

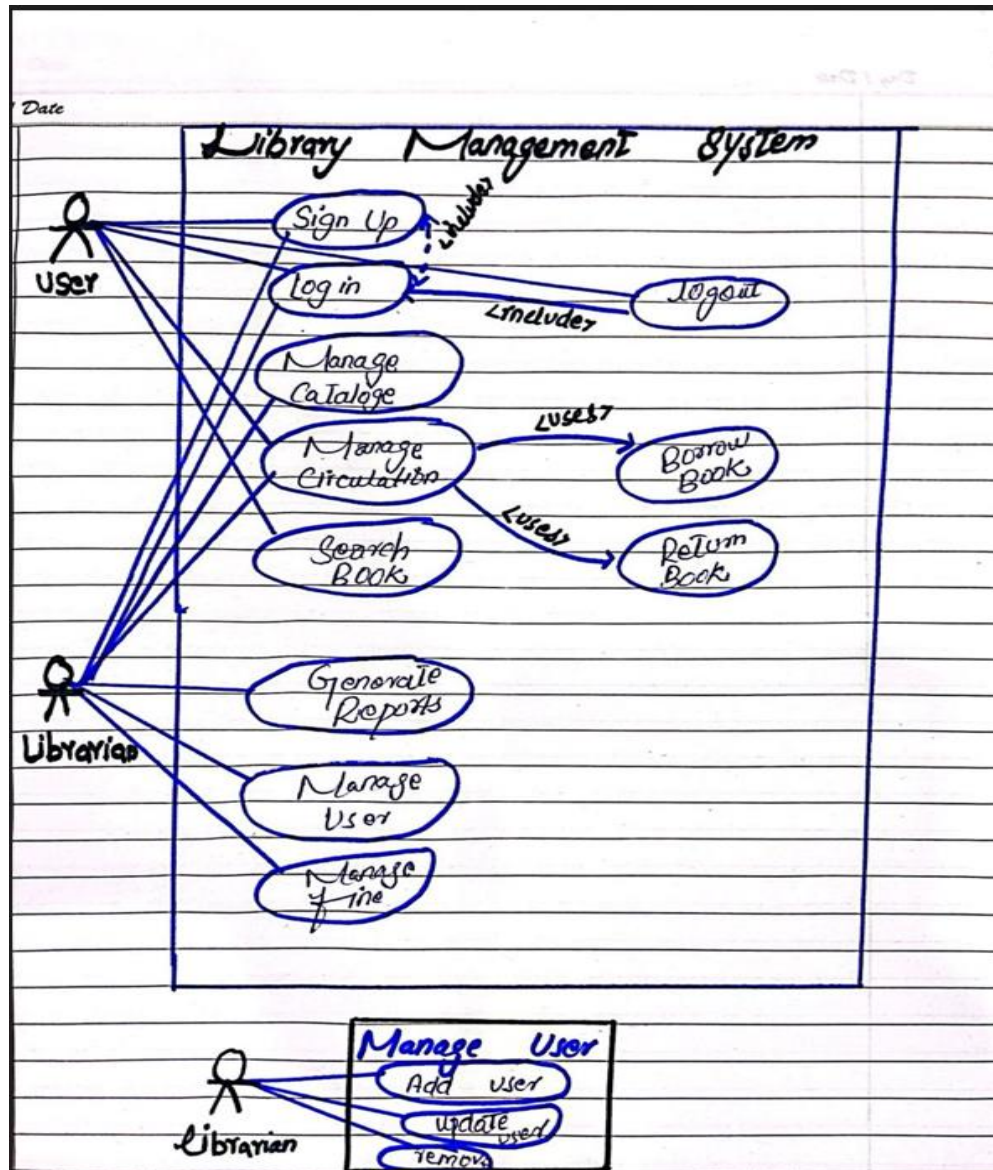
TASK:2

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FA22-BSE-034

SOFTWARE DIAGRAMS

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Use case Diagram:



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Fully Dressed Use Case: Borrow Book

1. Use Case Name

Borrow Book

2. Primary Actor

User (Library Patron or Member)

3. Preconditions

- The user is registered in the system as a member.
- The user has access to their account (logged in if required).
- The book being borrowed is available (i.e., not already borrowed by someone else). □
The system has access to the book inventory and user records.

