A
PROJECT REPORT ON

Library Management System

SUBMITTED IN
PARTIAL FULFILLMENT OF

DIPLOMA IN MOBLIE COMPUTING (PG-DMC)

BY

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UNDER THE GUIDENCE OF

Manjusha Nikam

AT

SUNBEAM INSTITUTE OF INFORMATION TECHNOLOGY,
PUNE

SUNBEAM INSTITUTE OF INFORMATION TECHNOLOGY, PUNE.

CERTIFICATE

This is to certify that the project

Library Management System

Has been submitted by

SANDESH S. SHINDE

In partial fulfillment of the requirement for the Course of **PG Diploma in Mobile Computing (PG-DMC SEPT 2022)** as prescribed by The **CDAC** ACTS, PUNE.

Place: Pune

Date: 14-APR-2022

Manjusha Nikam
Project Guide

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Sandesh S. Shinde

ABSTRACT

Online Library Management System is a system which maintains the information about the books present in the library, their authors, the members of library to whom books are issued, library staff and all. This is very difficult to organize manually. Maintenance of all this information manually is a very complex task. Owing to the advancement of technology, organization of an Online Library becomes much simple. The Online Library Management 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 library helps in many instances of its maintenances. It reduces the workload of management as most of the manual work done is reduced.

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INTRODUCTION

Library Management System is an application which refers to library systems which are generally small or medium in size. It is used by librarian to manage the library using a computerized system where he/she can add new books, add students, issue books to the students, remove student and remove books from the library. Books and student maintenance modules are also included in this system which would keep track of the students using the library and also a detailed description about the books a library contains. With this computerized system there will be no loss of book record or member record which generally happens when a non computerized system is used. All these modules are able to help librarian to manage the library with more convenience and in a more efficient way as compared to library systems which are not computerized. The application is reduced as much as possible to avoid errors while entering the data. It also provides error message while entering invalid data. No formal knowledge is needed for the user to use this system. Thus by this all it proves it is user-friendly. Library Management System, as described above, can lead to error free, secure, reliable and fast management system. It can assist the user to concentrate on their other activities rather to concentrate on the record keeping. Thus it will help organization in better utilization of resources. Every organization, whether big or small, has challenges to overcome and managing the information of Books, Student, Librarian, Address, Member. Every Library Management System has different Student needs, therefore we design exclusive employee management systems that are adapted to your managerial requirements. This is designed to assist in strategic planning, and will help you ensure that your organization is equipped with the right level of information and details for your future goals. Also, for those busy executive who are always on the go, our systems come with remote access features, which will allow you to manage your workforce anytime, at all times. These systems will ultimately allow you to better manage resources.

The objective of this project: The main objective of the Project on Library Management System is to manage the details of Student, Books, Issues. It manages all the information about Books and Students. The project is totally built at administrative end and thus only the administrator is guaranteed the access. The purpose of the project is to build an application program to reduce the manual work for managing the Student, Books, Issues. It tracks all the details about the Issues and Students.

Product Overview and Summary

| Purpose: Through research of similar apps we found a number of features that seemed useful in our design. Simplistic Design: Overall, we found that the Moves app presented an extremely clean and simplistic layout that presented important information as soon as it was opened. We decided to model our app with this same mentality of keeping screens simplistic and present important data upfront

| Scope: It may help collecting perfect management in details. In a very short time, the collection will be obvious, simple and sensible. It also helps in current all works relative to Library Management System. It will be also reduced the cost of collecting the management & collection procedure will go on smoothly. Our project aims at Business process automation, i.e. we have tried to computerize various processes of Library Management System.

- To utilize resources in an efficient manner by increasing their productivity through automation.
- The system generates types of information that can be used for various purposes.
- It satisfies the user requirement.
- Be easy to understand by the student and admin.
- Be easy to operate.
- Have a good user interface.
- Be expandable.

User Classes and Characteristics: As based on multiple platforms there are multiple classes and their uses but most importantly application uses Model for student that encapsulates data fetched from server.

And both iOS and android platforms have their own implementation of Data Persistence for Example Android Uses shared preference which contains a helper class to provide such functionality.

Where as iOS uses user's default which do not contain helper class can be accessed directly although.

| Design and Implementation Constraints

- User Interface

In order to effectively incorporate each of the three focus areas of our application (request book, read book, return book) into the user interface without creating too much clutter, we opted to use a tabbed design. When the app is initially opened, the user is taken to the "main" or "home" tab.

- **Tab Design**: Relatively early in the development process, we came to the decision to separate each data tracked aspect (view books, profile, and feedback) into individual tabs within the app. After researching several different methods for implementing this type of multi-page app design, we came to the decision to use the ViewPager layout manager, an Android class that is "most often used in conjunction with Fragment, which is a convenient way to supply and manage the lifecycle of each page" (ViewPager). Each of the three tabs is implemented in its own class, and is a subclass of the Fragment class. In addition, the tabs share a single Android activity, which is the Android class that handles all user interaction with the app. The main activity of the application manages the tab layout and tells the application which tab view to display when a user selects a certain tab. The purpose of using fragments is to eliminate the need to create a new activity every time the user switches between tabs, thus increasing both the temporal and spatial efficiency of the application. Structurally, each fragment is comprised of two components. The first is an XML file that defines the visual layout of the fragment. The second is the logic of the fragment, which contains various functions defining certain actions to take at different times. Each time a certain fragment is switched to or away from, these functions are called in a particular order, all of which make up what is called the fragment's "lifecycle". For example, when a particular fragment is displayed on the screen, the function onCreateView() is called, which is generally where most of the initialization process occurs

Functional Requirements

| Use Case for User:

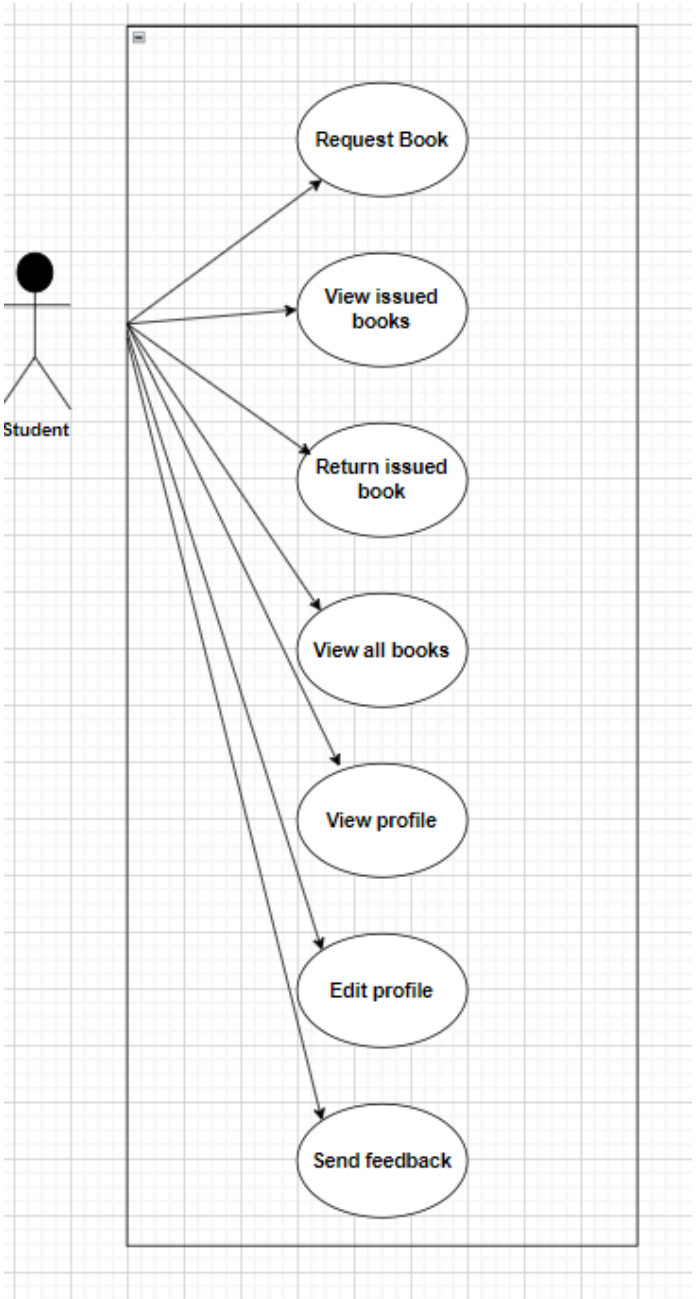


Fig. 1

| Use Case for Admin:

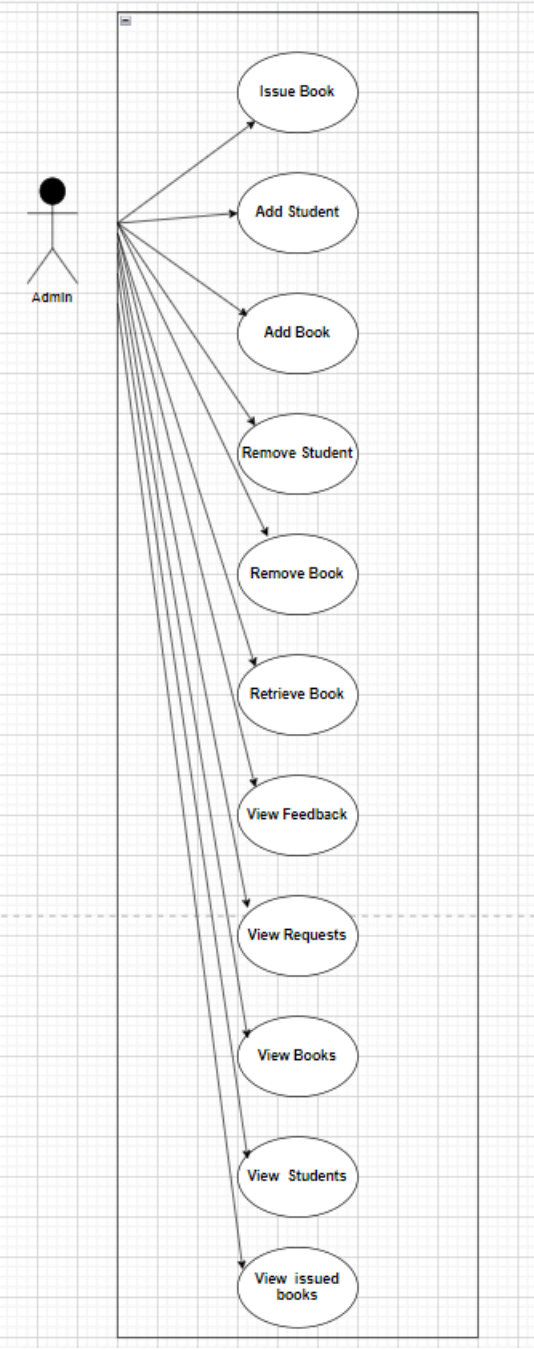


Fig. 2

Non - Functional Requirements

Usability Requirement: Application should be easy to use and provide basic user interface that can be used without any tutorial.

Multiple views must be used for modularity in this concept, I will be referring to the ease of use of a mobile application. The aim of the use of the mobile application is to get some features and functionality and the application would be difficult to use without the usability being considered. Every application is expected to be effective, sophisticated, and satisfactory and the color and contrast should be intact and follow some other principles that are considered the standard to be followed by developers. The design of the application should be done in such a way that users of all abilities would be able to use the UI efficiently.

Data Model

Database In order to effectively store the student's activity history, we decided to use a MySQL database. In our database there are total six tables, they are admin, student, books, requests, issued_books and feedback.

Table Name: admin

Field name	Type
admin_id	int
firstName	varchar
lastName	varchar
email	varchar
mobile	varchar
password	varchar

Table Name: student

Field name	Type
student_id	int
firstName	varchar
lastName	varchar
email	varchar
mobile	varchar
password	varchar

Table Name: feedback

Field name	Type
srNo	int
Stud_id	int
feedback	varchar

Table Name: books

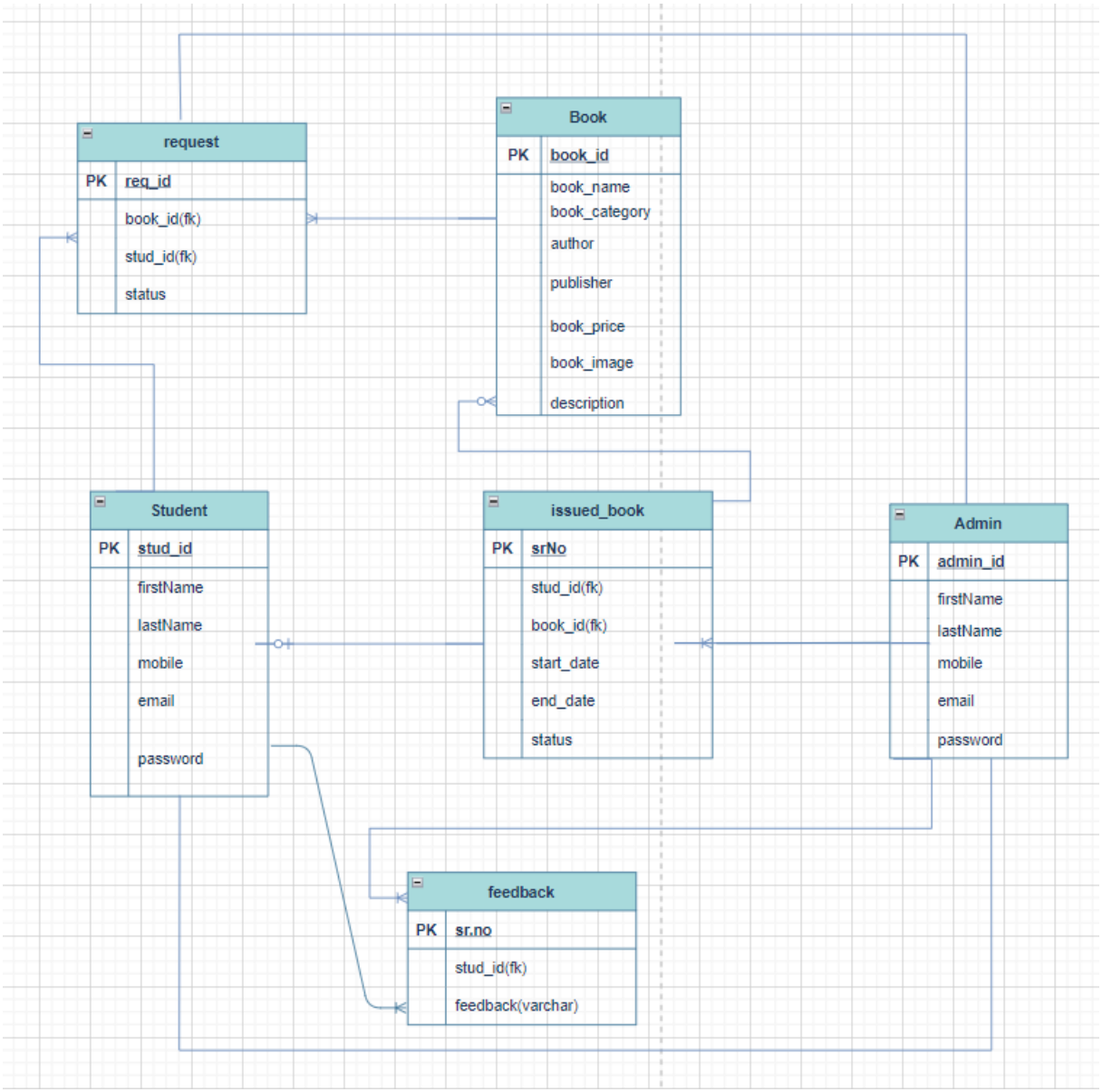
Field name	Type
book_id	int
book_name	varchar
Book_category	varchar
author	varchar
publisher	varchar
book_price	double
book_image	varchar
book_pdf	varchar
description	varchar

