
Design Document

Version 1.0

Created By

Group 01

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1 Project Overview

1.1 Problem definition

Currently, there are no proper means for tourists to book a tourist bus. A client must speak with multiple people in order to book a bus, and it must meet their requirements as well. Currently searching for these requirements is time-consuming. And even if they contact someone, the vehicle's condition or suitability is unknown. If there are any changes (If the trip is canceled or the vehicle cannot arrive) they cannot be notified and there will be a financial loss. There are so many difficulties a bus owner has to face when finding clients. Additionally, there is a chance to con or demand extra money from foreigners as well.

1.2 Problem Solution

The proposed solution is a website that allows easy booking of buses. The website displays available buses along with their features. Users can avoid a bad experience by checking the reviews of the vehicle given by previous travelers. The users are presented with many choices of buses with the ability to sort and filter. Therefore they can get the best deal. If there are any last-moment cancellations a fine will be automatically charged from the involved parties, and a cancellation percentage for the bus will be shown to support decision-making for the upcoming customers. Bus owners registering with the system will be exposed to many potential clients easily. Transparent pricing results in fair pricing to both local and foreign users.

For the front end, we are using HTML, CSS, and JS as all of us are familiar with them. Bootstrap will also be used for easier and faster development of the responsive front end. Express and NodeJs were chosen as the back-end technology in part because the members are familiar with JavaScript and also the popularity of the technology allows easier access to resources. MySQL was selected as the database solution as all group members have experience working with it.

1.3 Timeline

The project time line is mention in Figure 1.1

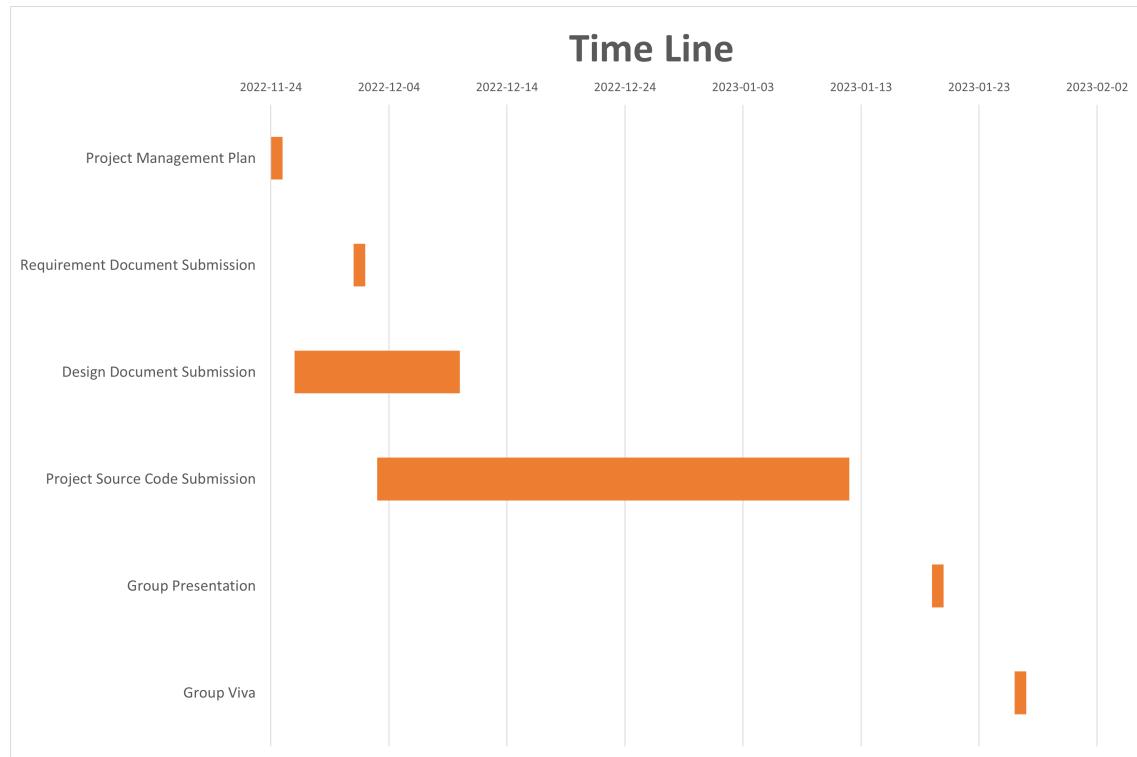


Figure 1.1: Project timeline

1.4 Team details

The following mentioned are the team members who work together on this project:

- Thenuri Sandara Hettiarachchi - CB010529
- Samadee Malinhara Kularatne - CB010659
- Sachintha Lakmin Kahingalage - CB010454

