SOFTWARE REQUIREMENTS SPECIFICATION

for

Library Management System

July 19, 2020

Version 1.0

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Figure 0.1: Indian Institute of Information Technology, Guwahati

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1 Introduction

1.1 Purpose

The purpose of the project is to maintain the details of books and library members of different libraries. The main purpose of this project is to maintain an easy circulation system between clients and the libraries, to issue books using single library card, also to search and reserve any book from different available libraries and to maintain details about the user (fine, address, phone number).Moreover, the user can check all these features from their home.The SRS typically contains the brief description of the project. The purpose of the requirement document is to specify all the information required to design, develop and test the software. The purpose of this project is to provide a friendly environment to maintain the details of books and library members. The main purpose of this project is to maintain easy circulation system using computers/phone and to provide different reports.

Figure 1.1: Library Management system

1.2 Project Scope

"Manually updating the library system into a web based application so that the user can know the details of the books available and maximum limit on borrowing from their computer. The ILM System provides information like details of the books, insertion of

new books, limitation on issuing books, fine on keeping a book more than one month from the issued date,can reserve book if book is not available. Also user can provide feedback for adding some new books to the library.

2 Overall Description

2.1 Product Perspective

This page contains Library management system project SRS document. A development process consists of various phases, each phase ending with a defined output. The main reason for having a phased process is that it breaks the problem of developing software into successfully performing a set of phases, each handling a different concern of software development. This ensures that the cost of development is lower than what it would have been if the whole problem was tackled together. Furthermore, a phased process allows proper checking for quality and progress at some defined points during the development (end of process).Without this one would have to wait until the end to see what software has been produced.

2.2 User Classes and Characteristics

"Library Management system" has basically 3 types of users.

- Teachers
- Students
- PHD

We have 4 levels of users :

- Issue Book
- Reserve book
- Return book
- Fine details

Library module:

- Add new book
- Remove books
- Update details of book

Administration module: The following are the sub module in the administration module -

- Register User
- Entry book details
- Book issue

The proposed Library Management System will take care of the current book detail at any point of time. The book issue, book return will update the current book details automatically so that user will get the update current book details.

2.3 Design

Student activities have 3 steps -

- Register/Create Profile
- Book Issue Request
- Book return/Fine Update

3 System Features

"Library Management System" is a library processing web software. So the main art of this product is to issue books in university.

3.1 Register

Description : First the user will have to register/sign up and then login. There are three different type of users:

The library manager/admin : The manager have to provide details about the username, phone number, email id.

Student : The student has to provide details about his/her name, roll no., phone number, email id and password.

Faculty: Faculty can search, issue, renew, return and suggest books based on library rules for faculty

3.1.1 SignUp

Input: Detail about the user as mentioned in the description.
Output: Confirmation of registration status and a membership number and password will be generated and mailed to the user.
Processing: All details will be checked and if any error are found then an error message is displayed else a membership number and password will be generated.

3.1.2 Login

Input: Enter the username and password provided.
Output : User will be able to use the features of software.
Faculty Login
Input:Enter the faculty username and password provided
Output:Faculty will be able to use the features of software

3.2 Manage Book by User

3.2.1 Search Books

Input : Enter the book reference number or book's author name to be issued.
Output : A List of books related to the keyword.

3.2.2 Issues book

If book already issued then reserve book for till its due date
State : Searched the book user wants to issues.
Input : click the book user wants.
Output : conformation for book issue and apology for failure in issue.
Processing : if selected book is available then book will be issued else error will be displayed. Or if book is not for loan then it is displayed as not for loan and user cannot issue that book

3.2.3 Renew Books

State : Book is issued and is about to reach the date of return if no one reserved. Input : Select the book to be renewed. Output : confirmation message.
Processing : If the issued book is already reserved by another user then error message will be sent and if not then confirmation message will be displayed.

3.2.4 Return Books

Input ; Return the book to the library. Output : The issued list will be updated and the returned book will be listed out.

3.2.5 Fine

Input : check for the fines. Output : Details about fines on different books issued by the user. Processing : The fine will be calculated, if it crossed the date of return and the user did not renewed if then fine will be applied by Rs 12 per day.

3.2.6 Suggestions

Input:User can give Suggestions to librarian such as any faculty can suggest books for his next semester what he/she is going to use for curriculum or student can ask for more new books to add in library or add more book which is lesser than it should be
Output : Suggestions will show in admin portal

3.3 Manage Books by Librarian

Admin can add multiple copies of books at the same time
Admin can change the library rules
Admin can forgive the fine or add more fine to users

3.3.1 Update details of Book

Admin can change book details such as price of book,acc no. etc.
Admin can change the status of book such as available,not available or lost

3.3.2 Add Books

Input : Enter the details of the books such as names ,author ,edition, quantity.
Output : confirmation of addition.

3.3.3 Remove Books

R.3.1.2 Remove books Input : Enter the name of the book and quantity of books.
Output : Update the list of the books available.

4 Requirements

4.1 Functional Requirements

Languages Used - PHP,HTML,AJAX,JQUERY,JAVASCRIPT
Database - MYSQL
Web Browser- Mozilla, Google Chrome, IE8,OPERA
Software Server - XAMPP

4.2 Nonfunctional Requirements

4.2.1 Security Requirements

No one without registered users can enter to the website. One particular user of a section only can perform his/her particular actions.

4.2.2 Software Quality Attributes

In the development phase also testing and conferences of users is been continued. So that the quality of the software is been maintained and all the requirements are been fulfilled.

5 Diagrams

5.1 ER Diagram

Representing conceptual level of the database system and describing its aspect Graphical representation of objects and concept within the library management system and their relationship with each other. Logical representation of relationship between entities in the database Entities and attributes :

1. Authentication System (Username , password)
2. Admin(Username, password)
3. Student(Name, Roll no,email, fine)
4. Faculty(Name, Id,email, fine)
5. Books(Accession no, title, subject, status)
6. Suggestions(Book_name, author, ID)

All binary relationships (How are the entities related?):

- Authentication System to admin/faculty/student(admin/faculty/student logs in system; one to one and complete participation i.e. each each member must have entry in the system)
- Admin to faculty/student(admin keeps track of faculty/student; one to many and complete participation i.e each faculty/student must be handled by admin)
- Admin to books (admin manages books; one to many and complete participation i.e. admin must have correct record of each book)
- Student/Faculty to books (student/faculty searches,issues,reserves and return books; many to many and partial participation i.e. student/faculty may or may not issue book)
- Student/Faculty to suggestions(student/faculty suggests books; many to many and partial participation)

5.2 Use case Diagram

Actions or steps, typically defining the interactions between a users/role /actor and a system, to achieve a goal Shows only the functionalities and not how those functionalities will workl The list of goal names provides the shortest summary of what the system will offer It gives an overview of the roles of each and every component in the system. include relationship : to simplify large use case by splitting it into several use cases, to extract common parts of the behaviors of two or more use cases. Extend Relationship: Optional functionality

5.3 Data Flow Diagram

Data flowcharts can range from simple, even hand-drawn process overviews, to in-depth, multi-level DFDs that dig progressively deeper into how the data is handled. They can be used to analyze an existing system or model a new one.