4. Postconditions

- **Success Postcondition:** The book is successfully borrowed, and the borrowing details (due date, user information) are updated in the system.
- **Failure Postcondition:** The borrowing request is not completed, and the user is informed of the issue (e.g., book unavailable, borrowing limit exceeded).

5. Main Success Scenario (Basic Flow)

1. **User initiates the borrowing process** by selecting a book from the available catalog.
2. **System checks the availability** of the selected book.
3. **System prompts the user** to confirm the borrowing.
4. **User confirms the borrowing request.**
5. **System validates the user's borrowing limit** (e.g., max number of books allowed, any overdue books).
6. **System records the borrowing details** (user ID, book ID, due date) in the system.
7. **System updates the book's status** to "borrowed" in the library's inventory.
8. **System notifies the user** of the successful borrowing, showing the due date and other relevant information.

6. Extensions (Alternative Flows)

2a. Book is Not Available

- **2a1.** The system finds that the book is already borrowed by another user.



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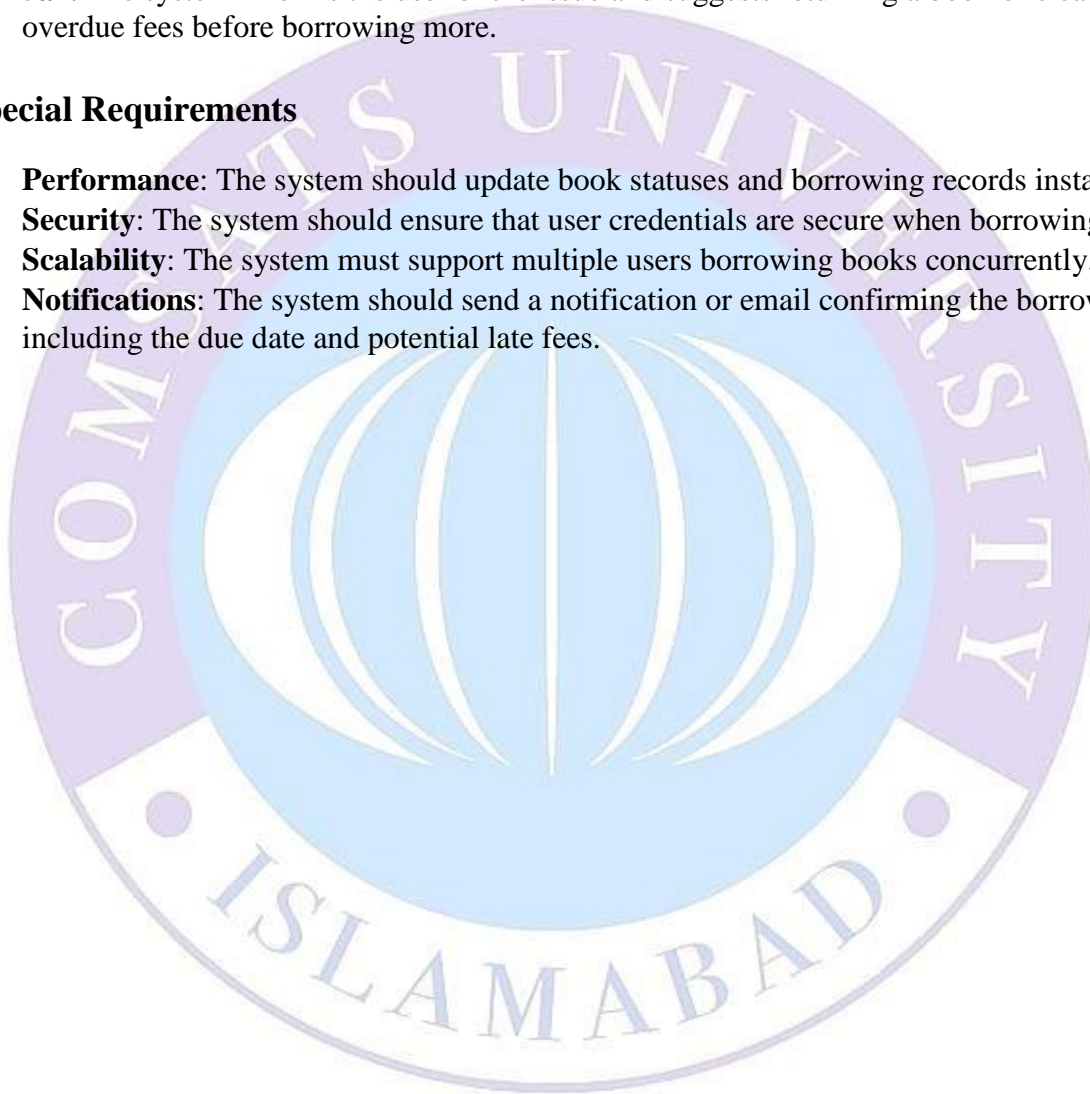
- **2a2.** The system informs the user that the book is unavailable and suggests options (e.g., place a hold or reserve it for later).

5a. User Exceeds Borrowing Limit

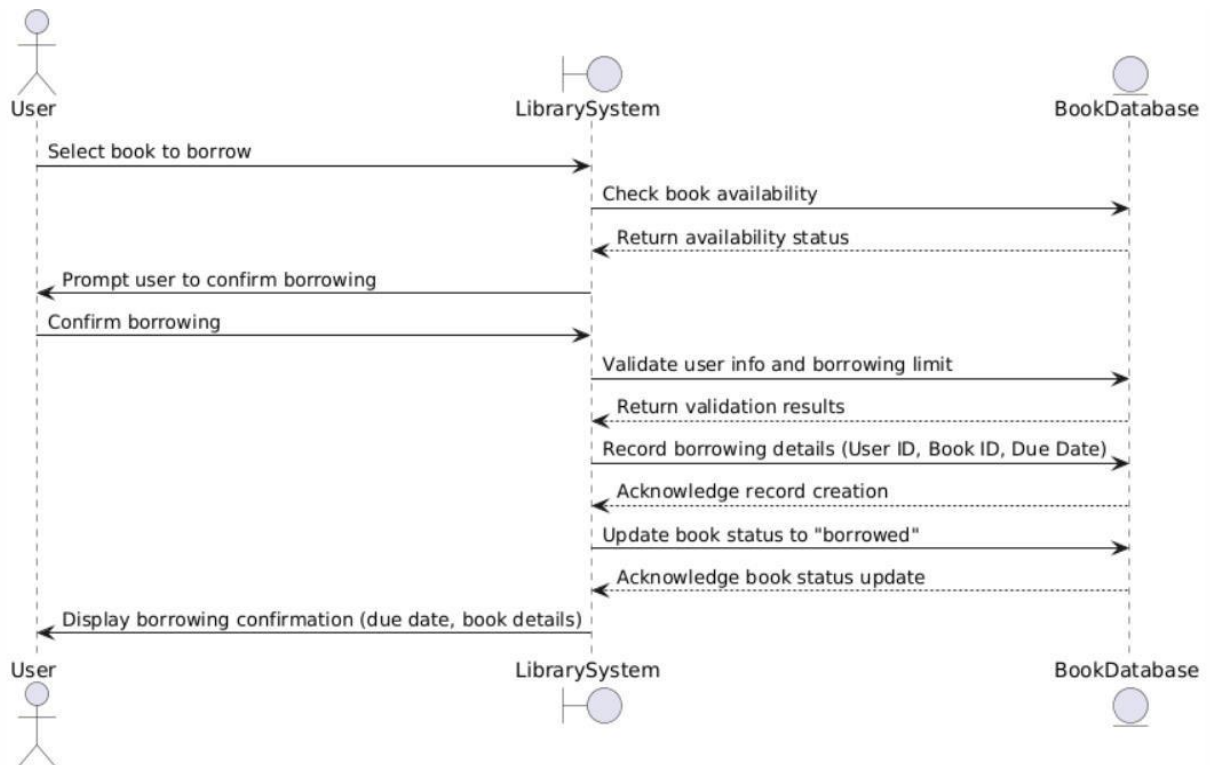
- **5a1.** The system detects that the user has reached their borrowing limit or has overdue books.
- **5a2.** The system informs the user of the issue and suggests returning a book or clearing overdue fees before borrowing more.

7. Special Requirements

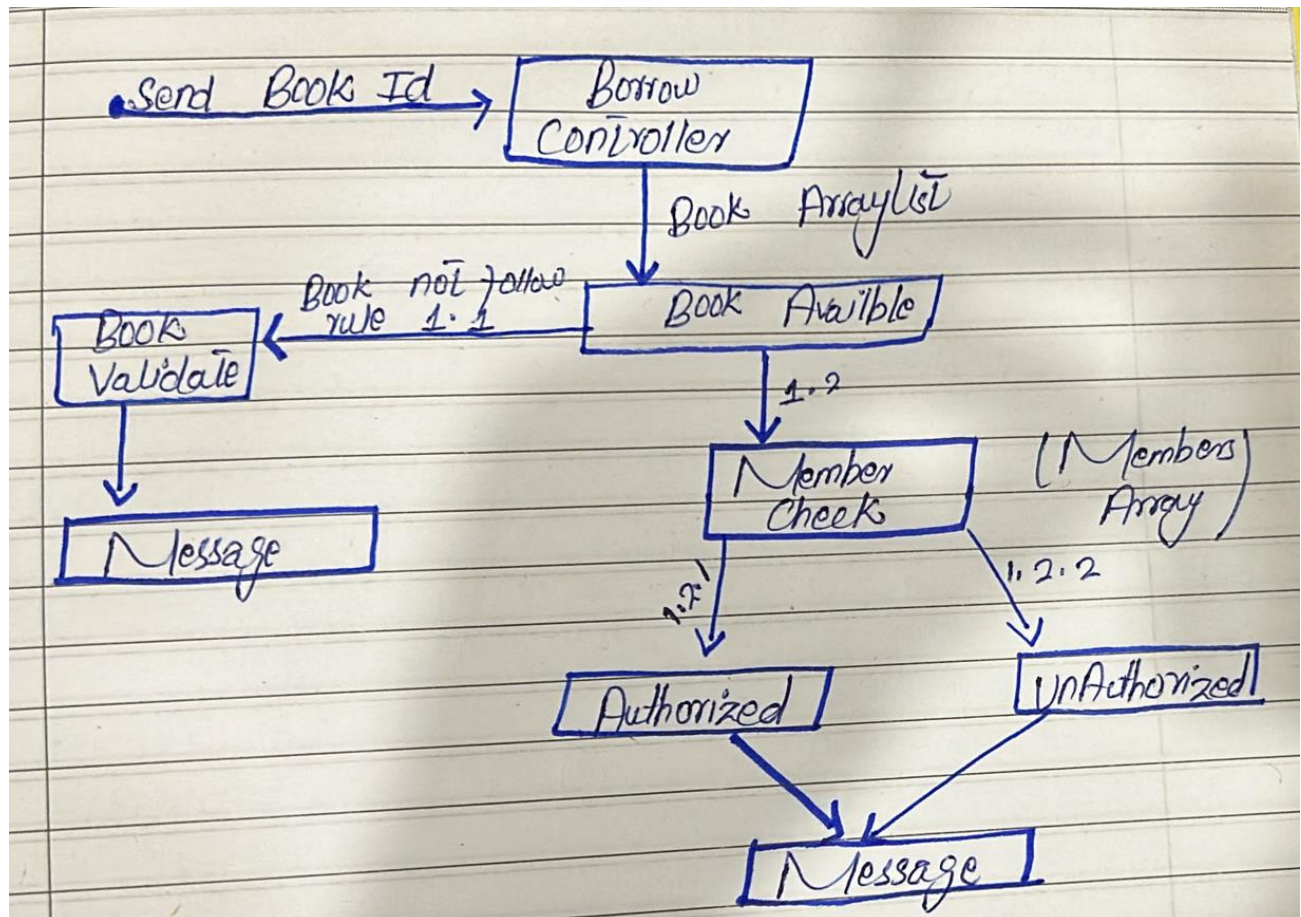
- **Performance:** The system should update book statuses and borrowing records instantly.
- **Security:** The system should ensure that user credentials are secure when borrowing.
- **Scalability:** The system must support multiple users borrowing books concurrently.
- **Notifications:** The system should send a notification or email confirming the borrowing, including the due date and potential late fees.



System Sequence Diagram:



Communication diagram:



Class diagram:

