IT-313
Software Engineering
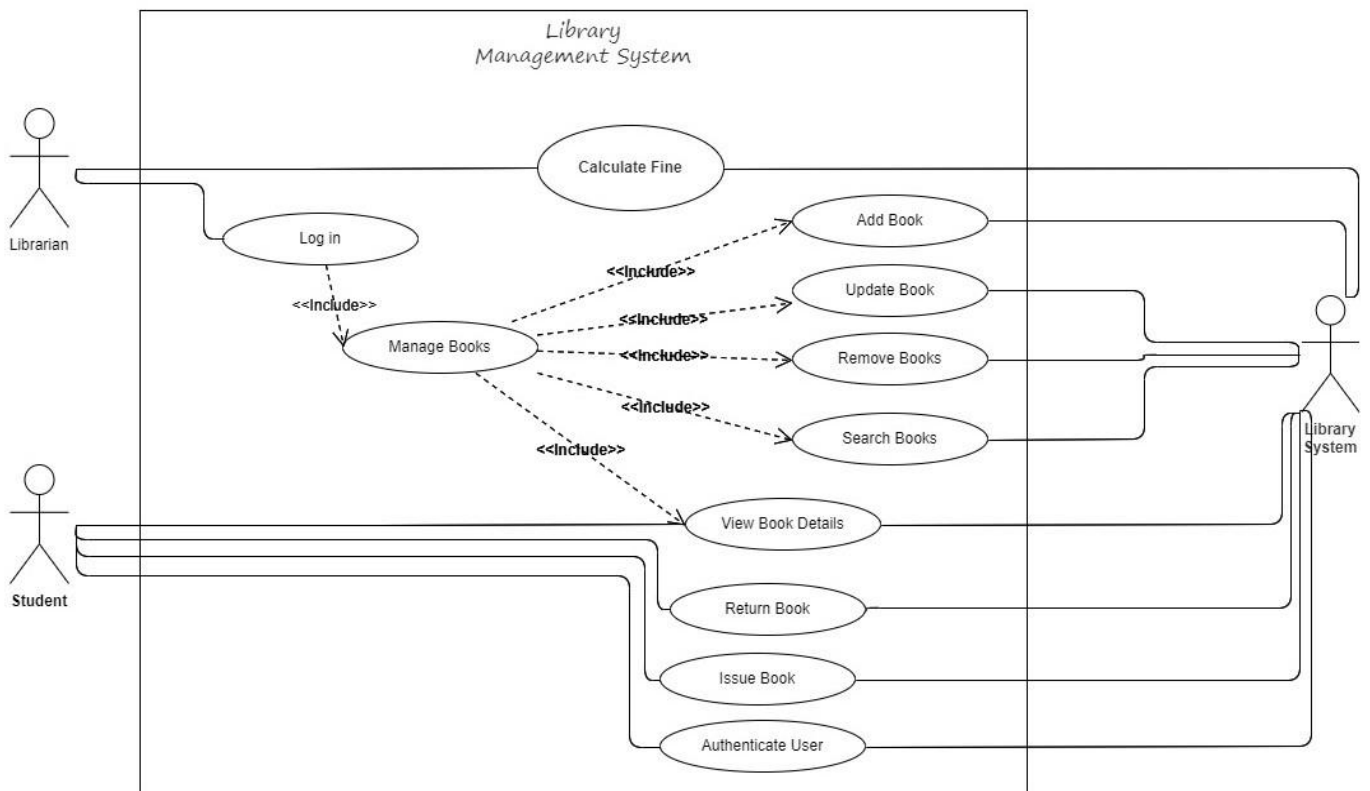## LAB - 7
Domain Analysis Modeling and Sequence Diagram

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Q-1.1 : The Use Case Diagram

Use Case Documentation

Primary Actor : Librarian/Library

Secondary Actor : Student

Preconditions :

• The librarian is logged into the authenticated Library Management System.

• The student is registered in the system.

Postconditions :

• The book is marked as "issued" to the student.

• The due date for return is set.

