FINAL SEMESTER ASSESSMENT (FSA)
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UE18CS355 – OBJECT ORIENTED ANALYSIS AND DESIGN WITH SOFTWARE ENGINEERING LABORATORY

PROJECT REPORT

ON

BOOK MANAGEMENT SYSTEM

SUBMITTED BY

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ABSTRACT

The *Book Management System* aims to maintain the information about the books present in the library, their authors, the members of the library to whom books are issued, which may include library staff and their respective members. It is very difficult to organize such a large amount of data manually. Maintaining such a large amount of information, manually is a very complex task. Owing to the advancement of technology, organization of a computerized Library becomes much simpler. The *Book Management system* has been designed to computerize and automate the operations performed over the information about the members, book issues and returns and all other operations. This computerization of the library helps in many instances of its maintenance. It reduces the workload of management as most of the manual work done is reduced.

Book Management System is a computerized system which helps user(librarian) to manage the library daily activity in electronic format. It reduces the risk of paperwork such as file lost, file damaged and time consuming.
It can help users to manage the transaction or record more effectively and is timesaving.

Chapter-1: SOFTWARE REQUIREMENT SPECIFICATION

1.1: Introduction

1.1.1: Purpose

The objective of this documentation is to provide the specific information on what are the services provided by the project “Book Management System”, under what constraints it will work, and how it will interact with the users. This SRS report is primarily for the end-users but the developers can also refer to this document for better insight of the software.

1.1.2: Intended Audience

This project is a prototype for the book management system and it is restricted within the college premises. This has been implemented under the guidance of college professors. This project is useful for the library management team, as well as to the students and staff members in the university.

1.1.3: Product Scope

This software will be used by all the members to access the rich resource collection of knowledge the Institute provides. This software is meant to increase the efficiency of managing the books by the staff. The language used for developing the project is C++.

1.1.4: References

-Books: ○Roger S. Pressman, Software Engineering: A Practitioner’s Approach 5th edition. ○Ian Sommerville, Software Engineering 10th edition. International ○UML @ Classroom_ An Introduction to Object-Oriented Modeling-Springer

1.2. Overall Description

1.2.1 Product Perspective

This System is used by Library Manager, Librarian, and Library User. The system is self-contained. However, it is possible to exchange data with other systems through an external interface if required.

1.2.2 Product Functions

Functions present in the software:

- Register members
- Issue resources
- Return resources
- Calculate Fines
- Add new resource
- Reissue resources
- Search resources

1.2.3 Operating Environment

The operating environment will be the command prompt (CMD) on Windows 8+ OS, Ubuntu (above 16.04)

1.2.4 Design and Implementation Constraints

Software is based on C++ programming language and thus, requires a C++ compiler.No hardware constraints.

1.2.6 Assumptions and Dependencies

Assumptions

1. Every member registers through a valid college id.
2. All members have the software installed.
3. Enough store space is available to store the data of the members and resources.
4. The coding should be error free.
5. The system should be user-friendly so that it is easy to use for the users.
6. The Library System must be running 24 hours a day.

Dependencies

1. Any update regarding the book from the library is to be recorded to the system immediately and the data entered should be correct.
2. The end users (at least librarians) should have proper understanding about the working of the product.
3. The information of all the users and the resources must be stored.
4. The specific hardware and software due to which the product will be run.

1.3 External Interface Requirements

1.3.1 User Interfaces

The UI Consists of :

- Register/log in
- Sign up
- Login
- Resource management.
- See your history.
- Search
- Renew
- Return
- Fine
- Remove books

1.3.2 Software Interfaces

C++ language

G++ Compiler 7.0.1

1.4. System Features

System will have different types of users and every user has access constraints.

Proper user authentication should be provided.

No one should be able to hack users’ passwords .

There should be separate accounts for admin and members such that no member can access the backend program.

1.4.1 System Feature 1

The users of the system should be provided the surety that their account is secure.

This is possible by providing, User authentication and validation of members using their unique member ID Proper monitoring by the administrator which includes updating account status, showing a popup if the member attempts to issue number of books that exceed the limit provided by the library policy, assigning fine to members who skip the date of return. Proper accountability which includes not allowing a member to see other member’s accounts. Only administrator will see and manage all member accounts

1.4.1.1 Description and Priority.

All the below mentioned Features are in decreasing order of their priority:

1.Manage the complete management of the entire library through the software’s easy interface

2.It removes manual process of issuing books by easy and simplified way of issuing book saving time and effort

3.The librarian can issue, return and reserve book for a particular student through the software’s interface

4.The software automatically shows fine levied by automatically counting days from the date if issue incase of late return of the book

5.Add, update, search and view library items online

6.Student can also check the availability status of a particular book online

7.Generate customized report for library items, library inventory and library fine collection

1.4.1.2 Stimulus/Response Sequences

1.Student:

- View Profile
- Search

2.Staff:

- Add a user.
- Issue Resource
- Delete Account
- Add Resource
- Get list of Fines
- Update History
- Order Book ● Remove Resource

4.User:

- Issue Book ● Return Resource

5.Student:

- Issue Journal
- Renew Journal

1.4.1.3 Functional Requirements

R.1:Register/log in

- Description : First the user will have to register/sign up. There are two different types of users.

○ The librarian/staff : He/she has to provide details about the name of library ,phone number, address, email id.

○ User : The user has to provide details about his/her name, institute id, address, phone number, email id, password etc. All this will be entered into the system by the librarian during the registration.

R.1.1: Sign up

- Input: Detail about the user as mentioned above. This will be done by the librarian.

- Output: success report.

- Processing: Institute id will be checked for validity and the membership will be granted.

R.1.2 : Login

- Input: Enter the institute id and password.

- Output : Members will be able to use the features of software according to the access provided to them.

R.2 : Resource management.

R.2.1 : See your history.

- Description : List of books issued currently and in the past will be displayed along with data of issue and return. Also, information regarding fine would be displayed.

R.2.2 : Search

- Input : Enter the title/ author's name/ resource ID/ topic of the resource to be searched. ● Output : List of all the resources related to the keyword.

R.2.3 : Issue

- Input : enter the ID of the resource which the user wants. This would be done by the librarian.

- Output : confirmation for resource issue or the error message.

- Processing : If the selected resource is available then a book will be issued else the error will be displayed. Also if the user has reached his limit of currently issued resources, then the error will be displayed.

R.2.4 : Reissue

- State : Resource is issued and is about to reach the date of return. This can be done by the user himself/ herself.

- Input : enter the ID of the resource to be renewed.

- Output : confirmation message.

- Processing : Check if the user has the authority to renew a resource, i.e., if he/ she must be faculty or a student to renew a resource.

R.2.5 : Return

- Input : Return the resource to the library. Librarians will mark the resource returned in the system.

- Output : The issued list will be updated for both the resource and user.

R.2.6 Fine

- Input : check for the fines.

- Output : Description of the fines on different resources issued by the user.

- Processing : The fine will be calculated. If the resource crossed the date of return and the user did not renew it then fine will be applied. In this case, return date subtracted by issue date will be used to calculate the number of extra days the resource was with the user.

R.3 Manage resources

R.3.1 Add resource

- Input : Enter the details of the books such as title, author's name, date of purchase, resource id, quantity, etc.

- Output : confirmation of addition.

R.3.1 Remove books

- Input : Enter the id of the resource and the quantity of that resource to be removed.

- Output : Update the list of the resources available.

1.5. Other Nonfunctional Requirements

1.5.1 Performance Requirements

The proposed system that we are going to develop will be used as the Chief performance system within the different campuses of the university which interacts with the university staff and students. Therefore, it is expected that the database would perform functionally all the requirements that are specified by the university. The performance of the system should be fast and accurate. Library Management System shall handle expected and unexpected errors in ways that prevent loss in information and long downtime periods. Thus it should have inbuilt error testing to identify invalid username/password .The system should be able to handle large amounts of data. Thus it should accommodate a high number of books and users without any fault.

1.5.2 Safety Requirements

The system must be completely reliable and fool-proof due to the importance of data stored in it. Huge damages may be caused by incomplete or incorrect data. The system must run 24/7 for all days of the year as it is a C++ program.Any update regarding any resource from the library is to be recorded, updated with correct values, and any fine on a member should be calculated correctly.There will be a maximum of 1 bug/KLOC.

1.5.3 Security Requirements

●Users can only read data and can’t edit or modify anything except their personal information. ●The software has different types of users and every user has access constraints. Which have already been described.

●Proper member authentication has been
provided. ●Only librarians can order resources.
●No one can issue any resource without a librarian.

1.5.4 Software Quality Attributes

AVAILABILITY: The book management should be available on the specified date and specified time as many customers are doing advance reservations.

CORRECTNESS: The book management system should have the correct book number, date of issue, complete pages and available number of issues.

MAINTAINABILITY: The administrators should maintain correct book resources and allocate the books in their desired categories.

USABILITY: The book management system should satisfy a maximum number of customers' needs.

1.5.5 Business Rules

A business rule is anything that captures and implements business policies and practices. A rule can enforce business policy, make a decision, or infer new data from existing data.This includes the rules and regulations that the System users should abide by. This includes the cost of the project and the discount offers provided. The users should avoid illegal rules and protocols. Neither the admin nor member should cross the rules and regulations.

1. User should have their user id
2. User should know their user password
3. In case of any errors, revert any changes made to the system and reset the system if possible

CHAPTER-2: PROJECT PLAN

2.1: Identify the lifecycle to be followed for the execution of your project and justify why you have chosen the model.

ITERATIVE MODEL: We can make use of the iterative model for the implementation of our project **"LIBRARY MANAGEMENT SYSTEM".**

THE REASON TO CHOOSE THE ITERATIVE MODEL ARE AS FOLLOWS:

- The requirements are defined clearly and easy to understand.
- There may be a requirement of changes in the future.
- Testing and debugging during smaller iteration is easy.
- A Parallel development can plan.
- It is easily acceptable to ever-changing needs of the project.
- Risks are identified and resolved during iteration.
- Limited time spent on documentation and extra time on designing.

2.2: Identify the tools which you want to use throughout the lifecycle like planning tool, design tool, version control, development tool, bug tracking, testing tool.

Planning Tools: Pert chart

Version Control : As Github is feasible for handling many documents among the members, We are using the same.

Development Tools:

- **Source Control** : Github
- **IDE :** VS Code

Design Tools:

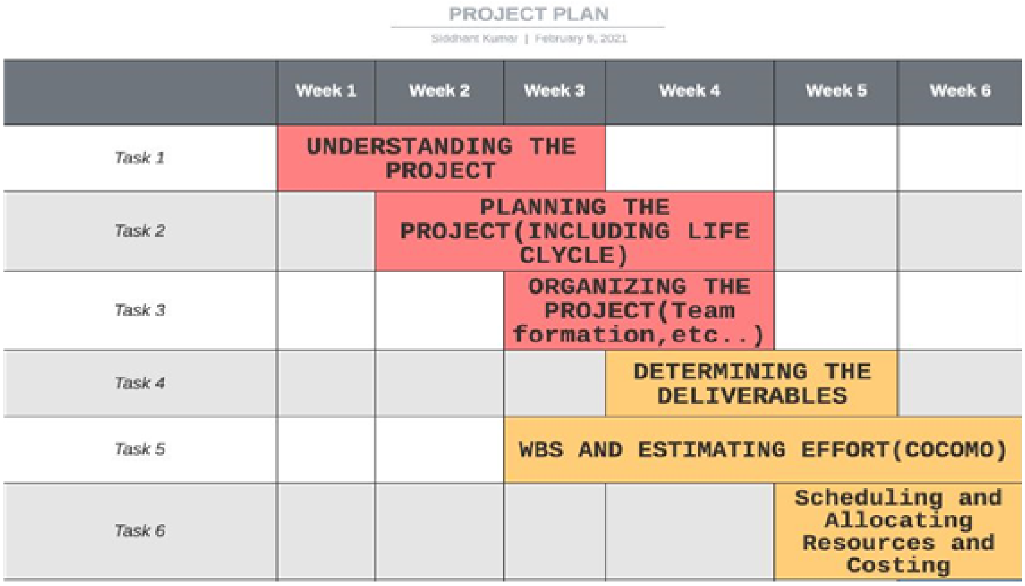
- **Diagram :** Creately

2.3: Determine all the deliverables and categorise them as reuse/build components and justify the same.

Deliverables:

1. Providing a GUI in CMD for users and admins (build)
2. Simple UI for easy management (build)
3. Profile viewing (reuse)
4. Adding resources/books (reuse)
5. Viewing all members (reuse)
6. Issuing resources/books (reuse)
7. Return resources (reuse)
8. Remove members (reuse)

2.4: Create the Gantt Chart for scheduling.



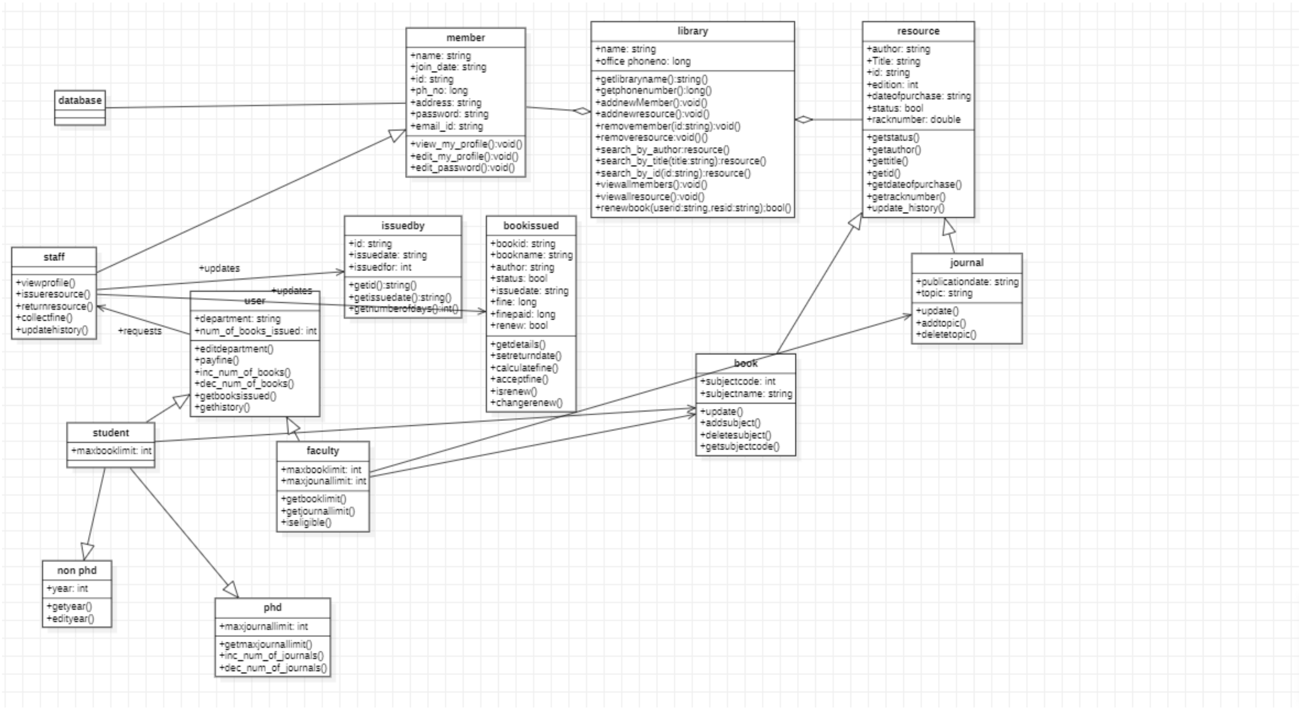
PROJECT PLAN

Siddhant Kumar | February 9, 2021

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6
Task 1	UNDERSTANDING THE PROJECT					
Task 2		PLANNING THE PROJECT(INCLUDING LIFE CLYCLE)				
Task 3			ORGANIZING THE PROJECT(Team formation,etc..)			
Task 4				DETERMINING THE DELIVERABLES		
Task 5			WBS AND ESTIMATING EFFORT(COCOMO)			
Task 6					Scheduling and Allocating Resources and Costing	

CHAPTER-3: DESIGN DIAGRAMS

3.1: Class Diagram

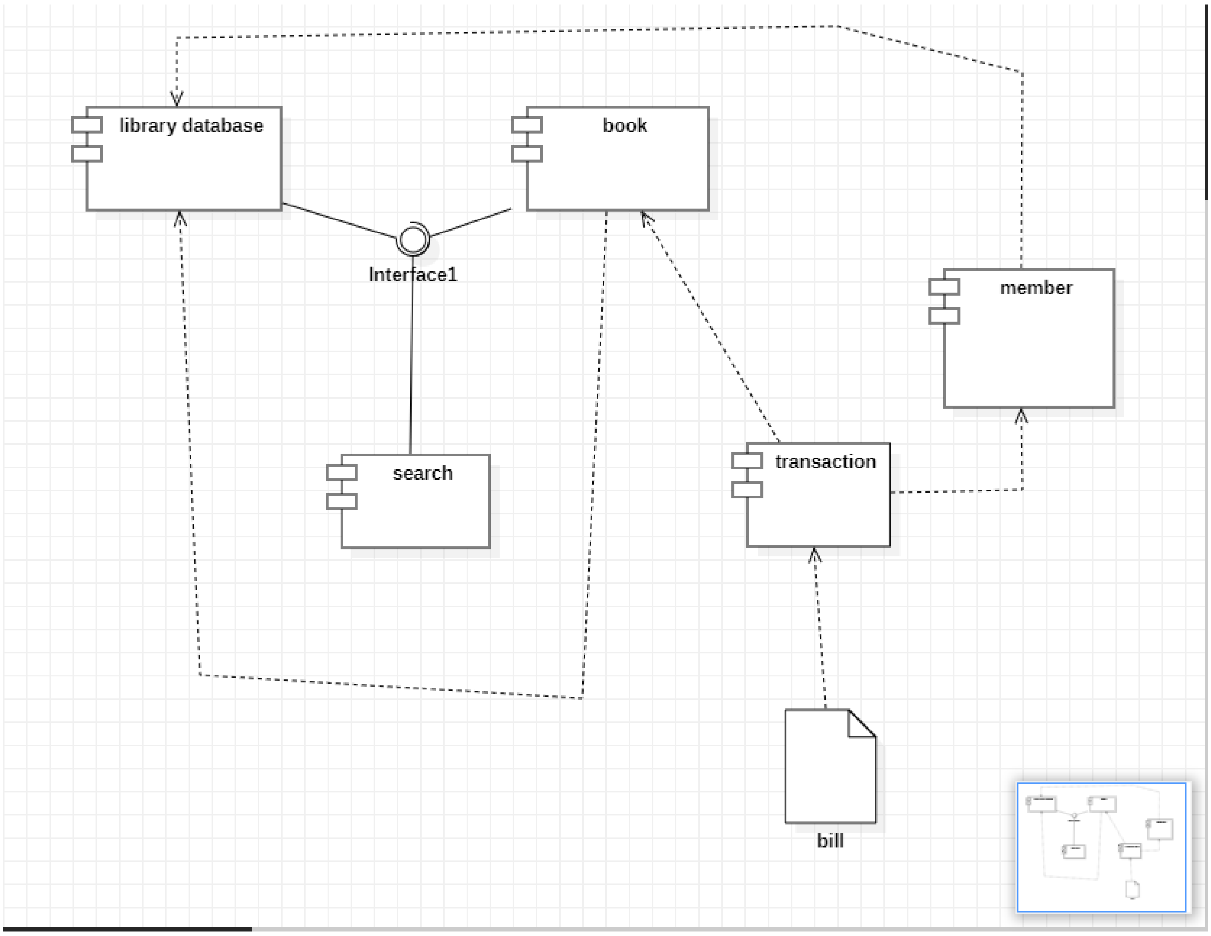


A **Class Diagram** in Software engineering is a static structure that gives an overview of a software system by displaying classes, attributes, operations, and their relationships between each other. This Diagram includes the class name, attributes, and operation in separate designated compartments.

Class Diagram defines the types of objects in the system and the different types of relationships that exist among them. It gives a high-level view of an application. This modeling method can run with almost all Object-Oriented Methods. A class can refer to another class. A class can have its objects or may inherit from other classes.

The various classes present in our project are library, member,user ,staff ,book issued,books ,journal faculty ,student .All these classes have their attributes and operations to perform . A few of the operations are add book,remove book,search by id,search by name,pay fine,issue ,return etc .There also exists relationships between these classes , such as generalization ,aggregation ,multiplicity ,association and etc.

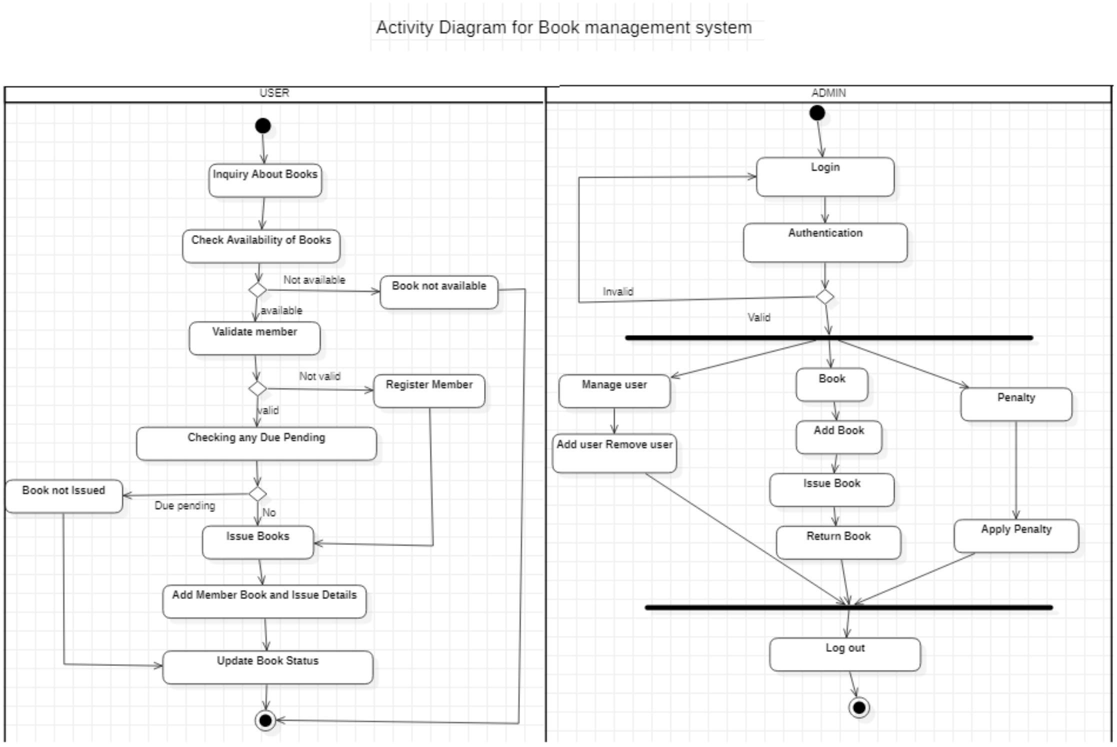
3.2: Component Diagram



The above diagram is a representation of all the present components and how they are connected with each other.

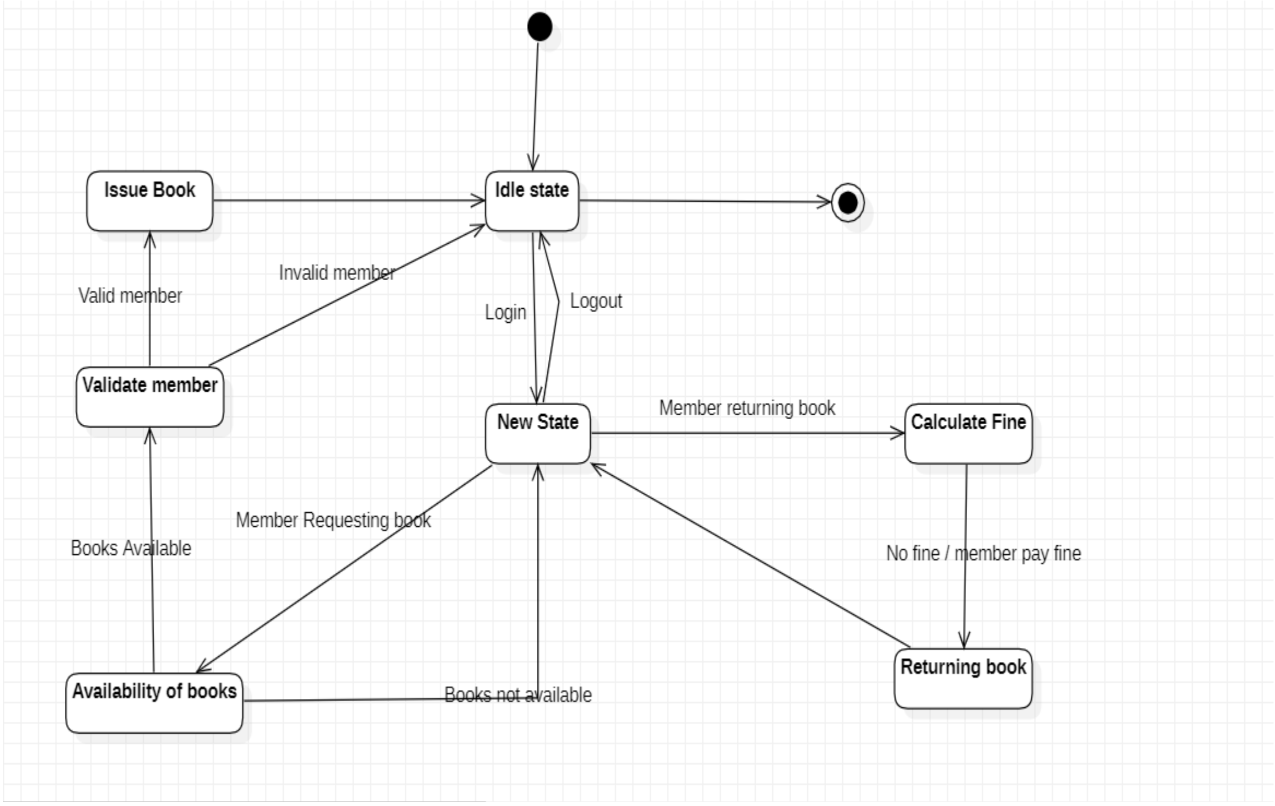
As we can see there are components such as the library database, which is connected to an interface, via which multiple actions could be performed. The search component would check if the book exists in the database or not, the transaction component is responsible for the issue/return/fine calculation. The member component indicates that, only members can do a transaction (members include students, staff etc).

3.3: Activity Diagram



This is graphical representations of workflows of stepwise activities and actions with support for choice, iteration and concurrency. these diagrams are intended to model both computational and organizational processes.

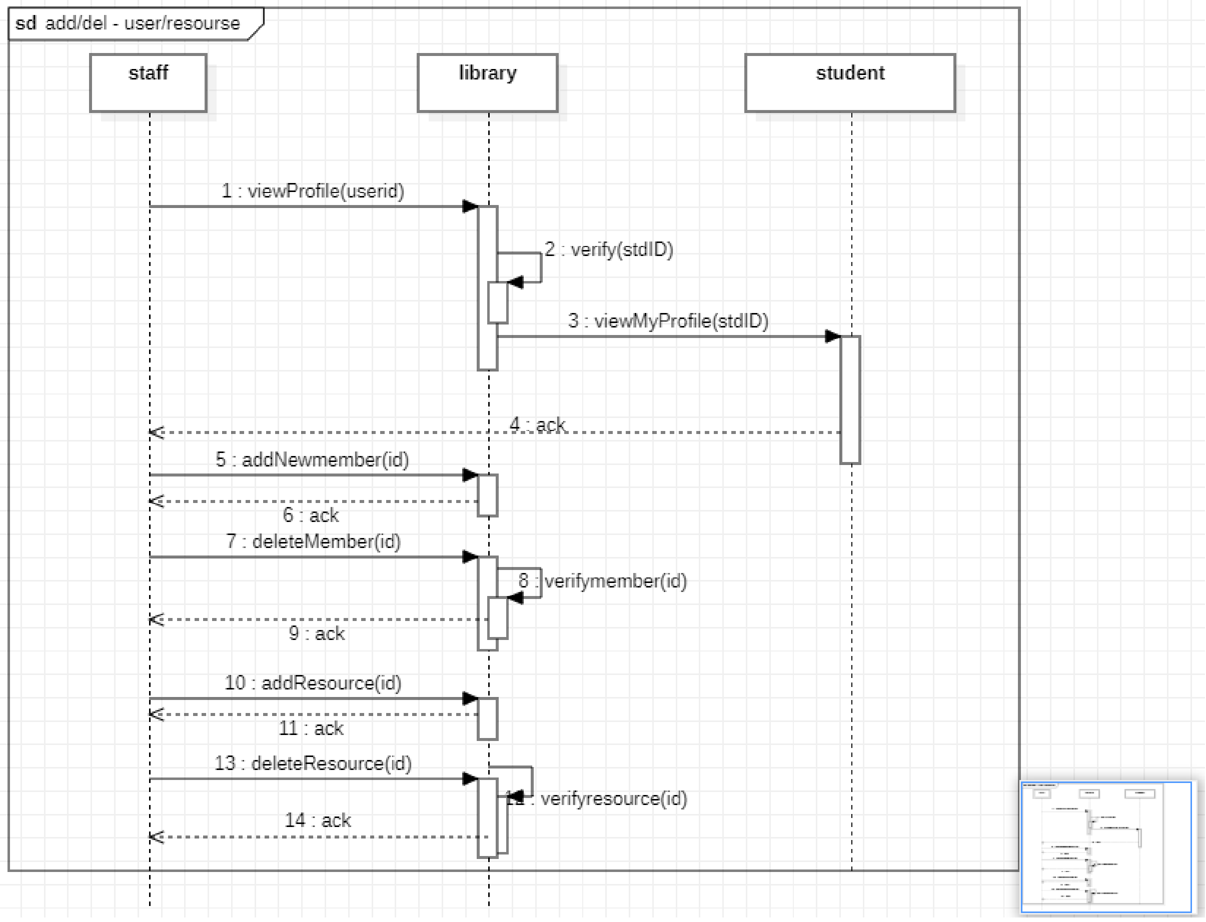
3.4: State Diagram



A state diagram is used to represent the condition of the system or part of the system at finite instances of time. It's a behavioral diagram and it represents the behavior using finite state transitions. State diagrams are also referred to as State machines and State-chart Diagrams.

Some states that are present in our library are idle state ,new state, calculate fine, validate member, issue book ,return book etc . a user can move from one state to another only if he/she satisfies the conditions required. In this diagram the initial state is the shaded circle and the double circle represents the final state.

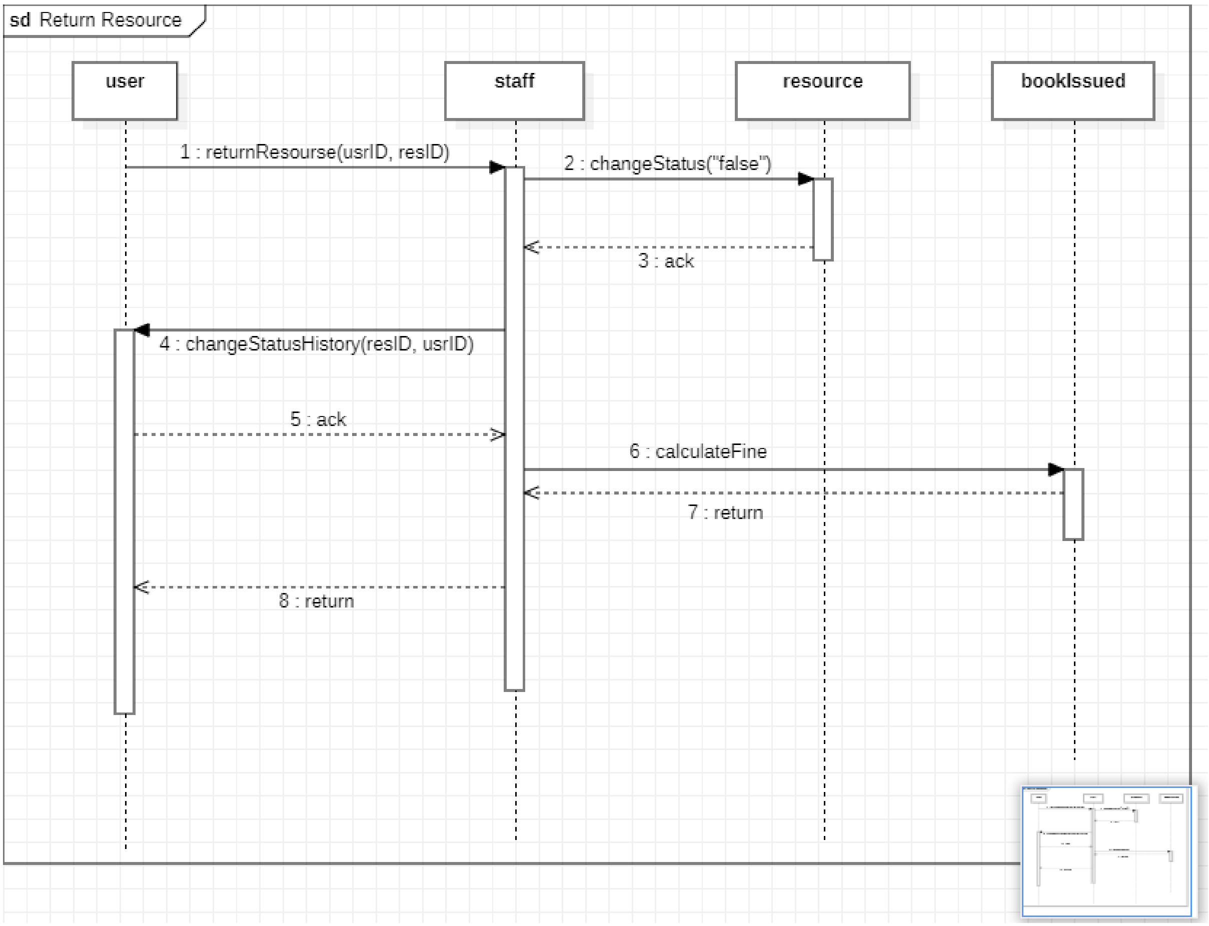
3.5: Sequence Diagram



The above diagram represents the sequence of steps that are performed for adding/deleting a resource and adding/deleting an user.

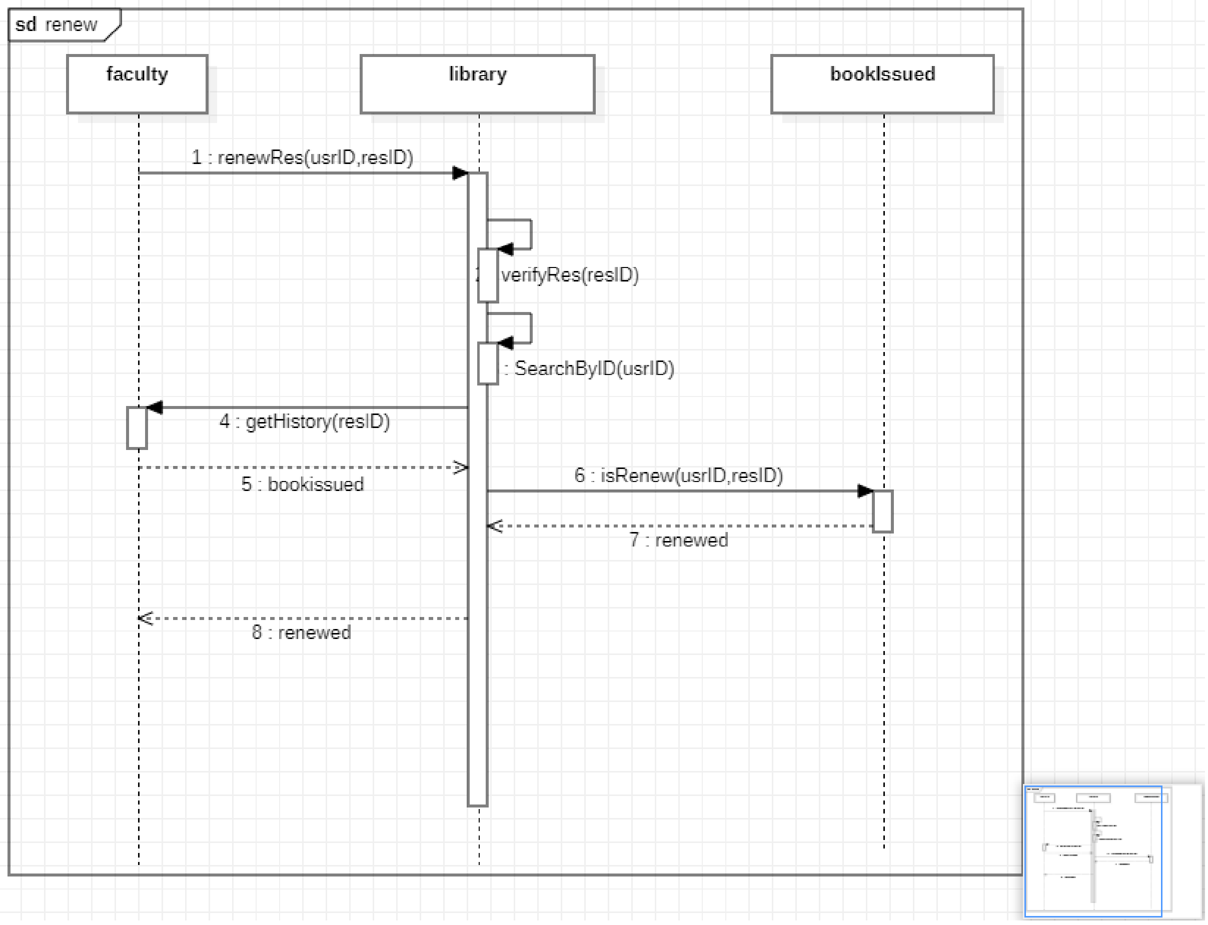
For any process, the user(librarian) must first log in, to view a profile, it can check with the existing stuId. To add a member/resource, we first check if the member/resource exists, if it doesn't, we carry on and add it. Else, we ask the user to input a new ID.

Same as for delete, we check if the ID exists or not, if it exists, we delete it else we ask the user to enter correct id.

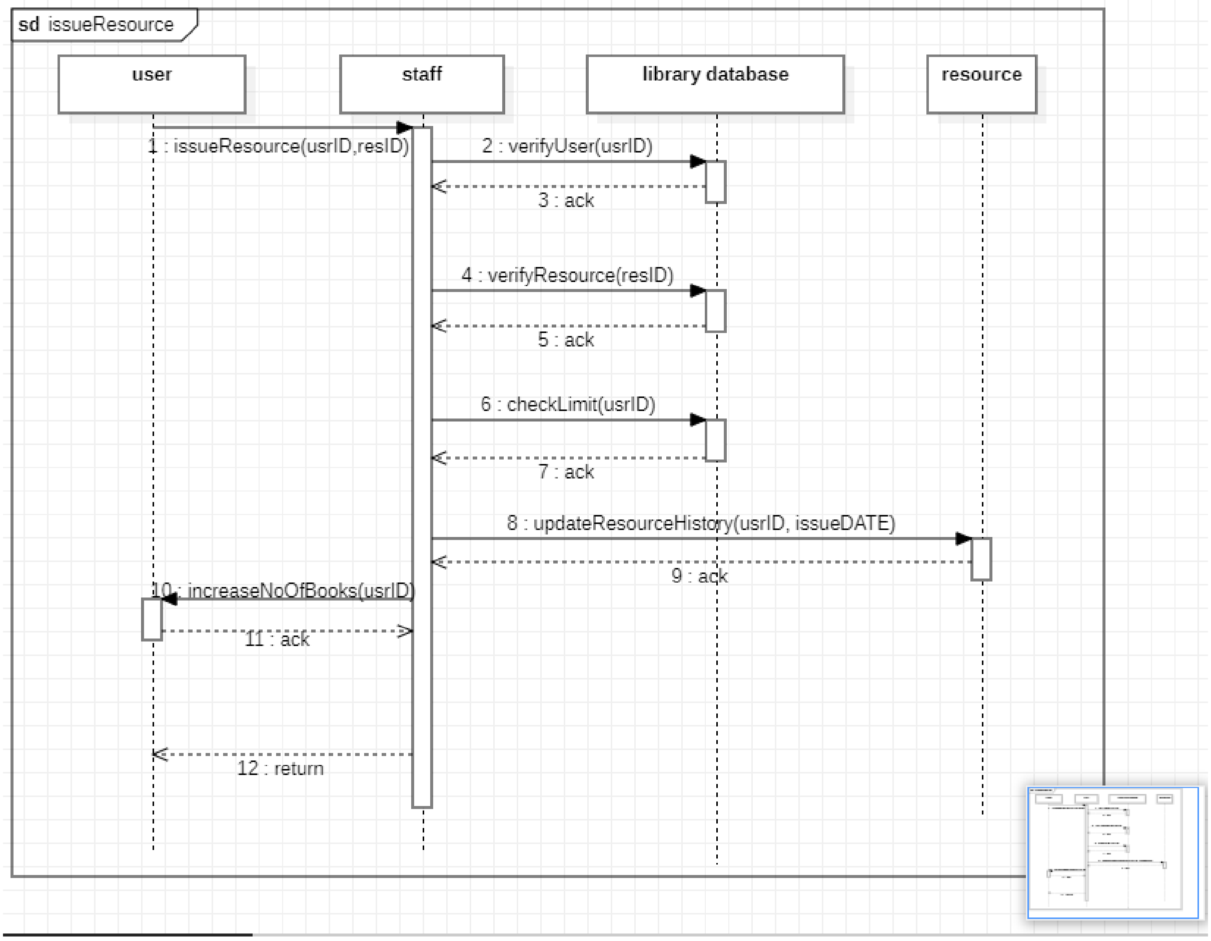


In the above diagram, we show the schematic representation of steps for return of a resource.

On returning a resource, we acknowledge it and change its status and we calculate the fine(if any).

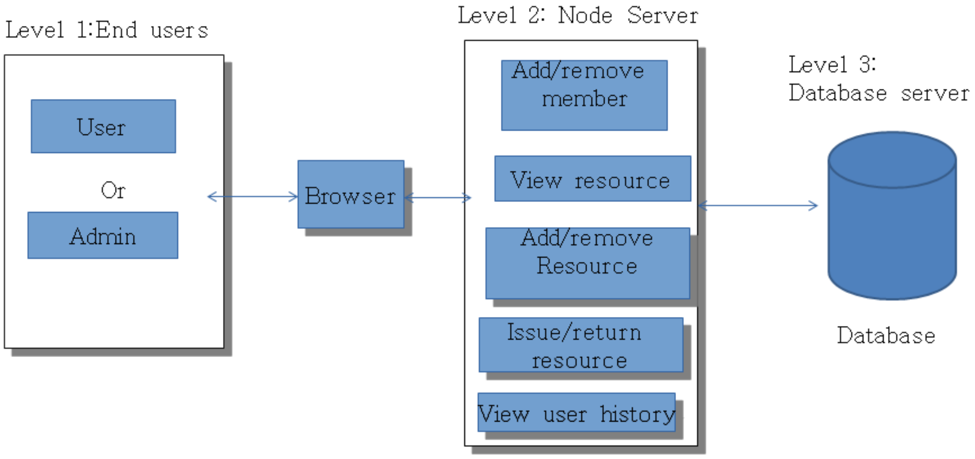


The above diagram represents the steps for re-issuing a resource.



The above diagram represents the self-explanatory steps for issuing a book.

3.6: System Architecture Diagram



System Architecture Diagram for Book Management System

CHAPTER 4: MODULE DESCRIPTION

VIEW/ MANAGE RESOURCES

view /manage

Once the User/admin logs in to the interface they are able to view all the added resources in the library . it can either be a journal or a book and all the details regarding the resource ie the book name ,book id,author name, book edition etc

Add resource

Admin can add new resources to the library by entering the details of the books such as title, author’s name, date of purchase, resource id, quantity, etc.once the resource is added with correct details there's a confirmation of addition.

Search resource

Users can search for a particular book either by using search by id, ie entering a books id that is present in the library or by using search by name .

Remove resource

Admin can enter the id of the resource and the quantity of that resource to be removed. The list of the resources gets updated when the resource is removed from the library.

Issue/Return

In this module, the user with the help of the interface, is able to issue/return/reissue the books of his/her choice.
For issuing a book, the prerequisite is that the book must exist in the library, this is taken care of in our code. Once the book is found, the book can be issued by the user(librarian) by entering appropriate details of the book(id) , student(id) and the issue date.
Once the book is issued, it can be either returned or re-issued. In case the student wants to return the book, the librarian must enter the appropriate date of return and also ensure it is updated in the database.
The student can re-issue the book, which basically means that he/she must have to simply update the librarian and the librarian will add the day-span for the existing span given to the student for the particular book.

Fine Calculation

This is done automatically on returning a book. Upon returning a book, the fine is calculated on the basis of the number of days between the issue date and the return date. Basically after issuing a book, for 15 days is the time-span, so after the 15 days, the fine starts adding up to 3 rupees per day.
So, the number of days are actually calculated by, converting the issue date to the total number of days since AD, and same with the return date, and then we subtract to find out how much is the number of days and from that we subtract 15, and multiply the fine by the day.
This can be viewed in the user's personal profile or in the administrator's profile in the user history section.
The student can also pay their fine and their pending fine will get updated on the other side too.

Stock verification

Stock verification in a library is a very important function and involves checking of books that are in stock.
In this module the admin is able to verify if all the books are present in the library or not.it can also be used to locate the rack number in which the books/journals are present.it gives a total count on the number of books present in the library.

CHAPTER 5: TEST CASES

TEST CASES

Test Case ID	Name of Module	Test case description	Pre conditions	Test steps	Test data	Expected results	Actual Result	Test result
UT_01	View/Manage books	To add a book of an Id that Already exists	1.login id-Sadmin 2.password-admin 3.After entering the adminmode 4.a book with an id	1.Open console 4.Add resource 5.book/jornal 6.Enter a book with existing ID	(Enter an existing id)	Does not accept and asks again to input id	Does not accept and asks again to input id	PASS
UT_02	View/Manage books	To add a book of an Id is new	1.After entering the admin mode	1.Open console 2.Add resource 3.book/jornal 4.Enter a book with a new ID	(Enter a new fresh id)	Accepts new entry	Accepts new entry	PASS
UT_03	View/Manage books	To search for a book (with correct id)	After entering the admin mode	1.open console 2.login id -Sadmin 3.password-admin 4.view resource 4.search with id	(Entering a correct id)	Shows the resource	Shows the resource	Pass
UT_04	View/Manage books	To search for a book (with wrong id)	After entering the admin mode	1.open console 2.view resource 3.search with id	(Entering a wrong id)	No such resource exists, try again	No such resource exists, try again	Pass
UT_05	View/Manage books	To search for a book (with correct name)	After entering the admin mode	1.open console 2.view resource 3.search with id	(Entering a correct name)	Resource is found	Resource is found	Pass
UT_06	View/Manage books	To search for a book (with wrong name)	After entering the admin mode	1.open console 2.view resource 3.search with book name	(Entering a wrong name)	No such resource exists, try again	No such resource exists, try again	Pass
UT_07	View/Manage books	To delete a book (with correct id)	After entering the admin mode	1.open console 2.Remove resource 3.Enter Resource ID	(Entering correct id)	Deletes the book	Deletes the book	Pass
UT_08	View/Manage books	To search for a book (with wrong id)	After entering the admin mode	1.open console 2.view resource 3.search with id	(Entering a wrong id)	No such resource exists, try	No such resource exists, try	Pass

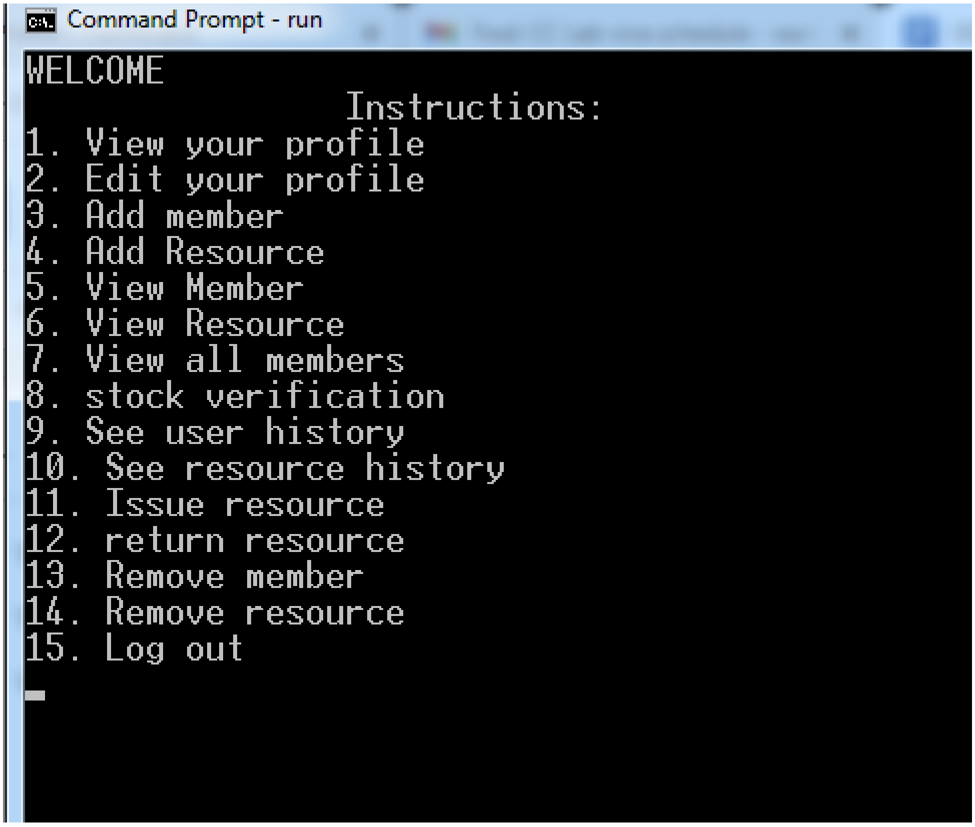
						again	again	
UT_9	issue/ return	To issue an existing book	To be inside admin mode(issue)	1.Open console 2.issue resource 3.enter resource information	Enters correct book-id and required details	Book issued	Book issued	PASS
UT_10	issue/ return	To issue a book with wrong id or name	To be inside admin mode(issue)	1.Open console 2.issue resource 3.enter resource information	Enter incorrect book-id	Book not found, try again	Try again	PASS
UT_11	issue/ return	To issue with wrong format of date	To be inside admin mode(issue)	1.Open console 2.issue resource 3.enter resource Id 4.enter user Id	11-09/2310	return date not valid, try again	return date not valid, try again	PASS
UT_12	issue/ return	To issue book with incorrect credentials of user	To be inside admin mode(re-issue)	1.Open console 2.issue resource 3.enter resource Id 4.enter user Id	Incorrect user-id entered	Incorrect credentials, try again	Incorrect credentials, try again	PASS
UT_13	issue/ return	To return book with incorrect date (return date before issue date)	To be inside admin mode(re-issue)	1.Open console 2.return resource 3. Enter resource id 4.enter user id 5.enter return date	12-10-2010 (issue date is after this date)	return date not valid, try again	return date not valid, try again	PASS
UT_14	issue/ return	To return book with correct credentials	To be inside admin mode(return)	1.Open console 2.return resource 3Enter resource id 4.enter user id 5.enter return date	Entering correct credentials	Book returned	Book returned	PASS
UT_15	issue/ return	To return book with incorrect credentials (wrong book id)	To be inside admin mode(return)	1.Open console 2.return resource 3Enter resource id 4.enter user id 5.enter return date	Incorrect bookid entered	Book not found, try again	Try again	PASS
UT_16	issue/ return	To return book with incorrect date	To be inside admin mode(return)	1.Open console 2.return resource 3Enter resource id 4.enter user id 5.enter return date	1, 001) 120-10-2010	Incorrect date, try again	Incorrect date, try again	PASS
UT_17	issue/ return (renew)	To renew the book with correct credentials	To be inside admin mode(issue)	1.Open console 2.renew resource 3Enter resource id 4.enter user id 5.enter return date	Enters correct book-id and required details	Book renewed	Book renewed	PASS
UT_I8	issue/ return (renew)	To renew the book with incorrect credentials	To be inside admin mode(issue)	1.Open console 2.issue resource 3.enter resource information	Enters incorrect book-id and required details	Invalid input, try again	Invalid input, try again	PASS
UT_19	fineCalculation	To check the dues	Open see user history	After entering, All users details are given with their amount due	Op-9 (to enter into see user history inorder to see fines)	Fine calculate = 25 rupees (just an example)	Fine calculate = 25 rupees (just an example)	PASS
ST_20	fineCalculation (with system)	Login	*-No precondition*	Entering the correct credentials (username, password)	*username-S admin* *password-admin*	System logs in	System logs in	PASS

ST_21	fineCalculation (with system)	Login (incorrect input)	*-No precondition*	Entering the incorrect credentials (username, password)	*username-S admin Password-wr ong pass*	Invaild input	Invaild input	PASS
IT_22 (BEFORE CODE REFINEMENT)	fineCalculation (with return)	To Enter incorrect date of return	Assumed that correct issue date entered	On return, entering a invalid date of return	132-10-2010	Wrong date, try again	system continues normally	**FAIL** (in this version, the system accepted 132 as a date) (THIS IS CORRECTED AND THE NEXT TEST CASE SHOWS)
IT_22 (AFTER REFINING THE CODE)	fineCalculation (with return)	To Enter incorrect date of return	Assumed that correct issue date entered	On return, entering a invalid date of return	132-10-2010	Wrong date, try again	Wrong date, try again	PASS
IT_23	fineCalculation (with return)	To Enter correct date of return	Assumed that correct issue date entered	On return, entering a valid date	13-101-2010	Systems continues normally (fine calculated, in see user history)	Systems continues normally (fine calculated, in see user history)	PASS
UT_24	fineCalculation (with return)	To Enter incorrect year of return, but issue date was wrong(before return)	Assumed that correct issue date entered	On return, entering a invalid date	13-10-2001	Wrong date, try again	System exits	PASS
UT_25	Stock verification	To check book stock	Login as admin	1.Open console 2.Enter login credentials 3.View all resources	We enter the correct number to select view all resource option	Complete details of book including stock of the book	Complete details of book including stock of the book	PASS
UT_26	Stock verification	To check book details including stock	Login as admin	1.Open console 2.Enter login credentials 3.See resource history	We enter the correct book id in the see resource history	Complete details of book including stock of the book	Complete details of book including stock of the book	PASS
UT_27	Stock verification	To check book details including stock(book id entered)	Login as admin	1.Open console 2.Enter login credentials 3.See resource history	We enter the incorrect book id in the see resource history	Resource not found	Resource not found	PASS
UT_28	Stock verification	To check book details including stock(book title entered)	Login as admin	1.Open console 2.Enter login credentials 3.see resource	We enter the correct book title in the see resource history	Complete details of book including stock of the book	Complete details of book including stock of the book	PASS
UT_29	Stock verification	To check book details including	Login as admin	1.Open console 2.Enter login	We enter the incorrect	Resource not found	Resource not found	PASS

		stock(book title entered)		credentials 3.View all resources	book title in the see resource history			
UT_30	Stock verification	To check book details including stock(author name entered)	Login as admin	1.Open console 2.Enter login credentials 3.View all resources	We enter the correct author name in the see resource history	Complete details of book including price of the book	Complete details of book including price of the book	PASS
UT_31	Stock verification	To check book details including stock(author name entered)	Login as admin	1.Open console 2.Enter login credentials 3.View all resources	We enter the incorrect author name in the see resource history	Resource not found	Resource not found	PASS

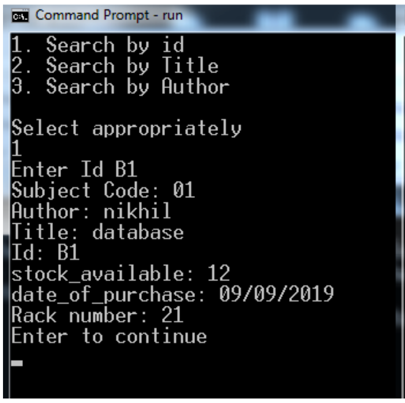
CHAPTER 6: SCREENSHOTS

1.Home page:

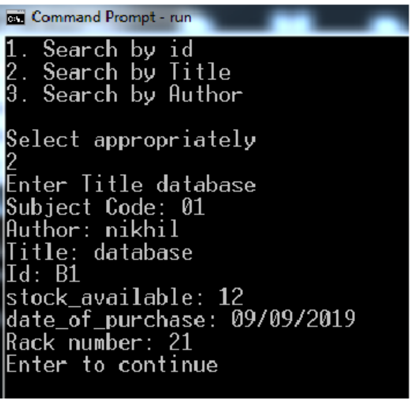


```
WELCOME
                Instructions:
1. View your profile
2. Edit your profile
3. Add member
4. Add Resource
5. View Member
6. View Resource
7. View all members
8. stock verification
9. See user history
10. See resource history
11. Issue resource
12. return resource
13. Remove member
14. Remove resource
15. Log out
```

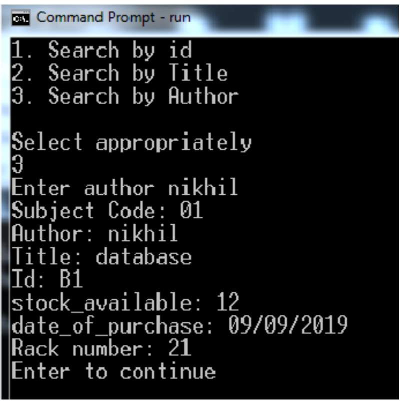
2.View resource(books):



```
1. Search by id
2. Search by Title
3. Search by Author

Select appropriately
1
Enter Id B1
Subject Code: 01
Author: nikhil
Title: database
Id: B1
stock_available: 12
date_of_purchase: 09/09/2019
Rack number: 21
Enter to continue
```

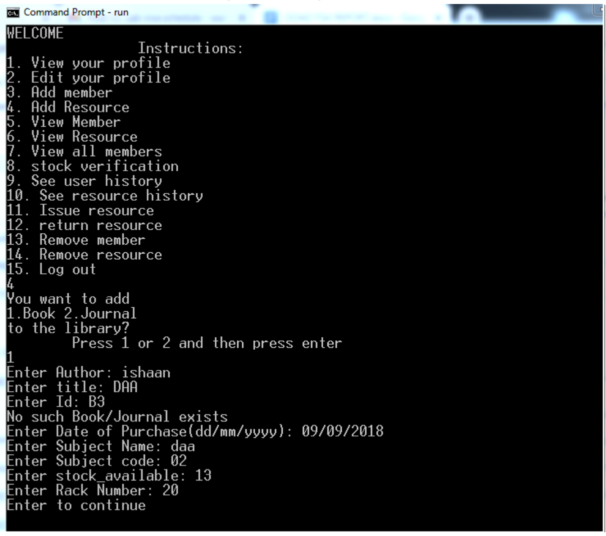


```
1. Search by id
2. Search by Title
3. Search by Author

Select appropriately
2
Enter Title database
Subject Code: 01
Author: nikhil
Title: database
Id: B1
stock_available: 12
date_of_purchase: 09/09/2019
Rack number: 21
Enter to continue
```

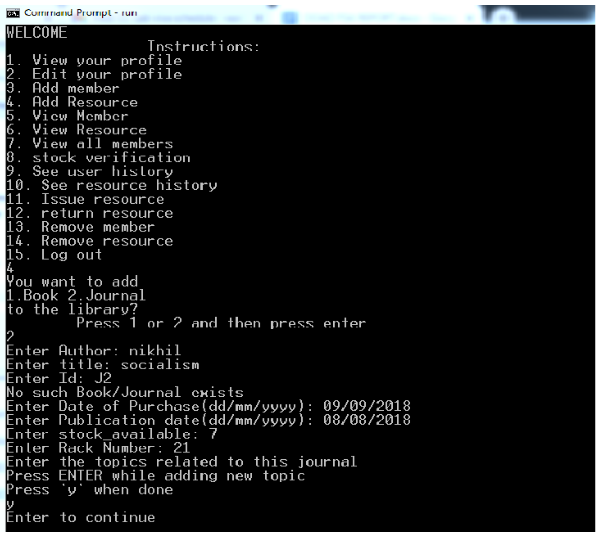


```
1. Search by id
2. Search by Title
3. Search by Author

Select appropriately
3
Enter author nikhil
Subject Code: 01
Author: nikhil
Title: database
Id: B1
stock_available: 12
date_of_purchase: 09/09/2019
Rack number: 21
Enter to continue
```

3. Add resource(books):

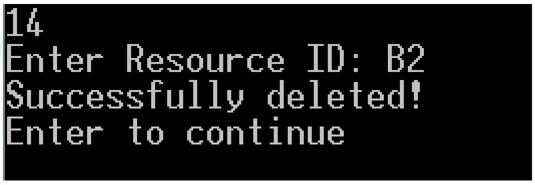


```
WELCOME
                Instructions:
1. View your profile
2. Edit your profile
3. Add member
4. Add Resource
5. View Member
6. View Resource
7. View all members
8. stock verification
9. See user history
10. See resource history
11. Issue resource
12. return resource
13. Remove member
14. Remove resource
15. Log out
4
You want to add
1.Book 2.Journal
to the library?
        Press 1 or 2 and then press enter
1
Enter Author: ishaan
Enter title: DAA
Enter Id: B3
No such Book/Journal exists
Enter Date of Purchase(dd/mm/yyyy): 09/09/2018
Enter Subject Name: daa
Enter Subject code: 02
Enter stock_available: 13
Enter Rack Number: 20
Enter to continue
```



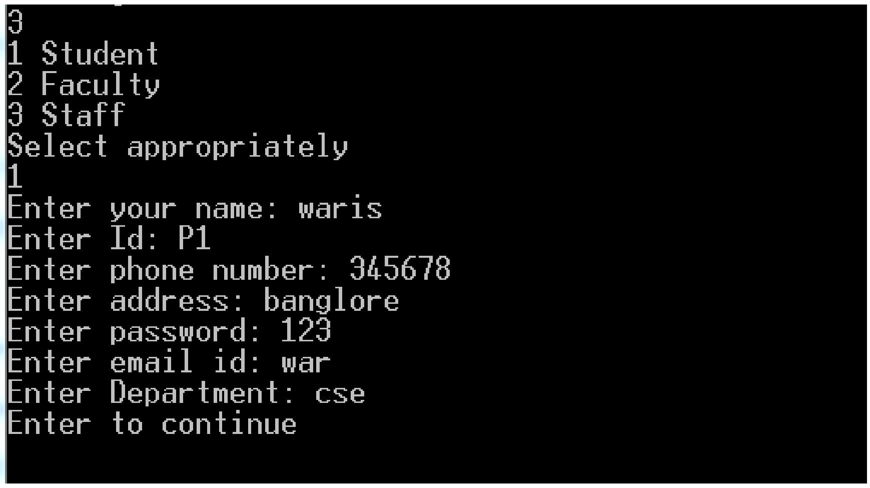
```
WELCOME
                Instructions:
1. View your profile
2. Edit your profile
3. Add member
4. Add Resource
5. View Member
6. View Resource
7. View all members
8. stock verification
9. See user history
10. See resource history
11. Issue resource
12. return resource
13. Remove member
14. Remove resource
15. Log out
4
You want to add
1.Book 2.Journal
to the library?
        Press 1 or 2 and then press enter
2
Enter Author: nikhil
Enter title: socialism
Enter Id: J2
No such Book/Journal exists
Enter Date of Purchase(dd/mm/yyyy): 09/09/2018
Enter Publication date(dd/mm/yyyy): 08/08/2018
Enter stock_available: 7
Enter Rack Number: 21
Enter the topics related to this journal
Press ENTER while adding new topic
Press `y` when done
y
Enter to continue
```

4. Remove resource(books):



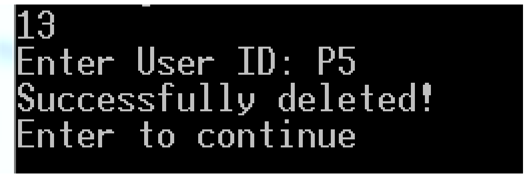
```
14
Enter Resource ID: B2
Successfully deleted!
Enter to continue
```

4. Add member:



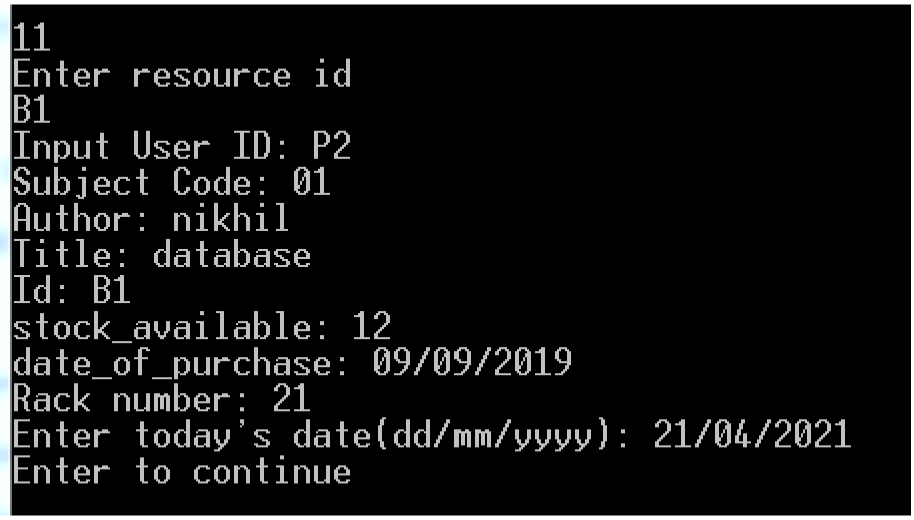
```
3
1 Student
2 Faculty
3 Staff
Select appropriately
1
Enter your name: waris
Enter Id: P1
Enter phone number: 345678
Enter address: banglore
Enter password: 123
Enter email id: war
Enter Department: cse
Enter to continue
```

5. Remove Member:



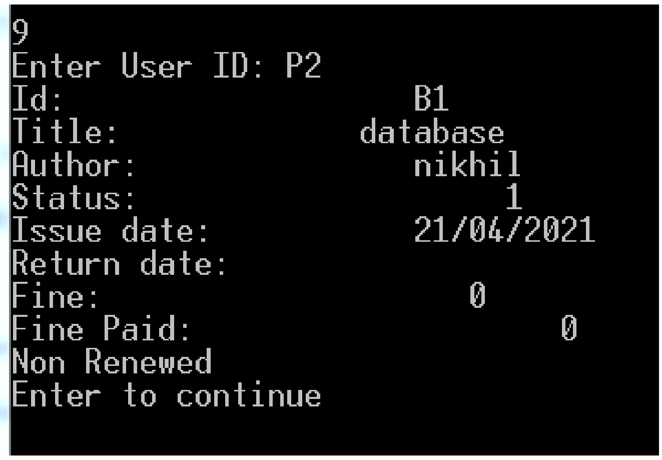
```
13
Enter User ID: P5
Successfully deleted!
Enter to continue
```

6. Issue Book:



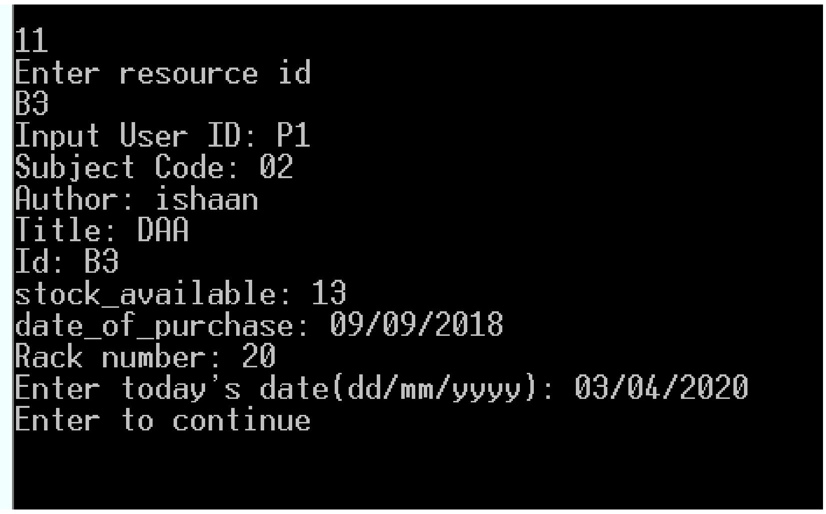
```
11
Enter resource id
B1
Input User ID: P2
Subject Code: 01
Author: nikhil
Title: database
Id: B1
stock_available: 12
date_of_purchase: 09/09/2019
Rack number: 21
Enter today's date(dd/mm/yyyy): 21/04/2021
Enter to continue
```

7. See user history:



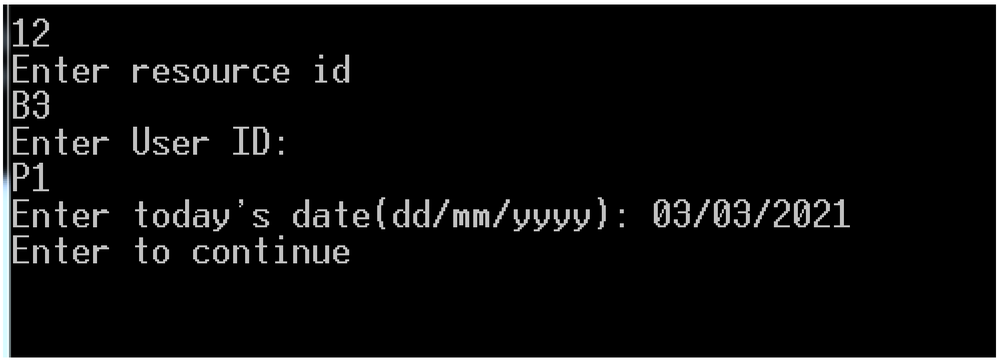
```
9
Enter User ID: P2
Id:                   B1
Title:             database
Author:               nikhil
Status:                    1
Issue date:           21/04/2021
Return date:
Fine:                    0
Fine Paid:                    0
Non Renewed
Enter to continue
```

8. Issue book:



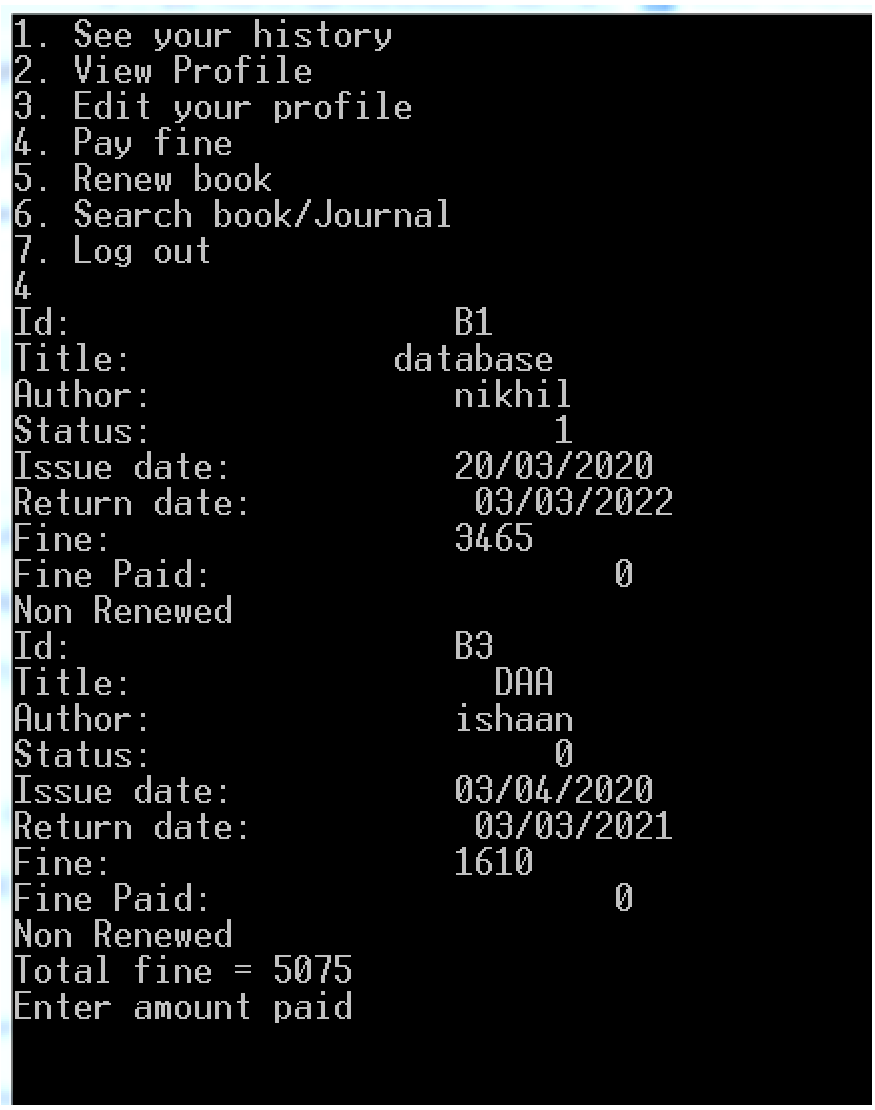
```
11
Enter resource id
B3
Input User ID: P1
Subject Code: 02
Author: ishaan
Title: DAA
Id: B3
stock_available: 13
date_of_purchase: 09/09/2018
Rack number: 20
Enter today's date(dd/mm/yyyy): 03/04/2020
Enter to continue
```

9. Return book:



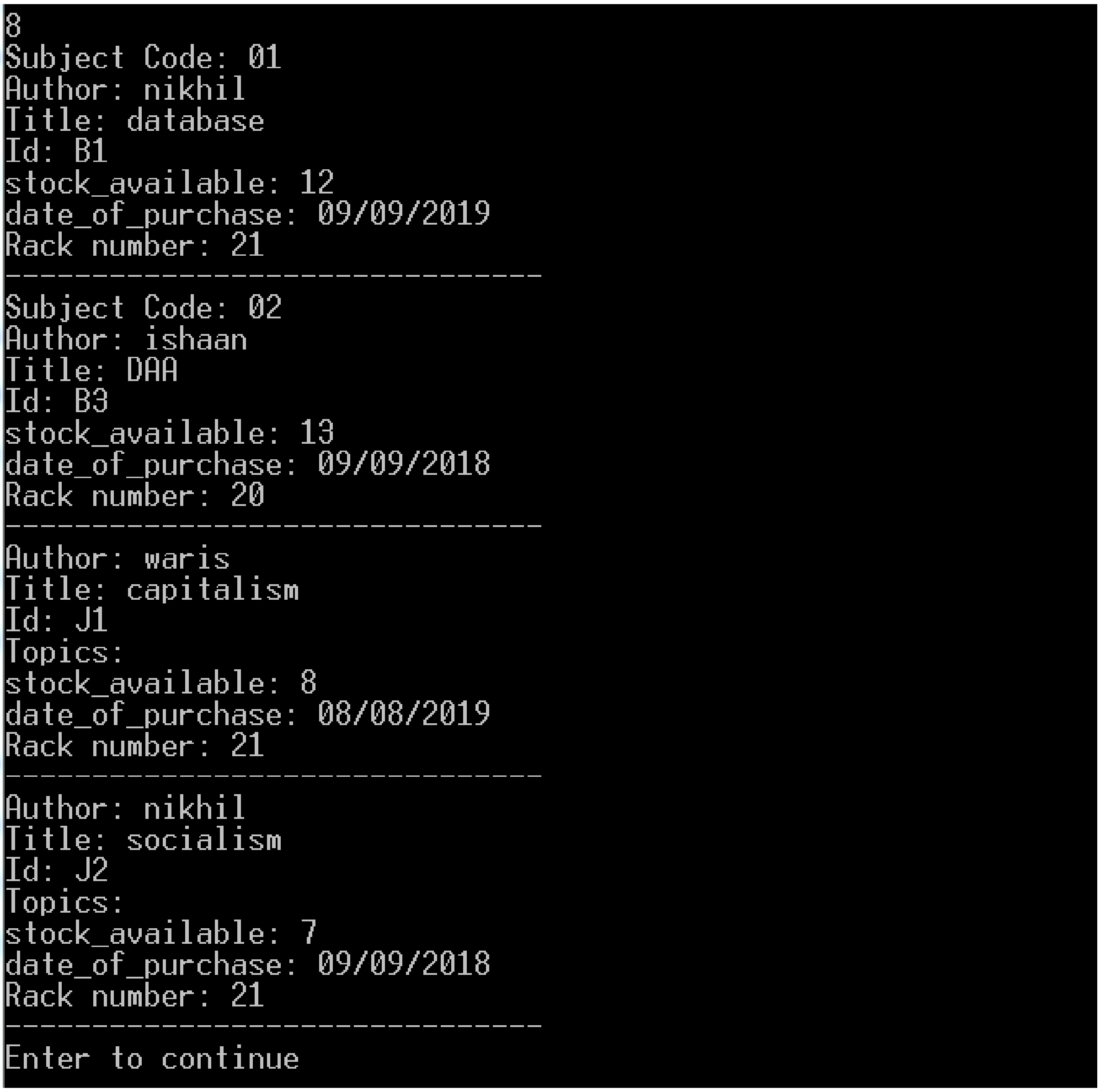
```
12
Enter resource id
B3
Enter User ID:
P1
Enter today's date(dd/mm/yyyy): 03/03/2021
Enter to continue
```

10. Fine calculation:



```
1. See your history
2. View Profile
3. Edit your profile
4. Pay fine
5. Renew book
6. Search book/Journal
7. Log out
4
Id:                      B1
Title:                database
Author:                  nikhil
Status:                       1
Issue date:              20/03/2020
Return date:              03/03/2022
Fine:                    3465
Fine Paid:                       0
Non Renewed
Id:                      B3
Title:                     DAA
Author:                  ishaan
Status:                       0
Issue date:              03/04/2020
Return date:              03/03/2021
Fine:                    1610
Fine Paid:                       0
Non Renewed
Total fine = 5075
Enter amount paid
```

11. Stock Verification:



```
8
Subject Code: 01
Author: nikhil
Title: database
Id: B1
stock_available: 12
date_of_purchase: 09/09/2019
Rack number: 21
-------------------------------
Subject Code: 02
Author: ishaan
Title: DAA
Id: B3
stock_available: 13
date_of_purchase: 09/09/2018
Rack number: 20
-------------------------------
Author: waris
Title: capitalism
Id: J1
Topics:
stock_available: 8
date_of_purchase: 08/08/2019
Rack number: 21
-------------------------------
Author: nikhil
Title: socialism
Id: J2
Topics:
stock_available: 7
date_of_purchase: 09/09/2018
Rack number: 21
-------------------------------
Enter to continue
```