SOFTWARE REQUIREMNET SPECIFICATION(SRS)

For

LIBRARY MANAGEMENT SYSTEM

Group-2

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1. Introduction

The main objective of this report is to exemplify the requirements of Library Management System. Due to the increase in the number of readers, libraries need to manage well in order to meet the user's needs. The Library Management System is primarily concerned with enhancing library management in a city or community. The users may not always have time to visit the library and check for the availability of the book. The Integrated Library Management System provides us with a friendly environment to maintain details and availability of books, names of library members. The main goal of this project is to create a simple circulation system that uses comput ers and generates various data.

1.1. Purpose

The major goal of this project is to keep track of information about books and library members. The main purpose of this project is to maintain a simple circulation between user and admin to issue books and change data related to admin etc. Furthermore, the customer can use all of these capabilities from the comfort of their own home.

1.2. Scope

The Library Management System is essentially converting a manual library system into an internet-based application that allows users to view book descriptions and availability. The project has been created with librarians and library users in mind. Any existing or new library can utilise the system to manage book borrowing, insertion, deletion, and monitoring. It can be especially used in university libraries etc for better usage and functioning.

1.3. Definition, Acronyms, Abbreviations/ Document Conversions

- Entire document is justified.
    - Font used: Times New Roman
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- SQL: Structured Query Language
- DFD: Data Flow Diagram
- SRS: Software Requirement Specification
- HTML: Hypertext Markup Language
- CSS: Cascading Style Sheets
- CFD: Context Flow Diagram
- PHP: Hypertext Pre-processor.
- JS: JavaScript
- LMS: Library Management System

1.4. References

- Books
  - SOFTWARE ENGINEERING: Ninth Edition Ian Sommerville
  - Software Requirements and Specifications: A Lexicon of Practice, Principles and Prejudices.
- Websites:
  - https://www.slideshare.net/ToseefHasan2/srs-for-library-management-system
  - https://www.academia.edu/24074814/Library_Management_System_SRS_Report_Library_Management_System

1.5. Overview

Section 1: It discusses the purpose, scope, abbreviations of the software
Section 2: It discusses the overall functionalities, characteristics, constraints.
Section 3: It discusses all the requirements used to design a software.
Section 4: Discusses the system features.
Section 5: Discusses other non-functional requirements.

2. Overall Description

2.1. Product Perspective

The Library Management System is used in the libraries to facilitate the process of managing, issuing, or returning books. This redefined library management system is going to benefit the members of the library and the librarian by replacing its pre-existing manual book-entry system. The system provides the user the information about the books available in the library as well as the user can get the complete information about the books that he searched with the help unique number called book id.

In addition to that, the user can manage users, books and maintain a detailed report about the books and users in a digital methodology. The book issue, book return will update the current book details automatically so that the user will get the updated book details with one click of a button. Further, the library staff personnel can add/update the books and the librarian can also check all the user's details and their outstanding dues along with details of all the books that are issued against a library members' ID along with the returning date.

2.2. Product Functionalities:

The Library Management System provides instantaneous information about the books available in the library and the members information. This section provides the apprehensible function overview of the end product. The product is expected to be providing ensuing functionalities:

1. Login

2. Home
3. Logout
4. Add Books
5. Search for Books
6. Remove Books
7. Create Admin
8. Create User
9. Issue Book
10. Return Book
11. Search for users
12. Issue & return status
13. Change Password
14. Suggestions or Comments View

The Member's status of issue/return is maintained in the database.

2.3. User Classes and Characteristics

The system provides different types of services based on the type of users they are:

1. Member
2. Librarian

The Librarian will act as the regulator and he will have all the privileges for the website.
The member can be any user who will be accessing the library online.
The features that are available to the Member are:

- Can view the books available in library
- Can submit a Query or Suggestion on the Home page.

These are the list of features available to the Librarian or Administrator they are:

- A librarian can issue a book.
- Can take the book returned by the members
- Add books and its related information to the database.
- Modify or change the existing book information
- Can check the report of issued & returned books
- Can search for the books available in the library using book id.
- Can search for the members using their library id
- Can view the Suggestions or Comments by the members
- Can Change the password
- Can add new Members and Librarians to the library.

2.4. Constraints:

Any update regarding the books and members from the library is to be recorded properly to have updated & correct values to minimize human error and any fine on a member should be calculated correctly.

