**PROJECT REPORT**

# **LIBRARY MANAGEMENT SYSTEM**

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# ABSTRACT

Library Management System is an application which is used by librarian to manage the library using a computerized system where he/she can record various transactions like view books, view issued books, view users ,return book etc.

Books and student maintenance modules are also included in this system which would keep track of the students using the library and also a detailed description about the books a library contains. With this computerized system there will be no loss of book record or member record which generally happens when a non computerized system is used.

In addition, report module is also included in Library Management System. If user’s position is admin, the user is able to generate different kinds of reports like add user, issue book, add book, return book etc whereas if user’s position is just a user then he/she will be able to –see report like view books, view his issued books.

All these modules are able to help librarian to manage the library with more convenience and in a more efficient way as compared to library systems which are not computerized.

# INTRODUCTION

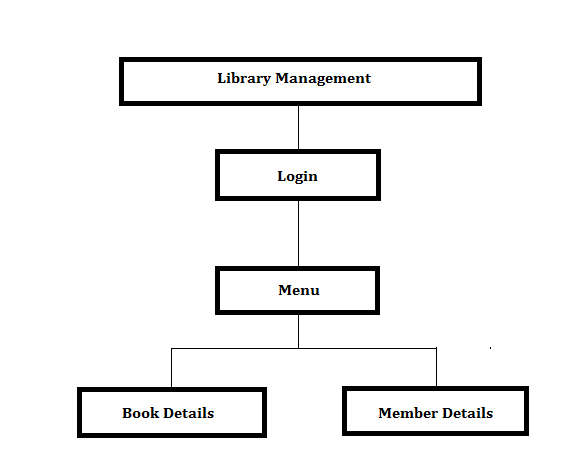
Library management system is all about organizing and managing the library tasks. It also involves maintaining the database of entering new books and the record of books that have been issued, with their respective dates.

The main aim of this project is providing an easy to handle and automated library management system. This project also provides features and interface for maintaining library records, student’s history of issue and fines etc. The owner can easily update, delete and insert data in the database with this project.

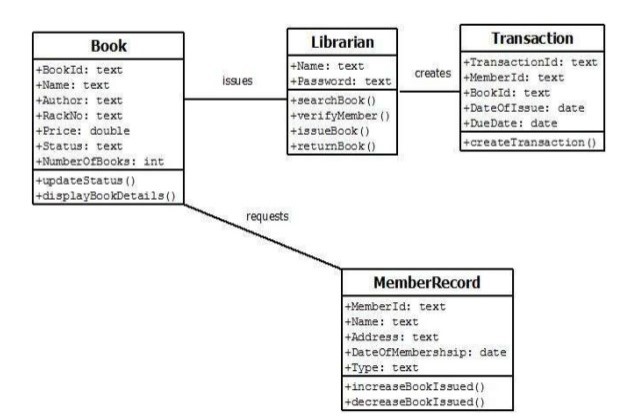
The following are some of the features provided by this project:

1. The issue of books by online mode.
2. Columns provided to search book online.
3. Login portal for a student for security purpose of the library.
4. Homepage for the student which has different buttons to navigate view available books in library, book student has issued.
5. And auto generated fine if student has not returned book in given period of time.

## RELATED WORKS/LITERATURE SURVEY



Usually old projects on Library Management system contains a Login page and a Menu with 2 options of choosing available book details in library and details of the user/student.



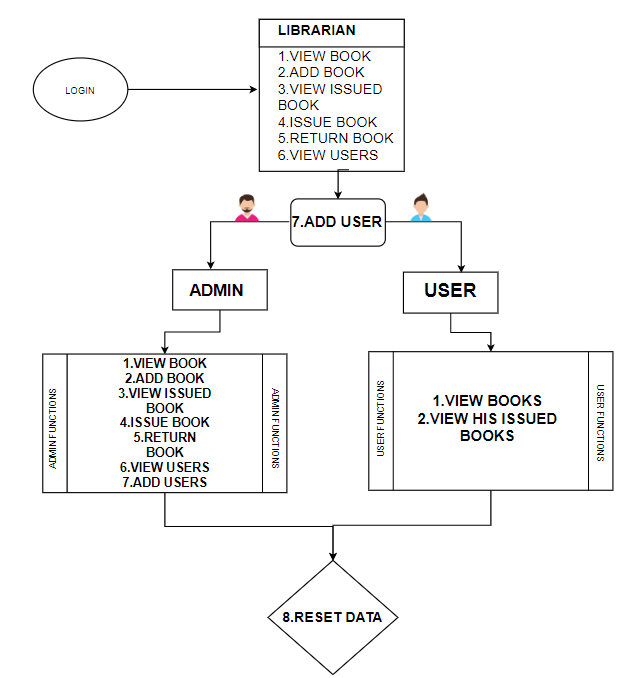
Whereas in recent projects of Library Management system only the Librarian handles the application and student/user is not able to login because there is no extra option of choosing the type of user (Admin, User).

