

## Development of Intelligent Library Services for University Students

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### ABSTRACT

The Library is one of the main features of the culture of peoples and individuals. It is the source of access to the information and data needed by researchers and scholars. Libraries have developed and diversified over the course of days and ages, thanks to the development of methods of preserving and installing texts and exchanging them. These libraries were not limited to paper books, but there were electronic services through which information could be accessed under the supervision of library officials. Definition of the Oxford Dictionary: A room or group of rooms containing a collection of books and other materials for use by the general public or a specific group or group belonging to a body or association or the like. Is a collection of books and other materials that are reserved for reading, study and guidance. In the present stage, several universities does not have a special digital library where this system will provide a digital library for the college containing references available to students and faculty members and the faculty member can add any reference and projects of graduation. The article refers to the creation of such intelligent library services to ensure that the proper information reaches the readers and staff members.

**Keywords:** Development; UML; System; Modelling; Analysis; Design; Library; Learning; Education; Artificial intelligence; Intelligent systems.

### 1. Introduction

Development of intelligent systems is gaining popularity these days. Several author like [1-13] have developed intelligent systems to ensure their working model are of immense help to the humanity. The electronic library is, of course, more than a presentational device. To reach a deeper understanding of the impact of information technology on modern libraries, it is worth considering what terms such as electronic library, digital library and hybrid library really mean [14].

Although these terms are often used apparently interchangeably, quite distinct development strands are emerging. For the sake of argument, it is worth distinguishing an electronic library service such as the California Digital Library from digital library services such as the University of Michigan Digital Library or Virginia Digital Library. Such ideas have had great impact [10].

Taking a less radical view perhaps, the Scholarly Publishing and Academic Resources Collection has formed a world-wide alliance of research institutions, libraries and organizations in order to create new partnerships with publishers [15]. From such relationships, a cheaper, technology-based way to disseminate scientific information is envisaged.

#### 1.1. Study Objectives

The main of this system is to transfer the traditional methods that existing now in library to be electronically, in order to achieve the following objectives:

[1] Save time and effort to the user, [2] Saving money is also less expensive, [3] To facilitate the search for books and borrowing, [4] The paper library has dates to reverse the electronic library available throughout the day, [5] Easy ordering and organizing of books, and [6] The method of borrowing electronic books is very easy.

## 2. Materials and Methods

### 2.1. Functional Requirements

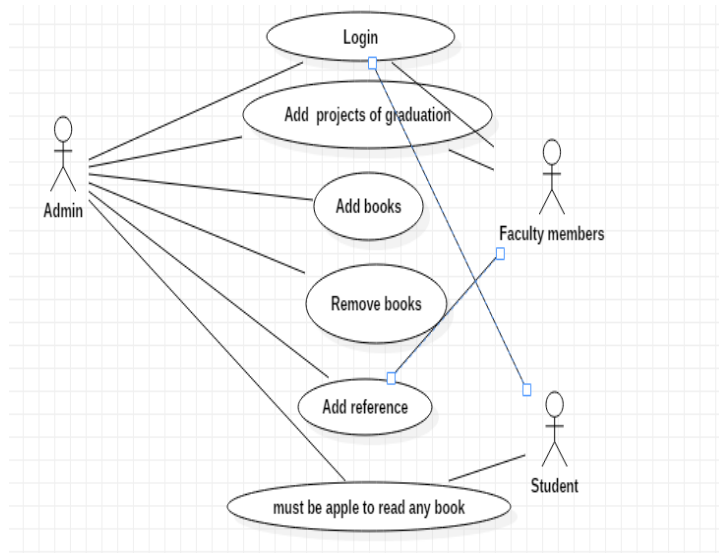
**Faculty members:** 1-Add projects of graduation, 2-Add reference, 3-Login.

**Students:** 1-Login, 2-Must be able to read any book.

**Admin:** 1-Login, 2-Remove books, 3-Add reference, 4-Add projects of graduation, 5-Add books, 6-must be able to read any book, 7-Add projects of graduations.

