

IT 314 Software Engineering

Lab 7 - Domain Analysis Modelling & Sequence Diagram

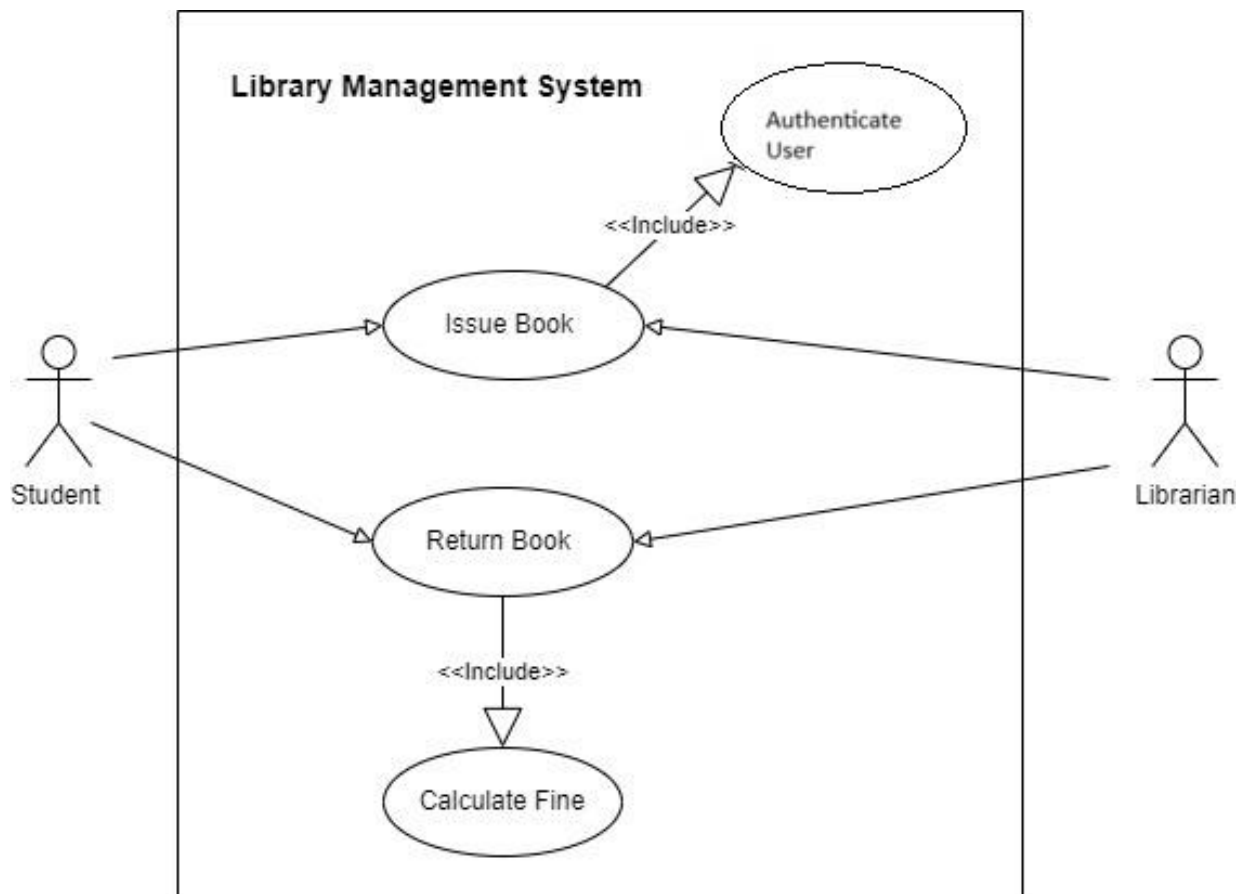
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Group 5

Question 1

Develop the following documents for the Library Management System.

1. Use case Diagram: -



Use Case Description: -

Use case name: Issue Book

Description: Represents the process of Issuing book

Primary Actors: Registered Students

Secondary Actors: Library, Librarian

Pre-conditions:

- Registered student must be logged in and authenticated by the librarian.
- The book being issued must be available in the library.

Post-conditions:

- The book is marked as issued to the student.
- The due date for returning the book is set.
- The student is notified of the successful issuance.