This makes difficult for the student to know what books are available in the library and he/she need to ask the librarian for knowing if the book is available or not in the library.

Even in SRM we cannot know which books are available at present and we need to ask the librarian for details.

So for this particular problem I added an extra feature of adding a user and there present admin/librarian can select whether the new user is an admin or just a user.

Diagram of my project



If the user type is chose as admin then he/she is able to perform all the functions that a librarian can do like view book, add book, view issued book, issue book, add user etc, whereas if the user type is chose as just a user then he can only view 2 options i.e.

1. View books.

2. View his issued books.

In’ view books’ he/she is capable of viewing the books available in the library and in ‘view user issued book’ if he/she issued any of the book in library then he can view the details of that book and can even see the date he/she has issued and can easily return book before the last date of submission.

And also if user returns the book earlier than the due date it also display a message box of showing how many days earlier he/she has returned the book and if he/she returns the book after the due date it display the fine amount and will be added to data base.

And in this project I added an extra option of ‘RESET DATA’ [2] where if we press that button all the data available in the database will be deleted and gets re-started again.

Many of applications that are existing at present used file system to store the data i.e. unstructured data which stores arbitrary, probably unrelated data whereas I used database (MYSQL) which is well defined data format, which is in an efficient manner for insert and update of data.

These are the extra functions I added compared to previous applications of Library Management System.

**PROBLEM STATEMENT/OBJECTIVE**

## The main objective of the Library Management system is to manage the details of the Student, Books, Issued books, Return book, Add Member. It manages all the information about Students book details, issue date, Users details. The Project is totally built at administrative end and thus only the administrator is guaranteed the access and gives access to others. The purpose of the project is to build an application program to reduce the manual work for managing the Library details.

### Functionalities provided by Library Management System are as follows:

## Provides the searching facilities based on various factors. Such as Student, Issues, Librarian, Member.

## Library Management system also manage the details of Student when the book has issued and when book needs to be returned.

## It tracks all the information of available books in library.

## Increases the efficiency of managing the student details.

## Editing , adding and uploading of Records is improved which results in proper resource management of Student data.

**PROPOSED SYSTEM**

The project Library Management System aims at developing a fully functional computerized system to maintain all the day to day activity of a library.

The various modules of this system are as:

### User Module:

This module is further divided into various sub-modules describing the user in a better way:

#### New user register:

To sign up a new user to this system whether as an admin or a user of his/her choice.

#### Student Login:

So as to confirm that only an authenticated user is using the project.

#### Search book:

The user can search book based on Book id, Book name, or by Genre.

#### Issue Book:

To help the user get the required books issued.

#### Return Book:

To return the book before the last date without fine, or after the specified time duration with a late fine.

### Admin Module:

It is to be operated by the admin with unique id and password. The admin is the person who decides authentication and authorization for all the different users of the application. It further can be subdivided as:

Register user

Issue Book

Maintain books in a stack, means record the availability at regular time interval.

### Librarian:

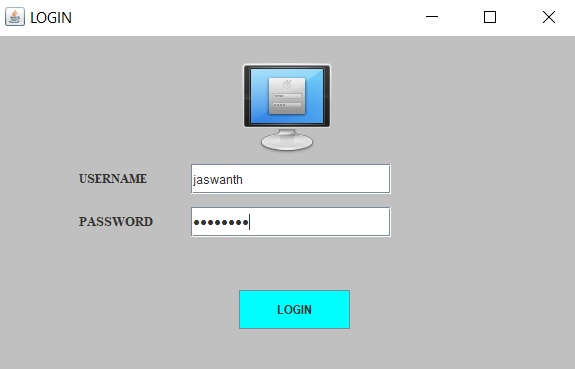
Includes all the library staff, responsible to enter the records in the system and keep an eye on the various activities like the issue of the book, the return of the book, non-availability of books etc. through the developed system.

