Software Requirements Specification

for

Library Management System

Version 1.0 approved

Prepared by Scrum Master

**28/01/2020**

Table of Contents

Table of Contents ii

Revision History ii

1. Introduction 1

1.1 Purpose 1

1.2 Document Conventions 1

1.3 Intended Audience and Reading Suggestions 1

1.4 Product Scope 2

1.5 References 2

2. Overall Description 2

2.1 Product Perspective 2

2.2 Product Functions 3

2.3 User Classes and Characteristics 3

2.4 Operating Environment 3

2.5 Design and Implementation Constraints 4

2.6 User Documentation 4

2.7 Assumptions and Dependencies 4

3. External Interface Requirements 4

3.1 User Interfaces 4

3.2 Hardware Interfaces 4

3.3 Software Interfaces 4

3.4 Communications Interfaces 5

4. System Features 5

4.1 System Feature 1 5

4.2 System Feature 2 (and so on) 5

5. Other Nonfunctional Requirements 5

5.1 Performance Requirements 5

5.2 Safety Requirements 5

5.3 Security Requirements 6

5.4 Software Quality Attributes 6

5.5 Business Rules 6

6. Other Requirements 7

Appendix A: Glossary 7

Appendix B: Analysis Models 7

Appendix C: To Be Determined List 7

Revision History

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| --- | --- | --- | --- |
| **Name** | **Date** | **Reason For Changes** | **Version** |
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|  |  |  |  |

# Introduction

## 1.1 Purpose

* The purpose of this project is to provide a user-friendly environment to maintain the details of books and User profile with information regarding their account.
* The main purpose of this project is to maintain easy circulation system using computers and to provide different reports.

## 1.2 Document Conventions

* The font style used for the document is Times New Roman in justified format.
* Convention for Main title:

Font Size: 24

* Convention for Sub title:

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* Convention for Body:

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Document Conventions

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## 1.3 Intended Audience and Reading Suggestions

## 

We are developing our project Library Management System for any organization intending to have library. This SRS is mainly developed by the project development team. In this team there are scrum master, tester, developer.

User

This document is intended to user to make them ensure that the document is well meeting the need of the users.

Project Developer

The Project developer will refer to the SRS document to make sure that they developed exactly what the customer requires.

Tester

The tester will read this SRS document and he will ensure that the requirements are understandable from functionality point of view so that he can test the software and validate it’s working.

Maintenance

The SRS document helps the maintenance engineers to understand functionality of the system, a clear knowledge of the functionality can help them to understand design and code.

Reading Suggestions

* The customer can read the whole SRS document but for him Introduction, Overall description and System features is much required for the software performance.
* The Scrum master needs to know everything regarding the project.
* The developer must go through the whole SRS document for understanding the requirement and functionality of the software.
* A tester must be aware of coding language and visit through the code section and check the required output.

## 1.4 Product Scope

## 

The Software Requirements Specification captures all the requirements in a single

document. The Online Library System that is to be developed provides the members of

the Library and employees of the library with books information, online blocking of

books and many other facilities. The Online Library System is supposed to have the

following features.

Library.

The features that are described in this document are used in the future phases of the softwa

Software Requirements Specification for LMS Page 4

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category

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The features that are described in this document are used in the future phases of the software

development cycle. The features described here meet the needs of all the users. The success

criteria for the system is based in th

The purpose of this software development project is to create a new application called: LIBRARY MANAGEMENT SYSTEM. The client for this project wishes to enter the PC-based internet environment. The Library Management System will be PC-base with internet, allowing library users to search for books, view previously borrowed book, manage wallet, extend currently borrowed booking and library staff members to manage the book inventory and user database. The application will provide the following capabilities:

The application will be access via internet on a PC/Mobile at any place.

User will be able to manage library user accounts including updating details, extend the booking of currently held book, adding and viewing balance in wallet and also view previous borrowed book details. Library staff will be able to manage the book inventory database including remove, change, and add.