Table Name: request

Field name	Type
req_id	int
book_id	int
stud_id	int
status	int

Table Name: issued_books

Field name	Type
srNo	int
stud_id	int
book_id	int
start_date	timestamp
End_date	timestamp
status	int



Complete Database (fig 3)

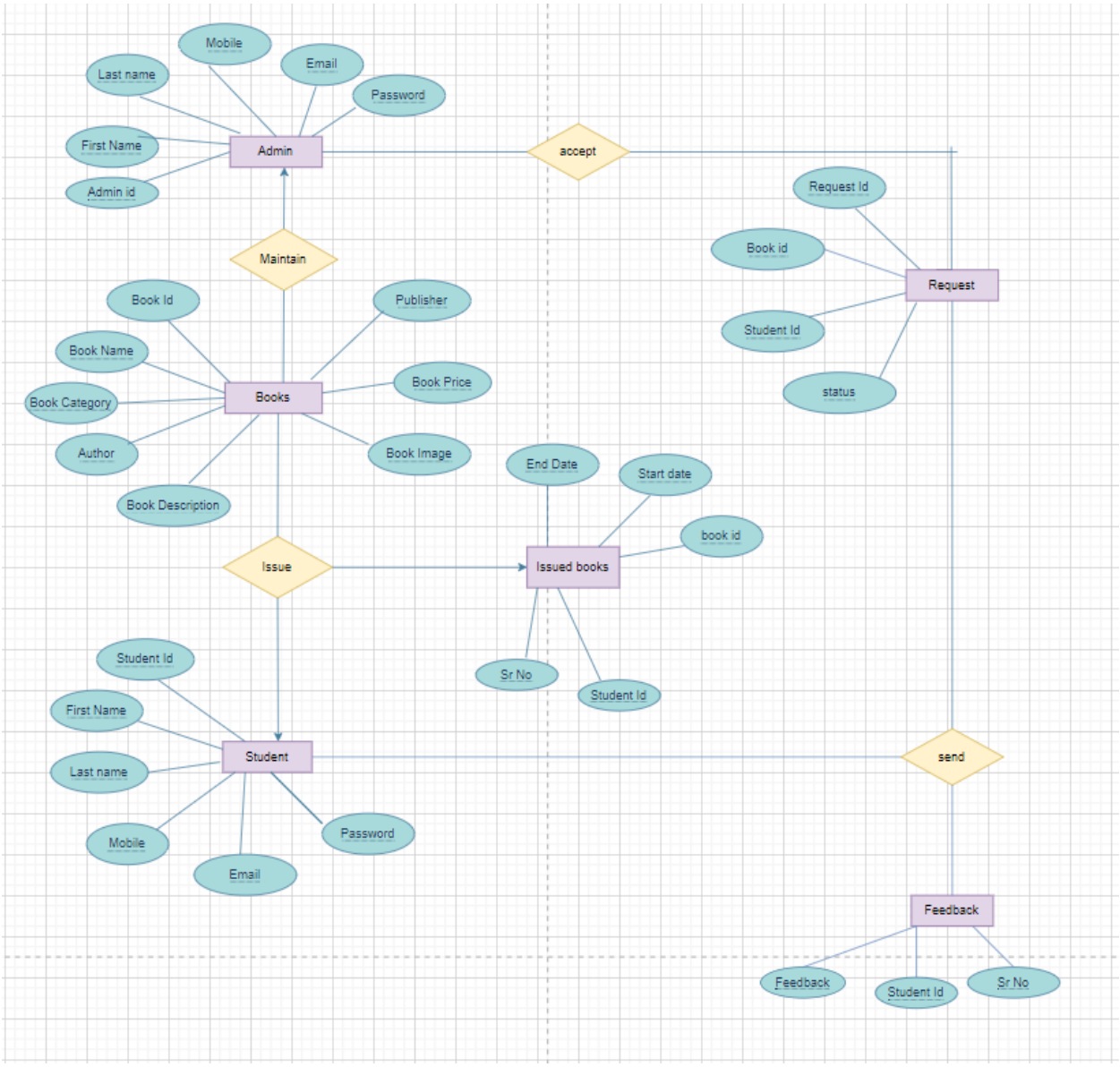

Mobile
Email
Last name
Password
First Name
Admin
accept
Admin id
Request Id
Book id
Maintain
Request
Book Id
Publisher
Student Id
Book Name
Book Price
Books
status
Book Category
Author
Book Image
End Date
Start date
Book Description
book id
Issue
Issued books
Student Id
Sr No
Student Id
First Name
Student
send
Last name
Mobile
Password
Email
Feedback
Feedback
Student Id
Sr No

Fig. 4

Screen Shots

Admin side

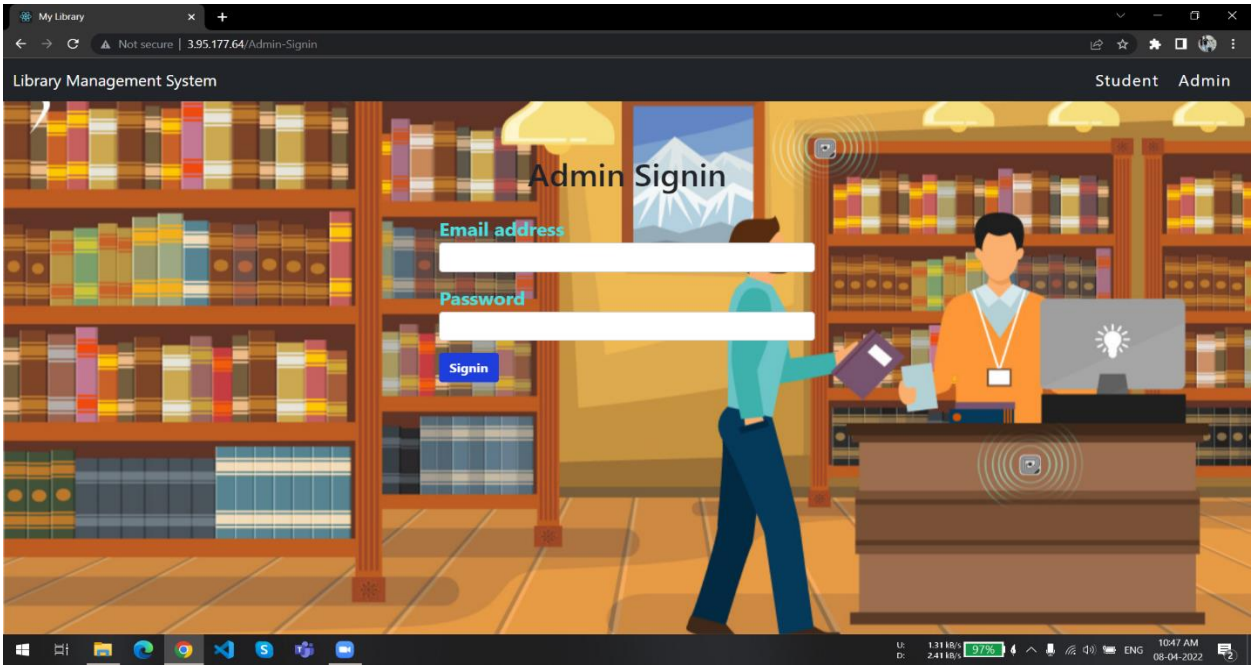


Fig. 5

Request id	Book id	Student id
11	20	22
13	24	26
15	28	30
17	32	34
19	36	38
21	40	42
57	37	52
77	18	54
78	22	32
83	17	3
84	18	1
86	17	2
90	19	2
91	20	53
94	30	58

Fig. 6

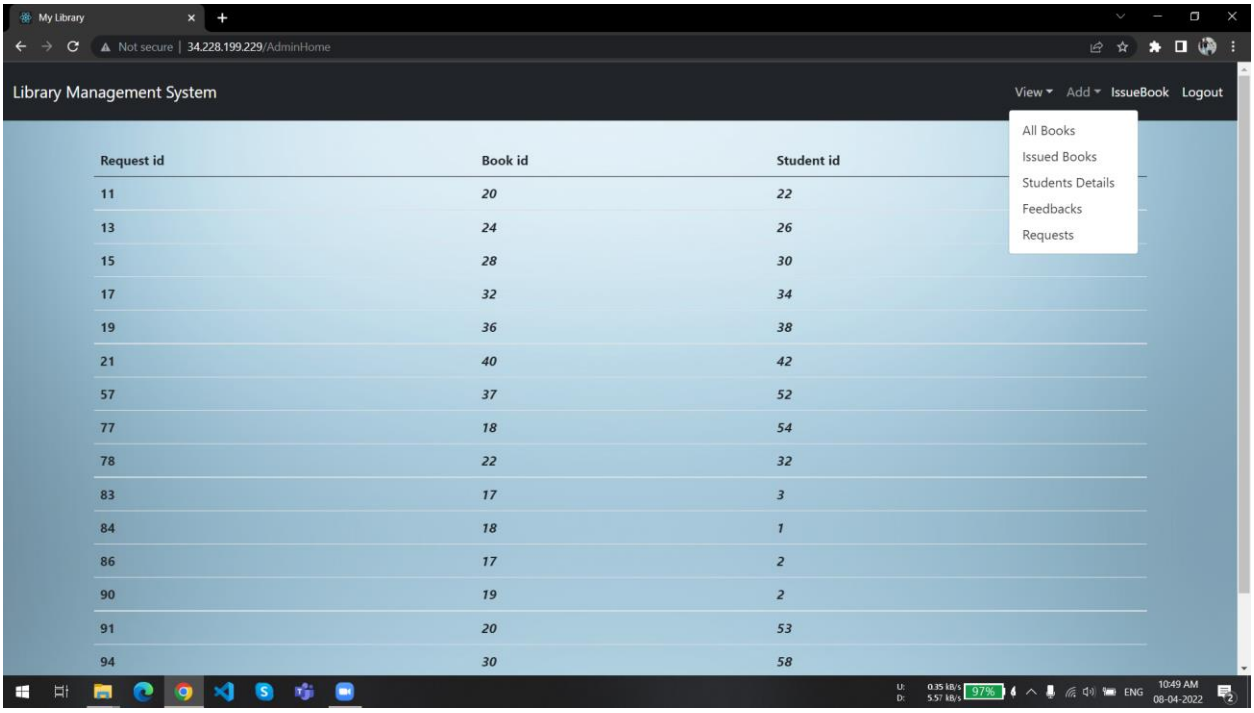

My Library
Not secure | 34.228.199.229/AdminHome
Library Management System
View
Add
IssueBook
Logout
All Books
Issued Books
Students Details
Feedbacks
Requests
Request id
Book id
Student id
11 20 22
13 24 26
15 28 30
17 32 34
19 36 38
21 40 42
57 37 52
77 18 54
78 22 32
83 17 3
84 18 1
86 17 2
90 19 2
91 20 53
94 30 58

Fig 7

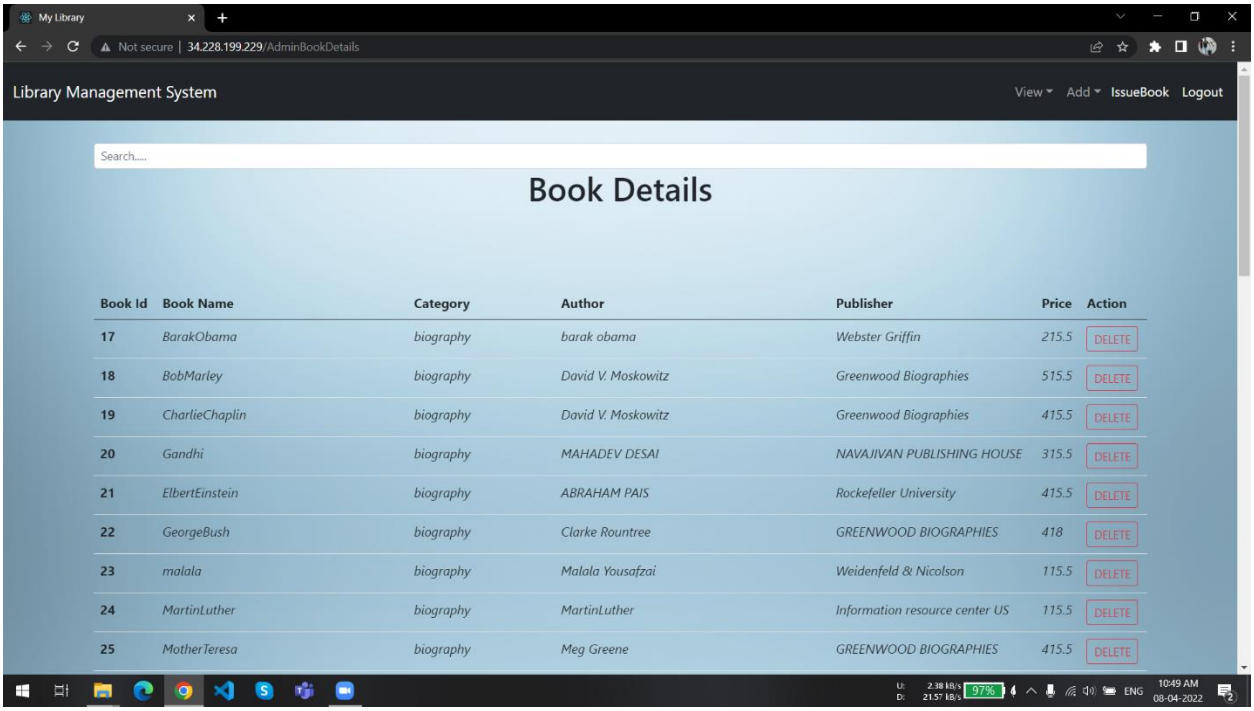
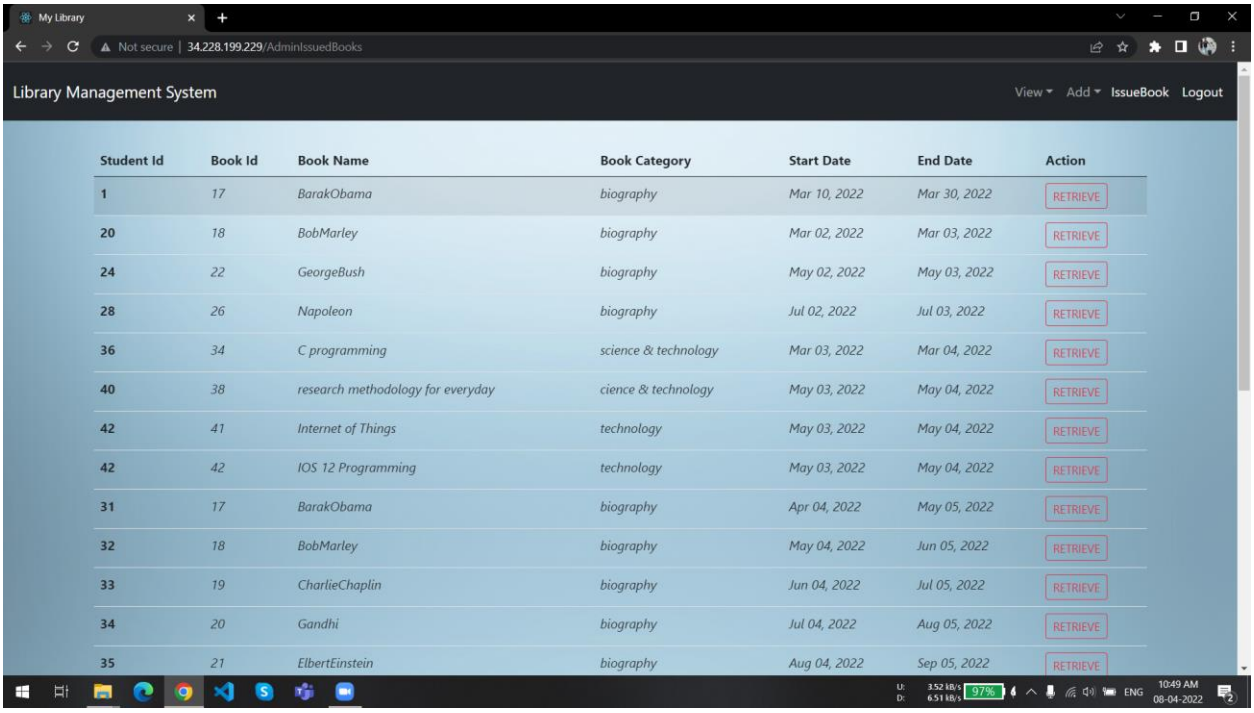