1. LEVEL(0)-It is also known as context diagram.It's designed to be an abstraction view, showing the system as a single process with its relationship to external entities. It represent the entire system as single bubble with input and output data indicated by incoming/outgoing arrows.

2. LEVEL(1)-In 1-level DFD, context diagram is decomposed into multiple bubbles/processes.in this level we highlight the main functions of the system and breakdown the high level process of 0-level DFD into subprocesses.

3. LEVEL(2)-In-2-level DFD goes one step deeper into parts of 1-level DFD.It can be used to plan or record the specific/necessary detail about the system's functioning.

5.3.1 Sequence Diagram

Sequence Diagrams are interaction diagrams that detail how operations are carried out. They capture the interaction between objects in the context of a collaboration. Sequence Diagrams are time focus and they show the order of the interaction visually by using the vertical axis of the diagram to represent time what messages are sent and when. Purpose of Sequence Diagram: Model high-level interaction between active objects in a system. Object Dimension The horizontal axis shows the elements that are involved in the interaction. Time Dimension The vertical axis represents time proceedings (or progressing) down the page.

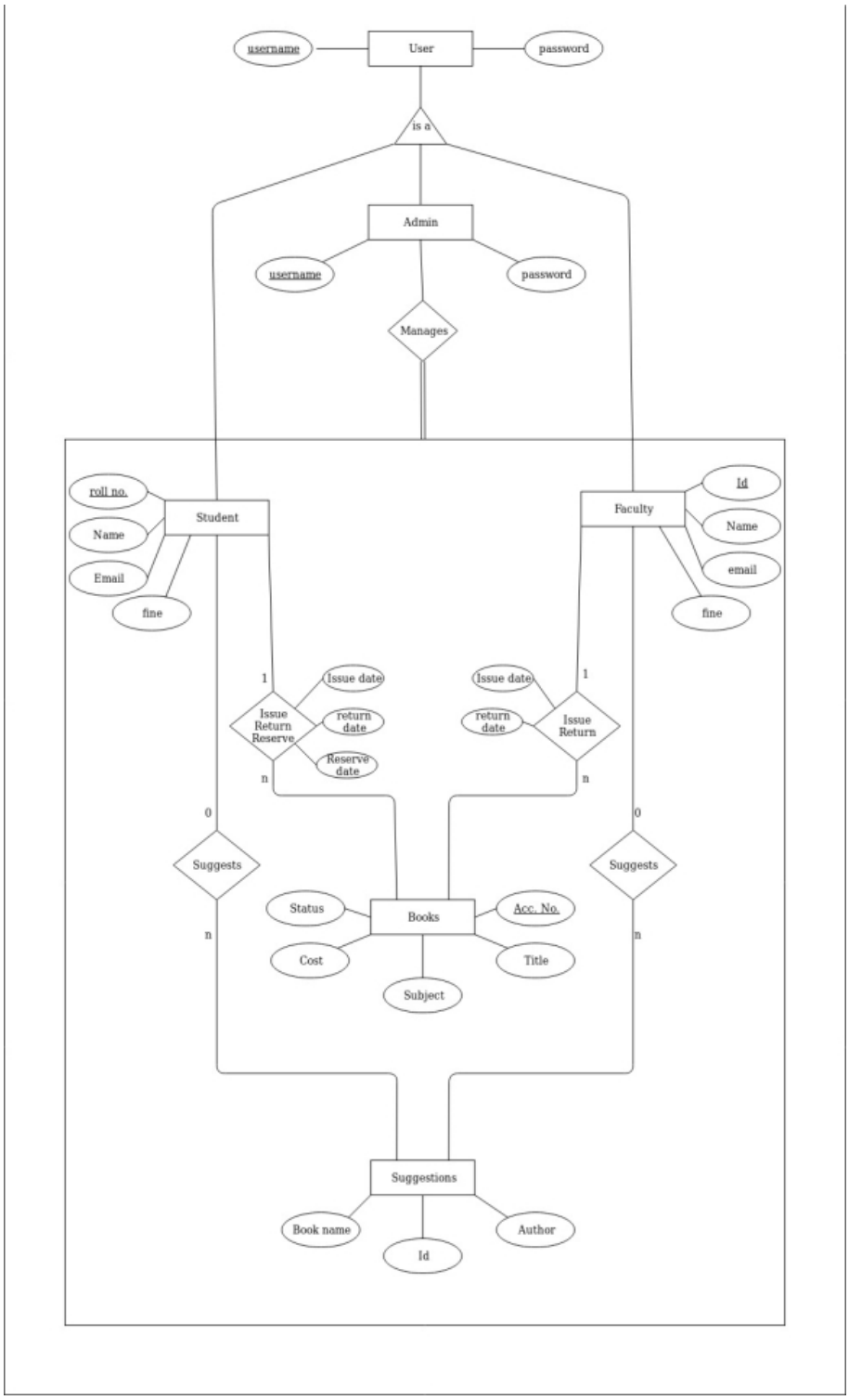

Figure 5.1: Entity Relationship Diagram

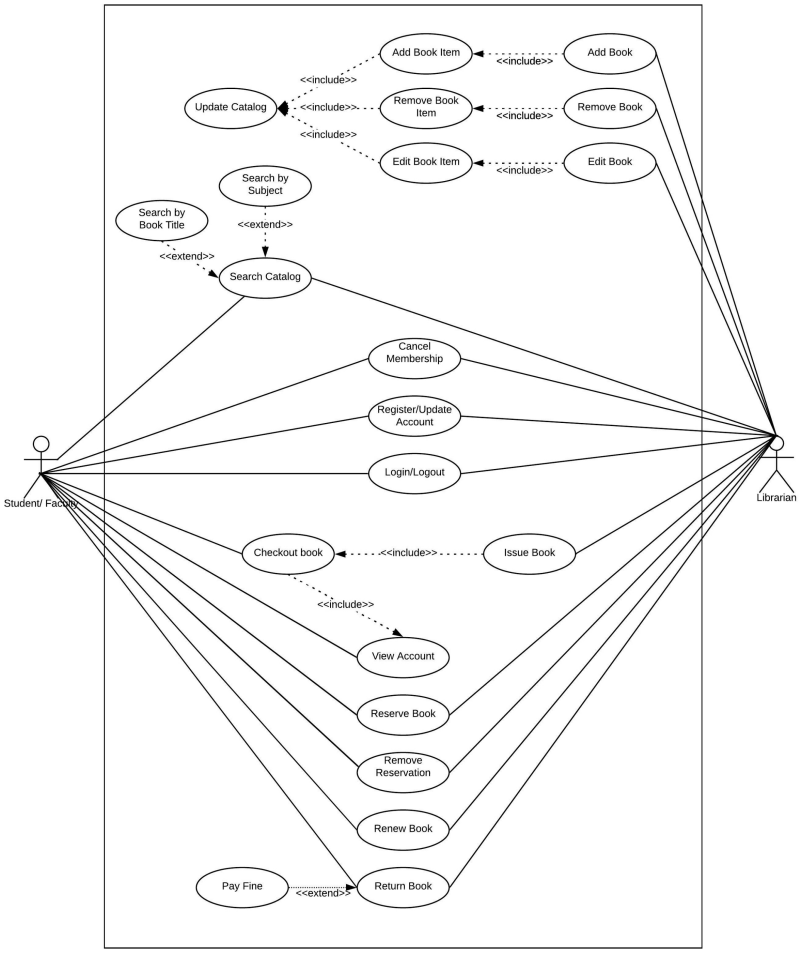

Figure 5.2: Use Case Diagram

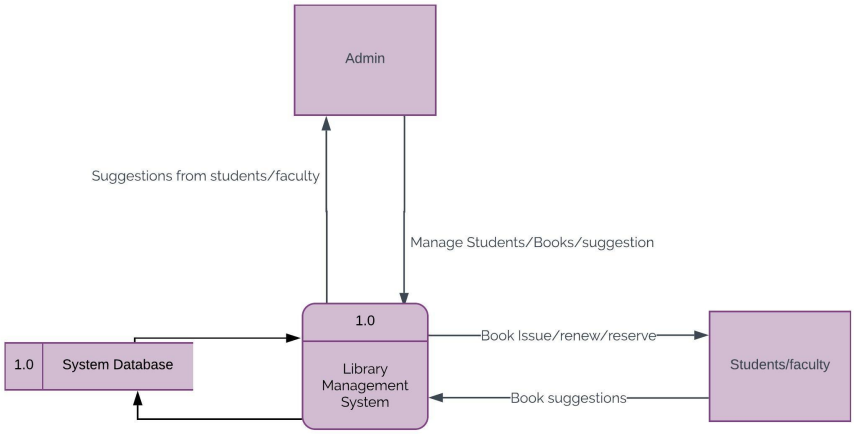

Figure 5.3: Data Flow Diagram Level 0

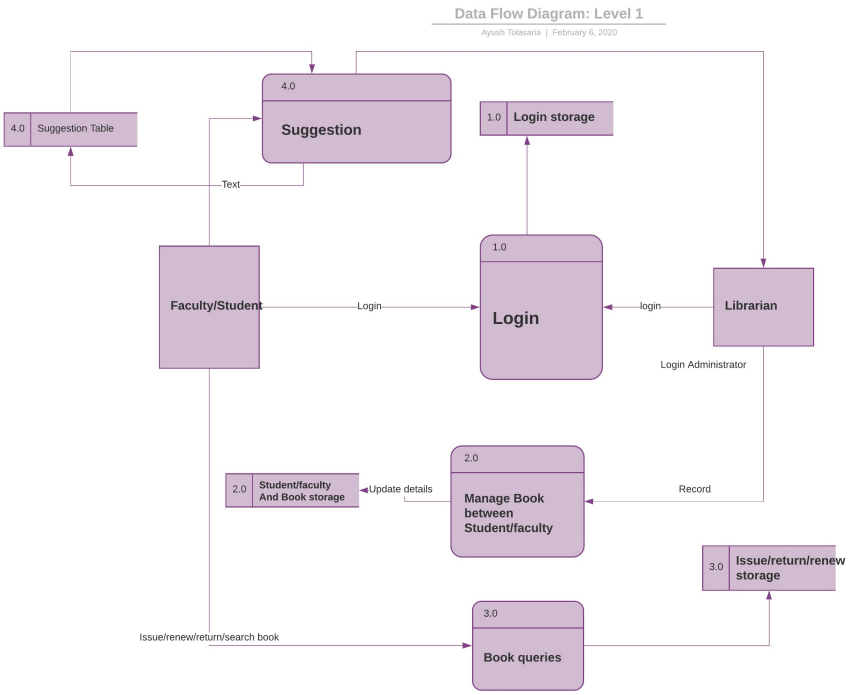

Figure 5.4: Data Flow Diagram Level 1

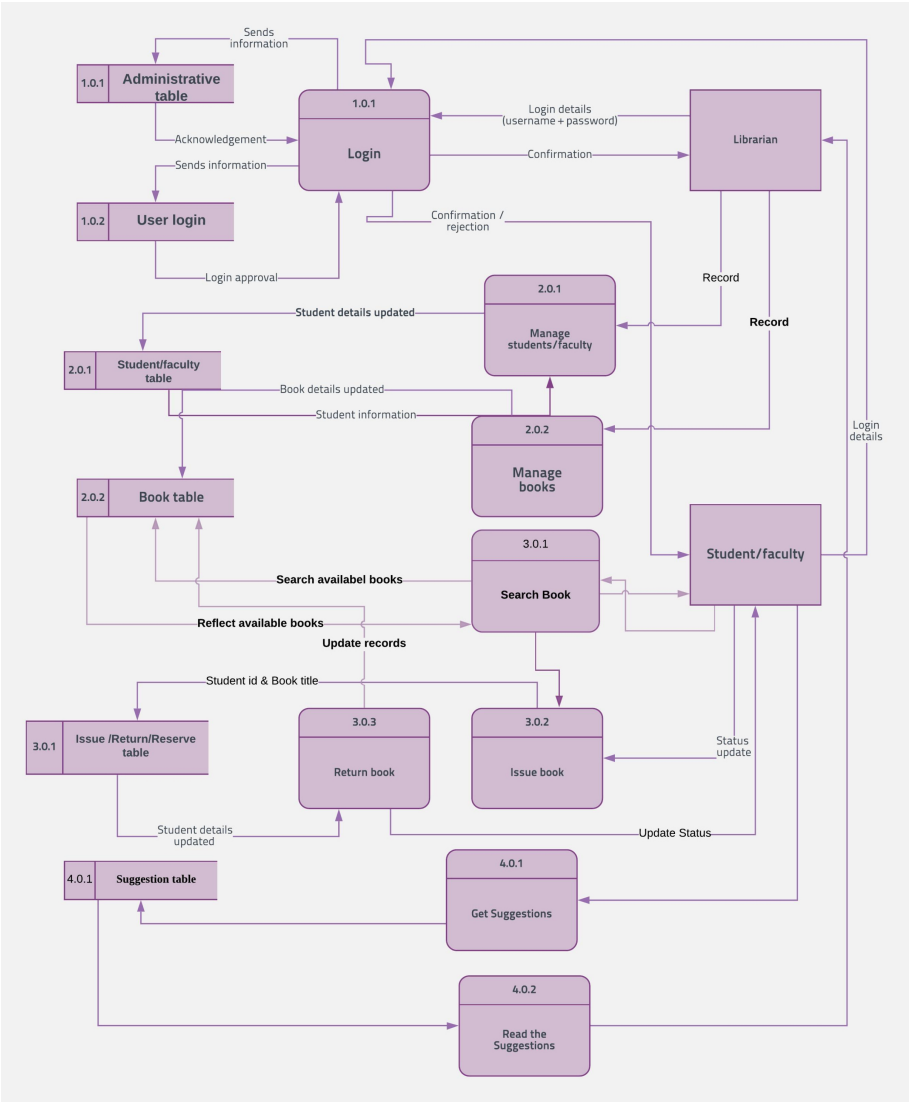

