

**IN
PARTNERSHIP
WITH
PLYMOUTH
UNIVERSITY**

Name:
PERERA CHIRATH DEELAKA

Student Reference Number:
10569217

Module Code: SOFT255	Module Name: Software Engineering for the Internet Using Java
Coursework Title: Hospital Management System	
Deadline Date: 22/01/2017	Member of staff responsible for coursework: Ms. Manoja Weerasekara
Programme: Bsc (Hons) Software Engineering	
<p>Please note that University Academic Regulations are available under Rules and Regulations on the University website www.plymouth.ac.uk/studenthandbook.</p>	
<p>Group work:please list all names of all participants formally associated with this work and state whether the work was undertaken alone or as part of a team. Please note you may be required to identify individual responsibility for component parts.</p>	
<p>We confirm that we have read and understood the Plymouth University regulations relating to Assessment Offences and that we are aware of the possible penalties for any breach of these regulations. We confirm that this is the independent work of the group.</p>	
<p>Signed on behalf of the group:.....</p>	
<p>Individual assignment:I confirm that I have read and understood the Plymouth University regulations relating to Assessment Offences and that I am aware of the possible penalties for any breach of these regulations. I confirm that this is my own independent work.</p>	
<p>Signed:</p>	

Use of translation software: failure to declare that translation software or a similar writing aid has been used will be treated as an assessment offence.

I *have used/not used translation software.

If used, please state name of software.....

Overall mark _____% **Assessors Initials** _____ **Date** _____

*Please delete as appropriateSci/ps/d:/students/cwkfrontcover/2013/14

Online Library

Management System

Content

1. Introduction.....	5
2. Special Attributes in System.....	7
3. Feasibility Study.....	8
4. System Analysis.....	9
5. Block Diagram.....	9
6. Class Diagrams.....	10
7. Activity Diagram.....	11
8.Experience and knowledge in doing this system.....	12
9. OOP Principles in this system.....	12
10.Java Database Connectivity.....	13
11.Error Handling.....	14
12.Graphical User Interface.....	14
13.Conclusion.....	24

Introduction

Manual System

The students have to go to the library and borrow available books.

The library contains many books and periodical all subjects related to university students.

The existing system is a paper based system.

Therefore, this system is more time consuming system.

Some errors are occurred in storing information about books, members and administrators.

Data duplication will be occurred when admin save some information such as registering, issuing, returning books.

Lack of security.

Data could be missed place due to human errors.

If you are in a remote area, you can't borrow a book or reserve a book.

In manual library system, if you are not able to find a book of your choice have to spend a lot of time and effort in trying to find a particular book.

No proper records for the members, books and librarian.

Data is not always reliable because human hand writing can't be trusted example wrong telephone number.

There are no machine to manage recodes, Therefore paper will be needed because of that cost effectiveness will increase

Proposed System

The proposed system is an online library management system for manual system.

The proposed system is efficiency and effectiveness for librarians and members.

Reduce paper works.

Will need less human power after the implementation of online library system, The total cost of maintaining will be less.

Easy to find books through this system because of that save the times for both members and librarians.

Member can easy to reserve available books through internet.

Only registered students can use this system. As a result of that, security vise this system is good.

Librarian can calculate a fine for particular student who didn't return the book on due date. The system calculates 10 rupees a day for the fine.

All manual works are already created to this system.

The librarian can view all the book details and member details because of that time consuming is less and also paper working is less.

Special Attributes in Proposed System

Instead of issuing book manually these characteristics are already in this system.

- Reduce unwanted time
- Accuracy
- Effectiveness
- Efficiency
- Usability
- Reliability
- User Friendly
- Maintainability
- Correctness

Feasibility Study

Technical Feasibility

The system will not be much difficult to user. According to this system, technically can do works easily and efficient. This system is utilized the resources which are available in a library.

Cultural and Political Feasibility

The Liberian understand implies a clear and precise identification of duties.

To become productive and competitive, the admin must be able to plan all activities.

Schedule Feasibility

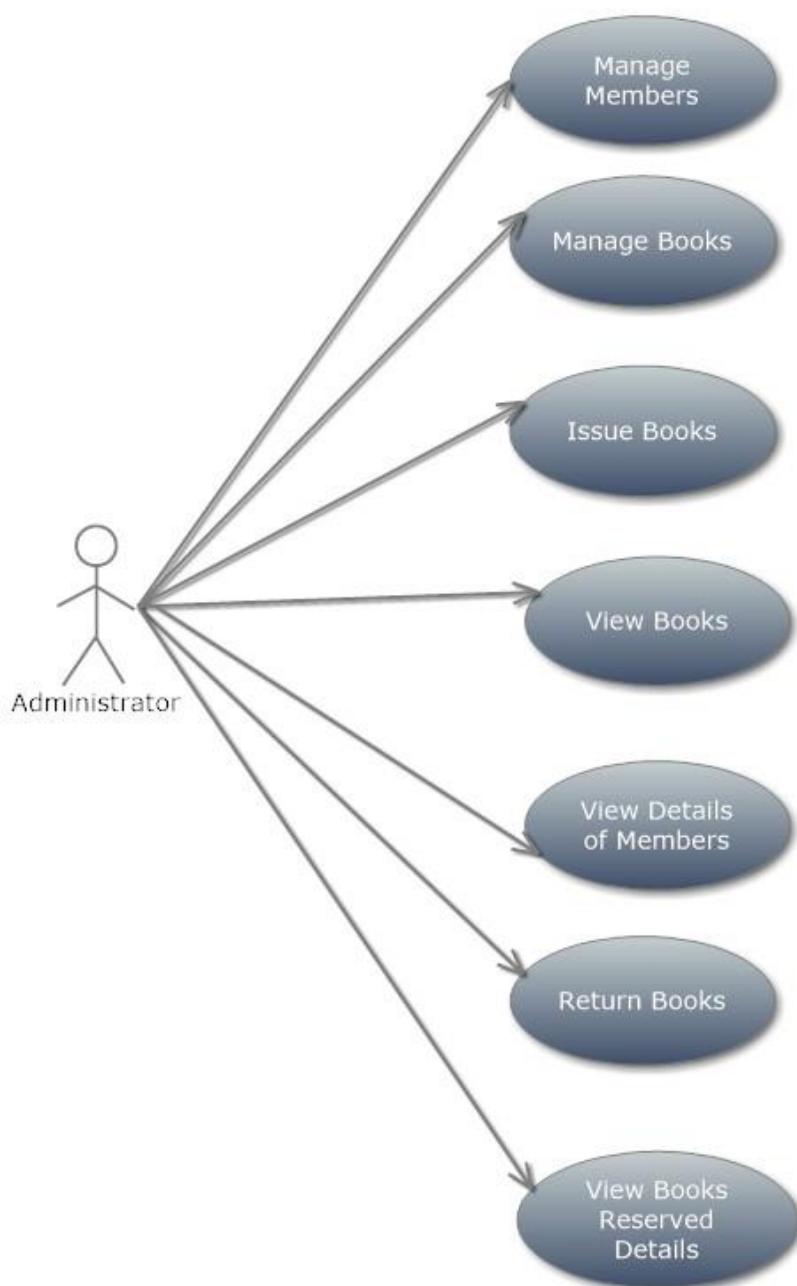
The member can enter to the system always.

