

An-Najah National University



Faculty of Engineering and Information Technology

Computer Engineering Department

Software Graduation Project

UniTrade

By

Raghad Nedal Shehadeh

Zaina Rami Zaben

Supervisor: Dr. Luai Malhis

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DISCLAIMER

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ABSTRACT

During the last decade, the trend of buying and selling items online has gained huge popularity among people, especially teenagers. This trend makes people's lives easier and saves them time and money.

It has been noticed that university students purchase many items each semester including study materials like books, slides, and different components for their projects, and even more furniture for their university dorm. In addition, they spent so much time looking for a good dorm to rent.

However, since students' needs change every semester, they find themselves with unwanted items. Therefore, they usually search for other students to take the items that they do not need anymore. Traditionally, students use platforms like Facebook to conduct these searches. However, their posts often get lost among huge other unrelated posts, making it even harder to achieve their goals.

In order to try to solve this issue, we are considering the development of a mobile application called Uni-Trade designed especially for university students. Uni-Trade would provide a platform for students to sell their unwanted items to fellow students, creating a beneficial exchange within the university community.

In Uni-Trade, users either list items they want to sell, and for each item, they are required to upload at least one photo, or they can browse the platform seeking products to buy from different sellers by initiating a chat with the product owner. Additionally, an administrator oversees all aspects of the application. They have the authority to introduce various services aimed at improving students' lives. For instance, they can collaborate with local restaurants to offer food delivery services tailored to students' GPS locations, enhancing convenience and accessibility.

To enhance reliability within the platform, every user should have a dedicated profile along with a rating system. This way, users can build trust and confidence in their interactions. Profiles provide essential information about each user, while the rating system allows others to provide feedback and assessments based on their experiences. This combination of profiles and ratings helps create a more secure community within the Uni-Trade application.

After conducting research, it has been found that similar platforms exist and have been implemented, allowing anyone to exchange items. However, our primary aim is to create a platform exclusively designed for University students. This approach aims to enhance communication among university students making their lives easier and more connected within their specific community.

1. INTRODUCTION

1.1. PROBLEM

In today's university environment, students face a number of challenges, which range from academic pursuits to everyday living responsibilities. One recurring challenge revolves around the efficient exchange of goods and services within the university community. Traditional online platforms lack the specificity required for the unique needs of students, leading to a cluttered and inefficient marketplace. Recognizing this gap, this project introduces "Uni-Trade," a mobile application designed to streamline and enhance the exchange experience within university ecosystems.

1.2. OBJECTIVES

- **Efficient Goods Exchange:** The primary objective of Uni-Trade is to facilitate a seamless and efficient exchange of goods among university students. By providing a dedicated platform, we aim to simplify the process of buying and selling items relevant to academic and daily living needs.
- **Innovative Services:** Uni-Trade introduces an administrative layer that allows the implementation of innovative services. In addition, the collaborations with local businesses, such as local restaurants and homemade cooking enhance the overall student experience.
- **Time Saving:** With UniTrade, the students can buy or sell in one click, saving both time and effort.
- **Money Saving:** Many students cannot all of the time see the sales offers of restaurants or homemade cooking on social media, but on UniTrade the students are able to see these offers. UniTrade also has cheaper prices on electronics that students use in their graduation projects, furniture, and electronics for their university dormitories.
- **Security:** The student can not upload more than 3 items in a day but if he wants to upload more than 3 items he needs to upgrade his account by paying money, in addition, if the student forgets his password he can reset it by "forget password" page. In database, we use an algorithm to hash the password in order to increase the security in the application.

1.3. SCOPE OF THE WORK

- Create accounts: UniTrade's users can make their own accounts and fill up their personal information.
- Categories: Furniture, Electronics, Electrical devices, Books(softcopy and hardcopy), Food(restaurant and homemade cooking), podcasts, offers.
- Profile Feature: In the student's profile the other students can see the student's information, can review him (can be done by only the users that buy from him), and can see items offered for sale by the student.
- Chat Feature: The student can talk to the other students who are owners of the items to ask them about item details, also students can talk to the admin.
- Notification Feature: The student will be notified if a student requests to purchase one of the items he has for sale also if the owner of the item approves to sell him.
- Search Feature: The students can search for different items.
- Chatbot Feature: The students can ask AI Chatbot about anything in UniTrade.
- Payment Feature: The students can pay by PayPal, Google Wallet, credit card/debit card, or cash on delivery.
- Favorite Feature: The student can find his favorite items in the favorite section.
- Dark-Mode Feature: Students can choose dark or light mode, its relates to what they prefer.
- Change Language Feature: The Students can choose Arabic or English language.
- Rating Feature: The Students can rate UniTrade.
- Review Feature: The Students can review students who have purchased from them based on their real-life experience by rating them and putting their comments.
- Location Feature: The student can open the map and make sure of the location.
- Admin:
 - Dashboard: Contains UniTrad rating, Statistics on the number of things, and the percentage of each in UniTrade.
 - Students: The Admin can see all the users in the system and their information, add new students, edit student information, delete specific students, and sort student table by ID or by first name.
 - search: search for users, items, offers, meals, and Podcasts.
 - Categories: The admin can see different items in each category, edit, add, and delete items.
 - Rating: The admin can see UniTrade users' ratings.
 - Location: When the admin wants to add a market in the system he should add its location which will be done by the map.

- Feedback: The admin can see if one of the students reports another, and details of the report and item that has been reported, and the owner of the item.

1.4. IMPORTANCE

Uni-Trade's significance lies in its ability to address specific challenges faced by university students comprehensively. By offering a dual-platform solution. UniTrade Simplify the process of buying and selling academic materials, furniture, and other items among students through both the mobile application and website, cultivates a sense of community and collaboration, enhances the overall university experience through accessible platforms, Introduces innovative services that cater to the evolving needs of students in the digital age, seamlessly accessible on both the mobile application and website save students time, effort, and money in addition to marketing to restaurant owners and homemade cooking who contract with UniTrade

1.5. REPORT AND ORGANIZATION

This report highlights the process of the research and the practical side of creating “UniTrade”. Therefore, the report will consist of the following parts, which are:

- **Chapter 1:** is the introduction chapter It states the importance of the project, the objectives, the Scope of the project, and its importance.
- **Chapter 2:** is The literature review, projects, and articles from around the world will be further investigated to learn more about how this project was implemented what was their recommendations, and what enhancement features can be added.
- **Chapter 3:** is the methodology chapter, which outlines what was followed to create the system, and it discuss the constraints and limitation faced by the project.
- **Chapter 4:** is the result and discussion, it investigates the final result of the project and what was the outcome.
- **Chapter 5:** is the conclusion and recommendation, it highlight the conclusion of the project and suggest recommendation for any further research and projects.

2. LITERATURE REVIEW

Similar applications around the world have been studied and analyzed; this chapter investigates various literature reviews to study what mythology was followed, what was the result, and what are the recommendations.

2.1. EXPLORING CONSUMER RESALE BEHAVIOR IN C2C ONLINE AUCTIONS: TAXONOMY AND INFLUENCES ON CONSUMER DECISIONS [1]

The article outlines the phenomenon of consumer-to-consumer (C2C) e-commerce, primarily focusing on online transactions, as exemplified by platforms such as eBay. It has a large user base and transaction volumes that the importance of C2C-e-commerce has led to a dramatic change in the resale of the market, sales. Surpassing traditional channels such as garage sales in volume. The advent of the electronic revolution changed the scale and efficiency of used goods sales, IT facilitated seamless communication, and narrowed the search for buyers and sellers to the house. Overall, it highlights the importance of understanding consumer behavior in the evolving online retail and C2C e-commerce environment.

2.2. MINING CHINESE CONSUMER MINDS: MOTIVATIONS FOR SELLING UNWANTED FASHION ITEMS IN ONLINE RESALE MARKETPLACES [2]

The article explores the motivations of Chinese consumers to participate in the fashion resale market, focusing on their intention to sell unwanted fashion items. It highlights the rise of sustainable consumption in China and the increasing popularity of circular consumption. The study aims to understand the profitability of Chinese consumers as sellers in the resale market and identifies key characteristics that affect their participation. Using consumer value theory, the study analyzes 1217 retailer resale reviews from social media platforms using LDA text mining, text view extraction, and co-occurrence plotting; nine potential themes have been identified, with lifestyle change being the main reason with most buyers participating in resale. The article emphasizes the importance of understanding consumer motivations in the fashion resale market both theoretically and practically, and emphasizes the importance of studying buyers and sellers in order to access resources emphasizing sustainable example.

2.3. EBAY AND THE MANAGEMENT OF POSSESSIONS AS STOCK [3]

The paper examines the practices of previously acquired and sold goods on eBay, focusing on how economic norms are reworked and facilitated through the platform. Phenomenological interviews with heavy users of eBay in the south of England suggest that

eBay acts as a catalyst to transform previously acquired goods into stock of value. This transformation affects medical practice as it puts used goods back into the retail space, accelerating their life stories as they transform from owner to lost customer behavior.

3. METHODOLOGY

3.1. TOOLS, TECHNOLOGIES, AND PROGRAMMING LANGUAGE

3.1.1. TOOLS

In order to develop of this project, a suite of sophisticated tools was employed to ensure efficiency and effectiveness in various aspects of the project.

- **Visual Studio Code:** it was used as primary Integrated Development Environment (IDE), for coding, editing, and debugging purposes. [4]
- **Android Studio:** it was utilized as an emulator to simulate and test the mobile application across a range of virtual environments. [5]
- **GitHub:** a Collaboration and version control were facilitated through GitHub, which allowed work organization with my partner and efficient tracking of code modifications. [6]
- **Firebase:** for features like real-time chatting and notifications, Firebase's 'NoSQL' real-time database was chosen for its robustness and scalability. In addition, to the validation mechanisms, the platform utilizes Firebase storage to securely store images in the cloud. This ensures efficient management and accessibility of image data across the platform.
- **Postman:** it was used for testing different APIs, to ensure the reliability of our application, and make different HTTP request and response. [7]
- **Nodemon:** it significantly enhanced the development process by automatically restarting the application upon any file modification in the directory. [8]
- **Kommunicate:** is an AI-powered chatbot platform, it was integrated to automate conversations, thereby enhancing customer experience and contributing to business growth.
- **PayPal Developer:** it was used for secure and efficient payment transactions. This platform offered a comprehensive suite of development tools, including APIs, SDKs, and Sandbox testing environments, which were instrumental in integrating reliable payment solutions into the application.

3.1.2. PROGRAMMING LANGAUGE

In the implementation of both the mobile application and the website for this project, Flutter was employed as the frontend framework. Flutter is a cross-platform designed for creating high-performance mobile applications, and it does not rely on web view or device OEM widgets but uses its own rendering engine to render view components. In addition, Dart is the programming language used in flutter, which is developed by Google and is known for its capacity to develop large web applications. Widgets play a pivotal role in flutter, which is categorized into two main types stateless widgets and stateful widgets, each serving distinct purposes. [9]

For the backend development, Node.js was used, which offers performance benefits, with a faster interpreter compared to languages like PHP. It keeps server side applications permanently active, reducing the steps involved in initializing applications each time. This approach contributes to faster response times and improved experience. [10]

In addition, Express.js was used as a third party in Node.js. Express.js is a wide web framework built on the core of Node.js http module and connect components known as middlewares, which enable high flexibility. It also simplifies parsing HTTP request bodies, managing sessions, and organizing routes, preventing the need for repetitive code. [11]

For the database management MySQL workbench were used, since it offers a structured query language interface that provides a standardized method for managing relational database. SQL provides powerful querying capabilities, allowing for complex data retrieval, manipulation, and analysis, also it ensure data integrity and reliability. Structured data was effectively managed and manipulated through the leveraging of SQL Workbench, with data integrity and scalability being ensured for the project. [12]

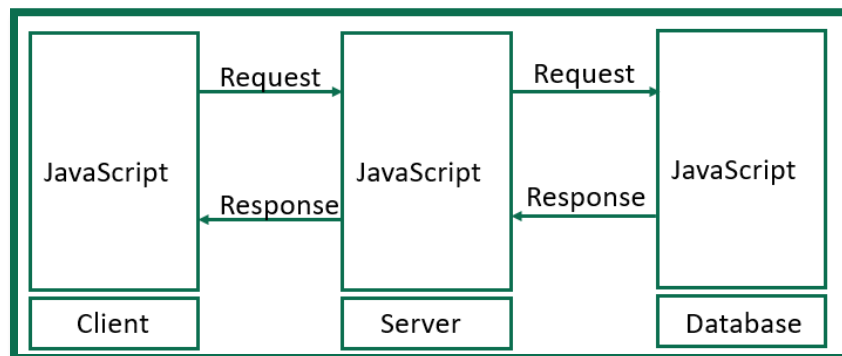


Figure 3:1 JavaScript end-end

3.2. DATABASE IMPLEMENTAION

3.2.1. ENTITY RELATIONSHIP (ER) DIAGRAM

The ER diagram is a visual representation of the database schema, which illustrate the relationships and constraints between different tables. So a reverse engineering in MYSQL workbench was done to implement ER diagram as shown in Figure 3:2 below, it accurately shows the underlying data model, including tables, columns, data types, and the interconnections between them.

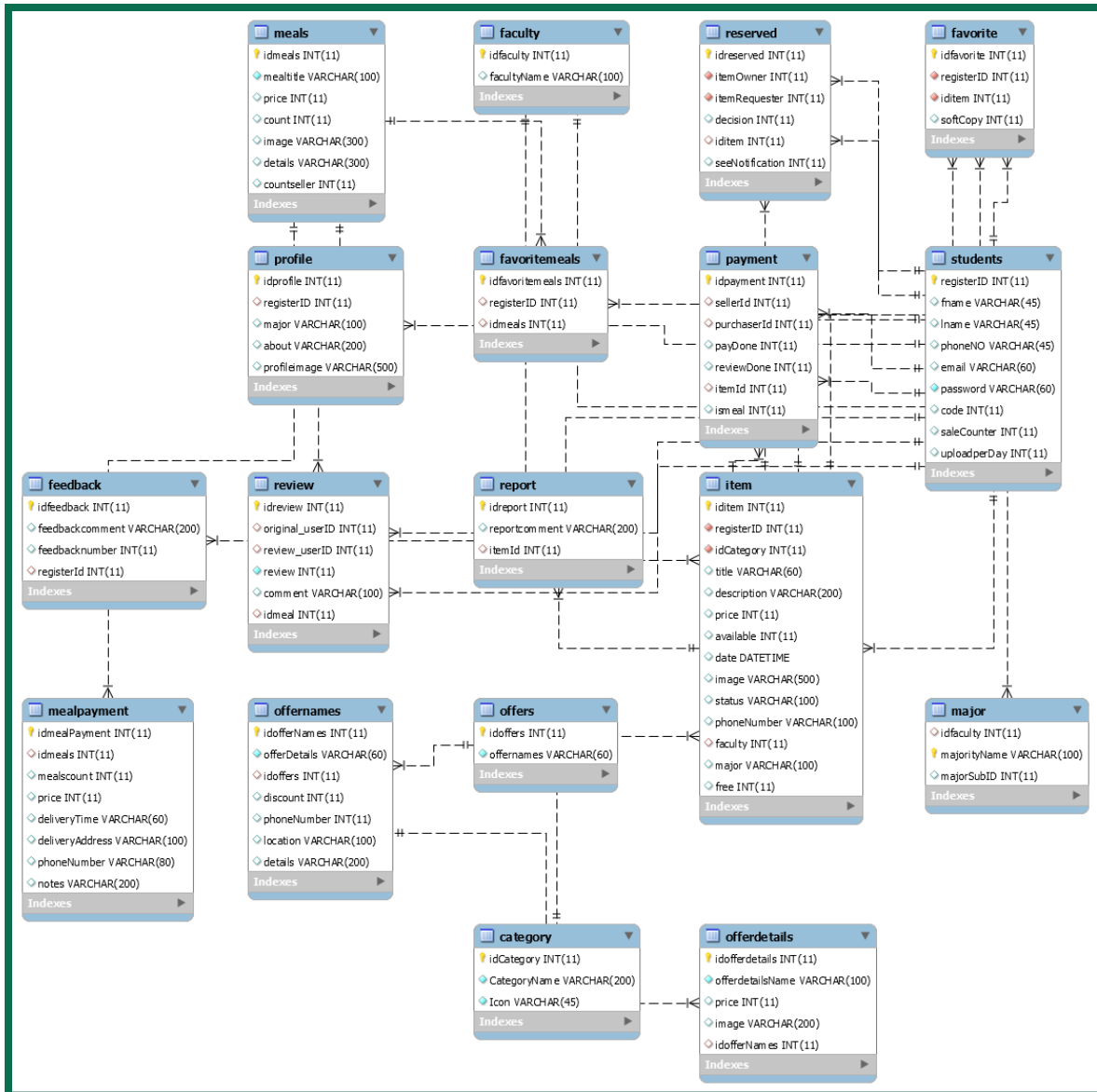


Figure 3:2 ER Diagram

3.3. FEATURES IMPLEMENTATION

3.3.1. MOBILE APPLICATION

The mobile application was developed to facilitate communication among students for the purpose of buying and selling items, as well as enabling seamless chatting between users. Additionally, the application includes administrative functionalities to allow monitor and control various action within the platform. In order to illustrate application features and simplify them a user stories will be mentioned.

- **FIRST USER STORY: UPLOADING AN ITEM FOR SALE**

Title: selling an Item on the UniTrade App.

As a new user of the UniTrade App,

- I want to create an account, because I currently do not have one. This involves providing necessary personal information and setting up my login credentials.

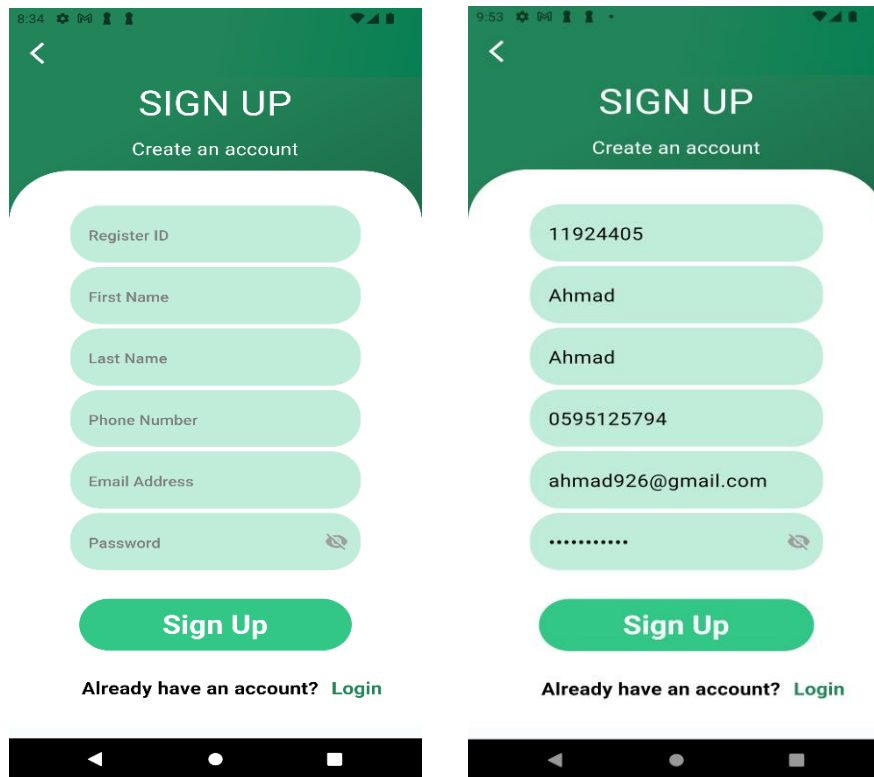


Figure 3:3 Sign up User Story 1

- I want to log in to the app with my newly created credentials to gain access to its features.

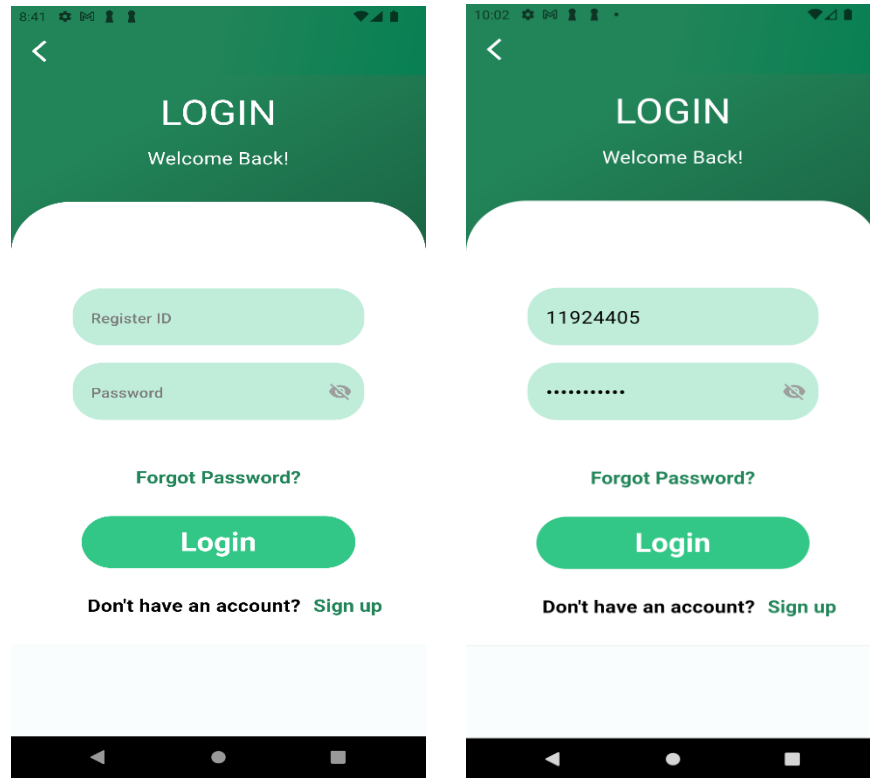


Figure 3:4 Login user story 1

- I want to navigate to my profile page, so that I can edit and update my personal information. This step is crucial for establishing my identity and trustworthiness on the platform.

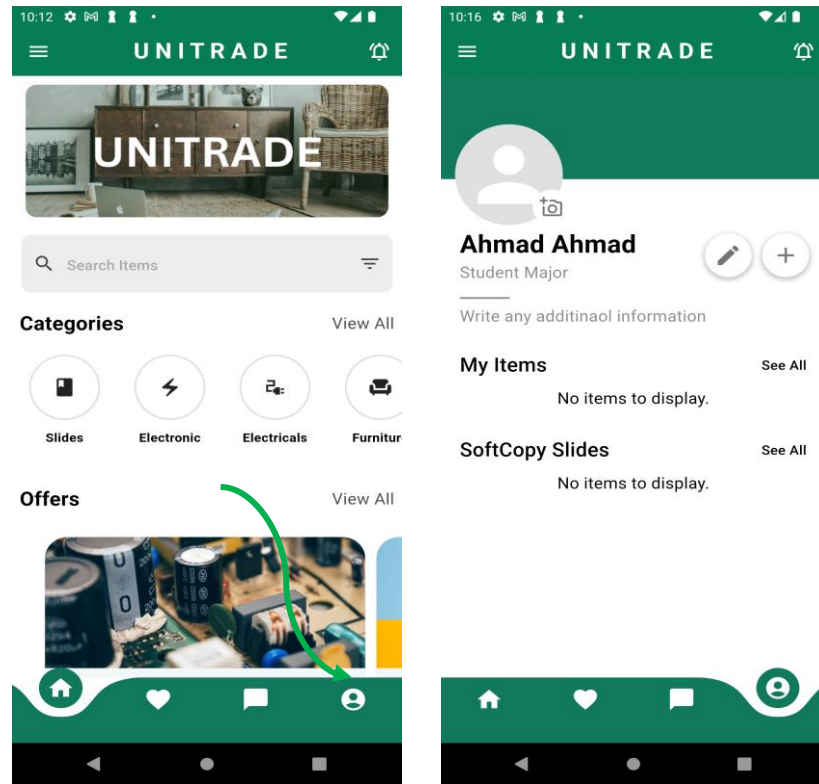


Figure 3:5 Profile page user story 1

- I want to upload a profile photo, so that other users can easily recognize me, adding a personal touch and enhancing trust in the community.

