Library Management System - Xenesis

(LMS)

Software Requirement Specification Document V 1.0

Team Xenesis

Xenesis.lib@gmail.com

Creators of Xenesis :

Group Leader :
 1) Suryansh Trivedi

Other Contributors :

2) Sankalp Patel

3) Utkarsh Gumphekar

4) Shivansh Pratap

5) Umair Qureshi

6) Rajat Gour

7) Raghav Partani

8) Ritvik Dubey

Table of Contents

Disclaimer

This Software Requirements Specification document is a guideline. The document details all the high level requirements. The document should be used as a guideline by the students to design the Library Management project. The document also describes the broad scope of the project and high level DB requirements are captured in the DB specification. But while developing the project if the student has a valid point to **add more details being within the scope specified** then it can be accommodated after consultation.

1.Introduction

With the increase in the number of readers day by day in our institute **SVVV**, better management of libraries system is required. The Library management system focuses on improving the management of libraries in a city our institute. "What If you can check whether a book is available in the library through your phone?" or "what if instead of having different library cards for different libraries you can just have one ?" or "you can reserve a book or issue a book from your phone sitting at your home!". The Integrated Library Management system provides you the ease of issuing, renewing, or reserving a book from an library within your institute through your phone. The Integrated Library Management system **(LMS)** is developed on the library computer system with a website to support students logging in from anywhere which basically focuses on issuing, renewing and reserving a book.

2.Purpose

The purpose of the project is to maintain the details of books and library members of different branches. The main purpose of this project is to maintain a easy circulation system between students and the libraries, to issue books using single library card, also to develop a software to which helps issuing and deposit a book through student login and update the book database from administrator login with some administrator feature comes with our library management system(**LMS**) andto maintain details about the user (fine, address, phone number).Moreover, the user can check all these features from their home.

3. Scope

This document describes the scope of the requirements for the Library Management System (LMS) for **SVVV**. The document details all the high level requirements with intent to validate **SVVV** requirements. This document should be used by the student to design the Library Management project. In addition to this, the document also describes the broad scope of the project. The scope of the project involves the integration of a subset of all the components of current IT environment. The Library Management System (LMS) should interface with the Librarians and students.

The system must maintain central data for effective library management, Student login, student signup, administrator login, administrator signup. The system should process the online student's request for book issuing, Xenesis: Library will also contain the book availability data, book returning date. The database will also contain the reference book of each subjects. The administrator privileges will contain the access to all the student's data and would be able to manage all the student record like payments, renewing E-lib card and also generate various reports about the books. There is also the need to have an interface for students where they can view all the details about their E-lib id and also see the book availability anywhere. The system must maintain all details about Library allocation transaction of penalty of the student. The scope of the project also involves the development of

the interfaces with the existing one which is totally manual working type to the semi/automated library management system, which will contain all the student record about their book issuing, availability of books, E-lib card which can be used for one book issuing detail, book returning details. Account system that validates the student and librarians/administrator helps in easy communication between operator the system and thus ease of management in Library.

4.Assumptions

The following are the assumptions for this document

1. The librarian and library staff is responsible for library allocation.

2. The system also has an interface with the Student, Books Management and library fine.

3. Only Registered student can browse / search for books and have an access to Librarybooks.

5. Management Summary

SVVV is a engineering college in India. **SVVV** is wants to manage their library properly . Students are provided with the facility of Library. Currently, the studentsare not able to issue

books properly.   Many students have expressed wastage of time inwaiting in queue issuing, deposition of books , library fine payment, complaint registration -etc. To maintain the trust and reduce the time, SVVV has decided to add a Library Management System.

SVVV, Indore is a renowned university of Indore . SVVV is trying to expand their Library and would like to provide an automated library management system. **One of the most important part of an institution is library management .** Students are provided with the facility of making their E-lib Id , and the administrator will also be provided the ease of managing the student data available and edit it , Administrator will also be able to manage all the data of books.

