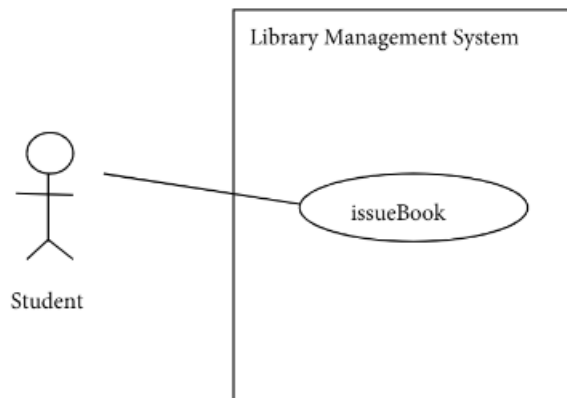


IT313: Software Engineering

Lab-7: Domain Analysis Modeling & Sequence Diagram

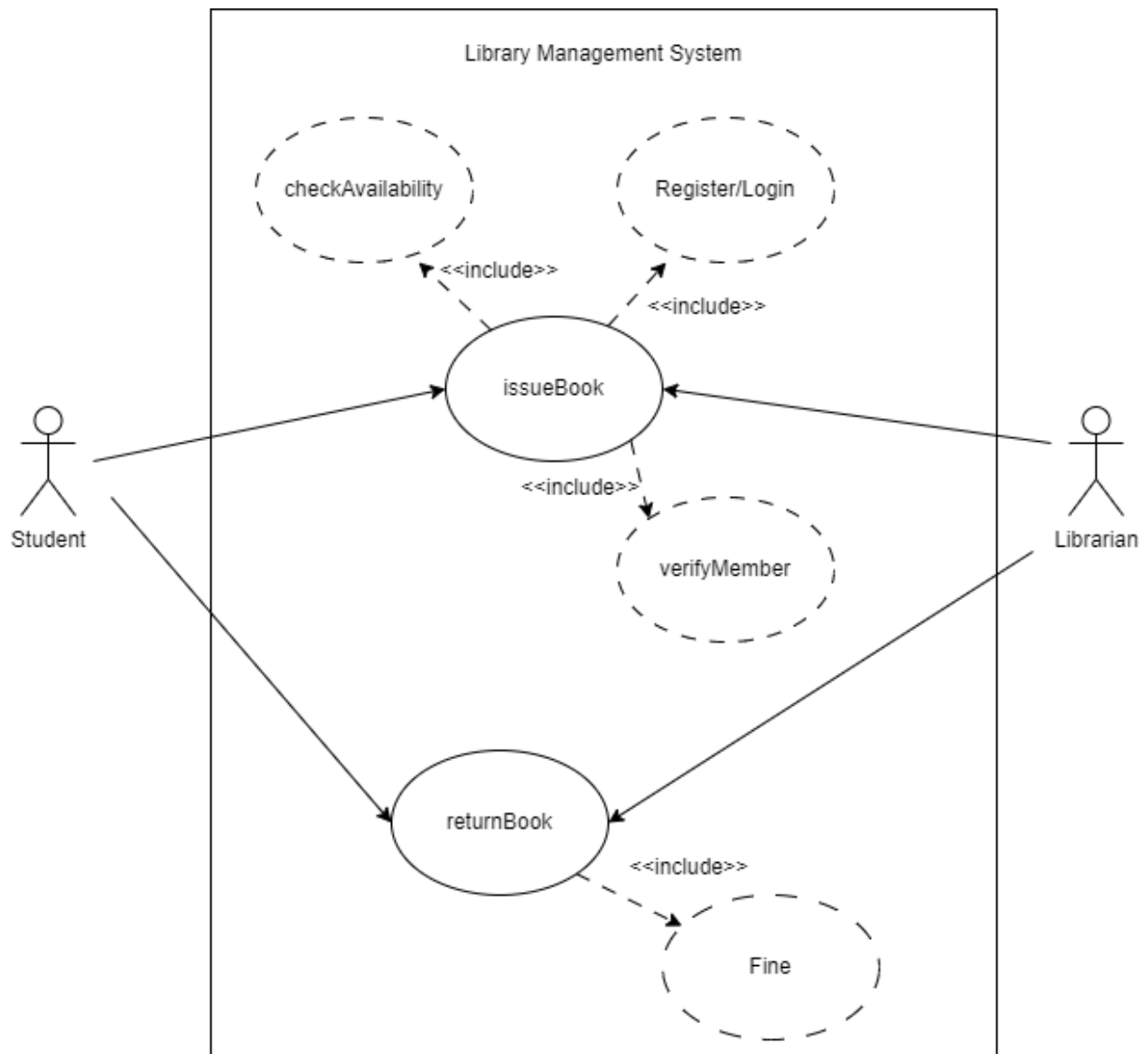
1. Consider the following piece of text

“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.”



An incomplete use case diagram for the system is given above. Develop the following documents

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



Use Case Documentation for “Issue Book”:

Use Case Name: IssueBook

Description: This represents the process of borrowing book from the library for a time period.

Actor(s): Student, Librarian

Preconditions:

- Student should be registered and verified through LMS.
