

Lab Session - 7
Domain Analysis Modeling & Sequence Diagram
IT313: Software Engineering

Q1.)

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

- Primary Actor: Librarian
- Other Actors: Student, Database (Book Catalogue, Members)
- Stakeholders and Interests
 - Librarian: Aims to ensure efficient book issuance, checking student membership, and maintaining accurate book and student records.
 - Student: Desires to successfully borrow a book from the library. -
 - Preconditions: Librarian must be identified and authenticated. - Success Guarantee/Goals:
 - The book's status in the catalogue is updated to "issued."
 - The student's profile records the book issuance information.
- Trigger: A student approaches the librarian with a book to be issued.
- Main Scenario:
 1. The student arrives at the librarian's desk with a book for issuance.
 2. The librarian verifies the student's library membership.
 3. The librarian updates the book's status to "issued."
 4. The librarian updates the student's profile to reflect the book issuance.
 5. The student receives the issued book.
- Extensions (Alternative Flow):
 - If the system fails at any point:
 1. The system initiates a robust recovery process.
 2. If anomalies are detected in the prior state.
 - a. The issuance process is canceled and restarted.
 - b. The librarian can manually update the issuance process.
 - If the student requests not to issue the book at any time:
 1. The issuance transaction is canceled, and the book is returned to the librarian.
 2. If the student's membership is invalid: The issuance transaction is canceled, and the book is returned to the librarian.
 3. If the book is currently held by someone else: The issuance transaction is

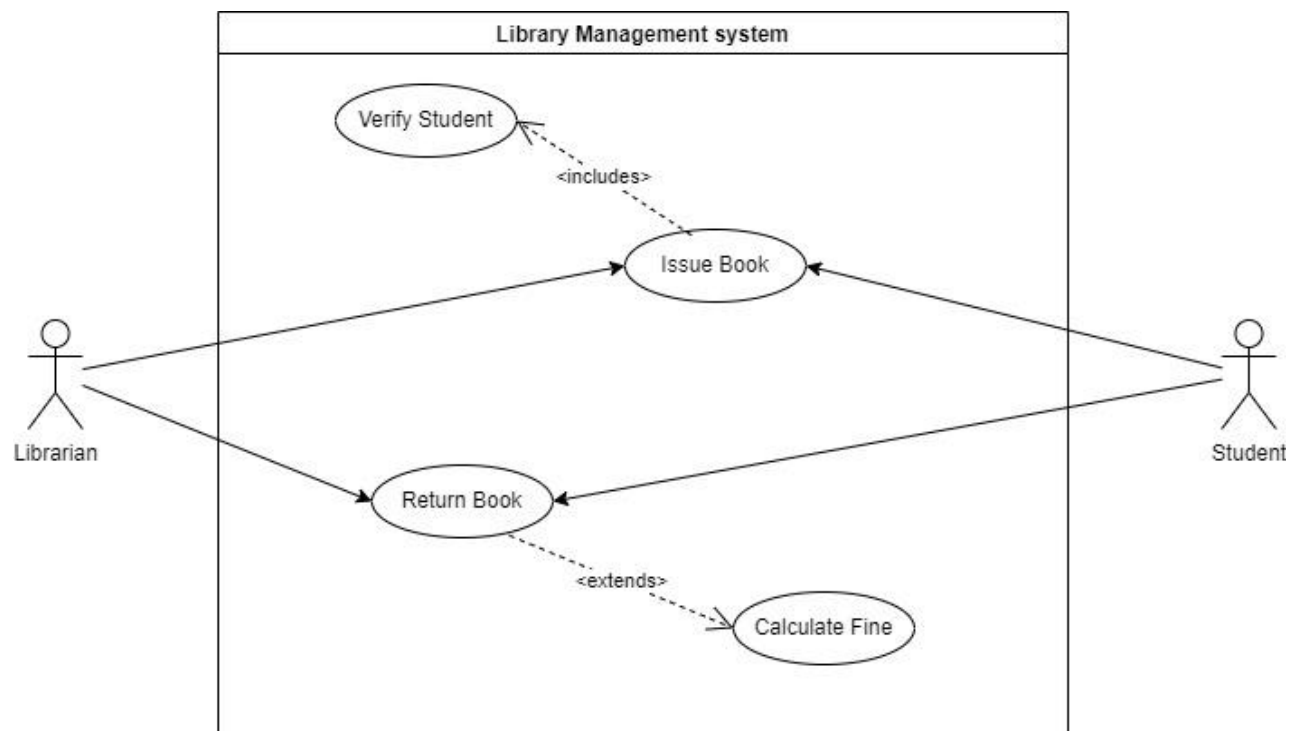
anceled, and the book is returned to the librarian.

