IT313: Software Engineering
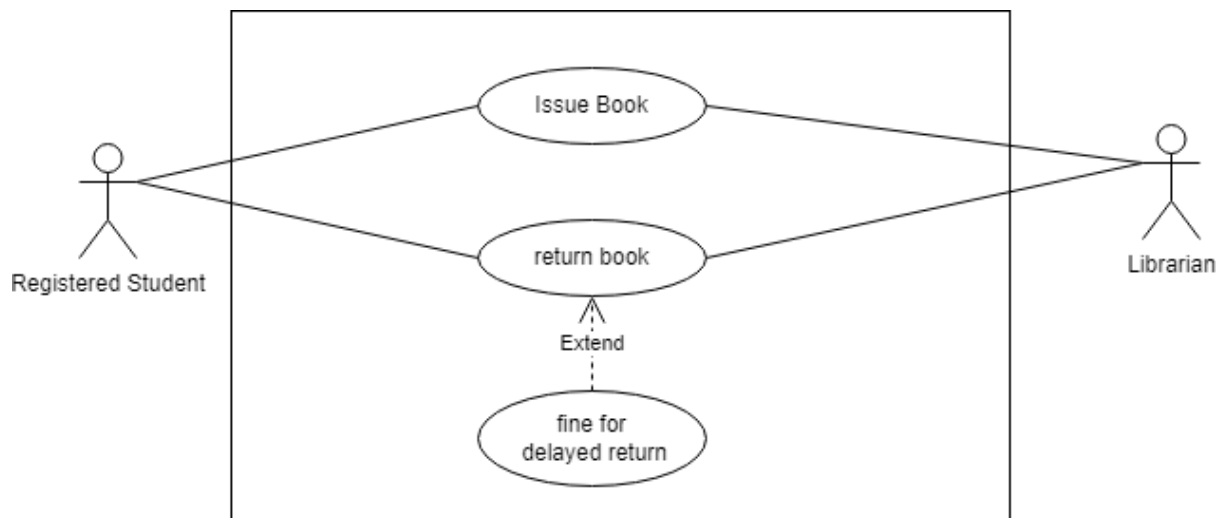# Domain Analysis Modeling & Sequence Diagram

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Q1) Use Case diagram :-

Description: This system is used by students, faculty members and staff for issuing book. In this for students, they can issue available book, and they should return the book. If the return date of book is after the due date the students have to pay some fine for that.

This section should provide a description of both the reason for using the use case and the expected outcome of the use case.

Actors : Students,Librarian,Library

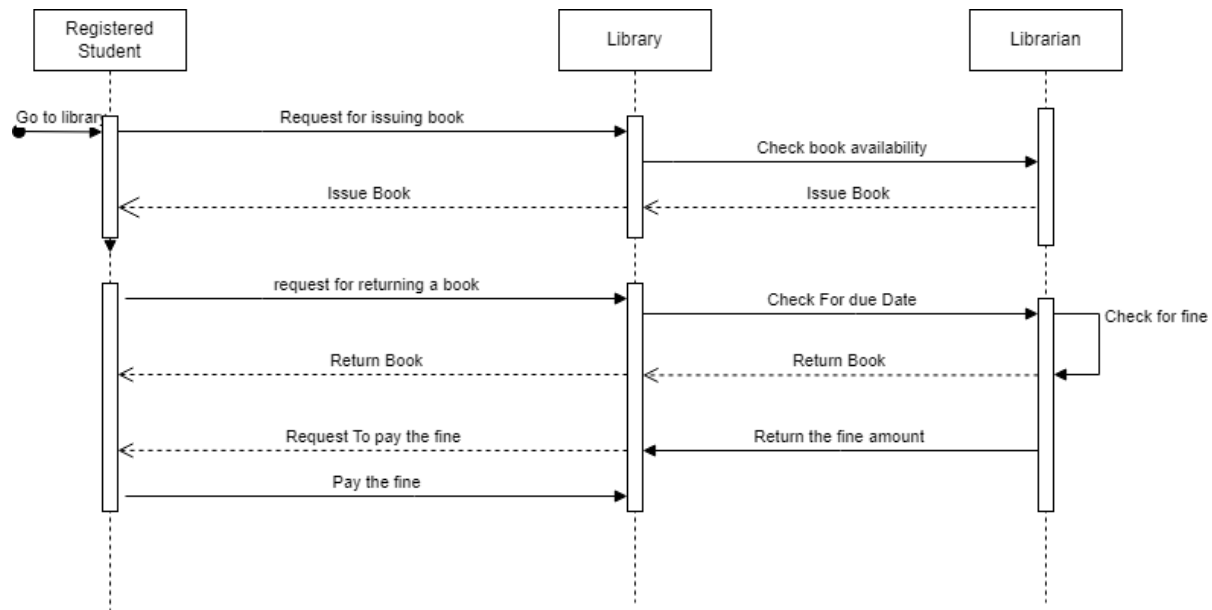**Preconditions**: Student should register in the library.

