Abstract

In this project, we developed a web application named “Boi-Bondhu” in which one can share their old books with a community and receive books from them. Here a user creates his personal account and adds books he likes to give away. Users can also surf through the browsing page or search by name of books to send requests for one. For the exchange of books, we’ve introduced a virtual currency system with coins. All the books that one gave away, received sent, and got requests or is waiting for will be stored separately on a page called “My Books”. In brief, this is a very user-friendly and easy to use application for sharing books.

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Chapter 1: Introduction

In today's fast-paced world reading has become a dying habit. As there are so many other options to get information, reading today seems tedious for many. In this project, we are introducing a new web application that makes the process of reading easy, by sharing books among a community.

1.1 BACKGROUND

Books develop our thoughts, improve our focus, give us endless knowledge and keep our minds active. There are many benefits to reading a book, from making one smarter to improve one's reading and writing skills. If we want to understand what benefits one could reap from developing the habit of reading, there are many like: mental stimulation for brain, good habit of stress reduction, knowledge enhancement, vocabulary expansion etc.

Different genres of books hold all kinds of information, stories, thoughts and feelings unlike anything else in this world. Thus, the importance of a book to help us learn and understand things cannot be underestimated.

1.2 MOTIVATION

Before the electronic era, everyday reading was a ritual that almost everyone who wanted to gain knowledge adapted. The benefits of reading needed not to be reminded all the time.

Amongst other things, we have been so preoccupied with social media and the internet that hardly anyone contemplates reading books. While some maybe too busy to read, others merely don't care to read.

The importance of reading books is undeniable. Though we still have many readers around us, we noticed that now-a-days, people are no longer interested in reading real books — instead, they are fond of reading PDFs more often. Which is leading them to severe eye problems or chronic headaches. As an excuse, they may point out the issue of buying cost or the hassle to buy and store books frequently.

From this shift, an idea was born: Boi-Bondhu.

1.3 OBJECTIVE

- To give-away old books to free up space for new ones.
- To be able to send requests for any kind of book available.
- To save the buying cost. Only cost here is the delivery cost.

1.4 SIGNIFICANCE OF THE PROJECT

- Boi-Bondhu is a web application that lets users share their hard copy books with other people in their city.
- This application gives users the opportunity to share their unwanted or read books in good hands.
- In this way, they can free up space at home for new books.
- By sharing books, they will earn coins with which they can send requests for new books.
- Thus, the habit of reading books will again be enriched among people and also people who used to read PDFs will gradually move toward hard copy books, which is good for their health.
- This will build a community of readers where one can meet new interesting people every day.
- As one book can be reread many times by several users, this process is also environment friendly.

Chapter 2: Project Description

2.1 REQUIRED TECHNOLOGIES

2.1.1 Html

Html is hypertext markup language which is used to display web content such as text, audio, video in web pages. It is the structural unit of a web sites. So we used html to build structure of our web sites.

2.1.2 CSS

CSS describes how HTML elements are to be displayed on screen, paper, or in other media. It also creates layout of the web pages. We used CSS to define color, border, layout, style of an html element.

2.1.3 SASS

Stylesheets are getting larger, more complex, and harder to maintain. This is where a CSS pre-processor can help. Sass lets you use features that do not exist in CSS, like variables, nested rules, mixins, imports, inheritance, built-in functions, and other stuff.

2.1.4 JavaScript

JavaScript is a lightweight, interpreted, or just-in-time compiled programming language. It enables us to create dynamically updating content, control multimedia, animate images and so many other things. Here we used JavaScript to make our website interactive.

2.1.5 jQuery

jQuery is a fast, small, and feature-rich JavaScript library. It makes things like HTML document traversal and manipulation, event handling, animation, and Ajax much simpler with an easy-to-use API that works across a multitude of browsers. With a combination of versatility and extensibility, jQuery has changed the way that millions of people write JavaScript.

2.1.6 Swiper JS

Swiper is the most modern free mobile touch slider with hardware accelerated transitions and amazing native behaviour. It is intended to be used in mobile websites, mobile web apps, and mobile native/hybrid apps. Swiper is not compatible with all platforms, it is a modern touch slider which is focused only on modern apps/platforms to bring the best experience and simplicity.

2.1.7 Bootstrap

Bootstrap is a free and open-source CSS framework directed at responsive, mobile-first front-end web development. It contains HTML, CSS and (optionally) JavaScript-based design templates for typography, forms, buttons, navigation, and other interface components. It is an HTML, CSS & JS Library that focuses on simplifying the development of informative web pages (as opposed to web apps). The primary purpose of adding it to a web project is to apply Bootstrap's choices of color, size, font and layout to that project.

2.1.8 Django Python with SQLite

Django is a high-level Python web framework that encourages rapid development and clean, pragmatic design. Built by experienced developers, it takes care of much of the hassle of web development, so you can focus on writing your app without needing to reinvent the wheel. It’s free and open source.

By default, the configuration of Django uses SQLite. SQLite is included in Python, so one won’t need to install anything else to support their database.

Here to install the python environment, the required Django dependencies are:

asgiref==3.5.2

backports.zoneinfo==0.2.1

Django==4.0.6

Pillow==9.2.0

SQL parse==0.4.2

tzdata==2022.1

2.2 DATA BASE DESIGN

We used a relational database SQLite for the backend of our web application. The database design of the website took 8 entities with their appropriate attributes. The following is the diagram of our web application:

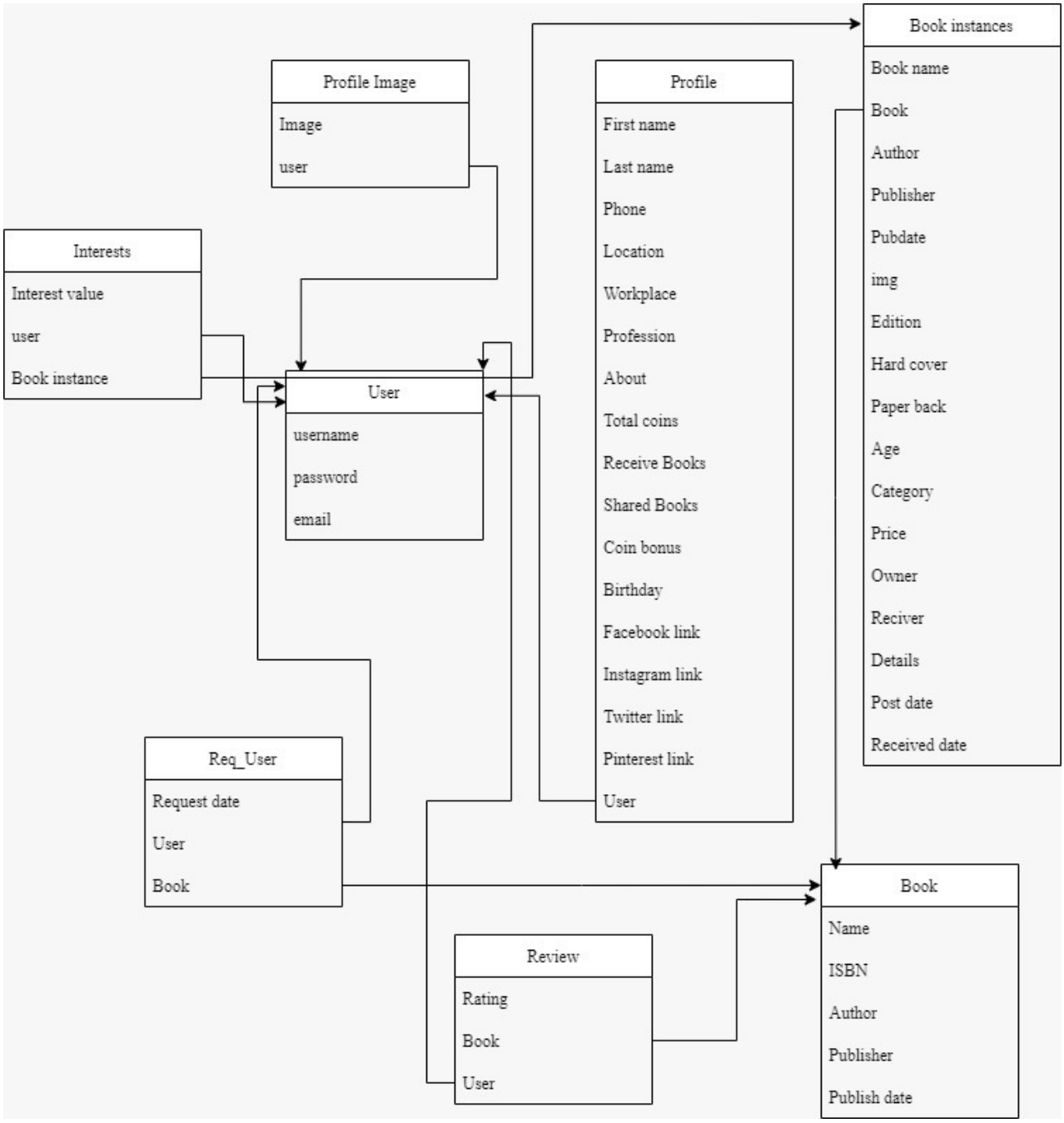

Figure 2.1 Database Schema

2.3 BOOK STATE DIAGRAM

When a user add books as posts it has many stages which we describe in Fig 2.2 as states. This state diagram helps us to design books/user interaction. Those states are given here in the following state diagram:

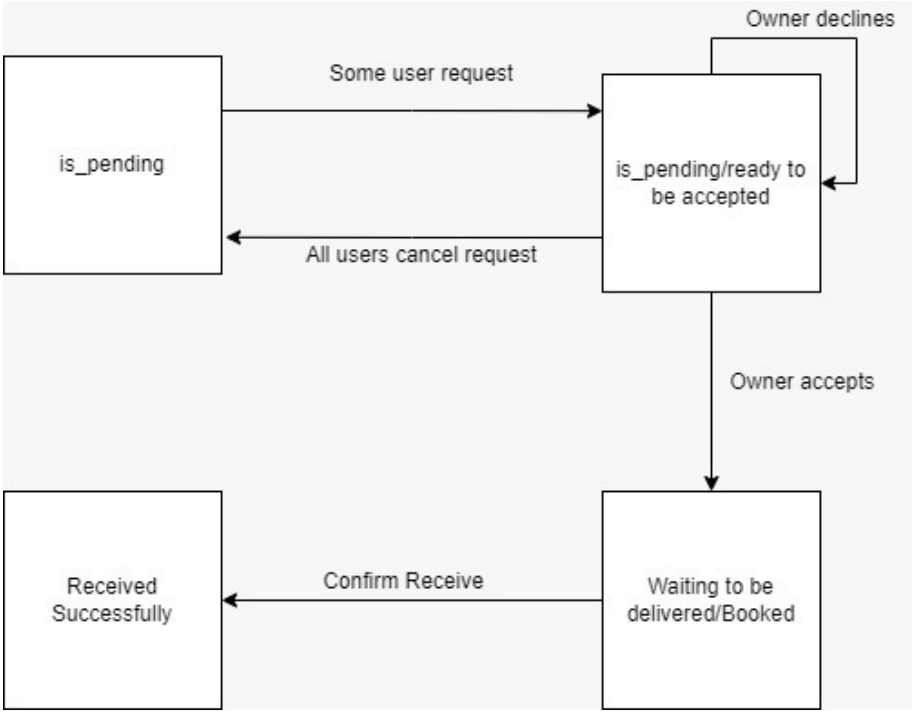

Figure 2.2 Books State Diagram

When a post is created initially it is in pending state. Other users can request to have the posted book. A requested book has to be accepted for before starting the delivery process. Then requested user gives a confirmation about receiving the book and this is the ending state of the post or the book.

2.4 USER ACTIVITIES

- Create Profile: Anyone can create their own profile by pressing join now from the home page.
- Add Books: Once the account is created, one can add their own books that they would like to give away. They would get some coins for that.
- Request for books: Users can buy coins using coupon or going through our pricing plan. With those coins he can send requests for any book from the browsing list.

- Buy coins: users can buy coins from our coin shop where we offer coins at 3 different price range. Also coupon token is available for using.
- Browse books: Users can browse for different types of books by category. They can ignore some books which would make that book disappear from that view.
- Search: Users can search for books by typing in the search bar. Search results show those books whose substring match with the searched keyword.
- Review Books: Every book available in the browsing page can be rated with rating scale from 1 to 5. The average of the user input is shown.

Chapter 3: User Interface

3.1 HOME PAGE

Before signup, this page will give a brief introduction about the application. When a user signs up for the first time he would be given 500 coins as a sign-up bonus.

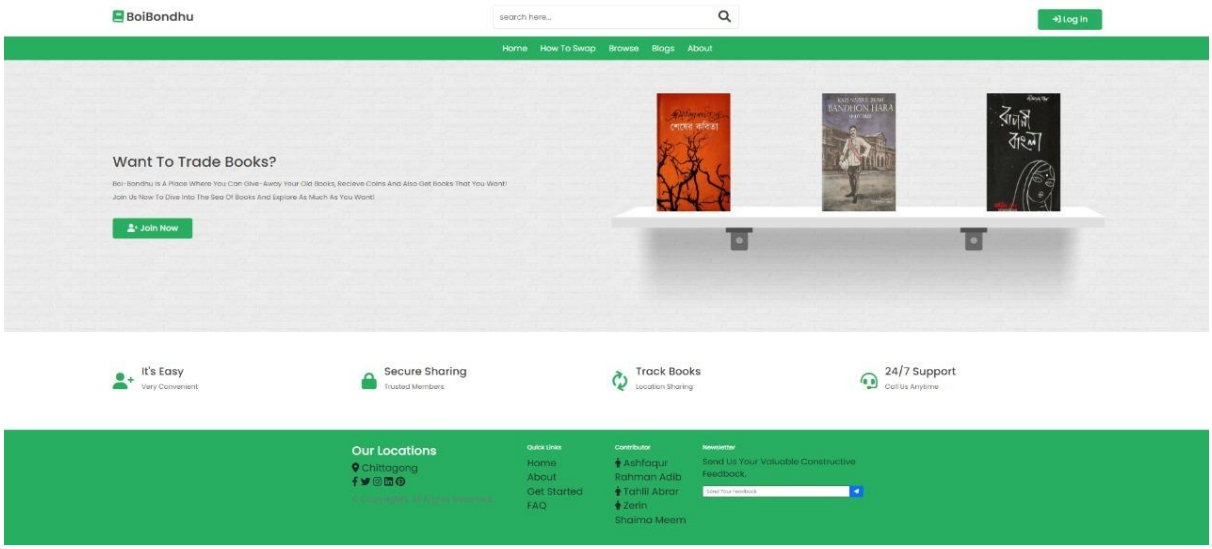

Figure 3.1 Homepage Before Sign-Up

After signup, it will give a welcome message.

