

Final Project Report

INTE 31356- Software Development Project

Web Application for RK Furniture

IM/2019/059

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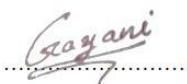
Declaration

I hereby certify that this project and all the artifacts associated with it is my own work and it has not been submitted before nor is currently being submitted for any other degree programme.

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Date

Acknowledgment

I extend my heartfelt gratitude to the individuals and groups whose contributions have been pivotal to the success of the RK Furniture web application project.

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Lastly, I would like to acknowledge the unwavering support of my friends and colleagues, whose encouragement and feedback were significant throughout this project's journey.

Abstract

In a dynamic digital landscape, the business modules of today must evolve to meet the expectations of the digital age. The rapid pace of technological change has prompted entrepreneurs to integrate robust IT infrastructure, particularly in sales and marketing. The internet has emerged as an indispensable resource, propelling e-commerce into the forefront of modern business, benefiting entrepreneurs and customers alike. For entrepreneurs, e-commerce ushers in fresh opportunities, while customers enjoy the convenience of comparative purchasing.

This report takes a deep dive into the intricacies of the existing system, unraveling the challenges it faces. Through a comprehensive analysis, it uncovers the findings and insights that have shaped the development of a proposed system. Additionally, the report introduces the diverse features and functionalities of the envisioned system, crafted to overcome the limitations of existing processes.

Recognizing the importance of continuous improvement, this report also addresses the system's limitations and drawbacks, accompanied by valuable suggestions for future enhancements and refinements.

The designed system is strategically engineered to empower end customers to purchase furniture directly from RK Furniture, eliminating the need for intermediaries. Furthermore, it equips the company with advanced decision-making capabilities, enabling optimized order delivery routes and the evaluation of sales performance fluctuations among Sales Executives using diverse criteria.

In essence, this report encapsulates the transformative journey of RK Furniture, embracing technology and digital solutions to enhance operational efficiency and offer an elevated shopping experience to both entrepreneurs and customers in the furniture commerce landscape.

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1. Chapter 1- Introduction

Outline of the Chapter

- 1.1 Introduction
- 1.2 Introduction to the Client
- 1.3 Business Process
- 1.4 Problem Definition
- 1.5 Aims and Objectives
- 1.6 Scope of the Project
- 1.7 Feasibility Study
- 1.8 Project Plan
- 1.9 Poster Overview
- 1.10 Summary

1.1 Introduction

The RK Furniture web application represents a pivotal step in modernizing the traditional furniture business. Prior to its creation, RK Furniture conducted its operations using a desktop application and manual processes, limiting its reach and customer engagement. In this report, we present the journey of transitioning this brick-and-mortar operation into a thriving digital presence. Our web application opens up a world of possibilities for our clients, offering a wide range of furniture collections, seamless buying processes, and innovative features, including coupon, gift, and sale facilities. The "Home Tour" feature, implemented through image hotspots, allows customers to explore furniture items within room images, providing an immersive and informative shopping experience. Moreover, the project feature connects clients with talented interior designers, transforming not only their furniture but also their room interiors. This introduction sets the stage for a comprehensive exploration of the RK Furniture web application and its potential to revolutionize the furniture industry.

1.2 Introduction to the Client

Ruhan Kumara, the visionary owner of RK Furniture, has been a steadfast presence in the furniture business landscape in Embilipitiya. With a deep-rooted passion for providing quality furniture solutions to the local community, Ruwan Kumara's journey in this industry has been marked by dedication and a commitment to excellence.

Operating from the vibrant town of Embilipitiya, RK Furniture has established itself as a trusted destination for those seeking exquisite furniture pieces and interior design solutions. As the founder and driving force behind this venture, Ruwan Kumara's aspirations go beyond just selling furniture; they extend to transforming the way people perceive and interact with furniture in their daily lives.

This report, in part, serves as a tribute to Ruwan Kumara's relentless pursuit of innovation and customer satisfaction. The RK Furniture web application represents a bold step forward in embracing technology to enhance the shopping experience and expand the reach of this well-loved local establishment. Ruwan Kumara's vision and unwavering commitment have played a pivotal role in making this project a reality, and his dedication to serving the community continues to be an inspiration for us all.

1.3 Business Process

In today's digital age, the process of buying and selling furniture online in Sri Lanka has witnessed a significant transformation. Several web platforms and websites have emerged, such as www.ceylonsfurniture.lk, www.arpicofurniture.com, www.furnituresrilanka.lk, and www.daraz.lk, which offer a plethora of options for furniture enthusiasts. These platforms not only cater to furniture but also extend their services to various other product categories.

Seller Registration and Product Listing

Furniture sellers are given the opportunity to create accounts on these platforms, which allows them to list their furniture products. They can provide detailed product descriptions, images, and videos to showcase their offerings to potential buyers. This step streamlines the process for sellers, granting them access to a broader audience without the constraints of a physical store.

Buyer Exploration and Selection

Furniture buyers, on the other hand, benefit from the convenience of these online platforms. They can easily navigate through the websites, browsing a vast array of furniture products. Buyers have the freedom to inspect various product images and videos to gain a comprehensive understanding of the furniture on offer. This step enhances the decision-making process, allowing them to make informed choices.

Purchase Options

Once satisfied with a particular piece of furniture, buyers are presented with multiple payment options. They can opt to make online payments using secure payment gateways, or they can choose the 'cash on delivery' method, offering flexibility to suit their preferences.

Rise in Online Furniture Shopping

The current pandemic situation has significantly accelerated the shift towards online buying and selling of furniture. Customers have become increasingly inclined to purchase furniture online, favoring this method over traditional visits to physical furniture stores. This trend is indicative of the growing popularity and acceptance of e-commerce in the realm of furniture retail.

1.4 Problem Definition

RK Furniture, a well-established furniture retailer in Embilipitiya, Sri Lanka, has long relied on a traditional desktop application and manual processes for their account management and day-to-day operations. However, these methods have posed several challenges, prompting the need for a significant transformation. This report aims to address the following key problems RK Furniture faces:

Limited Digital Presence

RK Furniture's absence from the online sphere has hindered their ability to tap into the vast potential of digital commerce. With the contemporary consumer's inclination towards online shopping, the lack of a web presence has limited the reach and accessibility of their offerings.

Inefficient Account Management

Managing accounts and inventory through a desktop application and manual processes can be time-consuming, prone to errors, and lacks the scalability required for an expanding business. It often leads to challenges in tracking sales, inventory, and customer data efficiently.

Incomplete Customer Engagement

The absence of an online platform has limited RK Furniture's engagement with potential customers and their ability to offer a seamless and interactive shopping experience. This leaves them at a disadvantage in comparison to competitors who have embraced digital solutions.

Missed Opportunities for Expansion

In a rapidly changing business landscape, RK Furniture has missed out on the opportunity to expand their reach beyond the confines of their physical store and local market. This limitation has curtailed their potential for growth and market penetration.

