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Faculty of Engineering & Information Technology

Department of Computer Engineering

Graduation Project I

Shine Craft

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presented in partial fulfillment of the requirements for Bachelor

degree in Computer Engineering

27 July 2025

ACKNOWLEDGMENTS

We appreciate Dr. Haya Samaana, our supervisor, for her essential help and guidance on how to make our project better. We would want to express our sincere appreciation to our family, friends, and anybody else who helped or encouraged us on this trip.

DISCLAIMER STATEMENT

This report was written by Diana Qwariq and Raya Shafai, students at the Computer Engineering Department, Faculty of Engineering, An-Najah National University. It has not been altered or corrected, other than editorial corrections, as a result of assessment and it may contain language as well as content errors. The views expressed in it together with any outcomes and recommendations are solely those of the students. An-Najah National University accepts no responsibility or liability for the consequences of this report being for a purpose other than the purpose for which it was commissioned.

ABSTRACT

Darwazeh Factory is a business specializing in the production of handcrafted mirrors and wooden shelves. Currently, the factory relies on Instagram direct messages for sales, making the process inefficient and prone to communication errors. To modernize their business and improve workflow, we developed Craft Shine, a digital platform consisting of a mobile application and website. This platform is designed to streamline customer interactions, facilitate internal communication between employees and management, and enhance overall business efficiency.

Craft Shine serves three main user groups: customers, employees, and administrators. Customers can browse products in an intuitive and user-friendly interface, use an augmented reality feature to virtually try products in real-world settings, add products to their wishlist, read and provide feedback, and make secure payments using credit/debit cards. The platform also features a loyalty program where users earn points from orders and a daily spin-the-wheel game, which can later be redeemed for discounts. Customers can track their orders in real time and accurately enter their delivery location via an integrated map feature. In case of issues or inquiries, the customer service chat provides direct communication with the company.

Employees benefit from a dedicated dashboard where they can request vacations, view their salaries, and access the list of orders they need to work on. This improves workflow efficiency and ensures smooth internal communication. Additionally, Firebase notifications keep employees informed about new tasks, schedule updates, and vacation request statuses.

Administrators have full control over the platform's operations. They can manage employees, track company performance, view detailed financial reports, and analyze best-selling products to make informed business decisions. They can also accept or reject employee vacation requests, oversee order management, and update content on the homepage to highlight new arrivals and featured products. The system also includes cost-tracking features, allowing administrators to monitor manufacturing expenses, employee salaries, bonuses, and deductions. This enables them to calculate profits efficiently and manage financial aspects seamlessly. Firebase notifications ensure that administrators receive real-time updates on order statuses, employee requests, and customer inquiries.

By implementing Craft Shine, Darwazeh Factory transitions into a more structured and efficient business model. This platform not only enhances customer experience but also significantly optimizes internal operations, leading to improved productivity and profitability.

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CHAPTER 1

INTRODUCTION

Problem

Darwazeh Factory currently operates using a manual and outdated sales process through Instagram direct messages, which makes order tracking and customer interactions difficult. This system lacks automation, leading to inefficiencies in communication, order management, and financial tracking. Employees also struggle with administrative tasks such as vacation requests and salary tracking, as there is no unified platform to manage these functions. Additionally, customers lack an interactive and seamless experience when purchasing products online, which can result in lost sales and reduced customer satisfaction.

Objective

The primary objective of Craft Shine is to create an integrated digital platform that enhances both customer experience and internal operations for Darwazeh Factory. Specifically, the objectives include:

- Developing a user-friendly mobile application and website to facilitate product browsing and purchasing.
- Implementing an augmented reality feature for customers to visualize products in their space before purchasing.
- Providing a centralized communication system for employees and administrators.
- Automating order tracking and management to improve efficiency.
- Enhancing financial management by tracking sales, salaries, expenses, and profits.
- Enabling administrators to manage employee requests, product listings, and customer inquiries seamlessly.
- Implementing Firebase notifications for real-time updates and better coordination.

Scop of the work

The Craft Shine project involves creating a comprehensive digital platform to modernize and optimize Darwazeh Factory's operations. The scope includes the following key functionalities:

- **Customer Features:**
 - Interactive product browsing with augmented reality visualization.
 - Secure payment integration via credit/debit cards.
 - Real-time order tracking with delivery status updates.
 - Direct customer support chat for issue resolution.

- Loyalty points system, including a daily spin-the-wheel game for discounts.
- **Employee Features:**
 - Dashboard for tracking orders and assigned tasks.
 - Vacation request submissions and salary tracking.
 - Internal notifications for updates on work schedules and orders.
- **Administrator Features:**
 - Employee and order management tools.
 - Financial reports and cost analysis.
 - Content management for homepage product updates.
 - Real-time Firebase notifications for streamlined communication.
 - Data-driven insights for best-seller tracking and profit analysis.

Organization of the report

CHAPTER 2

CONSTRAINTS, STANDARDS AND EARLIER COURSEWORK

2.1 Constraints

- **Learning New Technologies:** Since this was our first experience developing a full-stack application, we had to learn new technologies, including **Node.js** for backend development and **Flutter** for mobile app development. Additionally, we had to understand how to integrate Firebase services such as **Firestore** and **Firebase Messaging** for real-time notifications and backend functionalities.
- **Feature Implementation Challenges:** We aimed to incorporate multiple advanced features, including **Google Maps integration** and an **augmented reality feature for virtual product visualization**, and a **secure payment system using Stripe**. These features required extensive research, testing, and troubleshooting.
- **Continuous Communication with Stakeholders:** Regular feedback from Darwazeh Factory was essential to align the platform with their needs. We had to frequently meet with the factory management to understand their workflow, discuss UI/UX design preferences, and ensure the system met their business requirements. This continuous back-and-forth extended the development timeline but ensured a user-centric final product.
- **Performance Optimization:** Since our application involves real-time notifications, interactive product browsing, and customer engagement features, performance optimization was crucial. We had to carefully manage API calls, optimize database queries, and handle state management efficiently using **Provider** in Flutter.

2.2 Standards

We followed the **Model-View-Controller (MVC)** architectural pattern to ensure clean and maintainable code:

- **Model:** Handles business logic and data interactions, including **database queries in Node.js** and data retrieval from Firebase.
- **View:** Responsible for the **Flutter UI**, ensuring responsiveness and accessibility across different devices.
- **Controller:** Manages user inputs, processes data, and communicates between the **Model and View**, ensuring seamless functionality.

Additionally, we adhered to software engineering best practices, including:

- **Separation of concerns:** Organized code into reusable modules.
- **Error handling and debugging:** Implemented structured error logging and debugging strategies.
- **Security measures:** Ensured secure authentication and encrypted payment processing using **Flutter Stripe**.

2.3 Earlier Coursework

Several courses played a crucial role in the successful implementation of Craft Shine:

- **Advanced Software Engineering:** Provided knowledge about backend development, helping us learn **Node.js** and API integration for a scalable and robust system.
- **Software Engineering Principles:** Taught us best practices for writing clean, maintainable, and efficient code, which we applied throughout the project.
- **Web Programming:** Gave us a foundation in **client-server architecture**, which helped us integrate Flutter with the backend effectively.
- **Database Management Systems:** Allowed us to handle **real-time data storage and retrieval using Firebase and MongoDB**, ensuring efficient data processing.

CHAPTER 3

LITERATURE REVIEW

The rise of digital technology has significantly transformed the way businesses operate, with mobile applications and websites playing a crucial role in the expansion of online commerce. This section explores key studies and concepts that highlight the impact of these technologies on businesses and customers.

The Role of Mobile Applications in Online Business

Mobile applications have revolutionized e-commerce by enhancing accessibility, customer engagement, and personalization. According to Smith and Johnson (2021), mobile apps provide businesses with a direct communication channel with customers, allowing real-time notifications, seamless transactions, and tailored recommendations. Research by Patel (2022) emphasizes how mobile commerce (m-commerce) has overtaken traditional desktop e-commerce, with users preferring mobile apps for their speed, ease of use, and enhanced security features.

Moreover, payment integration within mobile applications, such as Stripe and PayPal, has facilitated secure and quick transactions. A study by Davis et al. (2023) found that businesses implementing in-app payments witnessed a 35% increase in checkout completion rates compared to websites requiring redirection to external payment portals.

Websites and Their Influence on Business Growth

While mobile apps provide convenience, websites remain a fundamental component of an online business's digital presence. Websites serve as the first point of interaction for potential customers, influencing purchasing decisions through user-friendly design and search engine optimization (SEO). According to Lee and Kim (2020), businesses with well-optimized websites experience higher conversion rates, as customers tend to trust businesses with professional and responsive online platforms.

Additionally, responsive web design plays a vital role in ensuring a seamless experience across different devices. Research by Martinez and Brown (2022) highlights that 60% of online shoppers abandon a purchase if a website is not mobile-friendly, underscoring the importance of cross-platform compatibility.

Customer Experience and Personalization

Technology has enabled businesses to enhance customer experiences through personalized recommendations, chatbots, and AI-driven analytics. Williams (2023) discusses how businesses leveraging artificial intelligence (AI) and machine learning (ML) within their applications can analyze customer behavior and preferences, leading to higher customer satisfaction and repeat purchases.

Geolocation services, such as Google Maps integration in mobile apps, have further improved the shopping experience by enabling location-based services, such as store locators and real-time delivery tracking. According to Garcia et al. (2023), businesses incorporating location-based marketing strategies have seen a 40% increase in customer engagement.

Security and Trust in Online Transactions

One of the main concerns in online business is security, especially regarding payments and customer data. Strong encryption protocols, two-factor authentication, and blockchain-based security measures have become industry standards to protect users. Research by Thompson and Green (2024) highlights how businesses implementing robust security measures experience higher customer retention rates due to increased trust.

CHAPTER 4

Methodology

4.1 Research and data collection

To gain a comprehensive understanding of the factory's operations and requirements, we conducted a meeting with the factory owner. During this discussion, we collected essential data regarding the number of employees and the overall functionality of the factory.

The meeting provided valuable insights into the factory's workflow, including the different stages of production, the roles of employees, and the daily operational challenges. By analyzing this information, we were able to identify key areas where technological solutions, such as mobile applications and websites, could enhance efficiency, streamline processes, and improve overall productivity.

This data collection process serves as the foundation for designing a solution that aligns with the factory's specific needs, ensuring that the proposed system effectively addresses operational challenges and supports business growth.

4.2 Tools, Methods, and Programming languages

4.2.1 Frontend development

- **Framework:** We carefully considered all of Flutter's attributes before deciding to use it, with its effective performance being the most important factor. Flutter is an open source framework developed by Google. Target systems can interchange code because of a cross-platform structure. Flutter is the only application framework that permits you to share both the code and the user interface. Its open-

source nature also means that an infinite number of documentation and courses are available for study and benefit, which speeds the learning curve and facilitates the resolution of common difficulties faced by programmers. To sum up, Flutter is the most straightforward approach to producing code developers that work faster and produce cross-platform mobile apps that function well.

- Programming languages: We utilized the use of Google's object-oriented programming language, Dart. Because we have worked with similar languages in the past, we found Dart to be convenient to work with. It is comparable to C++, Java, and JS. One of the many libraries that Dart offers is one of the reasons we chose it. These libraries facilitate the writing of scripts and increase the productivity and user-friendliness of programming.

4.2.2 Backend development

- Framework: For our backend infrastructure, Node.js was chosen for its versatility and scalability. Node.js' event-driven architecture aligns well with our project's requirements for real-time data processing and handling concurrent connections. Leveraging JavaScript for backend development ensures consistency across the stack and facilitates code maintainability. Additionally, Node.js' rich ecosystem of modules and libraries, along with strong community support, accelerates development cycles and enables rapid iteration. In summary, Node.js powers our backend infrastructure, providing the performance and flexibility needed to support our application's growth and evolution.
- During the development stage of our Node.js application, we employed a particular architecture. The backend source's models and API folders were organized to symbolize the structural elements.
 - API: We designed and developed a RESTful API to make the backend functionality available. The API featured several clearly defined endpoints, each of which mapped to a distinct resource or action. Following REST guidelines, we employed the required HTTP methods (such as GET, POST,

PUT, and DELETE) for every endpoint. Several features were offered by our API, such as sessions scheduling, user data retrieval, and user login.

4.2.3 Website

To enhance our outreach and guarantee accessibility, we supplemented the mobile application with a specific website designed to meet the requirements of individuals managing their diabetes. Through the ease of their mobile devices and the extensive interface of our website, our users may now address their concerns through a dual-channel strategy made possible by this strategic shift.

4.2.4 Database Design and Configuration

Because Node.js is lightweight, efficient, and event-driven, it is the ideal choice for our backend development, given the real-time processing needs of our project. Its non-blocking, asynchronous architecture ensures smooth handling of multiple requests, making it highly scalable and responsive. By using Node.js with WAMP Server, we can efficiently manage server-side logic while leveraging PHP and MySQL for additional backend functionalities. Node.js's extensive ecosystem, strong community support, and seamless integration with various technologies provide a solid foundation for building a fast, reliable, and scalable application.

In our project, we have seamlessly integrated Firebase, a versatile platform by Google, to power two vital functionalities: notifications and chat. With Firebase Cloud Messaging (FCM), we deliver real-time push notifications to users across platforms. Additionally, leveraging Firebase Realtime Database and Cloud Firestore, we've established a robust chat feature, enabling direct communication between parents and specialists with instant message delivery and synchronization across devices. Firebase's comprehensive tools and real-time capabilities have significantly enhanced user engagement and interaction, providing a seamless and dynamic experience within our application.