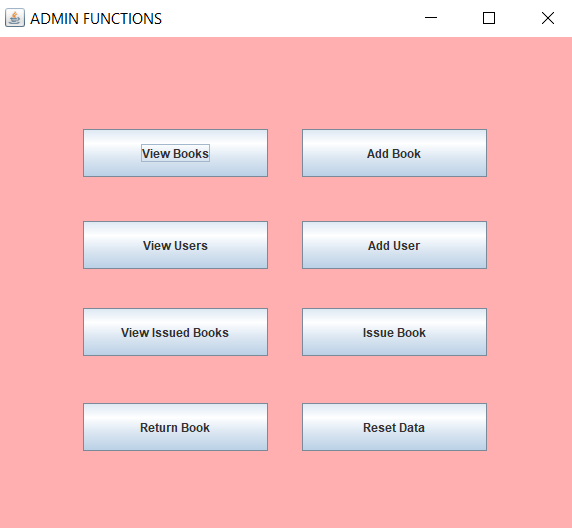
ALGORITHM

* **STEP 1** - START
* **STEP 2** -CREATE A DATABASE USING MYSQL
* **STEP 3** -GIVE THE CONNECTION CODE IN JAVA CODE[1]
* **STEP 4** -GIVE A NAME TO YOUR DATABASE
* **STEP 5** -ADD USERNAME AND PASSWORD FOR THE DATABASE
* **STEP 6** -CREATE TABLES BASED ON REQUIREMENTS YOU NEED TO SHOW IN THE CODE
* **STEP 7** -CREATE A LOGIN CLASS
* **STEP 8** - CREATE A J FRAME [3]
* **STEP 9** -CREATE REQUIRED LABELS AND TEXTFEILS
* **STEP 10** -CREATE A BUTTON AND ADD ACTION LISTENER TO THE BUTTON
* **STEP 11** -IN ACTION PERFORMED FOR THE BUTTON
* **STEP 12** - USERNAME =jaswanth
  + - PASSWORD=jaswanth
  + IF USERNAME && PASSWORD ARE NOT MATCHED
  + SHOWMESSAGEDIALOG ("LOGIN WRONG")
  + RETURN TO LOGIN PAGE
  + ELSE
  + GO TO ADMIN MENU
* **STEP 13** -CREATE A CLASS ADMIN MENU
* **STEP 14** -CREATE A JFRAME
* **STEP 15** -IN ADMIN MENU ADD 7 BUTTONS
* VIEW BOOKS
* VIEW USERS
* VIEW ISSUED BOOKS
* ISSUE BOOK
* ADD USER
* ADD BOOK
* RETURN BOOK
* **STEP 16** -ADD ACTION LISTENERS TO ALL THE BUTTONS
* **STEP 17** -IF USER PRESSES ON VIEW BOOKS
* **STEP 18** -IN ACTION PERFORMED ADD A JFRAME FOR DISPLAYING BOOK
* **STEP 19** -CREATE A TABLE FOR DISPLAYING THE BOOKS DATA AVAILABLE IN DATABASE IN FORM OF TABLES
* **STEP 20** -IF USER PRESSRS VIEW USERS
* **STEP 21** -IN ACTION PERFORMED ADD A JFRAME FOR DIPLAYING USERS
* **STEP 22** -CREATE A TABLE FOR DISPLAYING THE USERS DATA AVAILABLE IN DATABASE IN FORM OF TABLES
* **STEP 23** -IF USER PRESS ON VIEW ISSUED BOOKS
* **STEP 24** -IN ACTION PERFORMED ADD A JFRAME FOR DIPLAYING ISSUED BOOKS
* **STEP 25** -CREATE A TABLE FOR DISPLAYING THE ISSUED BBOKS DATA AVAILABLE IN DATABASE IN FORM OF TABLES
* **STEP 26** -IF USER PRESSES ON ADD USER
* **STEP 27** -IN ACTION PERFORMED ADD A JFRAME FOR ADDING DETAILS OF USER
* **STEP 28** -IN USER DETAILS CREATE REQUIRED TEXTFIELDS, LABELS AND FINALLY ADD SUBMIT BUTTON
* **STEP 29** -ADD A RADIO BUTTON FOR ASKING USER IS ADMIN OR THE USER. IF ADMIN OPTION IS SELECTED HE/SHE GETS ALL FUNCTIONS THAT AN ADMIN CAN PERFORM.
* **STEP 30** -IF USER IS SELECTED