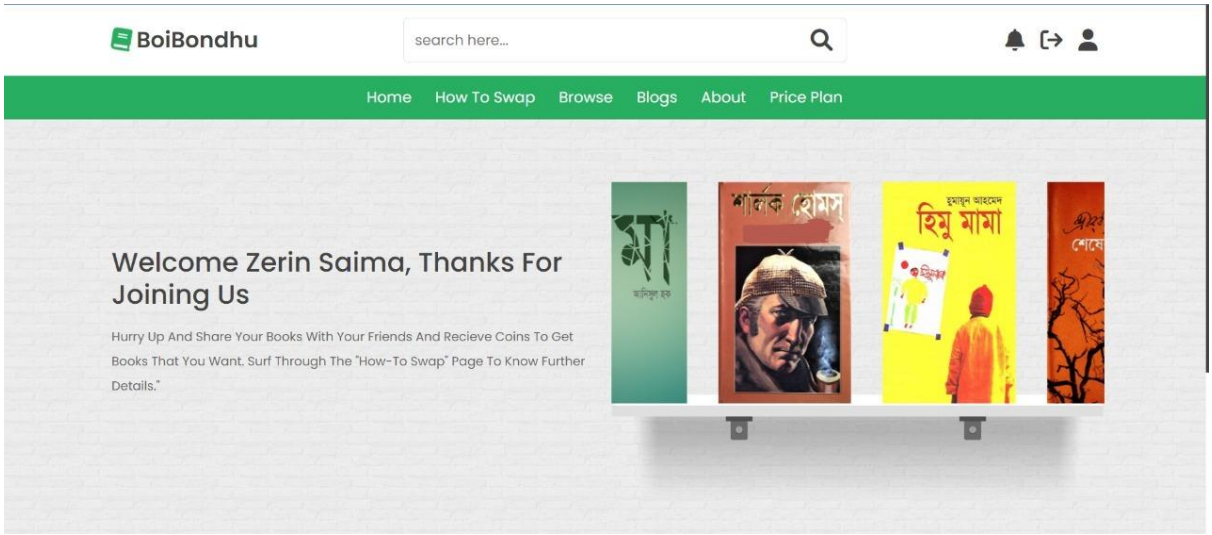

Figure 3.2 Home Page After Sign-Up

3.2 HOW TO SWAP

This page gives the brief idea of using the web application step by step. The page is divided into 4 sections describing 4 steps of understanding to use the web application.

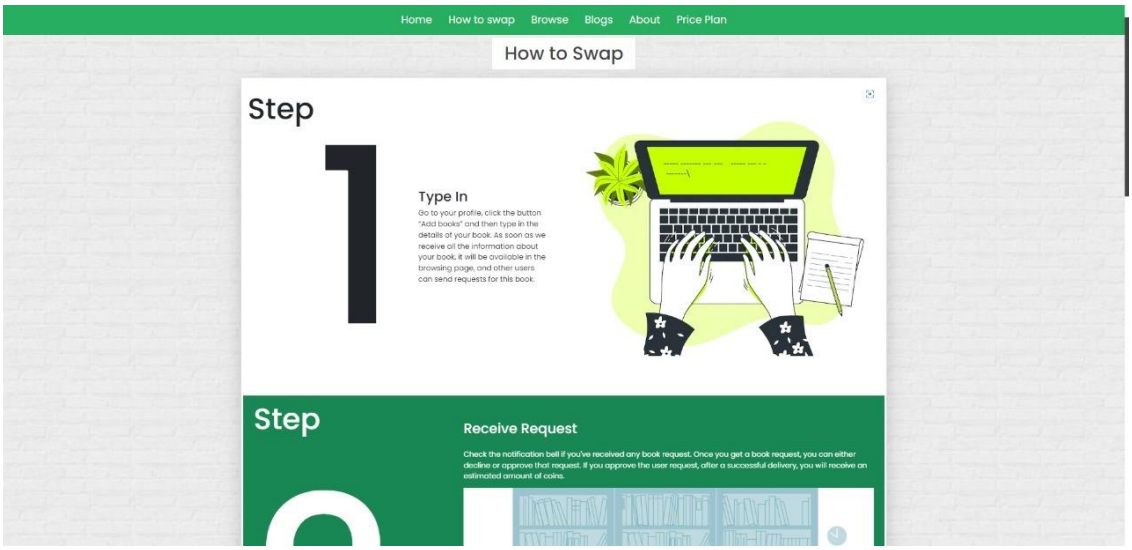

Figure 3.3 How to swap page

3.3 BROWSE

This page is visible after the user creates an account. He can scroll through all available books from the browsing page and send requests for any of them.

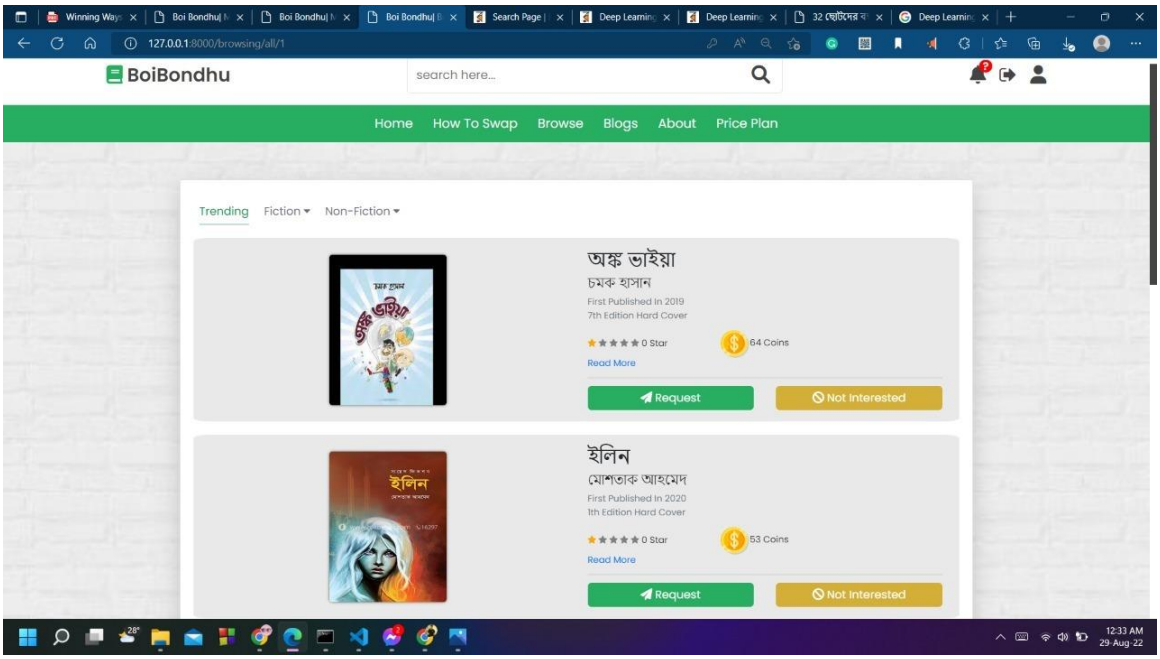

Figure 3.4 Browse Page Containing All Books

3.3.1 Read More

This is a subpage of every book card. Here user can find all information about a book, its provider or receiver. Here user can give a rating to that book.

