Jordan University of Science and Technology
College of Computer Sciences & Information Technology

A project submitted
in partial fulfillment of the requirements for the degree of bachelor's in
software engineering

By

Name	ID
Ghada ziad Musallam	144155
Rana Ahmad Hazaimeh	145419
Aya Mohammad Obeidat	146842

Supervised by **Khaldoon Tariq AL-Zoubi**

Committee Member Names

Ahmed Saleh Shatnawi
Zakaria Muhammad Al-Sharaa

Feb 2024

UNDERTAKING

This is to declare that the project entitled "Mahali" is an original work done by undersigned, in partial fulfillment of the requirements for the degree "bachelor's in software engineering" at
Software Engineering Department, College of Computer and Information Technology, Jordan University of Science and Technology.

All the analysis, design and system development have been accomplished by the undersigned. Moreover, this project has not been submitted to any other college or university.

Student1: Ghada Ziad Musallam

Studen2: Rana Ahmad Hazaimeh

Student3: Ayaa Mohammad Obeidat

ABSTRACT

Customers, including business owners, university students, and housewives, often face time and effort challenges with local shopping. To address this, we've developed a system in Jordan that brings the benefits of online shopping to local stores. Customers can enjoy secure payment and doorstep delivery within a day, enhancing satisfaction and confidence in online platforms through heightened security measures and technological advancements.

Our system seamlessly blends electronic and non-electronic shopping. Customers can prepare a shopping list, choose preferred stores, and either order online for home delivery or visit the stores directly. This approach optimizes time and effort, providing a convenient and enjoyable shopping experience for everyone.

ACKNOWLEDGMENT

We would like to express our sincere appreciation to Prof. **Khaldoon T. AlZoubi** for his invaluable guidance and support throughout the project. His expertise and knowledge in the field were instrumental in the success of our project. Without his support, this project would not have been possible.

We are deeply grateful for all that he has done for us, and we will always remember his contributions to our success.

In addition, we would like to thank **Our Family** and **all Friends** for their patience and encouragement, which helped us overcome the challenges we faced during the project. **Thank you all.**

We, Ghada and Aya, would like to express our sincere gratitude to **our late fathers**. Their unwavering support and encouragement have been a guiding light throughout our life and, by extension, in this project. Though they are no longer with us, their influence continues to shape our dedication and commitment to our goals. We are profoundly thankful for the values they instilled in us, and we carry their memory with us in every aspect of our project. **Thank you for everything, Dad**. Your legacy lives on in the work we do, and I am forever grateful for the profound impact you had on our life and our shared endeavors.

CONTENT

LIST OF TABLES

Table Page

LIST OF FIGURES

Figure **Page**

LIST OF ACRONYMS AND ABBREVIATIONS :

- API Application Programming Interface
- REST Representational State Transfer WS
- DB Database
- ERD Entity Relationship Diagram

CHAPTER 1: INTRODUCTION

1.1 Overview

The introduction of the internet has radically altered the way we shop, and online shopping has become a vital part of our lives. With the internet, people are now more likely to purchase things online, which has changed how we shop and interact with the market. As a result of this change, not only have businesses changed, but so have people's expectations of shopping. It is now essential to our daily lives to be able to shop online.

The project aims to bridge the gap between in-person stores and online shopping conveniences. Users can explore a diverse range of products and services available from their favorite neighborhood stores by combining products and services from multiple local businesses on a single website. As well as expanding product accessibility, local businesses are being preserved and given a unique character. The project also allows users to discover and support local businesses they may not have known about before. This brings a sense of community and encourages people to shop locally and shop small. The project also benefits the local economy by increasing consumer spending.

1.2. PROJECT MOTIVATION

The motivation behind embarking on this project is because we strongly believe that small businesses are essential to our community, and we want to give them more power in the face of a rapidly digitizing marketplace. The decision to create this project arose from the knowledge that although local businesses offer distinctive goods and services, they frequently find it difficult to operate in the digital landscape, limiting their growth potential and reach.

Unlike big online shops that focus on the whole world, our project is all about local stores. We're creating a special online place where people can easily check out, reserve, and buy stuff from their favorite nearby shops. It's like bringing the local store experience online. This way, our project creates a winwin scenario for both businesses and consumers in our community.

1.3 PROBLEM STATEMENT

A number of e-shopping applications have been launched in Jordan. Despite their abundance, they still face many problems, including the distance of stores from users and the limited availability of goods. It was necessary to develop an application that helps users choose stores near them and display available goods, which leads to reduced time, effort, and cost. On users and the struggles faced by local businesses in adapting to the digital landscape, perhaps citing factors like a lack of online presence, decreasing foot traffic, or competition from larger online retailers.

1.4 Project Aim and Objectives

The local online shopping application aims to facilitate the shopping process for consumers to obtain an easy shopping experience inside Jordan without wasting time and effort. The objectives of this application are:

1- The application allows displaying more than one store so that the user can know all the purchases available within the store without the need to go to the store.

2- The site finds the store closest to the customer to shop from.

3- Facilitating buying and selling operations inside Jordan.

4- Users get to know new stores that they did not know before. 5- Strengthening local Business in the Jordan.

CHAPTER 2: PLANNING PHASE

2.1 Scope of the project

Our project deals with users (customer, shop owner, admin) online as a third party system. Our website allows the customers to shop electronically from the different shops added by the admin of the site at the same time , in addition to achieve the combination of electronic and non-electronic shopping to support the local products.

The customer can browse our site without needing to log in, but if they want to complete the online shopping process they must log in in advance. If the customer does not have any prior account on our site, he must create an account in his name, phone number and password. The customer can browse all the shops on the site and find out all the items, prices, quantities, etc. He can also access the place of any shop by tracking the map and this is what our site seeks.

For the shop owner , after agreeing with the admin and adding it on the site, he can log into the site with his pre-established account by entering the store name and the identification number given to him by the admin. After that, the shop can display his items and customers feedback for his visitors, it can also add, delete, and modify the items, and Add discounts on some items then notify customers by e-mail message.

As for the admin, they can add or delete shops from the site and write reports containing all the information for each shop on the site.

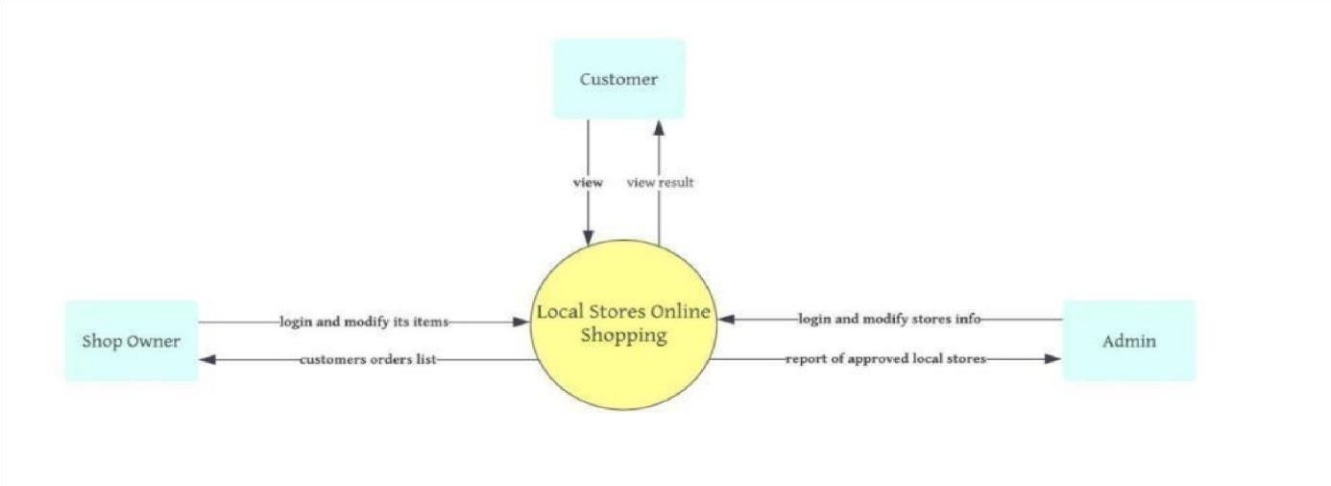


Figure 2.1 : Context diagram

2.2 Project risks and Product risks

Product risk:

1- Security Breaches: Risks of data breaches and unauthorized access to sensitive user information, potentially damaging the platform's reputation and user trust.

2- User Experience (UX):Users may find it challenging to navigate through the website leading to a poor user experience.

3- Product Information Accuracy: Inaccurate or incomplete product information may lead to customer dissatisfaction and returns.

4- Difficulty in achieving the defined goals of the application, which may lead to project failure.

5- Competitor Response: Intense competition from existing e-commerce platforms or potential new entrants may impact the platform's market share and user base.

6- Market Trends: Rapid shifts in consumer preferences or market trends may render certain features or aspects of the platform obsolete.

Project risk:

1. Difficulty learning the asp.net course.
2. Forgetting important information and points in the project can generate errors.
3. Inability to complete all functions and non-function requirements.
4. The deadline for delivering the project expires before it is fully completed.
5. Failure to do the testing adequately makes us highly vulnerable to failure, which may lead to the failure of the website (Unreliable).

2.3 Feasibility study

Economic Feasibility:

The Local Online Shopping Platform is a student-driven project for the community, and as such, there will be no formal economic studies conducted. However, the platform's potential economic benefits include fostering local business growth, job creation, and stimulating the local economy.

Intangible Benefits:

1. Community Empowerment:

- Encourages communities to support local businesses, fostering a sense of unity and collaboration.
- Promotes economic sustainability by maintaining profits within the community.

2. Enhanced Shopping Experience:

- Provides consumers with a convenient and personalized online shopping experience.
- Encourages exploration and discovery of local products and businesses.

3. Cultural Preservation:

- Supports the preservation of local culture and traditions by showcasing unique products from the community.

Technical Feasibility:

Technical Requirements:

- The platform will be compatible with the latest versions of popular browsers and mobile devices.
- Developed using common front-end technologies like HTML, CSS, and JavaScript, and back-end technologies like C# and ASP.NET Core.
- Database management will be handled using MySQL or a similar system.

Development Resources:

- A skilled development team will handle the project, ensuring a well-planned, managed, and executed development process.
- While it may be the team's first large-scale project, their skills, dedication, and available resources position them well for success.

Technology Infrastructure:

- Utilization of cloud services for seamless scalability and performance optimization.

Security and Data Privacy:

- Implementation of encryption protocols to secure user data and ensure privacy.

Scalability and Performance:

- Efficient coding practices will be adopted to ensure the platform's speed and responsiveness.
- Regular monitoring and optimization to maintain high performance as the user base grows.

Software Used:

- Utilization of tools like Visual Studio and VS Code for development.
- Implementation of modern frameworks for front-end development.
- The team consists of three members who will work on the project.

Development Team:

- A dedicated team will handle planning, management, development, testing, and debugging.

Organizational Culture:

- Leveraging the platform to promote and support local businesses aligns with the growing trend of community-focused initiatives.
- Challenges may arise in shifting traditional shopping habits, but positive publicity and community engagement efforts will address these.

Schedule Feasibility:

Time Scale: A detailed project timeline has been established, considering the integration of various features and functionalities.

Buffer for Unforeseen Circumstances: An additional one-week buffer has been allocated in the schedule to address any unexpected challenges that may arise.

2.4 Project Schedule

In this section we show a timetable that outlines start and end dates and milestones that must be met for the project to be completed on time.

ID	Task Name	Start	End	Duration
1	Project Plan	12-11-2023	17-11-2023	5Days
2	Use Case diagram	17-11-2023	25-11-2023	8Days
3	Chapter1	25-11-2023	26-11-2023	2Days
4	Chapter2	26-11-2023	1-12-2023	7Days
5	Chapter3	1-12-2023	8-12-2023	8Days
6	Chapter4	1-12-2023	8-12-2023	8Days
7	Chapter5	5-1-2024	10-1-2024	5Days
8	Chapter6	9-12-2023	13-12-2023	4Days
9	Chapter7	13-12-2023	14-12-2023	1Days

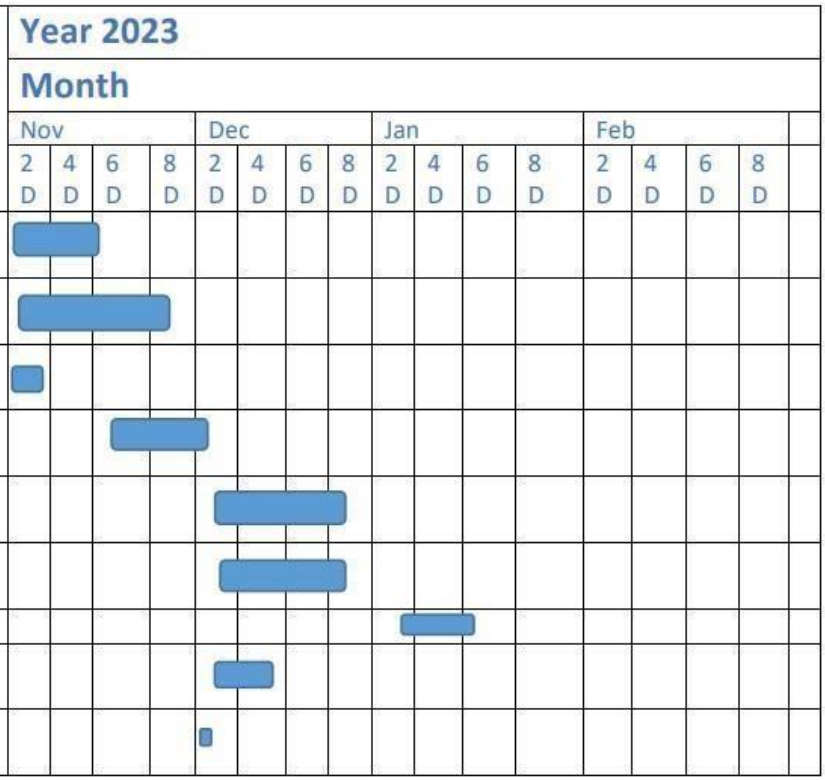


Figure 2.4 :Schedule

2.5 Project Software and Hardware Requirements

Software Requirement	
User (customer, admin, shop owner)	*Developers*
• Internet access: Users must have reliable internet access. • Compatible browser: Any modern web browser (Google Chrome, Mozilla Firefox, Safari, etc.).	• Integrated Development Environment (IDE): Visual Studio. • Programming Languages: 1. C# & ASP.NET Core. 2. HTML, CSS. 3. JavaScript. 4. SQL. • Database Management System: MySQL for efficient data storage and retrieval. • Security Measures: secure coding practices. • Testing Frameworks: Selenium, or other suitable testing frameworks for quality assurance.

Hardware Requirement	
User (customer, admin, shop owner)	*Developers*
• Processor: Dual-core processor (2.5 gigahertz or faster) for a responsive browsing experience. • Memory: 4-GB RAM for smoother interactions and concurrent usage.	• Processor: Quad-core processor (3.0 gigahertz or faster) for efficient development. • Memory: 16-GB RAM for handling development tools, databases, and testing environments.

Table 2.5: Project software and hardware requirements

CHAPTER 3: RELATED EXISTING SYSTEM

We have reviewed most of the nearby online shopping sites for our system to examine their strengths and weaknesses and capitalize on them to fully enhance our system possible.

We will display a table showing the fundamental differences between all previous systems and our systems.

Note : Each symbol indicates a specific meaning :

✓ : This means that this function is achieved in the system.

× : This means that this function is not achieved in the system.

Functionalities	SHEIN	Modanisa	Talabat	Mahali
Support for local products and shops	×	×	✓	✓
Merging between electronic and non-electronic shopping	×	×	×	✓
Supports map tracking	×	×	×	✓
Comfortable and User-Friendly Platform	✓	✓	✓	✓
Delivery Services	✓	✓	✓	✓
Customer Reviews and Ratings	✓	✓	✓	✓
Frequent Sales and Discounts	✓	✓	✓	✓
Affordable Prices	✓	×	✓	✓
Global Accessibility	✓	✓	✓	✓
Diverse Range of Products	✓	×	×	✓
Service Fees and Charges	✓	✓	✓	✓

- **Talabat:**

Is a popular online food ordering and delivery platform operating in the Middle East and North Africa and many other regions. Founded in Kuwait in 2004. Offering a variety of cuisines, they meet different tastes and preferences.