Resource Feasibility

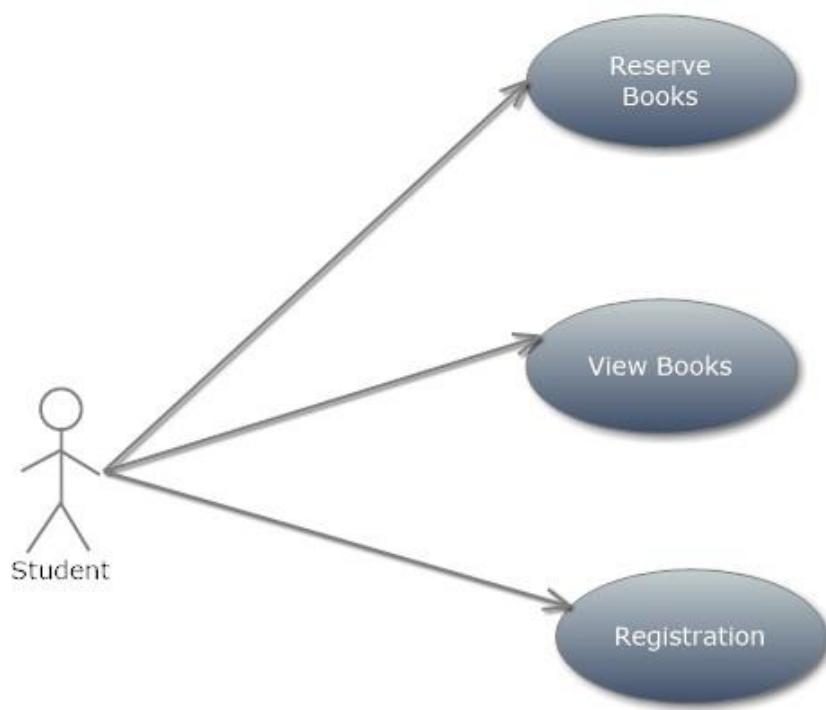
Librarian and students can log in through internet access.

System Analysis

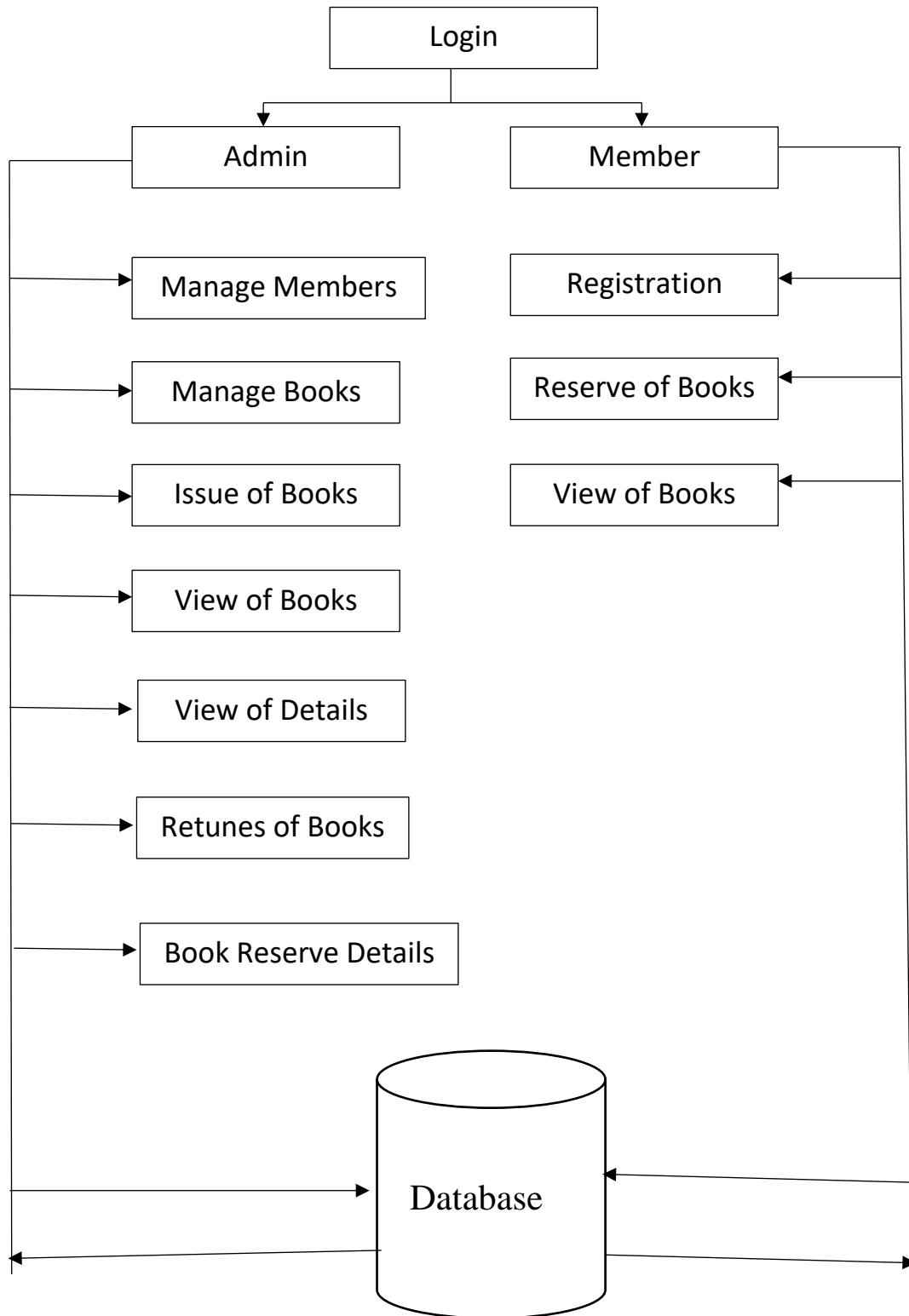
Online Library Management System



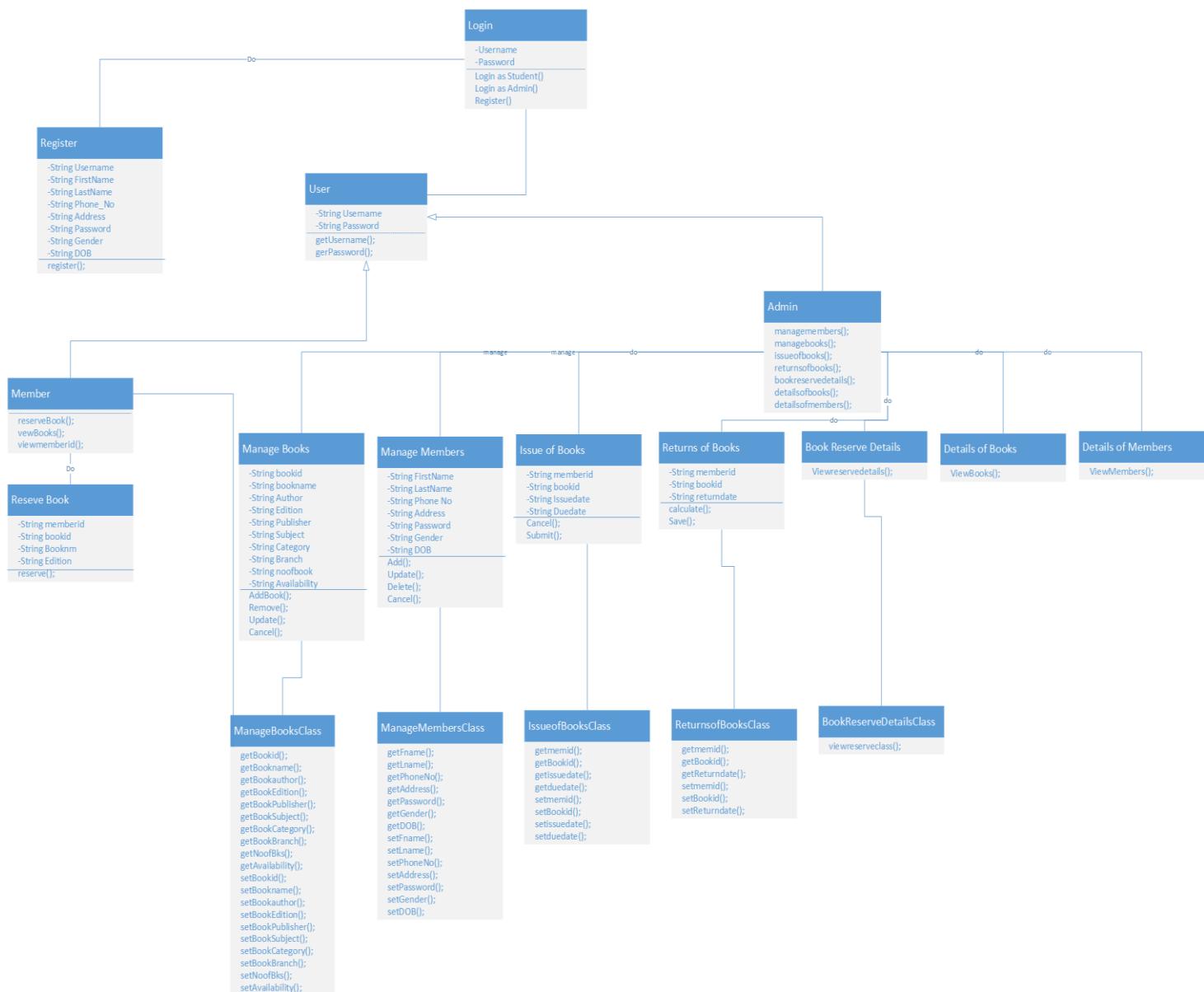
Online Library Management System



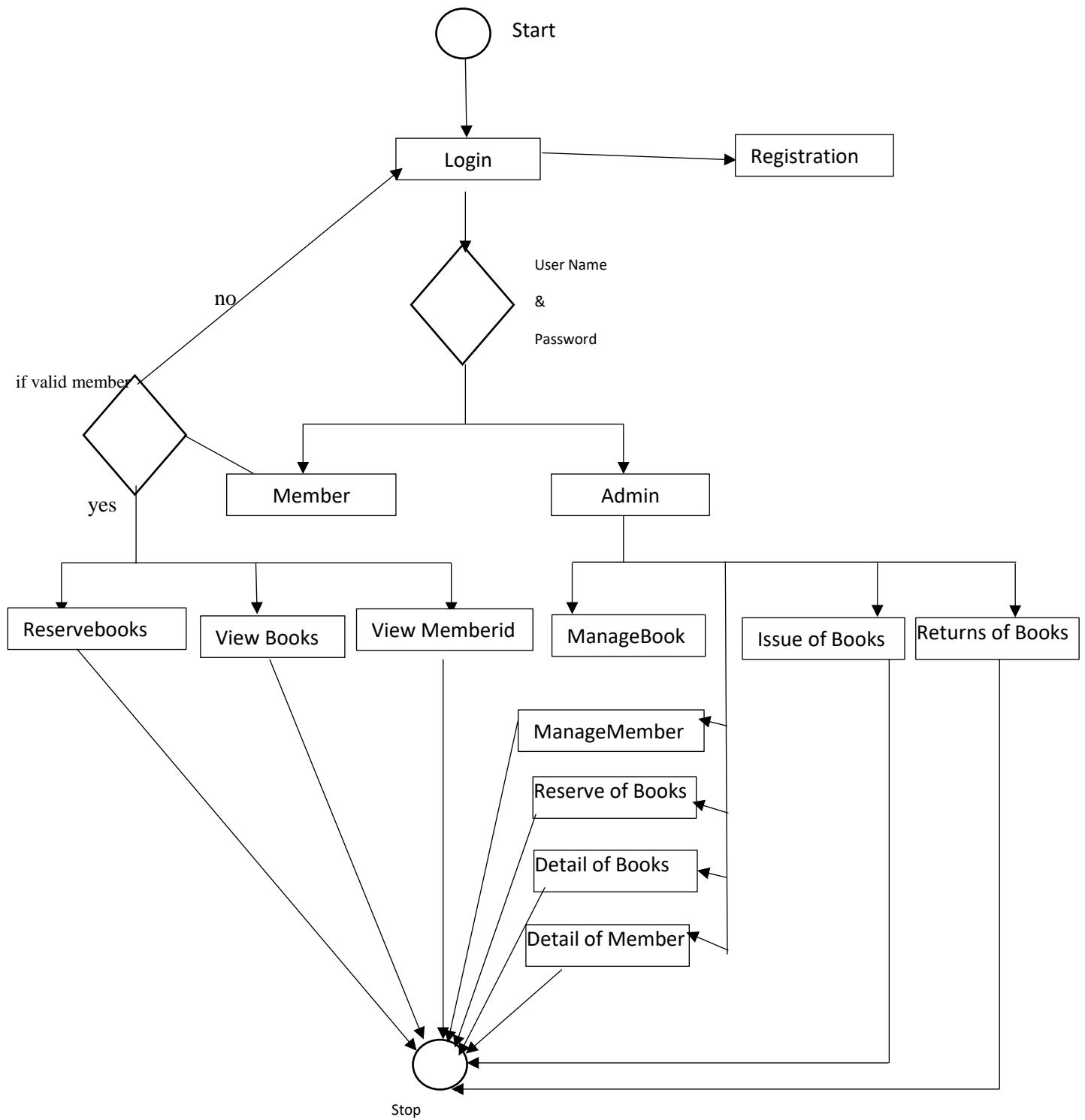
Block Diagram



Class Diagram



Activity Diagram



Experience and knowledge in doing this system

Experience

- In developing this system, I gained lot of oop concepts, but I couldn't make abstraction class for this system.
- I used reuse code (generic codes) for view books in member class and view book details in admin class both are connected to one reusable/generic class called managebookclass.
- I used generic code for member register in login class and manage member in managememberclass both are connected to on generic class called managememberclass.
- I have created to calculate the fine and number of dates after due date (date calculation) in return book class.
- Students should put NIC number as username when students register.

OOP Principles in this system.

I used object-oriented programming concepts in developing this online library management system. I learned how to approach oop concepts to this system. It helped me to improve my OOP concepts.

Data hiding is done using in a private variable. Variables cannot be used directly in this system but system is used public variable when inheriting attributes to sub classes. It increases the system's maintainability and increases system's security.

I used java classes to take real world objects and I used methods to run some tasks. It helped me to make this system well and secure. Therefore, this system is more efficient than manual system.

In creating objects, that was easy to link with particular methods or function via objects and I was genius in approaching that oop concepts.

I used encapsulation concept in creating getters and setters. It is more secure concept in doing a project.

I used java packages for make the maintainability of this system, therefore I used separate packages for member, admin and connect to MySQL data base. I when I creating a new class, I import the particular package to that particular class.

I used inheritance when a person login to this system. Because only two persons login to this system such as admin and member.

Java Database Connectivity

I have created separate package for connect to the database because of that easy to connect all class which directly link with database, to MySQL database. In this package, I have created a class called MySqlConnection in that class I made a method called connectDB to connect to the MySQL.

I have called connectDB method through that MySqlConnection class when I need to connect a new class to database.

In calling my sql database, the particular recodes can be retrieved, deleted or modified.it is an efficient way to connect with MySQL database.

When user login to this online library management system, the system checks whether this user is an admin or a student. If that user is a student, then system is check whether this student is registered student or not.

When student reserve a book, the system is check whether this particular book is already in the book table or not after that also check whether selected book is available or not.

Whenever a admin issue and return the books, that particular recode will be added to relevant tables which are in mysql database.

If members reserve a book through this system member should know their Member ID.

Members can take their IDs from click the ‘View Your ID’ function in their dashboard.

Error handling/ Exception handling

Validations and exception handling mainly use full for when user put wrong values, therefore I used error messages and exception handling to this system. Because of that system will show meaningful errors to the user.

After insert , delete and update some records, the system show a message like 'successful' and when system is connect to the database, then system will show a message like 'connected t database'. Below is appeared that message code, this is used in jframes.

- JOptionPane.showDialog...

Graphical User Interface

For the GUI, mainly used the java swing GUI to look and feel about the system. And I used google images for this system to design this system as a quality system.

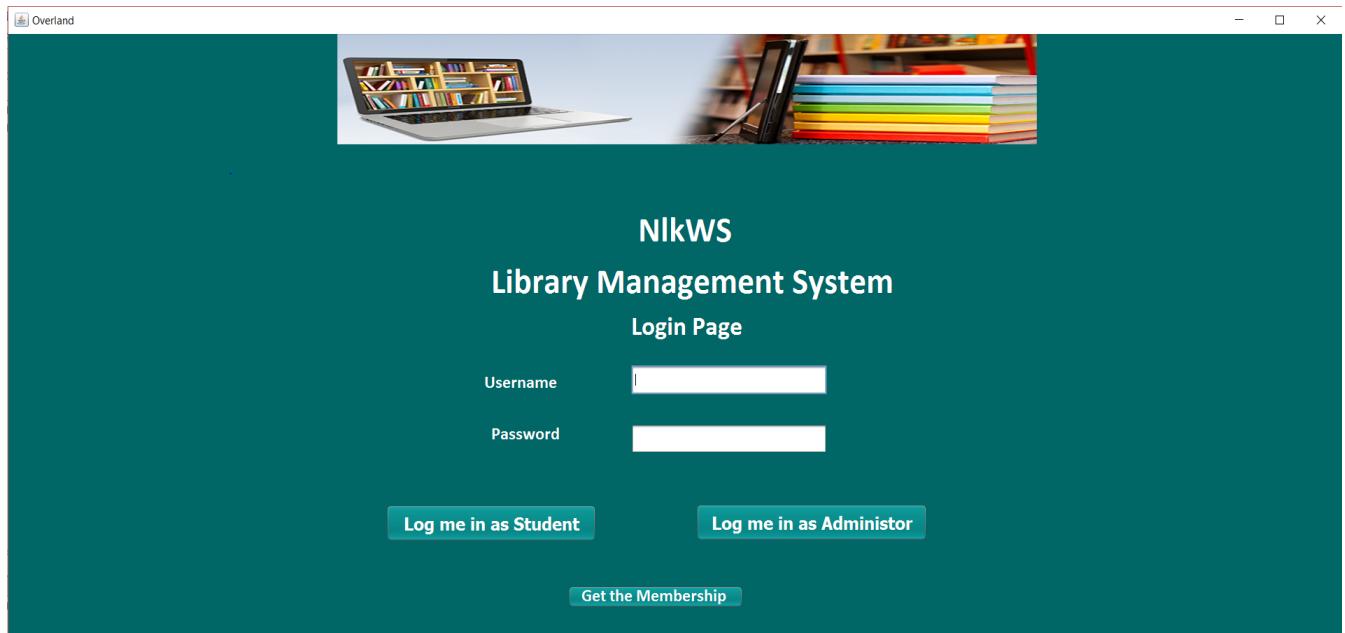
I concentrated well when design in user interface, because the users always use this system when reserving books and to enhance the system as an online library management system.

Therefore, I used navigation buttons to quit from this system and to directly go to user's dash board.

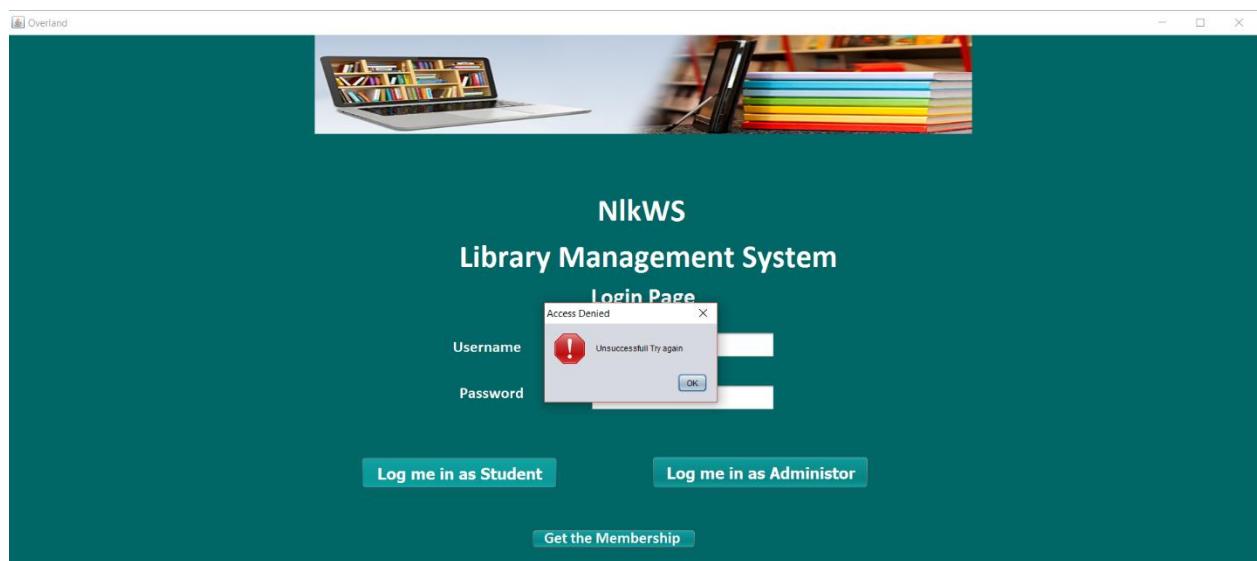
So I used events with the button icon images to display their as buttons and it will be a lot more information about the event click button because some icons are international icons.

As a result of those GUI, I think thin online library management system is user-friendly system for users.

1) Login Form



If username and password are in correct, the system will show an error message like this.



2) Admin dashboard user interface after admin login successfully.



3) Manage Members user interface.

A screenshot of the 'Manage Members' form window. At the top left is a 'Manage Members' button. The main area has a large blue circular icon with a house symbol on the left. In the center are two decorative images: a laptop with books and a stack of colorful books. To the right of the images is a table titled 'Members' Details' with columns: Member_ID, Username, First_Name, Last_Name, Phone_No, Address, Password, Gender, and DOB. The table contains five rows of data. On the left side of the form are input fields for ID, Username, First Name, Last Name, Phone Number, Address, Password, Gender, and DOB, each with a corresponding text input box. At the bottom are five buttons: 'Quit' (red power icon), 'Add', 'Update', 'Delete', and 'Cancel'.

When selecting each row of this member's details table, then values come to each field of that form which is in left hand side. Then user can edit update delete records easily.

Manage Members





Members' Details

ID	Username	First Name	Last Name	Phone_No	Address	Password	Gender	DOB
1	93324029V	Sunimal	Perera	7123456783	Nugegoda	1234	Male	1988-09-10
2	94367893V	2	Perera	713456783	Nugegoda	1234	Male	1988-09-10
4	972345678V	Kamal	Perera	1234567890	Colombo	abc	male	2000-10-09
5	933245646V	Aseela	Perera	712345678	Colombo	abc	male	1993-11-18

Member ID: 1 **First Name:** Sunimal **Last Name:** Perera **Phone Number:** 712345678 **Address:** Colombo **Gender:** Male **DOB:** 1993-11-19

Username: 93324029V **Address:** Colombo **Gender:** Male **DOB:** 1993-11-19

Add **Update** **Delete** **Cancel**

4) Manage Books User Interface.

Manage Books





Books' Details

Book ID	Book Name	Author Name	Publisher	Edition	Subject	Category	Branch	No of Books	Availability
112345	Head First	Bert Bates, Kathy Sierra	O'Reilly Media	3rd Edition	Java	Programming	No1	5	0
123	III	uuuu	yyy	logv	mnjan	jvb6	v h	8	0
1234	www	www	www	www	www	www	2	4	1
112345	Head First	Bert Bates, Kat...	O'Reilly Media	3rd Edition	Java	Programming	No1	5	0

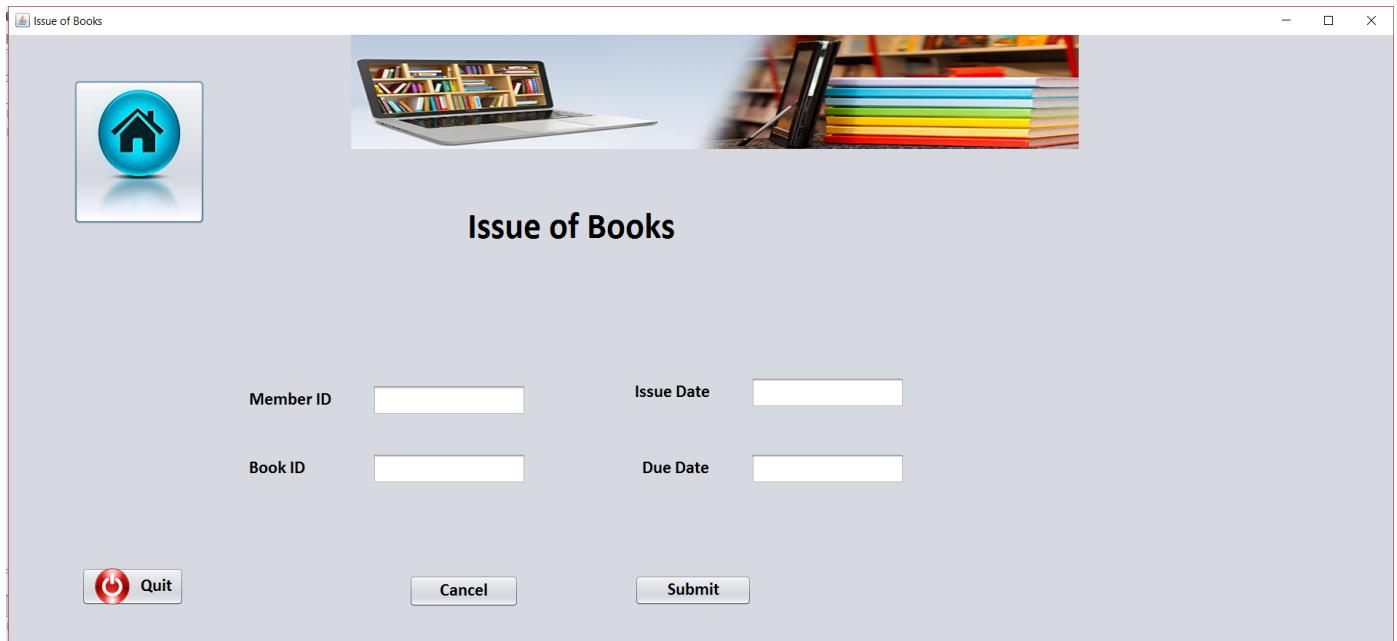
Book ID: 112345 **Book Name:** Head First **Author Name:** Bert Bates, Kathy Sierra **Publisher:** O'Reilly Media **Edition:** 3rd Edition **Subject:** Java **Category:** Programming **Branch:** No1 **No of Books:** 5 **Availability:** 0

Add Book **Update Book** **Remove Book** **Cancel**

Book ID: 112345 **Book Name:** Head First **Author Name:** Bert Bates, Kat...

Quit

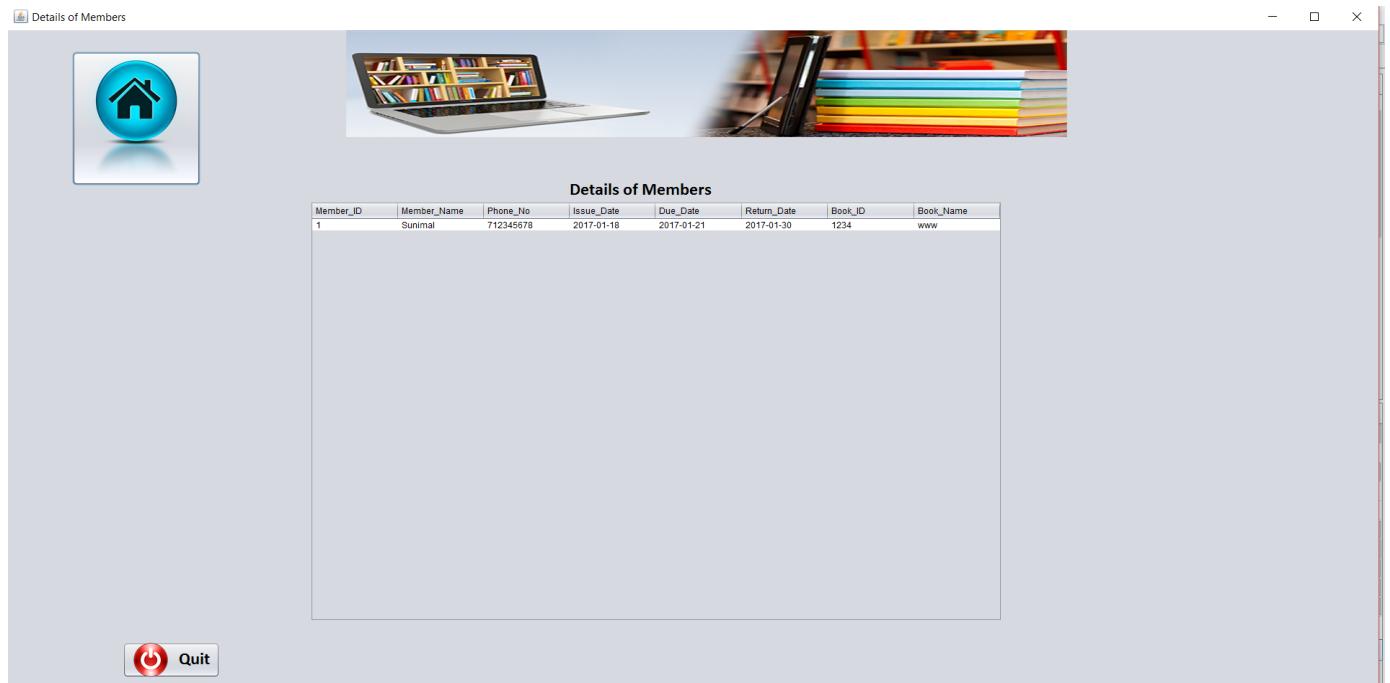
5) Issue Book User Interface



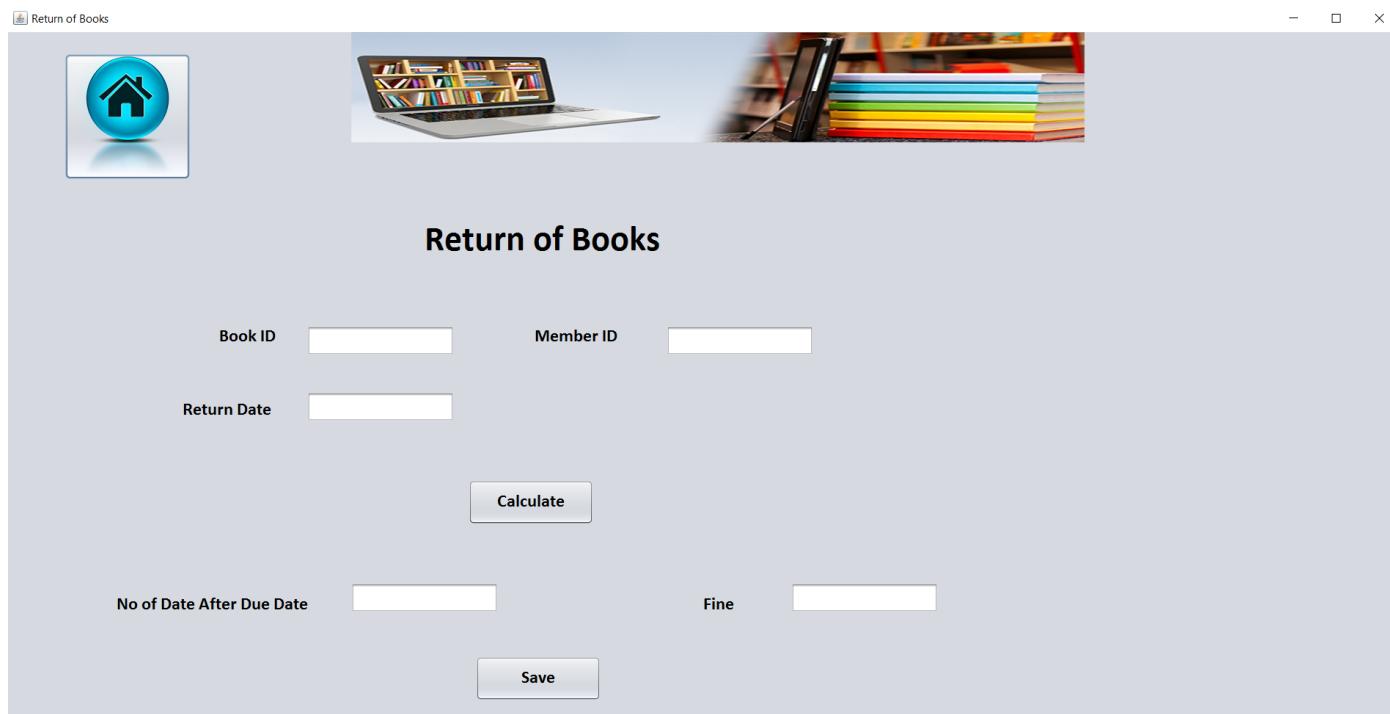
6) Details of Books



7) Details of Books



8) Returns of Books



When a member brings a book after due date, the system calculates fine and number of dates between due date and current date for that particular member.

Return of Books

Book ID	1234	Member ID	1
Return Date	2017-02-20		
Calculate			
No of Date After Due Date	9	Fine	90
Save			

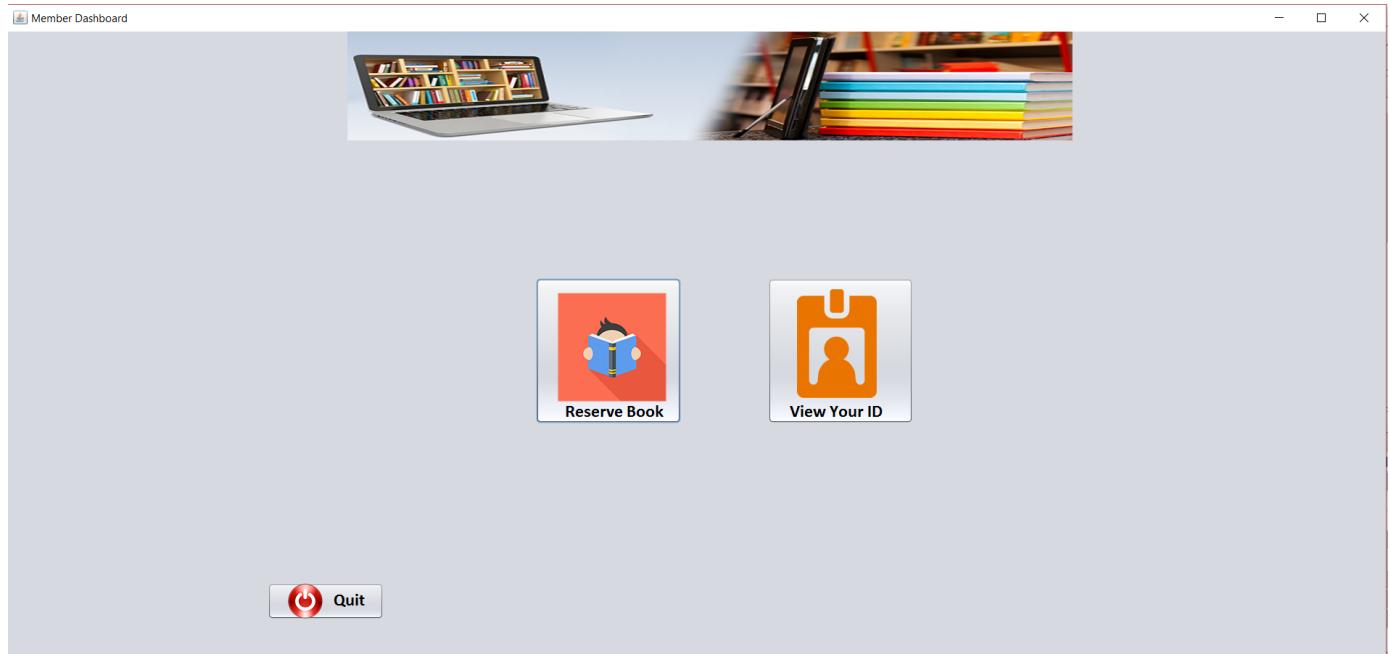
This particular member's return date is on 2017/01/11, but this user return book today, then system calculates number of dates and fine automatically. This is the special feature in this system.

9) Book Reserve Details

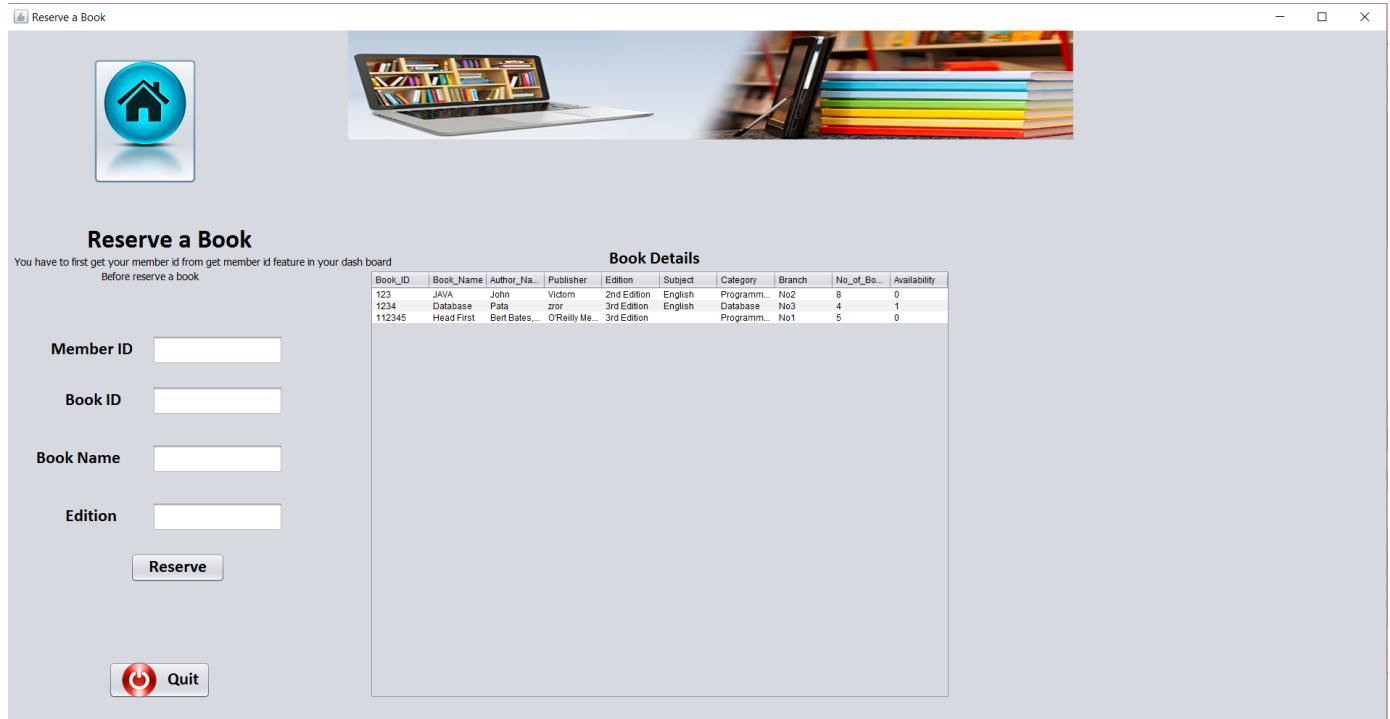
Reserve Book Details

reserve_id	Member_ID	Book_ID	Book_Name	Edition
2	1	123	JAVA	2nd

10)Member Dashboard

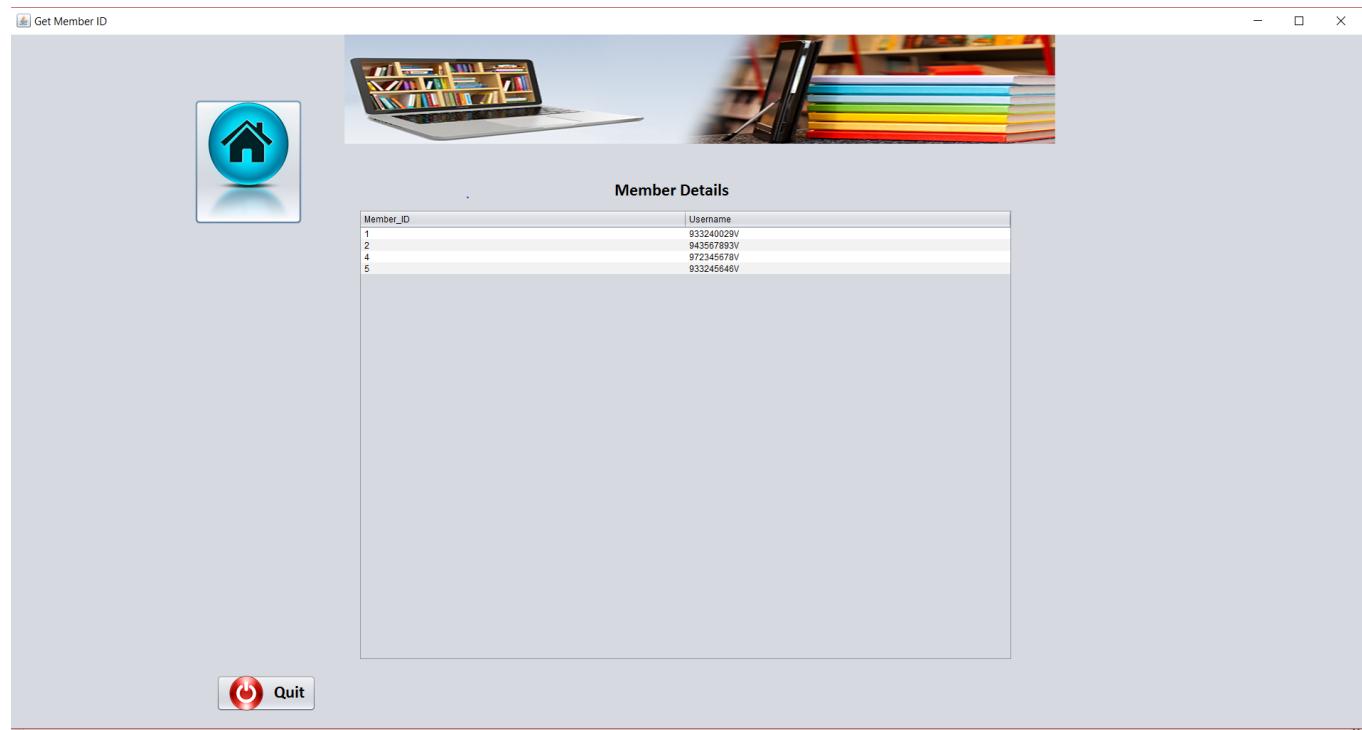


11)Reserve a Book



Book_ID	Book_Name	Author_Na...	Publisher	Edition	Subject	Category	Branch	No_of_Bo...	Availability
123	JAVA	John	Victor	2nd Edition	English	Programm...	No2	8	0
1234	Database	Patel	Zor	3rd Edition	English	Database	No3	4	1
112345	Head First	Bert Bates,...	O'Reilly Me...	3rd Edition	English	Programm...	No1	5	0

12)Get Member ID



Member have to get their member id for reserve a book.

Conclusion

OOP concepts are more useful in doing this project, that is effect way to develop a project.

And also using java swing components we can make any real world application because it has all those components we need.

With this coursework I have got great opportunity to improve my java knowledge and I hope to improve this system much more in the future with more functionalities and more user friendliness.

TurnitinUK Originality Report

NlkWS Library Management System1.docx



From Turnitin Self-Checker (Moodle PP) (BSc (Hons) Software Engineering (4872) (Moodle PP))

- Processed on 22-Jan-2017 07:44 GMT
- ID: 66296041
- Word Count: 1495

Similarity Index

6%

Similarity by Source

Internet Sources:

6%

Publications:

1%

Student Papers:

5%

sources:

1

3% match (Internet from 12-Dec-2007)

http://www.forbes.com/lists/2007/10/07billionaires_The-Worlds-Billionaires_Rank_3.html

2

2% match (Internet from 11-Jan-2016)

http://www.answers.com/Q/What_are_the_problems_occur_in_a_manual_library_system

3

1% match (Internet from 14-May-2008)

http://en.wikipedia.org/wiki/Wall_Street_Ren