The application will provide search function on books based on genre, title, author, year.

The project's client has determined that this application will provide the following benefits:

• Provide additional flexibility and convenience to the library users.

• Provide better reliability and security of the library information.

• Provide a more productive environment for the library staff member.

• Reduce the cost of the library operations.

The availability of information at any time in any place.

## 1.5 References

* Library Management customer requirement document

# Overall Description

## 2.1 Product Perspective

## 

The Online Library System is a package to be used by libraries to improve the efficiency of Library, Library employees and users. The Online Library System to be developed benefits the members and the Librarian of institute greatly. The system provides books catalog and information to members and helps them decide on the books to borrow from the library. The Librarian can keep the books catalog updated all the time so that the members get the updated information all the time.

## 2.2 Product Functions

## 

## Administrators

## • Admin should be able to insert, modify and delete books.

## • Can accept or reject a new user according to the library policy or payment methods.

## • Increase the period for borrowing a book for specific type or group of users.

## • Can get the information (status report) of any member who has borrowed a book.

## • Add and edit book categories and arrange books by categories.

## • Add and edit authors and publisher’s information.

## • Can send lateness warnings to people who have exceeded deadline date.

## • Can record books returned by users.

## 

## Normal Users (Library Members)

## • The member should be provided with the updated information about the books catalog.

## • Members are given a provision to check their account’s information and change it.

## • Members have the ability to search through books by subject, title, authors or any information related to the book.

## • Can extend the period of borrowing books according to the library policy.

## • View balance in the wallet and add balance.

• View details of the previously borrowed books.

## 2.3 User Classes and Characteristics

## 

Users of the website are members, librarians and the administrators who maintain the website. Members and librarians are assumed to have basic knowledge of computers and Internet browsing. Administrators of the system should have more knowledge of internal modules of the system and are able to rectify small problems that may arise due to disk crashes, power failures and other catastrophes. Friendly user interface, online help and user guide must be sufficient to educate the users on how to use this product without any problems or difficulties.

## 2.4 Operating Environment

## 

Software Requirements Specification for LMS Page 6

## Software Requirement:

Operating System: Any operating system running on laptop/ Smart Phone

Database: firebase firestore (NoSql Database)

Language: HTML, NoSql, CSS, Bootstrap, JavaScript, Node.js.

Web Server: firebase server.

Web browser: Any browser, Recommended: Chrome

Hardware Requirement:

RAM: 2 GB

Connection to Internet.

## 2.5 Design and Implementation Constraints

## 

## • The information of all users, books and wallet must be stored in a database that is accessible by the website.

## • Firebase Server will be used as NoSql engine and database.

## • The Online Library System will be running 24 hours a day.

## • Users may access Library Management System from any computer/Smartphone that has Internet browsing capabilities and an Internet connection.

## • Users must have their phone number/ Gmail to enter into their online accounts and use their account.

## 2.6 User Documentation

* Not Applicable

## 2.7 Assumptions and Dependencies

                 All the data entered will be correct and up to date. This software package is developed using CSS, Bootstrap as front end which is supported by HTML. Firebase Firestore & server as the back end which is supported by all Computer/Smartphone OS.

The following is a list of assumptions and dependencies that would affect the software requirements if they turned out to be false: Users have basic understanding to PC/Smartphone and internet. There is a method to convert all book records and library user records from the existing system into the Library Management System.

# External Interface Requirements

## 3.1 User Interfaces

## 

The software provides good graphical interface for the user who can operate on the system, performing the required task.

* Allows user to view quick reports like Book Issues/Returned etc in between particular time.
* Stock verification and search facility based on different criteria.

## 3.2 Hardware Interfaces

## 

The existing LAN will be used for collecting data from the users and also updating the Library Catalogue.

## 3.3 Software Interfaces

A Firewall, OTP authentication will be used with the server to prevent unauthorized access to the system.

