

IT314: Software Engineering

LAB-7

Domain Analysis Modeling & Sequence Diagram

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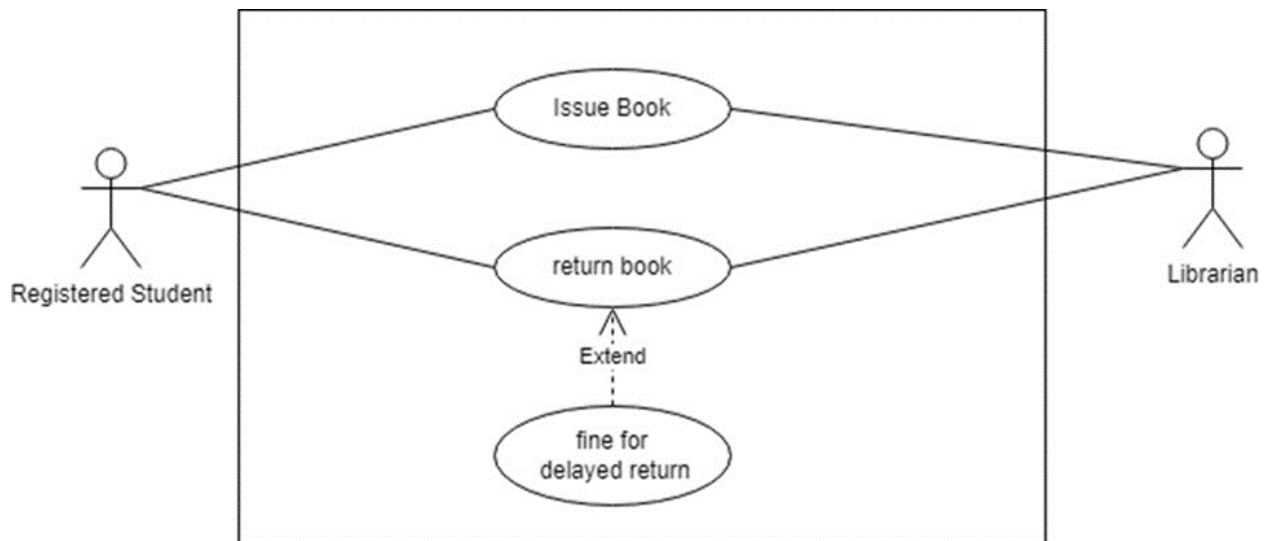
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Group 3

Question 1:

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

USE CASE DIAGRAM:



Title: Library Book Issue and Return System

Description:

This system serves students, faculty, and staff for borrowing books from the library. Students can borrow available books and are responsible for returning them on time. If a book is returned after the due date, the student is required to pay a fine. This use case diagram defines the process of issuing and returning books and the associated outcomes.

Actors:

- 1) Student
- 2) Librarian
- 3) Library Management System

Precondition:

The student must be registered with the library.

Trigger:

A student visits the library to either issue or return a book.

Post-condition:

The system updates the library database with the information whenever a student issues or returns a book.

Flow:

1. When a student wants to issue a book:
 - The student approaches the librarian.
 - The librarian checks the availability of the requested book in the library.
 - If the book is available, the librarian issues the book to the student.

- The librarian records the transaction in the library database.

2. When a student returns a book:

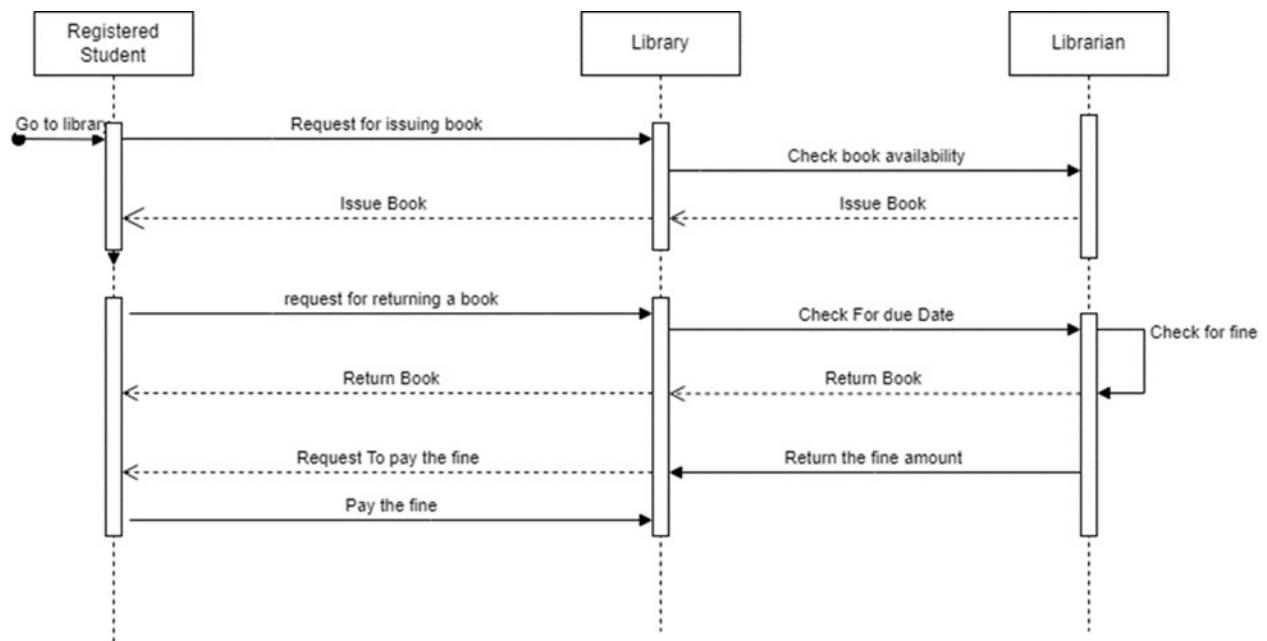
- The student returns the book to the librarian.
- The librarian checks the due date of the book.
- If the student has exceeded the due date, the librarian calculates the fine.
- The librarian accepts the fine from the student and processes the book return.
- The librarian updates the library database with the returned book information.