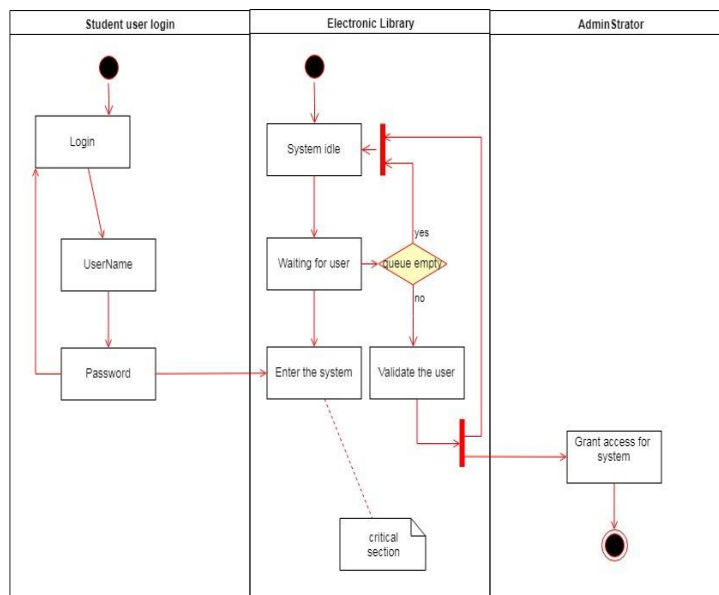
## 3. System Design and Modelling

### 3.1. Use Case Diagrams

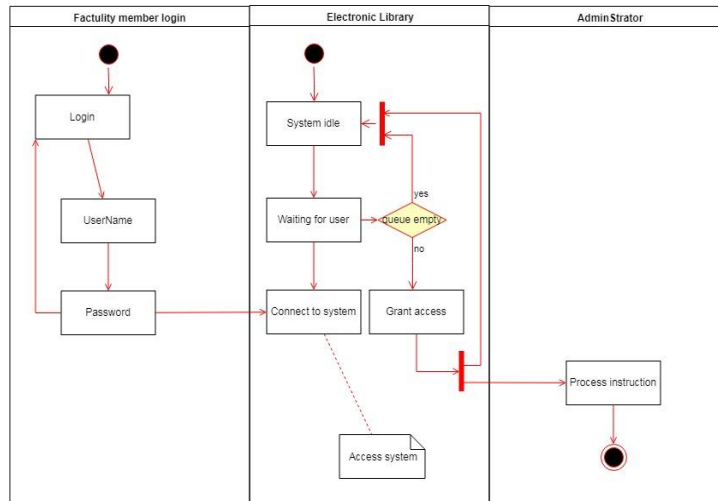


**Figure 1.** System Use Case Design

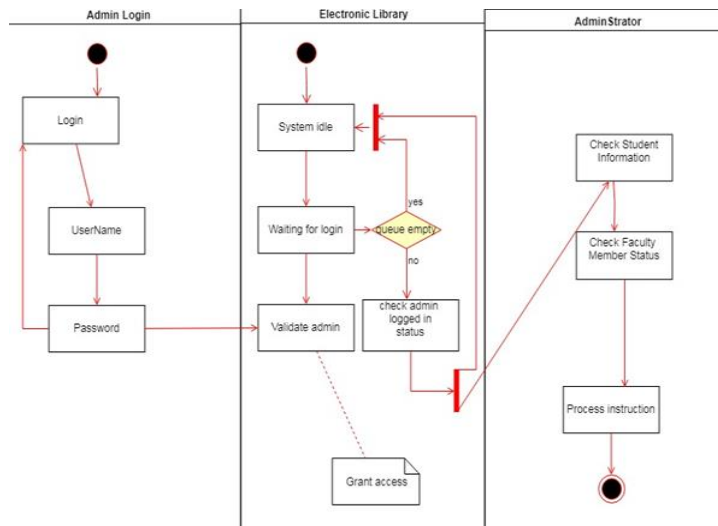
### 3.2. Activity Diagram



**Figure 2.** Activity Diagram for Student Engagement

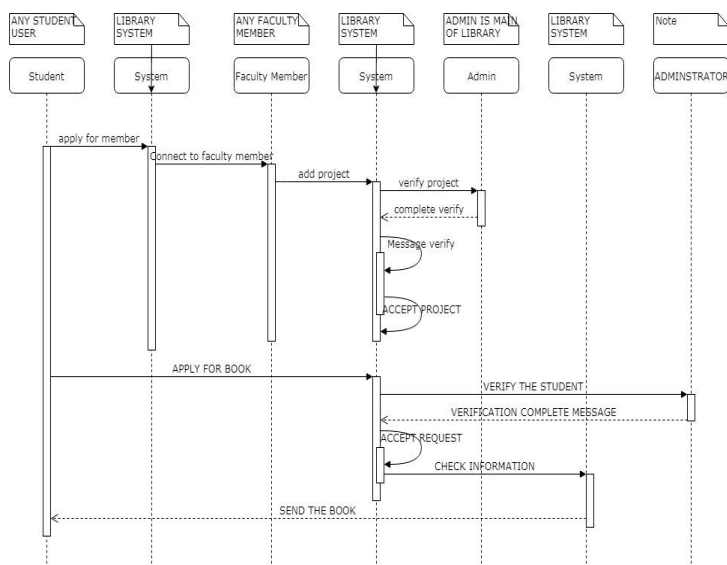


**Figure 3.** Activity Diagram for Staff Engagement

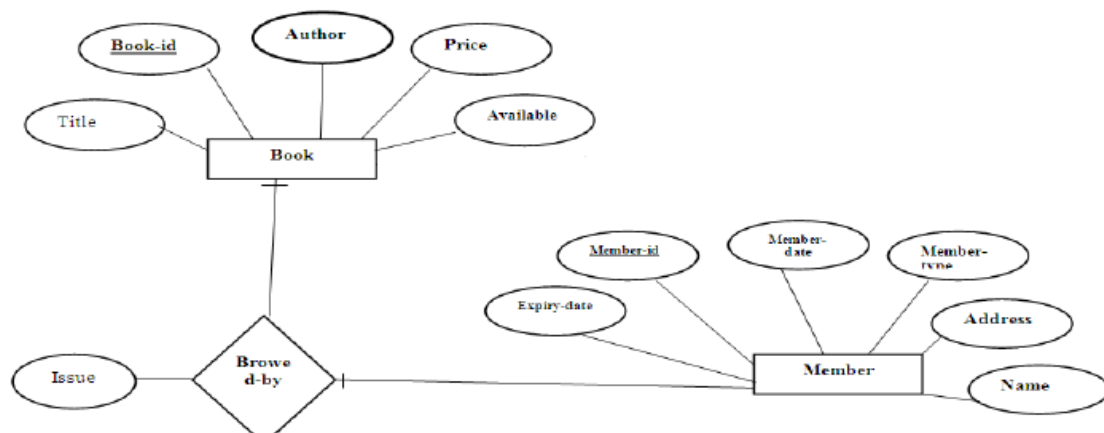


**Figure 4.** Activity Diagram for the Admin Engagement in System

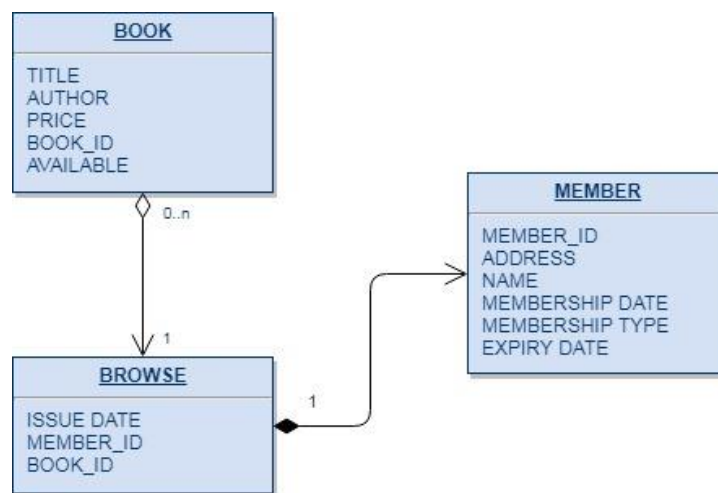
### 3.3. Sequence Diagram



**Figure 5.** Sequence Diagram for the complete system



**Figure 6.** ER Diagram for the proposed system



**Figure 7.** Database Class Diagram

#### 4. Conclusion

It is identified in this article that the need for library services is increasing day by day. However, the intelligent library service performs the following tasks:

- a. Communicative function: the place where people meet and meet and increase their bonds of love.
- b. educational function: Developing the spirit of reading in individuals and encouraging them to do so educational function: Contribute to the building of an individual personality distinct and capable of creativity and communication.
- c. Reference Function: Save human history and sequence of achievements on inventions and discoveries.

#### 5. Future Recommendations

The designed system will be helpful for providing resources to the entitled stakeholders on time and with the required eligibility. However there is a slight scope for future work as well:

- a. Intelligent management of resources using artificial intelligence.
- b. Digitization of data using the proper management of books and articles.

c. Proposed connection between well-known online databases of articles and resources.

d. Introducing Generative AI to the developed system.

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#### **Competing Interests Statement**

The authors have declared that no competing financial, professional or personal interests exist.

#### **Consent for publication**

All authors contributed to the manuscript and consented to the publication of this research work.

#### **Availability of data and material**

Supplementary information such as the raw files are available from the authors upon reasonable request.

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