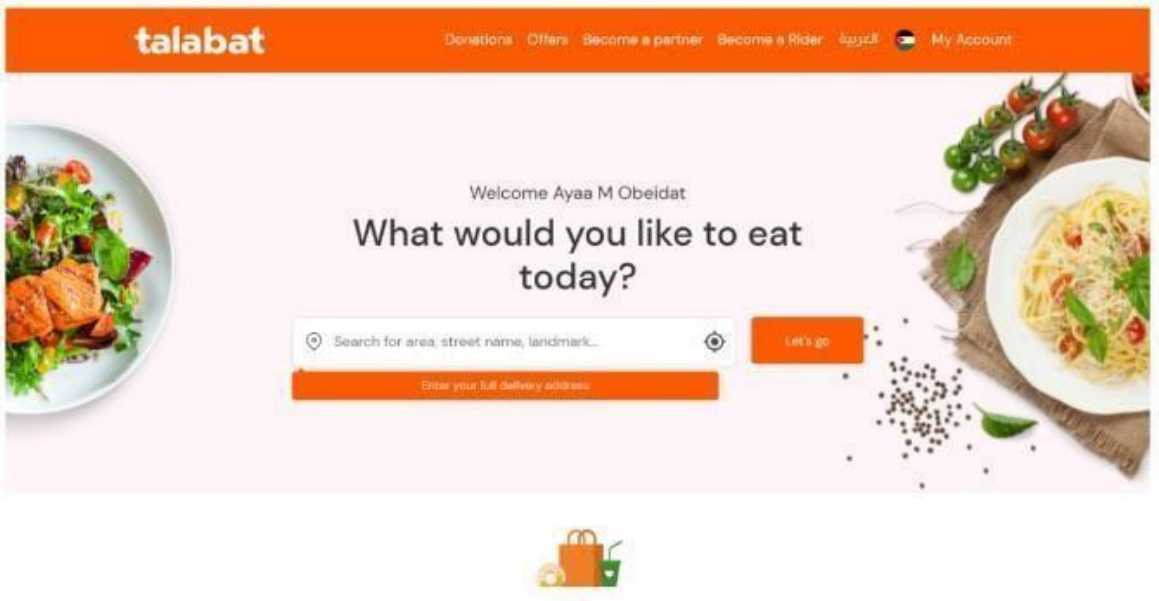


Figure 3.1:Talabat mart snapshoot

Pros :

- Comfortable and User-Friendly Platform.
- Wide Range of cuisines and dining choices.
- Delivery Services.
- Payment Options.
- Customer Reviews and Ratings.
- Promotions and Discounts.

Cons:

- Delivery Delays
- Service Fees and Charges.
- Order Accuracy.
- Limited-Service Areas.

- **SHEIN**

Shein is an international online fashion retailer that offers a wide range of clothing, accessories, and footwear for women, men, and children. The company was founded in 2008 in China and has since grown to become one of the largest and most popular online fashion retailers globally.

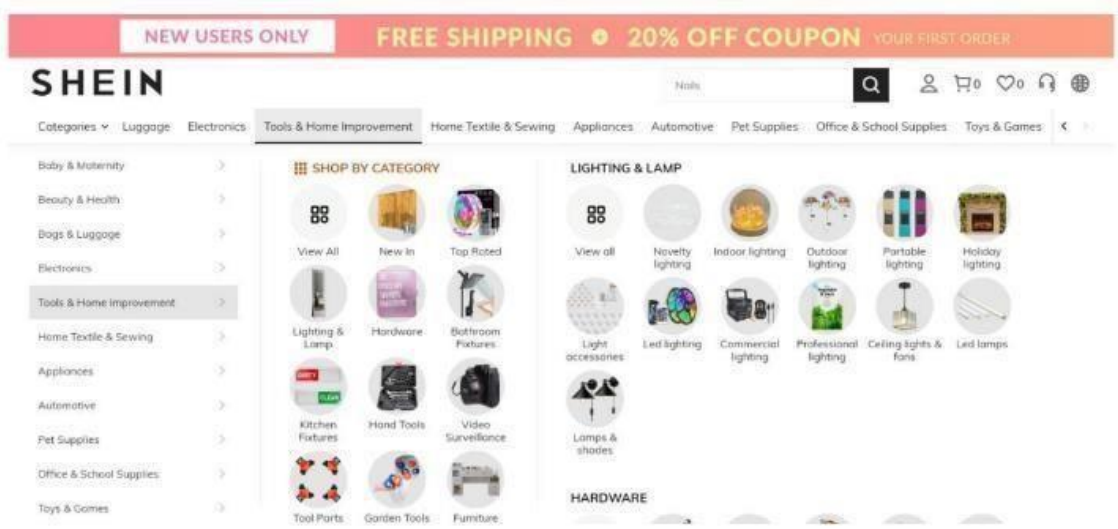


Figure 3.2:SHEIN snapshoot

Pros :

- Comfortable and User-Friendly Platform.
- Affordable prices.
- Variety and Trendy Styles.
- Frequent Sales and Discounts.
- Global Accessibility.
- Size and Style Reviews.

Cons:

- Order Accuracy and Quality Concerns.
- Sizing Issues.
- Shipping Times and Delivery Delays.
- Cloning Accusations from designers and other brands.

- **Modanisa:**

Is an online fashion retailer that specializes in modest fashion, particularly catering to the needs of Muslim women seeking on hijabs, abayas, dresses, tunics, scarves, and other modest fashion items. Founded in 2011 and is based in Turkey, it has a global presence and ships its products to many countries around the world.

Figure 3.3: Modanisa snapshoot

Pros :

- Modest Fashion Focus that aligns with modesty and cultural considerations.
- Diverse Range of Products and Global Accessibility.
- Online Shopping Convenience.
- Seasonal Updates.
- Promotions and Discounts.

Cons:

- Sizing Challenges.
- Quality Concerns.
- Shipping Times.
- Cultural Sensitivity.

CHAPTER 4: REQUIREMENT ENGINEERING AND ANALYSIS

4.1 Used Techniques

Understanding stakeholder needs is critical for the success of the Local Online Shopping Platform. We utilized a range of methods, from direct interactions to market analyses, ensuring a well-rounded comprehension of local shopping dynamics.

The following list outlines the methods employed to collect and document crucial requirements shaping the project foundation.

1. Stakeholder Interviews:

Description: Conducted one-on-one interviews with stakeholders, including local businesses, potential consumers, and project team members.
Sample Output: Transcripts and summaries of interviews highlighting key features, expectations, and concerns.

2. Surveys and Questionnaires:

Description: Distributed surveys and questionnaires to a diverse group of potential users to gather quantitative data on preferences and expectations.
Sample Output: Survey responses providing insights into user preferences, shopping habits, and desired features.

3. Brainstorming Sessions:

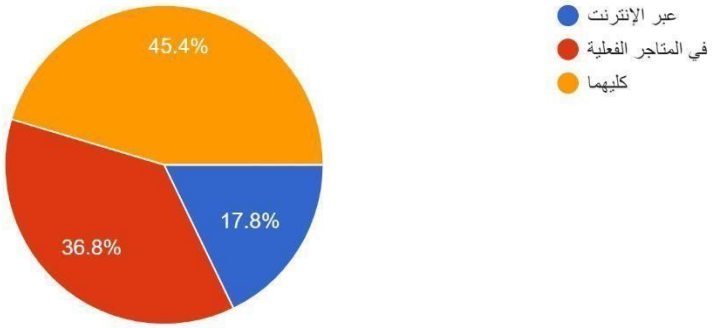
Description: Facilitated group brainstorming sessions with the project team to generate innovative ideas and features.
Sample Output: List of features, functionalities, and potential improvements identified during brainstorming sessions.

APPENDIX-A: MANUAL

Survey result:

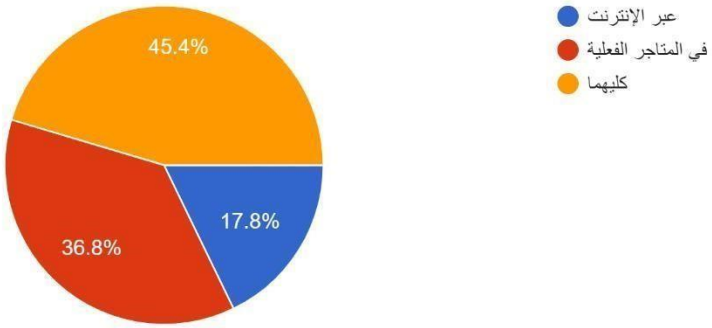
هل تفضل التسوق عبر الإنترنت أم في المتاجر الفعلية؟

174 responses



هل تفضل التسوق عبر الإنترنت أم في المتاجر الفعلية؟

174 responses

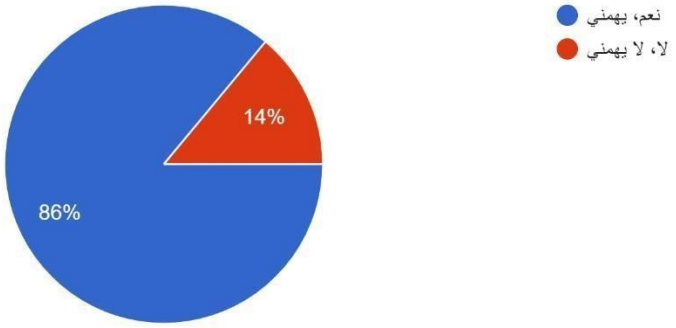


ما هو تقديرك لعدد مرات التسوق عبر الإنترنت في الشهر؟

174 responses

هل يهمك دعم المنتج المحلي عند التسوق عبر المنصة؟

172 responses

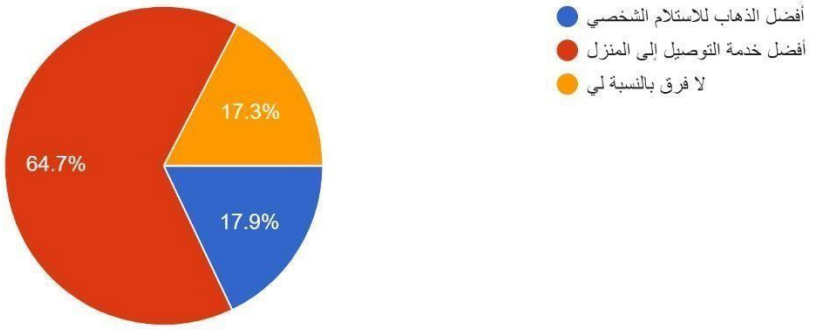


بعد ما جرى في فلسطين وما شهدته احداث غزه, هل وجدت اثر المقاطعه والاعتماد على المنتجات المحليه اكثر دعما للاقتصاد الدولي وزيادة التوفير؟

173 responses

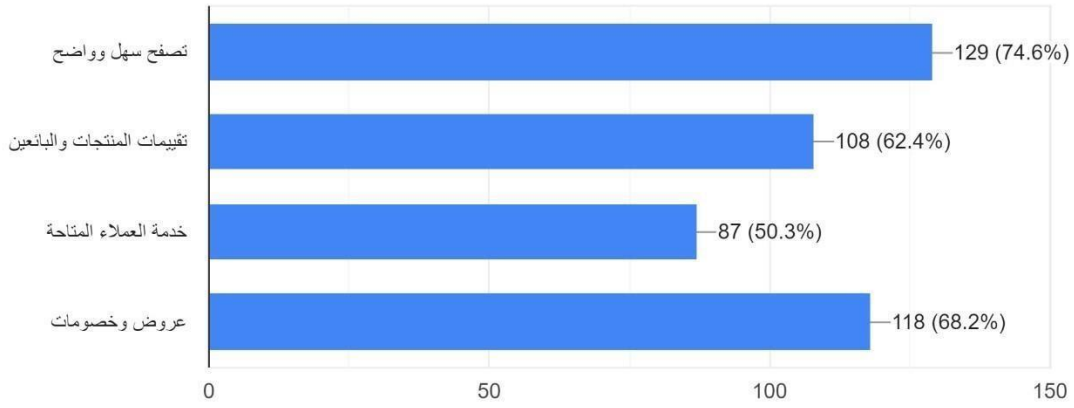
هل تفضل الذهاب للاستلام الشخصي للطلبات أم تفضل خدمة التوصيل إلى المنزل؟

173 responses



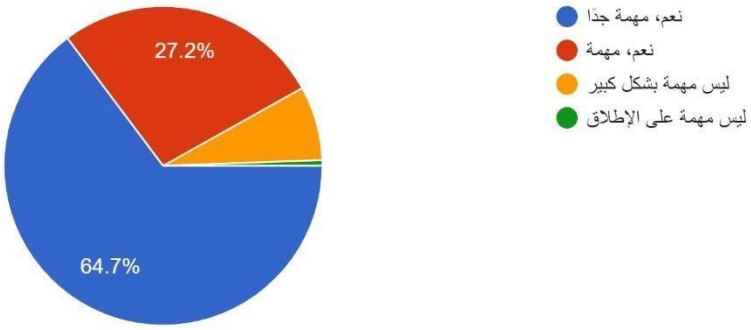
ما الخدمات التي تتوقعها من منصة التسوق عبر الإنترنت؟

173 responses



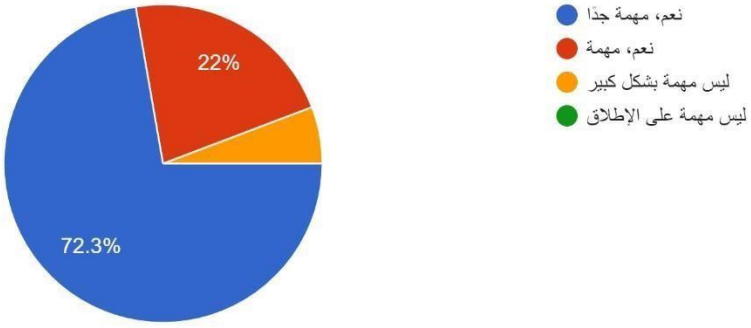
هل تعتبر توفر مجموعة واسعة من المنتجات في المنصة مهمة بالنسبة لك؟

173 responses



هل تعتبر تقييمات المنتجات من قبل المستخدمين هامة عند اتخاذ قرار الشراء؟

173 responses



Click Link for more detailed spread sheet of the result.

4.3 Functional Requirement & Modelling

Functional requirements are product features that developers must implement to enable the users to achieve their goals, and we will start with:

❖ System's functional requirements:

- ➢ The system must allow the customer to create a new account if he signs up into the site for the first time.
- ➢ The system must allow customers to login to the site through their pre-registered accounts.
- ➢ The system should allow customers to choose the nature of their shopping preferences, as well as allow them to interact with the stores added to the site and browse them fully to meet their needs.
- ➢ Customers should be able to track the map to find the stores' locations if they want to go there themselves.
- ➢ It is important for the system to allow the customer to complete the entire process of e-shopping and payment of the account.
- ➢ The system must permit any store to log in to the site under specified conditions.
- ➢ The system must enable stores to add or modify items, display them to customers, and control discount percentages.
- ➢ The system must allow the admin to log in on the system using his email and password.
- ➢ The admin should be able to write reports related to stores with the help of the system.

❖ Customer's functional requirements:

➢ If the customer does not have any previous account, the system should allow them to create a new account:

1. The customer must enter his first name.
2. The customer must enter his last name.
3. The customer must enter his email/phone Number.
4. The customer must create a password.

➢ If the customer has a previous account, the system should allow them to log in by this account:

1. The customer must enter his email or username (FirstName, LastName).
2. The customer must enter a password.

➢ The system must allow the customer to modify his profile or log out of it. ➢ The system should allow the customer to choose his needs category or search for a specific item.

➢ The system should allow the customer to browse all the shops on the site and find out all the items, prices, quantities, etc.

➢ The system should allow the customer to access the location of any shop by tracking the map.

➢ The system should allow the customer to add items that he liked to their cart or like list.

➢ The system should allow the customer to complete the online shopping process.

❖ Shop owner's functional requirements:

➢ If the shop owner does not have any previous account, the system should allow them to create a new account:

1. The shop owner must enter his shop name.
2. The shop owner must enter his email/phone Number of the shop.
3. The shop owner must create a password.

➢ If the shop owner has a previous account, the system should allow them to log in by this account:

1. The shop owner must enter his email or username (shop name).
2. The shop owner must enter a password.

➢ The system must allow the shop owner to modify his profile or log out of it.

➢ The system must allow the shop owner to display his items for customers. ➢ The system must allow the shop owner to add, delete and modify the items of his shop.

➢ The system must allow the shop owner to Add discounts on some items then notify customers by e-mail message.

➢ The system must allow the shop owner to control feedback requests and customers' orders list.

❖ Admin's functional requirements:

➢ the system should allow the admin to login into site by:

1. The admin must enter his email or username.
2. The admin must enter a password.

➢ The system must allow the admin to add or delete shops from his site.

➢ The system must allow the admin to write reports containing all the information for each shop on the site.