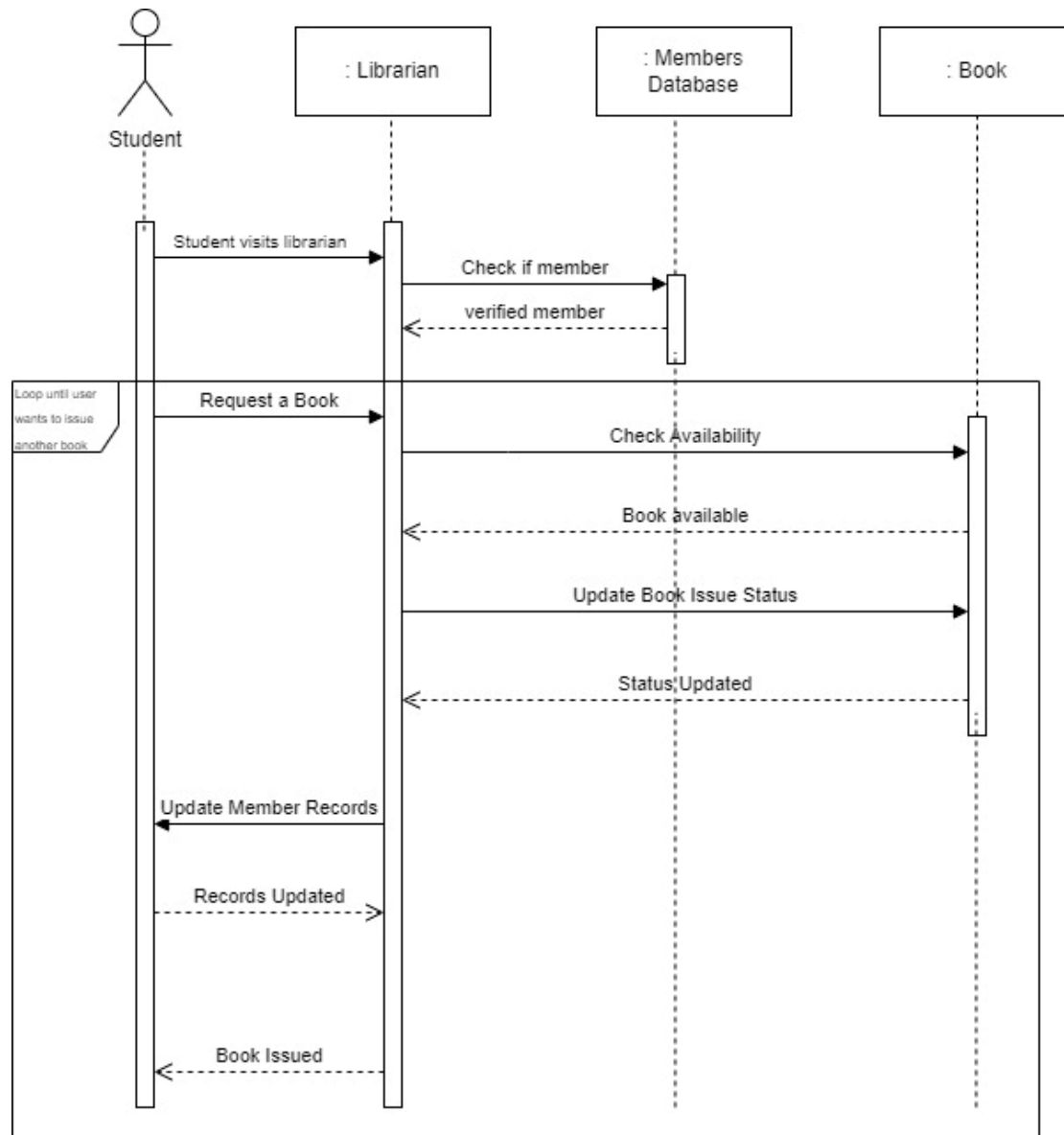
Main flow:

- The registered student requests to issue a book.
- The system validates the student's authentication status.
- The system checks if the requested book is available.
- If the book is available, the system marks it as issued to the student.
- The system sets the due date for returning the book.
- The system notifies the student and the librarian about the successful issuance.

Alternate Flows:

- If the book is not available, the system notifies the student that the book cannot be issued at the moment.
- If the user is not authenticated, the system notifies the librarian.

2. Sequence Diagram: -



Entities:

- **Book:** Represents individual book with ISBN to check availability
- **Student:** Student with unique student ID borrow books from library
- **Transaction:** Represents any interaction between student and library.

