Proposal for

CSE482.3 Software Development

Project name: Book Rental System

Submitted by :

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Introduction

This is a proposal of development of a book rental system where people can upload the books they want to rent to other people for a short amount of time. This document contains the system requirements of the project, use case stories, application features and timeline of development throughout the project.

Background and Product Context

In Bangladesh, there are not many options to rent books online. Most of the time, people have to either buy books at high prices from stores or have to find a rental place which might not contain a variety of books. Many students in Bangladesh come from middle class families and do not have the means of buying books at such high prices, so renting books at a much cheaper price could be convenient for them.

Sites like Rokomari.com and boibazar.com do provide a variety of books but the cost of the books are somewhat pricey. Additionally, there's also the cost of delivery and it might take a lot of time to deliver the books. Many people live in the countryside in Bangladesh and the delivery system in these areas is poor. It could take even half a month to deliver products in the rural areas due to the constraints of the roads in Bangladesh.

Most university students have no use of the books they buy for the current semester and hence those books stay dusty in the corner of a room forever whereas they could have been rented by a less privileged person or someone who does not have the means to buy books. At the same time, the person lending the book can also earn a few pennies for doing the good deed of helping someone.

Just like university students, school students somewhat go through the same situation. Most of the time they do not need the books they buy for the current standard and then throw away the books in the trash when they could have just lent them to someone who needs them.

Currently, rmb.com.bd lets people rent books online in Bangladesh. However, their service is paused at the moment and they do not have many varieties of books, most of them are in Bangla.

Considering all the above factors, our online book rental system aims to make people's lives easier when it comes to renting books. On our website, anyone will be able to upload their books and let other people borrow for a given amount of time. This is beneficial for both the parties in consideration since they are both profiting from this. No hassle regarding delivery delivery time is here since we will handle the delivery ourselves and deliver within 48 hours in Dhaka and 5 days outside Dhaka. This will save a lot of time and money.

User Story

Use Case 1 :

Ms. Sadia (a university student) is going to start a new semester within a week and she needs an economics book within 7 days. She has three options :

- Rent her desired book from someone in our book rental website within minutes
- Go to a book store and buy it which includes paying a high price and her travel cost
- Order the book from an online store which take more than 7 days to deliver

Use Case 2 :

Ms. Sadia (a university student) decided to read some story books to improve her vocabulary. However, currently she is unemployed and is dependent on her family. She has two options :

- Rent books from our book rental website at a very cheap price. Here she can rent approximately ten books at the price of one at a bookstore
- Buy a book from store at a high price that she will probably not need after she is done reading it all

Use Case 3 :

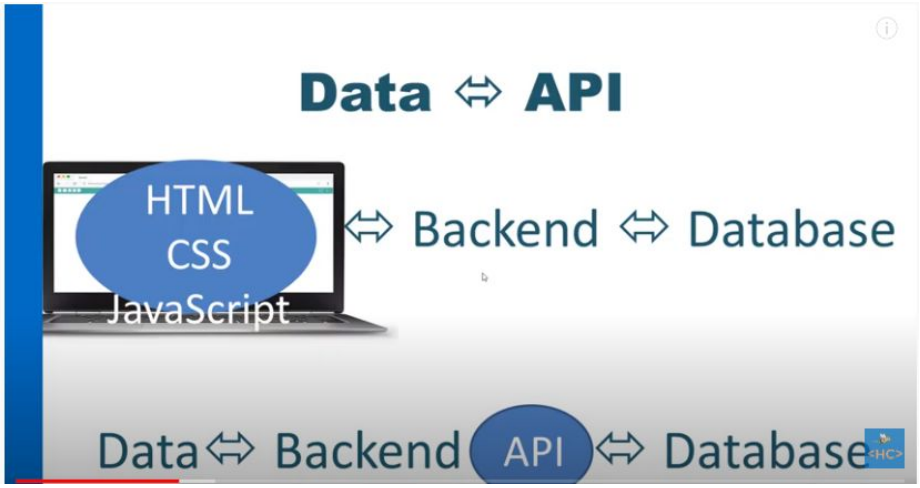
Ms. Sadia (a university student) realised she does not need a few of her books any longer. So she decided to lend her books to people who need it. She has two options :

- Put the book up for rent in our website within minutes and start helping people
- Go to her nearest book shop and ask whether they accept used books or not and donate her books to them . However, her books might be sold to some other people at high cost which might not be of help to the needy

Solution Description

Architecture:

The backend architecture of our project will consist of PHP and MySQL. MYSQL is used as a database at the webserver and PHP is used to fetch data from the database. Our application will communicate with the PHP page with necessary parameters and PHP will contact the MYSQL database and will fetch the result and return the results to us. The central database will receive requests from both mobile and computer browsers, with a middleware message broker maintaining connection and routing between the users and admin. All user information and book information will use the MySQL database only.