My Library
Not secure | 34.228.199.229/AdminBookDetails
Library Management System
View
Add
IssueBook
Logout
Search.....
Book Details
Book Id
Book Name
Category
Author
Publisher
Price
Action
17 BarakObama biography barak obama Webster Griffin 215.5 DELETE
18 BobMarley biography David V. Moskowitz Greenwood Biographies 515.5 DELETE
19 CharlieChaplin biography David V. Moskowitz Greenwood Biographies 415.5 DELETE
20 Gandhi biography MAHADEV DESAI NAVAJIVAN PUBLISHING HOUSE 315.5 DELETE
21 ElbertEinstein biography ABRAHAM PAIS Rockefeller University 415.5 DELETE
22 GeorgeBush biography Clarke Rountree GREENWOOD BIOGRAPHIES 418 DELETE
23 malala biography Malala Yousafzai Weidenfeld & Nicolson 115.5 DELETE
24 MartinLuther biography MartinLuther Information resource center US 115.5 DELETE
25 MotherTeresa biography Meg Greene GREENWOOD BIOGRAPHIES 415.5 DELETE

Fig. 8


My Library
Not secure | 34.228.199.229/AdminIssuedBooks
Library Management System
View Add IssueBook Logout
Student Id | Book Id | Book Name | Book Category | Start Date | End Date | Action
1 | 17 | BarakObama | biography | Mar 10, 2022 | Mar 30, 2022 | RETRIEVE
20 | 18 | BobMarley | biography | Mar 02, 2022 | Mar 03, 2022 | RETRIEVE
24 | 22 | GeorgeBush | biography | May 02, 2022 | May 03, 2022 | RETRIEVE
28 | 26 | Napoleon | biography | Jul 02, 2022 | Jul 03, 2022 | RETRIEVE
36 | 34 | C programming | science & technology | Mar 03, 2022 | Mar 04, 2022 | RETRIEVE
40 | 38 | research methodology for everyday | cience & technology | May 03, 2022 | May 04, 2022 | RETRIEVE
42 | 41 | Internet of Things | technology | May 03, 2022 | May 04, 2022 | RETRIEVE
42 | 42 | IOS 12 Programming | technology | May 03, 2022 | May 04, 2022 | RETRIEVE
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32 | 18 | BobMarley | biography | May 04, 2022 | Jun 05, 2022 | RETRIEVE
33 | 19 | CharlieChaplin | biography | Jun 04, 2022 | Jul 05, 2022 | RETRIEVE
34 | 20 | Gandhi | biography | Jul 04, 2022 | Aug 05, 2022 | RETRIEVE
35 | 21 | ElbertEinstein | biography | Aug 04, 2022 | Sep 05, 2022 | RETRIEVE
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Fig. 9

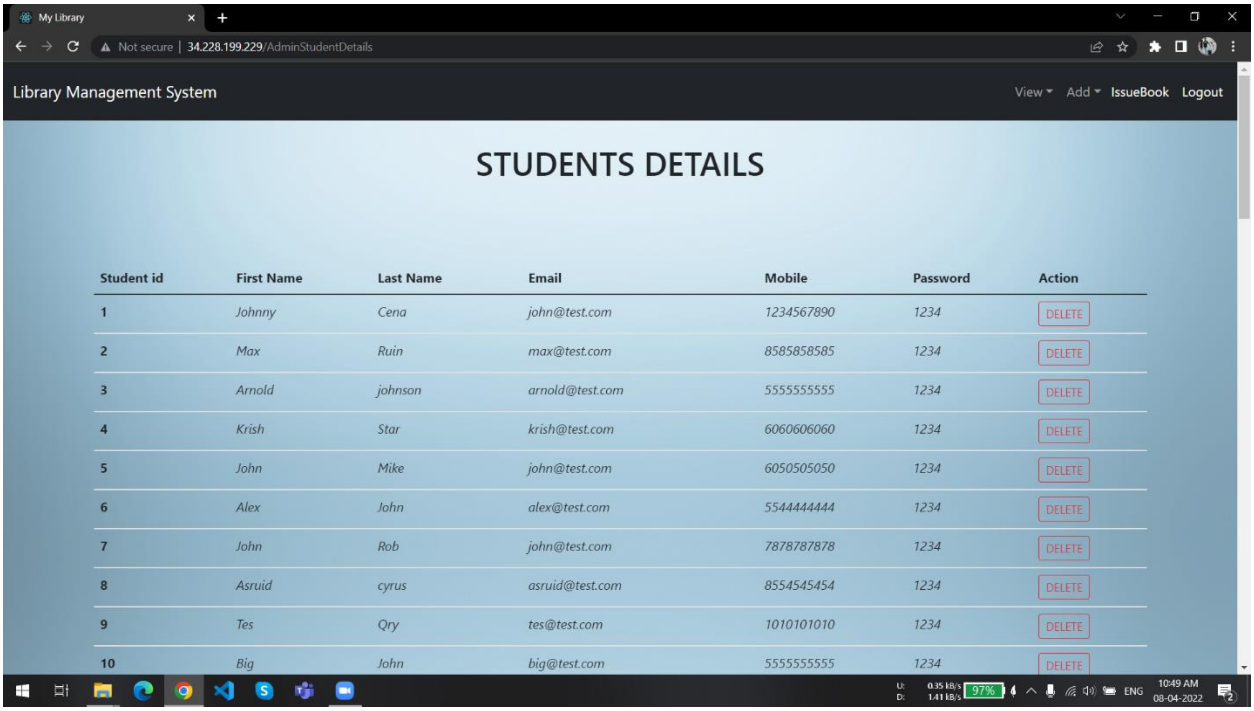
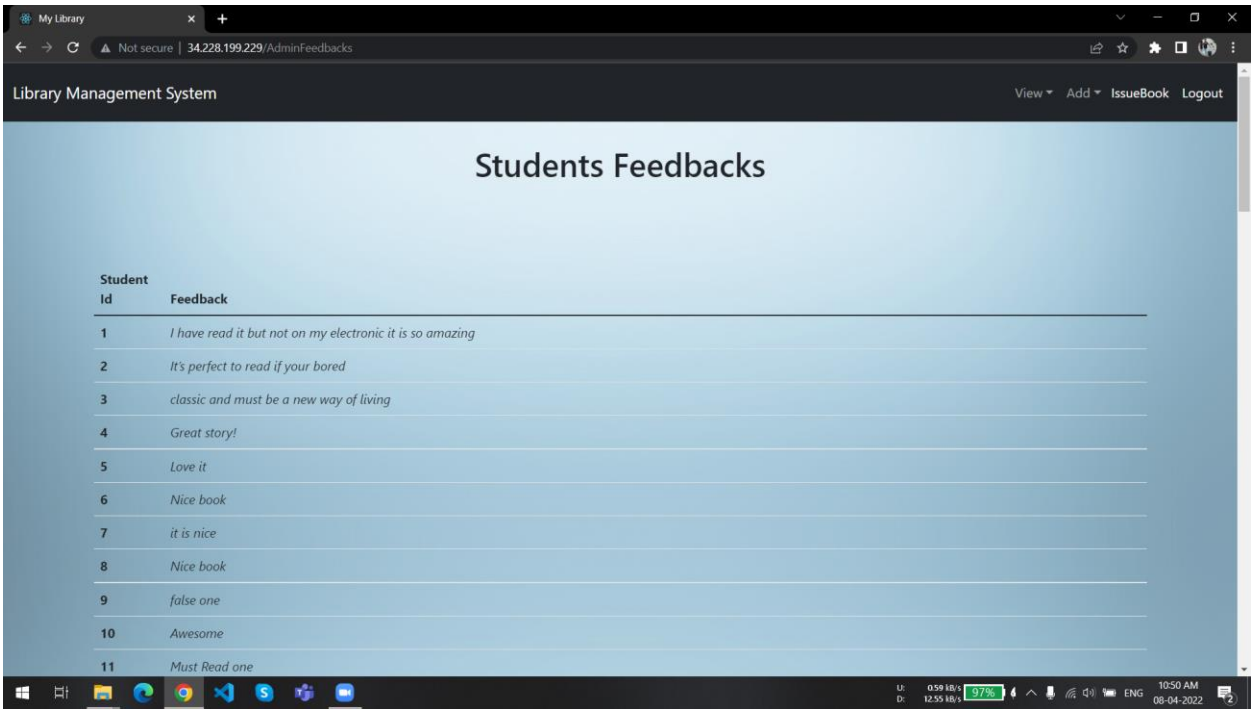

My Library
Not secure | 34.228.199.229/AdminStudentDetails
Library Management System
View Add IssueBook Logout
STUDENTS DETAILS
Student id | First Name | Last Name | Email | Mobile | Password | Action
1 | Johnny | Cena | john@test.com | 1234567890 | 1234 | DELETE
2 | Max | Ruin | max@test.com | 8585858585 | 1234 | DELETE
3 | Arnold | johnson | arnold@test.com | 5555555555 | 1234 | DELETE
4 | Krish | Star | krish@test.com | 6060606060 | 1234 | DELETE
5 | John | Mike | john@test.com | 6050505050 | 1234 | DELETE
6 | Alex | John | alex@test.com | 5544444444 | 1234 | DELETE
7 | John | Rob | john@test.com | 7878787878 | 1234 | DELETE
8 | Asruid | cyrus | asruid@test.com | 8554545454 | 1234 | DELETE
9 | Tes | Qry | tes@test.com | 1010101010 | 1234 | DELETE
10 | Big | John | big@test.com | 5555555555 | 1234 | DELETE
ENG 10:49 AM 08-04-2022

Fig. 10


My Library
Not secure | 34.228.199.229/AdminFeedbacks
Library Management System
View
Add
IssueBook
Logout
Students Feedbacks
Student Id
Feedback
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I have read it but not on my electronic it is so amazing
2
It's perfect to read if your bored
3
classic and must be a new way of living
4
Great story!
5
Love it
6
Nice book
7
it is nice
8
Nice book
9
false one
10
Awesome
11
Must Read one
97%
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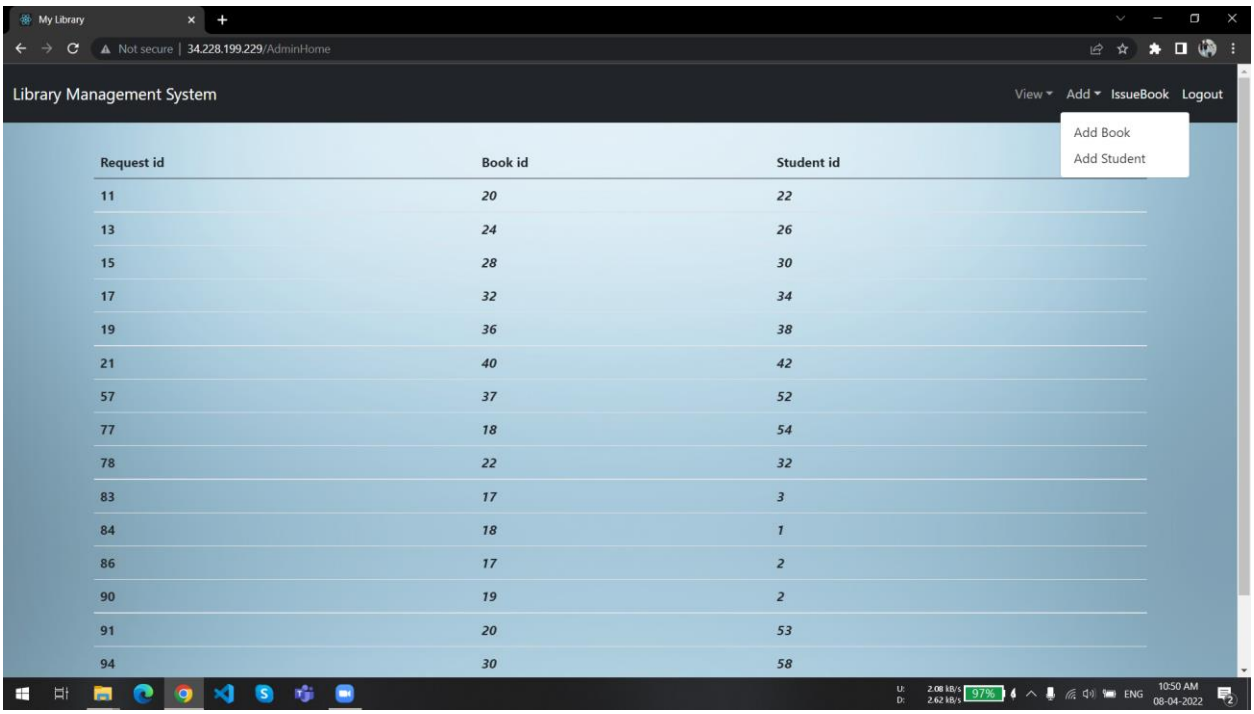
Fig. 11