- Special Requirements:

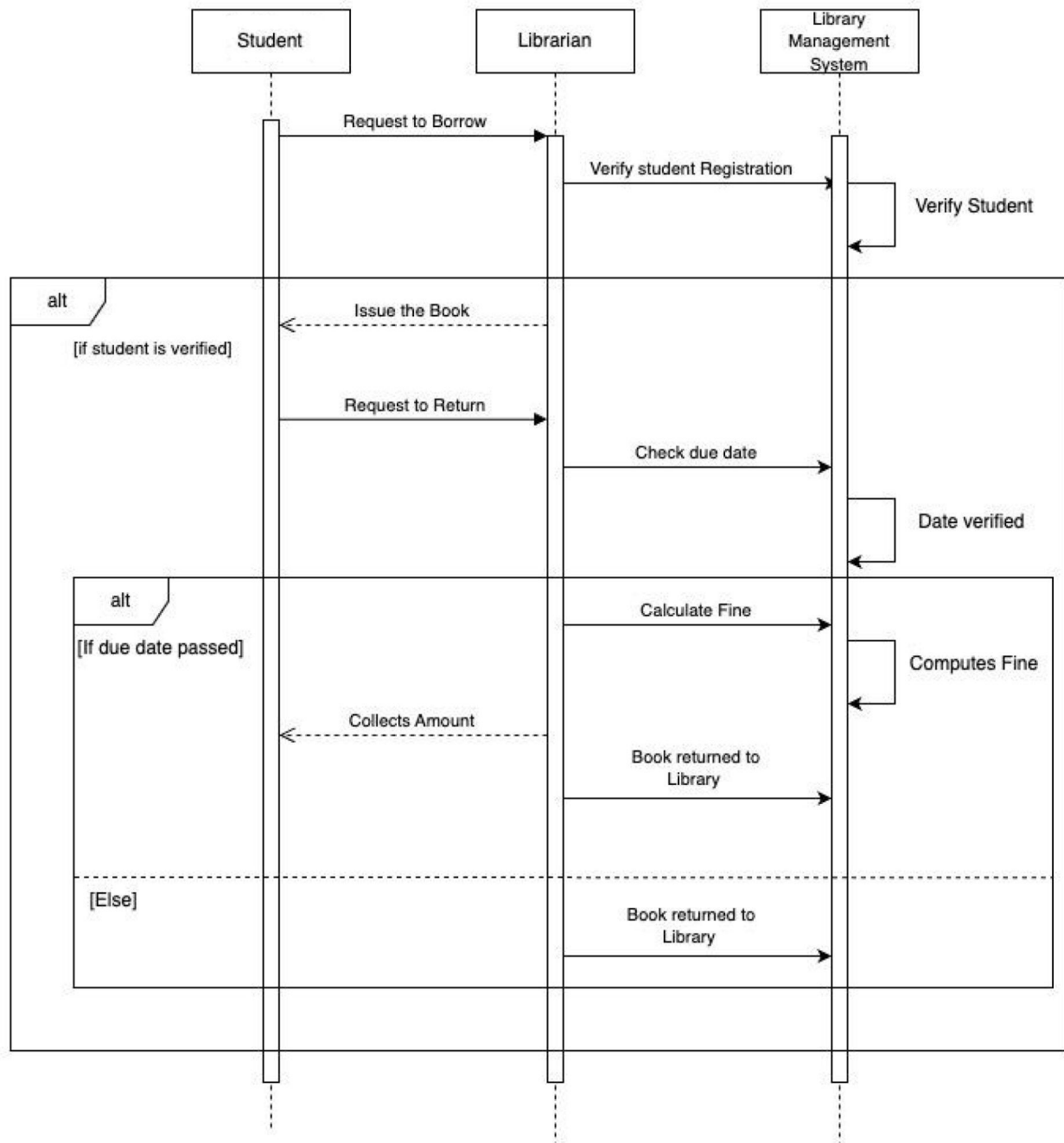
- Robust recovery mechanisms to handle system failures.
- Swift authorization response for efficient processing.
- Timely updates to the system to ensure accurate records.

