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Software Graduation Project



TawziArt

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DISCLAIMER

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ABSTRACT

TawziaArt is a mobile and web application designed to support shop owners and small businesses specializing in distribution, facilitating the display of their products. The application allows customers to create their own designs as stickers to place on their customized distributions. It also allows them to visualize the appearance of the distribution through a dedicated editor that allows them to modify elements, change their color and size, and add their own designs as textures in a 3D model.

The platform combines convenience and creativity, making it easy to access, search for, and order distributions. It also provides a dedicated page for customers to manage their orders.

The application provides a delivery service to complete the experience, allowing customers to receive their distribution orders.

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CHAPTER 1

INTRODUCTION

1.1 Statement of the problem

With the growing number of small businesses today, store owners face challenges in displaying their products in a way that engages customers. At the same time, customers often struggle to customize and visualize their Twazia appropriately.

Our app aims to bridge this gap by providing a comprehensive platform that connects store owners with customers. While most existing platforms focus on displaying ready-made Twazia, few offer the ability to customize the Twazia. Therefore, we have provided a comprehensive editor for easy Twazia customization and visualization before purchase.

The app facilitates the purchasing and ordering process for users, as our app is dedicated to distribution and brings together distribution stores, making it easy for users to search for what they want and have multiple options to order from.

This app transforms the user from a traditional shopping journey to an interactive and creative one, from design to delivery.

1.2 Objectives

- **Enabling Customization:** Provides an easy-to-use, easy-to-understand, and easy-to-follow platform for customizing unique and distinctive distributions, including colors, label designs, and 3D printing.
- **Vendor Support:** Enables store owners to easily manage their products and orders and stay up-to-date with all updates.
- **Simplifying the Ordering Process:** Make the ordering process easy and accessible for customers, with options to save, modify, and finalize their designs directly through the platform.
- **Encouraging Engagement:** Building a platform that enhances user engagement, creativity, and satisfaction by combining customization with convenience.

1.3 Scope of the work

Our app provides a user-friendly interface compatible with Android and web platforms.

The app brings together all stores dedicated to distribution, making it easily accessible to all customers. This feature enables stores to quickly reach users and display their products in a convenient and seamless manner.

Some stores support a distribution customization feature, allowing users to fully customize their distributions and place labels. For user-designed labels, a page is available for creating and using custom designs. Custom labels provided by the store owner can also be used to facilitate the process, and the distribution can then be viewed using a 3D display.

Each store may have distribution customization in specific formats, which are added and managed by the store owner. Ready-to-order distributions are also available to expedite the process for users requiring fast delivery. The app supports delivery services, with each store assigned a dedicated delivery person.

1.4 Significance

This project is of great importance in the field of event planning and gift distribution, as it provides an integrated tool that helps users design giveaways in 3D before they are actually manufactured, which helps reduce errors and save time and costs, Select and purchase the necessary materials directly through the system in an easy and quick manner, making the purchasing process more organized and providing a convenient user experience.

The project contributes to accelerating the decision-making process by displaying giveaways realistically before manufacturing, users can customize giveaways to suit their tastes and needs, enhancing the value of personalized and distinctive giveaways, saves time and effort compared to traditional methods that rely on manual communication or actual samples.

The project can also benefit: Gift and giveaway shop owners, Party and event organizers and Individuals looking for custom and distinctive designs.

1.5 Organization of the report

The report has the following organization:

- **Chapter 1:** An introduction and overview of the project objectives and importance.
- **Chapter 2:** Constraints and Earlier course work.
- **Chapter 3:** Literature Review.
- **Chapter 4:** Methodology including programming languages, architecture implementation and tools.
- **Chapter 5:** Results and Discussion.
- **Chapter 6:** Conclusion and Futurework.

CHAPTER 2

CONSTRAINTS AND EARLIER COURSEWORK

2.1 Constraints

2.1.1 Limited Time

One of the most significant constraints we faced was the limited timeframe of four months to complete the project while balancing our core courses and internships. Developing this project required us to learn new programming languages and techniques, research various topics, and design and implement mobile and web applications. Some features, particularly those related to tagging, adding elements, and viewing and controlling 3D objects, required significant effort.

2.1.2 Resource Constraints

Using Flutter, MySQLDB, and Firebase was a learning experience that required additional effort. While the guides for these platforms cover the basics, we often had to explore additional resources to fully understand how to use them in our project. We also needed to learn some tools, such as Android Studio, to ensure smooth operation, which added to the challenge, but they were easy to master with research and practice.

2.1.3 Latency and Space

Since our application contained many images, we used Cloudinary to upload the images to Google Cloud using the image link and save them to the database. Sometimes, the app took a long time to load 3D elements.

2.2 Earlier course work

Throughout our studies in the Computer Engineering Department, we gained a solid foundation in various concepts and skills that played a key role in developing this app. These included Object-Oriented Programming, Web Development, Artificial Intelligence, Algorithms, and Problem-Solving. Additionally, we enhanced our knowledge by taking online courses on Flutter, Node.js, Firebase, and GitHub. These courses helped us implement and develop the project effectively.

CHAPTER 3

LETERATURE REVIEW

Digital Customization of Event Distributions and Its Impact on User Experience.

The digital customization of event distributions (such as gift boxes, party favors, and decorative packages) has become an essential trend in enhancing user engagement and satisfaction. According to Smith and Lee (2020), offering personalized design options empowers users to express their creativity and tailor products to their specific tastes, which improves overall customer experience and brand loyalty. This customization process also stimulates creativity by allowing users to experiment with colors, shapes, and motifs digitally before making a purchase (Smith & Lee, 2020).

In the realm of web and mobile applications for design, Johnson (2019) demonstrated that interactive platforms enabling users to manipulate design elements in real-time increase motivation and reduce decision fatigue. Such platforms often include layers of editable content—texts, images, and colors—that users can modify easily, providing an immersive and intuitive design process. This digital approach supports not only aesthetic preferences but also practical considerations such as budget constraints and event themes (Johnson, 2019).

Furthermore, Al-Masri (2021) discussed the rise of cloud-based design tools and their influence on collaborative creativity in event planning. These tools allow multiple stakeholders—customers, vendors, and designers—to communicate and contribute asynchronously, ensuring that the final product meets all expectations. The integration of backend services like Node.js with robust databases enables real-time updates and persistent storage of design layers, streamlining the customization workflow (Al-Masri, 2021).

CHAPTER 4

Methodology

4.1 Architecture Overview

In our project, we used the MVC (Model-View-Controller) architecture to keep things organized and efficient. In the backend, the application is organized into distinct layers: models, routers, and controllers.

- **Model** handles the data of the application. It defines the structure of the data and interacts with the database (MySQLDB). It's where we store things like user profiles, stories, and courses.
- **View** is the frontend of the app. It's what the user sees and interacts with. The **View** displays the data coming from the backend.
- **Controller** acts as the middleman between the **View** and the **Model**. It takes requests from the user, calls the relevant functions from the **Model**, and sends the response back to the **View**.
- **Routers** manage the URLs and decide which controller to call when a user sends a request.
- **Services** contain the business logic. They handle tasks like sending notifications, interacting with Firebase.

Why We Chose MVC:

- **Clear Structure:** Each part of the app has its own role, making it easy to work on and maintain.
- **Easy to Scale:** New features can be added without interfering with existing ones.
- **Efficient:** The separation of concerns helps keep everything organized and reduces redundancy.

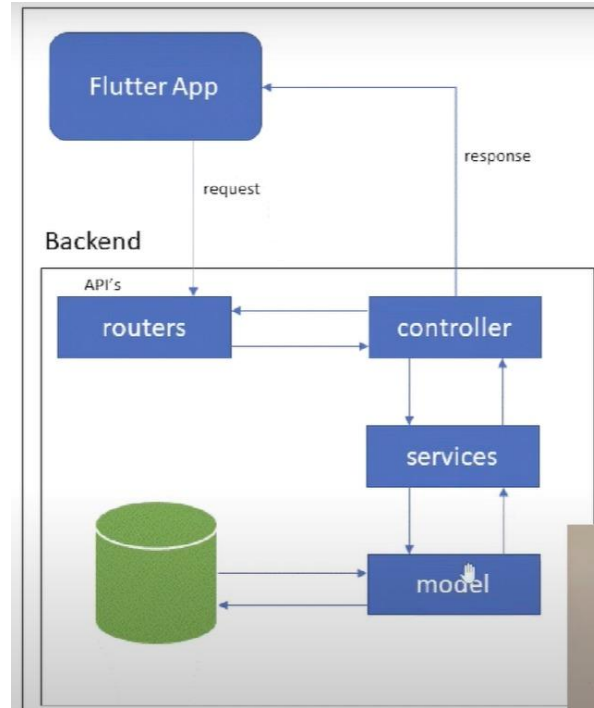


Figure 1: Model-View-Controller

4.2 Programming Languages and Frameworks

Fronted Development:

- **Flutter:** We used Flutter to develop the front-end of our project for both mobile and web platforms. Flutter was chosen because it can create high-performance, multi-platform applications without depending on traditional web display methods. It uses its own rendering engine to provide consistent interfaces across platforms. Additionally, Flutter makes it easy to adapt the project to fit different screen sizes, like mobile and web with the same code, ensuring a smooth user experience.
- **Dart:** Flutter relies on Dart, a programming language developed by Google. Dart is powerful and suitable for mobile and web app development due to its object-oriented structure and support for asynchronous programming, which helps in creating responsive and efficient applications.
- **React:** It supports 3D objects and their control, which is the core function of our application. We used Flutter's WebView to display the React page we created.

Backend Development:

- **Node.js with Express.js:** We chose Node.js to develop the backend because it is easy to use, since it is similar to JavaScript. Node.js is known for its excellent performance in handling asynchronous tasks.
- **Express.js Framework:** Built on top of Node.js, Express.js is a lightweight framework that provides essential tools for building web applications and APIs. It simplifies handling HTTP requests and responses, making routing efficient and straightforward.
- **Middleware:** In Express.js, middleware is used to add extra functionality during the request process, like parsing HTTP requests or performing specific tasks. This helps keep the code organized and easier to maintain, while reducing repetitive tasks.

RESTful API:

We used a RESTful API to enable communication between the frontend and backend of our project. REST (Representational State Transfer) is a popular architectural style for building APIs because it is simple, efficient, and widely supported.

Our RESTful API allowed the frontend (developed with Flutter) to send requests to the backend (built with Node.js and Express.js) for tasks like retrieving data, sending user inputs, and managing operations like story creation and notifications.

APIs facilitated seamless interaction with the database, enabling CRUD (Create, Read, Update, Delete) operations and dynamic updates.

4.3 Database Design and Management

- **MySQLDB:** We use in this project MySQL with Sequelize, MySQL was chosen because we have relational data and MySQL was relational database management system, and Sequelize was used as an ORM (Object Relational Mapping) tool, to facilitate interactions with the database.
- **Firebase:** We used Firebase for several important features in our project, mainly to handle notifications and messages. Firebase made it easy to create real-time notifications, ensuring that users receive updates instantly.
- **SQL Queries and Transactions:** Sequelize allows an application to transactions, and execute SQL queries in an efficient way. Taking advantage of MySQL's capabilities to manipulate, retrieve, and analyze complex data.
- **Schema management:** Sequelize makes it easy to seamlessly manage schema, including data modeling, data migration, and schema synchronization with the application data model. This ensures that the database schema evolves consistently with changes in application requirements.
- **Integration with Node.js:** By integrating with Node.js, Sequelize is well compatible with the asynchronous and event-driven architecture of Node.js, resulting in improved performance and scalability of server-side applications.

4.4 Tools

- **Visual Studio code:** We used it as our primary IDE for both front-end (Flutter) and back-end (Node.js) development due to its versatility and ease of use.
- **Android Studio:** It is used as an emulator to simulate and test the mobile application and how it works in reality.
- **Postman:** Utilized for testing APIs to ensure the reliability of our application by serving different HTTP requests and responses
- **GitHub:** Used for uploading code, version control, and team collaboration, allowing us to manage updates and communicate effectively throughout the project.
- **Firebase:** Used for managing a real-time database, and implementing real-time notifications to ensure users receive timely updates.
- **Cloudinary:** It is used for cloud storage to save image data, instead of saving it in the main database in order to avoid the high pressure resulting from storing images, and to provide reliable and scalable storage solutions.

4.5 Implementation

4.5.1 Mobile application

- **Welcome page:**
In this page the user can choose either to login or to create an account.

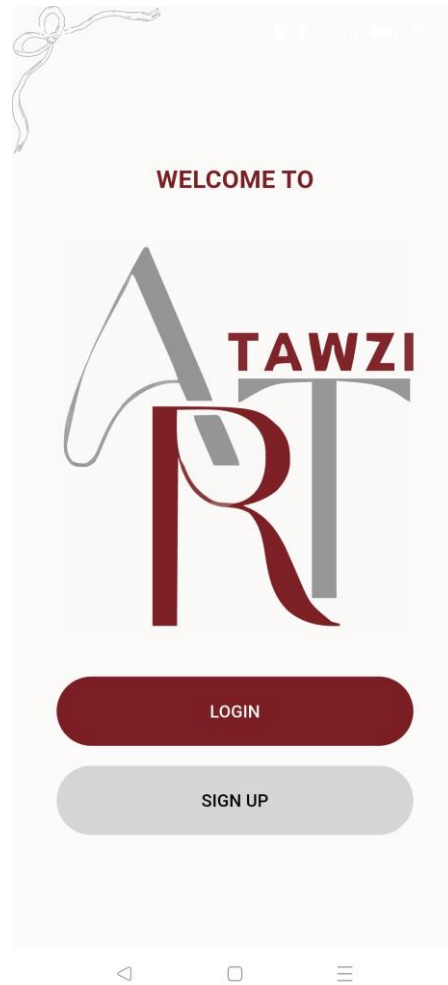


Figure 2: Welcome Page

- **Sign up:**

Whether a customer or a vendor (the project owner), both can log in through this page, but whether he is a customer or a vendor is determined through the radio button. After registration, going to the pages differs, as the vendor goes to the project creation page, while the customer goes to the main page. See how they will be displayed later.

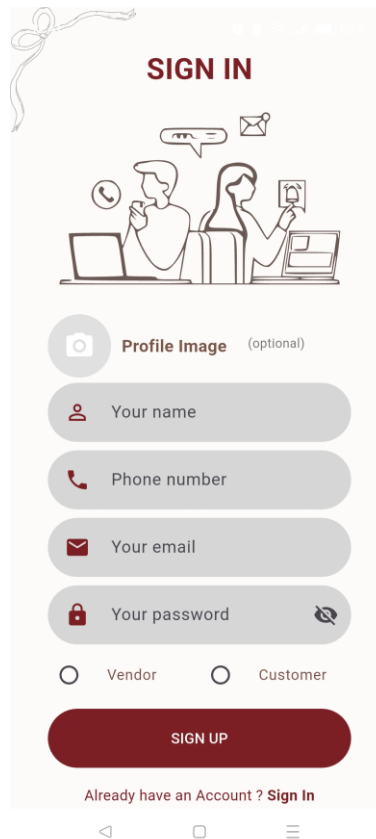
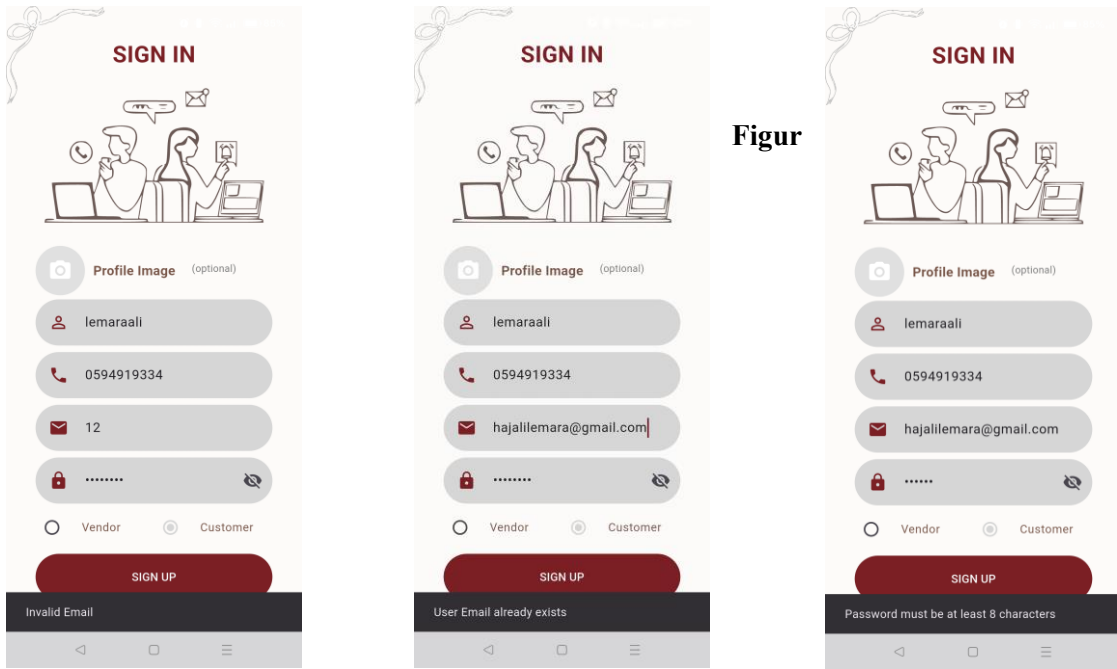


Figure 3: Sign Up Page

Input validation for the SignUp will ensure the following:

- **Email Validation**, Ensures that the email address entered follows the correct email format, Check that the email address does not already exist in the database.
- **Password Validation**, our password must meet the following conditions: It must be at least 8 characters long. It must contain at least one uppercase letter. It must contain at least one lowercase letter. It must contain at least one number. It must contain a special character such as @, #, \$, or %.



Figur

Figure 4: Sign up Email and Password Validation

- **Sign In:**
The user enters a valid email address and password to access the account

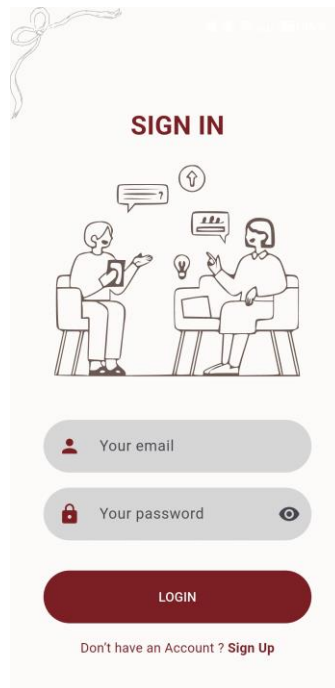


Figure 5: Sign in

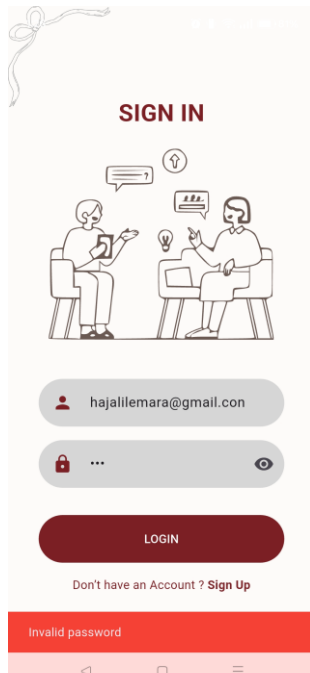


Figure 6: sign in with incorrect password

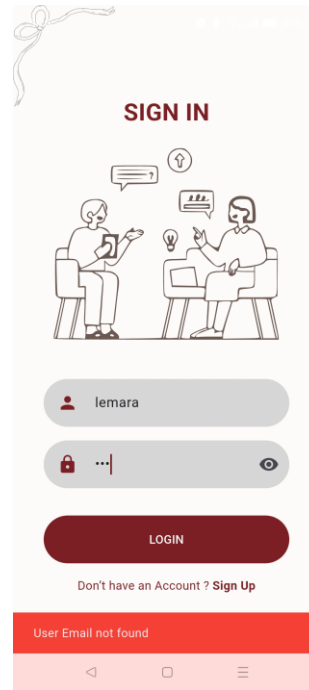


Figure 7: sign in with not existing email

Now, let's dive deeper into the **Vendor Screens!**

When creating a new account as a **vendor** on the platform, the vendor must complete the following steps:

- After completing the sign-up process, the vendor will be immediately prompted to create a new project.
- After the vendor creates the project, an approval request is sent to the system **administrator (Admin)**.
- The vendor must wait for the **administrator** to review and approve the request.
- The vendor cannot log in to the platform and begin using it until the **administrator** approves the project.
- Upon approval by the **administrator**, an email notification is sent to the vendor informing them of the project's acceptance.
- After receiving the notification, the vendor is fully able to log in and begin managing their products and designs.

When a **Vendor** logs in successfully, they will be directed to the **Home Page**. The Home Page consists of the following sections:

Dashboard Section:

This section displays the vendor's data in a concise and clear manner, helping them easily track their activity within the system.

The displayed data includes:

- **Number of Orders:** Displays the total number of orders created by this vendor.
- **Number of Products:** Displays the number of products the vendor has in the system.
- **Number of Designs:** Displays the total number of designs the vendor has added or designed.
- **Profit Percentage:** The profit percentage the vendor earns based on their sales is calculated and displayed.

This section helps the vendor monitor their performance periodically and understand the size of their business by displaying statistics in an easy and straightforward manner.

Main Features Buttons:

The system contains a set of basic buttons that represent the main features a vendor needs to fully and efficiently manage their products, orders, and designs.

These buttons enable the vendor to quickly access information and edit and manage their content.

- **My Products:** Displays all the vendor's products, this allows the vendor to view the details of each product and This allows the vendor to edit or update product information.
- **My Orders:** Displays all orders associated with the vendor, this allows the vendor to track the status of each order and This allows the vendor to edit the order status or update its information.
- **My Designs:** Displays all designs created or uploaded by the vendor, the vendor can view the details of each design and this allows the vendor to easily edit or update designs.
- **3D Control:** Allows the vendor to control 3D product designs. The product can be viewed and modified using an interactive 3D environment.

About App Bar Section:

This section provides the main controls that enable the user to manage their data and quickly access important sections of the system. The App Bar contains options that help the user fully control their information, track their projects, and communicate with other parties.

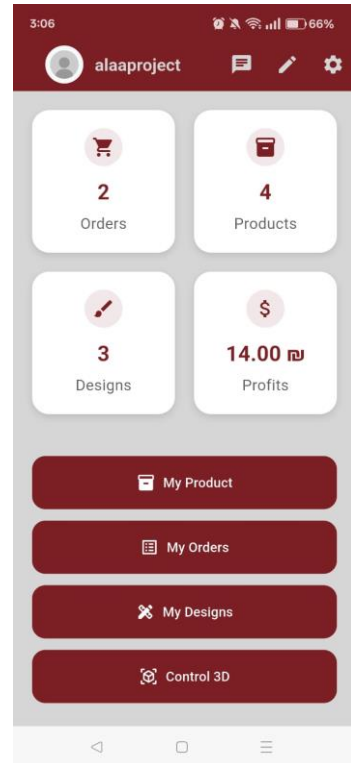
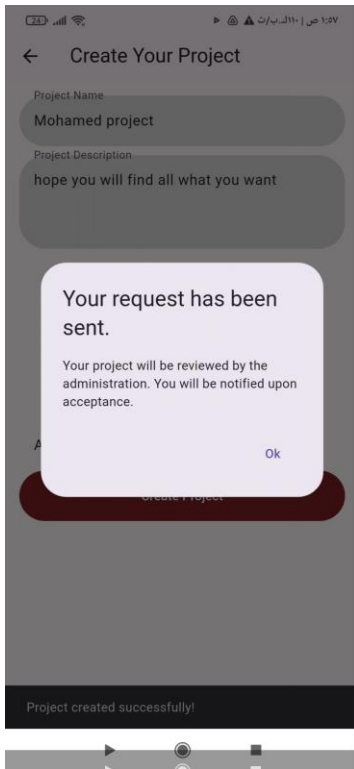


Figure 8: Vendor Create project and email notification

Figure 9: Vendor home screen

- **My Product Page:**

The My Products page is one of the most important and essential pages for vendors in the system, enabling them to manage all their products in an easy and flexible manner. This page contains a set of functions that help vendors maintain complete control over their products, including adding, editing, deleting, and managing discounts.