My Library
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Library Management System
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Add
IssueBook
Logout
Add Book
Add Student
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Book id
Student id
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22
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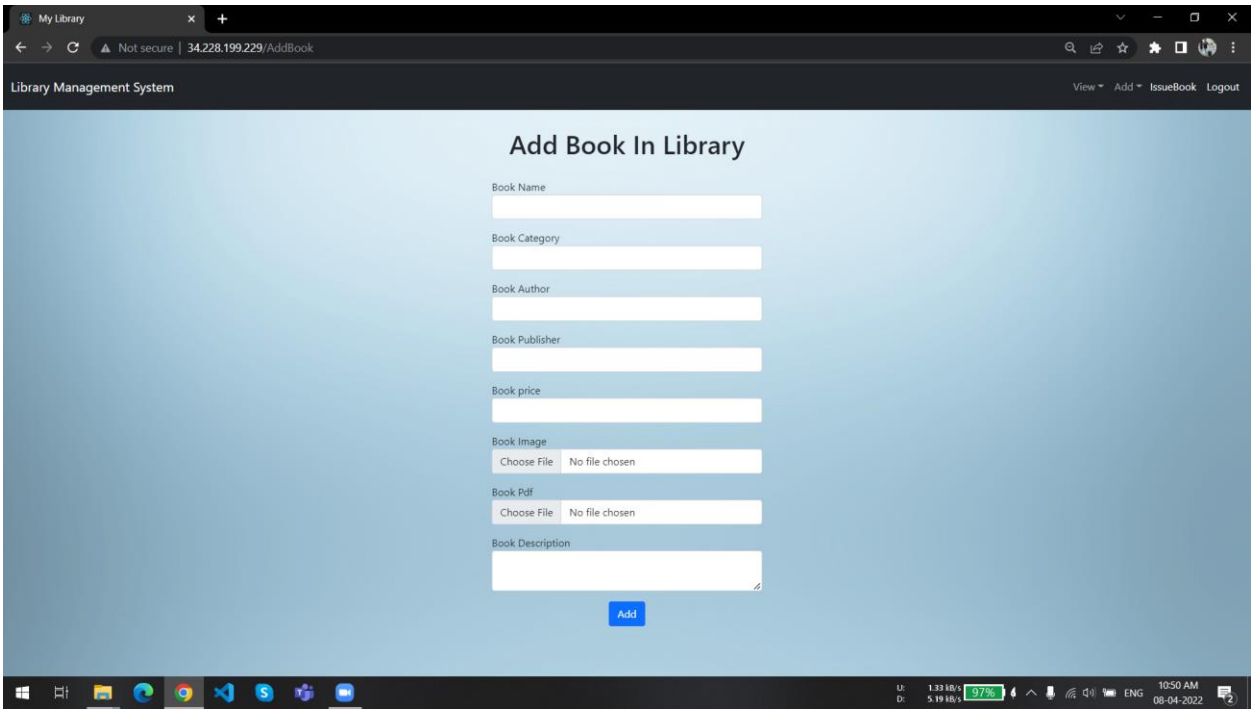
Fig. 12


My Library
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Library Management System
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Add
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Logout
Add Book In Library
Book Name
Book Category
Book Author
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Book Description
Add
ENG
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Fig. 13

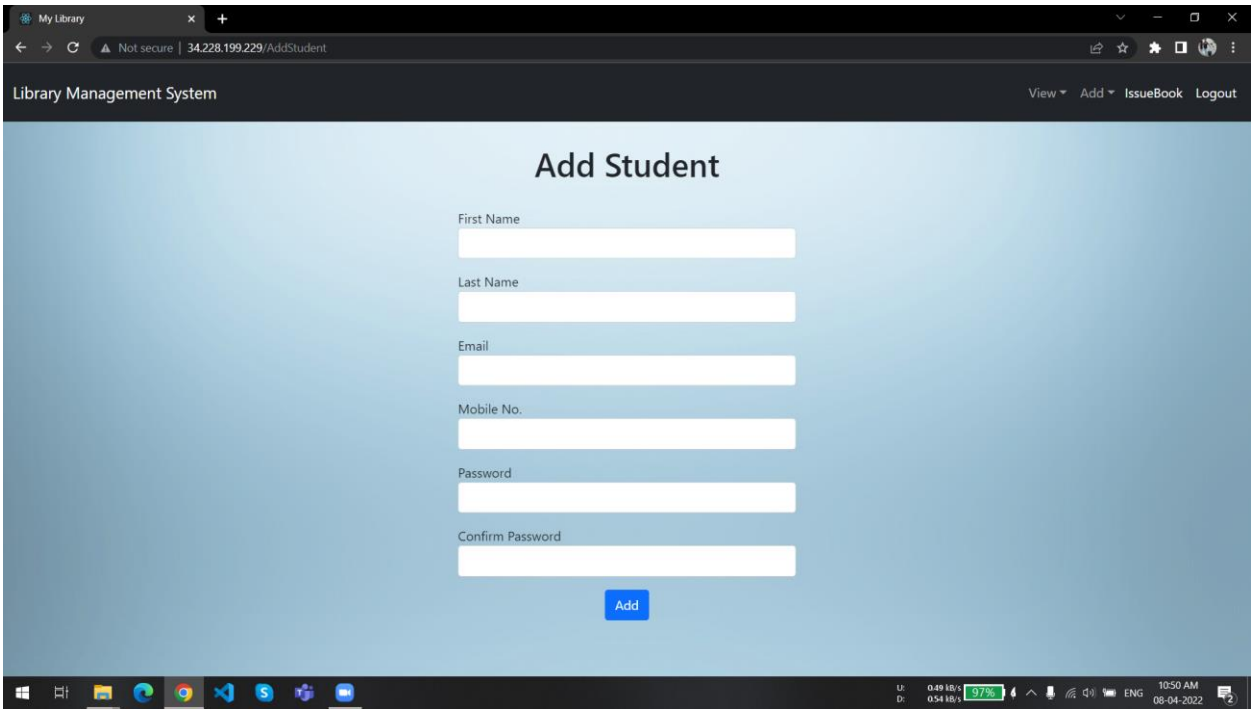
My Library
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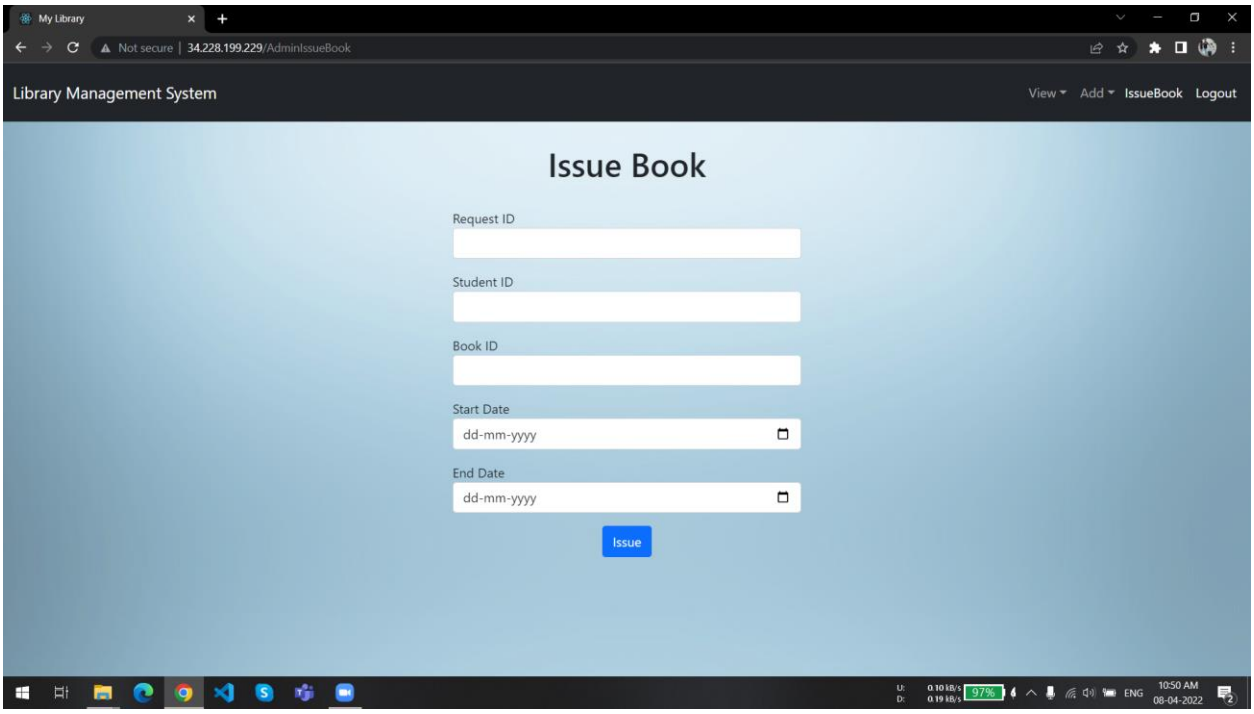
Fig. 14


My Library
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Library Management System
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Request ID
Student ID
Book ID
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dd-mm-yyyy
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Issue
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Fig. 15

