CSE471: System Analysis and Design

Project Report

Project Title: Fix and Service

Group No : 7, CSE471 Lab Section :03, Summer 2023	
ID	Name
20101273	Syed Istiaque Ahmed
20101439	Tahsin Tanim Ramisha
23141043	Mustafizur Rahman Bhuiyan

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Introduction:

"Fix and Service" emerges as the beacon for automotive aficionados and everyday drivers alike. With an extensive inventory of meticulously sourced car and bike parts, every customer is assured of finding the perfect match for their vehicle's needs. But "Fix and Service" is more than just a parts provider. Recognizing the challenges faced by vehicle owners in seeking trusted mechanics, the platform ingeniously connects users to skilled professionals in their vicinity. The pioneering location feature offers users the luxury of pinpointing the exact location of available mechanics, transforming potential hours of waiting into mere moments. Whether it's an unforeseen breakdown on the highway or the routine maintenance in the comfort of one's driveway, "Fix and Service" eliminates the guesswork, ensuring that reliable, expert assistance is always within reach. Dive deeper into the world of "Fix and Service" and unlock a realm of automotive solutions designed with precision, care, and the modern driver in mind.

Functional Requirements:

Module 1 (Signup/Login/Register):

1.1 Signup (User):

This section discusses the procedure for creating accounts for new users so they may interact with the platform easily.

1.2. Signup (Admin)

This section describes the administrative account setup process for system access and looks at the manual registration of the admin within the database.

1.3. Login:

This section covers the login procedure made available to users and administrators who have registered, with a particular emphasis on granting access to the platform after registration is complete.

Module 2 (User Page):

2.1. Product Showcase:

This section describes a detailed overview of all products, which includes information like prices and photos to improve user browsing.

2.2. Show Mechanic List:

This section describes how registered mechanics are shown to users, giving them an overview of the mechanic alternatives on the platform.

2.3. Find Mechanic:

This section emphasizes how finding mechanics near them is made easier by the user's ability to search for them depending on their geographic location.

2.4. Search Mechanic:

This section highlights the feature that enables users to look for mechanics in their local area and get pertinent information about their services.

Module 3 (Proceed to Purchase):

3.1. Add Product:

Users have the option to add preferred products in this regard, allowing them to customize and personalize their shopping experience.

3.2. Delete Product:

Users of this feature have the option to take away items they've added, giving them control over their product choices and assuring a flexible purchasing experience.

3.3. Product Purchase:

Users can utilize this feature to finish product purchases, supporting a smooth transaction procedure for getting the things they want.

Module 4 (Calling Function):

4.1. Mechanic List:

This area gives consumers access to mechanic information, such as contact information and business hours, making it easier for them to get in touch with mechanics.

4.2 Search by zone:

This feature simplifies the process of finding mechanics in desired regions by allowing users to search for mechanics based on specific names of locations.

4.3. Tracing:

Through distance calculations, this feature enables users to find nearby mechanics, improving the user experience by offering precise location information.

Module 5 (Admin Panel):

5.1. Dashboard:

This part offers an evaluation of the platform's financial performance through an analysis that displays sales information and profit margins.

5.2. Product List:

The admin has the option to change or remove products using this facility, which presents a complete list of all products.

5.3. Mechanic List:

Users can browse a complete list of all registered mechanics with this function, which gives them an overview of the mechanics registered on the site.

5.4. Customer:

In this instance, the admin has the power to modify or remove user accounts in order to regulate administrative access and manage user data.

5.5. Add Mechanic:

The adding, editing, and deletion of mechanics at the admin's request provides insights into the management process and how it relates to user experience.

5.6. Add Product:

Addition of a new product that was initiated by the administrator, and insights into critical metrics, trends, improvement tactics, and user involvement to improve user outcomes.

User Manual:

There are two major portions of our web application. There is the user interface and admin interface. Hence, the user manual is described in two sections.

1. **User Side:** A user and admin class will extend the user class, which is an abstract class. They include statement connects the necessary front-end codes

Authentication/ Registration:

To become a member of Fix & Service, users need to register. The registration module is shown in figure 21. It needs an email address and a password. It sends a confirmation message to the email to verify the email address, which is shown in figure 1.