Figure 5.5: Data Flow Diagram Level 2

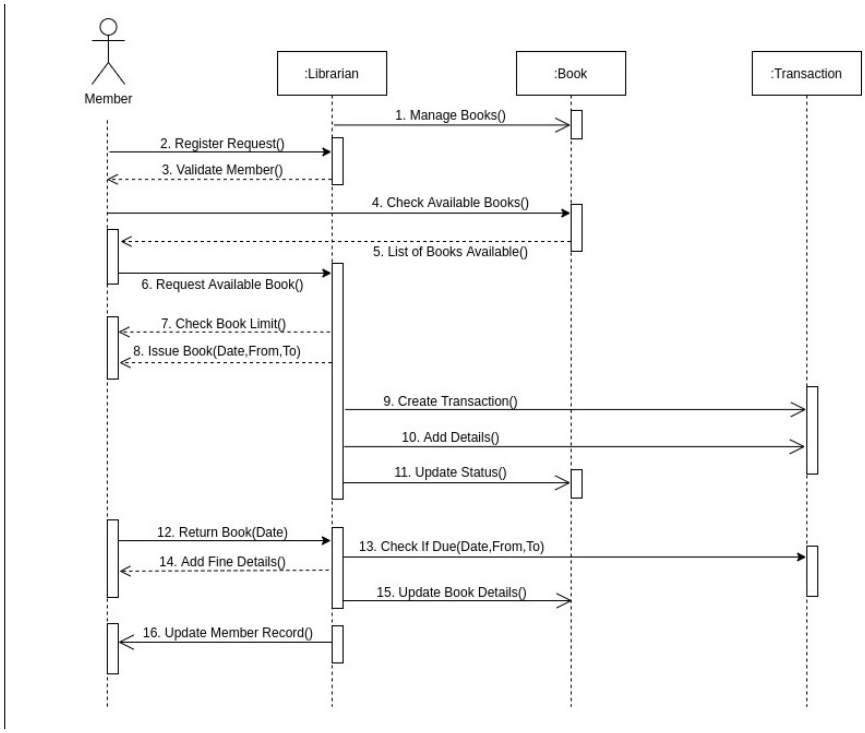

Figure 5.6: Sequence Diagram

6 Implementations

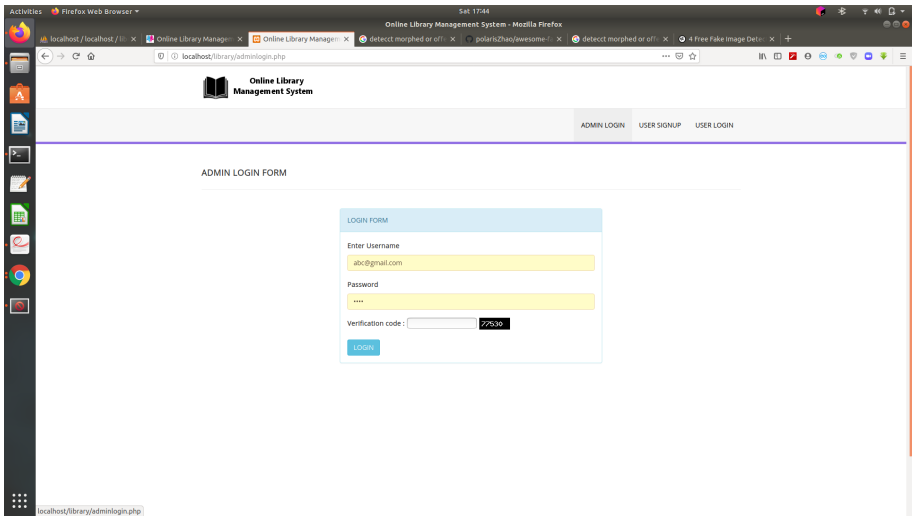

Figure 6.1: Admin Login

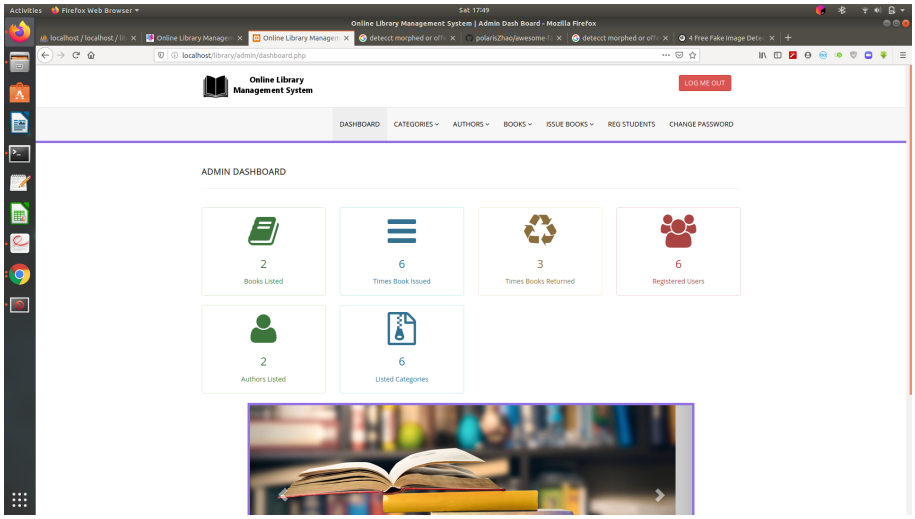

Figure 6.2: Admin Dashboard

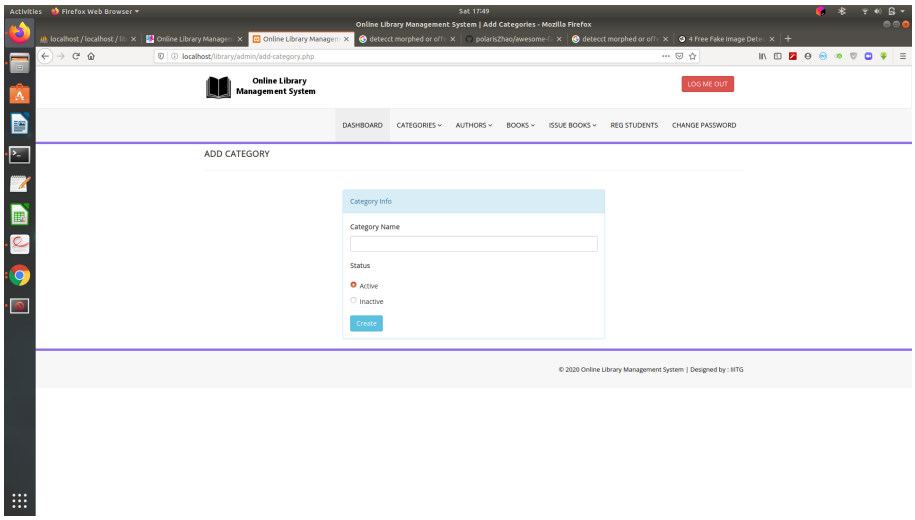

Figure 6.3: Add category

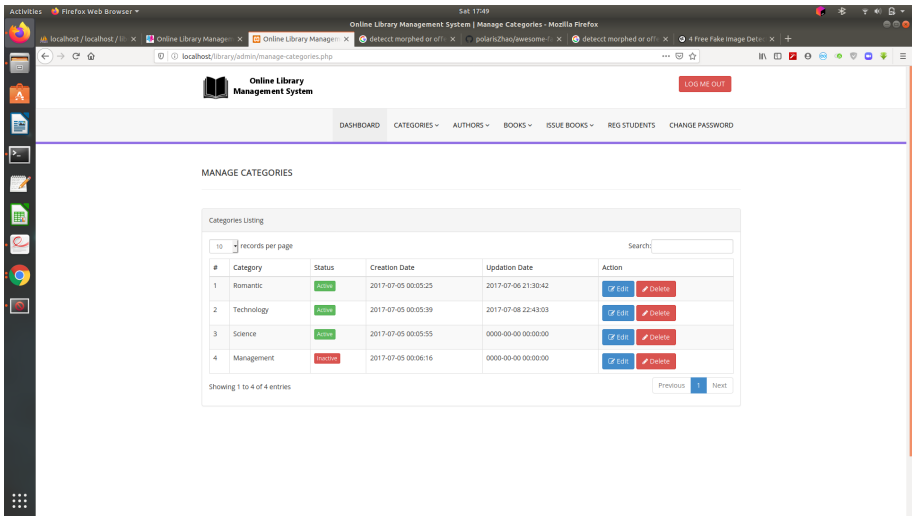

Figure 6.4: Manage Category

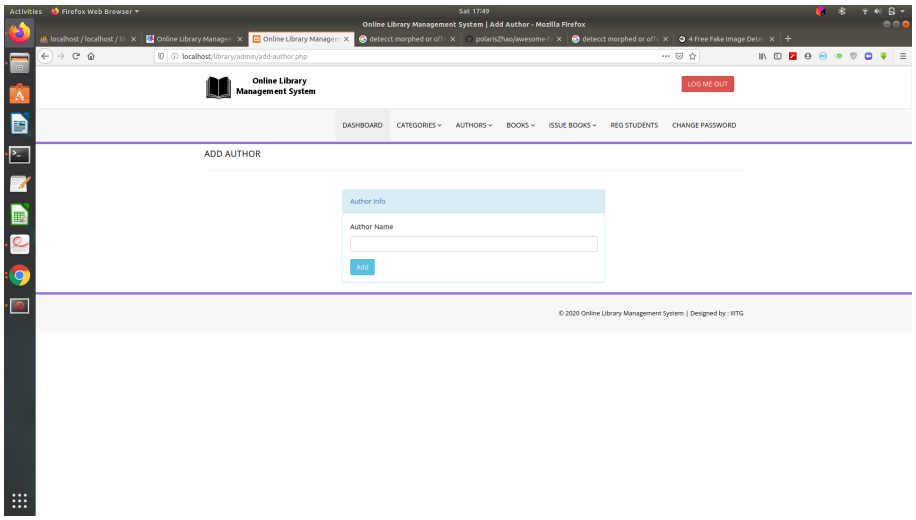

Figure 6.5: Add author

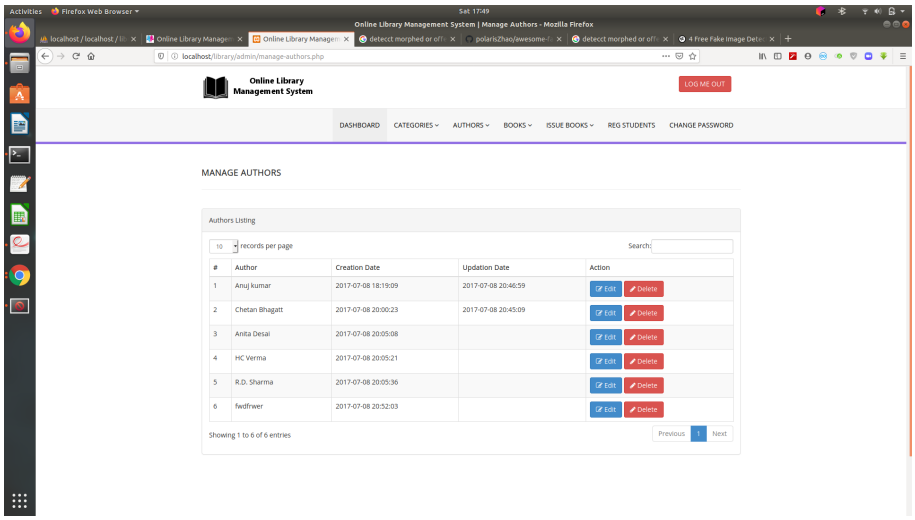

Figure 6.6: Manage author

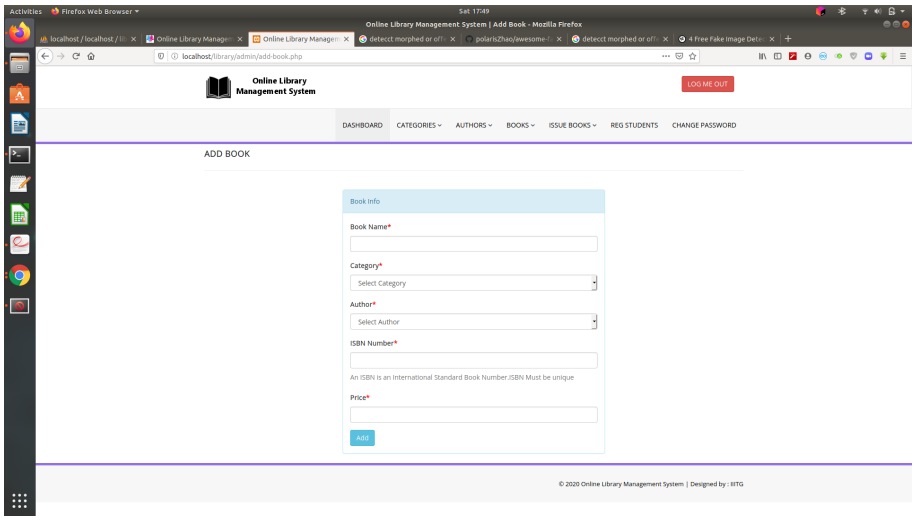