Normal Flow:

1. Librarian selects "Issue Book" from the Library Management System.

2. System prompts the librarian to enter student ID.

3. Librarian enters the student ID or searches for the student.

4. System displays student information.

5. Librarian selects the book to be issued from the available books.

6. System marks the book as "issued" and assigns a due date for return.

7. Librarian confirms the issue.

Alternative Flow (Student ID Is Not Found) :

• If the system cannot find the student, it prompts the librarian to re-enter the student's information.

Alternative Flow (Book Is Not Available) :

• If the selected book is not available, the system notifies the librarian and informs the student about the same.

Exceptional Flow (Book Is Returned Late) :

• The system calculates the penalty and updates the student's account if the book is returned after the deadline.
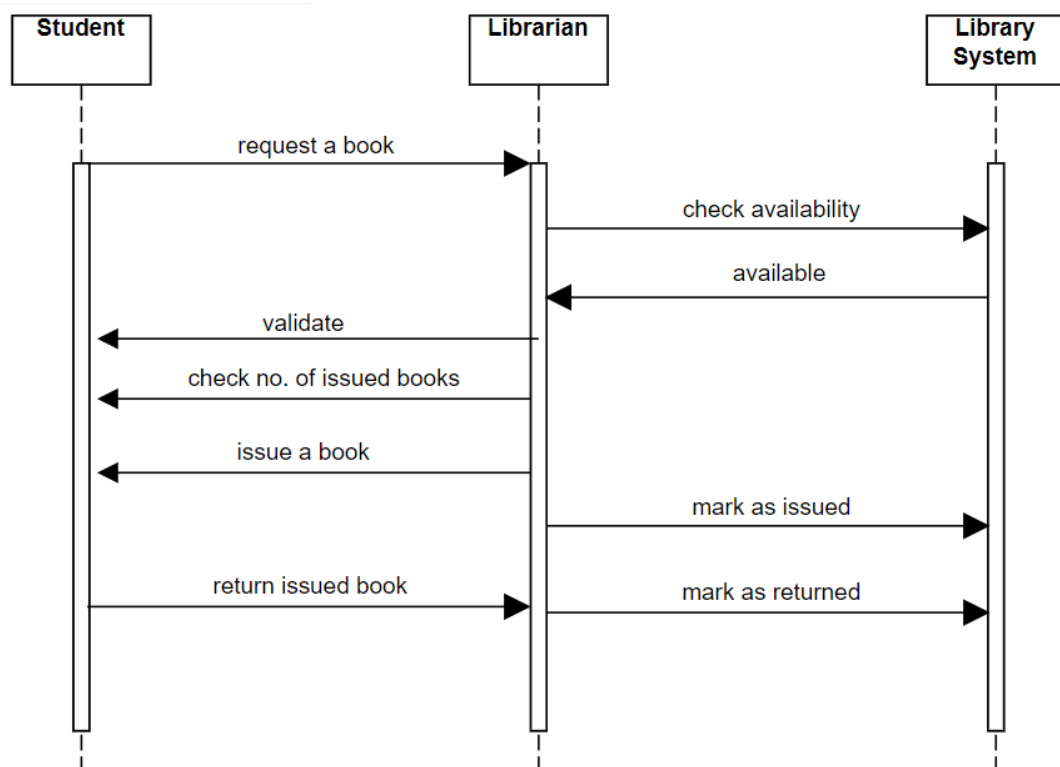
Exceptional Flow (Book Can Not Be Issued) :

