HARIBHAI V. DESAI COLLEGE OF ARTS, SCIENCE AND COMMERCE, PUNE-02

The Poona Gujarati Kelvani Mandal's
Haribhai V. Desai College, Pune
(Arts, Science and Commerce)

ESTD 1984

दि पूना गुजराती केळवणी मंडळाचे
हरिभाई व्ही. देसाई महाविद्यालय, पुणे
(कला, विज्ञान व वाणिज्य)

ACADEMIC YEAR 2021-2022

A

PROJECT REPORT ON

"SMART LIBRARY SYSTEM"

SUBMITTED TO

SAVITRIBAI PHULE PUNE UNIVERSITY

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Introduction

Motivation:-

Libraries are essential in process of giving access to knowledge. In given unpredictably situation it's necessary to have this access of knowledge on your fingertips. Also this project after success will create impact on saving paper, and resources needed to run physical library such as Electronic, Human efforts, Storage Space, Etc.

Motivation behind this project is to enhance the efficiency of the both users and admins. Store all the information in the database only valid users will be able to access this SMART LIBRARY, it will be easy to manage all the accounts of users registered under library along with the records of books.

Problem Statement:-

- **Lack of security** of manual library considering confidentiality of reports and documents of library of library transactions.
- **Lack of data storage** were lot of library files, reports and documents are not well accommodated.
- **Slow Process** of viewing library reports and files in terms of issuing and returning of books were not well implemented
- **Misplaced Library Cards** which are used to issue and return the books were lost and rejected.
- **Time Consuming** in terms of issuing of books though library cards consumed lot of time.
- **Lost Books** from users or unable to return also the wear and tear of books are reason of low book life.

Purpose/Objective and goals:-

Smart library is term for the computer based system that manage the catalogue of library. The main purpose of the system is to manage library daily operation efficiently.

- Develop a system that can replace the manual library managing system.
- Provide access to any available materials immediately.
- Simplify search/discovery of library resources.
- Create easy to understand user friendly environment.
- An automated system reduces the need for manpower and stationery.
- Admin and users should have logins.
- Digital book/magazine reading.
- Facility to download desired book.
- Admin login interfere where admin can add books, magazine

Literature survey:-

A Smart Library System is a tool which a library using the old way to manage it in any institution can use and increase their work efficiency. The old method of searching for a book and providing the same to the user through manual work is a real hassle and hinders fast report generation. This software provides a central database maintained for every important record such as book details, user details organized systematically. This system is helpful for any institution or organization.

There are many papers published and researches done in this area and we have learned the idea for a library system. Some of the paper works and their ideas are as follows. In [1] the implementation of the automated library system proved to be helpful in the basic housekeeping functions of the library. [2] Ekere et al (2016) study the perception of users towards digital library facilities, resources and services and found that users are highly satisfied with it. Users are highly aware and satisfied about the digital library resources.

Project Scope and Limitations:-

The different areas of scope are:

- To assist the staff in capturing the effort spent on their respective working areas. To utilize resources in an efficient manner by increasing their productivity through automation.
- It can be accessed by unlimited number of users.
- Any education institute and organization can make use of it for providing books, magazines to their students.
- It can be used in offices to provide staff reading materials and modifications can be easily done according to requirements.

There are few limitations of this smart library which are as follows:

- Add many more features such as online lectures, video tutorials can be added by teachers, and podcasts can also be added.
- A column where users can request books to admin.
- Showcase to display all available books/magazines which can have filters or categories to ease the search for users.
- Notification panel for users to make any important announcements by admins.
- New arrivals and highest download remarks should be there for users to know what is trending or most consumed content in their community.

System Analysis

Existing System:-

Physical library can only serves the limited number of users due to limited copies of the books. In rush hours it is also time consuming to wait in queue for issuing the book overall slow and tedious process. It is not possible to cater huge number of users due to lack of infrastructure and resources. In the existing systems maintenance of the books is big concern as the user might not handled book with care or in some cases loosing a book also not an uncommon scenario.

Maintenance of Library catalogue and arrangement of the books to the catalogue is very complex task. In addition to its maintenance of member details, issue dates and return dates etc. manually is a complex task. All the operations must be performed in perfect manner for the maintenance of the library without any degradation which may finally result in the failure of the entire system.

Scope and Limitations of existing systems:-

The impact of technology has greatly expanded the scope and capacity of the average library. This is an on-going and developing relationship as the computer's full capabilities are gradually explored and applied to the library. Computers have radically changed the way people learn and communicate with each other, as well as the library itself.

The library differs little from other institutions and firms in the impact of computing technology on them. Changes are in the almost unlimited tracking of the availability of books: Whether a book has been issued or not is the work of moments, where before it would have entailed a long search through a card index. The availability of learning resources has been massively expanded through access to the Internet, again facilitated by the use of computer technology.

Without computers, as some libraries are, all of them are dependent on paper work. When compared to computerized systems, data backup and data retrieval systems are inefficient and labor intensive. Users of a paper based system become almost wholly reliant on the librarians, for all levels of service, whether they are enquiries about existing books, inter-library loans, or the availability of books. There is additionally no real involvement of a user in the entire process.

Researching which new books are required by users becomes very difficult, and again, labor intensive. Librarians must be consulted directly to find out the availability of a book since it may already be issued to some other library user.

Project Perspective and features:-

- User friendly and easy to use.
- Admin login where system will be sole under control of the admin where he can add, remove book and magazines. Also admin can register the users.
- Complete system is online and digital.
- User registration for the first time and create the account on system.
- User can login once registered and explore the library.
- Easy way to add new books and magazines though admin interface.
- Download and desired book and magazines after a preview where user can view the book on his browser first and then he can decide whether to download or not.
- Read at your own pace due to download option is given users are no longer need to do hurry as they don't any have return dates now.
- Search column to search books and magazines. System provides a search option where user can search the desired book available or not.

Stakeholders:-

Stakeholder in the library system are as follows:-

- Admins
- Developer
- Users

Requirement Analysis

Functional Requirements:-

1. USER LOGIN

   This feature used by the user to login into system. They are required to enter user id and password before they are allowed to enter the system .The user id and password will be verified and if invalid id is there user is allowed to not enter the system. Functional requirements -user id is provided when they register -The system must only allow user with valid id and password to enter the system -The system performs authorization process. The user must be able to logout after they finished using system.

2. REGISTER NEW USER

   Description of feature is this feature can be performed by all users to register new user to create account. Functional requirements -System must be able to verify information.

3. ADMIN LOGIN

   This feature used by the admin to login into system. They are required to enter user id and password before they are allowed to enter the system .The user id and password will be verified and if invalid id is there user is allowed to not enter the system.

4. ADD NEW BOOK & MAGAZINES

   This feature allows adding new books/magazines to the library. Only admin can add books/magazines from his admin interface adding a book requires to fill some basic details of the books/magazines.

5. REMOVE BOOK & MAGAZINES

   This features allows admin to remove book and magazines from library.

6. DOWNLOAD BOOKs & MAGAZINES

   Using this features users can download any desired book and magazines.

7. SEARCH BOOK & MAGAZINES

   This feature is found on user and admin interface after login. We can search book based on book id, book name, publication, or by author name.

Performance Requirements:-

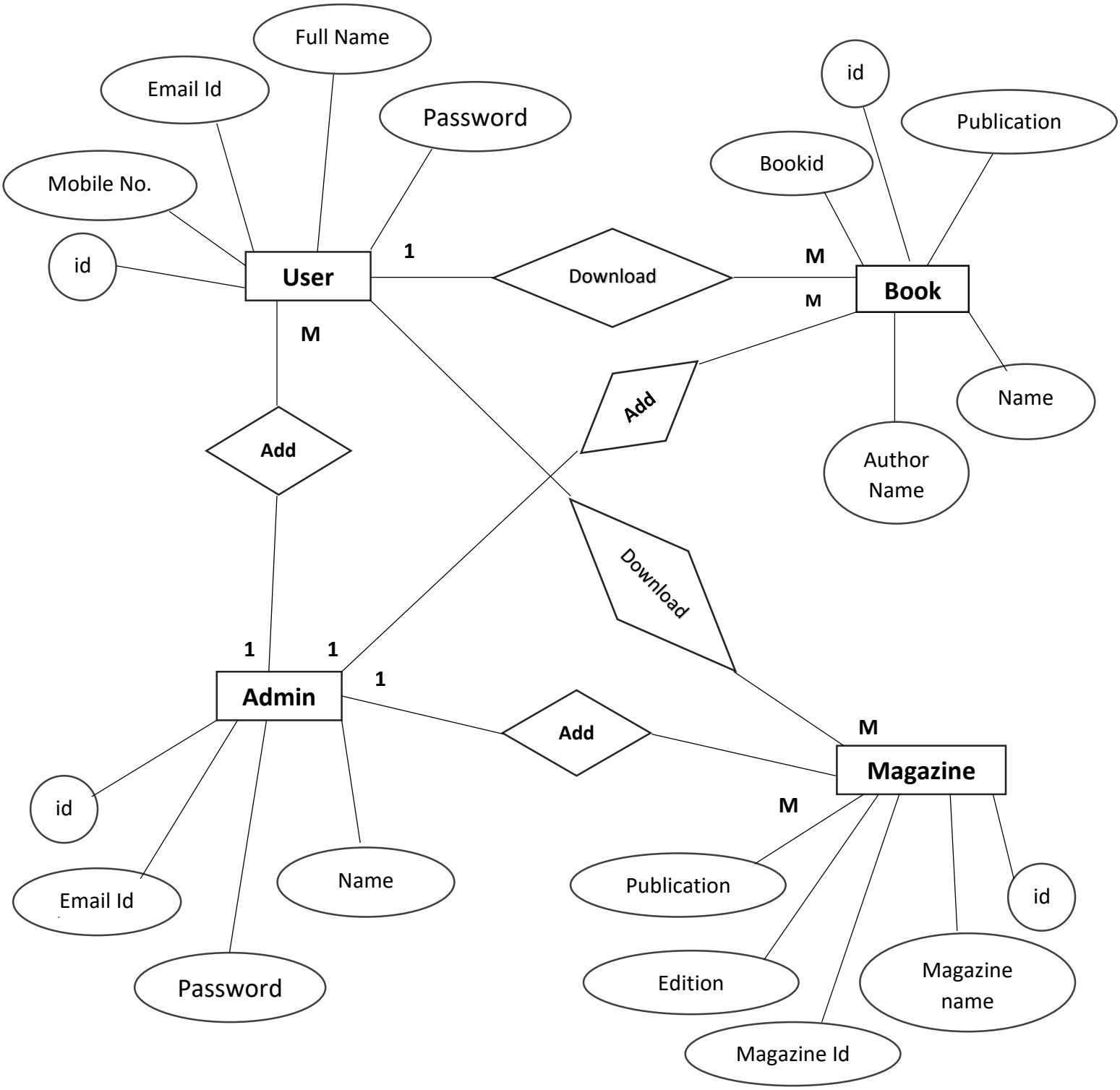
- The system shall accommodate high number of books and users without any fault.
- Login should be done immediately using valid credentials.
- Responses to view information shall take no longer than 5 seconds to appear on the screen.
- Downloading of any book shall not take more than 5seconds to start.