Page Components:

- **Product List:** All of the vendor's products are displayed in an organized list, each product is displayed with its basic information, such as image, name, price, and quantity.

Each product has three main buttons:

- **Edit button:** When you click the edit button, the vendor is redirected to the product edit page, which allows them to easily edit all product information. vendors can edit the product name, available quantity, price, and product images, as well as specify the product's availability status (available or unavailable). vendors can also replace the product video or add a new one if available.
- **Delete button:** When clicked, a confirmation dialog will appear for the vendor asking him to confirm before the product is permanently deleted from the list.
- **Add Discount button:** The vendor is allowed to add a discount to the product. The discount percentage and quantity are determined by the vendor.

- **Add New Product Button:**

The page includes an "Add Product" button, which takes the vendor to a dedicated page for adding a new product. On this page, the vendor can enter all the necessary product data, such as the product name, available quantity, and price, as well as upload images and videos of the product. The vendor can also select the category to which the product belongs, with the possibility of adding a new category if one is not already available in the system. The vendor can also determine whether the product is customizable or not. If the product is customizable, customers can modify the design or product details before purchasing it. However, if it is not customizable, the customer is not allowed to make any modifications to it.

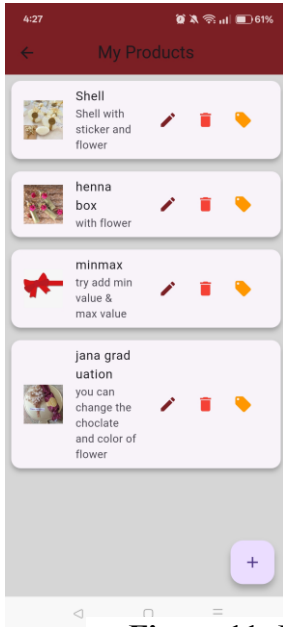


Figure 11: My Product screen

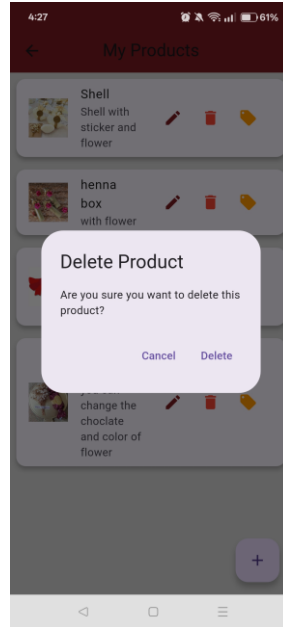


Figure 10: Delete dialog

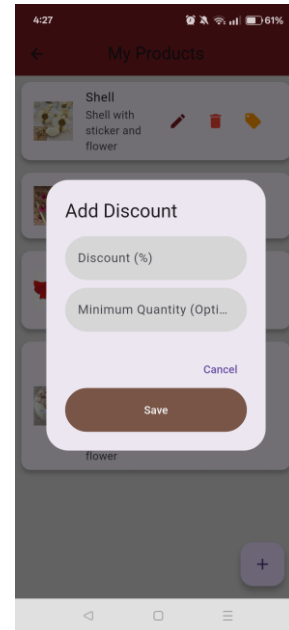


Figure 12: Add Discount dialog

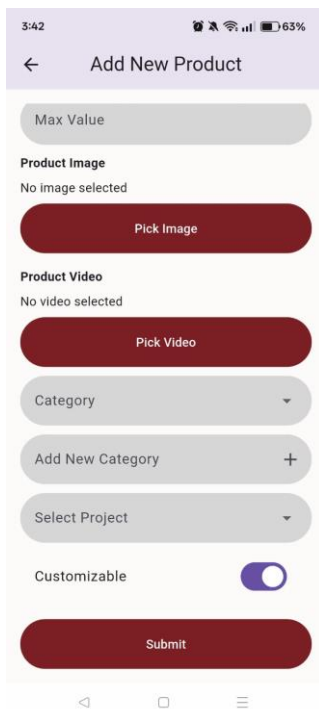


Figure 13: Add new Product screen

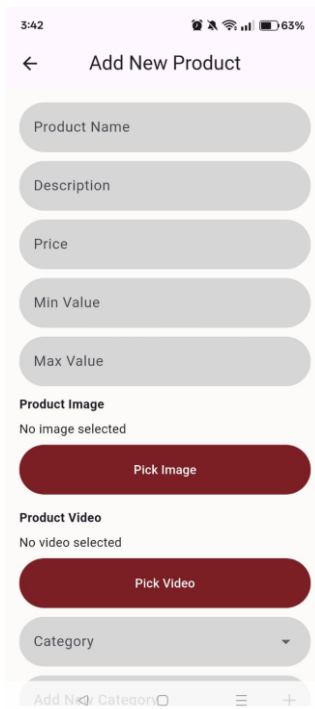
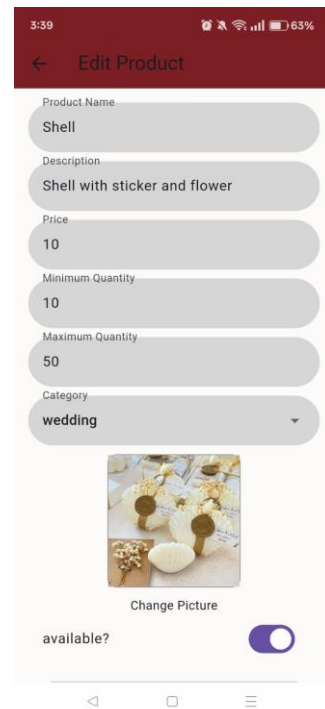


Figure 14: Edit product page



- **My Order Page:**

The My Orders page displays all orders for this user in full. Each order is displayed with associated data such as the order number, order status, delivery address, and delivery status. Upon confirming an order, a message appears indicating that the order was successfully confirmed. The user then proceeds to select a delivery service, where a Delivery Dialog appears, allowing the user to select an available delivery service. If no delivery service is available, the user can add a new one manually. Once the delivery service is selected and confirmed, the order status is updated to "**Approved**," and the delivery status is changed to "**Assigned**," indicating that the order has been assigned to the selected delivery company.

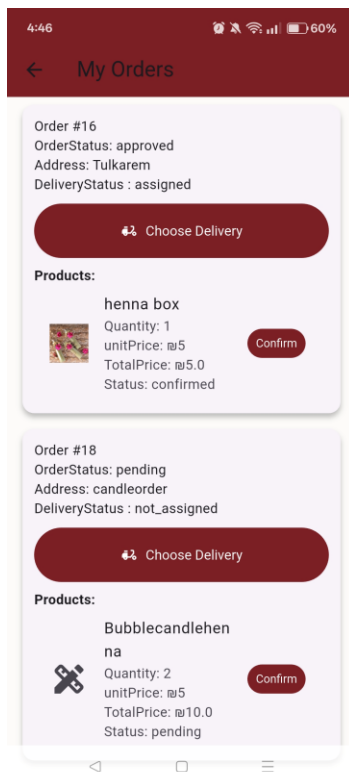


Figure 16:My Order Screen

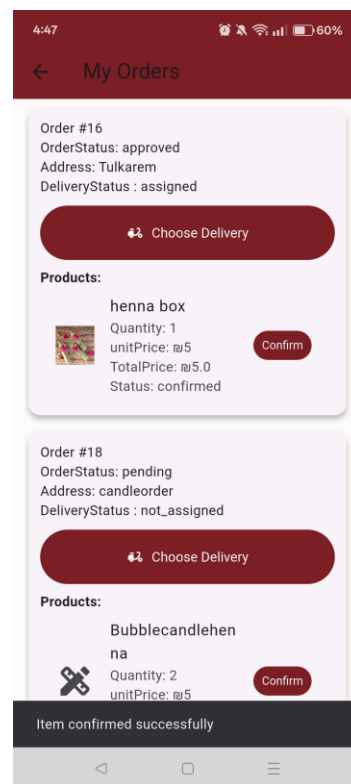


Figure 15:Item Confirmed

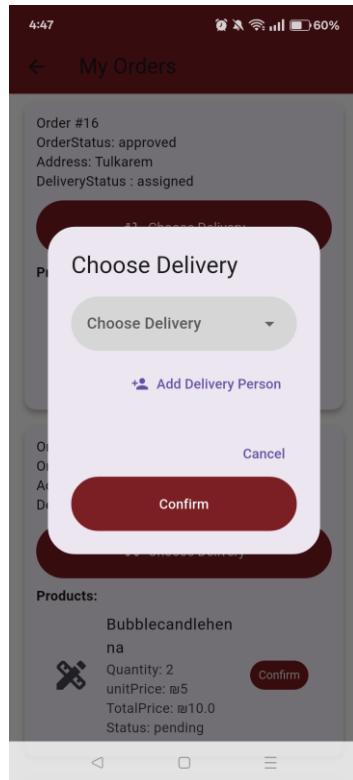


Figure 18: Choose Delivery Dialog

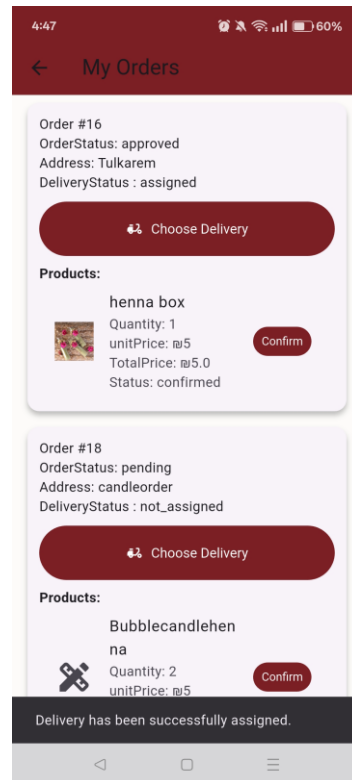


Figure 17:delivery service is assigned

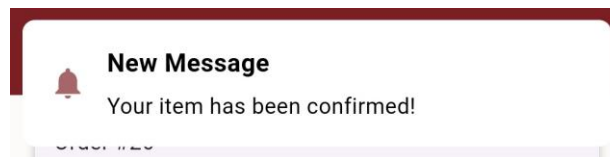


Figure 19: Customer order confirmation notification

○ **My Designs Page:**

The My Design page displays all designs previously designed and uploaded by this vendor. And There is an Add New Design button to add a new design. Clicking this button opens the Design Editor Page to add and design a new project.

Each design contains:

- An **Edit** button to modify the design: Clicking here takes you to the Design Editor page for that design, the vendor can fully modify the design and make any required changes.
- A **Delete** button to delete the design.

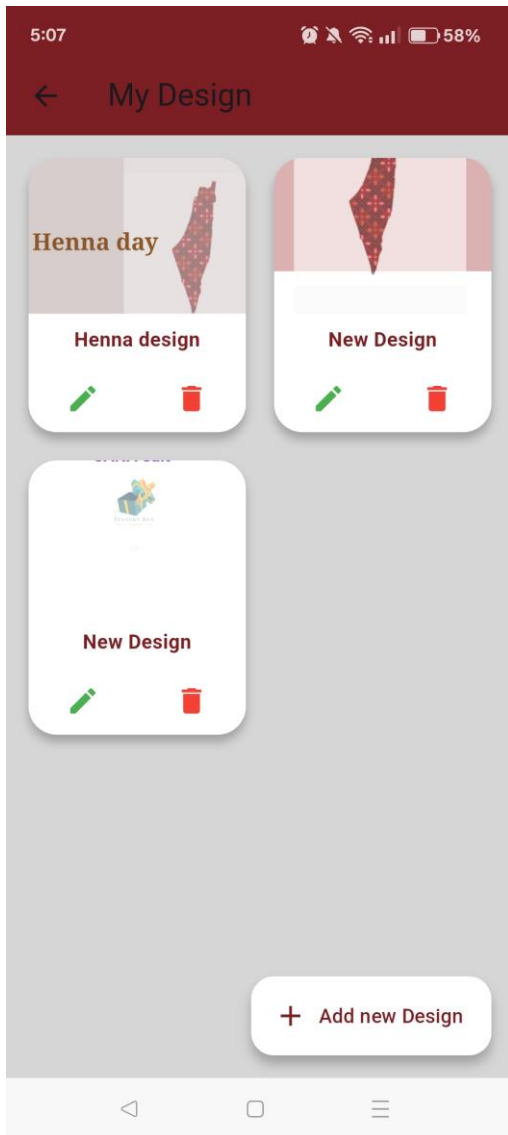


Figure 21: My Designs Page

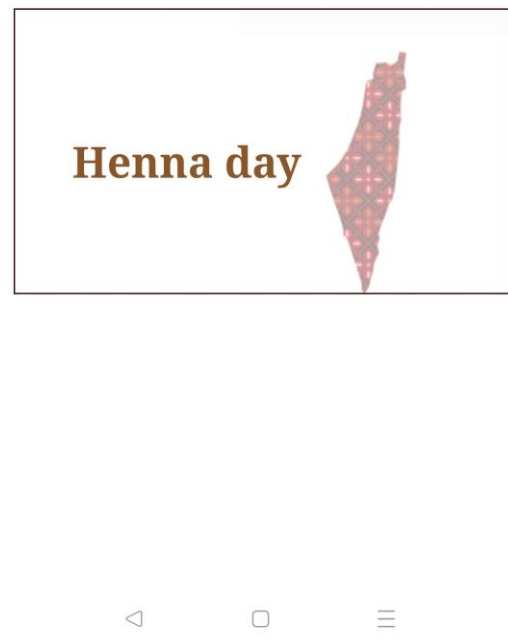
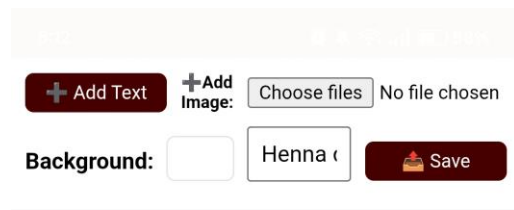


Figure 20: Edit Designs Page

1. Design Editor Page:

On this page the vendor can do the following:

- **Adding Text:** On the product design page, vendors can add text to the design. When writing text, vendors can change the font color and font type, as well as bold or italicize the text. These adjustments help customize the text to the vendor's liking.
- **Adding Images:** On the design page, vendors can upload images and add them to the design. After adding an image, its size can be adjusted to reduce or enlarge it as needed. The image can also be rotated at different angles if the vendor needs to adjust its orientation within the design.

- **Generating Images Using Artificial Intelligence:** The design page offers a powerful AI-powered feature that allows suppliers to create a new image based on their own specifications. Suppliers can provide a precise description of the image they want (such as color, shape, pattern, background), and the system will automatically generate an image that matches this description, opening up a wide range of possibilities for suppliers to be creative and customize their designs professionally.
- **Layers Management:** The vendor can control the arrangement of elements within the design, such as text and images. They can place a specific element in the front or back, as desired. This feature helps organize the design so it appears properly.
- **Saving the Design:** After completing the edits, the vendor can click the save button to save the design. Upon saving, a message will appear confirming that the design has been successfully saved to the server.
- **View design after saving:** After saving the design and returning to the My Design page, the new design will appear in the vendor's list of designs. The vendor can review, edit, or delete the design at any time from the same page.



Figure 23:Design Editor Page

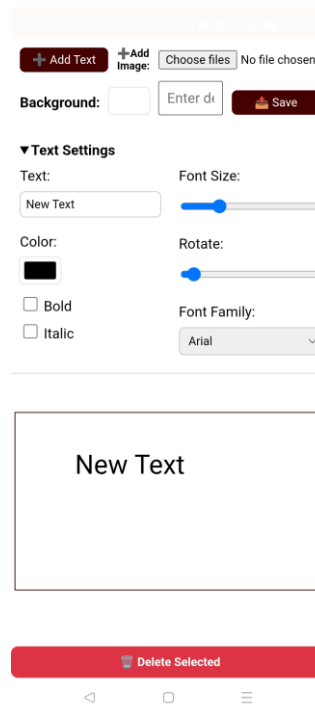


Figure 24:Add Text

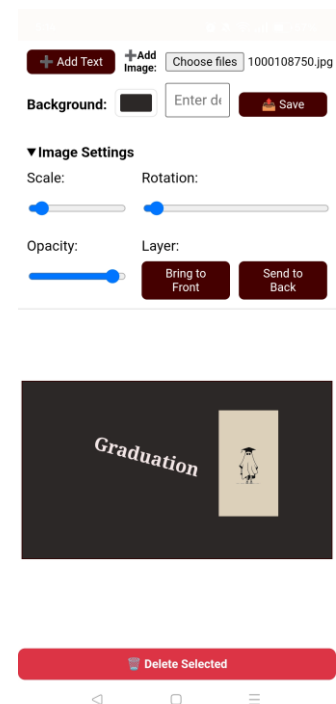


Figure 22:Add Image

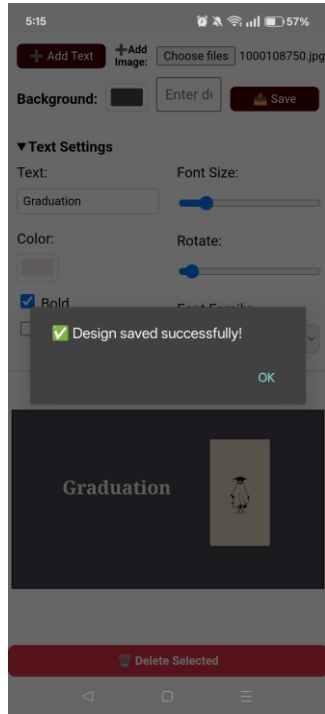


Figure 25: Save Design

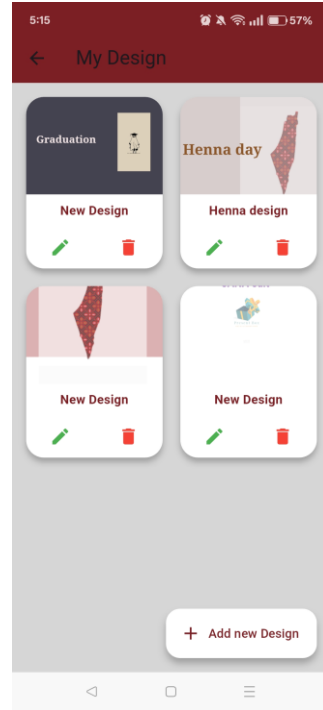


Figure 26: View design after saving

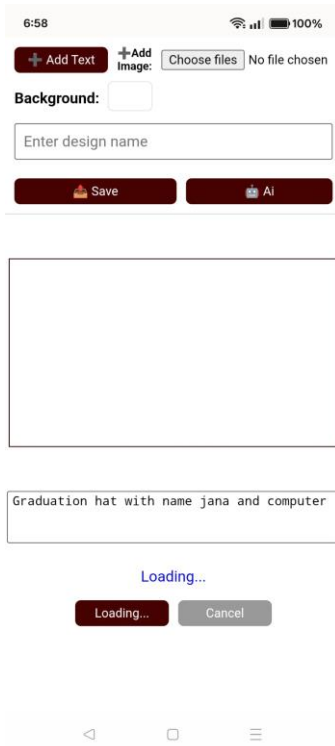


Figure 28: Generating Images Using Artificial Intelligence

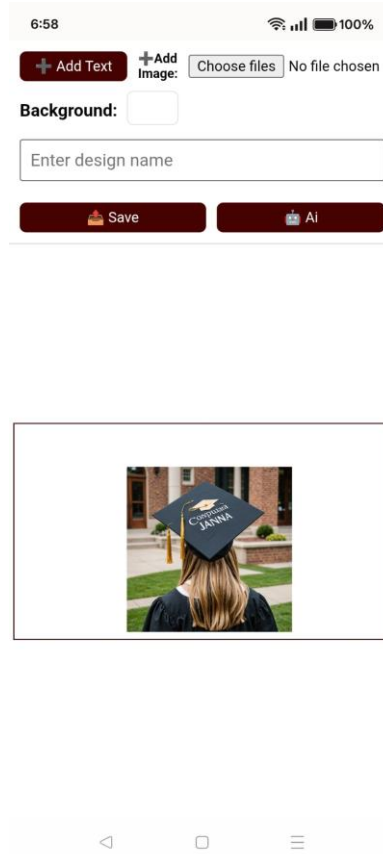


Figure 27: Result of AI

○ **3D Control Page:**

On this page, the vendor has full control over managing the 3D models of his products, so that they are prepared so that the customer can later customize them the way he wants.

1. **Add Types:** The vendor can add a new type to represent the general classification of the distributions, examples of types:
 - Candle Tawzia.
 - Chocolate Tawzia.
 - Sweet Tawzia.

Each type represents an independent category that is handled by the system.

2. **Add Groups:** After adding a type, groups are created for that type, groups represent the customizable parts within the product.

Example: If the type is "Candle Tawzia," the groups could be as follows:

- Group 1: Candle.
- Group 2: Box.
- Group 3: Tie.

Each group represents a separate part that the user can change or modify later.

3. **Add Assets:** For each group, its assets are uploaded.

Assets include:

- A 3D Model file with a .glb extension to display the 3D shape.
- A preview image showing the shape of the item.

Each uploaded item is later made available to the user during product customization.

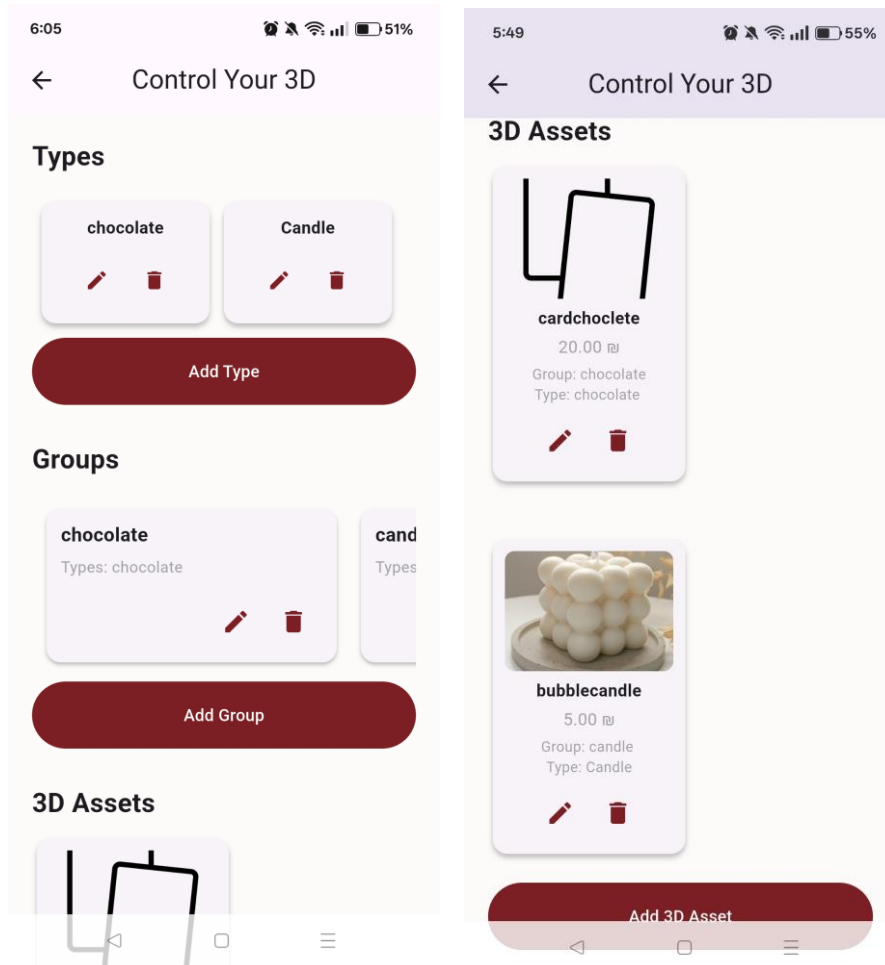


Figure 29: Control 3D

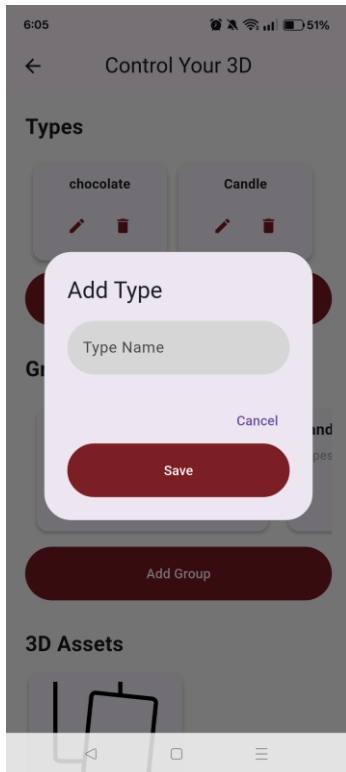


Figure 32: Add Type

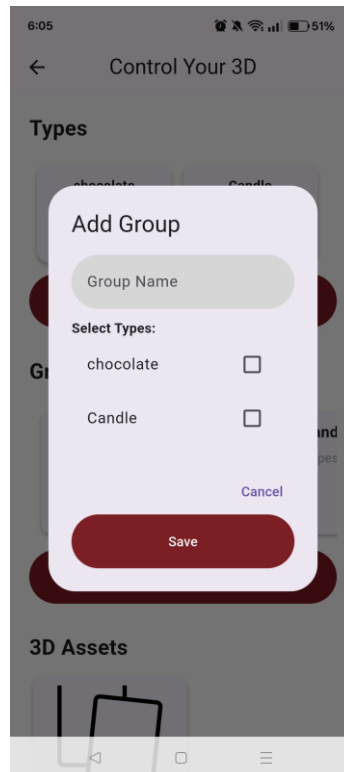


Figure 31: Add Group

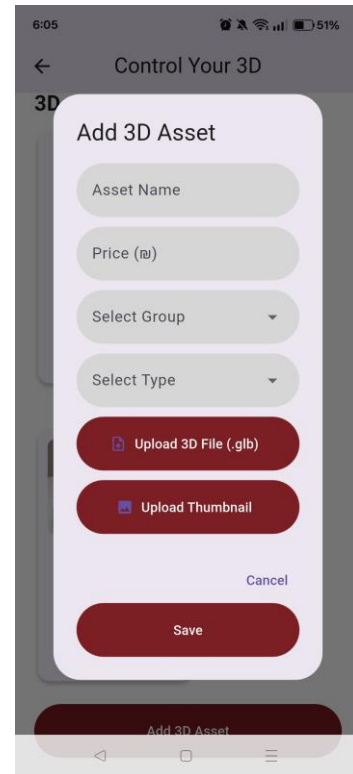


Figure 30: Add 3D Assets

○ App Bar:

At the top of the app is the App Bar, which contains basic tools that help the vendor manage their account and interact with users. The App Bar contains the following elements:

1. **Chat:** The Chat section provides direct communication with customers, vendors can respond to customer inquiries and process their orders quickly. It supports live chat to provide effective customer service.
2. **Project Settings:** This section contains the vendor's project settings. The vendor can control business settings, such as: Project details and Project customization options to suit the vendor's business style.
3. **User Settings:** This section is dedicated to managing the vendor's own data. You can: Edit personal information such as name, email, and password, update contact information, And send feedback for admins.