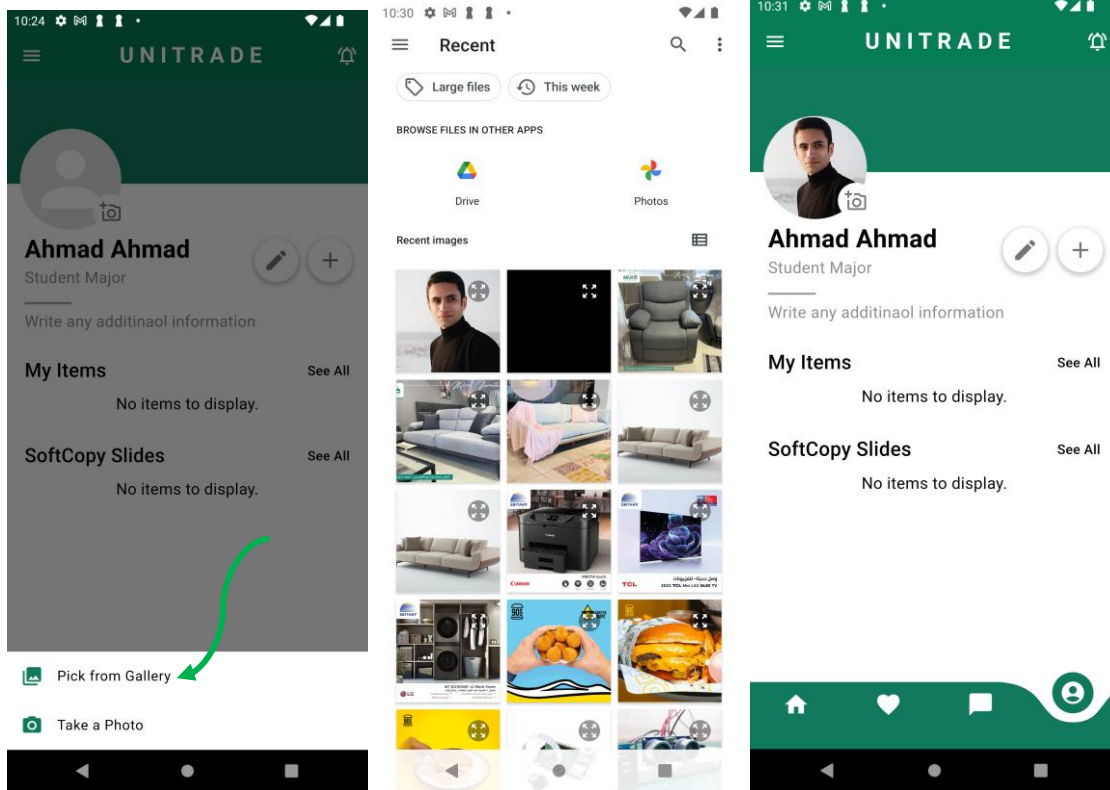


Figure 3:6 Upload profile photo

- I want to edit my profile information, to ensure that my profile remains up-to-date and reflects any changes in my circumstances.

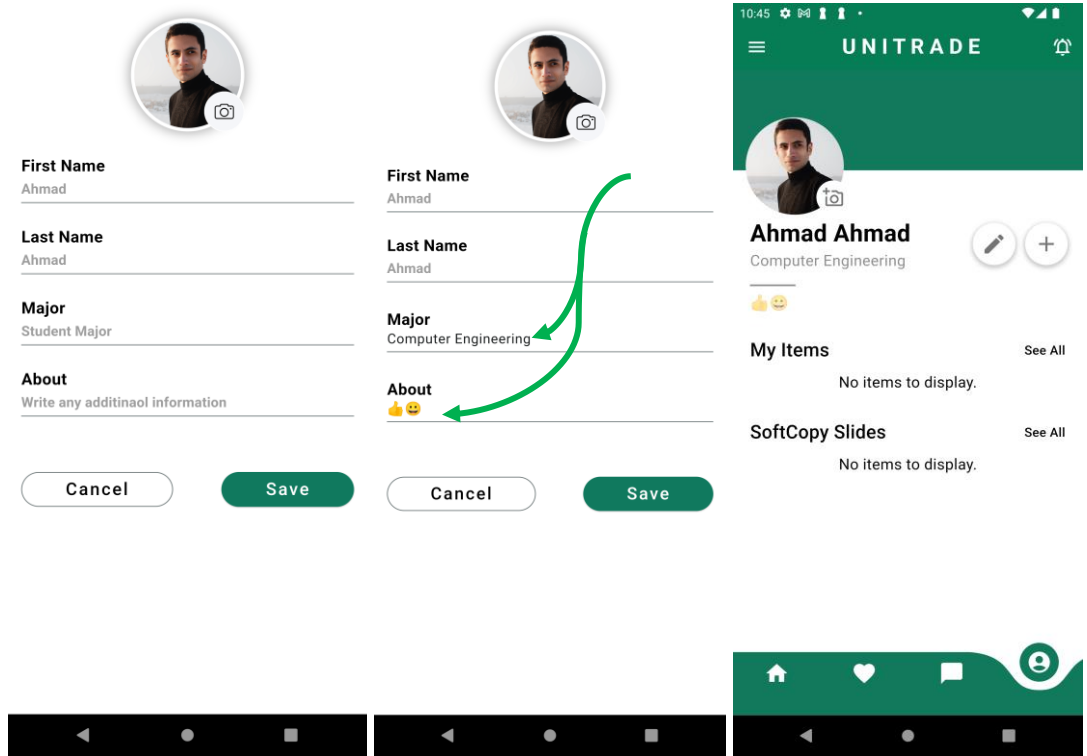


Figure 3:7 Edit Personal Information

- I want to upload the item I wish to sell, which includes adding pictures of the item, a detailed description, pricing, and any other relevant information. This process is streamlined to ensure ease of use.

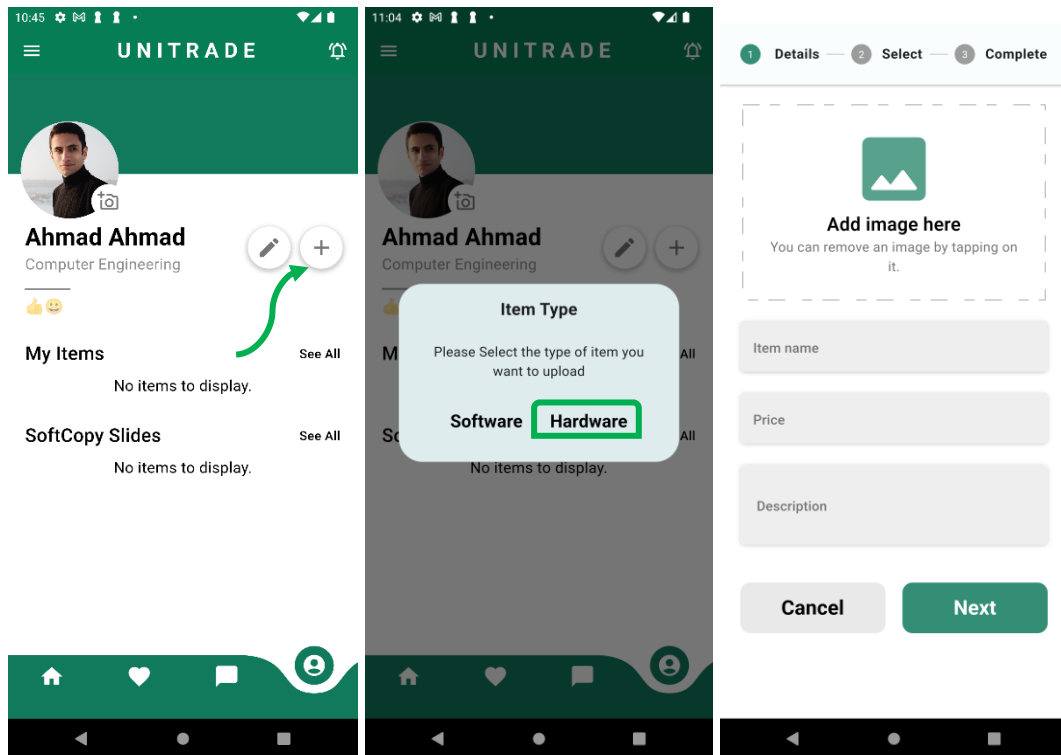


Figure 3:8 Upload item user story 1_part1

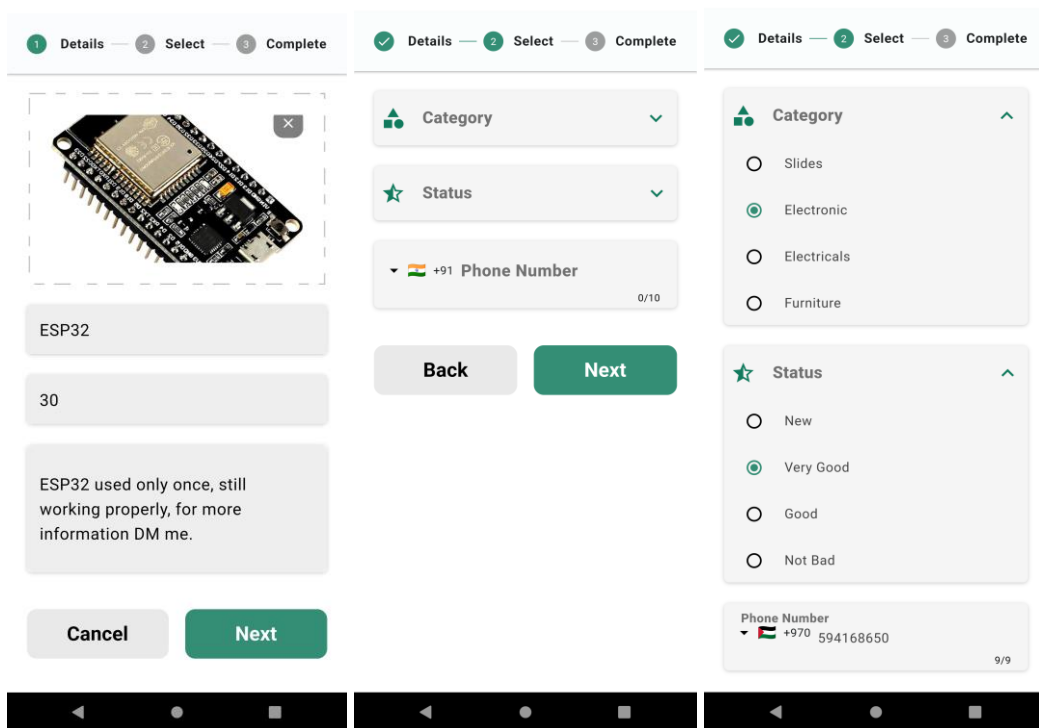


Figure 3:9 Upload item user story 1_part2

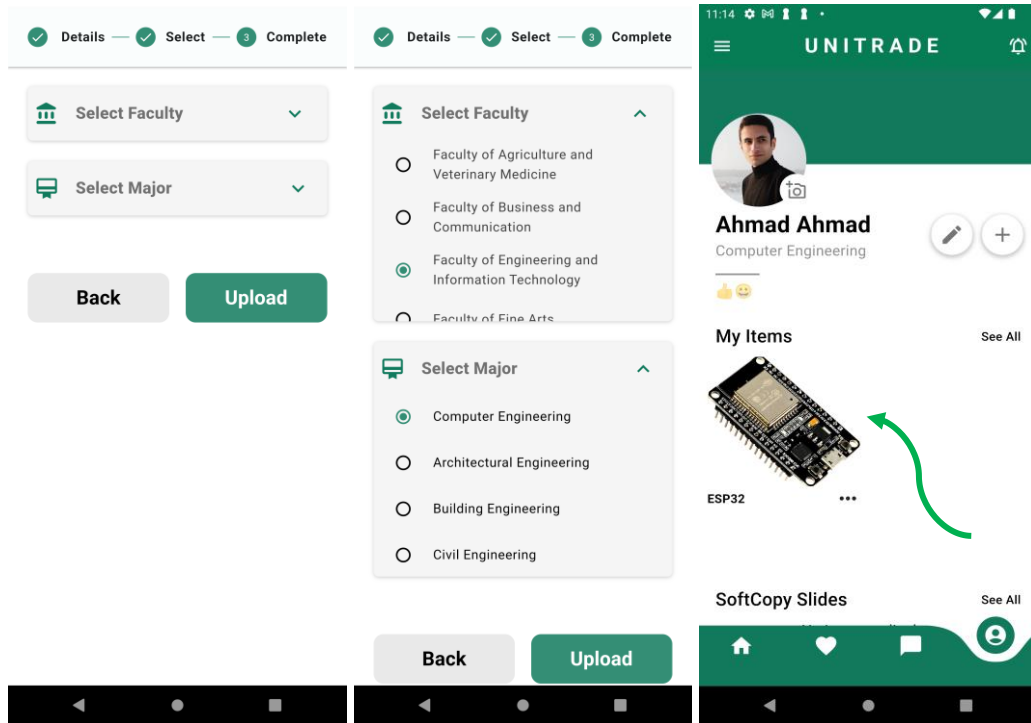


Figure 3:10 Upload item user story 1_part3

- I want to edit my item information, to ensure that my item has the correct information.

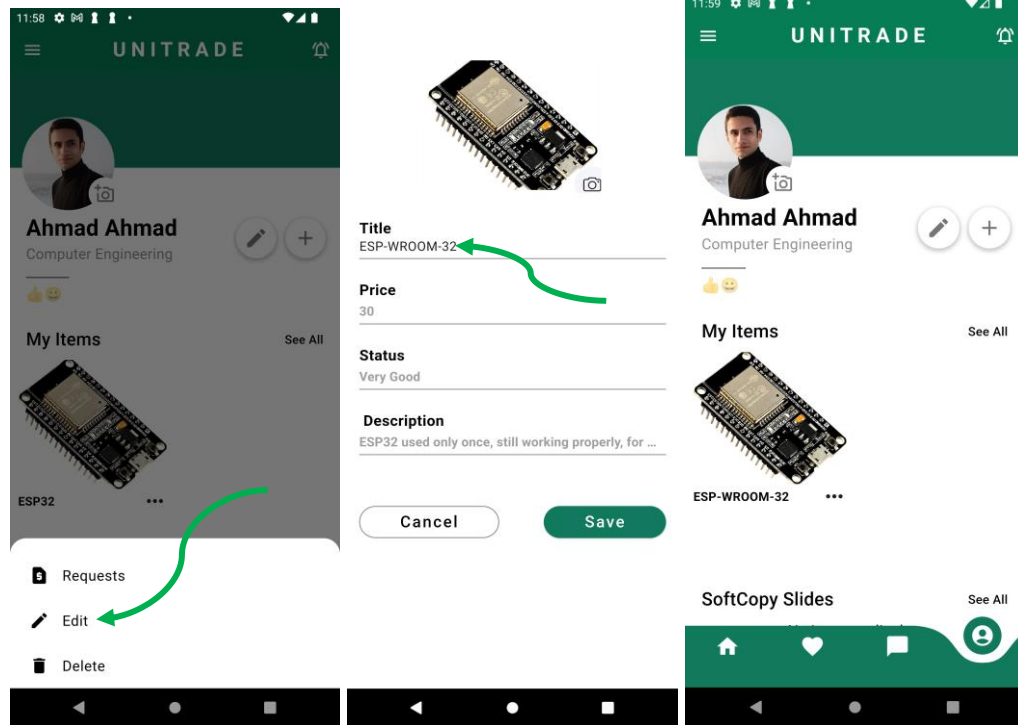


Figure 3:11 Update item information

- I want to delete my item, to ensure that I put only the desired items.

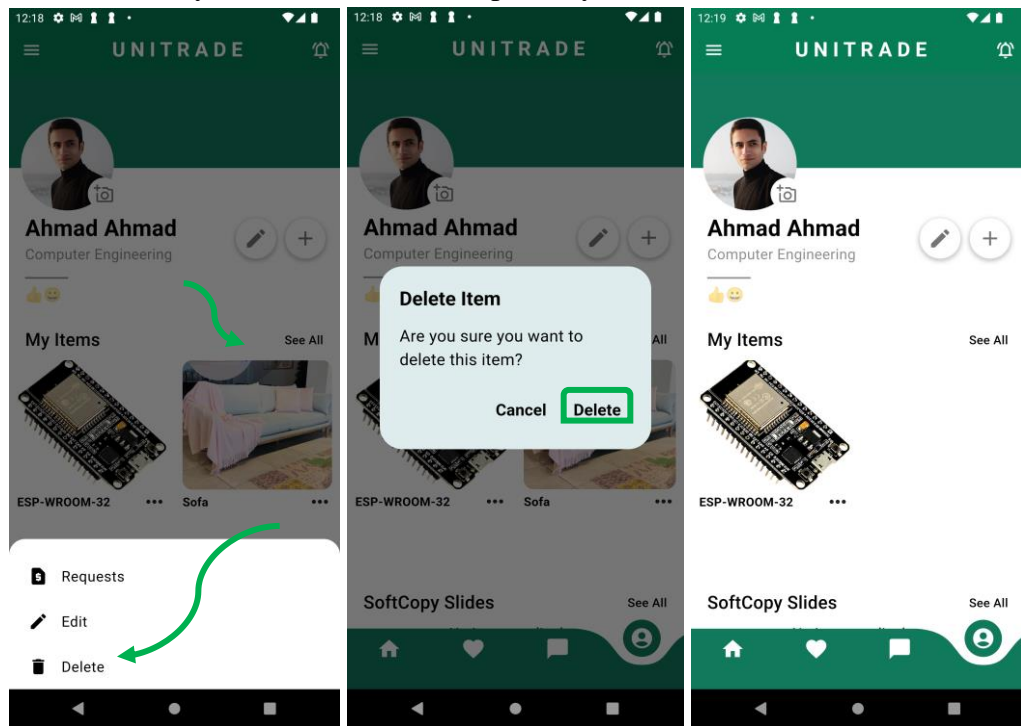


Figure 3:12 Delete item

- **SECOND USER STORY: PURCHASING AN ITEM FROM APPLICATION**

Title: Purchasing an Item from the UniTrade App.

As a registered user of the UniTrade App,

- I want to log in using my credentials upon opening the application.

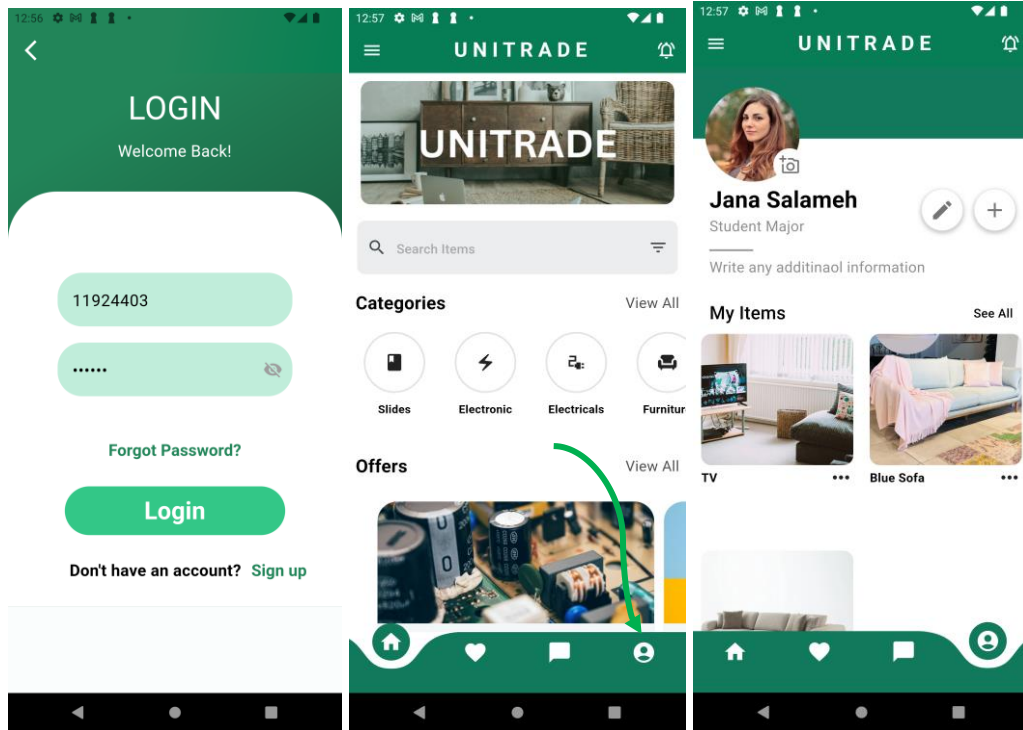


Figure 3:13 login user story 2

- Once logged in, I navigate through various item categories to find what I'm looking for.

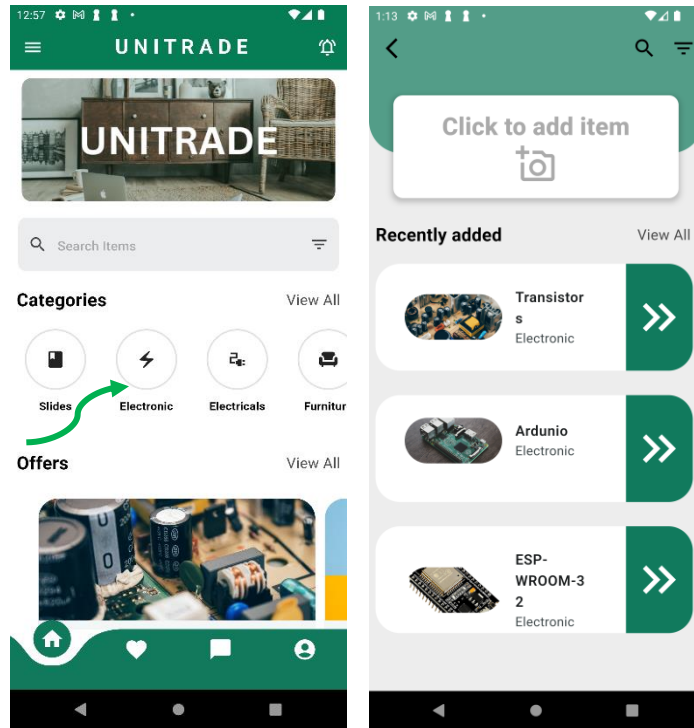


Figure 3:14 Choose item user story 2

- Upon finding an item of interest, I select it to view detailed information.

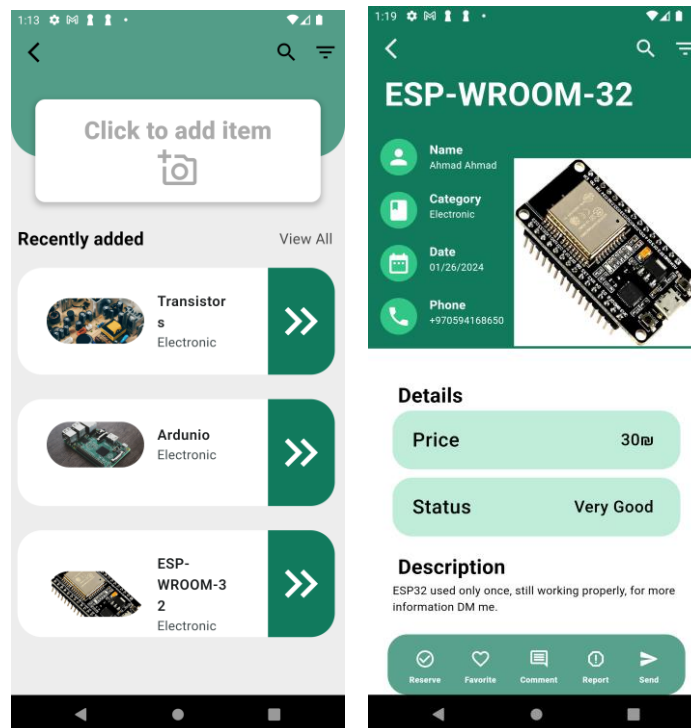


Figure 3:15 Detail item user story 2

- If I wish to save the item for later, I can add it to my favorites with a simple click.

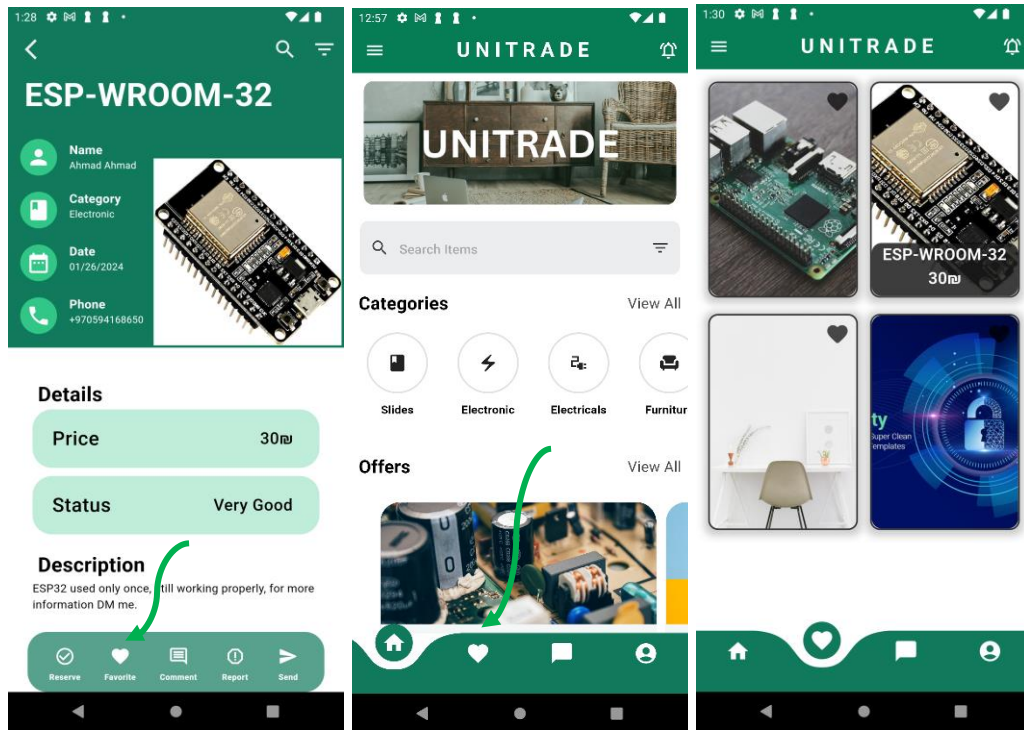


Figure 3:16 Favorite items user story 2

- To inquire further about the item, I start a chat directly with the seller within the app.