* **STEP 31** -CREATE A CLASS USERMENU
* **STEP 32** -ADD A FRAME WHICH CONTAINS 2 BUTTONS OF VIEW BOOKS AND MY BOOKS
* **STEP 33** -IF USER PRESS ON \* BUTTON \* DATA WILL BE DISPLAYED AVAILABLE IN DATABSE
* **STEP 34** -ADD ACTION LISTENER TO SUBMIT BUTTON
* **STEP 35** -WHEN ITS PRESSED ACTION PERFORMED SHOULD ADD IT IN AVAILABLE DATABASE PRESENT IN TABLE OF USERS
* **STEP 36** -NOTIFY A MESSAGE BOX AFTER SUCCESSFULLY ADDING A USER
* **STEP 37** -IF USER PRESSES ON ISSUE BOOK
* **STEP 38** -IN ACTION PERFORMED ADD A JFRAME FOR ISSUING THE BOOK
* **STEP 39** -IN ENTER USER DETAILS CREATE REQUIRED TEXTFIELDS, LABELS AND FINALLY ADD SUBMIT BUTTON
* **STEP 40** -ADD ACTION LISTENER TO SUBMIT BUTTON
* **STEP 41** -WHEN ITS PRESSED ACTION PERFORMED SHOULD ISSUE BOOK AND ADD IT IN DATABASE
* **STEP 42** -IN ISSUE BOOK, PROVIDE USER WITH PARTICULAR TIME PERIOD TO RETURN THE BOOK
* **STEP 43** -IF BOOK IS NOT RETURNED IN TIME FINE SHOULD BE CALCULATED AND ADD AUTOMATICALLY IN DATABASE
* **STEP 44** -NOTIFY A MESSAGE BOX AFTER SUCCESSFULLY ISSUING THE BOOK
* **STEP 45** -IF USER PRESSES ON ADD BOOK
* **STEP 46** -IN ACTION PERFORMED ADD A JFRAME FOR ADDING BOOK
* **STEP 47** -IN BOOK DETAILS CREATE REQUIRED TEXTFIELDS, LABELS AND FINALLY ADD SUBMIT BUTTON
* **STEP 48** -ADD ACTION LISTENER TO SUBMIT BUTTON
* **STEP 49** -WHEN ITS PRESSED ACTION PERFORMED SHOULD ADD BOOK AVAILABLE IN DATABASE WHICH IS PRESENT IN TABLE OF BOOKS
* **STEP 50** -NOTIFY A MESSAGE BOX AFTER SUCCESSFULLY ADDING BOOK
* **STEP 51** -IF USER PRESSES ON RETURN BOOK
* **STEP 52** -ADD A FRAME FOR ENTERING BOOK DETAILS
* **STEP 53** -ADD A RETURN BUTTON IF ITS PRESSED IF THERE IS FINE THEN IT DISPLAYS THE MESSAGE BOX OF FINE AMOUNT AND OTHER MESSAGE BOX OF NOTIFING BOOK RETURN
* **STEP 54** -IF WE AGAIN PRESS VIEW ISSUE BOOK THE RETURN BOOK USERS DETAILS WILL BE DELETED
* **STEP 55** –ATLAST IF LIBRARIAN WANTS TO DELETE ALL THE AVAILABLE CONTENT/DATA AVAILABLE IN DATABASE THEN PRESS THE RESET BUTTON WHRE IT PERFORM ACTION TO DELETE ALL THE CONTENNT AVAILABLE IN DATABASE
* **STEP56**- STOP