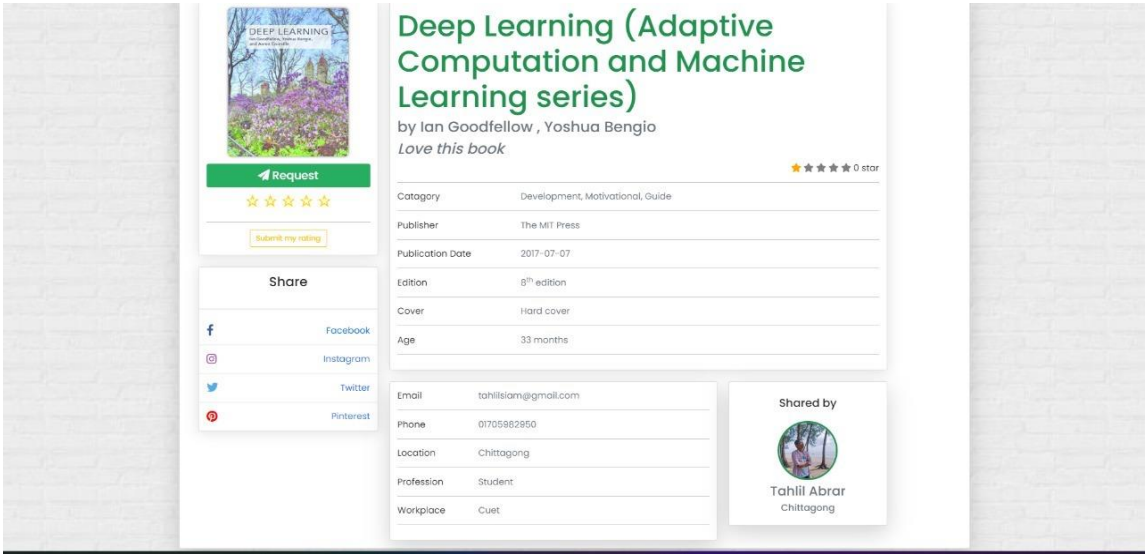

Figure 3.5 Read More Containing Book Information

3.4 BLOGS

This page comes with some handpicked blogs from different writers. Those blogs are selected by our editors. Those blogs are given with the intention to inspire our users into book reading.

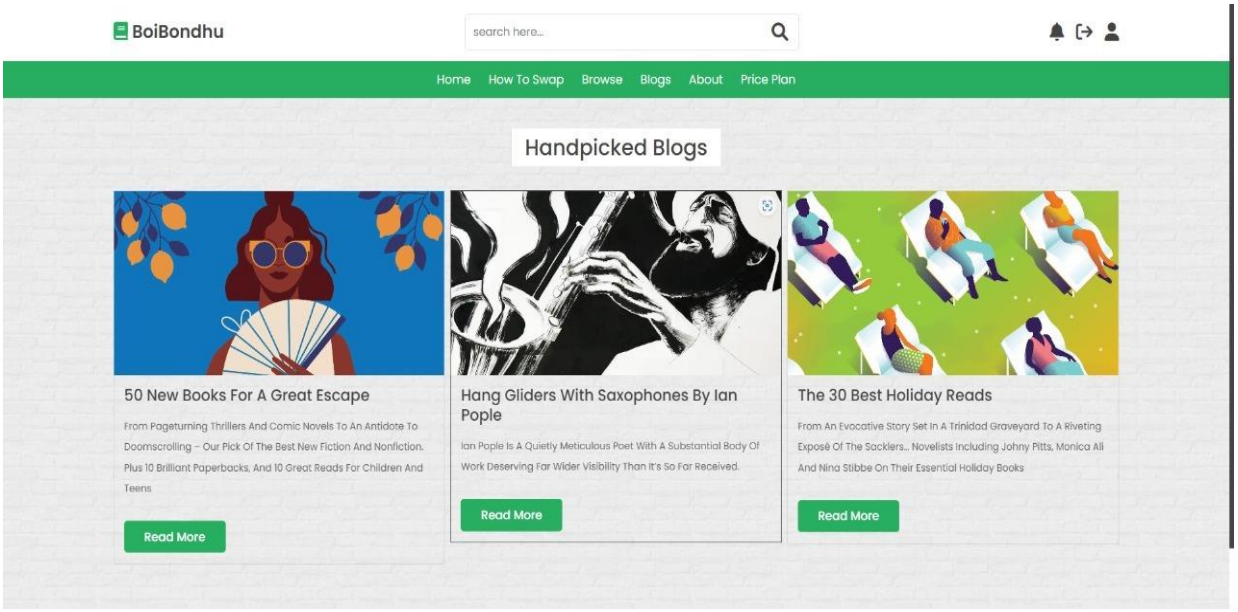

Figure 3.6 Blog page

3.5 ABOUT US

This is a page where users can learn about our goals and us, the creators of this application.

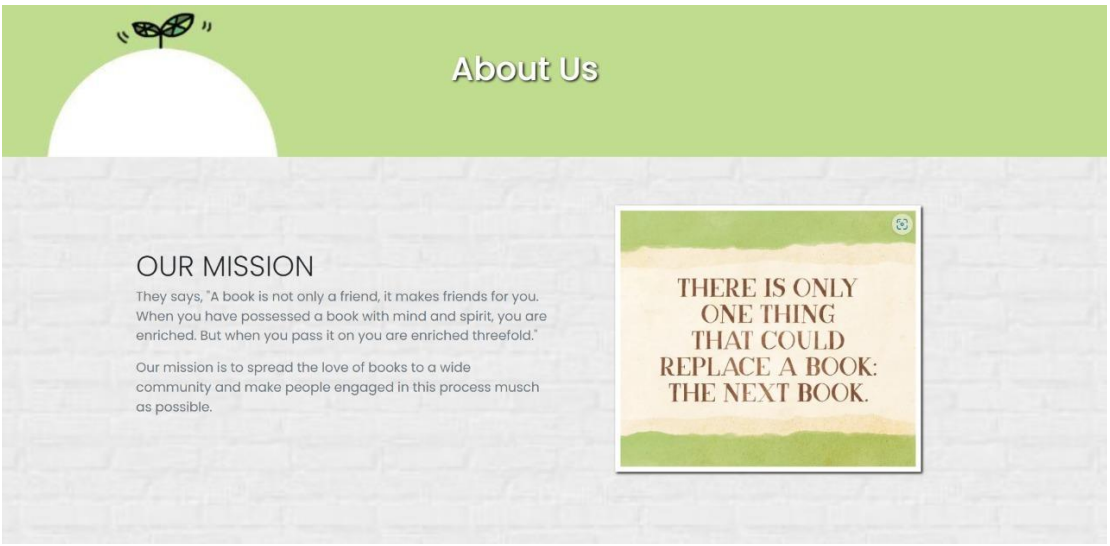

Figure 3.7 About US Page With Developer Information.

3.6 PRICING PLAN

This page shows our pricing plans and one can submit coupons here, to buy coins. Users can enter coupons to redeem coins which are given in many special offers.