Figure 34:Chats

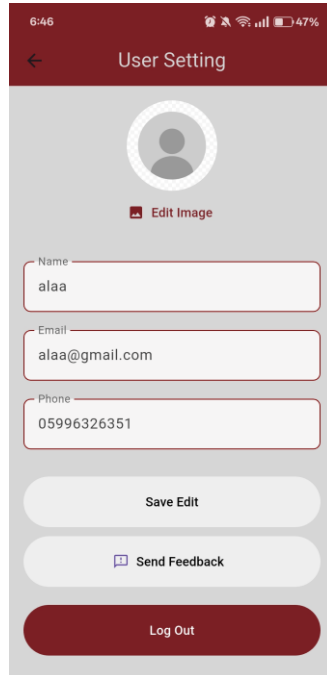


Figure 33:User Setting

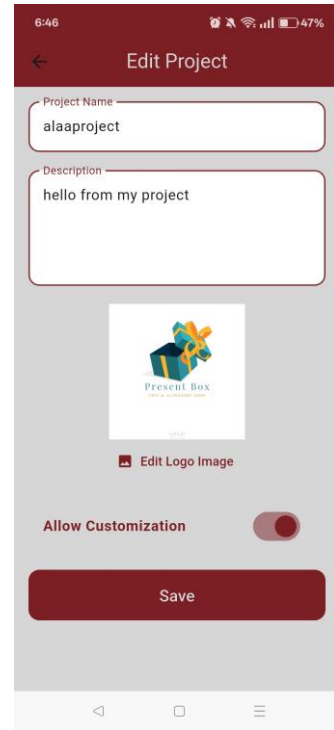


Figure 35:Project Settings

Now, let's dive deeper into the **Admin Screens!**

When an **Admin** logs in successfully, they will be directed to the **Home Page**.

The administrator is the owner of the application and is responsible for it and has the ability to access some data and control some matters.

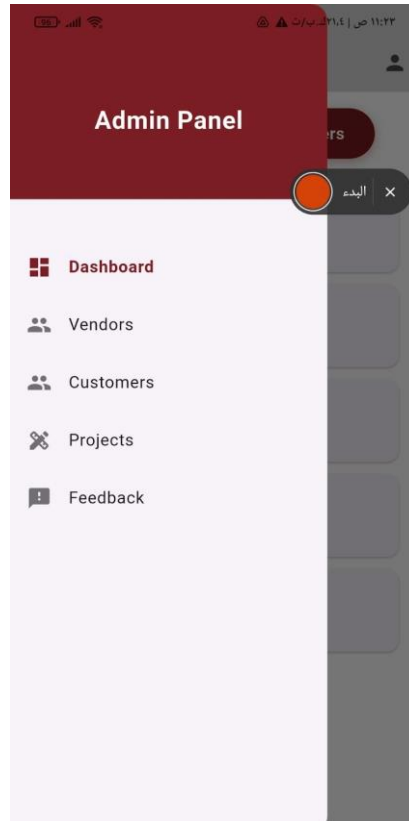


Figure 36:Admin Panel

- **Dashboard Page:** The first page is the dashboard page, which displays a complete summary of the numbers and statistics in the application, such as the number of orders and the number of customers. There is also a tab to view the latest users.

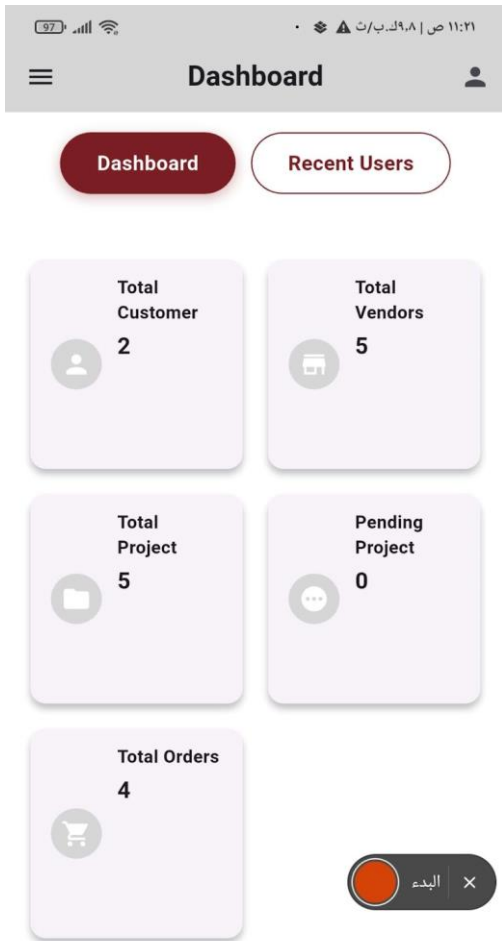


Figure 37:Dashboard Data

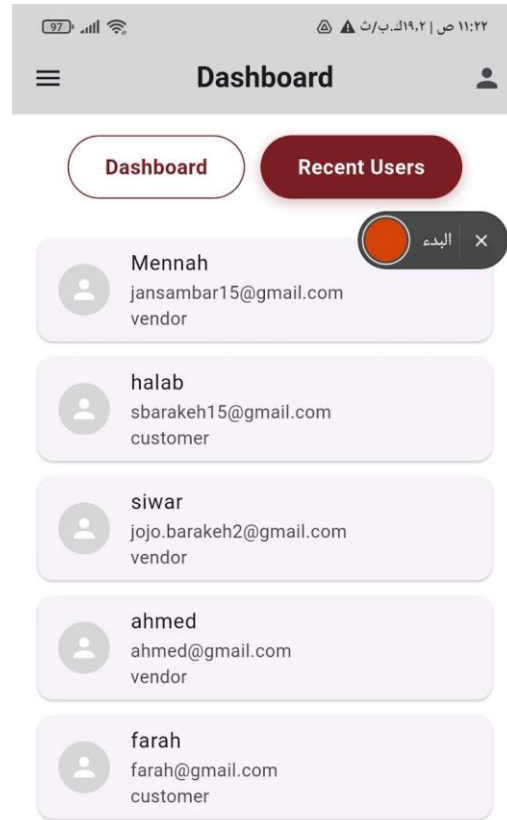


Figure 38:Recent User

- **Vendor Page:** First the admin sees all the vendors in the app (Project owners) and he can activate and deactivate any vendor he wants, email sent when he is active or blocked and when the vendor tries to login he can't because he is blocked. (**this scenario active and block same for customer**)

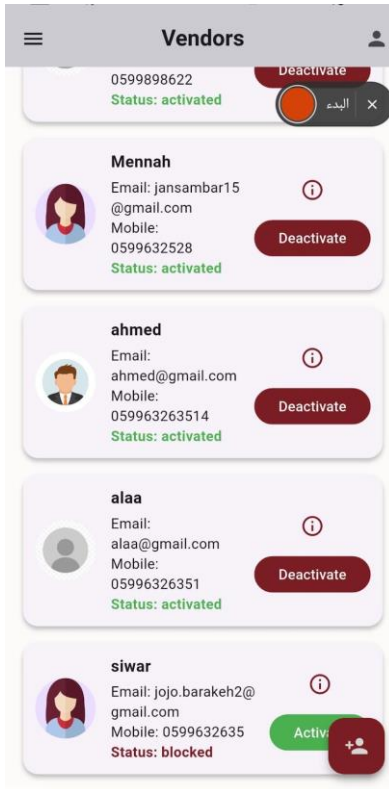


Figure 40: Vendors Page

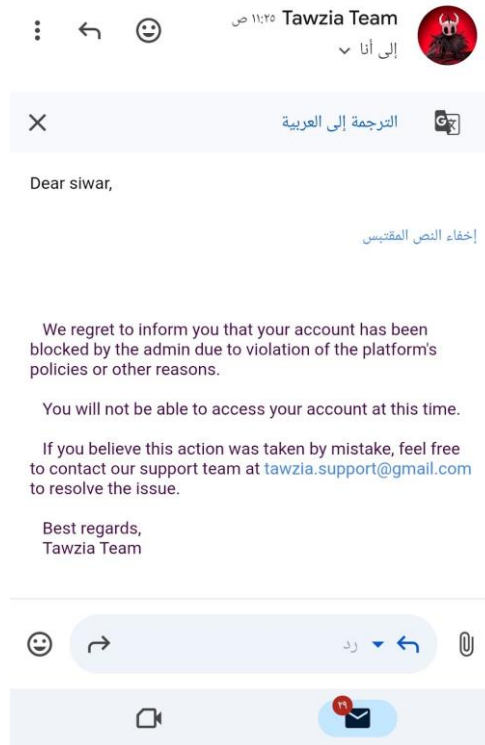


Figure 39: Blocked Email

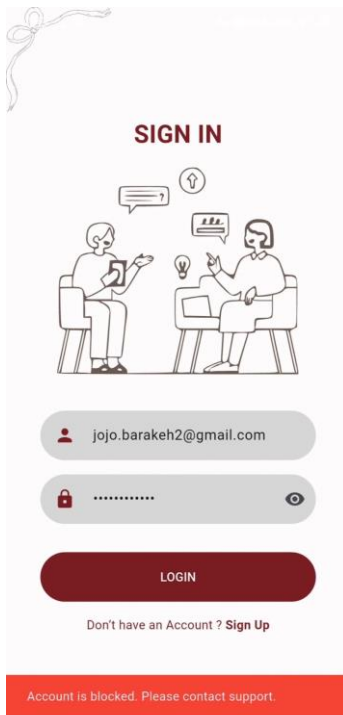


Figure 41: Account blocked login msg

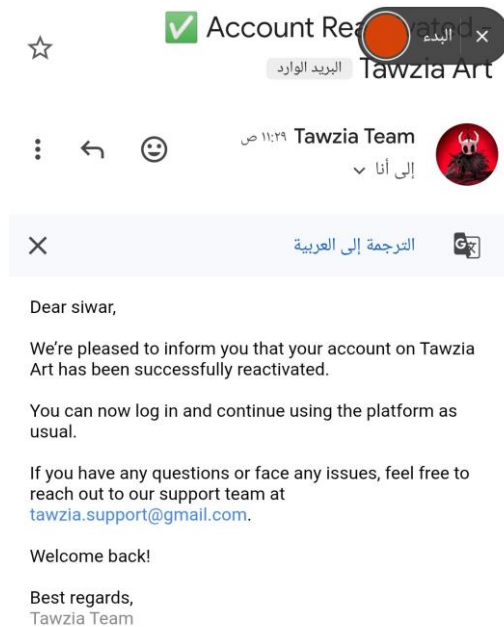


Figure 42: Activated account email

- **Add Vendor pages:** If the project owner wants to register an account but does not know how, he can request the administration and his information will be recorded and an email will be sent to him to confirm his registration.

Figure 44: Add Vendor

Figure 45: Add Vendor project



Figure 43: Email notification

- **Vendor Details and Vendor Report:** Vendor Details contain information about the vendor, information about its project, and existing products.

Vendor Report contains statistics on the number of orders, existing designs, profits, etc., as well as customer reviews of the project.

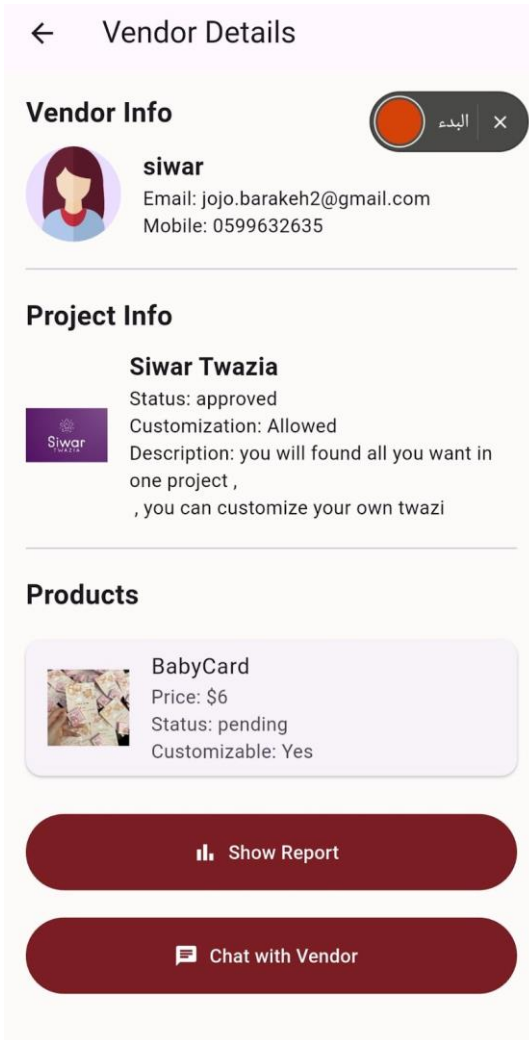


Figure 46:Vendor Details

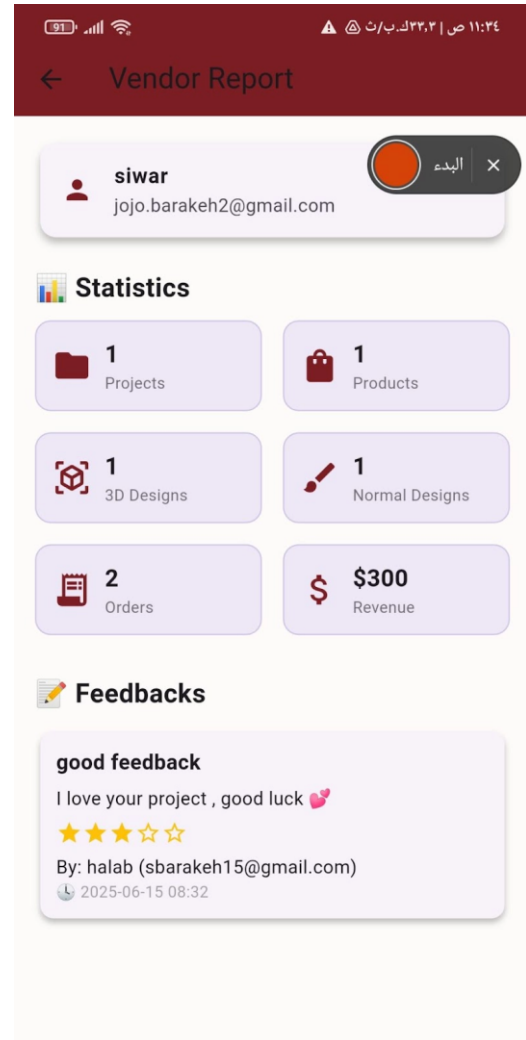


Figure 47:Vendor Report

- **Customer Page:** See all customers in app, can add new customer, active and deactivate customer

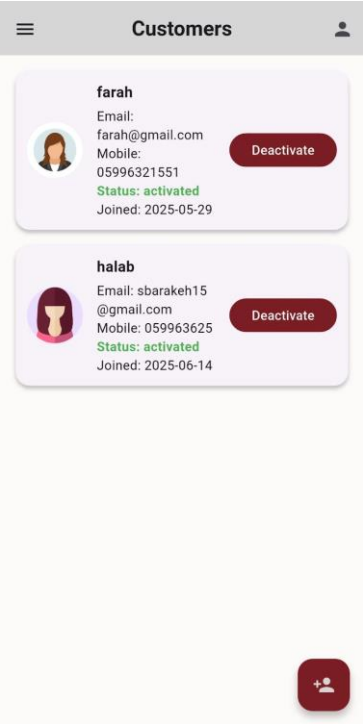


Figure 50:Customers List

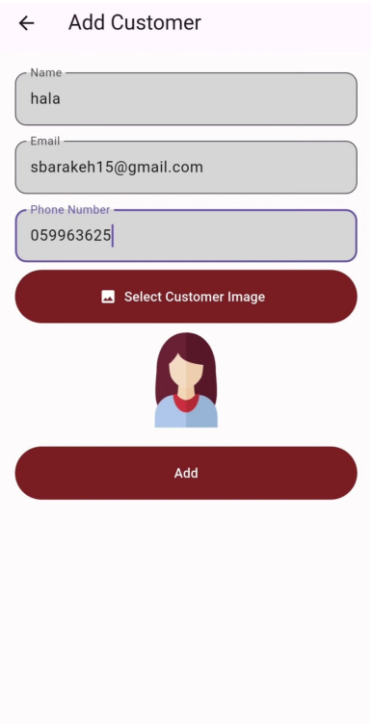


Figure 48:Add Customer

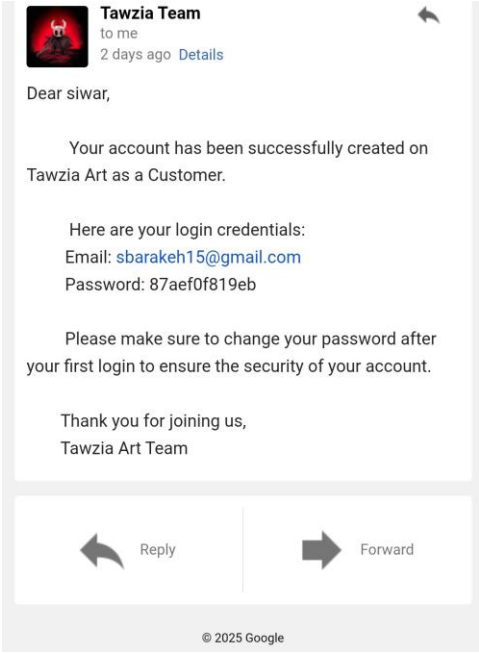


Figure 49:Email notification

- **Project Page:** See all project from all vendor, accept pending project when vendor signup he will wait until the admin accept his project.
- **Feed Back Pages:** See all the feedback and ratings that come to the application, whether from customers or vendors, in order to improve the application’s performance in the future.

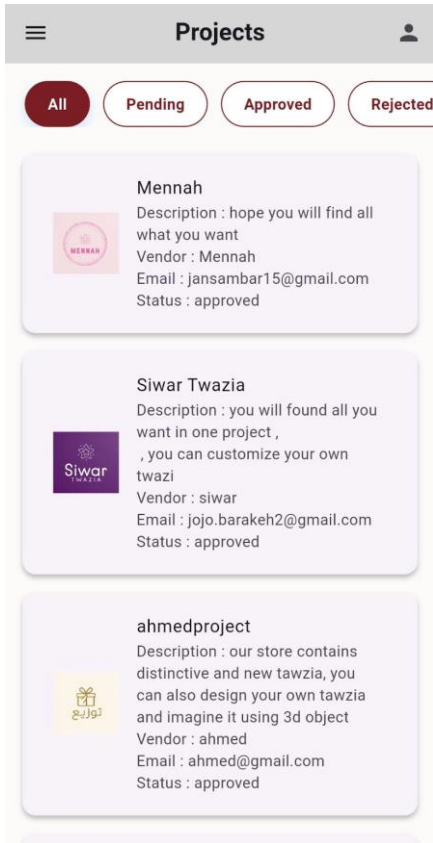


Figure 51:Vendor Details

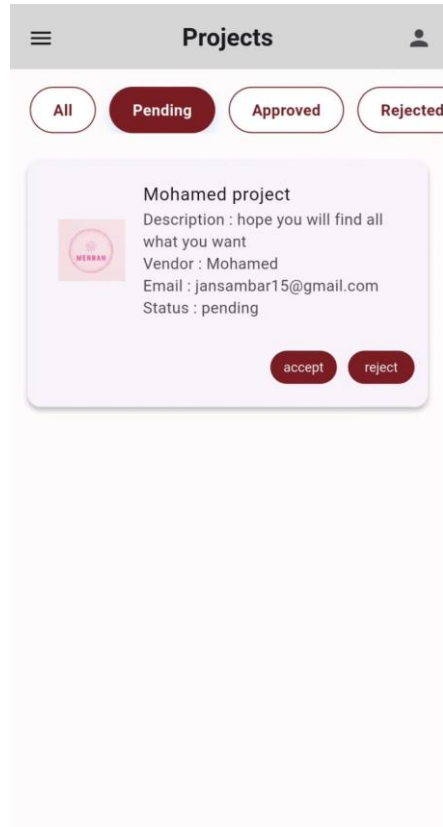


Figure 52:Vendor Report

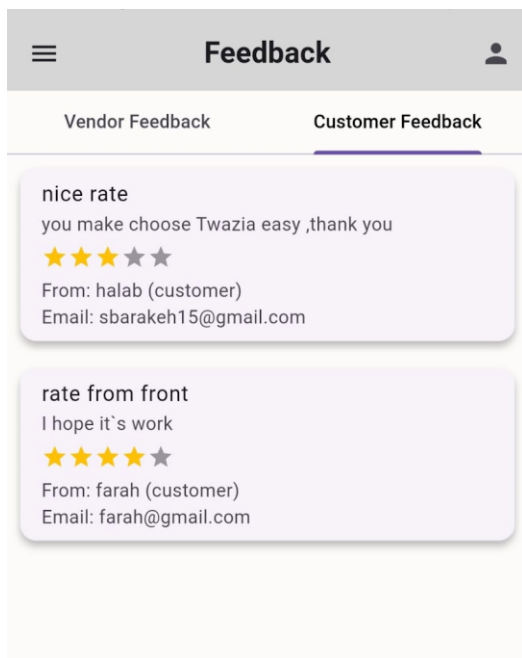


Figure 54:Customer Feedback

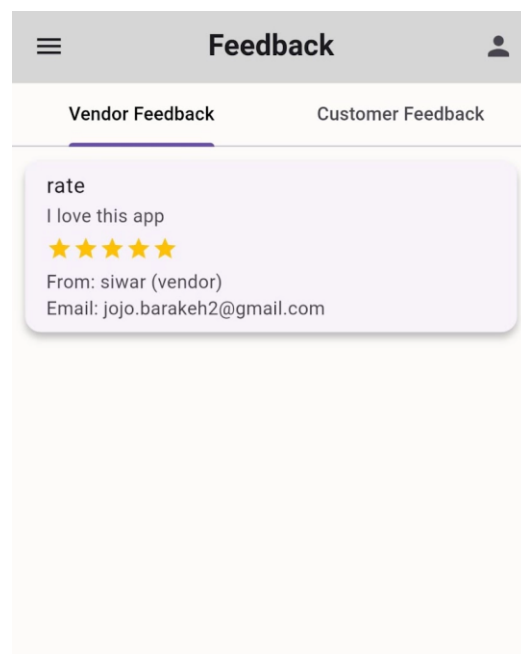


Figure 53:Vendor Feedback

Now, let's dive deeper into the **Customer Screens!**

When a **customer** logs in successfully, they will be directed to the **Home Page**.