Boundary objects:

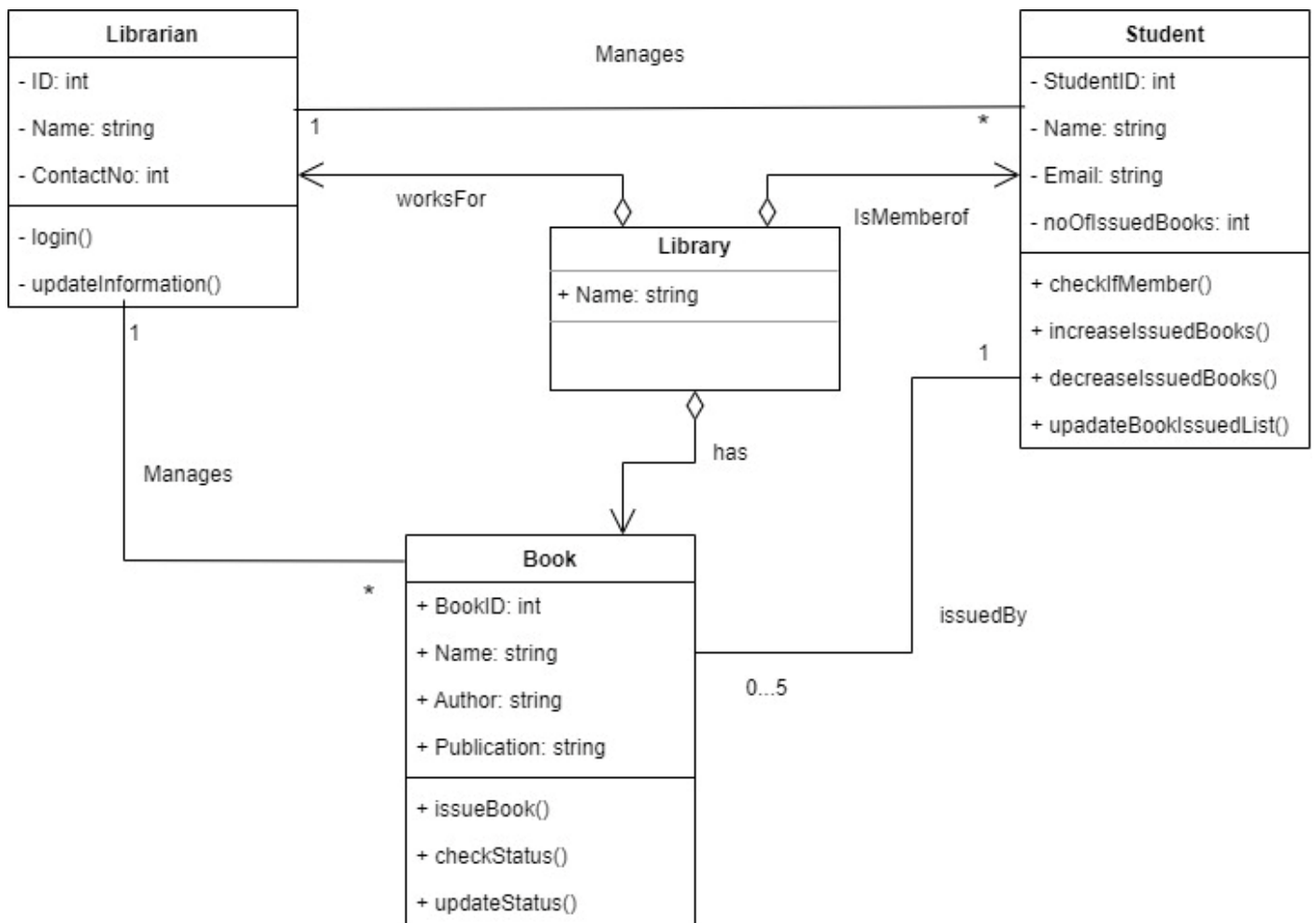
- **Librarian/Student Interface:** The library management system has the interface where the transaction would happen and both of them interact.
- **Barcode reader (If available):** Can be considered as a hardware component used to read barcode on the book.

Control objects:

- **Fine calculator:** Calculates fine for the delayed submitted books.

- **Database system:** Has the collection of information of books, verified librarian and student information.
- **Library management system:** This Library management system itself can be considered as a control object as it manages and organize all the procedure or transaction.

3. Analysis Object Diagram: -



Question 2

Draw a sequence diagram for the given Examination Management Process.