4.2.5 System Features and Design:

- Log in and sign up feature:

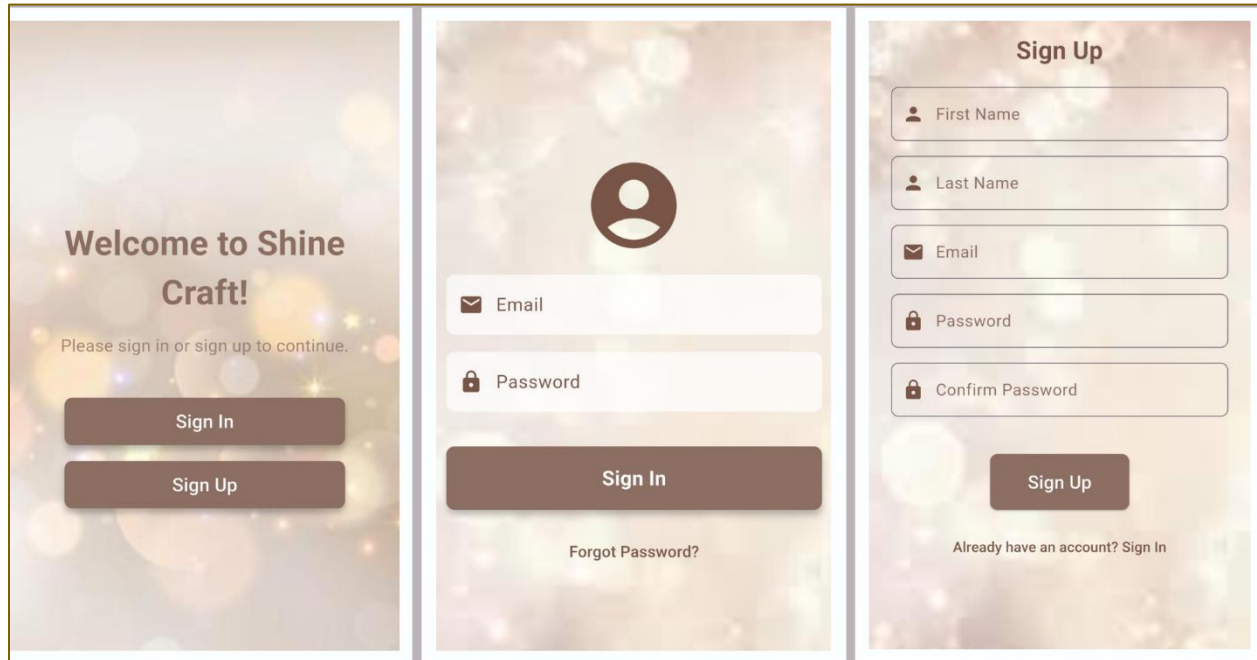


Figure 1: welcome, login and signup

Figure 2: Company dashboard

Figure 3: welcome, login and signup

The first page of our application is the welcome screen, where users can choose between logging in or signing up.

Users can log in using their email and password, and based on the entered data, they will be directed to the appropriate page.

For signing up, we ask users to enter their first name, last name, email, password, and confirm their password.

-Admin features:

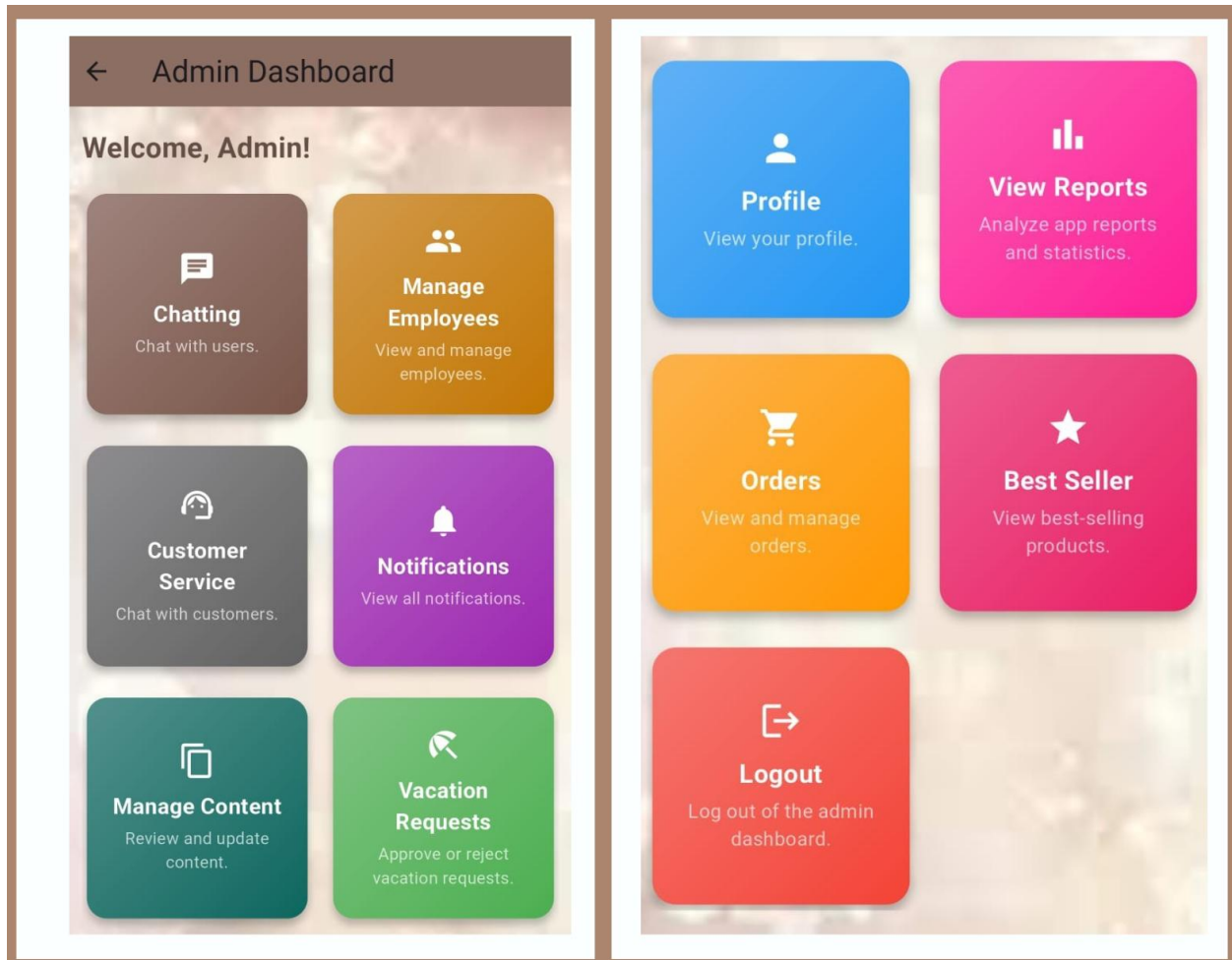
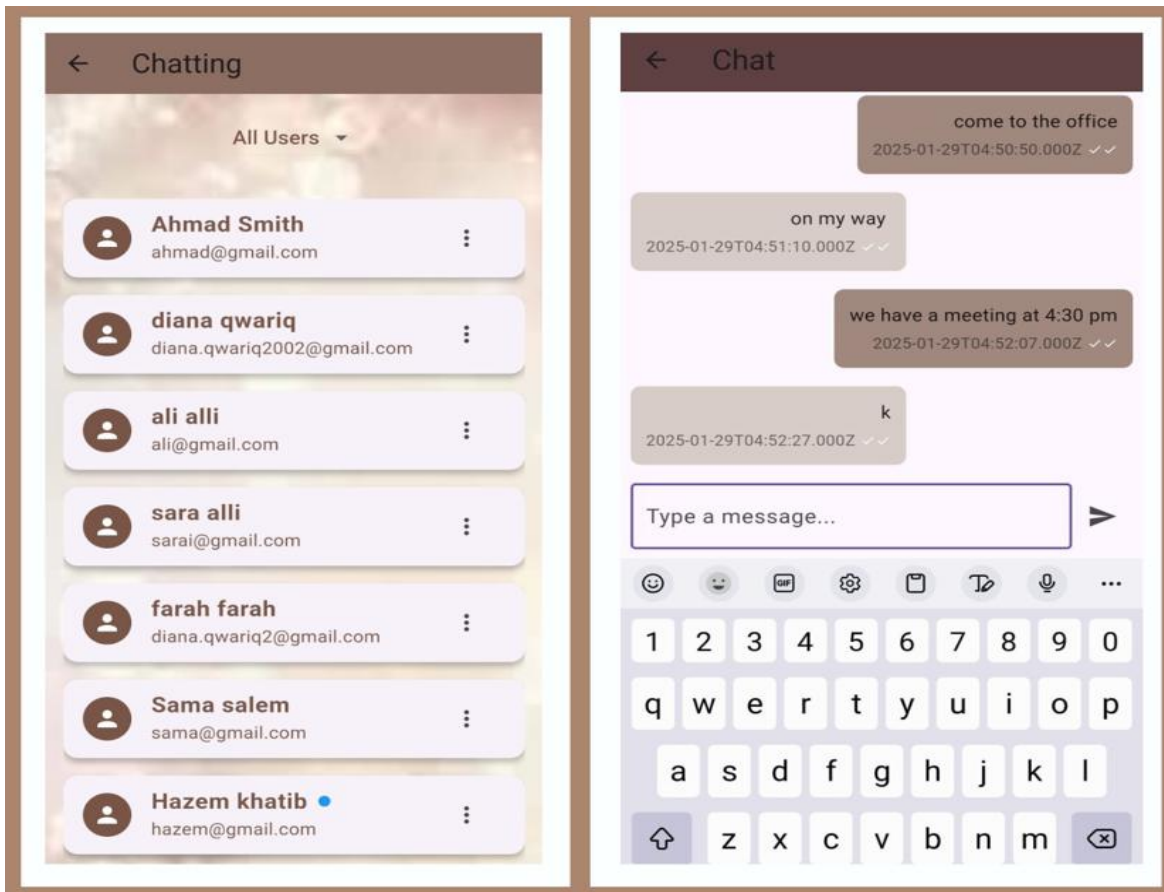


Figure 4: Company dashboard



On this page, the admin can send and receive messages from both employees and customers. If a user sends a message that the admin has not yet viewed, a blue circle will appear next to the unread chat. When the admin sends a message, it will initially display a single checkmark (✓), indicating that the recipient has not yet seen it. Once the message is read, the checkmark will change to a double checkmark (✓✓). Additionally, the admin will receive a notification whenever a new message is sent to them

Figure 3: Chatting

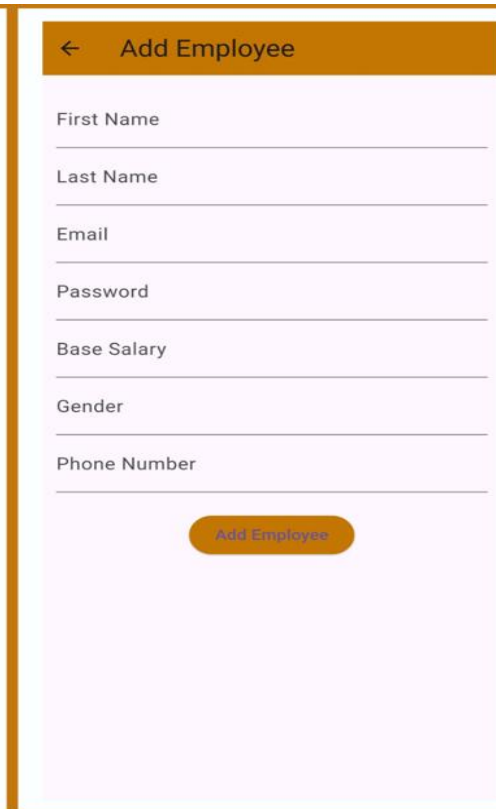
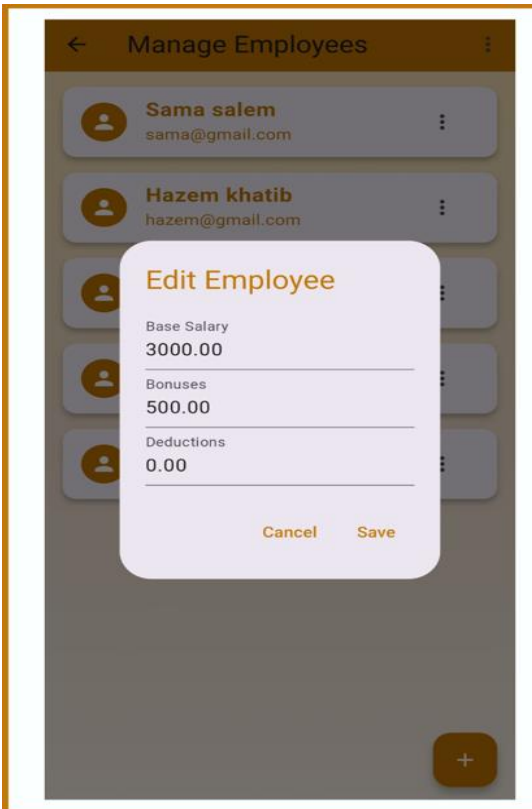
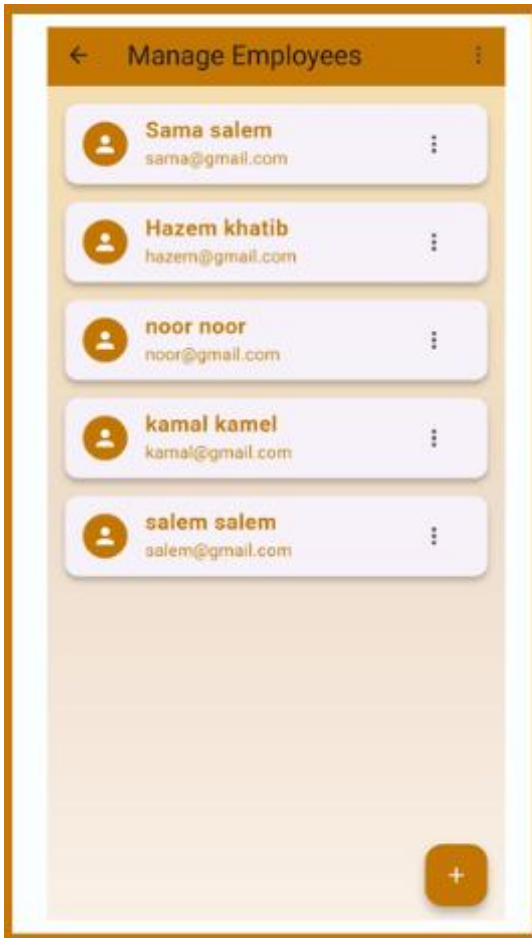
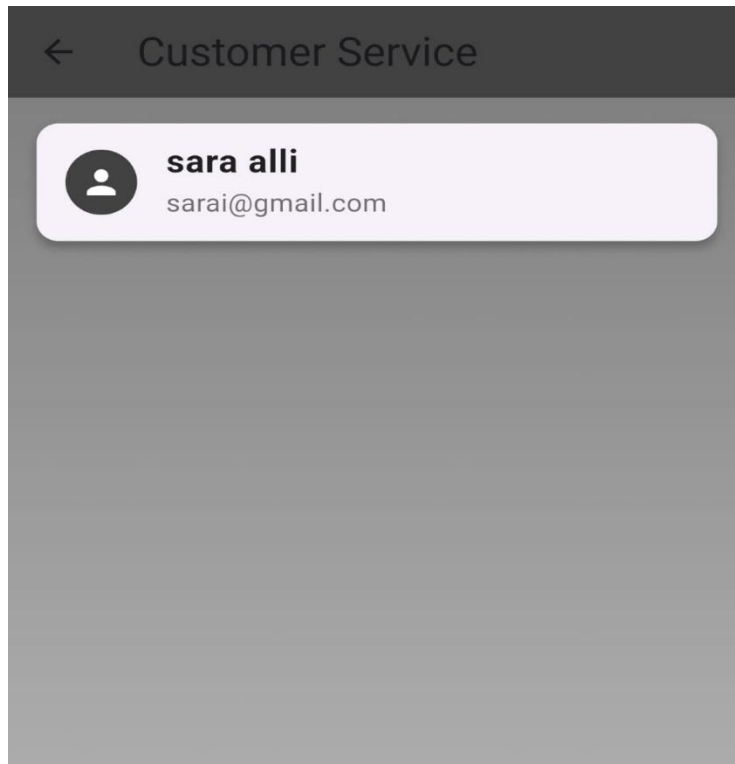


Figure 4: manage employees pages

Manage

Employees Page:

This section allows the company to efficiently manage employee information. Employers can view employee details, update salaries, apply bonuses and deductions, and add new employees. These features streamline the employee management process, making it faster and convenient.