Security Requirements:-

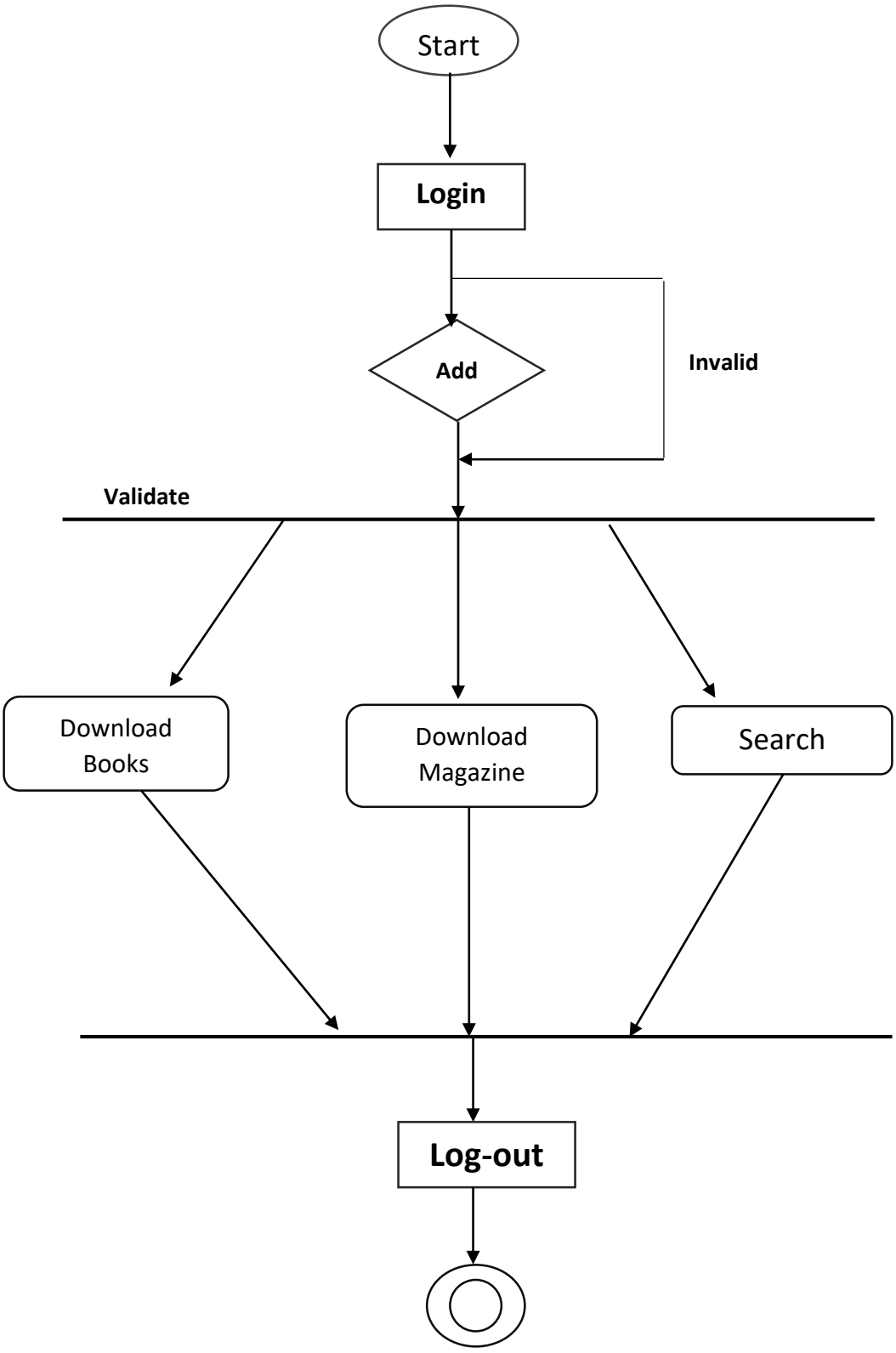
- System will use secure database.
- System will have of users and every user has access constraints
- Normal users can just read information but they cannot edit or modify anything except their login password.
-