Operational Inefficiencies

The manual and desktop-based processes may lead to inefficiencies, higher operating costs, and challenges in adapting to evolving market demands. The lack of a digital presence can also result in difficulties in effectively managing their business during unexpected disruptions, such as the recent pandemic.

1.5 Aims and Objectives

The primary aim of the RK Furniture web application project is to modernize and transform the traditional business model of RK Furniture from manual, desktop-based operations to a dynamic and digitally-driven approach. This transformation aims to enhance customer engagement, operational efficiency, and the overall business outlook. The specific objectives of this project are as follows:

Establish a Strong Online Presence

Develop and launch a user-friendly, responsive, and visually appealing website that showcases RK Furniture's products and services to a wider audience.

Enable E-commerce Capabilities

Implement robust e-commerce features that allow customers to browse, select, and purchase furniture products seamlessly.

Provide a Comprehensive Product Catalog

Create an extensive product catalog with detailed descriptions, high-quality images, and informative videos to empower customers with all the information they need to make informed purchasing decisions.

Introduce Innovative "Home Tour" Feature

Develop and implement the "Home Tour" feature using image hotspots to allow customers to virtually explore furniture within room settings, providing a more immersive shopping experience.

Offer Personalized Interactions

Establish an interface that encourages personalized interactions, such as wish lists, recommendations, and feedback mechanisms, to enhance the customer's shopping experience.

Enable Connection with Interior Designers

Facilitate direct communication between customers and skilled interior designers, allowing for customized furniture solutions and room interior design services.

Implement Efficient Account Management

Transition from manual account management to a streamlined digital process that improves inventory tracking, sales management, and customer relationship management.

Enhance Operational Efficiency

Reduce operational inefficiencies through digital solutions, minimizing errors, and optimizing resource utilization.

Improve Scalability and Adaptability

Develop a platform that is scalable and adaptable to changing market conditions and customer preferences, ensuring long-term business sustainability.

Compete in the Digital Marketplace

Position RK Furniture as a formidable player in the online furniture market, enabling them to compete with established online retailers.

Ensure Business Continuity

Strengthen the business's resilience against unexpected disruptions, such as the recent pandemic, by establishing a digital presence that can operate effectively under challenging circumstances.

1.6 Scope of the Project

The scope of the RK Furniture web application project encompasses a wide range of activities and functionalities aimed at ushering the traditional furniture business into the digital era. The project scope can be categorized into the following key areas:

Website Development

Design and create a user-friendly, responsive website for RK Furniture that serves as the primary interface for customers and provides an online presence for the business.

E-commerce Integration

Implement robust e-commerce capabilities, including a secure shopping cart system, product listings, and online payment processing.

Product Catalog

Develop an extensive product catalog that includes detailed descriptions, high-quality images, and informative videos for a wide range of furniture items.

"Home Tour" Feature

Introduce the innovative "Home Tour" feature, leveraging image hotspots to allow customers to virtually explore furniture products within the context of a room setting.

Personalization Features

Implement features that enable personalized interactions, such as wish lists, product recommendations, and customer feedback mechanisms.

Interior Designer Connection

Establish a platform for customers to connect with experienced interior designers, facilitating customized furniture solutions and room interior design services.

Account Management Enhancement

Transition from manual account management to a digital system for efficient inventory tracking, sales management, and customer relationship management.

Operational Efficiency

Optimize operational processes to improve efficiency, reduce errors, and enhance resource utilization.

Scalability and Adaptability

Develop the platform with scalability in mind to accommodate future growth and adaptability to changing market conditions and customer preferences.

Competitive Positioning

Position RK Furniture as a competitive player in the online furniture market in Sri Lanka, with strategies to gain a strong foothold.

Business Continuity

Ensure the business remains resilient and operational under challenging circumstances, such as pandemics or other unexpected disruptions.

Training and Support

Provide training and support to RK Furniture's staff to effectively manage and maintain the web application.

1.7 Feasibility Study

A feasibility study for the RK Furniture web application project is crucial to assess the viability, risks, and benefits associated with the proposed endeavor. This study covers various aspects, including technical, economic, operational, and scheduling considerations.

Technical Feasibility

Software and Infrastructure: The technical feasibility of the project is high, given the widespread availability of web development technologies, hosting solutions, and e-commerce platforms.

Integration with Legacy Systems: Compatibility and integration with RK Furniture's existing desktop application should be ensured to facilitate a smooth transition.

Economic Feasibility

Cost-Benefit Analysis: A comprehensive cost-benefit analysis must be conducted, considering initial development costs, ongoing maintenance, and potential revenue generation. This analysis should indicate a positive return on investment.

Operational Feasibility

Business Process Analysis: Assess the impact of the web application on RK Furniture's day-to-day operations and evaluate its ability to enhance operational efficiency.

Staff Training: Ensure that employees are adequately trained to use the new system effectively.

Market Feasibility

Competitive Analysis: Analyze the competitive landscape within the Sri Lankan online furniture market to understand the market's potential and identify key competitors.

Customer Demand: Evaluate the current and potential demand for online furniture shopping in Sri Lanka, taking into account customer preferences.

Scheduling Feasibility

Project Timeline: Develop a realistic project schedule that outlines key milestones and deadlines for each phase of development, ensuring that the project remains on track.

Legal and Regulatory Compliance

Privacy and Security: Ensure that the web application complies with data protection laws and adheres to the highest security standards to safeguard customer information.

Risk Assessment

Technical Risks

Identify potential technical challenges, such as system integration issues or software bugs, and establish mitigation strategies.

Market Risks

Consider the risks associated with market fluctuations and changes in customer behavior, as well as strategies to adapt to such risks.

Operational Risks

Address risks related to the adaptability of employees to the new system and potential disruptions to business operations during the transition.

Environmental Impact

Sustainability: Assess the environmental impact of the project, such as energy consumption and waste generation, and explore sustainable practices where feasible.