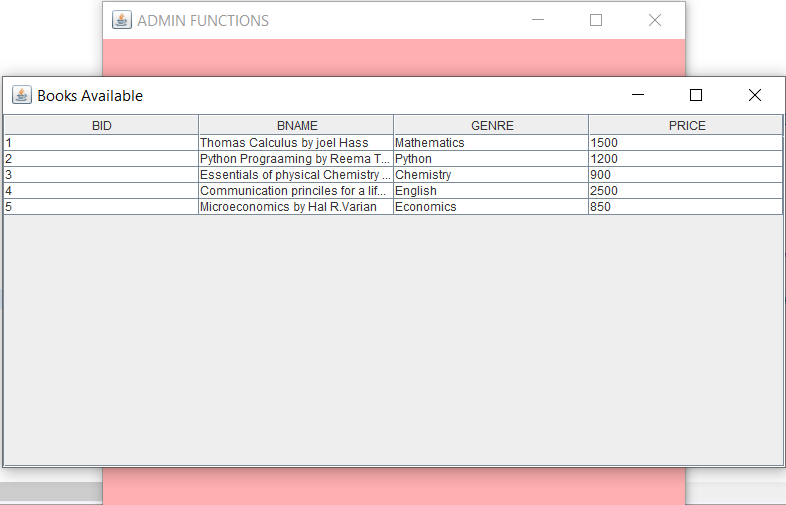
**RESULTS/PERFORMANCE**

**ANALYSIS**

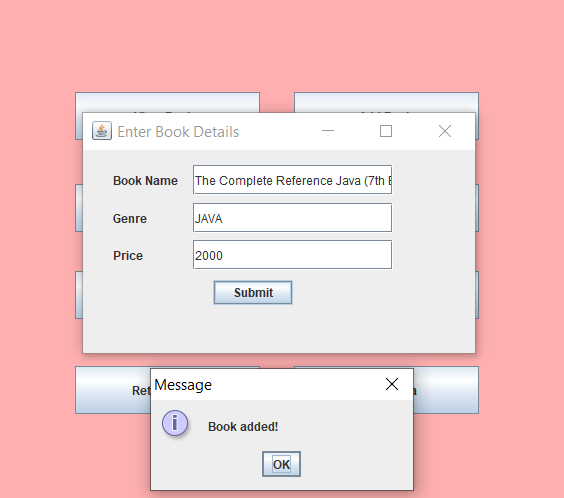
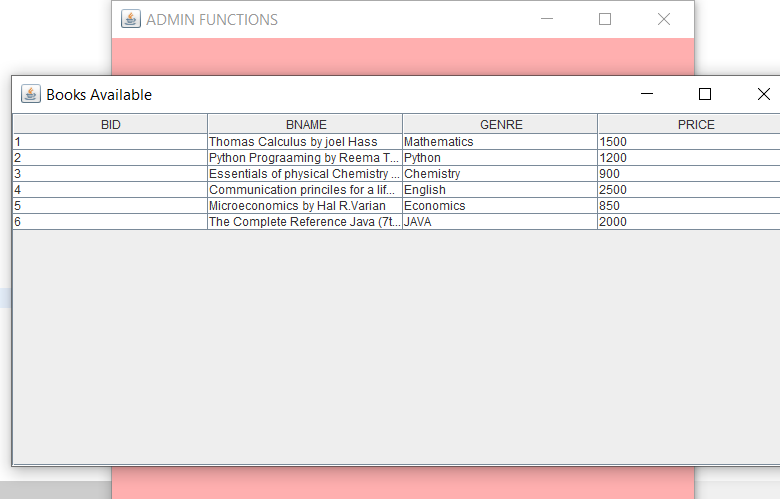




