# Software Requirements Specification

**for**

# Library Management System

**Version 1.0 approved**

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# Table of Contents



# Revision History

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

# 1. Introduction

## 1.1 Purpose

*The purpose of Software Requirements Specification (SRS) document is to describe the external behavior of the Library Management System. Requirements Specification defines and describes the operations, interfaces, performance, and quality assurance requirements of the Library Management System. The document also describes the nonfunctional requirements such as the user interfaces. It also describes the design constraints that are to be considered when the system is to be designed, and other factors necessary to provide a complete and comprehensive description of the requirements for the software. The Software Requirements Specification (SRS) captures the complete software requirements for the system, or a portion of the system. Requirements described in this document are derived from the Vision Document prepared for the Library Management System.*

## 1.2 Document Conventions

- *Entire document is justified*
- *Convention for Main Title:*

  *(a) Font Face: Times New Roman*
  *(b) Font Style : Bold*
  *(c) Font Size : 18*

- *Convention for Sub Title:*

  *(a) Font Face : Times New Roman*
  *(b) Font Style : Bold*
  *(c) Font Size : 14*

- *Convention for Body:*

  *(a) Font Face : Arial*
  *(b) Font Style : Italic*
  *(c) Font Size : 11*

## 1.3 Intended Audience and Reading Suggestions

*This document is primarily meant for the consumption of the client for their approval of project specifics and also serves as a guide for the developers to build the first version of the software.*

## 1.4 Product Scope

*The product serves as an easy-to-use solution to the problems faced by students while reserving, renewing, requesting, etc. for books.*

*The Software Requirements Specification captures all the requirements in a single document. The Library Management 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 Library Management System is supposed to have the following features.*

*•The Library Management System is up and running all day.*
*•The system provides login facility to the users.*
*•The system allows the Librarian to create the books catalog, add/delete books and maintain the books catalog.*
*•The system aids in the billing system as and when the member borrows or returns a book.*
*•The book catalog is automated and the decision of offering the book based on the category of the book is automatically decided.*
*• It enables students to view information about their library account, such as books registered, books due, maximum limit for borrowing, etc. remotely.*
*• It also facilitates the librarian(s) to conveniently find out information about books such as book availability, current borrower of the book, etc. as well as periodically update this information.*

## 1.5 References

*<List any other documents or Web addresses to which this SRS refers. These may include user interface style guides, contracts, standards, system requirements specifications, use case documents, or a vision and scope document. Provide enough information so that the reader could access a copy of each reference, including title, author, version number, date, and source or location.>*

# 2. Overall Description

## 2.1 Product Perspective

*The Library Management System is to be used by Libraries to improve the efficiency of Librarians, Library employees and Users. The Library Management System to be developed benefits greatly the members and the Librarian of the library. 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 (students and the professors) get the updated information all the time. It will help students avoid the hassle of queuing up in order to renew and borrow books and saves their time spent in searching for required books. The product also lets students check for the availability status of books, browse through a catalog of books, etc. conveniently.*

## 2.2 Product Functions

*Major functions available for User are:*

- *Login*
- *Check availability status of books (borrowed/available)*
- *Request for a book not present in the catalog (Pre-book)*

- *Browse through the catalog*
- *Check if maximum borrowing limit exceeded or not*
- *Renew a book*
- *Return a book*
- *Check fines*
- *Update their account information*

*Major functions available for Admin are:*

- *Login*
- *Check availability status of books (borrowed/available)*
- *Insert information about a new book in database*
- *Update information in catalog*
- *Information about the borrowers*
- *Modify fines of students*

## 2.3 User Classes and Characteristics

*The product is mainly targeted toward two main users:*

- *Students:*
  - *Borrow, request, renew and return books.*
  - *Browse the catalog of books.*
  - *Find relevant account information like due dates of borrowed books, maximum borrowing limit, etc.*
  - *Fine dues.*
  - *Check availability of books*

- *Admin (Librarians):*
  - *Insert information about a new book.*
  - *Modify fines.*
  - *Browse through the catalog.*
  - *Delete a book.*
  - *Update book information in catalog.*

## 2.4 Operating Environment

*Recommended -*

*Processor (CPU):* *Intel Core i5-6xxx or equivalent*

| | |
|---|---|
| *Operating System:* | *Ubuntu 16.0 LTS and above* |
| *Memory:* | *4 GB RAM(or greater)* |
| *Storage:* | *500 GB internal hard drive* |
| *Monitor/Display:* | *14" LCD monitor, resolution of 1600 x 900 or better* |
| *Network Adapter:* | *802.11ac 2.4/5 GHz wireless adaptor* |
| *Minimum -* | |
| *Processor (CPU):* | *Intel Core i3-3xxx or equivalent* |
| *Operating System:* | *Ubuntu 14.0 LTS and above* |
| *Memory:* | *4 GB RAM* |
| *Storage:* | *100 GB internal hard drive* |
| *CD-ROM:* | *DVD/CD-RW (optional)* |
| *Monitor/Display:* | *13" LCD monitor* |
| *Network Adapter:* | *Dual-band 802.11a/g - compliant adapter* |

