IT-313 Software Engineering LAB-7

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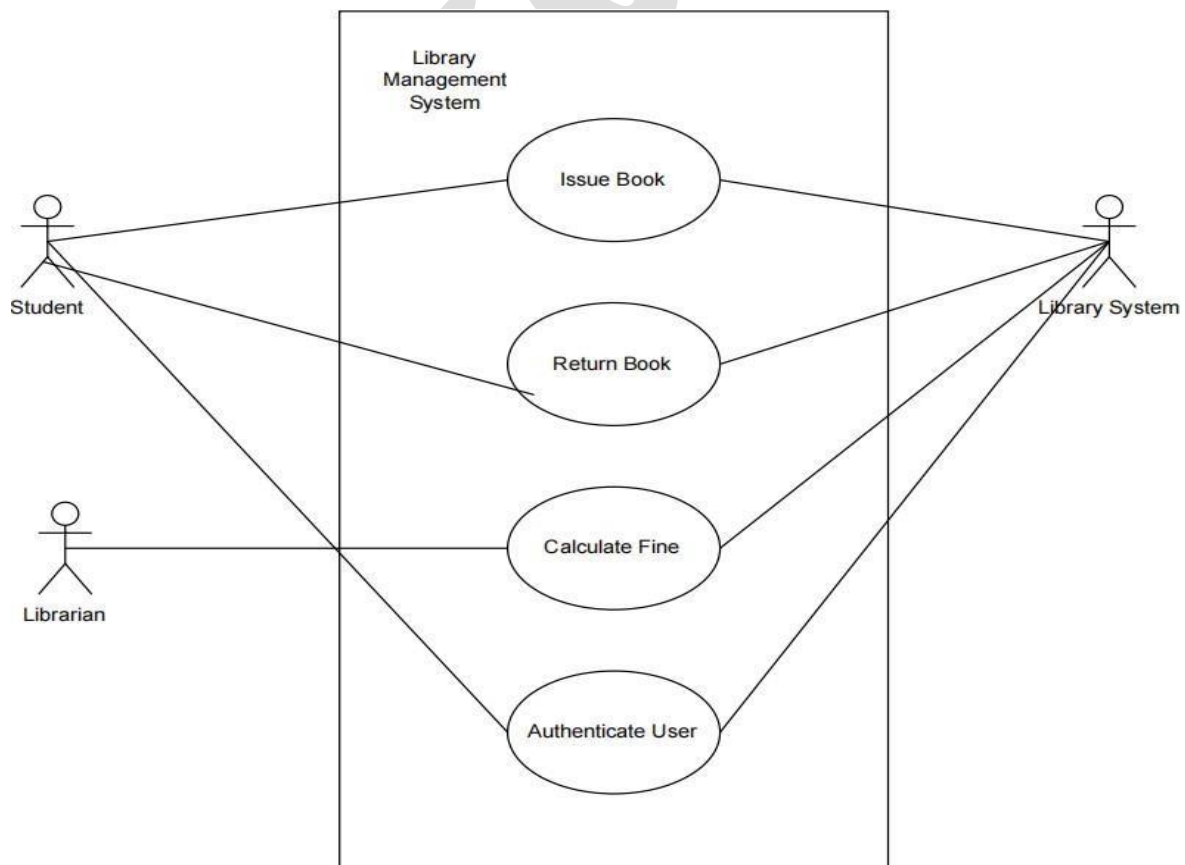**Group:2**
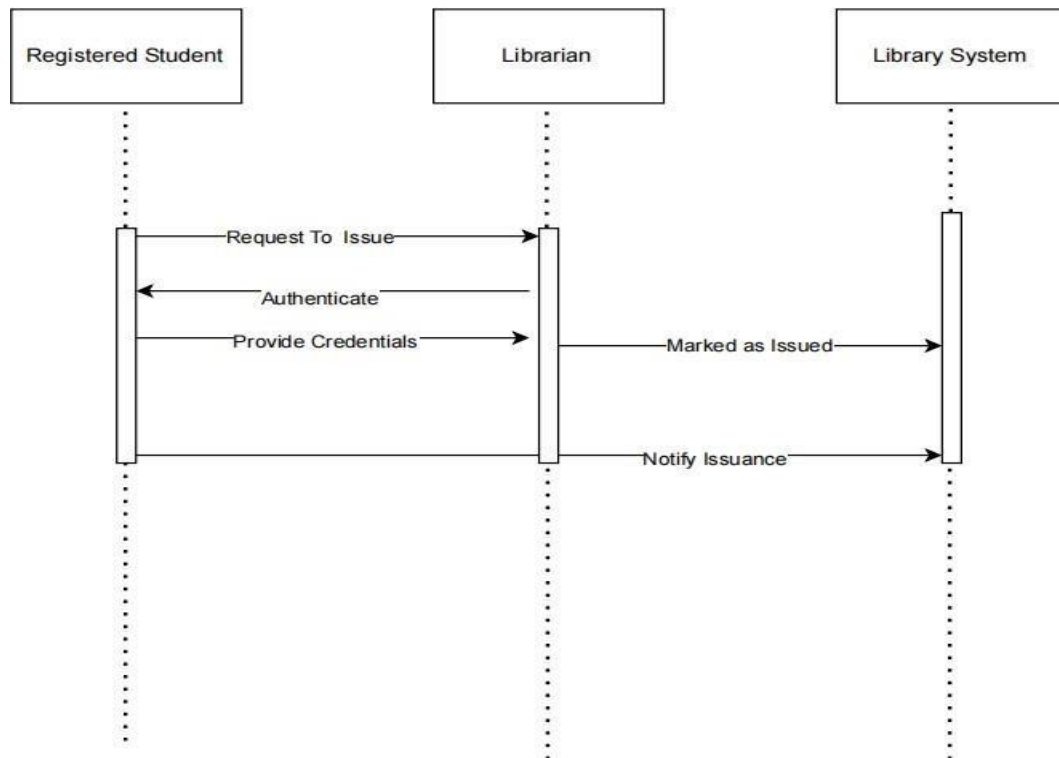**ID:202101154**

