

# **An-Najah National University**

Faculty of Engineering and Information Technology

Computer Engineering Department

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## **StoreMaster**

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# Dedication

We dedicate this project lovingly to our families, whose unconditional support and trust in us kept on motivating us throughout this journey. This project is also dedicated to all who motivated us along the way, whether through kind words, guidance, or even a mere pat on the shoulder. Lastly, we dedicate this achievement to ourselves, as it reflects determination, resilience, hard work, and the successful conquest of milestones.

# Acknowledgement

Our thanks will never truly encompass the contributions of all those who made this project a success. Firstly, we owe immense gratitude to our supervisors for their guidance, expertise, and constant encouragement throughout this journey.

We extend our heartfelt thanks to our families and friends for their support, understanding, and patience during this challenging time. Their encouragement gave us the strength to persist. Finally, we express our appreciation to the Computer Engineering Department's faculty and staff for creating a nurturing environment that made learning engaging.

This achievement would not have been possible without the joint collaboration and selflessness of these amazing individuals, and we are deeply grateful for their role in our journey.

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# Abstract

In today's digital age, establishing and managing an online store efficiently is crucial for businesses and entrepreneurs. StoreMaster is a comprehensive e-Commerce platform that enables users to create, customize, and manage their stores effortlessly. Inspired by platforms like Shopify, StoreMaster provides essential tools for store owners, employees, and customers to streamline operations, manage inventory, process orders, and oversee business activities across both mobile and web platforms.

Beyond its core functionalities, StoreMaster places a strong emphasis on accessibility, ensuring an inclusive experience for all users. The platform incorporates features such as customizable font sizes, contrast adjustments, and screen reader compatibility to assist elderly users and individuals with visual impairments. Additionally, voice control functionalities enhance usability by enabling hands-free navigation.

By integrating these accessibility features alongside its powerful e-Commerce tools, StoreMaster bridges the gap between technology and inclusivity, empowering all users—regardless of their abilities—to participate in the digital economy with ease.

# 1. Introduction

## 1.1 Problem

In the fast-growing digital commerce landscape, small and medium-sized businesses (SMBs) face significant challenges when trying to establish an online presence. Many existing e-Commerce platforms are either too complex for beginners, too expensive for small businesses, or lack the necessary customization to meet unique business needs. Entrepreneurs often struggle with setting up and managing their online stores efficiently, from handling product listings and inventory to processing orders and managing customer interactions.

Additionally, accessibility remains an overlooked aspect in many e-Commerce solutions. Individuals with visual impairments, elderly users, and those with other disabilities often find it difficult to navigate and use traditional platforms. Features such as screen reader compatibility, contrast adjustments, and voice-assisted controls are either absent or poorly integrated, making it harder for these users to participate in the digital marketplace.

## 1.2 Objectives

The primary objectives of this project are:

1. Simplified Store Creation and Management – Provide an intuitive interface that allows users, regardless of technical expertise, to easily create and manage their online stores.
2. Customization and Scalability – Enable store owners to personalize their storefronts with customizable themes, product variations, and scalable features that grow with their businesses.
3. Seamless Multi-Platform Experience – Ensure a consistent and user-friendly experience across both mobile and web applications.
4. Enhanced Accessibility – Integrate key accessibility features such as screen reader support, voice commands, adjustable contrast and font sizes, ensuring inclusivity for elderly users and individuals with visual impairments.
5. Comprehensive Role-Based System – Support multiple user roles, including Store Owners, Store Employees, Customers, Staff, and Admins, with tailored access and functionalities for each.

### **1.3 Significance of The Work**

StoreMaster is not just another e-Commerce platform; it is a step towards creating an inclusive digital economy where everyone, regardless of their abilities, can thrive. By addressing the specific challenges facing elderly and visually impaired individuals, this project aims to empower a wider audience to engage in online commerce confidently. The implementation of accessibility features and adaptive design can serve as a benchmark for future e-Commerce solutions, encouraging other platforms to adopt similar practices.

## 1.4 Organization of The Report

This report is organized as follows:

- Chapter 1: Introduction - An insight into the problem, objectives, and significance.
- Chapter 2: Literature Review - Reviews existing literature on e-Commerce platforms, accessibility, and associated technologies.
- Chapter 3: Implementation - Development process, tools, and methodologies used.
- Chapter 4: Results and Discussions - Evaluation and performance of the system.
- Chapter 5: Conclusion and Future Work - Summary and suggestions for future improvements.
- Chapter 6: References

## 2. Literature Review

The increasing prevalence of e-Commerce platforms has transformed global business operations, enabling individuals to access marketplaces and grow their businesses seamlessly. However, these platforms often lack inclusivity, posing significant challenges for elderly individuals and those with visual impairments. The need for accessible digital solutions has been well-documented, with several research studies, standards, and industry practices emphasizing the importance of creating inclusive platforms.

### 2.1 Accessibility in e-Commerce Platforms

e-Commerce platforms like Shopify, WooCommerce, and BigCommerce have dominated the digital marketplace landscape, offering a wide range of features for store creation and management. However, many of these platforms fall short in addressing the unique needs of users with disabilities. A study by King et al. (2018) revealed that most e-Commerce platforms fail to comply fully with Web Content Accessibility Guidelines (WCAG), often overlooking critical features such as high-contrast modes, screen reader compatibility, and keyboard navigation.

## **2.2 Accessibility Standards and Guidelines**

The WCAG (2023) serves as the foundational framework for ensuring web accessibility. These guidelines emphasize the principles of making web content perceivable, operable, understandable, and robust (POUR). Features such as text resizing, color contrast adjustment, and screen reader compatibility align with these principles, enabling platforms to cater to a broader user base. Additionally, the Accessible Rich Internet Applications (WAI-ARIA, 2022) specifications provide techniques for improving the accessibility of dynamic web content, especially for users relying on assistive technologies.

## **2.3 Adaptive Design and Assistive Technology**

Adaptive design has emerged as a critical approach to ensuring inclusivity in e-Commerce. Unlike traditional responsive design, which focuses solely on device compatibility, adaptive design prioritizes user needs, offering features like customizable font sizes, color schemes, and voice controls.

## 3. Methodology

This chapter provides a detailed overview of the implementation of the **Store-Master** platform, focusing on the tools, techniques, and methodologies utilized to develop an accessible and user-friendly e-Commerce system. The implementation emphasizes creating a seamless experience for users with varying abilities, including those with visual impairments, elderly users, and individuals without disabilities.

### 3.1 Development Tools and Technologies

#### 3.1.1 Tools

- **Visual Studio Code:** Used as the front-end and back-end development environment, providing an integrated environment for code editing and project management.
- **Postman:** Employed as an API interface tool, facilitating easy HTTP request execution and response handling. It played a crucial role in developing functionalities and effectively testing variations in a structured manner.
- **Android Studio:** Used as an emulator to test the mobile application

on various virtual devices, ensuring compatibility and smooth functionality.

- **GitHub:** Utilized for file exchange, enabling collaborative version control and efficient management of codebase changes across the team.

### 3.1.2 Programming Languages and Frameworks

- **Frontend:** Flutter framework was used for its cross-platform compatibility and widget-based architecture, allowing for customizable and responsive UI designs.
- **Backend:** Node.js was chosen for the reason that it is well suited for the management and controlling of asynchronous activities, which are fundamental in engineering spectacular and scalable web applications.
- **APIs:** RESTful APIs were developed to handle authentication, role-based workflows, and store management.

### 3.1.3 Database Design and management

We chose MongoDB, a NoSQL database, for our project because it offers flexibility and scalability, making it a perfect fit for our needs. A database like MongoDB, whose traditional relational databases are not known for their ability to store different types of data without a fixed schema, can greatly help us. Partly this is the agility that allows us to further scale our app by developing new functionalities and adjusting the app to industry changes. For one, MongoDB's ability to scale horizontally (i.e to expand by adding more nodes or replacing old ones with more powerful ones) is one of the main pros. Through its more distributed nature, the solution guarantees

high performance when it comes to quick data lookup and updates real-time. As our platform is data-oriented and effectiveness-focused, MongoDB has proven to be the only database required for both meeting the above-mentioned conditions.

### **Database Tables**

- **Users table:** The Users Table serves as the backbone of our project, storing important details for all users' roles, including Store Owners, Store Employees, Customers, Staff, and Super Admins. It contains common fields such as `store_id`, `name`, `email`, `password`, `phone_number`, and `role`. Additionally, each role has specific attributes, like: Store Owners are linked to their `store_id` and `subscription_plan`, Store Employees have assigned `store_id` and `permissions`. This table ensures smooth authentication, role-based access, and personalized experiences based on user type.
- **Stores table:** is crucial for storing store data, including: `name`, `logo`, `address`, `phone`, `email`, `store' category`, and the identifiers for the `store_owner` and `store_employee`. It links stores with `products` and `shipments`. For premium subscriptions, it also integrates with `warehouses` to manage inventory efficiently. Additionally, the table stores theme-related data, allowing store owners to customize their storefronts.
- **Products table:** This table stores all essential product information, including `title`, `category`, `images`, `description`, and `inventory`. Additionally, it supports product variations by allowing the store owner to define customizable options (e.g., `size`, `color`, `material`) and their corresponding `values`. When multiple options are added, the system automatically generates all possible `combinations`. Each combination

functions as a unique product variation, where specific details such as `image`, `inventory`, and `price` can be assigned individually. This structure ensures flexibility in product management and enhances the shopping experience by allowing customers to choose from multiple product variations.

- **cart table:** This table stores temporary shopping cart data for customers before checkout. Each cart entry is linked to a `user_id` to associate it with a specific customer. It contains `product_id`, `variant_id` (if the product has variations), `quantity`, and `price`. Additionally, the table includes a timestamp to track when the item was added, ensuring the cart remains updated.
- **orders table:** This table stores finalized purchase details after a user completes checkout. Each order is associated with a `user_id`, linking it to the customer who placed the order. It includes `order_id`, `cart_id`, `total_amount` and `order_status` (Processing, Shipped, Delivered, or Cancelled). Additionally, it contains shipping details such as `shipment_id`, `delivery_method`, and `address`.
- **shipments table:** This table stores all shipping-related information for customer orders. Each shipment entry is linked to an `order_id` and includes the `shipment_id`, `delivery_company`, estimated `delivery_time`, `shipping_cost`, and the `tracking_status` (Pending, In Transit, Delivered). It also stores the recipient's `address` details, including `country`, `city`, and `street`.
- **Warehouses Table:** is designed to store information about inventory storage for premium store owners. Each warehouse is linked to a specific store through the `store_id` field. It includes details such

as location, storage capacity, availability status, and timestamps for tracking updates. This table ensures efficient inventory management for businesses with large product quantities, offering seamless stock tracking and optimization.