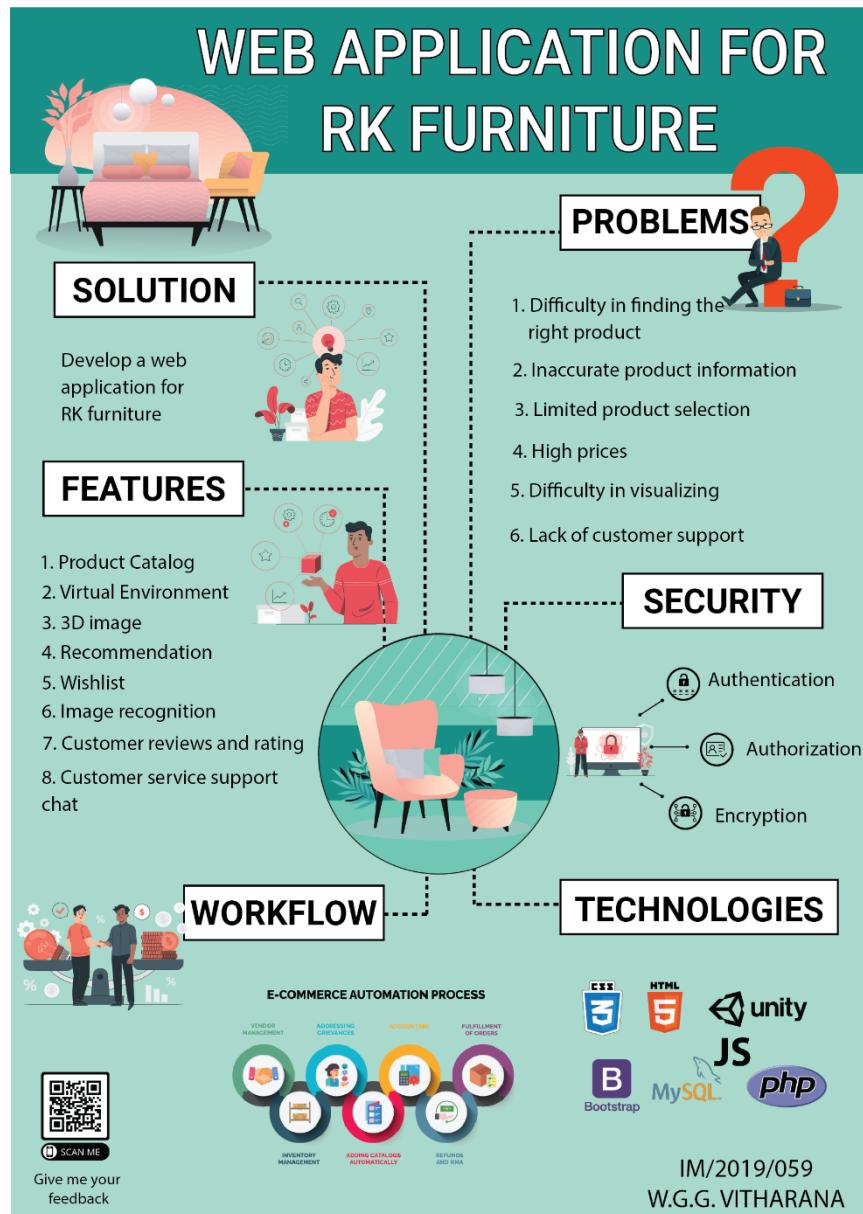
1.8 Project Plan

Project Plan

PROCESS	2022			2023				2023				
	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
Start the Project	■											
Project Proposal Submission		■										
Poster Presentation			■									
System Analysis and Design				■	■■■■							
Implementation					■■■■■							
Report Submission									■			
Presentation										■		
End of the Project												

1.9 Poster Overview

Before embarking on the detailed narrative of our RK Furniture web application project, we kick-started our journey with a poster presentation. This poster acted as a visual synopsis of our project, highlighting the identified problem, our proposed solution, the key features of our system, the chosen technology stack, and our methodology. It is a pivotal snapshot that set the stage for our project's development and provides a condensed insight into our journey from inception to execution.



1.10 Summary

In this introductory chapter, we embarked on a journey to explore the transformation of RK Furniture from a traditional furniture business to a modern digital presence. We began by introducing the client, RK Furniture, and delved into the intricacies of the current business process.

Identifying the need for change, we outlined the problems faced and presented a clear set of aims and objectives to guide our project. The scope of the project was comprehensively defined, and a feasibility study ensured that our vision aligns with reality. We also established a project plan to map our path forward.

To visually set the stage, the poster overview highlighted the initial presentation of our project's core elements.

As we transition into subsequent chapters, this foundation sets the scene for the detailed exploration of the RK Furniture web application project. We will delve into its development, features, and the impact it promises to make in the digital age of furniture commerce.

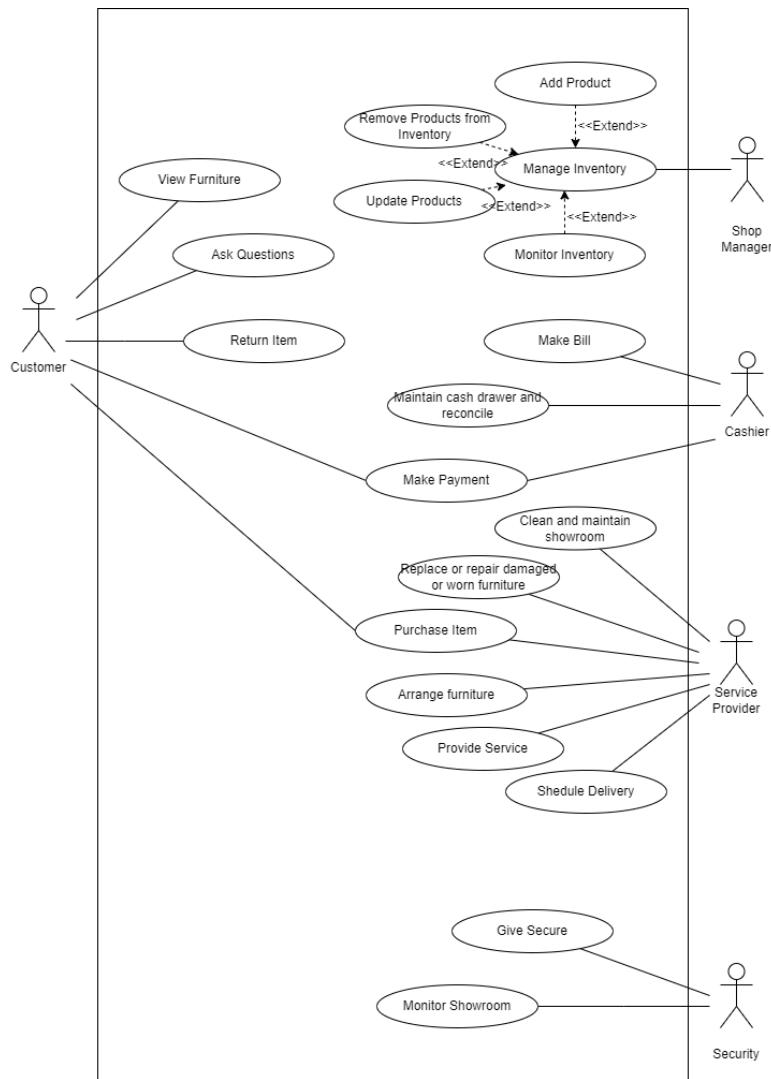
2. Chapter 2 - System Analysis

Outline of the Chapter

- 2.1 Overall Use Case Diagram for the Existing Process
- 2.2 Functional Requirements
- 2.3 Non-Functional Requirements
- 2.4 Business System Options (BSOs)
- 2.5 Functional Requirements vs BSOs
- 2.6 Non-Functional Requirements vs BSOs
- 2.7 Cost Benefit Analysis
- 2.8 Justification
- 2.9 Summary

2.1 Overall Use Case Diagram for the Existing Process(Physical Shop)

A drawable use case diagram is a visual representation of the different actors, use cases, and their relationships in a system. In the context of a physical furniture shop, a drawable use case diagram can help to illustrate the various functions and processes that are involved in running the shop. This diagram can provide a high-level view of the system, showing how different actors interact with the system and the different tasks that they can perform.



