End Of Semester Project

Library management system

Developed by :

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I - General Introduction

1-Presentation of the general framework of the project:

Java application for our university library management, it’s a web-based system that allows students and staff to access the library's resources from any device with an internet connection.

2-Subject presentation:

The purpose of this project is to create a user-friendly and efficient library management system that simplifies the borrowing and returning of books, as well as the tracking of library resources.

3-Study and Critique of the existing:

The current library management system is outdated and difficult to use, leading to long wait times and inefficient management of resources.

4-Proposed solutions:

Our Java application will provide a modern and intuitive user interface, efficient resource tracking and management, and seamless integration with existing library databases.

II - Analysis and Specification of Needs

1-Introduction:

The analysis and specification of needs section provides a detailed overview of the functional and non-functional requirements of the application.

2-Identification of actors:

The actors in this system include students, staff and librarians.

3-Identification of needs:

a-Functional needs:

- Student registration: the system must allow librarians to create and update student records.
- Book management: the system must allow librarians to add, update, and delete books from the library.
- Book reservation: students can reserve books for a specified period.
- Book borrowing: students can borrow books from the library.
- Book return: students can return the borrowed books to the library.
- Loan history: students can view their loan history.
- Reports: librarians can generate reports on students, books, and loans.

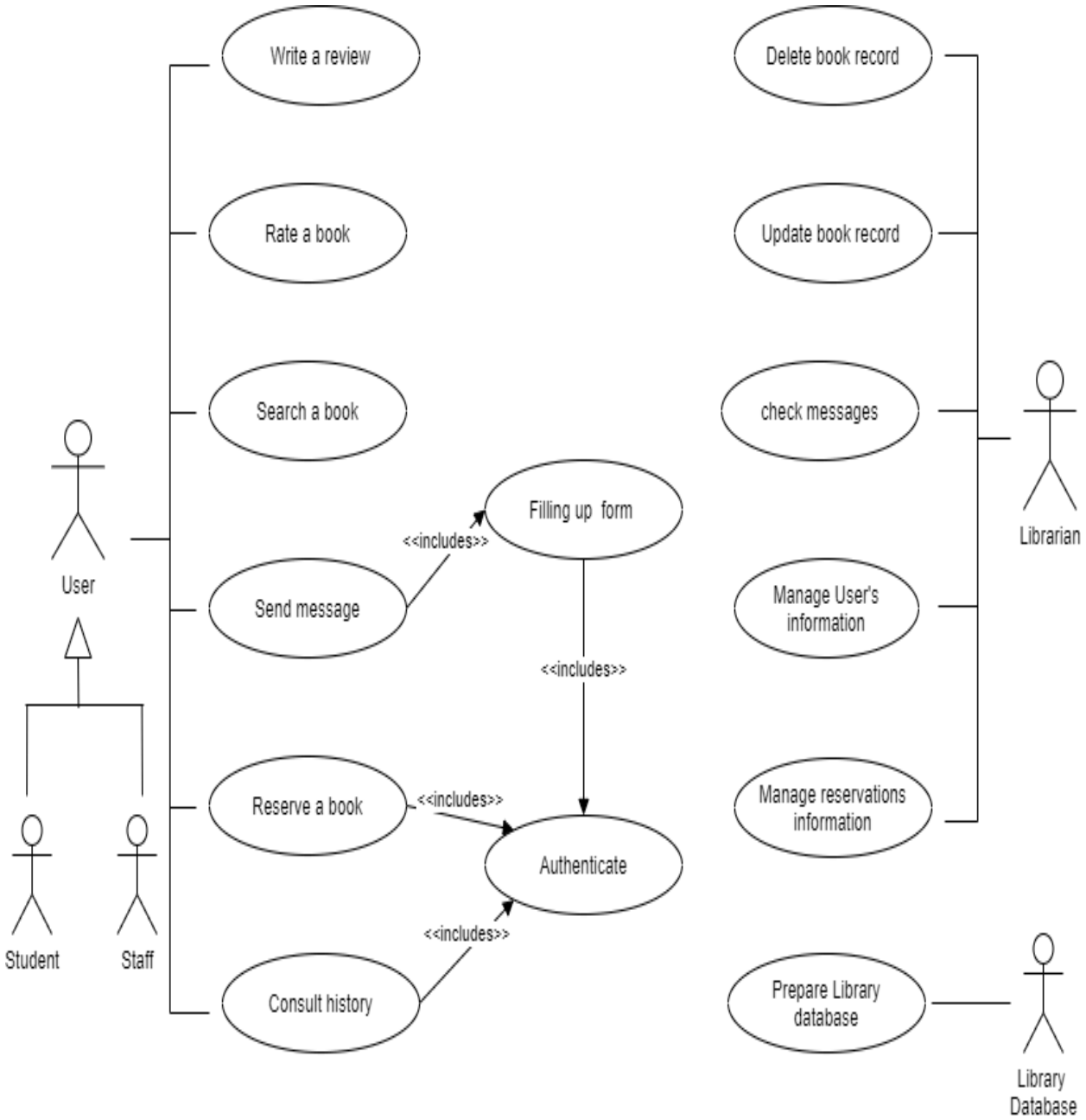
b-Non-functional needs:

- Performance: the system must be able to handle a large number of simultaneous users and transactions without slowing down.
- Reliability: the system must be stable and reliable, with no errors or crashes.
- Security: the system must protect sensitive user information, such as student records and loan information.
- Usability: the system must be easy to use for librarians and students.
- Scalability: the system must be able to adapt to the increase in the number of users and books over time.