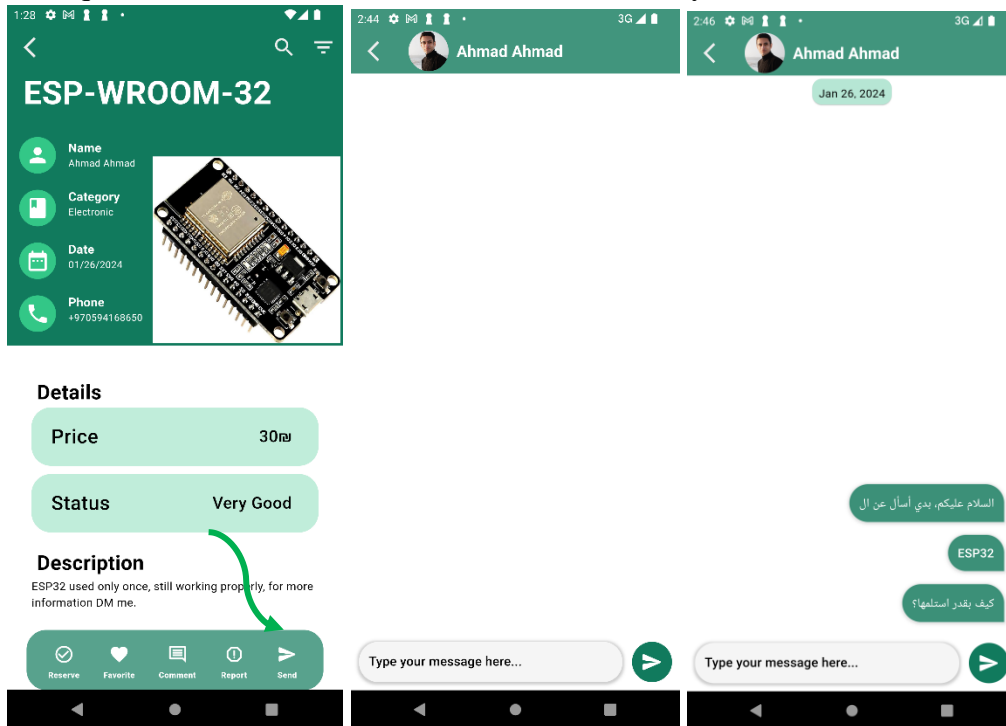


Figure 3:17 chatting_1 user story 2

- I can click on the user name to see his profile, and can click to start a chat directly with the seller.

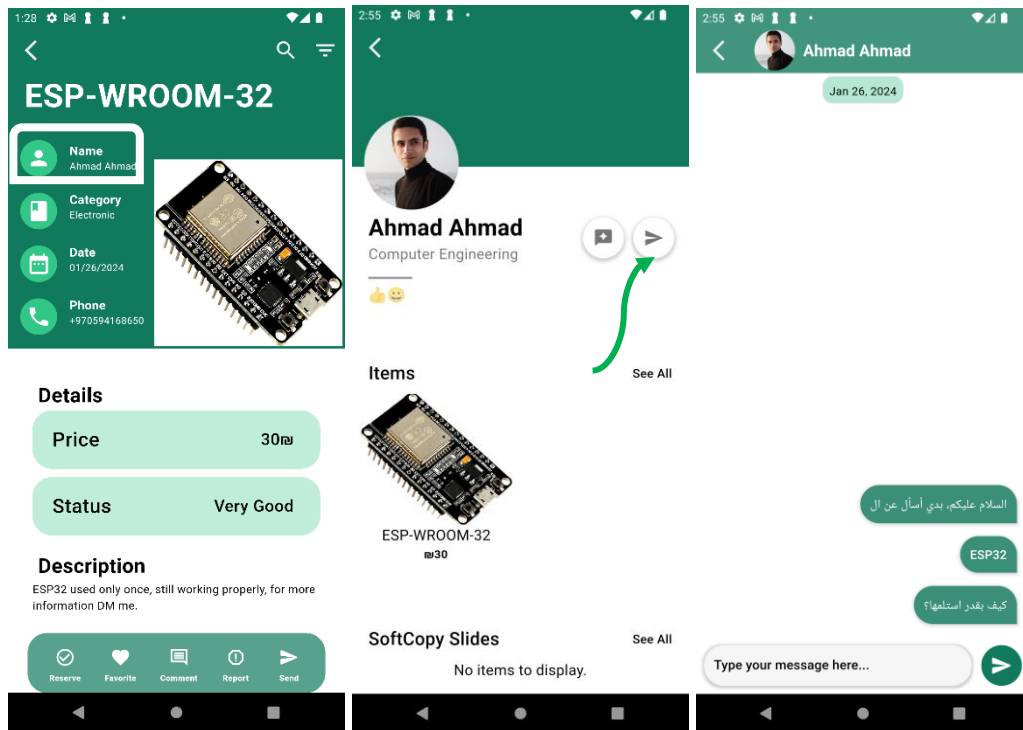


Figure 3:18 Chatting_2 user story 2

- When ready to commit to purchasing, I reserve the item through the app to signal my intent.

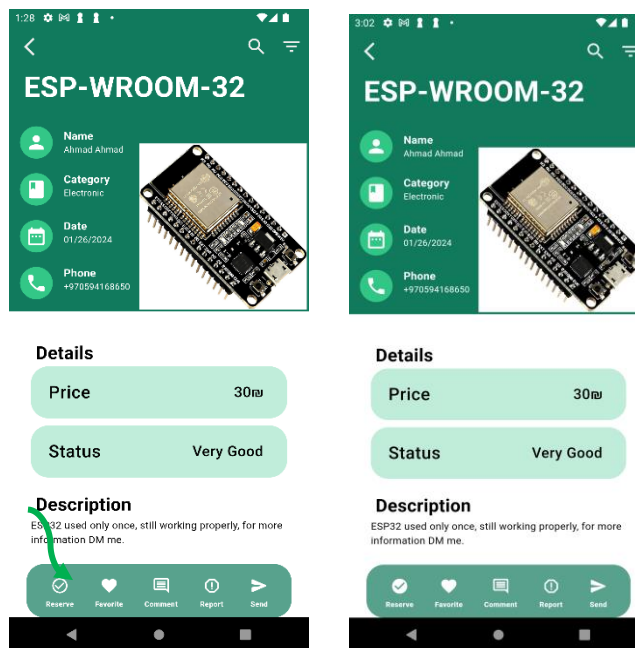


Figure 3:19 Reserve item

- If any issues arise with the item or transaction, I can easily contact the admin for assistance or resolution.

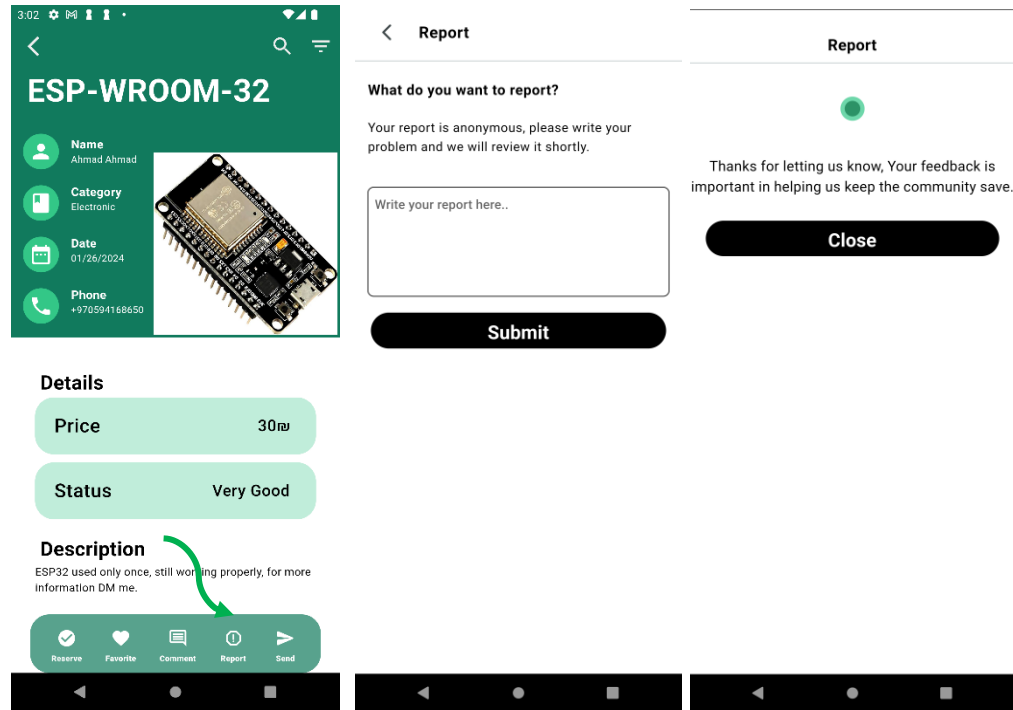


Figure 3:20 Report to admin user story 2

- The item owner reviews my reservation and can accept it, confirming the sale. Then I check my notifications to see when the item owner accepts my requests.

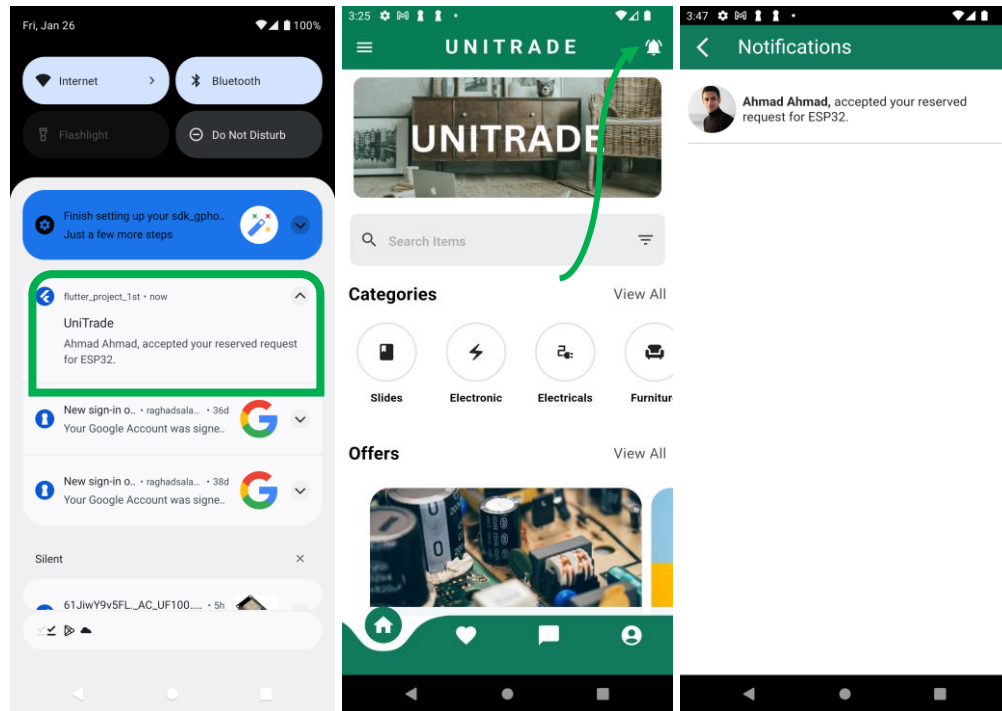


Figure 3:21 Notification reserved accepted user story 2

- Upon receiving confirmation, I proceed to the payment page where I have the option to choose my preferred payment method, whether it is through PayPal, credit card, or cash on delivery.

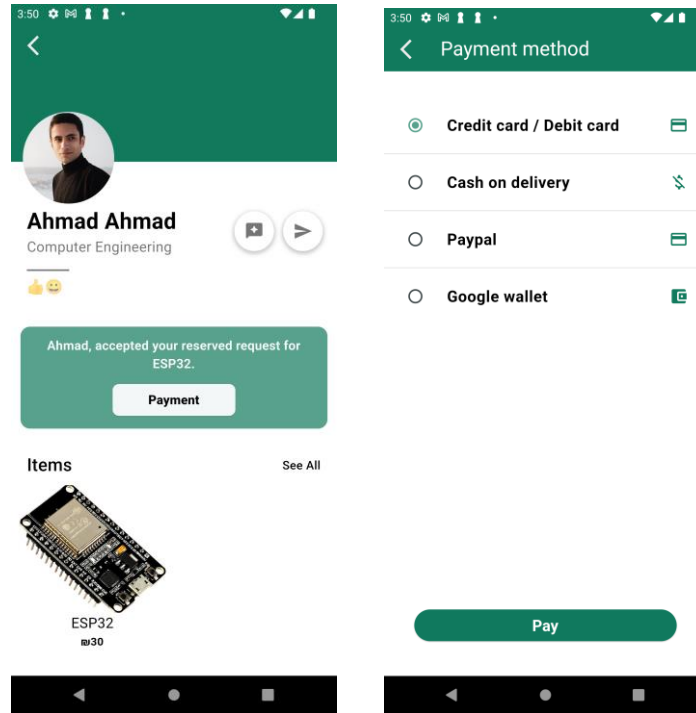


Figure 3:22 Payment method user story 2

- I choose PayPal method, so that I can proceed the payment process.

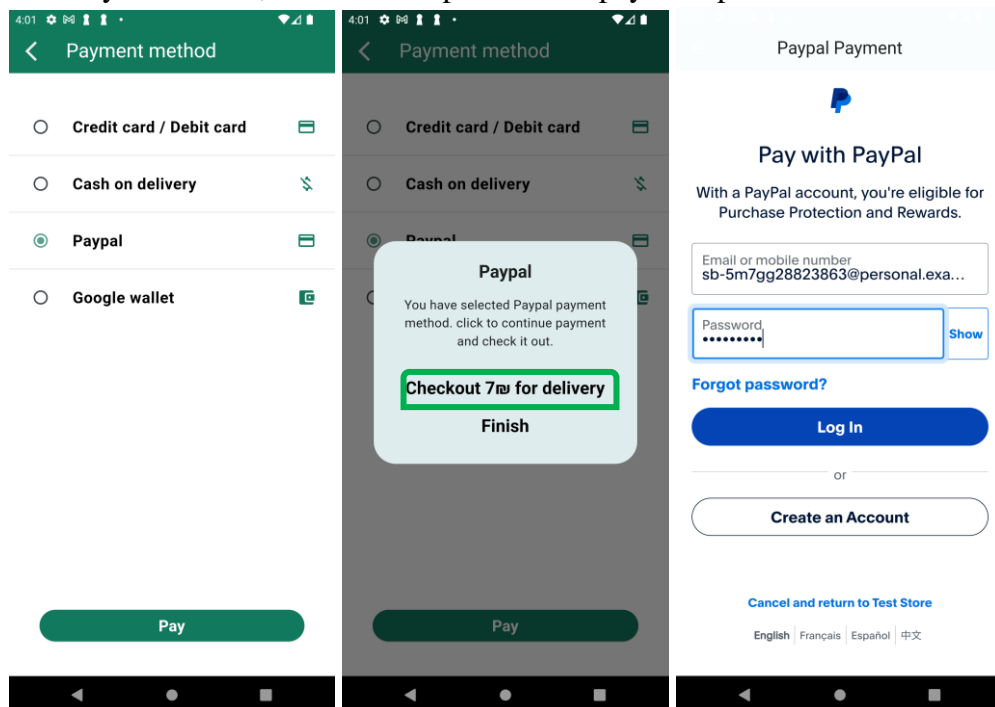


Figure 3:23 Paypal_part1 user story 2

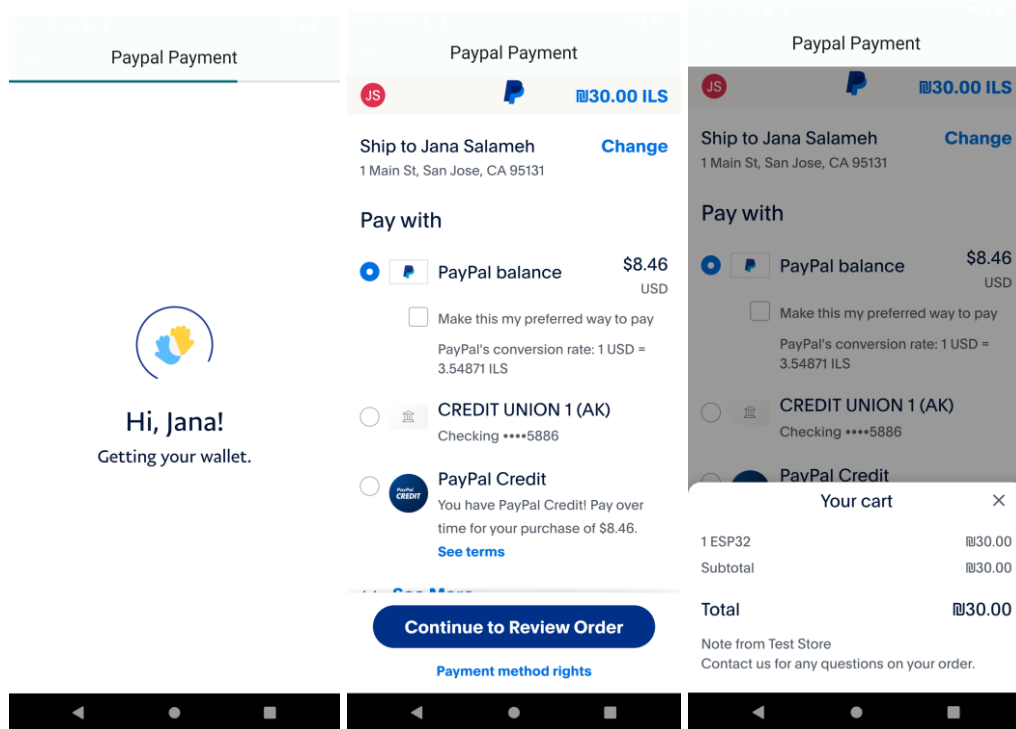


Figure 3:24 Paypal_part2 user story 2

- After completing the payment, I receive a notification confirming that my payment is successful. At this point, I have the option to leave a review for the user, providing feedback on my experience with the transaction and the item.

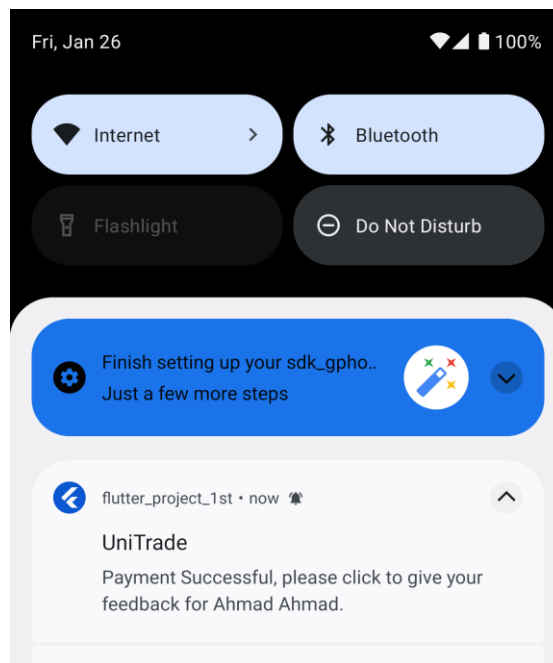


Figure 3:25 Review notification

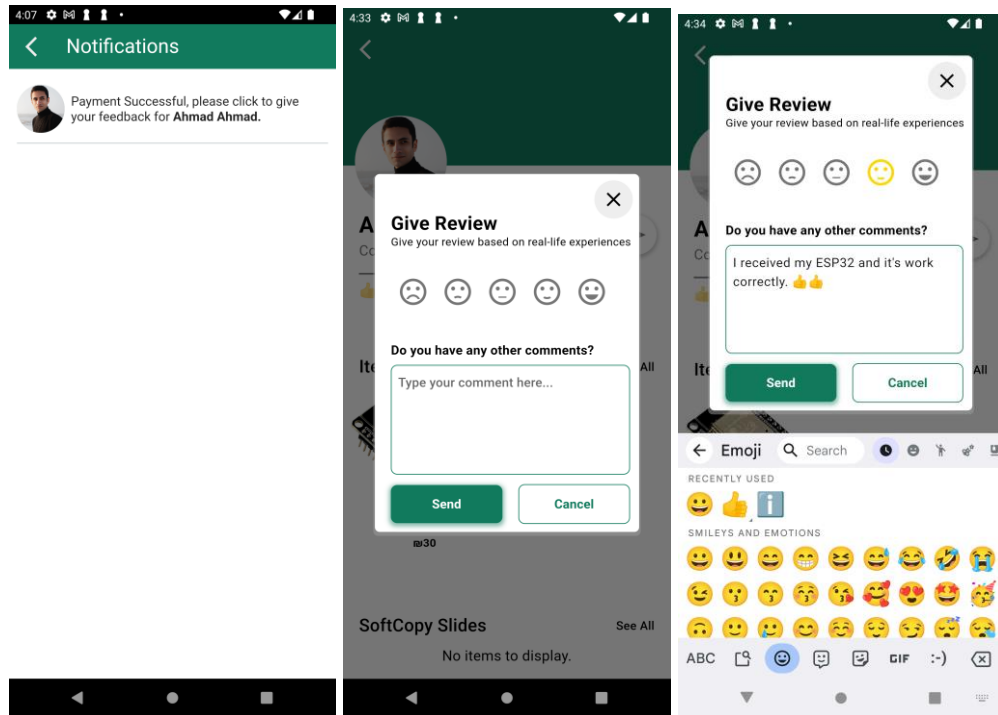


Figure 3:26 Review system user story 2

- **THIRD USER STORY: MANAGE RESERVATION FOR ITEMS**

Title: Efficient Management of Item Reservation Requests

As a user I can manage reservation requests for my listed items effectively and engage in communication with potential buyers,

- Upon receiving a request, I navigate to my profile or the notifications section to review the details of the reservation request.

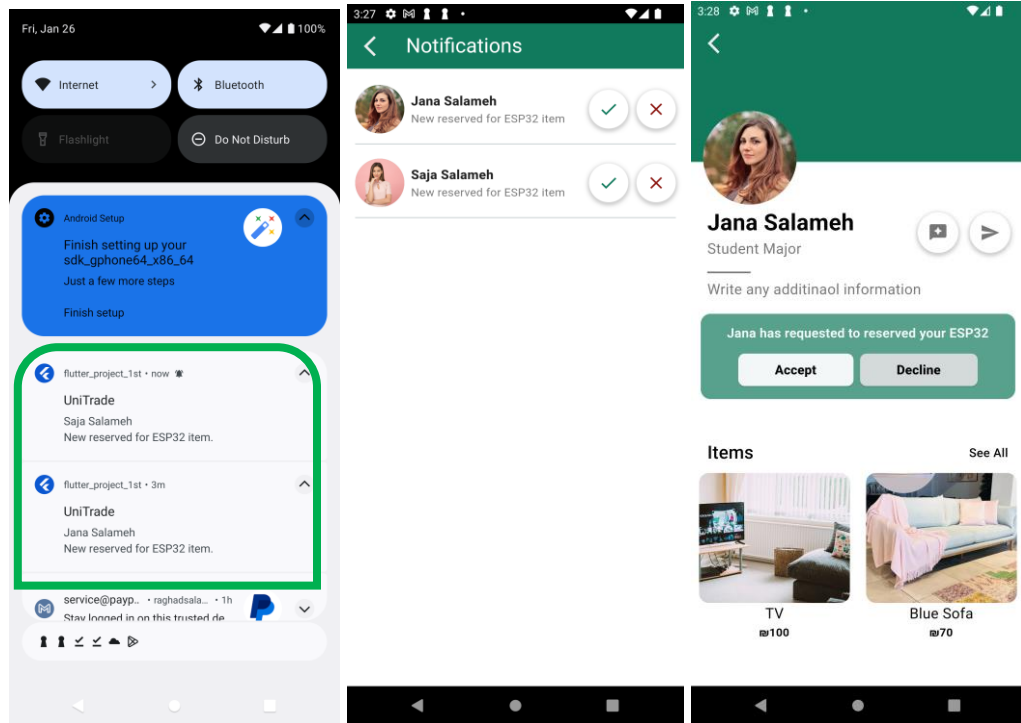


Figure 3:27 Reservation Requests_part1 user story 3

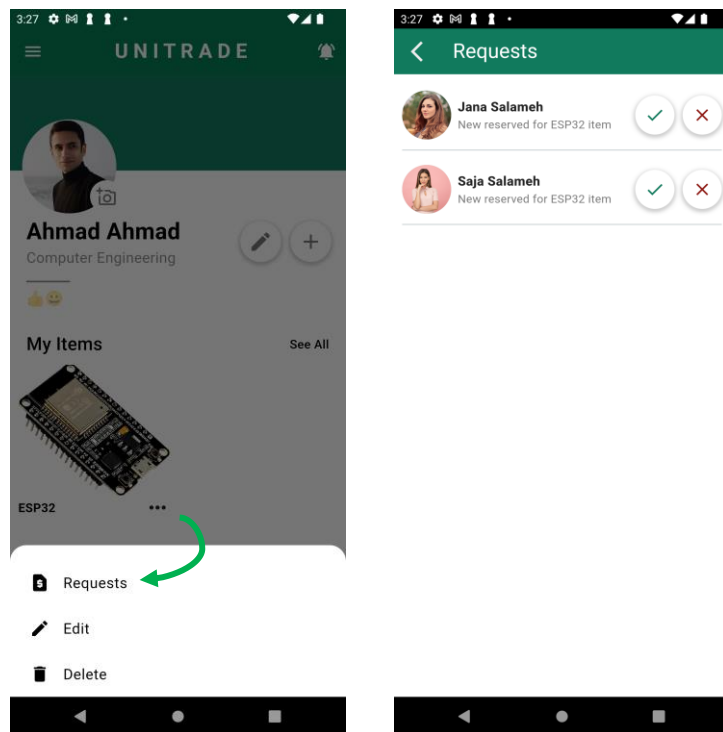


Figure 3:28 Reservation Requests_part2 user story 3

- Once I accept a reservation request for a specific item, the system automatically prevents me from accepting any other requests for the same item, ensuring exclusivity for the interested buyer.