2.2 Functional Requirements

Furniture websites have become increasingly popular as more people choose to shop for furniture online. However, in order for a furniture website to be successful, it must meet certain functional requirements. These functional requirements ensure that the website is user-friendly, efficient, and provides customers with a seamless shopping experience. These requirements can be nice to have functionalities or mandatory functionalities. In this report, we will outline the key functional requirements that are essential for a successful furniture website. By understanding these requirements, website owners can ensure that their website is optimized to meet the needs of their customers and increase their chances of success.

Requirements	Priority H/M/L	User Type	User ID
1. Shall be able to Create account 1.1 Shall be able to register on the system 1.2 Shall be able to register using standard method provided by the system 1.3 Should be able to register with a Google account 1.4 Should be able to register with Apple account 1.5 Should be able to register with an Facebook account	H H H H L L L	All All All All All All All	US-01 US-02 US-03 US-04 US-05 US-06 US-07
2. Shall be able to login the system 2.1 Shall be able to login using standard method provided by the system 2.2 Should be able to login with a Google account 2.3 Should be able to login with Apple account 2.4 Should be able to login with an Facebook account	H H L L L	All All All All All	US-08 US-09 US-10 US-11 US-12
3. Shall be able to view information of the user account	H	All	US-13
4. Shall be able to update a created account on the system 4.1 Shall be able to update personal information 4.2 Shall be able to reset the password	H H	All All	US-14 US-15 US-16
5. Should be able to recover password incase if the password is forgotten	M	All	US-17
6. Shall be able to delete a created account	H	All	US-18
7. Shall be able to search for a furniture product on the system	H	C	US-19

8. Shall be able to filter results gained from a search 8.1 Shall be able to filter based on the availability 8.2 Shall be able to filter based on the price range 8.3 Shall be able to filter based on the product type 8.4 Shall be able to filter based on the materials 8.5 Shall be able to filter based on the color	H H H H H	C C C C C	US-20 US-21 US-22 US-23 US-24 US-25
9. Should be able to view most trending products	L	C	US-26
10. Should be able to view promotions and discounts	L	C	US-27
11. Shall be able to view details of the selected product 11.1 Shall be able to view the name of the product 11.2 Shall be able to view the price of the product 11.3 Shall be able to view the image of the product 11.4 Shall be able to view the description of the product 11.5 Shall be able to view dimensions of the product 11.6 Shall be able to view colours of the product 11.7 Shall be able to view materials of the product 11.8 Shall be able to view the customer reviews on the product 11.9 Shall be able to view the customer comments on the product 11.10 Should be able to chat with the service supporters	H H H H H H H H H L	C C C C C C C C C C	US-28 US-29 US-30 US-31 US-32 US-33 US-34 US-35 US-36 US-37 US-38
12. Shall be able to select desired material of the selected product	H	C	US-39
13. Shall be able to select desired colour of the selected product	H	C	US-40
14. Shall be able to set the quantity of the selected product	H	C	US-41
15. Shall be able to manage Wishlist 15.1 Shall be able to allow add products to their Wishlist 15.2 Shall be able to view their Wishlist 15.3 Shall be able to delete products in the Wishlist 15.4 Should be able to share their Wishlist 15.5 Shall be able purchase product in the Wishlist	H H H H L H	C C C C C C	US-42 US-43 US-44 US-45 US-46 US-47
16. Shall be able to manage the Cart	H	C	US-48

16.1 Shall be able to add a product to a cart 16.2 Shall be able view their cart at any time 16.3 Shall be able to view an order summary	H H H	C C C	US-49 US-50 US-51
17. Shall be able to add delivery details to proceed to purchase the selected product 17.1 Shall be able to add the delivery address 17.2 Shall be able to add the contact number 17.3 Should be able to add a delivery note 17.4 Should be able to add the email address	H H M M	C C C C	US-52 US-53 US-54 US-55 US-56
18. Shall be able to view the total cost of the selected product 18.1 Shall be able to view subtotals of the product 18.2 Shall be able to view the delivery fee of the product	H H	C C	US-57 US-58 US-59
19. Shall be able to select the desired payment option to make the payment and purchase the selected product 19.1 Shall be able to make payment using cash on delivery 19.2 Shall be able to make payment using credit/debit card 19.3 Should be able to get an invoice for the payment made	H H L	C C C	US-60 US-61 US-62 US-63
20. Should be able to see tracking details of the purchased product 20.1 Should be able to see the current delivery status 20.2 Should be able to see the estimated arrival date 20.3 Should be able to get notification about current status	M L M M	C C C C	US-64 US-65 US-66 US-67
21. Should be able to confirm after receiving the product	L	C	US-68
22. Should be able to provide reviews on the product	M	C	US-69
23. Should be able to Provide comment on the product	M	C	US-70
24. Should be able to make a complaint if the product was not delivered properly	M	C	US-71

25. Should be able to get notifications on purchased product	M	C	US-72
26. Shall be able to make room tour 26.1 Shall be able to select image 26.2 Shall be able to view product in the selected image 26.3 Shall be able to view information about selected product in the selected image 26.4 Shall be able to purchase selected product in the selected image	H H H H	C C C C	US-73 US-74 US-75 US-76 US-77
27. Should be able to get service for interior design 27.1 Should be able to make an appointment	H H	C C	US-78 US-79
28. Shall be able to see completed project 28.1 Shall be able to see details about the project 28.2 Shall be able to see customer feedback about the project 28.3 Shall be able to see images of the project	H H H H	C C C C	US-80 US-81 US-82 US-83
29. Shall be able to manage product catalog 29.1 Shall be able to add the name of the product 29.2 Shall be able to add the price of the product 29.3 Should be able to display discount and promotion of the product 29.4 Shall be able to add the delivery fee of the product 29.5 Shall be able to add the description of the product 29.6 Shall be able to add dimensions of the product 29.7 Shall be able to add availability of the the product 29.8 Shall be able to add available materials of the product 29.9 Shall be able to add Available colors of the product 29.10 Shall be able to add image of the product 29.11 Shall be able to update product catalog 29.12 Shall be able to delete the product catalog 29.13 Shall be able to provide reviews and comments for products given by previous customers	H H H L H H H H H H H H H H H	A A A A A A A A A A A A A A	US-84 US-85 US-86 US-87 US-88 US-89 US-90 US-91 US-92 US-93 US-94 US-95 US-96 US-97
30. Shall be able to get notification when a product has been purchased 30.1 Shall be able to get complete information about the product sold, including materials and	H	A	US-98