Student side

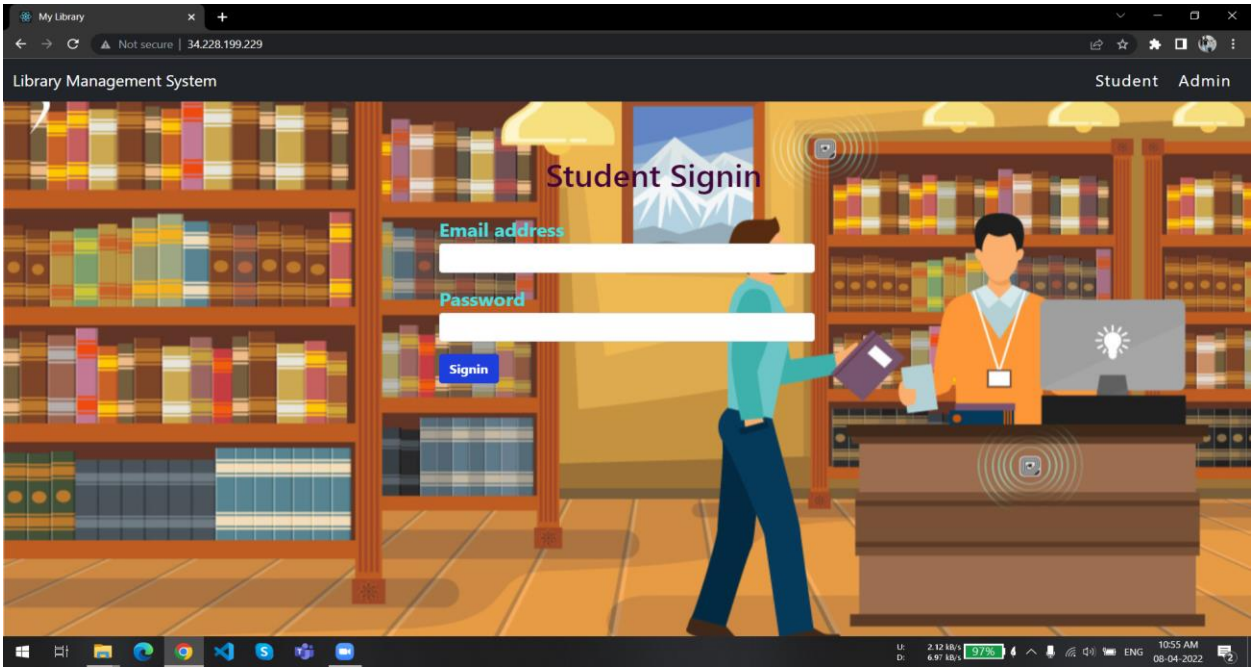

Fig. 16

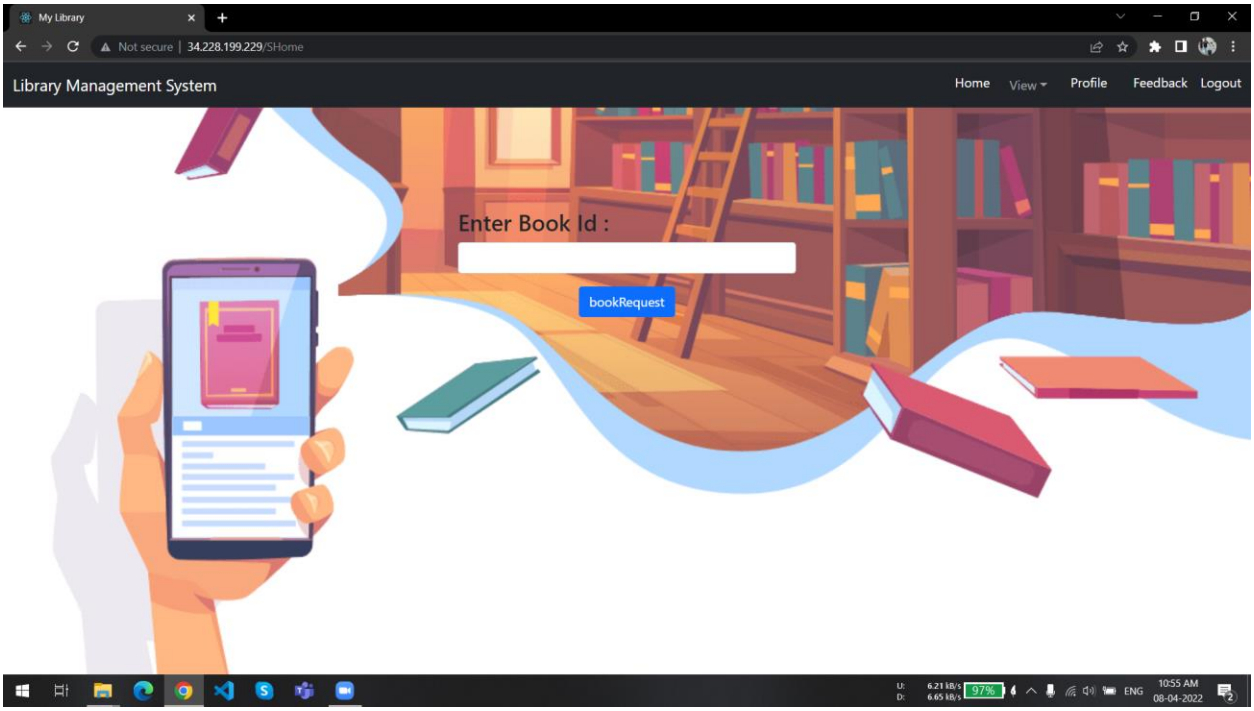

Fig.17

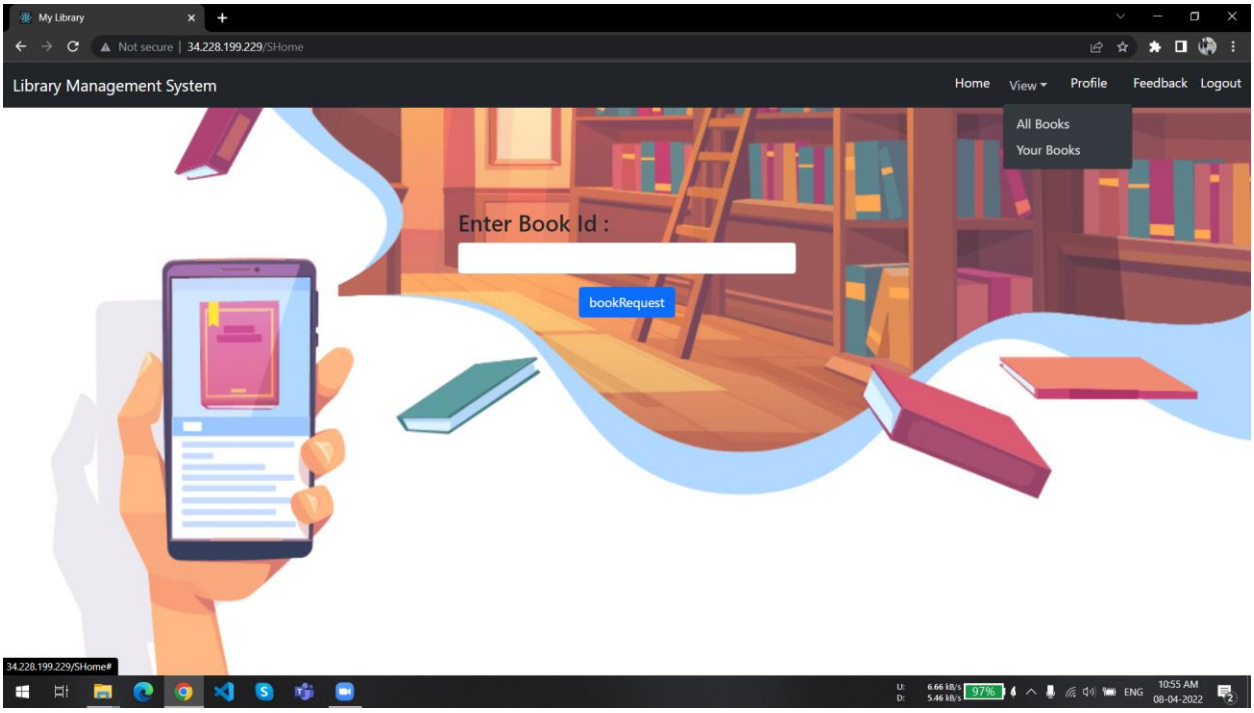
My Library
Not secure | 34.228.199.229/SHome
Library Management System
Home
View
Profile
Feedback
Logout
All Books
Your Books
Enter Book Id :
bookRequest
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Fig .18

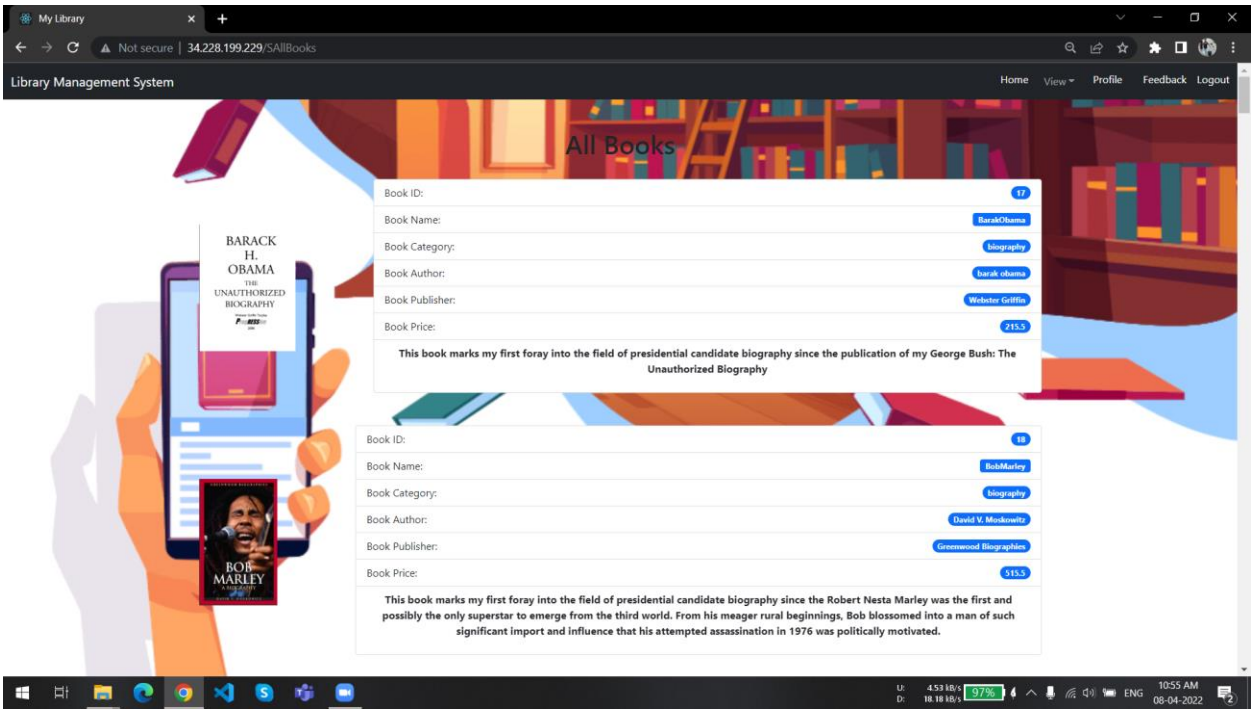
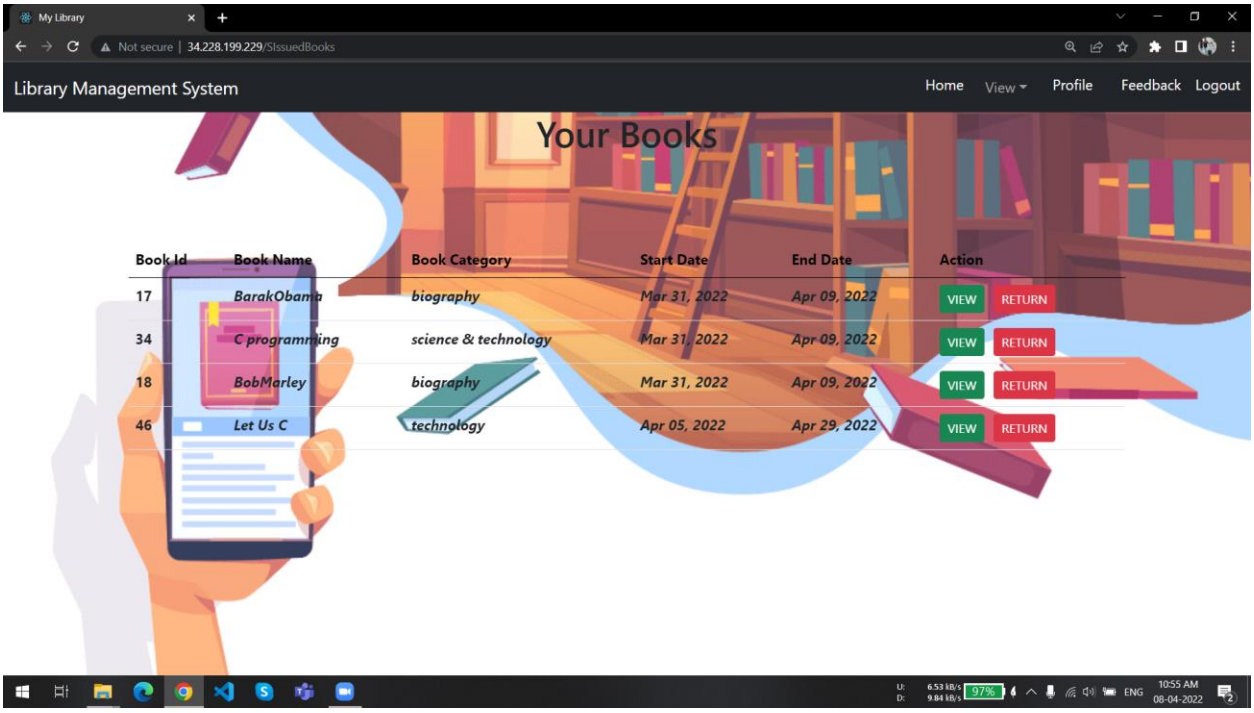

My Library
Not secure | 34.228.199.229/SAllBooks
Library Management System
Home
View
Profile
Feedback
Logout
All Books
Book ID: 17
Book Name: BarakObama
Book Category: biography
Book Author: barak obama
Book Publisher: Webster Griffin
Book Price: 215.5
This book marks my first foray into the field of presidential candidate biography since the publication of my George Bush: The Unauthorized Biography
Book ID: 18
Book Name: BobMarley
Book Category: biography
Book Author: David V. Moskowitz
Book Publisher: Greenwood Biographies
Book Price: 515.5
This book marks my first foray into the field of presidential candidate biography since the Robert Nesta Marley was the first and possibly the only superstar to emerge from the third world. From his meager rural beginnings, Bob blossomed into a man of such significant import and influence that his attempted assassination in 1976 was politically motivated.

Fig.19


My Library
Not secure | 34.228.199.229/SIssuedBooks
Library Management System
Home
View
Profile
Feedback
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Your Books
Book Id
Book Name
Book Category
Start Date
End Date
Action
17
BarakObama
biography
Mar 31, 2022
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science & technology
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BobMarley
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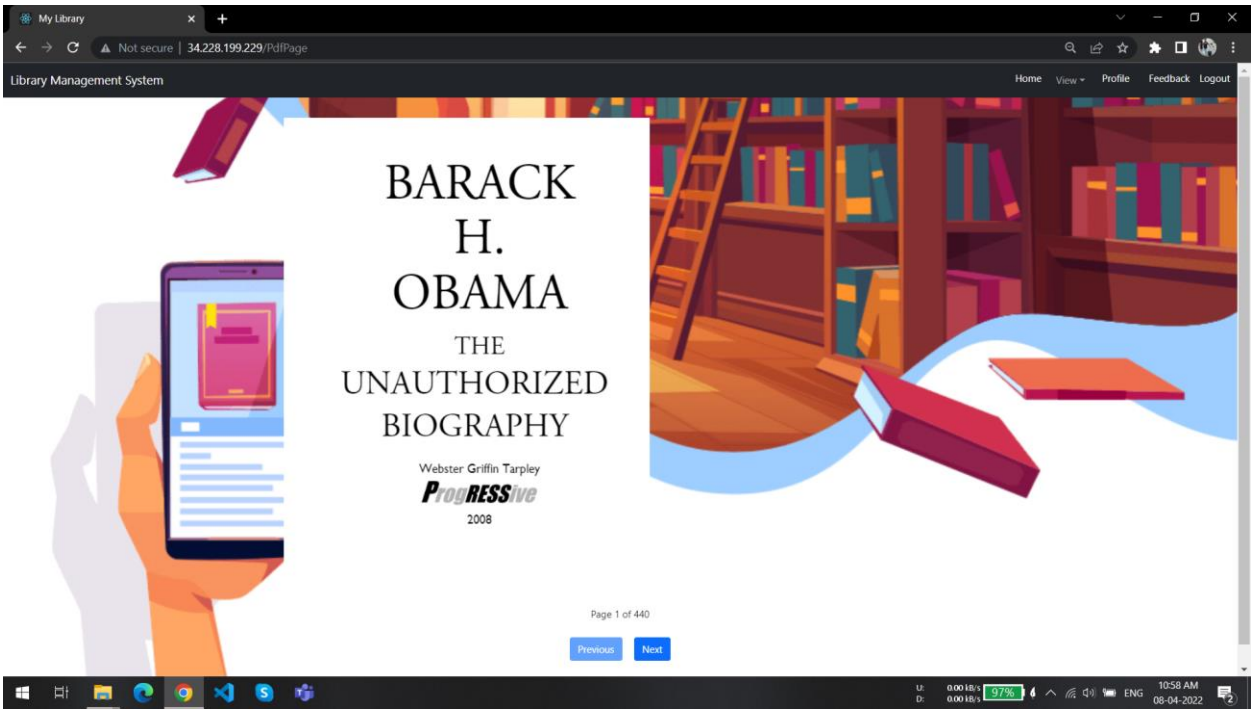
Fig.20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View
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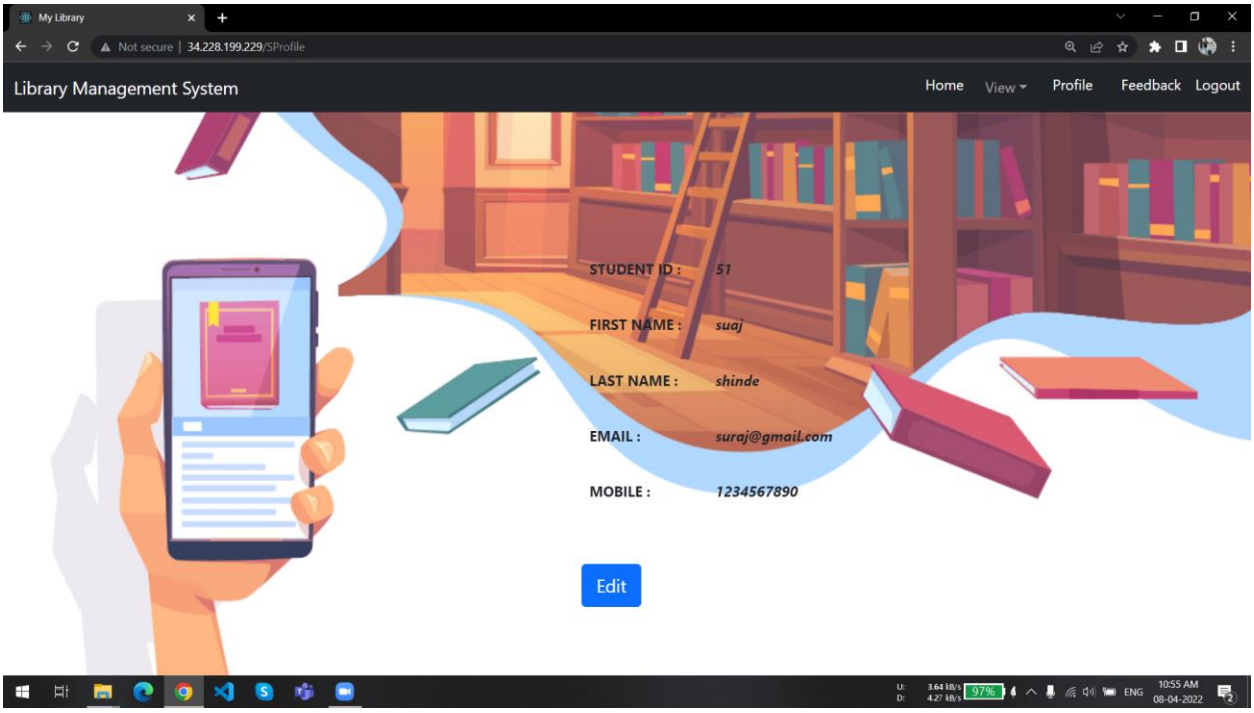
Feedback
Logout
BARACK
H.
OBAMA
THE
UNAUTHORIZED
BIOGRAPHY
Webster Griffin Tarpley
ProgRESSive
2008
Page 1 of 440
Previous
Next