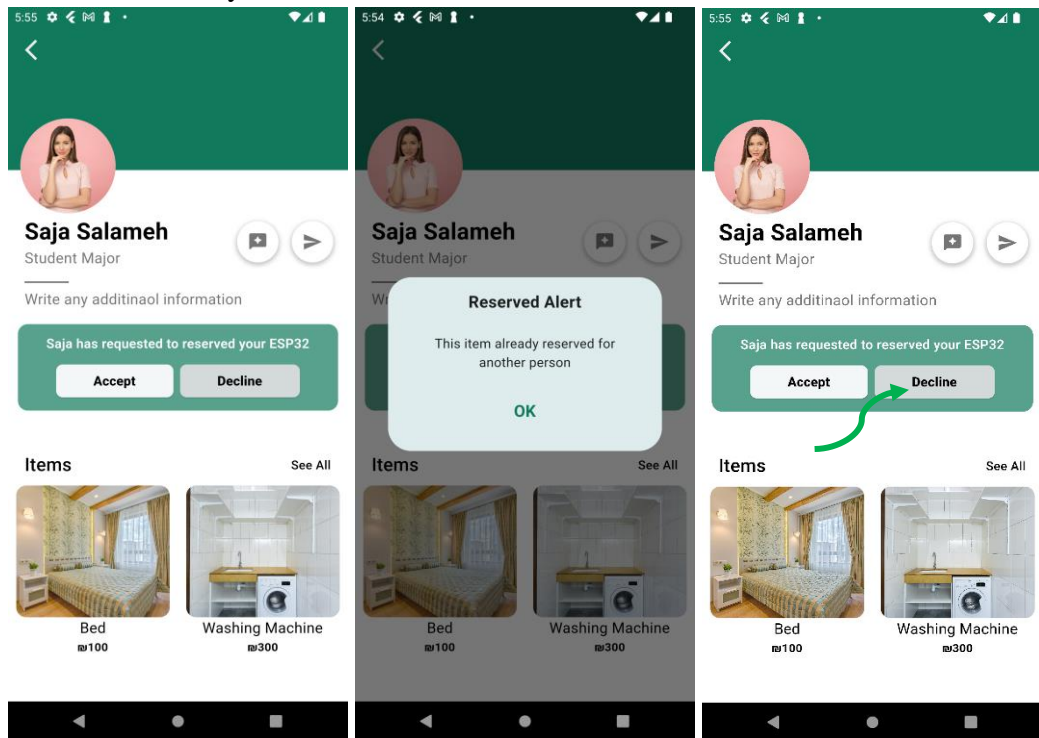


Figure 3:29 Reservation declined_part1 user story 3

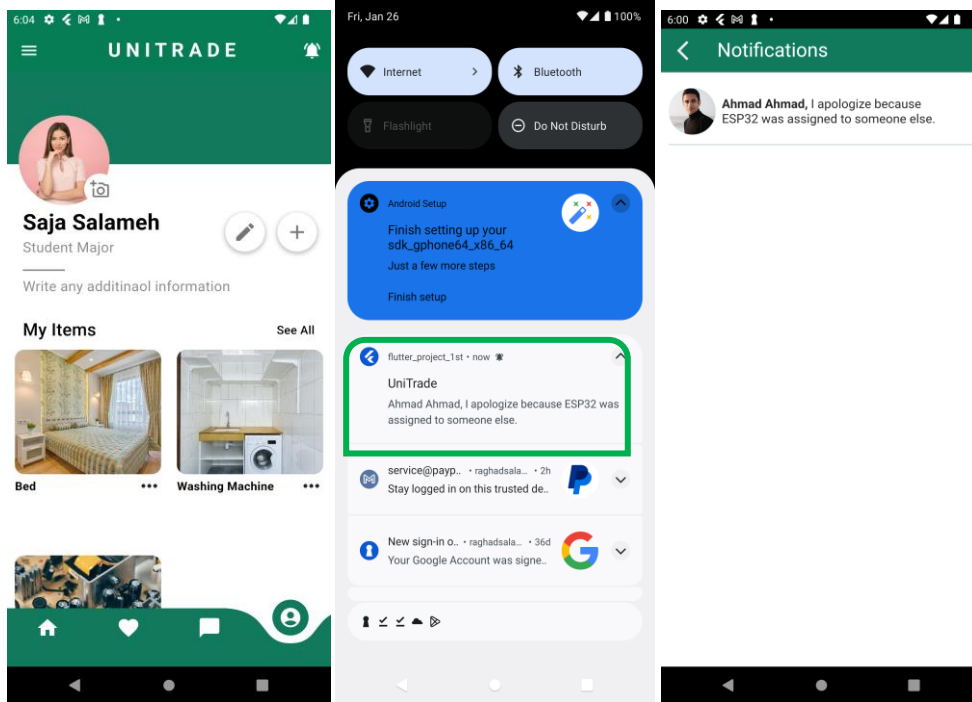


Figure 3:30 Reservation declined_part2 user story 3

- I engage in conversations with users through the chat feature, providing additional details, negotiating prices, or answering any queries they might have.

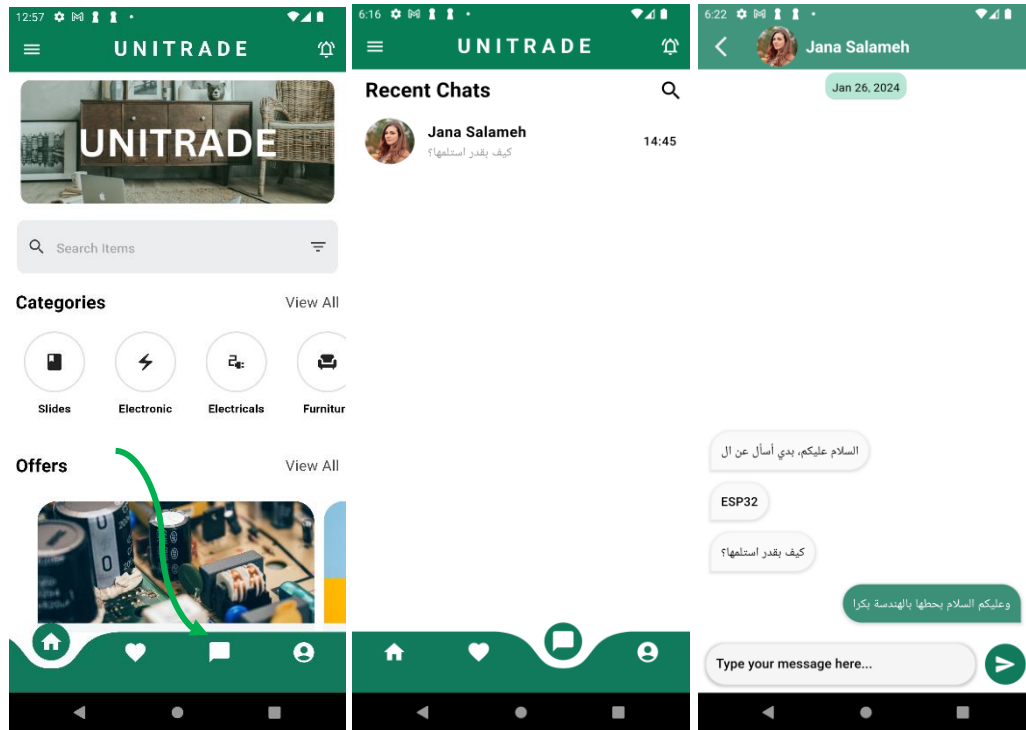


Figure 3:31 chatting user story 3

- **FOURTH USER STORY: ACCESS A VARIETY OF LEARNING MATERIALS**

Title: Accessing Software/Hardware Learning Materials

As a user I explore and access a variety of learning materials in software and hardware relevant to my field of study, with options for both free and paid resources,

- I start by selecting either software or hardware learning materials based on my learning needs.

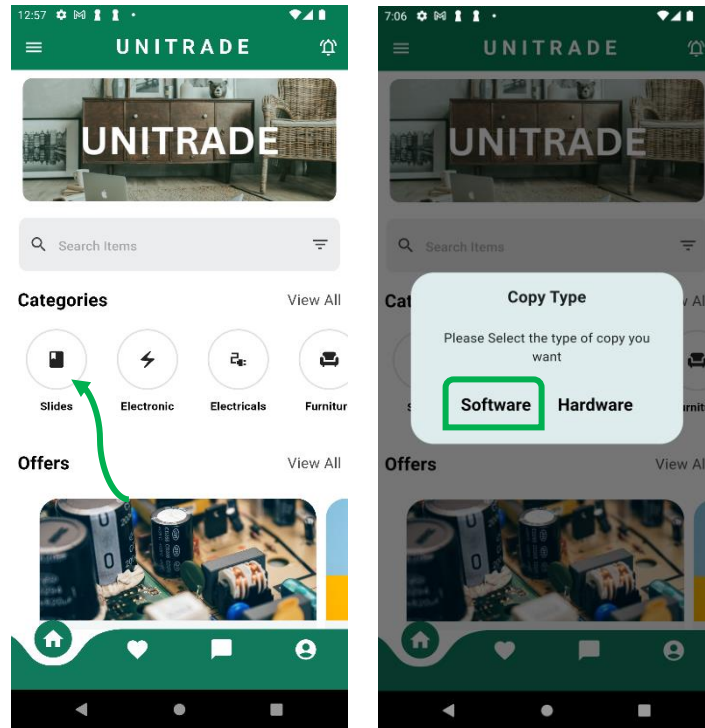


Figure 3:32 Software slides user story 4

- For software materials, I am prompted to choose my major to ensure the resources are tailored to my specific field of study. Once my major is selected, I can browse through the list of available materials, which are categorized into free and paid options.

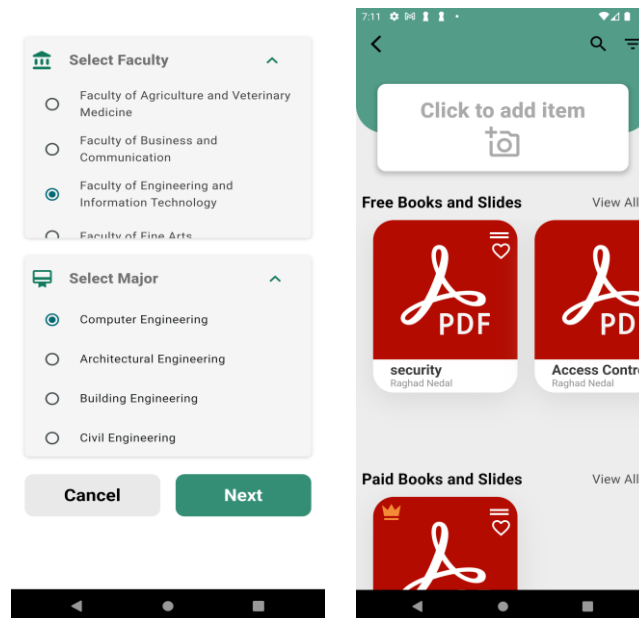


Figure 3:33 choose major user story 4

- Regardless of whether the materials are free or paid, I have the option to preview them to assess their relevance and quality.

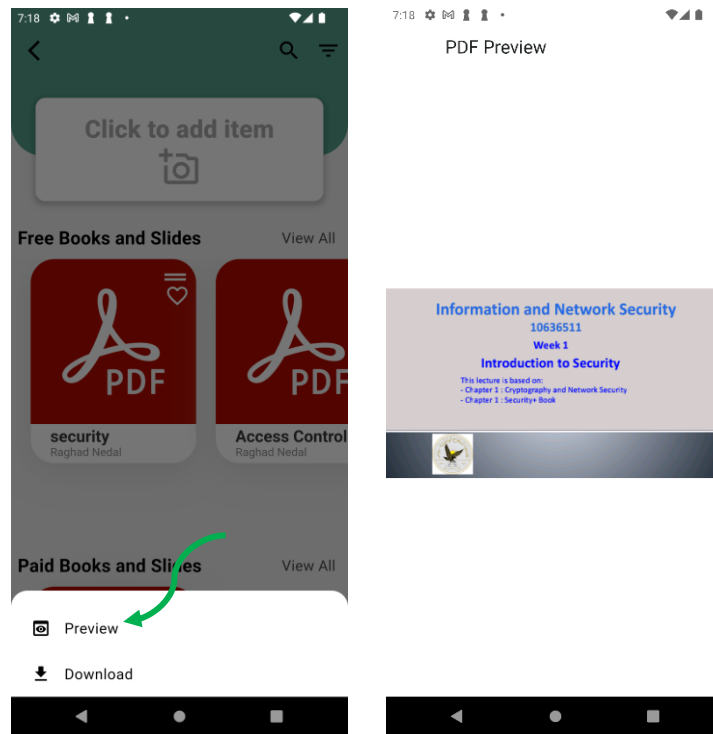


Figure 3:34 Preview PDF user story 4

- For materials marked as free, I can directly download them, allowing me immediate access to these resources. For paid materials, while I can preview them, downloading requires payment. The app provides a seamless payment process, after which I gain full access to the material.

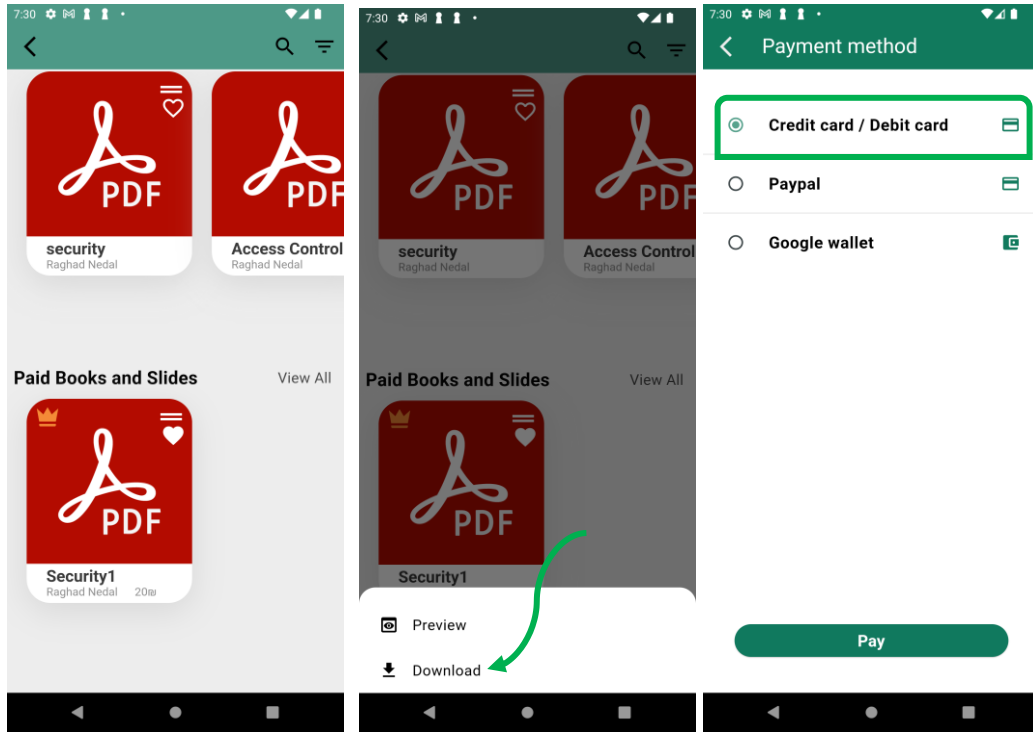


Figure 3:35 Download PDF_part1 user story 4

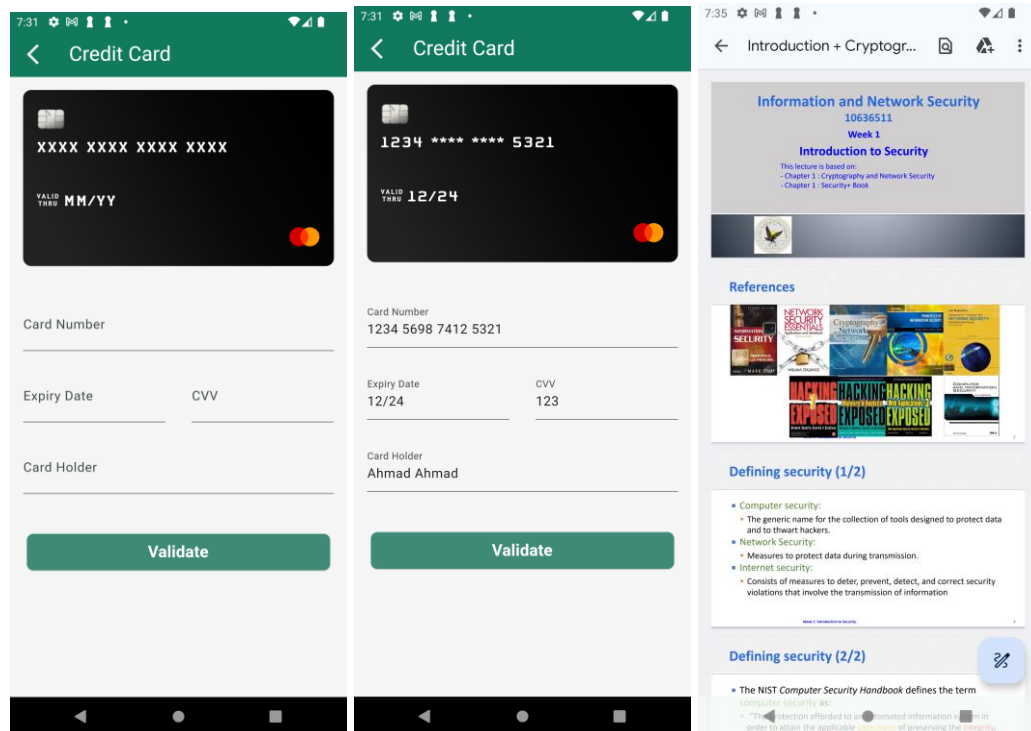


Figure 3:36 Download PDF_part2 user story 4

- **FIFTH USER STORY: ORDERING HOMEMADE MEALS**

Title: Ordering Homemade Meals

As a user, I can order a homemade cooking uploaded by the admin, specifying the details of the meal, delivery preferences, and completing the order process seamlessly,

- I navigate to the homemade meals section of the application to view the various dishes uploaded by the admin.

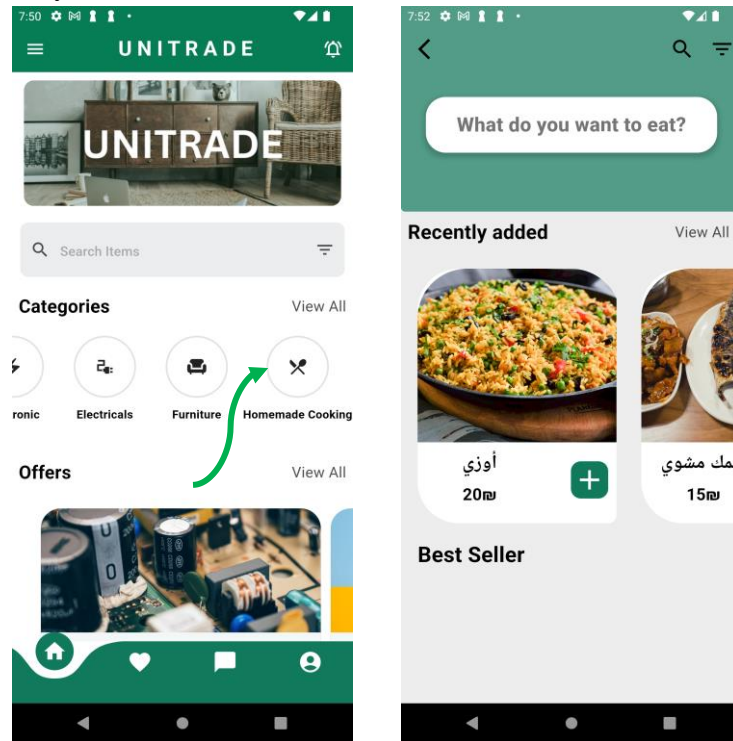


Figure 3:37 homemade cooking user story 5

- Upon finding a specific meal of interest, I click on it to view detailed information such as ingredients, portion size, dietary specifications, and pricing.

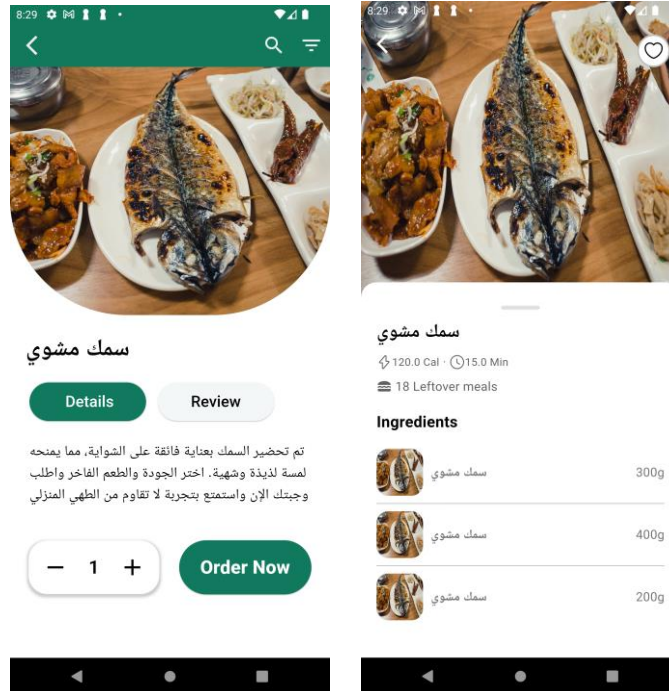


Figure 3:38 detailed homemade cooking user story 5

- After reviewing the meal details, I choose the quantity of meals I want to order, based on my preferences. Next, I proceed to order the meal by specifying the desired delivery time, delivery address, and any additional notes.

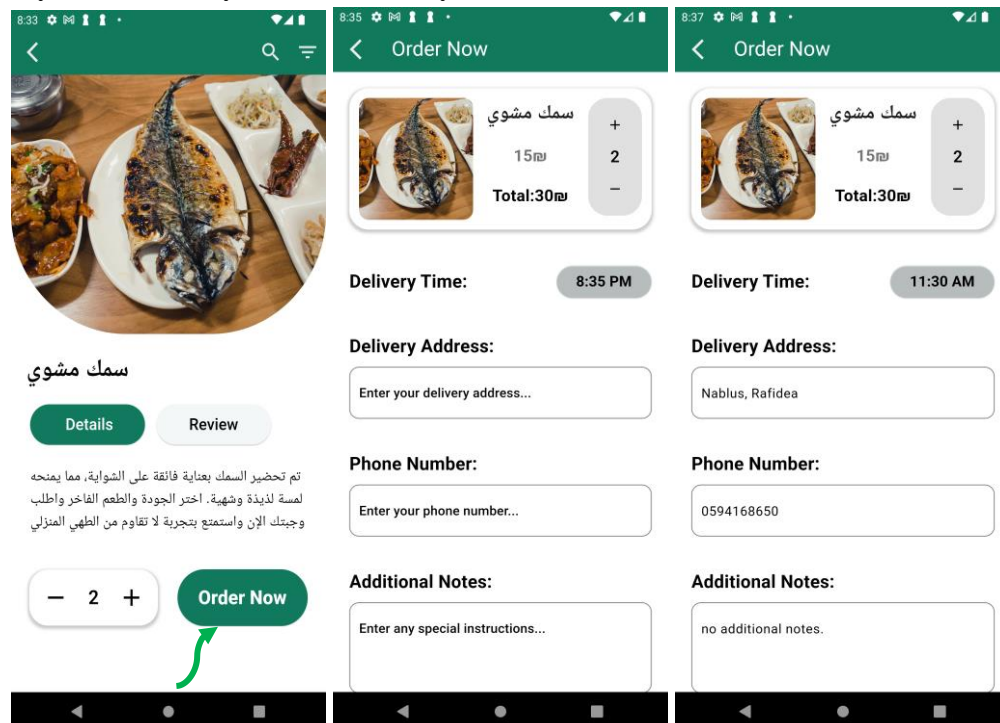


Figure 3:39 order homemade cooking user story 5

- Once I have provided all the necessary details, I proceed to the payment section where I select my preferred payment method and complete the transaction securely.