colour selection 30.2 Shall be able to get buyer's information 30.3 Shall be able to chat with the customers	H H	A A	US-99 US-100 US-101
31. Shall be able to manage room tour 31.1 Shall be able to add images 31.2 Shall be able to delete images 31.3 Shall be able to provide information in the image and link with product catalog	H H H	A A A	US-101 US-102 US-103 US-104
32. Should be able to confirm appointment 32.1 Should be able to contact customer	M M	A A	US-104 US-105
33. Shall be able to view analytical data related to sales 33.1 Shall be able to view total income 33.2 Shall be able to view the number of units sold of each listed product 33.3 Should be able to view customer reviews and comments made on each listed product 33.4 Should be able to view the most popular product among the listed products	H H L L	A A A A	US-106 US-107 US-108 US-109 US-110
34. Shall be able to manage inventory 34.1 Shall be able to add items to inventory 34.2 Shall be able to auto-update inventory on usage 34.3 Should be able to generate Inventory Status Reports	H H M	A A A	US-111 US-112 US-113 US-114
35. Should be able to generate sales reports 35.1 Should be able to generate income reports 35.2 Should be able to generate Expenses Reports 35.3 Should be able to generate Transaction Details Reports	M M M	A A A	US-115 US-116 US-117 US-118
36. Shall be able to provide a Contact Us page where users can get in touch with the customer support 36.1 Shall be able to display the contact details	H H	A A	US-119 US-120

2.3 Non-Functional Requirements

Requirements	Priority H/M/L	M/O	Weight H/M/L
1. Shall be able to provide a user-friendly interface	H	M	H
2. Shall be able to provide a highly interactive UI	H	M	H
3. Shall be able to provide a responsive web interface	H	M	H
4. Shall be able to provide a secure payment gateway to users	H	M	H
5. Shall be able to secure and protect users' personal and financial information	H	M	H
6. Shall be able to record data accurately	H	M	H
7. Shall be able to provide filter option accurately	H	M	H
8. Should be able to handle growing number of users and transaction	M	O	H
9. Should be able to be maintainable, easy to modify or update and extend system in the future	M	O	H
10. Should be able to recover quickly from any system failure or errors	M	O	H
11. Should be able to generate a response to a given user request within 05 seconds	M	O	H
12. Should be able to easily navigate through the platform	M	O	H

2.4 Business System Options (BSOs)

Business System Options Identification

2.4.1 BSO 1

In this option, you would create a web-based solution and a mobile application for the RK Furniture website. These solutions would enable users to access the RK Furniture platform using both personal computers and mobile devices from anywhere in the world, as long as they have a reliable internet connection.

The web-based solution would provide an excellent user experience on PCs through web browsers.

The mobile application would be designed for smartphones and tablets, making it easy for users to access RK Furniture while on the go.

The primary advantage of this approach is the flexibility it offers to users who may prefer using a web browser on their computer or a dedicated mobile app on their smartphone or tablet. It caters to a broad range of users.

2.4.2 BSO 2

In this option, the focus is on creating a highly responsive web-based solution for the RK Furniture website. This solution would allow users to access the platform from anywhere in the world, provided they have a reliable internet connection.

The website would be designed to automatically adapt to different screen sizes and devices. This means it can be accessed and used smoothly on both personal computers and mobile devices, including smartphones and tablets.

The key advantage of this approach is the emphasis on a single web-based solution that provides an excellent user experience on any device. It simplifies development and maintenance while ensuring users can access RK Furniture from various platforms seamlessly.

2.4.3 BSO 3

This option entails developing a dedicated mobile application for the RK Furniture website. The application would allow users to access the platform via their mobile devices from anywhere in the world, as long as they have a reliable internet connection.

Users would need to install the mobile application on their smartphones or tablets to access the RK Furniture platform.

The main advantage of this approach is the potential for delivering a highly tailored and optimized experience for mobile users. However, it may require users to download and install the application, which could be a barrier for some.

2.5 Functional Requirements vs BSOs

Requirements	BSO1	BSO2	BSO3
1. Shall be able to Create account 1.1 Shall be able to register on the system 1.2 Shall be able to register using standard method provided by the system 1.3 Should be able to register with a Google account 1.4 Should be able to register with Apple account 1.5 Should be able to register with an Facebook account	X X X X X X	X X X X X X	X X X X X X
2. Shall be able to login the system 2.1 Shall be able to login using standard method provided by the system 2.2 Should be able to login with a Google account 2.3 Should be able to login with Apple account 2.4 Should be able to login with an Facebook account	X X X X X	X X X X X	X X X X X
3. Shall be able to view information of the user account	X	X	X
4. Shall be able to update a created account on the system 4.1 Shall be able to update personal information 4.2 Shall be able to reset the password	X X	X X	X X
5. Should be able to recover password incase if the password is forgotten	X	X	X
6. Shall be able to delete a created account	X	X	X

7. Shall be able to search for a furniture product on the system	X	X	X
8. Shall be able to filter results gained from a search	X	X	X
8.1 Shall be able to filter based on the availability	X	X	X
8.2 Shall be able to filter based on the price range	X	X	X
8.3 Shall be able to filter based on the product type	X	X	X
8.4 Shall be able to filter based on the materials	X	X	X
8.5 Shall be able to filter based on the color	X	X	X
9. Should be able to view most trending products	X	X	X
10. Should be able to view promotions and discounts	X	X	X
11. Shall be able to view details of the selected product	X	X	X
11.1 Shall be able to view the name of the product	X	X	X
11.2 Shall be able to view the price of the product	X	X	X
11.3 Shall be able to view the image of the product	X	X	X
11.4 Shall be able to view the description of the product	X	X	X
11.5 Shall be able to view dimensions of the product	X	X	X
11.6 Shall be able to view colours of the product	X	X	X
11.7 Shall be able to view materials of the product	X	X	X
11.8 Shall be able to view the customer reviews on the product	X	X	X
11.9 Shall be able to view the customer comments on the product	X	X	X
11.10 Should be able to chat with the service supporters	X	X	X
12. Shall be able to select desired material of the selected product	X	X	X
13. Shall be able to select desired colour of the selected product	X	X	X
14. Shall be able to set the quantity of the selected product	X	X	X
15. Shall be able to manage Wishlist	X	X	X
15.1 Shall be able to allow add products to their Wishlist	X	X	X
15.2 Shall be able to view their Wishlist	X	X	X
15.3 Shall be able to delete products in the Wishlist	X	X	X