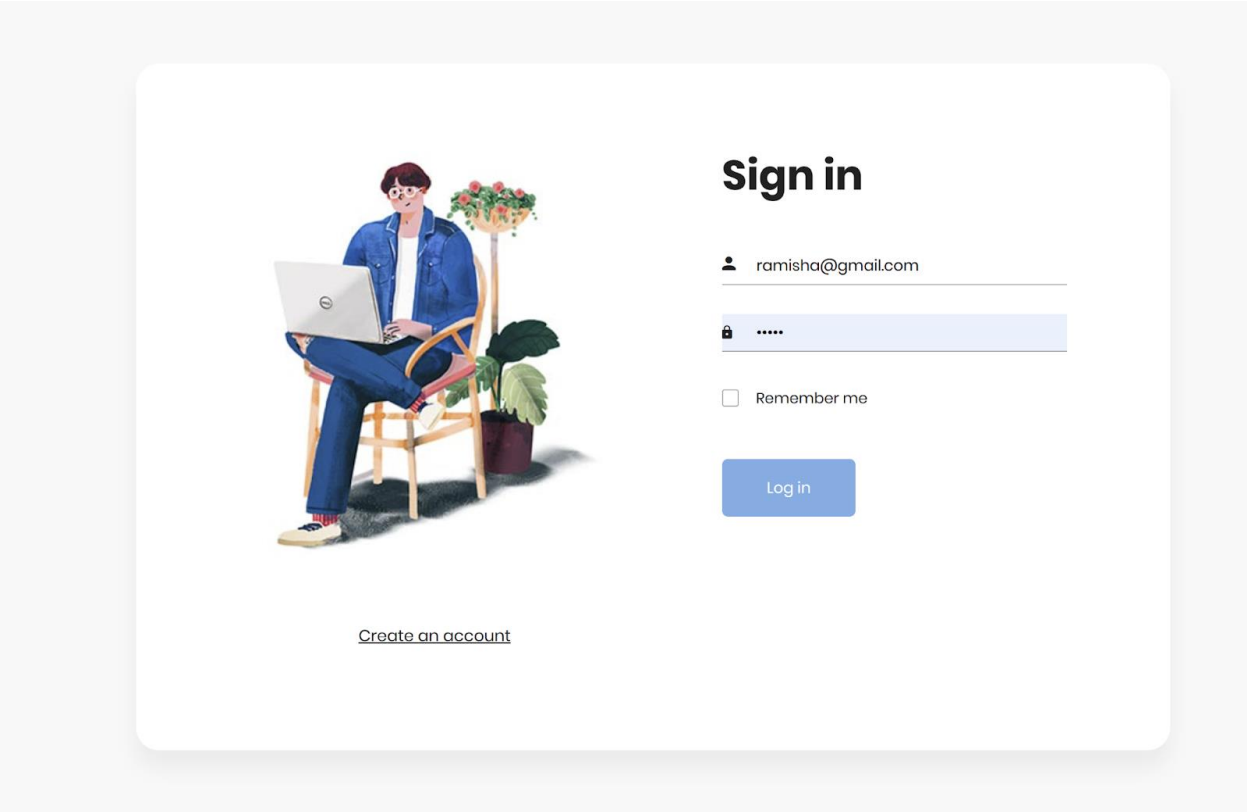


Fig. 1

Homepage:

Registered members are shown this page, where they can choose a product they like and buy it shown in fig.2.

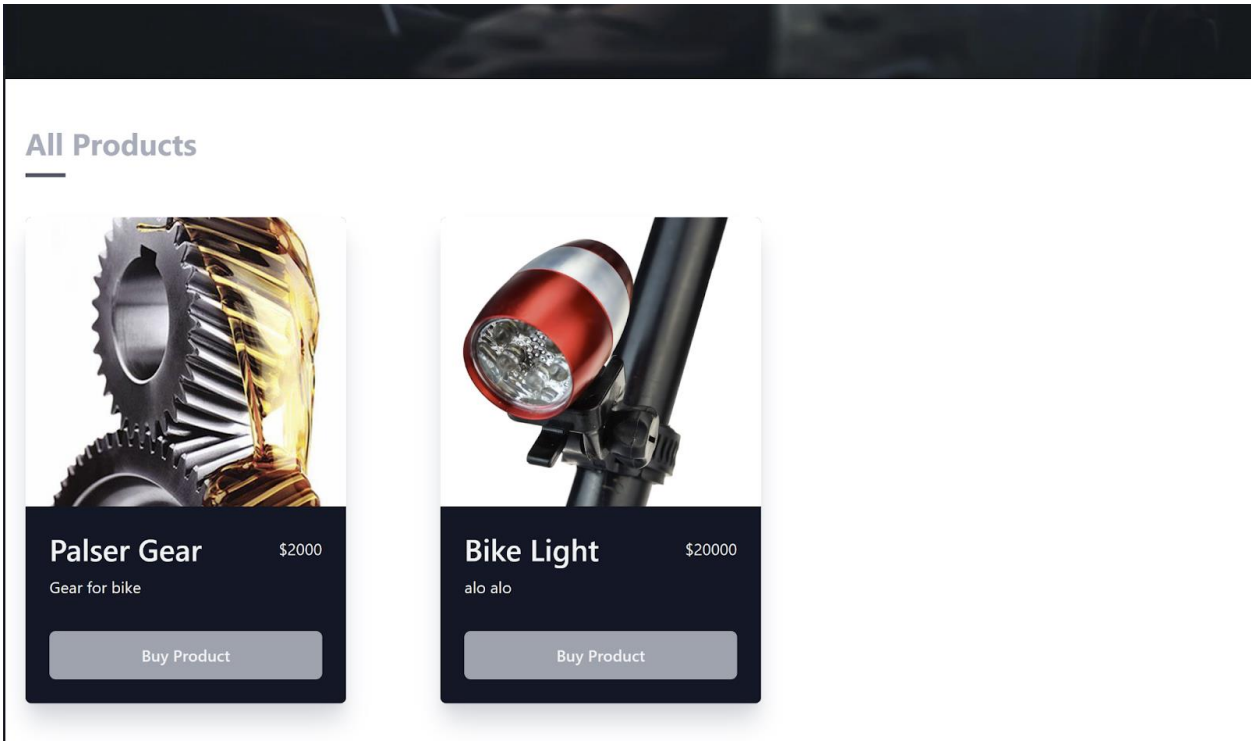


Fig. 2

Navigation Bar:
Here in fig. 3 user sees all the services we provide. (Find mechanics, Mechanic).

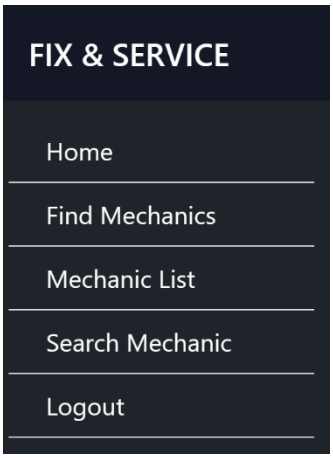


Fig.3

Live Location:

Here user gets to see mechanics' location as well as their location. Hereafter, distance is calculated based on the mechanic and user location and the location gets mapped.