System Model

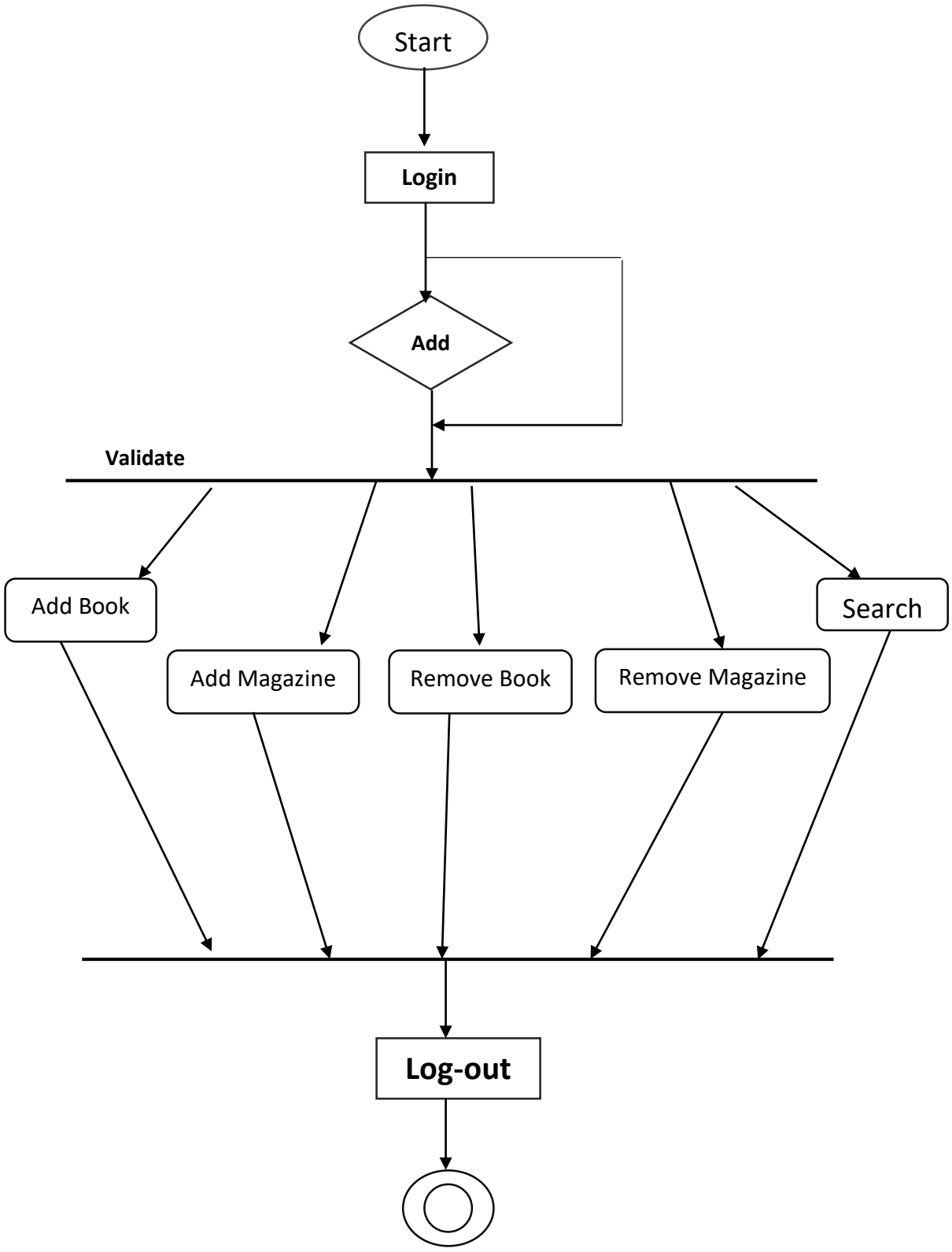
1. E-R Diagram:-



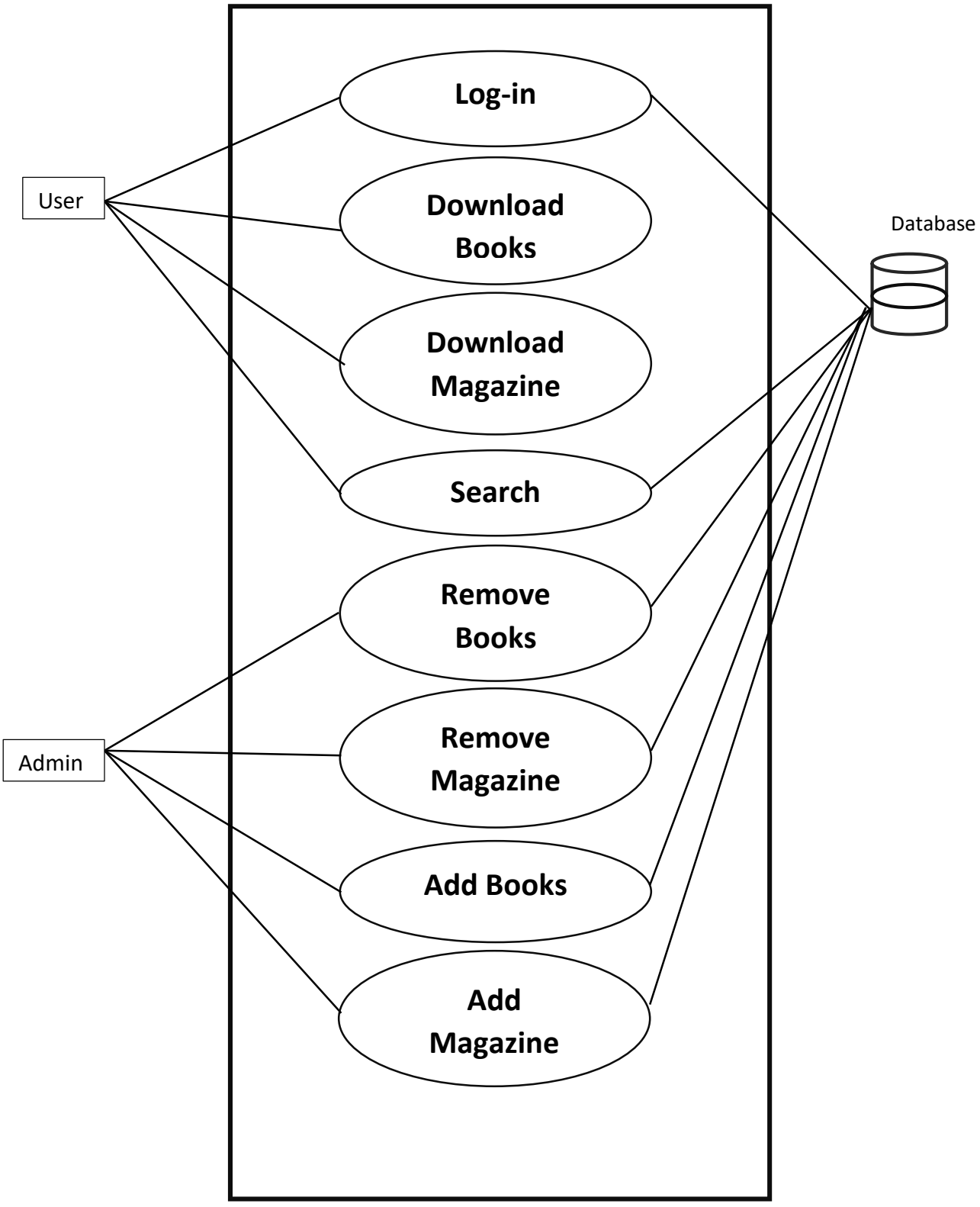
2. **Activity Diagram(User):-**



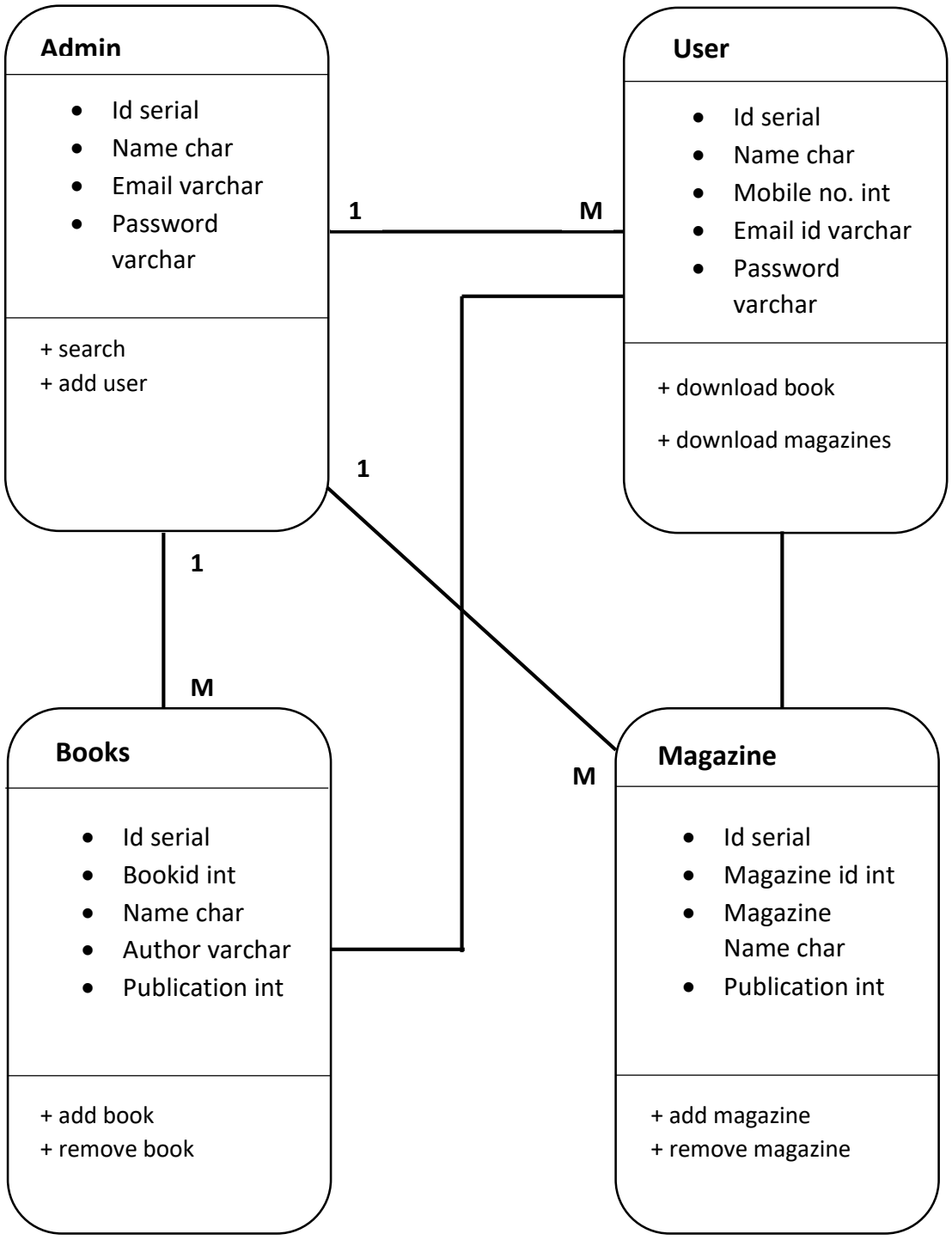
3. **Activity Diagram(Admin):-**



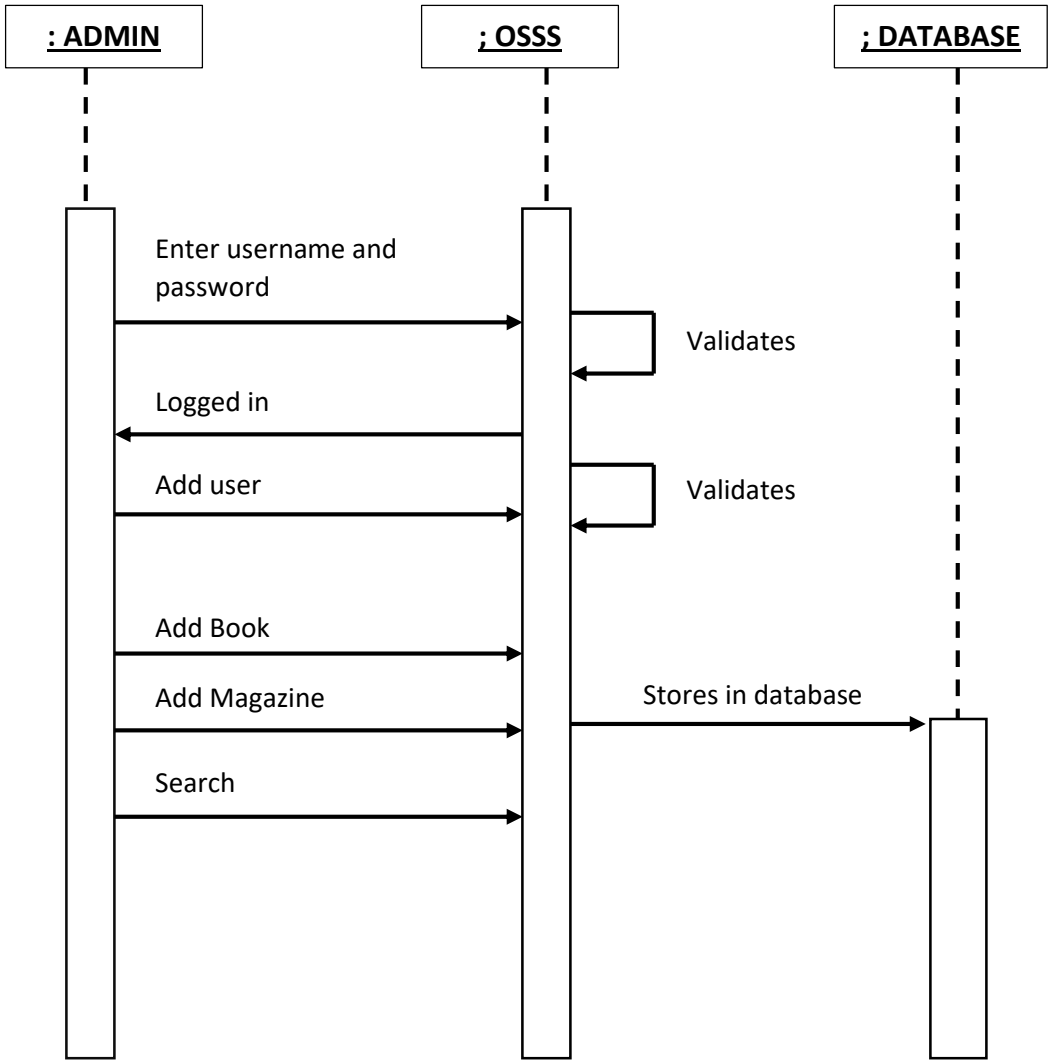
4. Use Case:-


Log-in
Download Books
Download Magazine
Search
Remove Books
Remove Magazine
Add Books
Add Magazine
User
Admin
Database

