

# **Lab Report 7**

IT314 Software Engineering

[Domain Analysis Modeling & Sequence Diagram]

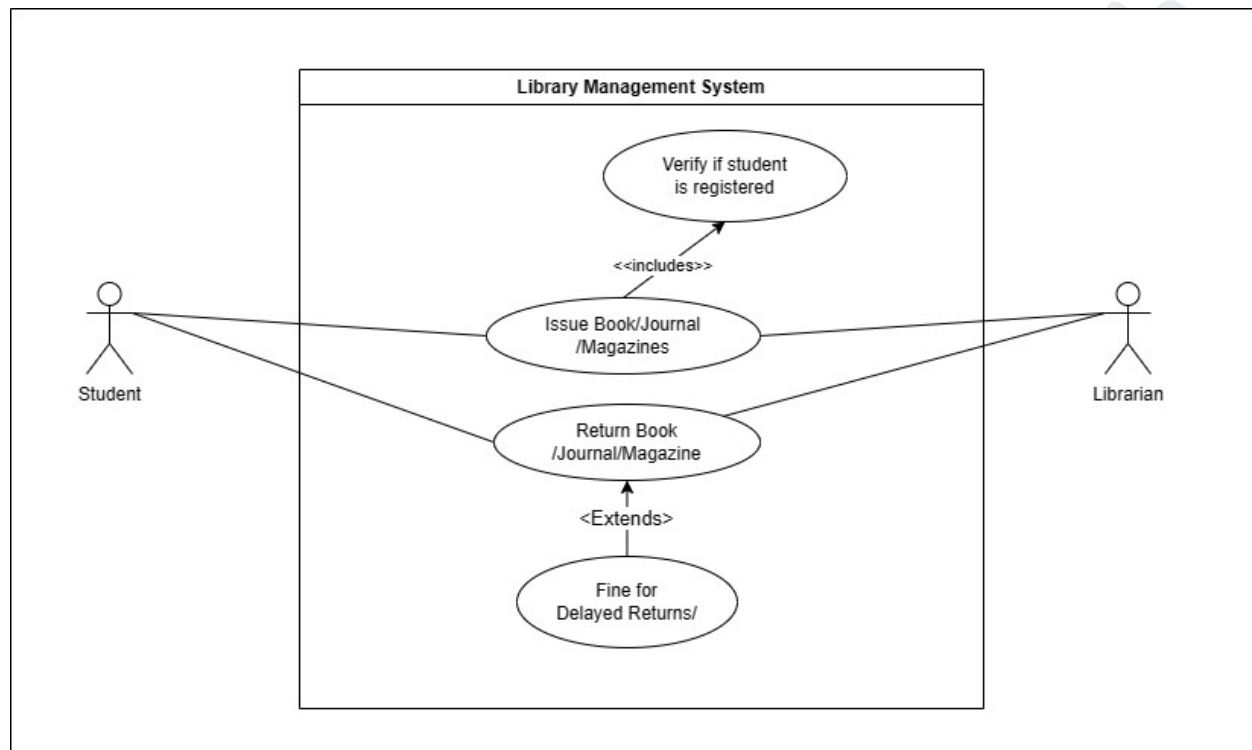
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**Group No.:** 3

1. "A library maintains multiple reading materials which include books, journals, and magazines. The books are issued to the registered students of the institute, for a specified period of time. The issued books are to be returned back to the library. Delayed returns are subjected to stipulated fines. The issue-return process is administered by one of the librarians through an authenticated Library Management System."

a) Complete the use case diagram for the above problem text along with use case documentation for "issueBook" use case



## Use Case Report:

Use Case Name	Issue Book
Actors	Student, Librarian, LibraryDatabase

Student	Issues book
Librarian	Administers issue-return process
Issue Book	Registered student can issue book

**Stakeholders:**

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

Student: wants a book to be issued.

**Preconditions:**

Librarian is identified and authenticated.

**Trigger:**

Student visits the librarian with a book to be issued.

**Success Guarantee/ Goals:**

The status of the book to be issued is updated in the catalog.

The student's profile is updated and stores information about the issue of the book.

**Main Scenario:**

1. Student arrives at the librarian for a book issue.
2. Librarian verifies the student if the student is registered or not.
3. Librarian updates the availability status of the book to be issued(only if the student is registered).
4. Librarian updates the student's profile(adds the issued book details in the 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 the prior state has anomalies, the process is canceled and started again.

b) If the book is held by someone,

The issue transaction is canceled.