## 2.5 Design and Implementation Constraints

*The product will be developed keeping in mind the minimum software requirements specified in Section 2.4. The GUI will not fall below certain standards that impair user experience and performance. The application software will be developed in Python using GUI modules. The data entered into the application will not be further used for any analytic purposes by any organization/individual as per institute norms. The product will store the data in a cross-platform document-oriented database program. The Customer's Organization will take up full responsibility of maintaining the software.*

## 2.6 User Documentation

*Start Guide – HTML Webpage*

*User Guide – Portable Document Format*

## 2.7 Assumptions and Dependencies

*The dependencies of the product are as follows:*

*Python*
*MongoDB*
*GUI modules in Python*

# 3. External Interface Requirements

## 3.1 User Interfaces

*<Describe the logical characteristics of each interface between the software product and the users. This may include sample screen images, any GUI standards or product family style guides that are to be followed, screen layout constraints, standard buttons and functions (e.g., help) that will appear on every screen, keyboard shortcuts, error message display standards, and so on. Define the software components for which a user interface is needed. Details of the user interface design should be documented in a separate user interface specification.>*

## 3.2 Hardware Interfaces

*The product can be run on the minimum hardware defined in section 2.4 and it also requires input devices like mouse that enable it to move the cursor on the screen to click on certain buttons or to select certain text boxes to enter information in, and enter text information through an input device like keyboard.*

## 3.3 Software Interfaces

*The application makes use of PyQt/TKinter to provide a user interface to access the information stored in the cross-platform document-oriented database.*

*Incoming Data to the database:*

i. *Login Credentials*
ii. *New Book Information*
iii. *Reservation Requests*
iv. *Renewal Requests*
v. *Return Requests*

*Outgoing Data from database:*

i. *Availability status of a book*
ii. *Catalog Book Information*

## 3.4 Communications Interfaces

*Since the product will be a stand-alone solution, we will not be requiring any communication interfaces.*

# 4. Functional Requirements

***4.1 Reissue/Issue/Return:*** *Allows issue/reissue/return of books on the basis of student's desire and availability of the books..*

*4.1.1 Input the book name and edition.*
*4.1.2 The system shall display whether or not the book is available.*
*4.1.3 Browse books by different categories.*

***4.2*** **Login***: In order to access the database.*

*4.2.1 Verify the entered username and password.*
*4.2.2 Change password*

**4.3 Fine Management***: Manages the fine students' needs to pay.*
*4.3.1 View fine for students.*
*4.3.2 Modify fine for admin.*

**4.4 Book Management***: The admin can update the book details like number of book, edition etc.*

# 5. Nonfunctional Requirements

***5.2.1 Security****: Accepting a certain security deposit and giving it back after the checkout.*

***5.2.2 Performance Analysis****: Handing out an online sheet to let the students give feedback and review about the services in general.*

***5.2.3 Network Check****: Need Internet access to access the system.*

***5.2.4 Design Constraints****: The Library Management System shall be a stand-alone system running in a Windows environment. The system shall be developed using Python and MongoDB database.*

***5.2.5 Reliability****: Specify the factors required to establish the required reliability of the software system at time of delivery.*

***5.2.6 Availability****: The system shall be available 24*7.*

***5.2.7 Maintainability****: The Library Management System is being developed in Python. Python is an object oriented programming language and shall be easy to maintain.*

***5.2.8 Portability****: The Library Management System shall run in any Microsoft Windows environment that contains Python Runtime.*

# 6. Other Requirements

*Database must possess ACID properties and be able to handle concurrent operations on it without affecting the consistency of the stored data.*

# Appendix A: Glossary

*GUI – Graphical User Interfaces*
*ACID – Atomic, Consistent, Isolated, Durable*
*TBD – To Be Discussed*
*REQ - Requirement*

# Appendix B: Analysis Models

Development has not reached this stage yet due to which details have not been mentioned

# Appendix C: To Be Determined List

*[1] Communication Interface*
*[2] Performance Requirements*
*[3] Safety Requirements*
*[4] Security Requirements*
*[5] Software Quality Requirements*
*[6] Business Rules*