2.5. Assumptions and Dependencies

Assumptions are:

- The coding should be error free
- The system should be secure, reliable and fast management system.
- The system should be user-friendly so that it is facile to use for the users.
- The information of all the users, books must be stored in a database to make it easy while accessing by the website.
- The system should have more storage capacity and furnish quick access to the database.
- The system must contain search facility
- The library system management is running 24 hours a day.

Dependencies:

The User Computer must satisfy the specific software and hardware requirements.

- The Administrator (End users) should have proper knowledge about the product.
- The System must save the general report of usage periodically.
- The information of all the Members and Librarians must be stored in the database which can be accessed by Library Management System.
- Any update regarding book or Admin details must be stored correctly in the database and the data must be verified before entering into the to maintain consistency

3. External Interface Requirements

3.1. User Interfaces

This software helps us to automate its pre-existing manual book-entry system of managing books available, Issue status, return status of the books, and some other major aspects in the library with the assistance of computerized equipment and software tools.

- This system provides a sophisticated platform to the user in order to get logged into their respective account.
- The design or the layout of the forms which will be operated by the user will be very clear and interactive.
- If the user enters an incorrect username/passcode a pop up will be displayed mentioning the details entered are incorrect.
- From each and every window the user can easily go to any desired window that is there will be an absolute and relative linking.
- In the screen layout, the background colour is very light and the graphics and font style will be in a proper manner and well organized.

- At the opening of the software, there will be a menu window where the overall table contents of the software will be present through which the user can move to any desired tab.
- The admin has the privilege to perform certain operations that are pre-defined in the software like creating, altering the book count, updating, viewing the details of the book.
- The user interface is customizable by the administrator.
- It also allows the admin to view quick reports like Books Issued/Returned (Status of the book) in between a particular time.
- It provides books stock availability verification and topic wide search.
- The user interface is designed in a way that the admin or the user can interact with the user management module and a part of the interface is dedicated to the login/logout module.
- Users can easily save their data into the database and keep track of the records of the books issued and received.

3.2. Hardware Interfaces

Processor: Dual-core CPU
Hard Disk: 40GB
RAM: 256MB or more

3.3. Software Interfaces

- This software is developed using HTML/CSS and JS as the front end. Xampp Server (Maria DB) as the back end to store the database.
- Operating System: Windows 7 and above.
- Language: HTML/ CSS, JS (front end), PHP (middle ware).
- Database: Xampp Server: Maria Database (back end).

3.4. Communications Interfaces

The online Library System will be connected through the local host server.

4. System Features

- **Login**
  Input: Enter the username and password.
  Output: User will be able to use the features of the website.
- **Home Page**
  Home page will show us all the hyperlinks in the software, and contact page will be appeared on the homepage. It also shows us the library open hours.
- **About Us**

This is just a sample page which shows the information about the website creators. Etc.

- **Books Available**
  - This page will show the book id, book name, author name, genre, quantity, books issued for all the books in library.
  - This page will be really helpful for the users who are shearing for topic specific books.
- **Admin Homepage**
  - Admin will have all the rights on the interface.
  - He can issue, return books, create user, create new admin, change password, reset book details, search a user, suggestions/feedbacks etc.
- **Issue Book**
  - The admin needs to enter the username, book id and the data to issue book for any user.
  - Book Id will directly redirect to the book name etc.
- **Return Book**
  - The admin needs to enter the username, book id and the data to issue book for any user.
  - Book Id will directly redirect to the book name etc.
- **Create User**

  The admin needs to provide username, email id and contact number in order to create new user.
- **Create New Admin**
  - The admin can also create new admin for work sharing purpose.
  - The admin needs to provide username, email id, password for the new admin, and the date of creating.
- **Change Password**
  - Admin can change password in case of any fraud.
  - He needs to enter the current password, new password for changing.
  - He also needs to confirm the password, for re-confirmation.
- **Issue Status**
  - Once the issue book page is used, the book issued data will be stored in the issue status page.
  - This page will be really useful for the admin for re-checking and privacy is maintained.
- **Return Status**
  - Once the return book page is used, the book returned data will be stored in the return status page.
  - This page will be really useful for the admin for re-checking and privacy is maintained.
- **Add new book**

- The admin can add books to the library system.
- He needs to provide the title, author, genre, no of books in order to make it possible.