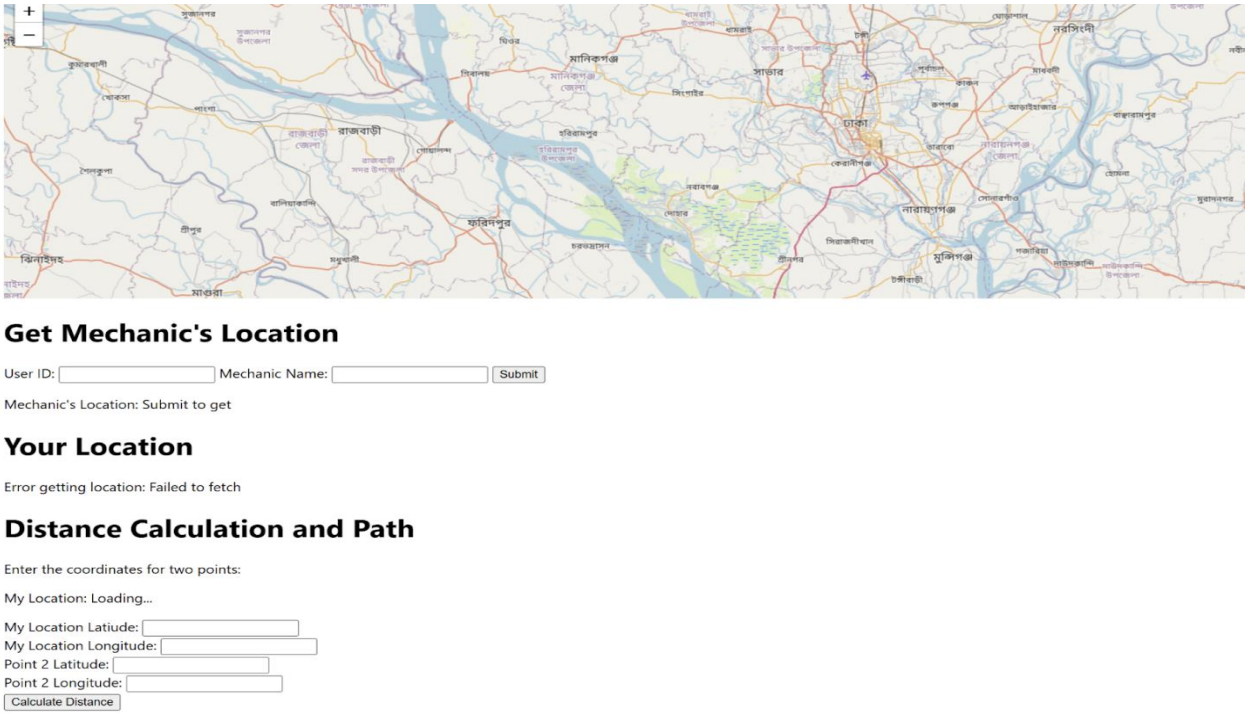


Fig. 4

Mechanic Information:

Here user can see all the mechanic registered and available in our site.

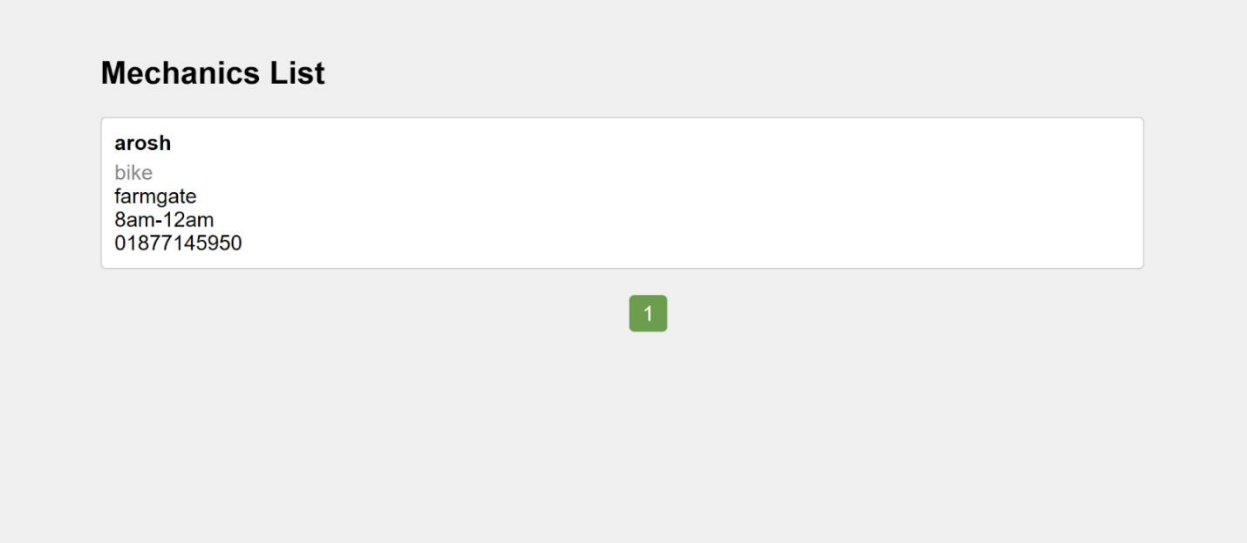


Fig. 5

Mechanic Search:

Based on the area name, user can search for the mechanic.

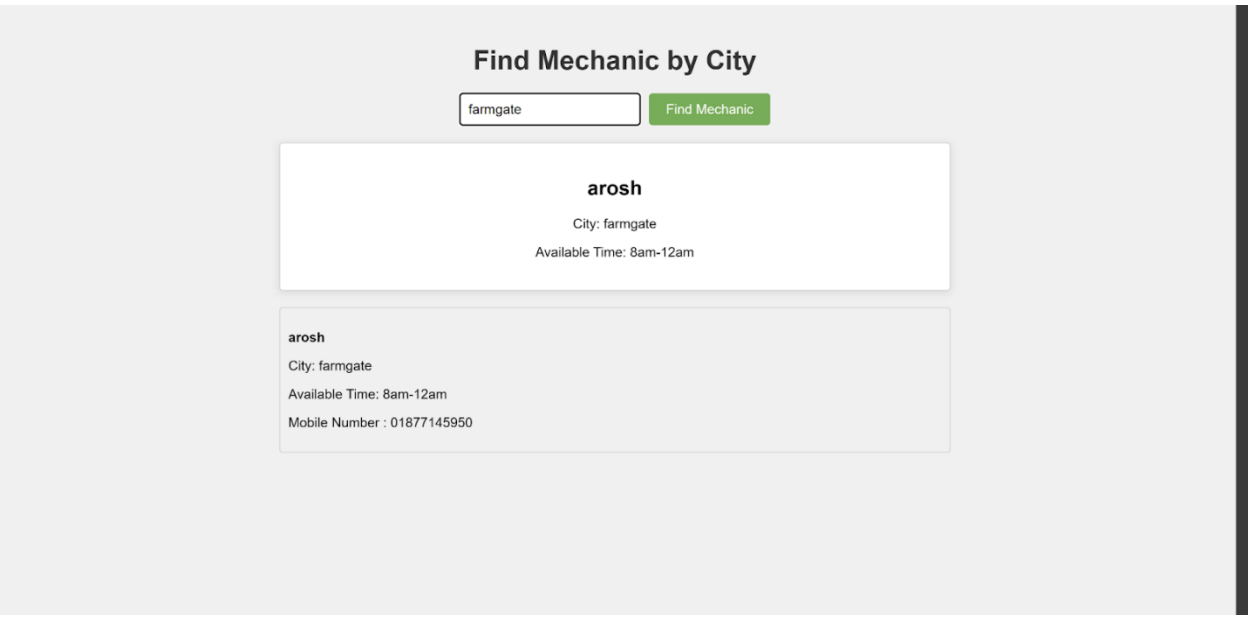


Fig. 6

Product Purchase:

After clicking on the Buy Product, user will be redirected to this page. Here, the can select the quantity of the product and proceed to purchase based on that.

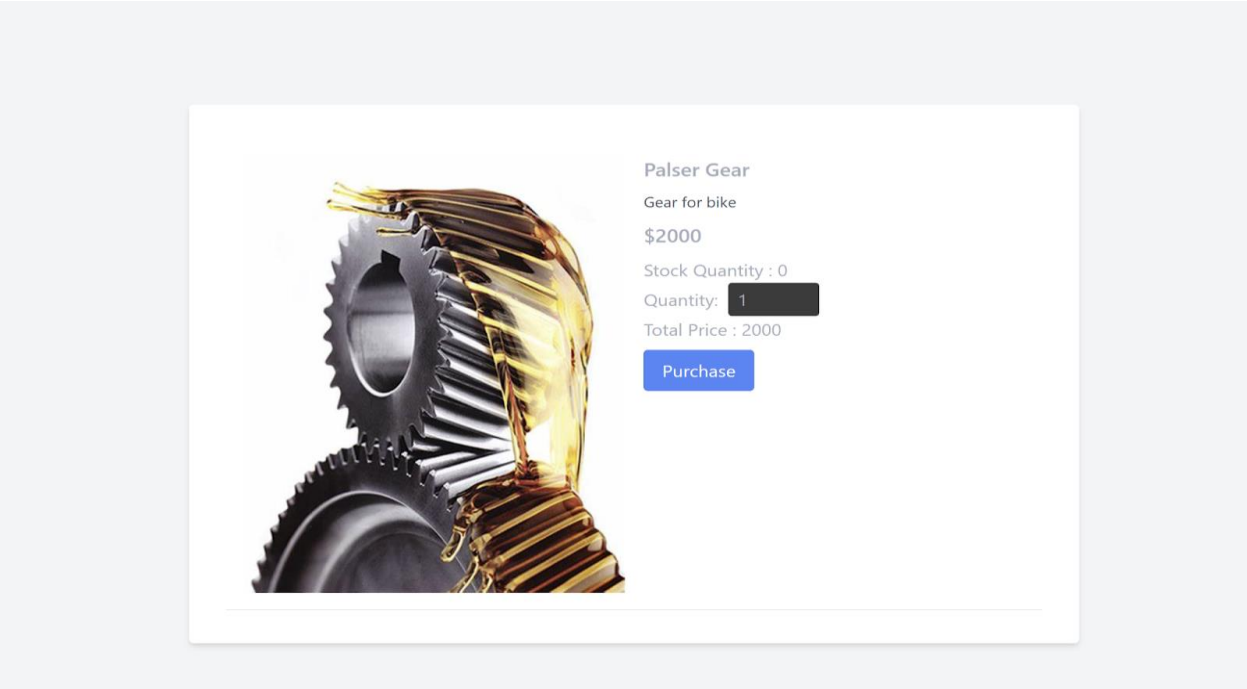


Fig. 7

2. Admin Interface:

This admin homepage helps admin to analyze the overall progress of the business. Here, admin see the total products, sells and customers. Moreover, admin can also track the total loss and total profit.

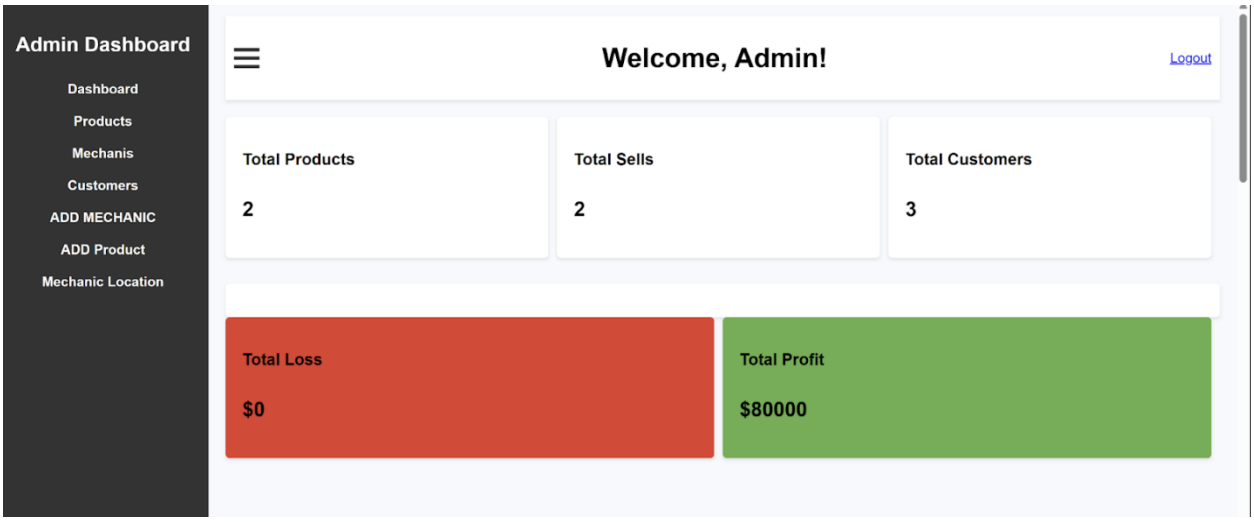
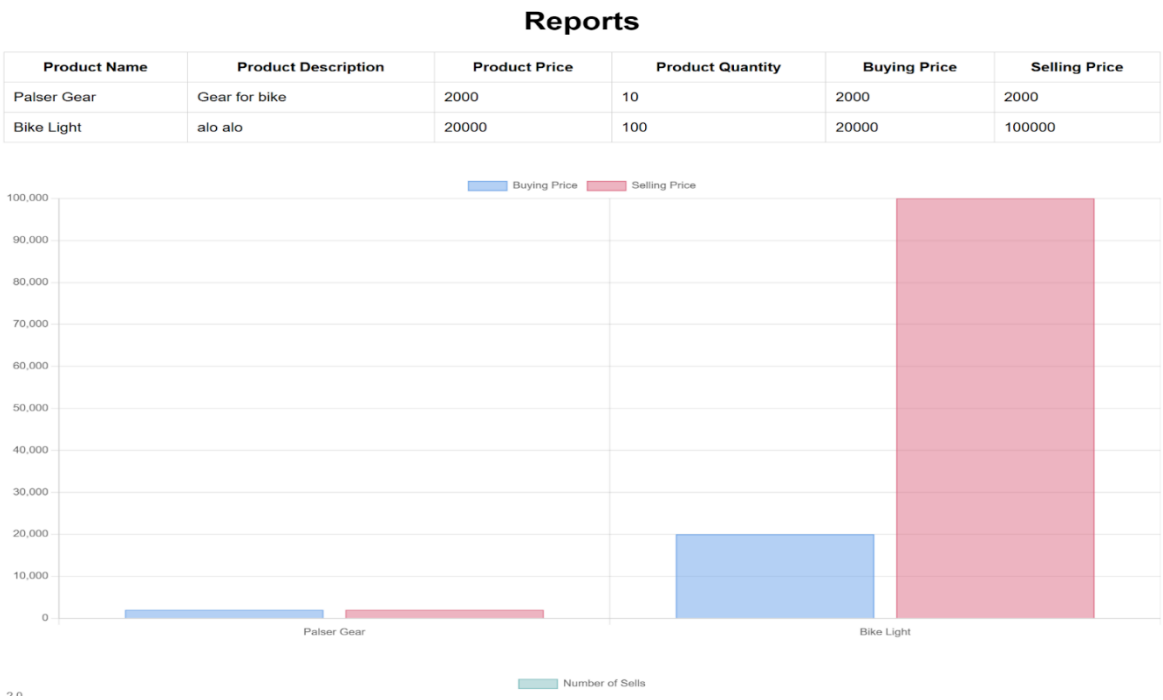


Fig. 8

Dashboard:
This dashboard page generates an bar chart based on the buying price and selling price which helps the admin to get a visual representation of the business state.



Product Name	Product Description	Product Price	Product Quantity	Buying Price	Selling Price
Palser Gear	Gear for bike	2000	10	2000	2000
Bike Light	alo alo	20000	100	20000	100000

Fig. 9

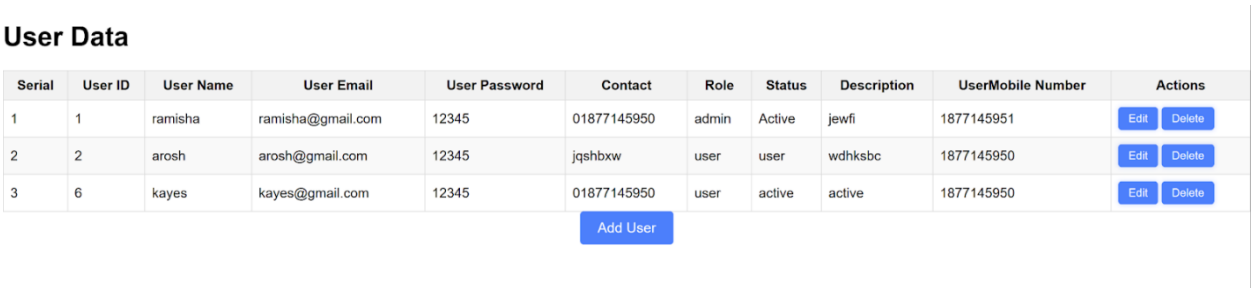
Product Data:
All the product data are shown here. Moreover, the admin can edit and delete the product from here.

Product Data

Serial	ProductId	ProductName	ProductDescription	ProductPrice:	ProductImage	ProductCategory	ProductQuantity	ProductStatus	ProductRating	ProductReview	Actions
1	2	Paiser Gear	Gear for bike	2000	https://th.bing.com/th/id/OIP.nlJ0v1fXNHTksK7Tp4oYkwHaJm?pid=ImgDet&rs=1	Bike	0	Out of Stock	5	Good	Edit Delete
2	4	Bike Light	alo alo	20000	https://th.bing.com/th/id/R.a021be963db6c36361956052490bdbd7?rik=znTOvt%2fqWX%2fZ3g&pid=ImgRaw&r=0	bike	95	In Stock	5	good	Edit Delete

Fig. 10

User Data:
Here all the user, mechanic and admin data are shown. Admin has the capability to edit and delete the information.



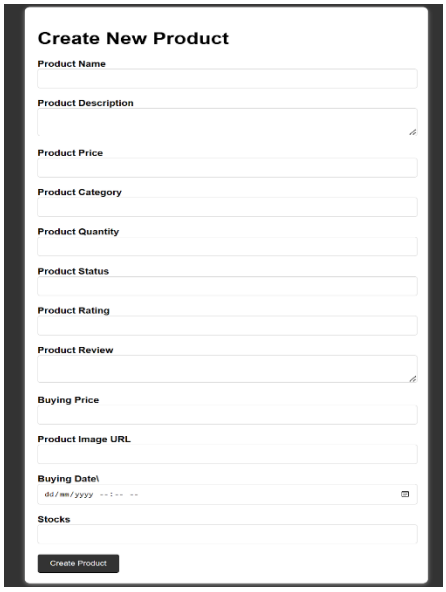
User Data

Serial	User ID	User Name	User Email	User Password	Contact	Role	Status	Description	UserMobile Number	Actions
1	1	ramisha	ramisha@gmail.com	12345	01877145950	admin	Active	jewfi	1877145951	Edit Delete
2	2	arosh	arosh@gmail.com	12345	jqshbxw	user	user	wdhksbc	1877145950	Edit Delete
3	6	kayes	kayes@gmail.com	12345	01877145950	user	active	active	1877145950	Edit Delete

Add User

Fig. 11

Add New Product:
Admin can add new product through this page.



Create New Product

Product Name

Product Description

Product Price

Product Category

Product Quantity

Product Status

Product Rating

Product Review

Buying Price

Product Image URL

Buying Date\

dd/mm/yyyy --:-- --

Stocks

Create Product

Fig. 12

Update user information:
Admin can update the user information.

Fig. 13

Delete User:
Admin can also delete the user.

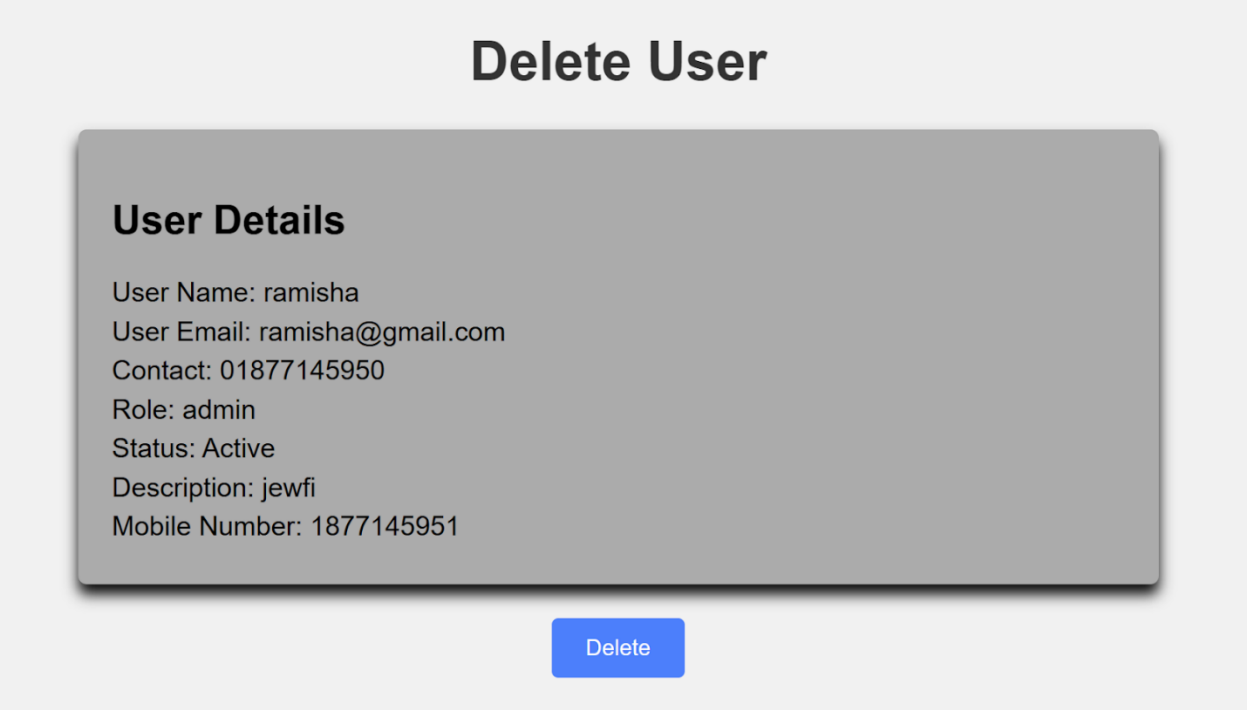


Fig. 14

Add New Mechanic:

Admin can add new mechanic.

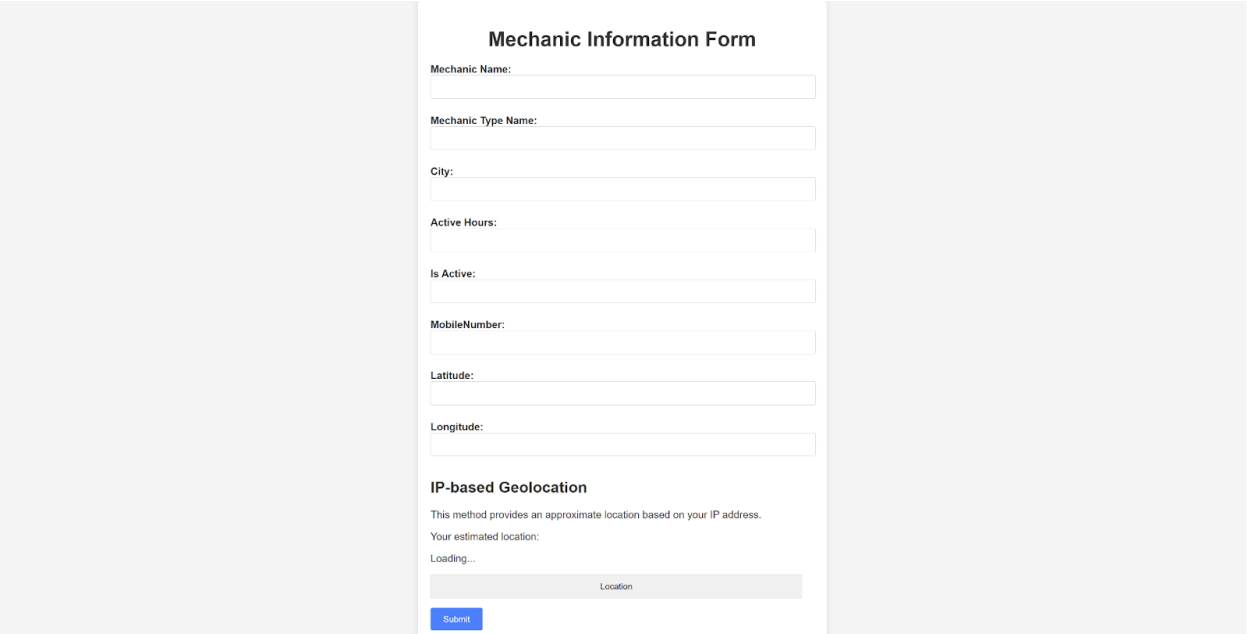


Fig. 15

Add New Product:

Admin can also add new product.

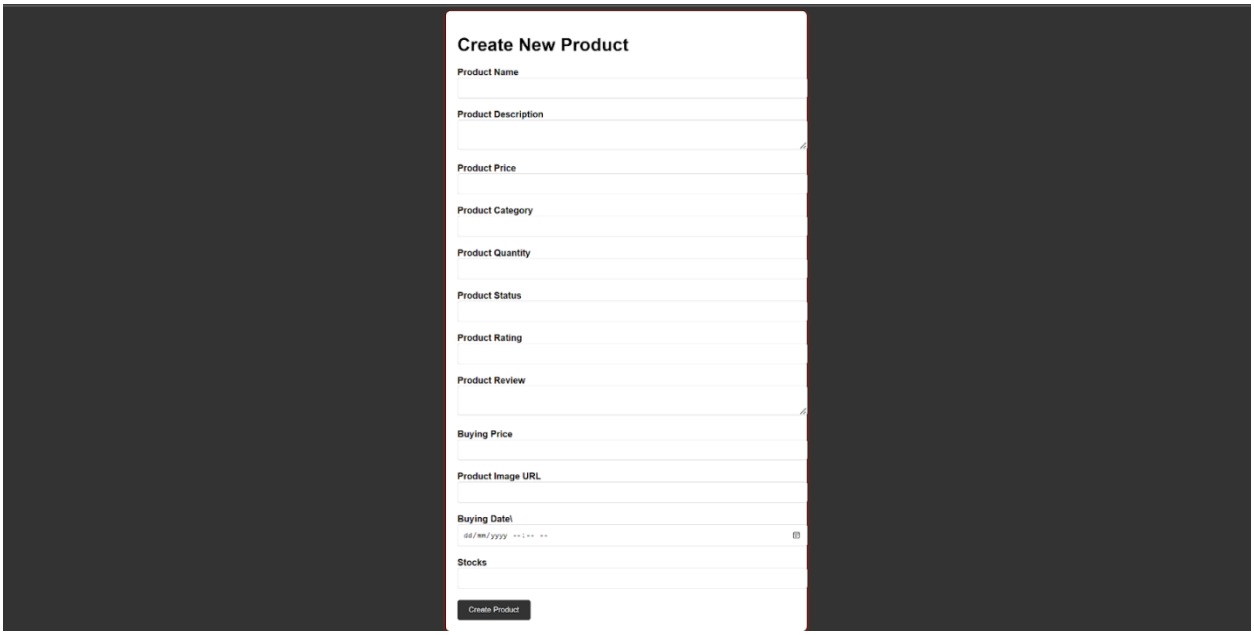


Fig: 16

Frontend Development:

Our website is predominantly built using HTML and React for the frontend. However, we've leveraged React for the homepage to enhance interactivity and user experience. To seamlessly integrate both elements, we utilize localhost as a platform to combine and serve the files.

Fig.1 (React Code snippet)

Fig.1 (HTML Code snippet)

Backend Development:

Our website's backend is crafted using TypeScript, ensuring strong typing and enhanced code maintainability. We've chosen the NestJS framework, a progressive Node.js framework built with TypeScript, to structure our backend. NestJS not only provides a modular architecture, but also integrates a collection of robust libraries, enabling efficient development and scalability.

Database Connection:

Here we connected our database with the code in (database.Config.ts). We used Mysql Work bench as our data storage.

Fig.1 (DatabaseConfig.ts Code Snippet)

Creating Database:

In nest.js we can create database from the code and connect it. So here we created the database of admin and defined their variable types.

Fig.2 (Admin.ts Code Snippet)

Services:

In the services the code provide the important commands to serve the need of the codes. Here in AdmminServices.ts we called the functions such as, findAll, fineOne, findemail, findpassword etc.

