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INDIVIDUAL ASSIGNMENT

LEVEL 5

COMP50022

SERVER-SIDE PROGRAMMING

IF23A1SE_IF2421SE

Hand Out Date: **24-July-2024**

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INSTRUCTION TO CANDIDATES

1. **Late submission will be awarded zero (0) unless extenuating circumstances (EC) are upheld.**
2. **Cases of plagiarism will be penalized.**
3. **The assignment should be submitted as softcopy via LMS**
4. **All evidence related to the sprint implementation in group assignment must be show cased in the final documentation.**

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1. Introduction

Cellmaster is an e-commerce-enabled, fully featured mobile and accessories selling platform developed to facilitate a smooth process of buying a mobile and its accessories with ease. This application enables users to shop seamlessly by going through various types of products, placing an order, and tracking delivery through an easy-to-use mobile interface. The system leverages cutting-edge web and mobile technologies, integrating Laravel 11 at the backend, MySQL for data management, and Flutter at the frontend for the mobile application, hence ensuring responsiveness and efficiency at the user's end.

Cellmaster is dedicated to making the process of mobile shopping much easier by providing a platform on which customers can navigate through product categories with ease, make secure bill payments, and get real-time order updates. The application involves the admin panel on the backend side, through which administrators can manage products, assign orders to suppliers, and track their delivery. Suppliers will have their own dashboard for sub-order handling, driver assignments for delivery, and inventory management. A separate interface must be given to the drivers through which they get delivery assignments and update the status of orders.

2. Project Overview

The back end is developed using Laravel 11-framework written in PHP, which is easy to use and very secure authentication system. The MVC (Model, View, Controller) structure is allowed us to maintained a quality and clean structure for a CRM system. MySQL is used as the database management system, which holds all information about products, orders, suppliers, and customers.to implement a dynamic reactive admin panel, supplier panel and driver panel we used Livewire and Alpine js. For styling I used Tailwind CSS, which allows flexibility in design and responsiveness for the web-based components of the platform.

The Flutter framework is used for developing the high-performance mobile application on the client side, which presents efficient and engaging shopping for the user. With Flutter, the application will easily run on any iOS or Android device due to its cross-platform functionality, hence assuring continuity for every customer.

3. Features

3.1. Admin Features

1. Admin panel
    - Admin Login
    - Customer Management
        - View Customer Information
        - Get the Customer Orders
    - Suppliers' Management
        - View Supplier Information
        - Assigned orders for suppliers
    - Drivers' Management
        - View Driver Information
    - Product Management
        - View Product Information
    - View Completed Orders

2. Supplier Panel
    - Account Management
        - Supplier Registration and Login
        - Update the Profile
    - Product Management
        - Create / Update / Delete Products
        - Get the customer order
    - Drivers' management
        - View Driver Information
        - Assigned the order for drivers
    - View Completed Orders

3. Driver Panel
    - Account Management
        - Driver Registration and Login
        - Update the Profile
    - Get the Orders
    - View Completed Orders

4. Customer (Front-end)
    - Account Management
        - Customer Registration and Login
        - Update the Profile
    - View Products
    - Add to Cart
    - View Order process
    - View Purchase history

4. Mind map

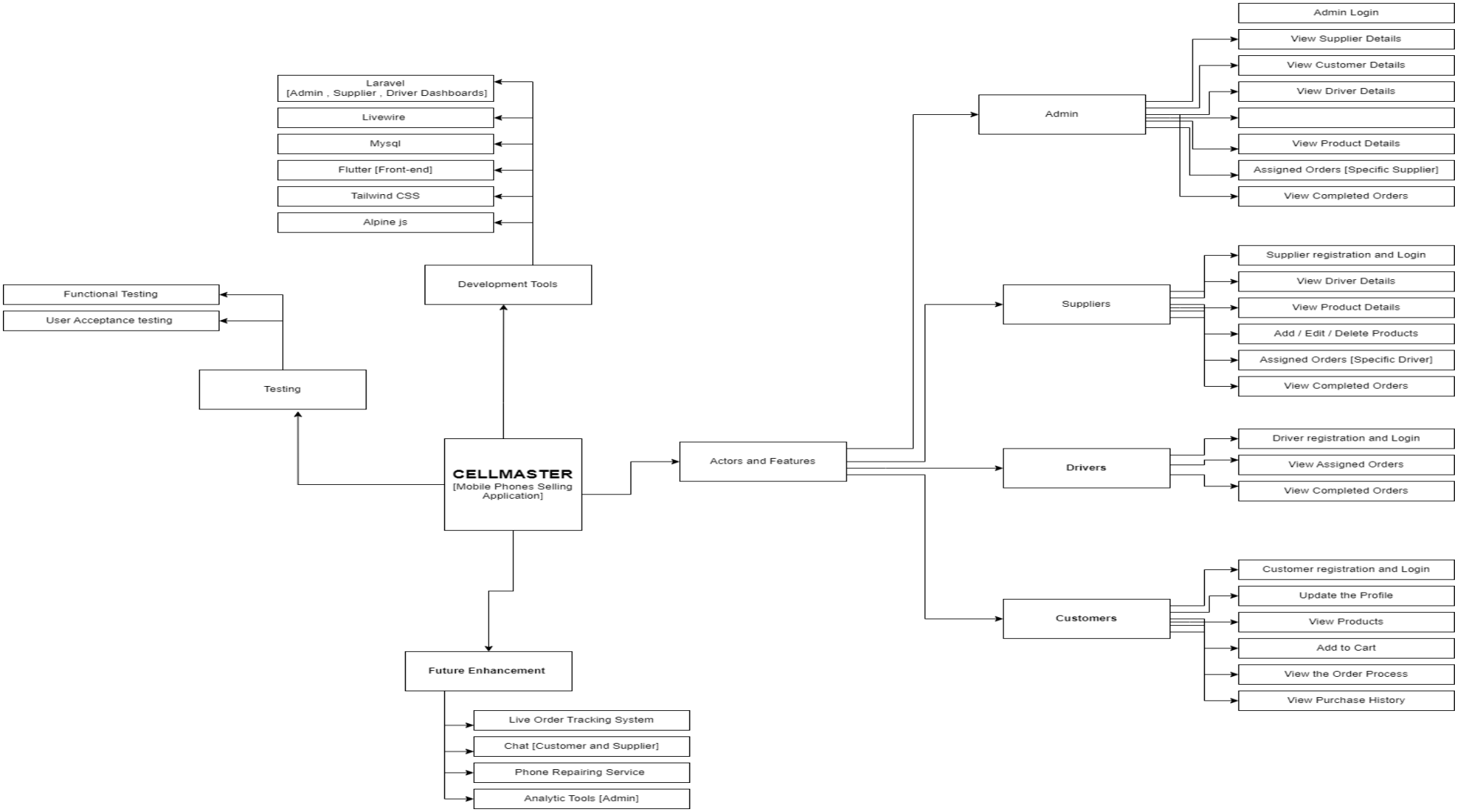

Figure 1: Mind Map of CELLMASTER

5. Test Cases

5.1. Registration

ID	Description	Conditions	Inputs	Expected result
TC001	Verify that a customer can register successfully.	A customer cannot register with an email that already has an account	Name, address, email, contact, password	If registration is successful, a confirmation message is sent and view the home page of mobile app. Otherwise display error
TC002	Verify that a Supplier / Driver can register successfully.	Cannot register with an email that already has an account	Name, Address, role, contact, password, email	If registration is successful, a confirmation message is sent and direct to login page. Otherwise display error