Trigger: Student comes to library for issuing the book or returning a book.

Flow : The student will come to issue a book for reading, Librarian will check for the availability of book in the library. Then he will issue the book and record it in the library database.
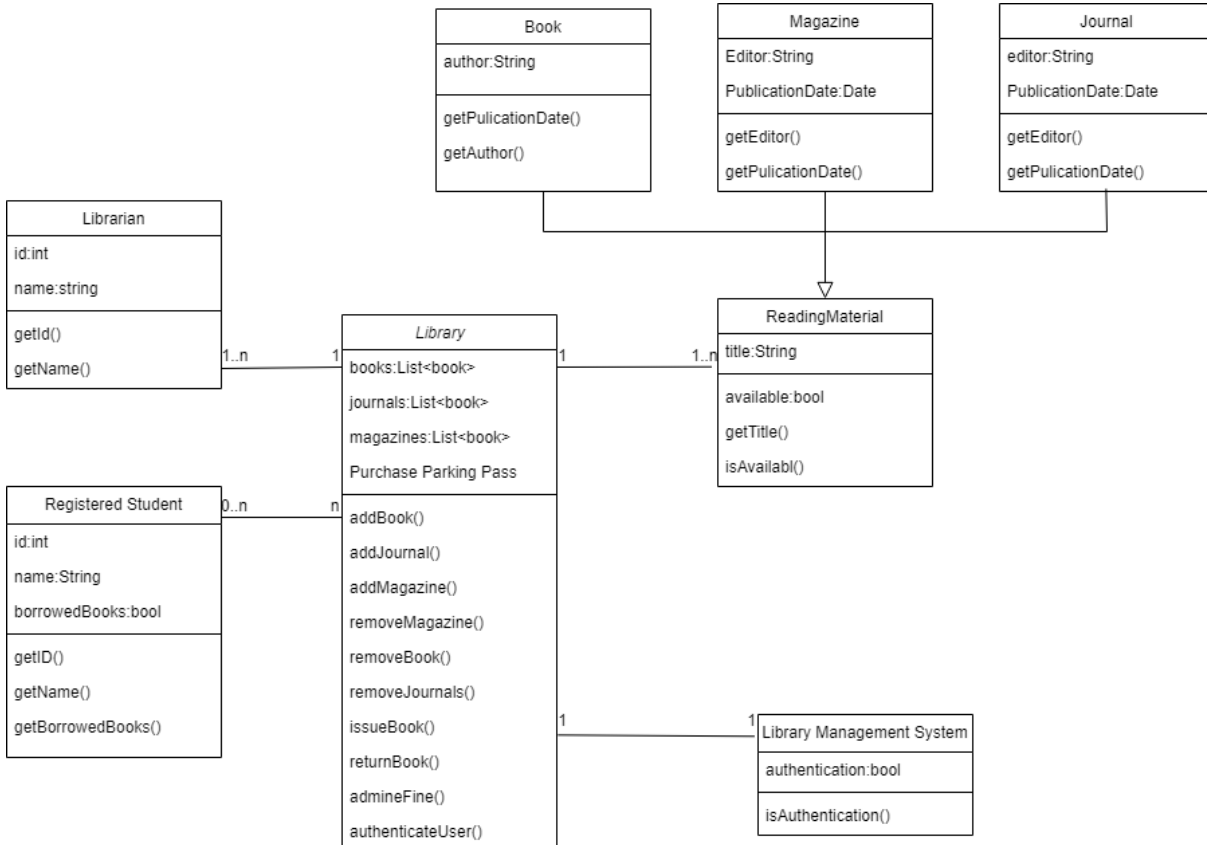
At the time of returning the book, student will return the book, librarian will check the due date, if the student if already late in returning then he/she should pay the fine. Librarian will accept the fine and take the book return and update the database.

Alternative Flow : If the book which student want to read is not available then librarian will notify this to the student.

