Commercial Project Report

Submitted in partial fulfilment of the degree of

B.TECH

By

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Second year student of

Siliguri Institute Of Technology

Under the supervision of

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Department of Computer Science Engineering

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I hereby forward the documentation prepared by me **Pritam Roychowdhury** under the supervision of Mr. Mainak Deb Sir entitled **Result Management System Website/Portal** accepted as fulfilment of the requirement for the Degree of Bachelor of Technology in **Computer Science Engineering** from **Siliguri Institute of Technology** affiliated to **Maulana Abul Kalam Azad University of Technology** (**MAKAUT**).

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Mr. Pritam Roychowdhury
(Software Developer)

Project Guide

Sikharthy Infotech Pvt. Ltd.

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Library Management System

By **SOMDATTA NAG (11900122108)**

UNDER THE GUIDANCE OF

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THEIS SUBMITTED IN FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF

B.Tech
IN
Computer Science Engineering

SILIGURI INSTITUTE OF TECHNOLOGY

AFFILIATED TO
Maulana Abul Kalam Azad University of Technology

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Certificate of Approval

The foregoing project is hereby approved as a creditable study for the B.TECH in Computer Science Engineering and presented in a manner of satisfactory to warrant its acceptance as a prerequisite to the degree for which it has been submitted. It is understood that by this approval the undersigned do not necessarily endorse or approved any statement made, opinion express or conclusion therein but approve this project only for the purpose for which it is submitted.

Final Examination for
Evaluation of the Project ----------

Signatures of Examiners

ABSTRACT

The purpose of a library management system is to operate a library with efficiency and at reduced costs. The system being entirely automated streamlines all the tasks involved in operations of the library. The activities of book purchasing, cataloging, indexing, circulation recording and stock checking are done by the software. Such software eliminates the need for repetitive manual work and minimizes the chances of errors. Admin can add, update or remove any from admin panel.

ACKNOWLEDGEMENT

It is a great pleasure for me to acknowledge the assistance and participation of a large number of individuals to this attempt. Our project report has been structured under the valued suggestion, support and guidance of **Mr. Pritam Roychowdhury**. Under his guidance we have accomplished the challenging task in a very short time.

Finally, we express our sincere thankfulness to our family members for inspiring me all throughout and always encouraging us.

Somdatta Nag
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INTRODUCTION

The library management system software helps in reducing operational costs. Managing a library manually is labor intensive and an immense amount of paperwork is involved. An automated system reduces the need for manpower and stationery. This leads to lower operational costs.

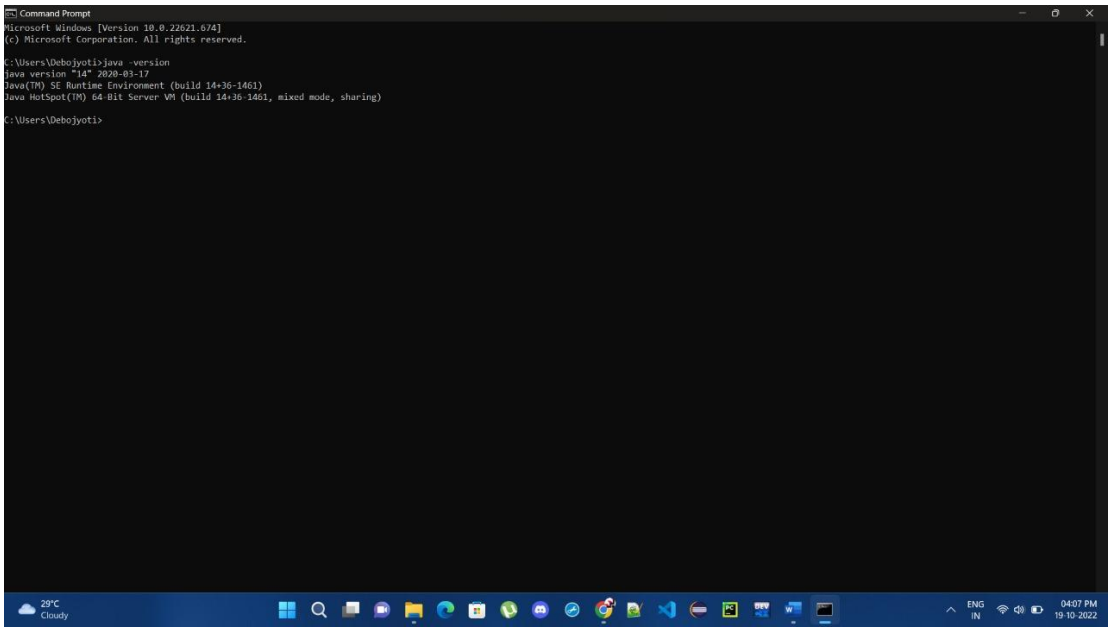
The system saves time for both the user and the librarian. With just a click the user can search for the books available in the library. The librarian can answer queries with ease regarding the availability of books. Adding, removing or editing the database is a simple process. Adding new members or cancelling existing memberships can be done with ease.