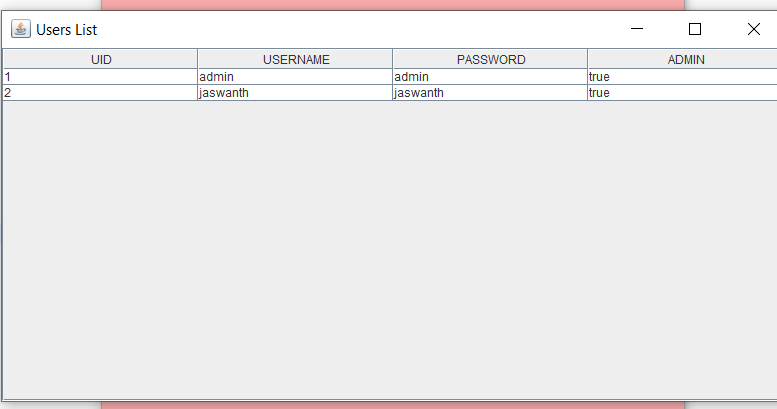
VIEW BOOKS

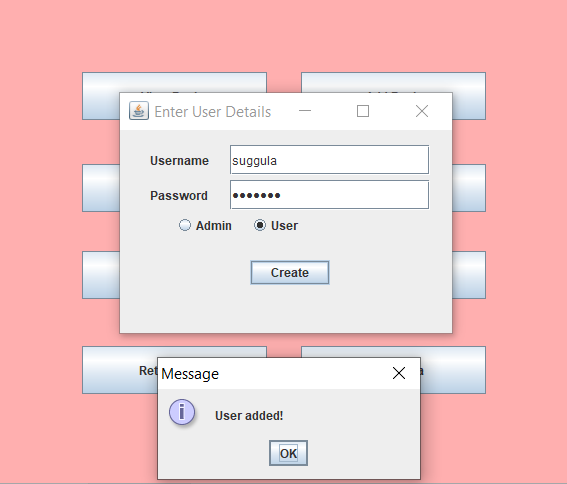
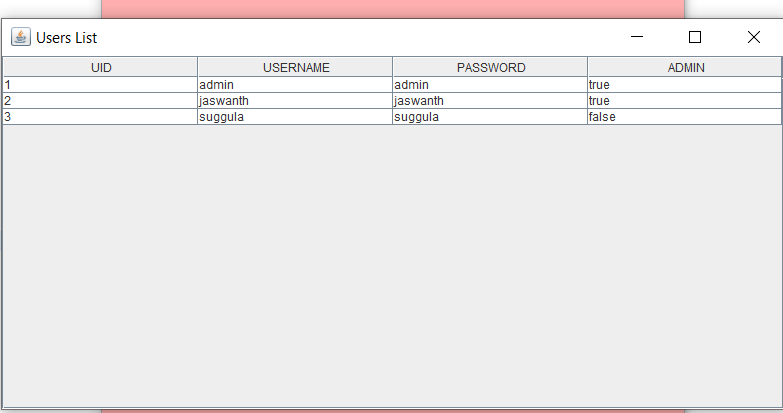