Sequence Diagram :-
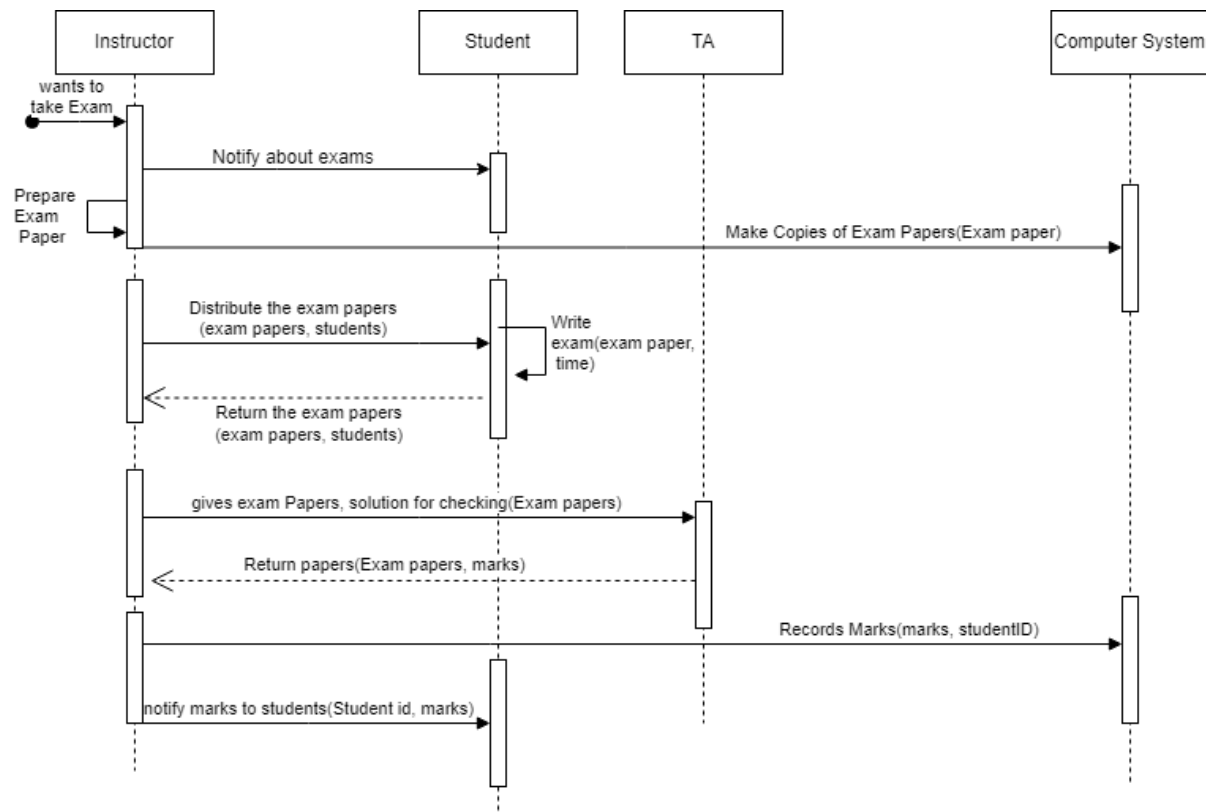
Registered Student	Library	Librarian

Go to library
Request for issuing book →
Check book availability →
← Issue Book
← Issue Book

request for returning a book →
Check For due Date →
Check for fine
← Return Book
← Return Book
← Request To pay the fine
← Return the fine amount
Pay the fine →

Class Diagram :-

Book
author:String
getPulicationDate()
getAuthor()

Magazine
Editor:String
PublicationDate:Date
getEditor()
getPulicationDate()

Journal
editor:String
PublicationDate:Date
getEditor()
getPulicationDate()

Librarian
id:int
name:string
getId()
getName()

Library
books:List<book>
journals:List<book>
magazines:List<book>
Purchase Parking Pass
addBook()
addJournal()
addMagazine()
removeMagazine()
removeBook()
removeJournals()
issueBook()
returnBook()
admineFine()
authenticateUser()

ReadingMaterial
title:String
available:bool
getTitle()
isAvailabl()

Registered Student
id:int
name:String
borrowedBooks:bool
getID()
getName()
getBorrowedBooks()

Library Management System
authentication:bool
isAuthentication()

1..n   1
1   1..n
0..n   n
1   1

Q2)

Sequence Diagram :-

Here, instructor will notify the student about exam, this is a process. The he will set the paper and give this copy to system for copying it, then distribute them to students, students will write the exam and return the papers. Instructor will give this paper to TAs for checking it, TAs will return them and Instructor will entry the marks of papers according to student IDs. Then he will notify the students about their marks. And all these are function of exam papers.