Fig. 21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Library Management System
Home
View
Profile
Feedback
Logout
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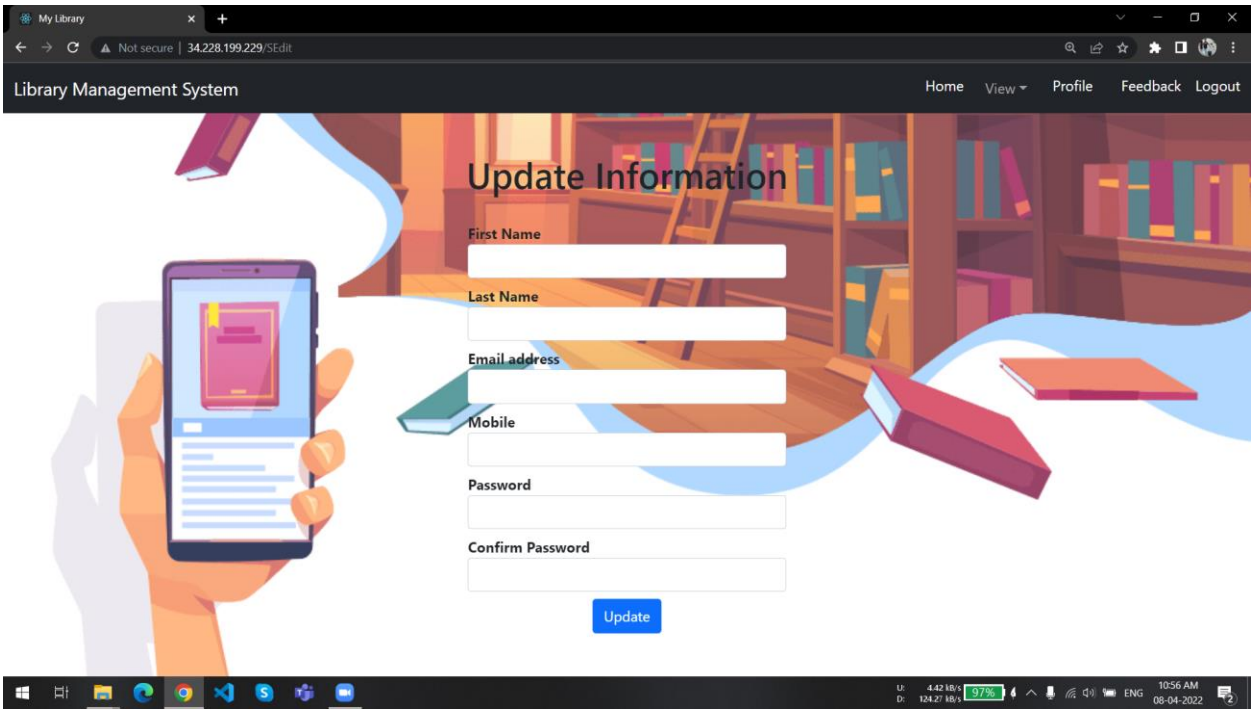
FIRST NAME : suaj
LAST NAME : shinde
EMAIL : suraj@gmail.com
MOBILE : 1234567890
Edit

Fig.22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Logout
Update Information
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Last Name
Email address
Mobile
Password
Confirm Password
Update

Fig.23

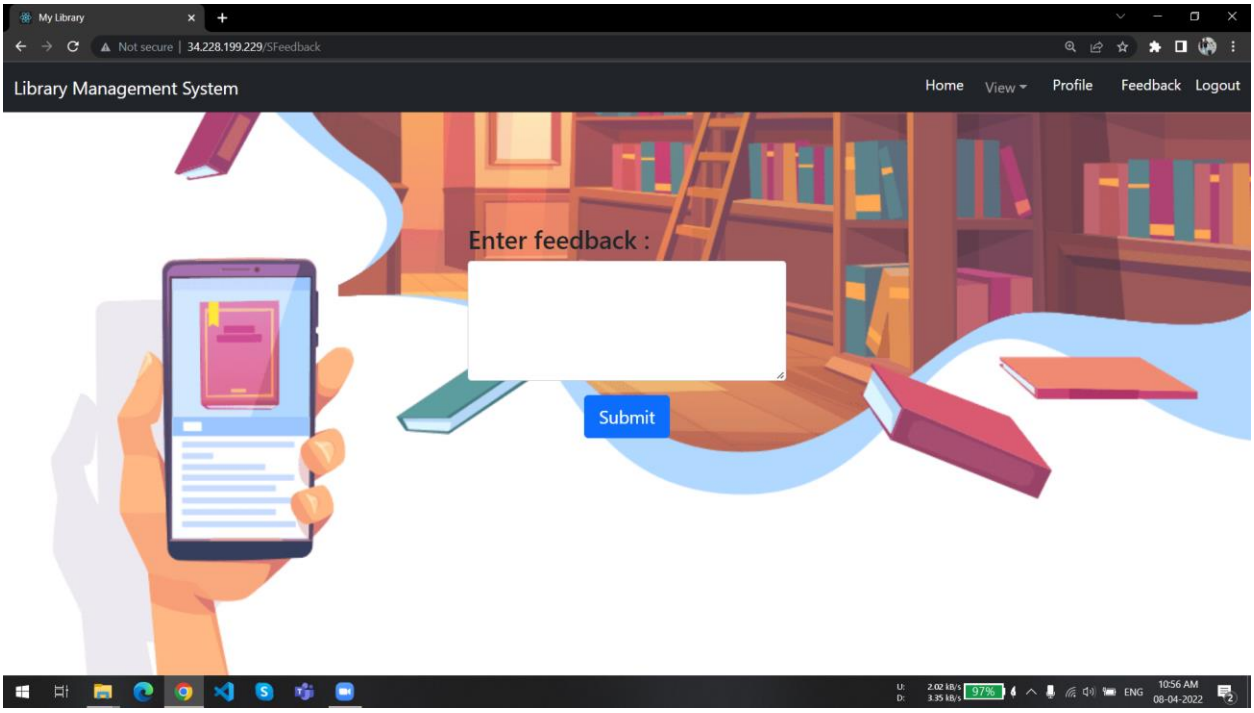
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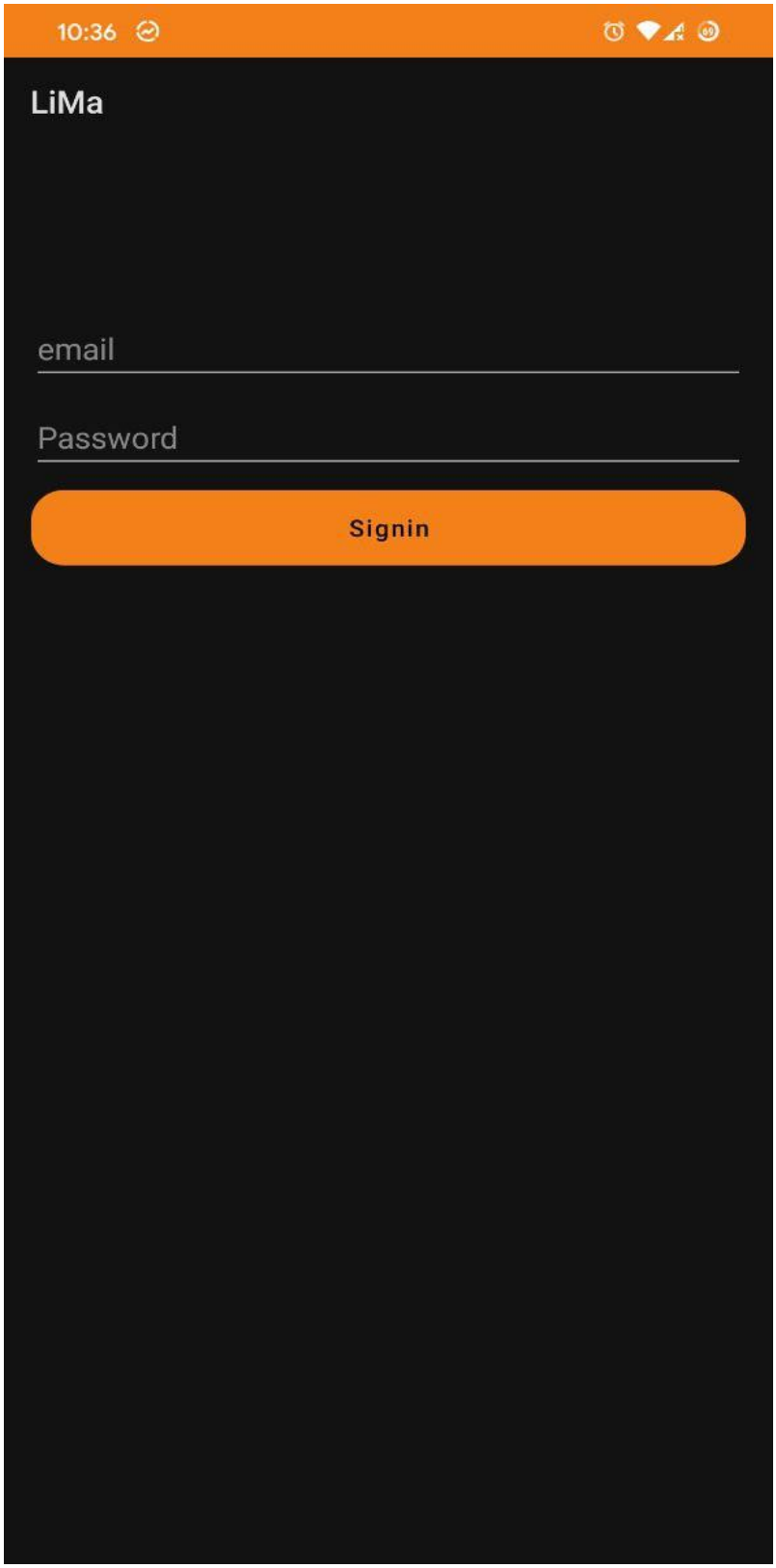
Fig.24



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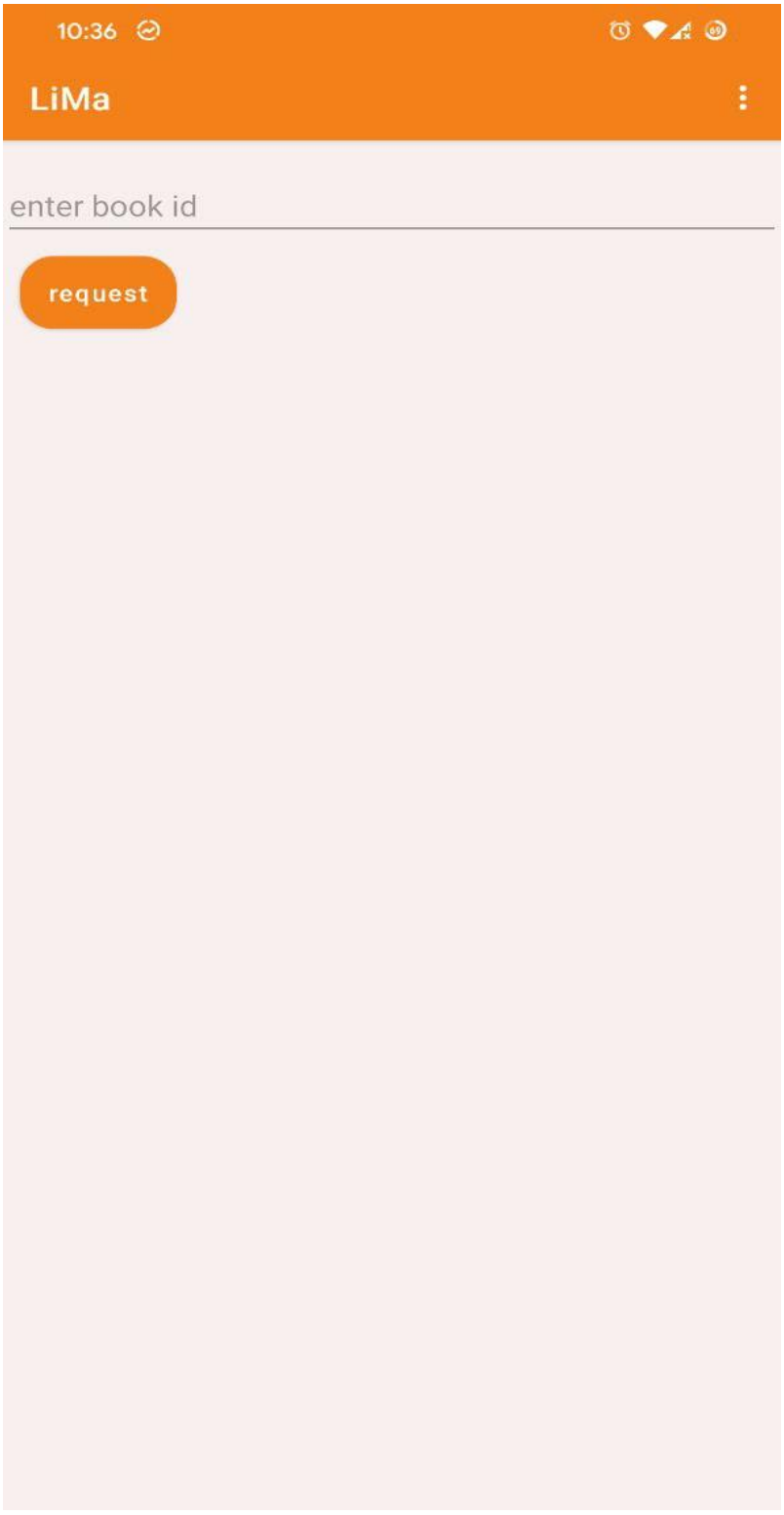


