



# LIBRARY MANAGEMENT SYSTEM

EEX3467- SOFTWARE ENGINEERING AND CONCEPT

Mini Project

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## INTRODUCTION

Library plays an important role in every society as it contributes immensely to the development of education through acquisition of knowledge. A Growing number of companies now embrace the use of the library due to adequate information dissemination to their staff and esteemed customers.

Traditionally, organizations have conducted businesses on paper. Preprinted formats were most widely used to exchange information between businesses. As the number of transactions between different organizations and their customers increased over the years, there was a need for a more effective way of communicating and processing business data.

Managing a large scale library system requires lots of transactions to be generated, it is therefore necessary to setup a more efficient way of managing these data with the help of a Library Management System.

A Library management system (L.M.S) is a computerized system that helps in managing and monitoring the library's daily activities in electronic format thereby reducing risks such as file lost, file damage and time-consuming. This system supports the general requirement of the library services like acquisition, cataloguing, circulation, monitoring and report generation of library materials.

The new generation of systems facilitates the development of the electronic library through the use of a web server which allows both local and remote access to library resources from anywhere in the world through a network.

## LIBRARY DETAILS

Library Name: Public Library

Librarian : Miss. Thavarasa Sivarani

Contact details : 077 6718944, 0652222484

Gmail : [battiplb@gmail.com](mailto:battiplb@gmail.com)

Address: Batticaloa Public Library

Opening Hours: Monday- Sunday (8.30 am- 7.00 pm) except Wednesday

Members: 1511

Books: 38000 approximately

Returning the book : between 14 days

Fine : 5/= per day for a book

Renewal: after 1 year

No.of.section : 6

- Children Section
- Lending Section
- Reference Section
- Paper Section
- E-section

Payment mode : Mannual/ Online

## STAKEHOLDERS OF THE SYSTEM

Stakeholder meaning describes someone who has a direct or indirect interest in the company's operations, activities, or consequences, such as a person, group, organization, government, or other institution.

Library management system stakeholders are,

1. Librarian – Responsible for library system, Counter service, lending
2. System Manager – Ensure system works properly, respond to problems, communicate with the system supplier, order new books for library.
3. Library Administrator – Manage finance and resources.
4. Library Assistant – Issue the renew library items and deal with queries and inter library loan requests.
5. Library user(member) - Use facilities offered by the library including borrowing library materials, inter library loan, reservation and renewal of library materials.

## REQUIREMENTS ELICITATION METHODOLOGY

Requirements Elicitation is obtaining information from stakeholders. In other words, once the business analysis has communicated with stakeholders for understanding their requirements, it can be described as elicitation. It can also be described as a requirement gathering. So, I did my Requirement Elicitation by communicating with stakeholders directly.

In this project, my Requirement Elicitation methodology is “Interviewing” which I followed.

Interview techniques should be used for building strong relationships between business analysts and stakeholders. In this project I directs the question to stakeholders to obtain information. One to one interview is the most commonly used technique. So, I followed some basic rules before the interview. They are, Identify the interviewees in advance through the phone call and got permission, Interview questions should be prepared before the interview and time limit of the interview.

Oral interview (viva-voice) gives me an opportunity for personal interaction between me and interviewee, the interview helps to evaluate or justify subjective aspects of the interviewee, get motivated, Facial expressions and gestures help me to communicate in a better way because the message can be reinforced with the help of tone, pitch, and intensity of the speaker’s voice. And this is a no-cost communication because there is no involvement of instruments or accessories. Only physical appearance or presence is sufficient to be involved in such a conversation. Finally, I did my Interview with an effective way.

## SYSTEM ANALYSIS

### SOFTWARE REQUIREMENT SPECIFICATION

#### 5.1.1 GENERAL DESCRIPTION

##### PRODUCT DESCRIPTION:

Library Management System is a computerized system which helps user(librarian) to manage the library daily activity in electronic format. It reduces the risk of paper work such as file lost, file damaged and time consuming. It can help user to manage the transaction or record more effectively and timesaving.