For the front-end design of the project, we will be using HTML and CSS for designing the pages, with Javascript used for user interaction elements on the pages. We will be assisted by using the Bootstrap framework.

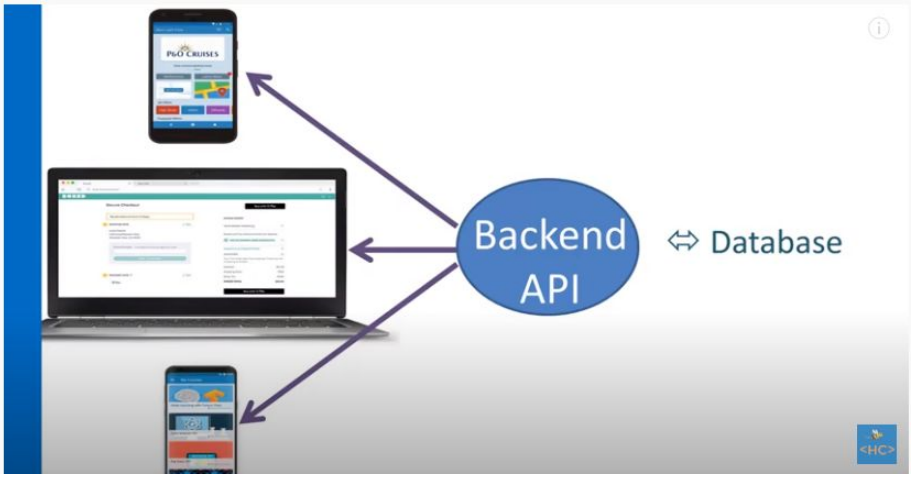
For the server-side development we will be using raw PHP language without any framework for building the backend.

Front-end plan

A total of 11 page-templates in plan (as of July 19, 2020)

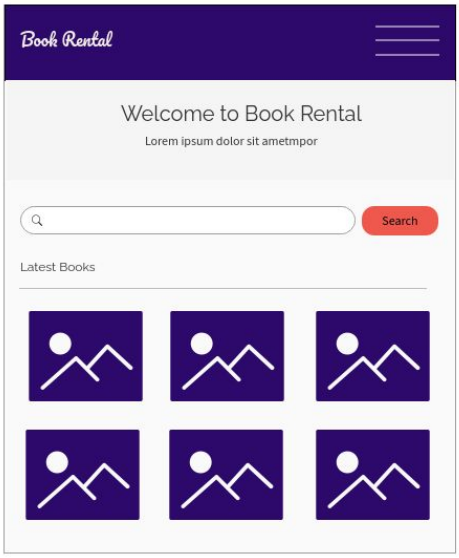
1. Admin Page
2. Home page
3. User Signup Page
4. User Login Page
5. About Page
6. Feedback page
7. User Profile
8. Book list categorised by genre Page
9. Selected Genre book list page
10. Single book information Page
11. Payment page

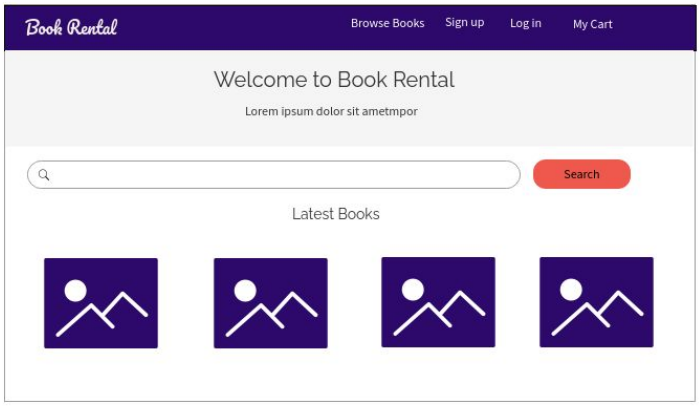
We will be using Bkash payment gateway API for payment function.



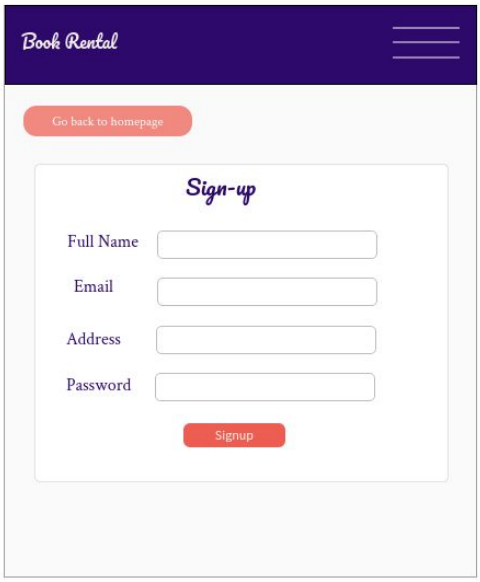
UI Mockups :

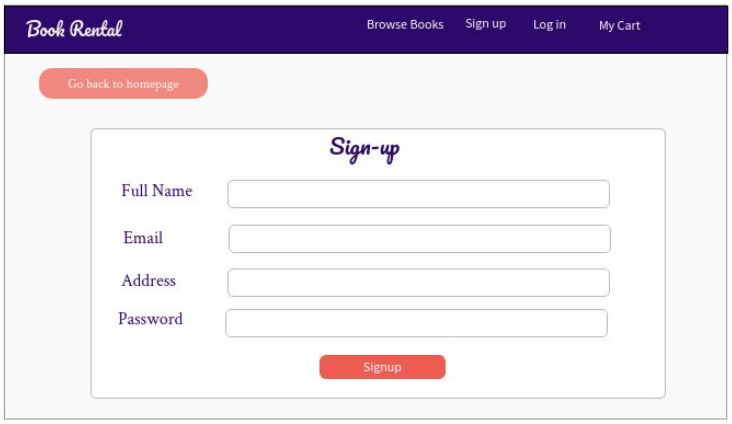
Homepage :



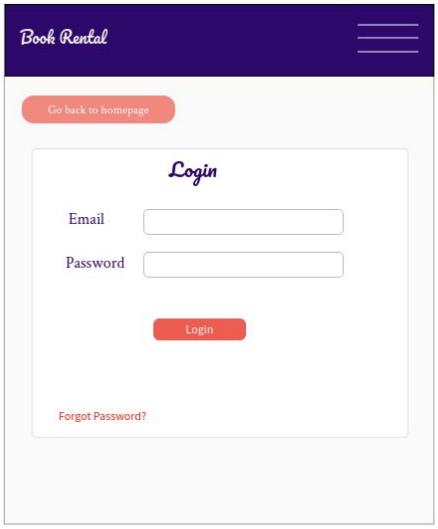


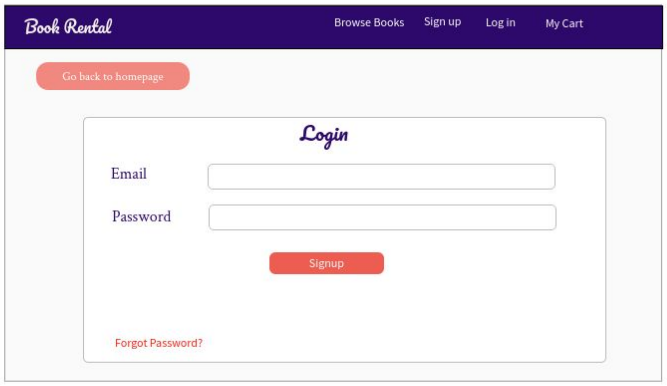
User Signup Page :



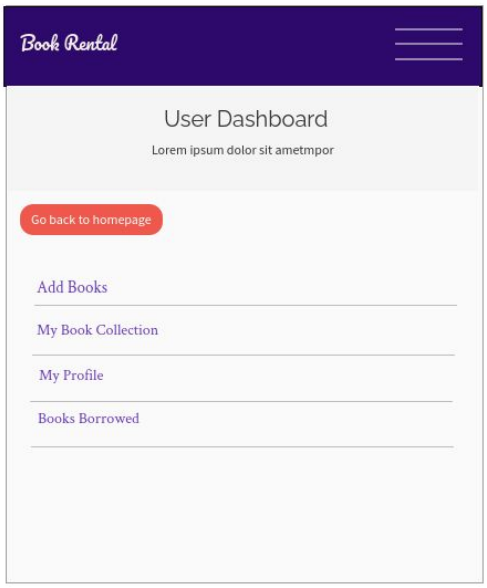


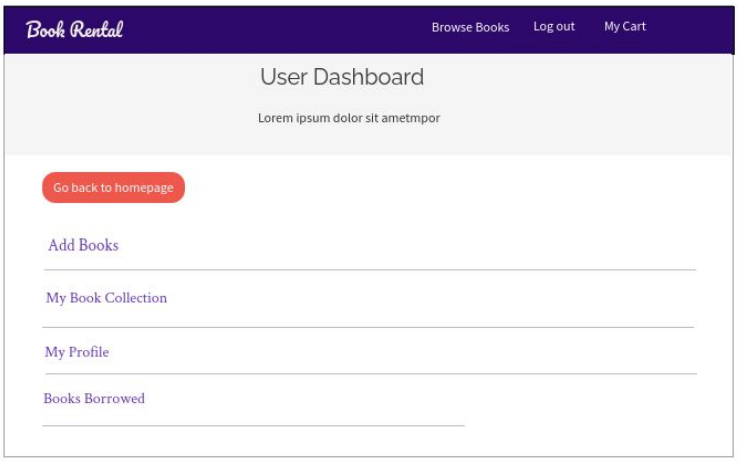
User Login Page :



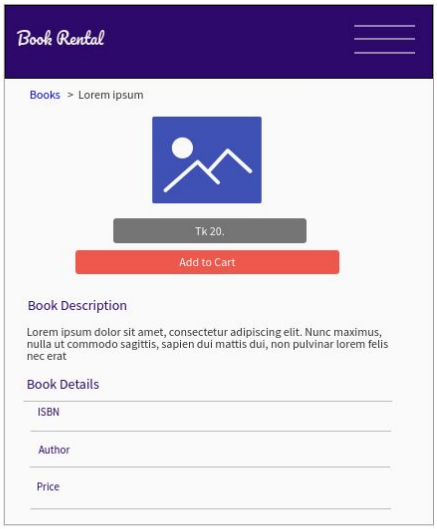


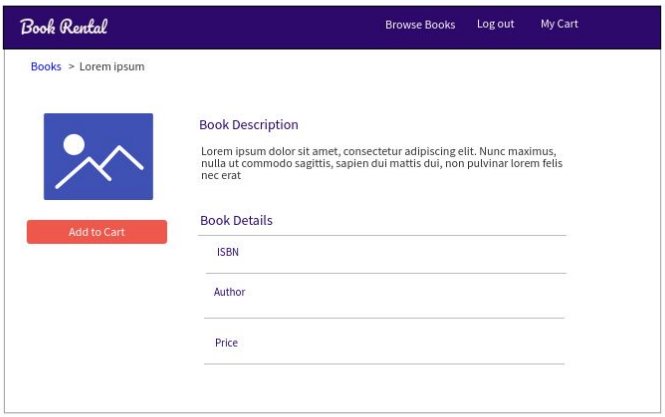
User Profile :



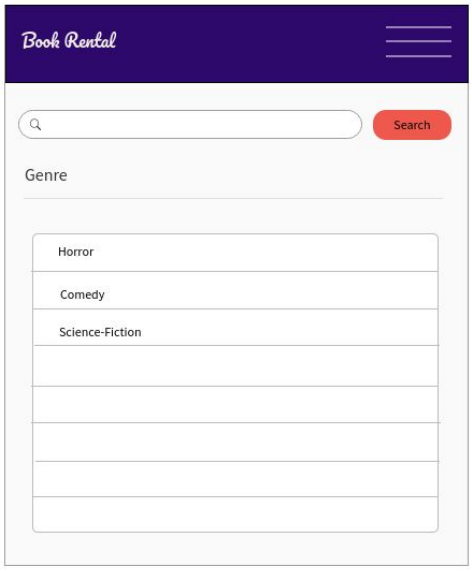


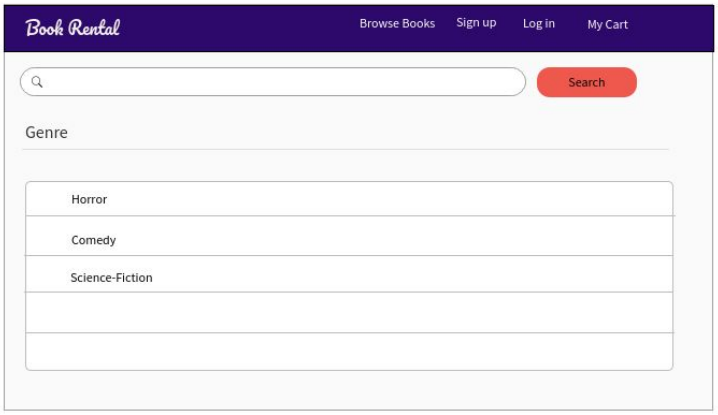
Single book information Page :



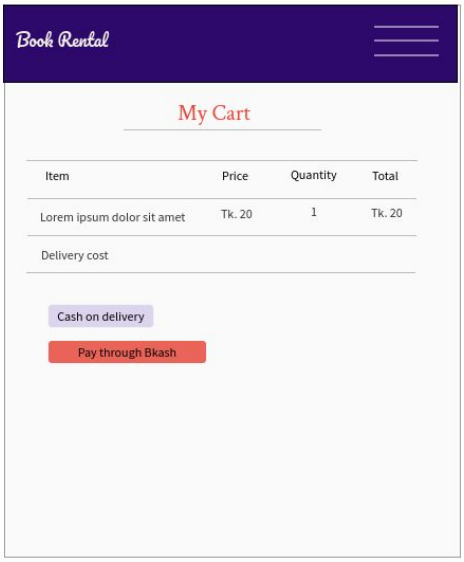


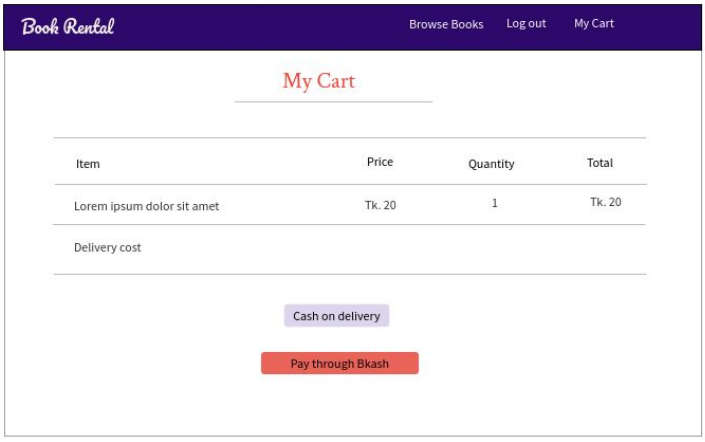
Book list categorised by genre Page :



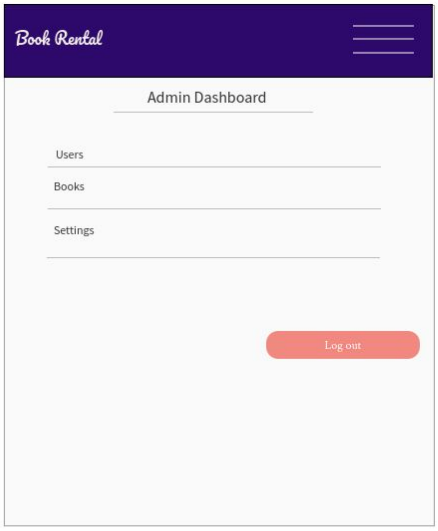


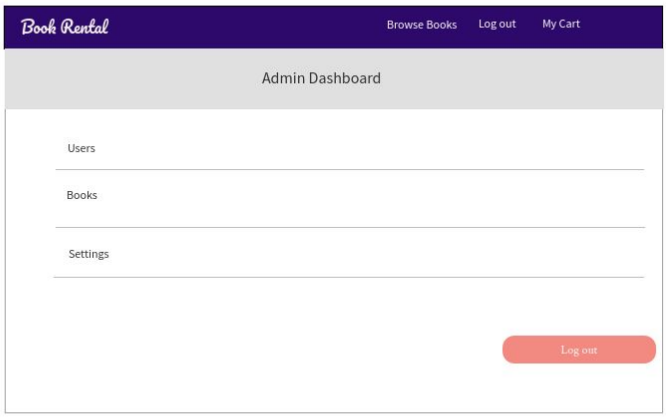
Payment page :