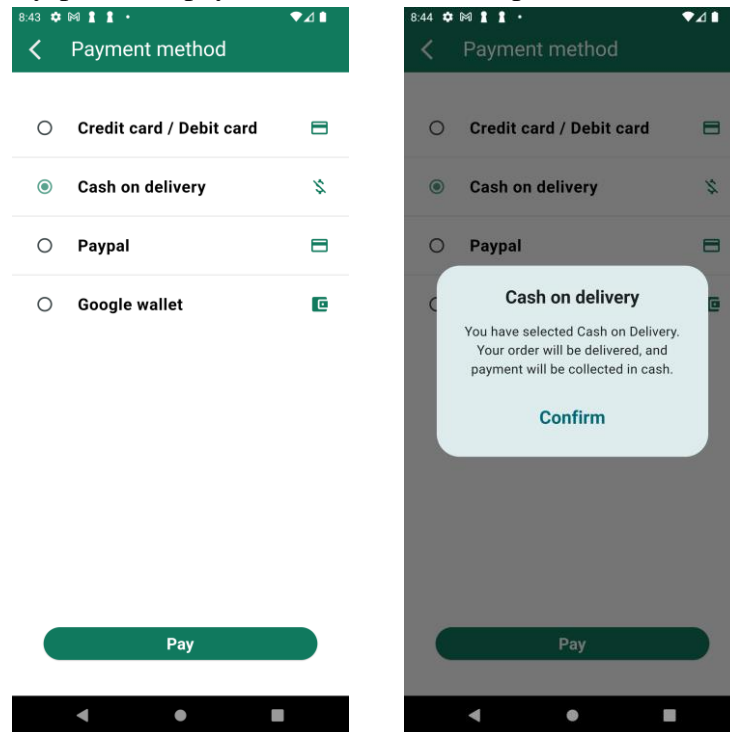


Figure 3:40 Payment homemade user story 5

- After the payment is confirmed, I receive a confirmation notification and can give my feedback about the meal.

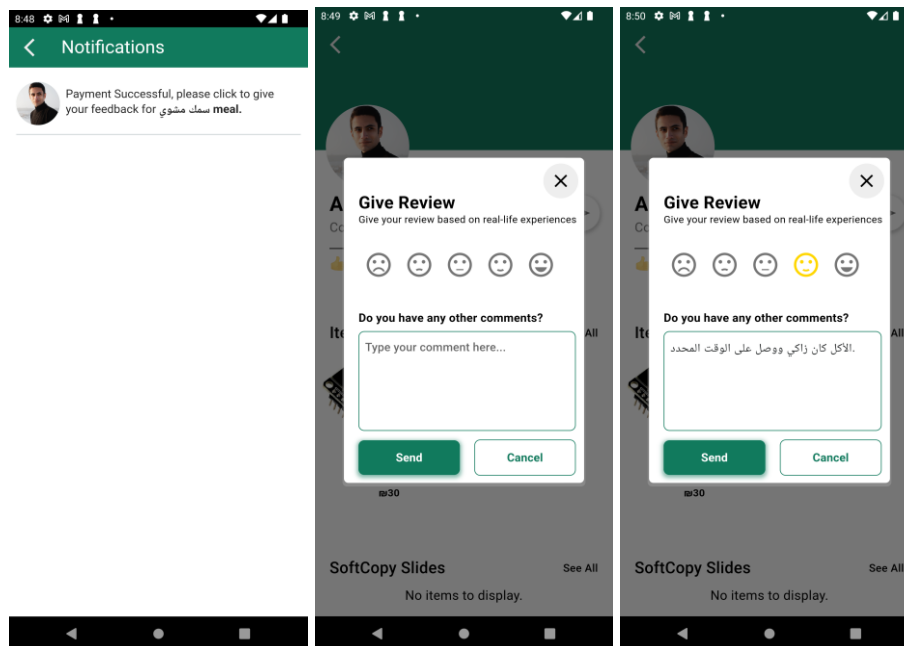


Figure 3:41 Review homemade user story 5

- **SIXTH USER STORY: EXPLORING MARKET OFFERS**

Title: Exploring Market Offers

As a user, I can view and compare various offers from different markets, and access detailed information about each market including contact details, location, and available discounts.

- I navigate to the offers section in the application where I can see a range of offers uploaded by various markets. I can browse through different markets, each presenting its unique set of offers and discounts.

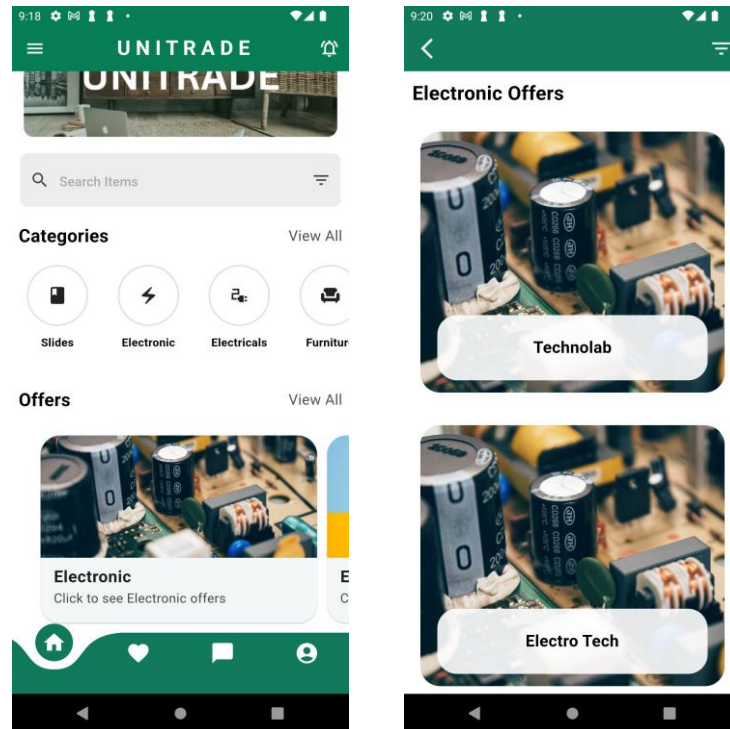


Figure 3:42 offers user story 6

- On the market's page, I find comprehensive information including the market's phone number, location, and the specific discounts they are offering.

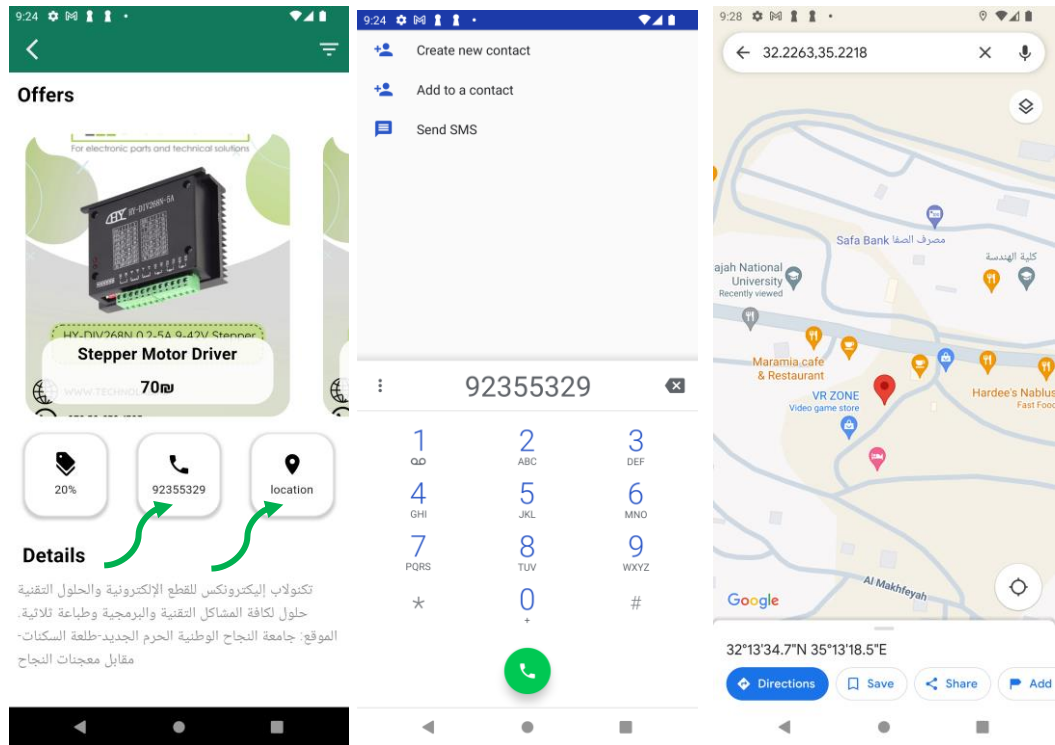


Figure 3:43 detailed offers user story 6

• SEVENTH USER STORY: SEARCH ITEMS

Title: Efficient Item Search

As a user, I can effectively search for various items within the application,

- As a user, when I open the application, I am presented with a search bar making it easily accessible. I enter keywords related to the items I'm looking for in the search bar. Upon submitting my search query, the application displays a list of items that match my search criteria. These results are organized for easy browsing. From the search results, I can select any item to view more detailed information, such as its description, price, seller details, and reviews if available.

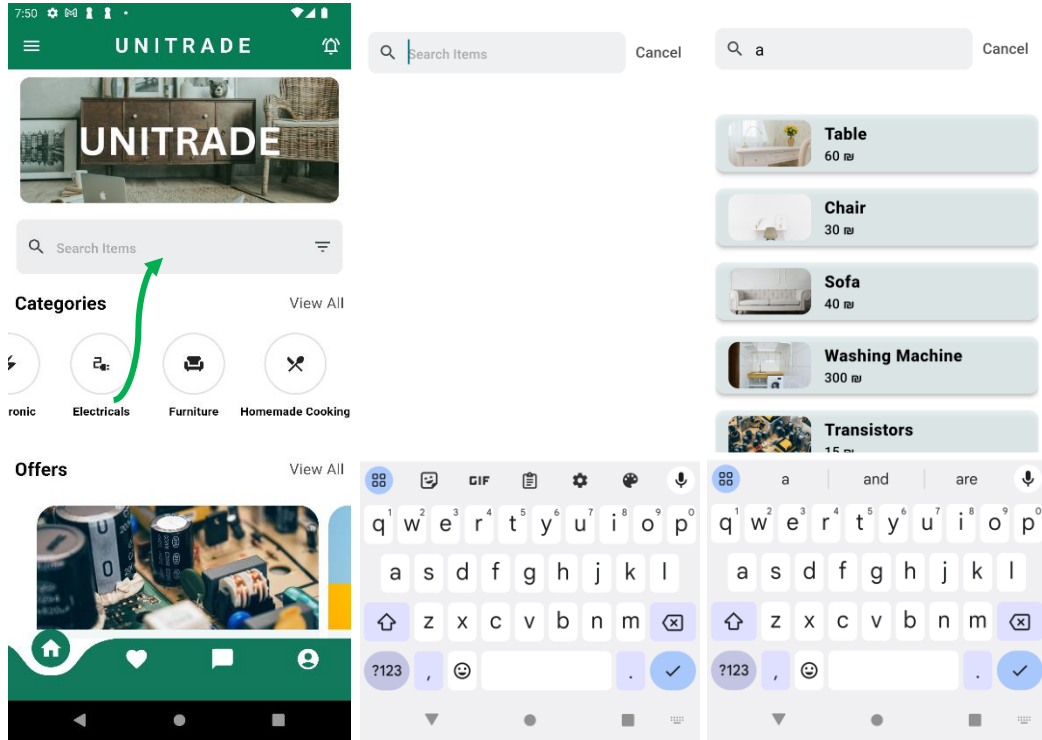


Figure 3:44 search_part1 user story 7

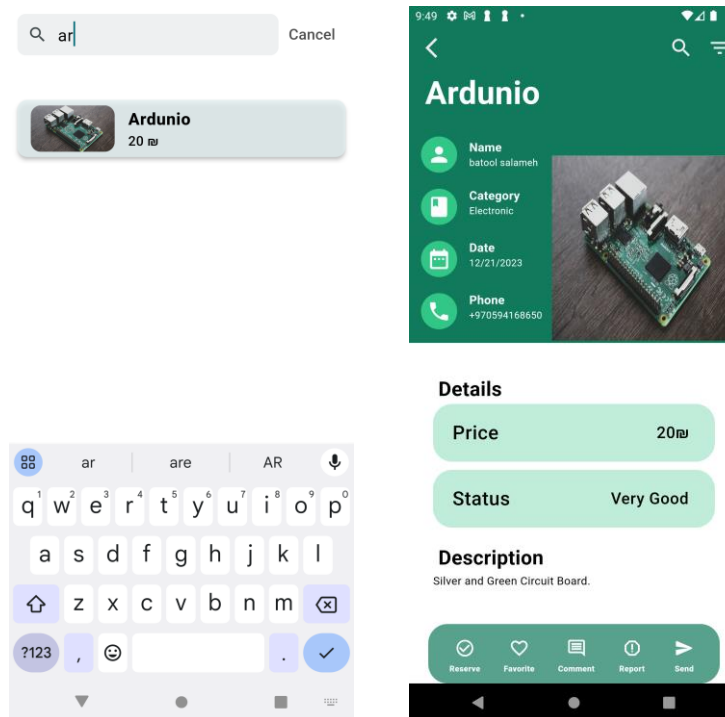


Figure 3:45 search_part2 user story 7

- **EIGHTH USER STORY: REVIEW SYSTEM**

Title: Accessing and Viewing Reviews

As a user, I can view reviews for users, meals, and receive feedback from other users.

- I want to view the reviews of a specific user to assess their reliability and trustworthiness. This helps me make informed decisions before engaging in transactions or interactions with them.

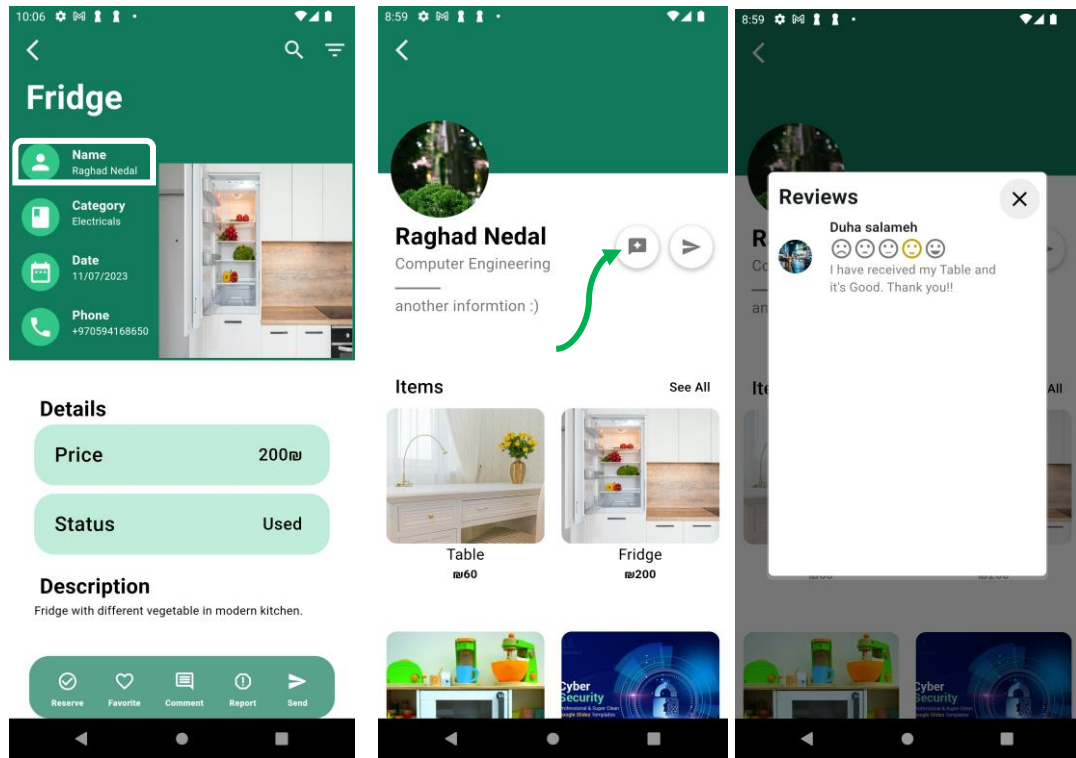


Figure 3:46 Users review user story 8

- When exploring meals, especially homemade cooking options, I can access reviews for each specific meal. These reviews provide insights into the quality, taste, and overall satisfaction, aiding in my decision-making process for ordering meals.

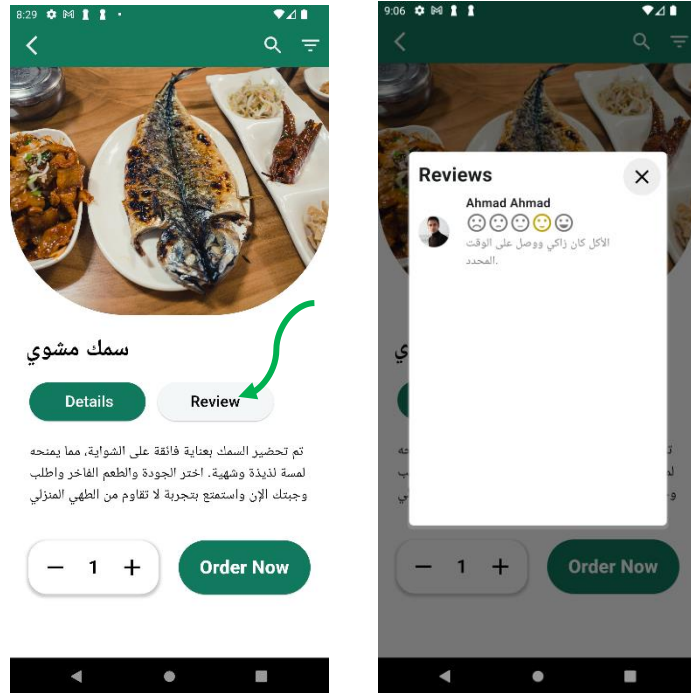


Figure 3:47 meals review user story 8

- I have the ability to view reviews and ratings that other users have given me. This feedback is crucial for understanding how my actions and transactions are perceived by others in the community.

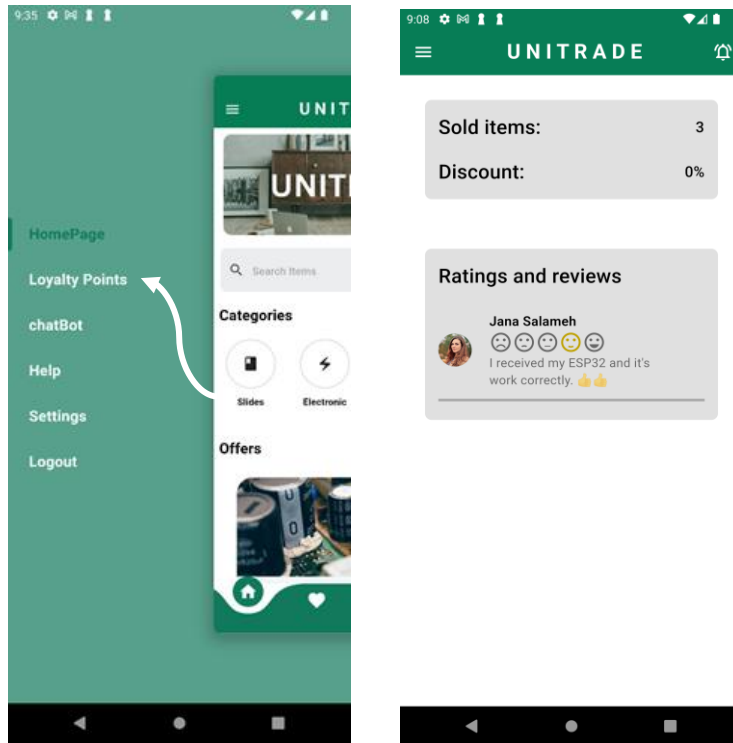


Figure 3:48 my review user story 8

- **NINTH USER STORY: APPLICATION SETTINGS**

Title: Personalizing Application Settings

As a user, I can customize the application experience according to personal preferences and provide feedback,

- I want to change the application's language to Arabic, ensuring that I can navigate and use the app more comfortably in my native language.

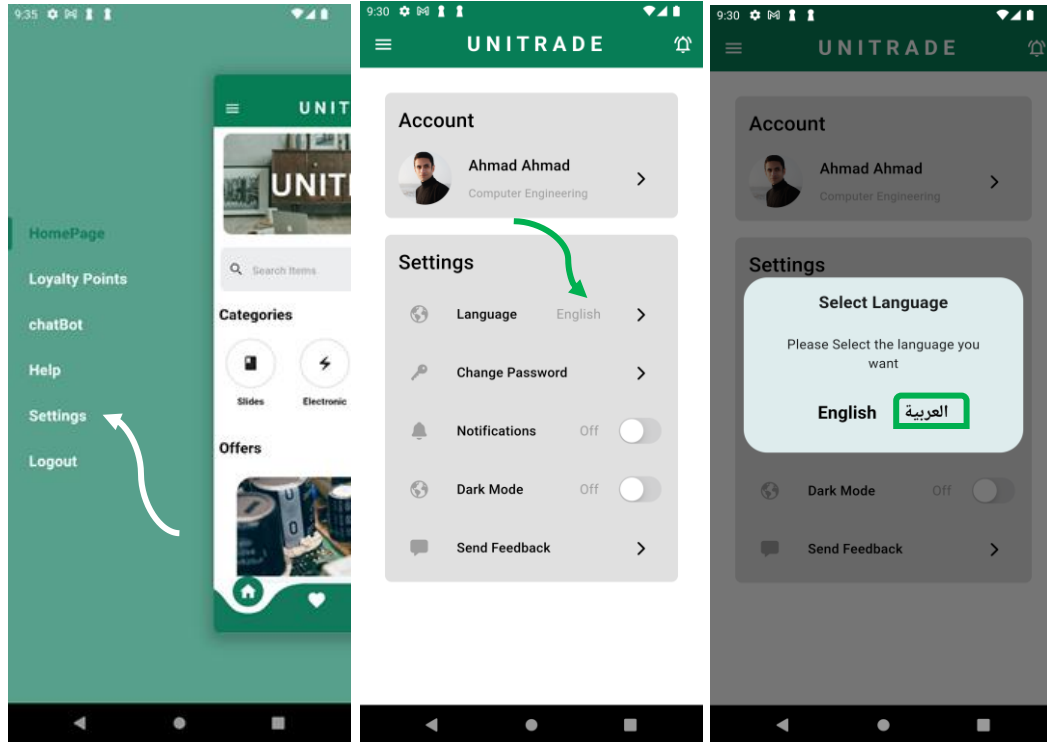


Figure 3:49 change language part1 user story 9

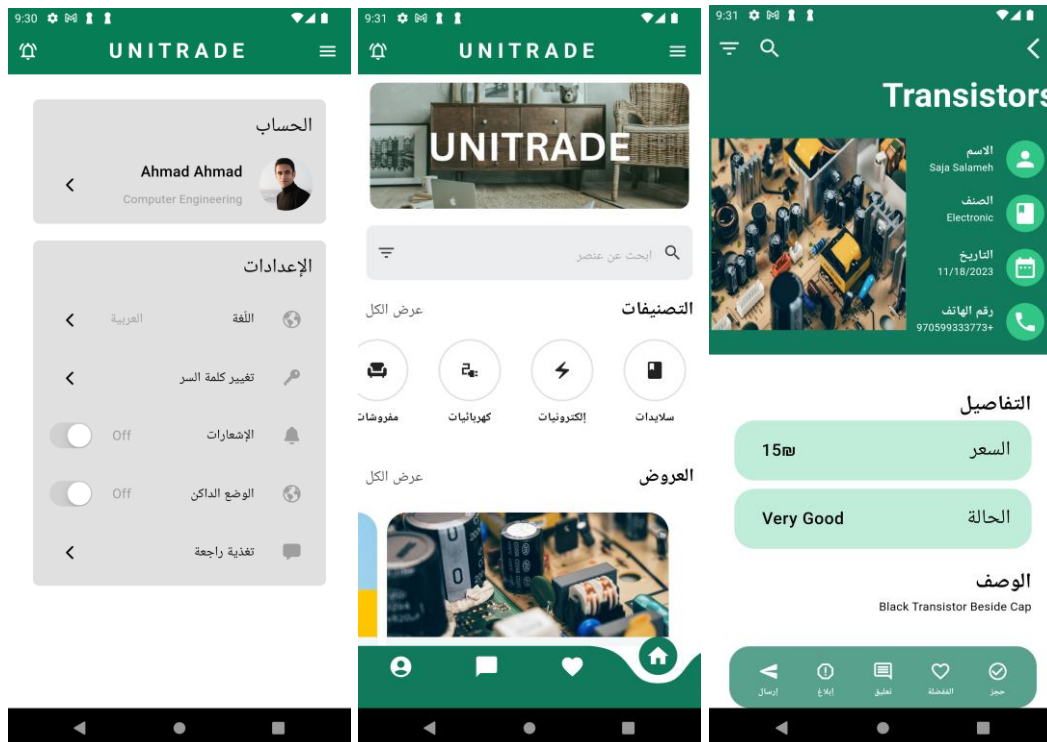


Figure 3:50 change language part2 user story 9

- For security reasons, I have the option to change my password regularly. This feature provides an added layer of security for my account.