Stock checking and verification of books in the library can be done within a few hours. The automated system saves a considerable amount of time as opposed to the manual system.

The library management system software makes the library a smart one by organizing the books systematically by author, title and subject. This enables users to search for books quickly and effortlessly..

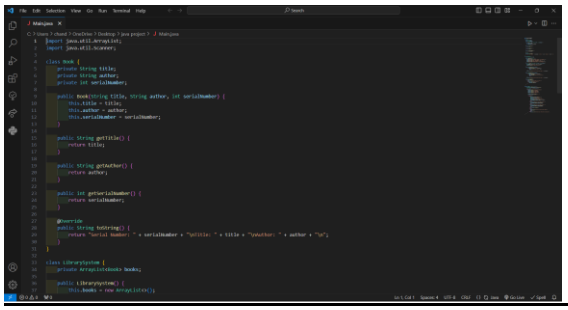
2.1 Java

We used java 14, in this project we learned java datatypes, methods, class, sorting, OOPs concept, loops and many elements in our java program.



2.2IDE

We used Microsoft Visual Studio Code (VS Code), eclipse in our project as IDE.



3. FEATURES

3.1 ADMIN

- User can access books.
- User can check added/deleted books.
- User can change serial number of books.
- User can view all books.
- User can search a particular book.

4. SYSTEM ANALYSIS

4.1 IDENTIFICATION OF NEED

At the behind of any project, there are mainly two important parts i.e. Proper Plans and Right execution of those plans. This is the key of success. That will always help to execute the ideas.

Here that same process we followed during that development. We made the plan of making this **Library Management System** to make it easy for the users to access their books from library.

4.2 PRELIMINARY INVESTIGATION

Preliminary investigations involve collecting information that helps to evaluate the merits of a project and make an informed judgement about the feasibility of the proposed project. While we planned about **“ Library**

Management System", on the Internet a lot of consideration was given to all these issues. Extensive thought was given to the various minimum-offering levels that can be provided against the possible returns from such offerings.

4.3 FEASIBILITY STUDY

The feasibility of the project is analysed in this phase and business proposal is put forth with a very general plan for the project and some cost estimates. During system analysis the feasibility study of the proposed system is to be carried out. This is to ensure that the proposed system is not a burden to both the public and the company. For feasibility analysis, some understanding of the major requirements for the system is essential. Three key considerations involved in the feasibility analysis are:

4.3.1 Economic Feasibility

This study is carried out to check the economic impact on the system of the organization. The amount of fund that the company can pour into the research and development of the system is limited. The expenditures must be justified. Thus, the developed system as well within the budget and this was achieved because most of the technologies used are freely available.