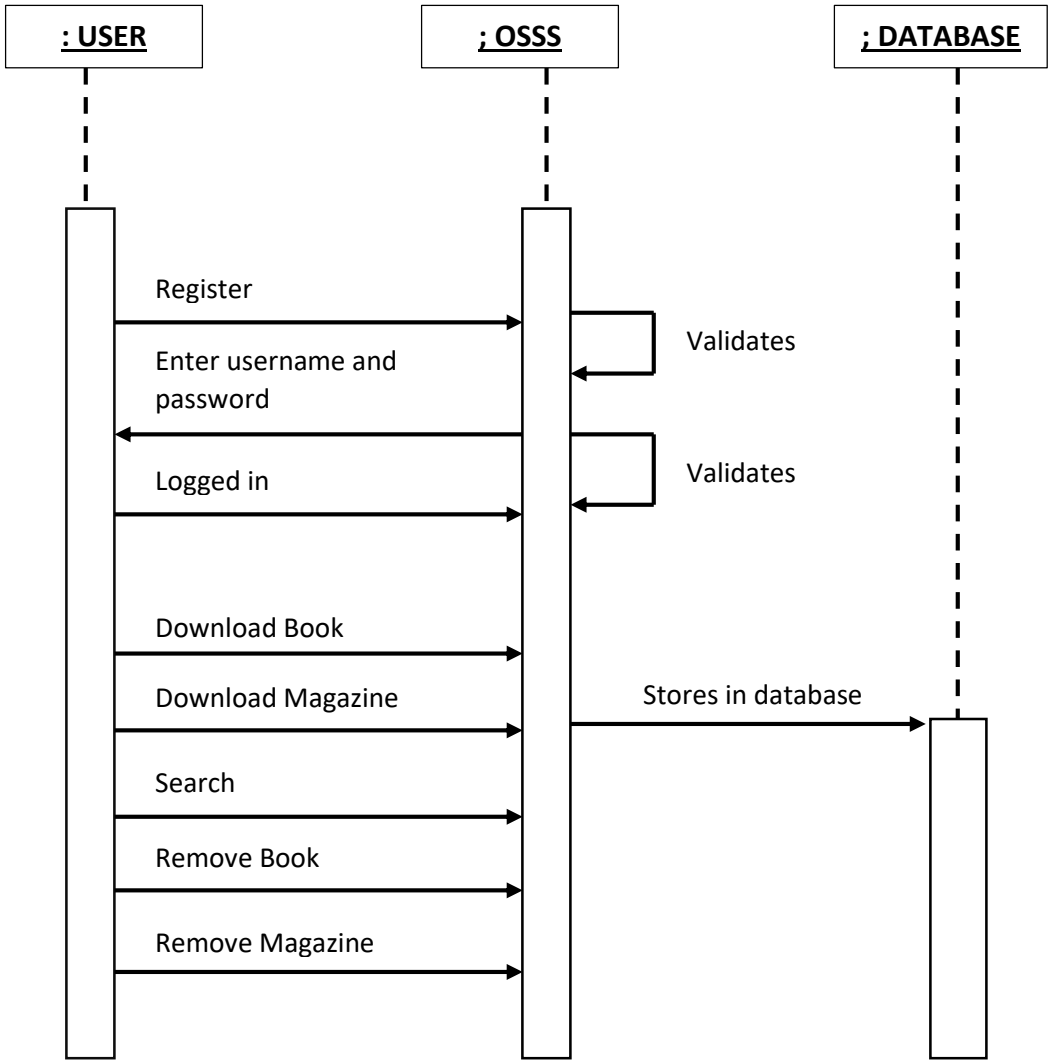
5. **Class Diagram:-**



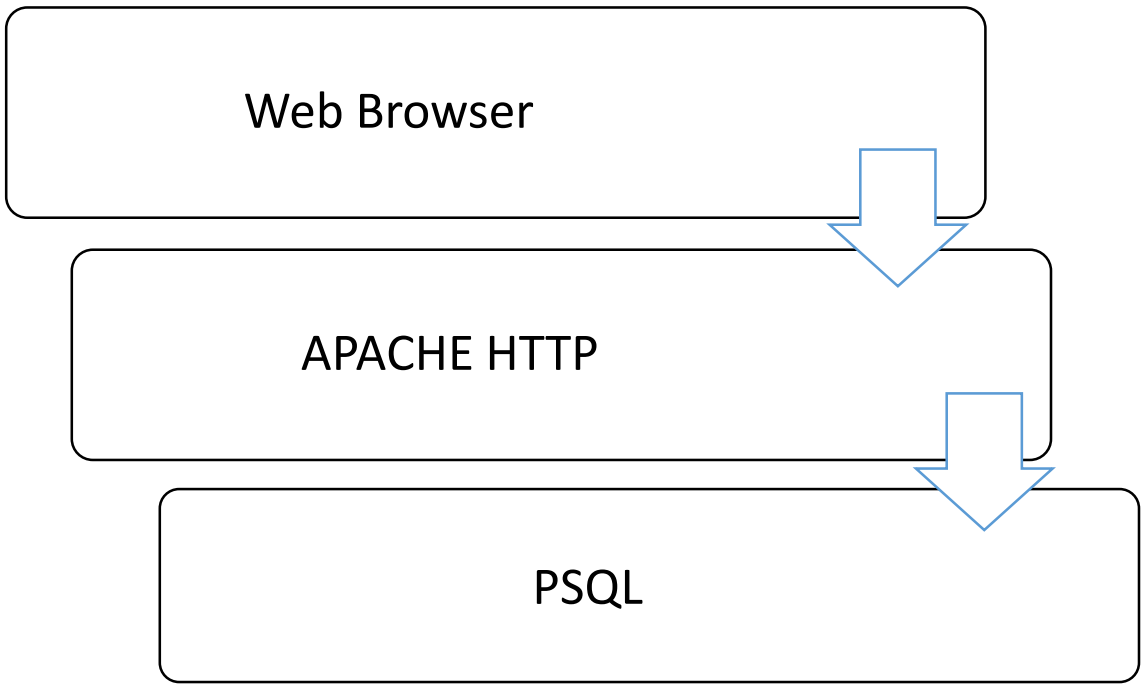
6. **Sequence Diagram For Admin:-**



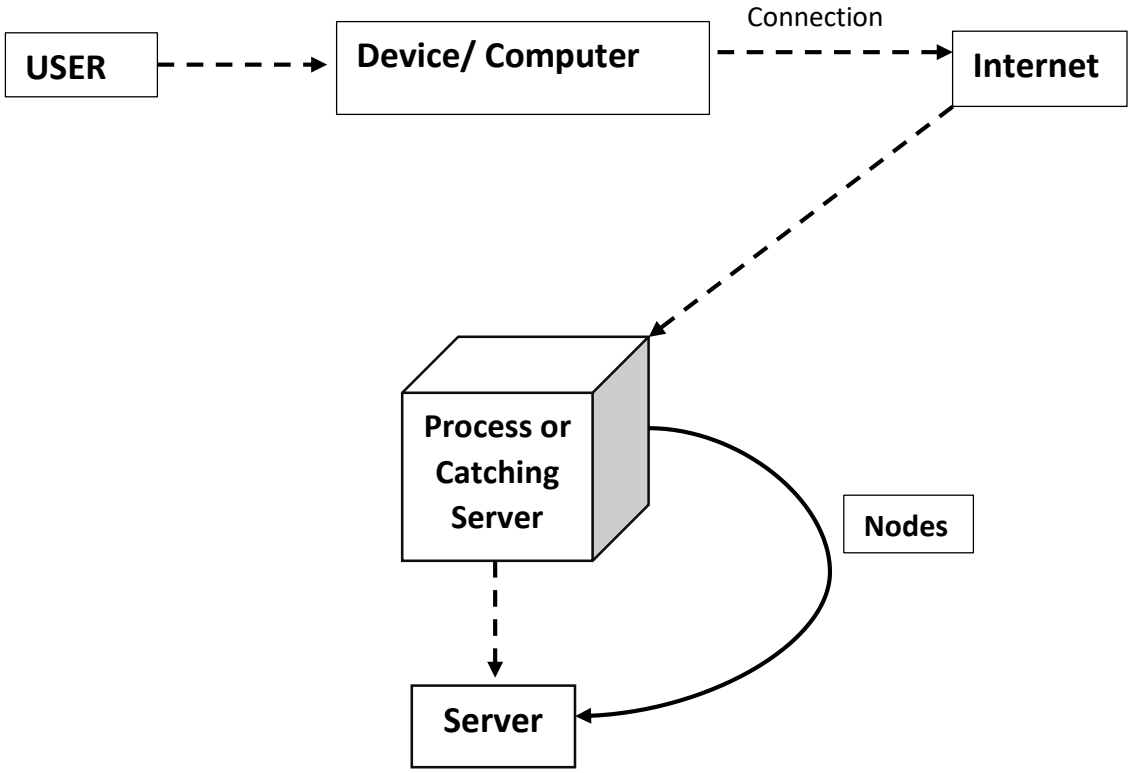
7. **Sequence Diagram For User:-**



8. Component Diagram:-



9. Deployment Diagram:-



System Design

Design Constraints:-

Table name:- Register
Description:- Information of users

Sr No.	Field Name	Field Type	Size	Constraints	Description
1	Id	Serial	-	Primary key	User id
2	Name	Char	250	Not Null	User name
3	Email	Varchar	250	Not Null	Users mail id
4	Password	Varchar	250	Not Null	Users password
5	Mobno	Bigint	250	Not Null	Users mobile number

Table name:- Magazine
Description:- Information of magazines

Sr No.	Field Name	Field Type	Size	Constraints	Description
1	Id	Serial	-	Primary key	Unique id
2	Magazine Id	Varchar	250	Not Null	Magazine id
3	Name	Varchar	250	Not Null	Magazine name
4	Publication	Varchar	250	Not Null	Publication name
5	Edition	Bigint	250	Not Null	Edition

Table name:- Book
Description:- Information of Books

Sr No.	Field Name	Field Type	Size	Constraints	Description
1	Id	Serial	-	Primary key	Unique id
2	Book Id	Varchar	250	Not Null	Book id
3	Name	Varchar	250	Not Null	Book name
4	Author	Varchar	250	Not Null	Author
5	Publication	Bigint	250	Not Null	Publication name

Table name:- Admin
Description:- Credentials of Admins

Sr No.	Field Name	Field Type	Size	Constraints	Description
1	Id	Serial	-	Primary key	Unique id
2	Name	Varchar	250	Not Null	Admin name
3	Email	Varchar	250	Not Null	Email
4	Password	Varchar	250	Not Null	Password

Implementation Details

Software/Hardware Requirements:-

- RAM :- 1GB
- Hard-Disk:- 250GB
- Processor:- Intel i5 2nd Gen
- Operating System:- Ubuntu, Linux
- Web Server :- Apache Server
- Web Browser:- Any Latest Browser

Outputs and Reports Testing

Test Plan :-

This is a test plan of a smart library system which has updated from a physical library system into an internet-based web-application.

Goals of smart library system:-

The goal of this system is to work as a complete user interface from ordinary users.

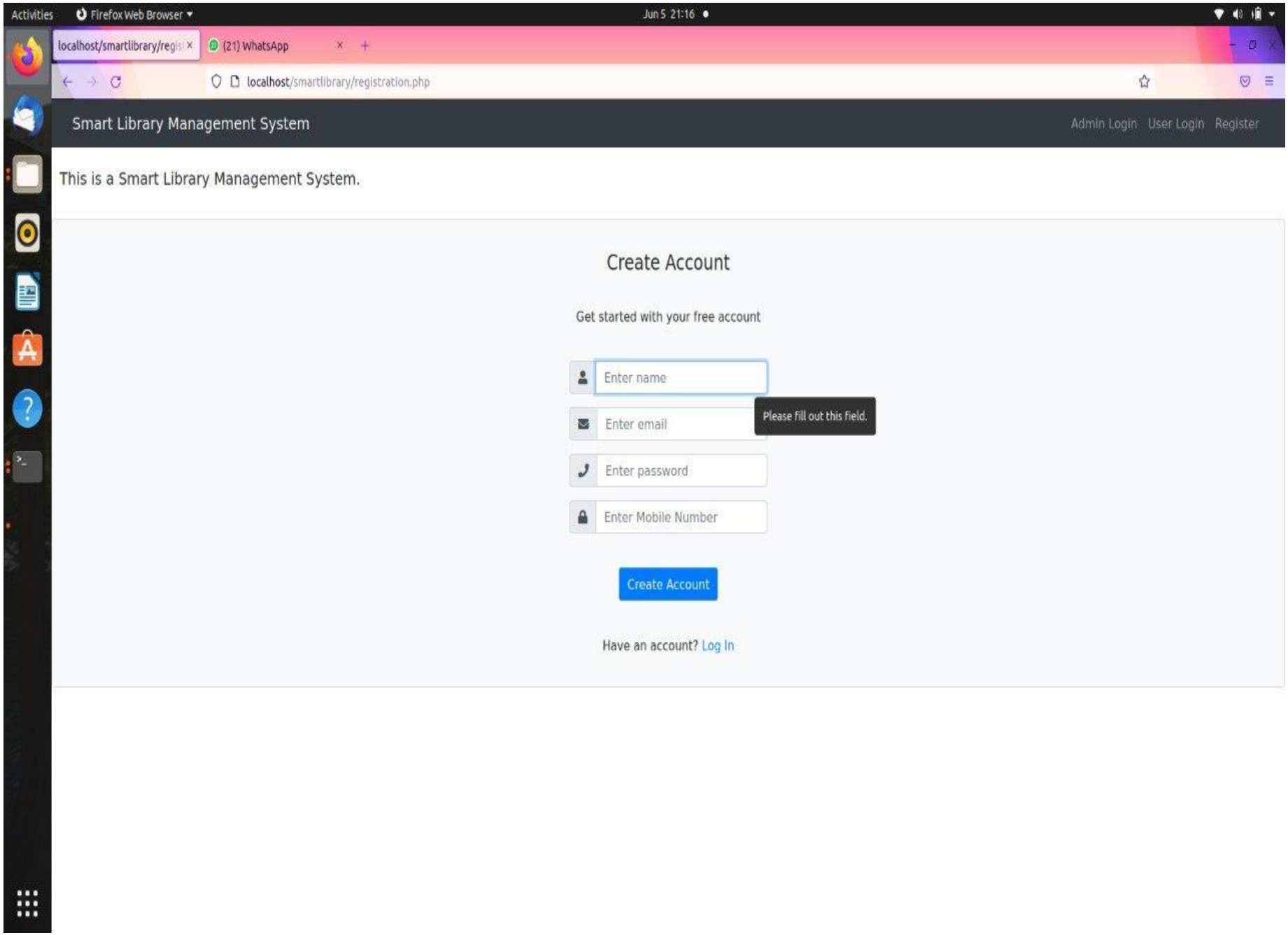
Constraints:- Following are the constraints listed related to this system:

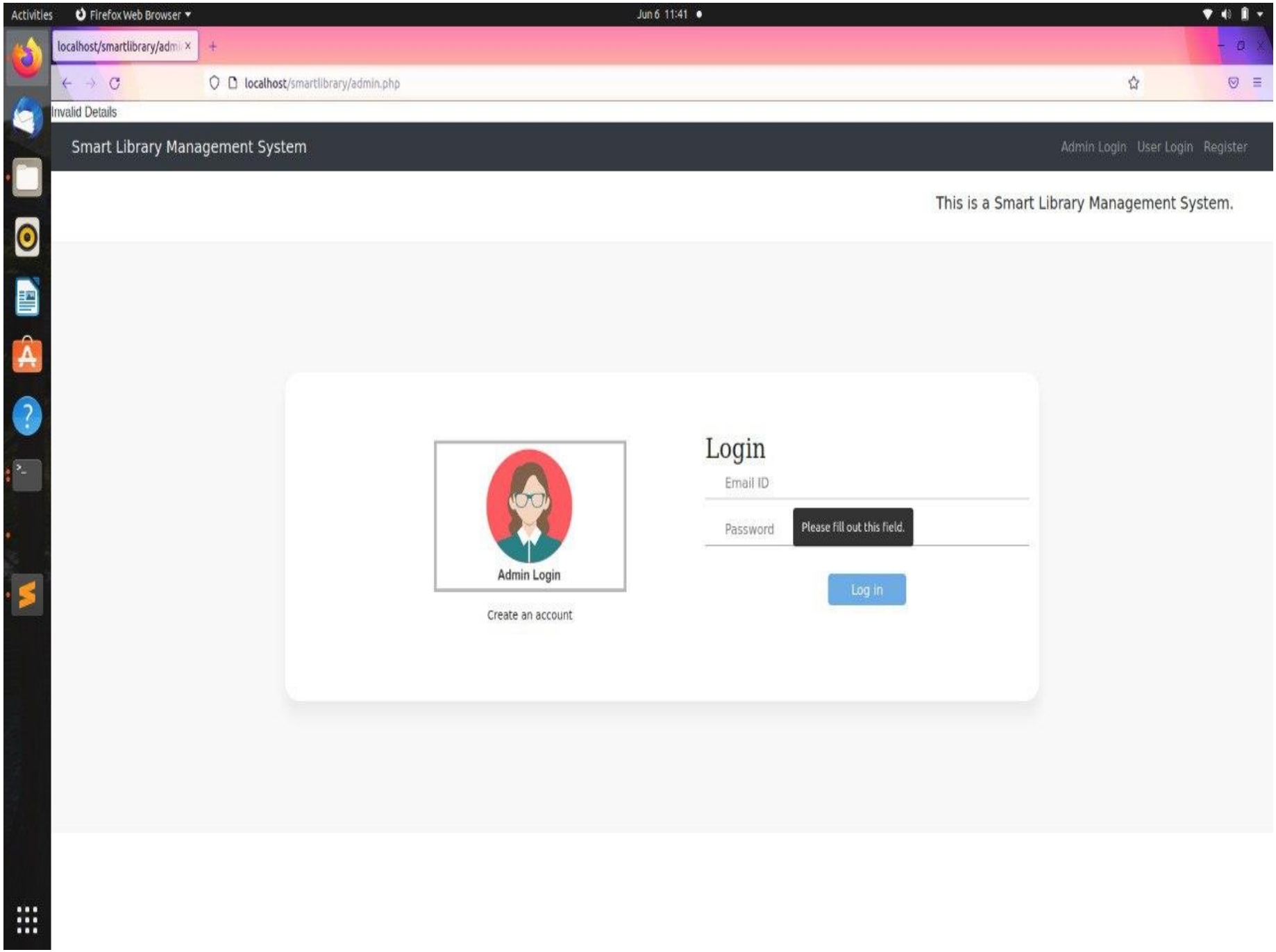
1. The online system is to run 24 hours a day.
2. Users must have their correct user id and password to log in into their accounts.
3. Information related to all users, admins, books and magazines will be stored in a database that anyone can access by logging into the website.

Test items of the library management system:-

There is a complete transformation in the services provided from a paper work system to a software system which has the following features:

1. Registration of a user.
2. Admin login.
3. Users Login.


Activities
Firefox Web Browser
Jun 5 21:16
localhost/smartlibrary/regis
(21) WhatsApp
localhost/smartlibrary/registration.php
Smart Library Management System
Admin Login
User Login
Register
This is a Smart Library Management System.
Create Account
Get started with your free account
Enter name
Enter email
Please fill out this field.
Enter password
Enter Mobile Number
Create Account
Have an account? Log In


Activities
Firefox Web Browser
Jun 6 11:41
localhost/smartlibrary/admin.php
Invalid Details
Smart Library Management System
Admin Login
User Login
Register
This is a Smart Library Management System.
Admin Login
Create an account
Login
Email ID
Password
Please fill out this field.
Log in

Activities Firefox Web Browser Jun 6 11:40

localhost/smartlibrary/login

localhost/smartlibrary/login.php

Invalid Details

Smart Library Management System

Admin Login User Login Register

This is a Smart Library Management System.