Q1) Consider the following piece of text

"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. Complete the use case diagram for the above problem text along with use case documentation for "issue book" use case.
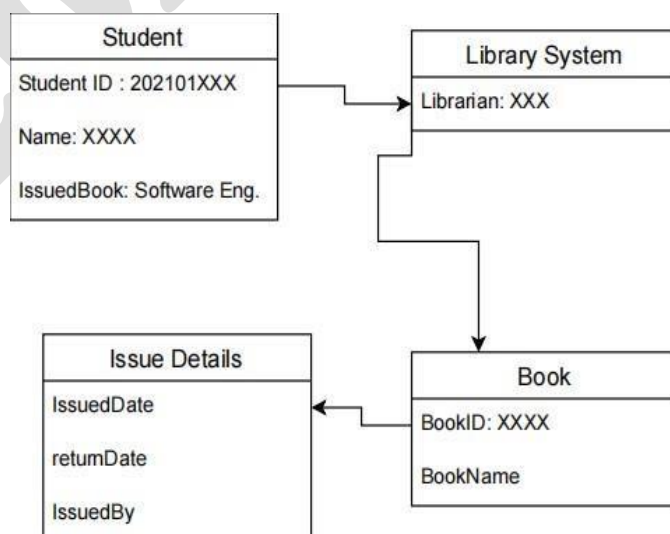
2. The sequence diagram for the "issue book" use case.
(Hint: Here, you need to identify various analysis objects (corresponding to entity, boundary, and control classes), and show their interaction to realize the "issueBook" use case.)

3. Draw the analysis object diagram for "issueBook" use case analysis

Use Case Documentation for "issue book" Use Case:

Use Case Name: Issue Book
Description: This use case represents the process of a registered student issuing a book from the library
Primary Actor: Registered Student Secondary
Actor: Library and Librarian

Preconditions:

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

Postconditions:

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 process begins when a student who is registered in the system submits a request for a book issuance. The system then proceeds to verify the authentication status of the student. Subsequently, the system conducts a check to determine the availability of the requested book. If the book is found to be available, the system proceeds to allocate it to the student and establishes a due date for its return. Following this, the system sends out notifications to both the student and the librarian, confirming the successful issuance of the book.

In alternative scenarios, if the book is not available, the system promptly informs the student that the book cannot be issued at that time. Furthermore, if the user's authentication status cannot be validated, the system promptly alerts the librarian.

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Q2) 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.