- Postconditions: The system returns to the dashboard, ready for another book issuance or return transaction

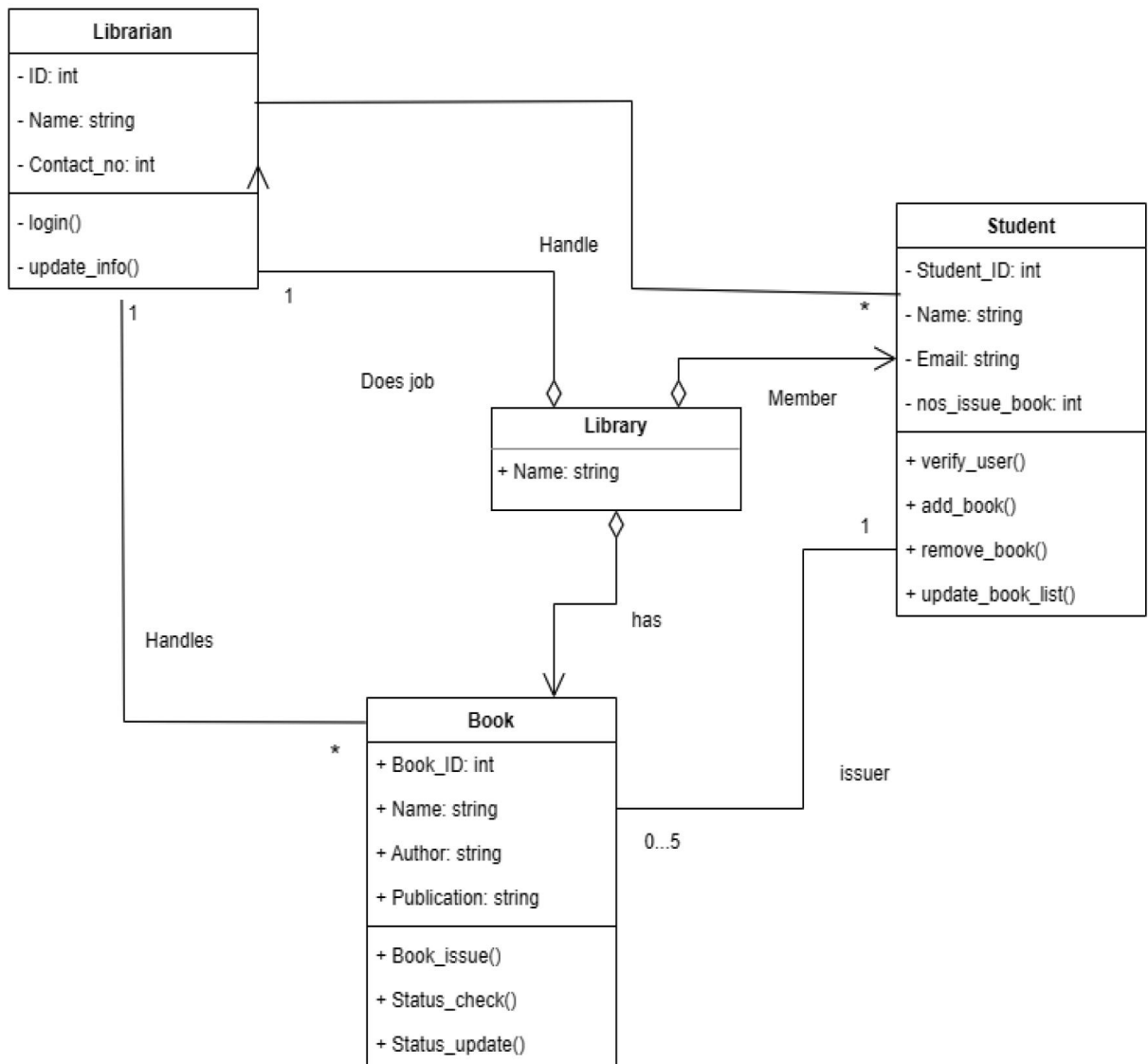
Use Case Diagram :



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



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



Q2. Draw a sequence diagram that represents the examination 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.