CUSTOMER USE CASE:

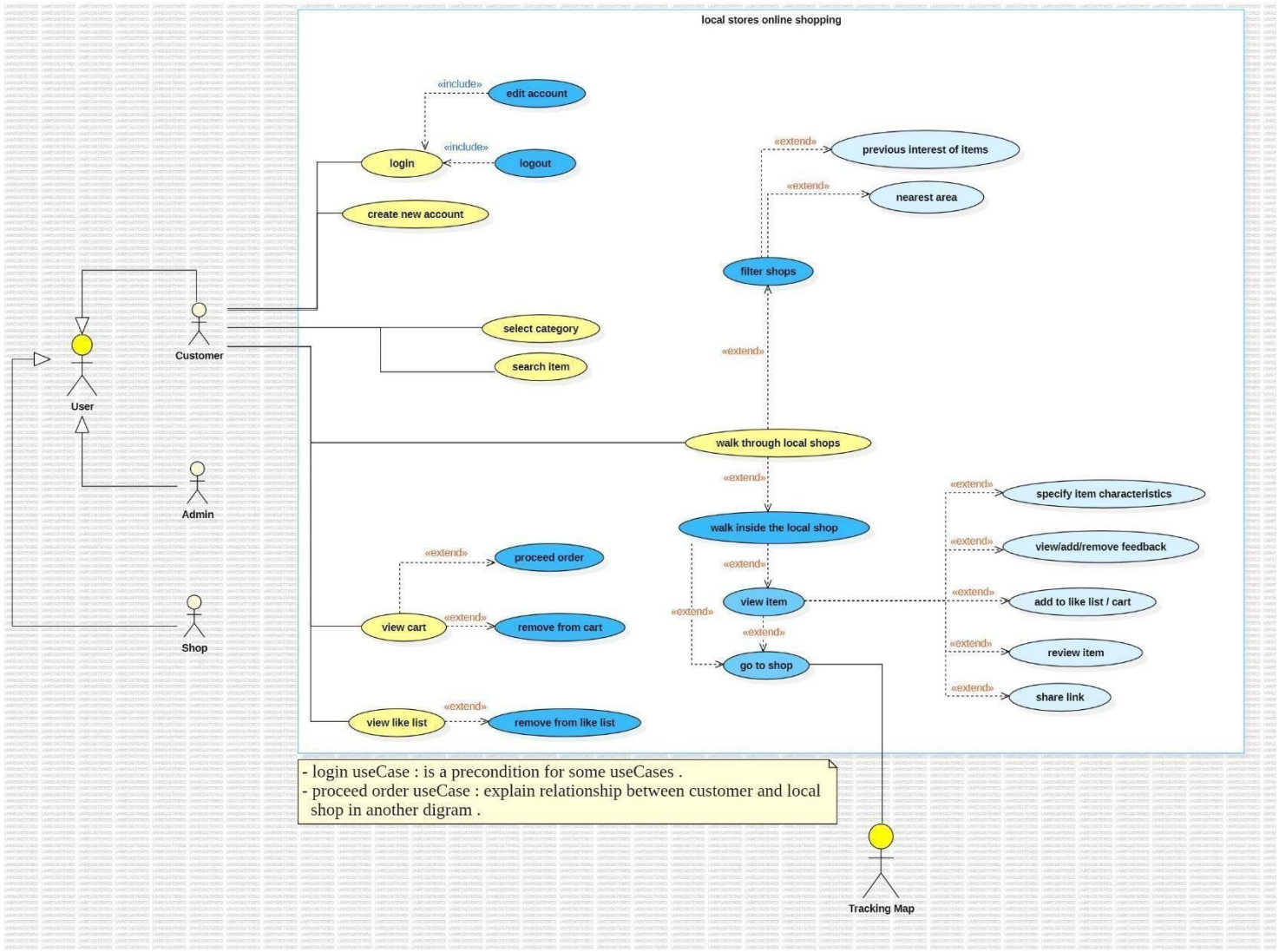


Figure 4.2.2.1: Customer use case

PROCEED ORDER USE CASE

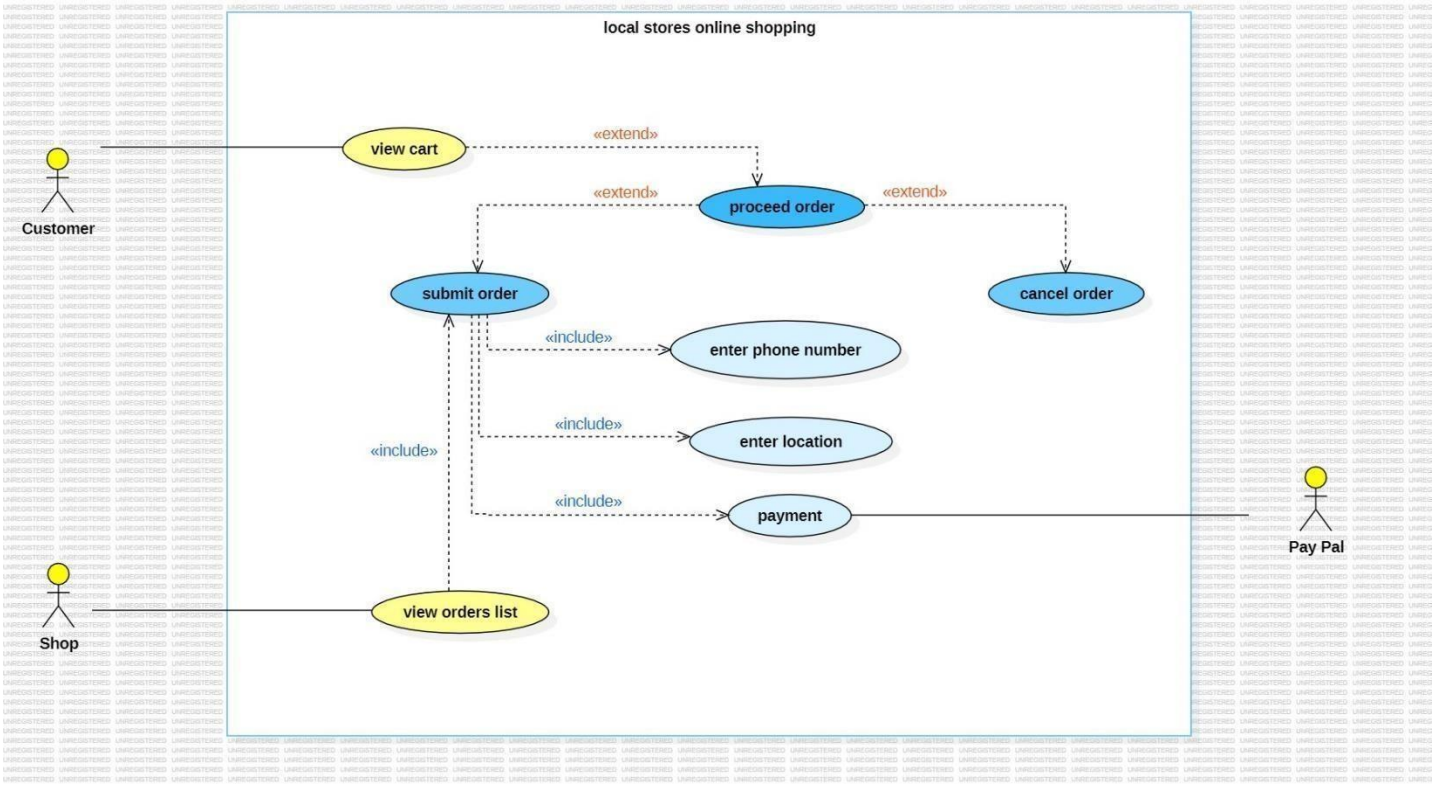


Figure 4.2.2.2: Proceed order use case.

ADMIN USE CASE:

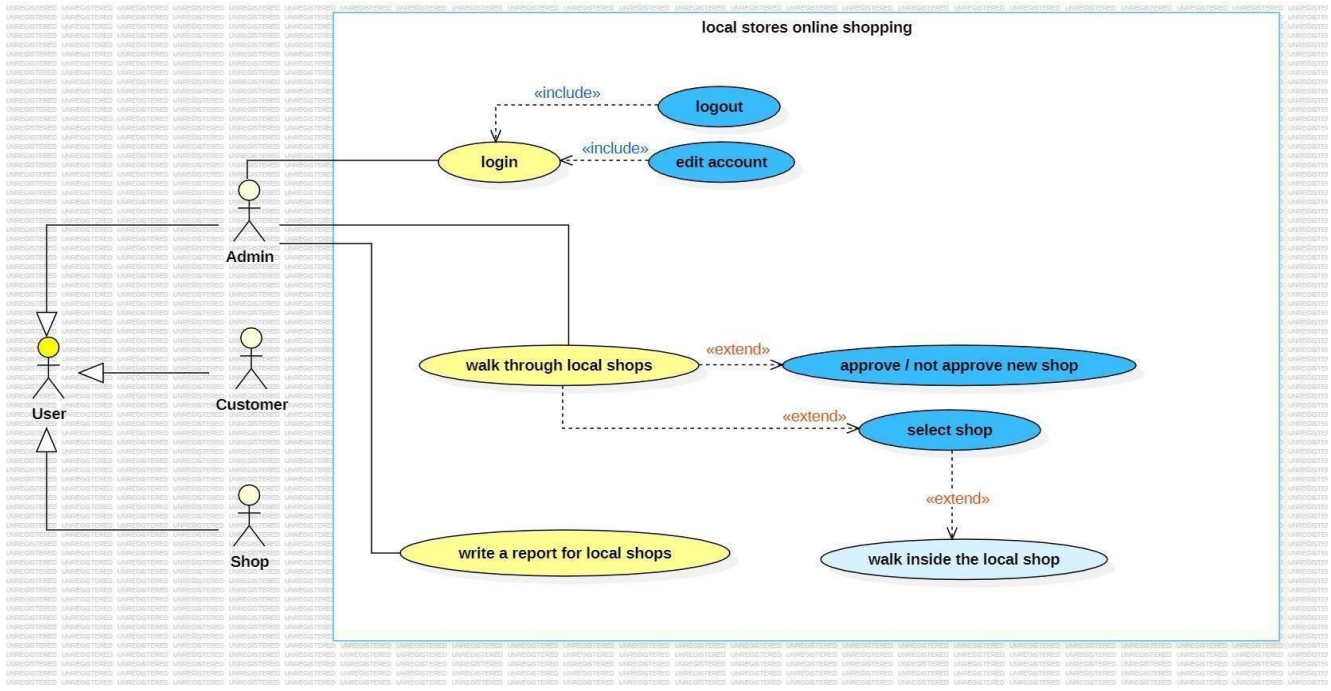


Figure 4.2.2.3:Admin Use Case

SHOP OWNER USE CASE

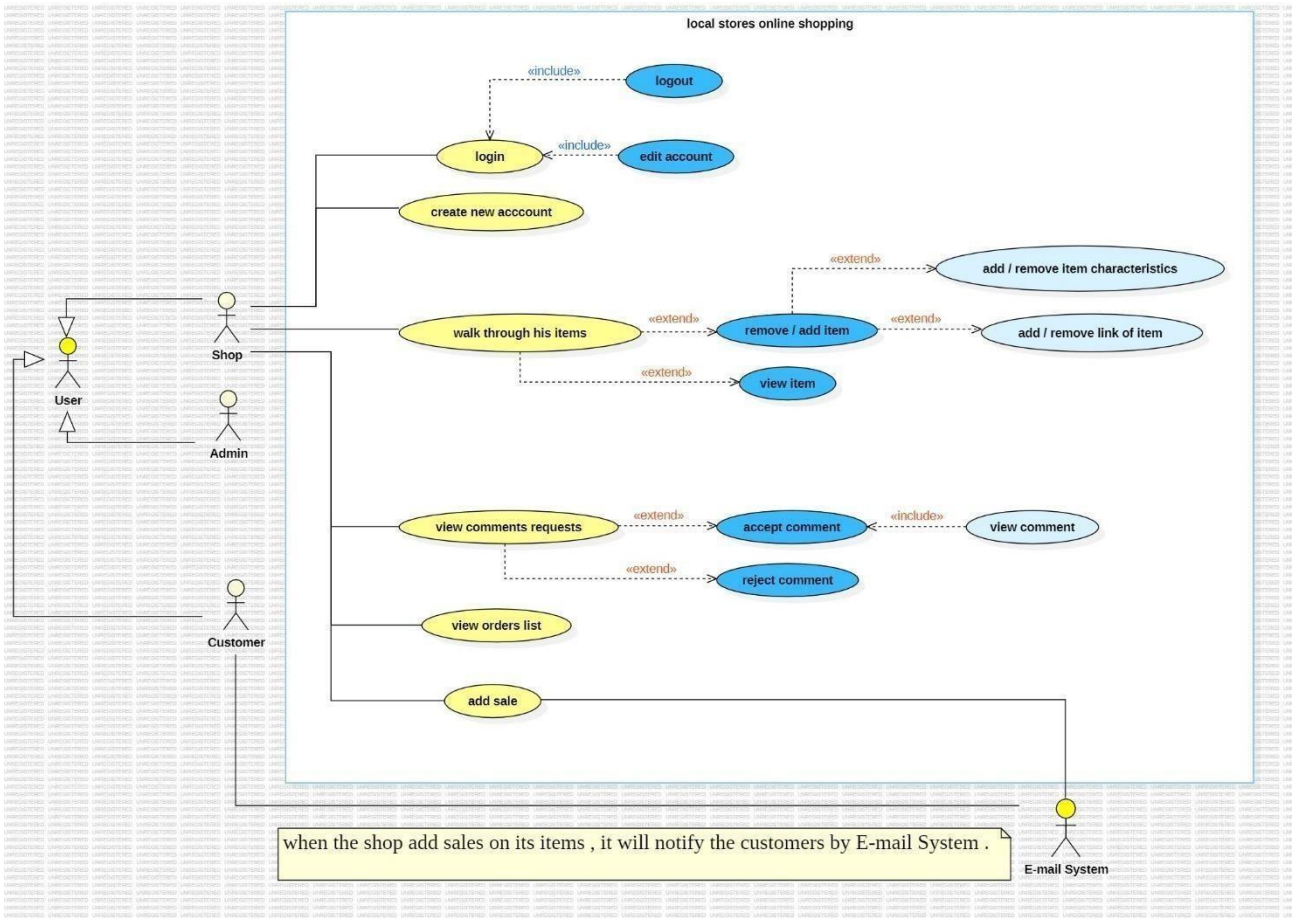


Figure 4.2.2.4:Shopowner Use Case

Use Case 1: Create Account

Use Case : Create Account
ID: 1
Brief description: The customer will create a new account using his/her full name, email, or phone number, he/she also needs to create a new password.
Primary actor: Customer
Secondary actor: None
Precondition: There is no advanced customer account in the database system.
Main flow: 1. Customer enters his/her full name and email/phone number and password. 2. The Customer will click on the "Create" button.
Postcondition: The customer creates an account successfully.
Alternative flow: 1. The email entered is incorrect. 2. Password entered does not apply with specific constraints.

Table 4.2.3.1: Create Account use case description.

Use Case 2: Login

Use Case : Login
ID: 2
Brief description: The customer logs in to the system using his/her email and password that is already initiated in the system database.
Primary actor: Customer
Secondary actor: None
Precondition: The account was already created and stored in the system database.
Main flow: 1. Customer enters his/her username/email and password. 2. The Customer will click on the "Login" button. 3. The customer can click on the "Logout" button to log out of their profile or click on the "Edit" button to edit their profile information.
Postcondition: The customer logs in successfully.
Alternative flow: 1. The entered email and password don't match. 2. The customer fails to log in to the system.

Table 4.2.3.2: Login use case description.

Use Case 3: Select Category

Use Case : Select Category
ID: 3
Brief description: Customer chooses the type of products he/she wants to see or buy.
Primary actor: Customer
Secondary actor: None
Precondition: None
Main flow: 1. Customer logs in to the site home page. 2. The Customer will click on the "Select Category" button.
Postcondition: The customer finds the type of products he/she wants successfully.
Alternative flow: The type of products that the customer wants are non-existent.

Table 4.2.3.3: Select Category use case description.

Use Case 4: Search Item

Use Case : Search Item
ID: 4
Brief description: Customer searches for specific item.
Primary actor: Customer
Secondary actor: None
Precondition: None
Main flow: 1. Customer logs in to the site home page. 2. The Customer will click on the "Search Item" box.
Postcondition: The customer finds the item he successfully searched for.
Alternative flow: Customer does not find the item he searched for

Table 4.2.3.4: Search Item use case description

Use Case 5: Walk Through Local Shops

Use Case : Walk Through Local Shops
ID: 5
Brief description: The customer walks through approved local shops in the site
Primary actor: Customer
Secondary actor: None
Precondition: None
Main flow: 1. Customer logs in to the site home page. 2. The customer will browse the site and walk through the local authorized stores. 3. The customer can click on “Filter Shops” button to filter the shops by previous interest of items or nearest area. 3. The customer can walk inside the local shop and view all items in this shop by clicking on "Specific Shop". 4. The customer can view specific item then he/she can choose characteristics of this item to add into cart by clicking on "cart" button or to add into lick list by clicking on "like list" button. 5. The customer can trace the map of the shop's location by clicking on “go to shop” button.
Postcondition: The customer browses the store he/she wants and views all its items
Alternative flow: Internet interruption during browsing.

Table 4.2.3.5: Walk through local shops use case description.

Use Case 6: Add Feedback

Use Case : Add Feedback
ID: 6
Brief description: The customer adds feedback/comment for specific item.
Primary actor: Customer
Secondary actor: Shop
Precondition: The customer has logged in to the site by his/her account.
Main flow: 1. Customer logs in to the site home page. 2. The customer walks inside the local shop and views all items in this shop by clicking on "Specific Shop". 3. The customer clicks on a specific item. 4. The customer adds a comment on the comments list for this item by clicking on comment box text.
Postcondition: The customer adds feedback/comment for specific item successfully.
Alternative flow: The shop owner rejects the customer comment

Table 4.2.3.6: Add Feedback use case description.