Create an account

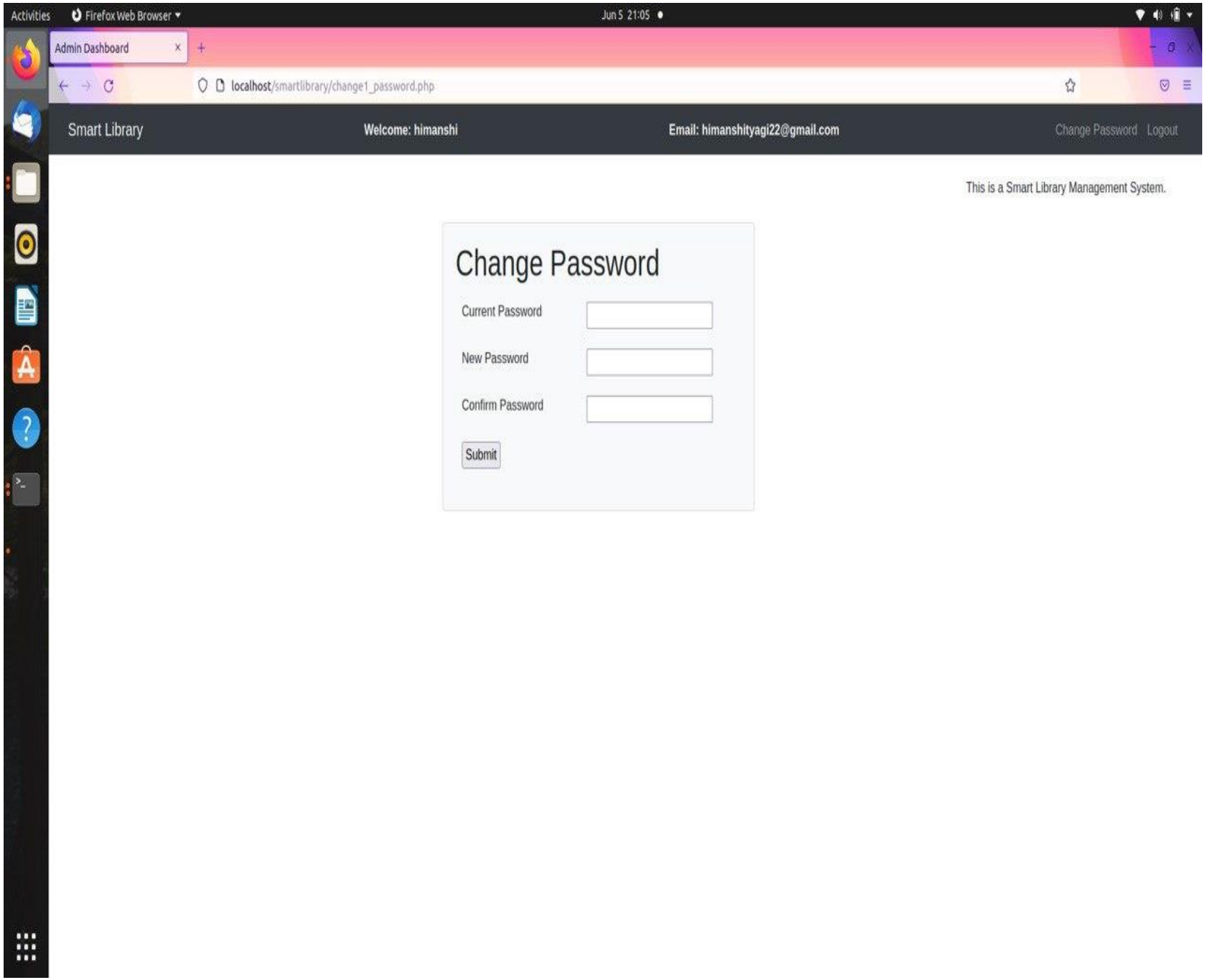
Login

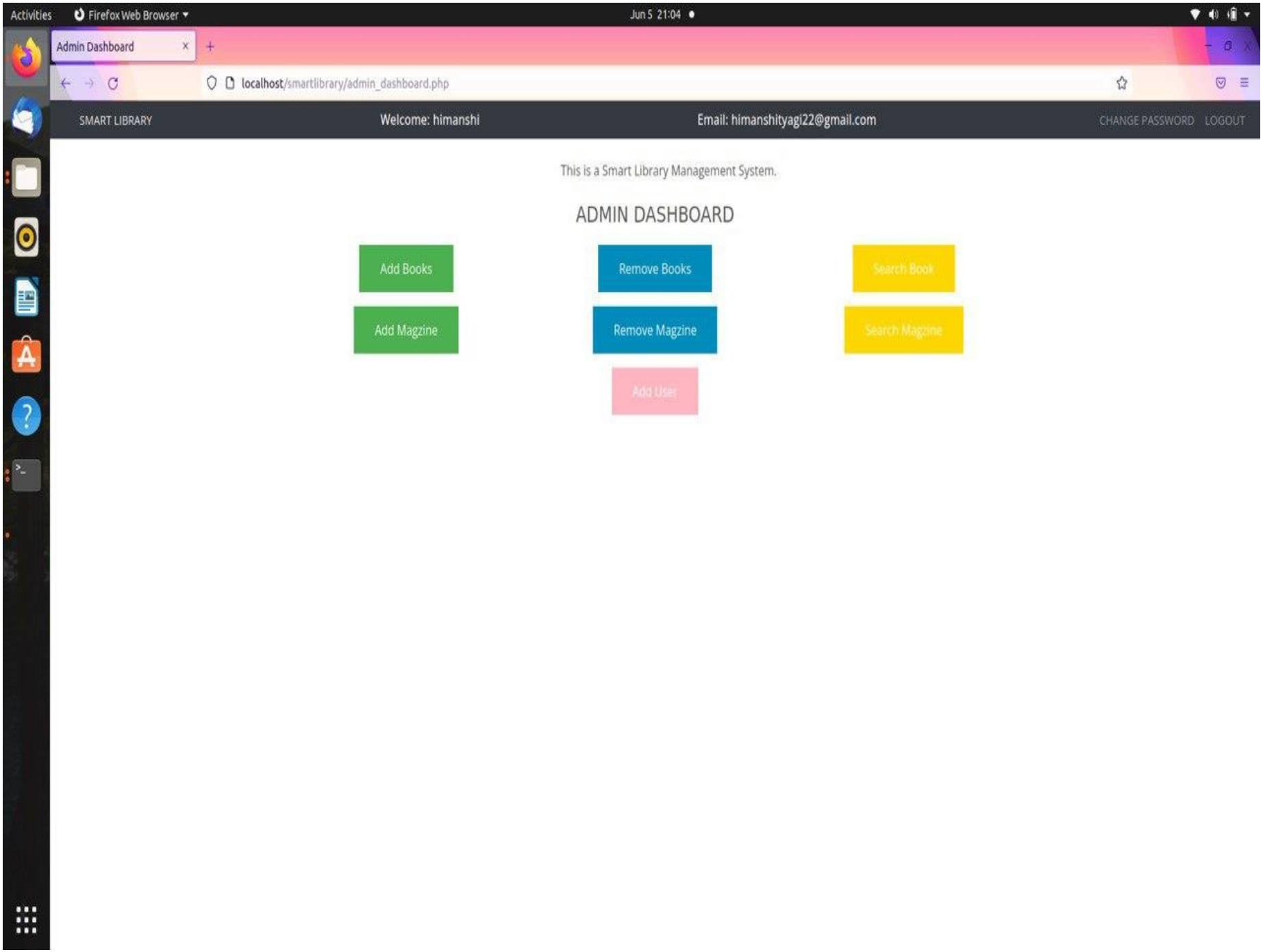
Email ID

