Software Requirements Specification

For

Library Management System

Version 1.0 approved

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Revision History

Name	Date	Reason For Changes	Version

1. Introduction

1.1 Purpose

The main objective of this document is to illustrate the requirements of project Library Management System. The document gives detailed description of both functional and non-functional requirements proposed by the client. The purpose of this project is to provide friendly environment to maintain the details of books and library members.

1.2 Document Conventions

- Convention for Main Title
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  Font Style: Bold
  Font Size: 18
- Convention for Sub Title
  Font Face: Times New Roman
  Font Style: Bold
  Font Size: 14
- Convention for body
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1.3 Intended Audience and Reading Suggestions

SRS can be referred by customers so that they get a clear view about the system requirements understood by the developers and how the end product will be developed. Customer should read the SRS before the development of web-app. It is also prepared for the developer team so that they can modify web-app according to customer requirements systematically. Also, developers should refer at the time of development.

1.4 Product Scope

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.

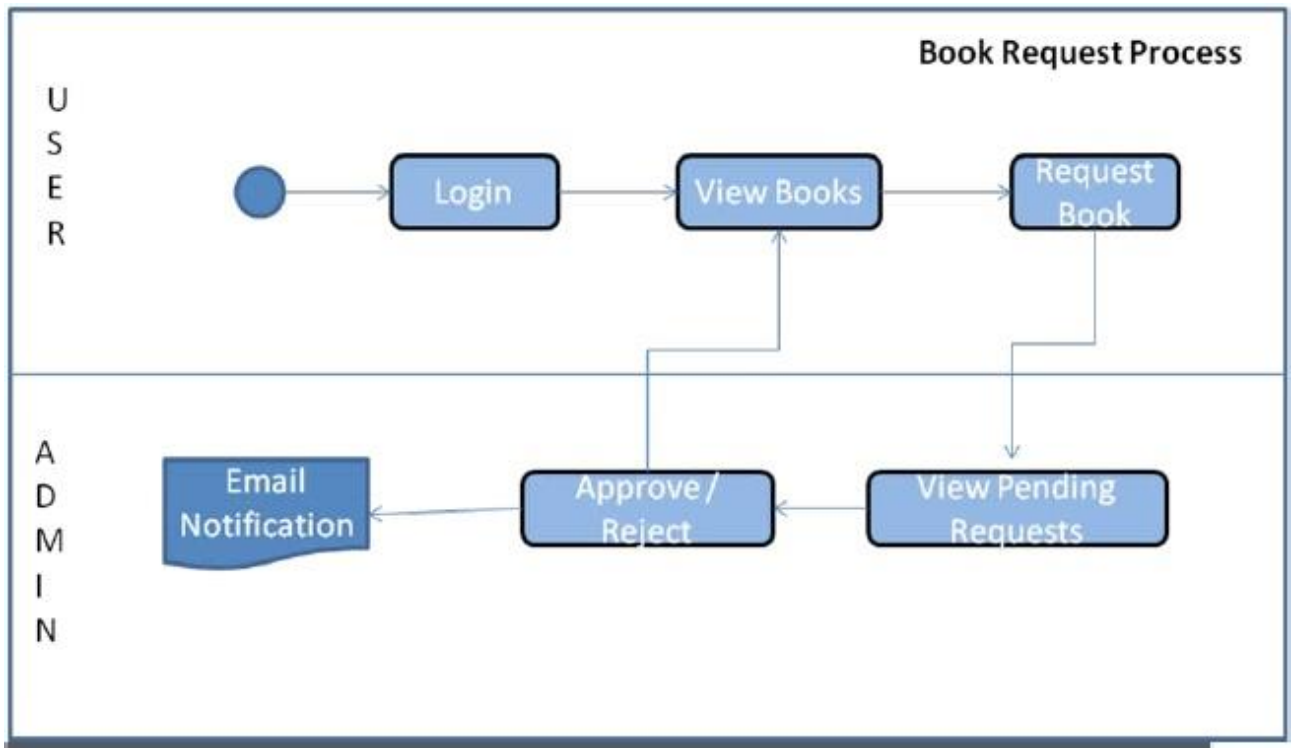
1.5 References

2. Overall Description

2.1 Product Perspective

The online library management system is a package to be used by libraries to improve the efficiency of librarians, library employees & users. The online library system to be developed benefits greatly the members & the librarian of institute. The system provides books catalog & info to Members & helps them to decide on books to borrow from the library. The librarian can keep the books updated all the time so that the members get updated info all the time.

2.2 Product Functions



2.3 User Classes and Characteristics

The system provides different types of services based on the type of users [Member/Librarian]. The Librarian will be acting as the controller and he will have all the privileges of an administrator. The member can be either a student or staff of the university who will be accessing the Library online.