Use Case 7: Proceed Order

Use Case : Proceed Order
ID: 7
Brief description: The customer completes the online shopping process by activating his/her order.
Primary actor: Customer
Secondary actor: Shop
Precondition: The customer has logged in to the site by his/her account.
Main flow: 1. The customer logs into the cart by clicking the “cart” button located at the top of the home page. 2. The customer clicks on the "Proceed Order" button. 3. The customer enters his/her phone number. 4. The customer enters his/her location. 5. The customer enters his/her Credit Card Info. If the customer wants to complete, he/she must click on “Submit” button. 6. If the customer does not want to complete, he/she must click on “Cancel” button.
Postcondition: The customer completes online shopping process successfully.
Alternative flow: Failure of submission process.

Table 4.2.3.7: Proceed Order use case description.

Shop description and details:

Use Case 1: Create Account

Use Case : Create Account
ID: 1
Brief description: The Shop Owner will create a new account using shop name, email, or phone number. he/she also needs to create a new password.
Primary actor: Shop
Secondary actor: None
Precondition: There is no advanced shop account in the database system.
Main flow: 1. The shop owner enters shop name and email/phone number and password. 2. The shop owner will click on the "Create" button.
Postcondition: The shop owner creates an account successfully.
Alternative flow: 1. The email entered is incorrect. 2. Password entered does not apply with specific constraints.

Table 4.2.3.8: Create Account use case description.

Use Case 2:Login

Use Case : Login
ID: 2
Brief description: The shop owner logs in to the system using email and password that is already initiated in the system database.
Primary actor: Shop
Secondary actor: None
Precondition: The account was already created and stored in the system database.
Main flow: 1. The shop owner enters username/email and password. 2. The shop owner will click on the "Login" button. 3. The shop owner can click on the "Logout" button to log out of their profile or click on the "Edit" button to edit their profile information.
Postcondition: The shop owner logs in successfully.
Alternative flow: 1. The entered email and password don't match. 2. The shop owner fails to log in to the system.

Table 4.2.3.9: Login use case description.

Use Case 3: Walk Through His Items

Use Case : Walk Through His Items
ID: 3
Brief description: The shop owner walks through his items in the site
Primary actor: Shop
Secondary actor: None
Precondition: The shop owner has logged in to the site by his account.
Main flow: 1. Shop owner logs on to the shop home page. 2. The shop owner will browse their store on site and walk through their added items. 3. The shop owner can click on “Add Item” button to add a new item. 4. The shop owner can click the "Remove Item" button to remove an existing item. 5. The shop owner can view specific item then can add/remove/ modify characteristics of this item. 6. The shop owner can add sales / discounts on specific items by clicking on “Add Sale” button then notify the customer by E-mail message.
Postcondition: The shop owner browses and controls his store successfully.
Alternative flow: Internet interruption during browsing.

Table 4.2.3.10: walk through his item use case description.

Use Case 4: View Comments Requests

Use Case : View Comments Requests
ID: 4
Brief description: The shop owner views the comments list about his store items in the site.
Primary actor: Shop
Secondary actor: Customer
Precondition: The shop owner has logged in to the site by his account.
Main flow: 1. Shop owner logs on to the shop home page. 2. The shop owner clicks on "Comments List" button to view all comments. 3. The shop owner clicks on "Accept Comment" button to accept specific customer comment or clicks on "Reject Comment" button to reject comment.
Postcondition: The shop owner accepts or rejects comments successfully.
Alternative flow: None

Table 4.2.3.11: View comment requests use case description

Use Case 5: View Orders List

Use Case : View Orders List
ID: 5
Brief description: The shop owner views the customers' orders list.
Primary actor: Shop
Secondary actor: Customer
Precondition: The shop owner has logged in to the site by his account.
Main flow: 1. Shop owner logs on to the shop home page. 2. The shop owner clicks on “Orders List" button to view all customers orders.
Postcondition: The shop owner controls customers' orders list successfully.
Alternative flow: None

Table 4.2.3.12: View order list use case description.

Admin description and details:

Use Case 1: Login

Use Case : Login
ID: 1
Brief description: The admin logs in to the system using email and password that is already initiated in the system database.
Primary actor: Admin
Secondary actor: None
Precondition: The account was already created and stored in the system database.
Main flow: 1. Admin enters username/email and password. 2. The admin will click on the "Login" button. 3. The admin can click on the "Logout" button to log out of their profile or click on the "Edit" button to edit their profile information.
Postcondition: The admin logs in successfully.
Alternative flow: 1. The entered email and password don't match. 2. The admin fails to log in to the system.

Table 4.2.3.13: Login use case description.

Use Case 2: Walk Through Local Shops

Use Case : Walk Through Local Shops
ID: 2
Brief description: The admin walks through approved local shops in his site
Primary actor: Admin
Secondary actor: Shop
Precondition: The admin has logged in to the site by his account.
Main flow: 1. Admin logs in to the site home page. 2. The admin will browse his site and walk through the local authorized stores. 3. The admin can walk inside the local shop and view all items in this shop by clicking on "Specific Shop". 4.The admin can click on “Add Shop” button to add a new shop on his site. 5. The shop owner can click the "Remove Shop" button to remove an existing shop. 6. The shop owner can write the reports abouts approved local shops on his site by clicking on the "Write a Report " button.
Postcondition: The customer browses the store he/she wants and views all its items
Alternative flow: Internet interruption during browsing.

Table 4.2.3.14:Walk through local shops use case description.

4.4 Nonfunctional Requirements: Quality & Constraints

Non-Functional requirement name	Description
4.4.1 Security	The system must comply with industry standards for data encryption to safeguard user information and maintain user privacy. Additionally, user authentication should follow multi-factor authentication protocols.
4.4.2 Usability	The user interface must follow established accessibility standards, providing an inclusive and user-friendly experience for all users, including those with disabilities. User testing sessions should be conducted to gather feedback for continuous usability enhancements.
4.4.3 Reliability	1-System Availability: Develop a disaster recovery plan to minimize downtime. 2-Fault tolerance: The system is designed to safely handle failures without affecting overall performance. Implement mechanisms such as redundant servers and automatic failover. 3-Backup and restore data: Perform regular automated backups of important data. Test the recovery process periodically to ensure data integrity. 4-Error handling and logging: Implement comprehensive error handling mechanisms. Log important events for analysis and debugging and review the logs regularly for potential problems.
4.4.4 Performance	1-Response Time: Optimize code, database queries, and assets to achieve fast response times. 2- The system should also support concurrent user activities without degradation in performance.

4.4.5 Maintainability	1-Code maintainability: Follow coding standards Use a version control system to track and manage changes. 2-Modularity and expansion: System design with modular components for easy upgrades. Ensure that new features can be added without disrupting existing functionality.
4.4.6 Scalability	The system must handle a user base increase of at least 20% annually, allowing for seamless growth without compromising performance.

Table 4.4:Non-Functional Requirement

CHAPTER 5: ARCHITECTURE & DESIGN

5.1 Software Architecture

User Authentication and Request Management UI represents the user interfaces of the system. While Admin, Customer, Request, and shop owner components represent the application layer where all business logic and core functionalities happen.

The persistence component contains all the parts that are responsible for persisting the data in the database, and as we mentioned our system deals with Locally database, that's why it comes as a component of our architecture.

- **Persistence Component (Database):**
  1. Product Database: Stores information about available products.
  2. User Database: Manages customer and shop administrator account details.
  3. Order Database: Stores order-related information.

In addition to that, we talked about the security that provided from the system whether in order to Ensure the security of user data, authentication processes, and payment transactions, and manages secure communication between the client and server components.
The Firebase console component is independent in nature and handles all provided services/analytics. The Firebase console component further handles data re quests by communicating with the Cloud Firebase database component which is responsible for storing all Locally logic data and user data.

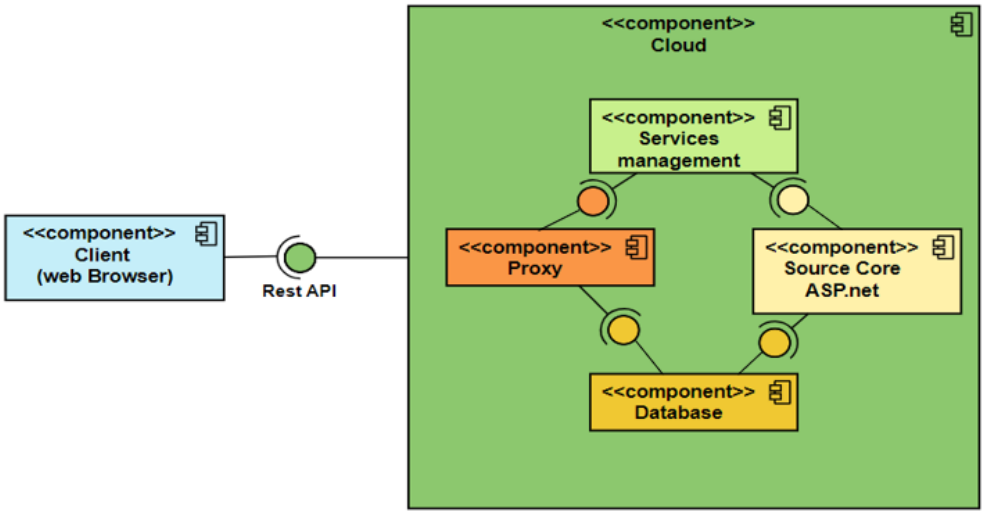


Figure5.1:Component diagram

5.2 Software Detailed Design

5.2.1 Use Cases Internal Interactions

Customer Sequence Diagram:

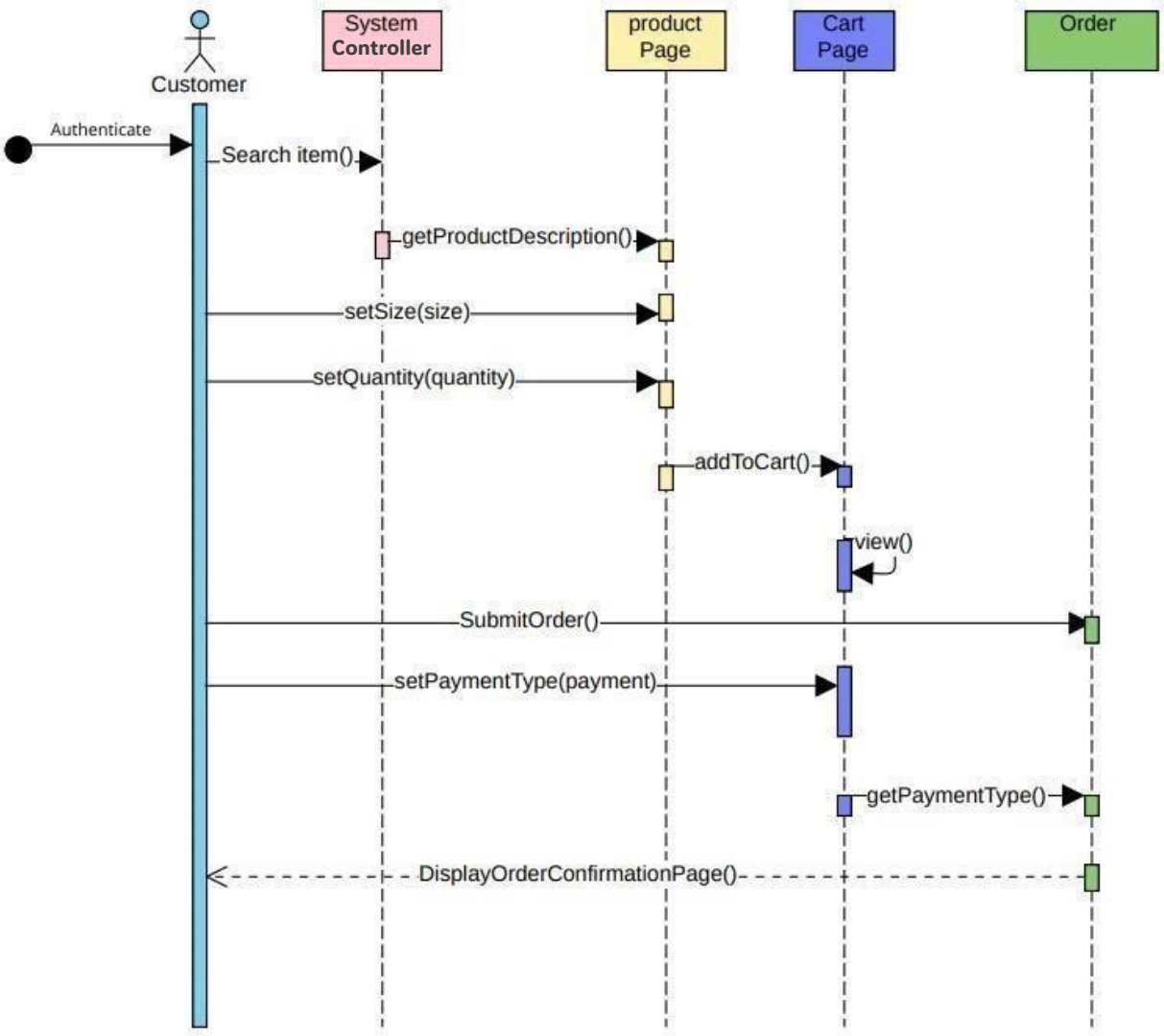


Figure 5.2.1.1: Customer Sequence Diagram

Shop’s Owner Sequence Diagram:

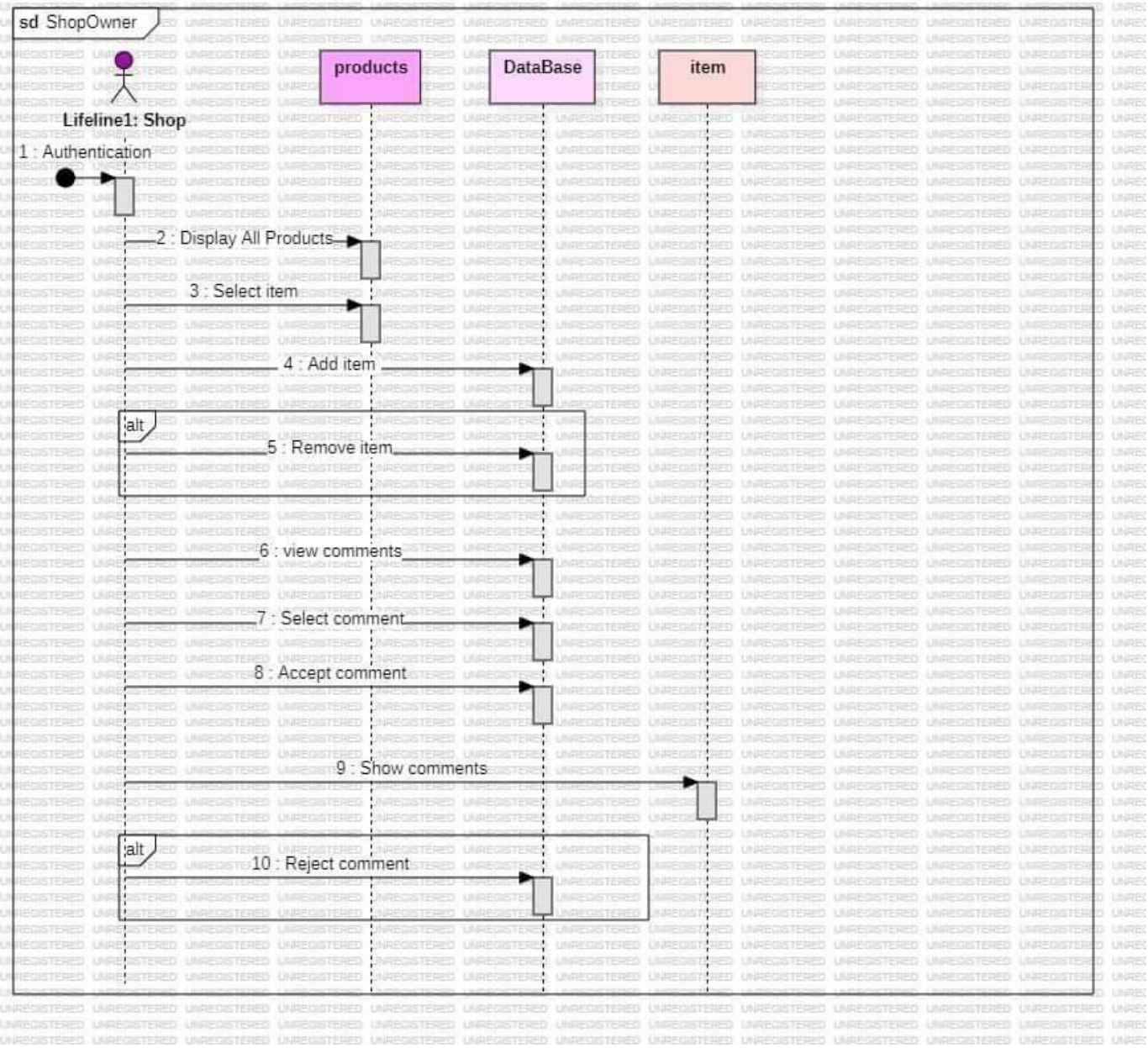


Figure 5.2.1.2: Shop’s Owner Sequence Diagram

Authentication Sequence Diagram:

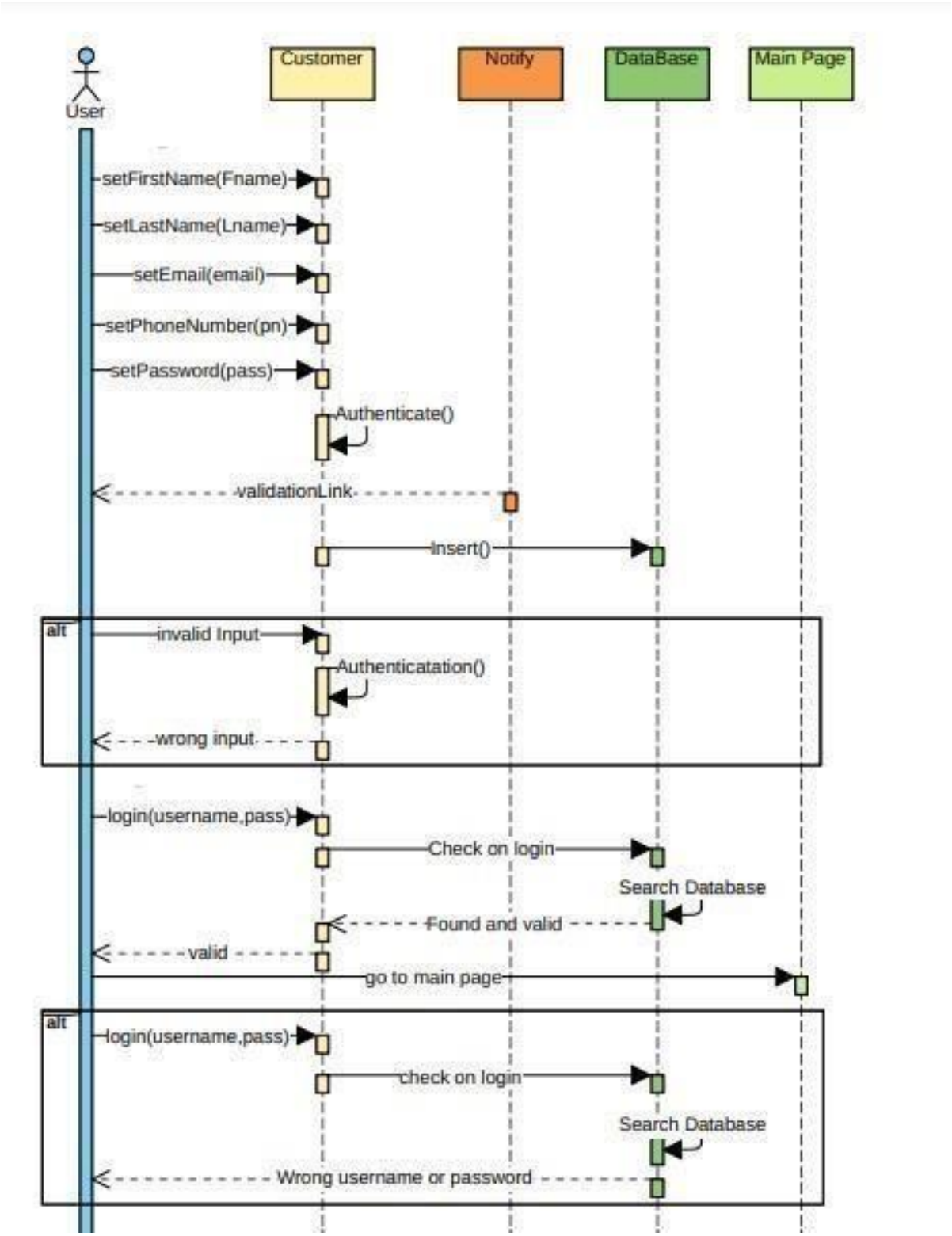


Figure 5.2.1.3: Authentication Sequence Diagram

Admin Sequence Diagram:

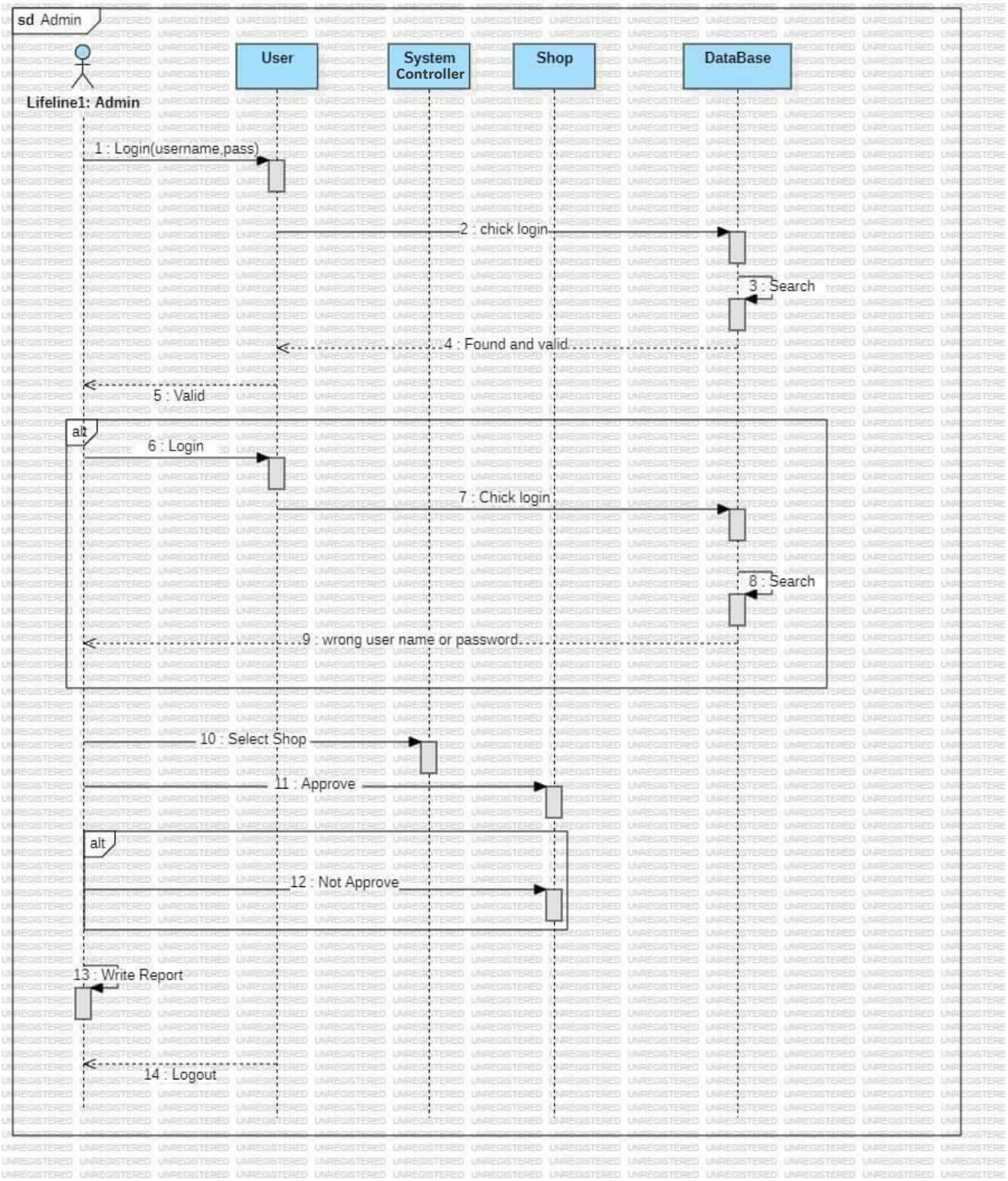


Figure 5.2.1.4: Admin Sequence Diagram

5.2.2 Class Diagram:

The class diagram (in UML), including attributes and methods.

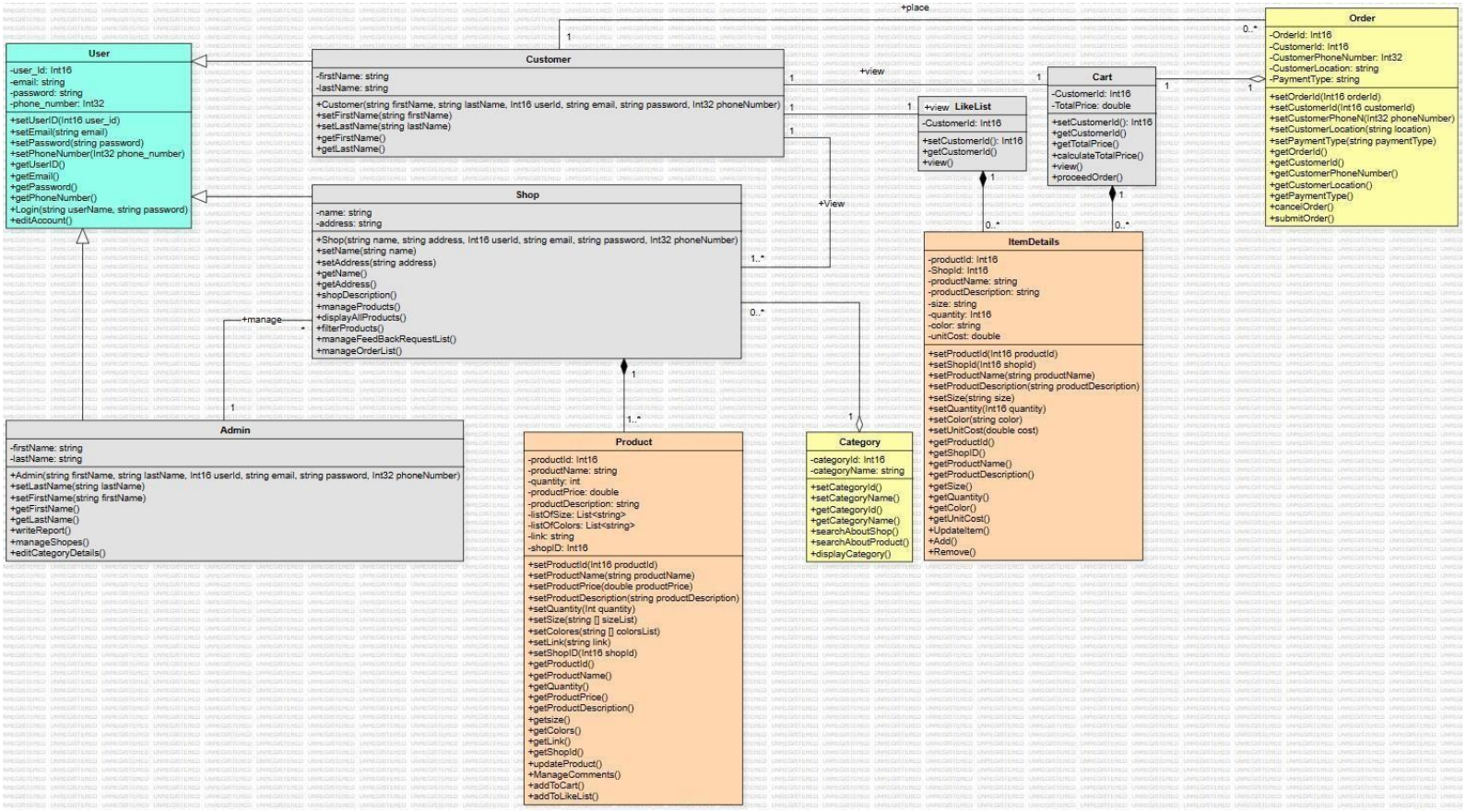


Figure 5.2.2: Class Diagram

5.2.3 Activity Diagram

Using Activity Diagram:

Customer's Activity Diagram:

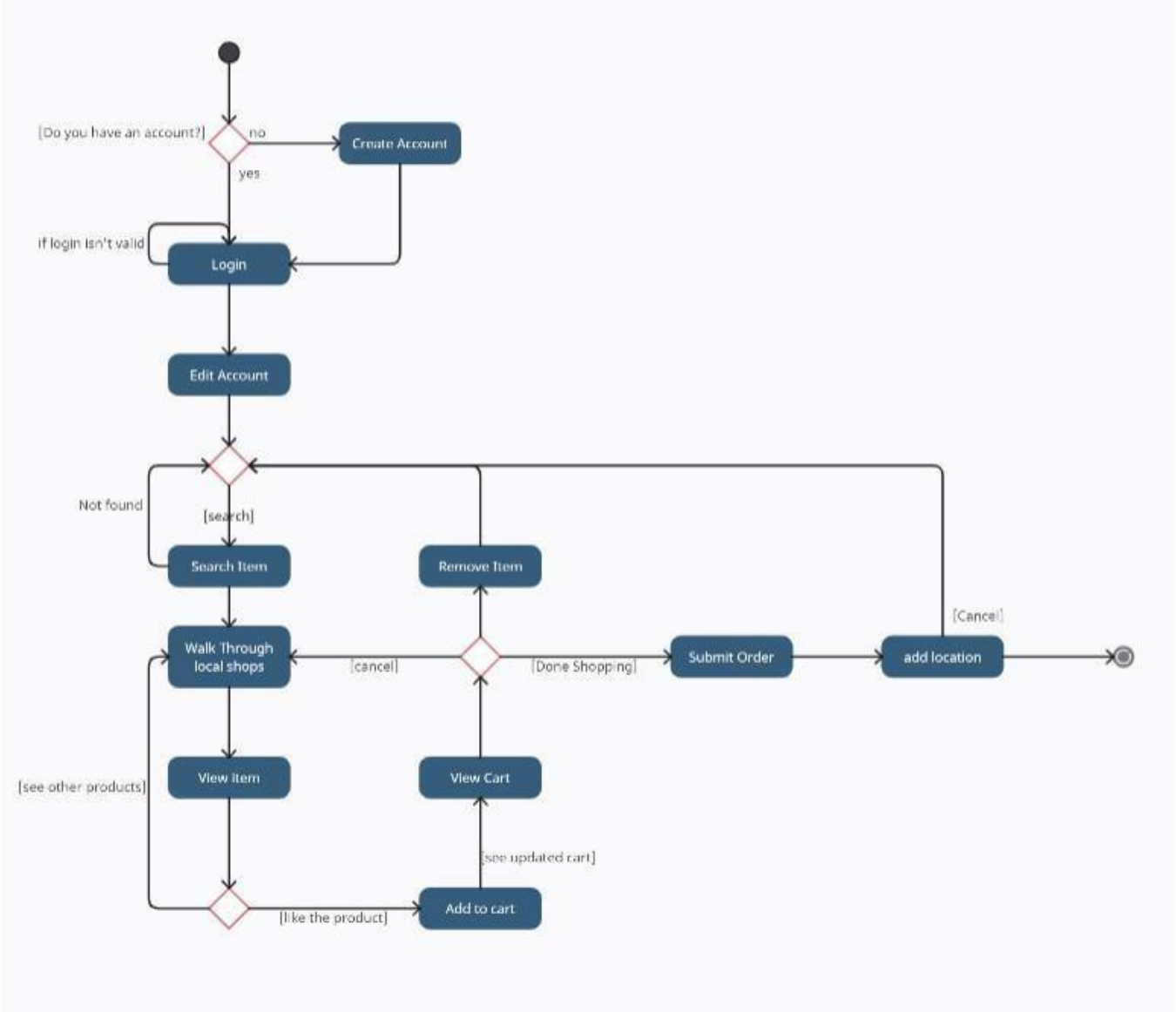


Figure 5.2.3.1: Customer state diagram

Admin’s Activity Diagram:

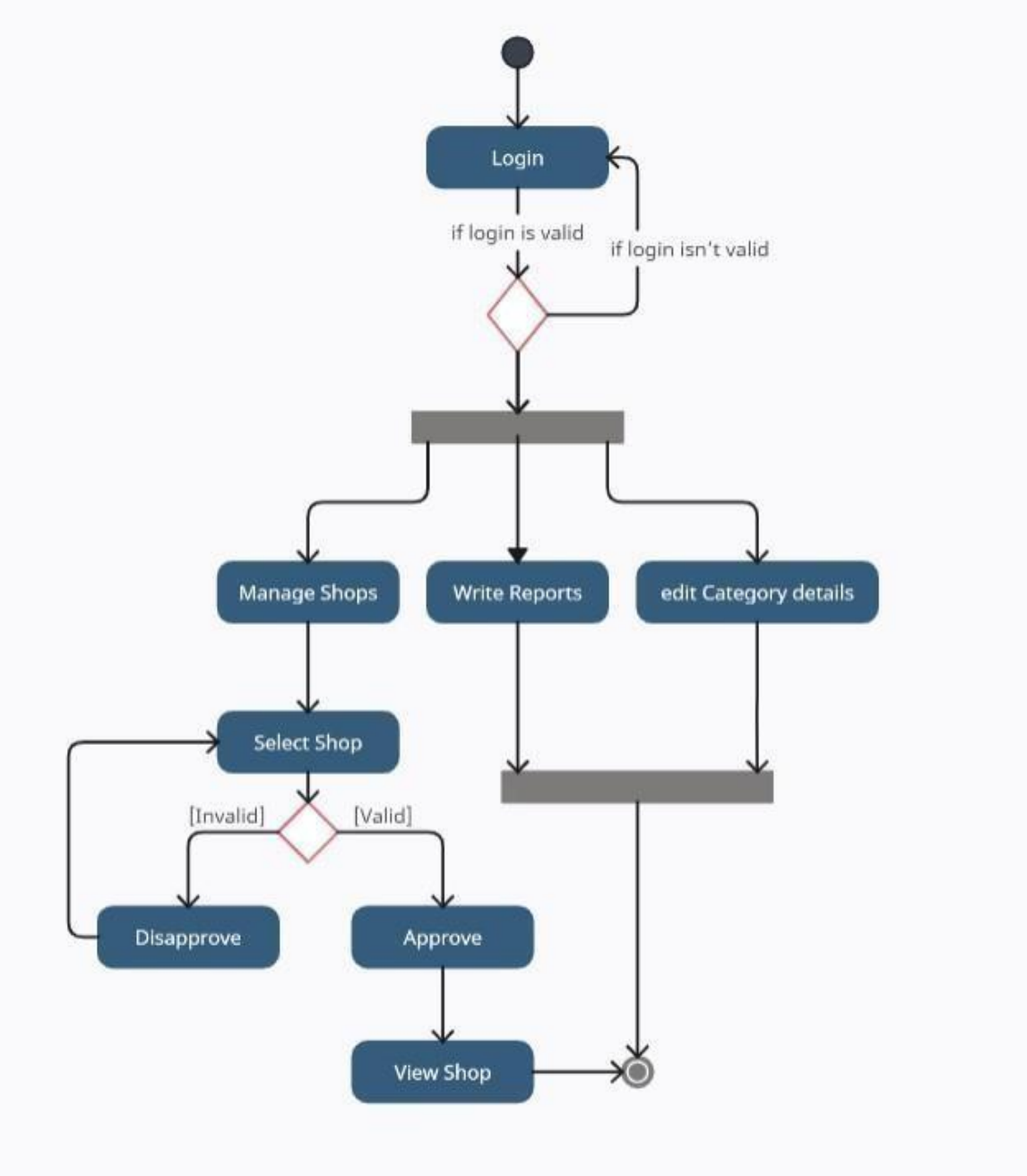


Figure 5.2.3.1: Admin state diagram

Shop’s Owner Activity Diagram:

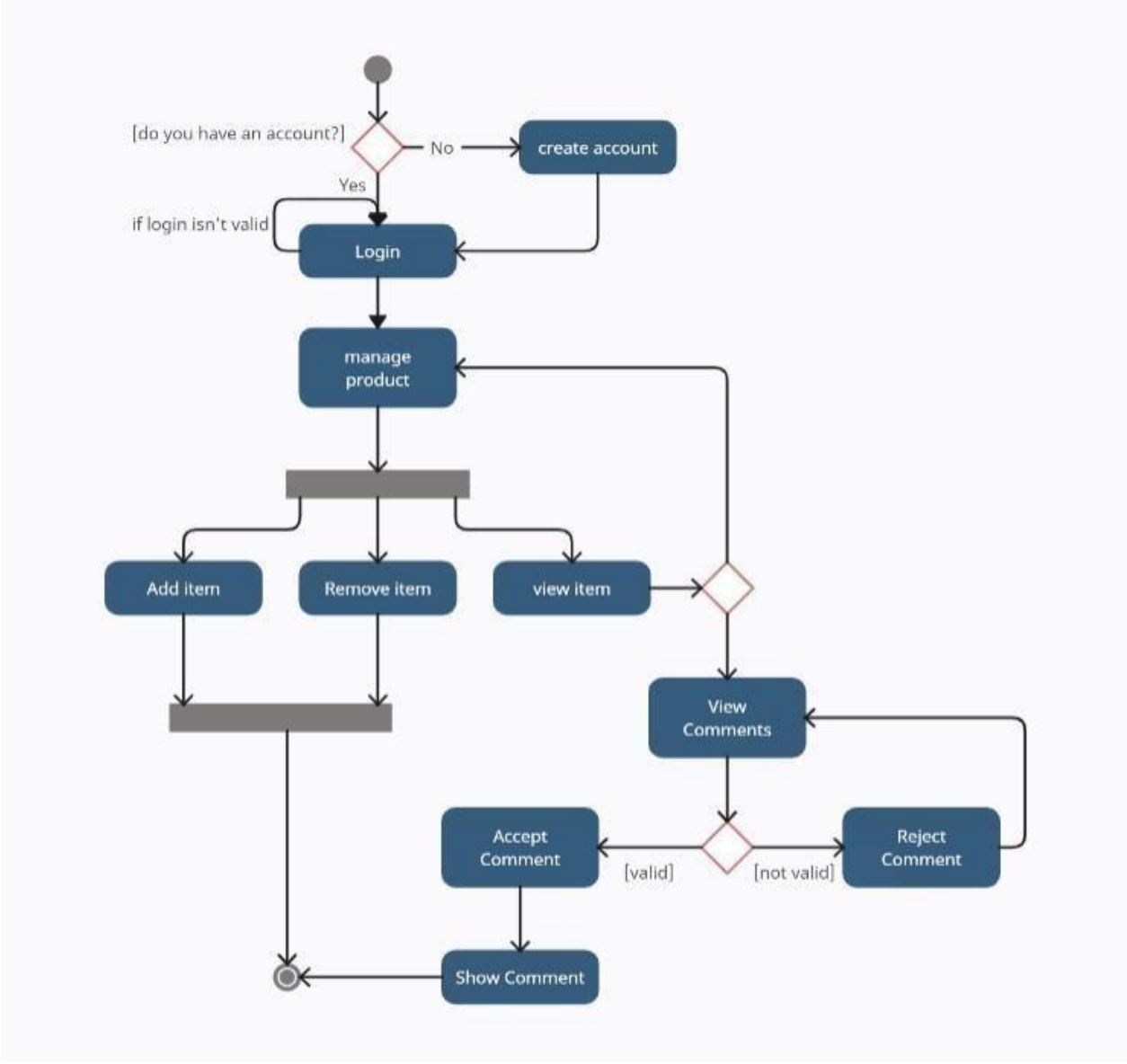
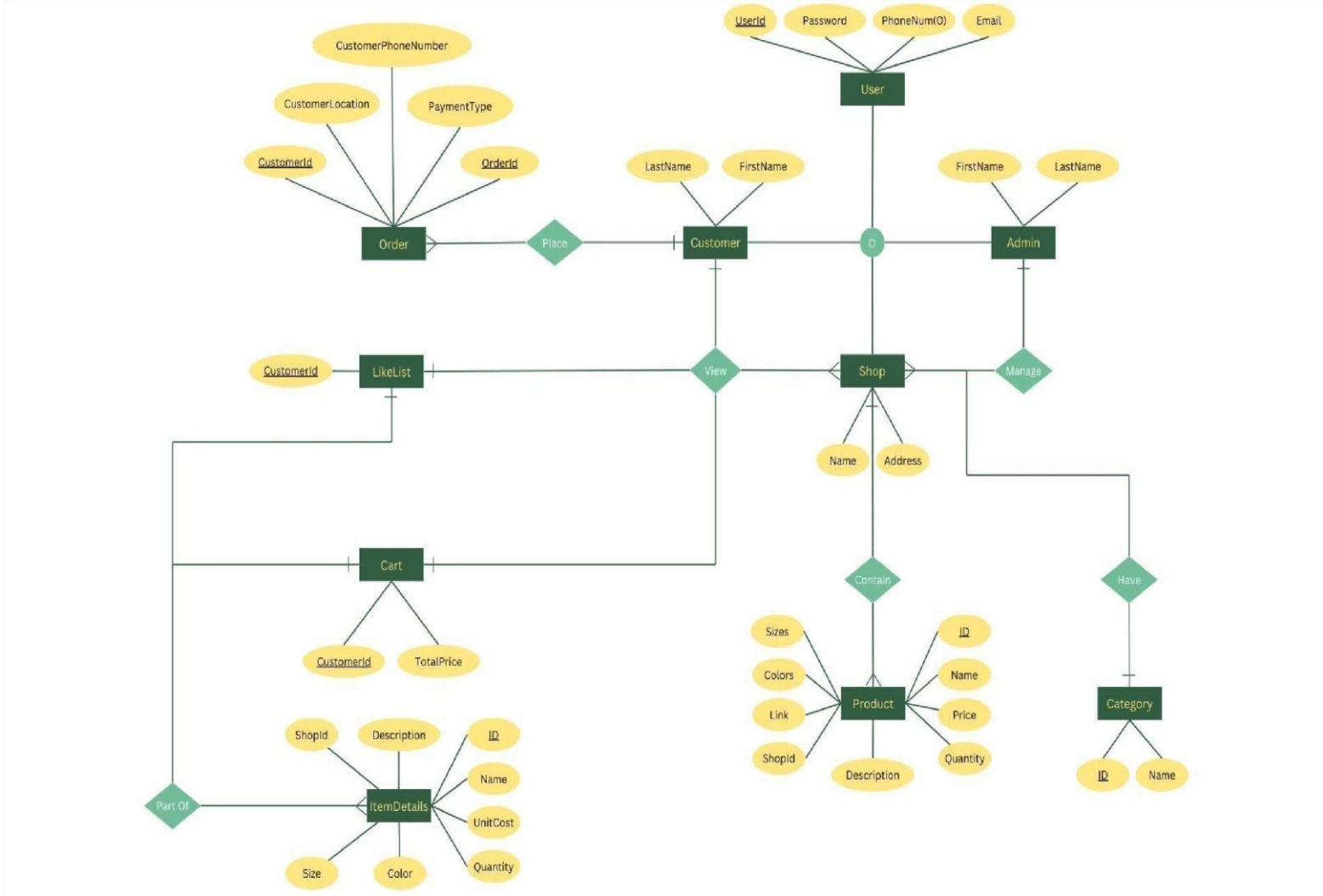


Figure 5.2.3.3:Shops Owner State diagram

5.2.4 Data Storage Organization

Figure 5.2.4:Data Storage Organization.

ERD


UserId
Password
PhoneNum(O)
Email
User
CustomerPhoneNumber
CustomerLocation
PaymentType
CustomerId
OrderId
Order
Place
LastName
FirstName
Customer
O
FirstName
LastName
Admin
CustomerId
LikeList
View
Shop
Manage
Name
Address
Cart
CustomerId
TotalPrice
Contain
Have
Sizes
Colors
Link
ShopId
Product
ID
Name
Price
Quantity
Description
Category
ID
Name
Part Of
ShopId
Description
ItemDetails
ID
Name
UnitCost
Quantity
Size
Color

DATABASE CODE:

```
Create Table Customer
(
id int constraint Cpk primary key , firstName
nvarchar(10) constraint Cnn1 not null, lastName
nvarchar(10) constraint Cnn2 not null, password
nvarchar(16) constraint Cnn3 not null,
phoneNumber bigint,  email nvarchar(25)
constraint Cnn4 not null
);
---------------------------------------------------------------------
Create Table Admin
(
id int constraint Apk primary key , firstName
nvarchar(10) constraint Ann1 not null, lastName
nvarchar(10) constraint Ann2 not null, password
nvarchar(16) constraint Ann3 not null,
phoneNumber bigint,  email nvarchar(25)
constraint Ann4 not null
);
---------------------------------------------------------------------
Create Table Shop
(
id int constraint Spk primary key , name
nvarchar(10) constraint Snn1 not null, address
nvarchar(10) constraint Snn2 not null, password
nvarchar(16) constraint Snn3 not null,
phoneNumber bigint,  email nvarchar(25)
constraint Snn4 not null
);
---------------------------------------------------------------------
Create Table Product
(
id int constraint Ppk primary key, name
nvarchar(10) constraint Pnn1 not null, price
decimal constraint Pnn2 not null, quantity int
constraint Pnn3 not null, Description nvarchar(75)
constraint Pnn4 not null, link nvarchar(50) , colors
nvarchar(50),  sizes nvarchar(50)
);
---------------------------------------------------------------------
```

```
Create Table Category
(
id int constraint CATpk primary key ,
name nvarchar(10)
);
---------------------------------------------------------------------
Create Table Orders
(
id int constraint Opk primary key , customerPhoneNum
bigint constraint Onn1 not null, customerLocation
nvarchar(50) constraint Onn2 not null,  paymentType
nvarchar(25)
);
---------------------------------------------------------------------
Create Table Cart (id int constraint Cartpk primary key , totalPrice decimal);
---------------------------------------------------------------------
Create Table ItemDetails
(
itemId int constraint IDpk primary key, name
nvarchar(10) constraint IDnn1 not null, unitCost
decimal constraint IDnn2 not null,
quantity int , color  nvarchar(10)
, size nvarchar(10),
description nvarchar(50), shopId
int
);
---------------------------------------------------------------------  Create Table
LikeList
(
id int constraint LLpk primary key
);
---------------------------------------------------------------------
```

```
Alter Table Orders add  customerId int;
Alter Table Orders add constraint Ofk foreign key(customerId) REFERENCES Customer(id);
---------------------------------------------------------------------------
Alter Table Shop add  AdminId int constraint Sfk1 foreign key REFERENCES Admin(id); Alter
Table Shop add  CategpryId int constraint Sfk2 foreign key REFERENCES Category(id);
Alter Table Shop add  CustomerId int constraint Sfk3 foreign key REFERENCES
Customer(id);
---------------------------------------------------------------------------
Alter Table Product add  ShopId int constraint Pfk foreign key REFERENCES Shop(id);
---------------------------------------------------------------------------
Alter Table ItemDetails add  CartId int constraint IDfk foreign key REFERENCES Cart(id);
Alter Table ItemDetails add  LikeListId int constraint IDfk1 foreign key REFERENCES
LikeList(id);
---------------------------------------------------------------------------
Alter Table Customer add  CartId int constraint Cfk1 foreign key REFERENCES Cart(id); Alter
Table Customer add  LikeListId int constraint Cfk2 foreign key REFERENCES LikeList(id);
---------------------------------------------------------------------------
Alter Table Cart add  CustomerId int constraint Cartfk foreign key REFERENCES
Customer(id);
---------------------------------------------------------------------------
Alter Table LikeList add  CustomerId int constraint LLfk foreign key REFERENCES
Customer(id);
```

CHAPTER 6: IMPLEMENTATION PLAN & PROTOTYPING

6.1 Introduction

To offer a seamless and efficient user experience, the Local Online Shopping Platform is built with a strong and cohesive tech stack. The implementation details are as follows:

Front-End Technologies:

The user interface is developed using a combination of HTML, CSS, and JavaScript, creating an engaging and responsive design that caters to a diverse range of devices and user preferences.

Back-End Language:

The back-end logic is implemented in C#, providing a powerful and versatile programming language to handle complex business operations and data processing.

Framework Integration:

The platform leverages the Asp.Net core framework to seamlessly connect the front-end and back-end components. This architecture enhances code organization, maintainability, and scalability.

Database Management:

The database is implemented using MySQL, with SQLdeveloper framework facilitating efficient database management. This choice ensures robust data storage, retrieval, and management capabilities.

6.2 Prototyping

This section should explain all of the already implemented parts of the system and it also provides snapshots for the graphical user interface screens of the system.