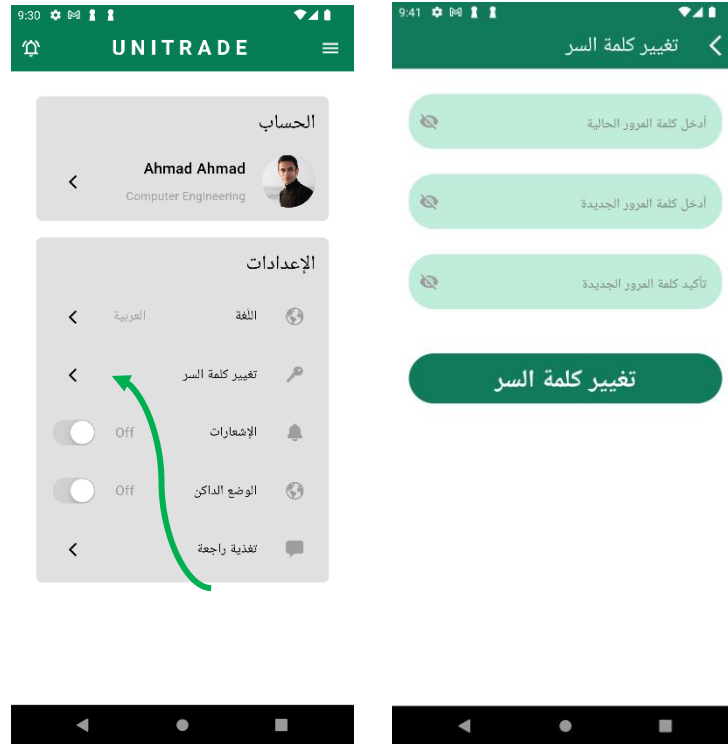


Figure 3:51 change password user story 9

- I can switch the application's theme to dark mode. This is not only a personal preference for aesthetic reasons but also reduces eyestrain during night-time usage.

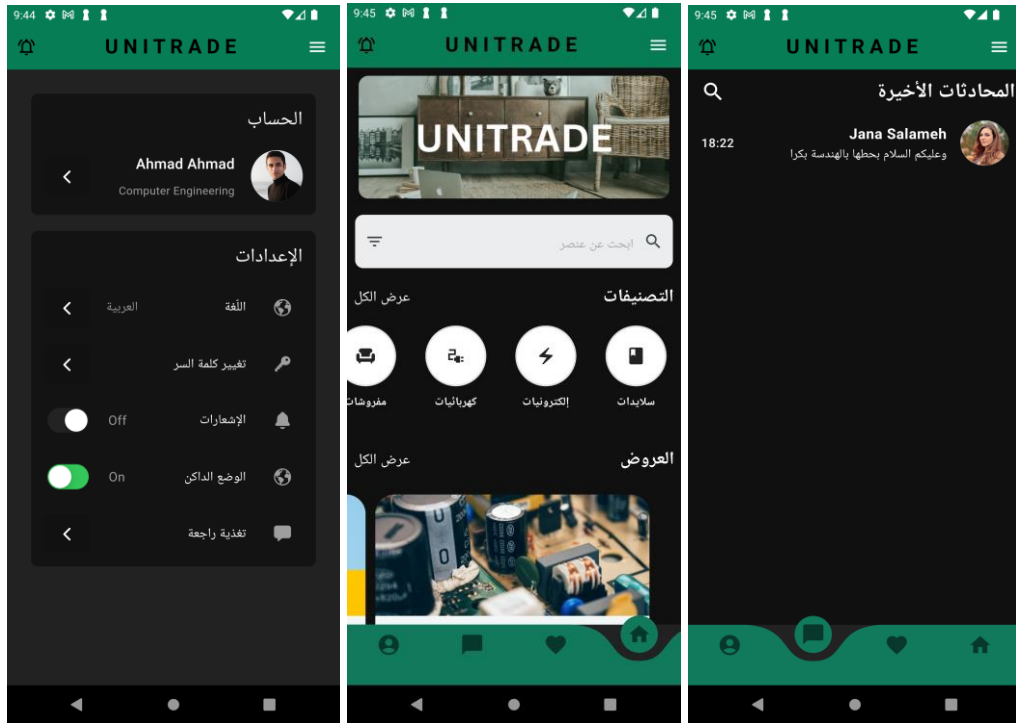


Figure 3:52 Dark mode part1 user story 9

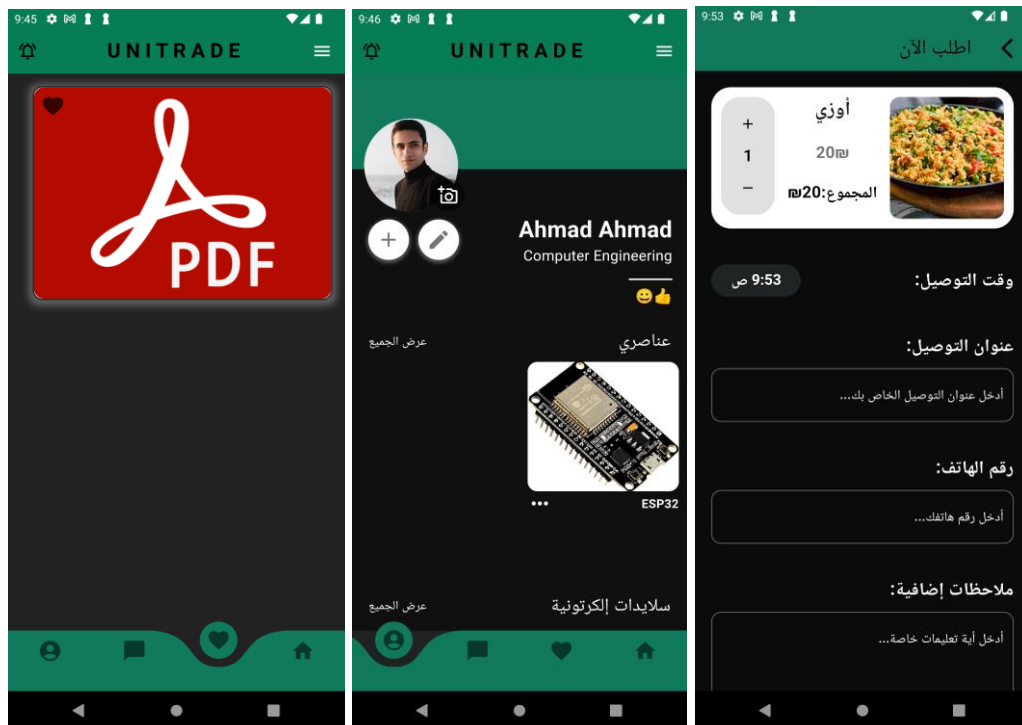


Figure 3:53 Dark mode part2 user story 9

- I can rate my overall experience using the application and send feedback directly to the administrators. This allows me to report any issues, suggest improvements, or express my general experience with the app.

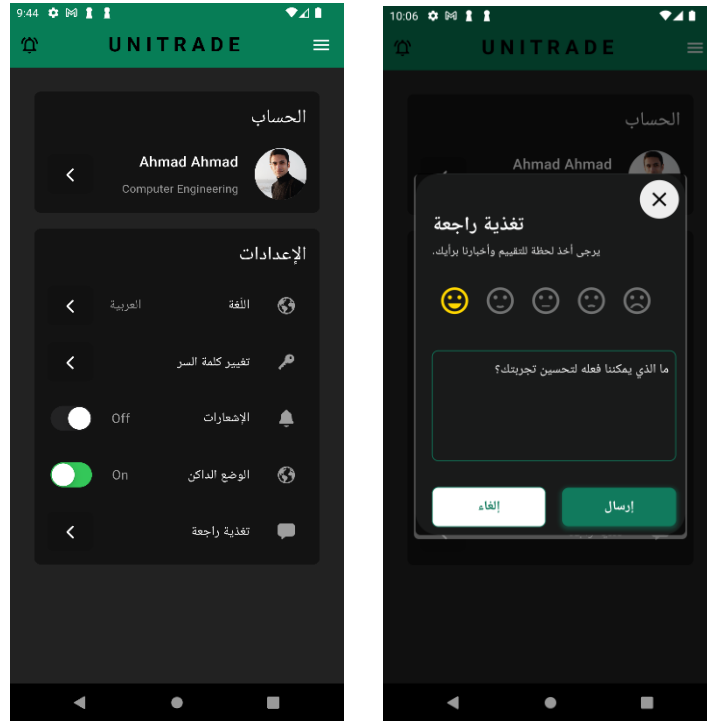


Figure 3:54 Send feedback user story 9

• TENTH USER STORY: HELP PAGE

Title: Accessing Help and Support

As a user, I access helpful information about the application and communicate with the admin for assistance when needed,

- I can access the help page within the application to find detailed information and assistance related to various aspects of the app's functionality and usage.

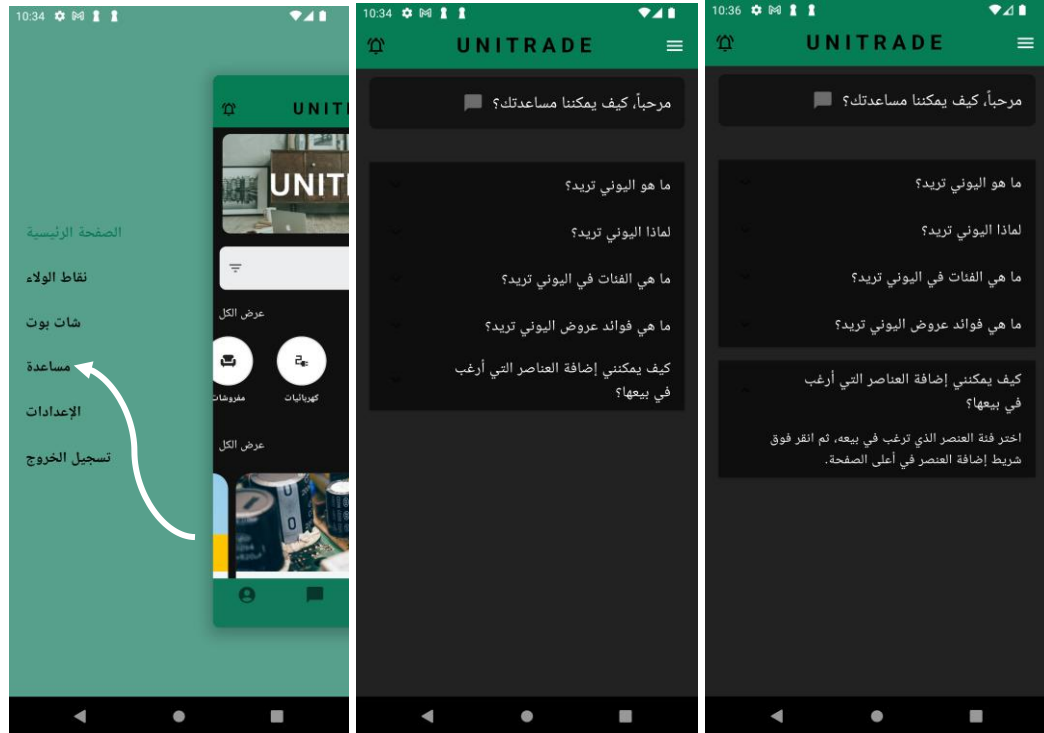


Figure 3:55 help page user story 10

- If I encounter any difficulties or have questions that are not addressed in the help section, I can easily communicate with Chabot if I have any problem if he could not answer me he will connect me to the admin or support team directly from the app.

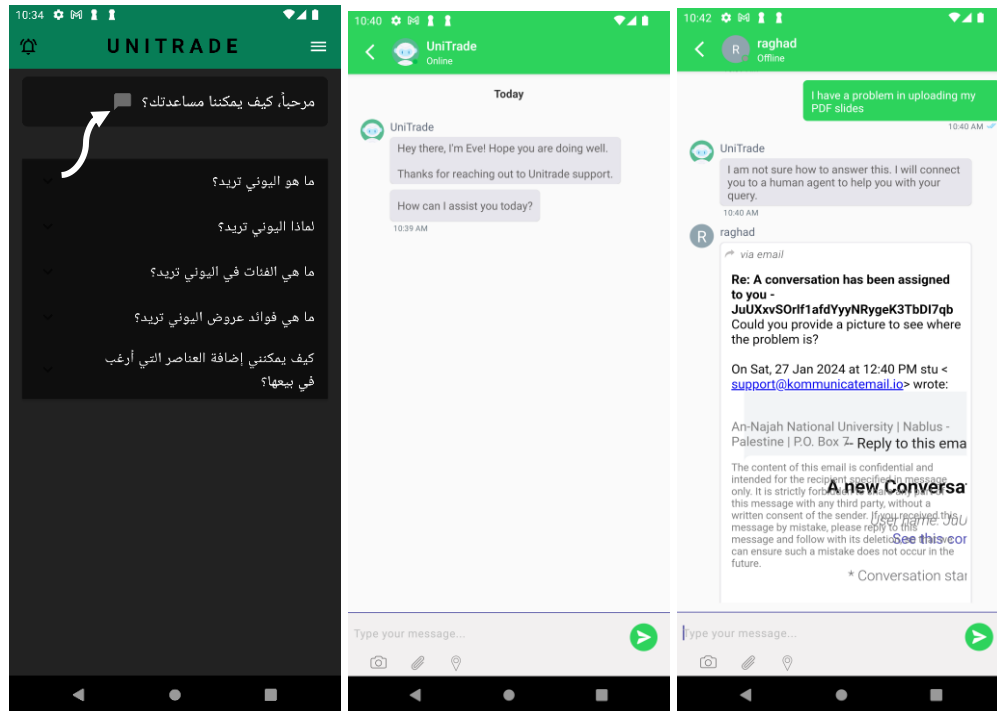


Figure 3:56 communicate with admin user story 10

• ELEVENTH USER STORY: PODACSTS

Title: podcast category

As a user, I can listen to podcasts on UniTrade,

- I can choose a podcast from the popular podcast section or from the list of podcasts in the podcast category, as well as I can put the podcast on my favorite list by pressing on the favorite icon next to the podcast.

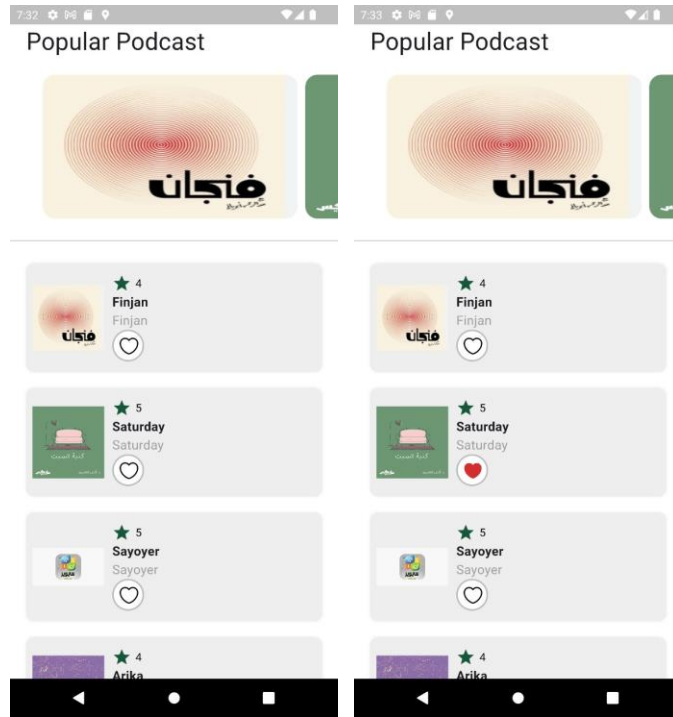


Figure 3:57: podcast part1 user story 11

- The podcast will appear on a new page once I've chosen it, along with a slider I can control and another five icons. From these icons, I can adjust the speed of the podcast, slow it down, make it play faster, go back to its original speed, repeat it after it ends by pressing the repeat icon, and I can stop it and play it again whenever I want.

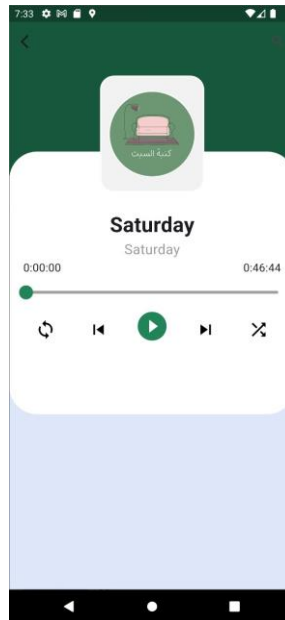


Figure 3:58: podcast part2 user story 11

- **TWELFTH USER STORY: ADMIN PAGES**

Title: Admin Dashboard and Management

As an admin, I can efficiently manage and oversee various aspects of the application from a comprehensive admin dashboard,

- As an admin, when I log into my home page, I can see an overview of the application's performance, including charts, statistics, and other relevant data, giving me a quick snapshot of the app's status.

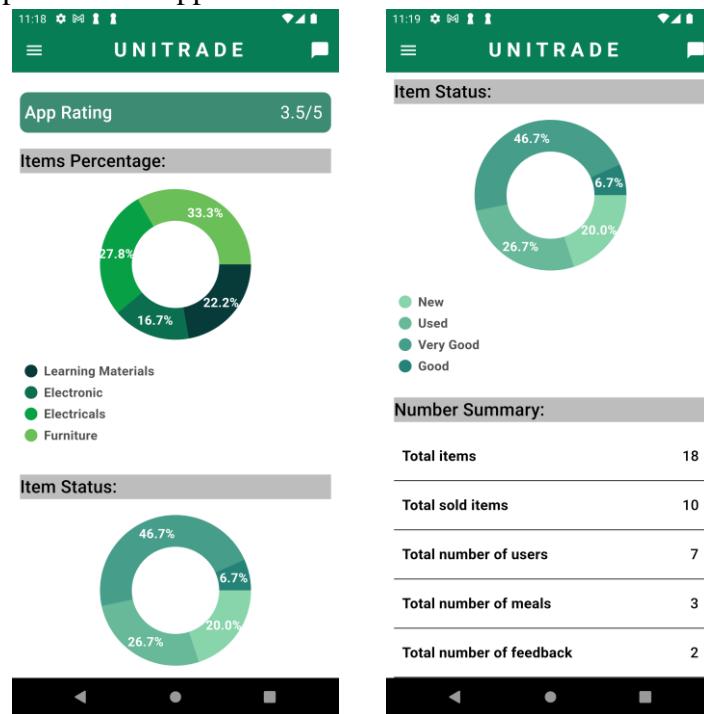


Figure 3:59 Admin home page user story 12

- I have access to a search page where I can easily look up users, items, offers, and meals, facilitating efficient management and oversight.

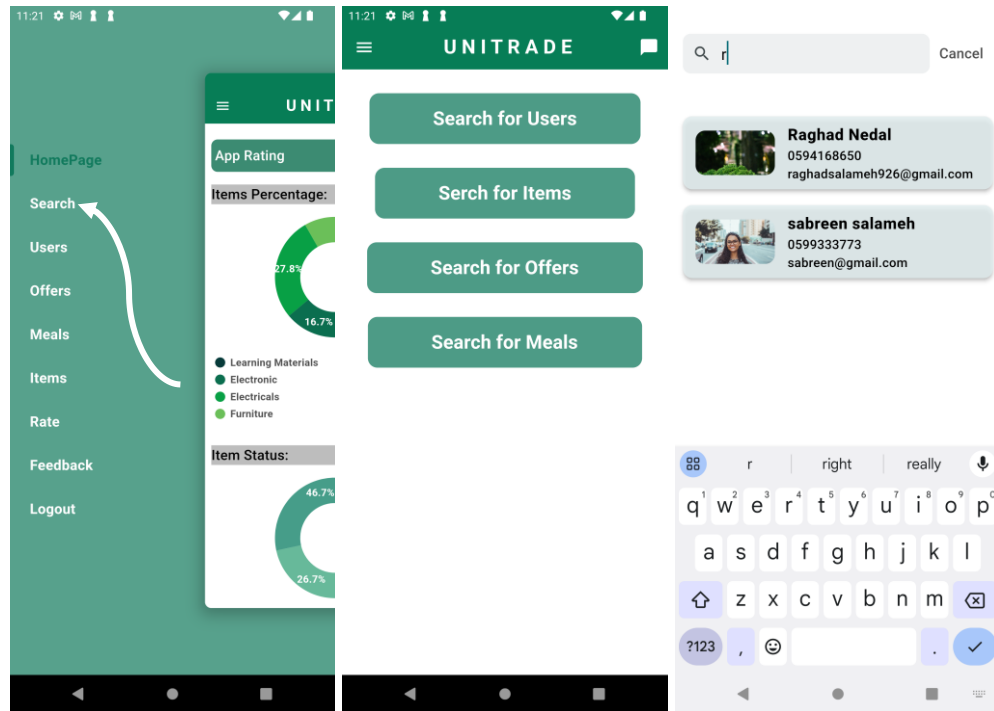


Figure 3:60 Admin search part1 user story 12

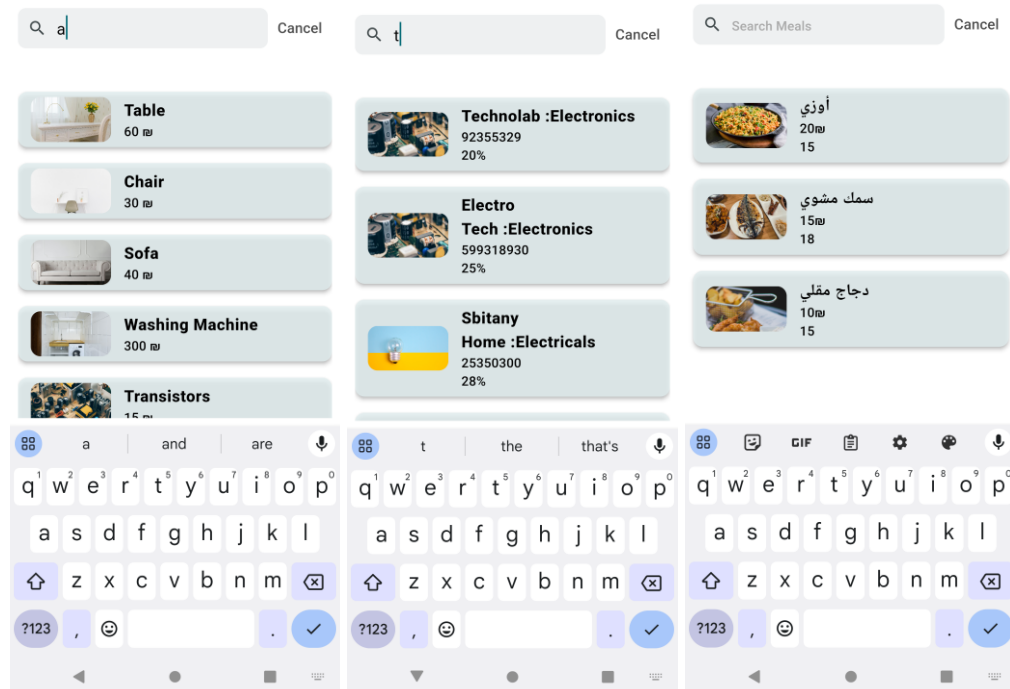


Figure 3:61 Admin search part2 user story 12

- On the users page, I have the capability to add new users, delete existing ones, or edit their information, ensuring I have full control over user management.

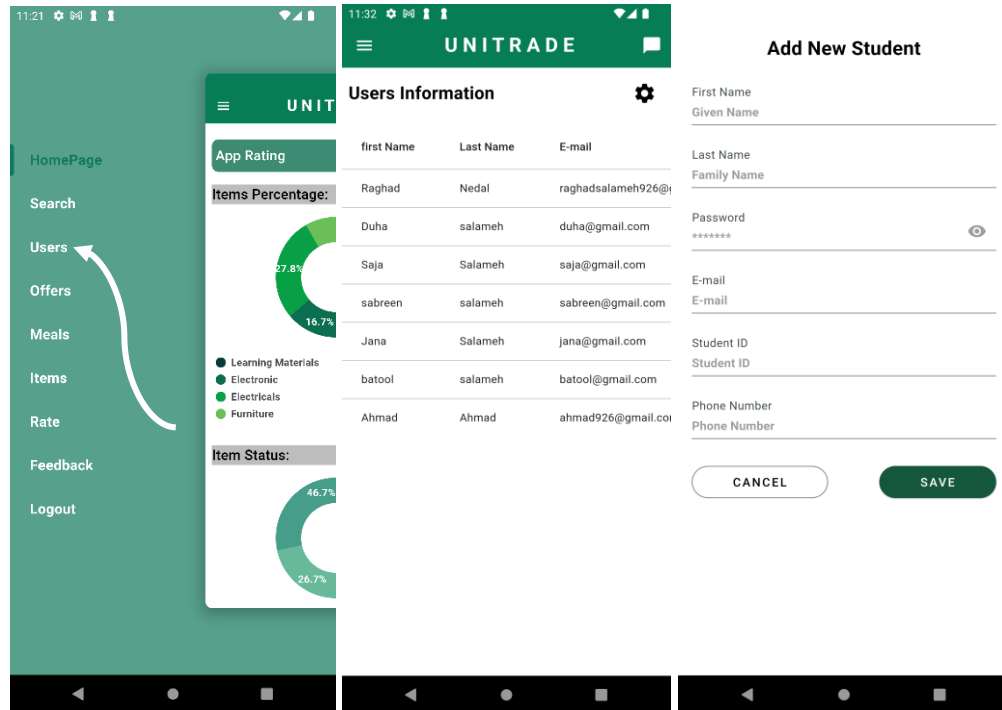


Figure 3:62 users page user story 12

- In the offers section, I can add new market listings, delete or edit existing ones, and view detailed information about each market. I also have the authority to create, edit, or remove special offers.