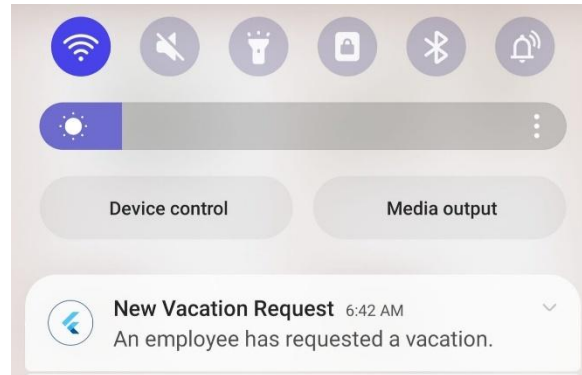
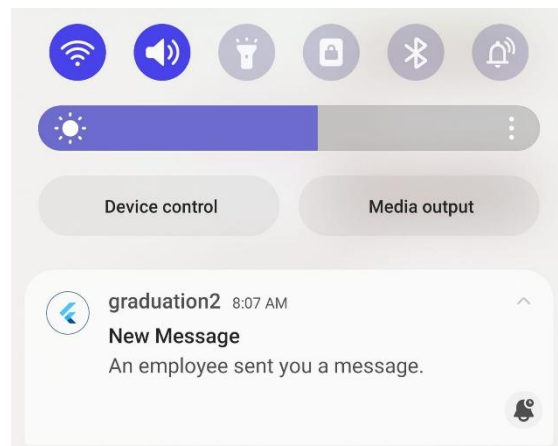
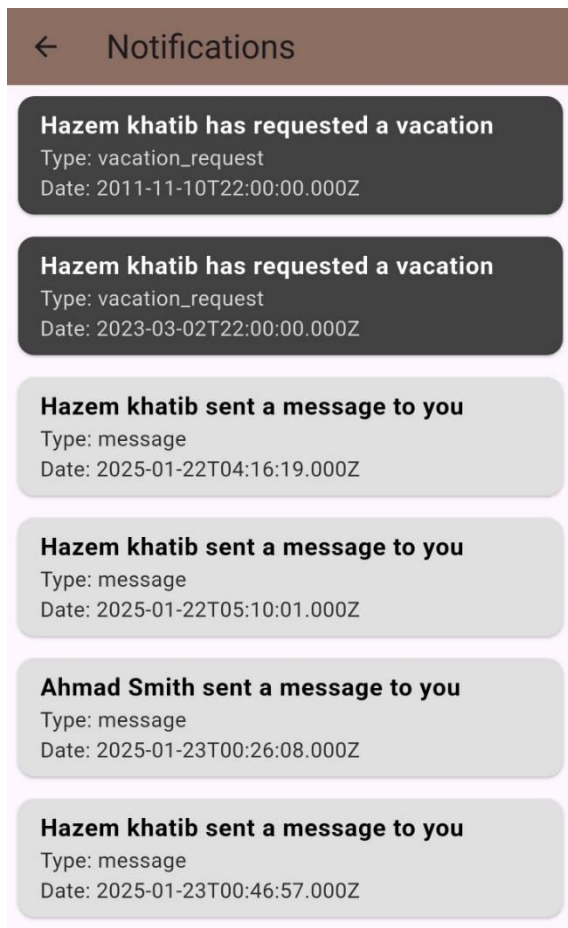


process, making more

Figure 5: customer service

Customer Service Page:

On this page, the company can view customer inquiries and any unread messages. Once the admin opens a chat and responds to the customer's question, the conversation is removed from the customer service page.



Notifications Page :

this page displays all recent alerts, including vacation requests, customer messages, and new orders. Each notification is clickable, and when the admin selects one, it directs them to the relevant page, such as the vacation request page, the chat interface, or the orders page. Unread notifications appear with a darker background, while read notifications change to indicate they've been viewed. This

Figure 6: Notifications

system uses Firebase to send and store real-time notifications for seamless management.

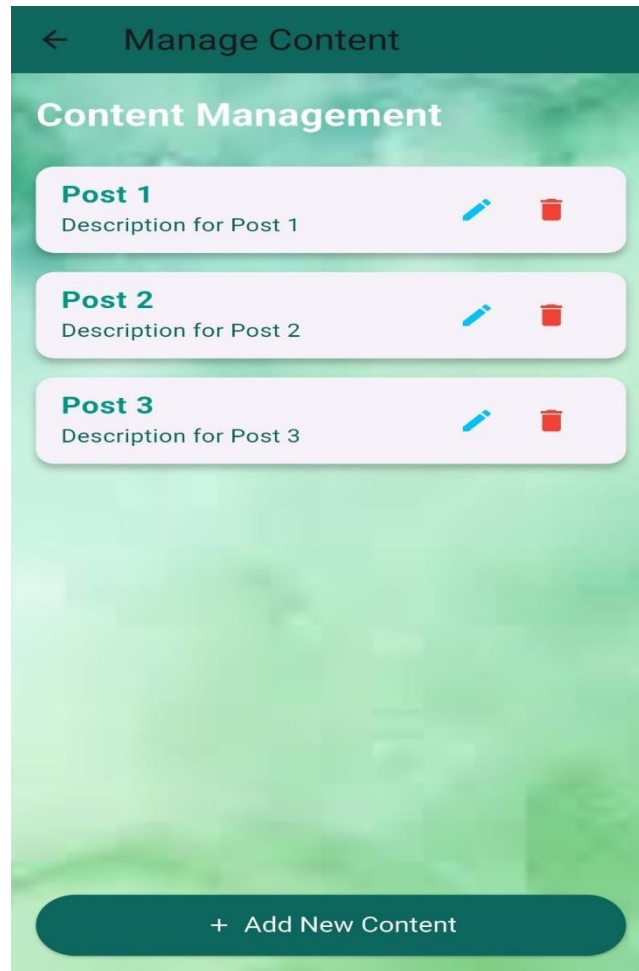


Figure 7: manage contents

Manage Contents:

this page allows the admin to add new products to the system. The admin can specify the product name, select the appropriate category for the product, and ensure that it is featured under the "New Arrivals" section. This streamlined process enables efficient product management and organization within the system.

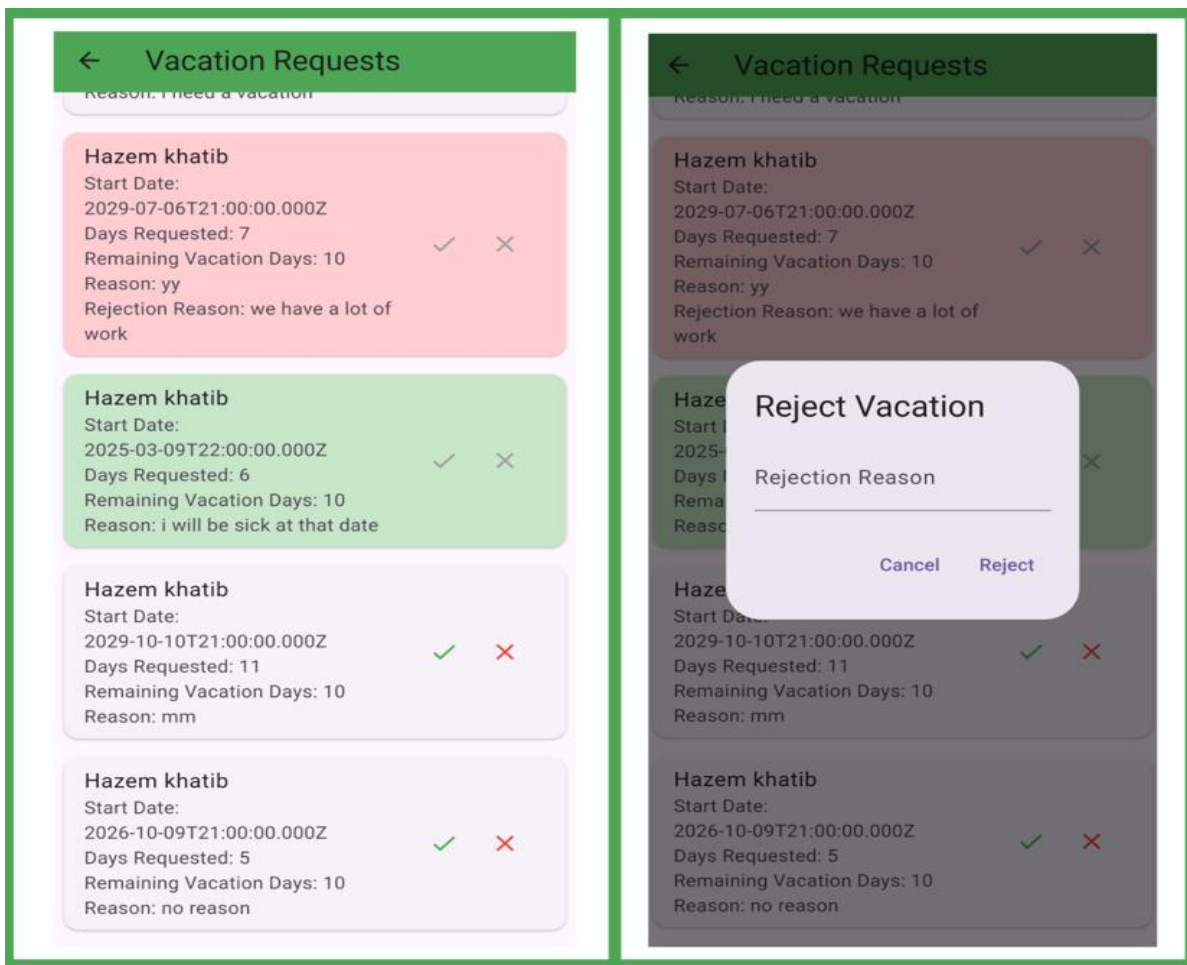


Figure 8: vacation requests

The Vacation Requests page:

this page allows the admin to view employee vacation requests, including the reason for the vacation and the requested days off. The admin can choose to either accept or reject the request. If the request is rejected, the admin must provide a reason for the rejection, ensuring clear communication with the employee.

← Edit Profile

First Name
diana

Last Name
qwariq

Email
diana.qwariq2002@gmail.com

Phone Number
1234567890

New Password

Save

Figure 9: edit profile page

Edit Profile page :

this page allows the admin to update personal information, including phone number, first name, last name, email address, and password. This page provides a straightforward way for the admin to keep their contact details and account information up to date.

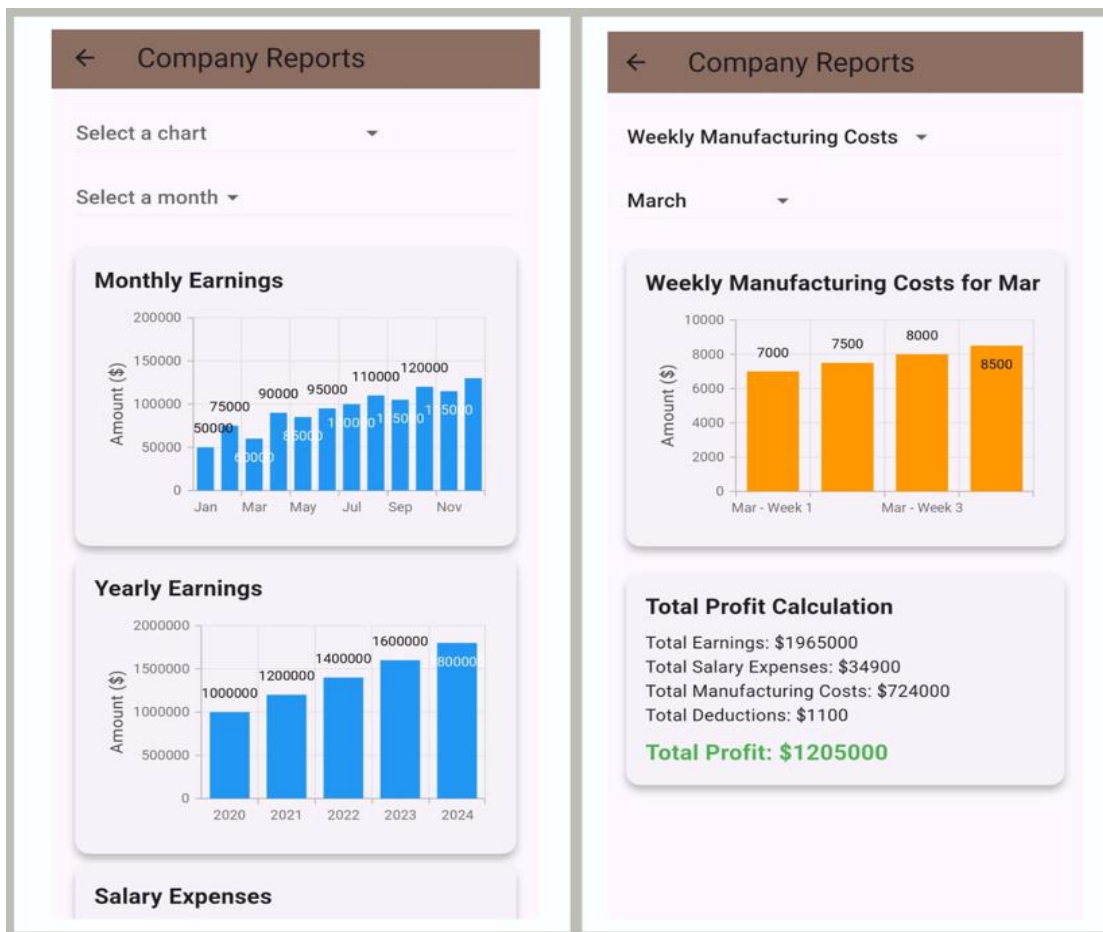


Figure 10: reports page

The Reports page :

this page provides the admin with detailed insights into the company's financial performance. It displays data on earnings, salary expenses, manufacturing costs, and overall profit for a selected month or year. The admin can also track expenditures and revenue, with customizable filters to tailor the data view according to specific needs and preferences. This page offers a comprehensive overview of the company's financial health.

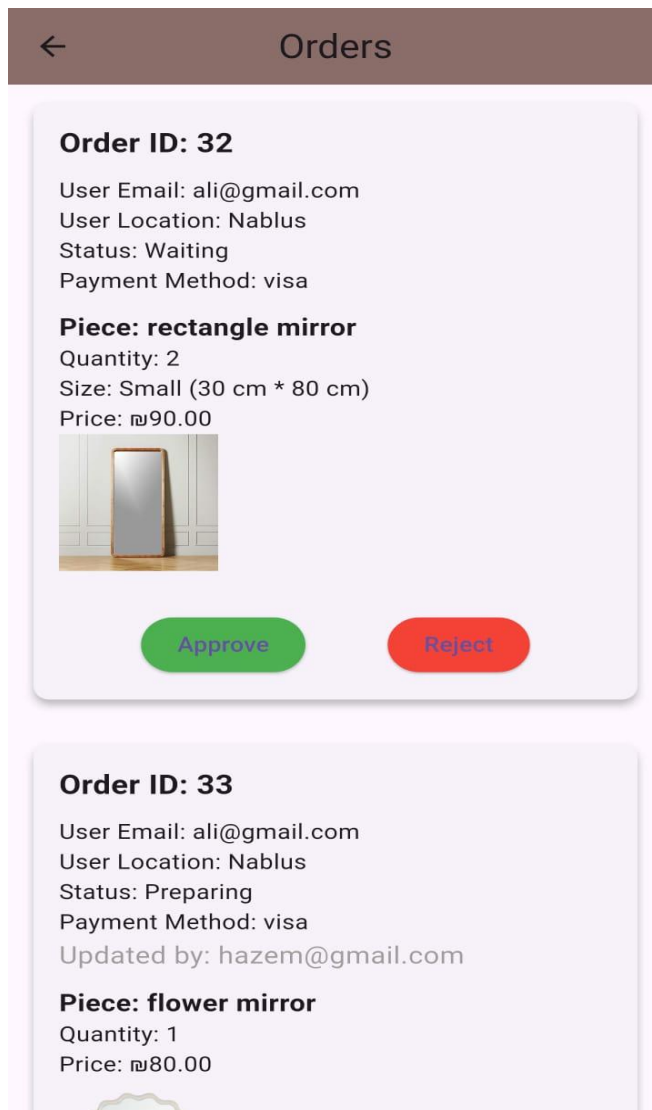


Figure 10: orders page

The Orders page:

this page allows the admin to manage incoming orders by reviewing order details, including the customer's location and payment method. The admin can accept or reject orders, and if an order is rejected, a rejection reason must be provided. For orders paid via Visa, a refund will be automatically processed upon rejection.

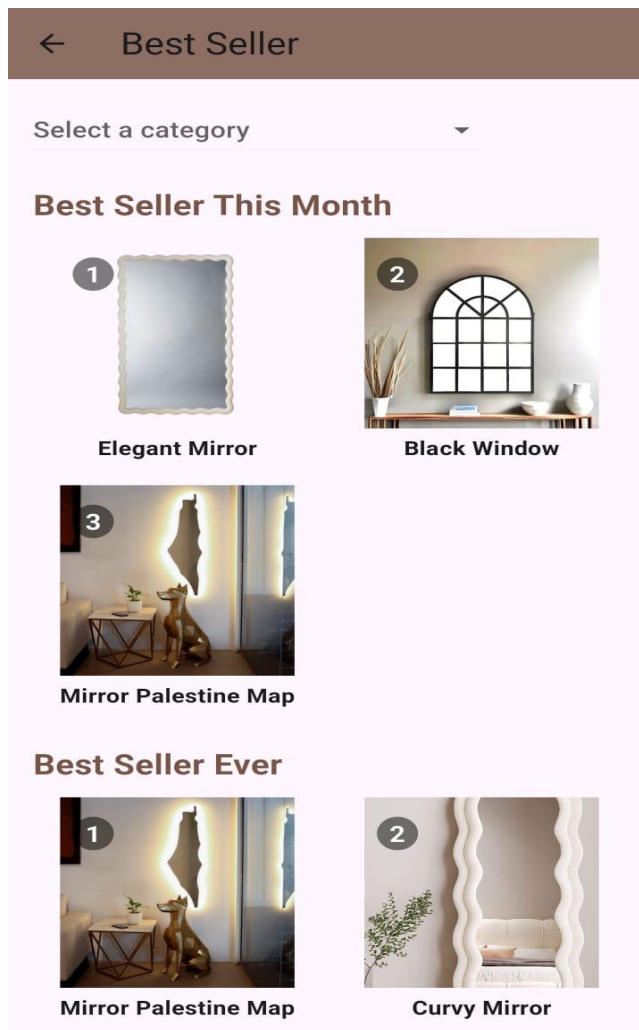


Figure 11:best seller page

The Best Seller page:

this page provides the admin with insights into the top-selling products in each category and the best-selling items for each month. This data helps in strategic planning for future inventory and product selection, ensuring informed business decisions based on sales trends.

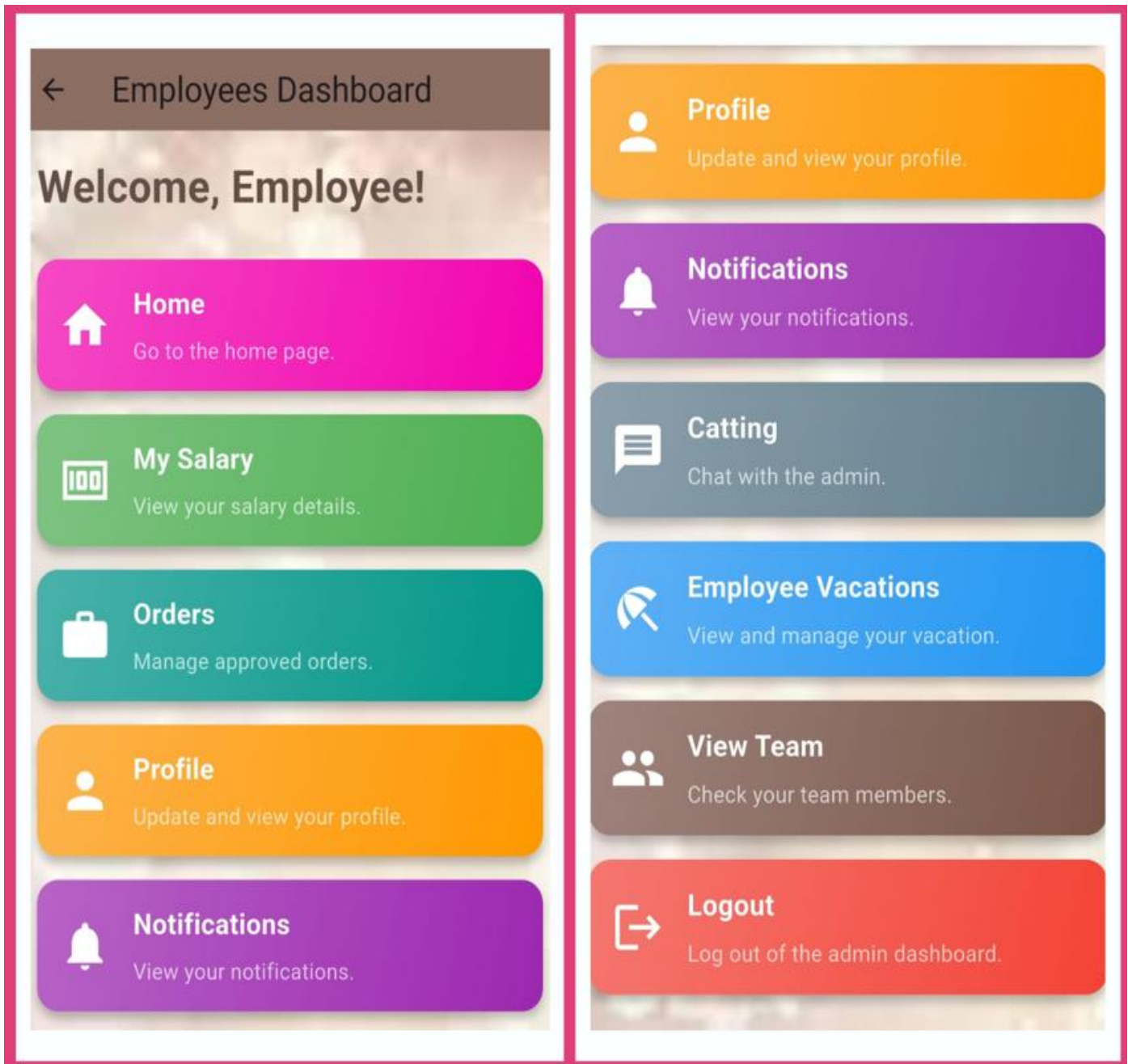


Figure 12: employees dashboard

The Home Page:

this page allows employees to browse products just like customers. Employees can place orders as customers do but receive a discount on their purchases. More details about this page will be discussed when covering customer-related pages.

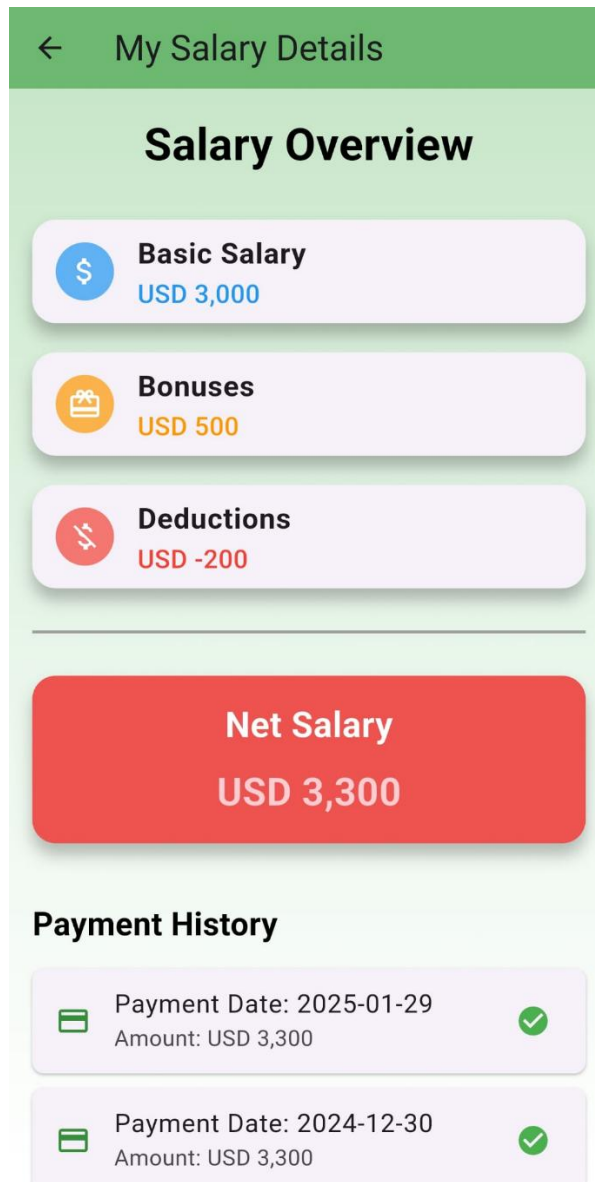


Figure 13: Salary page

The My Salary page :

this page allows employees to view their monthly salary details, including bonuses and deductions. This page provides a clear breakdown of their earnings and any adjustments made to their salary.

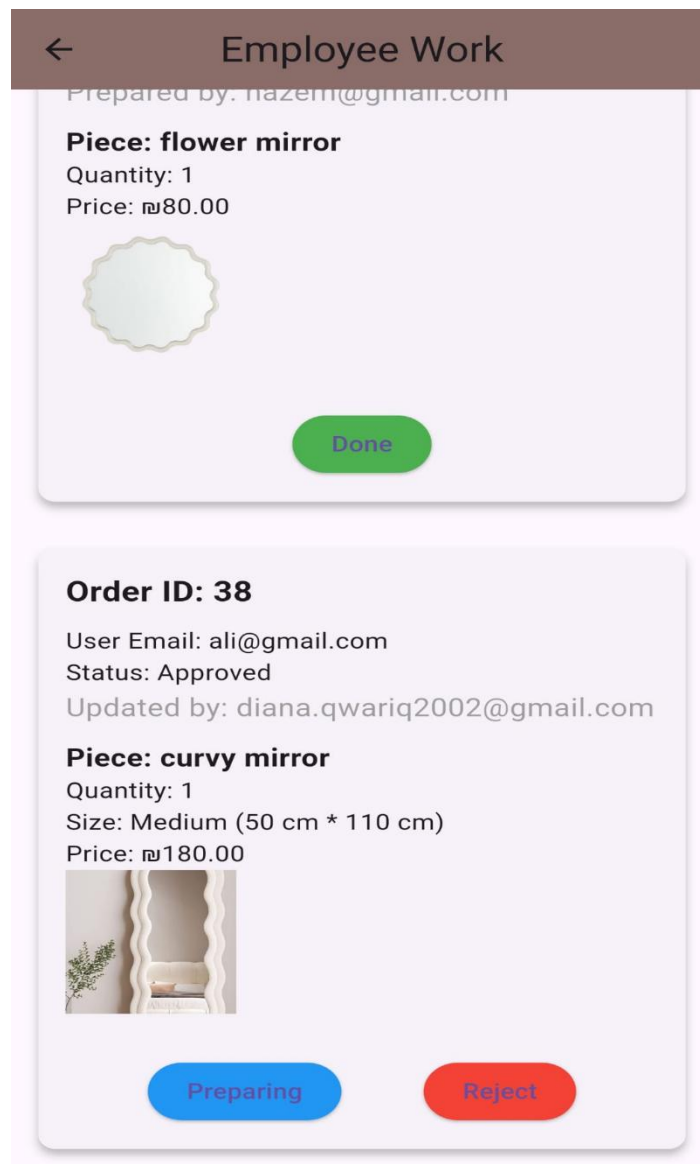


Figure 14: orders page

The Order Page:

in the employee dashboard allows employees to manage incoming orders. They can either accept or reject an order. Upon acceptance, the order status updates to "Preparing," and the employee must specify the estimated completion time. If rejecting an order, they must provide a reason. The admin can track which employee accepted or rejected an order. Rejected orders remain available for other employees to accept. Once an order is completed, the employee marks it as "Done," updating the status to "Waiting to be Delivered."

Next, we have the Profile Page and Notifications Page, which function the same way as they do on the admin side. The Profile Page allows employees to update their personal information, while the Notifications Page keeps them informed about important updates and actions related to their tasks.

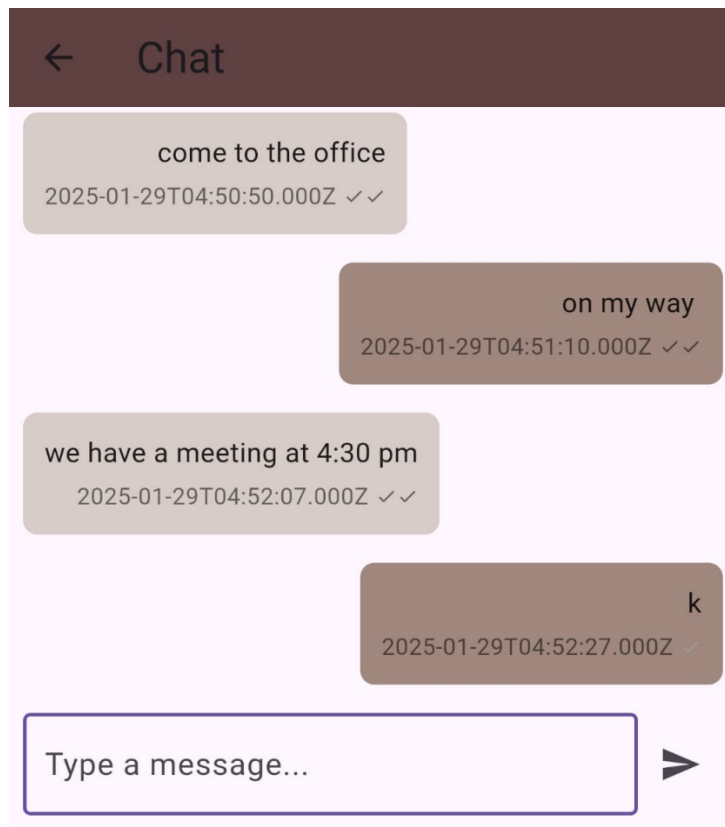


Figure 15: chatting page

The Chatting Page:

allows employees to communicate directly with the company or admin. Employees receive a notification when the admin sends them a message, and this notification is saved on the Notifications Page. More details about this feature were covered in the Admin Chatting section.


Vacation Summary


Total Vacation Days: 30


Used Vacation Days: 7

Remaining Vacation Days: 23

Book a Vacation

 Vacation Start Date

 Number of Days

 Vacation Reason

[Book Vacation](#)

Vacation History



 Start Date: 2027-10-09T21:00:00.000Z 
Duration: 5 days

Figure 15: employee vacation page

The Employee Vacation Page:

this page allows employees to request vacation days, provided they have remaining leave balance. Each employee is entitled to 30 days of vacation per year. When submitting a request, the employee must specify the number of days needed and the reason for the leave. If the 30-day limit is reached, further requests cannot be made. If a vacation request is rejected, the employee can view the rejection reason in the Vacation History section.

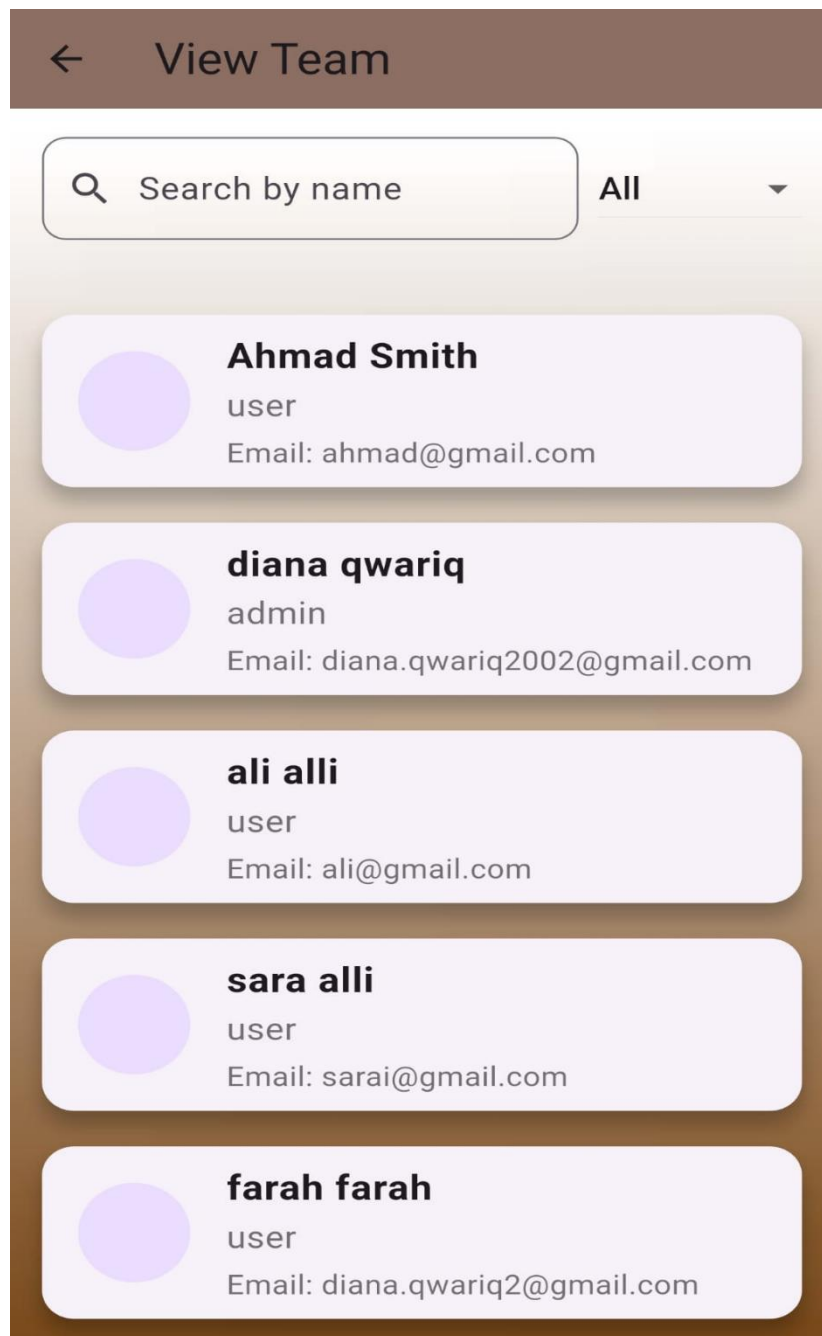


Figure 16: View team

The View Team page :

this page allows employees to view the email addresses of other employees and customers, enabling them to contact them directly when necessary. This feature facilitates communication and collaboration within the team and with customers.

Now let's start with the customer pages :



Figure 17: home page

The Home Page:

this page for customers displays product categories and highlights the latest arrivals. This page provides an easy-to-navigate layout, allowing customers to explore different product categories and quickly view newly added items.

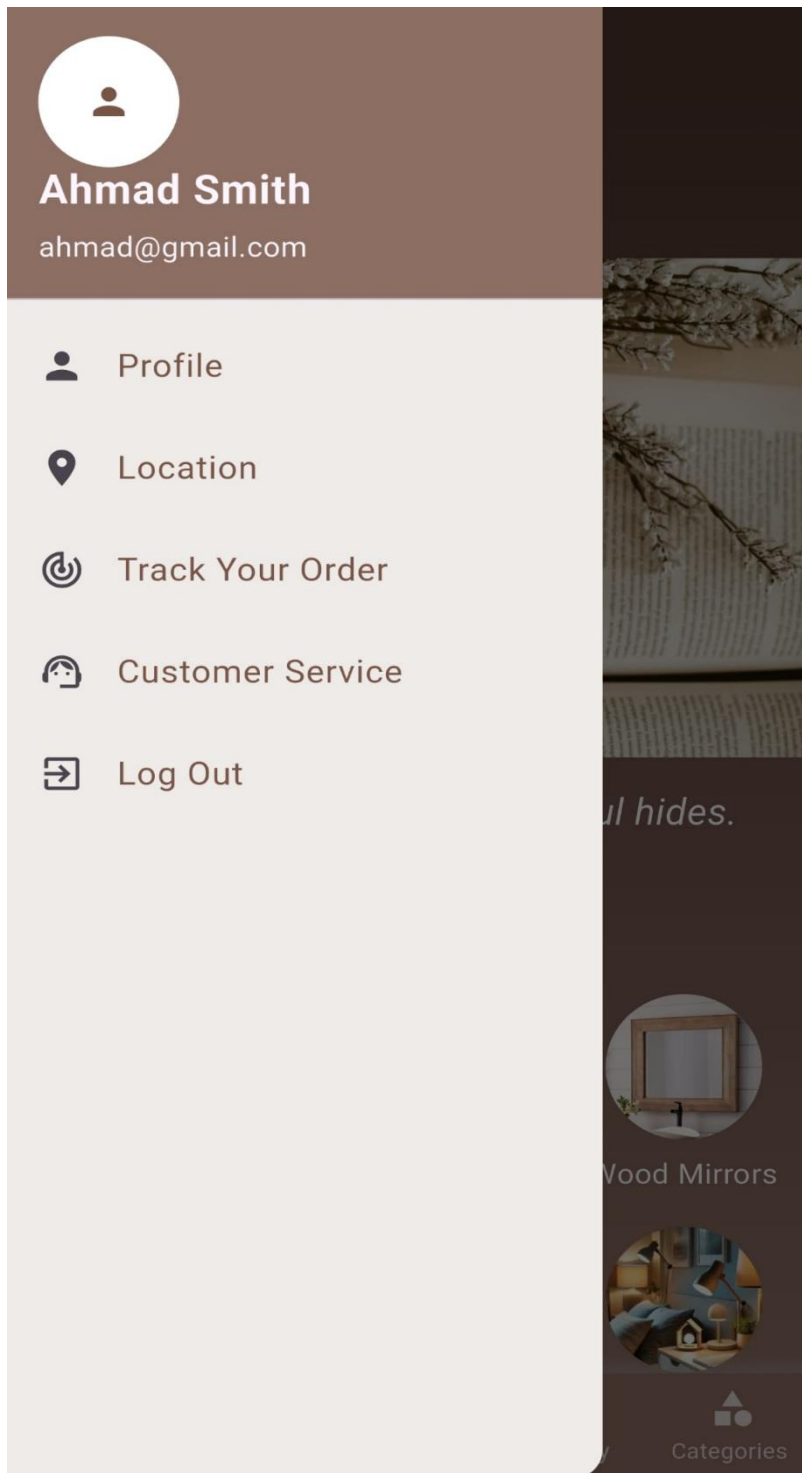


Figure 18: the customer drawer

The Drawer contains buttons that provide quick access to essential pages, including the Profile Page, Location Page, Customer Service Page, and the Order Tracking page. This allows customers to easily navigate through key sections of their account and services.

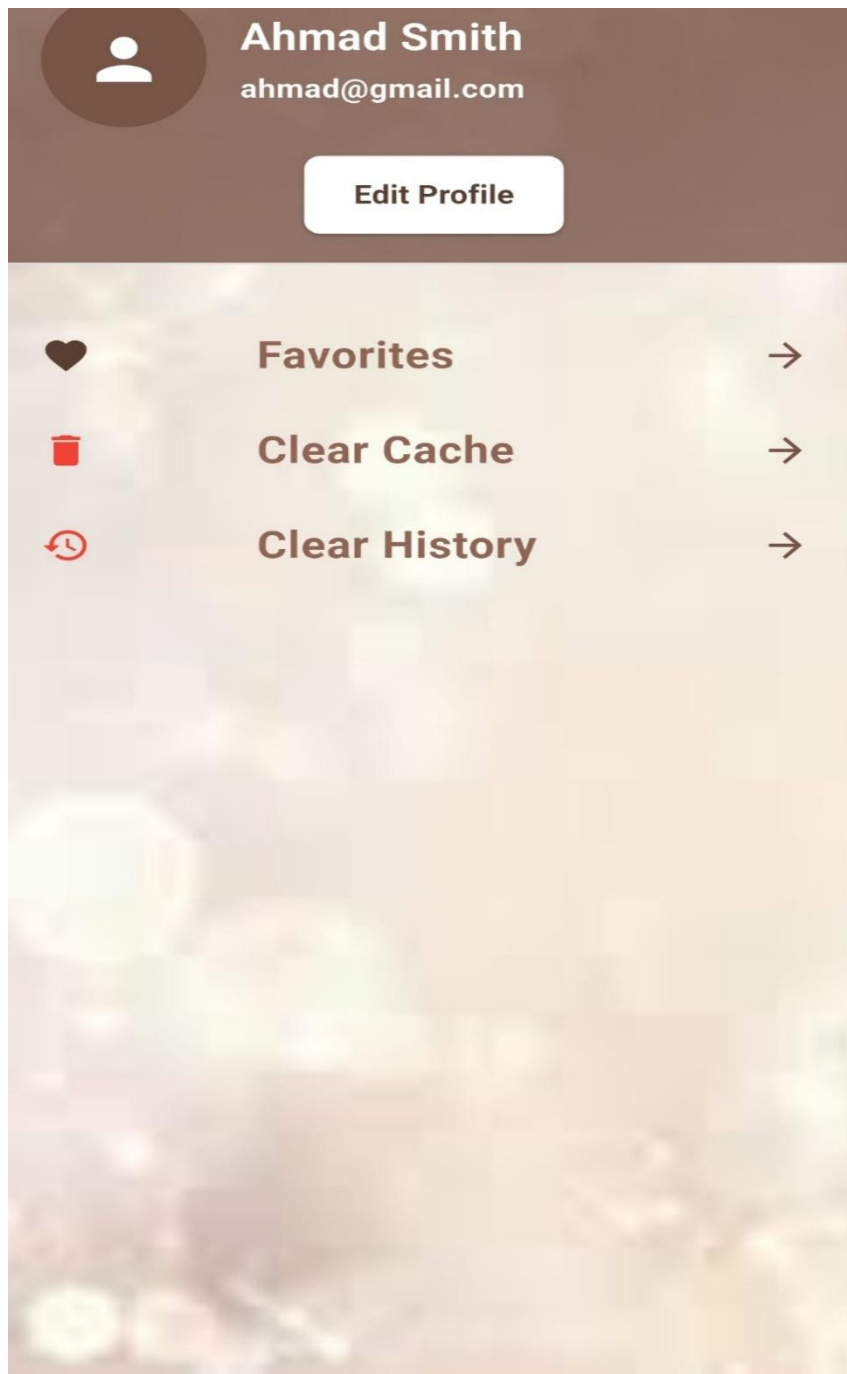


Figure 19: profile page

The Profile Page:

this page allows customers to view and manage their account details. From this page, they can navigate to the Edit Profile Page to update their personal information, or to the Favorites Page to view and manage their saved products.

I already mentioned how the edit profile works when I explained the admin dashboard.

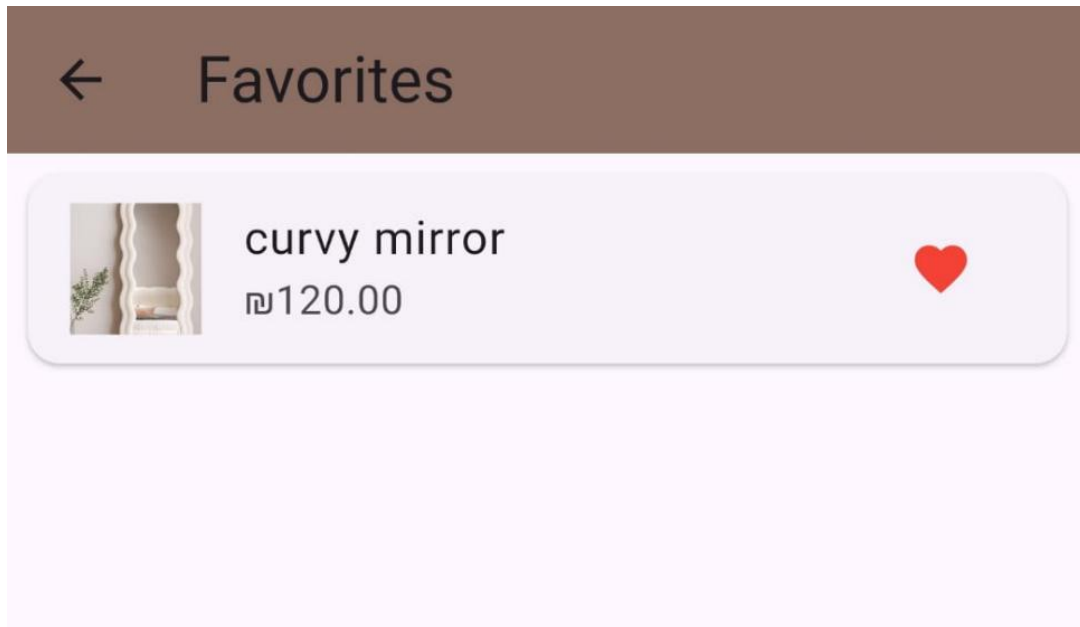


Figure 20: favorites page

The Favorites Page:

this page allows customers to save items they like for easy access later. Customers can add products to their favorites, and by clicking on an item from the favorites list, they are directly redirected to the product's detailed page for further information or purchase.

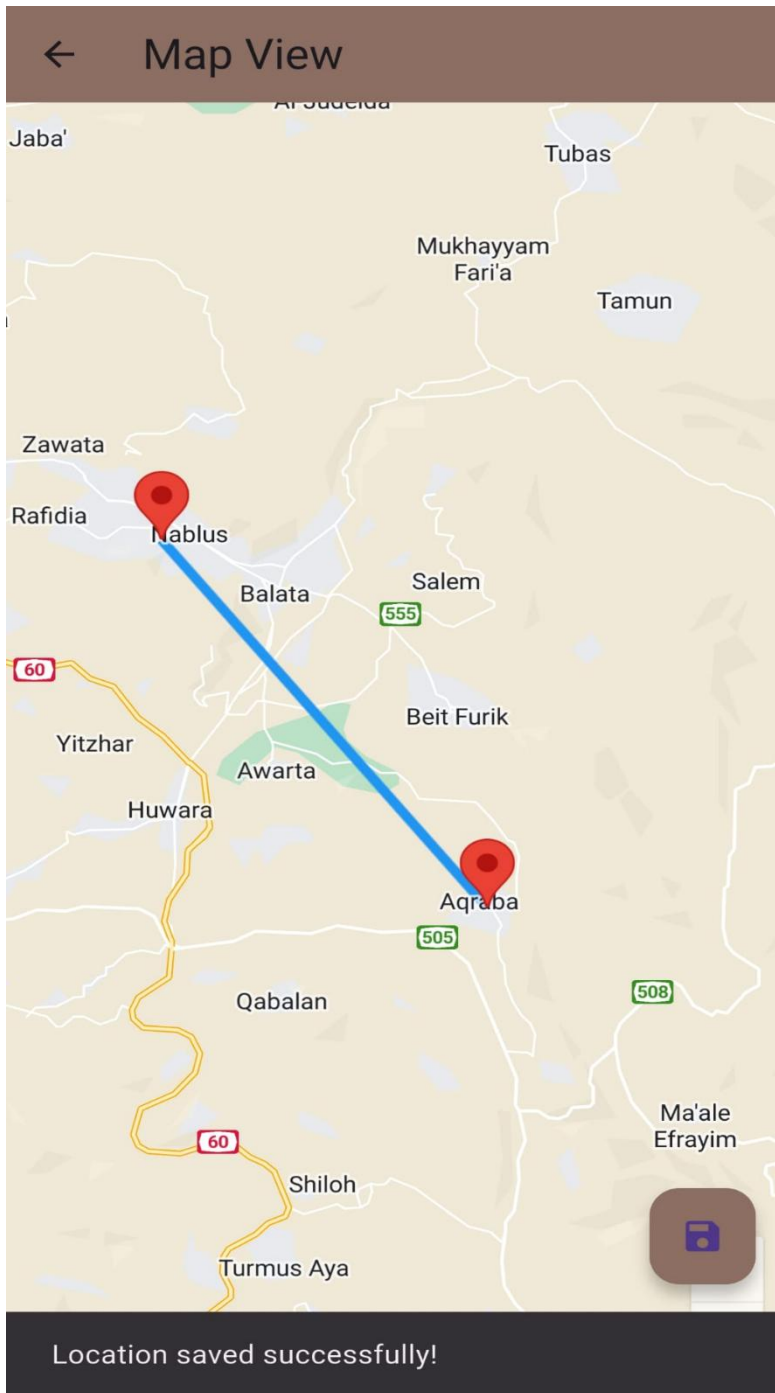


Figure 21: location page

The Location Page:

this page features an interactive map that allows customers to pinpoint their exact delivery address. This user-friendly interface provides an easy and accurate way for customers to select their location, ensuring precise delivery details.



Track Your Orders

Status: Waiting
Payment Method: cash

Piece: curvy mirror

Quantity: 3
Price: ₱120.00



Status: Waiting
Payment Method: cash

Piece: curvy mirror

Quantity: 1
Size: Medium (50 cm * 110 cm)
Price: ₱180.00



Figure 22: track your order page

The Track Your Order page:

this page allows customers to monitor the status of their orders in real-time. They can see the progress of their order and track how much time remains until it is delivered, providing transparency and updates on the order's status.

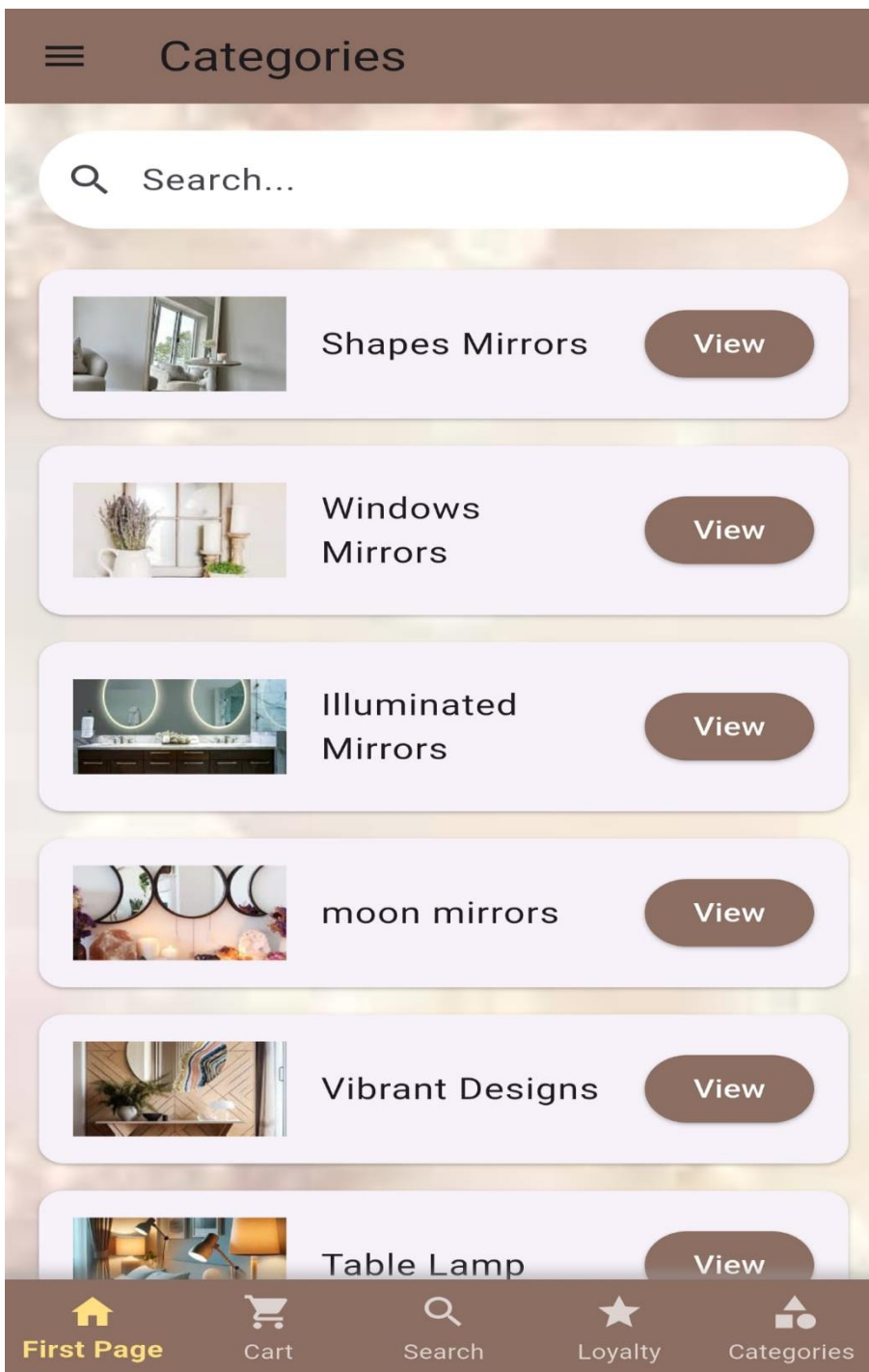


Figure 23: Categories

The Categories Page :

this page displays products organized by category, allowing customers to easily browse and select the category they are interested in. This page offers a simple way to explore products based on their preferences and needs.

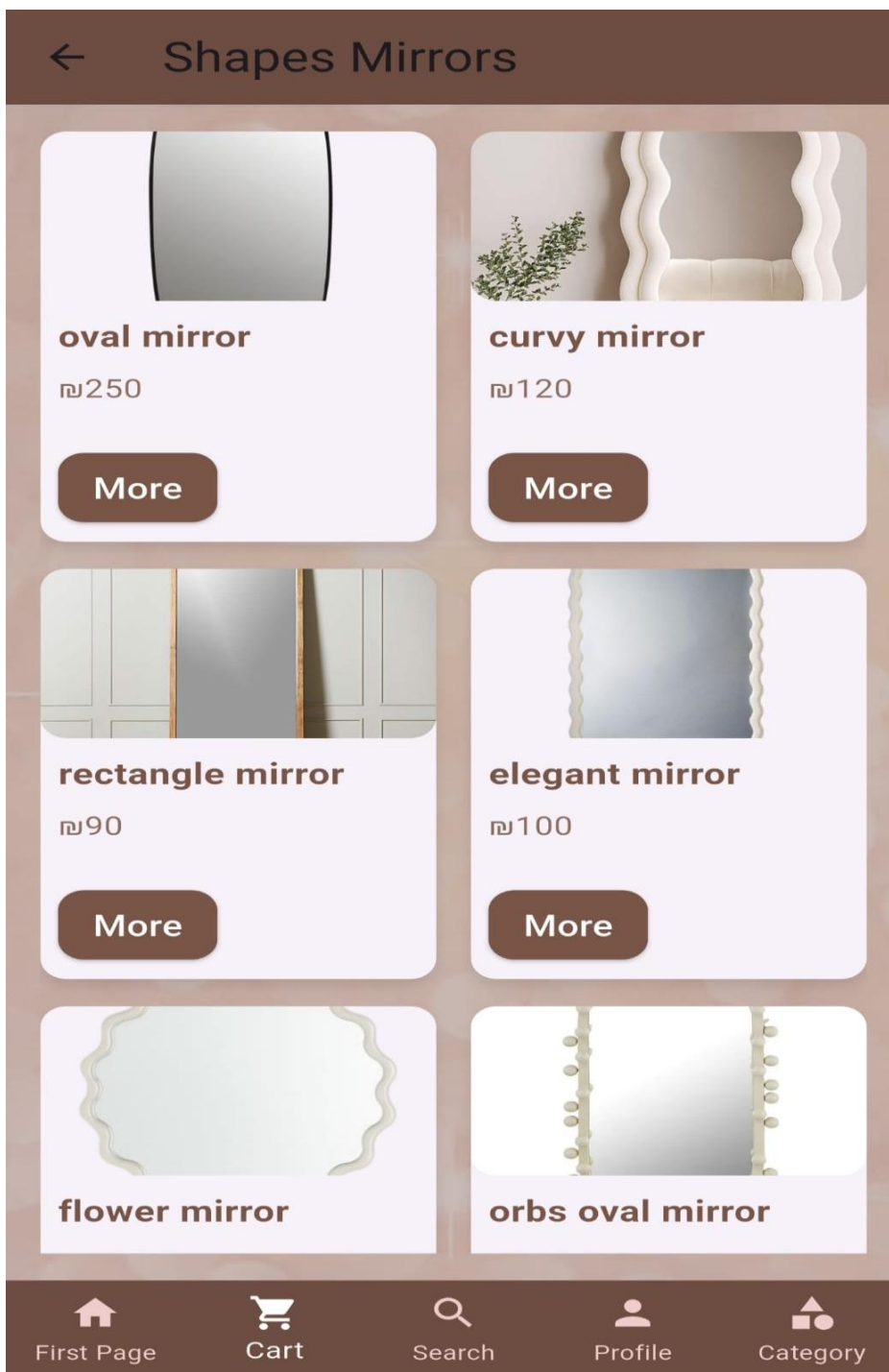


Figure 24: inside the category

After selecting a category, the customer will see a list of available products within that category, along with their prices. This allows the customer to quickly view and compare different products before making a purchase decision.

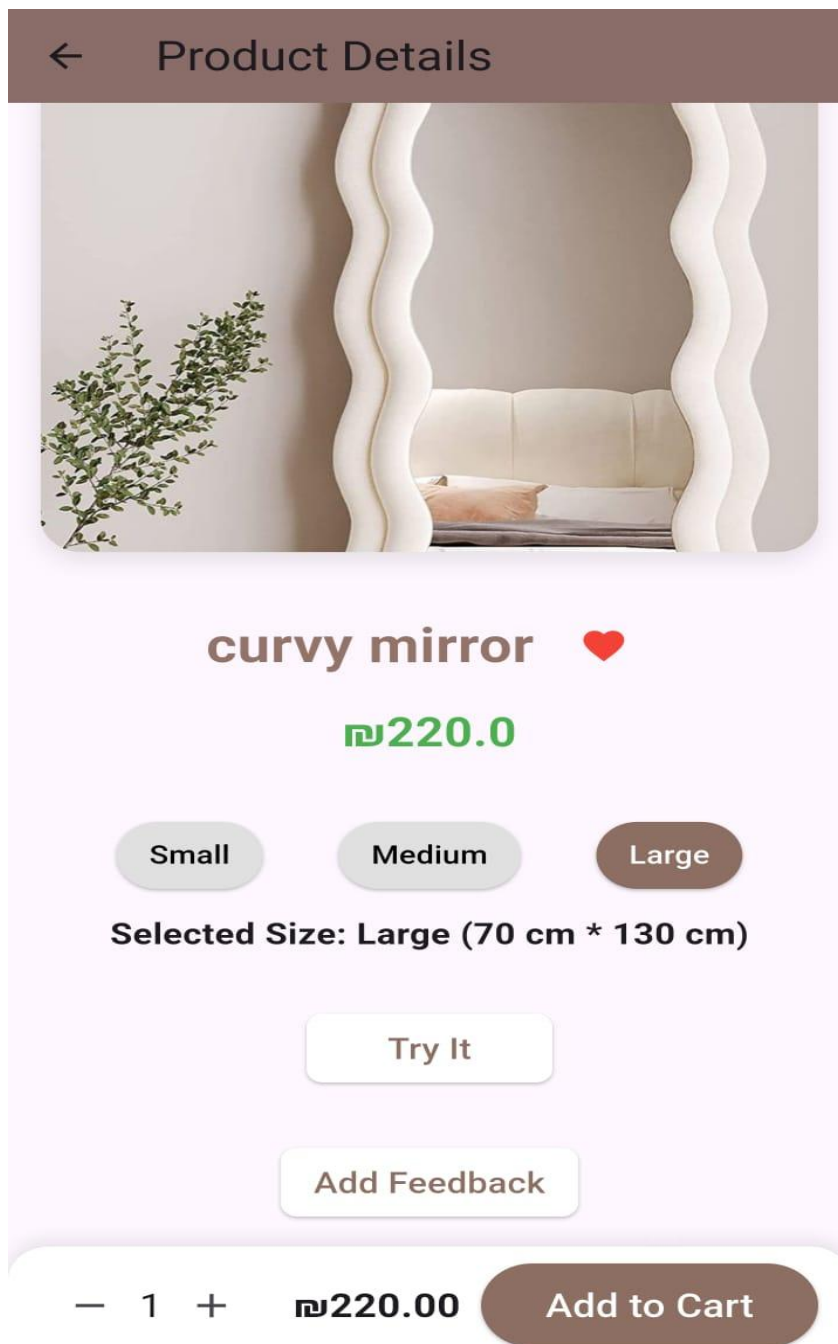


Figure 25: Product details

The Item Details Page:

this page provides customers with detailed information about a product, including available sizes. Customers can try the item, leave their own feedback, and view feedback from other customers to help them make an informed purchase decision.

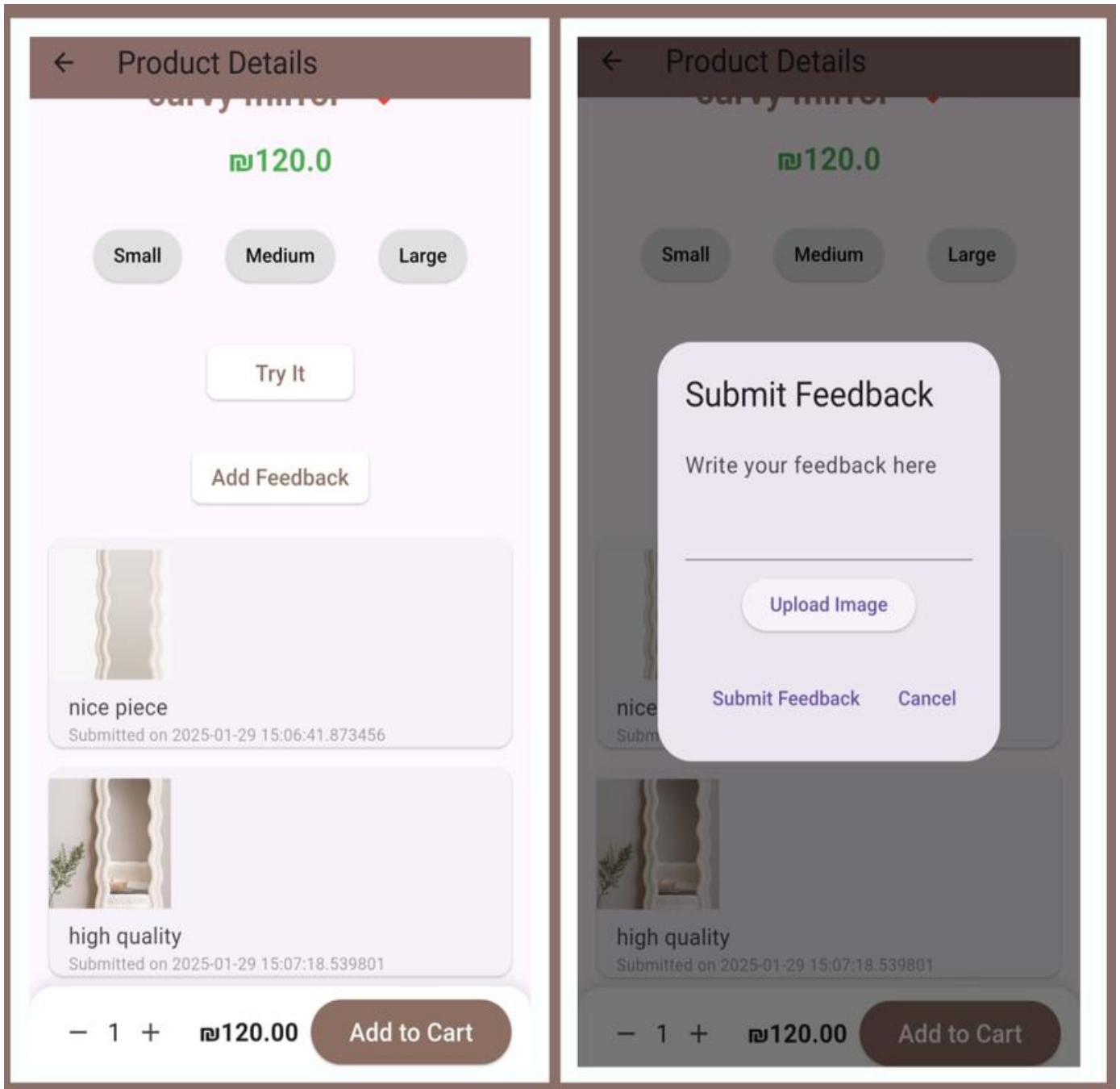


Figure 26: Feedbacks

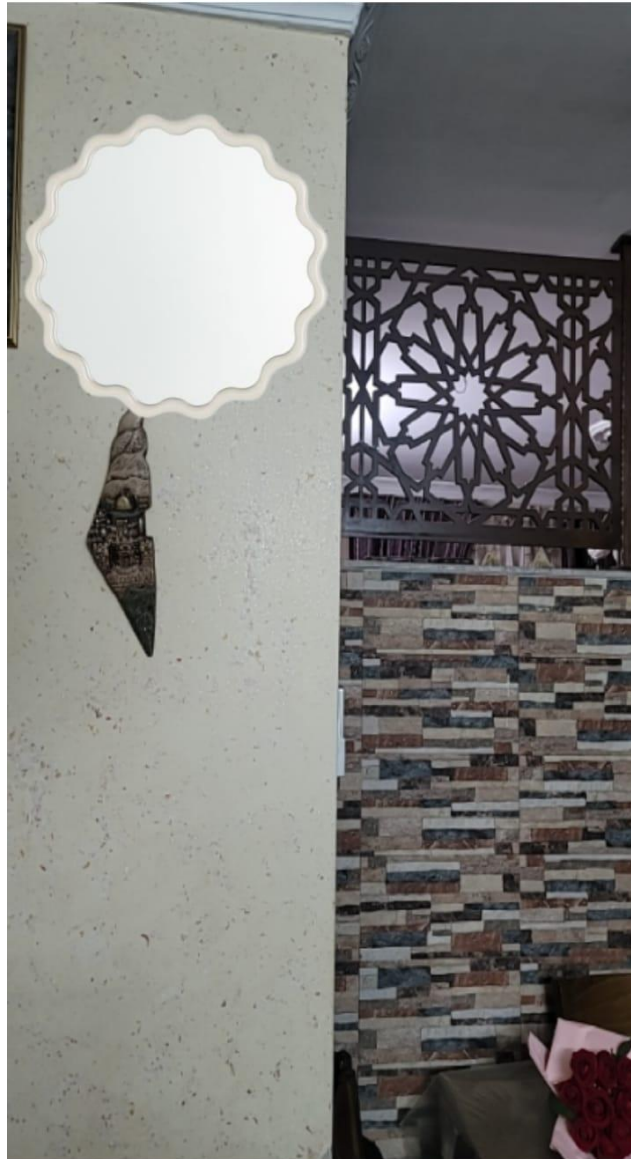


Figure 27: Try it

Try It Page:

This feature allows users to virtually test products in their own space. They can select the size, mirror, or any other product and see how it fits in their home. When the user clicks the "Try It" button, their phone camera opens, displaying the selected product over the live background. This enhances the shopping experience, helping users choose the perfect product with confidence

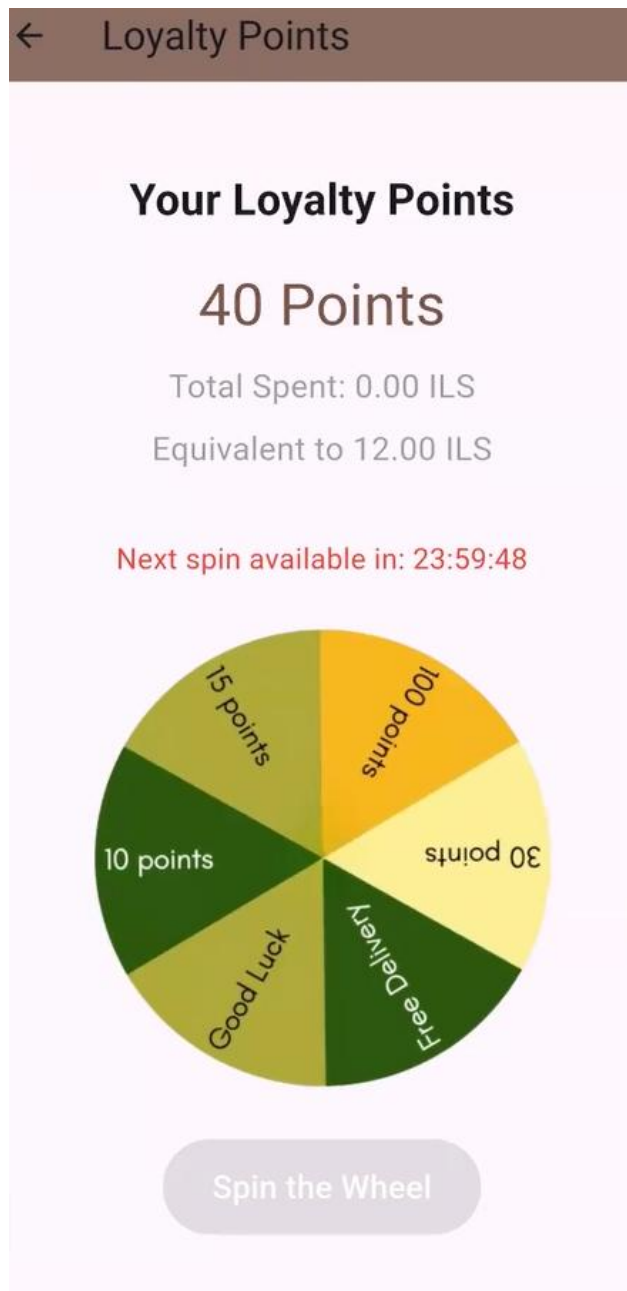


Figure 28: Spin the Wheel

Spin the Wheel:

This feature allows users to earn free rewards by spinning the wheel. Every 30 points can be redeemed for 9 Palestinian Shekels. Users can also accumulate points through their purchases—spending 100 Shekels earns them 10 points. The more they spend, the more points they collect, which can be used for discounts on future purchases. Each customer is allowed one spin per day, making it a fun and engaging way to encourage more shopping.

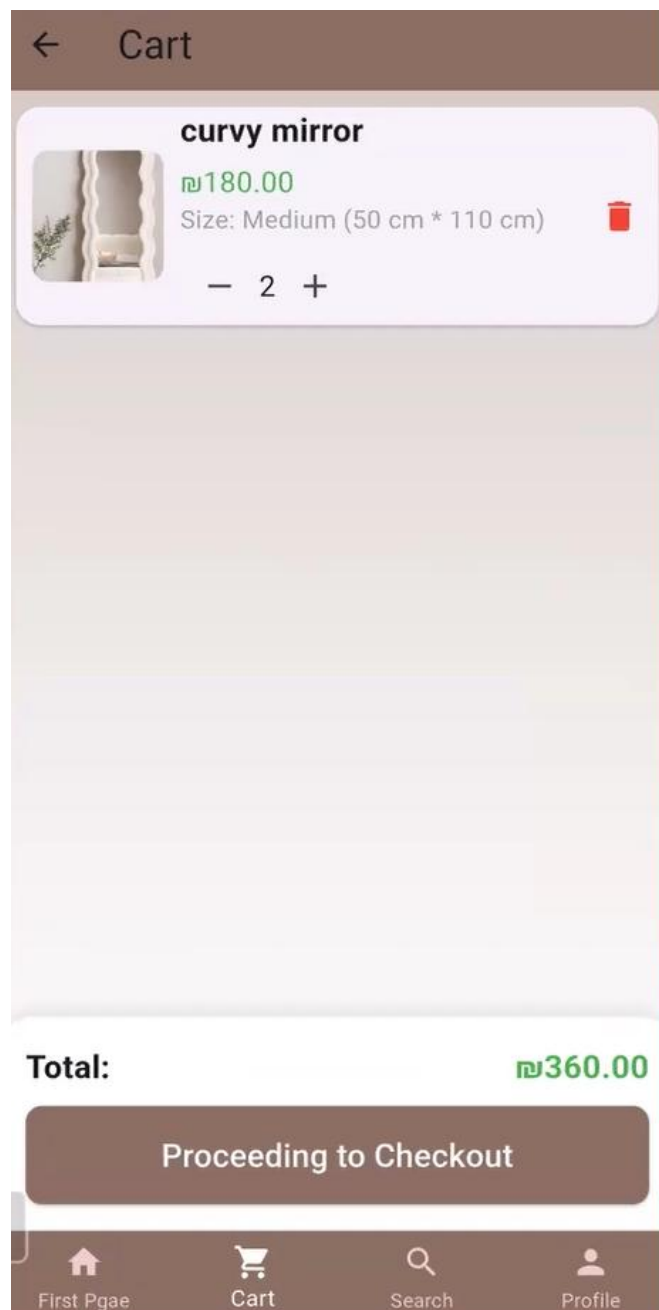


Figure 29: Cart

Cart Page:

On this page, users can add products they want to purchase and view the total price of their selected items.