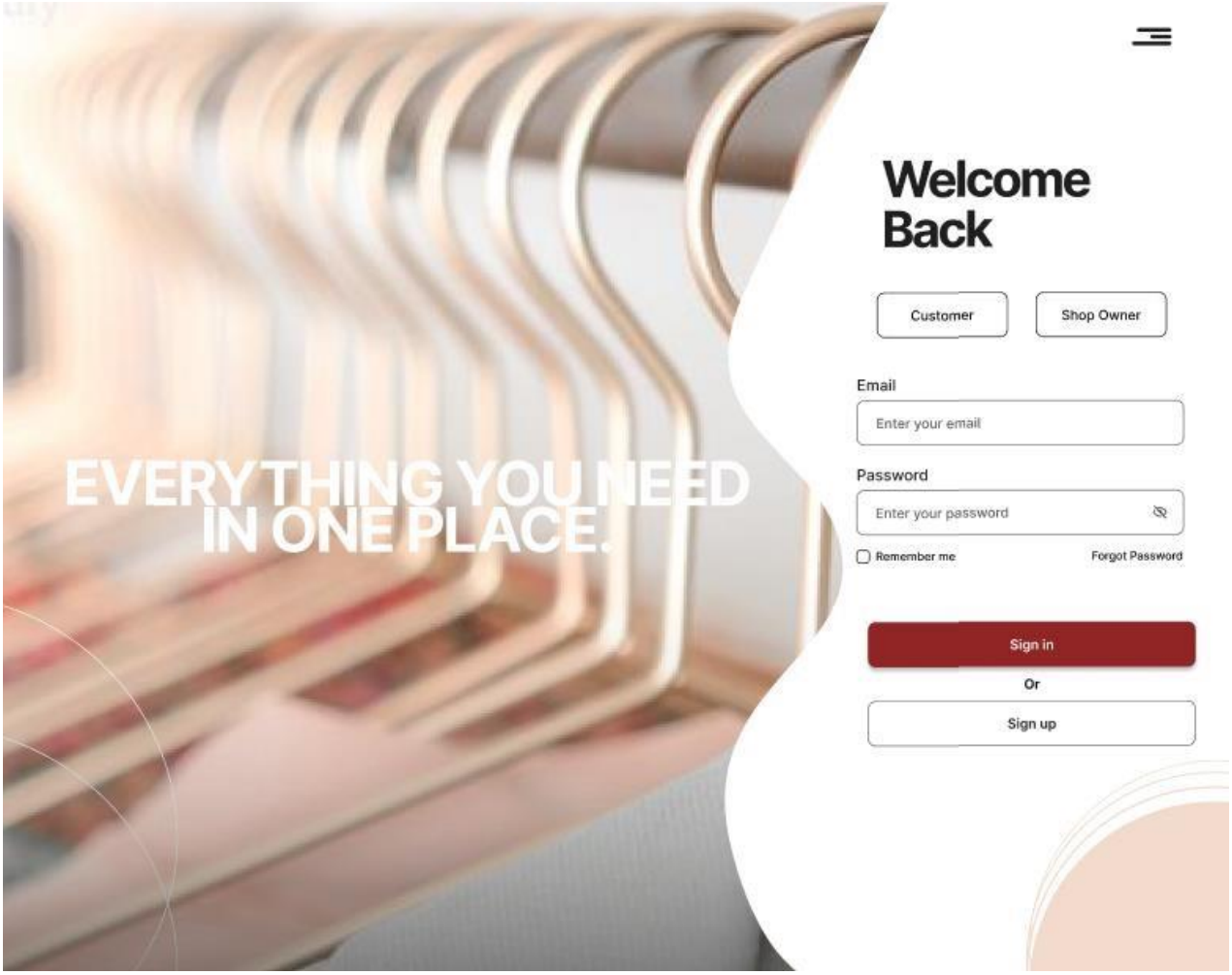


Figure 6.2.1: Sign in page e prototype

Customer and shop owner Login page.

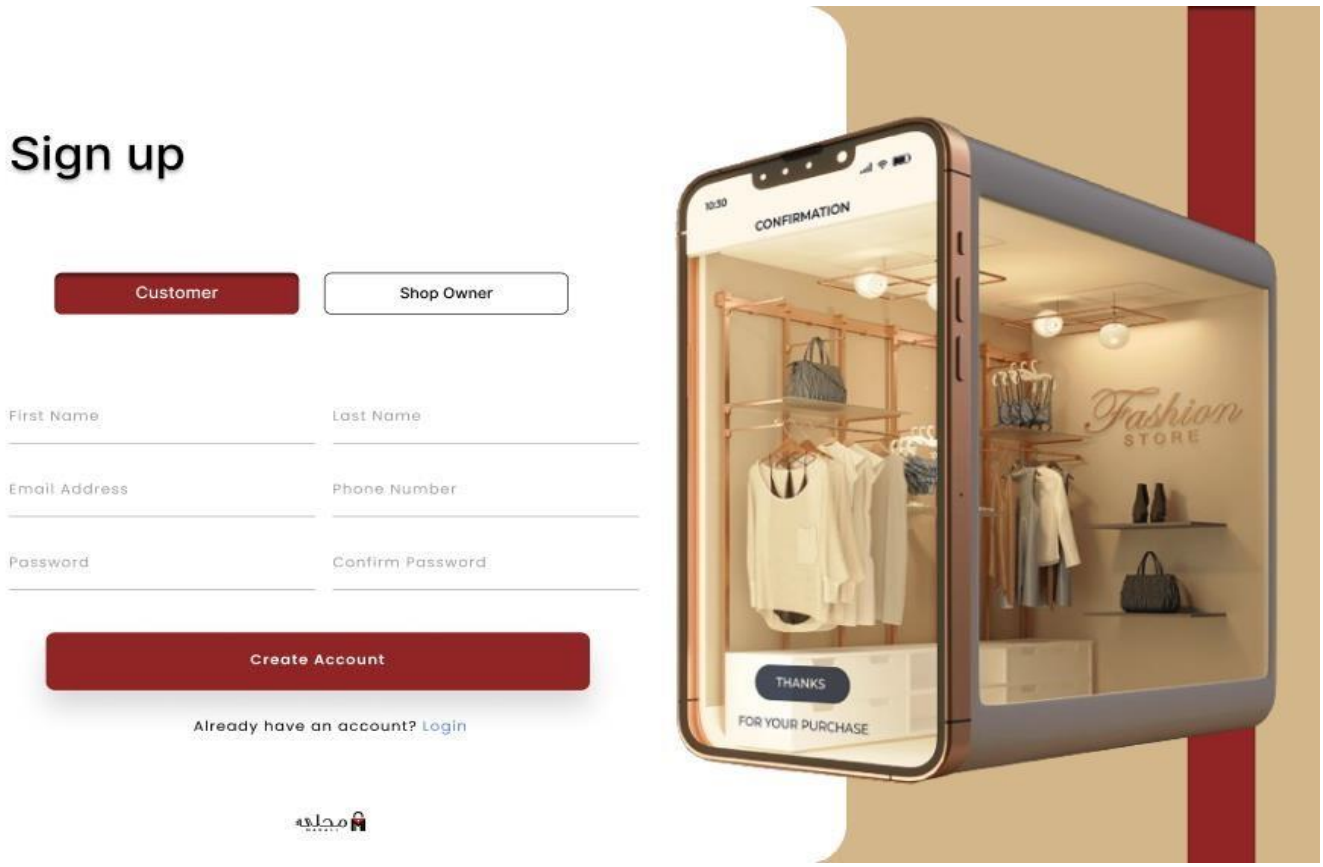


Figure 6.2.2: Signup page prototype

Customer and shop owner sign up page.

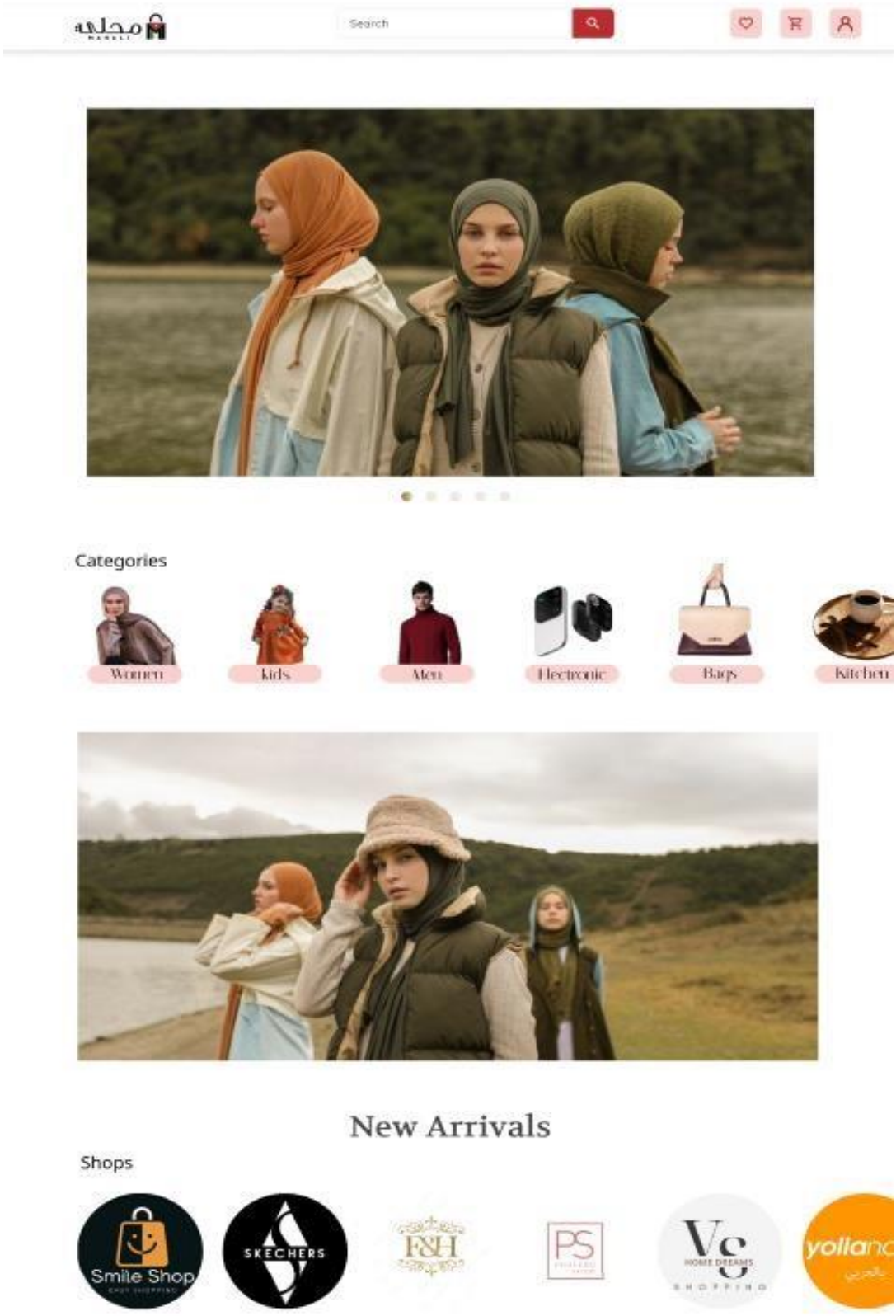


Figure 6.2.3: Main page prototype

Main Page.

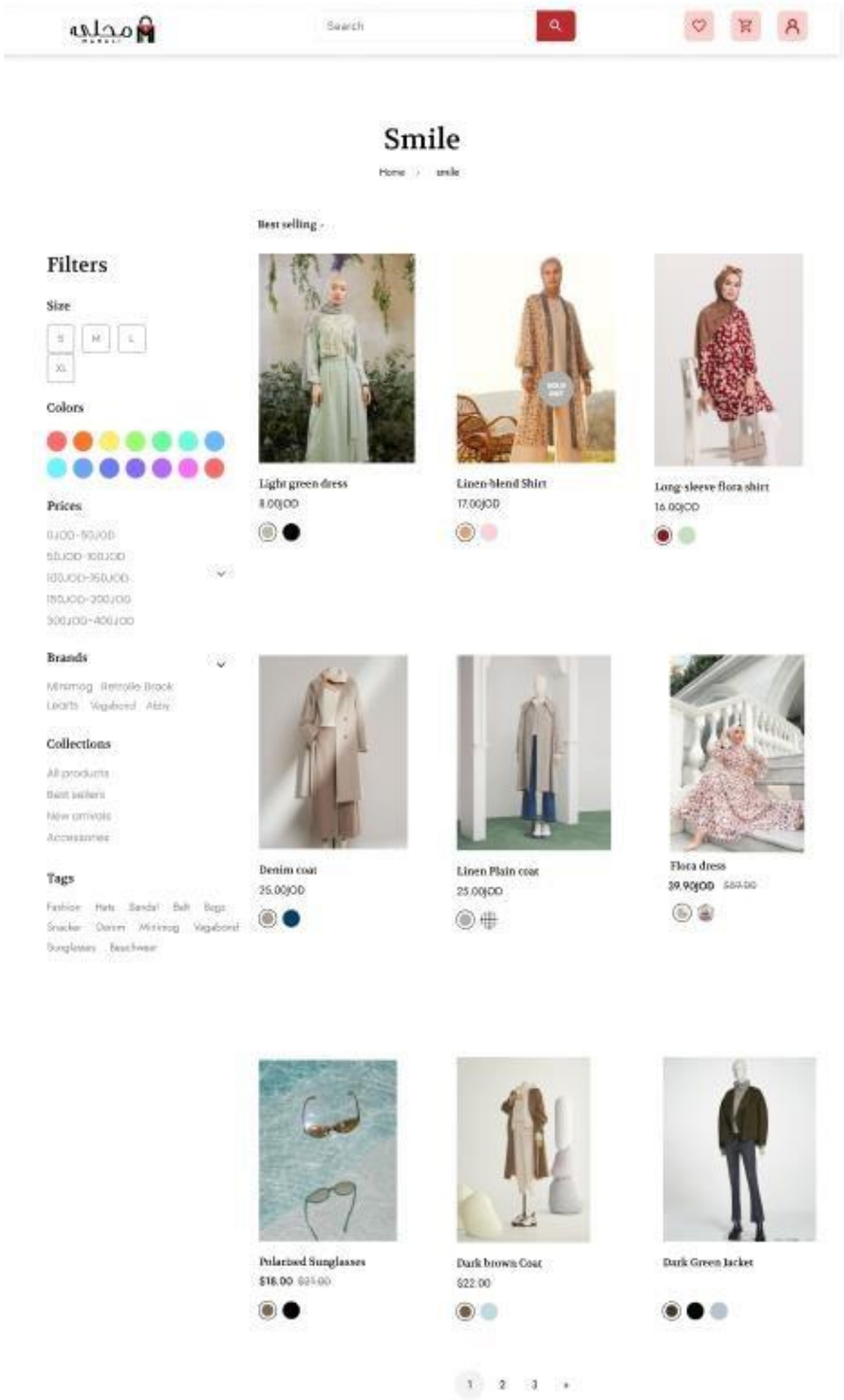


Figure 6.2.4: Shop page prototype

Shop Page

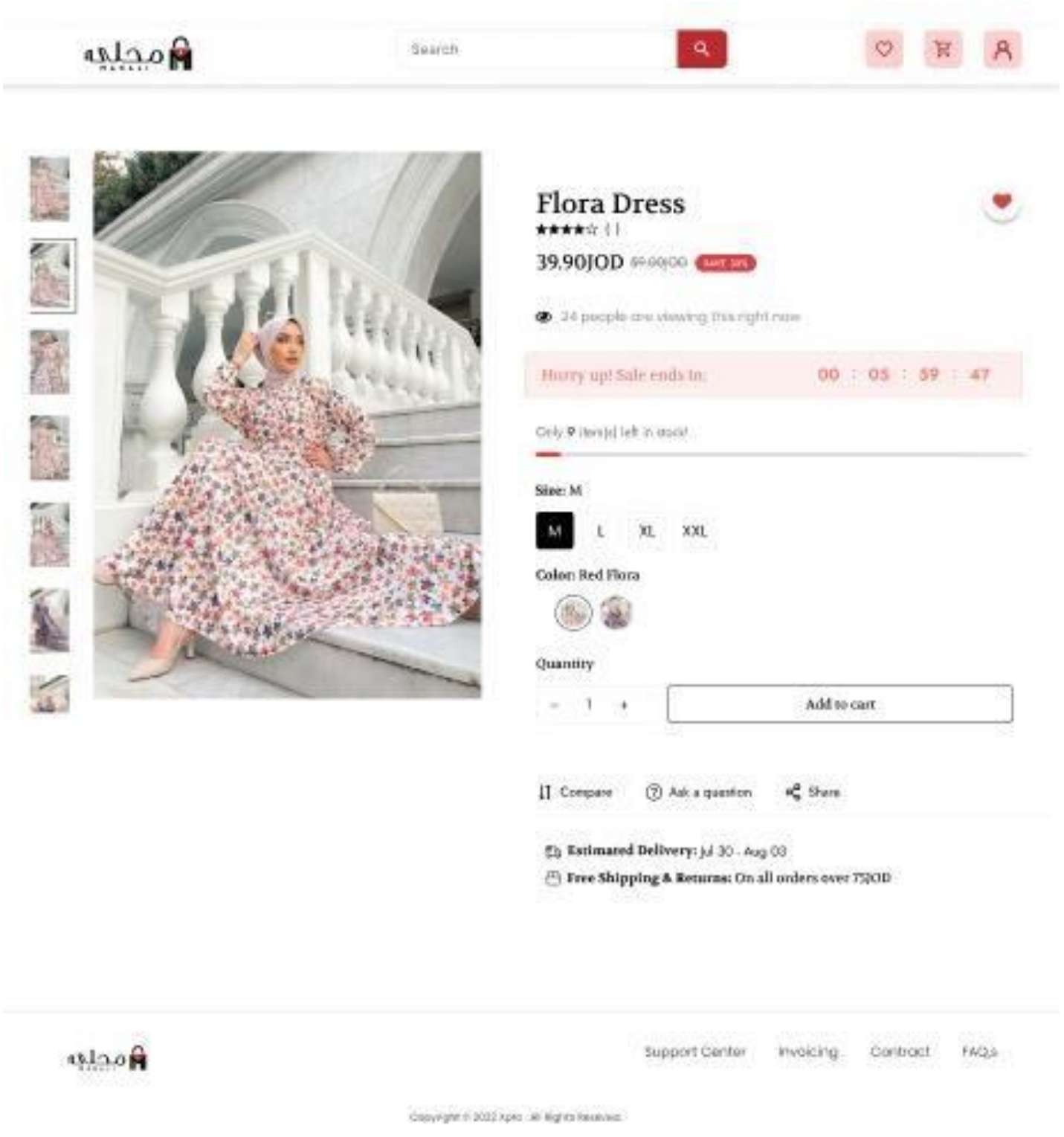


Figure 6.2.5: Product page prototype

Product page.