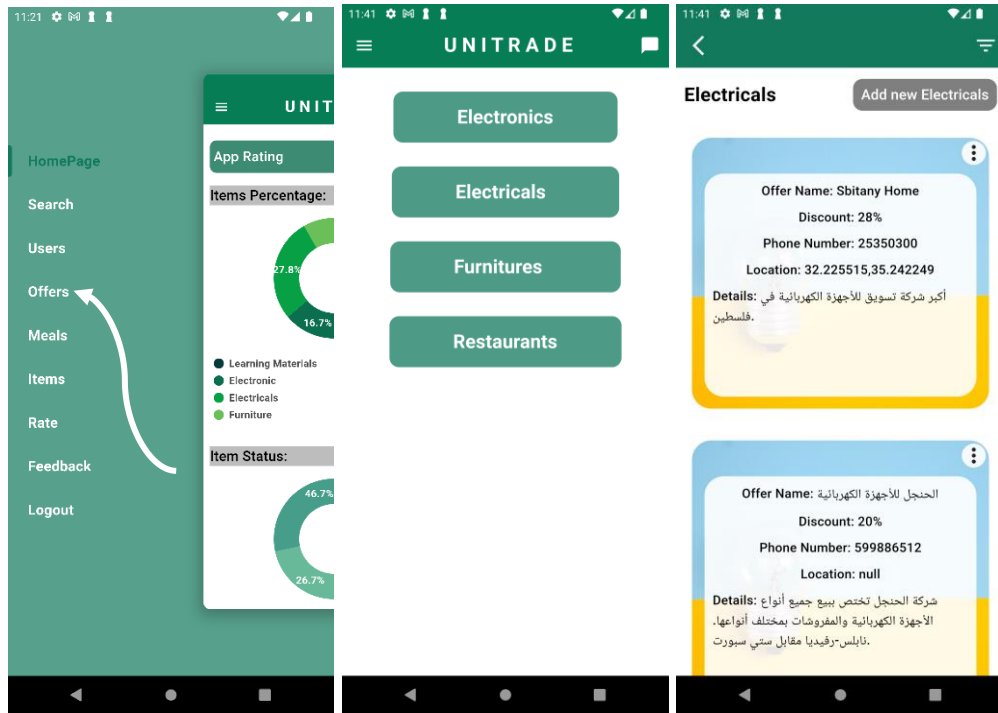


Figure 3:63 offer page part1 user story 12

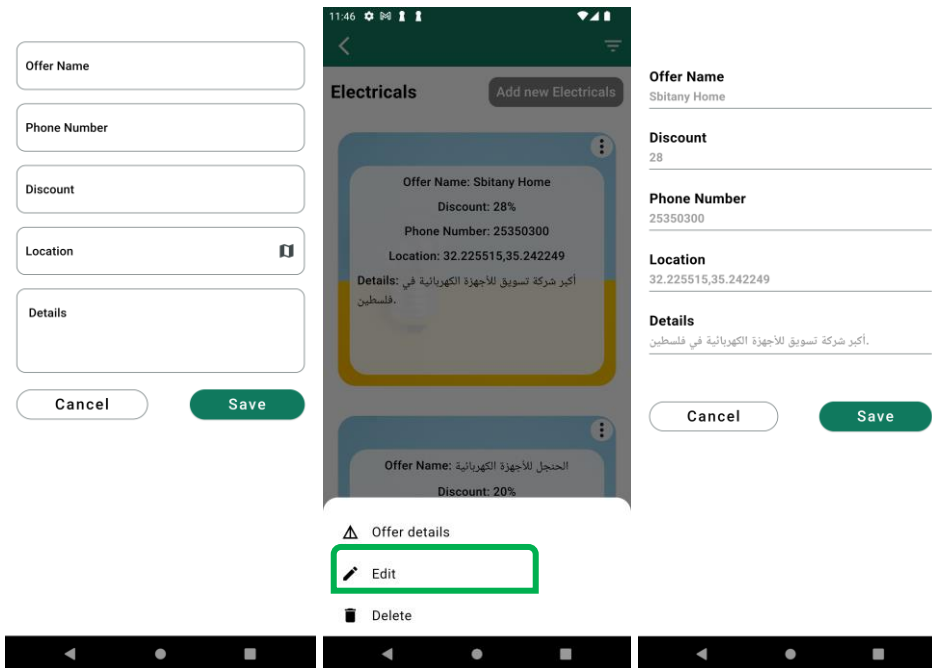


Figure 3:64 offer page part2 user story 12

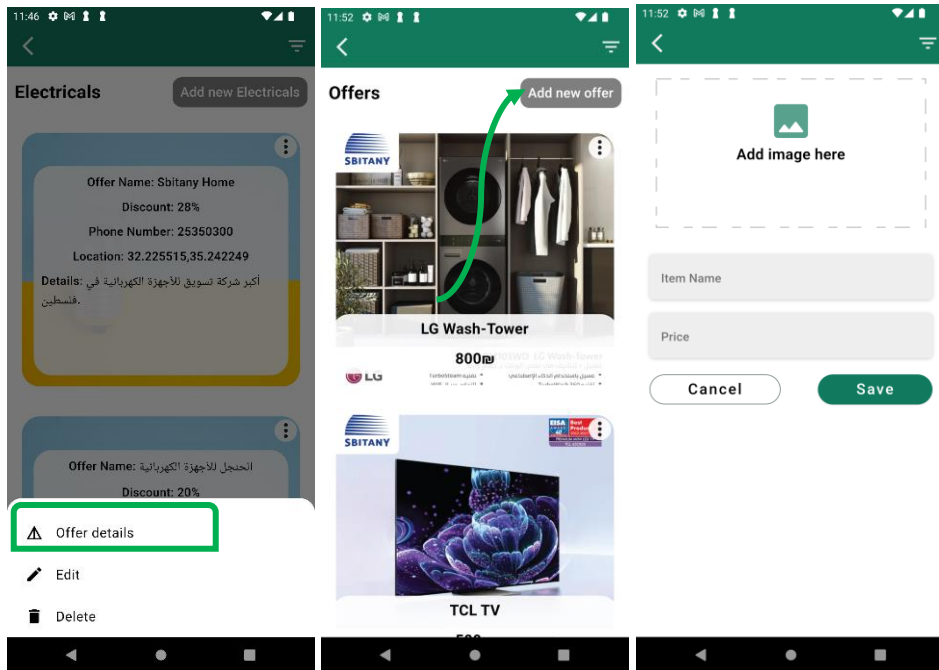


Figure 3:65 offer page part3 user story 12

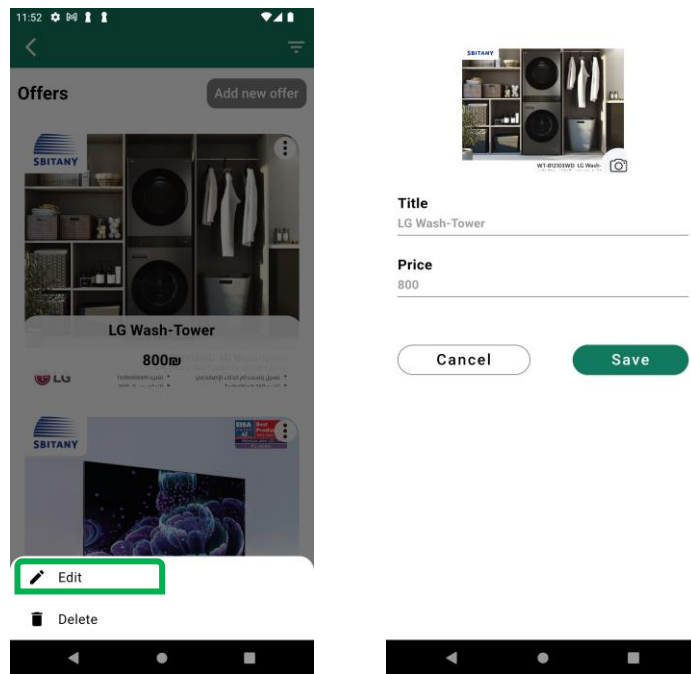


Figure 3:66 offer page part4 user story 12

- On the meals page, I can add new meal options, edit details of existing meals, or remove them from the listing as required.

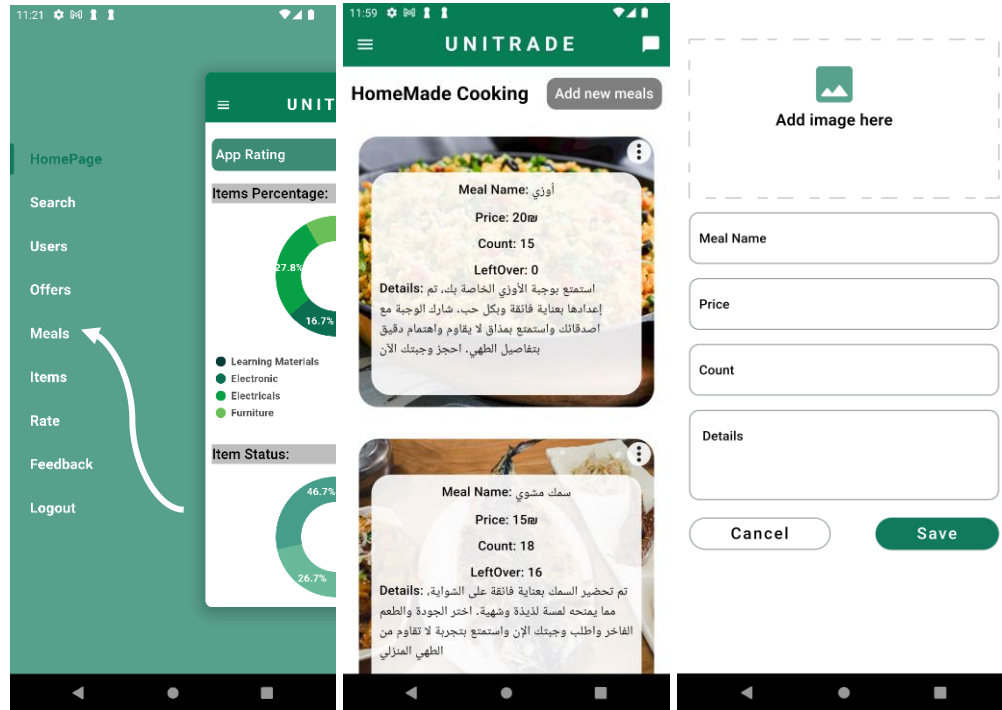


Figure 3:67: meal page part1 user story 12

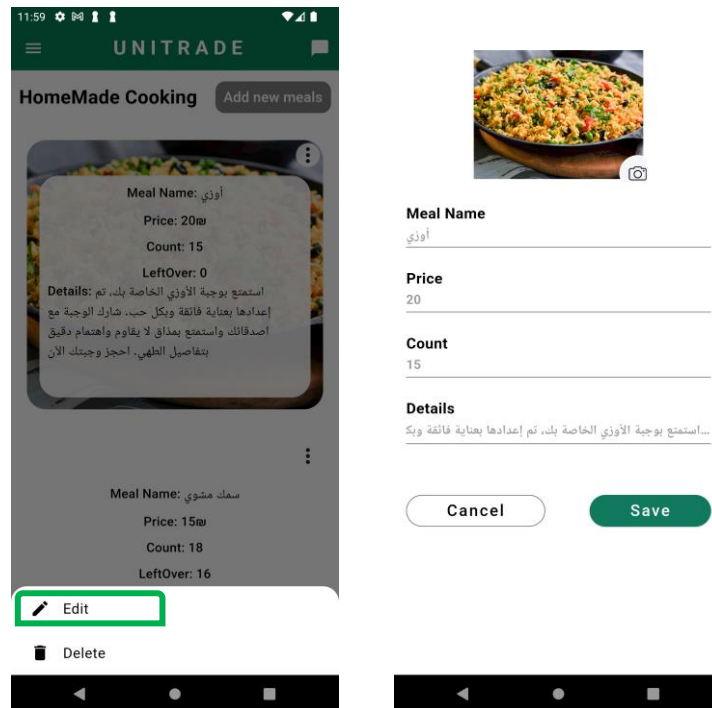


Figure 3:68: meal page part2 user story 12

- In the items section, I can oversee the items listed by users and have the authority to delete any item that doesn't comply with the app's policies or standards.

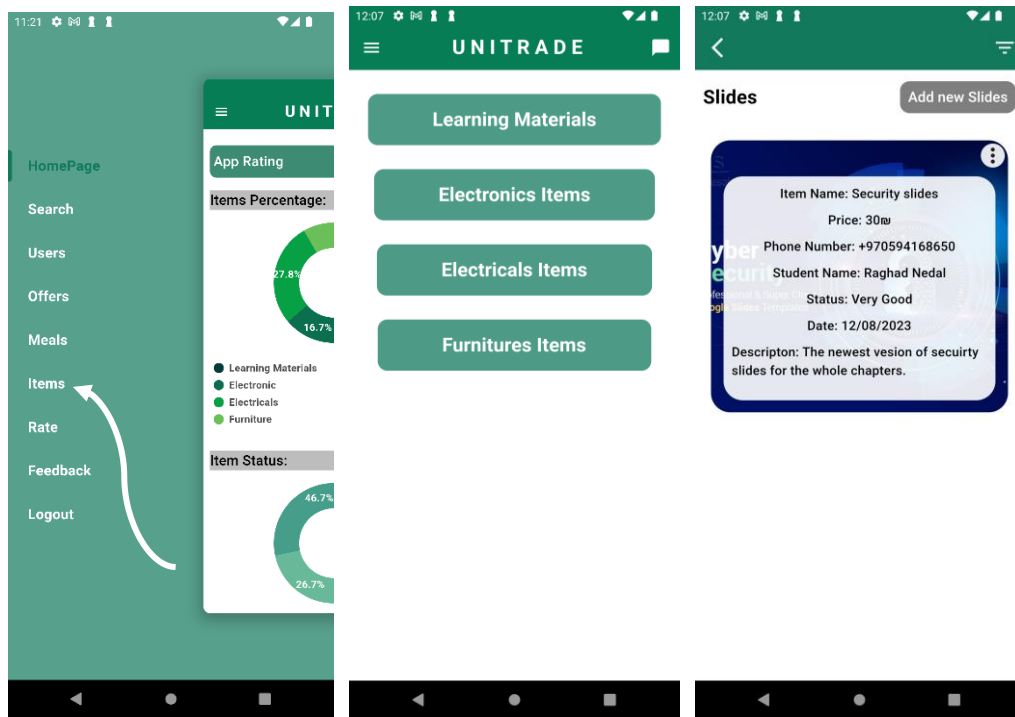


Figure 3:69: item page user story 12

- The rate page allows me to view the overall ratings of the application, helping me gauge user satisfaction and areas for improvement.

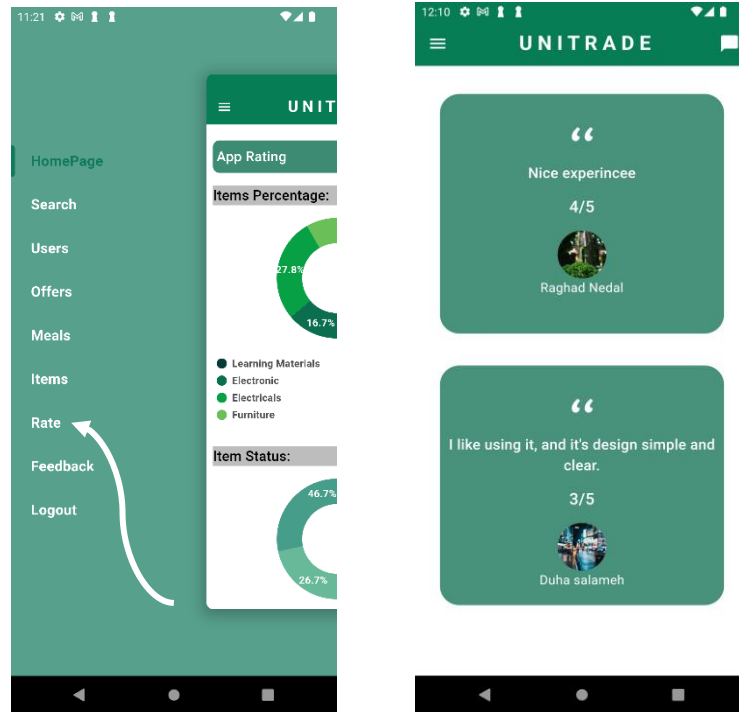


Figure 3:70: Rate page user story 12

- On the feedback page, I can read comments left on various items and have the ability to delete inappropriate or irrelevant items, maintaining the quality and integrity of user feedback.

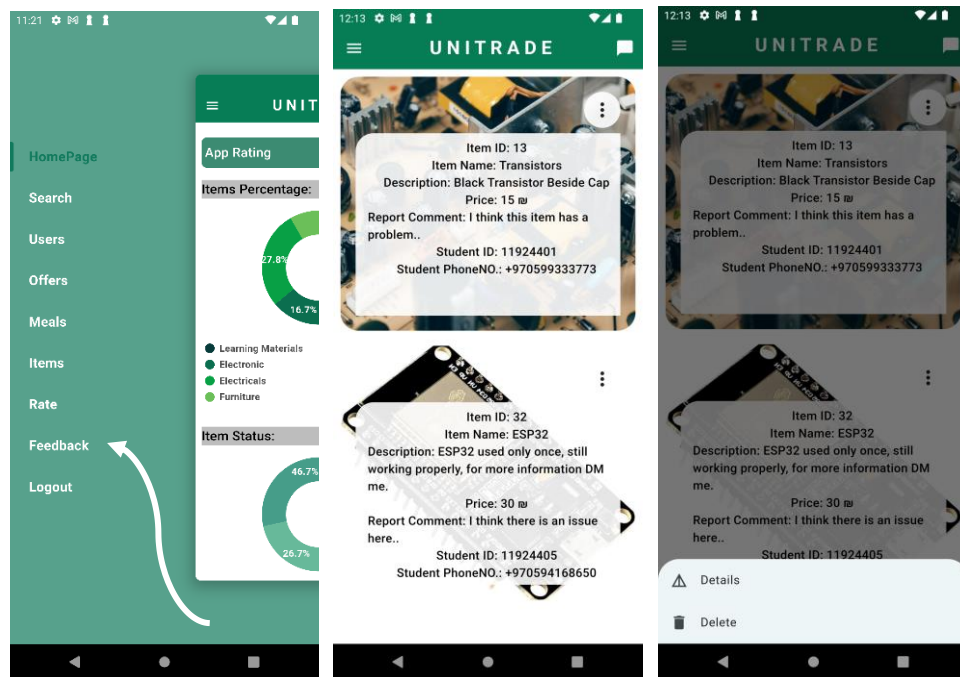


Figure 3:71: Rate feedback user story 12

3.3.2. WEBSITE

The website encompasses all features and interfaces available within its platform, ensuring a comprehensive user experience. From user management functionalities like account creation, profile editing, and password management to content management capabilities such as adding, editing, and deleting items, offers, and meals, the website provides robust tools for administrators to oversee various aspects of the application. Additionally, users have access to search functionalities enabling efficient exploration of users, items, offers, and meals. The website also facilitates communication between users and administrators through feedback channels, ensuring effective resolution of queries and concerns. With an intuitive dashboard summarizing application statistics and comprehensive pages for managing users, offers, meals, items, ratings, and feedback, the website delivers a seamless and user-friendly platform for both administrators and users alike.