## 3.2 System Features implementation

### 3.2.1 Mobile Application

#### App Flow and User Experience

#### Role Specification

The **StoreMaster** app provides unique functionalities tailored to specific user roles:

- **Owner Dashboard:** Includes tools for managing stores, staff, and products.
- **Staff Panel:** Enables order processing, inventory management, and customer support operations.
- **Store Employee Interface:** Simplified tools for in-store tasks such as greeting customers and managing stock.
- **Customer Portal:** Provides an intuitive shopping experience with voice search, adaptive layouts, and accessibility options.

#### Key Accessibility Features

- **Color Filters:** Implemented modes for protanopia, deuteranopia, and tritanopia to assist users with color blindness. Filters can be enabled

during the initial setup via the pop-up window.

- **Voice Control:** Integrated `speech_to_text` for hands-free navigation and `flutter_tts` for auditory feedback.
- **Low Vision and Elderly Modes:** Enhanced readability through large text, simplified navigation, and auditory guidance. These features are automatically enabled based on the user's selection.

## User Authentication and Onboarding

1. **Logo Screen:** Upon launching the app, users are greeted with the **StoreMaster** logo, displayed for 2 seconds.

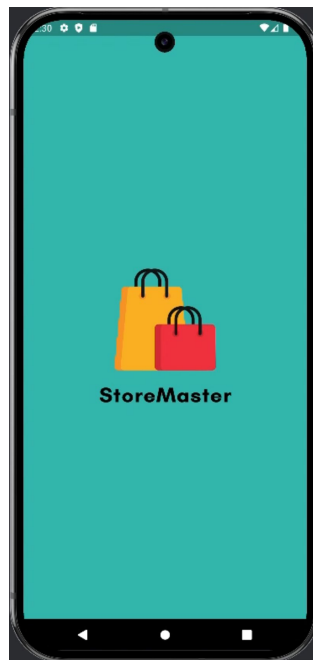


Figure 3.1: StoreMaster Logo

2. **Disability Selection Pop-Up:** After the logo screen, a pop-up window appears, prompting users to identify their specific needs:

- **Color Blindness:** Users can select their type of color blindness (e.g., protanopia, deuteranopia, tritanopia) to activate the appropriate color filter.

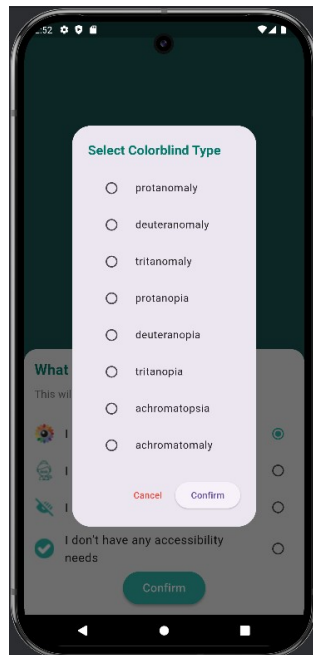


Figure 3.2: Select Color blind Type

- **Low Vision:** Users with low vision are provided with larger text, voice guidance, and simplified navigation.
- **Elderly:** Elderly users benefit from simplified interfaces with larger UI elements and easier way to get there account back if they forgot there password.
- **No Disability:** Users without any disabilities proceed with standard accessibility features.

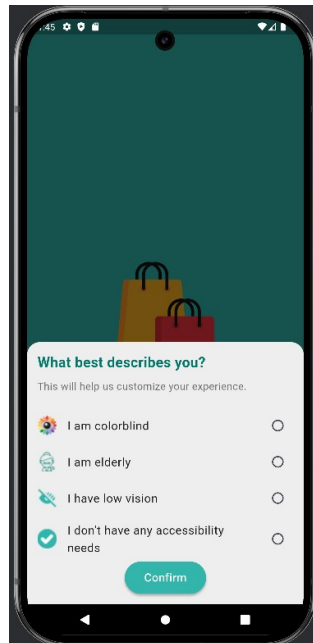


Figure 3.3: Screen for users to choose Disability.

### 3. Welcoming Pages:

- Users with **No Disability** are shown three welcoming pages introducing the app's features and benefits. Users with **Color Blindness** are also shown these pages, but with color's filters adjusted based on their specific type of color blindness.
- Users with **Low Vision** or those who identify as **Elderly** are provided with a screen reader for the welcoming pages to make it easier for them to understand the app or website.

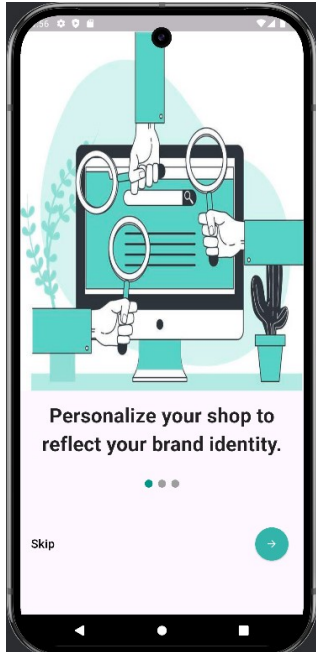


Figure 3.4: Welcoming Page 1

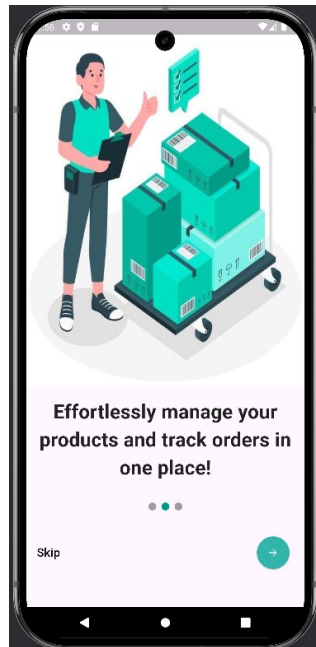


Figure 3.5: Welcoming Page 2

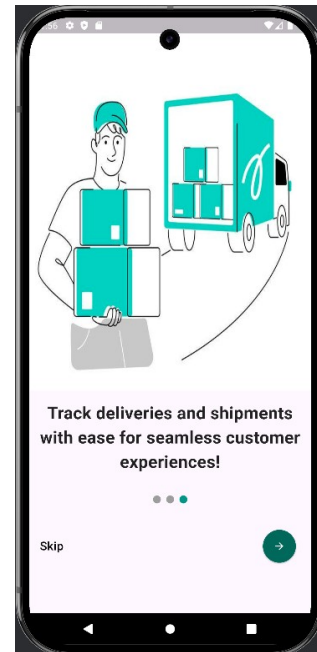


Figure 3.6: Welcoming Page 3

4. **Login Page:** The login page allows users to securely access the app. Accessibility features such as screen readers, customizable text sizes, and contrast settings are enabled based on the user's selection in the pop-up.

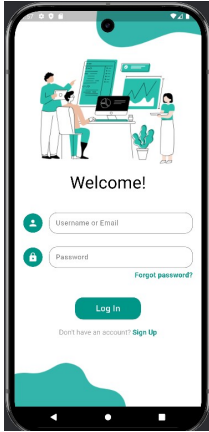


Figure 3.7: Normal Login Page

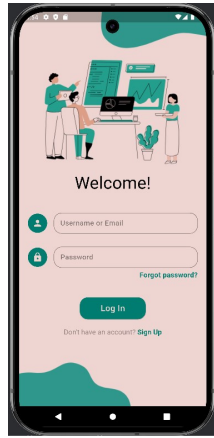


Figure 3.8: achromatomaly Login Page

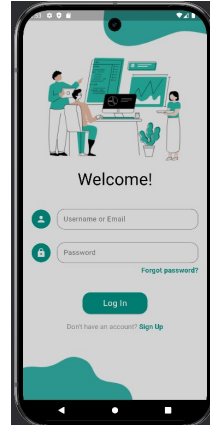


Figure 3.9: achromatopsia Login Page

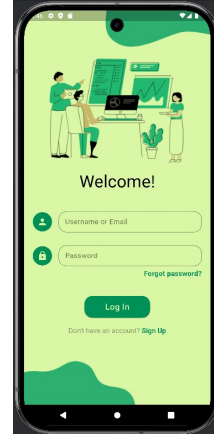


Figure 3.10: deuteranomaly Login Page

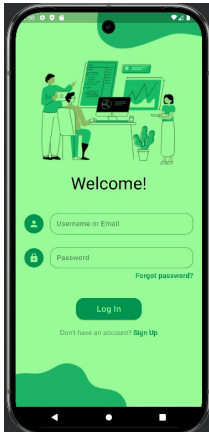


Figure 3.11: deuteranopia Login Page

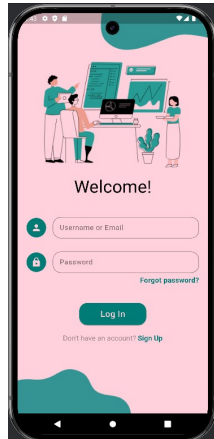


Figure 3.12: protanomaly Login Page

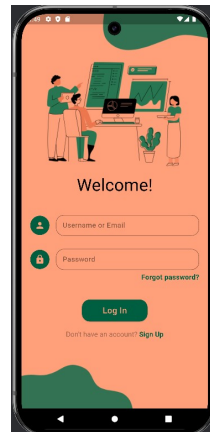


Figure 3.13: protanopia Login Page

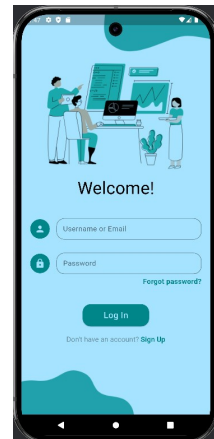


Figure 3.14: tritanomaly Login Page

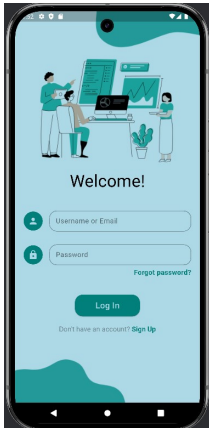


Figure 3.15: tritanopia Login Page

5. **Role Selection Page:** After the user chooses to sign up, they are prompted to select their role. The available options include: **Store Owner**, **Store Employee**, **Customer**, and **Staff**. Depending on the selected role, the user will be directed to a customized flow. For example, if the user selects **Store Owner**, they will be presented with the next screen to choose their plan. Users selecting other roles will proceed with their respective sign-up process.