- Book to be issued should be available
- User should not have reached the borrowing limit.

Postconditions:

- Book should be marked “issued” in the Database.
- Due date should be set for returning.
- User provided with the book

Flow:

- Student selects a book from the Library.
- Student provides the details for verification.
- **LMS** validate the Student details. (using already available data of Student in the college database)
- If user is authenticated:
 - System checks if book is available
 - If the book is Available:
 - Librarian issues the book by marking the book “issued”.
 - Due date for the return is set.
 - Student is given the book.

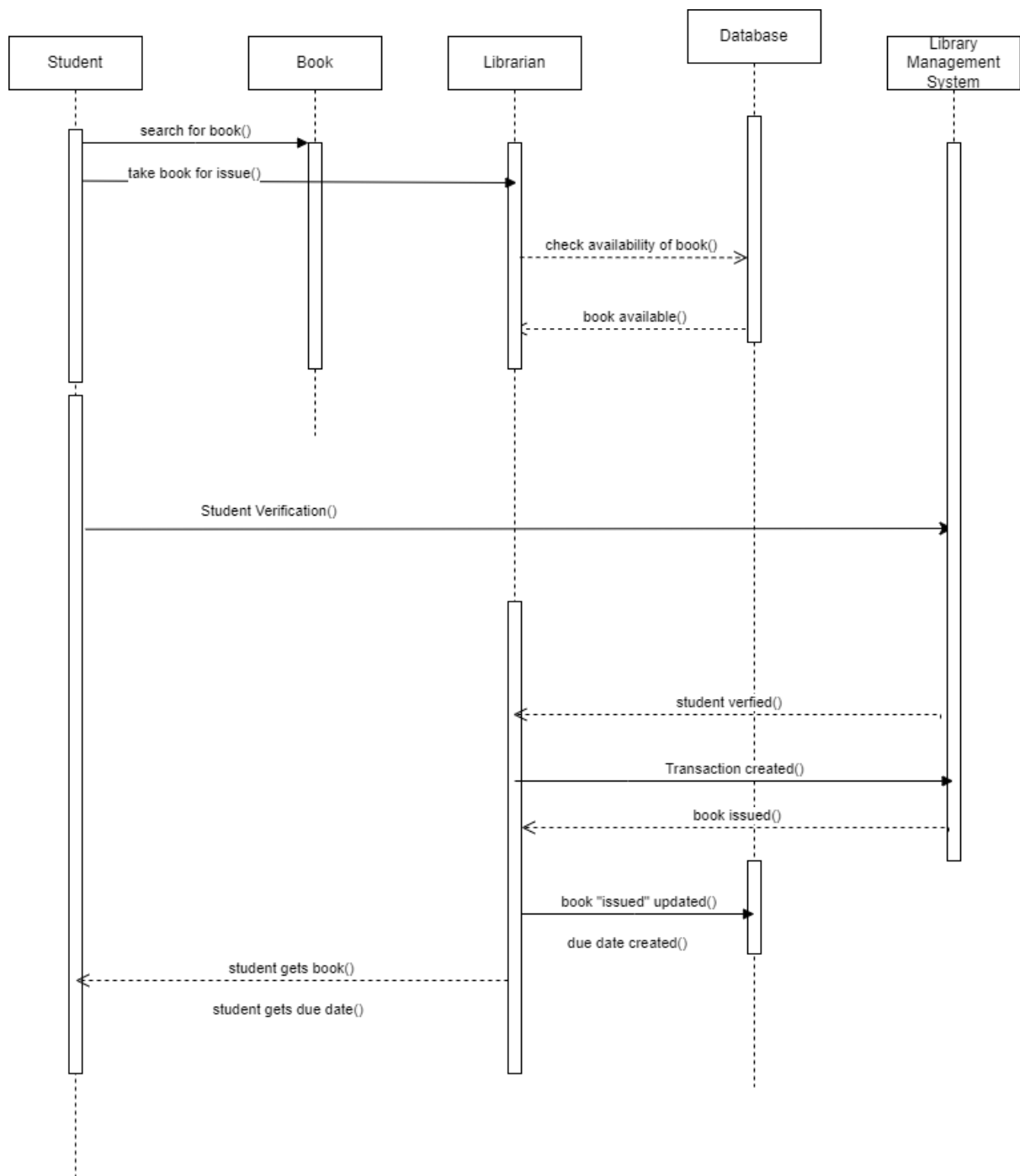
Alternate Flow:

- If user not verified then user not allowed to borrow the book.

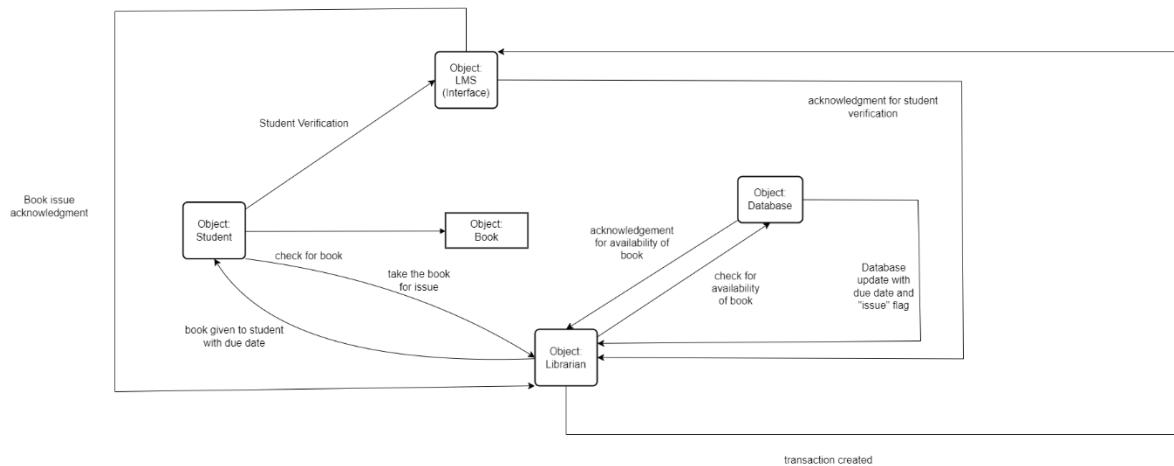
Exceptional Flow:

- If book is not available, then student is informed about it.

b) The sequence diagram for the “issueBook” use case.