15.4 Should be able to share their Wishlist	X	X	X
15.5 Shall be able purchase product in the Wishlist	X	X	X
16. Shall be able to manage the Cart	X	X	X
16.1 Shall be able to add a product to a cart	X	X	X
16.2 Shall be able view their cart at any time	X	X	X
16.3 Shall be able to view an order summary	X	X	X
17. Shall be able to add delivery details to proceed to purchase the selected product	X	X	X
17.1 Shall be able to add the delivery address	X	X	X
17.2 Shall be able to add the contact number	X	X	X
17.3 Should be able to add a delivery note	X	X	X
17.4 Should be able to add the email address	X	X	X
18. Shall be able to view the total cost of the selected product	X	X	X
18.1 Shall be able to view subtotals of the product	X	X	X
18.2 Shall be able to view the delivery fee of the product	X	X	X
19. Shall be able to select the desired payment option to make the payment and purchase the selected product	X	X	X
19.1 Shall be able to make payment using cash on delivery	X	X	X
19.2 Shall be able to make payment using credit/debit card	X	X	X
19.3 Should be able to get an invoice for the payment made	X	X	X
20. Should be able to see tracking details of the purchased product	X	X	X
20.1 Should be able to see the current delivery status	X	X	X
20.2 Should be able to see the estimated arrival date	X	X	X
20.3 Should be able to get notification about current status	X	X	X
21. Should be able to confirm after receiving the product	X	X	X
22. Should be able to provide reviews on the product	X	X	X
23. Should be able to Provide comment on the product	X	X	X

24. Should be able to make a complaint if the product was not delivered properly	X	X	X
25. Should be able to get notifications on purchased product	X	X	X
26. Shall be able to make room tour 26.1 Shall be able to select image 26.2 Shall be able to view product in the selected image 26.3 Shall be able to view information about selected product in the selected image 26.4 Shall be able to purchase selected product in the selected image	X X X X	X X X X	X X X X
27. Should be able to get service for interior design 27.1 Should be able to make an appointment	X X	X X	X X
28. Shall be able to see completed project 28.1 Shall be able to see details about the project 28.2 Shall be able to see customer feedback about the project 28.3 Shall be able to see images of the project	X X X X	X X X X	X X X X
29. Shall be able to manage product catalog 29.1 Shall be able to add the name of the product 29.2 Shall be able to add the price of the product 29.3 Should be able to display discount and promotion of the product 29.4 Shall be able to add the delivery fee of the product 29.5 Shall be able to add the description of the product 29.6 Shall be able to add dimensions of the product 29.7 Shall be able to add availability of the the product 29.8 Shall be able to add available materials of the product 29.9 Shall be able to add Available colors of the product 29.10 Shall be able to add image of the product 29.11 Shall be able to update product catalog 29.12 Shall be able to delete the product catalog 29.13 Shall be able to provide reviews and comments for products given by previous customers	X X X X X X X X X X X X X X X X	X X X X X X X X X X X X X X X	X X X X X X X X X X X X X X X
30. Shall be able to get notification when a product has been purchased	X	X	X

30.1 Shall be able to get complete information about the product sold, including materials and colour selection	X	X	X
30.2 Shall be able to get buyer's information	X	X	X
30.3 Shall be able to chat with the customers	X	X	X
31. Shall be able to manage room tour	X	X	X
31.1 Shall be able to add images	X	X	X
31.2 Shall be able to delete images	X	X	X
31.3 Shall be able to provide information in the image and link with product catalog	X	X	X
32. Should be able to confirm appointment	X	X	X
32.1 Should be able to contact customer	X	X	X
33. Shall be able to view analytical data related to sales	X	X	X
33.1 Shall be able to view total income	X	X	X
33.2 Shall be able to view the number of units sold of each listed product	X	X	X
33.3 Should be able to view customer reviews and comments made on each listed product	X	X	X
33.4 Should be able to view the most popular product among the listed products	X	X	X
34. Shall be able to manage inventory	X	X	X
34.1 Shall be able to add items to inventory	X	X	X
34.2 Shall be able to auto-update inventory on usage	X	X	X
34.3 Should be able to generate Inventory Status Reports	X	X	X
35. Should be able to generate sales reports	X	X	X
35.1 Should be able to generate income reports	X	X	X
35.2 Should be able to generate Expenses Reports	X	X	X
35.3 Should be able to generate Transaction Details Reports	X	X	X
36. Shall be able to provide a Contact Us page where users can get in touch with the customer support	X	X	X
36.1 Shall be able to display the contact details	X	X	X

2.6 Non-Functional Requirements vs BSOs

Requirements	Priority H/M/L	M/O	Weight H/M/L
1. Shall be able to provide a user-friendly interface	X	X	X
2. Shall be able to provide a highly interactive UI	X	X	X
3. Shall be able to provide a responsive web interface	X	X	X
4. Shall be able to provide a secure payment gateway to users	X	X	X
5. Shall be able to secure and protect users' personal and financial information	X	X	X
6. Shall be able to record data accurately	X	X	X
7. Shall be able to provide filter option accurately	X	X	X
8. Should be able to handle growing number of users and transaction	X	X	X
9. Should be able to maintainable, easy to modify or update and extend system in the future	X	X	X
10. Should be able to recover quickly from any system failure or errors	X	X	X
11. Should be able to generate a response to a given user request within 05 seconds	X	X	X
12. Should be able to easily navigate through the platform	X	X	X

2.7 Cost Benefit Analysis

2.7.1 BSO 1

Benefits

Comprehensive Functionality: The solution will encompass all required functionalities.

Global Accessibility: Users can access RK Furniture from anywhere in the world with a reliable internet connection.

User-Friendly on PCs and Mobile Devices: The website is user-friendly on personal computers, while the mobile application ensures mobile users have an optimal experience.

Issues

High Development and Maintenance Costs: The development and maintenance of both a website and a mobile application result in substantial costs and time commitments.

Requirement for Mobile App Installation: Mobile users must download and install the mobile app.

Cost Analysis

Developer Cost: LKR 0.00

Hosting Services (Annual): LKR 12,052.29

Domain Name Cost (Annual): LKR 3,066.82

Payment Gateway Cost (Annual): LKR 35,880.00

Routers and Networking Hardware (One-time Payment): LKR 10,000.00

Google Play Store Account (One-time Payment): LKR 8,397.64

Apple Store Account (Annual): LKR 33,254.63

Total One-time Payments: LKR 18,397.64

Total Annual Costs: LKR 84,253.74

2.7.2 BSO 2

Benefits

Full Functionality: The solution includes all necessary features.

Worldwide Accessibility: Users worldwide can access RK Furniture with an internet connection.

User-Friendly on PCs and Mobile Devices: The website is highly responsive and functions well on both personal computers and mobile devices via web browsers.

Issues

Requires Compatible Web Browser: Users need to use a compatible web browser to access the platform.

Cost Analysis

Developer Cost: LKR 0.00

Hosting Services (Annual): LKR 12,052.29

Domain Name Cost (Annual): LKR 3,066.82

Payment Gateway Cost (Annual): LKR 35,880.00

Routers and Networking Hardware (One-time Payment): LKR 10,000.00

Total One-time Payments: LKR 10,000.00

Total Annual Costs: LKR 50,999.11

2.7.3 BSO 3

Benefits

Full Functionality: The solution encompasses all required features.

Global Accessibility: Users can access RK Furniture from around the world with a reliable internet connection.

User-Friendly on Mobile Devices.

Issues

High Development and Maintenance Costs: Developing and maintaining a mobile application is resource-intensive.

Mandatory Mobile App Installation: All mobile users are required to download and install the mobile app.