Technical Knowledge of the team members is mentioned in below Table 1.1

Technologies	Thenuri Sandara	Samadee Kularatne	Sachintha Kahingalage
HTML	✓	✓	✓
CSS	✓	✓	✓
JavaScript	✓	✓	✓
MySQL	✓	✓	✓
C#	✓	✓	✓
Python	✓	✓	✓
Flask	-	-	✓

Table 1.1: Technical Knowledge of members

1.4.1 Responsibilities of the team members

Thenuri Sandara - CB010529

- Repository management
- Team management
- Setting deadlines

Samadee Kularatne - CB010659

- Organizing meetings
- Updating documents

Sachintha Kahingalage - CB010454

- Note-taking
- Deployment
- Merge conflict resolution

1.5 Intended use

The design document is a written document that describes a software product in terms of the architecture of software with various components with specified functionality. It helps to ensure the software's design specs are understood and clear to all. It specifies what is possible with the product and how it can be accomplished. These design documents are written by software engineers/designers or project managers and further passed to the software development team to give them an overview of what needs to be built and how.

1.6 Intended audience

This document is intended for Customers, users, project managers, system analysts, and system designers of the project to gain a better understanding of the project. Mainly the developer audience will use this document as a guideline during the development process.

2 Wireframes

The Home Page is mentioned in Figure 2.1

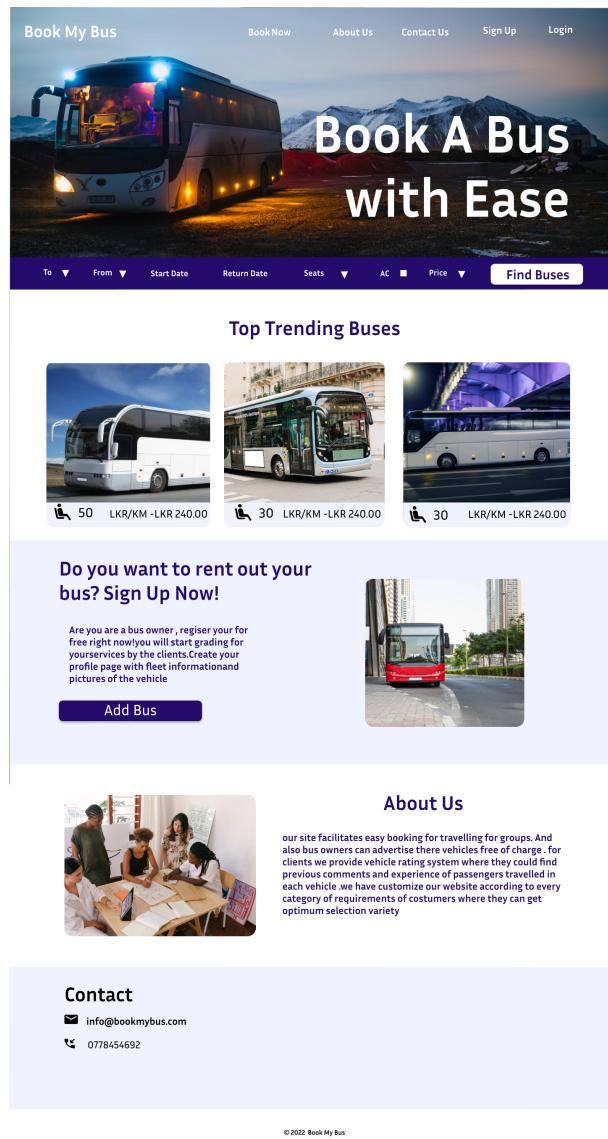


Figure 2.1: Home Page

The Login Page is mentioned in Figure 2.2

Book My Bus



Login

Username

Password

Login

Don't have an account? [Sign Up](#)