Bottom Navigation Bar:

The client within the application can easily navigate between four main pages through the bottom navigation bar. These pages are:

- Home.
- Favorites.
- Cart.
- Order

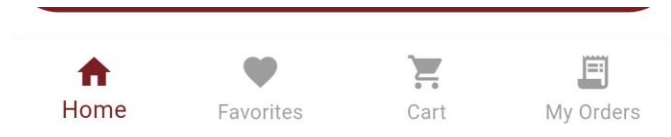


Figure 55:Bottom Navigation Bar

Main Pages:

- **Home Page:** The homepage contains three main sections.
 1. **Section One: View All Vendor Products** This section displays all products available in the app and offered by all vendors.
 2. **Section Two: View All Projects** This section displays all projects added to the app in full, allowing customers to explore the various designs and projects available.
 3. **Section Three: Search & Filtering** A search engine is available that allows you to search for products or projects by name or details. Products can also be filtered by category to facilitate access to the desired products.
 4. **Your 3D Button** There's a "Your 3D" button on the home page, clicking it displays all the 3D models the client has previously designed.
- **Favorites Page:** The Favorites page displays all items (products) the customer has added to their favorites list.

Page Features:

- **Display Favorite Products:** Each product the customer has selected as a favorite is displayed in an organized list.
- **"Add to Cart" button:** Allows the customer to add the product directly to the shopping cart for easy purchase.
- **"Remove from Favorites" button:** Allows the customer to remove a product from their favorites list if they are no longer interested in it.

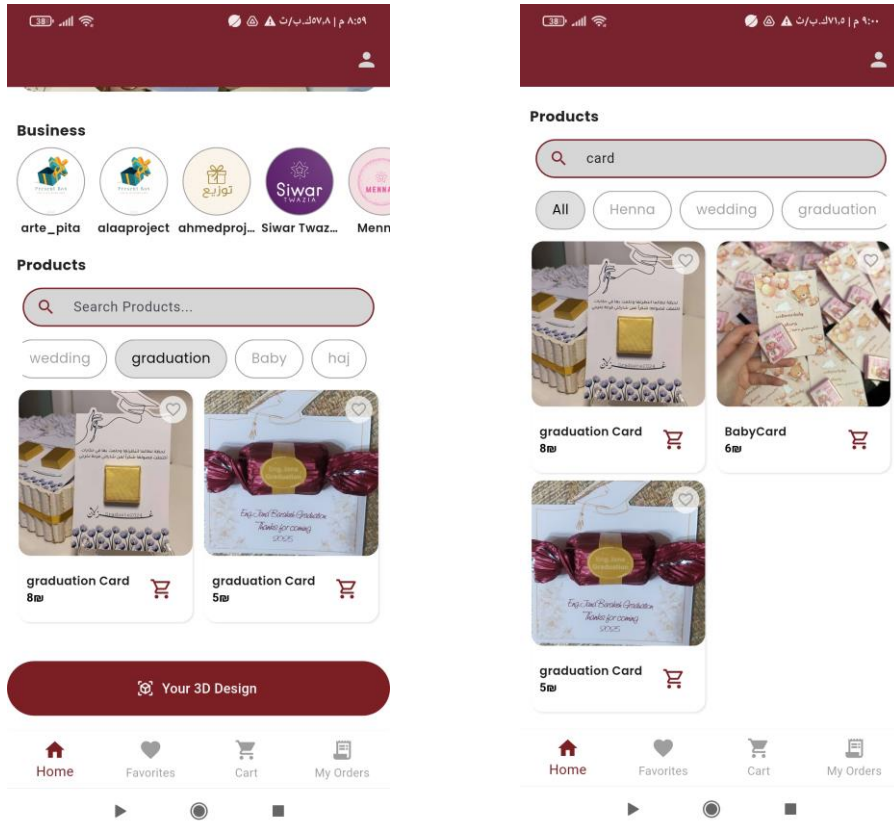


Figure 56:Home Page Search Filtering

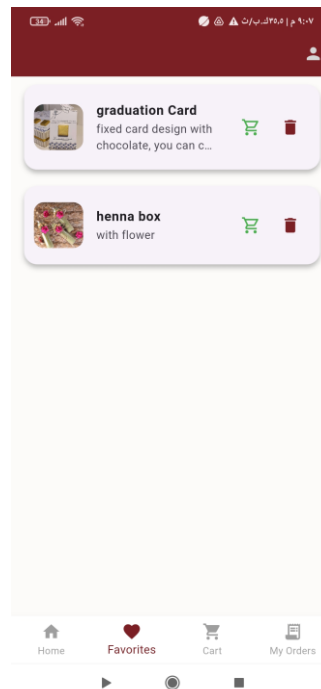


Figure 57:Favorites Page

- **Cart Page:** On the Cart page, all products that the customer has added to his shopping cart are displayed in detail.

Details of each displayed product:

- **Store Name:** The store name to which the product belongs is displayed for easy identification between different stores.
- **Per Unit Price:** The base price for each item of the product is displayed.
- **Total Price by Quantity:** The total price is calculated based on the number of items ordered by the customer.
- **Price after Discount:** If a discount is available on the product, the price after the discount is applied is displayed.
- **Delete Button:** Allows the customer to remove the product from the shopping cart.

Additional features on the page :

- **Total Price:** The total price of all items in the cart is displayed after calculating quantities and discounts.
- **"Complete Order" button:** When you click the "Complete Order" button on the card page, a pop-up window appears asking the user to enter the personal information necessary to complete the order.

This information includes their full name, delivery address, and contact phone number. After filling out the information, the user chooses the appropriate payment method, either cash on delivery (Cash on Delivery) or using a Visa card. If you choose to pay using Visa, a special screen appears to fill out the card information, such as the card number, expiration date, and security code (CVV). After completing the payment process or confirming the cash payment option, the order is sent directly to the seller for processing.

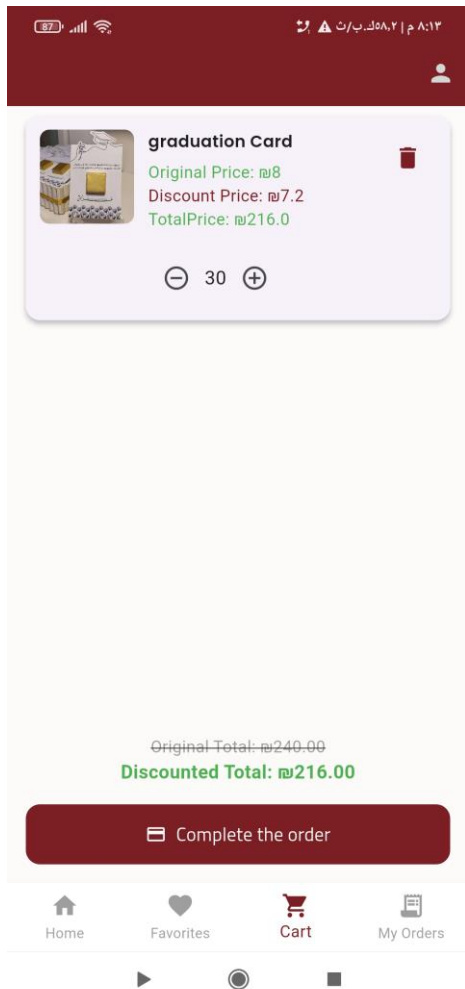


Figure 58: My Cart Page

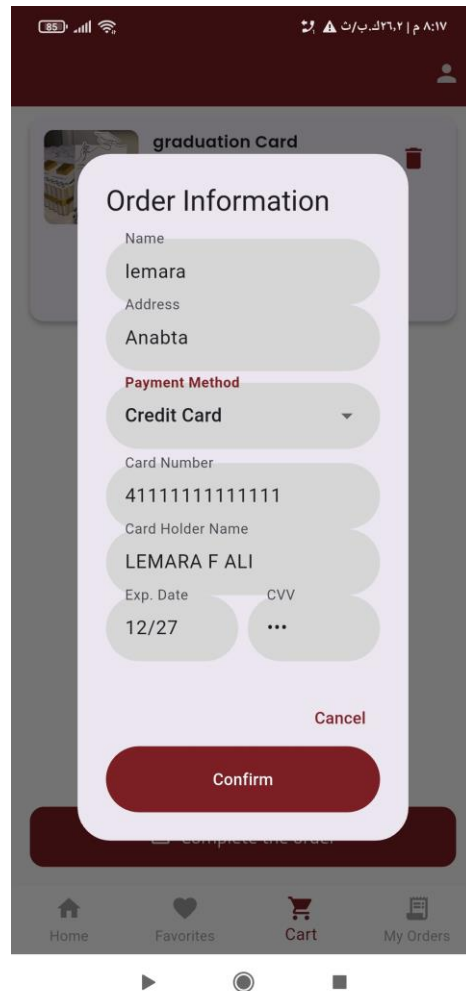


Figure 59: Order Information

- **Orders Page:** all orders placed by the user are displayed, along with details for each order. Next to each order is its current status (Order Status), which can be:
 - **Pending:** The order is pending and has not yet been reviewed.
 - **Approved:** The order has been accepted by the seller and is being prepared for delivery.
 - **Rejected:** The order has been rejected by the seller for some reason.

This page allows the user to track their orders and easily view the status of each order.

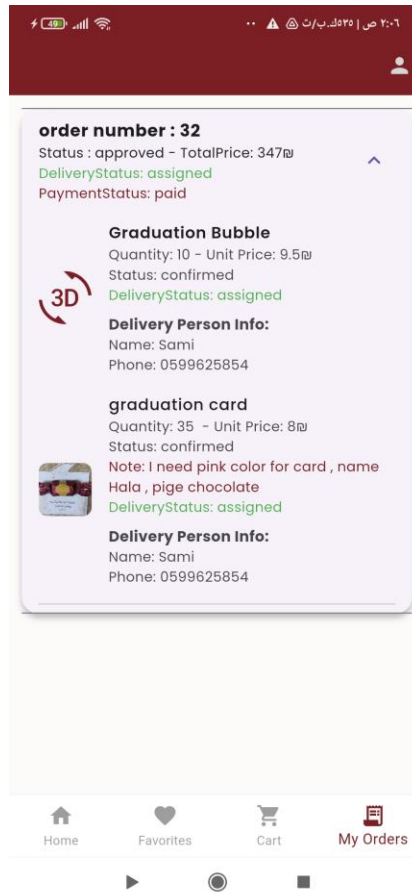


Figure 60:My Orders Page

About App Bar Section: The App Bar contains options that help the user fully control their information.

We will now detail the main sections on the **Home Page**:

In the **Products section**, when the user clicks on any product, they are taken to the Product Details page. This page displays detailed information about the product, such as:

- Product Name
- Price
- Available
- Quantity
- Product Description
- Images or Videos
- Reviews from other users are also displayed, along with information about the seller who owns the product.

On the same page, there are two main buttons:

- **Add Review:** Allows the user to write a new review for the product. when the Add Review button is clicked, a pop-up dialog window appears, allowing the user to add a comment about their experience with the product, as well as the ability to choose the number of stars they would like to give the product. The user can specify their rating from one to five stars based on their satisfaction with the product.

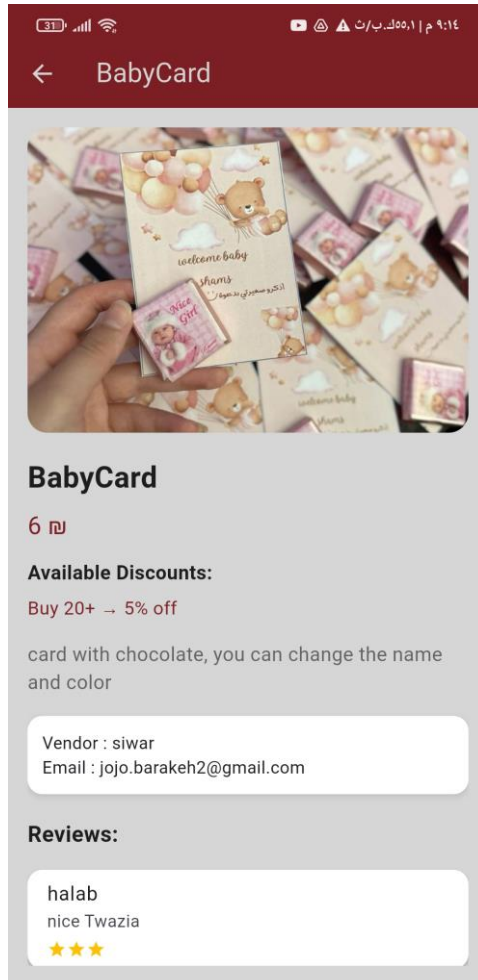


Figure 62: Product Page

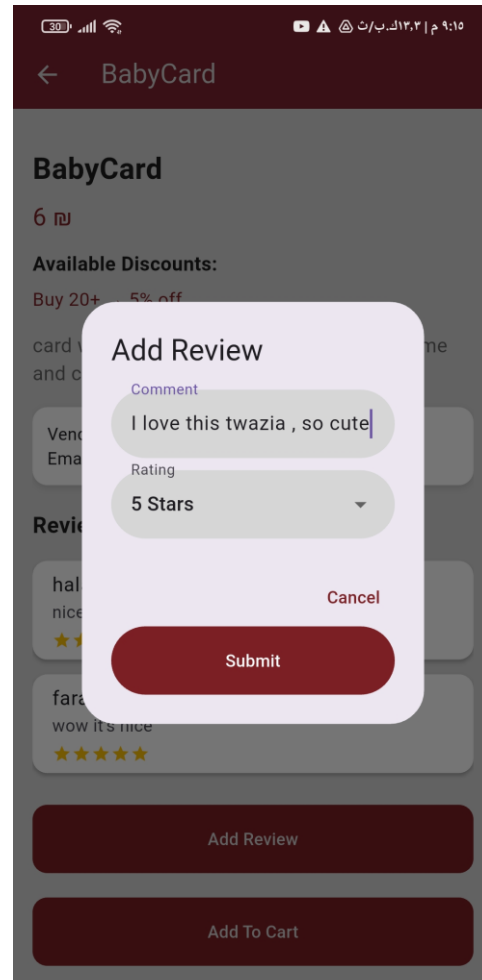


Figure 61: Add Review

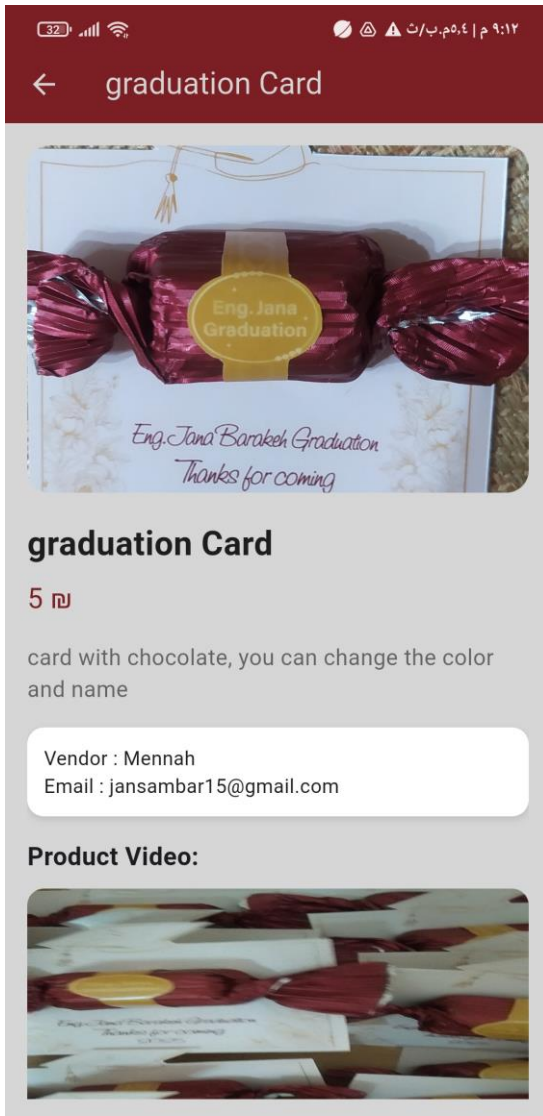


Figure 64:Product Page

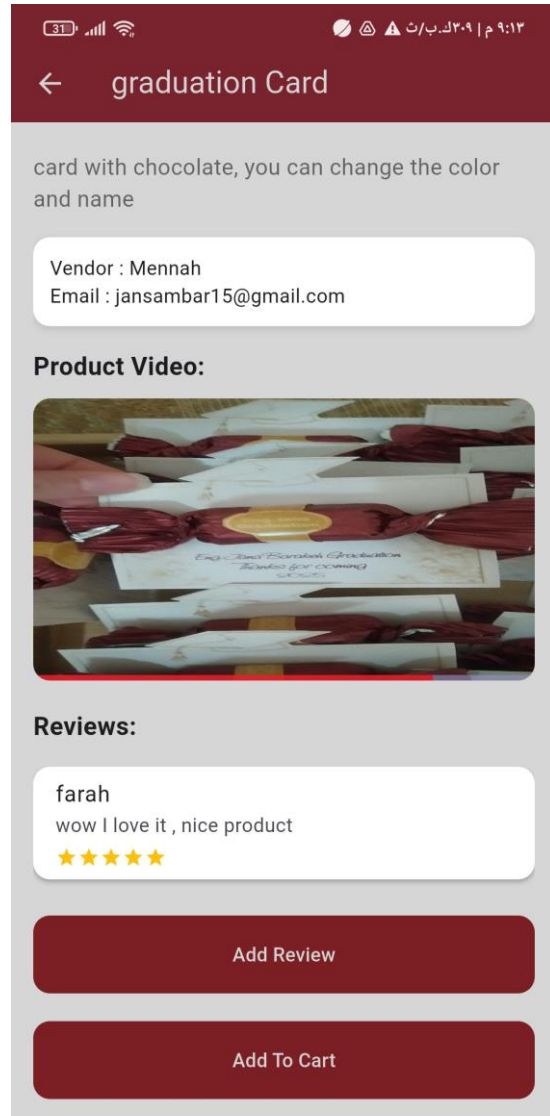


Figure 63: Product Page with video

- **Add to Cart:** When clicked, a pop-up window (widget) appears asking the user to specify the quantity they wish to add to the cart.

if the vendor has enabled customization for the product, a **Note Field** will appear where the user can enter any modifications or customization requests, they wish to make to the product before adding it to the cart.

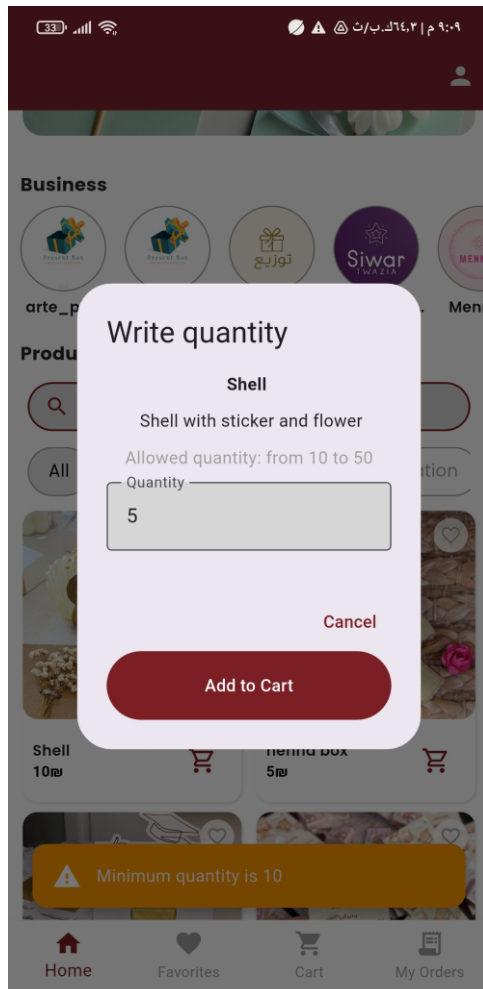


Figure 66: Add To Cart(without customization)

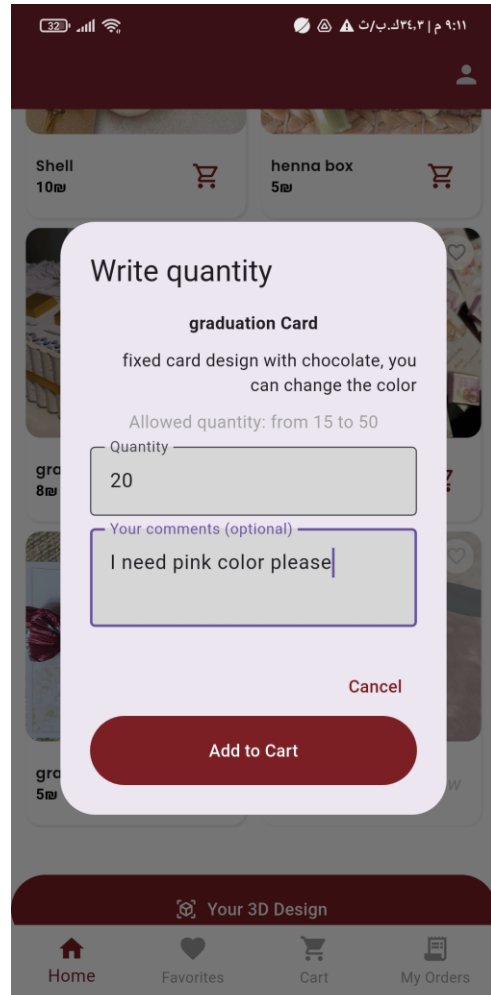


Figure 65:Add to Cart (with customization)

Projects Part:

Upon entering a Vendor's Projects page, all products associated with that Vendor are clearly displayed. There's a Vendor Information button, which allows users to view details about the Vendor and contact them directly if they have any questions. There's also a Feedback button, through which users can provide feedback and opinions about the project or the Vendor itself.

If the Vendor offers Customization, the Customize Your Distribution button appears. Clicking it takes you to the Type Selection screen, where the user can select the type of distribution they want to customize (e.g., Candles, Chocolates, etc.).

After selecting the type, the user is directed to the 3D Design Page, which displays the Groups and Assets previously added by the Vendor. On this page, the user can interactively customize the distribution using the available elements.