ADD BOOK UPDATED

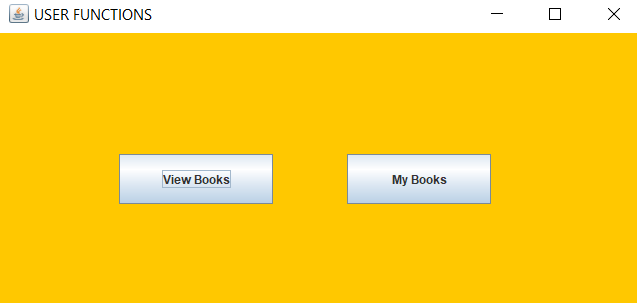
VIEW USERS



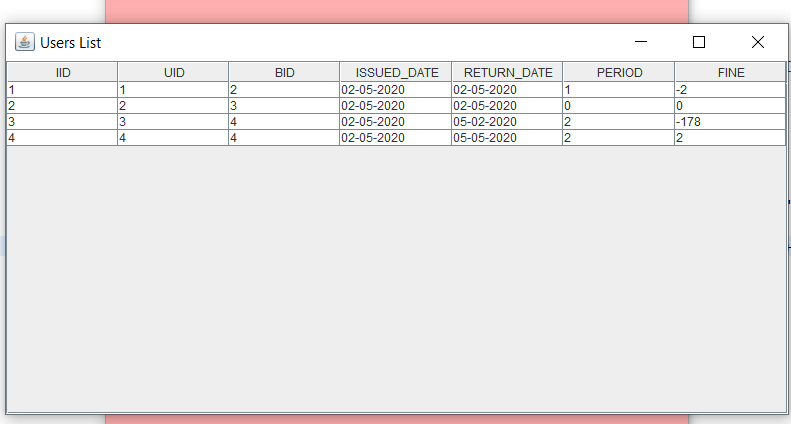
ADD USER UPDATED 

3.Useraname with suggula is updated

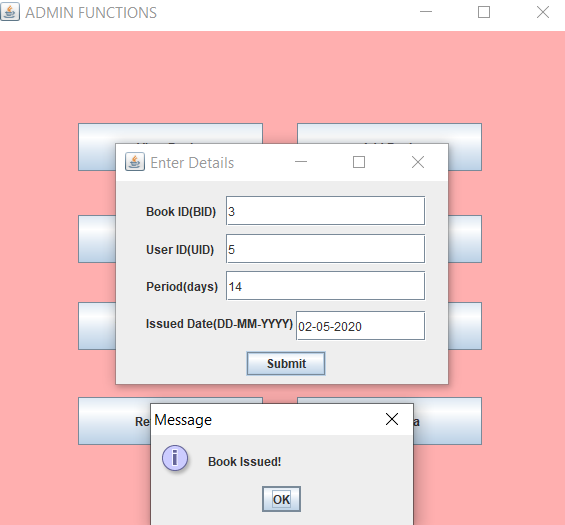
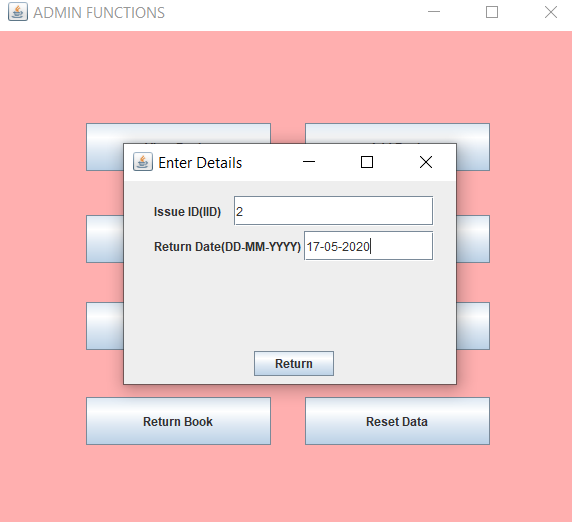
### IF USER LOGINS WITH USERNAME ‘suggula’ and password ‘\*\*\*\*\*’ then he will be able to see USER FUNCTIONS MENU SINCE HE IS NOT AN ADMIN ONLY 2 OPTIONS ARE AVIALABLE TO VIEW



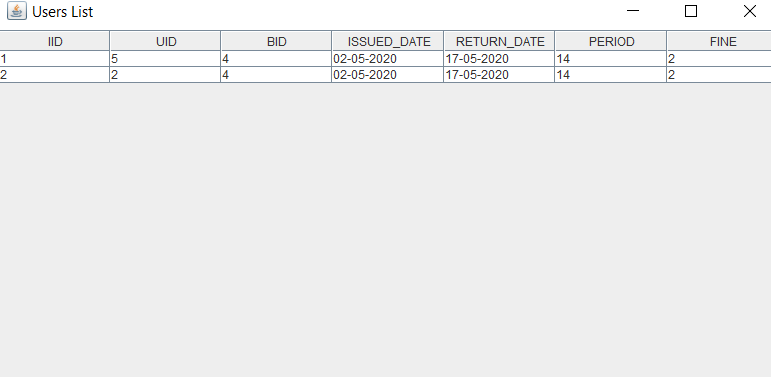
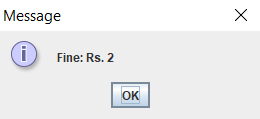
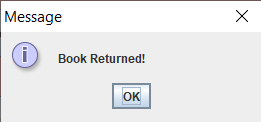
VIEW ISSUED BOOKS



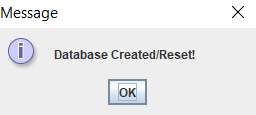
ISSUE BOOK RETURN BOOK

FINE IS CALCULATED AND UPDATED IN DATABASE



RESET DATA



**CONCLUSION**

Here I’ve presented my project details of library application which named as Library management system. It is the windows application development; I used Eclipse Neon IDE tool and the MySQL Database to develop this project. The Main aim of this project is to make people easily access their library account in order to check the availability of book in library as well as to know the borrowing and return detail from the library. It helps to overcome the issue of time consuming, reduce data loss and fast access of library.

## SYSTEM DESIGN OF LIBRARY MANAGEMENT SYSTEM:

### Hardware requirement of library management system:

Operating system: Windows 7 (or above can be used) since it is stable

Hard disks: 40GB

RAM: 1GB as it will give faster performance throughput.

### Software requirement of library management system:

Java language

Net beans IDE or Eclipse

MySQL

**REFERENCES**

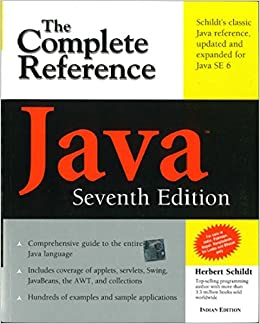
[1] <https://www.vogella.com/tutorials/MySQLJava/article.html>

[2] <https://electrictoolbox.com/delete-all-data-mysql/>

[3] For building application using Swing, awt and Applets (Reference)

**The Complete Reference Java (Seventh Edition)**

**-HERBERT SCHILDT**



**--THANK YOU--**