© 2022 Book My Bus

Figure 2.2: Login Page

The Sign up Page is mentioned in Figure 2.3

Book My Bus

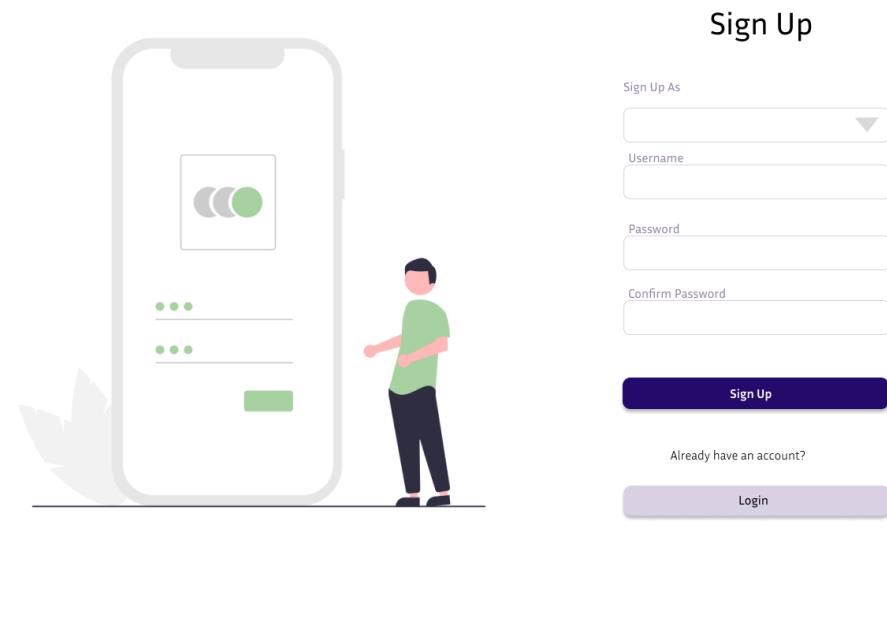


Figure 2.3: Sing up page

The Bus Manage Page is mentioned in Figure 2.4

The screenshot shows the 'Owner Dashboard' section of the Book My Bus website. On the left sidebar, there are links for 'Upcoming Trips', 'Pending Confirmation', 'Previous Trips', 'Cancelled Trips', and 'Manage buses'. Below these is a link to 'My Profile'. At the top right, there are navigation links: 'Book Now', 'About Us', 'Contact Us', 'Dashboard', and a user profile for 'Joe Biden'. The main content area is titled 'My Buses' and displays two bus entries: 'NA-1231' and 'NA-4040'. Each entry includes a thumbnail image of the bus, the bus number, price per KM (LKR 240.00), seat count (50), AC status, a 5-star rating icon, and a 'Manage' button. Below this, there is a form titled 'Add a new Bus' with fields for 'Bus Number', 'Number of Seats', 'Price per/KM', 'AC/NoN AC', and 'Driver Name'. To the right of the form is a placeholder for a bus photo with the text 'Add a photo of the bus'. A large blue 'Add Bus' button is at the bottom right of the form. The footer of the page contains the copyright notice '© 2022 Book My Bus'.

Figure 2.4: Bus Manage Page

The Owner Dashboard Page is mentioned in Figure 2.5

The screenshot shows the 'Owner Dashboard' section of the Book My Bus website. The left sidebar has a dark blue background with the 'Book My Bus' logo at the top, followed by 'Owner Dashboard' and several menu items: 'Upcoming Trips', 'Pending Confirmation', 'Previous Trips', 'Cancelled Trips', and 'Manage buses'. At the bottom of the sidebar is a 'My Profile' link. The main content area has a white background with a navigation bar at the top featuring 'Book Now', 'About Us', 'Contact Us', 'Dashboard', and a user profile for 'Joe Biden'. Below the navigation is a section titled 'Upcoming Trips' showing two trips: one from Colombo to Galle and another from Galle to Colombo, both on 13 Dec 2022. The next section is 'Pending Confirmation', showing a trip from Colombo to Galle on 13 Nov 2022. The following section is 'Previous Trips', showing a completed trip from Colombo to Galle on 13 Nov 2022 with a 5-star rating. The final section is 'Cancelled Trips', showing a canceled trip from Colombo to Galle on 13 Dec 2022. The footer contains a copyright notice: '© 2022 Bus by Cello'.

Figure 2.5: Owner Dashboard Page

The User Dashboard Page is mentioned in Figure 2.6

The screenshot shows the Book My Bus user dashboard. On the left, a dark sidebar contains the 'Book My Bus' logo at the top, followed by sections for 'My Trips' (Upcoming Trips, Pending Confirmation, Previous Trips, Cancelled Trips), and 'My Profile' at the bottom. The main content area has a light background. At the top right, there are navigation links: Book Now, About Us, Contact Us, Dashboard, and a profile icon for 'John Doe'. Below these are four sections: 'Upcoming Trips' (two trips listed), 'Pending Confirmation' (one trip listed), 'Previous Trips' (one trip listed with a 5-star rating), and 'Cancelled Trips' (one trip listed). Each trip entry includes a thumbnail image of a bus, the date, route details, price, and a 'Cancel' button.

Upcoming Trips

13 Dec 2022	Upcoming
Colombo	↔ Galle
NA-3029	50
LKR 30000	

Pending Confirmation

13 Nov 2022	Pending Confirmation
Colombo	↔ Galle
NA-3029	50
LKR 30000	

Previous Trips

13 Nov 2022	Completed
Colombo	↔ Galle
NA-3029	50
★★★★★	LKR 30000

Cancelled Trips

13 Dec 2022	Canceled
Colombo	↔ Galle
NA-3029	50
LKR 30000	

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Figure 2.6: User Dashboard Page

The Vehicle Details Page is mentioned in Figure 2.7

The screenshot shows the 'Vehicle Details' page of the Book My Bus website. At the top, there's a banner featuring a car interior with a steering wheel and dashboard, and a map on a screen. Navigation links include 'Book Now', 'About Us', 'Contact Us', 'Sign Up', and 'Login'. Below the banner, a large image of a blue and green bus is displayed. To the right of the bus, the bus number 'NA - 4321' is shown, along with a 5-star rating icon. Below the bus number, the text 'LKR/KM - 240.00' is listed. To the right of the bus number, contact information is provided: 'Bus Owner Name' (Joe Pathirana), 'Driver Name' (Sadun Lakshitha), 'Contact Number' (0775482478), and 'Non - AC'. At the bottom of the page, there are search fields for 'TO', 'From', 'Start Date', and 'Return Date', followed by a prominent 'Book Now' button.

Figure 2.7: Vehicle Details Page

The my Profile Details Page is mentioned in Figure 2.8

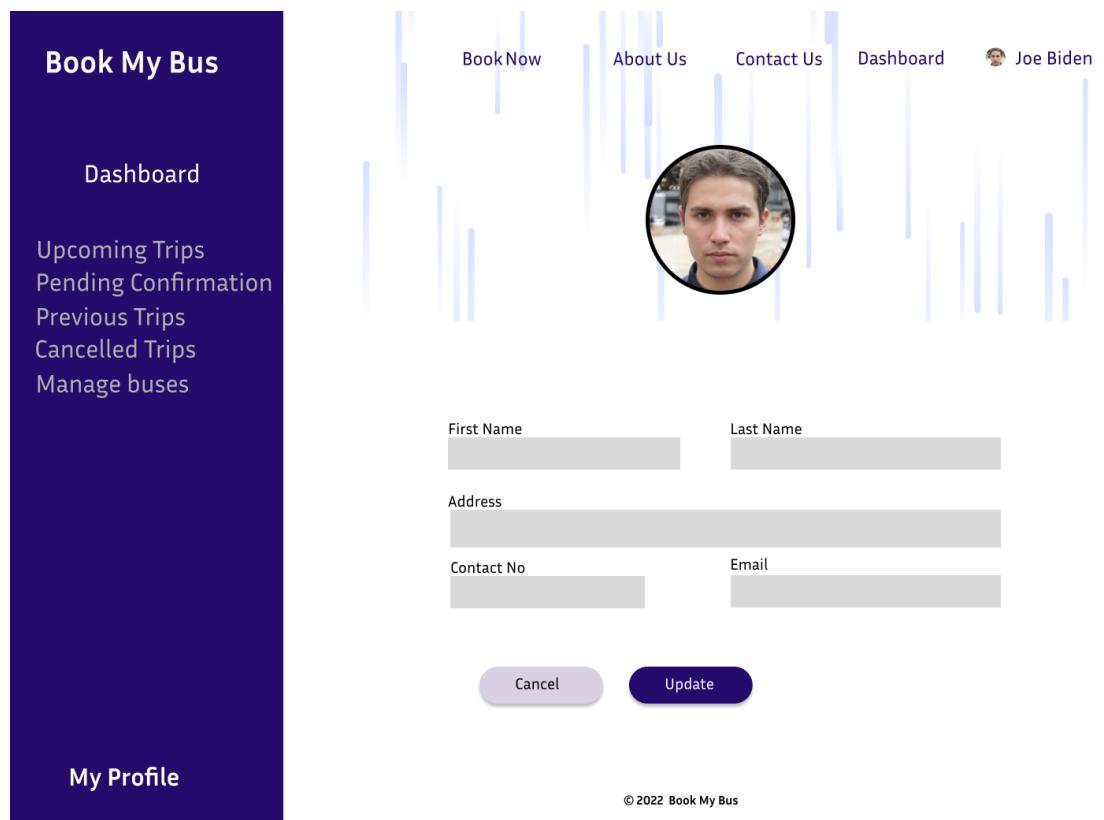


Figure 2.8: my Profile Details Page

The Vehicles Page is mentioned in Figure 2.9

The screenshot shows the 'Vehicles' section of the Book My Bus website. At the top, there's a navigation bar with links for 'Book Now', 'About Us', 'Contact Us', 'Sign Up', and 'Login'. Below the navigation is a search bar with fields for 'From', 'Start Date', 'Return Date', 'Vehicle Type', 'Seats', 'AC', and 'Price', followed by a 'Filter' button. The main content area displays two bus options:

- NA-1231**: LKR/KM -LKR 240.00. Features a blue and white bus image, 50 seats, AC, and a 4.5-star rating. A 'Book' button is present.
- NP-1458**: LKR/KM -LKR 257.00. Features a white bus image, 30 seats, AC, and a 4.5-star rating. A 'Book' button is present.

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Figure 2.9: Vehicles Page

The Admin Dashboard Page is mentioned in Figure 2.10

The screenshot shows the Admin Dashboard page for "Book My Bus". The header includes the logo "Book My Bus" and navigation links: Book Now, About Us, Contact Us, Dashboard, and a user profile for "Admin1". The main content area is titled "Admin Dashboard" and contains two sections: "Manage Users" and "Manage Bus Owners".

Manage Users: This section displays three user profiles, each with a placeholder image of a man named "John Smith". Each profile includes a "Suspend" button (gray outline) and a "Delete User" button (red outline). The "Delete User" button is highlighted with a red border.

User	Action
John Smith	Suspend / Delete User (highlighted)
John Smith	Suspend / Delete User
John Smith	Suspend / Delete User

Manage Bus Owners: This section displays three bus owner profiles, each with a placeholder image of a man named "John Smith". Each profile includes a "Suspend" button (gray outline) and a "Delete User" button (red outline). The "Delete User" button is highlighted with a red border. Below each profile is a rating of five stars.

User	Rating	Action
John Smith	★★★★★	Suspend / Delete User (highlighted)
John Smith	★★★★★	Suspend / Delete User
John Smith	★★★★★	Suspend / Delete User

At the bottom left is a "My Profile" link, and at the bottom center is the copyright notice "© 2022 Bus by Cello".

Figure 2.10: Admin Dashboard Page

The Payment Page is mentioned in Figure 2.11

Book My Bus Book Now About Us Contact Us Dashboard John Doe

The screenshot shows a payment page for a bus trip from Colombo to Kandy. At the top left is a photo of a blue double-decker bus. To its right, the text "We accept" is followed by logos for VISA, Mastercard, DISCOVER, and AMERICAN EXPRESS. Below this, there are input fields for Name On Card, Card Number, Expiry, and CVV. A large purple "Pay" button is at the bottom right. The bus details on the left include: NA - 4321, ★★★★☆ rating, LKR/KM - 240.00, 50 seats, Non - AC, Start Date 16 Dec 2022, and Return Date 17 Dec 2022. The trip information is Colombo ↔ Kandy, and the total fare is LKR 50000.

NA - 4321
★★★★☆
LKR/KM - 240.00
50
Non - AC
Start Date 16 Dec 2022
Return Date 17 Dec 2022

Bus Owner Name Joe Pathirana
Driver Name Sadun Lakshitha
Contact Number 0775482478

Colombo ↔ Kandy
LKR 50000

We accept

VISA Mastercard DISCOVER AMERICAN EXPRESS

Name On Card

Card Number

Expiry CVV

Pay

© 2022 Book My Bus

Figure 2.11: Payment Page

The Update Bus Page is mentioned in Figure 2.12

The screenshot shows the 'Update Bus Details' page. At the top, there is a navigation bar with links for 'Book Now', 'About Us', 'Contact Us', 'Dashboard', and a user profile for 'Joe Biden'. Below the navigation bar, there is a back arrow icon and the title 'Update Bus Details'. On the left side, there is a vertical list of input fields: 'Bus Number:', 'Number of Seats:', 'Price per/KM', 'AC/NoN AC:', and 'Driver Name:'. To the right of these fields is a large, light-grey rectangular area with the placeholder text 'Add a photo of the bus'. At the bottom of the page, there are two buttons: a red-bordered 'DELETE BUS' button and a dark blue 'Save' button. A small copyright notice '© 2022 Bus by Cello' is located at the very bottom center.

Figure 2.12: Update Bus Page

3 Storyboard

The User Flow is mentioned in Figure 3.1

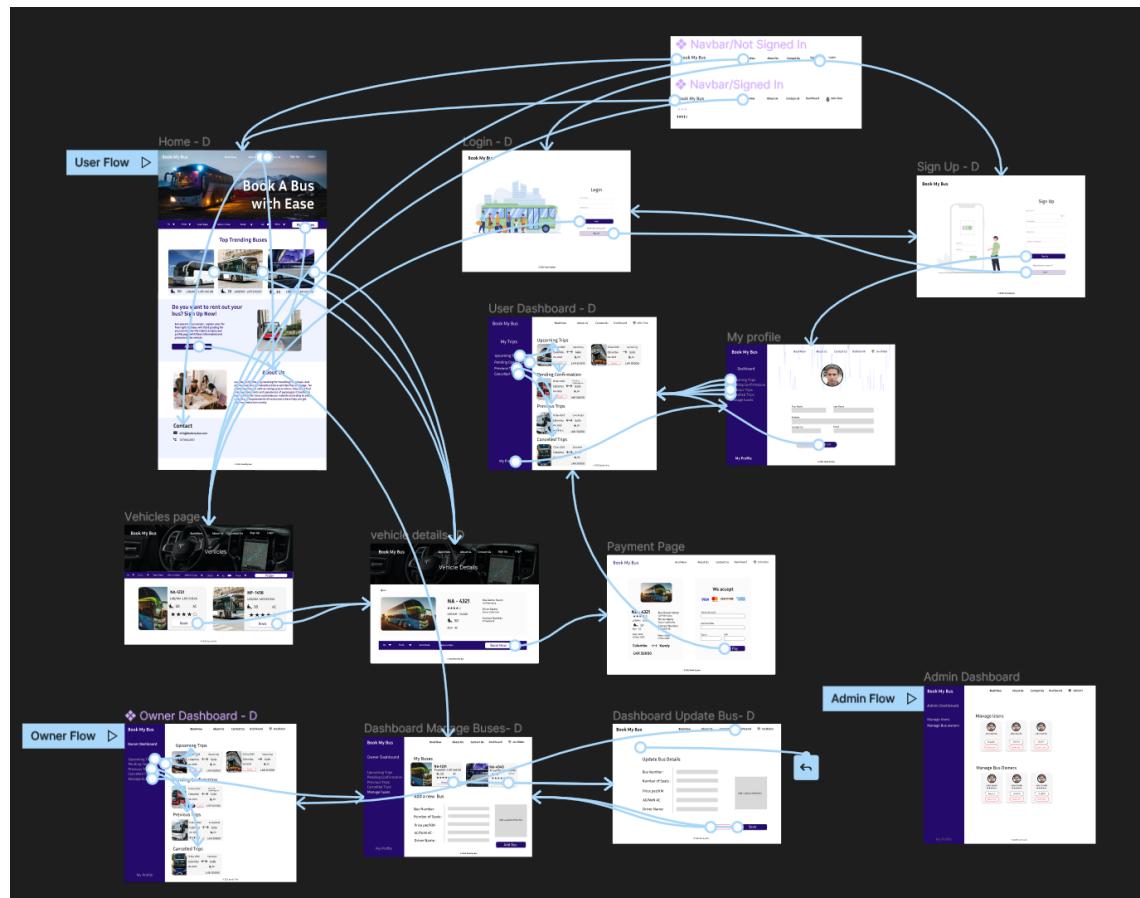


Figure 3.1: User Flow

The Owner Flow is mentioned in Figure 3.2

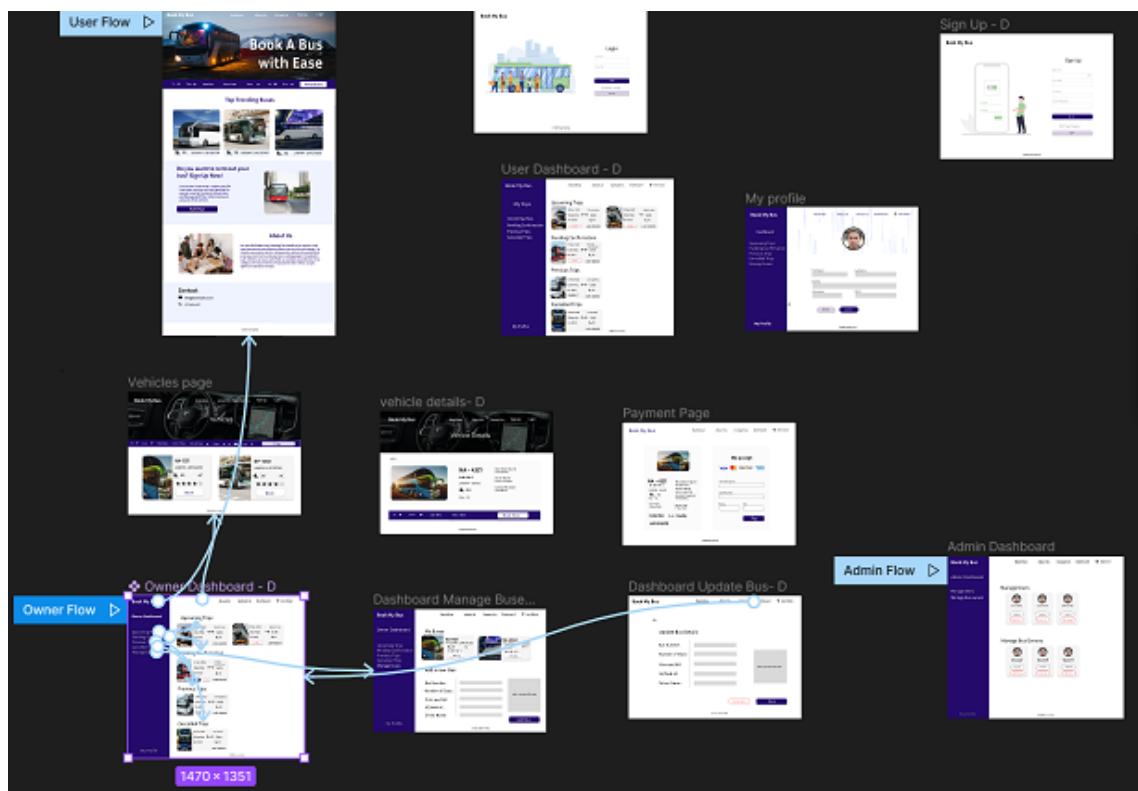


Figure 3.2: Owner Flow

The Admin Flow is mentioned in Figure 3.3

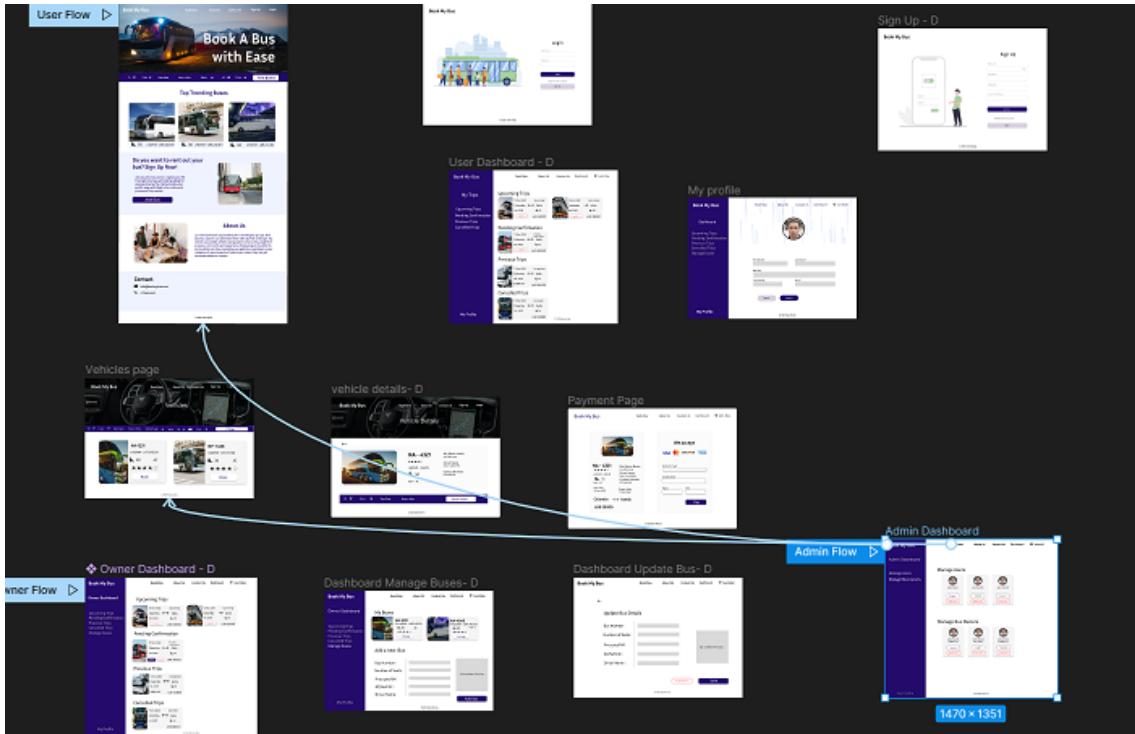


Figure 3.3: Admin Flow

3.1 High Fidelity Prototype

The link for the Figma high fidelity prototype is given below.

<https://www.figma.com/proto/vwzKW8duJqtsdCAOPIrY9i/Bus-Booking-Site?node-id=75%3A481&starting-point-node-id=75%3A481&showproto-sidebar=1>

4 Database Design

4.1 Unnormalized Form (UNF)

User-ID
Email
Password
Account-ID
Account-Type
Account-Status
First-Name
Last-Name
Address
ContactNo
Profile-Pic
Bus-ID
Bus-No
No-Of-Seats
AC-Status
Price-Per-km
Bus-Availability
Bus-Image
Bus-Description
Driver-Name
Bus-Owner-ID
Bus-Owner-Name
Bus-Owner-ContactNo
Trip-ID
Trip-From
Trip-To
Trip-Status
Trip-Rating
Trip-Comments
No-Of-km
Trip-Amount
Trip-Start-Date
Trip-Return-Date
Trip-Start-Time

4.2 First Normal Form (1NF)

4.2.1 USER TABLE

User-ID
Account-ID
Email
Password
Account-Type
Account-Status
First-Name
Last-Name
Address
ContactNo
Profile-Pic

4.2.2 TRIP TABLE

Trip-ID
Bus-ID
User-ID*
Bus-No
No-Of-Seats
AC-Status
Price-per-km
Bus-Availability
Bus-Image
Bus-Description
Driver-Name
Bus-Owner-ID
Bus-Owner-Name
Bus-Owner-ContactNo
Trip-From
Trip-To
Trip-Status
Trip-Rating
Trip-Comment
No-Of-km
Trip-Amount
Trip-Start-Date
Trip-Return-Date
Trip-Start-Time