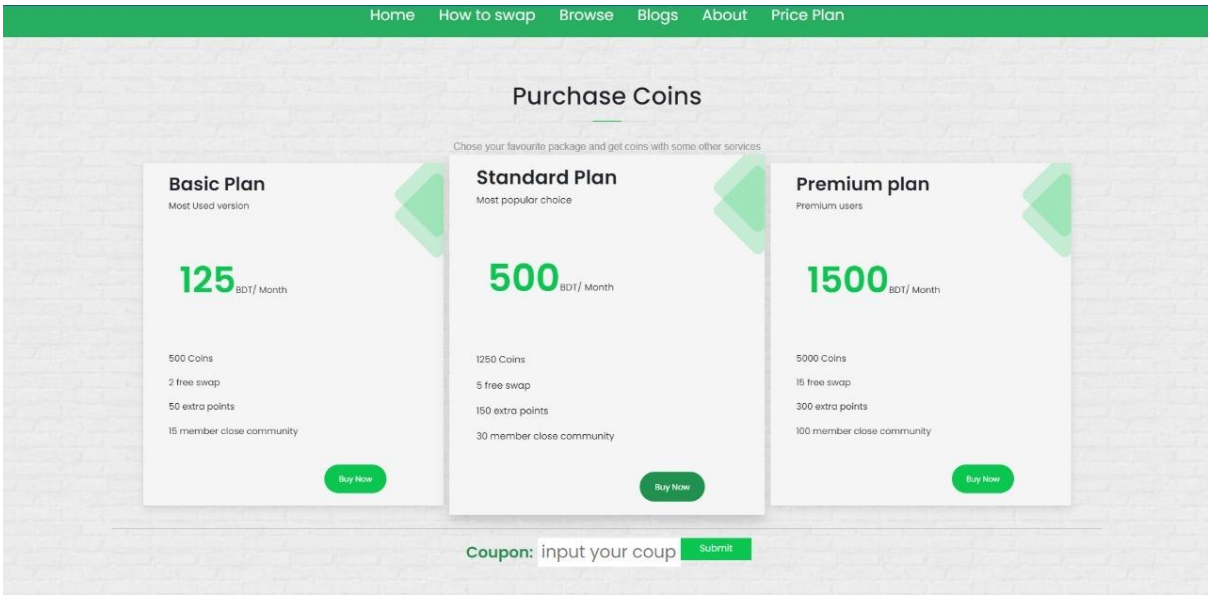

Figure 3.8 Pricing Plan for Different Plans.

3.7 PROFILE

In this page all the information about the user is shown. Also, users can see how many coins they got, the number of books received and the number of books shared. On the lower right corner there is a button for adding books for sharing.

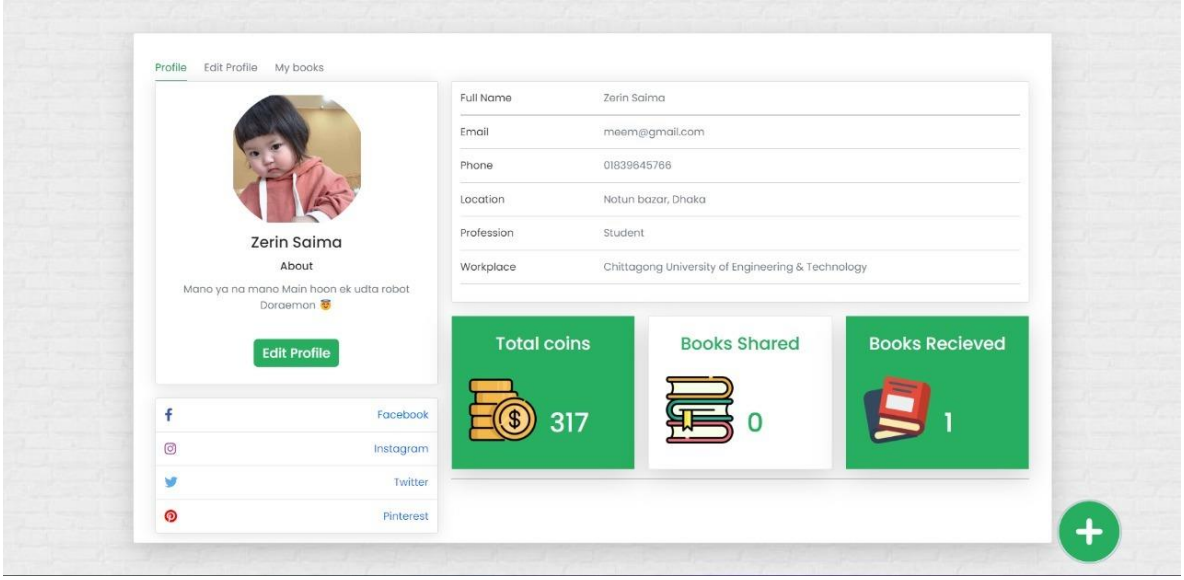

Figure 3.9 User Profile Page

3.7.1 Add books

A form to upload books into the database.

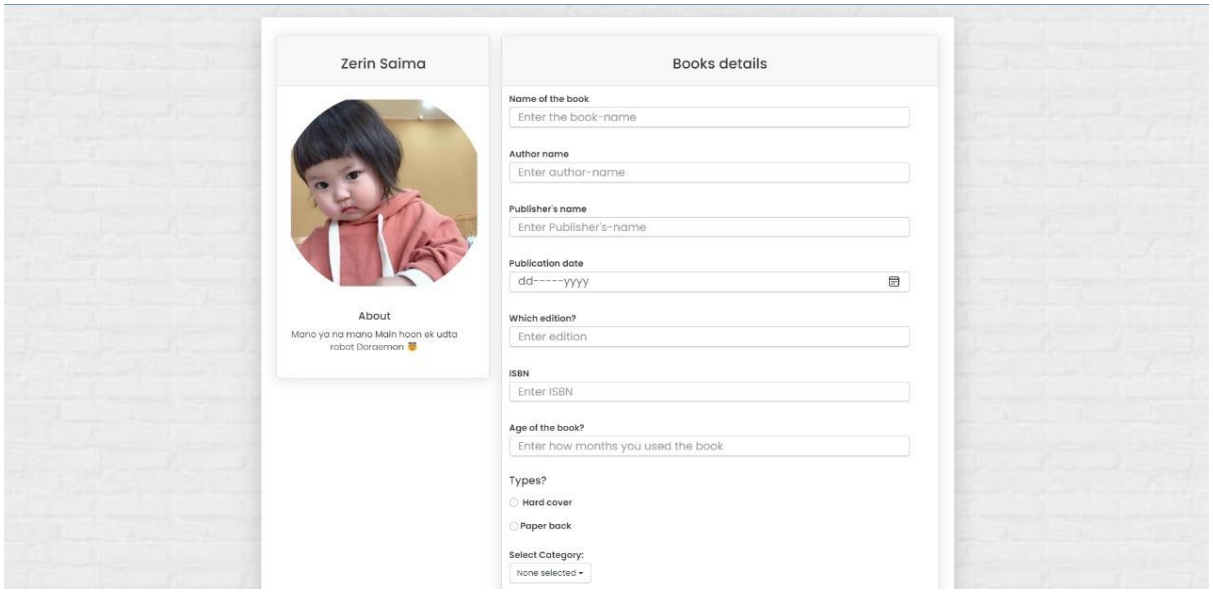

Figure 3.10 Add books Form

3.8 MY BOOKS

This page holds 7 child pages. Each of those pages are given for users to keep track of their activity with other users and different books.

3.8.1 Books Received

Shows list of books that the user received successfully already.