##### PROBLEM STATEMENT:

The problem occurred before having computerized system includes:

☐ File lost

When computerized system is not implemented file is always lost because of human environment. Sometimes due to some human error there may be a loss of records.

☐ File damaged When a computerized system is not their file is always lost due to some accident like spilling of water by some member on file accidentally. Besides some natural disaster like floods or fires may also damage the files.

❑ Difficult to search record

When there is no computerized system there is always a difficulty in searching of records if the records are large in number.

❑ Space consuming

After the number of records become large the space for physical storage of file and records also increase if no computerized system is implemented.

❑ Cost consuming

As there is no computerized system the to add each record paper will be needed which will increase the cost for the management of library.



### 5.1.2 SYSTEM OBJECTIVES

☐ Improvement in control and performance

The system is developed to cope up with the current issues and problems of library.

The system can add user, validate user and is also bug free.

☐ Save cost

After computerized system is implemented less human force will be required to maintain the library thus reducing the overall cost.

☐ Save time

Librarian is able to search record by using few clicks of mouse and few search keywords thus saving his valuable time.

☐ Option of online Notice board

Librarian will be able to provide a detailed description of events.

## SYSTEM REQUIREMENTS

### NON FUNCTIONAL REQUIREMENTS

#### ➤ Product Requirements

##### EFFICIENCY REQUIREMENT

When a library management system will be implemented librarian and user will easily access library as searching and book transaction will be very faster.

##### RELIABILITY REQUIREMENT

The system should accurately perform member registration, member validation, report generation, book transaction and search.

##### USABILITY REQUIREMENT

The system is designed for a user friendly environment so that student and staff of library can perform the various tasks easily and in an effective way.

##### IMPLEMENTATION REQUIREMENTS

In implementing whole system, it uses html in front end with php as server side scripting language which will be used for database connectivity and the backend i.e. the database part is developed using MySQL.

## FUNCTIONAL REQUIREMENTS

### 1.1 USER LOGIN

#### Description of feature

This feature used by the user to login into system. They are required to enter user id and password before they are allowed to enter the system. The user id and password will be verified and if invalid id is there user is allowed to not enter the system.

#### Functional requirements

- user id is provided when they register
- The system must only allow user with valid id and password to enter the system
- The system performs authorization process which decides what user level can access to.
- The user must be able to logout after they finished using system.

### 1.2 REGISTER NEW USER

#### Description of feature

This feature can be performed by all users to register new user to create account.

#### Functional requirements

- System must be able to verify information
- System must be able to delete information if information is wrong

### **1.3 REGISTER NEW BOOK**

#### Description of feature

This feature allows to add new books to the library

#### Functional requirements

- System must be able to verify information
- System must be able to enter number of copies into table.
- System must be able to not allow two books having same book id.

### **SEARCH BOOK**

#### Description of feature

This feature is found in book maintenance part. we can search book based on book id, book name, publication or by author name.

#### Functional requirements

- System must be able to search the database based on select search type
- System must be able to filter book based on keyword entered
- System must be able to show the filtered book in table view

## **1.5 ISSUE BOOKS AND RETURN BOOKS**

### Description of feature

This feature allows to issue and return books and also view reports of book issued.

### Functional requirements

- System must be able to enter issue information in database.
- System must be able to update number of books.
- System must be able to search if book is available or not before issuing books
- System should be able to enter issue and return date information

## EXISTING VS PROPOSED SYSTEM

1.Existing system does not have a facility of online reservation of books whereas proposed system has a facility of online reservation of books.

2. Existing system does not have any facility of online notice board where description of events.

3. Existing system does not have any option of video notes uploaded by teachers whereas proposed system will have this facility.

4. Existing system does not have any facility to generate student/ member reports as well book issue reports whereas proposed system provides librarian with a tool to generate reports.