## 3.4 Communications Interfaces

# The Online Library System will be connected to the World Wide Web.

# System Features

## 4.1 System Feature 1

4.1.1 Description and Priority

Not applicable(No Priority as such)

4.1.2 Stimulus/Response Sequences

TBD

4.1.3 Functional Requirements

TDB

## 4.2 System Feature 2 (and so on)

# Other Nonfunctional Requirements

## 5.1 Performance Requirements

The capability of the computer depends on the performance of the Progressive Web Application. The Web app can take any number of inputs provided the database size is larger enough.

* The performance of the system should be fast and accurate.
* Library Management System shall handle expected and non-expected errors in ways that prevent loss of information and long downtime period. Thus, it has in-built error testing to identify invalid username or password.
* The system will be able to handle large amount of data. Thus, it will accommodate high number of books and users without any fault.

## 5.2 Safety Requirements

The database is on the cloud so the information will never be lost due to the replication system on the cloud. Therefore, there is no requirement to take the database backup. Proper UPS/ Inverter facility should be there in case of power supply failure.

## 5.3 Security Requirements

## 

* System will use secured Firebase Firestore database.
* Normal users can just read information but they can edit profile info.
* System will have different types of user and every user has access constraints.
* Proper user authentication will be provided.
* No one will be able to hack user password, since it will be OTP authentication straight from the database without any other third-party app in between.
* There will be separate accounts for admin; librarian such that no member can access the database and only admin has the rights to update the database.

## 5.4 Software Quality Attributes

## 

* There may be multiple admin’s adding the books, all of them will have the right to create changes to the system. But the members or other users cannot add books.
* The website should have enough transparency.
* The quality of the database is maintained in such a way so that it can be very user friendly to all the users of the database.
* The user be able to easily download and install the system.

## 5.5 Business Rules

* The users should avoid illegal rules and protocols, the user solely is responsible for any consequences and shall be liable for legal actions accordingly.
* Neither admin nor members should cross the rules and regulations.
* The Admin has the power to cancel any book request.
* The Library has the authority to remove any suspicious account without any prior notice and wallet amount shall be refunded for amounts equivalent or more than INR 100.
* The development team shall not be liable for any data loss or website crash.
* The library is liable to pay a monthly rental for website maintenance, hosting, server usage and database storage.

# Other Requirements

There are different categories of users namely Admin, user etc. Depending upon the category of user the access rights are decided. It means if the user is an administrator then he can be able to modify the data, delete, append etc. All other users only have the rights to retrieve the information about database. Similarly, there will be different categories of books available. According to the categories of books their relevant data should be displayed. The categories and data related to each category should be coded in the particular format.

**Appendix A: Glossary**

OTP- One Time Password

Firebase/Firestore- Online server for hosting website, storing data provided and owned by Google Inc.

NoSql- Database Querying language

Cloud- A type of computing used for maximum reliability

KYC- Know Your Customer

TBD- To be decided

Appendix B: Analysis Models

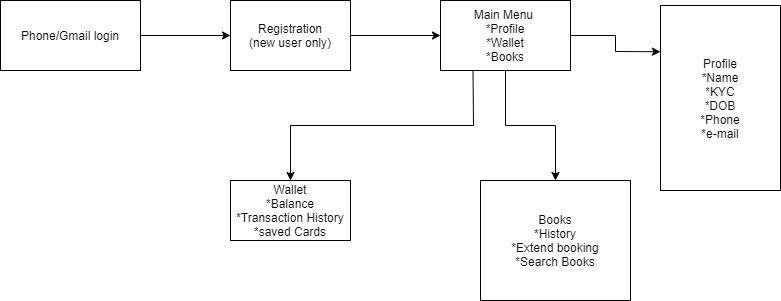


Fig 1.1 Work-flow

Appendix C: To Be Determined List

* 1. Transaction details
  2. Wallet implementation