SOFTWARE ENGINEERING

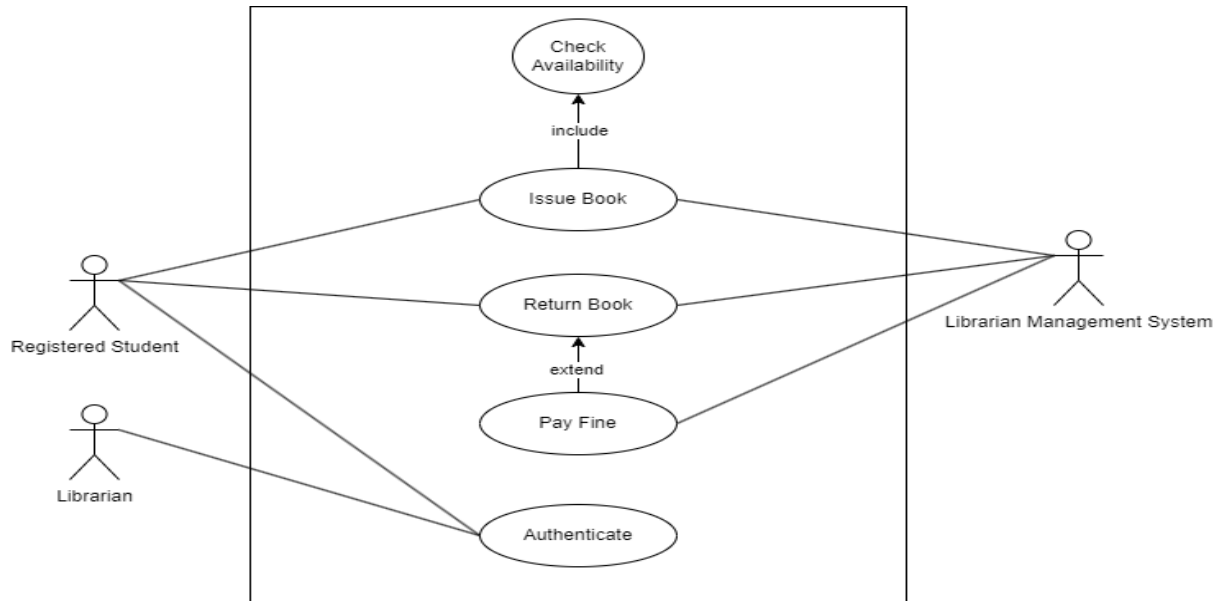## IT313 Lab-7

Name: Darshan G. Sanghavi
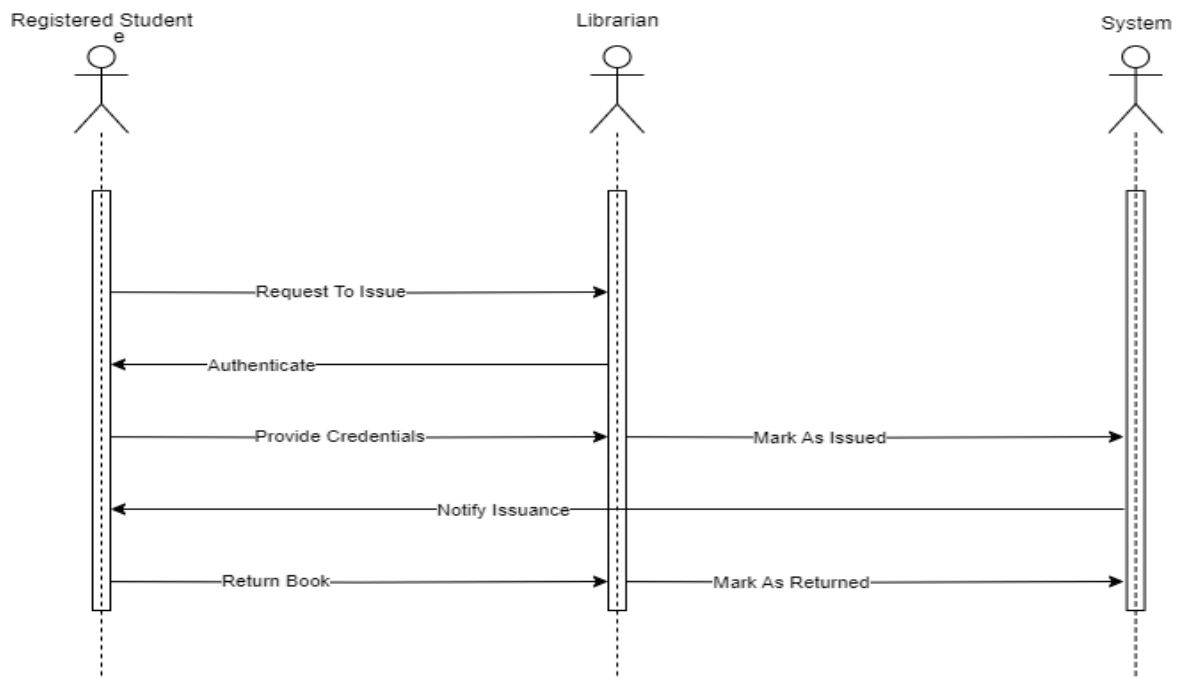Group No.:2
Roll No: 202101150