5. Existing system does not have any facility for book request and suggestions whereas in proposed system after logging in to their accounts student can request books as well as provide suggestions to improve library

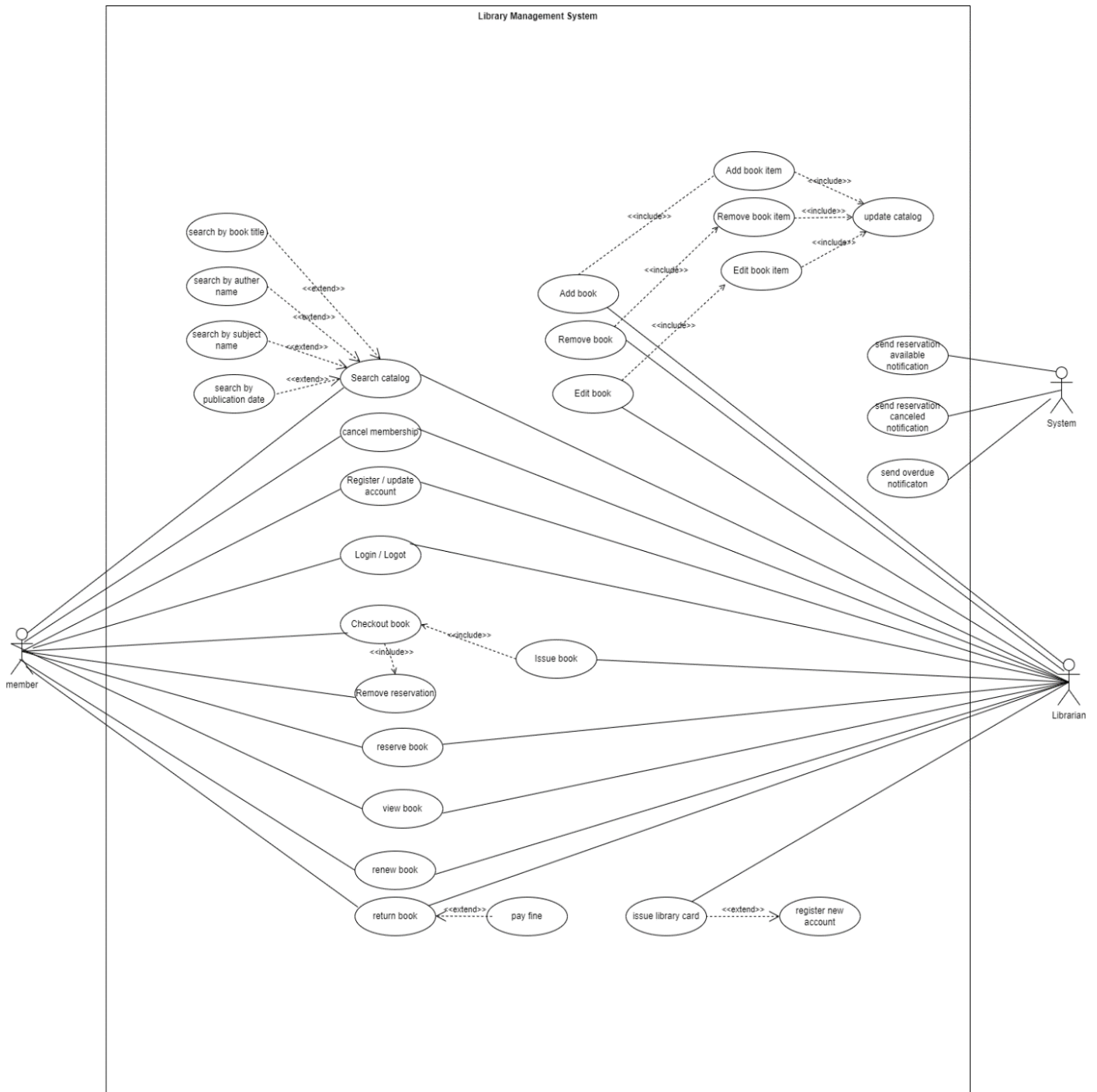
## BUSSINES ACTORS

Business Actor is an organizational entity capable of performing behavior. The Business Actor is someone who performs behavior assigned to a business role. The Actor may be a person, group, department, business unit.