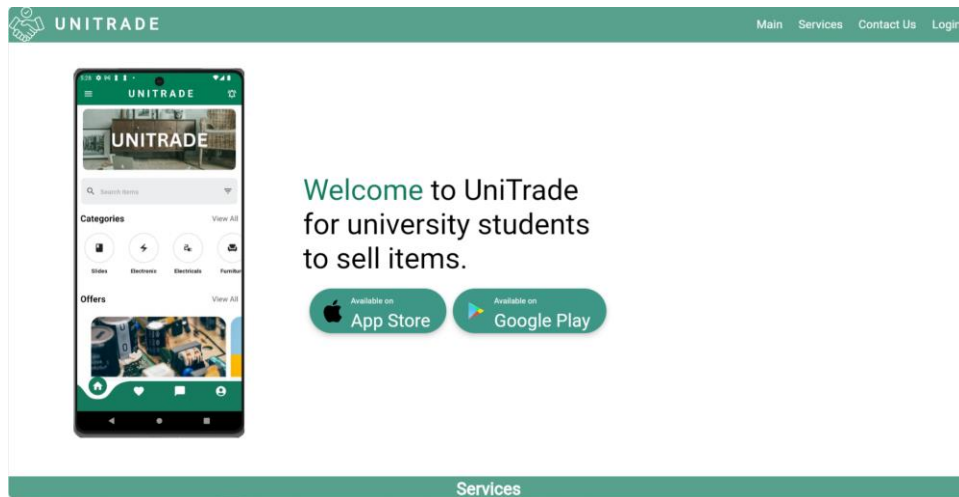


Figure 3:72: website homepage_part1

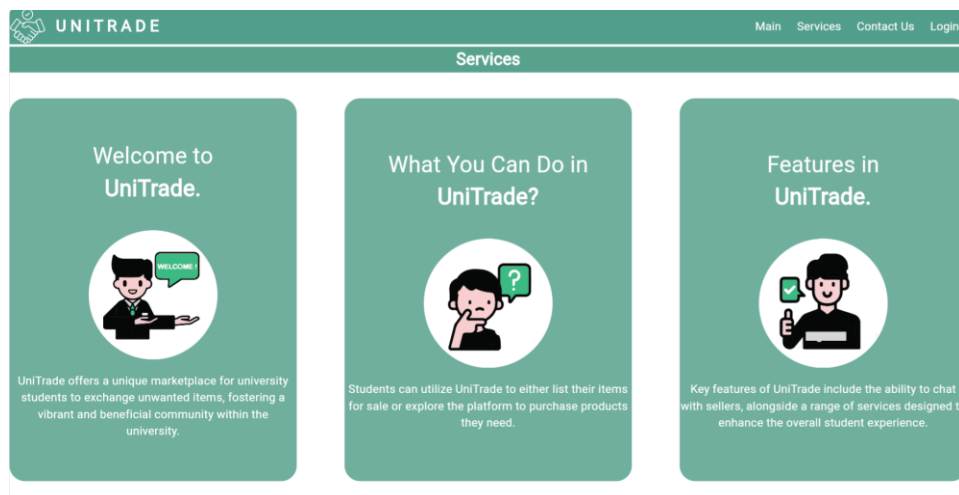


Figure 3:73: website homepage_part2

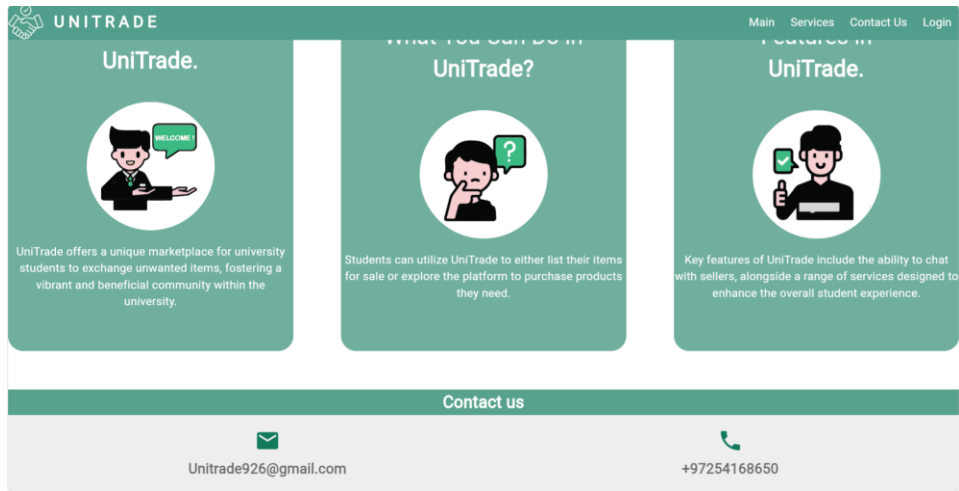


Figure 3:74: website homepage_part3

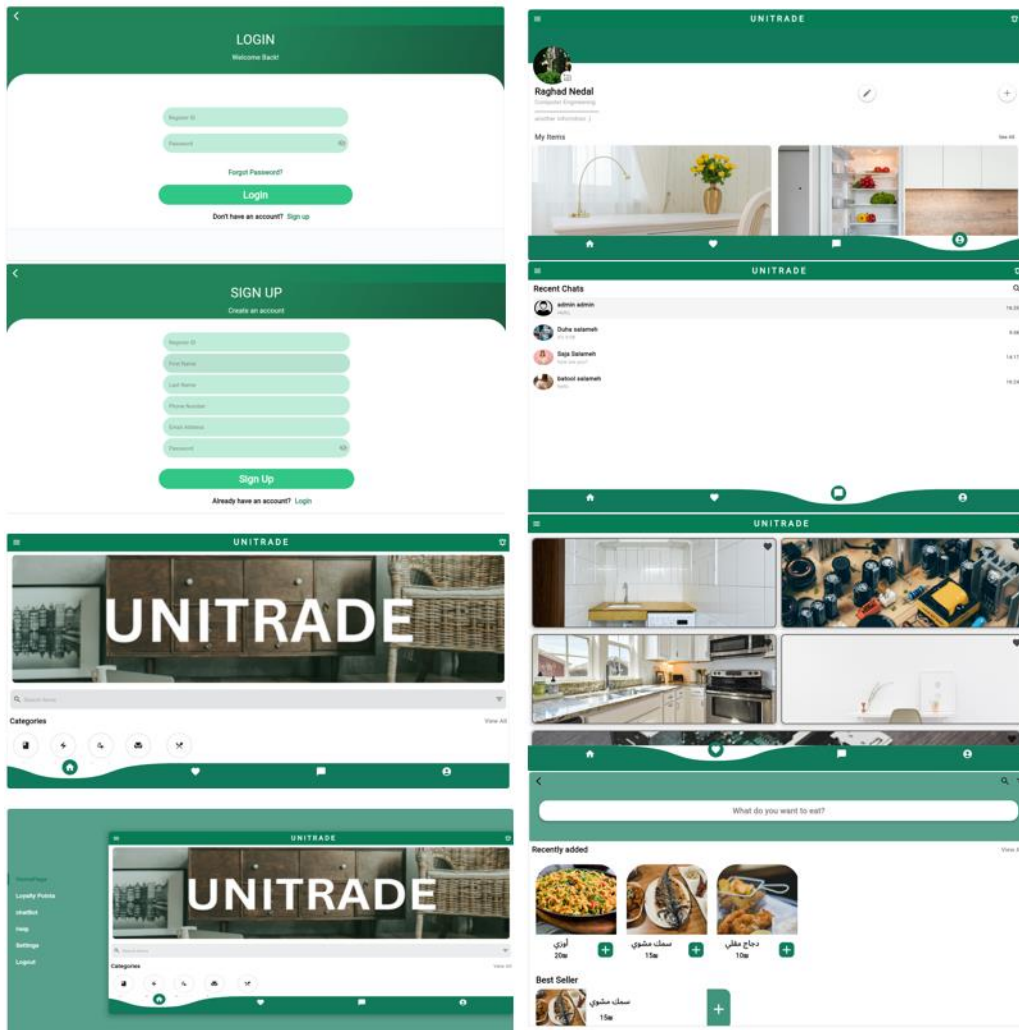


Figure 3:75: website pages part1

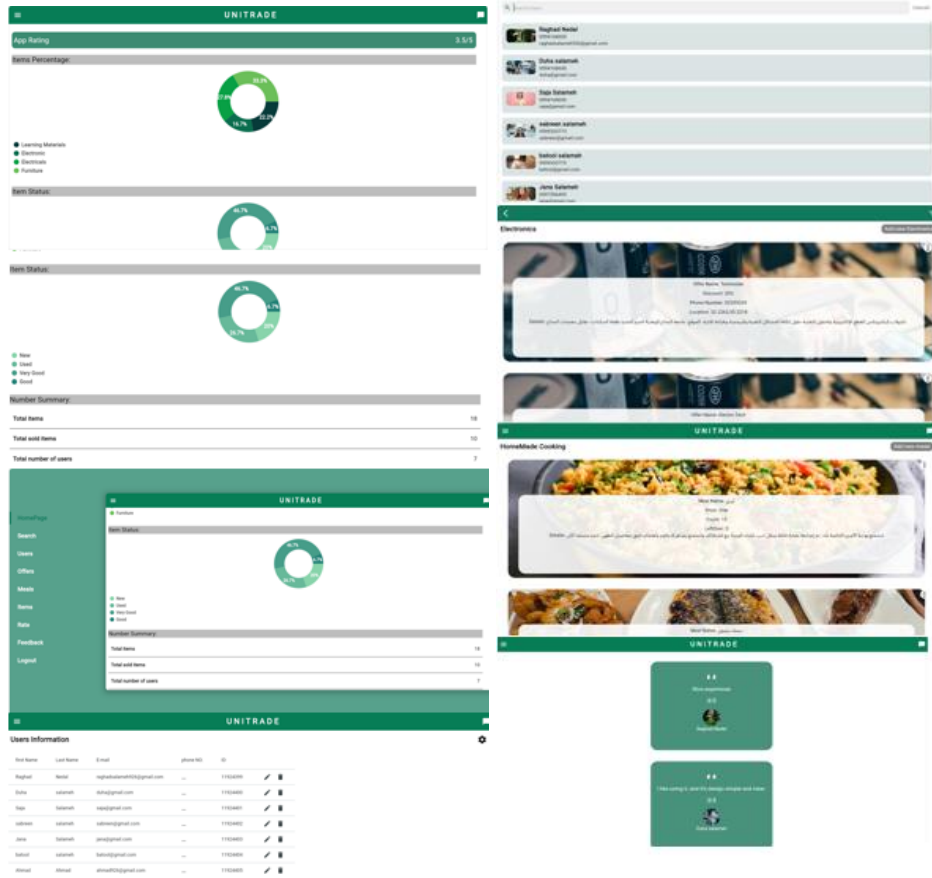


Figure 3:76: website pages part2

3.4. OTHER PROPERTIES

3.4.1. RESPONSIVE

The website and mobile application have been meticulously designed to be fully responsive, adapting seamlessly to various screen sizes. This ensures an optimal user experience, meeting the diverse requirements of our users regardless of the device they use. Whether accessed from a smartphone, tablet, or desktop, the interface adjusts fluidly, providing consistent functionality and visual appeal across all platforms.

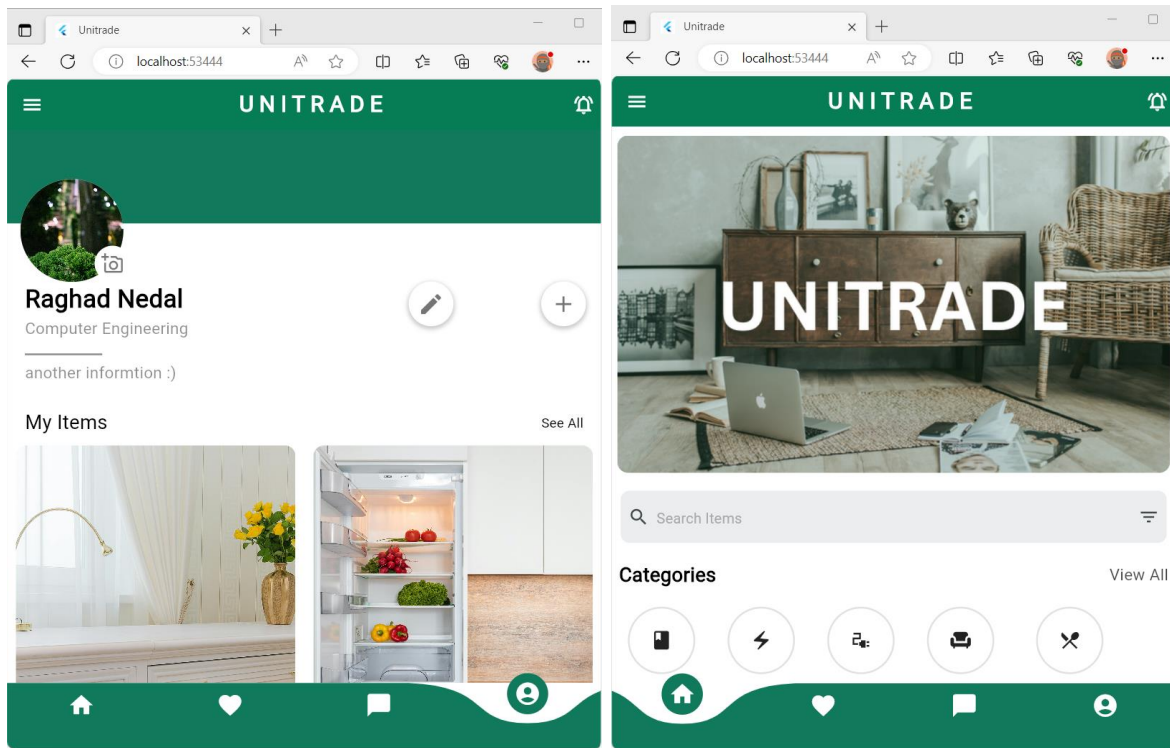


Figure 3:77: Responsive part1

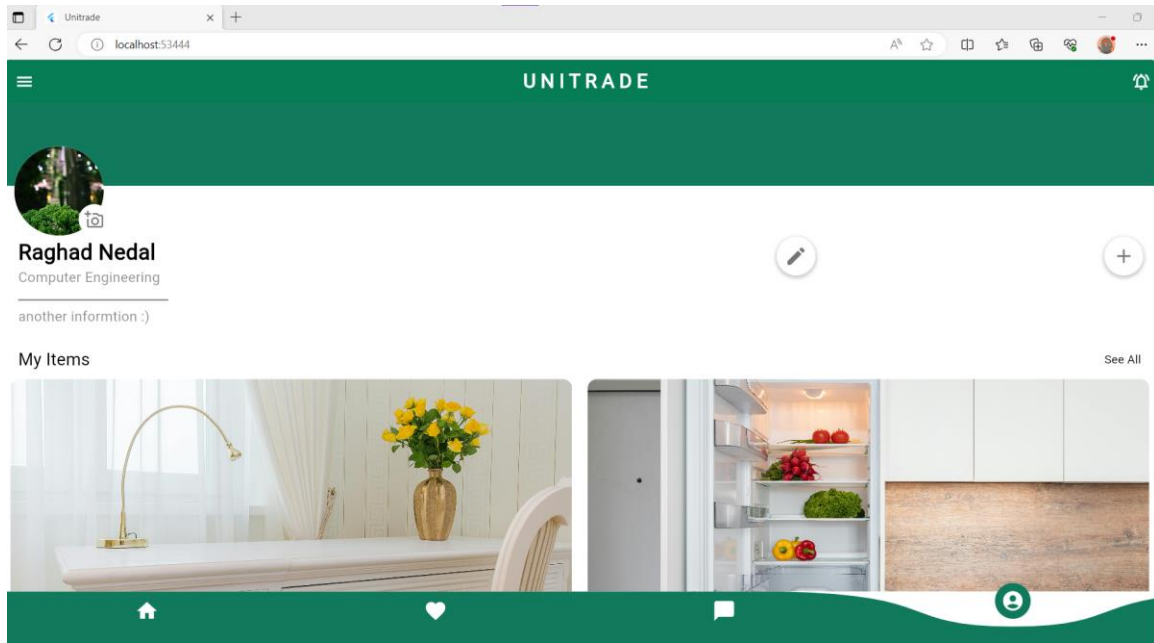


Figure 3:78: Responsive part2

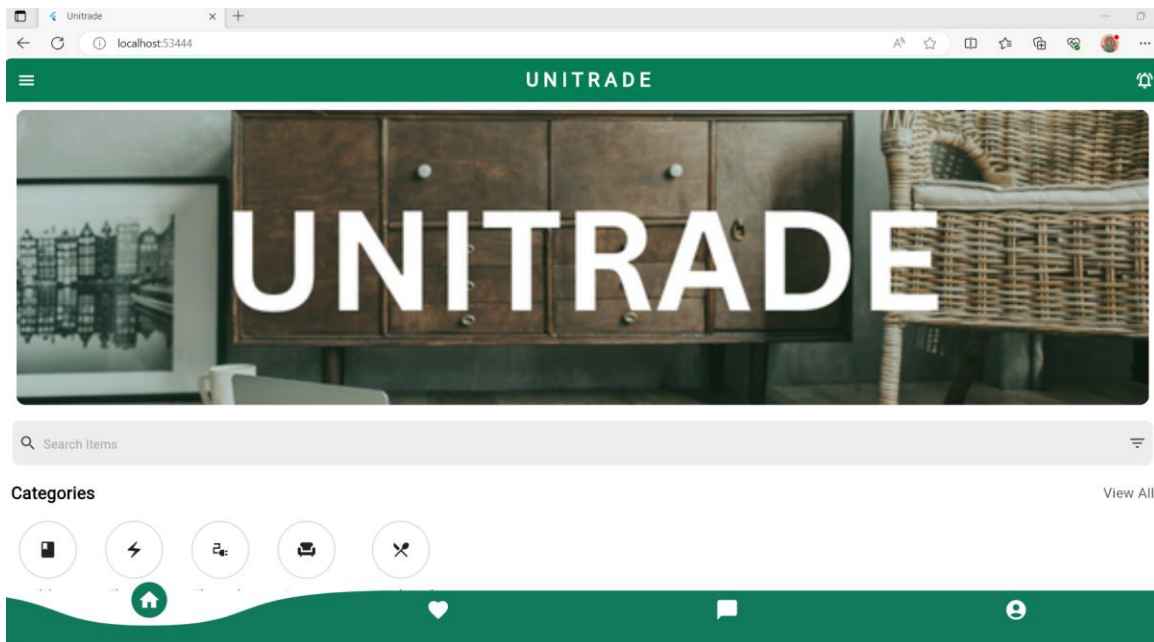


Figure 3:79: Responsive part3

3.4.2. VALIDATION

The system incorporates robust validation mechanisms to ensure data integrity and user satisfaction. If any required field is left empty during registration or submission, the process halts, prompting users to fill in all necessary information before proceeding. Furthermore, if a user enters a registration ID without being signed in, they are directed to sign up first to continue. In cases where an incorrect password is entered, the system promptly notifies the user of the error, allowing them to rectify the issue and proceed accordingly. Additionally, users are limited to uploading a maximum of three items per day for free. Should they wish to upload more items, they are required to pay a fee to unlock additional upload capacity. This system safeguards the platform against misuse while providing users with a seamless and secure experience.

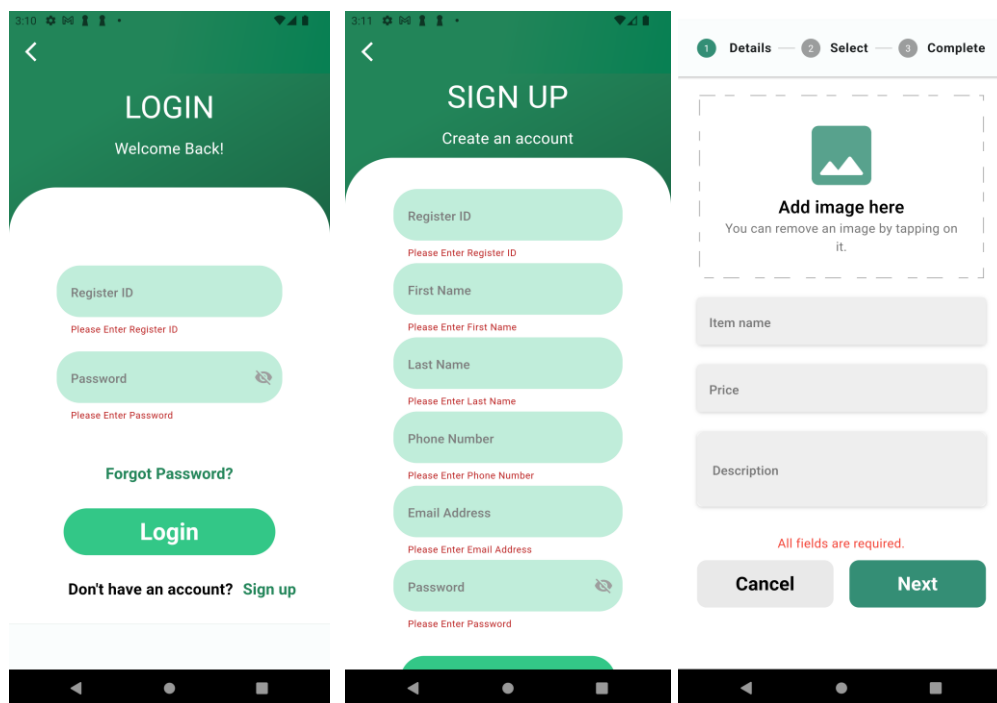


Figure 3:80: empty fields

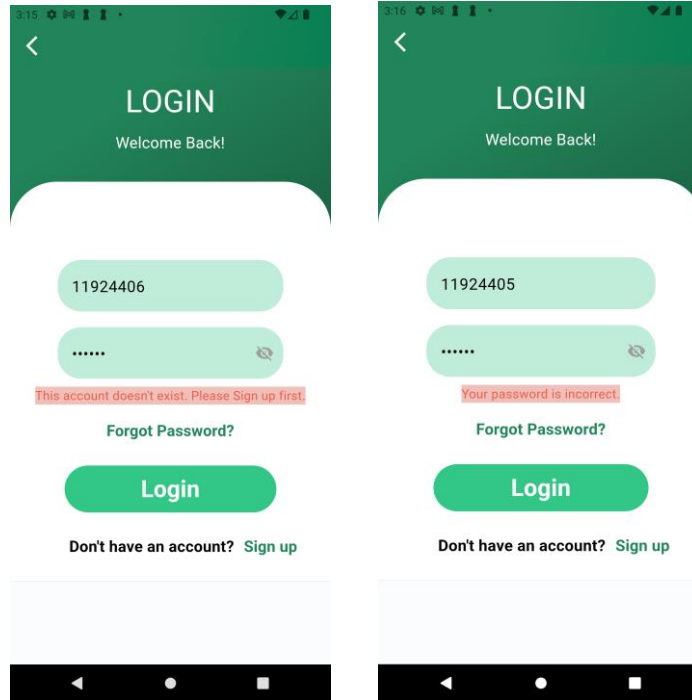


Figure 3:81: incorrect password user not registered

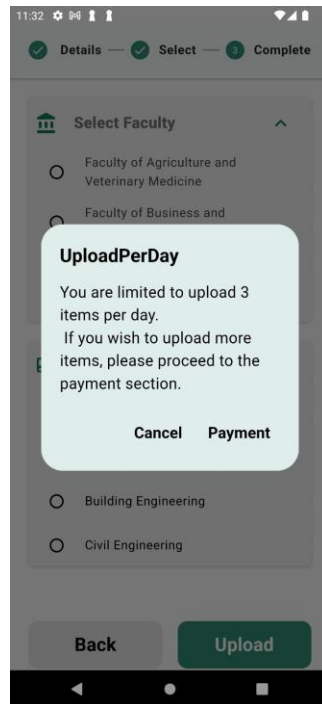


Figure 3:82: upload limitation

3.4.3. FORGOT PASSWORD

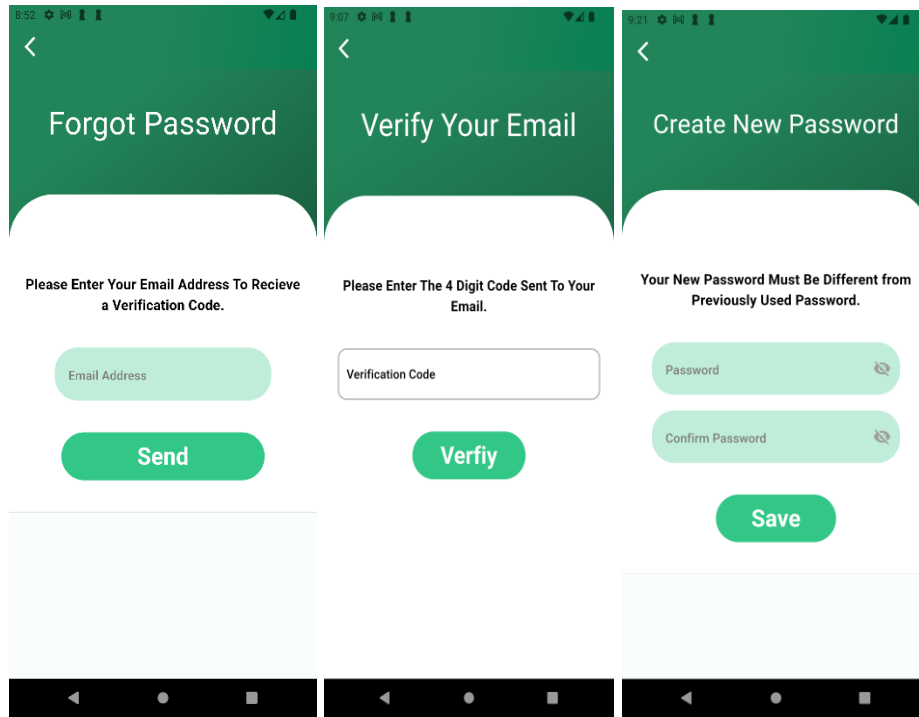


Figure 3:83: Forgot Password part1

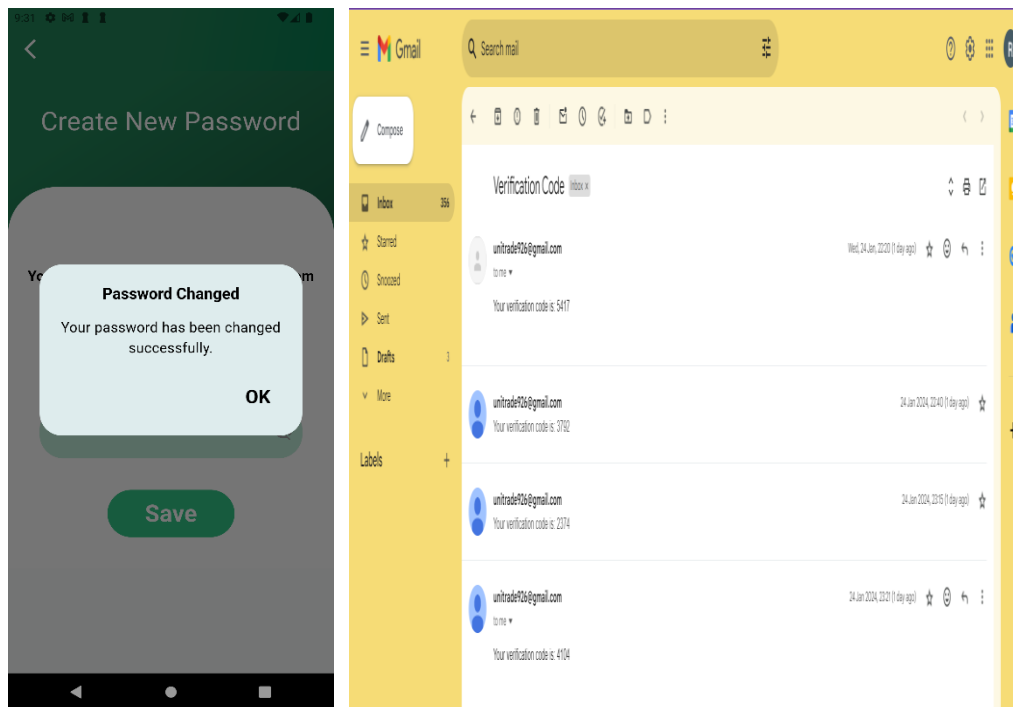


Figure 3:84: Forgot password part2

4. RESULTS AND DISCUSSION

At the end of this project, we successfully achieved the desired results by building a smart “UniTrade” which is a comprehensive platform that includes both a website and a mobile application designed especially for university students providing high efficiency and a user-friendly experience, and outstanding features guided our focus on creating a simple, intuitive, and visually clear design to ensure ease of use for all users.

Through Uni-Trade, students will have the opportunity to sell their unwanted items to their peers, creating a beneficial exchange within the university community. Additionally, an administrator oversees all aspects of the application. They are responsible for providing students with a variety of services aimed at improving their quality of life. For instance, the collaboration with local restaurants to offer food delivery services tailored to students' GPS locations, enhances convenience and accessibility.

4.1. CONSTRAINTS

However, the app development journey presented various technical and practical challenges.

- Understanding the causes of exceptions and errors in the code has not always been straightforward. It involved investing time in research and troubleshooting to identify the root cause of the issue.
- As new dependencies were added and frequent updates occurred, it sometimes clashed with our existing infrastructure. The creation of a logical and robust database system that efficiently retrieves and stores data proved to be a challenge.
- Connecting the applications that we used to develop UniTrade and making the emulator work was challenging.
- Find a way to upload pictures from code to a cloud appear in the UniTrade application and website.
- Challenge in writing a code to download a PDF file.

Despite these challenges, the application was successfully developed according to our vision, yielding satisfying outcomes. Users can buy their wanted items with just one click, and sell the item that they finished using, and they are in a good state at a cheaper price than the price in the market, UniTrade also supports local restaurants and homemade cooking.

5. CONCLUSION AND RECOMMENDATION

5.1. SUMMARY

“UniTrade” was designed and developed to enable students to sell their unwanted items to fellow students and buy a wanted item at a cheaper price and shorter time. The various services are introduced aimed at improving students' lives by the admin for more security and efficiency.

UniTrade has a very strong, user-friendly, and secure payment system and during the development of the system, we have also overcome several challenges. One of the challenges we faced was understanding and addressing exceptions and errors in the code, the addition of new dependencies and frequent updates occasionally led to clashes with the existing infrastructure. Additionally, the task of connecting applications for Uni-Trade development and ensuring proper functionality of the emulator presented notable difficulties.

In summary, the development and implementation of Uni-Trade have successfully addressed the challenges faced by university students in exchanging goods and services. The dual-platform solution, consisting of a mobile application and a website, provides a user-friendly experience, fostering a collaborative environment among students. Uni-Trade simplifies the process of buying and selling academic materials, furniture, and various items, contributing to a more connected university community.

The platform's innovative services, such as collaborations with local businesses and the introduction of a food delivery service, further enhance the overall university experience. Uni-Trade has proven to be a valuable asset in saving students time, effort, and money. The comprehensive approach of the application, offering features like profiles, chatting, notifications, ratings, and reviews, ensures a secure and reliable community within the Uni-Trade ecosystem.

5.2. RECOMMENDATION

- Be careful when adding new dependencies or making updates.
- Connect the applications that you want to use and make sure that the emulator is working as early as you can.
- Choose the technologies that you want to use carefully.

5.3. WHAT WE HAVE LEARNED

- How to work with flutter, Node.js,
- How to use mysql workbench and firebase (for notification and chatting) databases.
- How to make audio work with the used technologies.
- How to upload pictures to firebase storage from code to appear in the UniTrade application and website.

5.4. FUTURE WORK

- Improve the chat system by adding voice messages, images, and videos.
- Add a recommendation system to recommend items for the students depending on the item's color and range of price.
- Enable users to upload multiple images and video for items.
- Improve the delivery mechanism in this application.

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