



IT314 Software Engineering

LAB 7: Domain Analysis Modeling & Sequence Diagram

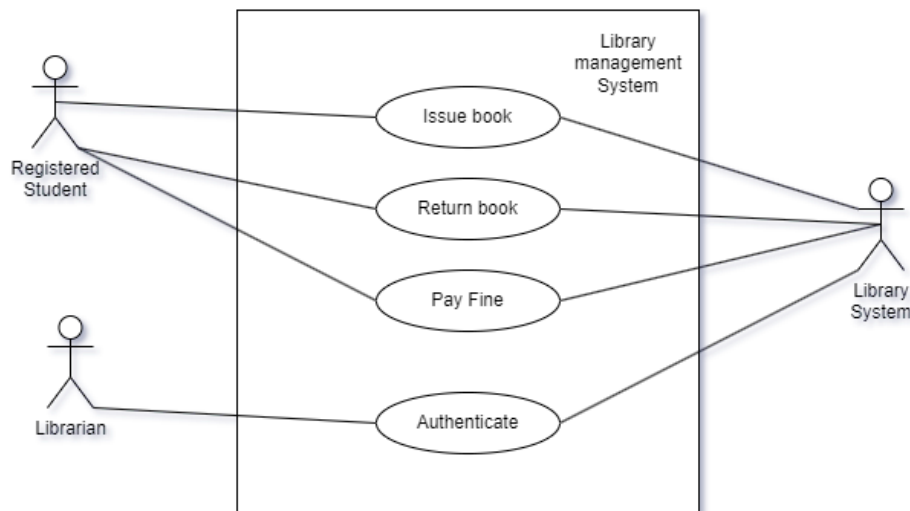
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Q.1. “A library maintains multiple reading materials which include books, journals, and magazines. The books are issued to the registered students of the institute, for a specified period of time. The issued books are to be returned back to the library.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

1.1 Complete the use case diagram for the above problem text along with use case documentation for “issueBook” use case.

❖ **Use case Diagram**



❖ **Use case documentation**

Use Case Name: Issue book

Use Case Description: This use case represents the process of issuing a book to a registered student. The librarian selects a book and student, verifies the student's eligibility, and issues the book to the student. If the book is available and the student is eligible, the book is issued and recorded in the system.

Primary Actors: Registered Students

Secondary Actors: Library_system, Librarian

Preconditions:

- Librarian is authenticated.
- The book is available.
- The student is registered.

Postconditions:

- The book is issued to the student.
- The transaction is recorded in the system.
- The due date for returning the book is set.

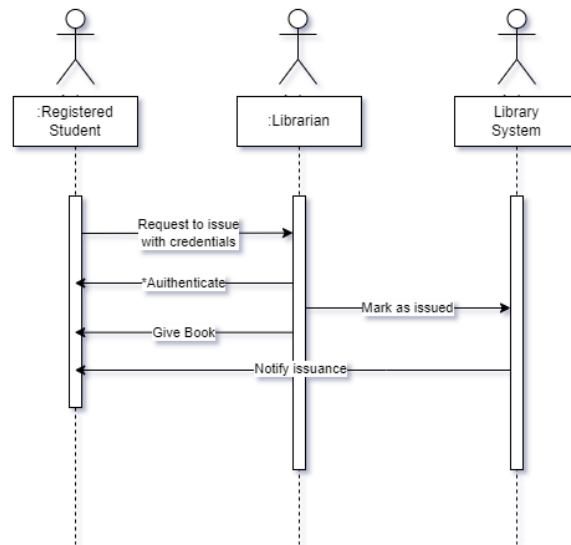
Main flow:

- 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 records the transaction.
- The system sets the due date for returning the book.
- The system notifies the student and the librarian about the successful issuance.

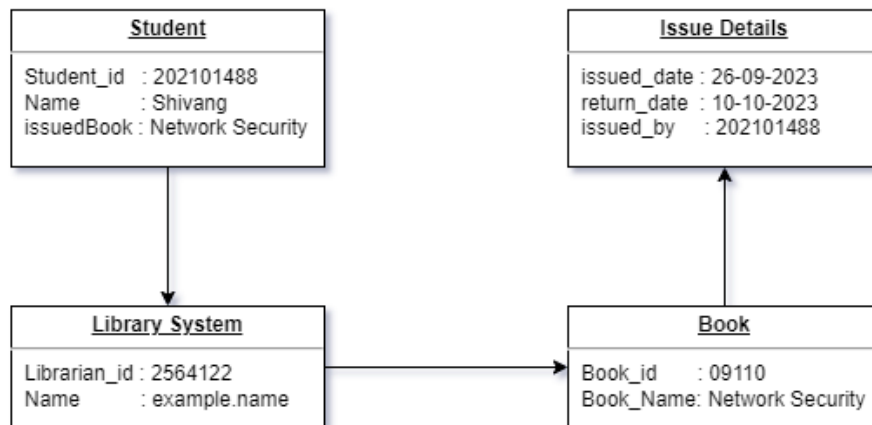
Alternate Flows:

- If the book is not available, show an error message.
- If the student is not eligible, show an error message.

1.2 The sequence diagram for the “issueBook” use case.



1.3 Draw the analysis object diagram for the “issueBook” use case analysis.



Q.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 sample solutions to each question, and gets them to mark it. then records all marks and returns the papers to the students.

Draw a sequence diagram that represents this process.