There are three main actors in Library Management System. They are,

1. Librarian: Mainly responsible for system like adding and modifying books, book items and users, issue, reserve, and return book items.
2. Member: All members can search the catalog, as well as check-out, reserve, renew, and return book.
3. System: Mainly responsible for sending notifications for overdue books, canceled reservation.

# USE CASE DIAGRAM





## USE CASE NARRATIVE

Library Management System		
Author(s): A.R.F.ILMA	Date:12-05-2022	
Use-Case Name:	Library Management System	Use-Case Type Business Requirements: Library Books Requirements
Use-Case ID	S92060869	
Priority:	Medium	
Source:		
Primary Business Actor:	Member	
Other Participating Actors:	<ul style="list-style-type: none"> <li>• System</li> <li>• Librarian</li> </ul>	
Other Interested Stakeholders:	<ul style="list-style-type: none"> <li>• Library Administrator – Manage finance and resources.</li> <li>• Library Assistant – issue the renew library items and deal with queries and inter library loan requests.</li> </ul>	
Description:	<p>This type of use case diagram determines developing a computerized system to maintain all the daily work of library. It has many features which are generally not available in normal library management systems like facility of user login and a facility of teacher's login.</p> <p>It has also a facility where student after logging in their accounts can see list of books issued and its issue date and return date and also the students can request the librarian to add new books by filling the book request form.</p> <p>Overall it is being developed to help the students as well as staff of library to maintain the library in the best way possible and also reduce the human efforts.</p>	

## SUMMARY

The newly developed library management system as discussed earlier solves problems experienced using manual based system as it provides for quick data generation that saves time. The security of the new system is catered for by supplying username and password to authenticate valid users and disallow invalid users to access the system. The system is able to generate reports, which can be used for monitoring and decision-making. The system is user-friendly, and was designed in a way that it does not require much computer skills. The system has the capability to maintain a database of all archived books in the company by allowing the library coordinators to add, view, update, delete and generate reports from the database. So, it is being developed to help the students as well as staff of library to maintain the library in the best way possible and also reduce the human errors.

## CONCLUTION

The realities of digital information processing require that access is provided in a widely distributed manner, and it is up to the user to locate what is needed. The ability to call up all relevant information at the click of a mouse. The library management system project aims at developing a software infrastructure that enables those who manage and maintain such collections to make them electronically and publicly available. The entire company stands to benefit greatly from the system, because it will enable updates, retrieval, deletion, and generation of status reports according to the existing demands.

## REFERENCES

- [Object-Oriented Analysis And Design — Introduction \(Part 1\) | by Omar Elgabry | OmarElgabry's Blog | Medium](#)
- [What is Requirements Elicitation?](#)
- [Requirement - Wikipedia](#)

## APANDIX

### Interview with the Librarian

1. As the librarian, what is your structural relationship with the library staff and its materials? How do you fit in this structure?
2. How many archive units are in this library?
3. How many members of library staff are present?
4. Do the librarians produce and submit periodical reports to you? If so, what type of reports and how often?
5. How do you monitor performance of these units? (is your monitoring system manual or automated?)
6. How is stock inventory taken for all books in the company? Do you have a database for these books?
7. What are the processes involved in monitoring archived books?
8. Are the various archived books linked with each other in any way?
9. Do you have any form that users fill in order to borrow or use books? If yes, can I have a sample?
10. I heard that the library unit receives donations in form of books directly from partners and customers. Do these automatically enter into your system? If not, then to who are these remitted to?

## BORROWER'S CARD

Public Library Batticaloa.

Book No.....

Author .....

Title .....

Registration No .....

Date	Borrower's Name	Registration No	Sign	Due Date