Cost Analysis

Developer Cost: LKR 0.00

Hosting Services (Annual): LKR 12,052.29

Payment Gateway Cost (Annual): LKR 35,880.00

Routers and Networking Hardware (One-time Payment): LKR 10,000.00

Google Play Store Account (One-time Payment): LKR 8,397.64

Apple Store Account (Annual): LKR 33,254.63

Total One-time Payments: LKR 18,397.64

Total Annual Costs: LKR 81,186.92

BSO Name	BSO1	BSO2	BSO3
Total Cost (Onetime payments)	LKR 18,397.64	LKR 10,000.00	LKR 18,397.64
Total Cost (Annual)	LKR 84,253.74	LKR 50,999.11	LKR 81,186.92
Total Cost for Year 1	LKR 102,651.38	LKR 60,999.11	LKR 99,584.56

The selected BSO for your RK Furniture website is BSO 2. It involves developing a highly responsive web-based solution for the RK Furniture platform, which will allow users to access the platform from anywhere in the world with a reliable internet connection. The website will be highly responsive, making it accessible on both personal computers and mobile devices using a web browser.

2.8 Justification

Cost-Effectiveness

BSO 2 has the lowest total cost for both one-time payments and annual costs, making it the most cost-effective option.

Global Accessibility

BSO 2 provides global accessibility, which aligns with the requirement for users to access RK Furniture from anywhere in the world.

Responsive Design

The highly responsive design ensures that the platform is user-friendly on both PCs and mobile devices, meeting the user experience needs.

No Need for Mobile App

Unlike BSO 1, there is no need for users to download and install a separate mobile app. This eliminates potential user friction.

Compatibility

While BSO 2 requires users to use a compatible web browser, it offers a balance between accessibility and cost-effectiveness.

Revenue Model

The revenue model for the platform involves charging a commission (platform fee) for each product sold, with a tiered fee structure, ensuring potential revenue generation.

2.9 Summary

In Chapter, we delved into a comprehensive exploration of the RK Furniture web application project. We began by presenting the overall use case diagram for the existing process, shedding light on its key components and interactions.

Moving forward, we detailed the functional requirements that the proposed system must meet to address the identified problems. We also considered the non-functional requirements, emphasizing the importance of user experience, performance, and security.

To make informed decisions about the project's scope and direction, we analyzed various Business System Options (BSOs), comparing functional and non-functional requirements with these options to determine the most suitable path forward.

As a critical step in project planning, we conducted a cost-benefit analysis to assess the financial viability of our project. This analysis considered the investment required and the anticipated returns.

With this foundation in place, we are well-prepared to dive into the detailed development and implementation of the RK Furniture web application in the upcoming chapters.