4.3 Second Normal Form (2NF)

4.3.1 USER TABLE

User-ID
Account-ID
Email
Password
Account-Type
Account-Status
First-Name
Last-Name
Address
ContactNo
Profile-Pic

4.3.2 TRIP TABLE

Trip-ID
User-ID*
Bus-ID*
Trip-From
Trip-To
Trip-Status
Trip-Rating
Trip-Comment
No-Of-km
Trip-Amount
Trip-Start-Date
Trip-Return-Date
Trip-Start-Time

4.3.3 BUS TABLE

Bus-ID
Bus-No
No-Of-Seats
AC-Status
Price-Per-km
Bus-Availability
Bus-Image
Bus-Description
Driver-Name
Bus-Owner-ID

Bus-Owner-Name
Bus-Owner-ContactNo

4.4 Third Normal Form (3NF)

4.4.1 USER TABLE

User-ID
First-Name
Last-Name
Address
ContactNo
Profile-Pic
Account-ID*

4.4.2 ACCOUNT TABLE

Account-ID
Email
Password
Account-Type
Account-Status

4.4.3 BUS TABLE

Bus-ID
Driver-ID*
Bus-Owner-ID*
Bus-No
No-Of-Seats
AC-Status
Price-Per-km
Bus-Availability
Bus-Image
Bus-Description

4.4.4 BUS OWNER TABLE

Bus-Owner-ID
Bus-Owner-Name
Bus-Owner-ContactNo
Account-ID*

4.4.5 DRIVER TABLE

Driver-ID
Driver-Name

4.4.6 TRIP TABLE

Trip-ID
User-ID*
Bus-ID*
Trip-From
Trip-To
Trip-Status
Trip-Rating
Trip-Comment
No-Of-km
Trip-Amount
Trip-Start-Date
Trip-Return-Date
Trip-Start-Time

4.5 ER Diagram

The ER Diagram is mentioned in Figure 4.1

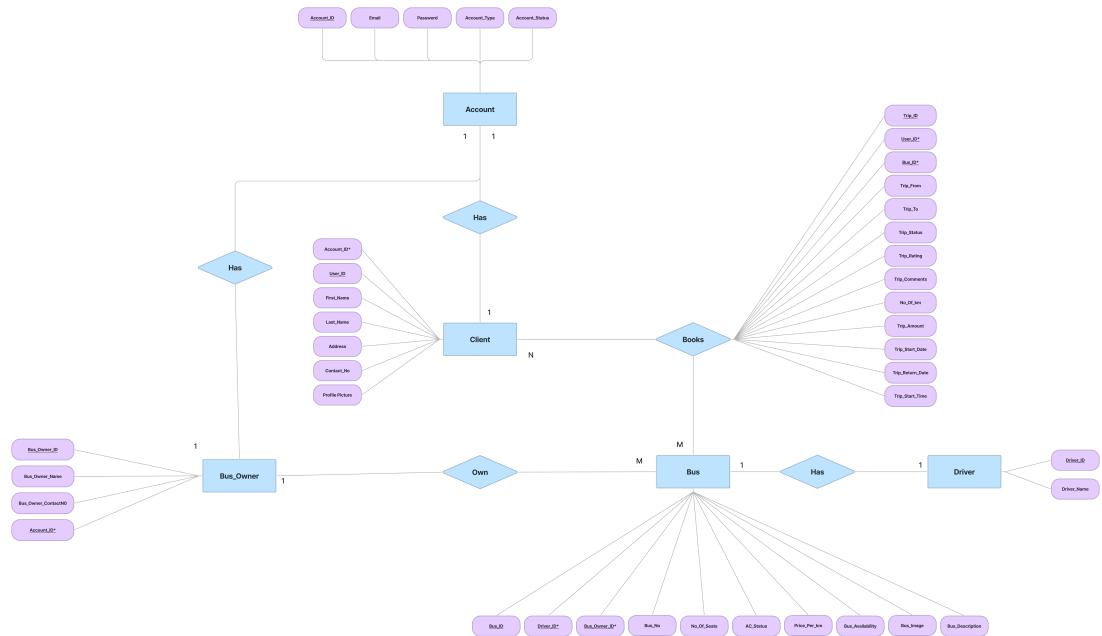


Figure 4.1: ER Diagram

5 Conclusion

The design decisions of the web page were done carefully in order to maximize the visual appeal. A dark blue color was chosen as the main accent color, light blue, grey and white were the other main colors used in the color pallet to create a calming color pallet. A red accent was used in buttons such as cancellations and deletions. This was done to provide the user with a visual cue that the button would perform an action with irreversible damage. The font "Inria Sans" was used throughout the website as it is professional and modern looking. Cards were used to display information in an eye-catching organized manner. Bootstrap was used to accelerate the development while maintaining consistency with the use of pre-built components and styling. To store data related to the service a relational database model was chosen. This was done as the data needed by the application is structured and having clear relationships between the entities.