The features that are available to the Librarian are: -

- A librarian can issue a book to the member.
- Can view the different categories of books available in the Library.

- Can view the List of books available in each category
- Can take the book returned from students
- Add books and their information to the database
- Edit the information of existing books
- Can check the report of the existing books
- Can check the report of the issued books
- Can access all the accounts of the students

The features available to members are:

- Can view the different categories of books available in the Library.
- Can view the List of books available in each category
- Can own an account in the library.
- Can view the books issued to him
- Can put a request for a new book
- Can view the history of books issued to him previously
- Can search for a particular book

2.4 Operating Environment

The product will be operating in windows environment. The Library Management System is a website and shall operate in all famous browsers, for a model we are taking Microsoft Internet Explorer, Google Chrome, and Mozilla Firefox. Also, it will be compatible with the IE 6.0. Most of the features will be compatible with the Mozilla Firefox & Opera 7.0 or higher version. The only requirement to use this online product would be the internet connection.
The hardware configuration includes Hard Disk: 40 GB, Monitor: 15" Color monitor, Keyboard: 122 keys. The basic input devices required are keyboard, mouse and output devices are monitor, printer etc.

2.5 Design and Implementation Constraints

The product is developed using ASP.NET. The backend database for this is SQL server. The product is accomplished with login facility so that specific function is available to specific student.

2.6 User Documentation

The product will include user manual. The user manual will include product overview, complete configuration of the used software (such as SQL server), technical details, backup procedure and contact information which will include email address. There will be no online help for the product at this moment. The product will be compatible with the Internet Explorer 6.0 or higher. The databases will be created in the Microsoft SQL server 2000.

2.7 Assumptions and Dependencies

The assumptions are:

- The coding should be error free.
- The system should be user-friendly so that it is easy to use for the users.
- The information of all users, books and libraries must be stored in a database that is accessible by the website.

- The system should have more storage capacity and provide fast access to the database.
- The system should provide search facility and support quick transactions.
- The Library System is running 24 hours a day.
- Users may access from any computer that has Internet browsing capabilities and an Internet connection.
- Users must have their correct usernames and passwords to enter into their online accounts and do actions.

The dependencies are:

- The specific hardware and software due to which the product will be run.
- On the basis of listing requirements and specification the project will be developed and run.
- The end users (admin) should have proper understanding of the product.
- The information of all the users must be stored in a database that is accessible by the Library System.
- Any update regarding the book from the library is to be recorded to the database and the data entered should be correct.

The product needs following third party product:

- Microsoft SQL server to store the database.
- ASP to develop the Product.

3. External Interface Requirements

3.1 User Interface

The software provides good graphical interface for the user and the administrator can operate on the system, performing the required task such as create, update, viewing the details of the book.

1) It allows user to view quick reports like Book Issued/Returned in between particular time.
2) It provides stock verification and search facility based on different criteria.
3) The user interface must be customizable by the administrator.
4) All the modules provided with the software must fit into this graphical user interface and accomplish to the standard defined.
5) The design should be simple and all the different interfaces should follow a standard template.
6) The user interface should be able to interact with the user management module and a part of the interface must be dedicated to the login/logout module.

3.2 Hardware Interfaces

Server Side:

Operating System: Windows xp or above versions

Processor: Pentium, 3.0 GHz or higher
RAM: 256 Mb or more
Hard Drive: 10 GB or more

Client side:
Operating System: Windows xp or above, MAC or UNIX
Processor: Pentium, 2.0 GHz or higher
RAM: 256 Mb or more

3.3 Software Interfaces

This software package is developed using ASP.NET framework as front end. Microsoft SQL Server as the back end to store the database.
Database: SQL Server.
Application: ASP.NET (Active Server Pages)
Web Server: IIS (Internet Information Services)

3.4 Communications Interfaces

The Customer must connect to the Internet to access the Website:

- Dialup Modem of 52 kbps
- Broadband Internet
- Dialup or Broadband Connection with an Internet Provider

4. System Features

4.1 Login

In login screen, the authorized administrator or user will login to the system using username and password.

4.1.1 Description and Priority

The authorized administrator has the following functions:

- An authorized user can register the member. The process happens physically, where member fills in the register form manually and this would be keyed in to system by administrator to create membership.
- System provides to the admin users to view all the requests.

Login has the highest priority.

4.1.2 Stimulus/Response Sequences

Responses for Administrator: The administrator can Login and Logout. When the Administrator Logs into the Library system. The system will check for validity of login. If the Login and password are valid, the response to this action is the administrator will be able to modify, view, add, deleting and all other functions that can be performed on the database.

