

Experiment NO:01.

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Aim: To analyze requirements and prepare SRS for library management system.

Sample structure of SRS:-

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1. Introduction

1.1 Purpose

This document gives information about the functional and non-functional requirements for the Library management system. The library management system maintains the data base of library books and provides it to the registered members.

1.2 Scope

This system provides an easy solution to keep track of books available in the library. This allows the user to know the details of the books available and many other features such as requesting membership, adding membership, adding a book, deleting a book etc..

1.3 Overview

Library management System provides a better way to give information about the books available in the library.

1.3 Definitions, acronyms and abbreviations

UML diagram: These diagrams are designed to visualize a system from different perspectives. Designing of UML diagrams begins with the requi-

- requirements analysis phase and moves towards the design, development, and implementation phases.

SRS: The document in which requirements are described formally is called Software Requirement Specification(SRS). It provides complete description of the proposed software.

Object diagram:- object diagrams are the instances of class diagrams. The structural properties of a group of objects are classified in the class diagrams. From an implementation point of view, object diagrams are dependent on class diagrams.

Class diagram:- The class diagram describes the structural description of the system.

Aronyms and Abbreviations:

UML - unified modeling language

OOP - object oriented programming

OOA - object oriented Analysis

OOPD - object oriented Design

LMS - library management system

DFD - Data Flow Diagram

SRS - Software Requirement specification.

14 References

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2) Software Engineering- A practitioner's approach by
Roger.S.Pressman

3) www.witpedia.org

2. General description

2.1 Product perspective

The library management system will take care of the current book details at any point of time. The operations like book issue, book return will update the current book details automatically so that the user will get the updated book details. LMS will provide an advanced mechanisms and makes the tasks easy.

2.2 Product functions

The LMS provides informations about the books available in the library and the user information online. The main purpose of this is to reduce the manual work. This software is capable of managing many tasks like searching a book, issuing a book, and returning a book, calculating fine. The Librarian will manage the books. The member's status of issue/return is maintained in the library database.

2.3 User classes and characteristics

The system provides different types of services based the type of users. The user can be the member or librarian or staff or management of the institution. The librarian can perform many tasks like issuing a book to the member,

taking the returned book, adding information about the books to the database, accessing accounts of the members and so on. The tasks that can be performed by members include viewing different categories of books available in the library, creating an account, requesting for a new book, searching a book and so on.

2.4 General constraints

- 1) Users must have their correct usernames and passwords to perform various activities in the software
- 2) The information of all users, books must be stored in a database that is accessible by the website
- 3) The online Library management system should run all hours in a day
- 4) Users may access LMS from any computers with a proper internet connection.

2.5 Assumptions and Dependencies.

- 1) Website must be easy to use
- 2) The search mechanism should be simple and fast.

3. Specific requirements

3.1 Functional requirements

Functional requirements describe the behaviour of the system that it is supposed to have in the software product. They specify the functions that will accept inputs, perform processing on these inputs, and produce outputs.

3.1.1 Login/Register

3.1.2(a) Search a book

3.1.2(b) Reserve a book

3.1.3(a) Issue book

3.1.3(b) Return book

3.1.3(c) Alert book return

3.1.4(a) Maintain Inventory

3.1.4(b) Report Generation

3.1.5(a) Feed back

3.1.5(b) Recommend a book

3.1.5(c) Help

3.1.6 Account maintenance

3.1.1 Login/Register:

Description: To access the software, the user must be a member. He needs to be registered by entering all the details in the columns available with a valid ID. If the user is already

registered, the user should login by entering the valid ID and password.

Input:- click on the login/register button. If the user is already registered, login button is clicked else register button is selected.

Processing:- validate the user data, verify details, if all the details are perfect the account is assigned to the user with all user information. If the user selects register. If the user selects login, the account ID and password are validated.

Output:- Post login/register, profile with user name and ID will be created

3.1.2(a) Search a book

Description:- The search a book option makes the task easy for the user to search the book required. All the list of books available related to the input given by the user are displayed.

Input:- The name of the book or the author of a book or the publisher of the book in the search bar.

Processing:- These keywords are matched with the books in the system's database after the search is processed.

Output:- All the matched results are displayed

If there are no matches found, message will be displayed saying no matches.

3.1.2 (b) Reserve a book

Description:- If the book required by the user is not available, the user can reserve the book. When the book is made available, the user can access it.

Input:- The user enters the name of the book.

Processing:- It is checked with the library's database and if the book is not available it will be reserved.

Output:- The book will be reserved.

3.1.3 (a) Issue a book

Description:- The member requests for a book, if the book is available the book ^{will be} issued.

Input:- The book ^{is} requested by the member is checked with the library database.

Processing:- The book required by the user is checked with the library management system's database and checked for availability.

Output:- The book will be issued.

3.1.3 (b) Return a book

Description:- The book issued to the member

should be returned in time. The date of returning will be assigned while the book is issued. The return date (on w) should match with the specified time.

Input: Member will return the book

Processing: The date of return is matched with the return date in the records and checked if the book is returned in time.

Output: If the book is returned in time, no charges are issued. Otherwise, overdue charges should be paid.