4.3.2 Technical Feasibility

This study is carried out to check the technical feasibility i.e. the technical requirements of the system. Any system developed must not have a high demand on the available technical resources. This will lead to high demands being placed on the client. The developed system must have a modest requirement, as only minimal or null changes for implementing this system.

4.3.3 Operational Feasibility

The aspect of study is to check the level of acceptance of the system by the user. This includes the process of training the user to use the system efficiently. The user must not feel threatened by the system, instead must accept it as a necessity. The level of acceptance by the users solely depends on the methods that are employed to educate the user about the system and to make him familiar with it.

5. Functional Requirement of the System

Being a web-based solution the first and foremost thing that starts acquiring importance in this project is the way the complete package needs to be configured. Web-based solutions by virtue of their designs are mostly thin client solutions (unless they are heavy on DHTML). To run this kind of a solution properly it is necessary that the Server configurations are properly worked out. It is the server that will have to ultimately scale up as and when the numbers of users start increasing.

5.1 HARDWARE REQUIREMENTS

The minimum Hardware requirements for the application to run smoothly should have the following configuration:

Processor	Intel Core i3
RAM	4GB or more
HDD	3GB or more

5.2 SOFTWARE SPECIFICATIONS

The minimum software requirements are as follows:

Operating System	Windows 7,8 and upwards
Language Used	Java Language
Working IDE	Visual Studio Code

6.Project Planning and Scheduling

Scheduling is an important activity of any project management. Scheduling a software project involves first breaking down an entire problem into a logical set of tasks which would be assigned to developers.

In order to Schedule the "**Library Management System**" we have to do the following:

- Identify the tasks needed to complete the project.
- Determine the dependency among different tasks.
- Establish the most likely estimates for the duration of the identified tasks.
- Plan the starting and ending dates for various tasks.
- Determine the critical path i.e. the chain of tasks that determine the duration of the project.

7. SOURCE CODE:

1. BOOK:

```java
import java.util.ArrayList;
import java.util.Scanner;

class Book {
    private String title;
    private String author;
    private int serialNumber;

    public Book(String title, String author, int serialNumber) {
        this.title = title;
        this.author = author;
        this.serialNumber = serialNumber;
    }

    public String getTitle() {
        return title;
    }

    public String getAuthor() {
        return author;
    }

    public int getSerialNumber() {
        return serialNumber;
    }

    @Override
    public String toString() {
        return "Serial Number: " + serialNumber + "\nTitle: " + title + "\nAuthor: " + author + "\n";
    }
}
```

2. Library System:

```java
class LibrarySystem {
    private ArrayList<Book> books;

    public LibrarySystem() {
        this.books = new ArrayList<>();
        books.add(new Book(title:"The Catcher in the Rye", author:"J.D. Salinger", serialNumber:1));
        books.add(new Book(title:"To Kill a Mockingbird", author:"Harper Lee", serialNumber:2));
        books.add(new Book(title:"1984", author:"George Orwell", serialNumber:3));
        books.add(new Book(title:"Pride and Prejudice", author:"Jane Austen", serialNumber:4));
        books.add(new Book(title:"The Great Gatsby", author:"F. Scott Fitzgerald", serialNumber:5));
    }

    public void addBook(String title, String author, int serialNumber) {
        Book newBook = new Book(title, author, serialNumber);
        books.add(newBook);
        System.out.println(x:"Book added successfully!");
    }

    public void searchBook(int serialNumber) {
        for (Book book : books) {
            if (book.getSerialNumber() == serialNumber) {
                System.out.println("Book found:\n" + book);
                return;
            }
        }
        System.out.println("Book not found with serial number: " + serialNumber);
    }
```

```java
    public void deleteBook(int serialNumber) {
        for (Book book : books) {
            if (book.getSerialNumber() == serialNumber) {
                books.remove(book);
                System.out.println(x:"Book deleted successfully!");
                return;
            }
        }
        System.out.println("Book not found with serial number: " + serialNumber);
    }

    public void displayBooks() {
        if (books.isEmpty()) {
            System.out.println(x:"No books in the library.");
        } else {
            System.out.println(x:"Library Books:");
            for (Book book : books) {
                System.out.println(book);
            }
        }
    }
}
```