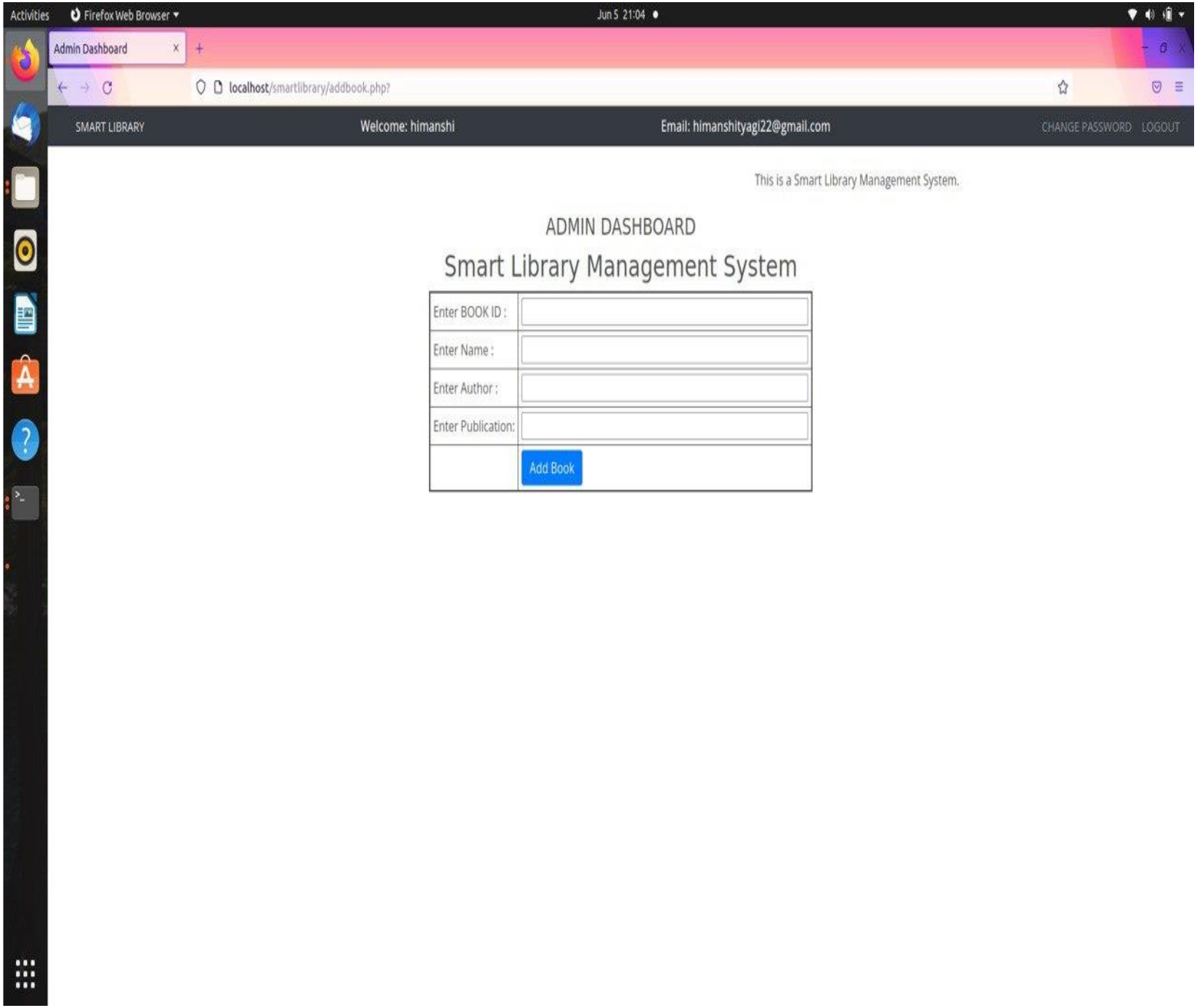
Password

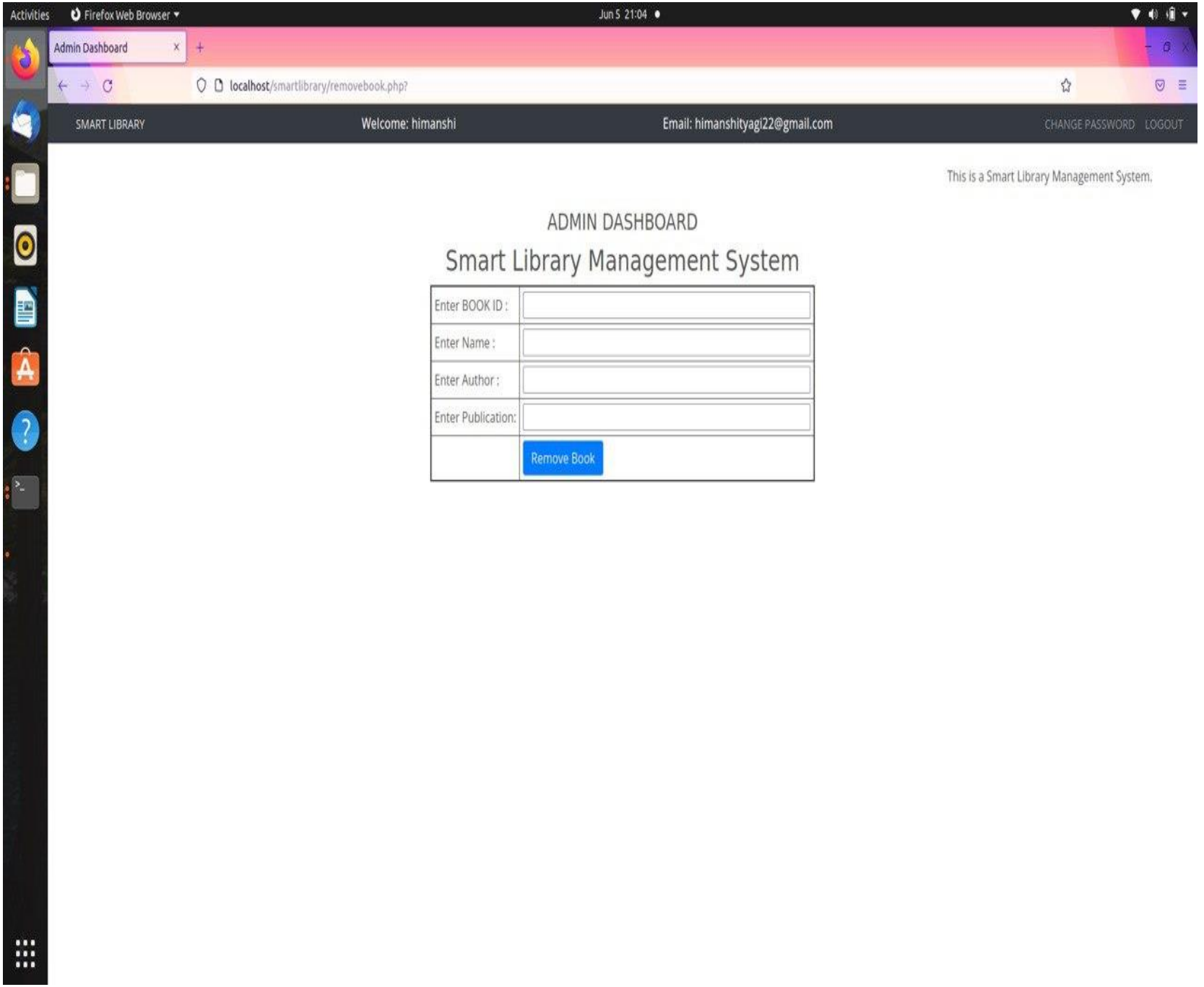
Please fill out this field.