31.3(c): Alert Book return

Description: When the date of return given to the member is getting nearby then the customer is made to alert by sending a message or mail informing about the due date.

Input: Enter the details of the member.

Processing: All the data of members whose date of returning the book is getting nearby is checked in the system's database. Their mail ID's and phone numbers are collected.

Output: A message is sent to the member's mail ID and phone number.

31.4(a): Maintain Inventory

Description: This is used to maintain the details

about number of books, no. of students registered, number of books borrowed, number of books issued etc.

Input: The details to be stored are entered

Processing: The details entered will be sent to the system's database.

Output: The details are added to the inventory successfully.

3.1.4(b): Report Generation

Description: All the information regarding the system is maintained in the form of a report.

Input: The updated details are entered.

Processing: The details are processed and will be saved into system's database.

Output: The details will be saved in report successfully.

3.1.5(a): Feedback

Description: The users can give the feedback on the books they used or feedback can also be given on the performance of the system.

Input: The feed back is entered by the user or simply rating is given.

Processing: The feed back is processed and saved into system's database.

Output: The feed back is saved successfully.

3.1.5(b): Recommend a book

Description:- when the user search for a book & he doesn't find it, he can click on the recommend a book.

Input:- click on recommend a book when the book is not available.

Processing:- The recommendations are saved in the system's database.

Output:- A notification is sent to the user when the book is available.

3.1.5(c): Help

Description:- 'Help' option helps to solve the issues in the system faced by the user. User can click the help button if there is any confusion in the usage of the system or if any problem arises.

Input:- click the 'help' button on the window

Processing:- All the options regarding the issues are displayed and based on the user's input that option is opened.

Output:- The ways or all the possible options of help are displayed.

3.1.6(c): Account maintenance

Description:- This is used to maintain the accounts and perform activities like deleting an account, blocking an account, account recovery etc...

Input:- Account details are entered.

Processing:- The modifications to be done are selected and processes

Output:- The operations are performed successfully.

3.2 External Interface Requirements

The software provides good graphical interface for the user to perform certain tasks.

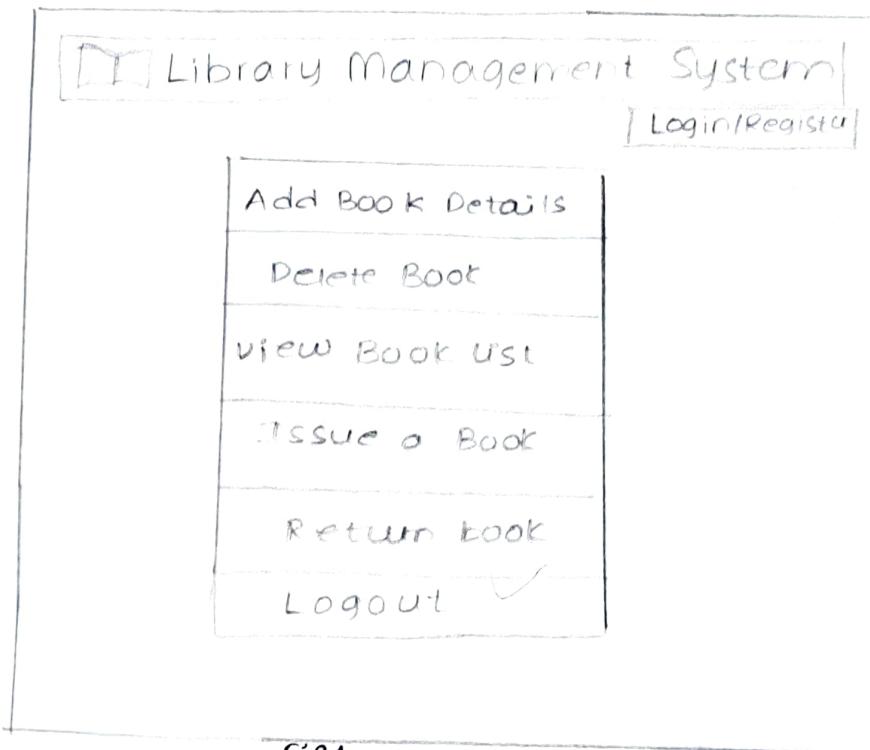


Fig 1

It allows user to view quick reports like Book issued/returned in between particular time. The interface must be customizable. All the modules provided with the software must fit into this graphical user interface.

3.3 Performance requirement

The Performance of the system should be fast and accurate. The system should be able to handle large amount of data. Thus it should accommodate high number of books and

users without any fault. Responses to view information should not take more than 5 seconds to appear on the screen.

3.4 Design constraints

The system should be designed within 6 months

3.5 Security requirements

The Ims should cause any harm to the users. The system should use secured database. It should provide a password to login. The users cannot edit or modify information.

3.6 Maintainability requirements

There should be an option to add or delete or update any information related to books or users.

3.7 Reliability requirements

The system should fulfil its assigned task in a given environment.

3.8 Availability requirements

The system should be made available all the time.

3.9 Database requirements

The system's database should be managed properly.