DETAILED PROJECT REPORT
OF
LIBRARY MANAGEMENT SYTEM

Submitted By:

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INTRODUCTION

Library Management System is a term for computer-based system that manage the catalogue of a library. The main purpose of this system is to manage library daily operation efficiently.

1. PROJECT AIM AND OBJECTIVES

Library Management System is a term for computer-based system that manage the catalogue of a library. The main purpose of this system is to manage library daily operation efficiently. Objectives of Library Management System (LMS)

a) To build a system that can receive input and generate automatically output in easy way and short time.

b) Provide timely access to requested materials.

c) Simplify search/discovery of library resources.

d) To build a monitoring system that is able to monitor and manage all library operations efficiently.

e) To enter and preserve details of the various issues and keep a track on their returns.

f) Online book issue

g) Request column for librarian for providing new book.

h) A separate column for digital library.

i) Student login page where student can find books issued by him/her and date of return.

j) A search column to search availability of books

2. USER REQUIREMENTS

The application is designed for the use of librarians and library users. By using library management system, the operation of borrowing and managing inventories is paperless. This system provides a user-friendly data entry with dropdown button menu, list box and checkbox in purpose to make the input entry easier to understand and use. It is also created to ensure that the library items are stored properly in order to maintain their security. This system will store all the books and members information that consist book numbers, book titles, author names and categories to the system database. It also provides search function to help students find the book by book name, title, category. Search function will search through the books database to look for the book and view where the book is situated. For the administrator user, only librarians have access to view or edit data from the system databases. Administrator user will handle administrative functions such as add a new book, update/delete an existing book information, view student information, and issue/ return book to students. Librarian need to enter correct password and user id before they can access to this function. From here, they can add, delete or update the book and borrower database.

Development Tools

In this project, a number of development tools would be used to complete this project. They are listed as follow.

Java

Java is a programming language and a platform. Java is a high level, robust, object-oriented and secure programming language. Java was developed by Sun Microsystems (which is now the subsidiary of Oracle) in the year 1995. James Gosling is known as the father of Java. Before Java, its name was Oak. Since Oak was already a registered company, so James Gosling and his team changed the name from Oak to Java.

HTML

HTML (Hypertext Markup Language) is the code that is used to structure a web page and its content. HTML is used to specify whether a web content should be recognized as a paragraph, list, heading, link, image, multimedia player, form, or one of many other available elements or even a new element that you define. It is the globally accepted programming language for formatting web pages. It is mostly used by small and medium scale businesses that do not really need advanced functionality on their websites. HTML is free, supports all browsers on the client's machine, easy to use and understand hence, the choice in building the structure of my web pages.

CSS

Cascading Style Sheets (CSS) is a stylesheet language used to describe the presentation of a document written in HTML or XML (including XML dialects such as SVG or XHTML). CSS describes how elements should be rendered on screen, on paper, in speech, or on other media. CSS is one of the core languages of the open web and is standardized across browsers according to the W3C (World Wide Web Consortium) specification.

JavaScript

JavaScript is a high-level, dynamic, weakly typed, prototype-based, multi-paradigm, and interpreted programming language. JavaScript is a full-fledged dynamic programming language that, when applied to an HTML document, can provide dynamic interactivity on websites. It would be used in conjunction with Django to ensure validation rules on the front-end of the websites.

Bootstrap

Bootstrap is a free and open-source front-end web framework for designing websites and web applications. It contains HTML and CSS based design templates for typography, forms, buttons, navigation and other interface components, as well as optional JavaScript extensions. Unlike many web frameworks, it concerns itself with front-end development only. Bootstrap would be used to design the styling of the application alongside CSS. Bootstrap is important in the application for the following

JSP

JSP technology is used to create web application just like Servlet technology. It can be thought of as an extension to Servlet because it provides more functionality than servlet such as expression language, JSTL, etc. A JSP page

consists of HTML tags and JSP tags. The JSP pages are easier to maintain than Servlet because we can separate designing and development. It provides some additional features such as Expression Language, Custom Tags, etc.