In our software Xenesis there will be a separate database for books issue and the penalty of late submission etc. Currently , the student have to visit the Library physically to issue a book . While doing so a great time is wasted in finding books in racks , check the availability of books etc.   of time in application, Xenesis:Library charges payment, complaint registration -etc. Some of the customers have also questioned the transparency of

Xenesis : Library allocation . To maintain the trust and reduce the

 Xenesis : Library Service cycle time , the library has decided to add the Service of Xenesis : Library application, Complaint registration and

Xenesis : Library charges payment on their web portal.

6. Flow Chart of Xenesis :
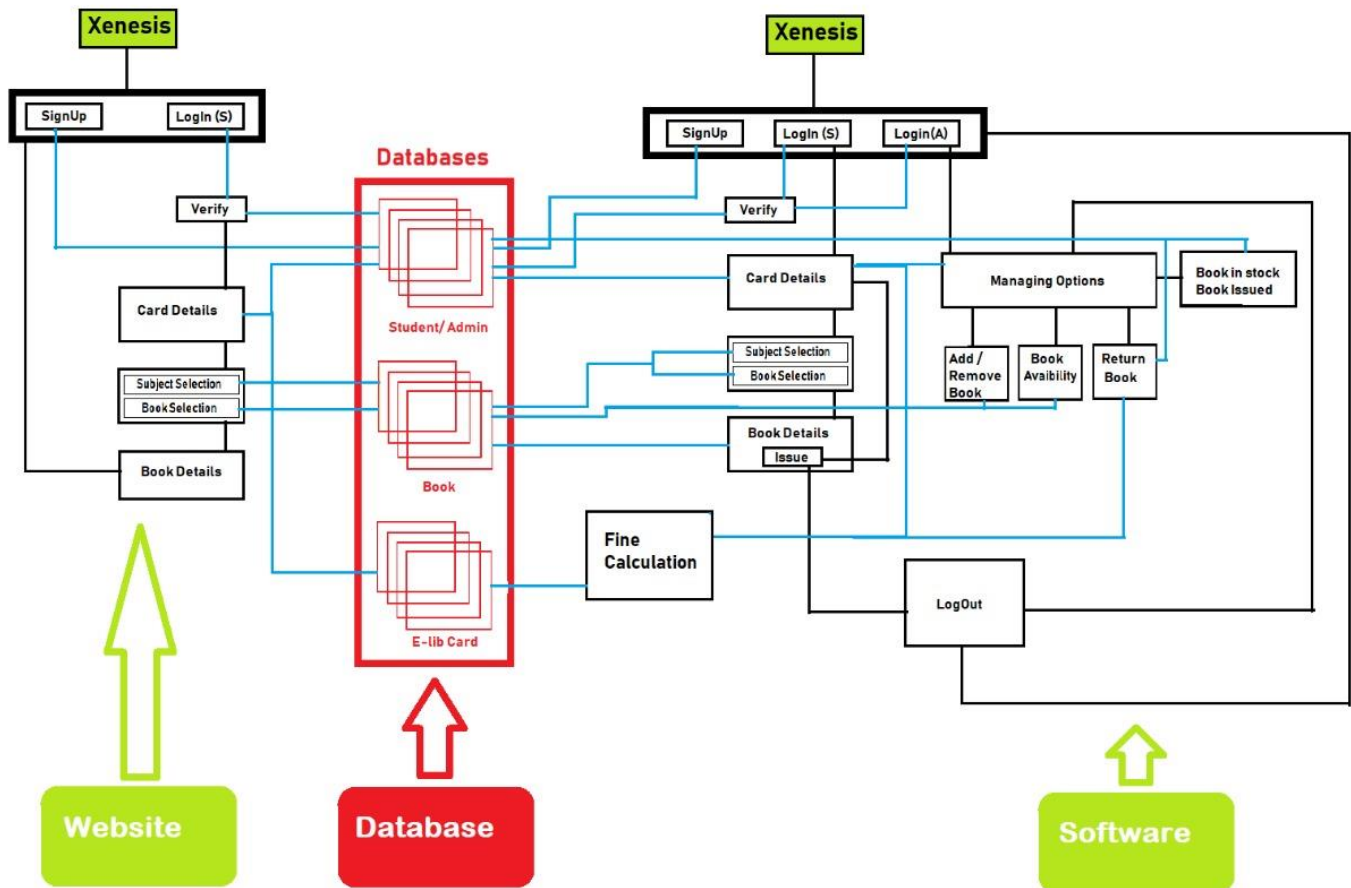
7. System Objectives / Overview

Figure 1 System Context Diagram
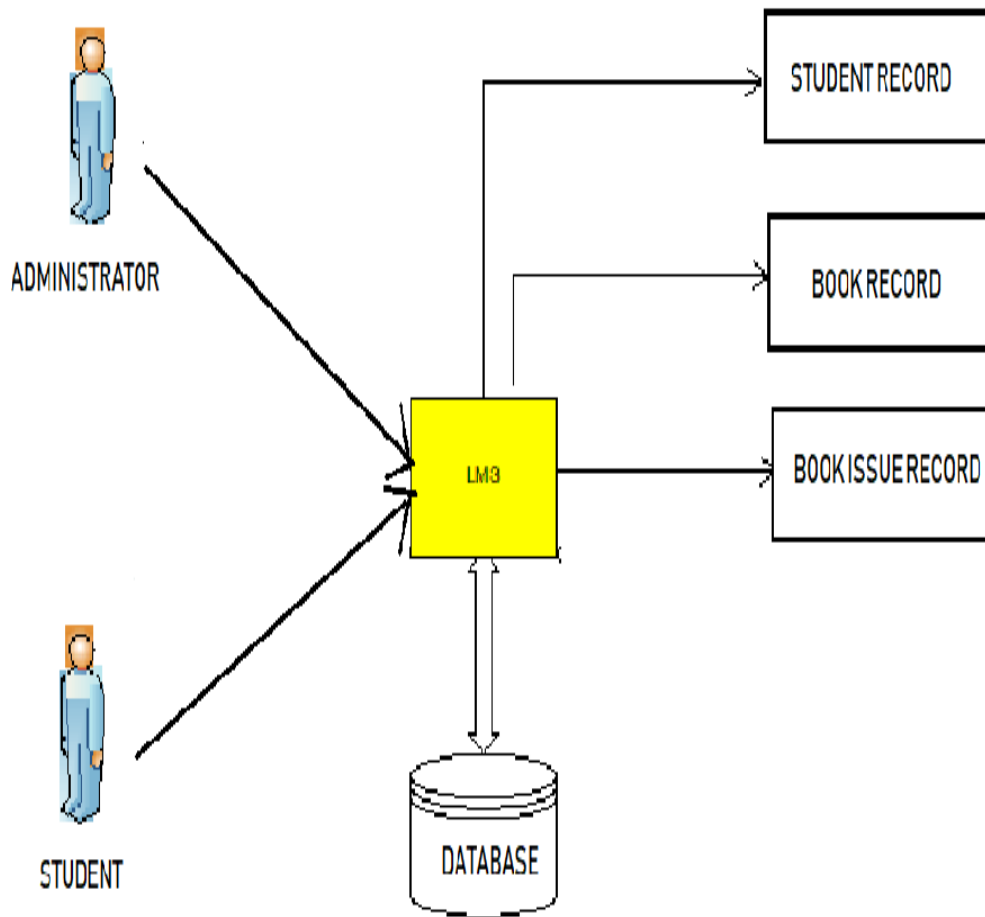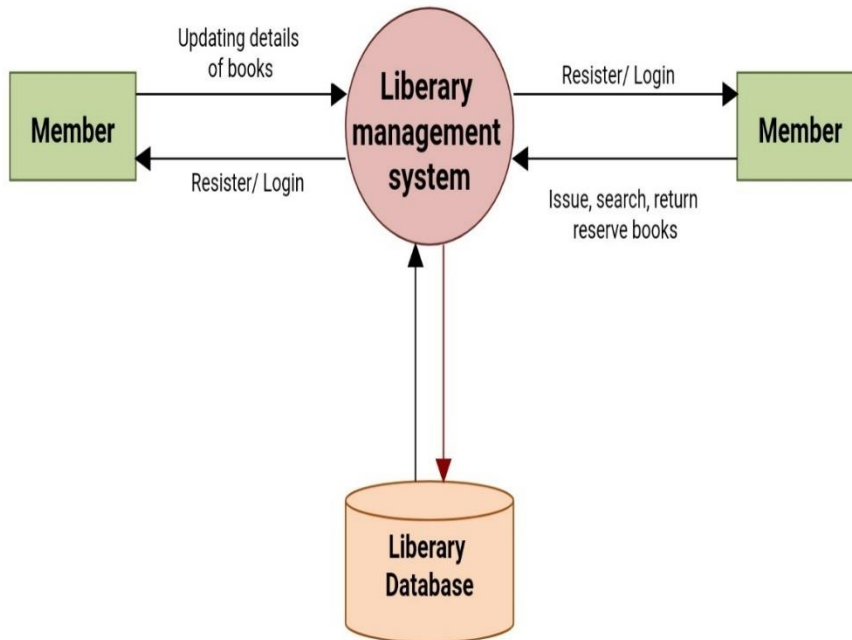
The diagram above explains the main conceptual elements in the Library Management System. The Library Management System (LMS) component interacts with the Students, books management system and Administrator. These systems receives requests from librarian and students . Librarian will maintain library details through the administrator which in turn will be accessed by the students