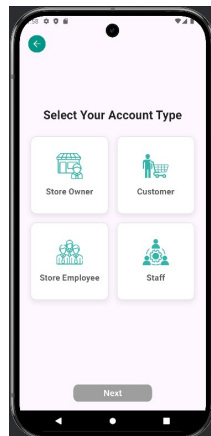


Figure 3.16:  
Role Selection  
Page

### Store Owner Side

6. **Plan Selection (For Store Owner):** After choosing the **Store Owner** role, users are directed to a plan selection page where they can choose between a **Basic Free Account** or a **Paid Account** (\$29/month). The **Basic Free Account** offers essential features for store management, while the **Paid Account** unlocks premium features such as advanced analytics, priority support, and more. Once the user

selects a plan, they will proceed to complete the sign-up process, providing necessary account details and confirming the chosen plan. Users selecting the **Paid Account** will also be prompted to enter payment information before finalizing their account creation.

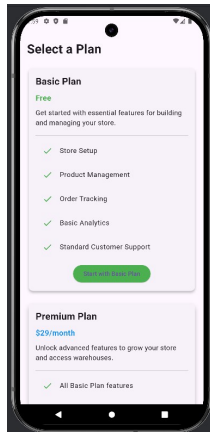


Figure 3.17:  
Basic Plan  
Choice

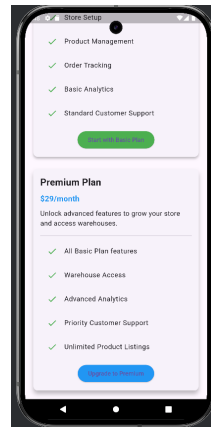


Figure 3.18:  
Premium Plan  
Choice

7. **Premium Features Overview:** If the user selects the **Paid Account**, they are directed to a page showcasing the exclusive benefits of the premium plan. These include:

- **Advanced Analytics:** Get Staff to accept, arrange, prepare, and deliver your customer orders.
- **Priority Support:** priority customer support with faster response times.
- **Increased Product Limits:** Manage a larger inventory without restrictions on products limits.

After reviewing the premium features, the user can proceed to enter billing information.

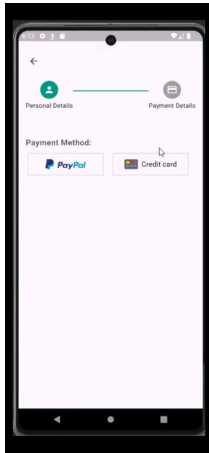


Figure 3.19: PayPal or Credit Card Page

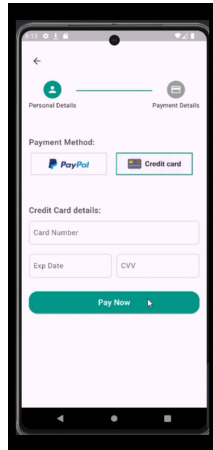


Figure 3.20: Credit Card Page

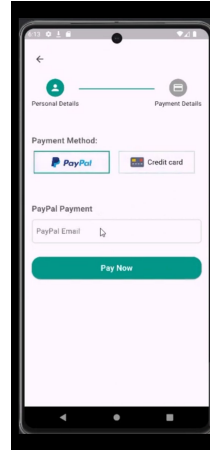


Figure 3.21: PayPal 1 Page

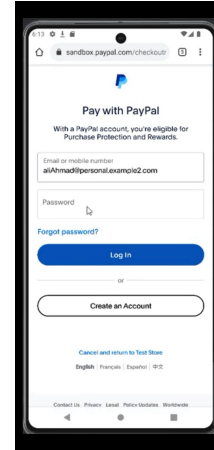


Figure 3.22: PayPal 2 Page

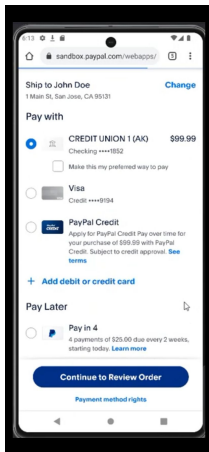


Figure 3.23: PayPal 3 Page

Once the payment is successfully processed, the user proceeds to the final sign-up page.

8. **Sign-Up Page:** The sign-up page enables new users to create an account securely. It provides various accessibility features, including screen readers, customizable text sizes, and high contrast modes. Users are prompted to enter necessary information such as email, password,

and user preferences. Accessibility settings are adjusted based on the user's selection in the disability pop-up, ensuring an inclusive experience for all users, including those with color blindness, low vision, or elderly users.

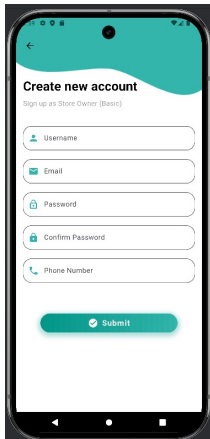


Figure 3.24: Normal SignUp Owner Page

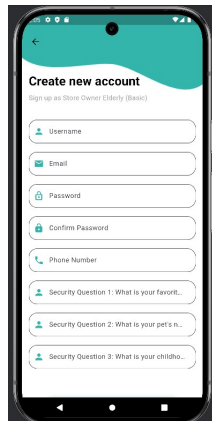


Figure 3.25: Sign Up Elderly Owner Page

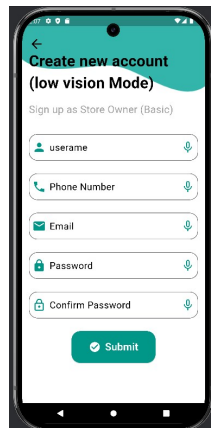


Figure 3.26: SignUp Low Vision Owner Page

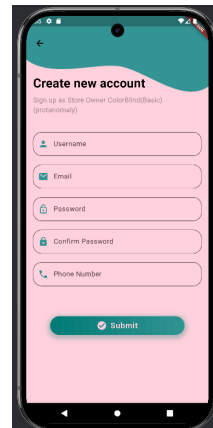


Figure 3.27: SignUp Protanomaly Owner Page

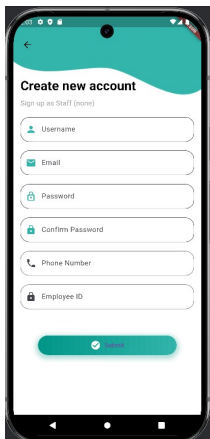


Figure 3.28: Normal SignUp Staff Page

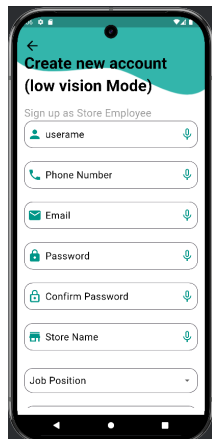


Figure 3.29: SignUp Store Employee Low Vision Page

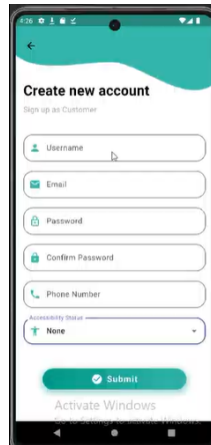


Figure 3.30: SignUp Customer Normal Page

9. **Pre-Launch Steps:** After successfully signing up, store owners must complete a few essential setup steps before launching their store. These steps ensure that the store is fully configured and ready for customers.

The setup includes:

- **Store Name and Branding:** Enter the store name and upload a logo.
  - **Business Information:** Provide essential business details such as address, store description, and store category/s.
  - **Payment Setup:** Configure payment methods to accept transactions.
  - **Product Listing:** Add initial products, including images, descriptions, pricing, variants, and inventory.
  - **Build Your Online Store:** Manage themes, Add page/s to store, and organize navigation.
  - **Shipping & Policies:** Set up shipping options and store policies.
- Below are images illustrating each step of the store setup process.

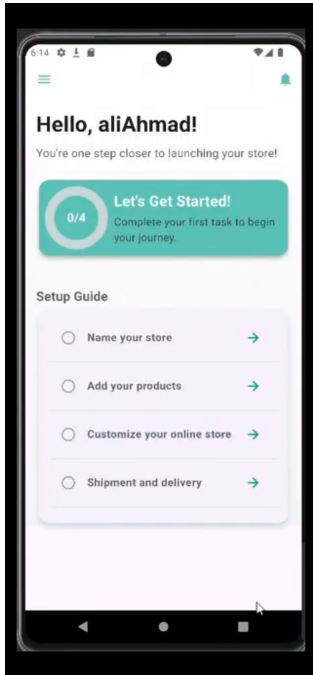


Figure 3.31: Step 1,2: Store Name Entry, and Logo

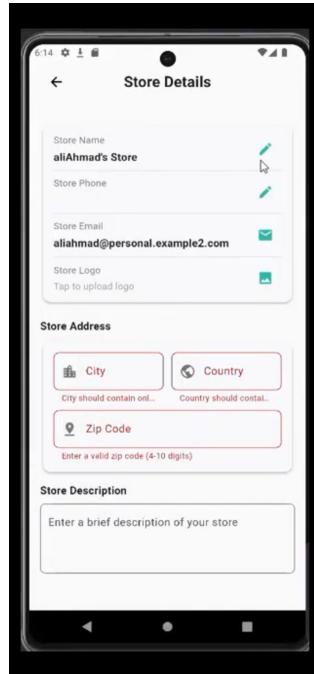


Figure 3.32: Step 3: Store Details

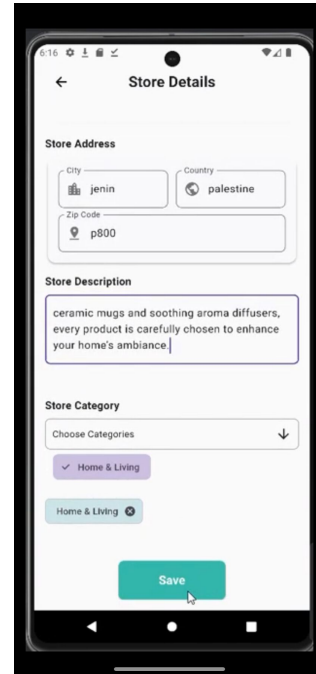


Figure 3.33: Step 4: Store Details

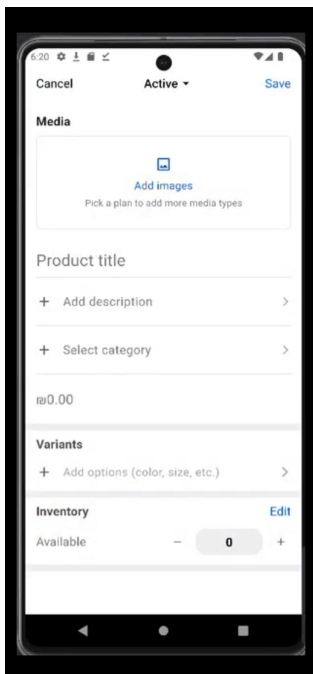


Figure 3.34: Step 5: Add Product/s, with details

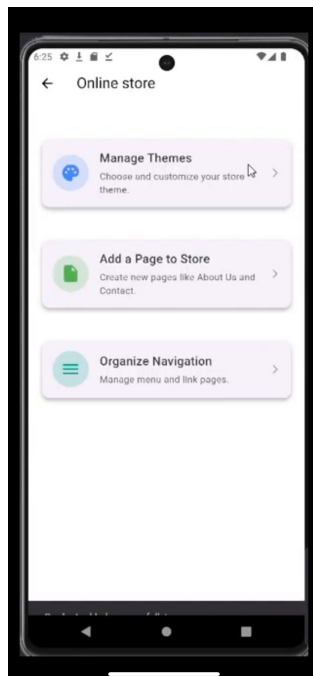


Figure 3.35: Step 6: Build Online Store

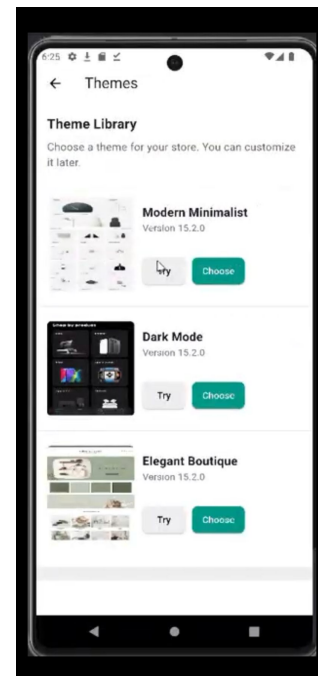


Figure 3.36: Step 7: Choose Theme

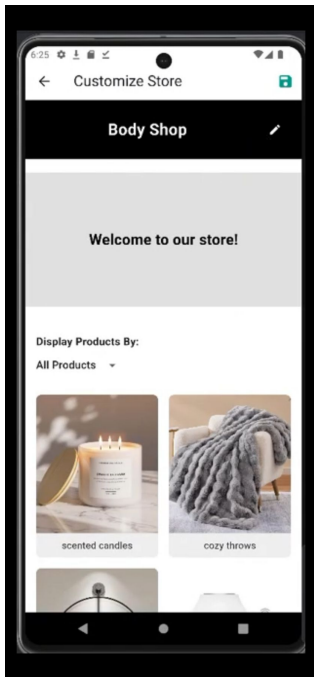


Figure 3.37: Step 8: Try Theme

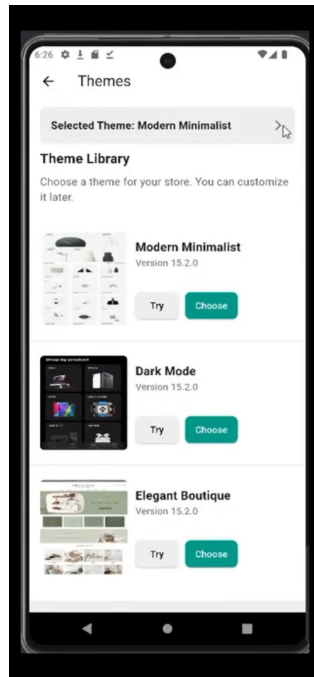


Figure 3.38: Step 9: Theme Selected

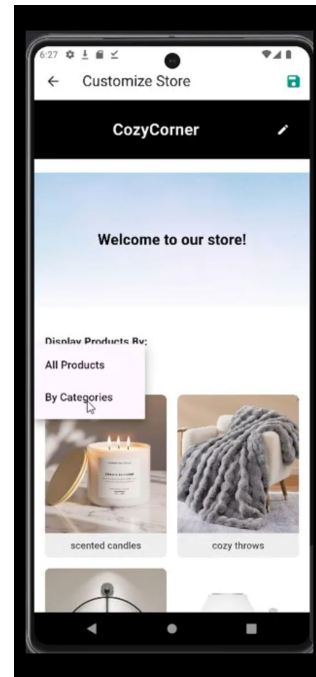


Figure 3.39: Step 10: Order By Products

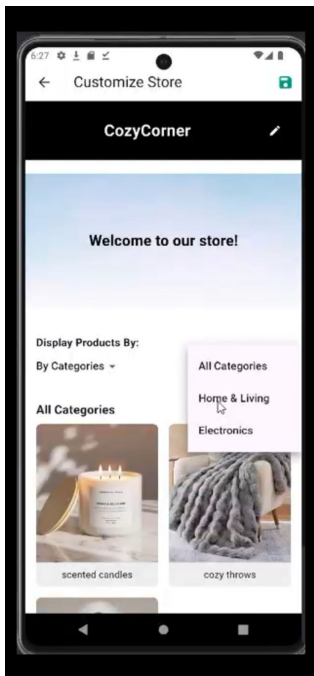


Figure 3.40: Step 11: Order By Theme

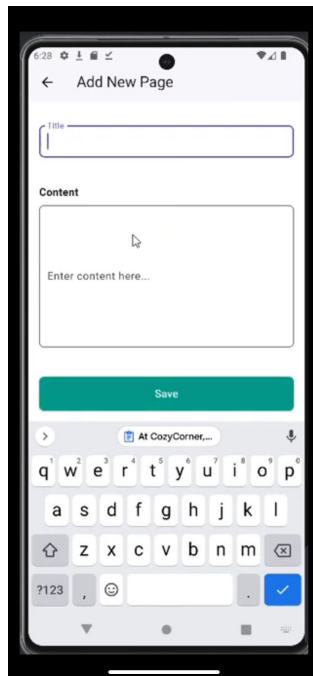


Figure 3.41: Step 12: Add Pages

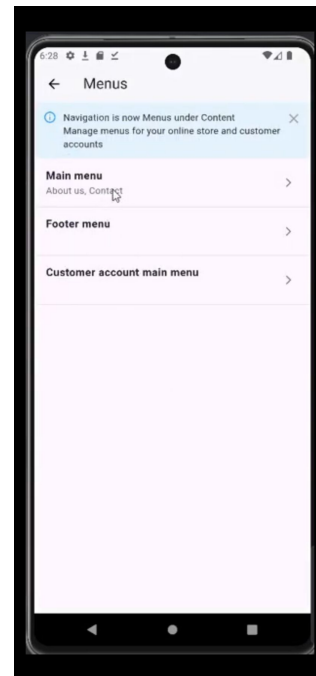


Figure 3.42: Step 13: Menu

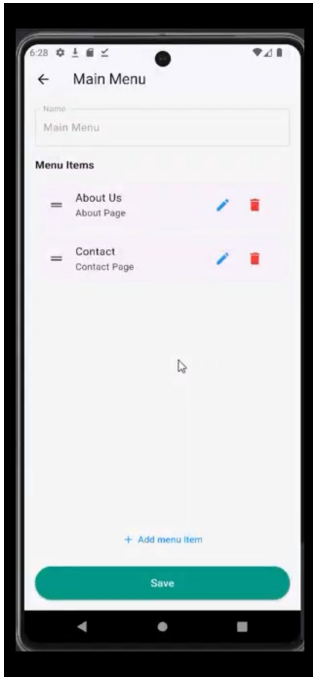


Figure 3.43: Step 14:  
Edit Pages

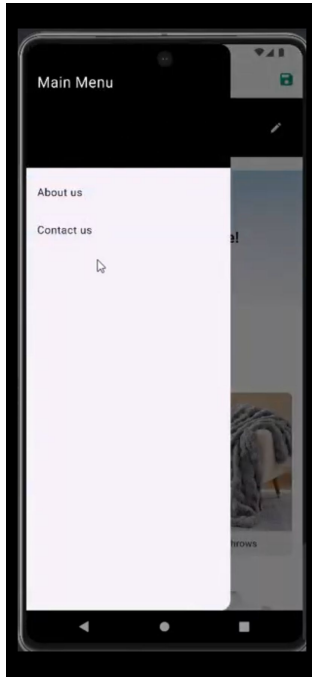


Figure 3.44: Step 15:  
Page/s added to store

### Shipment for Paid Account

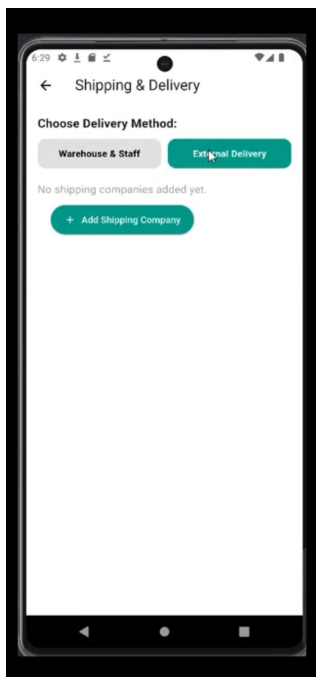


Figure 3.45: Step 1: Shipment & Delivery

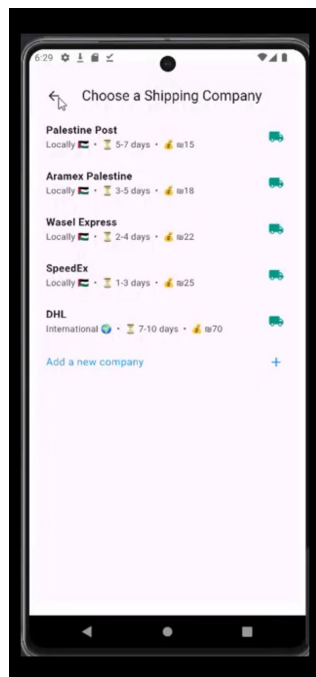


Figure 3.46: Step 2: Shipment Choices

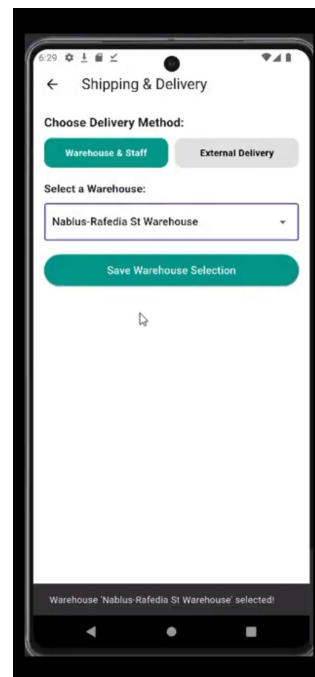


Figure 3.47: Step 3: Select Warehouse

### **Shipment for Basic Account**

- **Launch Your Store:** Now the Store is ready for launching. Store Owner can manage their products, manage orders, and see a report for Average Order Value, Total Sales, Top Selling Product, Top Selling Category.

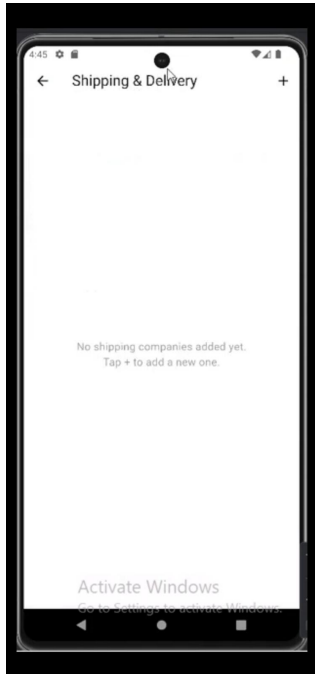


Figure 3.48: Step 1: Basic Shipment

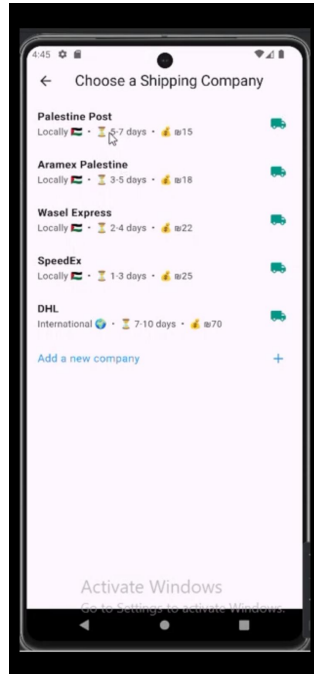


Figure 3.49: Step 2: Shipment Options

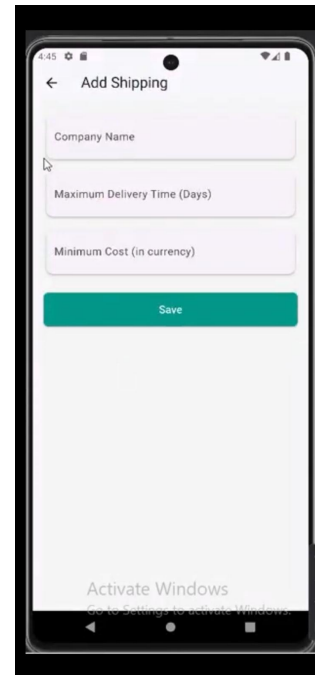


Figure 3.50: Step 3: Add Other Shipment Company/s

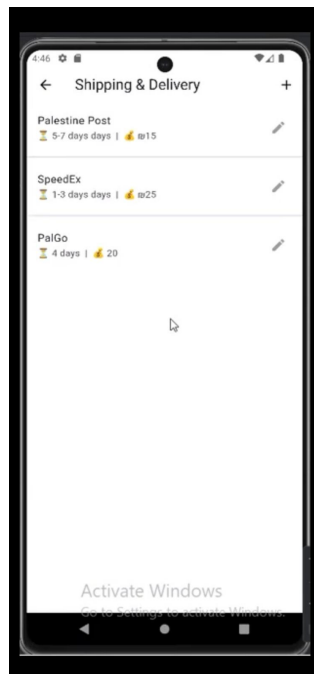


Figure 3.51: Step 4: Shipment Companies Overview

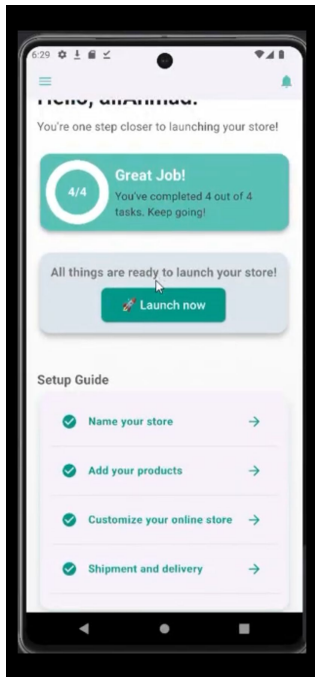


Figure 3.52: Step 1: Store Ready For Launching

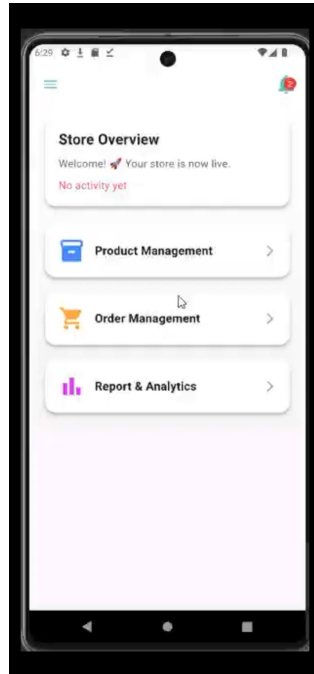


Figure 3.53: Step 2: Store Launched

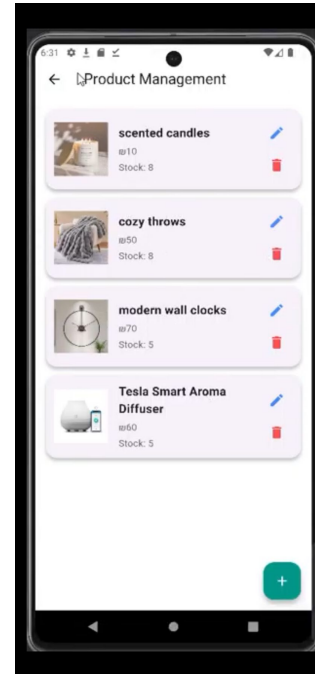


Figure 3.54: Step 3: Manage Products

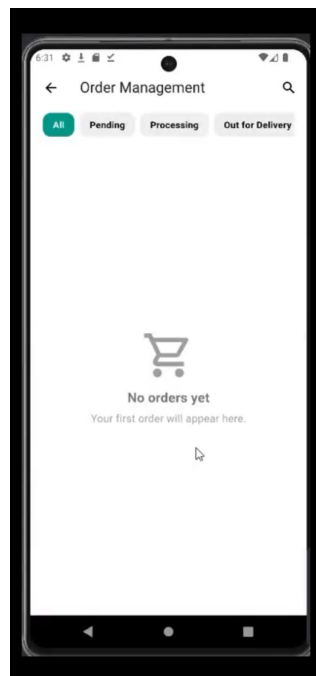


Figure 3.55: Step 4: Empty Manage Orders

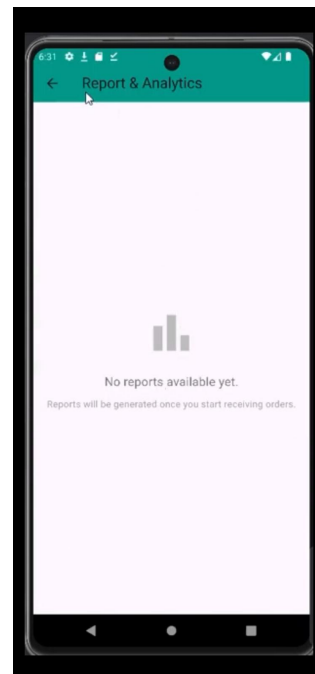


Figure 3.56: Step 4: Empty Report and Analytics

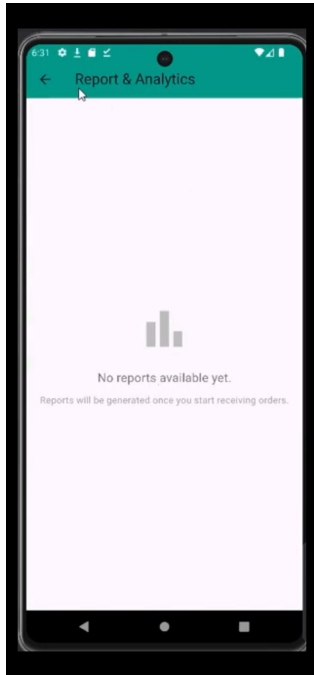


Figure 3.57: Step 4:  
Empty Report and An-  
alytics

**After Launching**

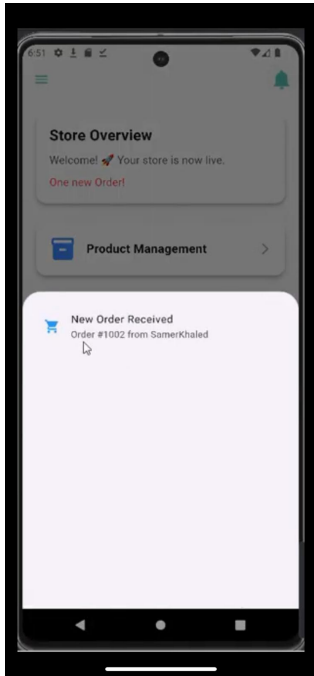


Figure 3.58: Notifications

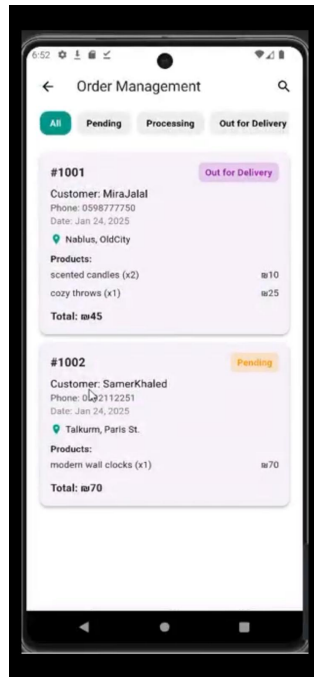


Figure 3.59: Order Management For Paid Accounts

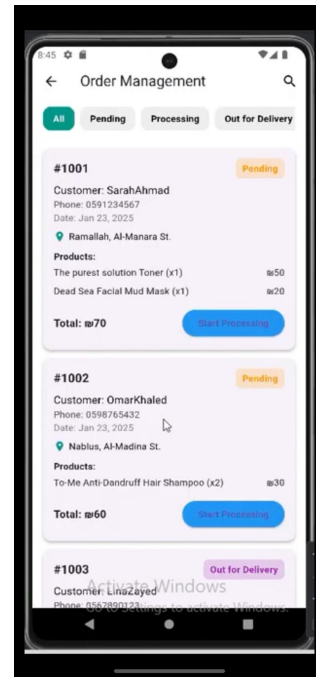


Figure 3.60: Order Management For Basic Accounts

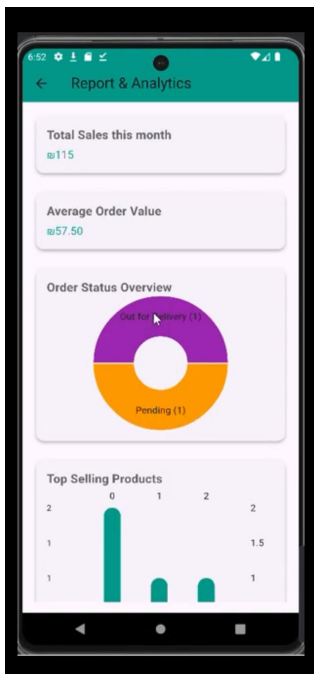


Figure 3.61: Report and Analytics

## Store Employee Side

The **Store Employee** is a trusted individual assigned by the store owner to help manage specific aspects of the store. The store owner must approve an employee's request before they can begin working. Employees can sign up for one of the following job positions:

- **Order Management:** Handles incoming orders, processing, and tracking.
- **Products Management:** Manages product listings, updates inventory, and adjusts pricing.
- **Delivery Management:** Oversees shipments, tracks deliveries, and handles logistics.
- **Reports & Analytics:** Monitors store performance, generates reports, and provides insights.

Once assigned a role, the employee will have access to the relevant features, similar to the store owner. However, their actions are limited to their designated job position.



Figure 3.62: Employee Request Pending Approval

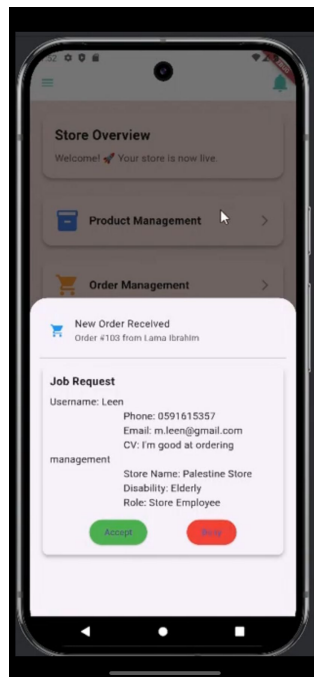


Figure 3.63: Store Owner Accepts Employee

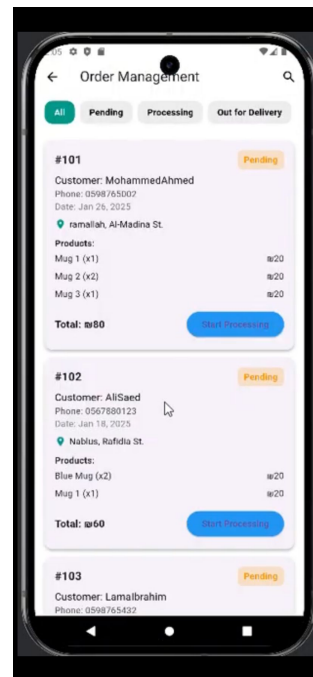


Figure 3.64: Order Management for Store Employee

## **Staff Side**

The **Staff** consists of employees who are already registered in the Store-Master system and have assigned job roles such as arranging packages, preparing orders, or handling deliveries. Unlike store employees, staff members do not need approval from a store owner—they can sign up using their assigned **Employee ID**.

Upon signing in, staff members will automatically see their assigned tasks and can begin working immediately. Additionally, administrators can send them important messages that must be reviewed before continuing their work.

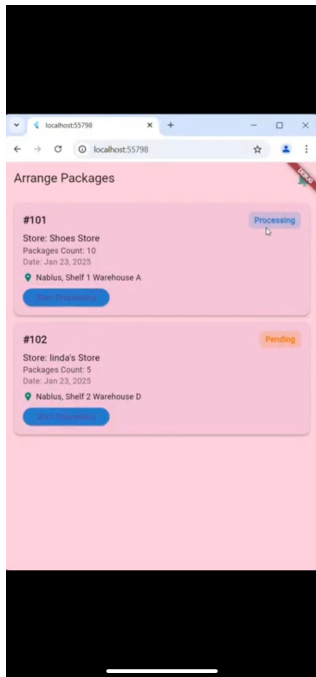


Figure 3.65: Arranging Packages

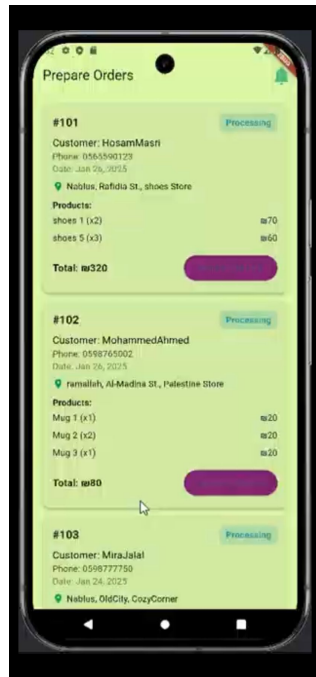


Figure 3.66: Preparing Orders

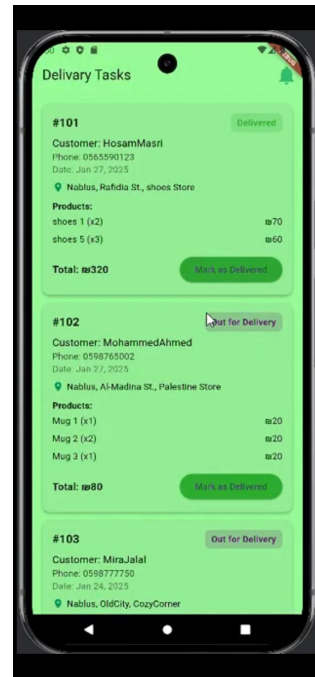


Figure 3.67: Handling Deliveries



Figure 3.68: Delivery Notification

## Customer Side

After signing up, customers gain full access to the platform's shopping features. They can explore various stores, add items to their cart, and proceed with checkout. Customers can also track their orders and navigate the main menu for additional options.

- (a) **Browse Stores:** Customers can view all available stores and select one to shop from.
- (b) **Select a Store:** After choosing a store, they can browse its products.
- (c) **Add to Cart:** Customers can add items to their shopping cart.
- (d) **Select Quantity:** Before proceeding, they can adjust the quantity of items in the cart.
- (e) **View Cart:** Customers can review their selected products.
- (f) **Proceed to Checkout:** Once satisfied, they proceed to payment.
- (g) **Order Confirmation:** A confirmation page appears after a successful purchase.
- (h) **Main Menu:** Customers can access the main menu, which includes:
  - **About Us:** Learn more about the platform.
  - **Contact Us:** Find support and contact details.
  - **My Orders:** View current and past orders.
- (i) **Order Status:** Customers can check their order's current status (e.g., Pending, Shipped, Delivered).

- (j) **Order Tracking:** When an order is out for delivery, real-time tracking is available.



Figure 3.69: See Stores

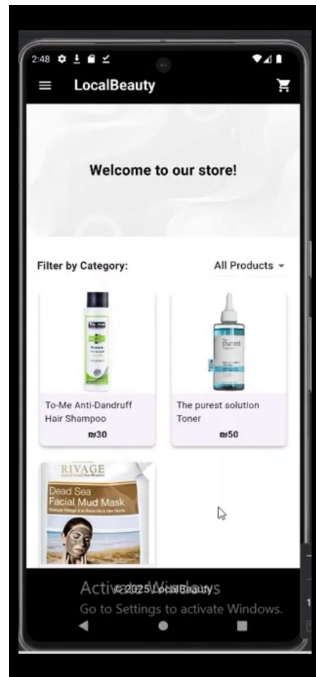


Figure 3.70: Select Store

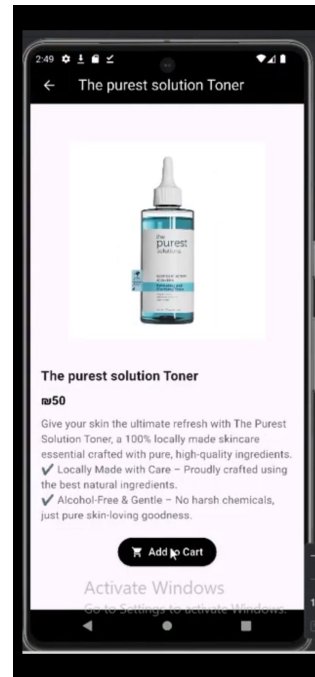


Figure 3.71: Add to Cart

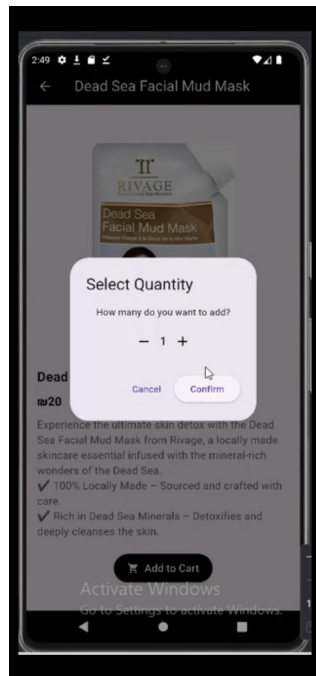


Figure 3.72: Select Quantity

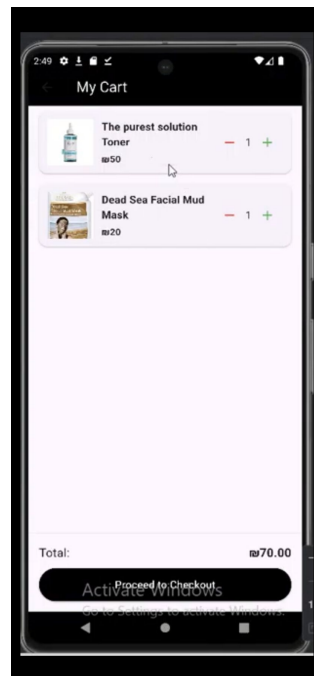


Figure 3.73: View Cart

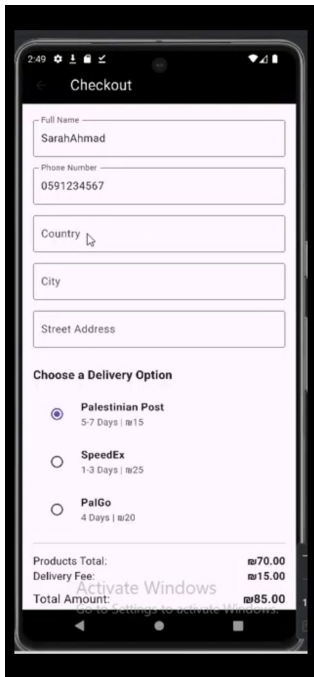


Figure 3.74: Proceed to Checkout

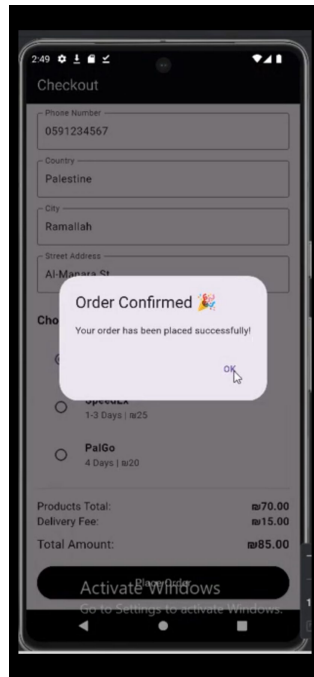


Figure 3.75: Order Confirmed

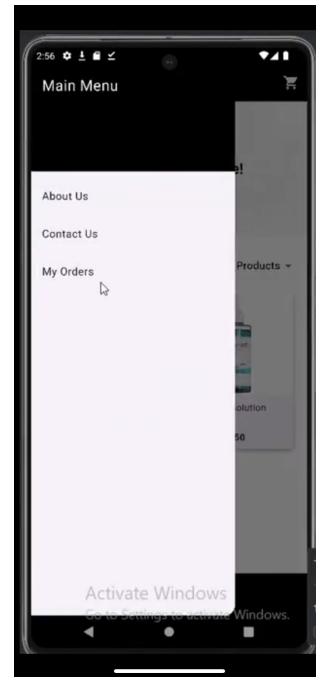


Figure 3.76: Main Menu

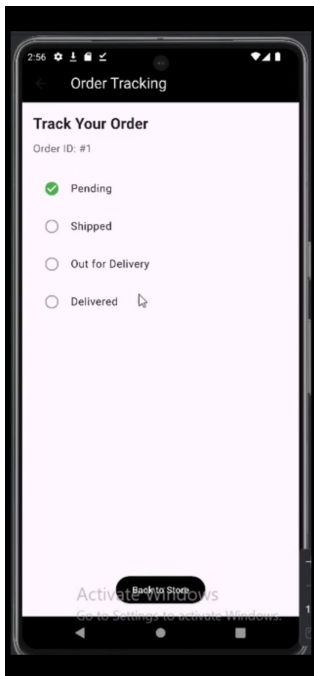


Figure 3.77: Order Status

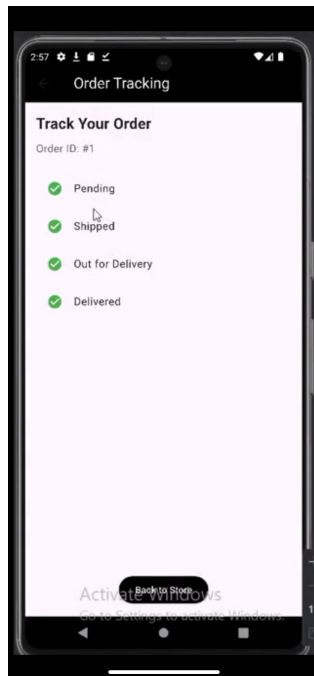


Figure 3.78: Order Tracking

## SuperAdmin Side

The SuperAdmin has complete control over the system and can monitor all users and stores. They have the authority to delete users, stores, or any other entities, as well as send messages and emails to users. Additionally, they can view notifications and support requests sent by users.

- (a) **View All Users:** SuperAdmin can see a list of all registered users, including store owners, customers, staff, and store employees.
- (b) **View Store Owners:** SuperAdmin can filter and view all store owners specifically.
- (c) **View Customers:** A dedicated section allows SuperAdmin to browse all registered customers.
- (d) **View Staff:** SuperAdmin can access a list of store staff members.
- (e) **View Support Notifications:** SuperAdmin receives support notifications sent by users through the support page.
- (f) **Send Emails:** SuperAdmin has the ability to send emails to any user for important updates or support.
- (g) **Delete Users or Stores:** The SuperAdmin can delete any user (store owner, customer, staff, store employee) or remove entire stores from the system.
- (h) **View Store Employees:** SuperAdmin can check store employees working under different store owners.
- (i) **View Stores with Full Information:** SuperAdmin can see all registered stores with detailed information, including their status, products, and management details.

- (j) **View and Manage Shipping Options:** SuperAdmin can see all available shipping options in the system. They can add new shipping options or remove existing ones based on business needs.
- (k) **View and Manage Warehouses:** SuperAdmin can access a list of all warehouses registered in the system. They can add new warehouses or delete unnecessary ones, ensuring proper inventory management.