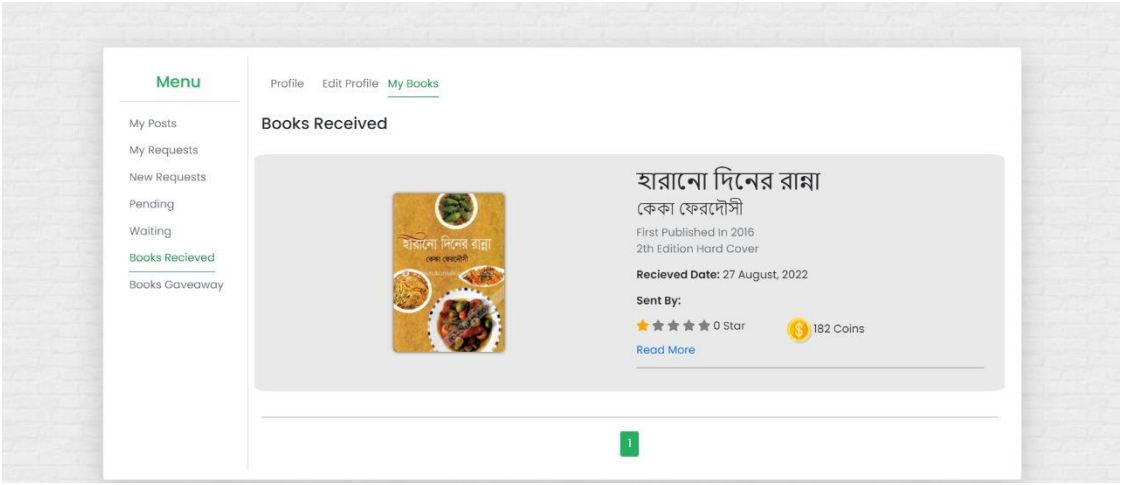

Figure 3.11 The Books Received by User

3.8.2 Books Giveaway

Shows list of books that the user has shared till date.

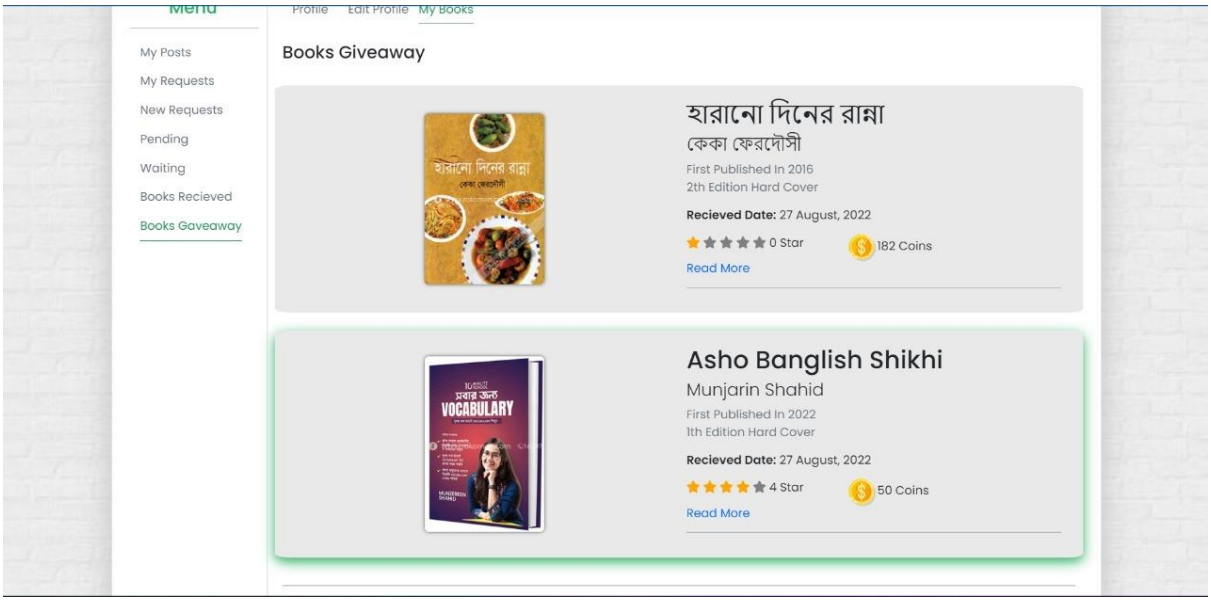

Figure 3.12 The Books Giveaway by User

3.8.3 My Request

Shows list of books that user have sent request for, but still isn't accepted.

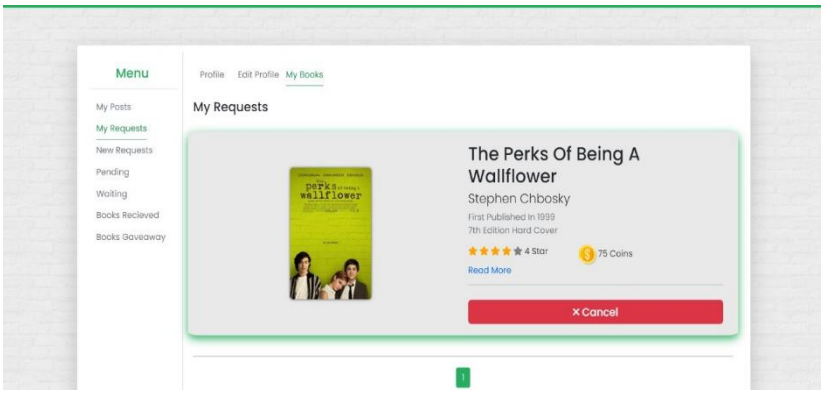

Figure 3.13 The Books Request to Acquire by User

3.8.4 New Request

Shows list of books that users have received requests for, but haven't accepted or declined yet. Users can also see who has requested that book.

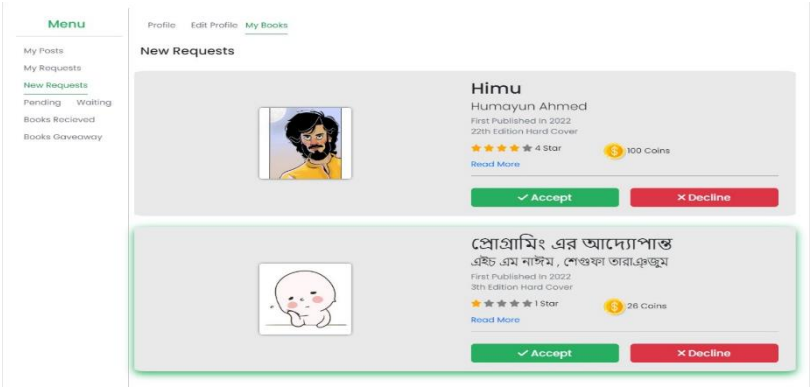

Figure 3.14 New Request of Books

3.8.5 Pending

Shows list of books that users have sent requests for and is accepted, but yet not received by the user that requested.

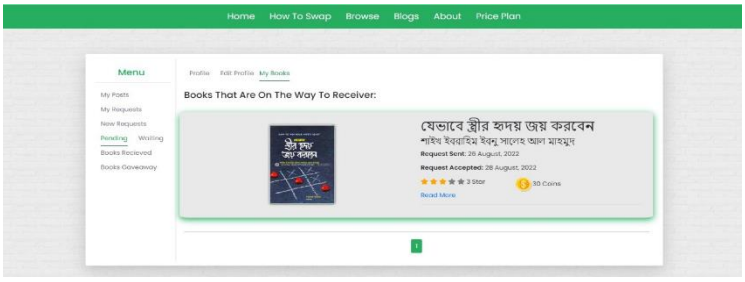

Figure 3.15 Pending Requests

3.8.6 Waiting

Shows list of books that users have been waiting for. A confirmation button is given for making sure they received the book.

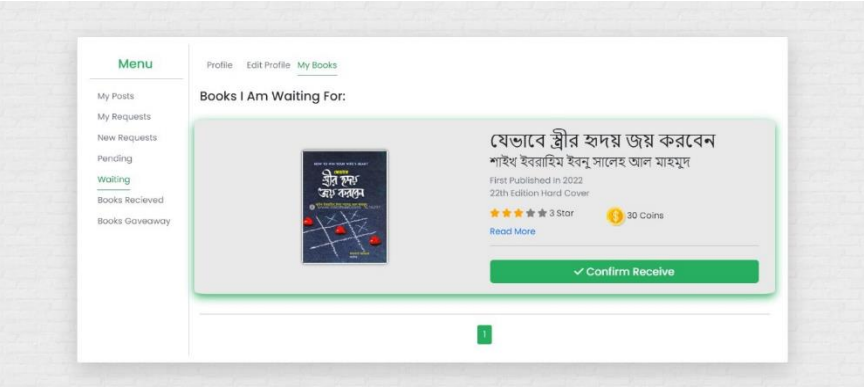

Figure 3.16 Waiting Lists of User.

3.8.7 My Posts

Shows list of books that have been posted. Users can delete them if they want to.

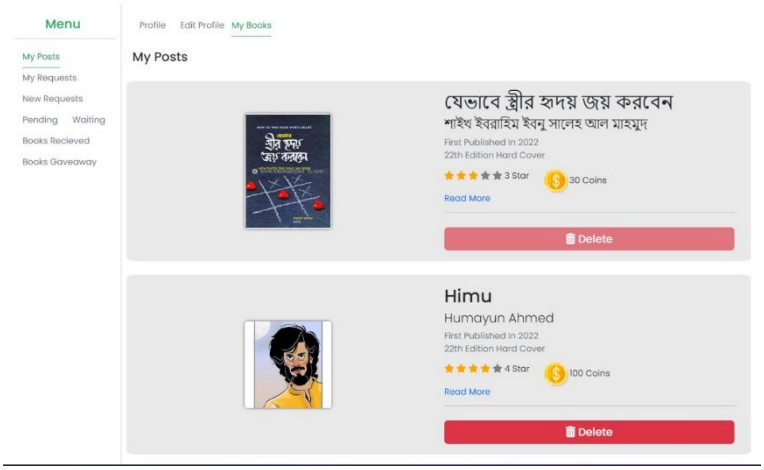

Figure 3.17 Books Lists of Uploaded Books.

Chapter 4: Testing

4.1 SIGN-UP

4.1.1 Empty Form

A new user can not submit an empty form. Every filed in the form has to be filled up. Otherwise this following pop up message will be shown.

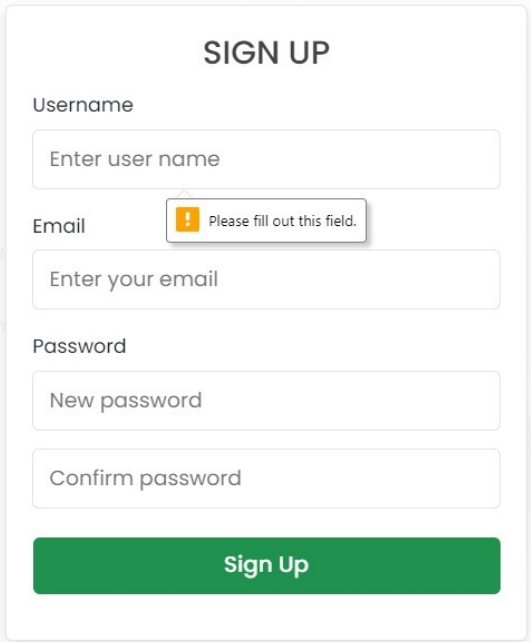

Figure 4.1 Sign-Up Empty Form Verdict

4.1.2 Existing Username

When a user inputs a username that is already in the database for other profile there will be an alert message. So, every username must be unique.

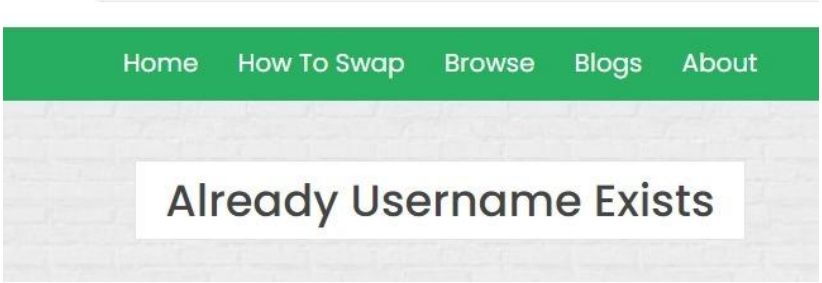

Figure 4.2 Sign-Up Existing Username

4.1.3 Incorrect Password

When the password fields do not match with each other there would be shown an error message in the homepage.

Figure 4.3 Incorrect Password Verdict

4.1.4 Password Too Short

If the password match and then the password length is less than 8 characters this error message would be shown.

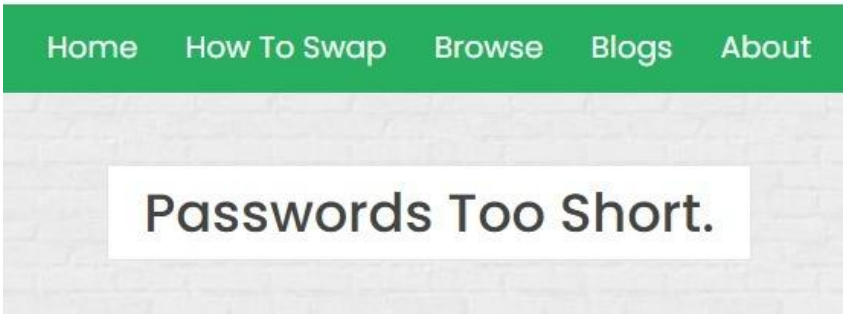

Figure 4.4 Too Short Password.

4.2 LOG-IN

If an existing user incorrectly enter his username or password this verdict will be shown.

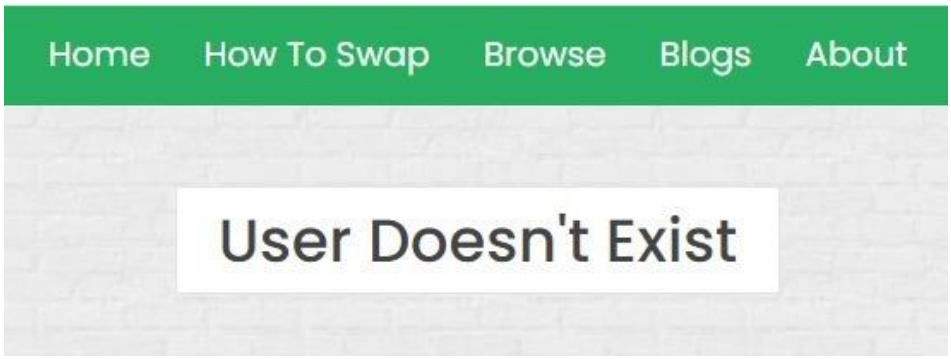

Figure 4.5 Incorrect Username or Password.

4.3 SEARCH RESULT

4.3.1 Keyword Searching

A user can search for different types of books by entering keywords in the search bar. The books with that keyword in their title will be shown.