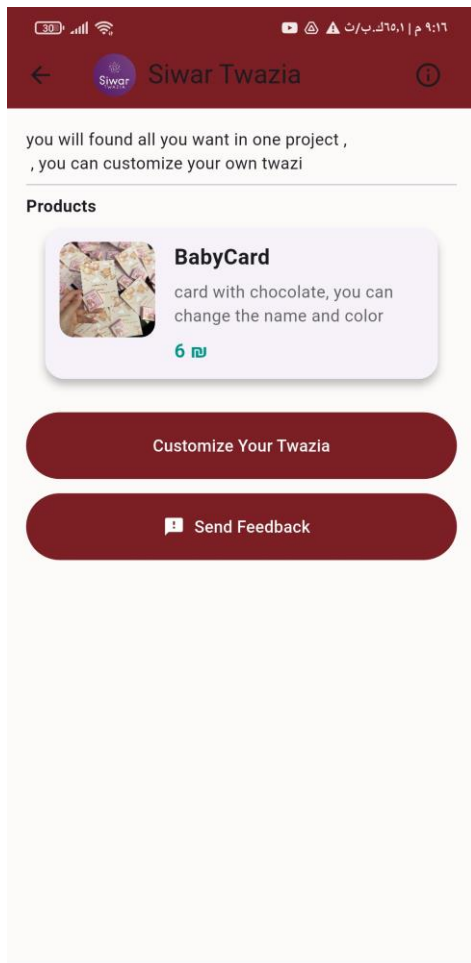


Figure 67: Project Page

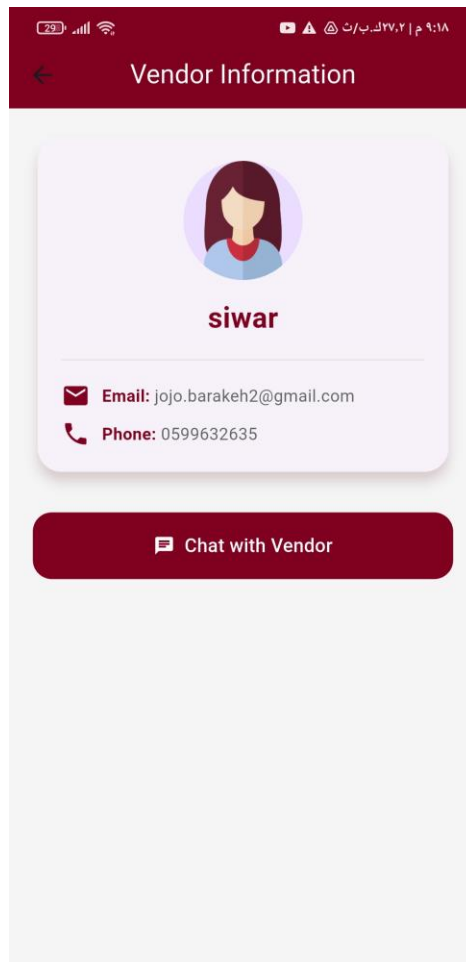


Figure 68: Vendor Information

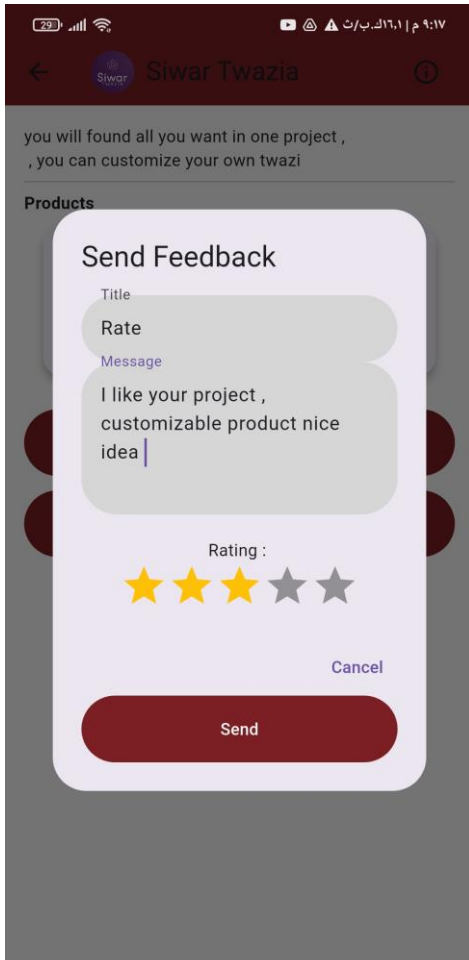


Figure 69:Project Feedback

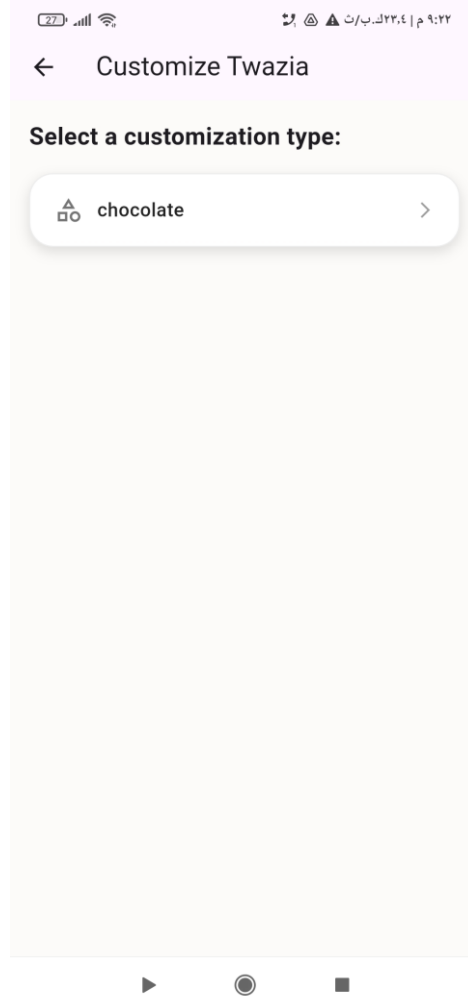


Figure 70: Customize your Tawzia

○ **3D Design Page:**

First, the customer selects the type of distribution they want, then navigates to the 3D Design Page, which displays the groups for that type of distribution and its associated assets.

For example, if the customer selects the "Chocolate" distribution type, they will see the groups for that type, such as: Box, Sticker, and Chocolate. Through these groups, the customer can build their own 3D distribution.

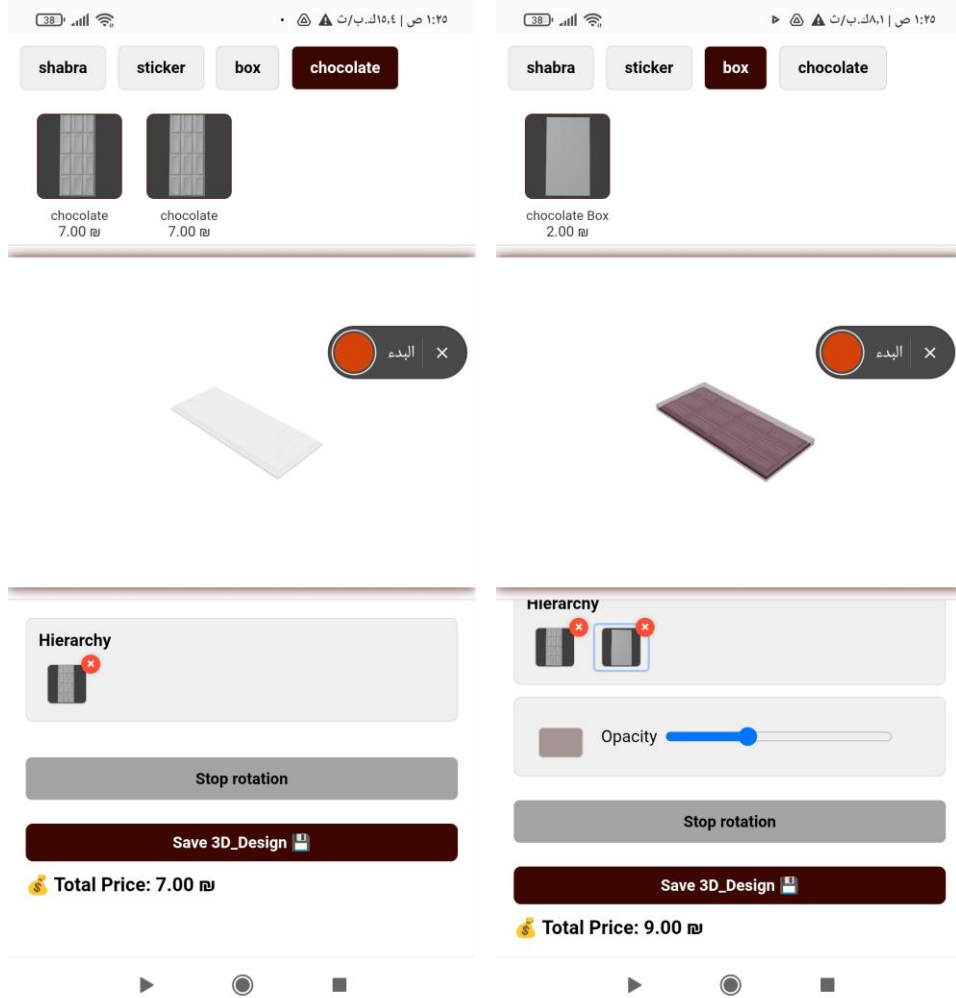


Figure 71: Customize your Tawzia 3D Design Page

Each asset has a fixed size, and when the customer finishes building their distribution, the total price for the distribution is displayed based on the selected items.

For the Sticker option, the customer can either choose a pre-made design created by the vendor, or customize the distribution using the Design Page.

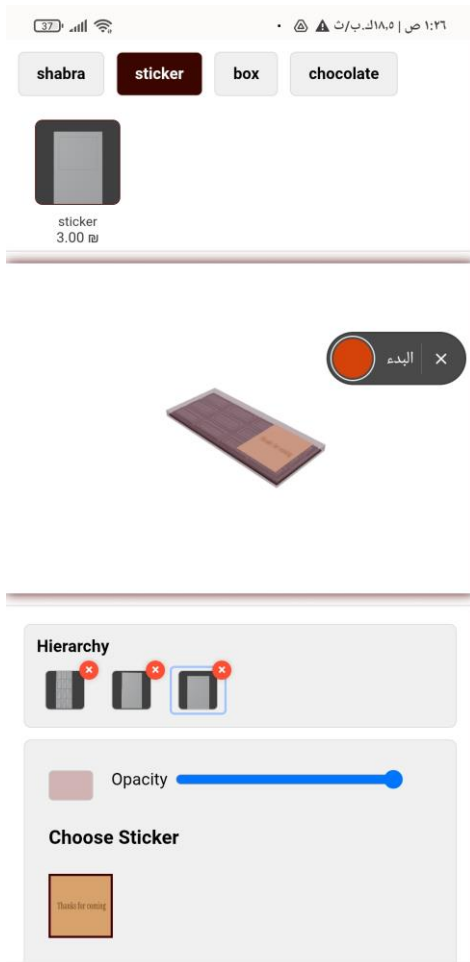


Figure 72: Add ready Sticker

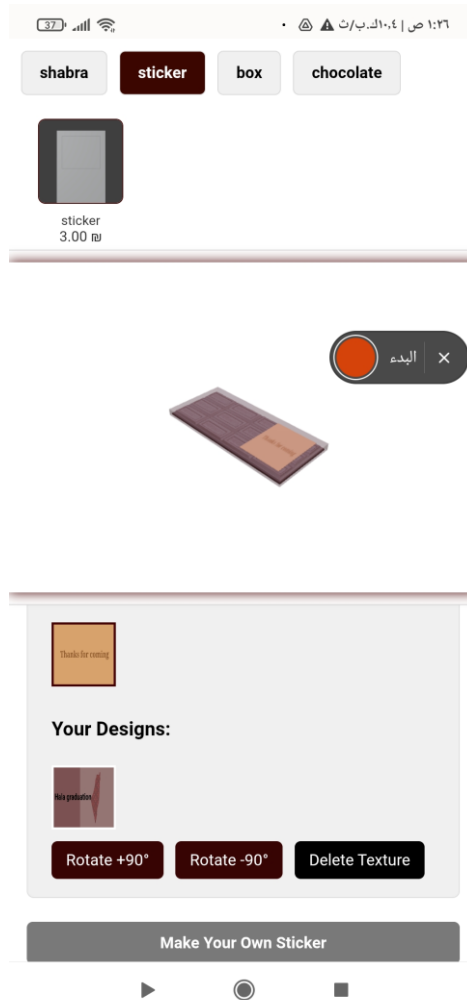


Figure 73: Add My Sticker

After click save, we go to **My3D** in the Home Page to show my design.

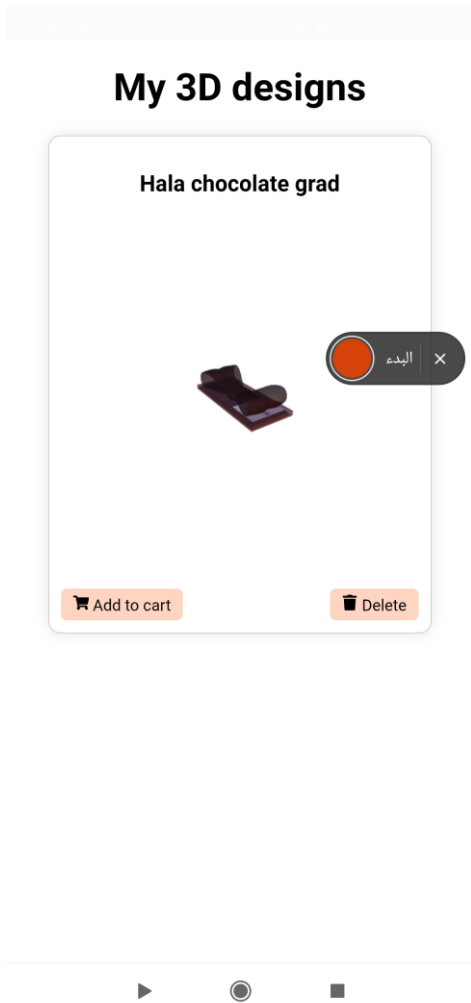


Figure 74: My 3D Page

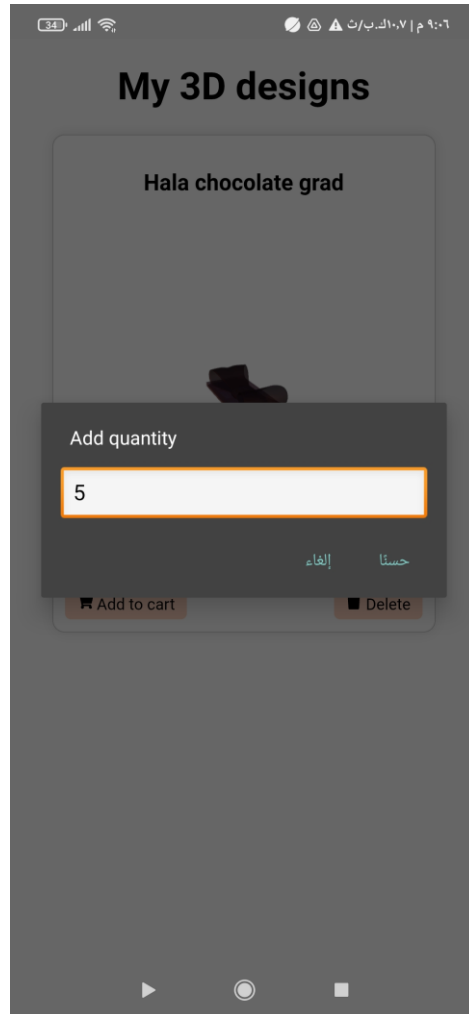


Figure 75: Add to Cart

If you want to preview the 3D Model and all the elements that were used in the design of the distribution, all you have to do is click on the distribution, and you will be shown the full details with all the elements that were used in the design.

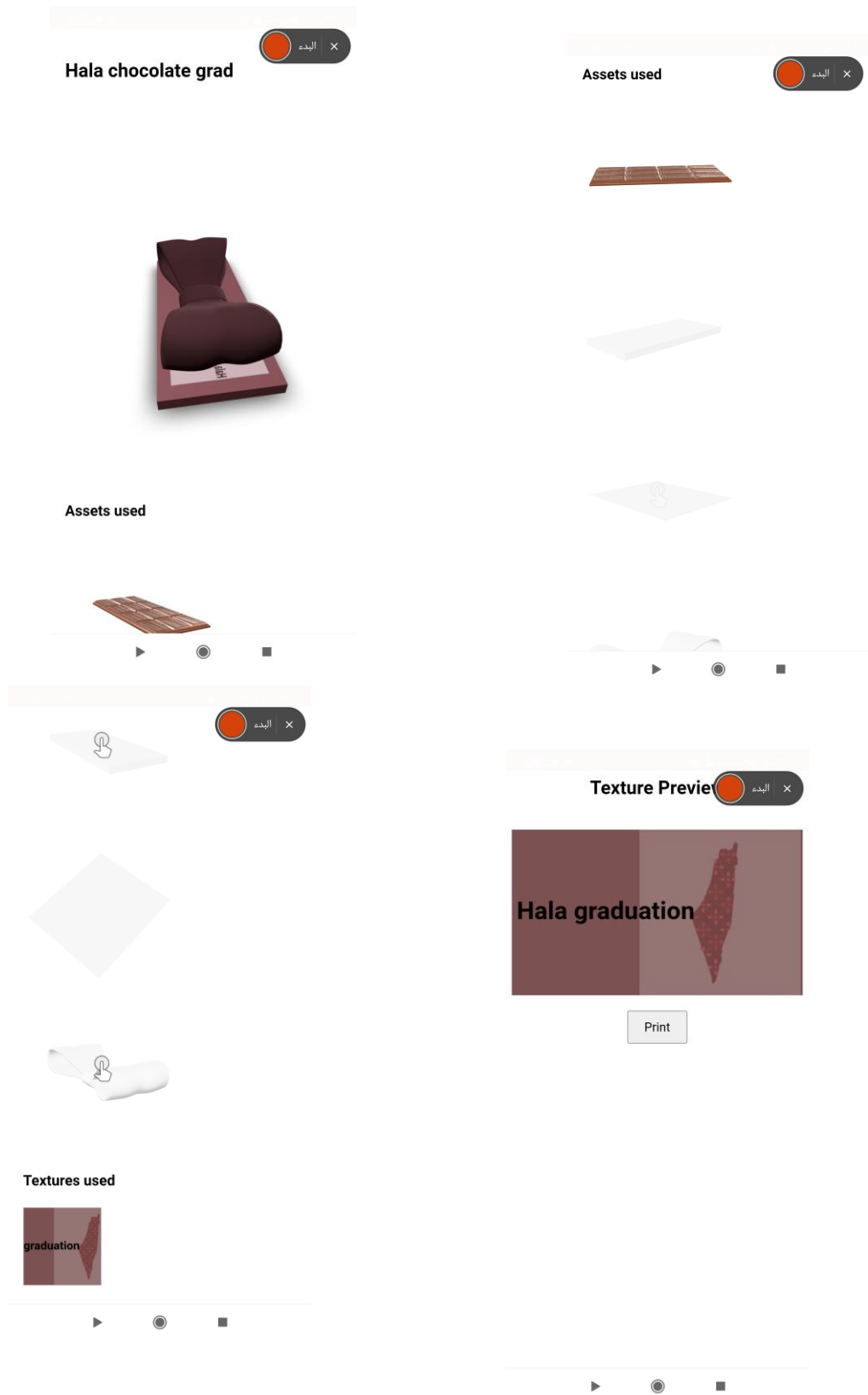


Figure 76: 3D Model and all the elements

4.5.2 Website

All features mentioned for the mobile app are also available on the website



Figure 77: welcome, sign in website pages

Admin Websites Pages

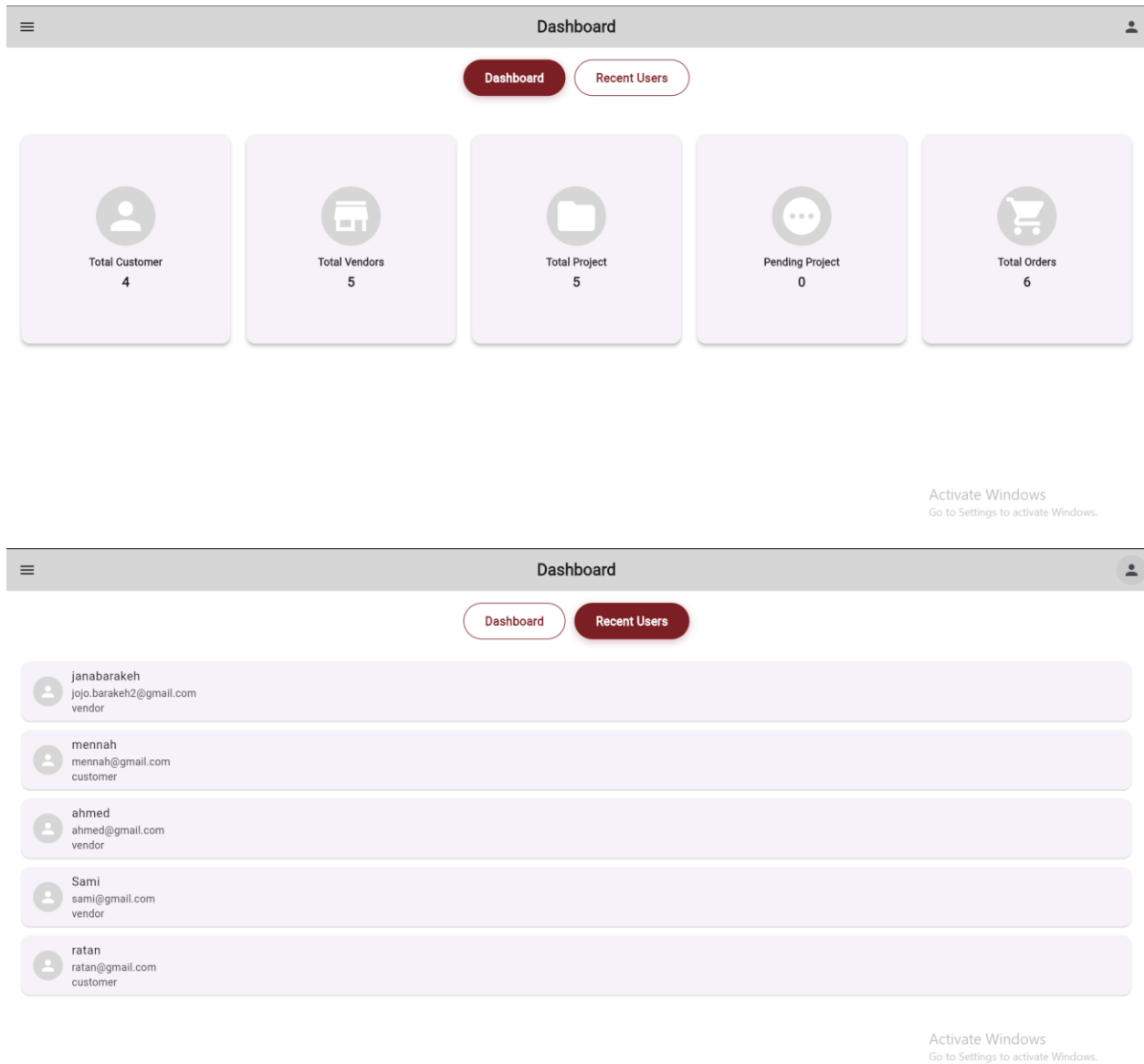


Figure 78: Admin Dashboard and Resent Users

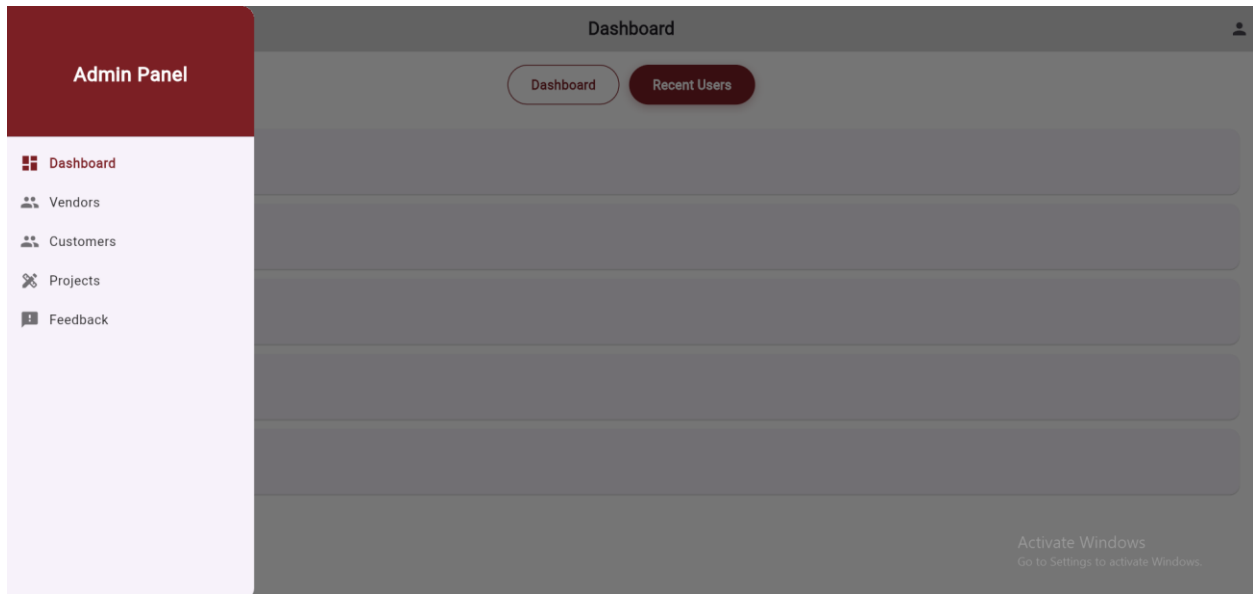


Figure 79: Admin panel



Figure 80: Vendors List

← Add Vendor

Name

Email

Phone Number

Select Vendor Image


Add

Activate Windows
Go to Settings to activate Windows.