Figure 6.7: Add books

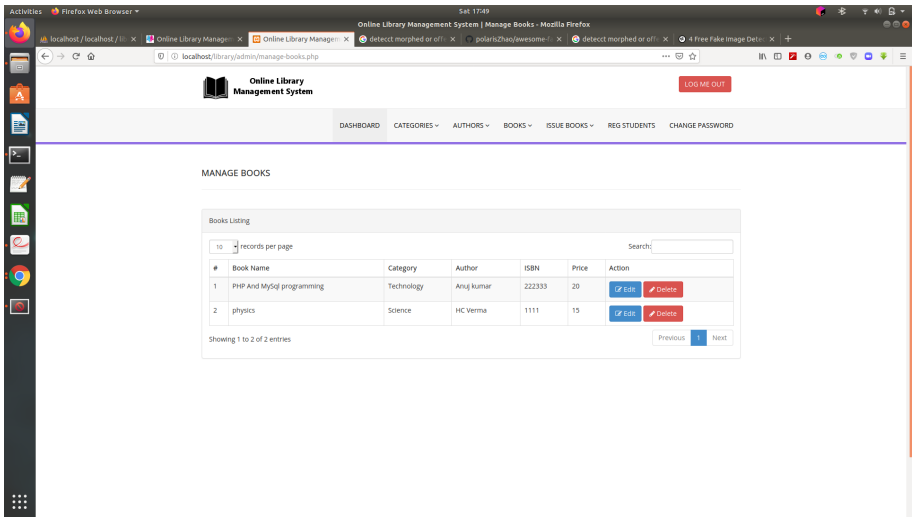

Figure 6.8: Manage books

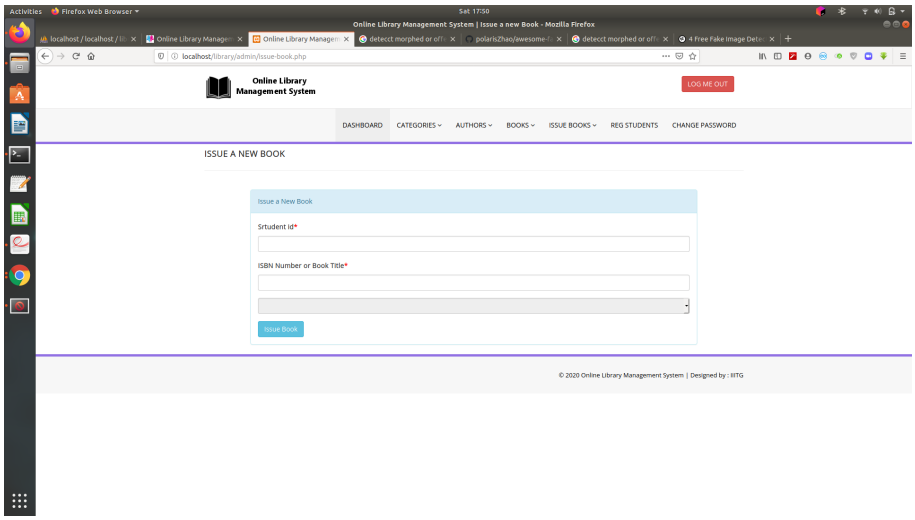

Figure 6.9: Issue a new book

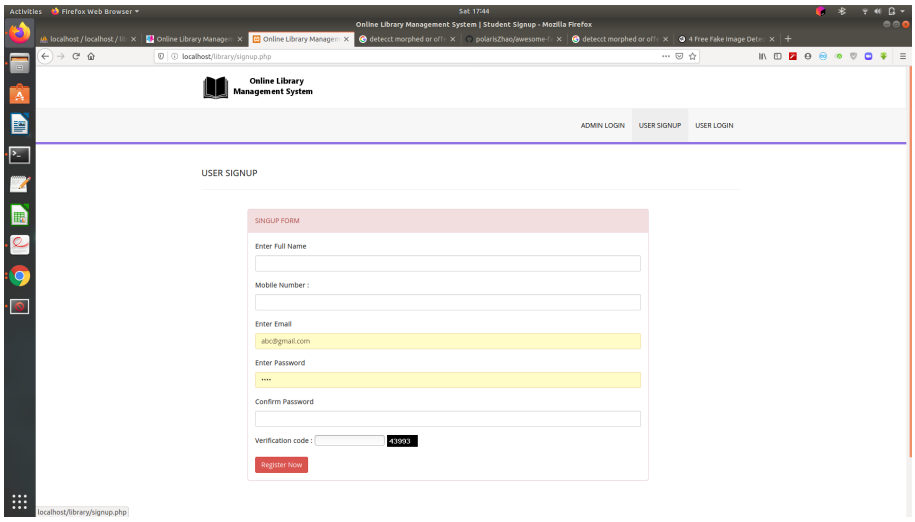

Figure 6.10: Manage an issued book

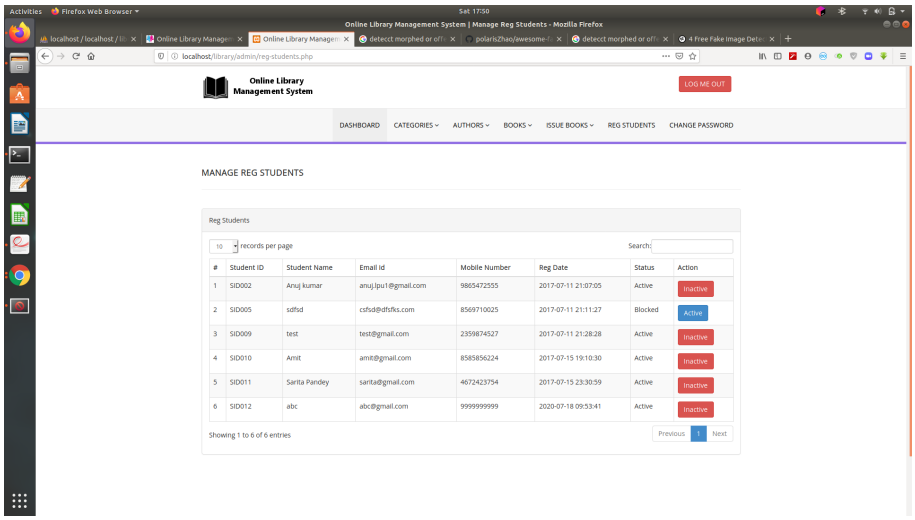

Figure 6.11: Manage Reg students

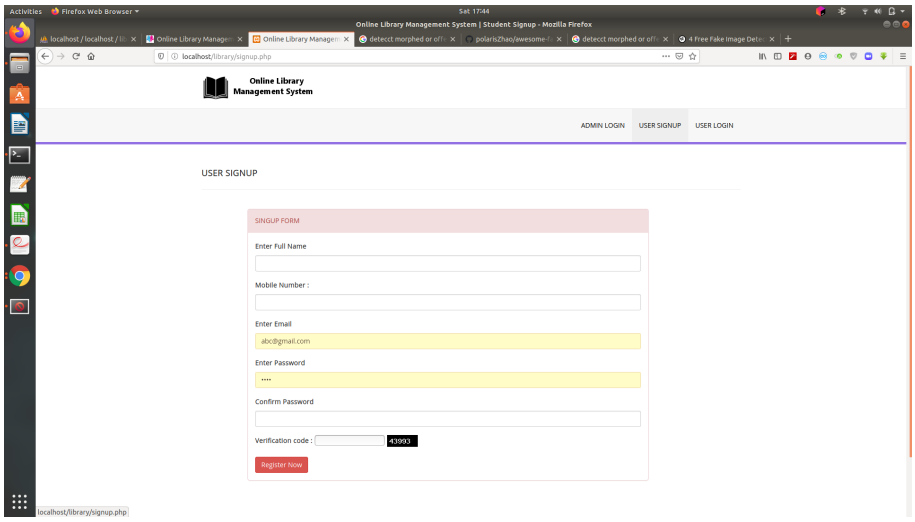

Figure 6.12: User login form

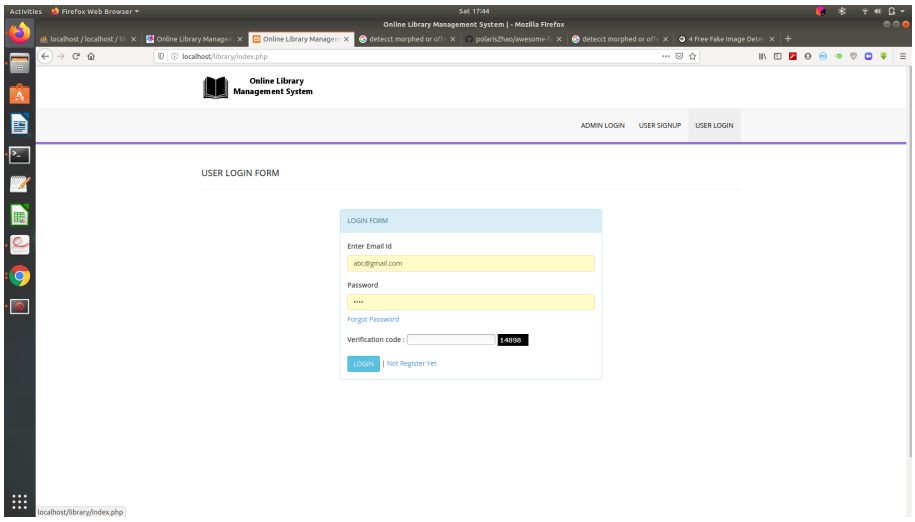

Figure 6.13: User Dashboard

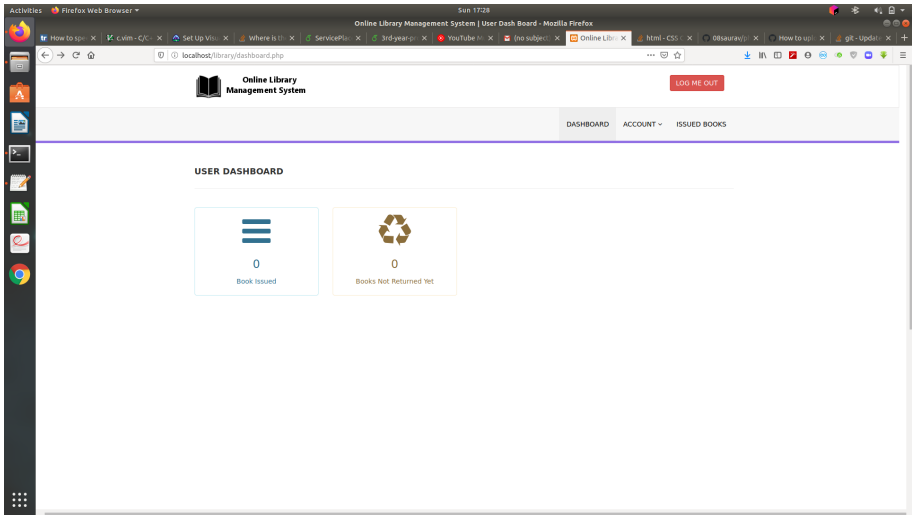

Figure 6.14: User Signup

