Name : **Vansh Joshi**

Student ID: **202101445**

Lab-7

Use Case
Diagram 1.1

**Library Management
System**

Verify if student is a
member

Issue Book

<<include>>

Student

Librarian

Return Book

<<include>>

Calculate Fine
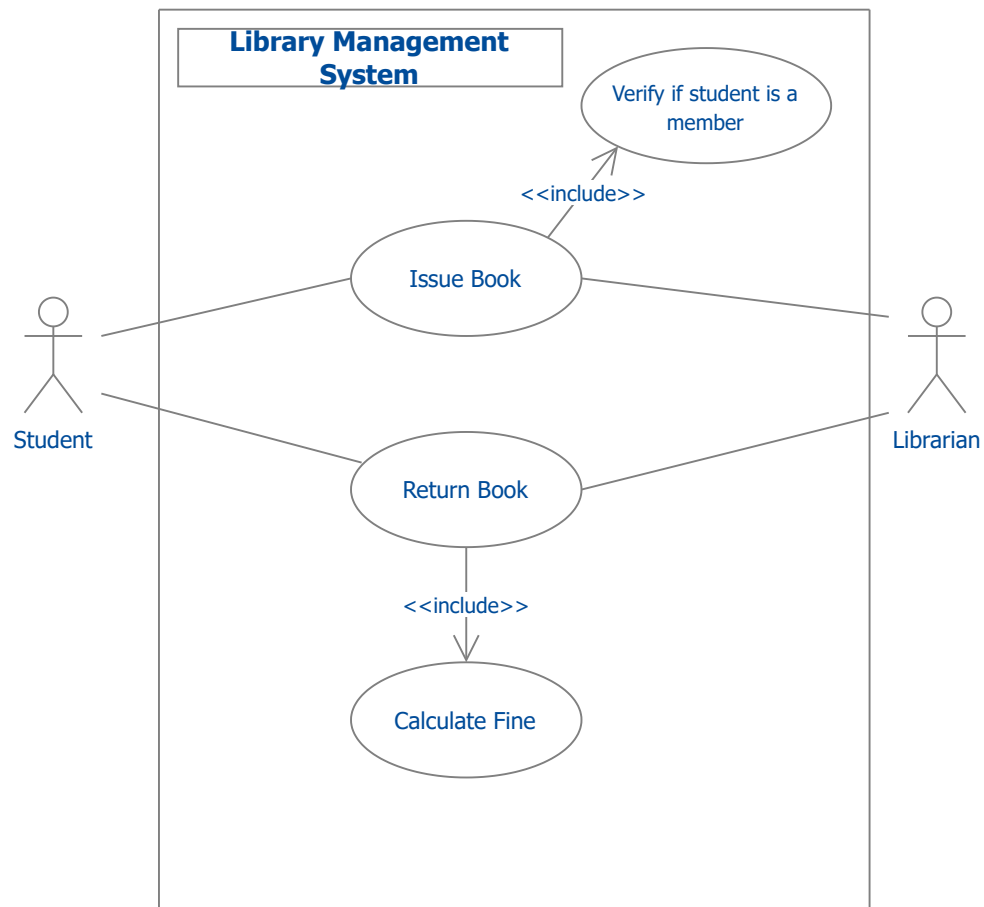
Name: Issue Book

Primary Actor: Librarian

Other Actors: Student, Database (Book catalogue, members)

Stake holders and Interests:

-        Librarian: wants to check if the student is member of the library, and then update the status of book in library catalogue and the student's profile to issue the book

-        Student: wants a book to be issued

Preconditions: Librarian is identified and authenticated.

Success Guarantee/ Goals: The status of book in catalogue is updated to be issued. The student's profile is updated and stores information of the issue of the book.

Trigger: Student visits librarian with a book to be issued

Main Scenario:

1.   Student arrives to librarian with the book to be issued.

2.   Librarian verifies the student to check if he is a member of the library or not.

3.   Librarian updates the book's status to be issued.

4.   Librarian updates the issued books in student's profile.

5.   Student gets the book issued to him/her.

Extensions (alternative flow)

*a: at any time, if the system fails

        1. The system can recover the prior state.

        2. If prior state has anomalies,

                a. the process is cancelled and started again

                b. librarian can manually update the issue process

*b: at any time, student asks to not issue book

        1. The issue transaction is cancelled and the book is returned to the librarian.

        2.a if user is invalid:

                The issue transaction is cancelled, book is returned to the librarian.
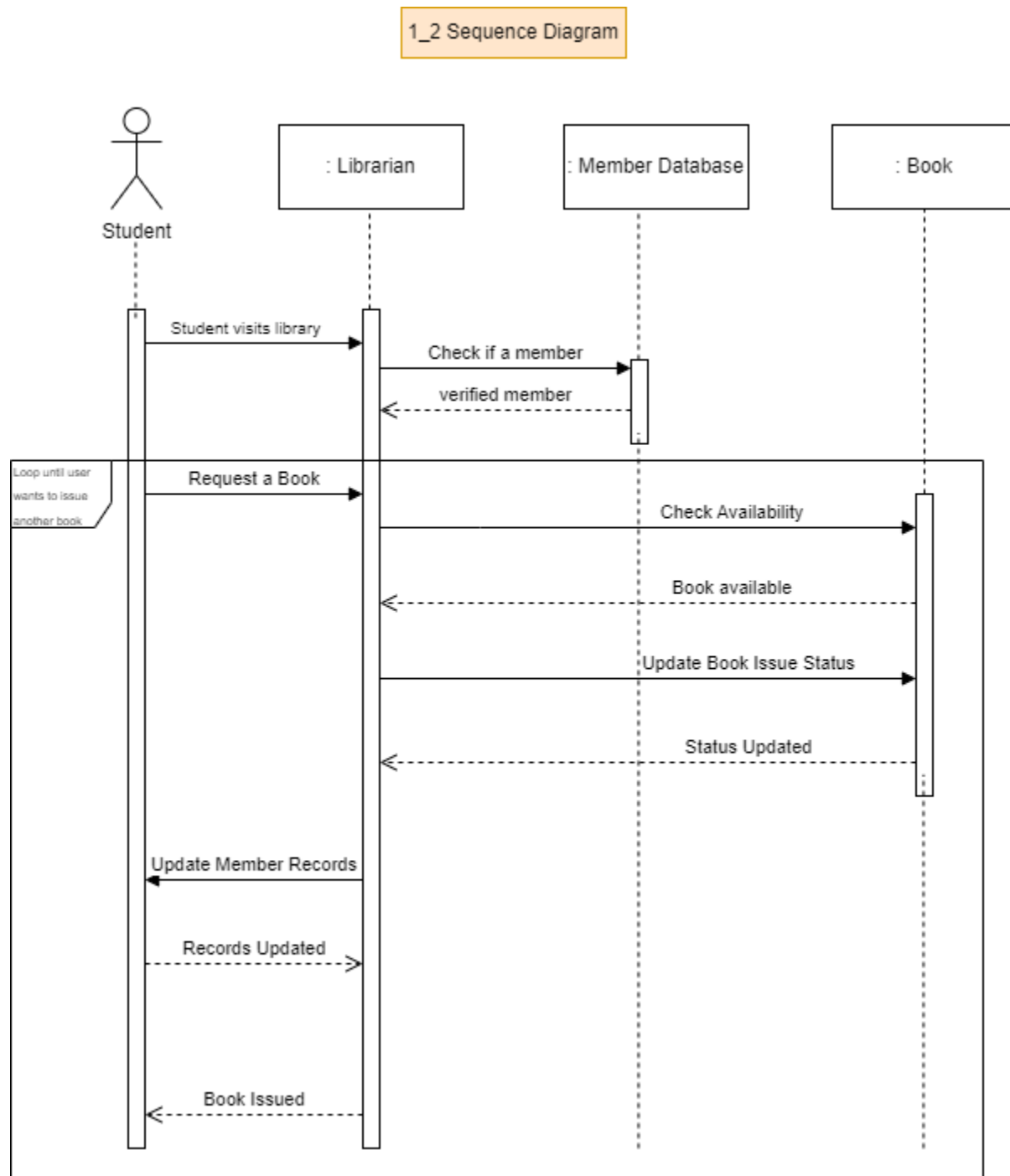
        3.a if the book is held by someone

                The issue transaction is cancelled, book is returned to the librarian.

Special Requirements

- Robust recovery

- Quick authorization response

- Timely updates on the system

Postconditions: The system returns to dashboard, ready for another issue or return transaction.

1_2 Sequence Diagram

1.3 Analysis Object Diagram

Librarian
- ID: int
- Name: string
- ContactNo: int
- Email : string
- login()
- updateInformation()

Student
- StudentID: int
- Name: string
- noOfIssuedBooks: int
+ checkIfMember()
+ increaseIssuedBooks()
+ decreaseIssuedBooks()
+ upadateBookIssuedList()

Manages

worksFor

IsMemberof

*

1

Library
+ Name: string

has

Manages

1

*

Book
+ BookID: int
+ Name: string
+ Author: string
+ Publication: string
+ issueBook()
+ checkStatus()
+ updateStatus()

issuedBy

0...5

Instructor   Student   TA   :Question Paper   : Solution   : Copy Machine   : Response

notifies date and material

return

prepares

return

prepares

return

get copied

return the copies

hand out

return

return answers

return

given by instructor

given by instructor

return

returned after checking to instructor

given to students by instructors

return