Figure 81: Add Vendor

← Vendor Details


Vendor Info


 **Leen**
Email: leen@gmail.com
Mobile: 0599898622


Project Info

 **arte_pita**
Status: approved
Customization: Not Allowed
Description: hello from cutest project ^.^_

Products

 **shell**
Price: \$12
Status: pending
Customizable: No

 **try add**
Price: \$15
Status: pending
Customizable: No

 **last refresh**
Price: \$4

Activate Windows
Go to Settings to activate Windows.

← Vendor Details

arte_pita
 Status: approved
 Customization: Not Allowed
 Description: hello from cutest project ^-^_

Products

shell
 Price: \$12
 Status: pending
 Customizable: No

try add
 Price: \$15
 Status: pending
 Customizable: No

last refresh
 Price: \$4
 Status: pending
 Customizable: No

[Show Report](#)

[Chat with Vendor](#)

← Vendor Report

Leen
 leen@gmail.com

Statistics

1
Projects

3
Products

0
3D Designs

2
Normal Designs

0
Orders

\$0
Revenue

Feedbacks

No feedbacks available.

Activate Windows
 Go to Settings to activate Windows.

Figure 82: Vendor Details

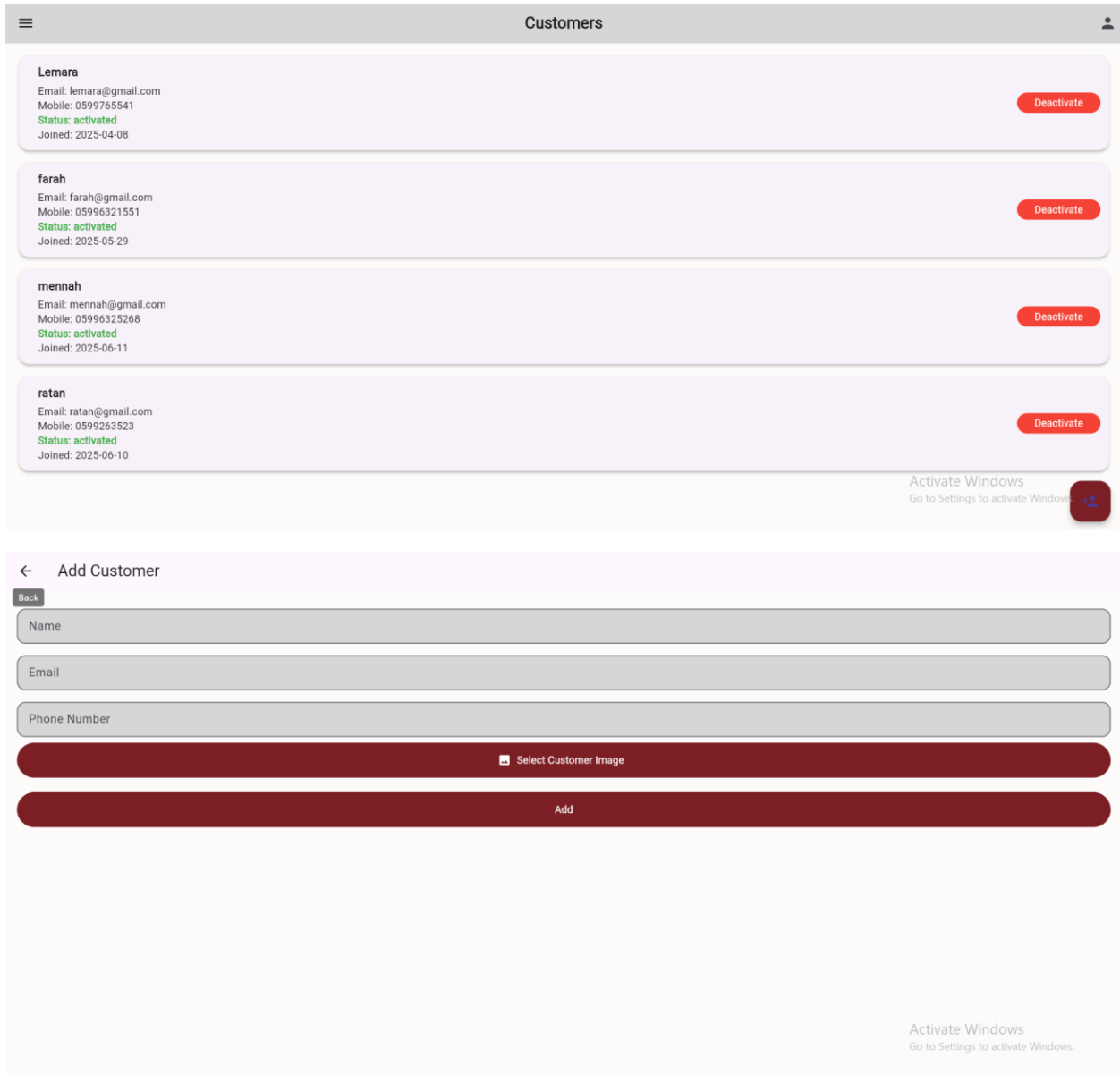






Figure 83: Customer Details and add customer

All Pending Approved Rejected

- **jana project**
Description : nice project
Vendor : janabarekeh
Email : jojo.barakeh2@gmail.com
Status : approved
- **ahmedproject**
Description : our store contains distinctive and new tawzia, you can also design your own tawzia and imagine it using 3d object
Vendor : ahmed
Email : ahmed@gmail.com
Status : approved
- **SamiTawzia**
Description : elegant, golden-touched giveaways for every occasion.
Vendor : Sami
Email : sami@gmail.com
Status : approved
- **alaa project**
Description : hello from my project
Vendor : alaa
Email : alaa@gmail.com

Activate Windows
Go to Settings to activate Windows.

All Pending Approved Rejected

No projects found.

Activate Windows
Go to Settings to activate Windows.