4-Identifying Diagrams:

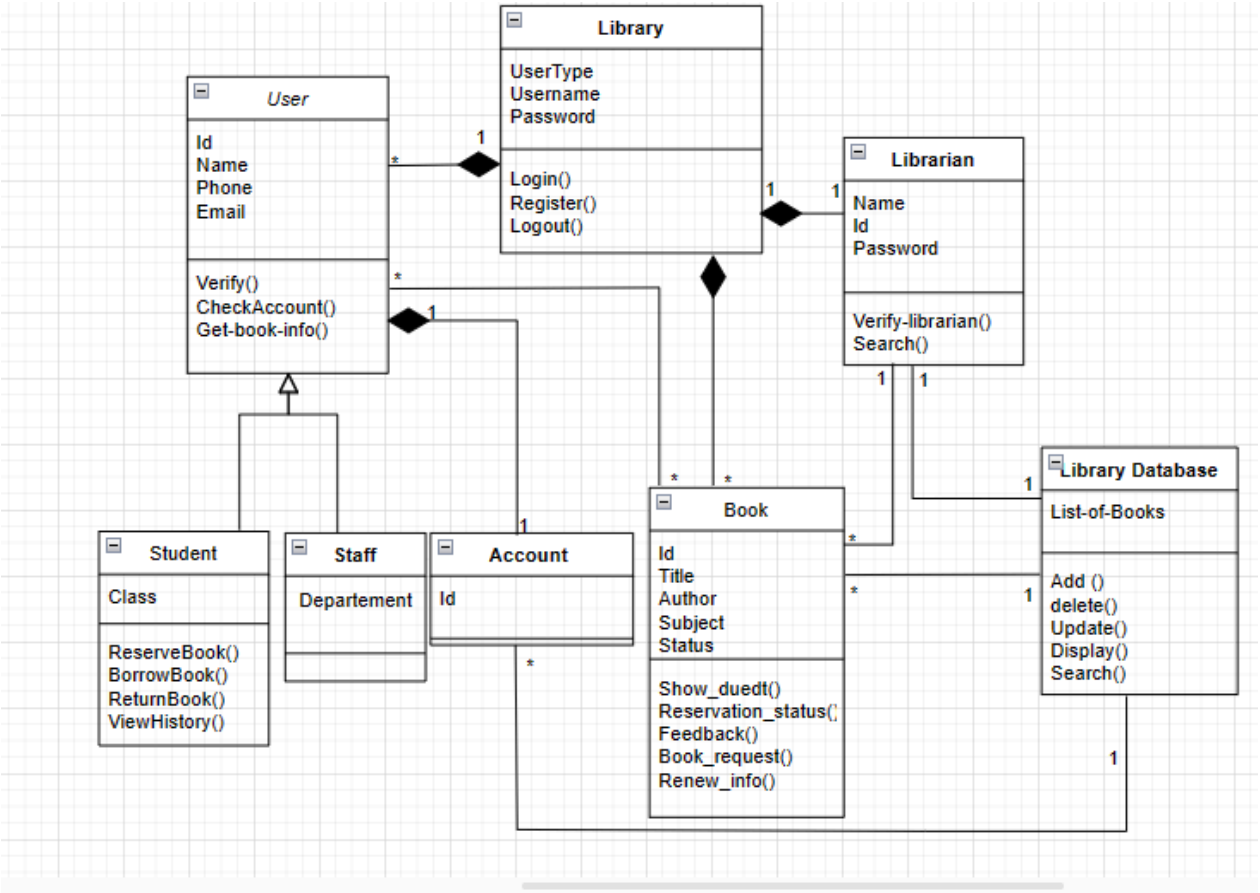
a-Use case diagrams:

A use case diagram shows the relationships between actors and use cases, including borrowing books, managing accounts, and accessing resources.



b-Class diagrams:

A class diagram shows the classes and objects in the system, such as books, users, and transactions.



5-Technologies used:

a-Front-end part:

Angular: A modern and flexible front-end framework for building web applications.

Bootstrap: A popular CSS framework for creating responsive and mobile-friendly designs.

b-Back-end part:

Java: A widely used programming language for building enterprise applications.

Spring Boot: A powerful framework for building web applications using Java.

5-Application interfaces:

a-Book management:

Librarians will be able to add, edit, and delete books from the library's collection.

b-User management:

Administrators and librarians will be able to manage user accounts and permissions.

III - Conclusion

Java application to manage our university library, it will provide an efficient and user-friendly system for managing library resources, with a modern and intuitive interface, fast performance, and seamless integration with existing library databases.