Admin page :





Back end development

1. Account Creating and Login:
    a. Sign up form
    b. Login
    c. Forgot Password
    d. Logout

2. Book Management & Description:
    a. Add book
    b. Delete book
    c. Book name
    d. Author & Publisher

3. Book selection and payment:
    a. Add to cart
    b. Address

c. Make payment

Development Plan

Our development methodology will adopt a waterfall methodology for this project. We will complete our project phase by phase and step by step. Before the upcoming phase, we'll update our development plans within acceptable range of change.

Phase 1:

Duration:

For the front-end development, we shall take 1 week for development and deployment. We'll submit the front-end design by July 27, thus completing the first phase.

Deliverables:

Designing a landing page having relevant contents about what this website is about. Homepage consists of header, navigation bar, banner images and relevant contents, footer. In the navigation bar, there will be separate accessible links for the book rental system page, publishers' information page, contact information and my cart. Every page will have the same header, navigation bar and footer but unique body.

Languages to use: HTML, CSS, JavaScript

Framework to use: Bootstrap

Phase 2:

Duration:

It will take 2 weeks for developing the back-end architecture – 1 week for the database structuring, 1 week for the application server using PHP. We'll show this part by August 7, thus completing the second phase.

Deliverables:

In this phase, we'll be working on database structuring and application server. At first, we'll draw the E-R diagram. After organizing the required information for the book rental system, we'll divide the information into tables and turn the information items into columns. We'll specify primary keys, creating

table relationships and applying normalization rules. Then we'll write the server-side logic of the website connecting applications with third-party web services and integrating the work with front-end development.

Language to use: PHP, SQL

RDBMS to use: MySQL

Phase 3:

Duration:

It will take 2 weeks for developing the admin panel, hosting and API calls. We'll show the work by August 24, thus completing the third phase.

Deliverables:

In this phase, we'll develop the admin panel that acknowledges to access and handling of data within the user interface of the website. We'll also buy hosting.

Phase 4:

Duration:

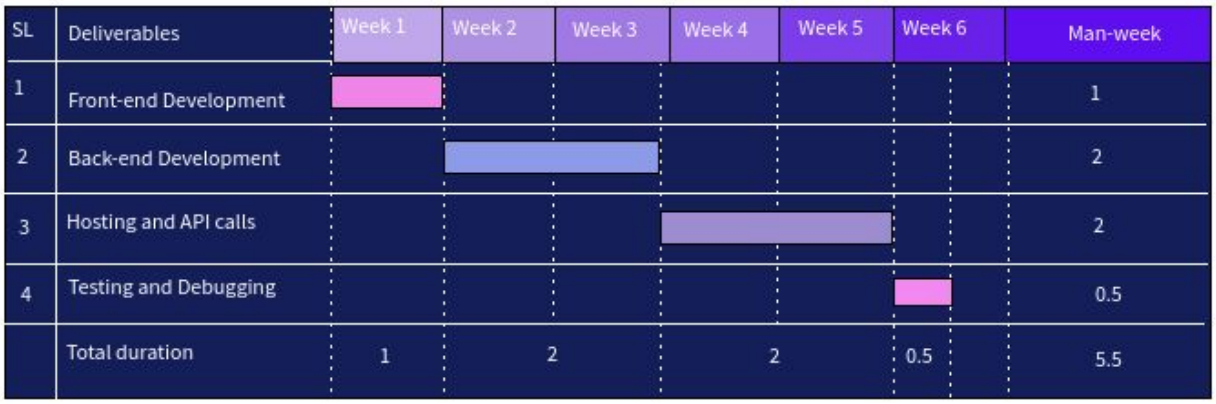
It will take 1/2 weeks for testing and debugging the project. We'll show the work by September. Thus, completing the final phase.

Deliverables:

In this phase, we'll be testing and debugging the website before finally submitting the project.

Collaboration Plan

Front-end :

Nusrat Ameen Barsha	Single book information page, payment page, About page
Bakhtiyar Habib	Feedback page, User profile page
Ihfaz Tahmid Morshed	Home page, User signup page, user login page
Abdullah All Rakib	Admin page, Book list categorised by genre page, Selected Genre book list

Project Schedule