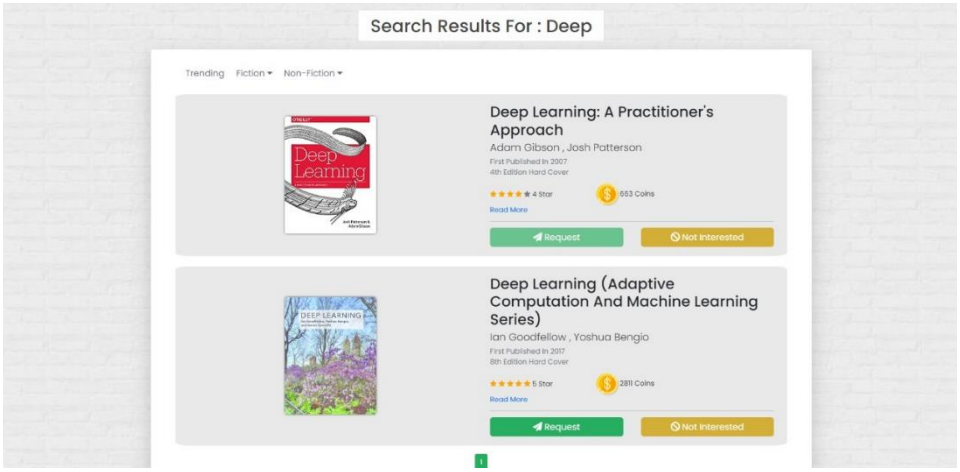

Figure 4.6 Figure 4.6 Keyword Search Result.

4.3.2 No Result found

If a user enters a keyword that doesn't match with any of the books in database than their will be shown "No Result Found".

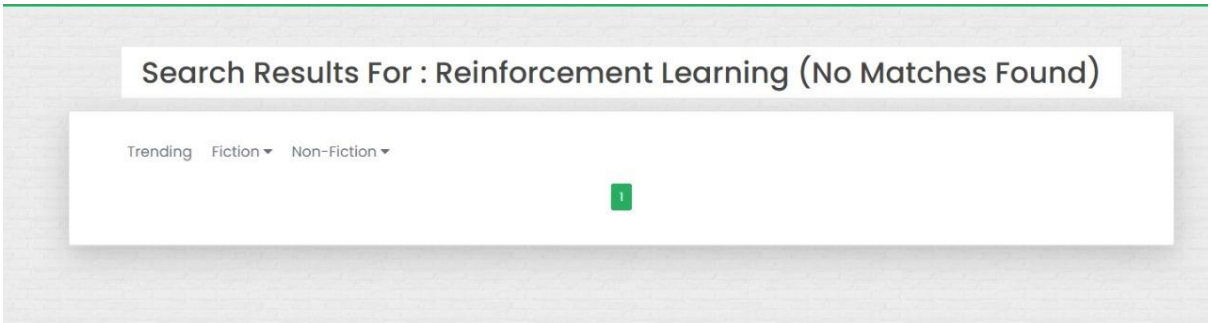

Figure 4.7 No result found.

4.4 NOTIFICATION ALERT

For a book request from other users a notification will be shown in top of the page.

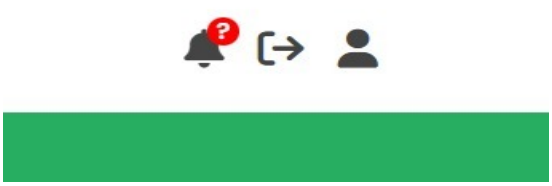

Figure 4.8 Notification Alert.

4.5 BUTTON DISABLE

When a user tries to request any books from browsing page without logged in, they can't do it. The buttons will be disable for them. Similar thing happened when an owner also tries to request his own book.

Figure 4.9 Button Disable

4.6 CUPONS

4.6.1 Coin Addition

When a user input correct coupon then the user will get his confirmation message. An automatically coin will be added in their vault.

Figure 4.10 Confirmation of Purchase.

4.6.2 Incorrect Coupon

When a user adds incorrect coupon in the coupon bar then an error message indicate that the coupon is not currently available.

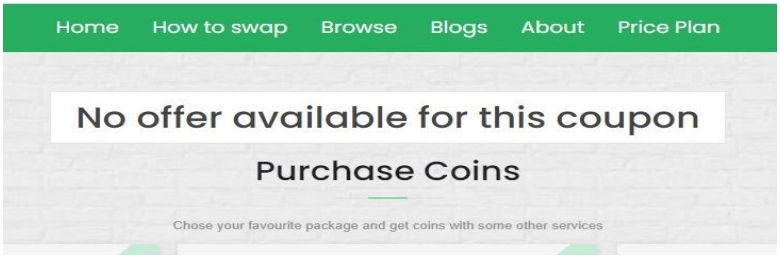

Figure 4.11 Coupon Unavailable.

4.7 COIN SHORTAGE

When a user tries to request a book whose coin price is greater than his currently held coins than the request wouldn't be performed and the following verdict will be shown.

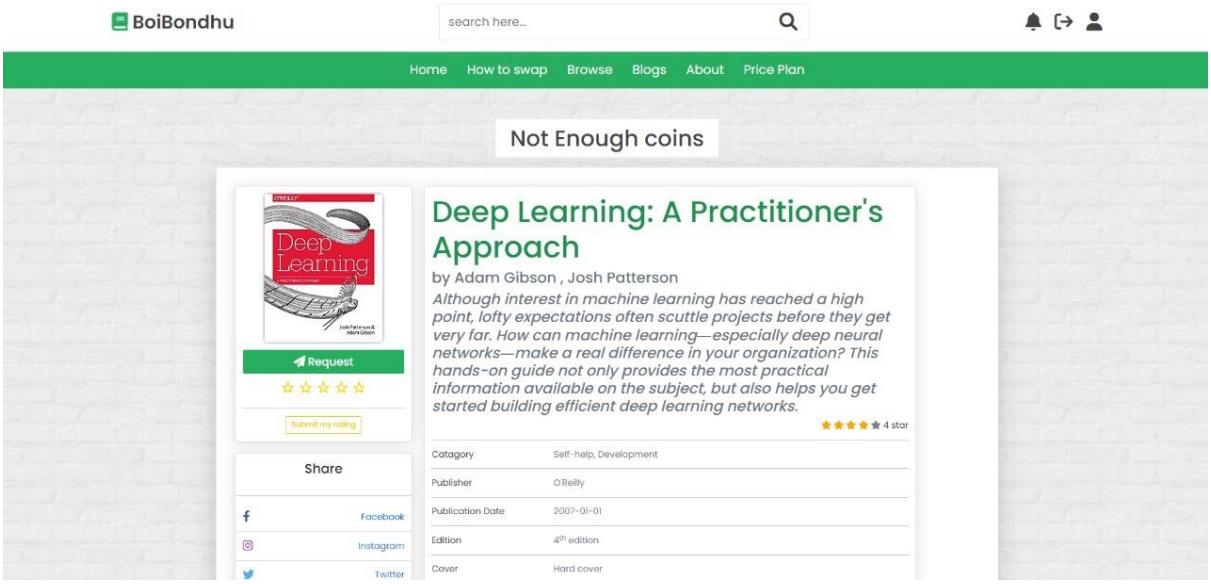

Figure 4.12 Shortage of Coins

Chapter 5: Conclusion

Our web application, "Boi-Bondhu" is a book sharing application. Here we desired to create an online platform, where users can create profiles to upload their old books, receive coins and send requests for books from other users using those coins. We also have a pricing plan in which users can buy coins using coupons. This will regenerate the healthy process of reading real hard copies of books, which also will be environment friendly for one book being reused several times. By communicating with various book lovers, a community will be built, which will leave a great impact on society.

We had to face many challenges while building and designing this whole website. We used HTML, CSS, Java script and Bootstrap for designing the whole interface. For building databases and other works of backend, we used Django python with SQLite. Every day we faced various obstacles, as we were newbies in this job. But still we managed to fulfill most of the ideas we've planned. And successfully build a complete effective, responsive and easy to use web application.