ECLIPSE IDE

Eclipse IDE is one of the most powerful integrated development environments (IDEs) ever built. This well-designed, robust, and feature-loaded IDE is in use in most of the current IT environments. This article provides an overview of how to get started using Eclipse IDE, from installation and to executing a program and using shortcuts.

FUNCTIONAL FEATURES

1-REGISTER NEW STUDENT

Student is required to provide his/her details like name, email address, contact number and password. After clicking on register button, the student is redirected to the student registration page. If registration is successful he will get the message which will contain the student id and if the registration is unsuccessful he will get the message of invalid registration(results if same email provided).

2-REGISTER NEW LIBRARIAN

Librarian is required to provide his/her details like name, email address, contact number and password. After clicking on register button, the librarian is redirected to the librarian registration page. If registration is successful he will

get the message which will contain the librarian id and if the registration is unsuccessful he will get the message of invalid registration(results if same email provided).

3-STUDENT LOGIN

Student is required to enter his/her student ID and password and after clicking on login if the login is successful he will be redirected to the student dashboard page else he will be redirected to the login page where a message will be displayed of invalid login(results if id/password does not match in database).

4-LIBRARIAN LOGIN

Librarian is required to enter his/her librarian ID and password and after clicking on login if the login is successful he will be redirected to the librarian dashboard page else he will be redirected to the login page where a message will be displayed of invalid login(results if id/password does not match in database).

5-ADD NEW BOOK (LIBRARIAN DASHBOARD)

Add book is provided as an option on the side bar of librarian dashboard. When clicking on add book the librarian will be redirected to the add book form where he has to enter Book title, author, category and quantity. After clicking on add book, it will redirect to display message page where a message of “book added successfully” will appear.

6-SEARCH BOOK (LIBRARIAN DASHBOARD)

On clicking on search book option on the side bar of librarian dashboard it will be redirected to show book page where all the book data will be fetched from the book database and displayed in the table which contains book ID, Book title, book author, book category, book quantity, update/delete. Above the

table is the search field where three buttons are given as search by title, search by author, search by category. The user is required to enter the relevant input in the search field and click on the respective button to get that result.

7-UPDATE BOOK (LIBRARIAN DASHBOARD)

Clicking on search book it will be redirected to the show book page where in the table is the option for update in front of every book. Clicking on the update option will redirected to the book update form where the book title, book author, book category, book quantity fields will be prepopulated. The librarian can make the changes and click on update book and will be redirected to the show book page which now contains the updated book

8-DELETE BOOK (LIBRARIAN DASHBOARD)

Clicking on search book in the sidebar librarian will be redirected to show book page where delete option is given in front of every book on clicking on the delete option a pop up will appear to confirm the deletion of that book on clicking okay that will book will be deleted from the database.

9-ISSUE BOOKS (LIBRARIAN DASHBOARD)

Issue book option is provided on the side bar of librarian dashboard, clicking on issue book will redirect to issue book form where librarian is required to enter the book ID and student ID. If any of the following case arise issue book will give an error message- -If quantity of the specified book is less than 1. -If the student has already three books issued. -If book ID does not exist or match with the database. -If a student id does not exist or match with the database. If everything is fine then clicking on issue book will be redirect to display message page where a message of “book with ID_____ issued successfully to student with ID_____”.

10-RETURN BOOKS (LIBRARIAN DASHBOARD)

Return book is provided as an option in the sidebar of librarian dashboard. Clicking on return book will redirect to return book form where librarian is required to enter student id and click on find books button which will which will give all the books issued or return by the student. In front of every issued book there will be an option of return on clicking the return button the book will be returned successfully.

11-STUDENT DATABASE (LIBRARIAN DASHBOARD)

Student database is an option provided on the side bar of librarian dashboard. Clicking on student database will give a table which contains all the student information like a student id, student name, student email, student contact number, and books issued to that student.