Library Management System (LMS)	Library Management System which is to be developed. It manages all the librarymanagements of SVVV by interfaces with the students and librarians.
DBMS	Centralized Repository that need to be maintained to enable LMS to operate efficiently to provide accuracy and swift response
Administration	A system through which librarian can change the details of the student.
Books Management System	Existing Books Management System that maintains Books details.
Students Management System	Existing Students Management System that maintains Students details.
Library Staff Management System	Existing Library Staff Management System that maintains Staff details.

8. FUNCTIONAL REQUIREMENT

- **R.1:Register**

    ♣ Description : First the user will have to register/sign up. There are two different type of users.

    ♣ The library manager/head : The manager have to provide details about the name of library ,address, phone number, email id.

♣ Regular person/student : The user have to provide details about his/her name of address, phone number, email id.

- **R.1.1: Sign up**

    ♣ Input: Detail about the user as mentioned in the description.

    ♣ Output: Confirmation of registration status and a membership number and password will be generated and mailed to the user.

    ♣ Processing: All details will be checked and if any error are found then an error message is displayed else a membership number and password will be generated.

- **R.1.2 : Login**

    ♣ Input: Enter the membership number and password provided.

    ♣ Output : User will be able to use the features of software.

- **R.2 : Manage books by user.**

- **R.2.1 : Books issued.**

    ♣ Description : List of books will be displaced along with data of return. 4

- **R.2.2 : Search**

    ♣ Input : Enter the name of author's name of the books to be issued.

    ♣ Output : List of books related to the keyword.

- **R.2.3 : Issues book**

    ♣ State : Searched the book user wants to issues.

    ♣ Input : click the book user wants.

    ♣ Output : conformation for book issue and apology for failure in issue.

♣ Processing : if selected book is available then book will be issued else error will be displayed.

- **R.2.4 : Renew book**

  ♣ State : Book is issued and is about to reach the date of return.

  ♣ Input : Select the book to be renewed.

  ♣ Output : conformation message.

  ♣ Processing : If the issued book is already reserved by another user then error message will be send and if not then conformation message will be displayed. • R.2.5 : Return

  ♣ Input ; Return the book to the library.

  ♣ Output : The issued list will be updated and the returned book will be listed out.

- **R.2.6 ; Reserve book**

  ♣ Input ; Enter the details of the book.

  ♣ Output : Book successfully reserved.

  ♣ Description : If a book is issued by someone then the user can reserve it ,so that later the user can issue it.

- **R.2.6 Fine**

  ♣ Input : check for the fines.

  ♣ Output : Details about fines on different books issued by the user.

  ♣ Processing : The fine will be calculated, if it crossed the date of return and the user did not renewed if then fine will be applied by Rs 10 per day.

- **R.3 Manage book by librarian**

- **R.3.1 Update details of books**

- **R.3.1.1 Add books**

  ♣ Input : Enter the details of the books such as names ,author ,edition, quantity.

  ♣ Output : confirmation of addition.