**Special Requirements:**

Robust recovery

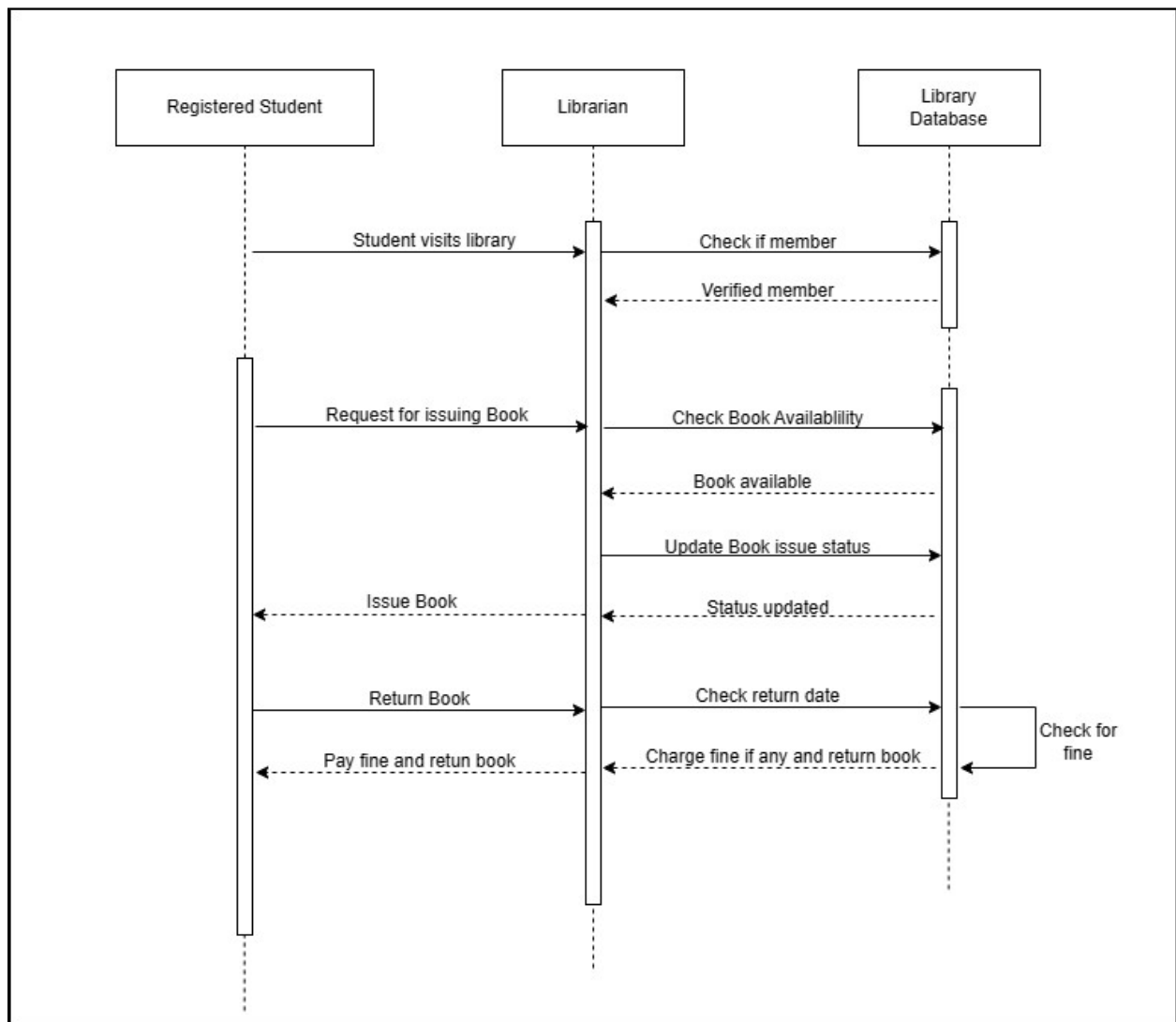
Quick authorization response

Timely updates on the system

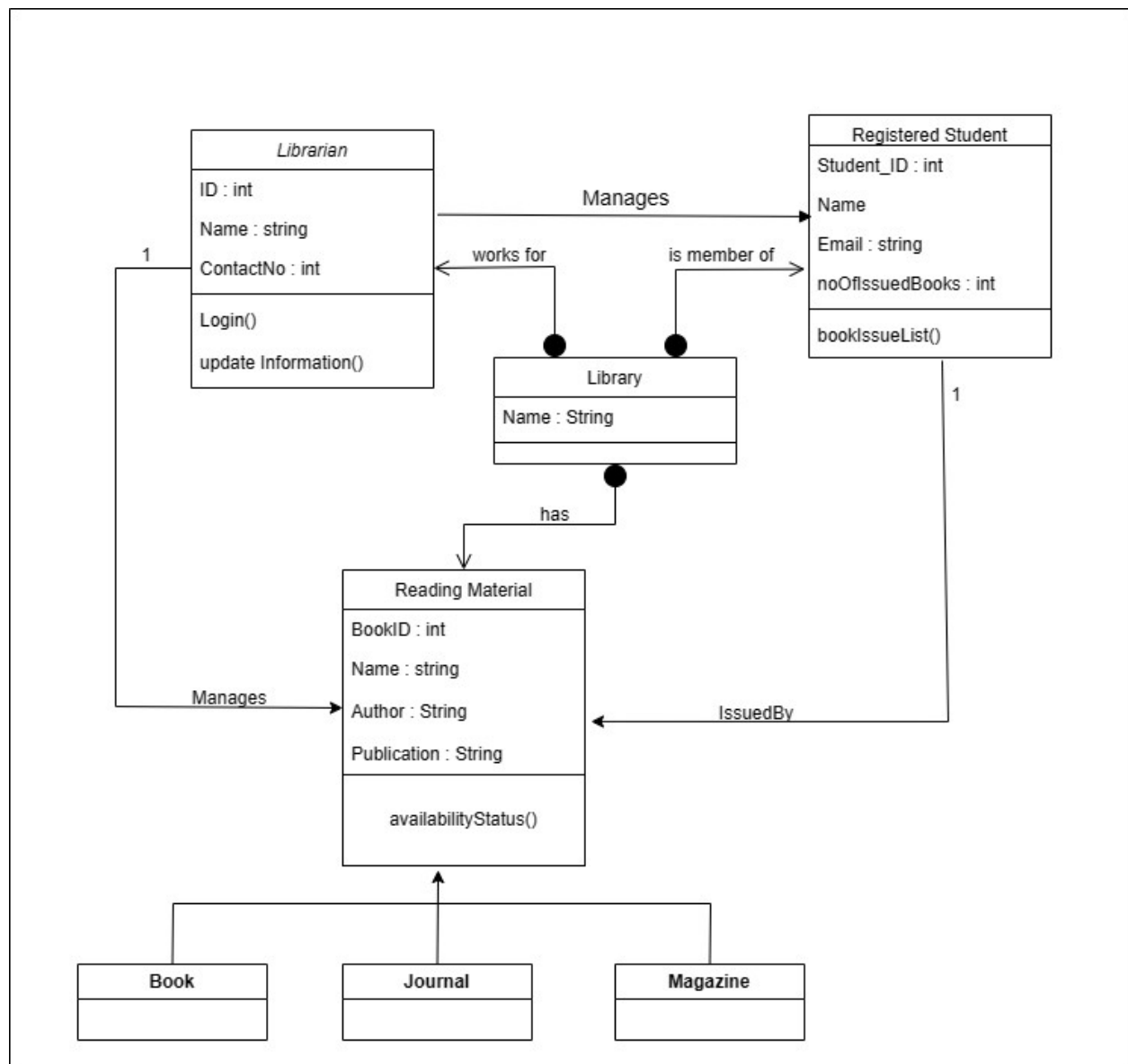
**Postconditions:**

The system returns to the dashboard for another issue/return transaction.

b) Sequence diagram for the “issueBook” use case



c) Analysis Object Diagram for the “issueBook” use case analysis.



2. To give an exam, an instructor first notifies the students of the exam date and the material to be covered. She then prepares the exam paper (with sample solutions), gets it copied to produce enough copies for the class, and hands it out to students on the designated time and location. The students write their answers to exam questions and hand in their papers to the instructor. The instructor then gives the exam papers to the TAs, along with sample solutions to each question, and gets them to mark it. She then records all marks and returns the papers to the students. Draw a **sequence diagram** that represents this process. Make sure to show when each actor is participating in the process. Also, show the operation that is carried out during each interaction, and what its arguments are.

