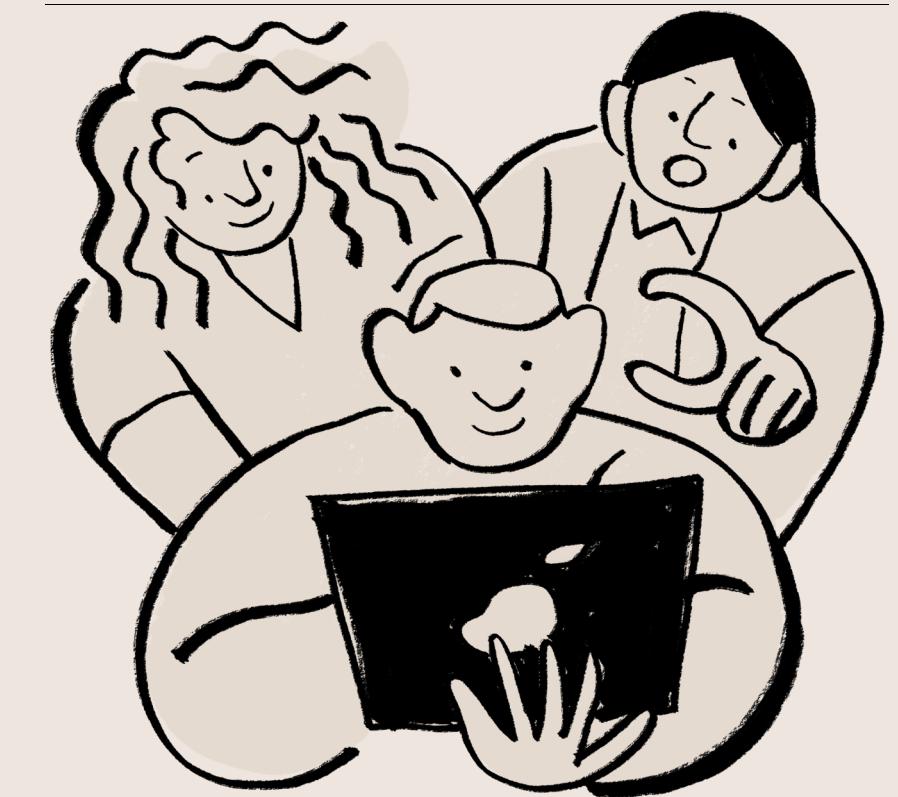
USE CASE DIAG RAM





- Register account
- Login/logout
- View & update profile
- Browse book catalog
- Search & filter books
- Borrow available books
- Reserve borrowed books
- View borrowing history

USER USE CASES



Add, update, delete books

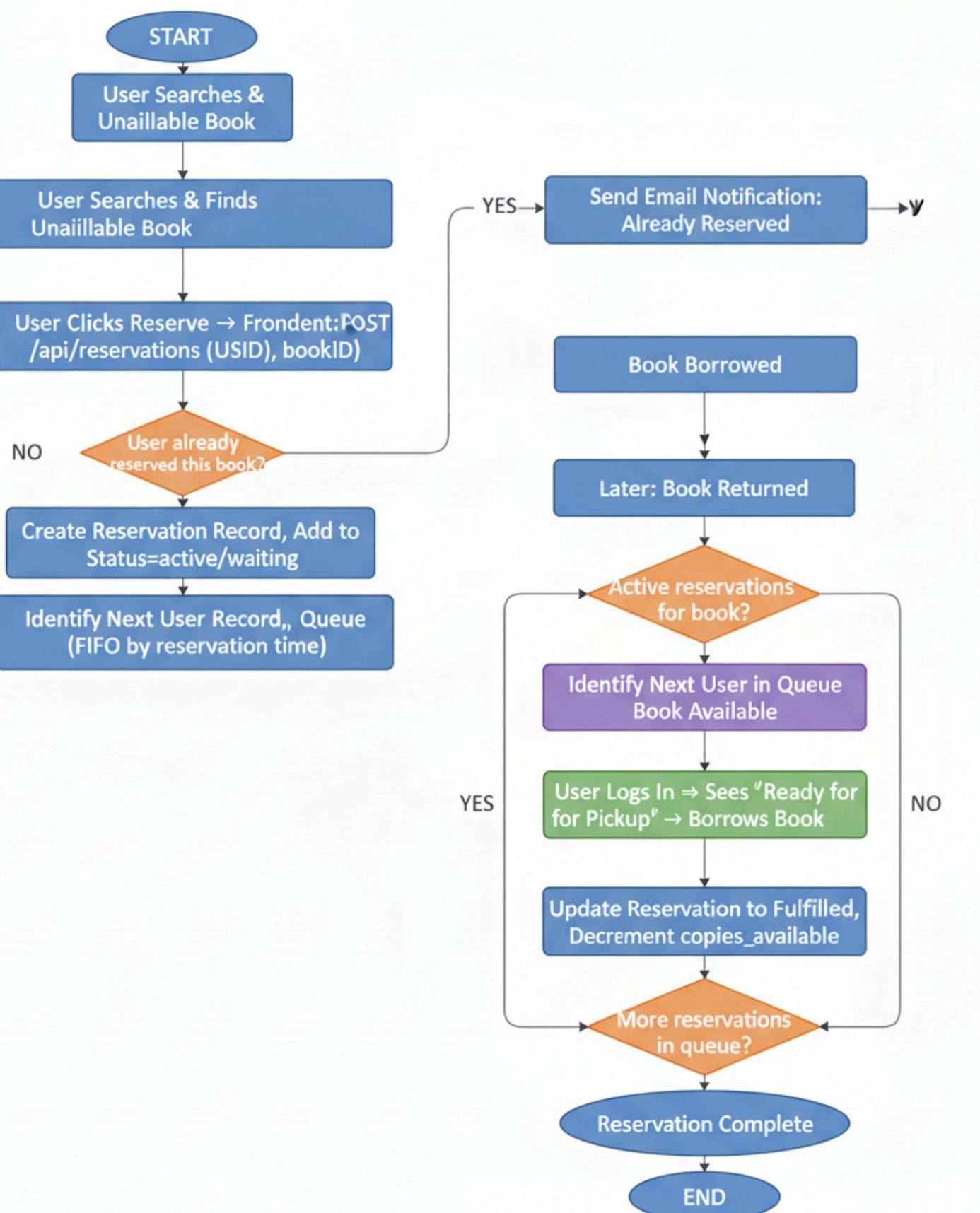
- Manage users
- Monitor borrowing & reservations

View reports

ADMIN USE CASES

BORROWING & RETURNING FLOW





RESERVATION SYSTEM

FUTURE WORK

- Advanced analytics & reports
- Barcode / RFID integration
- Mobile application
- Multi-branch support

CONCLUSION

- Project objectives successfully achieved
- System improves library efficiency
- Demonstrates best practices in web development
- Ready for real-world deployment and extension

1. Liu, Y. (n.d.). Web Application Security: Threats, Countermeasures, and Pitfalls. Retrieved from <https://www.sciencedirect.com/science/article/pii/S1877050920303772>
2. Spring Boot Reference Documentation. (2025). Retrieved from <https://docs.spring.io/spring-boot/docs/current/reference/html/>
3. React Documentation – A JavaScript library for building user interfaces. (2025). Retrieved from <https://react.dev/>

REFERENCES



**THANK YOU
FOR YOUR ATTENTION!**