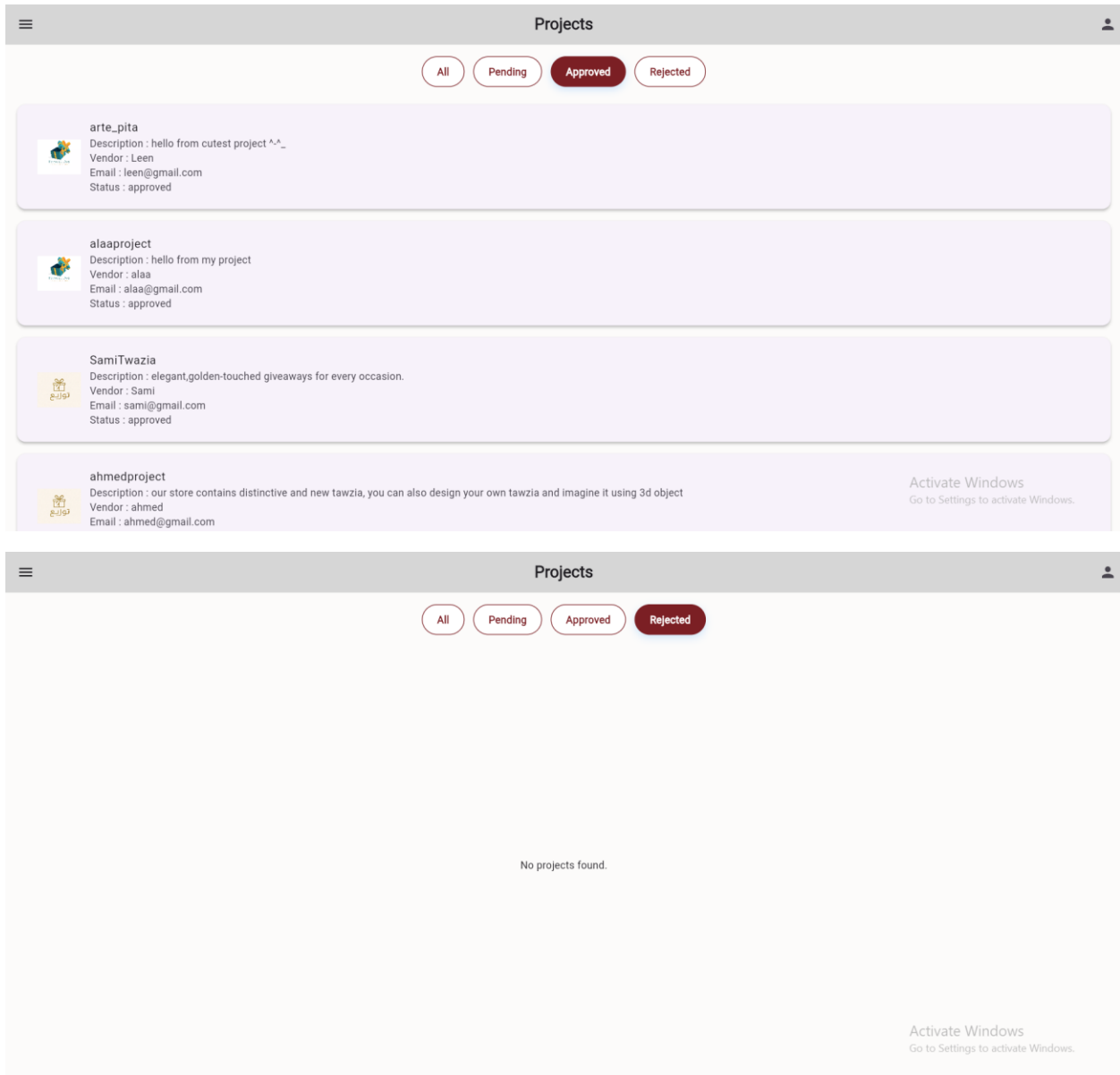


Figure 84: All Project settings

Customer Websites Pages

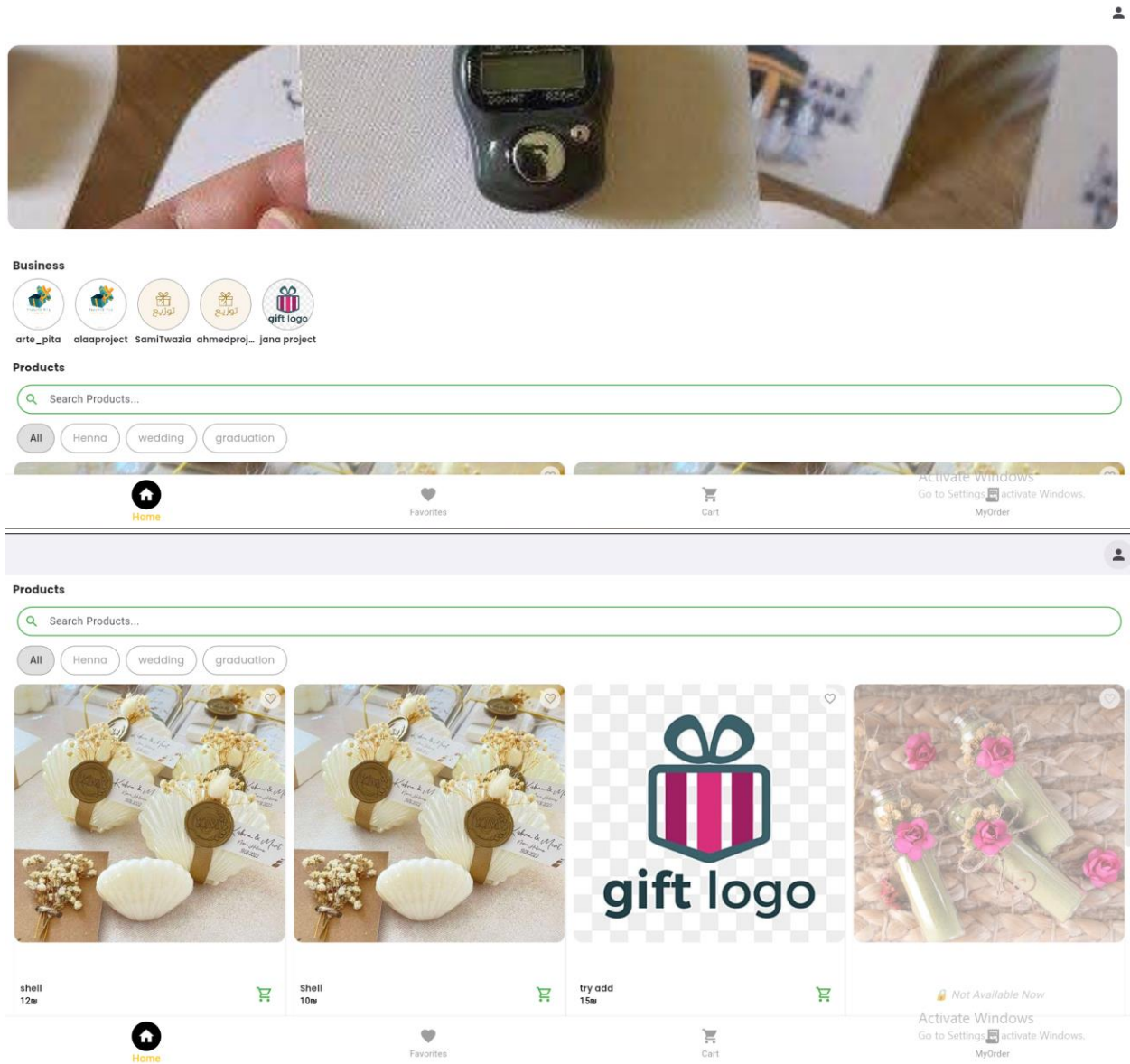


Figure 85: Customer Home Page

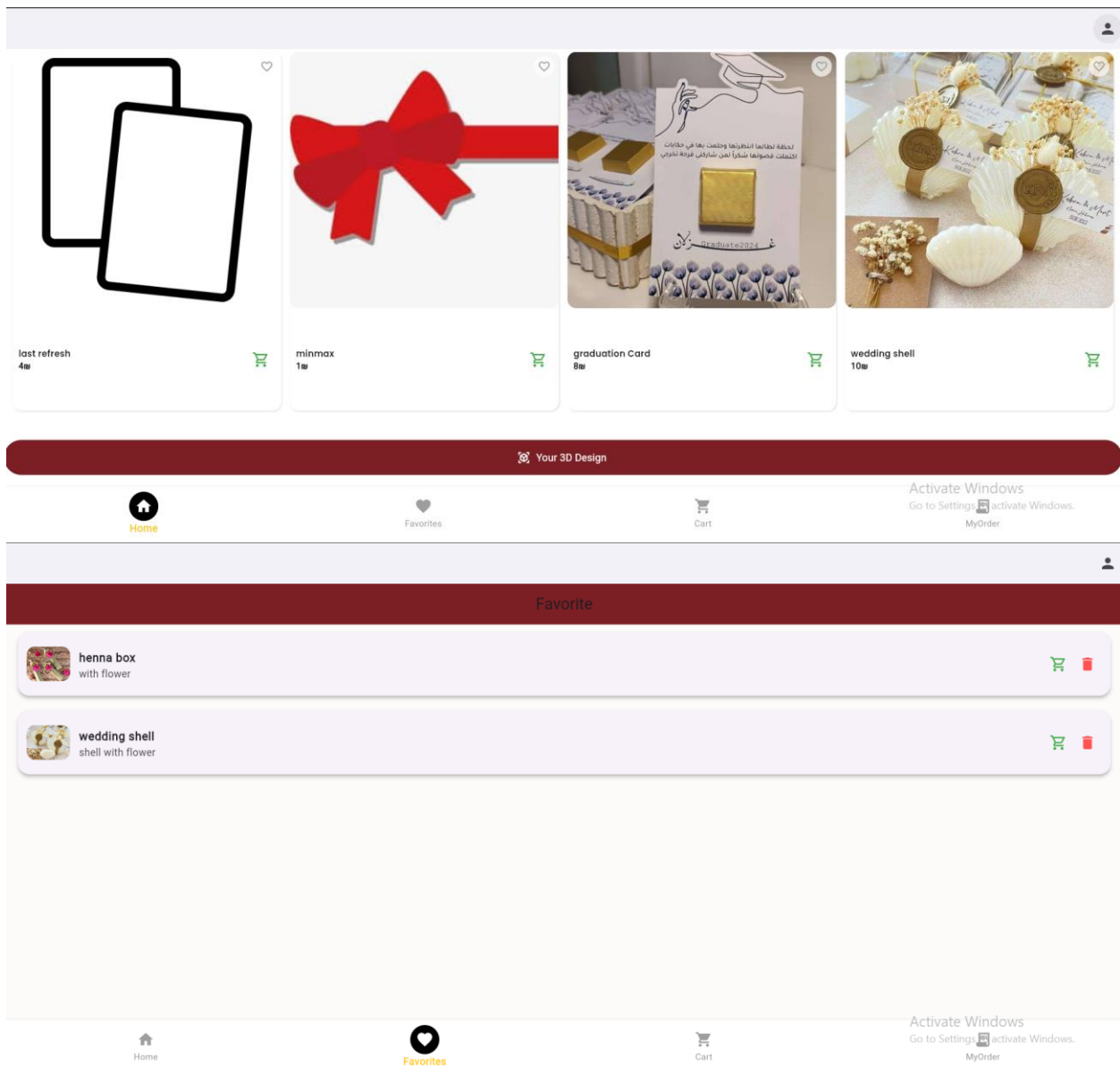


Figure 86: Customer Favorites Page

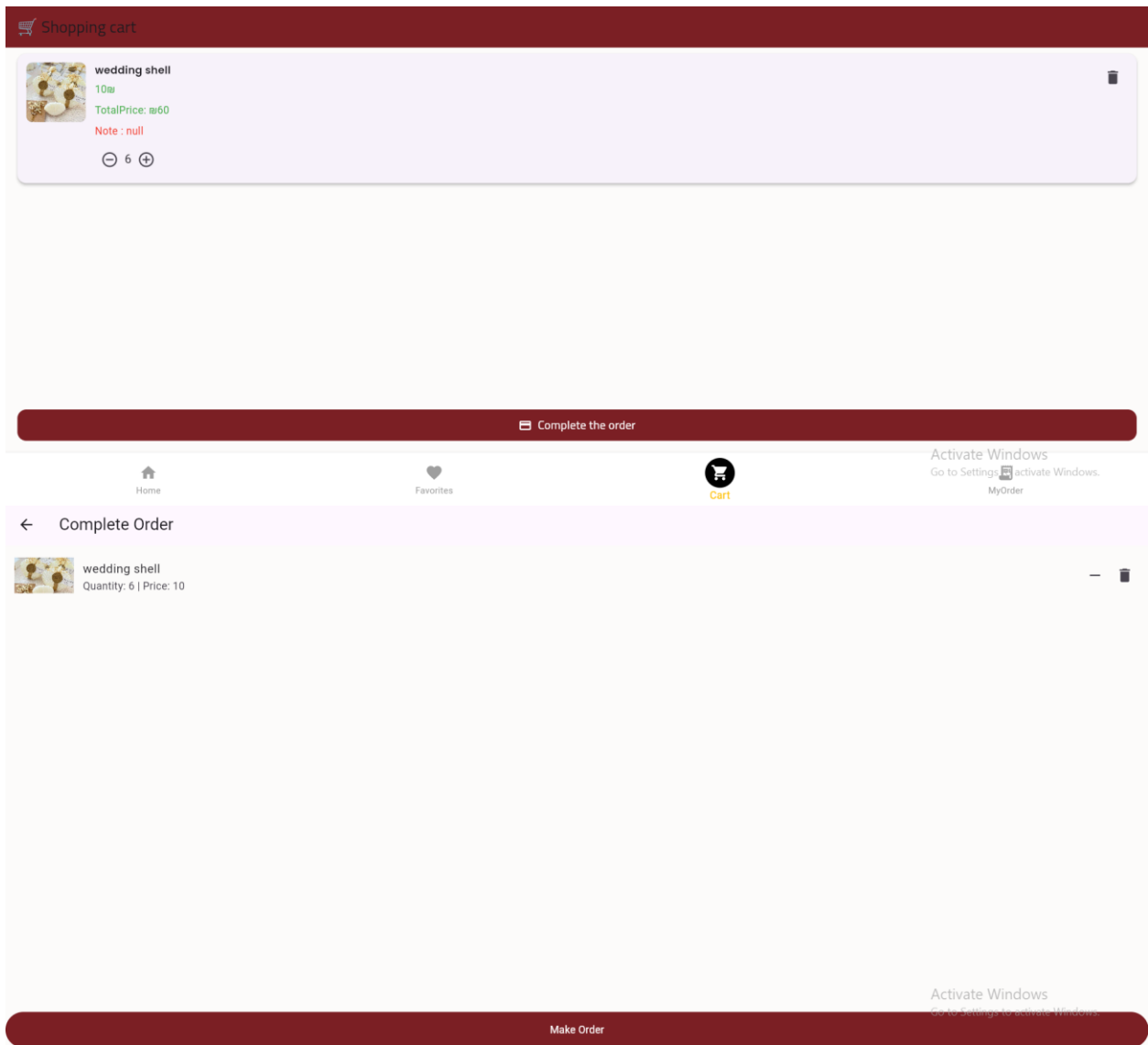


Figure 87: Customer Cart Page and Order confirmation

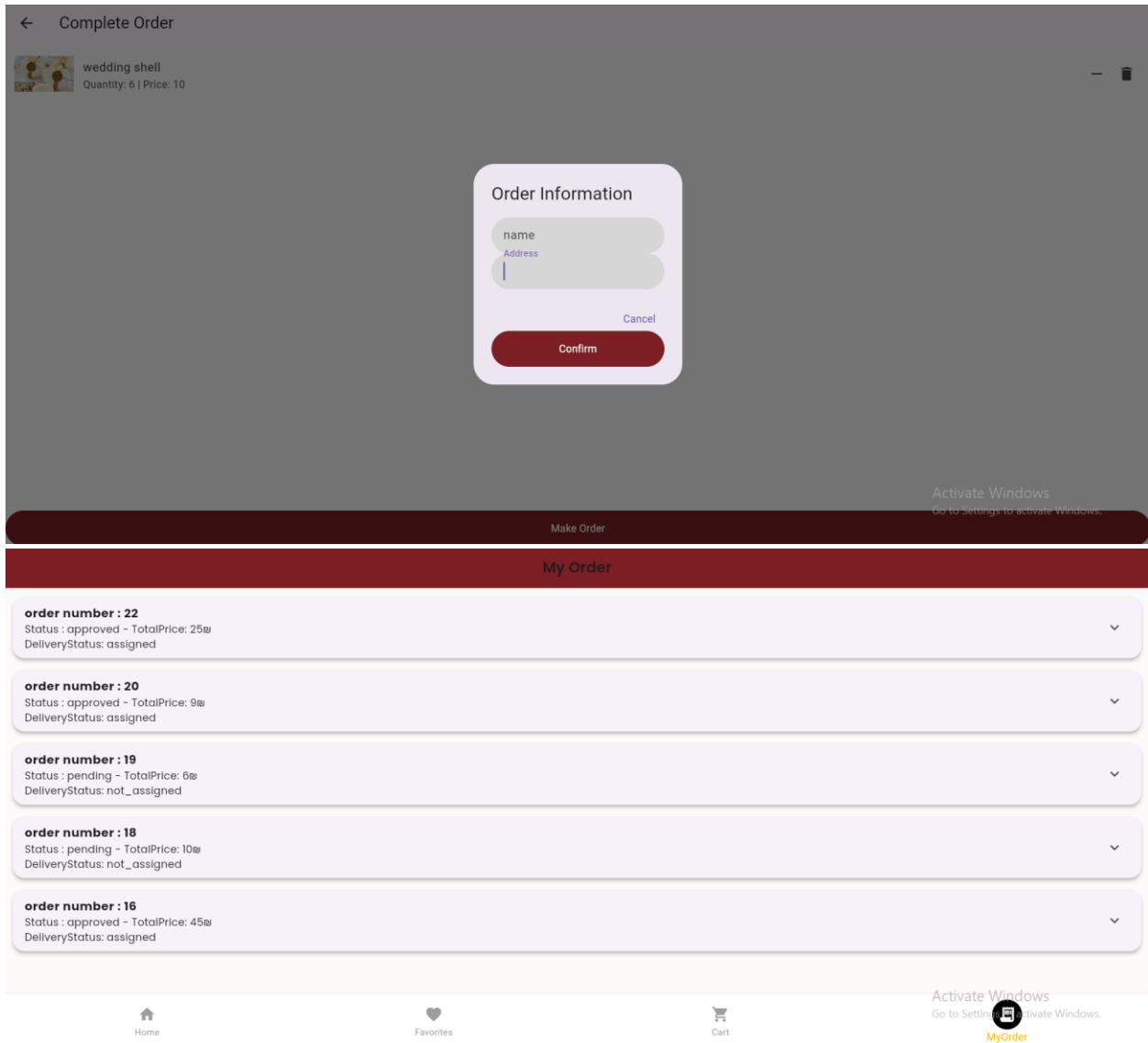


Figure 88: My Order Page

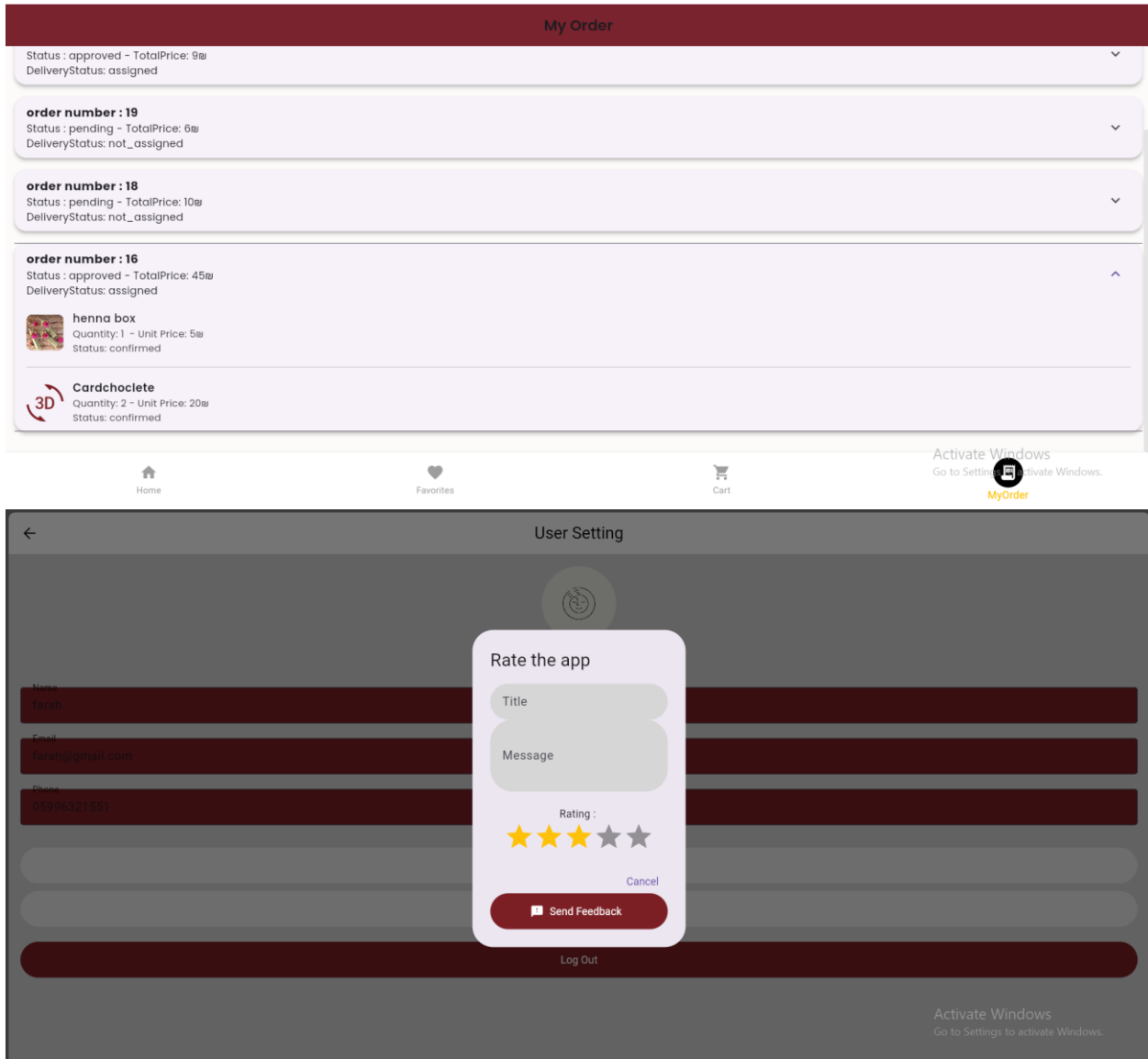


Figure 89: Rating

Vendor Websites Pages

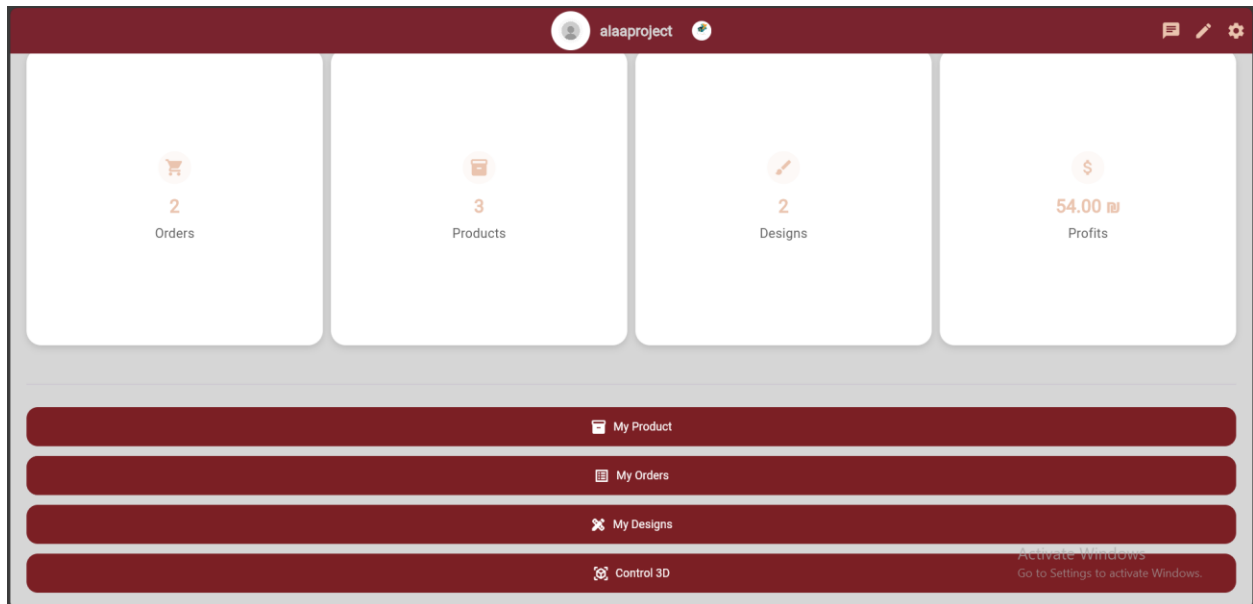
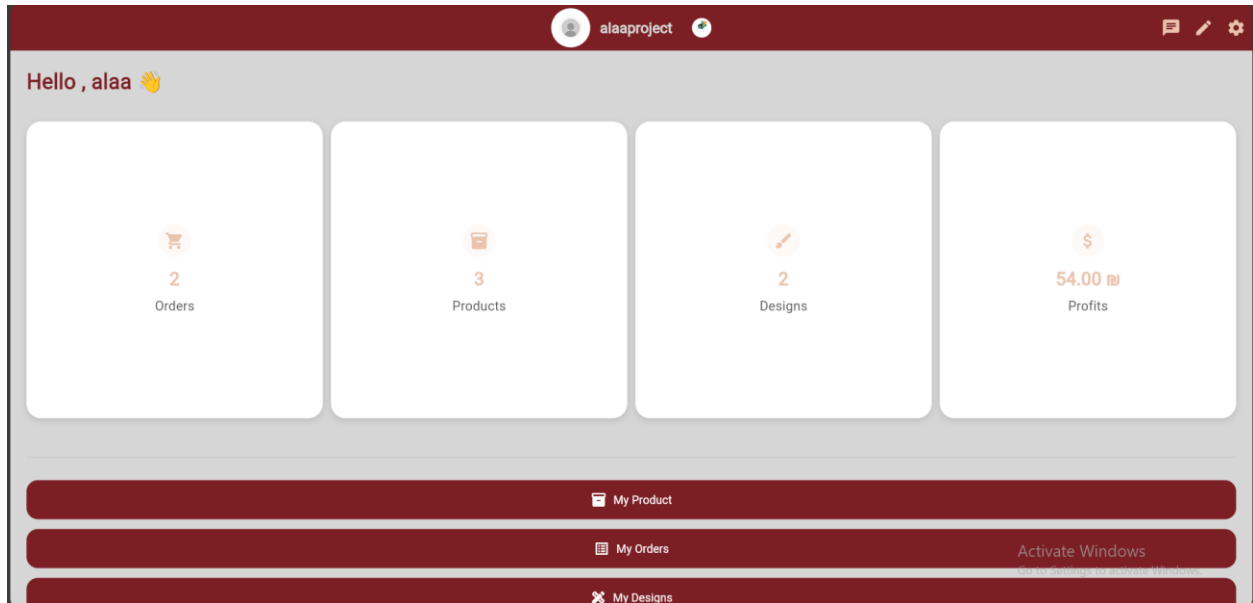


Figure 90: Vendor Home Page

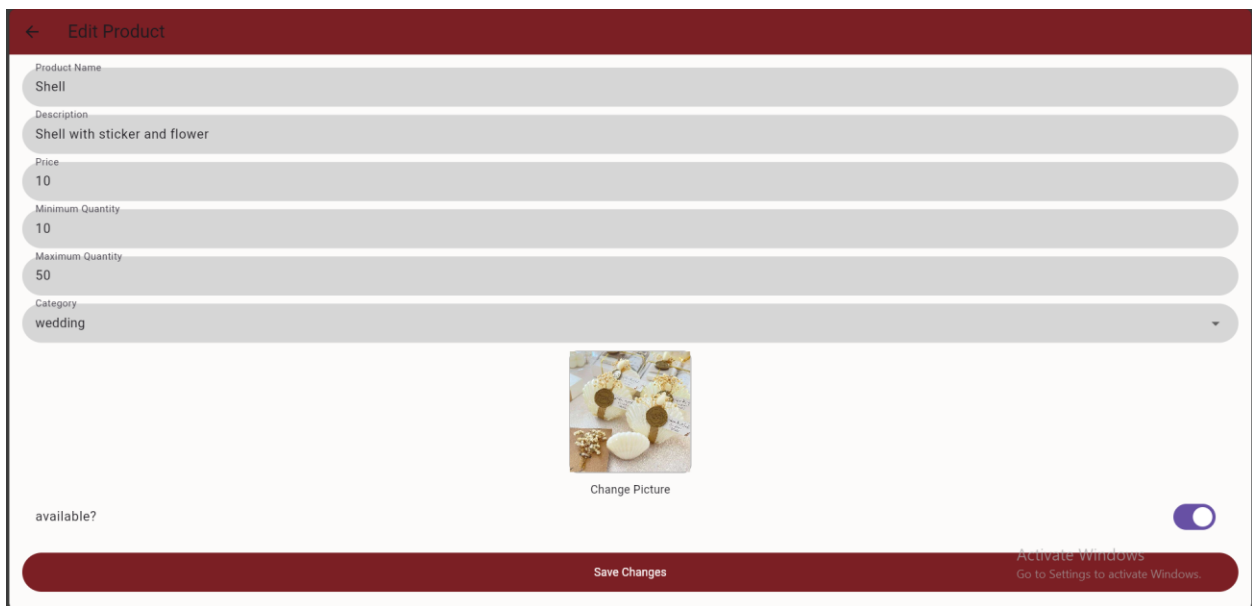
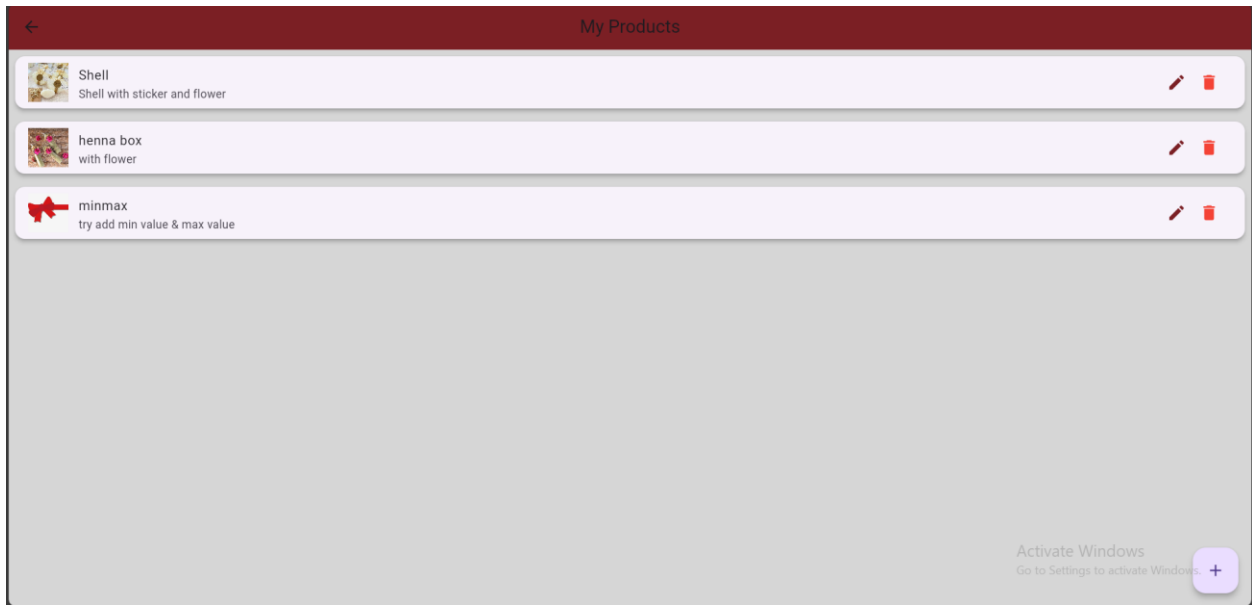


Figure 91: Vendor Product Page and Edit Product Page

Add New Product

Product Name

Description

Price

Min Value

Max Value

Product Image
No image selected

Pick Image

Category

Add New Category

Select Project

Customizable

Submit



Activate Windows
Go to Settings to activate Windows.

Figure 92: Add New product

Order #16
OrderStatus: approved
Address: Tulkarem
DeliveryStatus : assigned

Choose Delivery

Products:

 Cardchoclete Quantity: 2 unitPrice: ₪20 TotalPrice: ₪40 Status: confirmed	<input type="button" value="Confirm"/>
 henna box Quantity: 1 unitPrice: ₪5 TotalPrice: ₪5 Status: confirmed	<input type="button" value="Confirm"/>

Order #18
OrderStatus: pending
Address: candleorder
DeliveryStatus : not_assigned

Choose Delivery

Products:

Bubblecandlehenna Quantity: 2	<input type="button" value="Confirm"/>
----------------------------------	--

Activate Windows
Go to Settings to activate Windows.