Alternative Flows:

If the requested book is unavailable in the library, the librarian notifies the student and suggests alternative options or informs them when the book is expected to be back in stock.

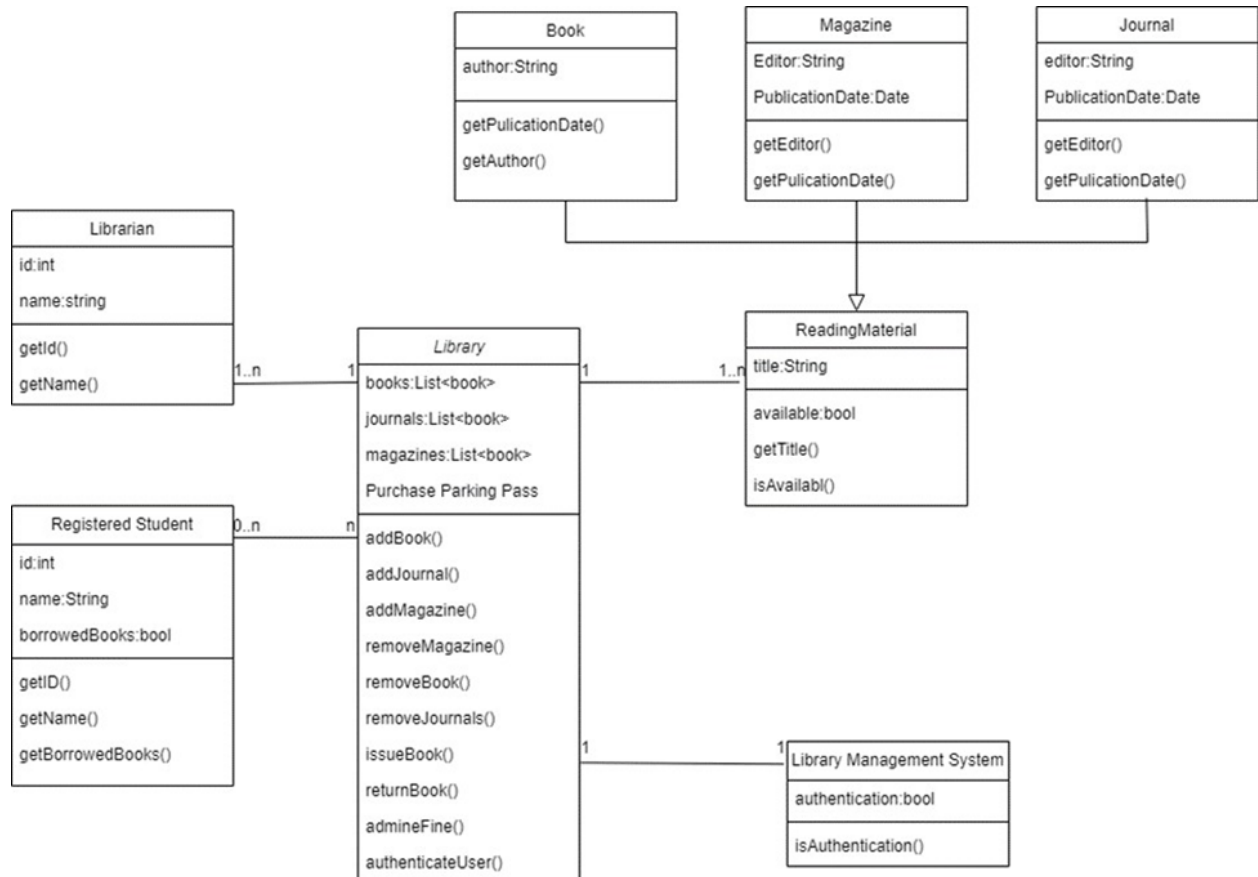
**2. The sequence diagram for the “issueBook” use case.
(Hint: Here you need to identify various analysis objects
(corresponding to entity, boundary, and control classes), and
show their interaction to realize the “issueBook” use case.)**

SEQUENCE DIAGRAM



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

CLASS DIAGRAM



QUESTION-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 is each actor participating in the process. Also, show the operation that is carried out during each interaction, and what its arguments are.

SEQUENCE DIAGRAM:

