Project Report

"Virtual Library System"

Submitted by

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CERTIFICATE

This is to certify that project entitled ***Virtual Library System*** has been carried out by ***Padaliya Dvija (100760107023)*** under my guidance in partial fulfilment for the degree of **Bachelor of Engineering** in **Computer Engineering 8thSemester** of Gujarat Technological University, Ahmadabad during the academic year 2013-14.

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Padaliya Dvija(100760107023)

ABSTRACT

The main concept of the project is to develop virtually book reading from library Application.Virtual library brings the library closer to the users and information can be shared and always be available.

The system is designed in accordance with specifications to satisfy the requirements and then implemented with front end side ASP.NET with VB.NET and back end side Microsoft SQL server 2008. The system is designed as an interactive and content management system. This content management system dealswith book entry, updating and deleting entry.

The web pages about any user are created dynamically based on the user id and password and displays General Details, Contact details, their interested books etc. User requests for books and material through online application.System provides e-content as per requirements.User can save some content according to their interest.User searches all users and interacts with them.

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Chapter 1

Problem Statement & Description

1.1 Introduction

This chapter focuses on the concept and applications of virtual libraries, also the problem statement describe the general and specific objectives. Its significance and the methodology that will be used to address the problem are also discussed.

1.2 Problem

In traditional library system, Situation users have to go library for reading and librarian has to log updated manually with help of his assistants about books. It is tedious process of updating the log, manually, after every transaction is dying out in most of the libraries. This is with the advent of computerization in this field too. Then to manage library came spread sheets, in which it was the duty of the librarian/administrator to enter all details manually in the spreadsheet and user have to register for book. But in this also user have to go library. They had to keep track of all items in the library for reading. The person borrowing the book had to get his verification card and get it updated every time he borrows/returns an item from/to library.

Monitoring of these book-banks is currently difficult due the fact the staff in the main Library in charge of book-banks is small and one must physically walk to a particular book-bank unit (Faculty/Department) to assess the performance.

Since books are manually recorded, grouped and stored, many a time, it becomes very difficult to know how many books of a given type are available in individual book-banks by the Book-bank Coordinator. Producing a list of lost books and defaulters for example is also a nightmare. Even this work of verifying the person and updating the card falls on the librarian or his assistant. It is highly tedious.

1.3 The Digital Library Concept

Virtual library means library without walls. The resources are available in digital format; there is no paper, microforms etc. The resources are locally held or accessed through computer network. A digital library is a software system, mostly based on web-technology, which is used for storing and retrieving electronic documents giving access to the original documents, which in turn could be digital representations of article of any nature or format, such as menu scripts, object images or native electronic documents e.g. website. These electronic documents can be stored in a wide variety of formats such as PDF.

Virtual library stores information as digital objects and it can be retrieved virtually. These objects represent the content of a virtual library and associated data which are called metadata. Due to this fact, digital objects are the building blocks of a virtual library. In order to represent useful information, contents must have associated types such as text, image, audio, etc. In addition, each object in library must have a unique identifier. The digital accessed through a variety of mechanisms.

Chapter 2

Requirement Analysis

2.1 Requirement Specifications

User logs in into system

User searches for books information and according to their need retrieve books.

System provides e-content as per requirements.

User can save some content accor

ding to their interest.

User can interact with other users.

2.2 Need of Project

Following are the major advantages of digital libraries over traditional libraries:

- Digital libraries bring the libraries closer to the users.
- Computer technology is used for searching and browsing.
- Information can be shared and information is always available.
- New forms of information become possible.
- Access can be from the user's home, office, or dormitory whether or not the physical Library is open.
- The library can get usage statistics that are not available for print collections and digital collections save space and are relatively easy to maintain.
- It often adds enhanced searching capabilities in a digital format.
- It provides the user with the capability to read and download.
- It eliminates the problem of a book being missing or off the shelf.
- It is less labour intensive.

2.3 Functions of All Modules

2.3.1 User Module

This easy-to-use versatile module helps users browse the library quickly and effectively. Administrator assigned privileges permit users to not only browse/delete own content but also rate article/e-books and post comments/viewpoints.

New user

A new user can be any person from the institution willing to be a member of the library.

- **View digital library**

New user can have a tour of the library before enrolling his/her name in the library.

- **Registration**

New user can then sign up for using the facility.

New user is expected to be a member of the institution before joining the Institution's library.

New user has to fill all the required fields in the sign-up process.

A confirmation is sent from the administrator after which the user can sign-in to view items.

Member

Member is a person who has signed-up and has received confirmation mail from the administrator.

- **Profile setting and sign in:**

Member has to sign-in every time to access the library.

Member can view his/her profile and change password if necessary.

Member can retrieve his/her password anytime in case he/she forgets it.

- **View/browse e-books:**

Member can browse the library based on the different sections.

Member can view the new arrivals from every branch of study.

User can search books according to viewer rating.

- **Save content**

During reading user can save some content according to their interest.

- **Submit content**

User can submit some material or books.

2.3.2 Administration Module

Administrator is a person who manages and supervises the functioning of the library. This full-options module ensures ease of navigability for users helping them receive appropriate e-content efficiently. Administrator can not only edit/delete content but can also assign/control user privileges to ensure that contents are current and periodically updated.

- **Add/update e-books/articles:**

Administrator can add, update, and delete items in the library.

Administrator can upload e-books and articles.

- **Assign and search categories/sub categories:**

When admin upload new books, he can assign categories to that book.

- **Display options/navigation:**

Provide display for the purpose online reading.

- **Approve/edit/reject e-content:**

Admin check content submitted by user for approval.

- **Manages subjects**

Admin add and delete subjects to particular department according to semester.

2.4 Existing Solution

In traditional library system, Situation user go library for reading and librarian has to log updated manually with help of his assistants about books. The person borrowing the book had to get his verification card and get it updated every time he borrows/returns an item from/to library.

2.5 Limitations of Existing Solution

Monitoring of traditional book-banks is currently difficult due the fact the staff in the main Library in charge of book-banks is small and one must physically walk to a particular book-bank unit (Faculty/Department) to assess the performance.

Since books are manually recorded, grouped and stored, many a time, it becomes very difficult to know how many books of a given type are available in

individual book-banks by the Book-bank Coordinator. Producing a list of lost books and defaulters for example is also a nightmare. Even this work of verifying the person and updating the card falls on the librarian or his assistant. It is highly tedious.

Chapter 3

Underlying Technology

3.1 Hardware Requirements

Intel Pentium – IV 2.8 GHz

2.0GB DDR RAM

B, 7200 RPM Hard disk Drives x 2 Nos.: as per 5.d

Color Monitor with 1024 x 786, 32 Bit color x 2 Nos.

High speed Internet connection

3.2 Software Requirements

OS – Windows 2003 or above

Microsoft visual studio 2010

Configure IIS (Internet Information Services)

Microsoft (.NET) Framework 4.0 or above

Microsoft SQL Server 2008

Internet Explorer 7.0

3.3 Technology Used

3.3.1 Back End: Microsoft SQL Server 2008

Preferred because,

- Efficient in developing database driven web applications.
- It provides data compression features which reduce the database's size and also provides better security features.

3.3.2 Front End: Asp.Net with Vb.Net

Preferred because,

- It is compatible with Microsoft SQL Server 2008.

- A fast search engine.

Chapter 4

System Design

4.1 Data Flow Diagram

Level-0

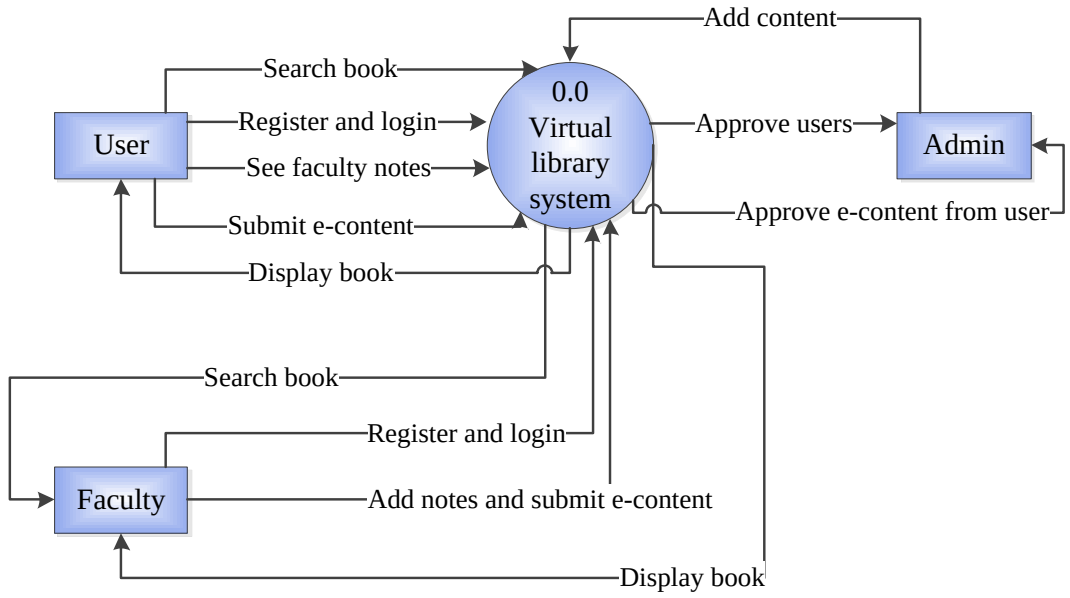

Figure 4.1(Data Flow Diagram Level-0)

Level-1

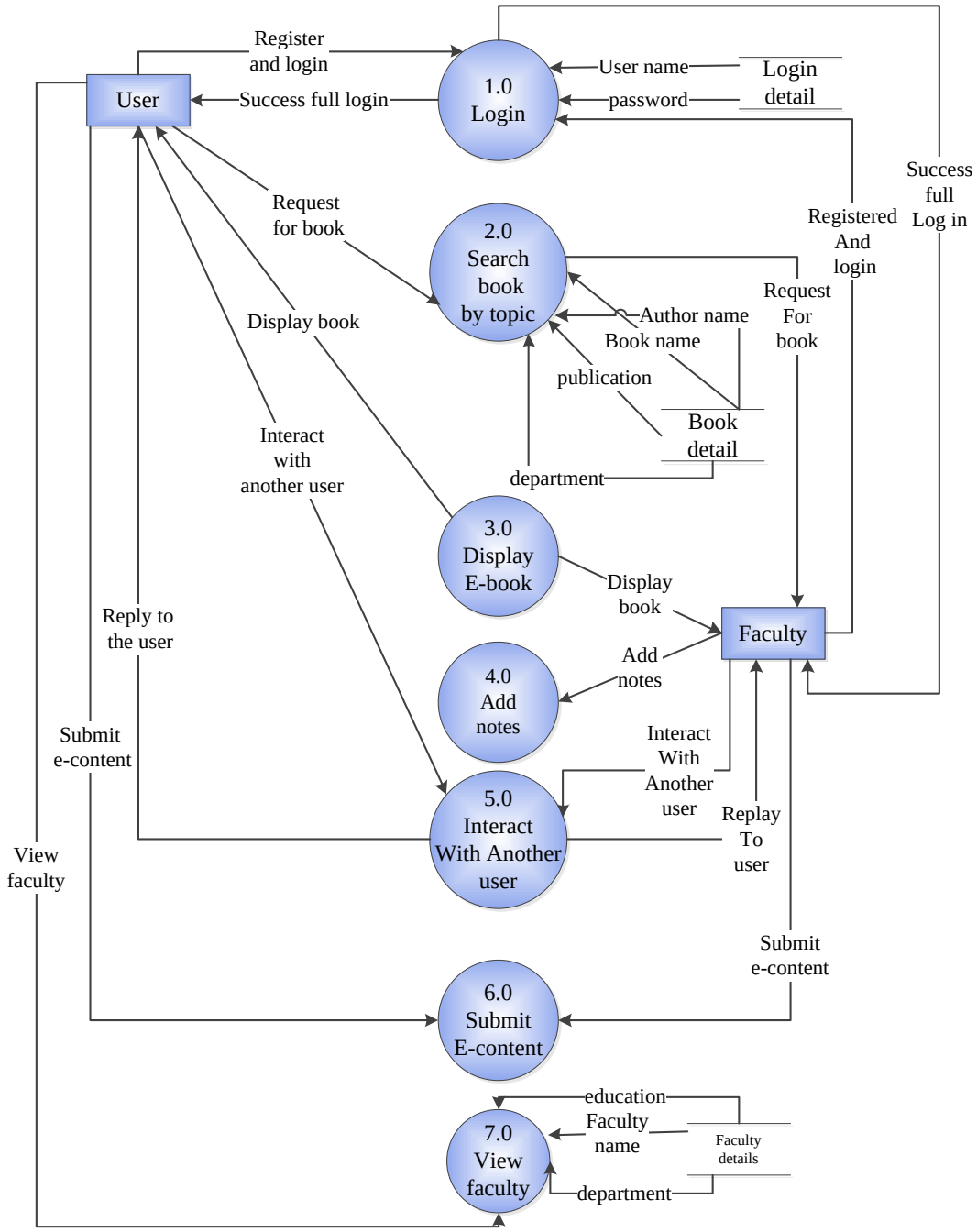

Figure 4.2(Data Flow Diagram Level-1)

Level-2

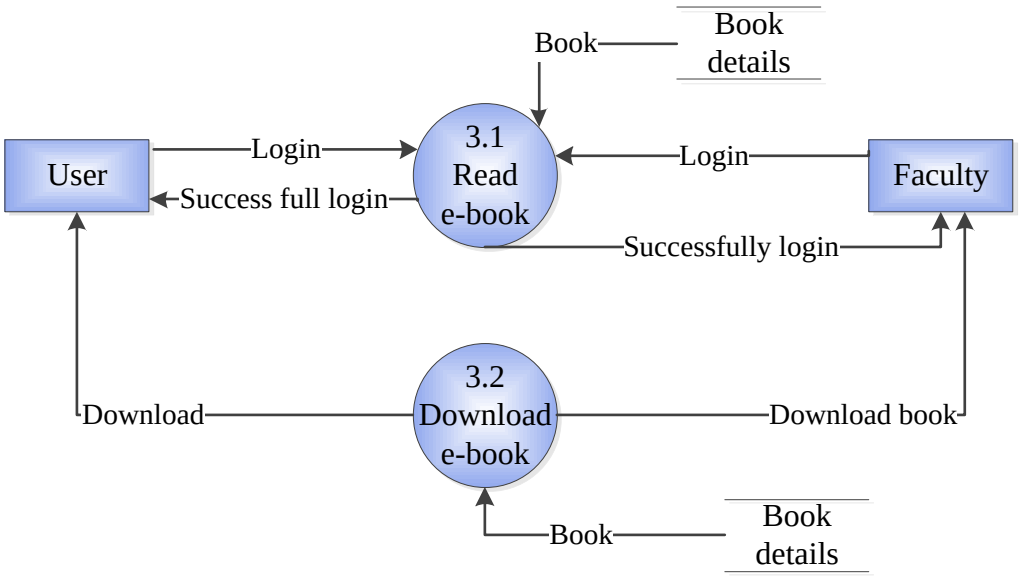

Figure 4.3(Data Flow Diagram Level-2)

Level-2

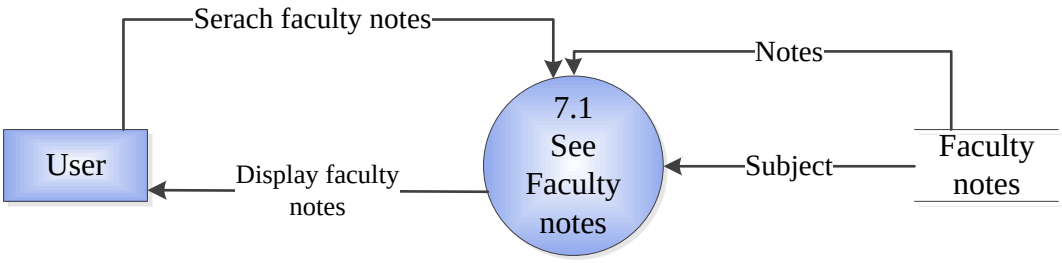

Figure 4.4(Data Flow Diagram Level-2)

Level-3

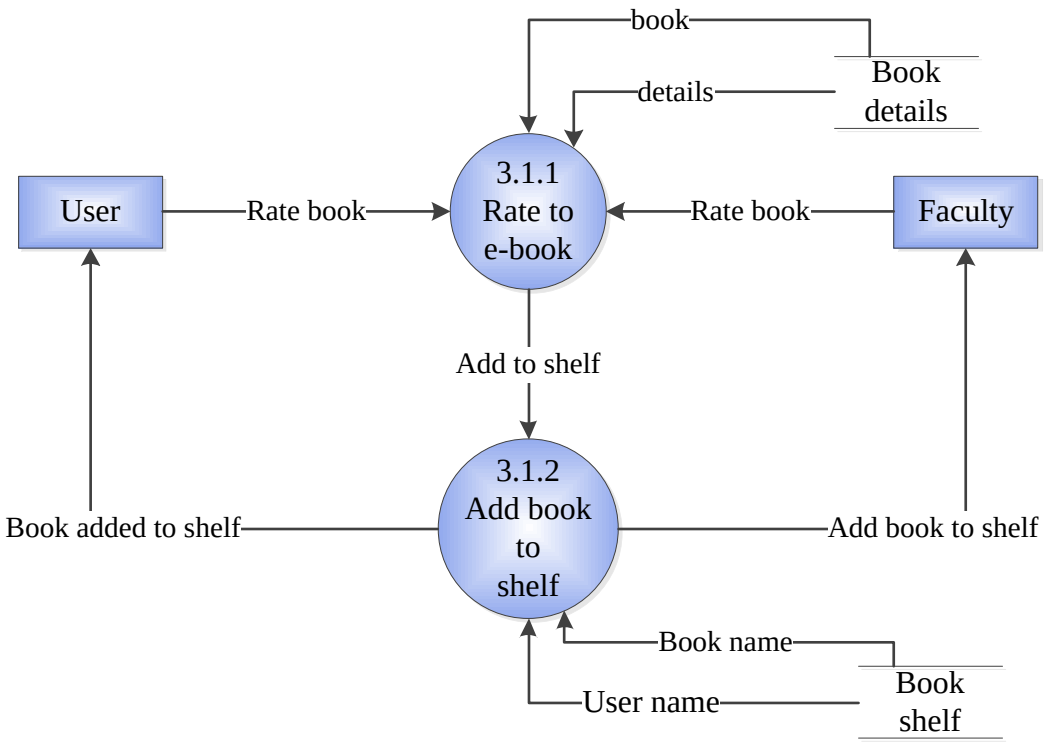

Figure 4.5(Data Flow Diagram Level-3)

4.2 E-R Diagram

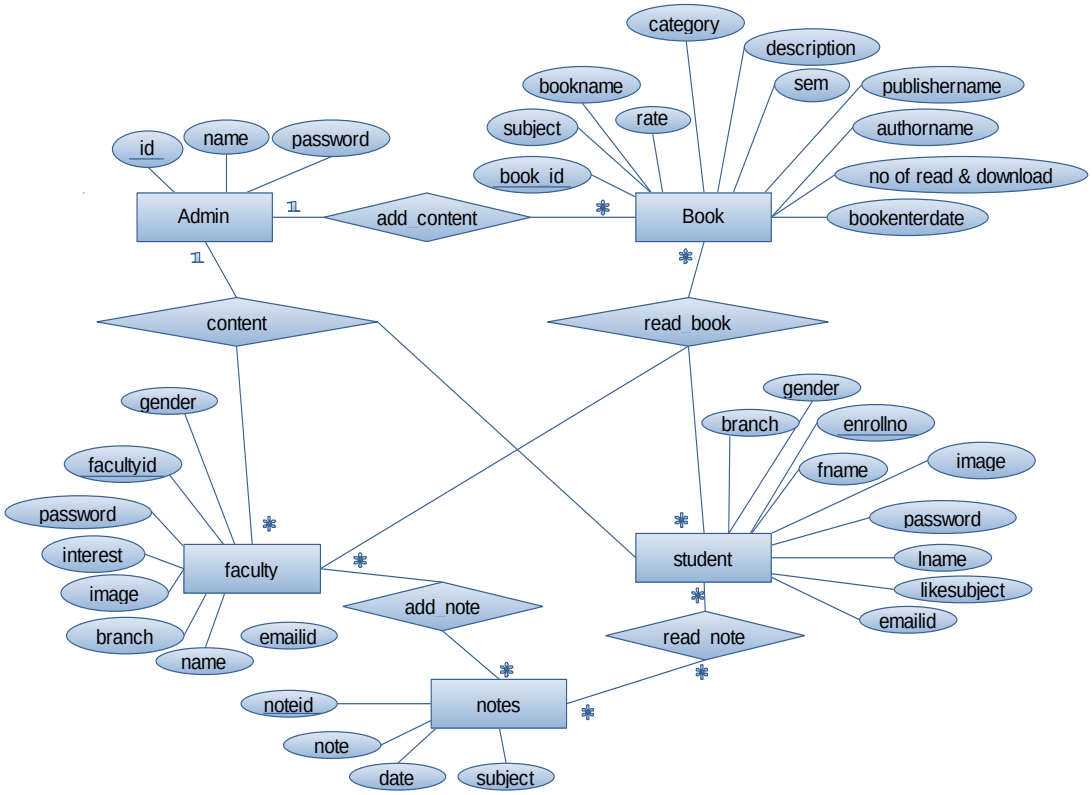

Figure 4.6 (E-R Diagram)

4.3 Usecase Diagram

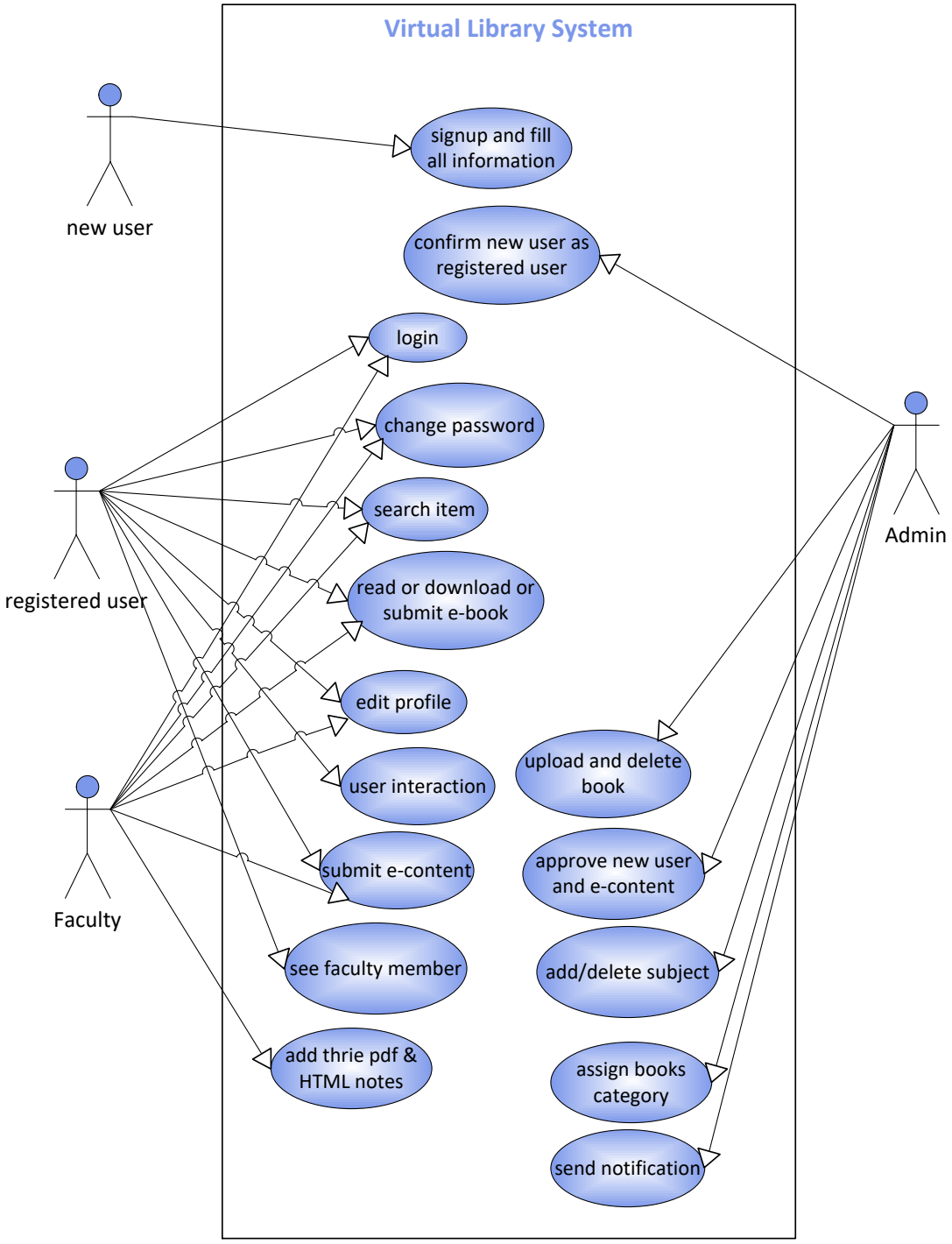

Figure 4.7 (Usecase Diagram)

4.4 Sequence Diagram

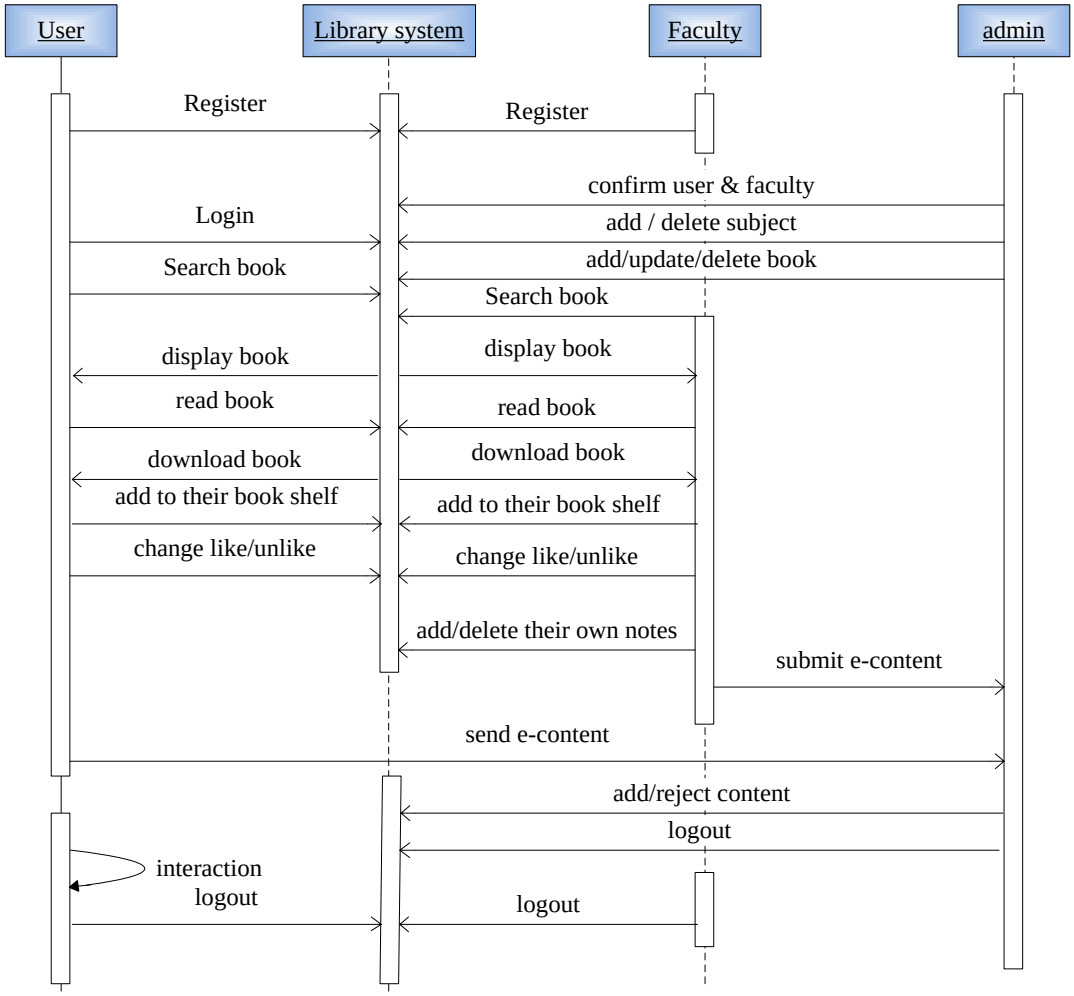

Figure 4.8 (Sequence Diagram)

4.5 Class Diagram

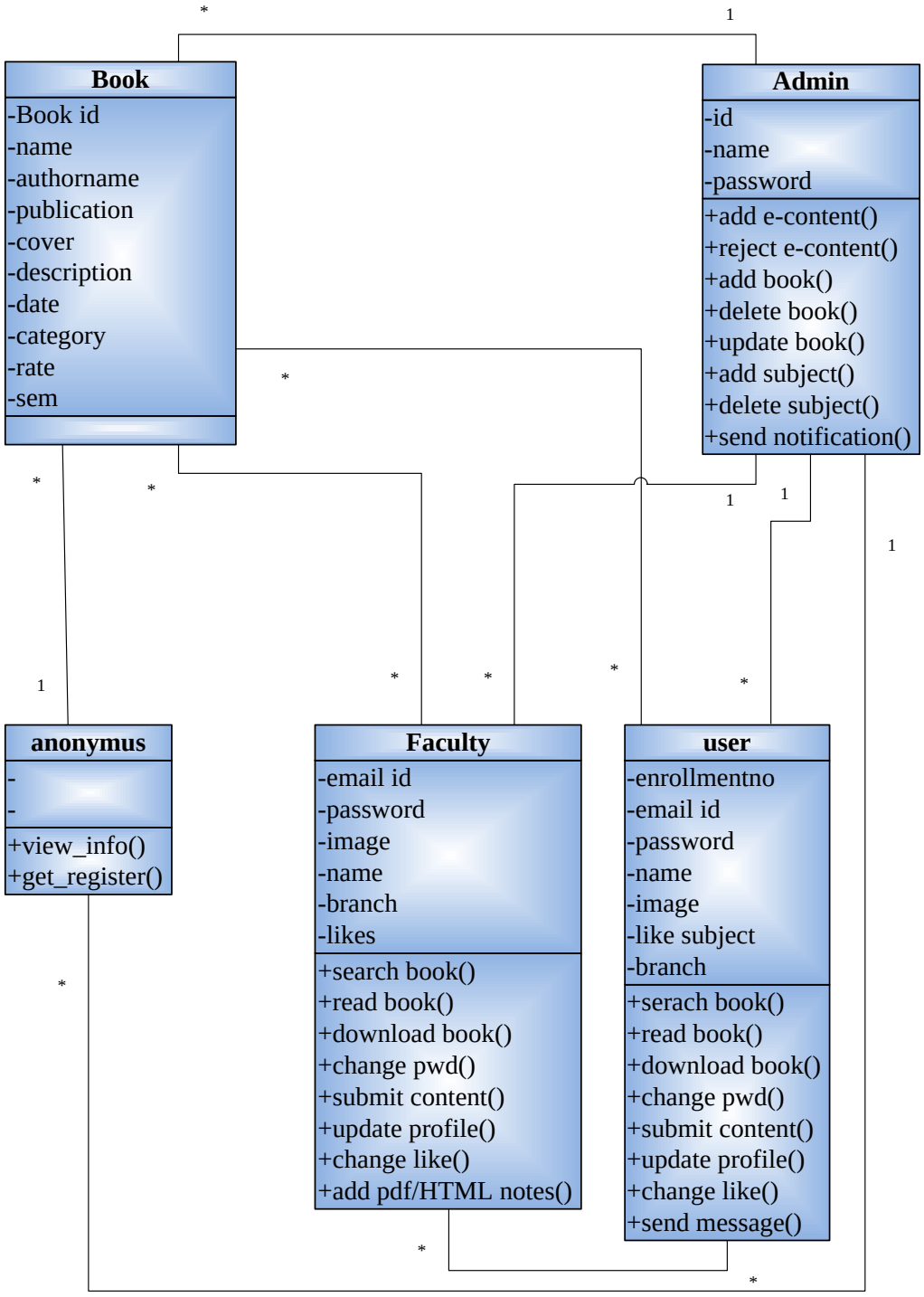

Figure 4.9 (Class Diagram)

4.6 Activity Diagram

Admin Activity

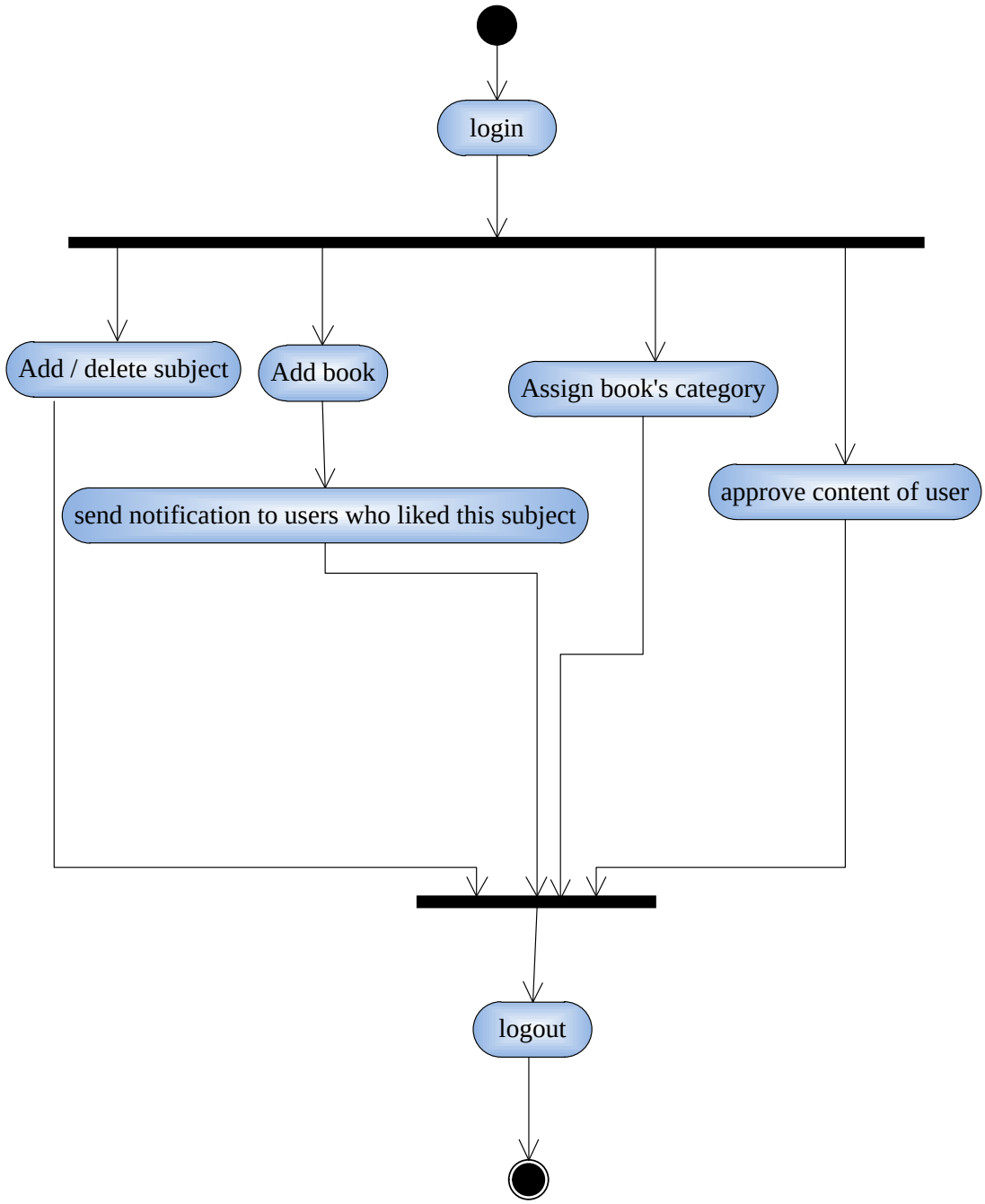

Figure 4.10 (Activity Diagram for Admin)

User Activity

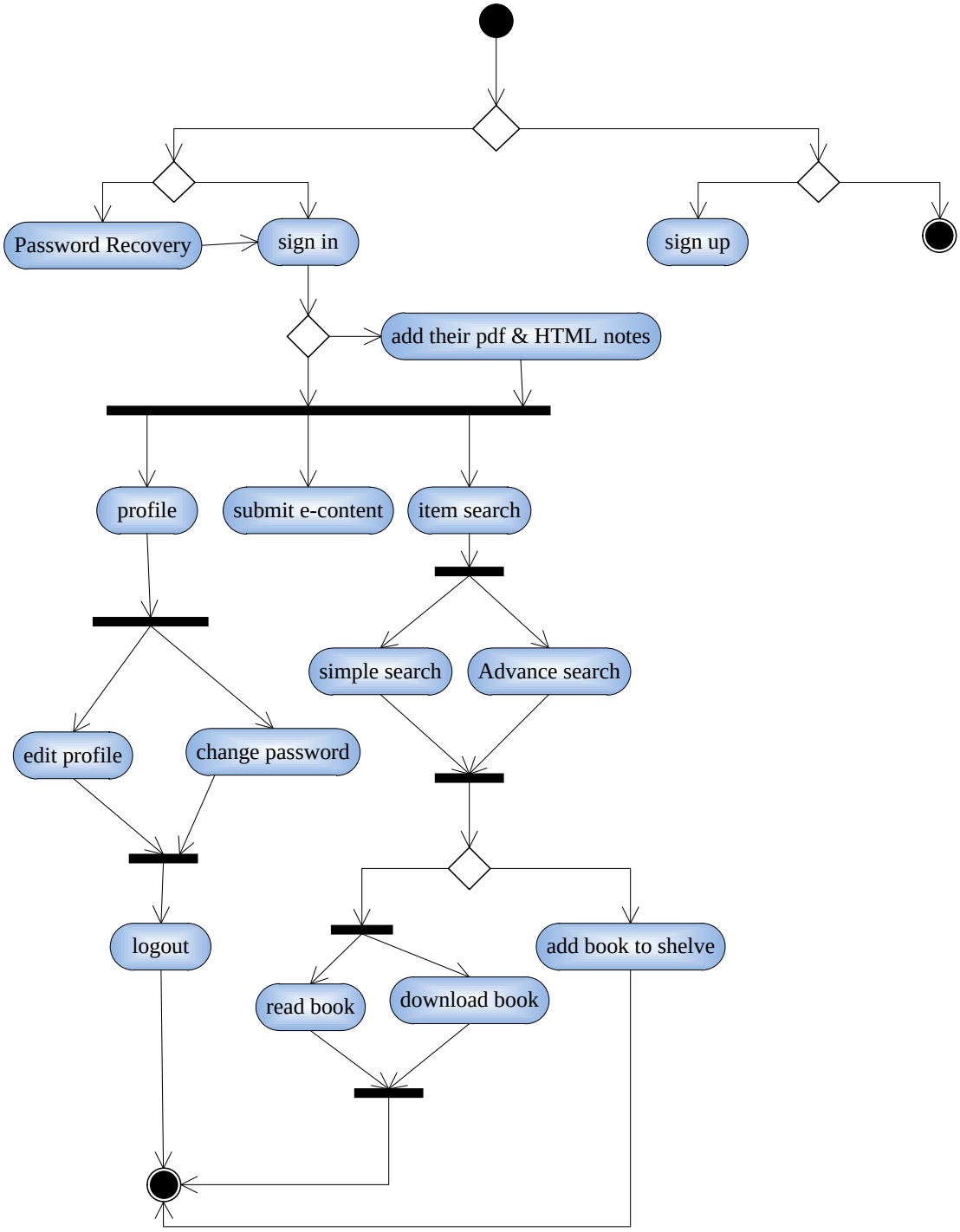

Figure 4.11 (Activity Diagram for User)

Chapter 5

Work Implementation

5.1 Login

New users can sign up into the system and members log in to the system by their unique id and password.

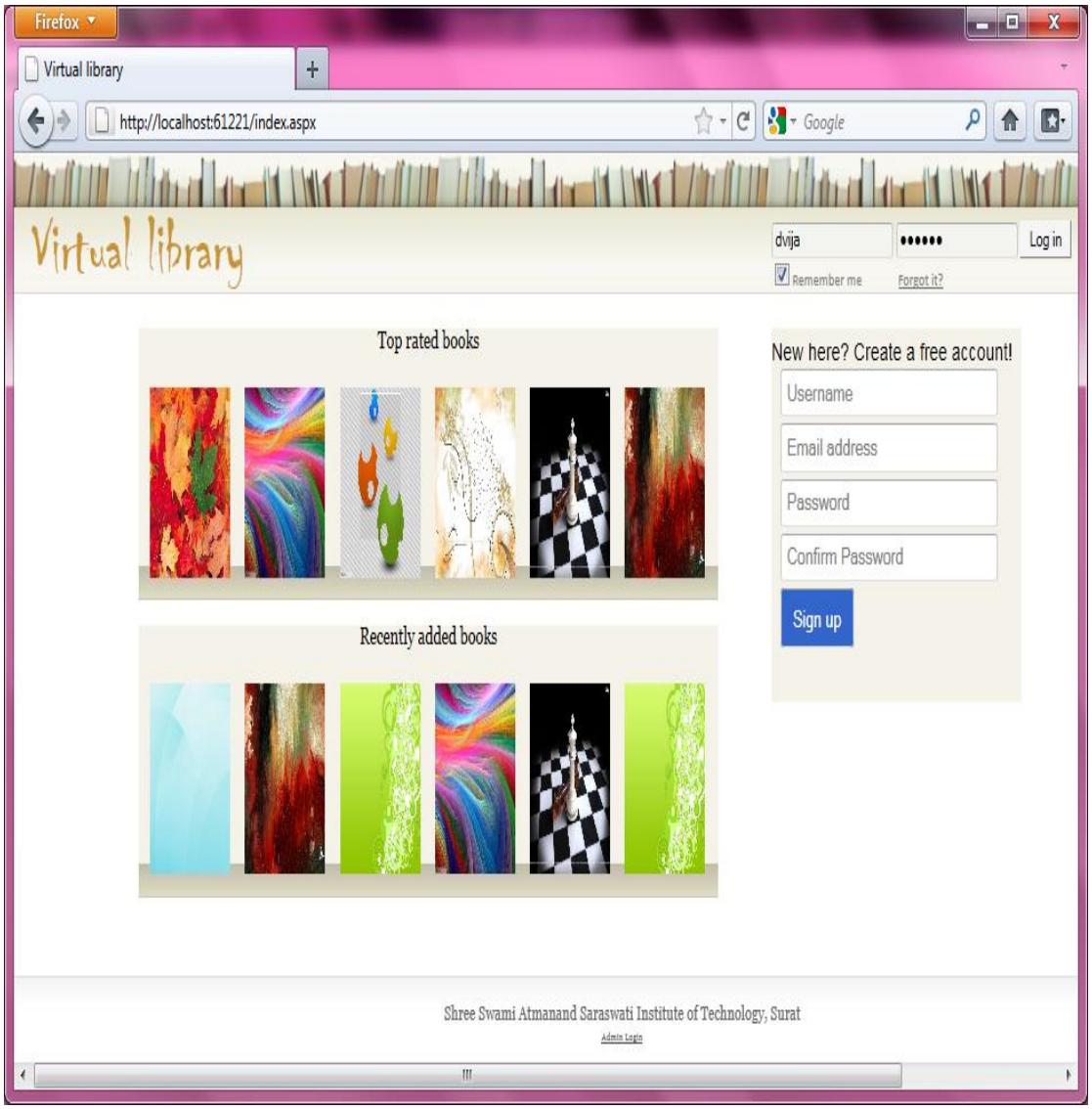

Figure 5.1 (Login)

5.2 Add subject

Admin can add new subject and also can delete subject into particular department.

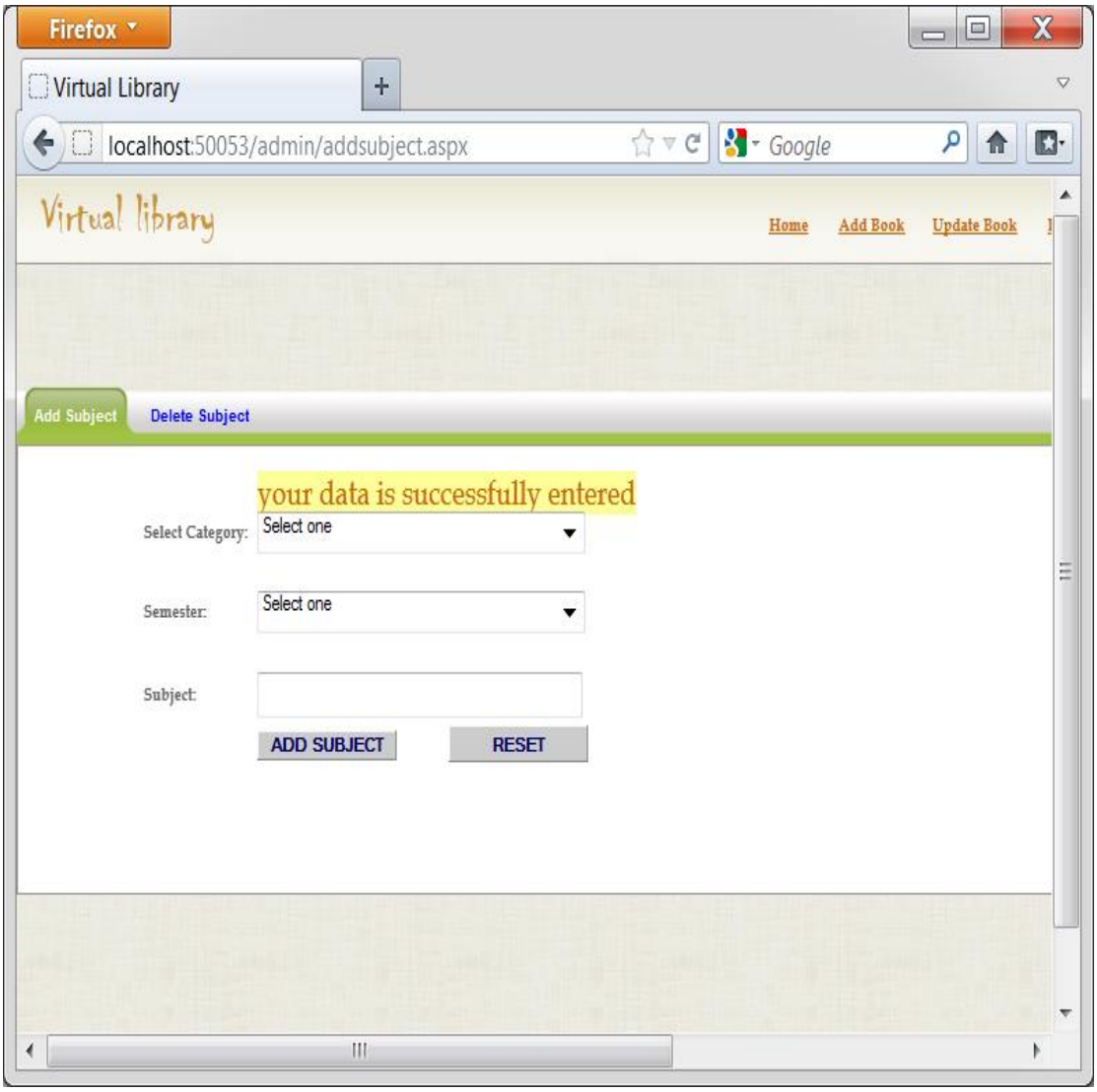

Figure 5.2 (Add subject)

5.3 Add book

Admin add new book with all book detail with auto generated bookid into particular subject of different department.

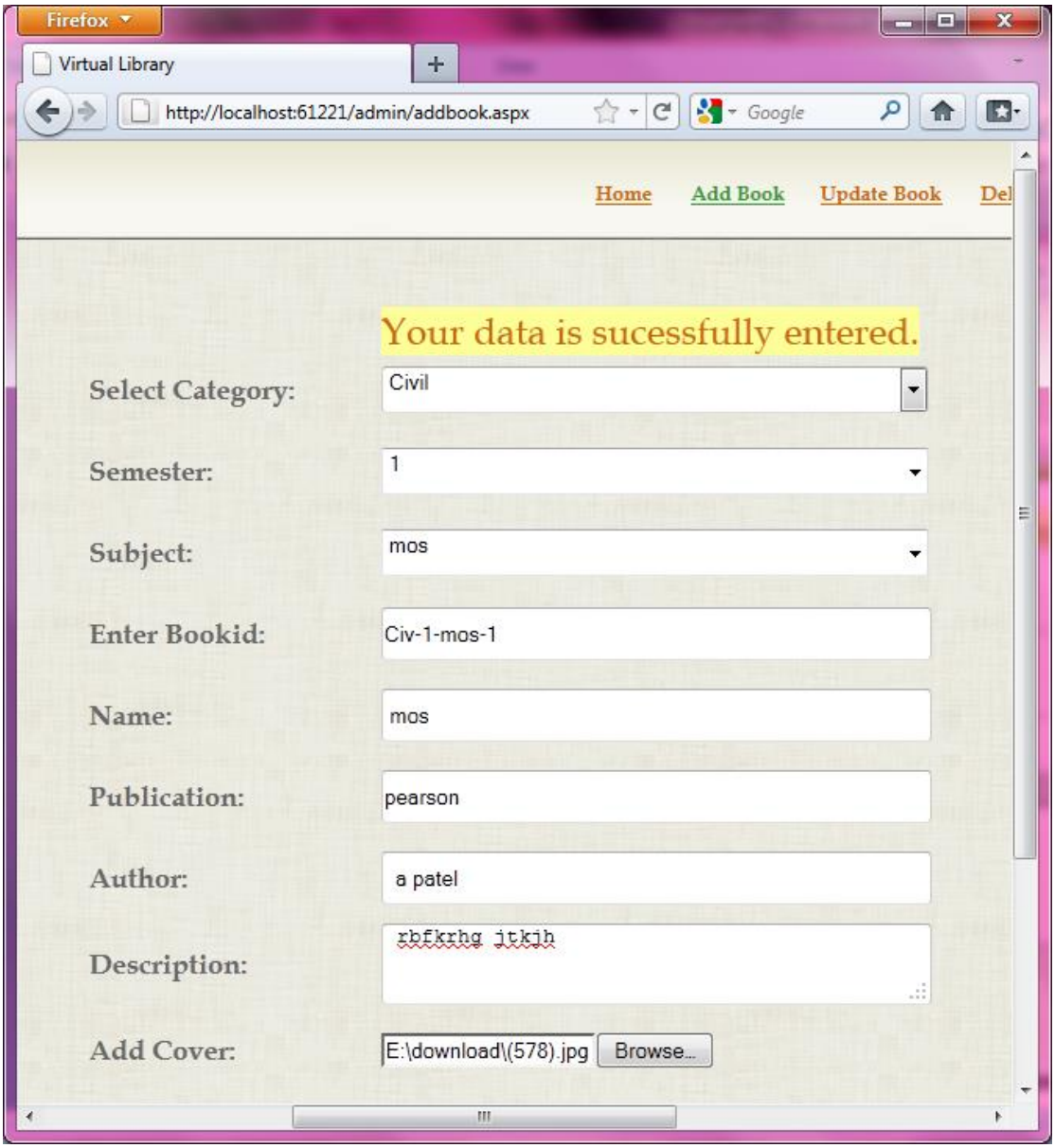

Figure 5.3 (Add book)

5.4 Admin home

Admin see the content which has been sent by users by analyzing these contents admin add contents into the system or reject.

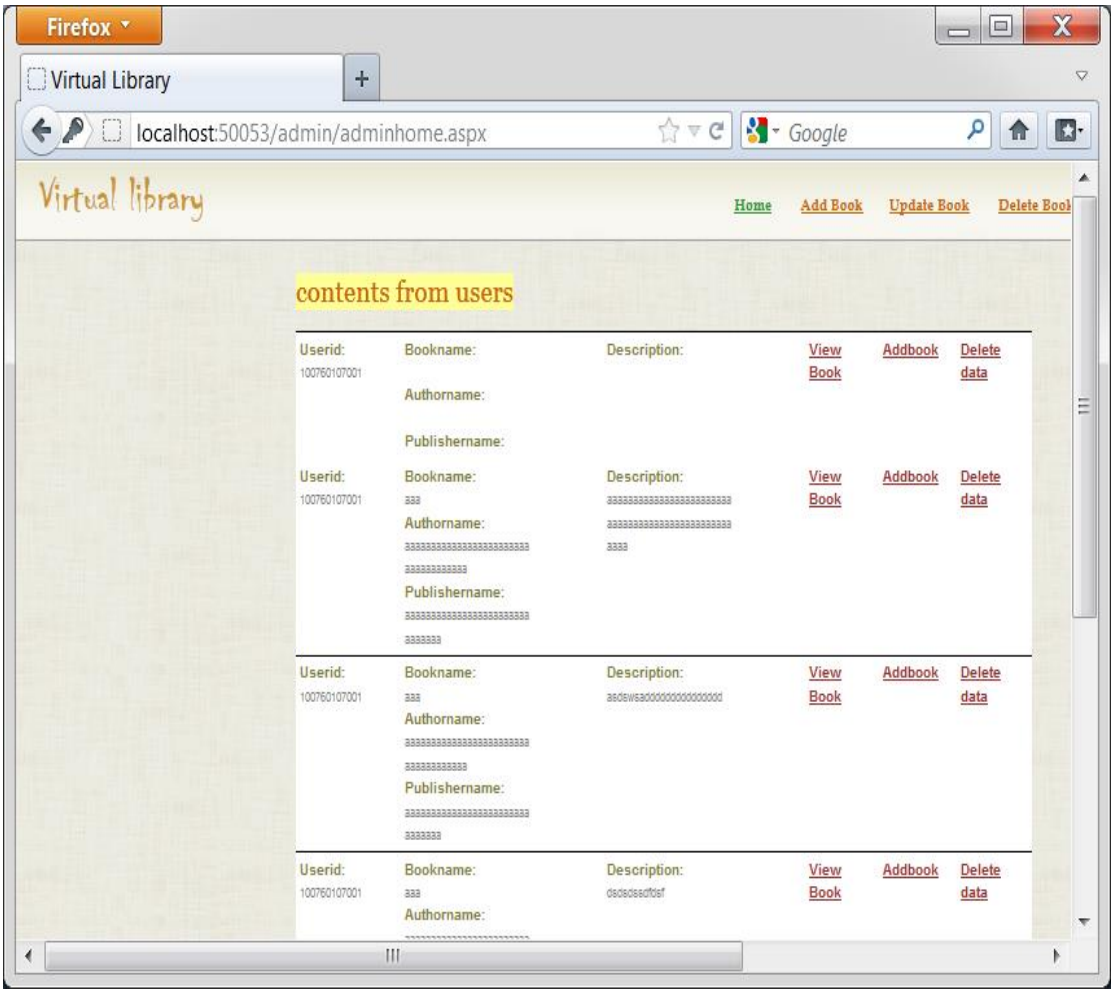

Figure 5.4 (Admin home)

5.5 Add notes

Faculty member add their own PDF or HTML notes which would be used by students.

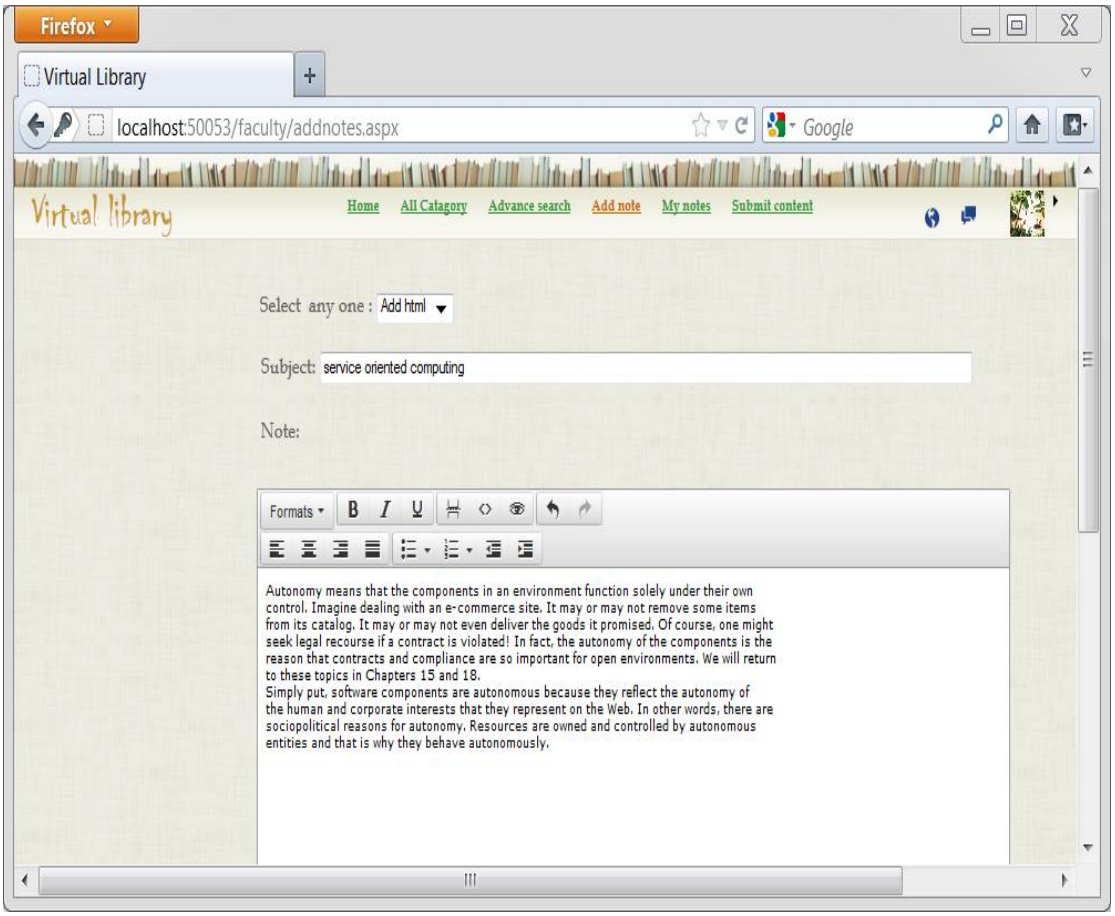

Figure 5.5 (Add notes)

5.6 Submit e-content

If faculty members and students have better e-book content then they submit that to admin.

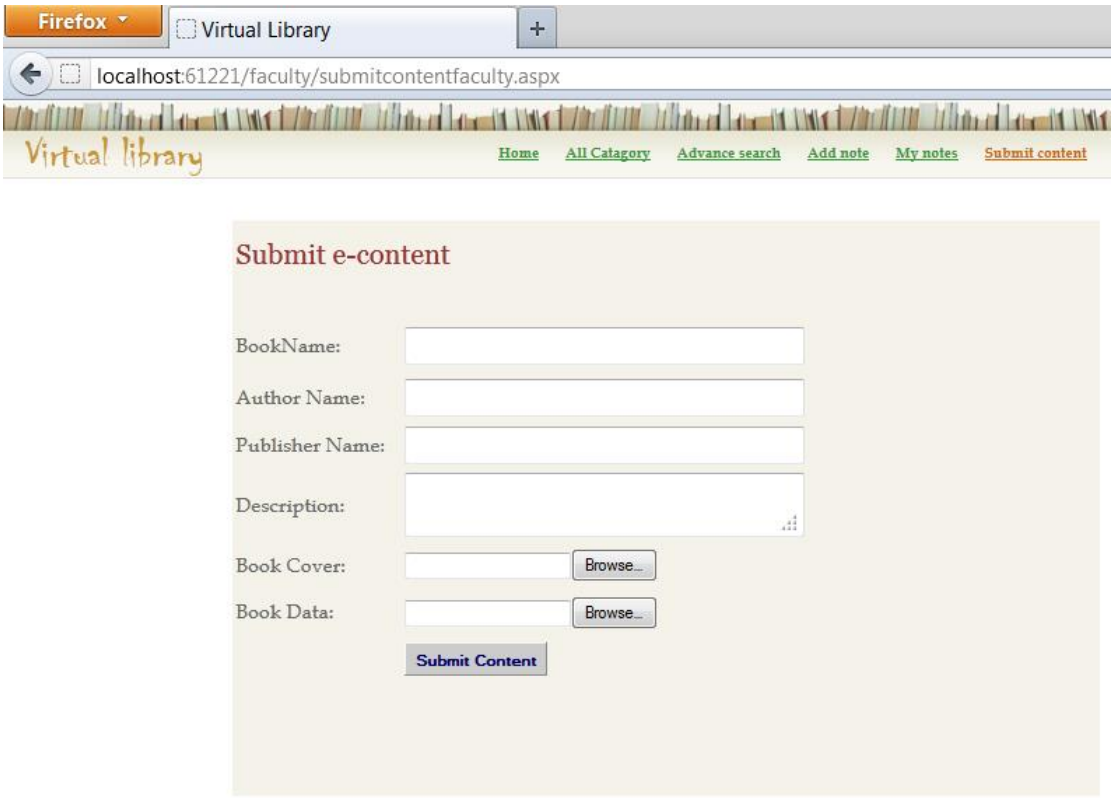

Figure 5.6 (submit e-content)

5.7 User home

In this page, user's interested category's books are display and user's own bookshelf's books are display. User also can view book notifications if any new books are added into interested category. If new messages are received then that also can be view.

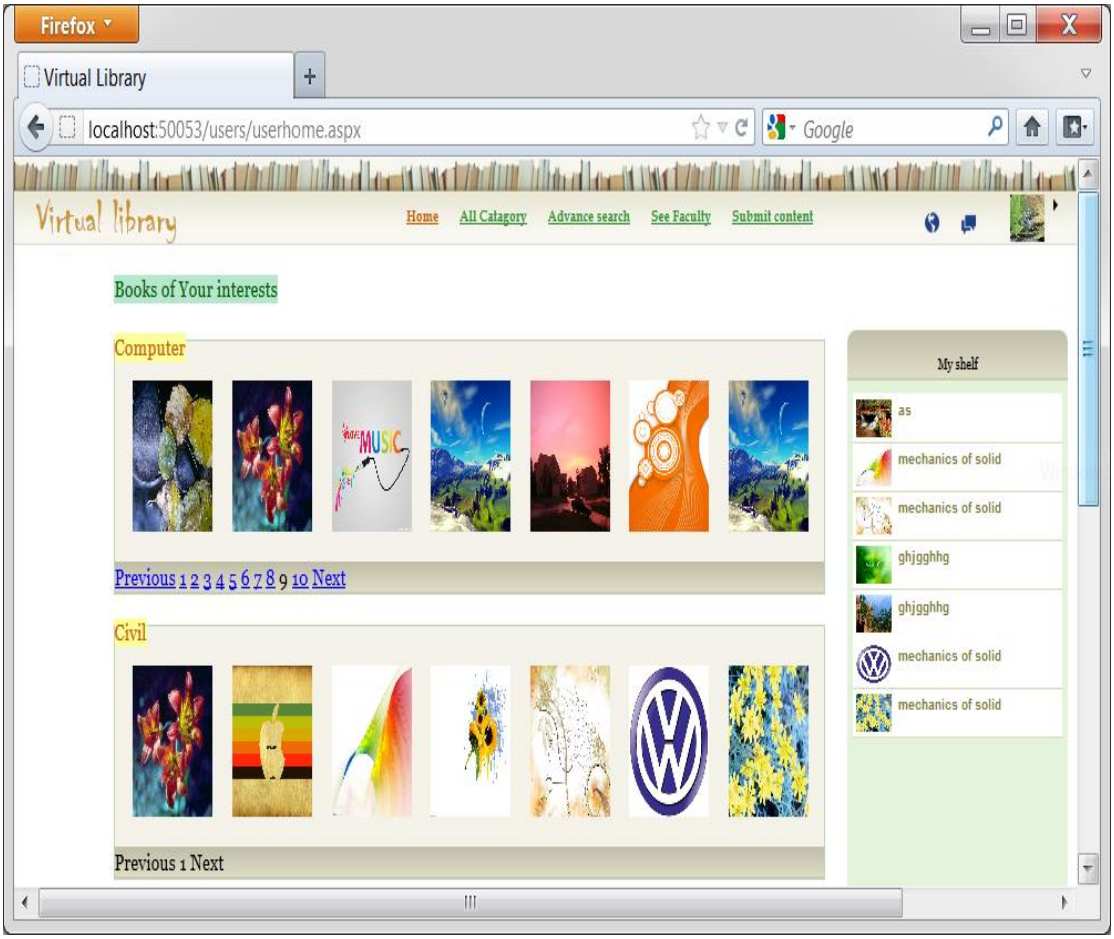

Figure 5.7 (User home)

5.8 Advance search

User can search book by book title, author name, category, publisher name alphabetically and also can download or read book from here.

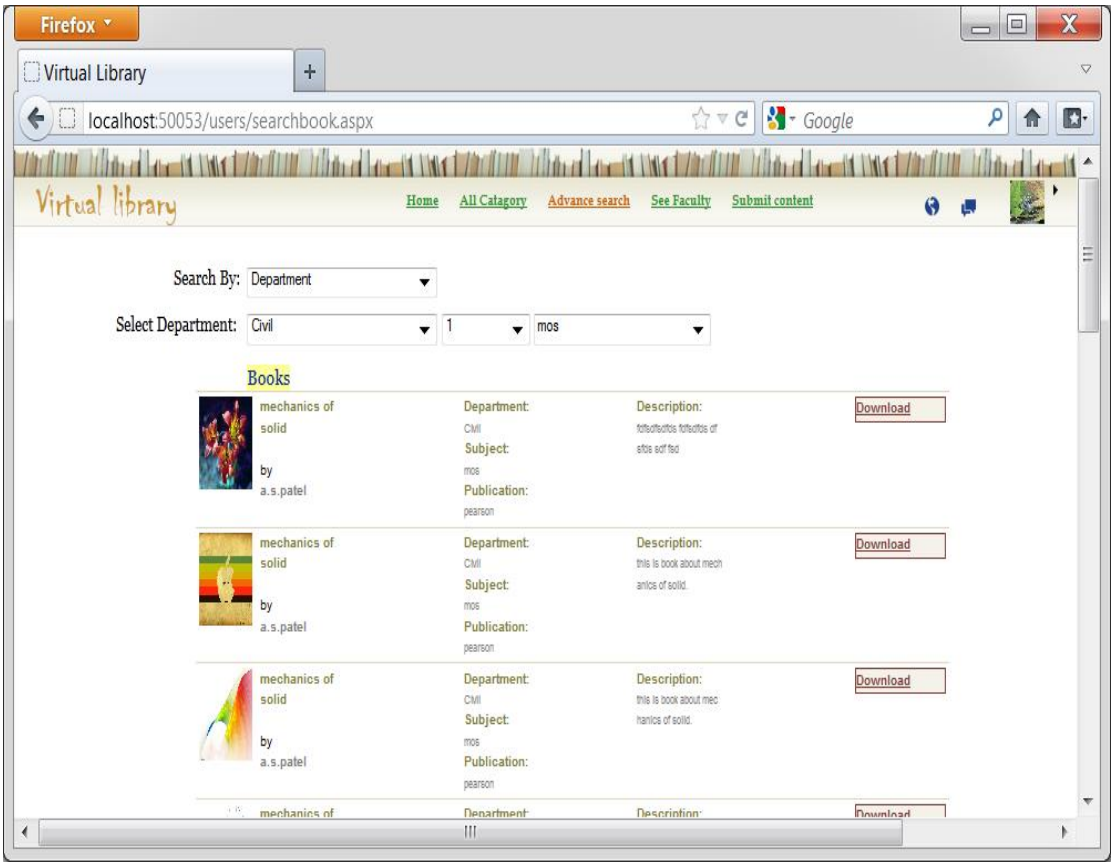

Figure 5.8 (Advance search)

5.9 Faculty notes

User can see their department's faculty's all notes and read it.

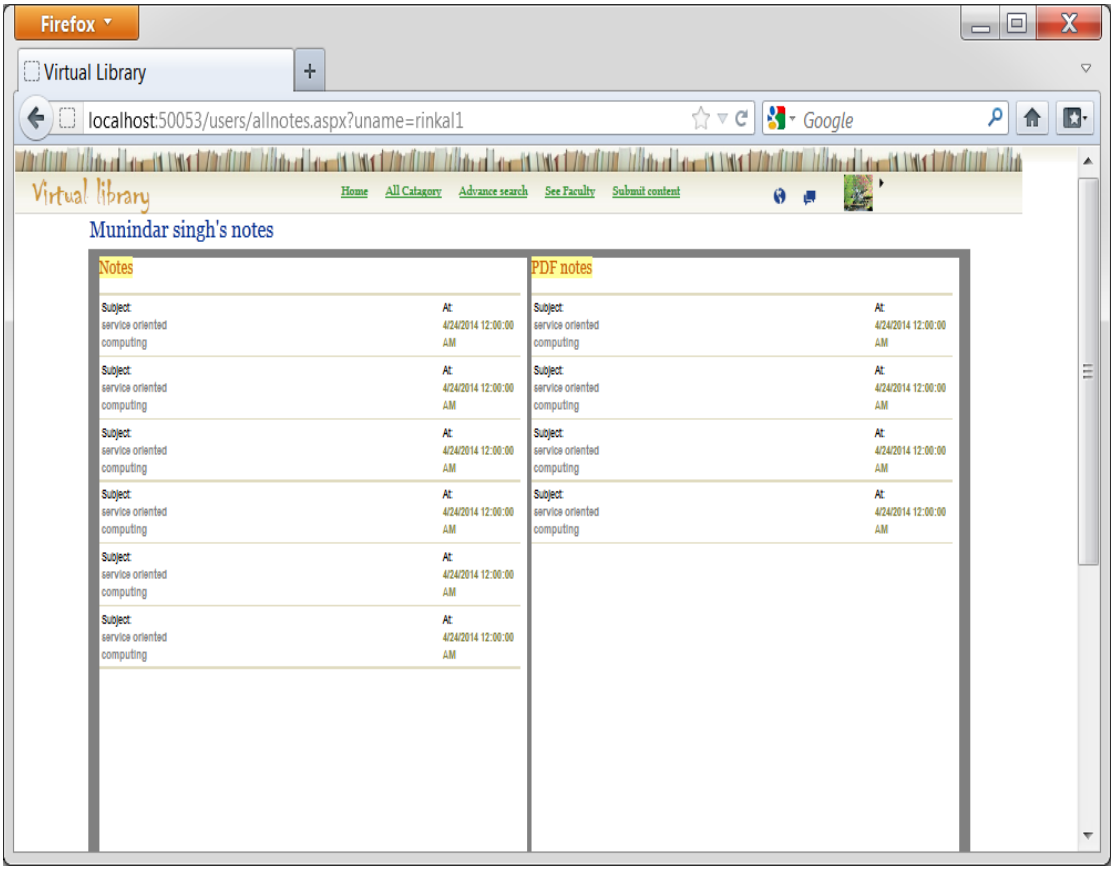

Figure 5.9 (Faculty notes)

5.10View faculty

User can see their own department's faculty member's all detail.

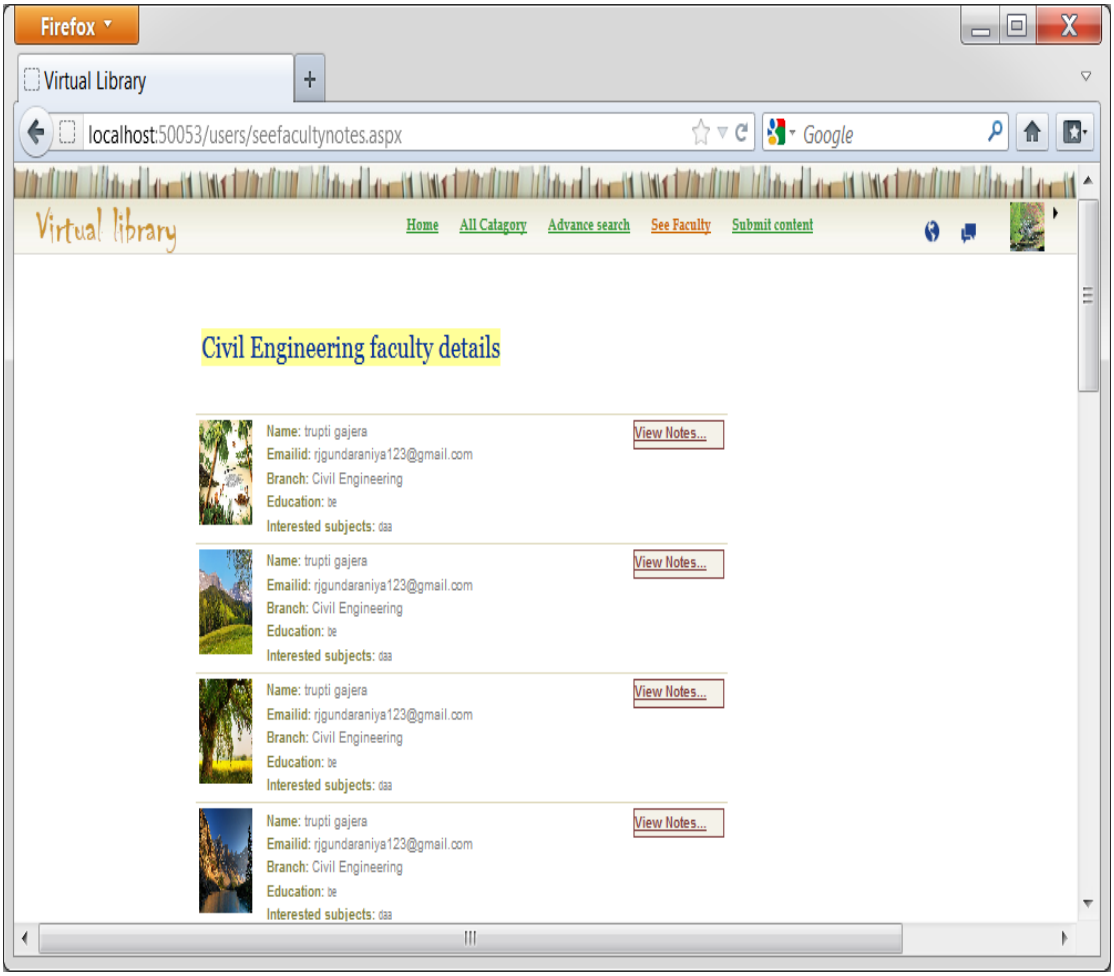

Figure 5.10 (View faculty)

5.11 Department book display

User views all books of particular department with description and from here also can read book.

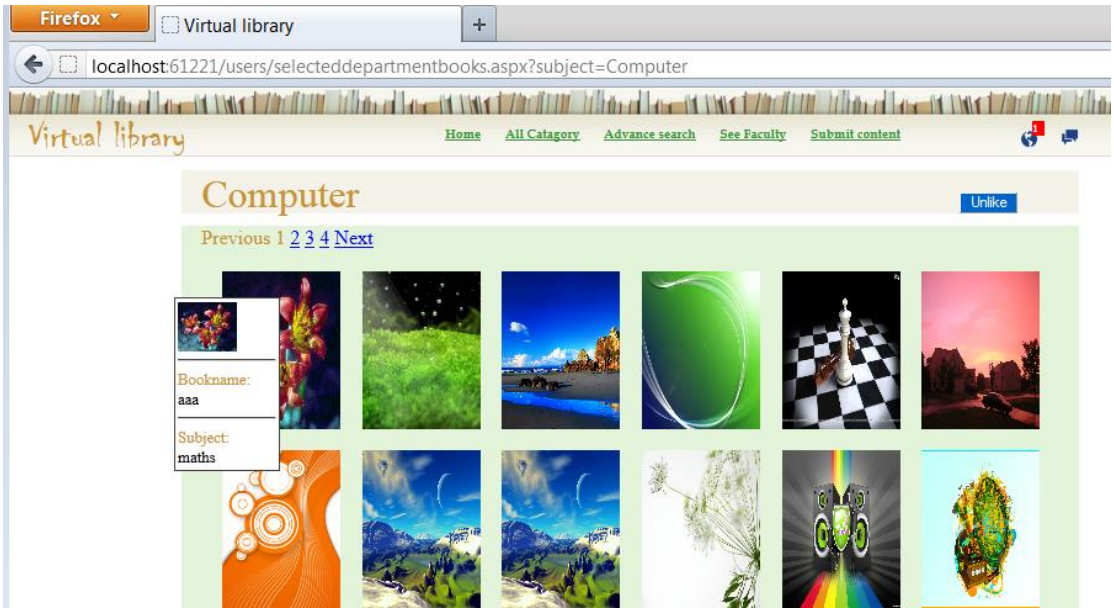

Figure 5.11 (Department book display)

5.12 Book display

User read particular book with author, publication, etc. like detail. From here user also can add book to their shelf and also can rate the book.

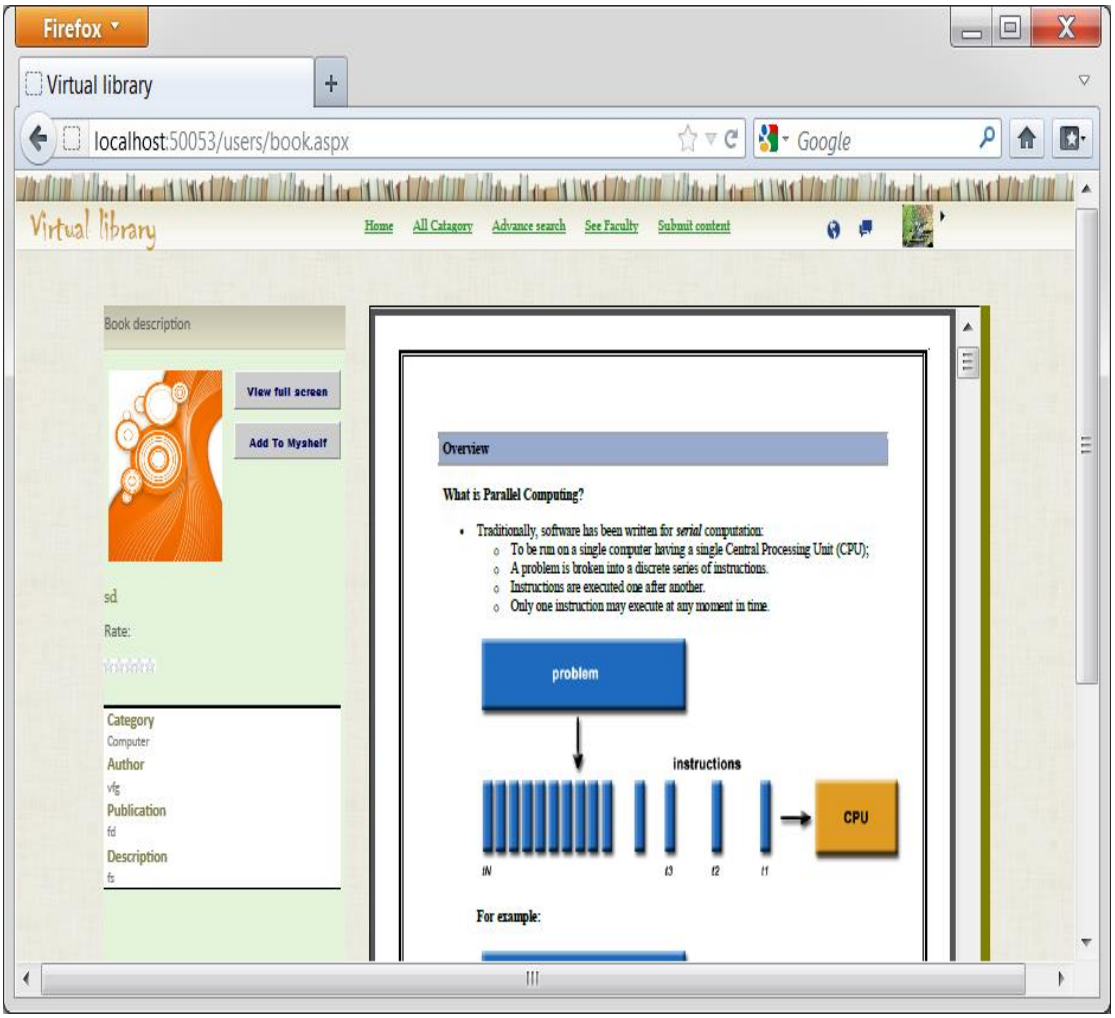

Figure 5.12 (Book display)

5.13 User communication

User searches another user by department and name and can send or receive message and delete that message.

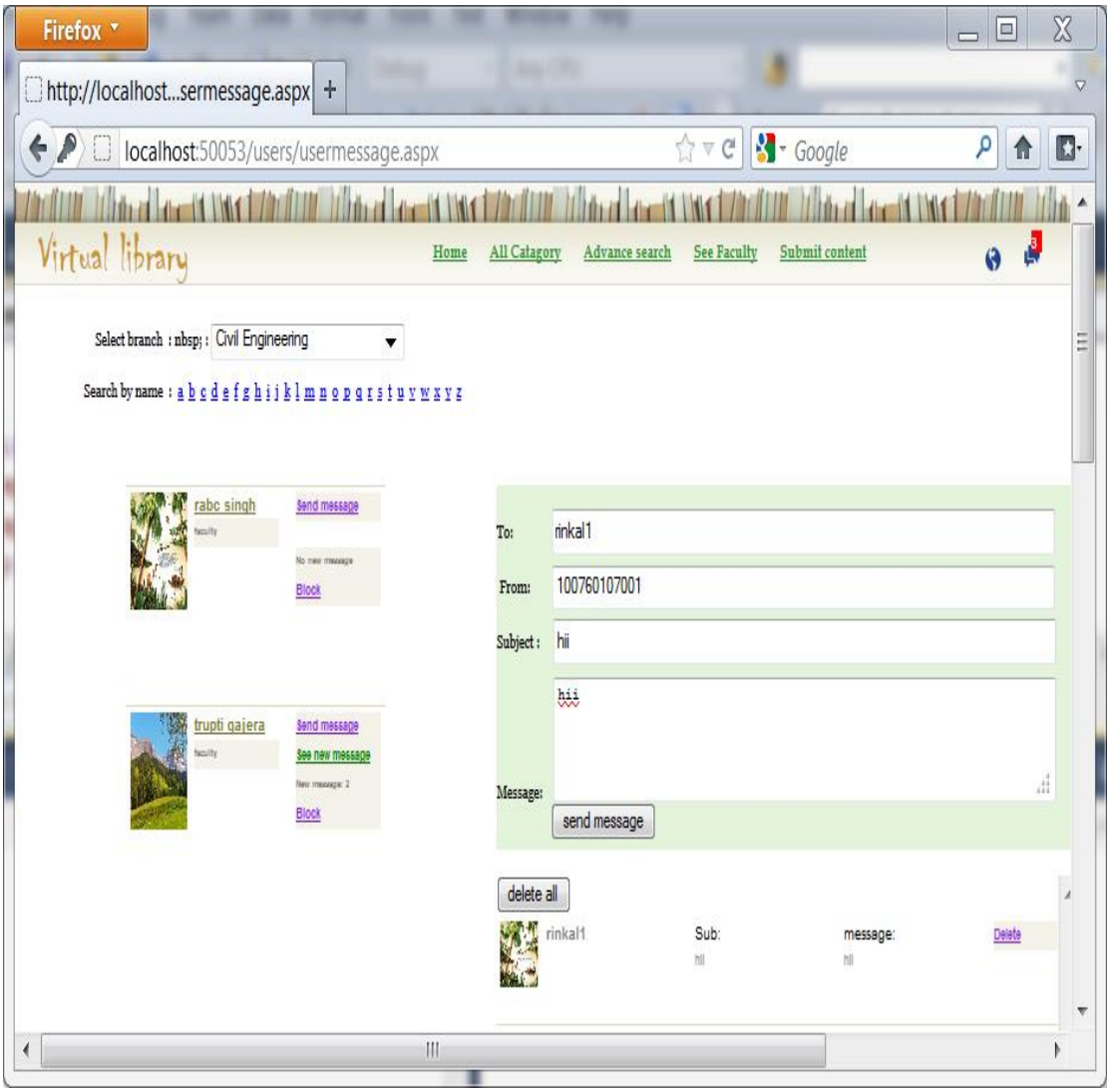

Figure 5.13 (User communication)

Chapter 6

Conclusion

We have completed the project analysis process of “virtual library system”. In the designing part we have implemented various pages needed to interact with system as an interface. In coding part, how different functionality will do is implementing by different logic in coding part like, when user click on sign up new user will create account in our system by entering unique mail id, confirmation code will send to their mail id and after entering that code user’s login would be confirmed.

Admin logs in with their id and password. Admin add books with entering all information related to that book. Admin can update the books information which are already entered in the database.Admin can delete the books from the database. Admin also approve content which is submitted by users.

InUser Profile, user logs into system using unique id and password and set their information. User can edit their profile according to their requirements. In Advance search user can search book by author name, category, publisher name and title alphabetically.User also communicates withanother user and receive message from another user.

Faculty can logs into the system by their unique id and password. Faculty uses all above functionalities and also can add theirown notes, material for reading. User can read that notes.

Appendix

List of Tables

Tables	Description
bookdata	Information about book.
bookshelf	Specifies data about bookshelf.
booksubject	Specifies information about book subject.
admindetail	Details of admin.
facultydetail	Details of faculty.
studentlikes	Specifies data about student's interests.
facultynotes	Data about faculty notes.
facultypdfnotes	Data about faculty pdf notes.
login	Login information.
notification	Defines data of notification.
userdetail	Details of user information.
usermessage	Defines data about user message communication.
usersenddata	Detail data submitted by user.
usertype	Define type of user.
alluserdetail	Detail about all type of user.

Table 1(bookdata)

Attributes	Data type	Description
bookid	varchar	Unique id of the book.
category	varchar	Defines books category.
bookname	varchar	Defines book name.
publishername	varchar	Defines publisher of the book.
authorname	varchar	Defines author of the book.
description	varchar	Specifies description of book.
subject	varchar	Specifies book subject.
cover	image	Specifies Book cover.
bookdata	varbinary	The data of the book.
noofreadndwn	int	Number of times book read and downloaded.
bookenterdate	date	Date when book entered.
rate	int	Rate of book.
rating	float	Average rate of book.
sem	varchar	Specifies semester.

Table 2(Bookshelf)

Attributes	Data type	Description
enrollno	varchar	Specifies enrollno of user.
bookid	varchar	Id of the book added to user's shelf.

Table 3(booksubject)

Attributes	Data type	Description
department	varchar	Specifies category of book.
subject	varchar	Specifies subject of book.
sem	varchar	Specifies semester.
cnt	int	Counter.
total	int	Total number of book.

Table 4(admindetail)

Attributes	Data type	Description
adminid(PK)	varchar	Uniquely identifies admin.
name	varchar	Specifies name of the admin.
password	varchar	Specifies password of the admin.

Table 5(facultydetail)

Attributes	Data type	Description
username(PK)	varchar	Specifiesunique name of faculty type user.
emailid	varchar	Specifiesemail id of faculty.
proimage	image	Specifiesuser profile image of faculty.
screenname	varchar	Specifiesdisplay profile name.
fname	varchar	Specifies first name of faculty.
lname	varchar	Specifies last name of faculty.
gender	varchar	Specifies gender.
bdate	date	Specifiesdate of birth.
educationallevel	varchar	Educational qualification.
interests	varchar	Interests of faculty.
position	varchar	Specifies job position of faculty.
branch	varchar	Specifies branch of faculty.

Table 6(studentlikes)

Attributes	Data type	Description
enrollno	varchar	User's unique id.
likesubject	varchar	Specifies liked subject.
status	int	Specifies status of liked subject.

Table 7(facultynotes)

Attributes	Data type	Description
username	varchar	The username of faculty.
noteid(PK)	int	Uniquely identifies notes.
subject	varchar	Specifies note subject.
notes	varchar	Entered notes.
date	date	Date of note entered.

Table 8(facultypdfnotes)

Attributes	Data type	Description
username	varchar	The username of faculty.
notepid(PK)	int	Uniquely identify pdf notes.
subject	varchar	Specifies note subject.
notes	varbinary	The pdf notes.
date	date	Date of pdf note entered.

Table 9(login)

Attributes	Data type	Description
enrollno(PK)	varchar	Uniquely identify users.
emailid	varchar	Email id of user.
password	varchar	Password of user.
usertype	int	Specifies types of user.
enabled	int	Specifies status.

Table 10(notification)

Attributes	Data type	Description
enrollno	varchar	Username to notify users.
notifybookid	varchar	Specifies bookid to notify user.
notification_no	int	Specifies no. of notification.

Table 11(userdetail)

Attributes	Data type	Description
enrollno	varchar	Uniquely identify students.
proimage	image	User profile image.
emailed	varchar	Email id of user.
screenname	varchar	Display name of user.
fname	varchar	First name of user.
lname	varchar	Last name of user.
gender	varchar	Specifies gender of user.
bdate	date	Birthdate of user.
educationalevel	varchar	Educational qualification of user.
institutename	varchar	Specifies institute name.
admissionyear	varchar	User's admission year.
branch	varchar	Specifies branch.
currentsem	varchar	Specifies current semester of user.

Table 12(usermessage)

Attributes	Data type	Description
messageid	varchar	Unique id of message.
sender	varchar	Specifies sender name.
reciever	varchar	Defines receiver name.
subject	varchar	Defines message subject.
message	varchar	Define message body.
readstatus	nchar	Specifies read status of message.
datetime	datetime	Date and time of message send.

Table 13(usersenddata)

Attributes	Data type	Description
userid	varchar	Uniquely identify user id.
id	varchar	Unique id.
bookname	varchar	Defines name of book.
publishername	varchar	The name of publisher.
authorname	varchar	The name of author.
description	varchar	Description of book.
cover	vmage	Cover page of book.
bookdata	varbinary	The data of book.
date	date	Date of data send.

Table 14(usertype)

Attributes	Data type	Description
username	varchar	Defines user name.
usertype	int	Specifies type of user.
userkey	varchar	Defines unique user key.

Table 15(alluserdetail)

Attributes	Data type	Description
enrollno	varchar	Unique id of user.
emailid	varchar	Email id of user.
proimage	image	Profile image of user.
faname	varchar	First name of user.
lname	varchar	Last name of user.
branch	varchar	Branch of user.
usertype	varchar	Type of user.

Table 15(blockedusers)

Attributes	Data type	Description
enrollno	varchar	Defines user name.
blockuser	varchar	Specifies user block by above enrollno.