4.1.3 Functional Requirements

REQ-1: System will provide a form to user.
I/p: User request a form for book.
O/p: Provide form.
Error: Network problem or server down may lead to re-request.
Process: The system will fetch the form and present it to the admin.
REQ-2: System will ask for credentials and submit it.
I/p: User fills the necessary credentials.
O/p: If successful form submission, else refill the form.
Error: If credentials are not valid.
Process: The system will check for every information validation and response will be given appropriately.

If the user is already registered, then authentication takes place through username and password.

4.2 Book Status

To maintain status of the book, the system as predefined status to maintain the life cycle of the book.

4.2.1 Description and Priority

The status and the behavior is explained below:

- Pending
- Approved
- Rejected/Cancelled
- Borrowed
- Available
- Not Available

4.3 Search Books

4.3.1 Description and Priority

Books can be searched based on the name, subject, status, author and publisher. A book listing is given with all the required columns along with details of the transaction made on that particular book for both user and administrator.

4.3.2 Stimulus/Response Sequences

User is asked to choose between books.
User is asked to select category from dropdown for search-by options.
User will submit the search to get the response.

4.3.3 Functional Requirements

R2: System provide search facility for books.
Process: System compares book information submitted with that in database.

R2.1: System provide search facility according to name.
I/p: Book name
Process: System searches for books with given book name in database.
O/p: Success status.
R2.2: System provide search facility according to author.
I/p: Author name
Process: System searches for books with given author name in database.
O/p: Success status.
R2.3: System provide search facility according to publisher.
I/p: Publisher name
Process: System searches for books with given publisher name in database.
O/p: Success status.
R2.4: System provide search facility according to category.
I/p: Category name
Process: System searches for books with given category name in database.
O/p: Success status.

4.4 Admin Functionalities

4.4.1 Description and Priority

Admin can login as admin if authorized. Admin is provided facilities like adding new books, uploading new books, deleting and updating the records. Furthermore, admin can add user accounts and delete older accounts if not necessary.

4.4.2 Stimulus/Response Sequences

Admin logins as admin and sees admin page.
Admin can add, delete, update books and accounts.

4.4.3 Functional Requirements

R3: System provides admin facility to manage books and accounts in database.
R3.1: Addition of book.
I/p: book information
Process: system insert the new values in the book table in database.
O/P: Book addition status.
R3.2: Deletion of book.
I/p: book information
Process: system deletes the new values in the book table in database.
O/P: Book deletion status.
R3.3: Update of book.
I/p: book information
Process: system updates the new values in the book table in database.
O/P: Book updates status.
R3.4: Adding new account.
I/p: user information
Process: system insert the new values in the account table in database.
O/P: Account addition status.
R3.5: Deletion of account.
I/p: account information
Process: system deletes the new values in the account table in database.
O/P: Account deletion status.

R3.6: Updating an account.
I/p: account information
Process: system updates the new values in the account table in database.
O/P: Account updates status.

5. Other Nonfunctional Requirements

5.1 Performance Requirements

The proposed system that we are going to develop will be used as the Chief performance system within the different campuses of the university which interact with the university staff and students. Therefore, it is expected that the database would perform functionally all the requirements that are specified by the university.

5.2 Safety Requirements

The database may get crashed at any certain time due to virus or operating system failure. Therefore, it is required to take the database backup so that the database is not lost. Proper UPS/inverter facility should be there in case of power supply failure.

5.3 Security Requirements

We are going to develop a secured database for the university. There are different categories of users namely teaching staff, administrator, library staff, students 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 other than library staff only have the rights to retrieve the information about database.

5.4 Software Quality Attributes

1) There may be multiple admins creating the project, all of them will have the right to create changes to the system. But the members or other users cannot do changes.
2) The project should be open source.
3) 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.
4) The user be able to easily download and install the system.

5.5 Business Rules

A business rule is anything that captures and implements business policies and practices. A rule can enforce business policy, make a decision, or infer new data from existing data. This includes the rules and regulations that the System users should abide by. This includes the cost of the project and the discount offers provided. The users should avoid illegal rules and protocols. Neither admin nor member should cross the rules and regulations.

6. Other Requirements

There are different categories of users namely teaching staff, Librarian, Admin, students 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 except the Librarian 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 the data related to each category should be coded in the particular format.

Appendix A: Glossary

<Define all the terms necessary to properly interpret the SRS, including acronyms and abbreviations. You may wish to build a separate glossary that spans multiple projects or the entire organization, and just include terms specific to a single project in each SRS.>

Appendix B: Analysis Models

<Optionally, include any pertinent analysis models, such as data flow diagrams, class diagrams, state-transition diagrams, or entity-relationship diagrams.>

Appendix C: To Be Determined List

<Collect a numbered list of the TBD (to be determined) references that remain in the SRS so they can be tracked to closure.>