EXERCISE 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 at the institute, for a specified period. The issued books are to be returned 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."
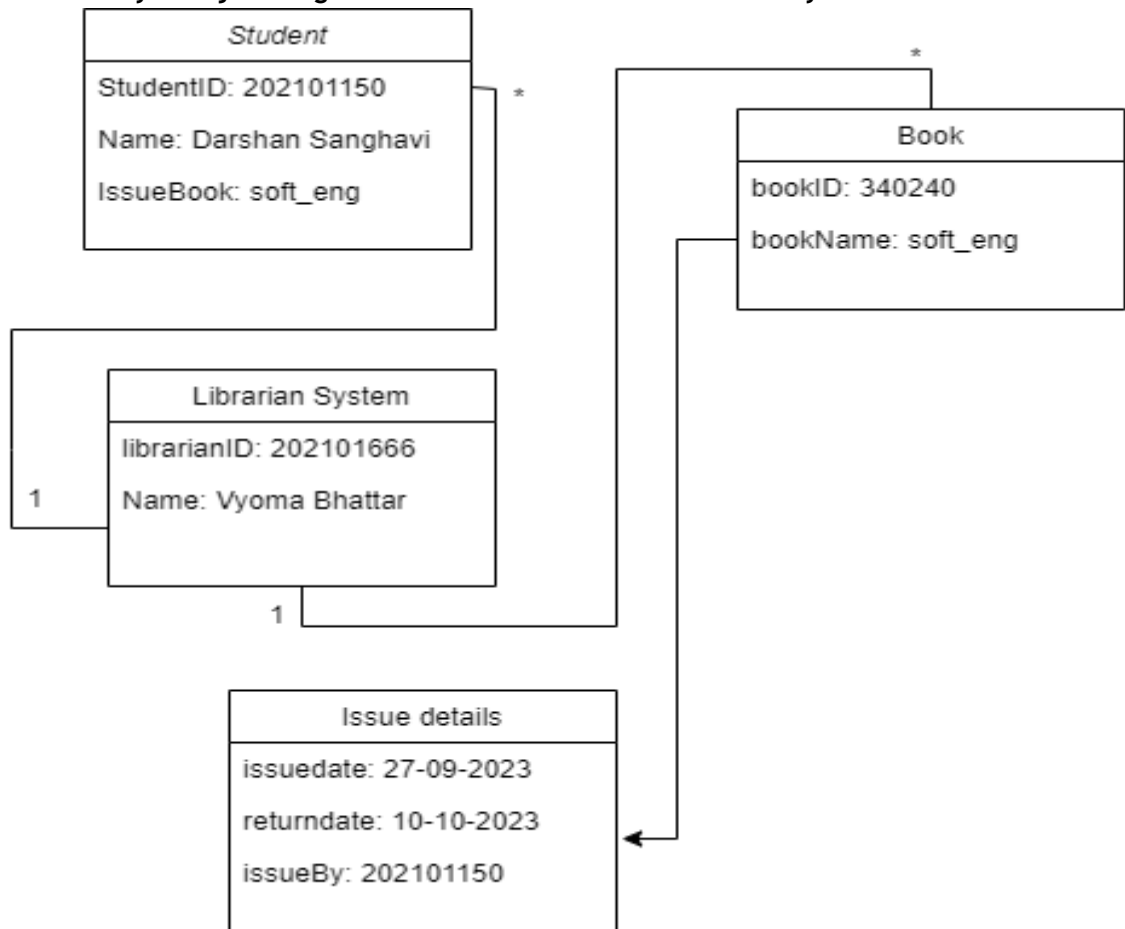
1. Complete the use case diagram for the above problem text along with use case documentation for "issueBook" use case.

2. The sequence diagram for the "issueBook" use case.

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

```
┌─────────────────────────────────┐
│           Student               │
├─────────────────────────────────┤
│ StudentID: 202101150            │
│                                 │
│ Name: Darshan Sanghavi          │
│                                 │
│ IssueBook: soft_eng             │
└─────────────────────────────────┘
```

```
┌─────────────────────────────────┐
│            Book                 │
├─────────────────────────────────┤
│ bookID: 340240                  │
│                                 │
│ bookName: soft_eng              │
└─────────────────────────────────┘
```

```
┌─────────────────────────────────┐
│        Librarian System         │
├─────────────────────────────────┤
│ librarianID: 202101666          │
│                                 │
│ Name: Vyoma Bhattar             │
└─────────────────────────────────┘
```

```
┌─────────────────────────────────┐
│          Issue details          │
├─────────────────────────────────┤
│ issuedate: 27-09-2023           │
│                                 │
│ returndate: 10-10-2023          │
│                                 │
│ issueBy: 202101150              │
└─────────────────────────────────┘
```

USE CASE DOCUMENTATION

Use case name: Issue Book

Description: Represents the process Issuing book

Primary Actors: Registered Students

Secondary Actors: Library, Librarian

Pre-conditions:

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

Post-conditions:

- 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 registered student requests to issue a book.
- The system validates the student's authentication status.
- The system checks if the requested book is available.
- If the book is available, the system marks it as issued to the student.
- The system sets the due date for returning the book.
- The system notifies the student and the librarian about the successful issuance.

Alternate Flows:

- If the book is not available, the system notifies the student that the book cannot be issued now.
- If the user is not authenticated, the system notifies the librarian.

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