12-BOOK TRANSACTIONS (LIBRARIAN DASHBOARD)

Book transaction is an option given on side bar of librarian dashboard. On clicking on book transaction will give all the books transaction done till date it contains information like a student id, book ID, issue date, return date, status(returned/issued) and fine amount in Rupees.

13-LOGOUT (LIBRARIAN DASHBOARD)

Logout is provided on the top right corner of librarian dashboard. Clicking on logout will remove the session object of the librarian and redirect to the homepage.

14-SEARCH BOOK (STUDENT DASHBOARD)

On clicking on search book option on the side bar of student dashboard it will be redirected to show book page where all the book data will be fetched from

the book database and displayed in the table which contains book ID, Book title, book author, book category, book quantity. Above the table is the search field where three buttons are given as search by title, search by author, search by category. The user is required to enter the relevant input in the search field and click on the respective button to get that result.

15-ISSUED BOOKS (STUDENT DASHBOARD)

Issued books option is provided on the sidebar of student dashboard. Clicking on issued books will redirect to show issued book page where for that particular student id the books issued will be fetched from database and displayed in a table which contains book ID, Book title, book author, book category, issue date, return date, status and fine amount in rupees.

16-RETURNED BOOKS (STUDENT DASHBOARD)

Returned books option is provided on the sidebar of student dashboard. Clicking on returned books will redirect to show returned book page where for that particular student id the books returned will be fetched from database and displayed in a table which contains book ID, Book title, book author, book category, issue date, return date, status and fine amount in rupees.

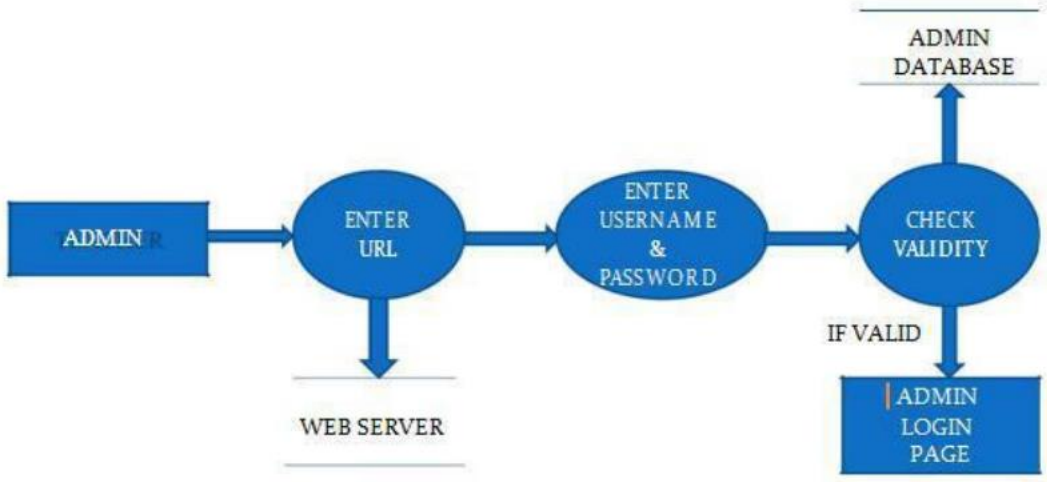
17-LOGOUT (STUDENT DASHBOARD)

Logout is provided on the top right corner of student dashboard. Clicking on logout will remove the session object of the student and redirect to the homepage.