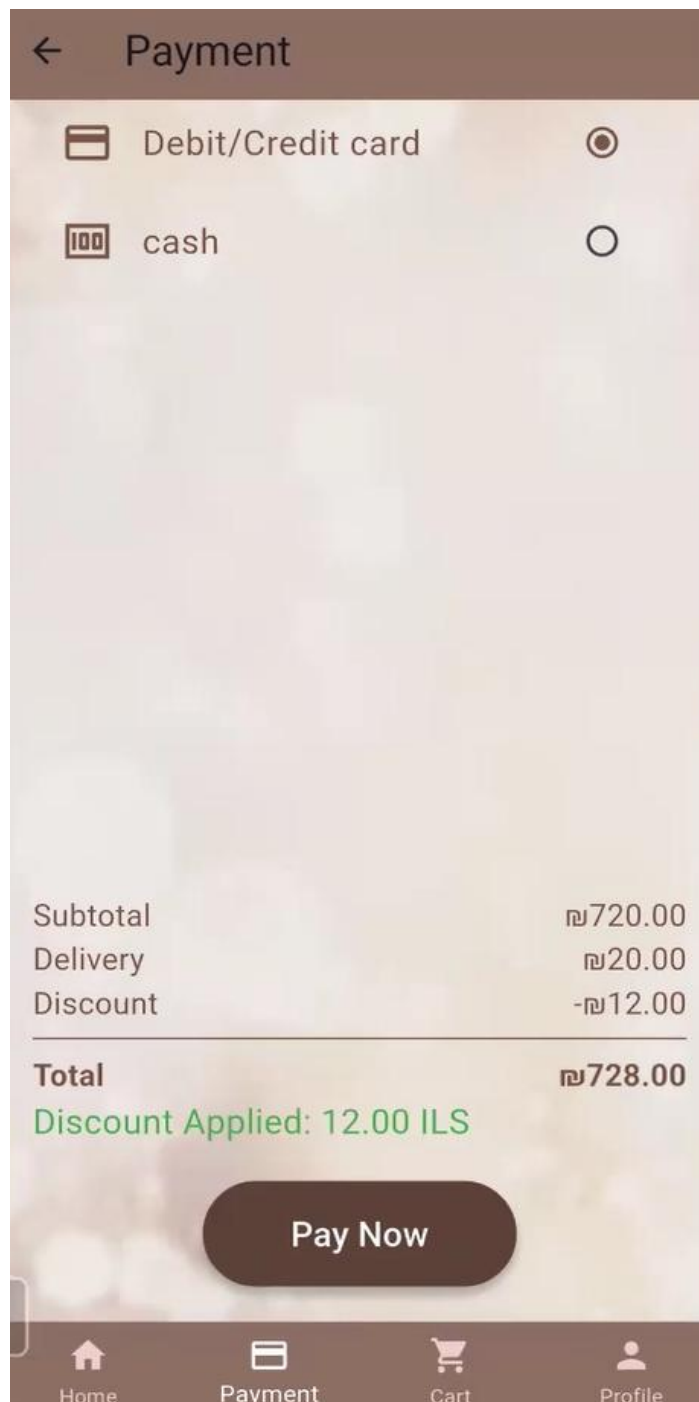


Figure 30: payment

Payment Page:

On this page, customers can review the total amount due, including the product cost and delivery charges. They also have the option to redeem loyalty points for a discount. The available payment methods include credit card payment or cash on delivery.

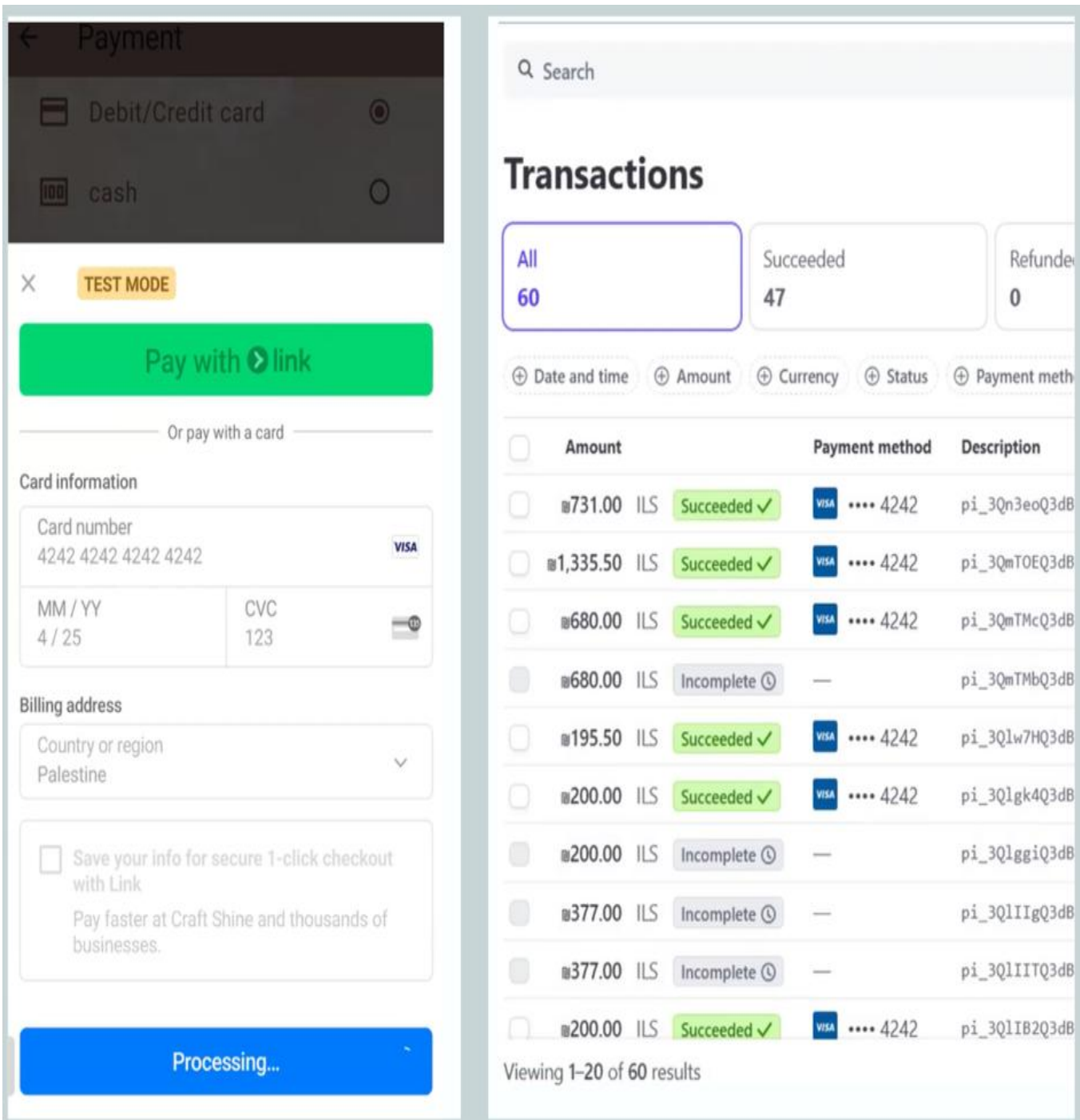


Figure 30: payment by visa

Pay by Visa:

If the customer selects Visa as the payment method, they will be directed to a page to enter their credit card details. Once the information is submitted, the payment will be processed through Stripe, where the transaction status can be verified.

CHAPTER 5

RESULTS AND DISCUSSIONS

Shine Craft is a comprehensive online business platform designed to enhance operational efficiency and improve the customer shopping experience. By leveraging modern technology through a mobile application and website, the system streamlines various business processes, from managing employees and handling customer service to processing orders and payments seamlessly.

The admin dashboard plays a crucial role in overseeing business operations. It allows administrators to manage employees efficiently, update salaries, bonuses, and deductions, and track customer interactions. Additionally, the employee dashboard provides employees with tools to communicate with customers, process orders, and ensure smooth day-to-day operations.

To enhance customer engagement, Shine Craft includes features such as the "Try It" tool, which enables users to visualize products in their space before purchasing, and the "Spin the Wheel" game, which rewards customers with points that can be redeemed for discounts. The chat system ensures seamless communication between customers and the admin, improving response times and customer satisfaction.

The payment system is designed for flexibility, allowing users to pay via credit card or cash on delivery, with an option to apply loyalty points for discounts. The cart and checkout pages ensure a smooth purchasing process, providing users with a clear view of product prices, delivery costs, and total expenses.

By integrating these features, Shine Craft not only optimizes business operations but also creates an engaging and convenient shopping experience for customers. The project successfully demonstrates how digital transformation, through mobile applications and websites, can enhance both business efficiency and customer satisfaction, ultimately driving long-term growth and success.

CHAPTER 6

CONCLUSION AND RECOMMENDATIONS

6.1 Conclusion

Shine Craft is an innovative and efficient e-commerce platform that enhances both business management and customer experience. By integrating advanced technology through a mobile application and website, the system streamlines administrative tasks, facilitates seamless communication, and optimizes the purchasing process.

The admin dashboard provides a centralized control system, enabling administrators to manage employees, update salaries, track bonuses and deductions, and oversee customer interactions. The employee dashboard empowers employees with tools to handle customer inquiries, process orders, and ensure smooth workflow execution.

For customers, Shine Craft introduces interactive and engaging features such as the "Try It" tool, allowing users to visualize products in their space before purchasing, and the "Spin the Wheel" reward system, which encourages customer loyalty by offering discounts through earned points. The chat system ensures real-time communication between customers and the admin, improving overall user satisfaction.

The payment system offers flexible options, including credit card payments and cash on delivery, with the ability to redeem loyalty points for discounts. The cart and checkout pages ensure a user-friendly shopping experience by providing clear pricing details, delivery costs, and total expenses.

By implementing these features, Shine Craft successfully bridges the gap between businesses and customers, offering an efficient and engaging shopping experience. This project demonstrates how digital solutions can enhance e-commerce operations, improve customer engagement, and drive long-term business growth.

6.2 Recommendations

To further improve Shine Craft, the following recommendations should be considered:

1. Continuous User Training & Support – Providing training sessions for employees and administrators will ensure efficient use of the system and enhance overall productivity.
2. Regular System Updates – Implementing software updates based on user feedback will improve functionality and user experience.
3. Enhanced Security Measures – Strengthening security protocols, particularly for payment processing and user data protection, will build customer trust.

4. Scalability & Future Expansion – The system should be designed to accommodate future growth, including adding new features, supporting multiple payment gateways, and integrating AI-driven personalization.
5. Customer Engagement Strategies – Enhancing marketing strategies such as personalized promotions, loyalty rewards, and gamification elements will encourage repeat purchases and brand loyalty.

6.3 Future Work

To further enhance Shine Craft, several future improvements are planned to optimize user experience, expand business opportunities, and integrate advanced AI-driven features.

- Expansion to More Factories – Currently, Shine Craft is integrated with Darwazeh Factory. Future updates will include additional manufacturers, allowing customers to explore a wider range of products, compare quality, and choose from multiple suppliers.
- AI-Powered Product Recommendations – An AI-driven search feature will enable users to discover similar products from different manufacturers, compare prices, and make informed purchasing decisions. This will ensure a competitive marketplace and better pricing transparency.
- AI Shopping Assistant – An advanced AI assistant will analyze the customer's home environment (such as walls, furniture, and space constraints) using the "Try It" feature. The AI will suggest the most suitable product based on color, size, and style, helping customers make the best purchasing decisions.
- Augmented Reality (AR) Integration – To further enhance the "Try It" feature, an AR system could be implemented, allowing users to place and interact with 3D models of products in their environment in real time. This will provide a more immersive shopping experience.
- Voice Search & AI Chatbot – Implementing a voice search function and an AI-powered chatbot will improve accessibility and assist users in finding products, tracking orders, and resolving queries without needing manual searches.
- Improved Customer Loyalty System – Expanding the "Spin the Wheel" feature to include seasonal rewards, exclusive discounts, and referral programs will further incentivize purchases and increase customer engagement.
- More Secure & Flexible Payment Methods – Future updates will integrate additional payment options such as PayPal, Apple Pay, and cryptocurrency payments, ensuring a secure and flexible checkout process.

By implementing these future enhancements, Shine Craft aims to revolutionize the online shopping experience, making it more interactive, AI-driven, and customer-focused, while continuously expanding business opportunities for manufacturers and sellers.

BIBLIOGRAPHY

1. Davis, R., Smith, P., & Taylor, M. (2023). *The impact of in-app payments on e-commerce: An empirical study*. Journal of Digital Commerce, 15(3), 45-56.
2. Garcia, A., Roberts, T., & Walker, E. (2023). *The role of location-based marketing in mobile commerce: Enhancing customer engagement*. Journal of Mobile Marketing, 11(2), 120-135.
3. Lee, S., & Kim, J. (2020). *The influence of responsive web design on conversion rates and user trust*. International Journal of E-Commerce, 24(4), 67-80.
4. Martinez, R., & Brown, K. (2022). *Cross-platform compatibility and mobile-friendly design in online businesses: A study on abandonment rates*. Journal of Web Design and Development, 18(1), 22-34.
5. Patel, D. (2022). *Mobile commerce's rapid rise: The shift from desktop to mobile apps in e-commerce*. Journal of Business Technology, 10(5), 88-100.
6. Smith, J., & Johnson, M. (2021). *The role of mobile applications in enhancing customer engagement in online businesses*. International Journal of Digital Marketing, 14(2), 50-62.
7. Thompson, A., & Green, L. (2024). *Security measures and customer trust in online transactions: The role of encryption and authentication*. Journal of Cybersecurity in E-Commerce, 16(1), 30-42.
8. Williams, H. (2023). *AI and machine learning in mobile applications: Improving customer experience and driving repeat purchases*. Journal of E-Commerce Technology, 19(3), 103-115.