Fig.26

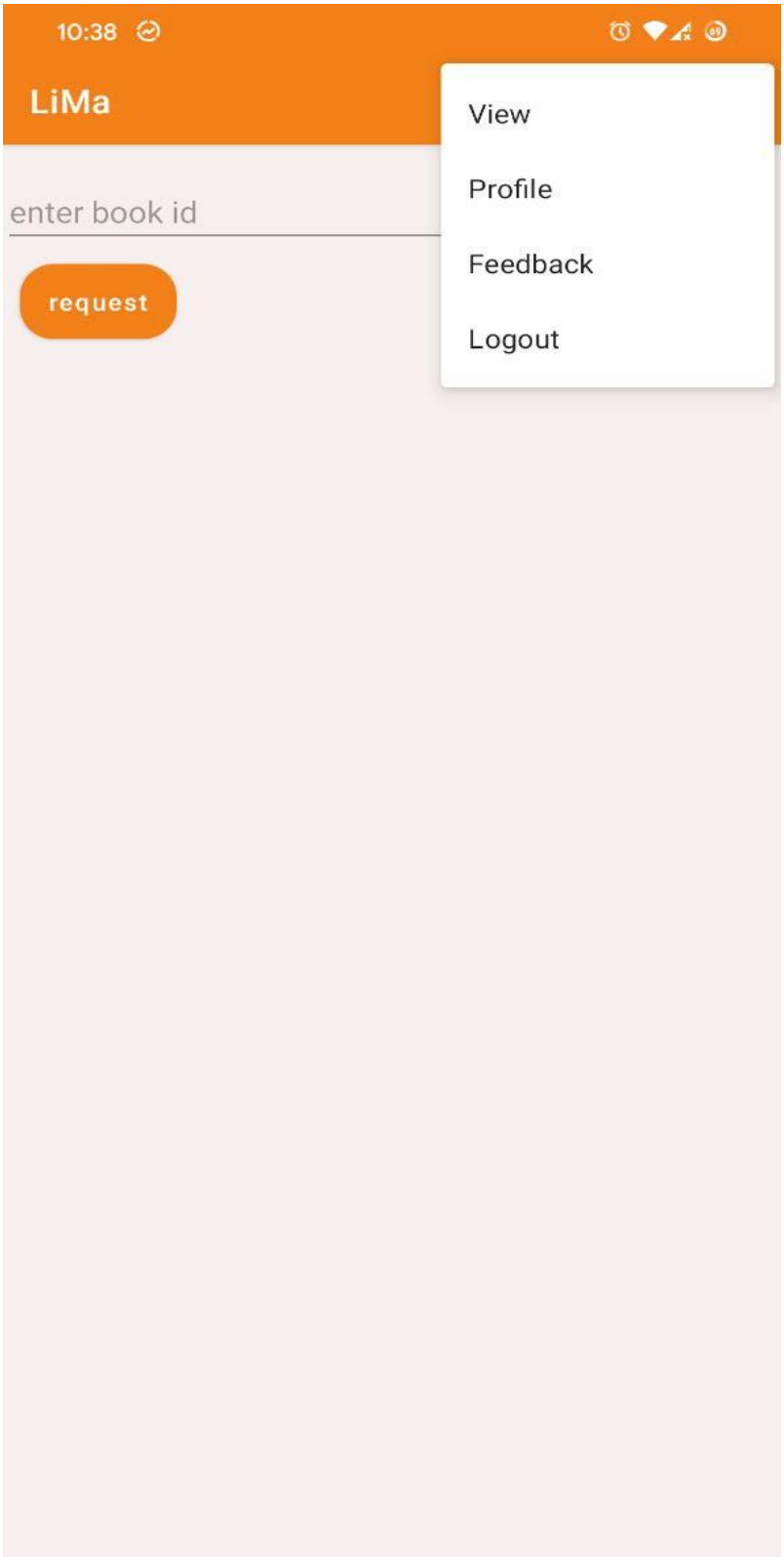

10:38
LiMa
View
Profile
Feedback
Logout
enter book id
request

Fig.27


10:37
Books
ALL BOOKS
YOUR BOOKS
BARACK H. OBAMA THE UNAUTHORIZED BIOGRAPHY
BOB MARLEY
BarakObama
BobMarley
GANDHI AN AUTOBIOGRAPHY
CharlieChaplin
Gandhi
SUBTLE is the LORD
GEORGE W. BUSH
ElbertEinstein
GeorgeBush
I AM MALALA
malala
MartinLuther
MOTHER TERESA
NAPOLEON
MotherTeresa
Napoleon

Fig. 28

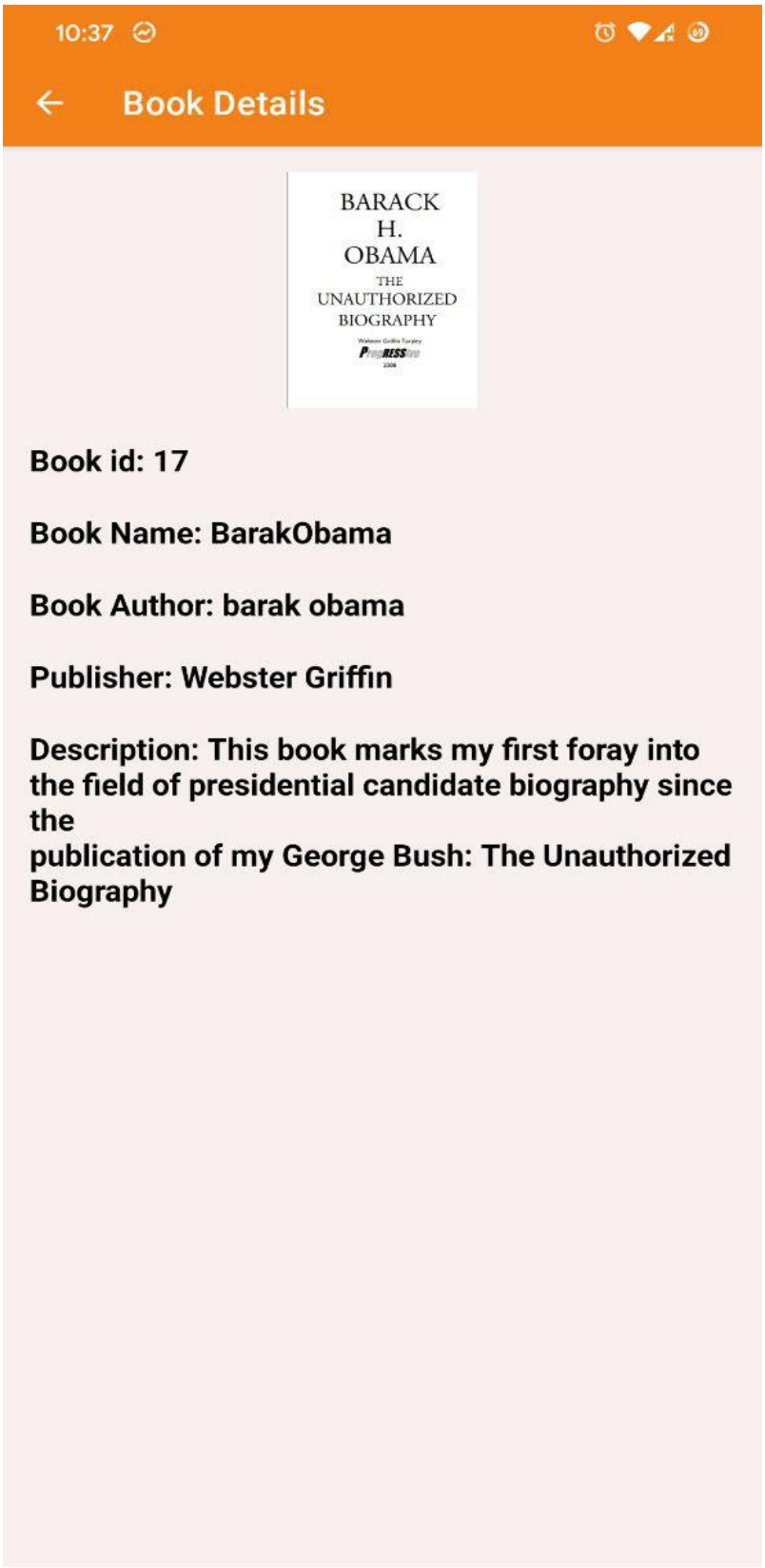
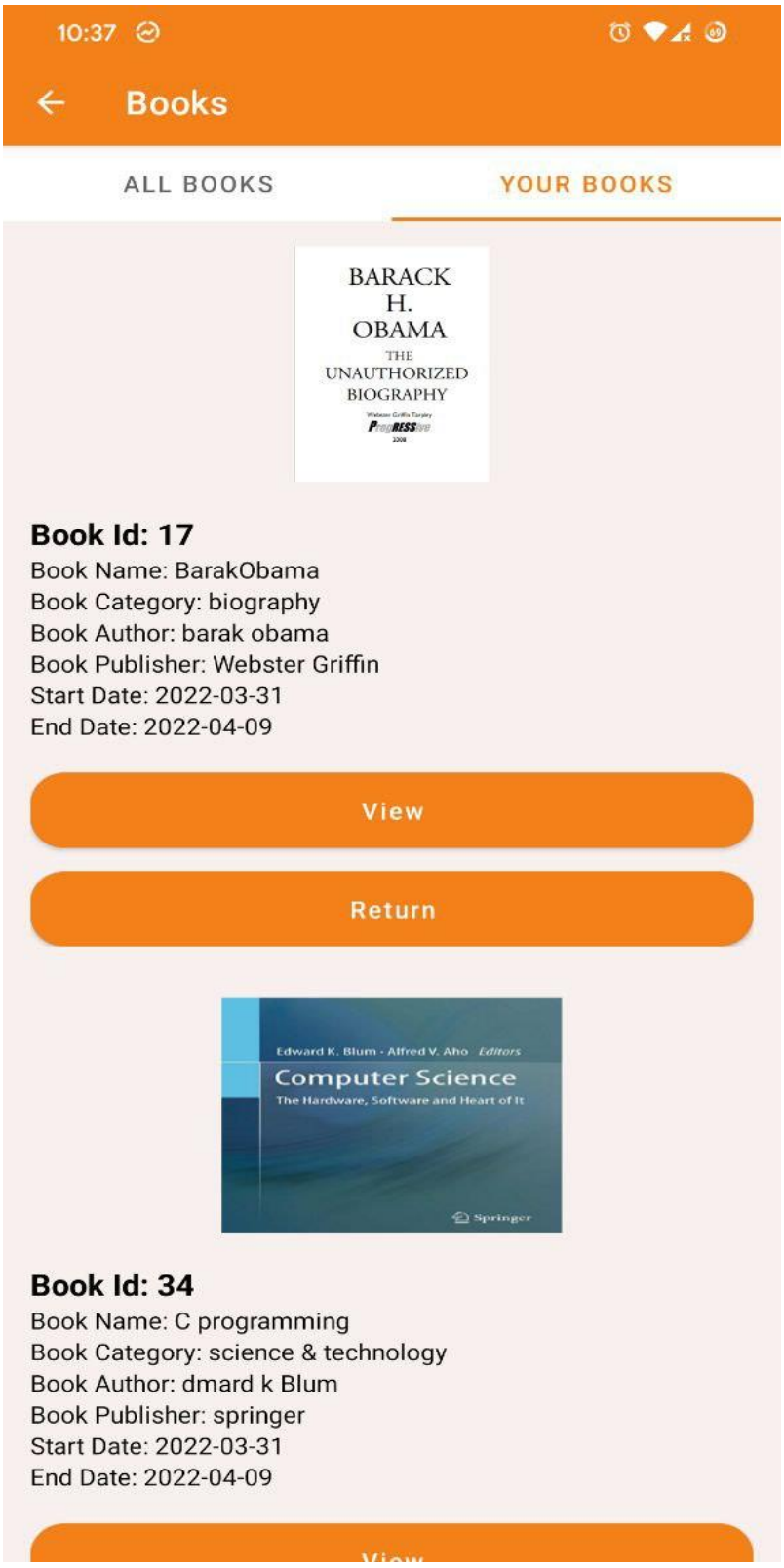

10:37
Book Details
BARACK
H.
OBAMA
THE
UNAUTHORIZED
BIOGRAPHY
Book id: 17
Book Name: BarakObama
Book Author: barak obama
Publisher: Webster Griffin
Description: This book marks my first foray into the field of presidential candidate biography since the
publication of my George Bush: The Unauthorized Biography

Fig. 29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Books
ALL BOOKS
YOUR BOOKS
BARACK
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OBAMA
THE
UNAUTHORIZED
BIOGRAPHY
Book Id: 17
Book Name: BarakObama
Book Category: biography
Book Author: barak obama
Book Publisher: Webster Griffin
Start Date: 2022-03-31
End Date: 2022-04-09
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Return
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Computer Science
The Hardware, Software and Heart of It
Springer
Book Id: 34
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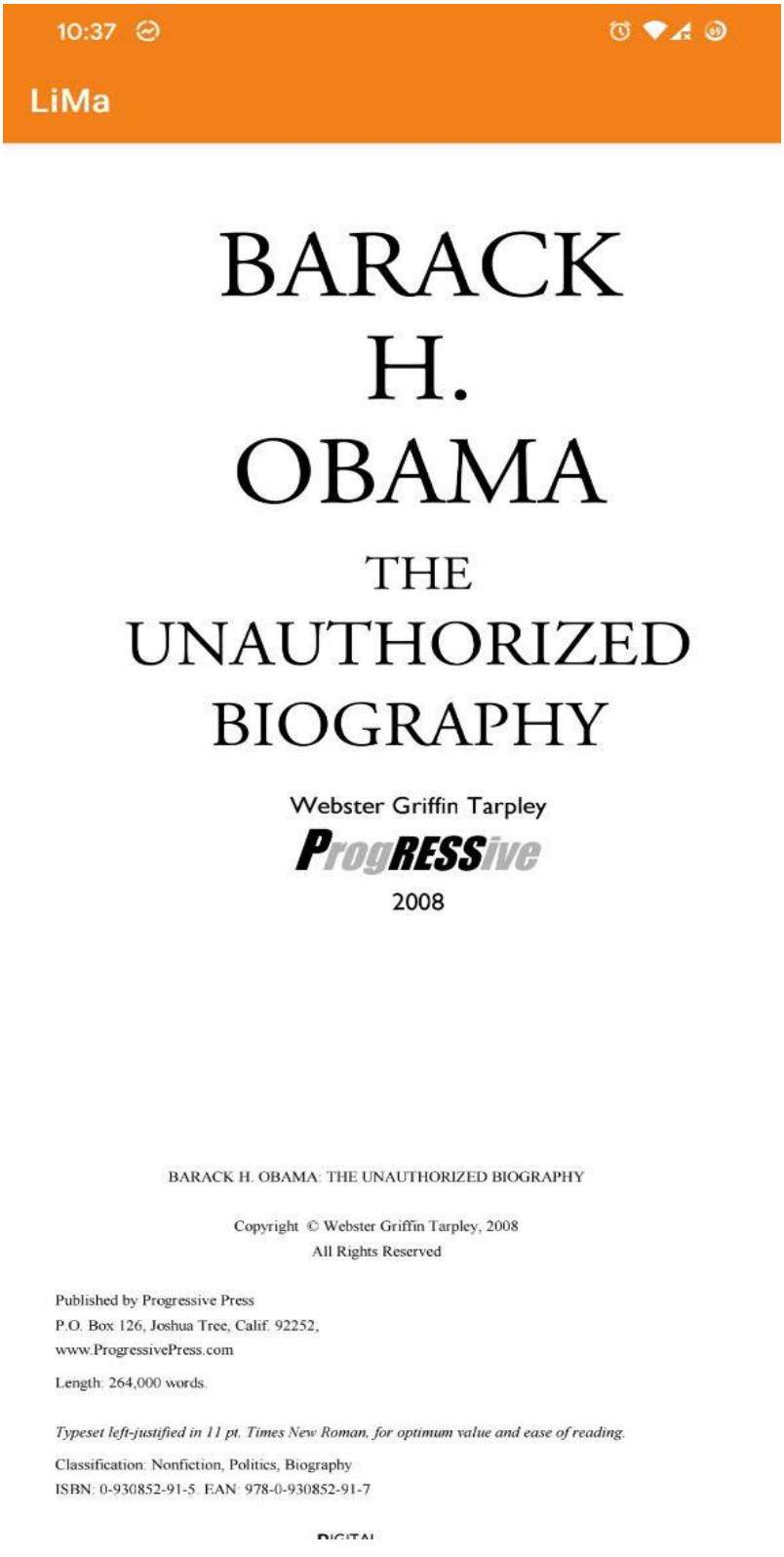
End Date: 2022-04-09