Table 1:Registration Test Cases

5.2. Login

ID	Description	Conditions	Inputs	Expected result
TC003	Verify that a customer can log in successfully.	The user must have a registered account.	Valid email and password	Logged in successfully and redirected to the home page
TC004	Verify an Admin / Supplier / Driver can log in successfully.	The user must have a registered account.	Valid email and password	Logged in successfully and redirected to the dashboard

Table 2: Login Test Cases

5.3. Assigned Order

ID	Description	Conditions	Inputs	Expected result
TC005	Admin can assign an order to a supplier	Admin get the permissions to assign orders	Choose the supplier and assigned the order and mark as send to supplier	Get a message Order has successfully send to the supplier.
TC006	Supplier can assign an order to a driver	Driver gets the permissions to assign orders	Choose the driver and assigned the order and mark as on delivery	Get a message Order has successfully send to the driver.

Table 3: Assigned Order Test Cases

5.4. CRUD Operation

ID	Description	Conditions	Inputs	Expected result
TC007	Supplier can add a product	Supplier must register and login to the system.	Name, Brand, Description, RAM, Storage, Display, Camera, Quantity, Price, Availability	Product added and get a message the product create successfully.
TC008	Supplier and Admin can view the products	Supplier / Admin login to the system.	-	Supplier can view the supplier added products and admin viewed all the products.
TC009	Supplier can edit a product	Supplier login to the system.	click the more button of the product and then click the edit button. Make changes that has to be done.	Product is updated with a message.
TC010	Delete a product	Supplier login to the system.	Click the delete button of a product	Product deleted and gives a message.

Table 4: CRUD Operation Test Cases

6. Screenshots

6.1. Login and Registration

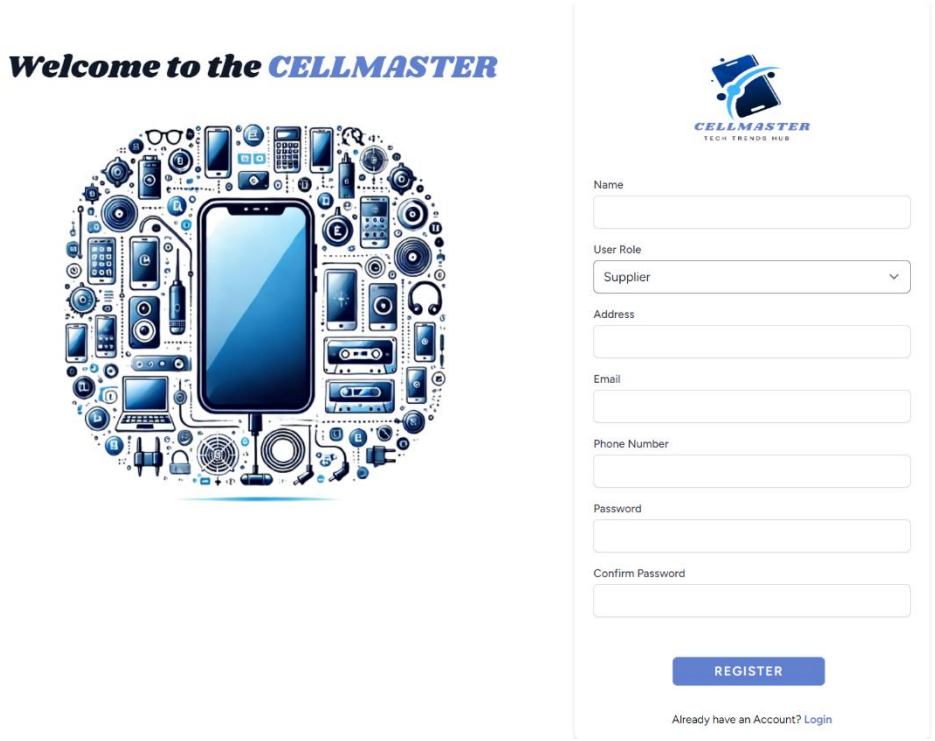

Figure 2: Registration UI

Figure 3: Login UI

6.2. Admin panel

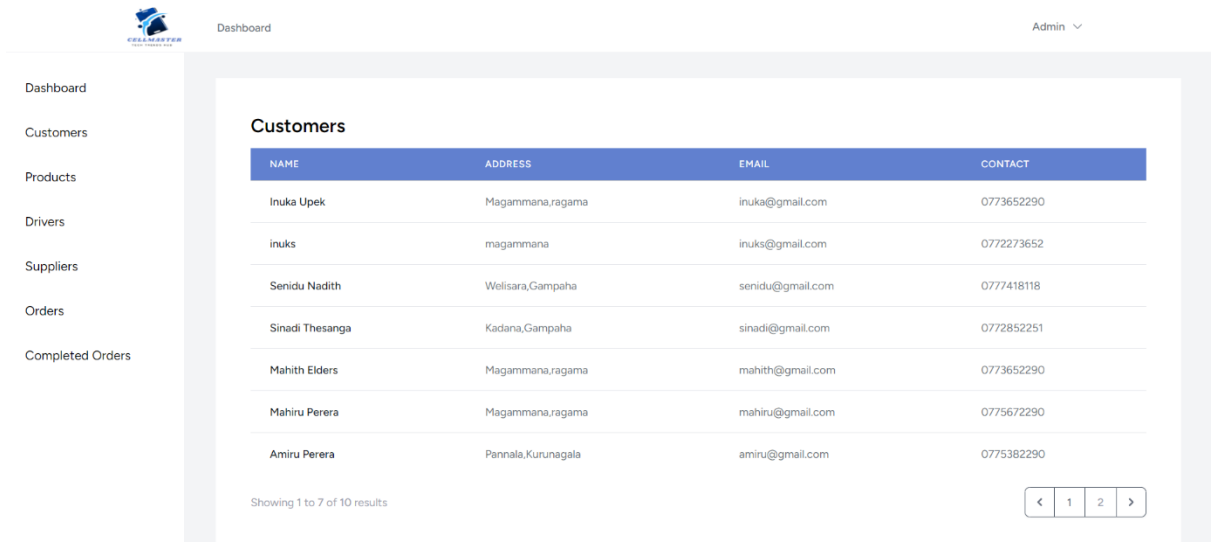

Figure 4: Customer Details

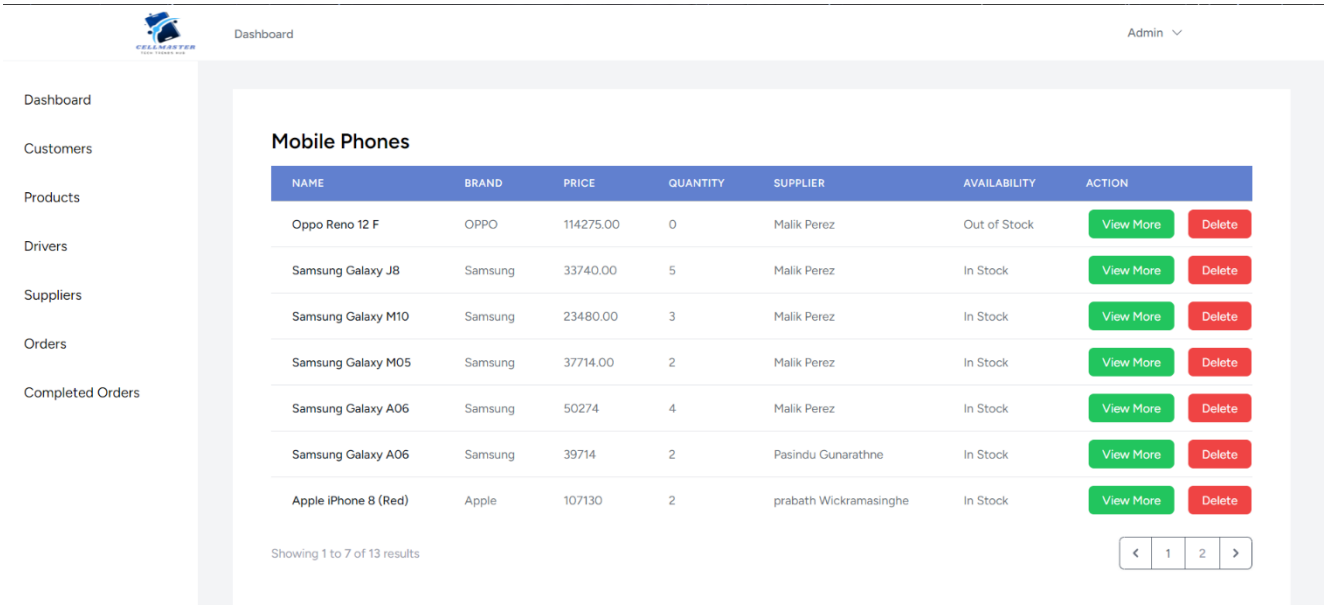

Figure 5: Product Details

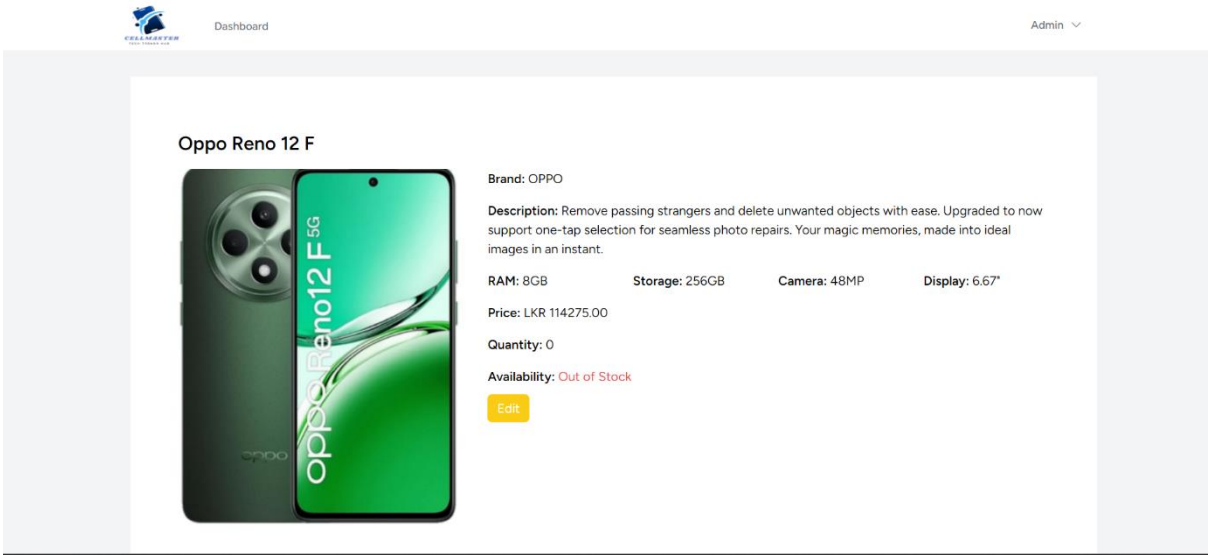

Figure 6:View Product details

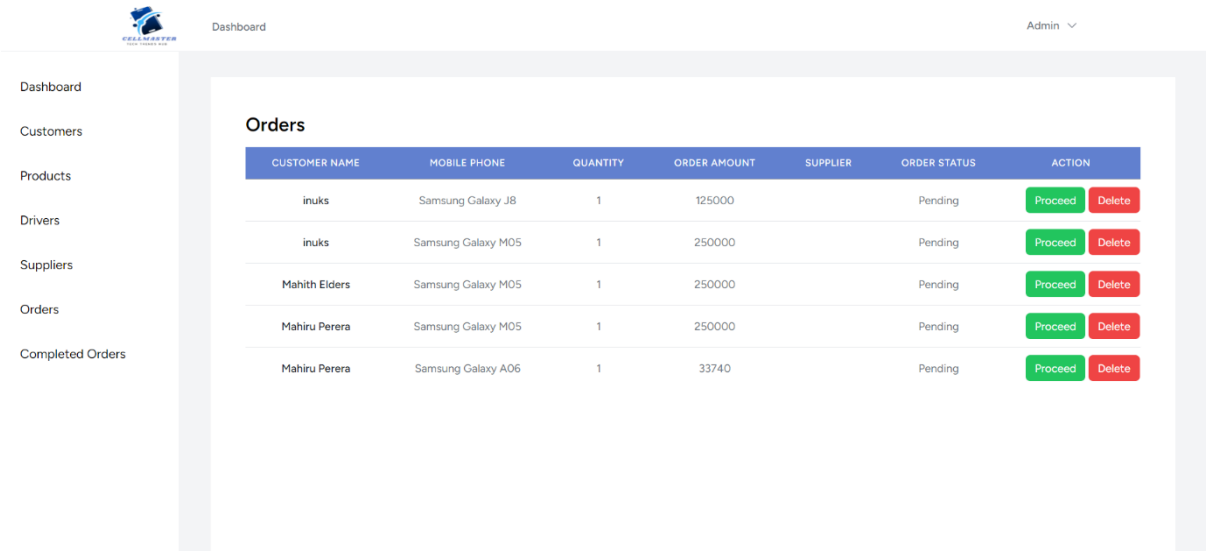

Figure 7: Order table

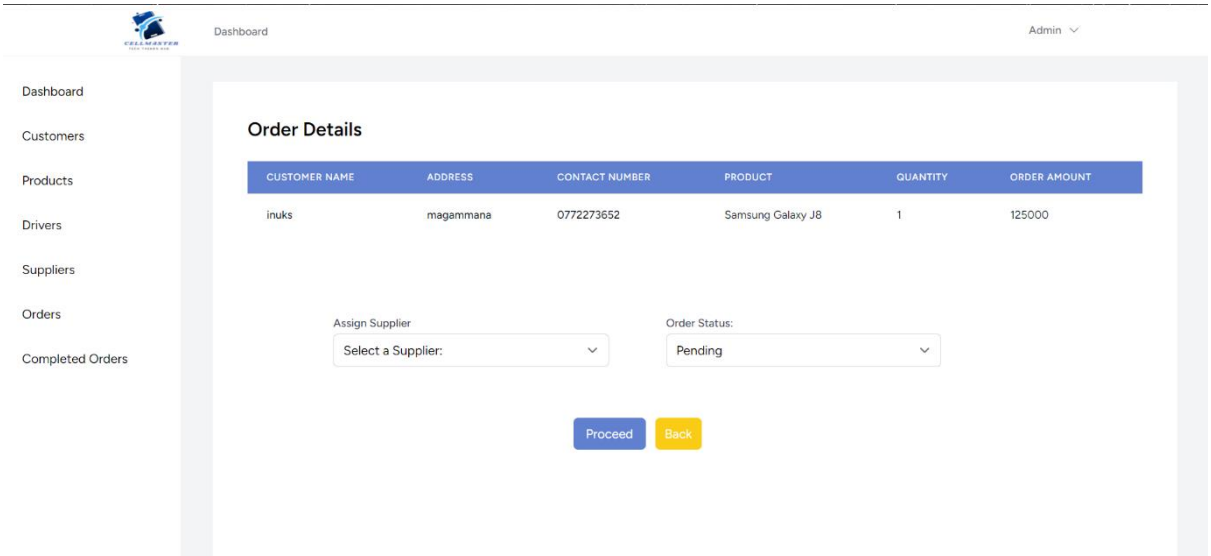

Figure 8: Assign orders

6.3. Supplier Panel

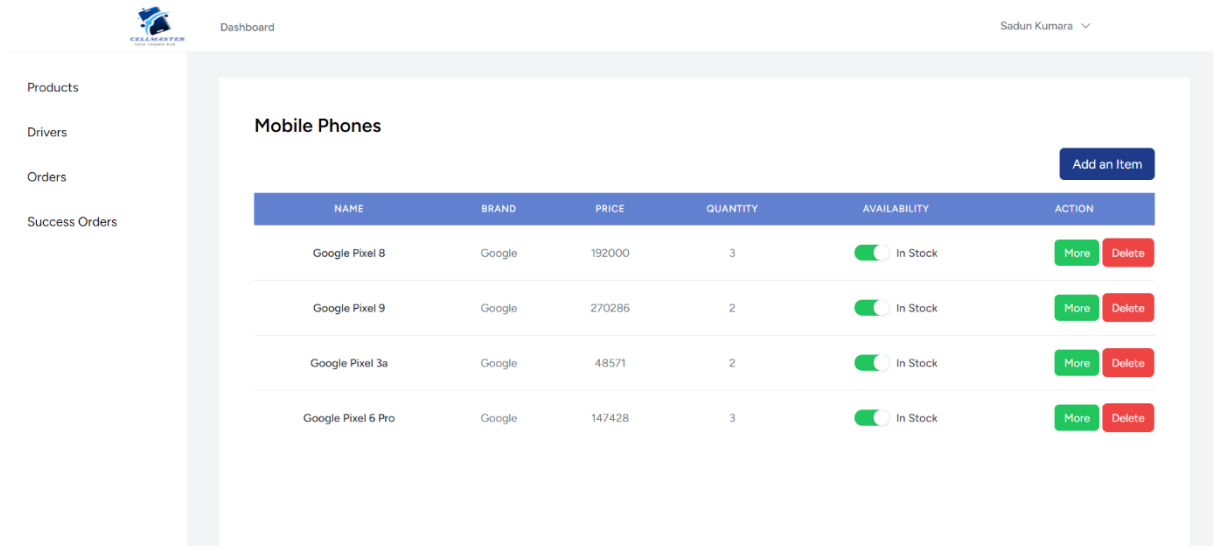

Figure 9: Supplier product table

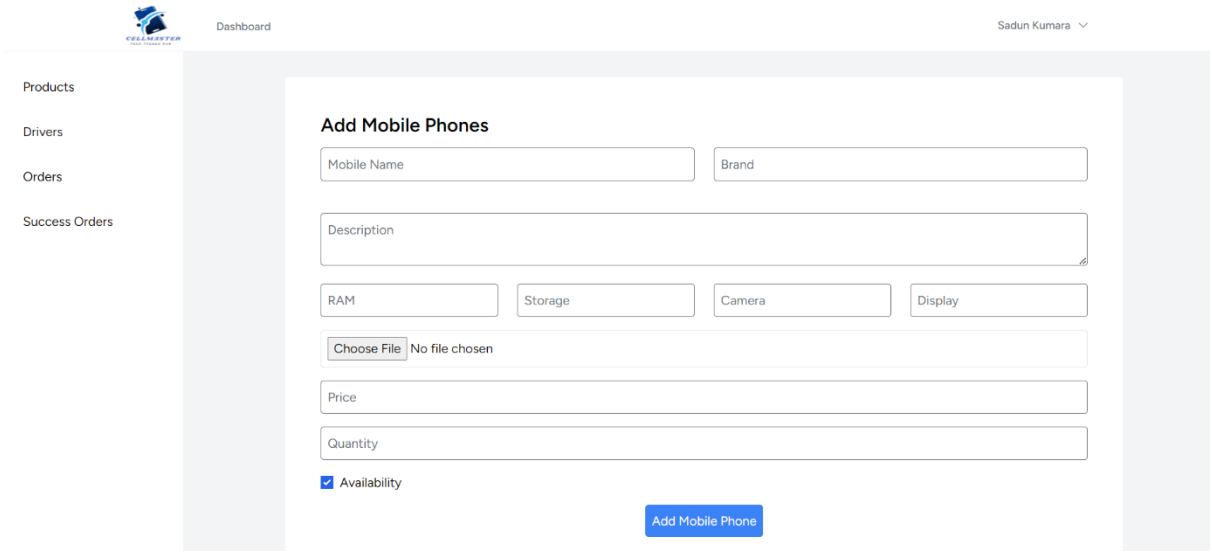

Figure 10: Create product

Figure 11: Supplier Order table

6.4. Driver Panel

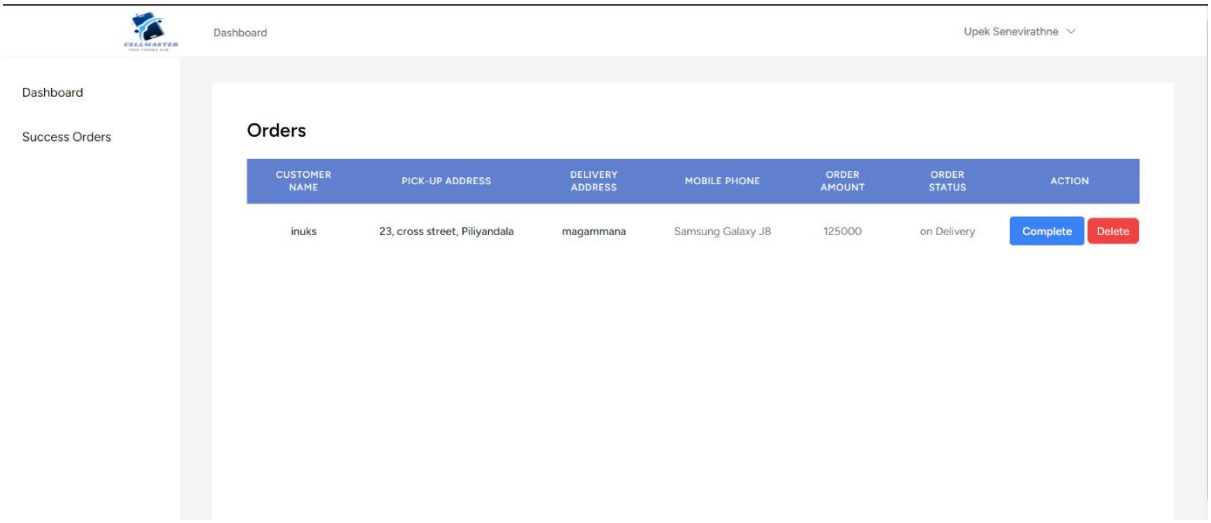

Figure 12: Driver Order Table

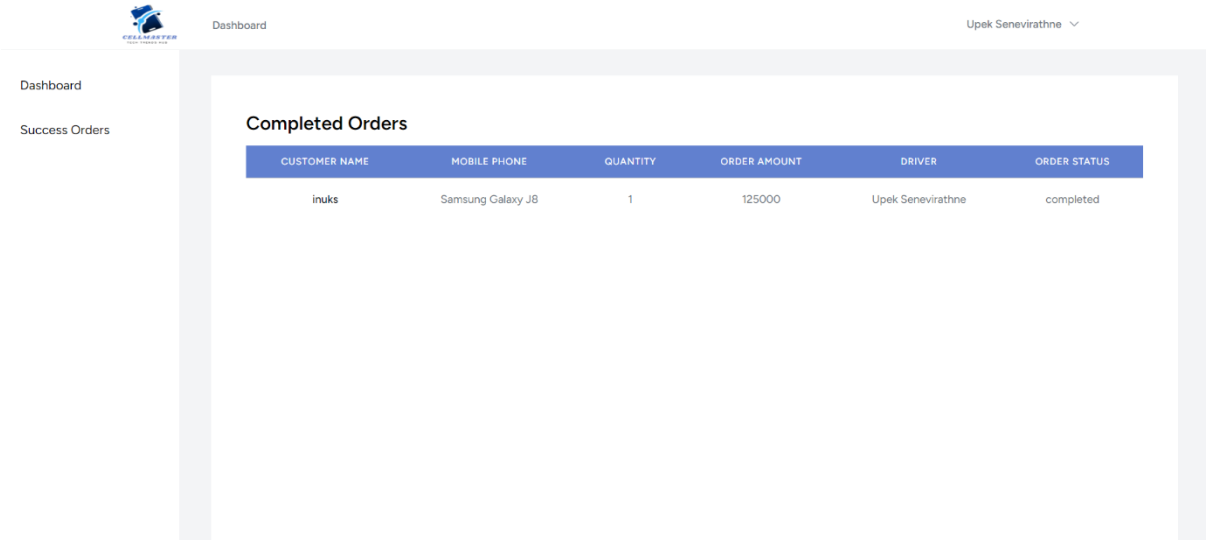

Figure 13: Completed Orders

7. Quality Assurance Review

7.1. Test 01 – Customer Registration API

- Input:
    - Name: - Inuka Upek
    - Address: - 53/23, Magammana, Ragama
    - Email: - inuka2003@gmail.com
    - Contact: 0773652290
    - Password: Inuka@1234

- Output:

Customer can access to the home page of the CELLMASTER mobile app after successful registration. All the customer details are saved in the database. Admin can view the customers who are registered in the app.

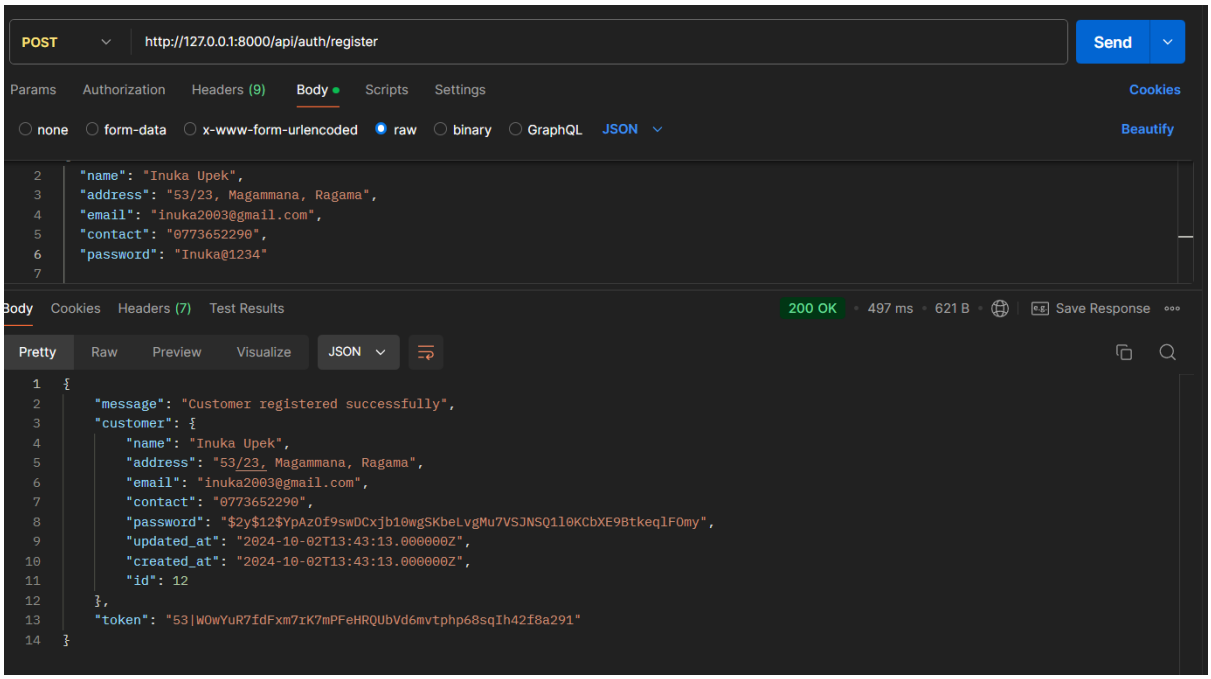

Figure 14: API Testing customer registration

if the customer didn't fulfill the requirements for the registration customer can't register for the system.as an Example if user input a contact number that has more than 10 digits it gets error.

Figure 15: API Testing failed registration

- Password: - Inuka@1234

- Output:

Customer can access to the home page of the CELLMASTER mobile app after successful registration. All the customer details are saved in the database.

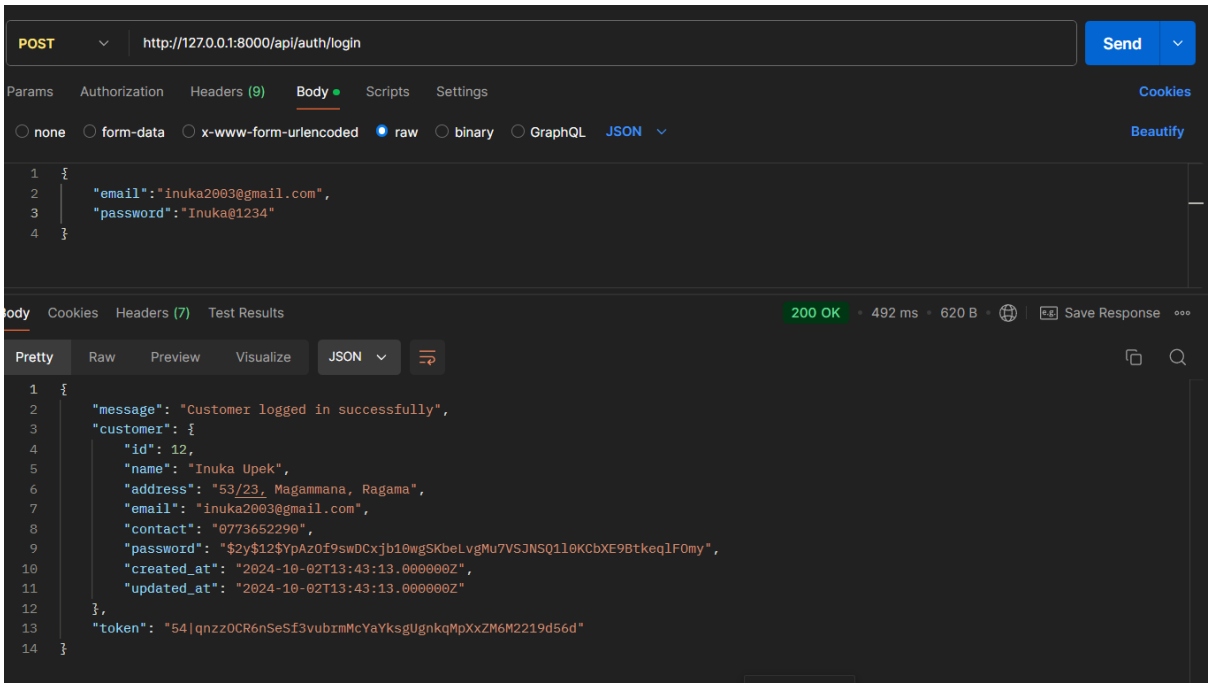

Figure 16: API Testing customer Login

Wrong credentials:

- Email: inuka2000@gmail.com
- Password: - Inuka@1234

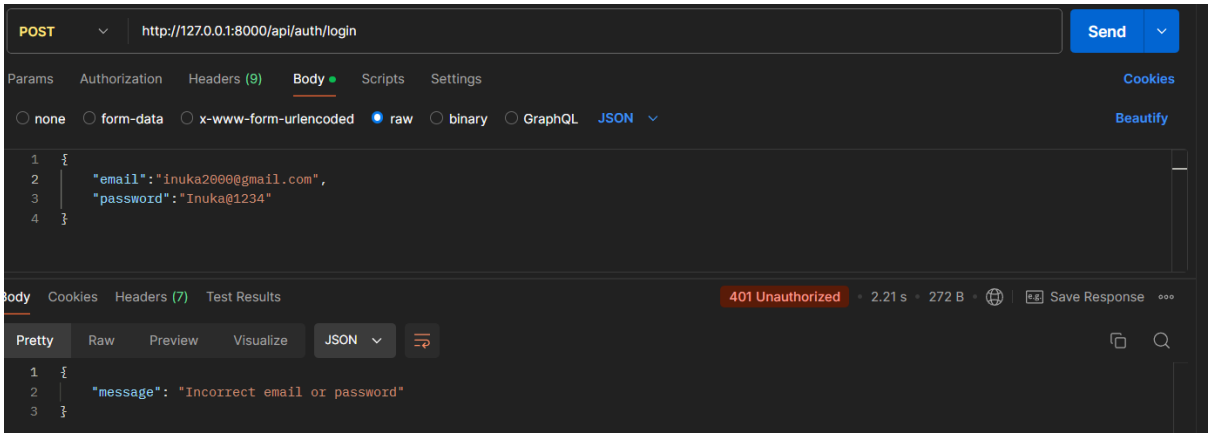

Figure 17: API Testing Incorrect Credentials

7.3. Test 03 – Customers place an Order

When a customer places an order first the order has been sent to the admin through API. Admin can view the order details. As an example,

- Input:
    - Mobile Phone: Samsung Galaxy A06 (id – 17)
    - Quantity: 1
    - Order amount: LKR 48571.00
    - Date of Order: 2024-10-02

- Output:

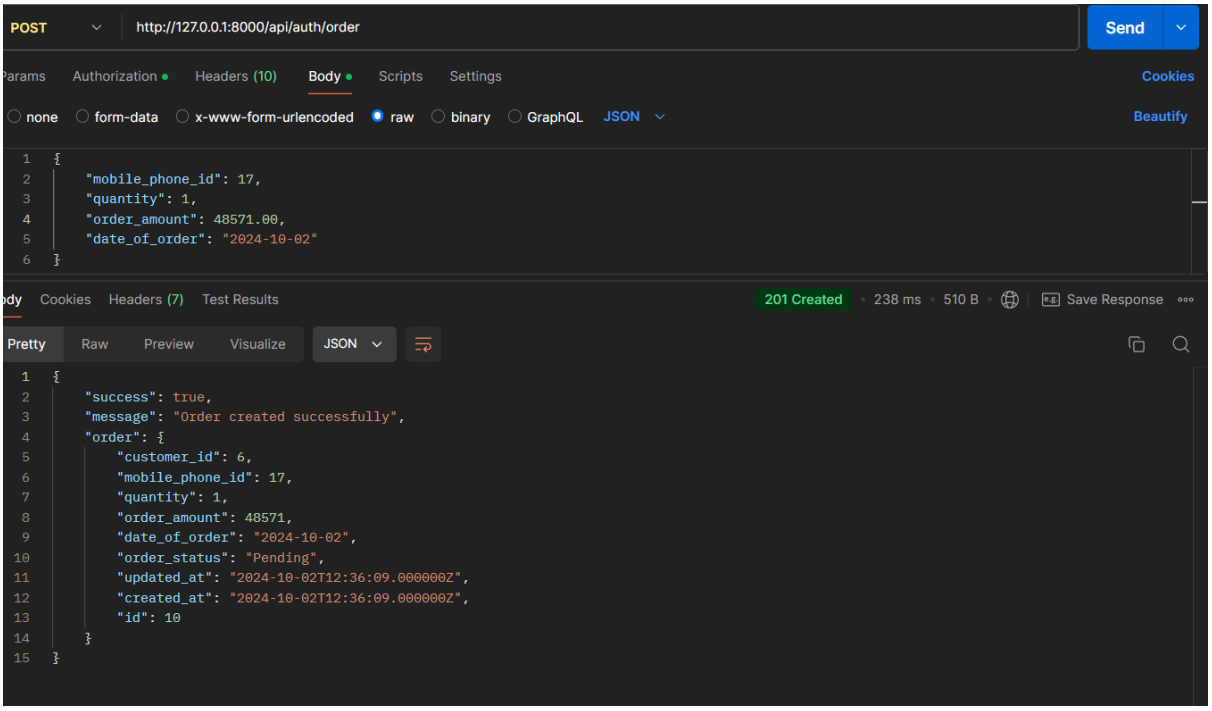

Figure 18: API Testing place an order

After getting the order admin will assign the order to a supplier who registered in our system. Then the order status has marked as assigned to a supplier. After that supplier has to check the availability of the product. If the ordered product id available supplier will assign the order to a driver. The order status has marked as on Delivery. Then the Driver will deliver the product to the customer and marked as the order is completed.

7.4. Test 04 – Product CRUD Operation

For this CRUD operation Admin and suppliers have the access. Only the suppliers can add a item for the system.

- Input:
    - **Name:** Google Pixel 8 Pro
    - **Brand:** Google
    - **Description:** The smartphone comes with 6.7 inches Super AMOLED display size, and it comes with 1440 x 3120 pixels resolution. The device features IP68 dust/water resistance (up to 1.5m for 30 mins).
    - RAM: 12GB
    - Storage: 512GB
    - Camera: 48MP
    - Display: 6.7”
    - Price: LKR 397,703.00
    - Quantity: 2
    - Availability: In stock

- Output:

After adding an item, those are visible for Admin and Suppliers. Admin can only view the products. Supplier has the rights to view and edit the product details. In deletion process both admin and the supplier have permissions to delete items.

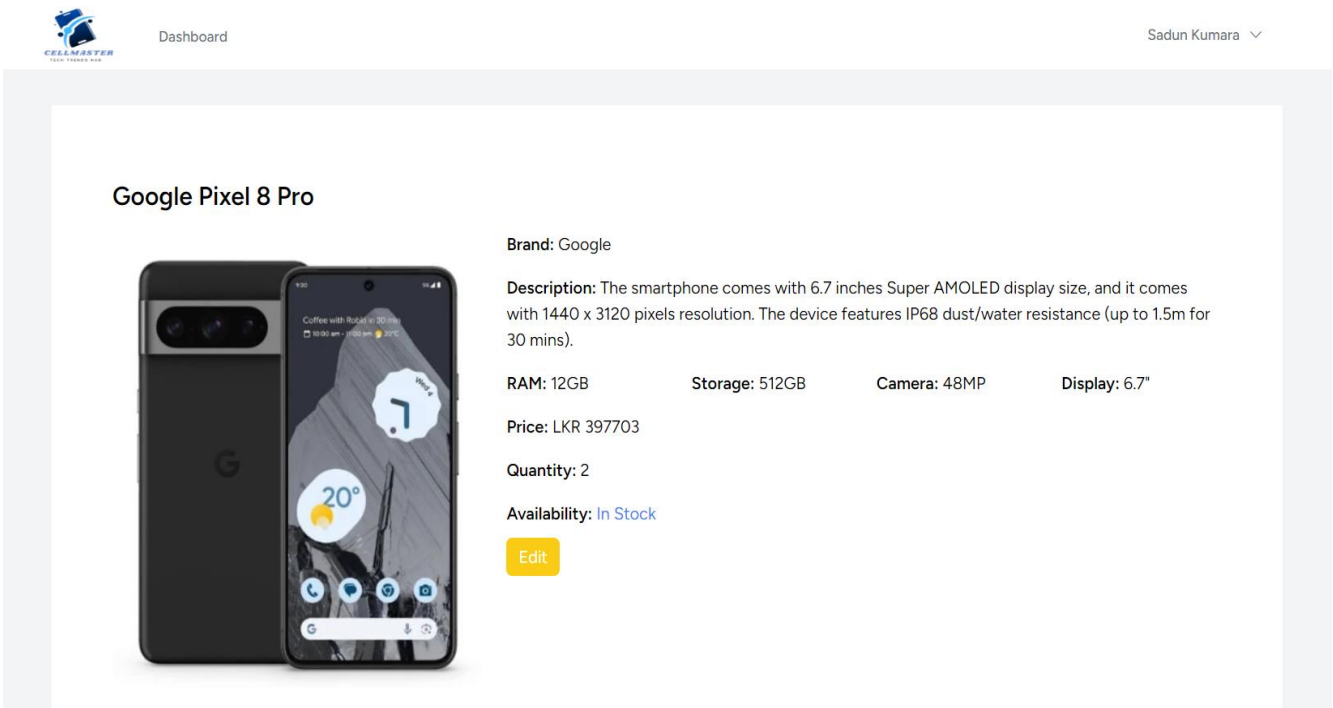

Figure 19: Viewing the Product testing

After adding the products all the items are sent to the front-end through API.