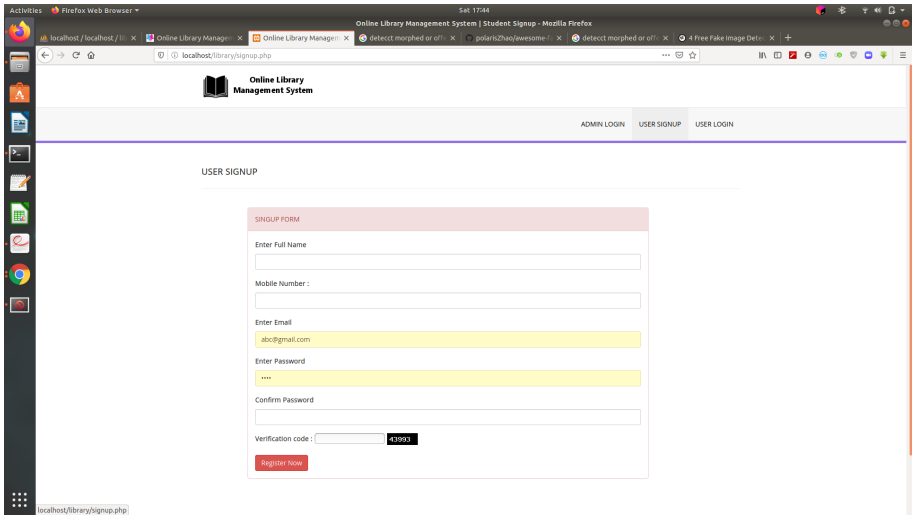

Figure 6.15: User Profile

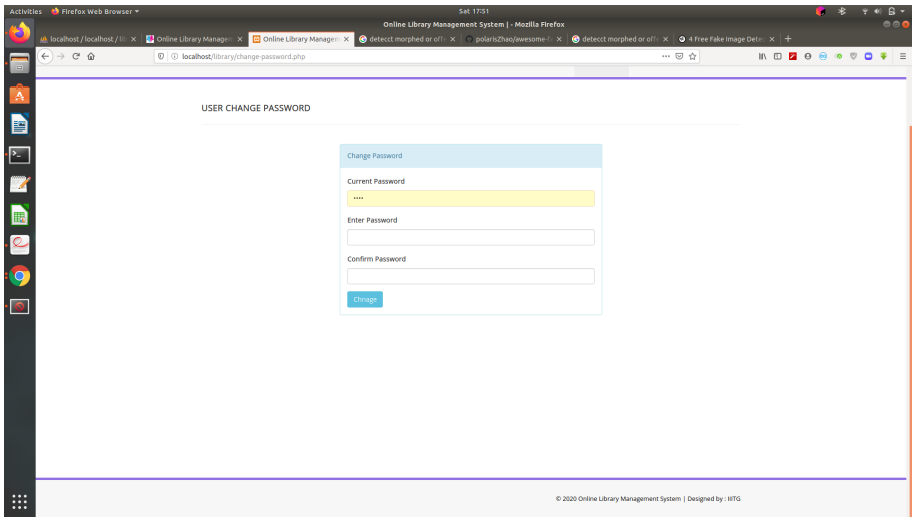

Figure 6.16: Change Password

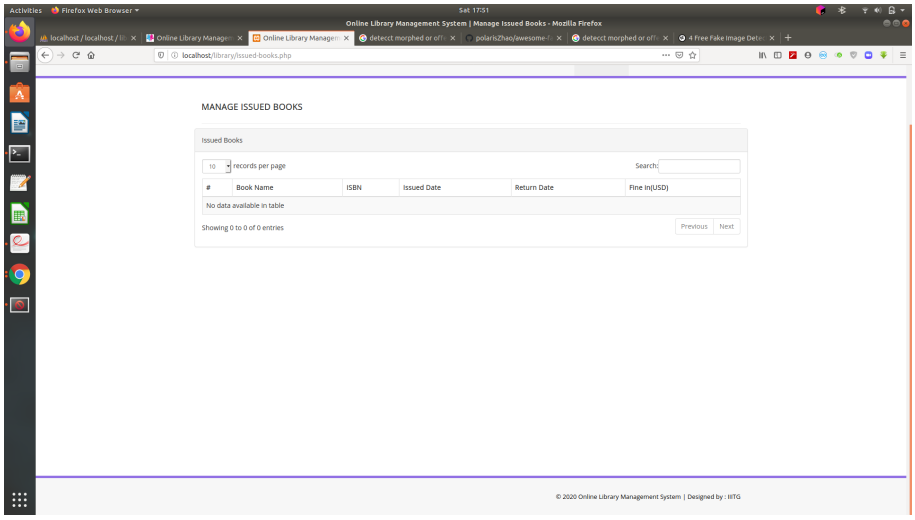

Figure 6.17: Manage issued BOOks

7 CLA

7.1 Constraints

Any update regarding the book from the library is to be recorded to have update correct values, and any fine on a member should be notified as soon as possible and should be correctly calculated.
If any books is lost then it will update that book as lost and if any user lost that book then he/she have to pay the price according to the library rule.

7.2 Limitations

Our project will not implement chat system/discussion forum for any kind of discussion for any book issue in the library we can only provide with suggestion facility which is only can be seen to admin.

Our Project will not account for damage books.

7.3 Assumptions and Dependencies

The library system is running 24 hours a day.

The system should have more storage capacity and provide fast access to database

The information of all users, books and libraries must be stored in a database that is accessible by the website.

-THANKYOU