3. MAIN:

```
public class Main {
    Run | Debug
    public static void main(String[] args) {
        LibrarySystem librarySystem = new LibrarySystem();
        Scanner scanner = new Scanner(System.in);

        while (true) {
            System.out.println(x:"\nLibrary System Options:");
            System.out.println(x:"1. Add Book");
            System.out.println(x:"2. Search Book");
            System.out.println(x:"3. Delete Book");
            System.out.println(x:"4. Display Books");
            System.out.println(x:"5. Exit");

            System.out.print(s:"Enter your choice: ");
            int choice = scanner.nextInt();

            switch (choice) {
                case 1:
                    System.out.print(s:"Enter book title: ");
                    String title = scanner.next();
                    System.out.print(s:"Enter book author: ");
                    String author = scanner.next();
                    System.out.print(s:"Enter book serial number: ");
                    int serialNumber = scanner.nextInt();
                    librarySystem.addBook(title, author, serialNumber);
                    break;
                case 2:
                    System.out.print(s:"Enter serial number to search: ");
                    int searchSerialNumber = scanner.nextInt();
                    librarySystem.searchBook(searchSerialNumber);
                    break;
```

```
                case 3:
                    System.out.print(s:"Enter serial number to delete: ");
                    int deleteSerialNumber = scanner.nextInt();
                    librarySystem.deleteBook(deleteSerialNumber);
                    break;
                case 4:
                    librarySystem.displayBooks();
                    break;
                case 5:
                    System.out.println(x:"Exiting the library system. Goodbye!");
                    System.exit(status:0);
                    break;
                default:
                    System.out.println(x:"Invalid choice. Please enter a valid option.");
            }
        }
    }
}
```

8. RESULT:

```
Library System Options:
1. Add Book
2. Search Book
3. Delete Book
4. Display Books
5. Exit
Enter your choice: 1
Enter book title: GORA
Enter book author: RABINDRANATH_TAGORE
Enter book serial number: 6
Book added successfully!

Library System Options:
1. Add Book
2. Search Book
3. Delete Book
4. Display Books
5. Exit
Enter your choice: 1
Enter book title: LOLITA
Enter book author: VANHUGO
Enter book serial number: 7
Book added successfully!

Library System Options:
1. Add Book
2. Search Book
3. Delete Book
4. Display Books
5. Exit
Enter your choice: 2
Enter serial number to search: 3
Book found:
Serial Number: 3
Title: 1984
Author: George Orwell
```

```
Library System Options:
1. Add Book
2. Search Book
3. Delete Book
4. Display Books
5. Exit
Enter your choice: 3
Enter serial number to delete: 4
Book deleted successfully!
```

```
Library System Options:
1. Add Book
2. Search Book
3. Delete Book
4. Display Books
5. Exit
Enter your choice: 4
Library Books:
Serial Number: 1
Title: The Catcher in the Rye
Author: J.D. Salinger

Serial Number: 2
Title: To Kill a Mockingbird
Author: Harper Lee

Serial Number: 3
Title: 1984
Author: George Orwell

Serial Number: 5
Title: The Great Gatsby
Author: F. Scott Fitzgerald

Serial Number: 6
Title: GORA
Author: RABINDRANATH_TAGORE

Serial Number: 7
Title: LOLITA
Author: VANHUGO


Library System Options:
1. Add Book
2. Search Book
3. Delete Book
4. Display Books
5. Exit
Enter your choice: 5
Exiting the library system. Goodbye!
```

9. CONCLUSION

The project "**Library Management System**" is for accessing results of the books from library. Students need access to authentic information. An advanced organized library is an integral part of any educational institution. In this digital age a web-based library management system would be ideal for students who can access the library's database on their smartphone