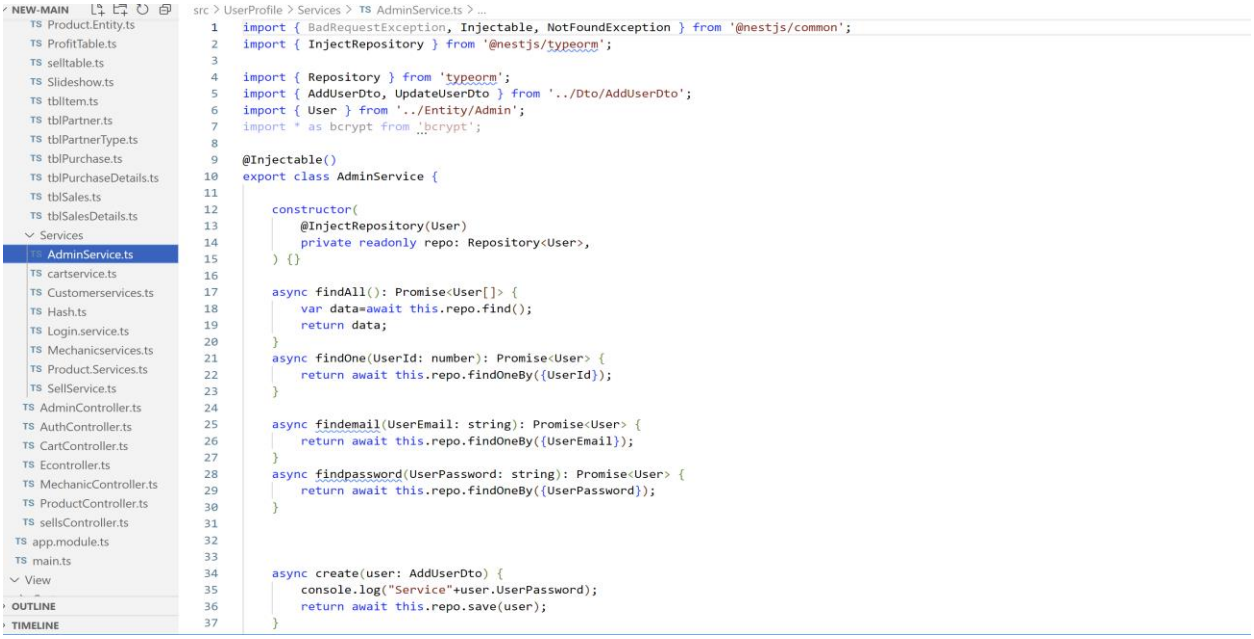


Fig.3 (AdminService.ts Code Snippet)

Controller:

Here the controller works as the middle man of the services and dto. In the AdminController.ts the controller passes the methods of get, post, put as it manipulates the databse and after the end product it give the result from the database to view.

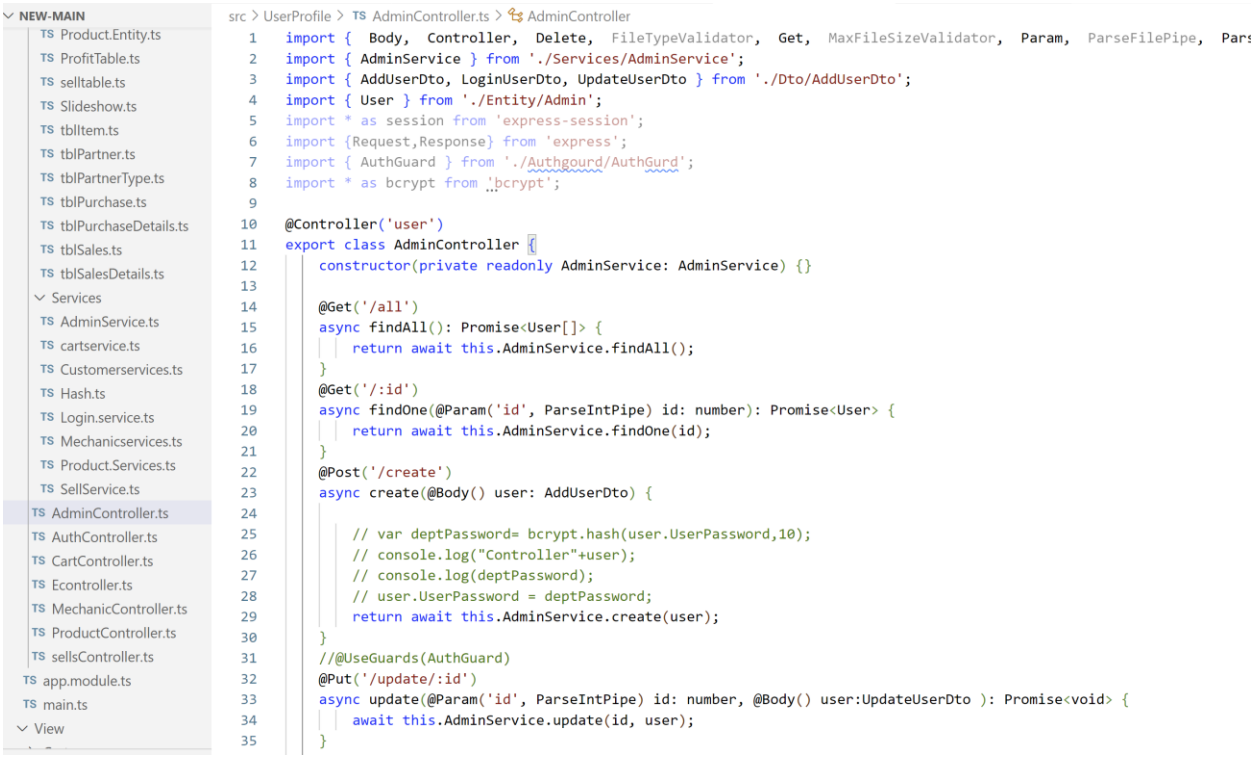


Fig. 4 (AdminContrller.ts Code Snippet)

Technology Used:

Frontend: HTML, CSS

Backend: Typescript

Framework: Nestjs

Github Repository Link:

https://github.com/SyedIstiaqueAhmed

Individual Contribution:

ID	Name	Contribution
20101273	Syed Istiaque Ahmed	**Admin Interface** • Analysis of sell-buy • Analysis of profit-loss • Generate report • Add/edit mechanic • Add/edit product • Edit User
20101439	Tahsin Tanim Ramisha	**User Interface** • Login/Signup • Registration User • Home Page • Add to cart • Product Showcase • Product Purchase • Map Integration
23141043	Mustafizur Rahman Bhuiyan	**Mechanics** • Add Mechanics • Show mechanic List • Search mechanic •