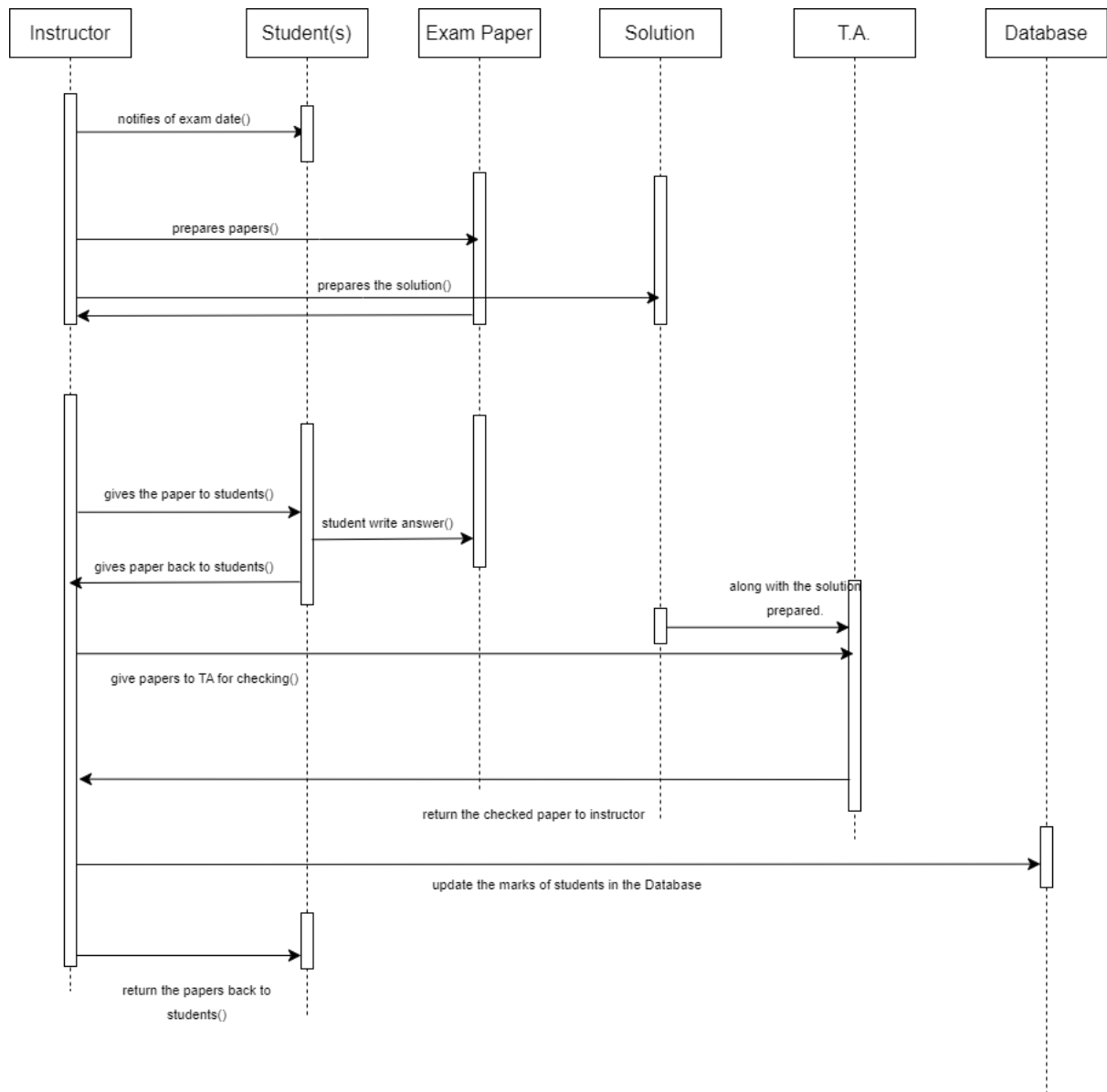


c) Draw the analysis object diagram for the “issueBook” use case analysis.



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



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