DATA FLOW DIAGRAMS

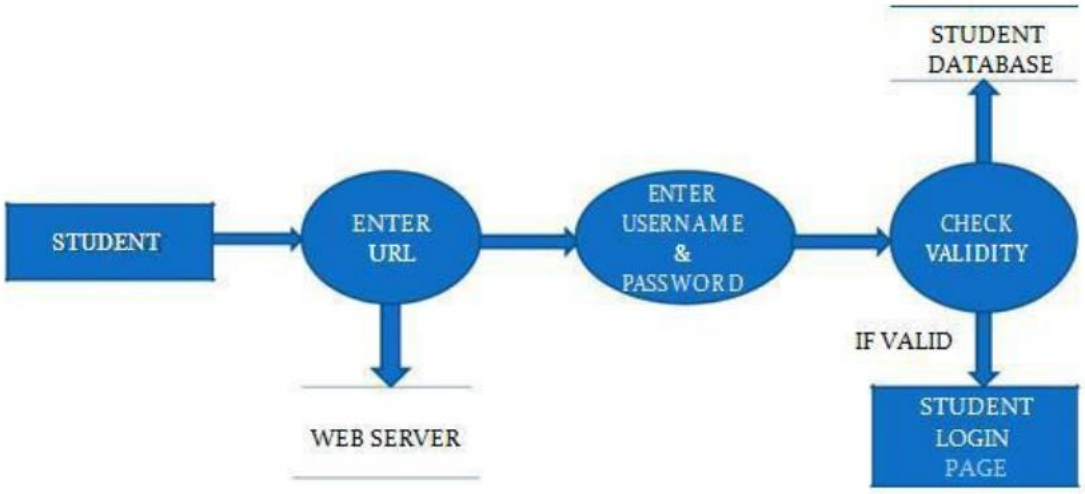
1. DATA FLOW DIAGRAM FOR ADMINISTRATOR LOGIN

After entering to the home page of the website, librarian can choose the LIBRARIAN LOGIN option where they are asked to enter librarian ID & password, and if he/she is a valid user then they will be redirected to librarian portal page



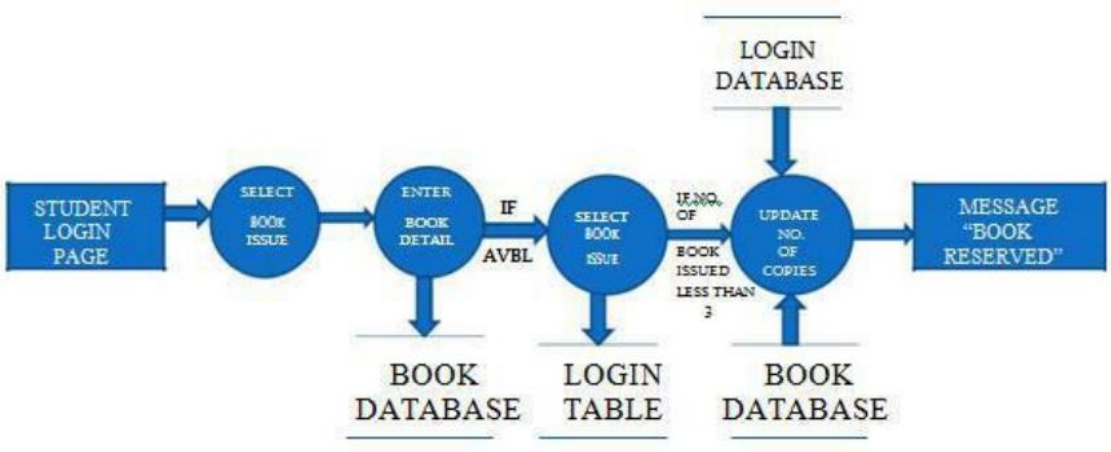
2. DATA FLOW DIAGRAM FOR STUDENT LOGIN

After entering to the home page of the website, student can choose the STUDENT LOGIN option where they are asked to enter student ID & password, and if he/she is a valid user then they will be redirected to student portal page



3. DATA FLOW DIAGRAM FOR BOOK ISSUE

It is a second level Data Flow Diagram where after entering LIBRARIAN DASHBOARD page he/she can select a book issue option where after entering the book detail, he/she can select the book issue option and if the maximum no of books issued limit is not crossed then the book will be issued.



4. DATA FLOW DIAGRAM FOR BOOK SEARCH

After the home page login there will be an option of the book search where after entering book detail like author name, category, book name etc book details will be displayed.