Figure 93: Vendor Orders

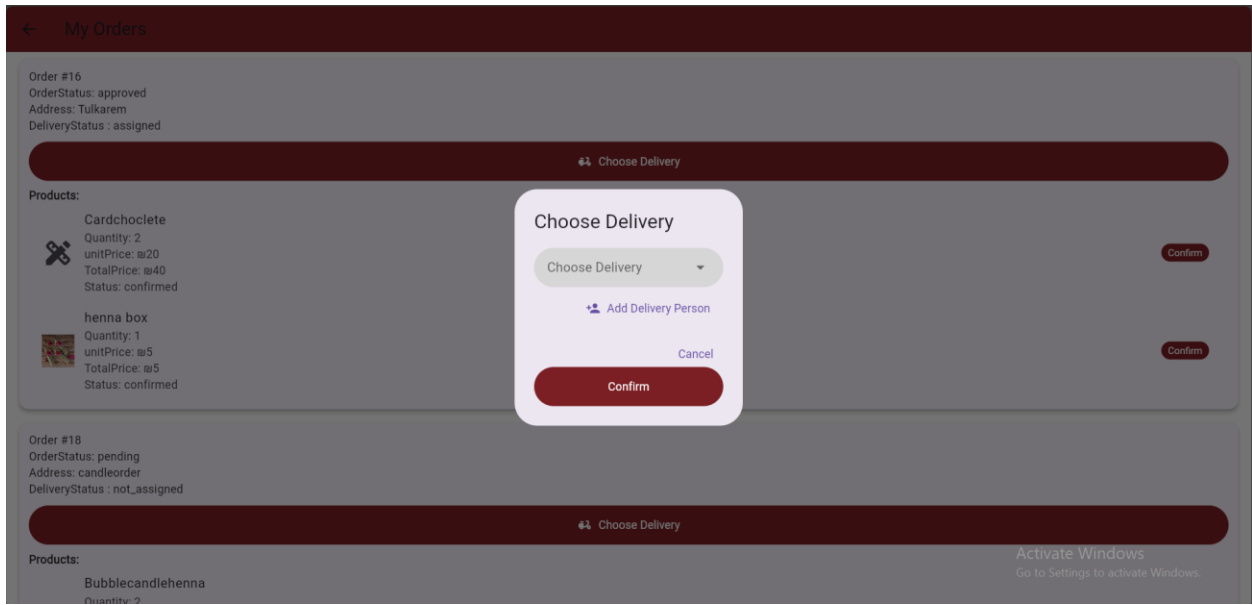


Figure 94: Vendor confirmed and finish Orders

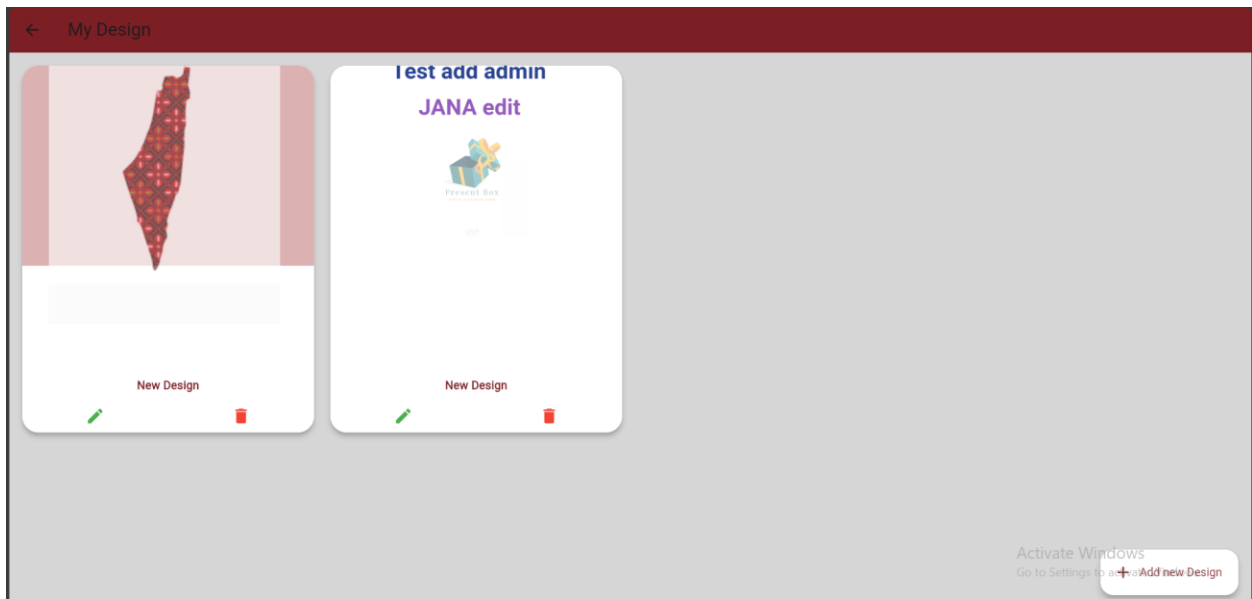


Figure 95: Vendor design Page

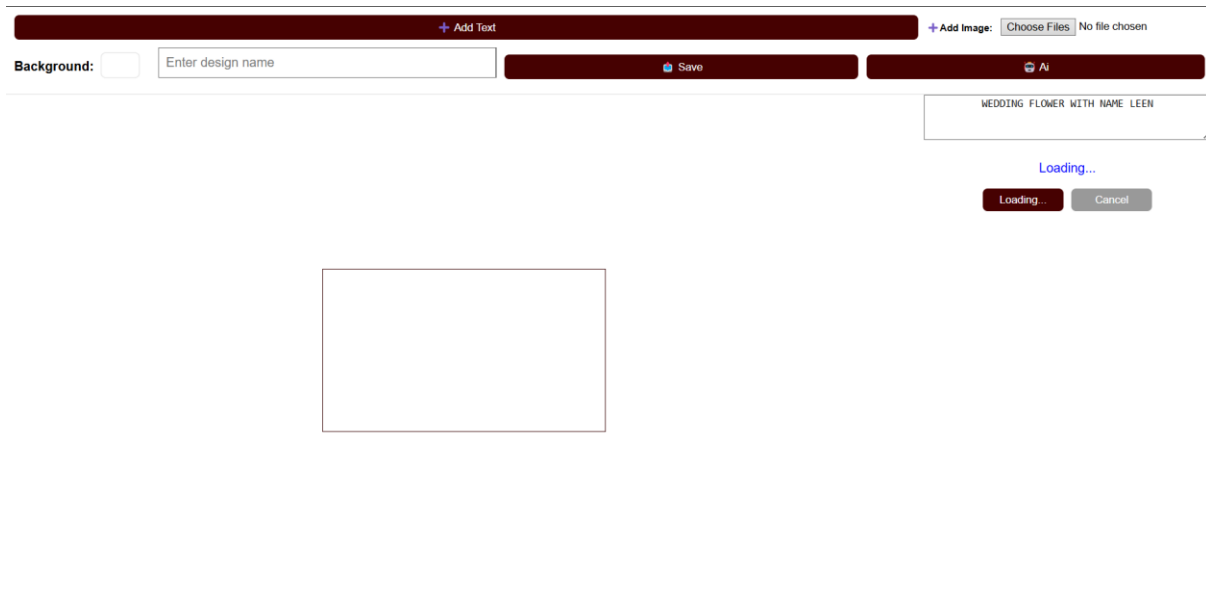


Figure 96: design Page with AI Image Generator

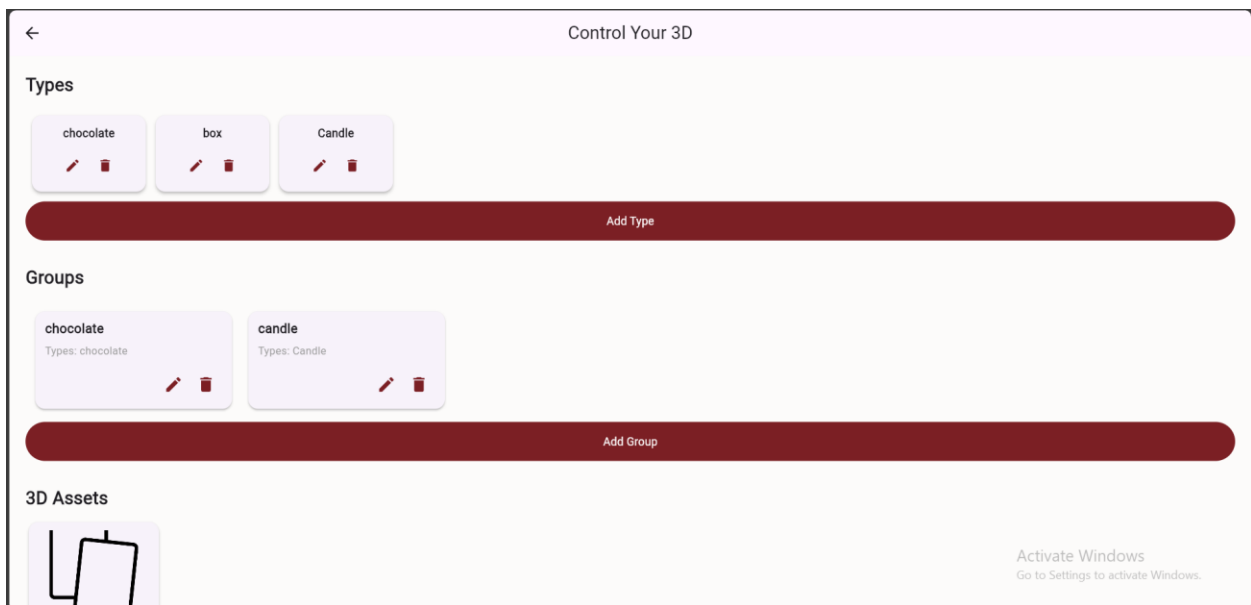
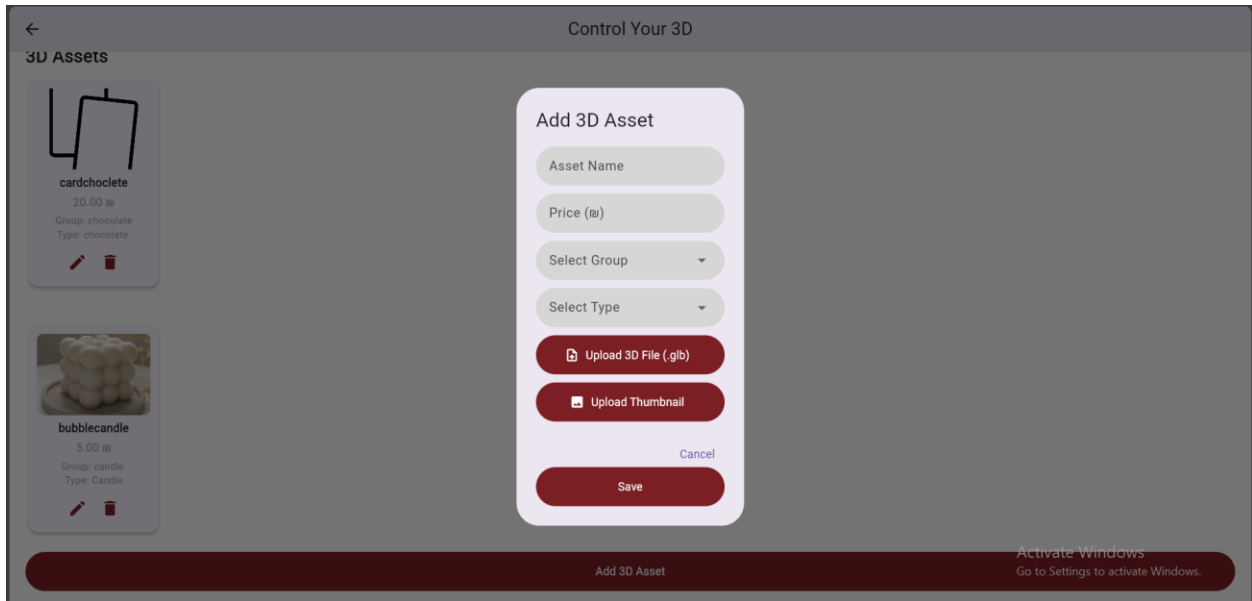
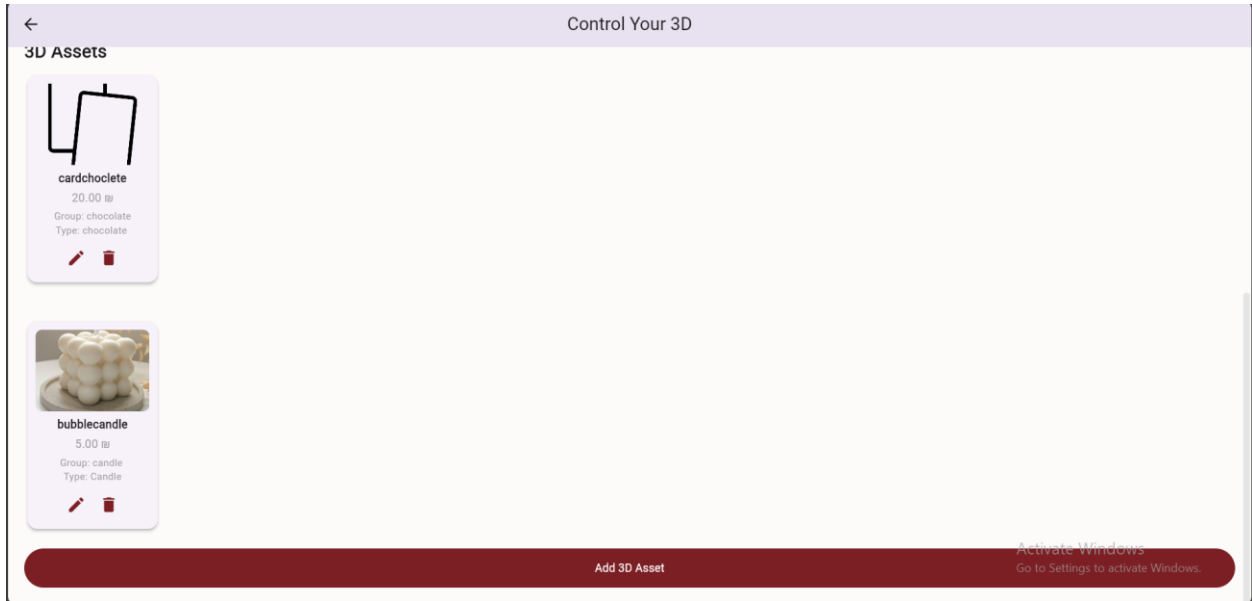
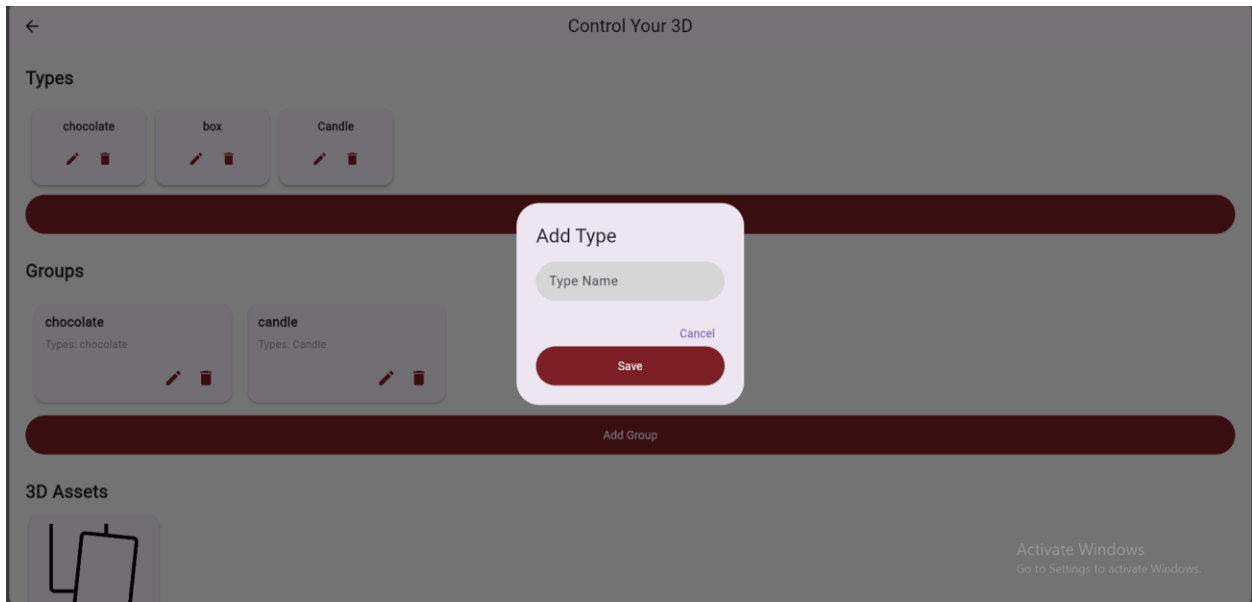
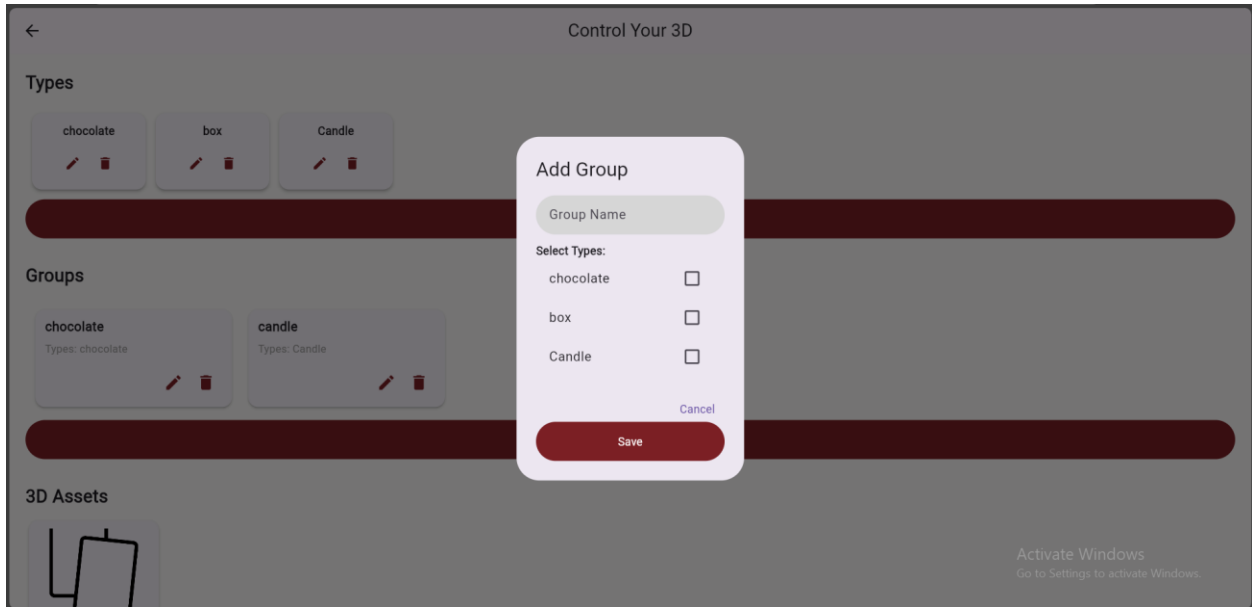


Figure 97:Control 3D





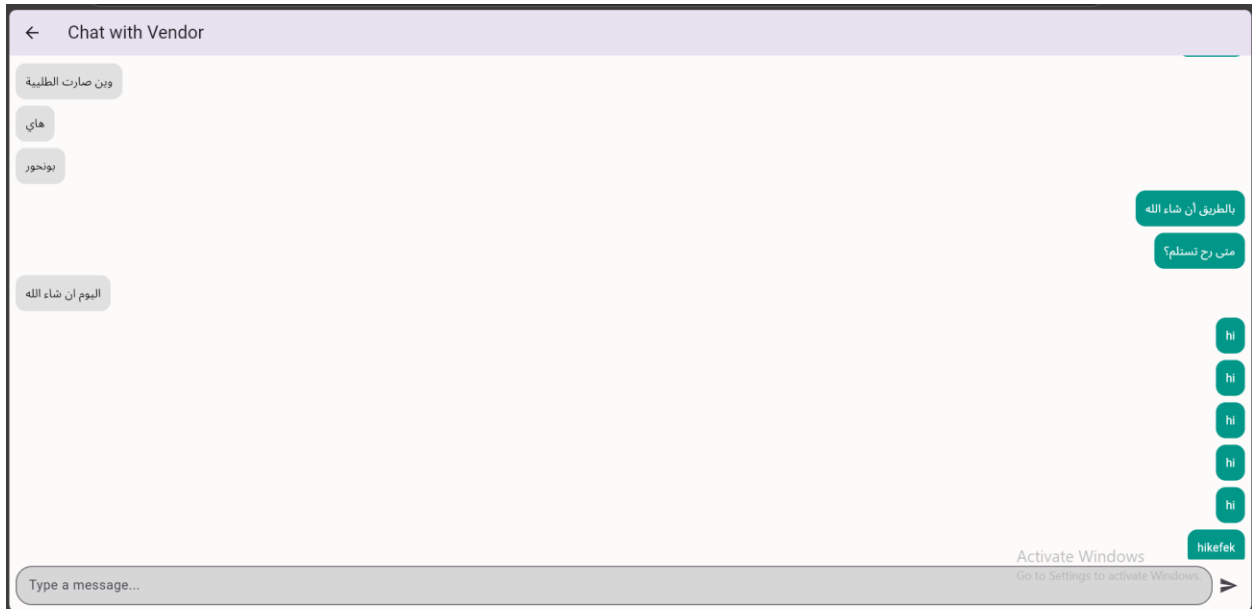


Figure 98: Chat

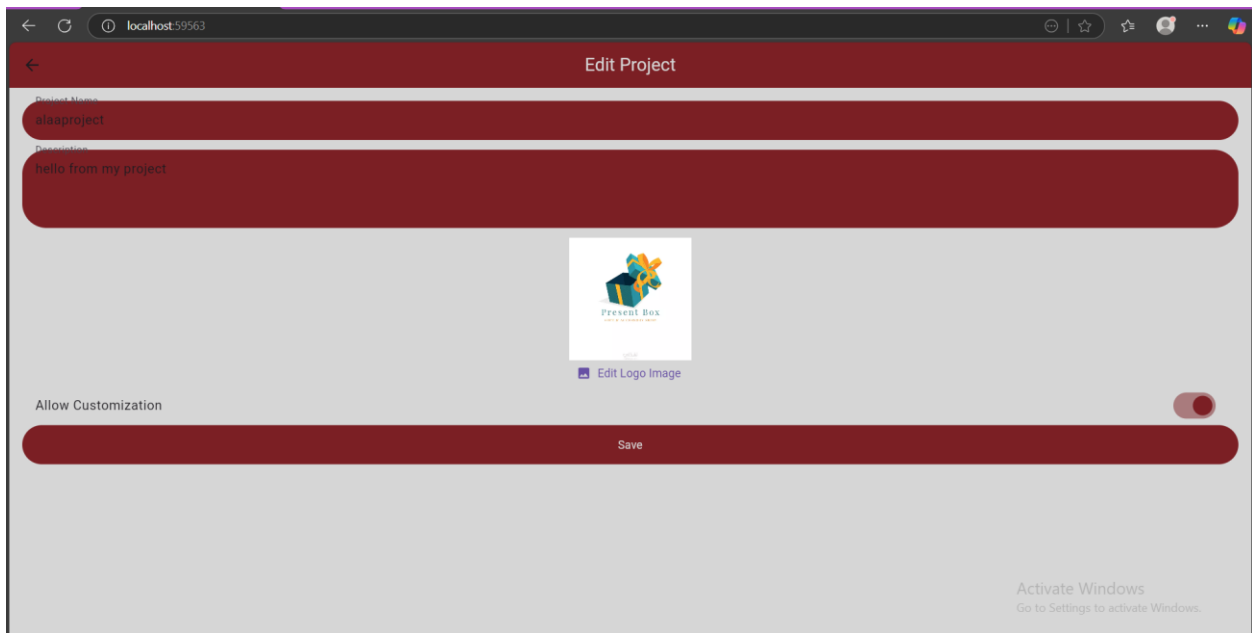


Figure 99: Edit Project Setting

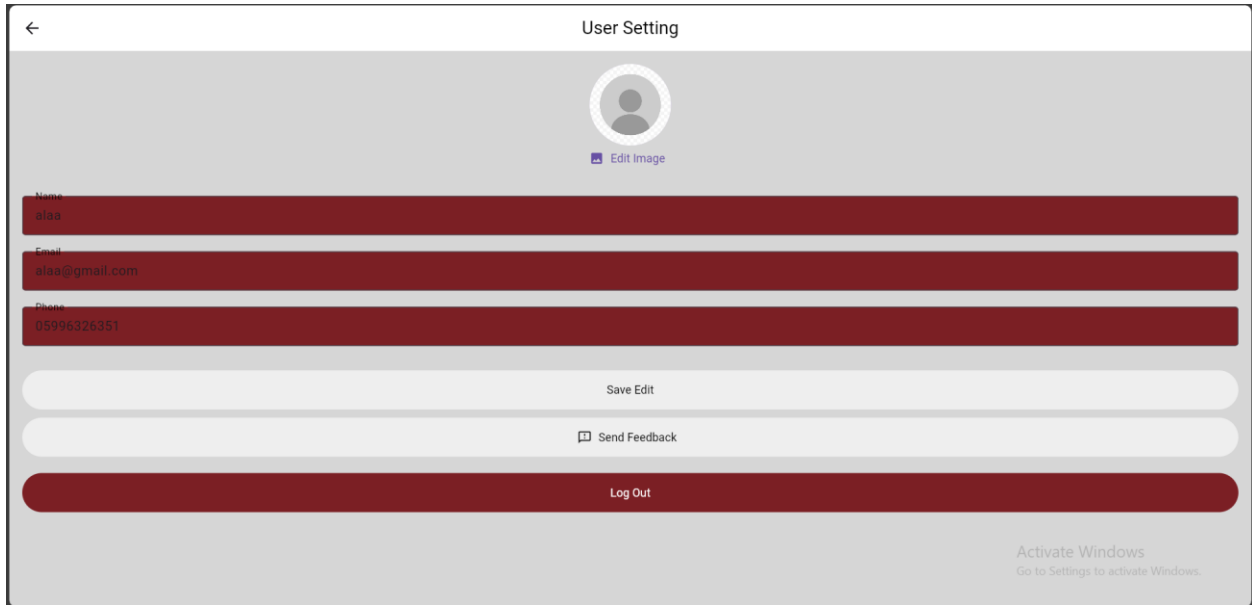


Figure 100: Edit User Setting

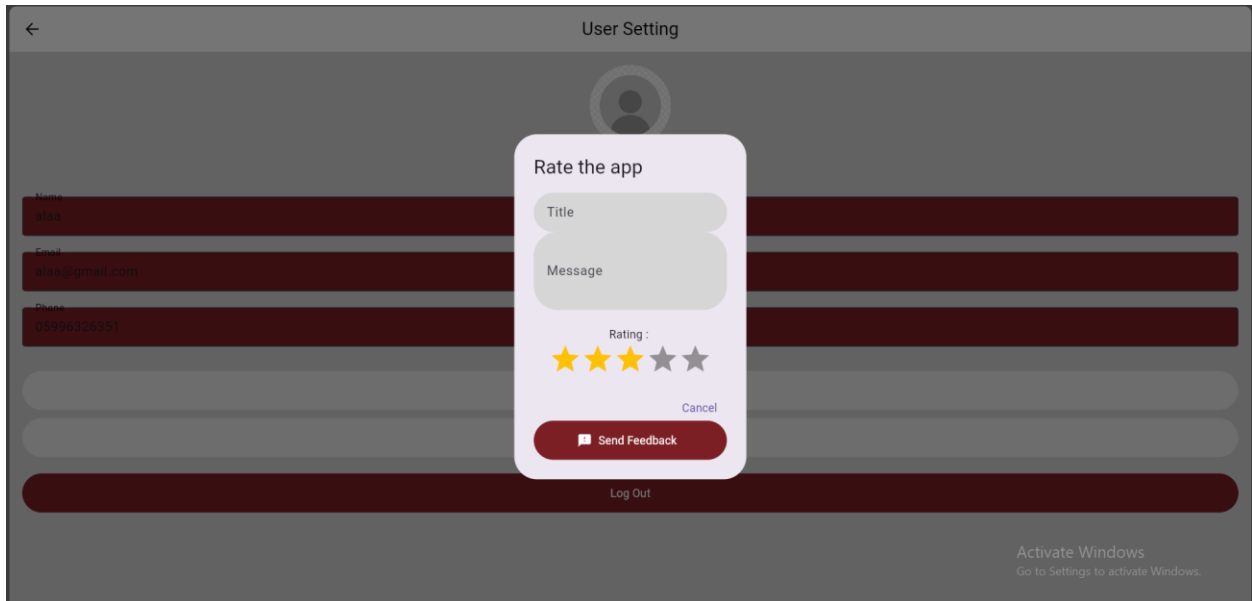


Figure 101: Rating

CHAPTER 5

RESULTS AND DISCUSSION

Our project successfully developed a mobile app and a custom web platform that enables users to design and customize their own special gifts for occasions, such as candles, greeting cards, and chocolates. Through an easy-to-use design interface, users can add text, adjust colors, upload logos or decorative images, and customize the gift design to make each product unique and perfectly suited to their occasion.

Users can also choose from pre-made gifts and make simple changes, such as the name and color, as well as specify the appropriate quantities. Some products offer discounts for larger quantities.

One of the platform's most significant achievements is its multi-layered customization system, which allows users to interact with each design element individually, such as the background, text, and images. This flexible approach has improved the customization experience, making it more precise and seamless, even for users with no prior design experience.

We also added features that enable users to save designs, add products to their shopping cart, and complete orders directly within the app. Instant communication is supported by a chat system that enables customers to connect with sellers to ask questions or place special requests.

On the seller side, the platform provides a dedicated dashboard for sellers to manage their products, add customizable products, track orders, and monitor customer interaction with designs. Sellers can upload multiple versions of a single product, define which layers a user can modify, and monitor customer interaction with designs.

A key factor contributing to the project's success was the back-end software's support using Node.js and MySQL, which provided fast and reliable performance. The server also managed the storage of design layers, instant updates, and secure user authentication.

Despite some challenges, such as handling image resolution, handling three elements, and maintaining display consistency across devices, the system proved efficient and easy to use after practical testing. Users were able to create attractive, customized designs and complete the order process with ease.

In conclusion, the project succeeded in achieving its primary goal of providing an interactive, creative, and personalized way to design and order holiday gifts. The platform enhanced user creativity, facilitated collaboration between sellers and customers, and provided a seamless and enjoyable experience for both parties. Future features, such as augmented reality preview, multilingual support, and more advanced image editing tools, are expected to further expand the platform's capabilities.

CHAPTER 6

CONCLUSIONS AND FUTURE WORK

6.1 Conclusion

The Tawzia Art app was designed to provide an interactive and user-friendly platform for users to creatively and personally design their own themed giveaways. The project began to achieve this goal through a user-driven design interface, allowing users to fully control every design element, such as text, colors, images, and backgrounds.

The system also includes a dedicated dashboard for vendors and their partners, allowing them to manage their customizable products and partnerships, as well as the ability to communicate directly with customers. Powered by Node.js and MySQL technologies, we aim for reliable and fast performance in managing back-end processes such as designs, orders, and logins.

Contributing to the project is enhancing the user experience, encouraging creativity, and facilitating collaboration between customers and vendors, providing an effective step towards digitizing the event giveaway design process.

6.2 Future work

For In the future, the system will be enhanced and developed through a number of distinct features, most notably:

- Adding an augmented reality (AR) preview feature: The employee can actually see the giveaway before ordering it.
- Multilingual support: For example, adding an Arabic interface to make the app more inclusive for users in the Arab world.
- Enables collaborative design: Making it easier for people to work on the same design at the same time, for example, for newlyweds or work teams.
- Fully integrating electronic payment gateways: Facilitating payment processes and tracking orders entirely within the app.
- Adding more innovative design tools: Such as image cropping tools, visual effects, and precise letter adjustment. This section aims to address the system's scope of use, working to create a more interactive and professional experience for users alike.