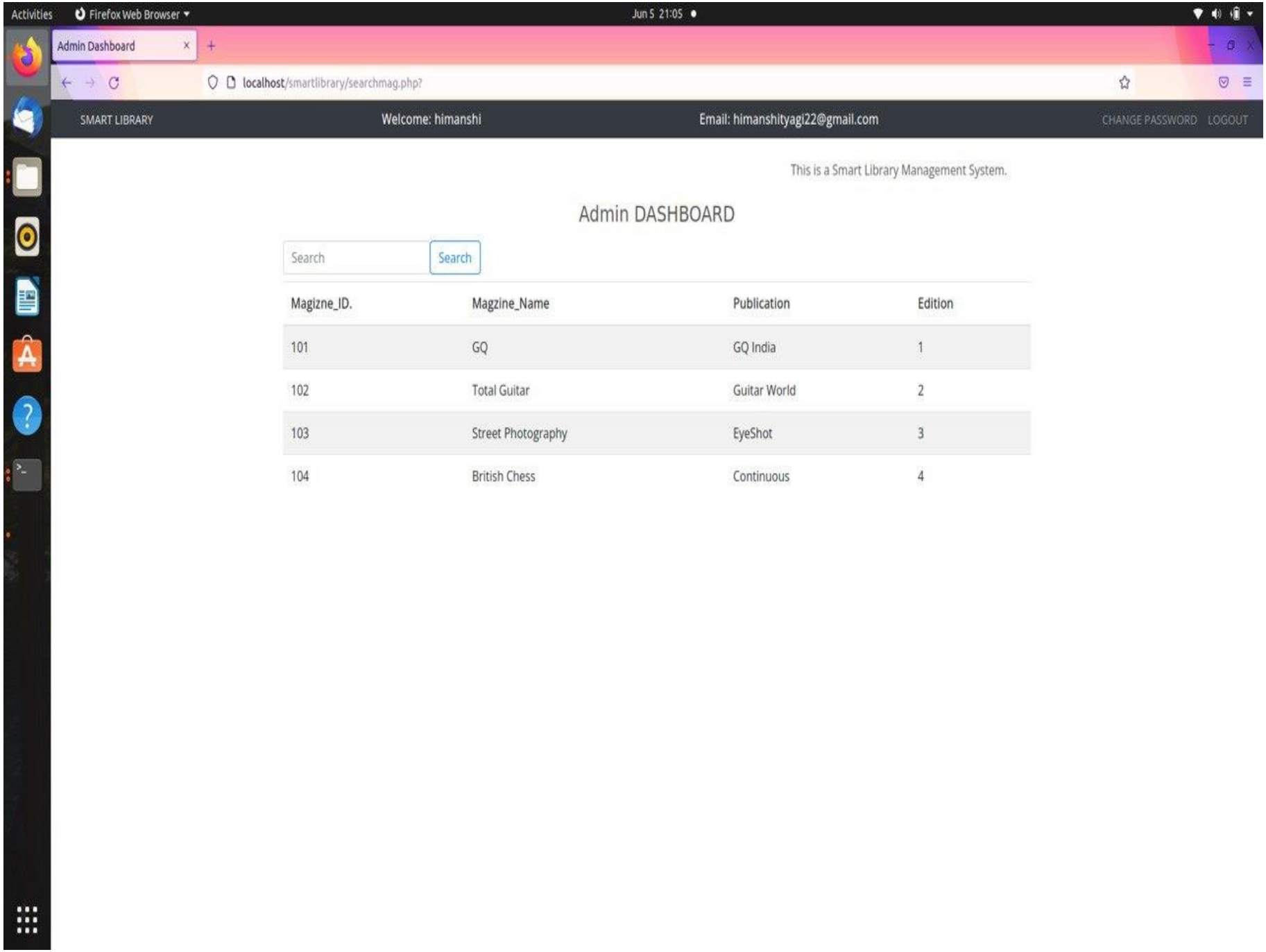
Log in


Activities
Firefox Web Browser
Jun 5 21:05
Admin Dashboard
localhost/smartlibrary/change1_password.php
Smart Library
Welcome: himanshi
Email: himanshityagi22@gmail.com
Change Password
Logout
This is a Smart Library Management System.
Change Password
Current Password
New Password
Confirm Password
Submit


Activities
Firefox Web Browser
Jun 5 21:04
Admin Dashboard
localhost/smartlibrary/admin_dashboard.php
SMART LIBRARY
Welcome: himanshi
Email: himanshityagi22@gmail.com
CHANGE PASSWORD
LOGOUT
This is a Smart Library Management System.
ADMIN DASHBOARD
Add Books
Remove Books
Search Book
Add Magzine
Remove Magzine
Search Magzine
Add User


Activities
Firefox Web Browser
Jun 5 21:04
Admin Dashboard
localhost/smartlibrary/addbook.php?
SMART LIBRARY
Welcome: himanshi
Email: himanshityagi22@gmail.com
CHANGE PASSWORD
LOGOUT
This is a Smart Library Management System.
ADMIN DASHBOARD
Smart Library Management System
Enter BOOK ID :
Enter Name :
Enter Author :
Enter Publication:
Add Book


Activities
Firefox Web Browser
Jun 5 21:04
Admin Dashboard
localhost/smartlibrary/removebook.php?
SMART LIBRARY
Welcome: himanshi
Email: himanshityagi22@gmail.com
CHANGE PASSWORD
LOGOUT
This is a Smart Library Management System.
ADMIN DASHBOARD
Smart Library Management System
Enter BOOK ID :
Enter Name :
Enter Author :
Enter Publication:
Remove Book


Activities
Firefox Web Browser
Jun 5 21:05
Admin Dashboard
localhost/smartlibrary/searchmag.php?
SMART LIBRARY
Welcome: himanshi
Email: himanshityagi22@gmail.com
CHANGE PASSWORD
LOGOUT
This is a Smart Library Management System.
Admin DASHBOARD
Search
Search
Magizne_ID.
Magzine_Name
Publication
Edition
101
GQ
GQ India
1
102
Total Guitar
Guitar World
2
103
Street Photography
EyeShot
3
104
British Chess
Continuous
4

Login Form Test Case:-

SL. No.	Test Case	Expected Results	Test Results
1.	Enter valid name and password and click on login button	Software should display user Interface main window	Successful
2.	Enter invalid name and password and click on login button	Software should display login error	Successful

Registration Form Test Case:-

SL. No.	Test Case	Expected Results	Test Results
1.	Enter valid email and phone and click on register button	Software should display user Interface main window	Successful
2.	Enter invalid email and phone no and click on register button	Software should display login error	Successful

Conclusion and Recommendations

The Web-Application provides a computerized online version of smart library system which will benefit the users as well as staff of the library (admin). It makes entire

process online where student can search books/magazine, staff can add, remove book/magazine. It also has a facility for user login where users can login and can see available books/magazine as well download book/magazine. It has a facility of admin's login where admins can add, remove books/magazines and also add info about workshops or events happening in our college/organization or nearby college/organization in the online notice board.

During the development of the Web-based Smart Library System of Haribhai V. Desai College, our group had encountered a lot of difficulties. Our systems have features that need full attention and should be deeply scrutinized

All the needed information requires good critical thinking and thorough analysis before placing them altogether. The arrangement of the gathered information was planned carefully to easily trace its relationships which connects from one table to another and to avoid disordered database set-up.

After a long period of analyzing and beyond the achieved objectives of the Proposed system, we present some recommendations which will be helpful and useful for The existing system and to make it more stable, efficient and reliable.

- Once the book is searched, the whole content of the book should be available for reading online to its registered users.
- Monitoring of the number of users and their activity should be recorded
- We also recommend to keep a source for users to request the specific or unavailable book to admin.

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www.stackoverflow.com

www.w3school.com

www.phpcommunity.com

www.geeksforgeeks.com

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