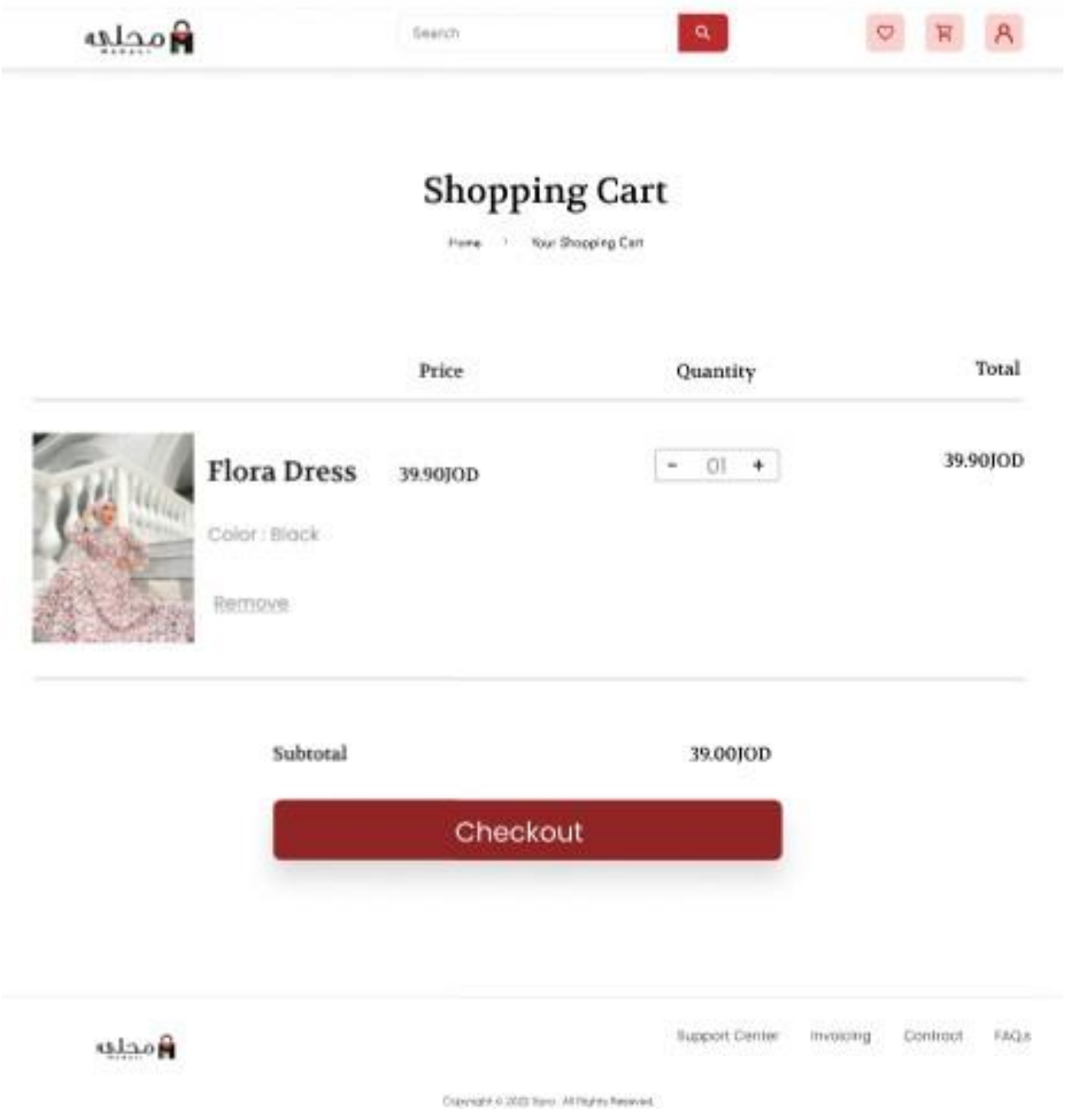


Figure 6.2.6: Cart page prototype

Cart page.

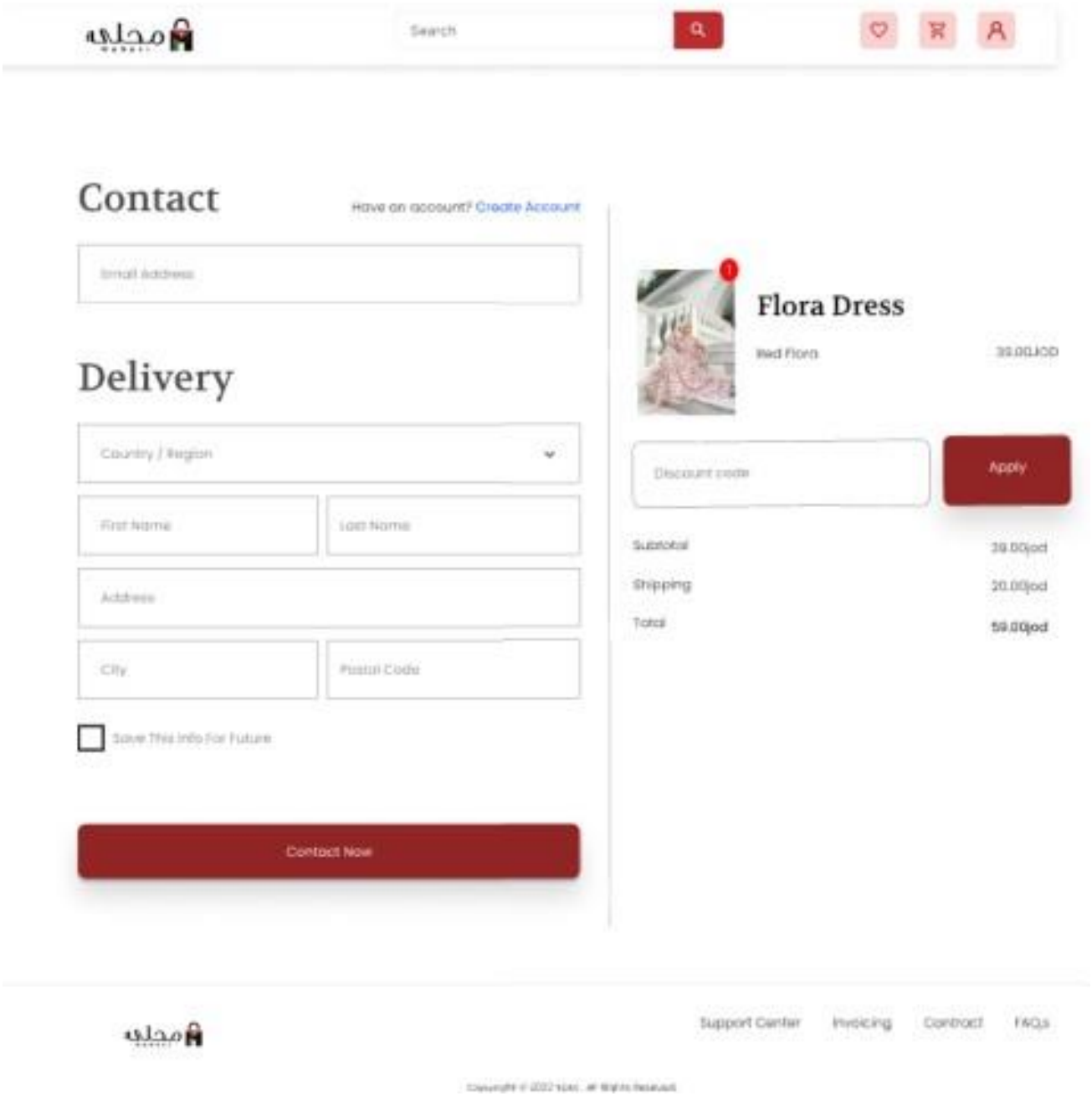


Figure 6.2.6: Checking out page prototype.

Checking out page.

CHAPTER 6: TESTING PLAN

6.1 Tools

In the testing phase of the Local Online Shopping Platform, a comprehensive set of testing tools will be employed to ensure the functionality and security of the system. The following tools have been selected to facilitate various aspects of the testing process:

Selenium:
Purpose: Automated Testing
Description: Selenium will be utilized for automated testing of the web application, allowing for the efficient execution of test cases across different browsers and scenarios.

JUnit:
Purpose: Unit Testing
Description: JUnit is chosen for unit testing of individual components and functions within the codebase, validating their correctness and reliability.

Conclusion: The integration of these testing tools into our testing plan aims to ensure thorough and systematic testing across all dimensions of the Local Online Shopping Platform.
Each tool serves a specific purpose, contributing to the overall goal of delivering a reliable, secure, and high-performance online shopping experience.

6.2. System Testing Plan (Black box):

Equivalence Partition

Create Account of Customer and Shop's owner:

Value	Valid	Invalid
Fname	Fname => 3 && Fname <= 10 (alphabetical) (char)	Fname < 3 || Fname > 10 (char)
Lname	Lname => 3 && Lname <= 10 (char)	Lname < 3 || Fname > 10 (char)
Password	Password >=8 && Password <=16 (char) Password >= 3 Number Password >= 1 Uppercase Password >= 1 Special Symbol	Password < 8 || Password >16 (char) Password < 3 Number Password < 1 Uppercase Password < 1 Special Symbol
Email	Email >= 14 && Email <=25 (char)	Email >14 && Email >25 (char)
Phone Number	PNumber = 10 (Integer)	PNumber < 10 || PNumber > 10 PNumber >= character PNumber >= Symbol

TestID	Test Case	Input	Expected Output
1	Fname(Valid) Lname(Valid) Email (Valid) Password(Valid) Phone Number(Valid)	Ghada Musllam Ghada.Musallam@gmail.com Ghada#90199 0782453051	Move to profile page
2	Fname(InValid) Lname(InValid) Email (InValid) Password(InValid) Phone Number(InValid)	Ay || AyaaMohammadObiedat Ob|| Obiedatmmmmmmmmm AyaaObiedat.M@yahoo.com ayaa#2002 || ay || Ayaa2002 || Ayaa# || ayaamohammmad#A2002 078 || 0783453456 || 92930bfvjd || 9483992$	Warning Message box
3	Fname(InValid) Lname(Valid) Email (Valid) Password(Valid) Phone Number(Valid)	Ra || RanaAhmadHazaimehklsa Hazaimeh ranaAhmad.h@yahoo.com Rana#2002 0782453051	Warning Message box
4	Fname(Valid) Lname(InValid) Email (InValid) Password(InValid) Phone Number(InValid)	Ghada Gh || ghadaziadmusallammm Ghada.musallam@yahoo.com ghada#2002 || gh || Ghada2002 || Ghada# || ghadaziasmusallam#A2002 078 || 09938498234 || 939209ioio || 8929#4892	Warning Message box
5	Fname(Valid) Lname(InValid) Email (Valid) Password(Valid) Phone Number(Valid)	Ghada Gh || ghadaziadmusallammm Ghada.Musallam@gmail.com ghada#2002 0782453051	Warning Message box
6	Fname(InValid) Lname(Valid) Email (InValid) Password(InValid) Phone Number(InValid)	Gh || ghadaziadmusallammm Musallam Ghada.musallam@yahoo.com ghada#2002 || gh || Ghada2002 || Ghada# || ghadaziasmusallam#A2002 078 || 09938498234 || 939209ioio || 8929#4892	Warning Message box

7	Fname(Valid) Lname(Valid) Email (InValid) Password(Valid) Phone Number(valid)	Ghada Musallam Ghada.musallam@yahoo.com Ghada#2002 0782453051	Warning Message box
8	Fname(InValid) Lname(InValid) Email (Valid) Password (InValid) Phone Number(InValid)	Gh || ghadaziadmusallammm Mu || ghadaziadmusallammm Ghada.musallam@ HYPERLINK "mailto:Ghada.musallam@gmail.com"gmail HYPERLINK "mailto:Ghada.musallam@gmail.com".com ghada#2002 || gh || Ghada2002 || Ghada# || ghadaziasmusallam#A2002 078 || 09938498234 || 939209ioio || 8929#4892	Warning Message box
9	Fname(Valid) Lname(Valid) Email (Valid) Password(InValid) Phone Number(Valid)	Ghada Musallam Ghada.Musallam@gmail.com ghada#2002 || gh || Ghada2002 || Ghada# || ghadaziasmusallam#A2002 0782453051	Warning Message box
10	Fname(InValid) Lname(InValid) Email (InValid) Password (Valid) Phone Number(InValid)	Gh || ghadaziadmusallammm Mu || ziadmusallammmop Ghada.musallam@ HYPERLINK "mailto:Ghada.musallam@yahoo.com"yahoo HYPERLINK "mailto:Ghada.musallam@yahoo.com".com Ghada#2002 078 || 09938498234 || 939209ioio || 8929#4892	Warning Message box
11	Fname(Valid) Lname(Valid) Email (Valid) Password(Valid) Phone Number(Invalid)	Ghada Musallam Ghada.Musallam@gmail.com Ghada#2002 078 || 09938498234 || 939209ioio || 8929#4892	Warning Message box
12	Fname(Invalid) Lname(Invalid) Email (Invalid) Password(Invalid) Phone Number(Valid)	Gh || ghadaziadmusallammm Mu || ziadmusallammmop Ghada.musallam@yahoo.com ghada#2002 || gh || Ghada2002 || Ghada# || ghadaziasmusallam#A2002 0782453051	Warning Message box

Create Account of Shop's Owner:

ID	TestCase	Input	Expected Output
1	ShopName(valid) Email (valid) Password (valid) PhoneNum(valid)	Loco LocoShop@gmail.com Loco#90199 0782453051	Move to profile page
2	ShopName(in-valid) Email (in-valid) Password (in-valid) PhoneNum(in-valid)	Lo || firstShopLoco || loco12# Lo@gmail.com Loc#123 || loc#1234 || Loco1234 || Loco#shop1|| FirstLocalShop#12345678910_ 07824530C_ || 07824	Warning Message box
3	ShopName(valid) Email (in-valid) Password (in-valid) PhoneNum(in-valid)	Loco Lo@gmail.com Loc#123 || loc#1234 || Loco1234 || Loco#shop1|| FirstLocalShop#12345678910_ 07824530C_ || 07824	Warning Message box
4	ShopName(in-valid) Email (valid) Password (valid) PhoneNum(valid)	Lo || firstShopLoco || loco12# LocoShop@gmail.com Loco#90199 0782453051	Warning Message box
5	ShopName(valid) Email (in-valid) Password (valid) PhoneNum(valid)	Loco Lo@gmail.com Loco#90199 0782453051	Warning Message box
6	ShopName(in-valid) Email (valid) Password (in-valid)	Lo || firstShopLoco || loco12# LocoShop@gmail.com Loc#123 || loc#1234 || Loco1234 || Loco#shop1|| FirstLocalShop#12345678910_	Warning Message box

	PhoneNum(in-valid)	07824530C_ || 07824	
7	ShopName(valid) Email (valid) Password (in-valid) PhoneNum(valid)	Loco LocoShop@gmail.com Loc#123 || loc#1234 || Loco1234 || Loco#shop1|| FirstLocalShop#12345678910_ 0782453051	Warning Message box
8	ShopName(in-valid) Email (in-valid) Password (valid) PhoneNum(in-valid)	Lo || firstShopLoco || loco12# Lo@gmail.com Loco#90199 07824530C_ || 07824	Warning Message box
9	ShopName(valid) Email (valid) Password (valid) PhoneNum(in-valid)	Loco LocoShop@gmail.com Loco#90199 07824530C_ || 07824	Warning Message box
10	ShopName(in-valid) Email (in-valid) Password (in-valid) PhoneNum(valid)	Lo || firstShopLoco || loco12# Lo@gmail.com Loc#123 || loc#1234 || Loco1234 || Loco#shop1|| FirstLocalShop#12345678910_ 0782453051	Warning Message box

LOGIN TESTING (FOR CUSTOMER & ADMIN &OWNER_SHOP)

Test ID	Test Case	input	Expected Output
1	Email (Valid) Password (Valid)	Ranaahmad@gmail.com Rana44@na	Move to profile
2	Email (InValid) Password (InValid)	Ranaahmad HYPERLINK "mailto:%20Ranaahmad@yahoo.com"@yahoo.com 123	Warning Message box
3	Email (Valid) Password(InValid)	Ghadaziad@gmail.com 0123	Move to profile
4	Email (InValid) Password (Valid)	Ghadaaziad@ggggggg Ayaa30@ay	Warning Message box

CONCLUSIONS

Online shopping has changed the way we shop. It's convenient, offers a wide range of products, competitive prices, and doorstep delivery. It provides us with information, simplifies the shopping process, and gives us access to a local marketplace. By shopping online, we can save time, make informed choices, and enjoy the convenience of shopping from anywhere, at any time. Whether you're busy, an online shopper, or someone seeking a more efficient and enjoyable retail experience, online shopping is the way to go, Embrace the power of e-commerce and unlock a world of endless possibilities!

REFERENCES

[1] “Talabat” , online website : https://www.talabat.com/jordan/

[3] “Modanisa” , online website : https://www.modanisa.com/en/

[4] “Amazon” , online website : https://www.amazon.com/

[5] “iHerb” , online website : https://jo.iherb.com/c/herbs/