- **Remove Books**
  - The admin can remove books from the library system.
  - He just needs to provide the Book Id in order to remove a book from the available list.
- **Reset Book Details**
  - The admin can update/alter the details of the book.
  - He needs to provide the title, author, genre, no of books in order to reset the details**.**
- **Search A User**
  - The admin also has rights to search for a user.
  - He can search for user just by entering the username of the person he wants to.
- **Suggestions**

  The end user can provide feedback or suggestions for the improvement of services from the library.
- **Issue Book**
  - The user needs to enter the book Id and the date, to get their book issued.
  - Once submit button(issue) is clicked, it will redirect a page saying “Book Issued”.
- **Return Book**
  - The user needs to enter the book Id and the date, to return the book.
  - Once submit button(return) is clicked, it will redirect a page saying “Book Returned”.
- **Create User**
  - To create a user, one needs to provide username, email, contact no.
  - Once submit button(create) is clicked, it will redirect a page saying “User Created”.
- **Create Admin**
  - He needs to provide username, email, password, date in create an admin.
  - Once submit button(create) is clicked, it will redirect a page saying “Admin Account Created”.

5. Other Non-functional Requirements

5.1. Performance Requirement

5.1.1. Capacity

The library management shall Provide users a 24 hours service

5.1.2. Quality

- The fundamental objective is to produce quality software. The following guidelines will be used when judging the quality of the software.
    - Consistency: All code will be consistent.
    - Test Cases: All the functionality will be tested thoroughly.
- Library Management System intends to handle expected and unexpected errors in ways that avoid loss of information.
- The System should be capable of holding a large amount of data to accommodate a high number of books and users without any flaw.
- The project should be open-source software.
- The user can be able to download and install this software without any external support.

5.2. Safety Requirement

In any circumstances, the database may get crashed due to operating system failure or there can be some other reasons. Therefore, it is recommended to have a backup of the database so that the database is not lost. Proper UPS/power supply alternatives should be maintained in case of power supply failure.

5.3. Security Requirement

- The system will be using a secured database.
- Only admins have privileges to modify information in a database so General users cannot modify information except checking with the availability of the book.
- The system will have different types of users and every user has access restrictions.
- Proper user authentication should be provided.
- No one should be able to hack the admin's password.

5.4. Software System Attributes

5.4.1. Reliability

- The system shall show appropriate messages at the terminal when system is down.
- The system shall generate error messages popups when a user attempts to enter in-appropriate information such as invalid username/password

5.4.2. Availability

The system is available anytime and can be accessed by the user through any mode such as the software can be accessed through the laptop, mobile phone etc.

5.4.3. Security

- All data must be stored, protected or protectively marked.
- Database should be backed up every hour.
- Password must be 6-14 characters long and should not be matched with the username.
- Password must contain at least an uppercase letter, a special character and a digit.

5.4.4. Adaptability

The Library Management System software is adaptable and be adapted by any of the organizations

5.4.5. Maintainability

- The system shall provide capability to back-up the database.
- After the deployment of the project if any error or issue occurs then it can be easily maintained by the backend developer.

5.5. Business Rules

A business rule is the thing that captures and implements business policies and practices. A rule can enforce business policy, to make a choice, or infer new data from existing data. This includes the rules and regulations that the system users ought to abide by. This includes the price of the project and therefore the discount offers provided. The users ought to avoid extra-legal rules and protocols. Neither admin nor member are ought to cross the foundations and rules.

6. Other Requirements

- Any desktop or mobile with internet connection is required.
- There should be more quality and efficient server in order to make the process to go in a smooth way in the peak hour.
- Maintain the backup of all the accounts for reliability purposes like when the system gets crashed then backup is needed.

6.1. Glossary

The following are the list of acronyms used in this document and the project:

- Administrator: A login id representing a user with user administration privileges to the software

- User: Login id assigned to most users.
- Client: Users of the software.
- SQL: Structured Query Language; used to retrieve information from a database.
- SQL Server: A server used to store data in an organized format.
- Layer: Represents a section of the project

6.2. Appendix:

- A: Admin, Abbreviation, Acronym, Assumptions;
- B: Books, Business rules;
- C: Class, Client, Conventions;
- D: Data requirement, Dependencies;
- G: GUI;
- L: Library, Librarian;
- N: Non-functional Requirement;
- O: Operating environment;
- P: Performance, Perspective, Purpose;
- R: Requirement, Requirement attributes;
- S: Safety, Scope, Security, System features;
- U: User, User class and characteristics, User requirement.