Fig. 30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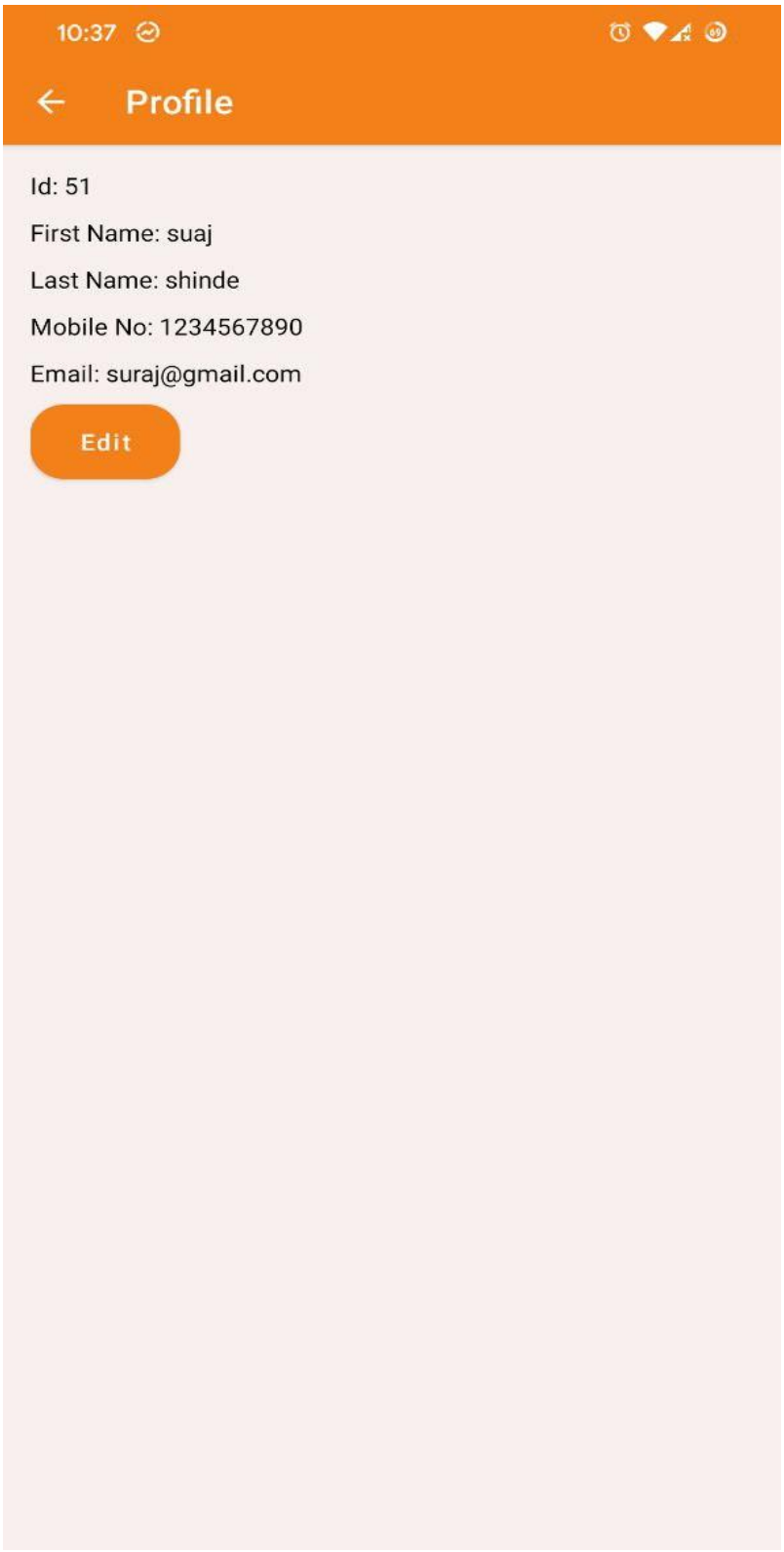
P.O. Box 126, Joshua Tree, Calif. 92252,
www.ProgressivePress.com
Length: 264,000 words.
Typeset left-justified in 11 pt. Times New Roman, for optimum value and ease of reading.
Classification: Nonfiction, Politics, Biography
ISBN: 0-930852-91-5 EAN: 978-0-930852-91-7

Fig.31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Last Name: shinde
Mobile No: 1234567890
Email: suraj@gmail.com
Edit

Fig.32

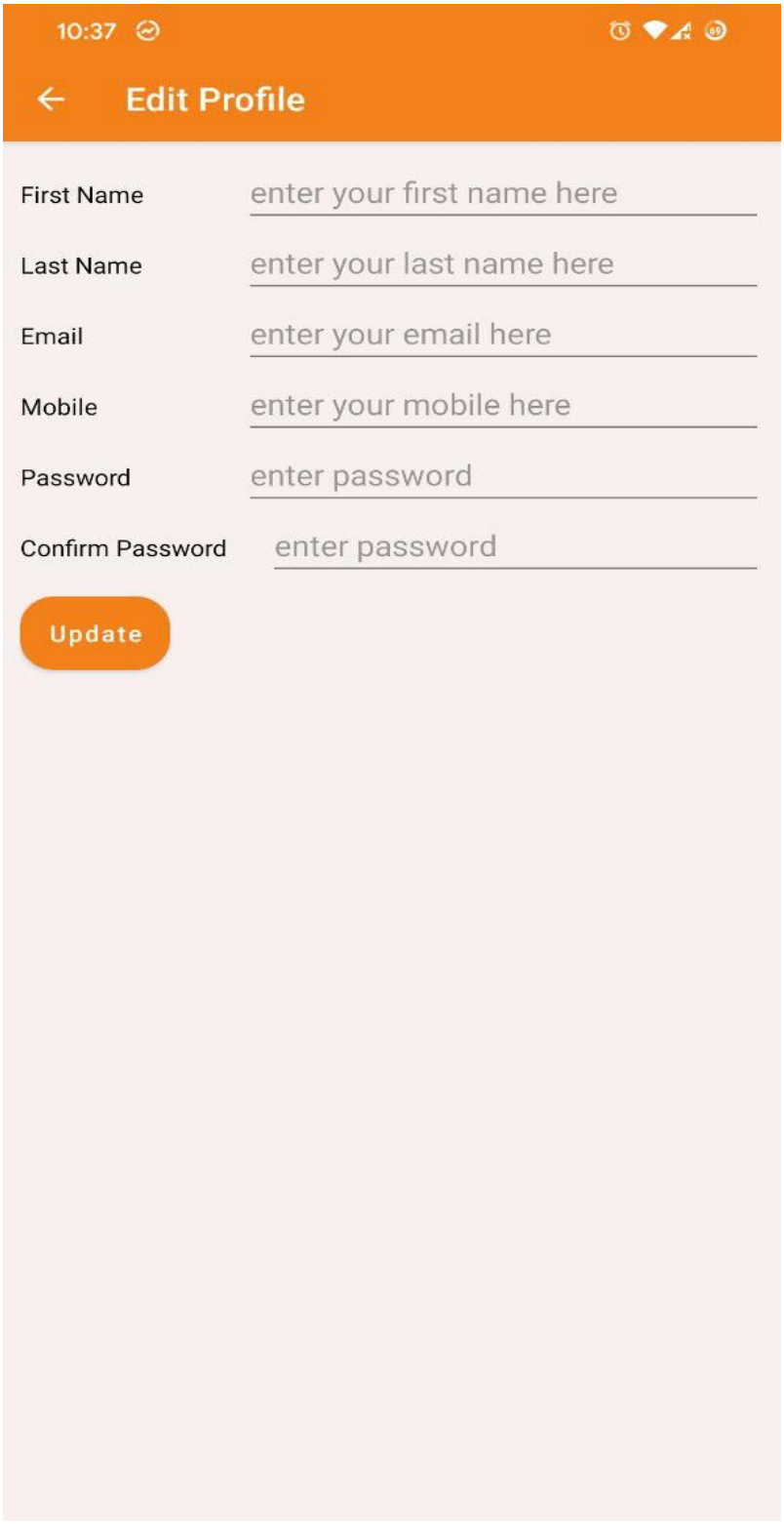
10:37
Edit Profile
First Name
enter your first name here
Last Name
enter your last name here
Email
enter your email here
Mobile
enter your mobile here
Password
enter password
Confirm Password
enter password
Update

Fig.33

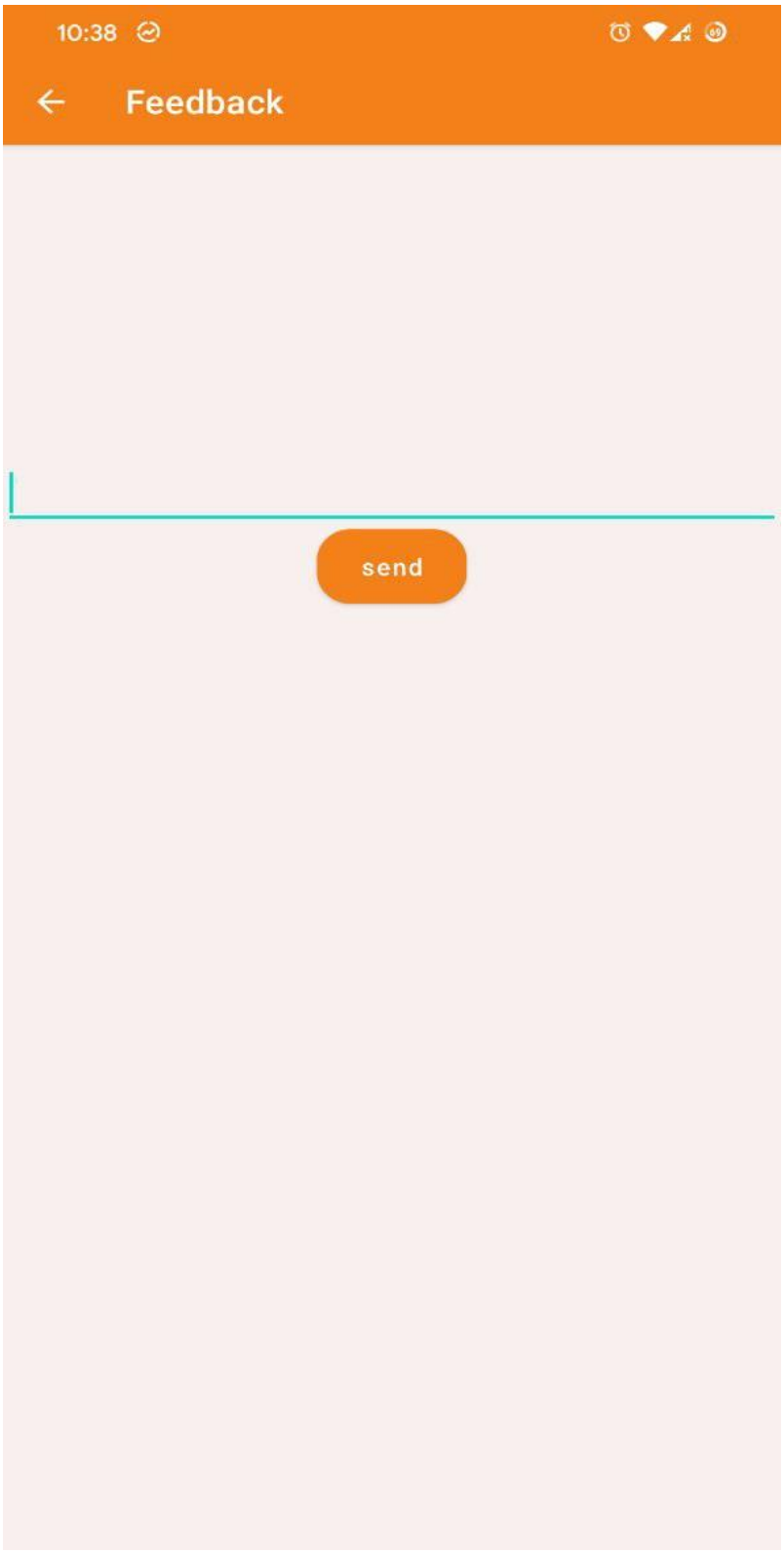

Fig.34

| Conclusion: Accomplishments While it was a challenge to develop, our project team successfully created a prototype wellness application for the Android platform. It makes entire process online where student can request books, admin can accepts request and do transactions on books and students data. It also has a facility for student login where student can login and can see books issued as well request for book or give some suggestions. It has a facility of admin's login where admins can add books and do some other operations.

| Future Work: There is a future scope of this facility that many more features such as online lectures video tutorials can be added by teachers as well as online assignments submission facility, a feature of group chat where students can discuss various issues of engineering can be added to this project thus making it more interactive more user friendly and project which fulfills each users need in the best way possible.

| References:

http://www.w3schools.com/html/html_intro.asp

http://www.Udemy.com/css/css_background.asp

http://www.w3schools.com/js/js_datatypes.asp

https://www.wikipedia.org/

https://www.nationallibrary.gov.in/