- **R.3.1.2 Remove books**

  ♣ Input : Enter the name of the book and quantity of books.

♣ Output : Update the list of the books available.

9. Non Functional Requirements

• **Usability Requirement**

The system shall allow the users to access the system from the phone using android application. The system uses a android application as an interface. Since all users are familiar with the general usage of mobile app, no special training is required. The system is user friendly which makes the system easy.

• **Availability Requirement**

The system is available 100% for the user and is used 24 hrs a day and 365 days a year. The system shall be operational 24 hours a day and 7 days a week.

• **Efficiency Requirement**

Mean Time to Repair (MTTR) - Even if the system fails, the systemwill be recovered back up within an hour or less.

• **Accuracy**

The system should accurately provide real time information taking into consideration various concurrency issues. The system shall provide 100% access reliability.

• **Performance Requirement**

The information is refreshed depending upon whether some updates have occurred or not in the application. The system shall respond to the member in not less than two seconds from the time of the request submittal. The system shall be allowed to take more time when doing large processing jobs. Responses to view information shall take no longer than 5 seconds to appear on the screen.

• **Reliability Requirement**

The system has to be 100% reliable due to the importance of data and the damages that can be caused by incorrect or incomplete data. The system will run 7 days a week, 24 hours a day

10. Project Details

Project Design Document

Our project is based on modernizing the library management system which is executed
In two phases.

The following two phases are:

1. Student Phase : In this the student can issue or deposit books from library
   through library card. The maximum limit of cards a student can have is 3.
   Each student will have his unique id and will have their unique enrollment
   number through which they can access the (LMS).

   There will be a website name XENESIS . Student can login through it from
   there unique id and password . Through website they can check the availability
   of books ,quantity of books and new books. They can also issue their books through
   website.

   2 . Administrator Phase : In this phase a administrator which is librarian can login
   through administrator privileges and can update books and student database
   and other changes.

11. Database Schema
The proposed database schema is as follows:

1. Student Details:

    a) ID (uniquely assigned by the system)

    b) Personal details.

    c) College enrollment no.

    d) password

    e) E-mail and contact no.

    f) Academic details.

2. Administrative Request

    a) Request ID (uniquely assigned by the system)

    b) Personal Details

    c) College Admin Id

    d) Passwords

    e) E-Mail and contact details

12. Test Cases

Sample Test cases for the login by Registered Student:

UserID – 6 digit (mandatory)

Password - 6-10 characters (mandatory)

1. After accepting these inputs, the user will be provided with access role based access to the system (Authentication and Authorization)

    1. Library Administrator Login – To add books and to maintainvarious database related to student and college management.

2. Student Login- To check availability of any book through app or website and to issue or deposit any book with help of xenesis.

Some of the test cases for the above Test Scenario:

Test Case No.	**Reference for Traceability**	**Test Case Description and Test Data**	**Expected Result**
1	**Login screen**	User ID < 6 digits	Should not proceed ahead, "Please enter a 6 digit no"
2		User ID = 6 di0gits	Should proceed to the next filed
3		User ID > 6 digits	Should not permit entry of more than 6 digits
4		User ID is Char data	Should not permit entry of character data
5		User ID is Alphanumeric	Should not permit entry of alphanumeric data
6		User ID is Blank	Should not permit
7		Password < 6 char	Should not be allowed

8		Password > 10 char	Should not be allowed
9		Password is between 6 to 10 char	Should be allowed
10		Password is Numeric data	Should not permit entry of Numeric data
11		Password is Blank	Should not permit
12		User ID and Password match	Should be allowed
13		User ID and Password does not match	Should not be allowed

13. Features Of Project

1.Better library management is acquired.

2.Less human resources is utilized.

3.More efficiency.

4.Time saving and more comfortable environment is designed for the students.

14. Software Used

-Front End
- Qt (C++ framework)

-Back End
- MySQL

- Php My Admin

15. Hardware Requirement (minimum)

- 2GB ram

- 1.2 GHz processor

- Intel I3

- Windows 7/8/8.1/10

16. Language Used

1. C++

2. SQL

3. PHP

4. HTML

5. CSS