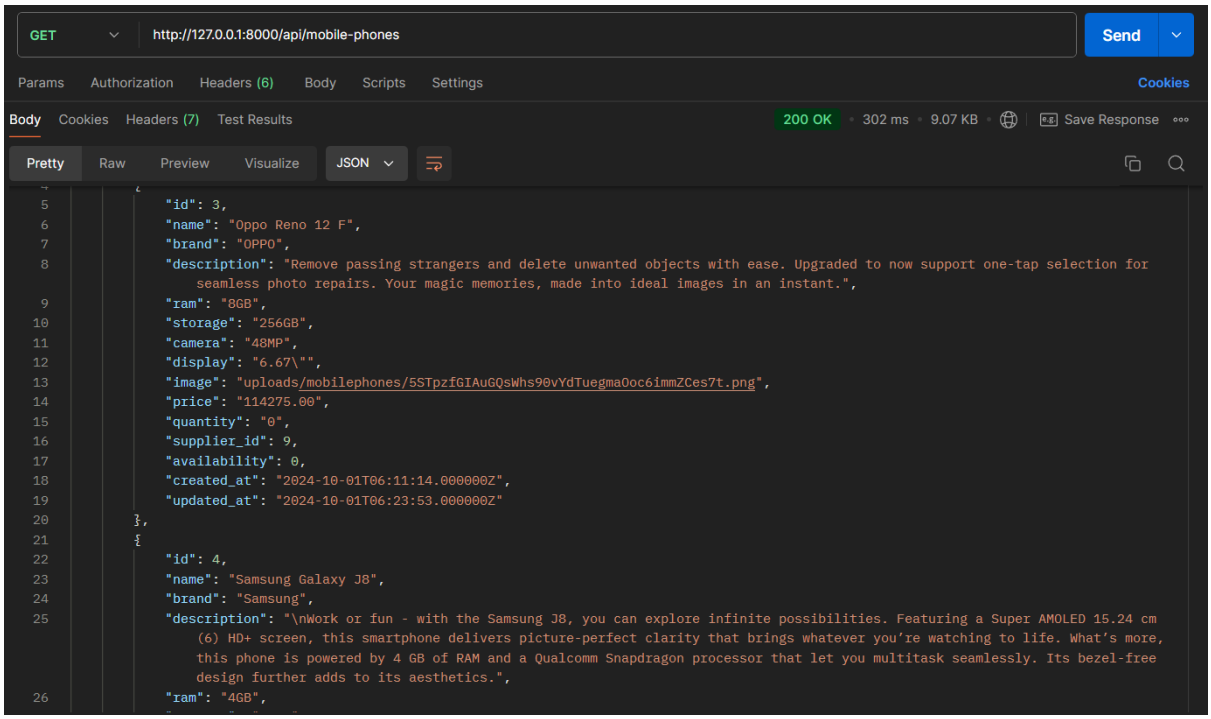

Figure 20: API Testing send product details to front-end

8. Future Enhancements

Because technology is constantly evolving, organizations must be adaptable to accommodate shifting consumer demands and market conditions. This implies that the CellMaster Application, which was developed as a platform for selling mobile phones linked to an Order Management System, must also evolve with time in order to remain relevant and competitive.. We'll future-proof this system by placing a comprehensive upgrade plan in positioning it as a SaaS solution whereby through the system, it will be able to enable features such as live order tracking, in-chat features between the customers and suppliers, extra value-added services such as phone repair, among others, and advanced analytics tooling for the administrator.

1. Live Order Tracking

Key improvements will entail real-time order tracking. In a world where all customers want to see things take place in real time, it allows customers to track their orders from the very moment of placing the order until the actual delivery date. This feature will enhance customers' satisfaction because transparency will be offered, while in turn, it will decrease the workload for customer support teams as there will be fewer questions on the status of an order.

Installation of the live order tracking in the CellMaster application will be done through integrating logistics providers with GPS tracking technology. The customer is to be informed every step of the way concerning their order, shipping, and delivery. All this is in real-time while tracking; hence, it would let customers see their order's journey onto a map.

2. Chat Features Between Customers and Suppliers

Another improvement that is needed is developing chat functions to interlink the customers with suppliers. Through it, customers will be able to ask suppliers questions about certain items and get real-time answers as well as more information and support. Enhancing communication through the website would facilitate more smooth purchasing experiences, enabling consumers to make informed decisions and obtain support when required.

This chat functionality will be integrated using a third-party secure messaging platform to protect user privacy and data security. Thanks to the program's extremely accessible and user-friendly chat interface, users will be able to transition between seeing products and chatting with providers. If feasible, employing chatbots for broader queries and quicker response times can also help with this.

3. Phone Repair Service

Other value-added services that will be launched include repair services. Selling mobile phone gadgets and offering repair services is a plus in creating a one-stop-shop for customers, thus commanding customer loyalty. Receiving reliable repair services would appeal to a lot of consumers, which would be an additional source of income for us.

This will be supplied in conjunction with certified repair experts that come and do the services. Furthermore, the application will offer a system for scheduling repair visits. Consumers can get estimates for the work, schedule repairs, and track the status of their repairs in real time. Customer retention will increase as a result of this.

4. Admin-Comfortable Advanced Tools for Analytics

The administrator will receive vital insights into comprehensive data on inventory levels, customer behavior, and sales success, among other subjects, with the introduction of advanced analytics-internal tools. Data analytics, then, facilitates decision-making that results in well-informed choices for growth and enhanced operational efficacy.

The analytics dashboard will display customizable reports and real-time data visualizations. Administrators will thereby be able to track business KPIs with the purpose of identifying trends. Such analysis in sales data may bring into light the popular items; hence, inventory management will be more appropriate, and focused marketing can be carried out.

The following proposed enhancements to the CellMaster Application will shape it into a strong SaaS solution to meet ever-evolving consumer and business needs. We are able to provide administrators, suppliers, and customers with the greatest experience possible by creating a full one-stop shop with live order tracking, chat assistance, additional services, and value-added analytics tools.

It is imperative that architectural designs prioritize scalability and flexibility in case future growth or feature enhancements occur. The ultimate goal is to establish CellMaster as one of the leading SaaS offerings on the market and ensure sustained success in a dynamic digital landscape.

9. Git Hub Link

Inukaupek/CELLMASTER: Mobile and Accessories selling Application (github.com)

10. Conclusion

Thus, CellMaster Application aims for smooth scaling up to each and every mobile sale and ordering process. Hence, the addition of features like admin dashboard, supplier management, driver management, customer registration makes it easy on the inside while enhancing user experience.

These range from repair services over the phone to powerful analytics positioning the system in the real SaaS solution to feature updates in the future that are going to make the system even more usable, such as live order tracking and real-time chat. With such strategic positioning, CellMaster can address the market of the future with strong emphases on performance, flexibility, and user delight.