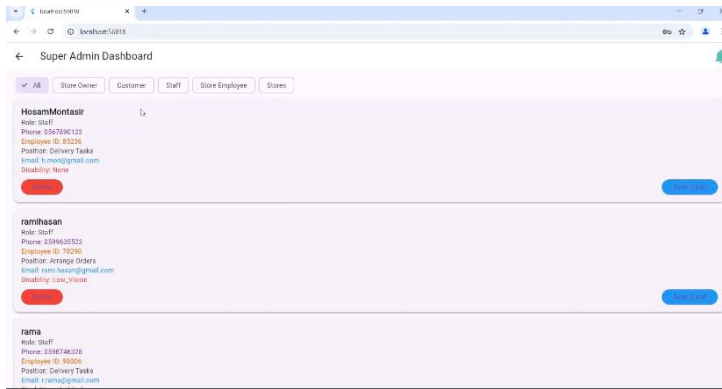


Figure 3.79: View All Users

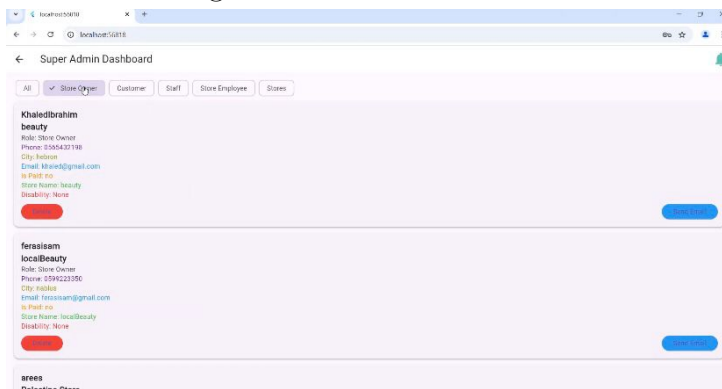


Figure 3.80: View Store Owners

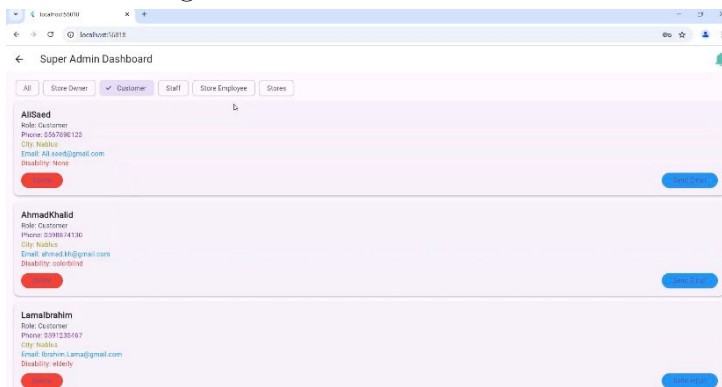


Figure 3.81: View Customers

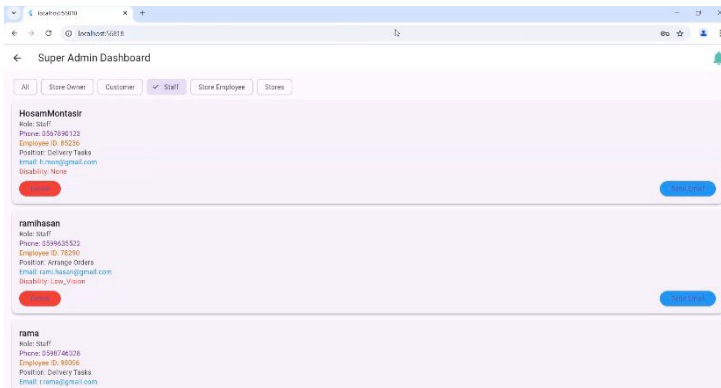


Figure 3.82: View Staff

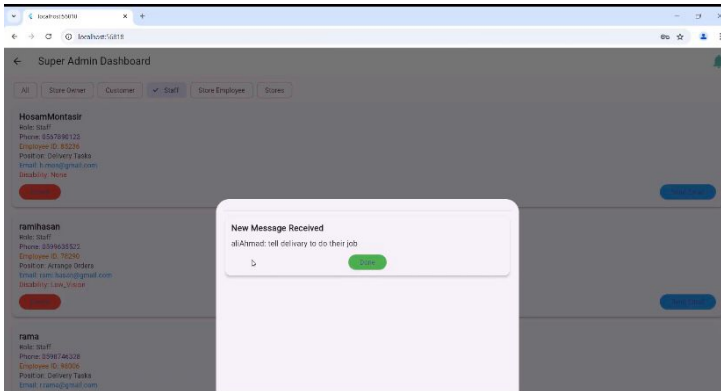


Figure 3.83: View Support Notifications

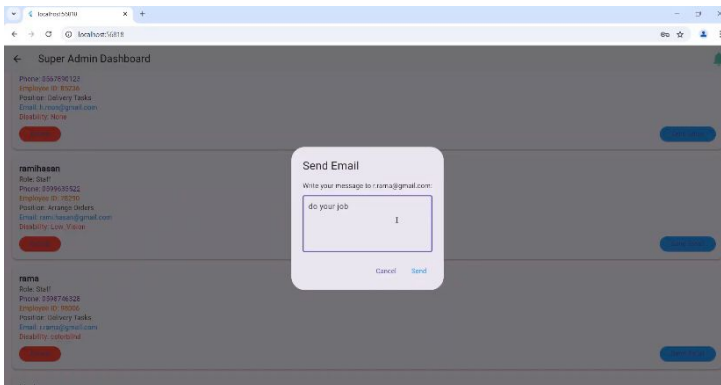


Figure 3.84: Send Messages

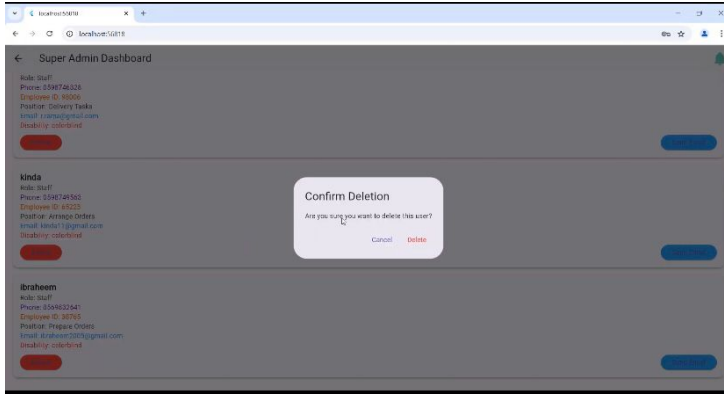


Figure 3.85: Delete Users or Stores

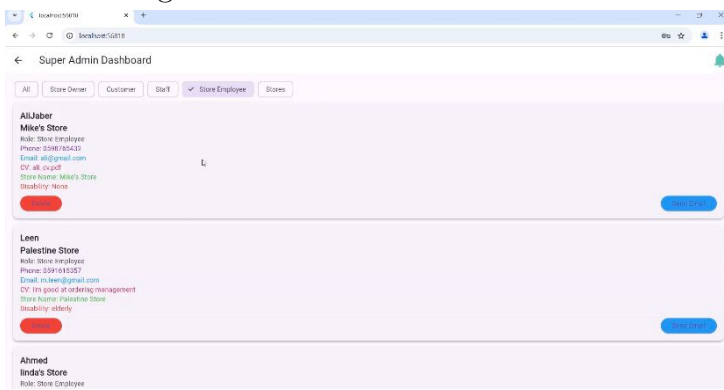


Figure 3.86: View Store Employees

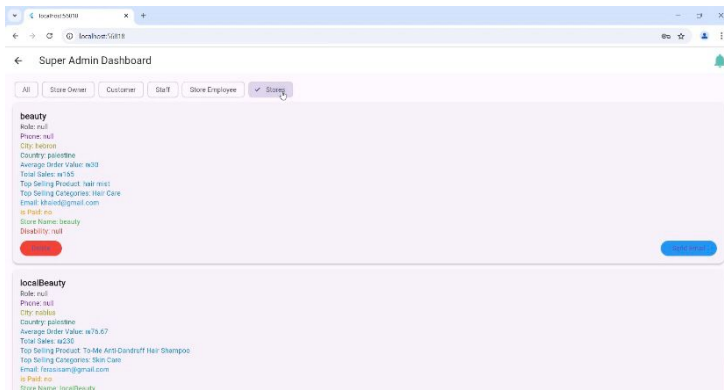


Figure 3.87: View Stores with Full Information

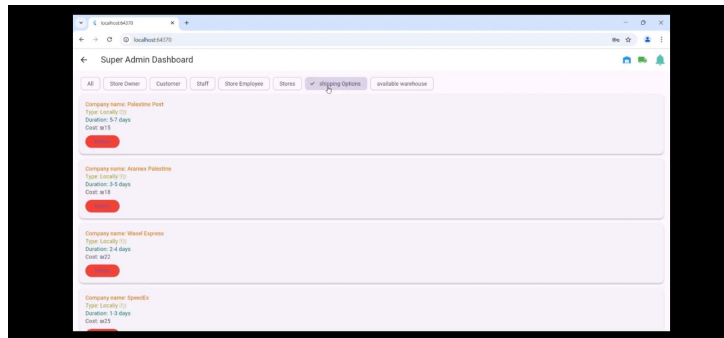


Figure 3.88: View Shipping Options

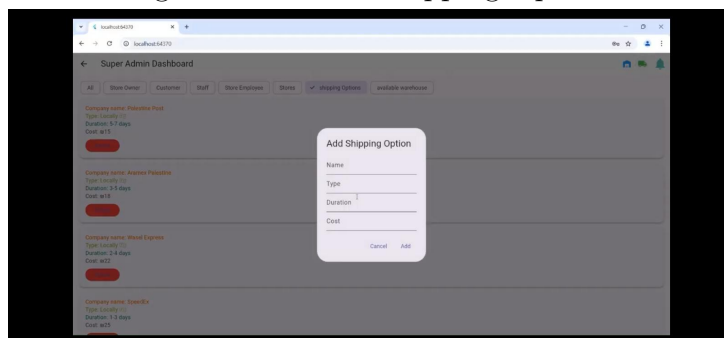


Figure 3.89: Add Shipping Company

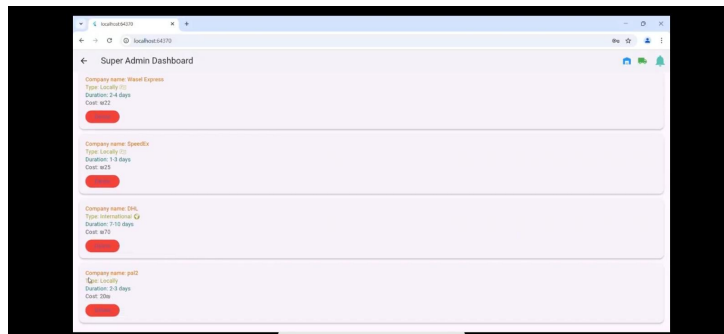


Figure 3.90: Confirm Adding Shipping Company

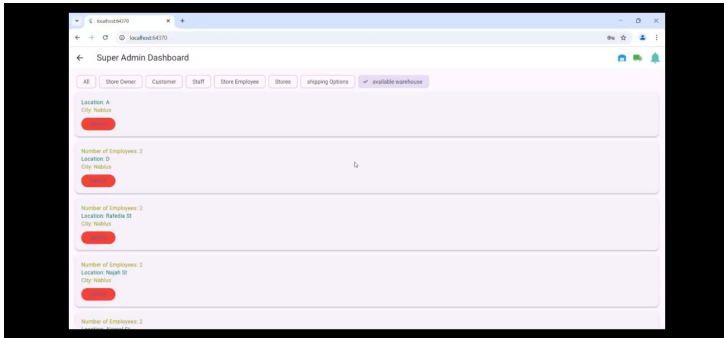


Figure 3.91: View Warehouse

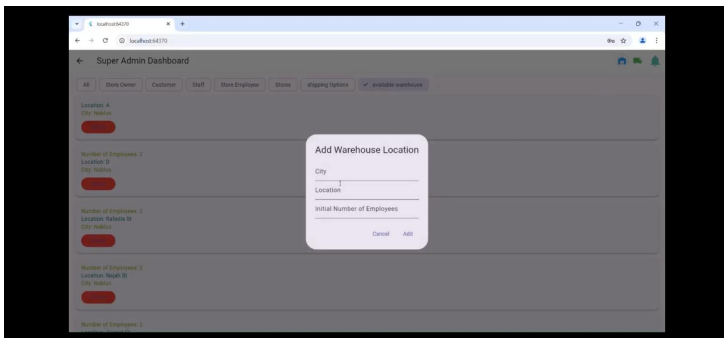


Figure 3.92: Add Warehouse

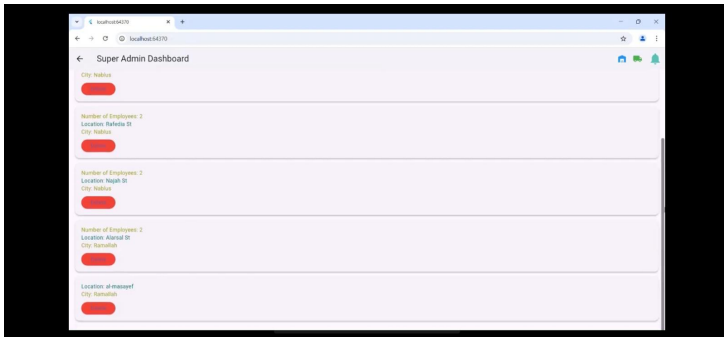


Figure 3.93: Confirm Adding Warehouse

## **4. Results and Discussions**

### **4.1 Introduction**

This chapter presents the results obtained from the implementation and testing of the system. Includes an analysis of key features, user interactions, and system performance. In addition, comparisons are made between the expected results and the actual results.

### **4.2 Results**

The system was tested under different scenarios to evaluate its functionality. The following results were observed:

#### **4.2.1 User Role Selection**

Users successfully selected roles such as Store Owner, Store Employee, Staff, or Customer. The system correctly redirected them to their respective pages.

#### **4.2.2 Store Owner Sign-Up and Plan Selection**

Store Owners were able to select between the Free and Paid plans. The system successfully processed payments and granted premium features.

Feature	Free Plan	Paid Plan (\$29)
Basic Store Management	✓	✓
Advanced Analytics	✗	✓
Priority Support	✗	✓
Custom Store Themes	✗	✓

Table 4.1: Comparison of Free and Paid Plans

### 4.3 Performance Analysis

The system was evaluated based on user interactions and response times.

- **Sign-up Process:** The average time for user sign up was measured at 5 seconds.
- **Checkout Speed:** Customers were able to complete purchases in under 10 seconds.
- **Order Tracking Accuracy:** 98% accuracy was achieved in updating order statuses.

### 4.4 Challenges and Limitations

Despite successful implementation, some challenges were encountered:

- Initial delays in API response time for store information retrieval.
- Minor UI inconsistencies in the mobile version.
- Need for additional accessibility enhancements.

## **4.5 Discussion**

The results indicate that the system meets its intended objectives. The role-based access control and store management functionalities operate efficiently. However, further improvements, such as optimizing API performance and enhancing accessibility features, can be considered for future development.

## **4.6 Summary**

This chapter presented the key findings, challenges, and performance analysis of the system. The next chapter will discuss conclusions and future work.

# 5. Conclusion and Future Work

## Conclusion

In this project, we introduced StoreMaster, an advanced e-Commerce platform designed to address the accessibility challenges faced by elderly users and individuals with visual impairments. By implementing features such as customizable font sizes, contrast controls, voice commands, and screen reader compatibility, StoreMaster bridges the gap between technology and inclusivity. The platform provides a seamless user experience across multiple devices, empowering users of all abilities to create and manage online stores effectively.

The project has successfully demonstrated that accessibility and usability can coexist without compromising the overall functionality of an e-Commerce platform. Through thoughtful design and adherence to accessibility guidelines, StoreMaster sets a new standard for inclusivity in the digital economy.

## Future Work

While this project achieves its primary goals, there's several things for future work remain:

1. **Integration of AI Features:** Implementing AI-driven recommenda-

tions to assist users in optimizing their stores and product offerings based on market trends and user behavior.

2. **Multi-language Support:** Expanding the platform to support multiple languages, making it accessible to a global audience.
3. **Advanced Voice Control:** Enhancing voice control functionality to include natural language processing for a more intuitive hands-free experience.
4. **Community Features:** Adding forums and user communities where users can share experiences, seek assistance, and collaborate on best practices.
5. **Testing and Feedback:** Conducting extensive usability testing with real users from target demographics to refine the platform further and identify areas of improvement.
6. **Integration with AR/VR:** Exploring the use of augmented reality (AR) and virtual reality (VR) to enhance the shopping and store management experience.
7. **Multiple Store Management:** Allowing users to create and manage multiple stores under a single account, enabling them to diversify their business ventures and streamline operations across various markets or product categories.

By addressing these aspects, StoreMaster can continue to evolve into a more robust and inclusive platform, setting a precedent for future advancements in accessible e-Commerce solutions.

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