• If the book is not in a condition to be issued (i.e., damaged), the librarian updates the book status in the system and informs the student.
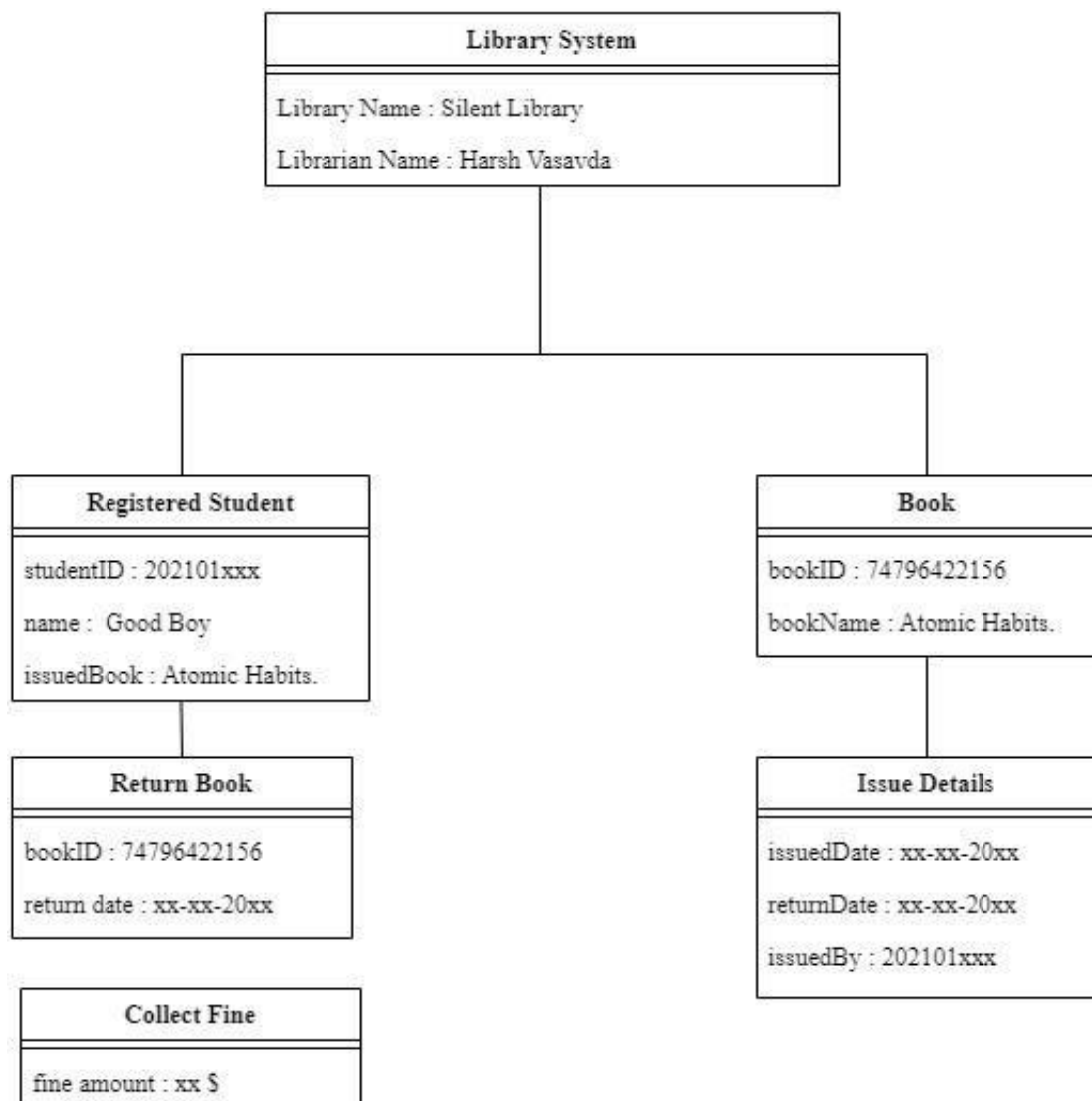
Notes :

• The due date is calculated based on the institute's policies.

• The librarian has the authority to override the due date if necessary (e.g., special circumstances for a student).

Q-1. 2 : The Sequence Diagram for the "issueBook" use case

Student	Librarian	Library System

request a book

check availability

available

validate

check no. of issued books

issue a book

mark as issued

return issued book

mark as returned

Q-1. 3 : The Object Diagram for the "issueBook" use case

Library System

Library Name : Silent Library

Librarian Name : Harsh Vasavda

Registered Student

studentID : 202101xxx

name : Good Boy

issuedBook : Atomic Habits.

Return Book

bookID : 74796422156

return date : xx-xx-20xx

Collect Fine

fine amount : xx $

Book

bookID : 74796422156

bookName : Atomic Habits.

Issue Details

issuedDate : xx-xx-20xx

returnDate : xx-xx-20xx

issuedBy : 202101xxx

Q-2. The Sequence Diagram and Operations