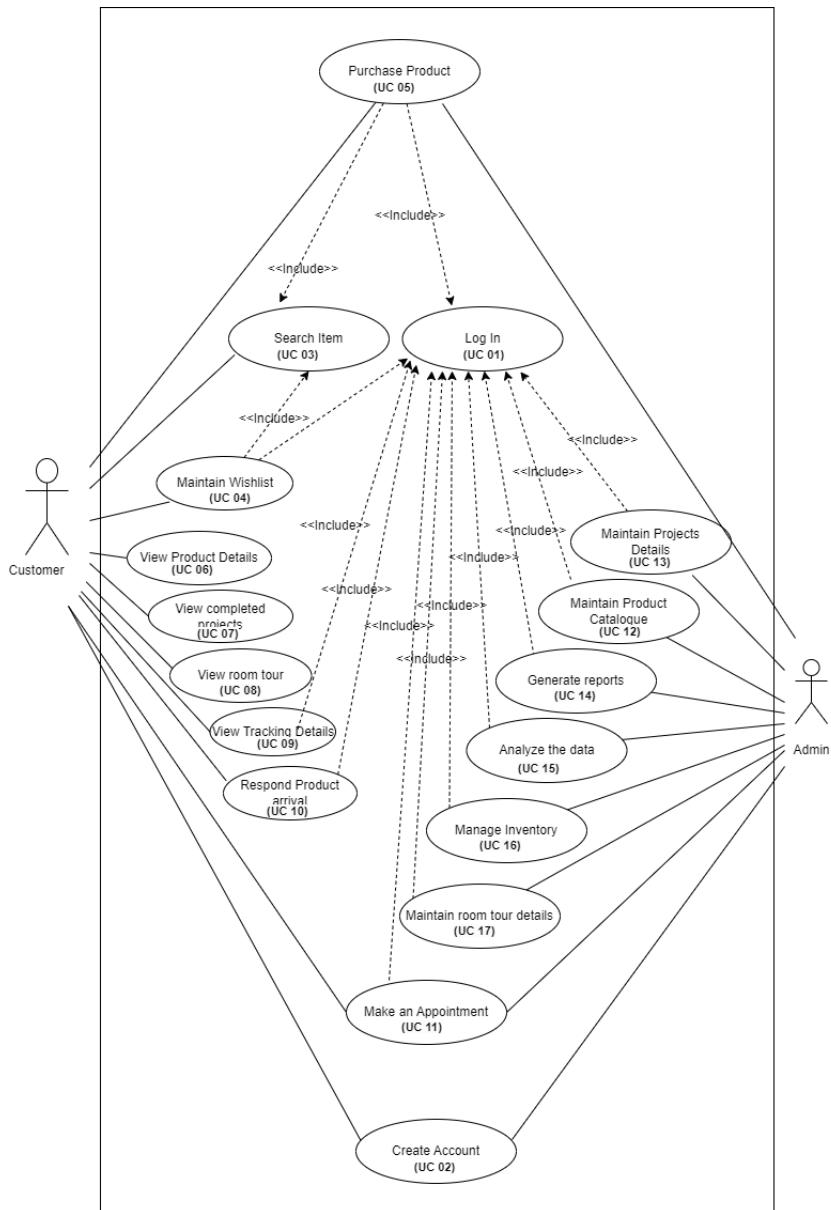
3. Chapter 3 - System Analysis

Outline of the Chapter

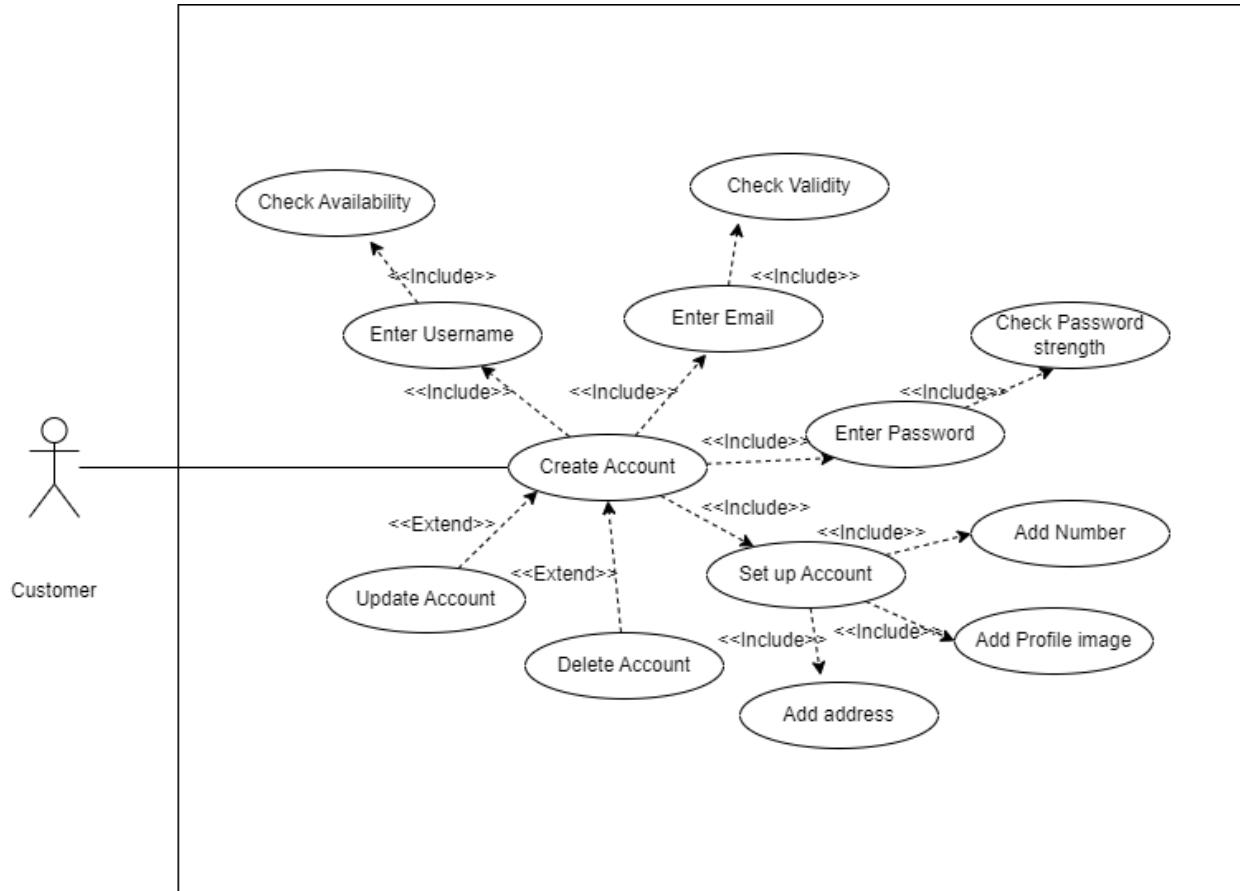
- 3.1 Use Case Diagrams for the Proposed System
- 3.2 Use Case Description for Proposed System
- 3.3 Activity Diagram for Proposed System
- 3.4 Sequence Diagram for Proposed System
- 3.5 Class Diagrams for the Proposed System
- 3.6 Entity Relationship Diagram
- 3.7 Normalized Database Design
- 3.8 Graphical User Interfaces
- 3.9 summary

3.1 Use Case Diagrams for the Proposed System

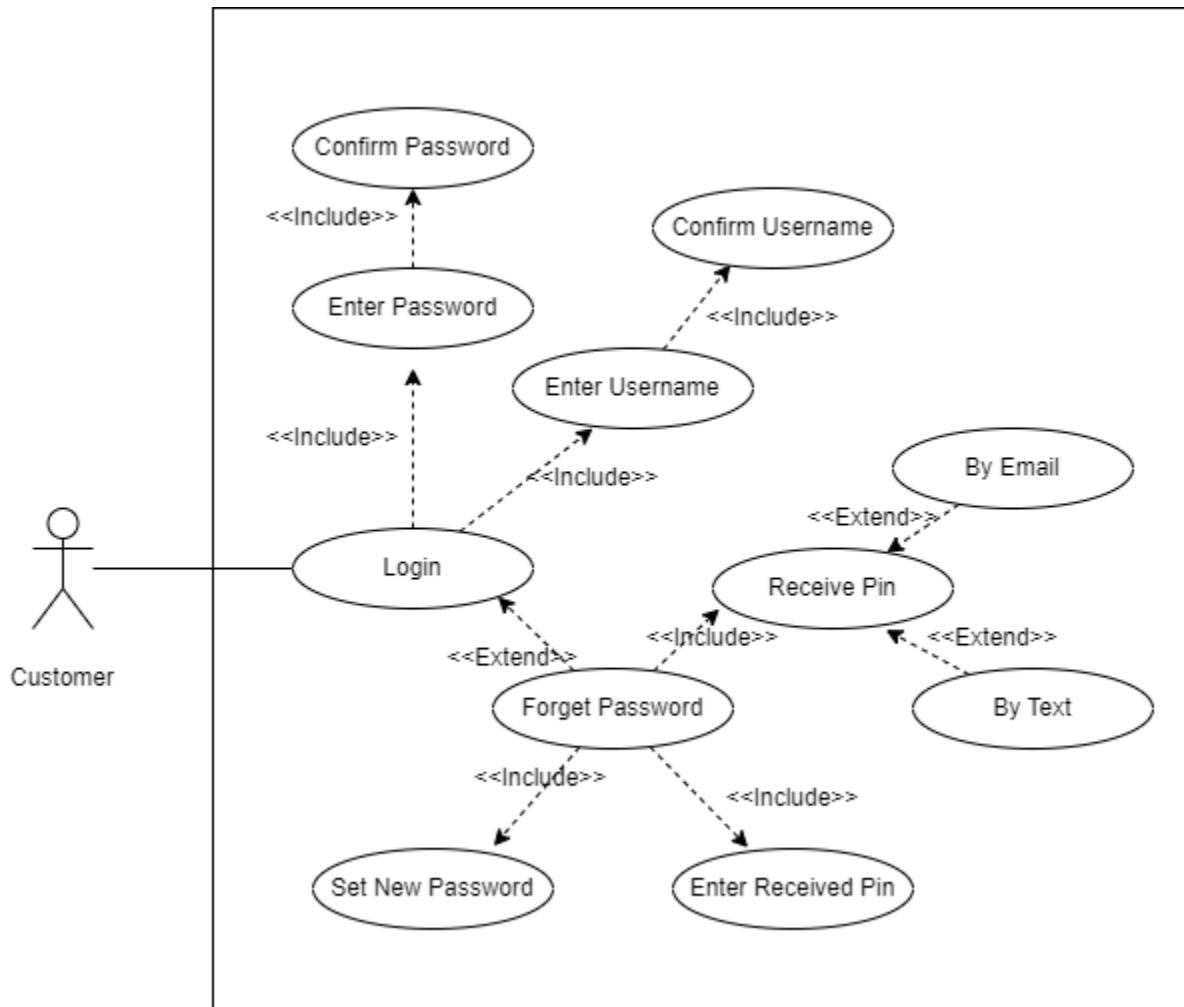
3.1.1 Overall Use Case Diagram



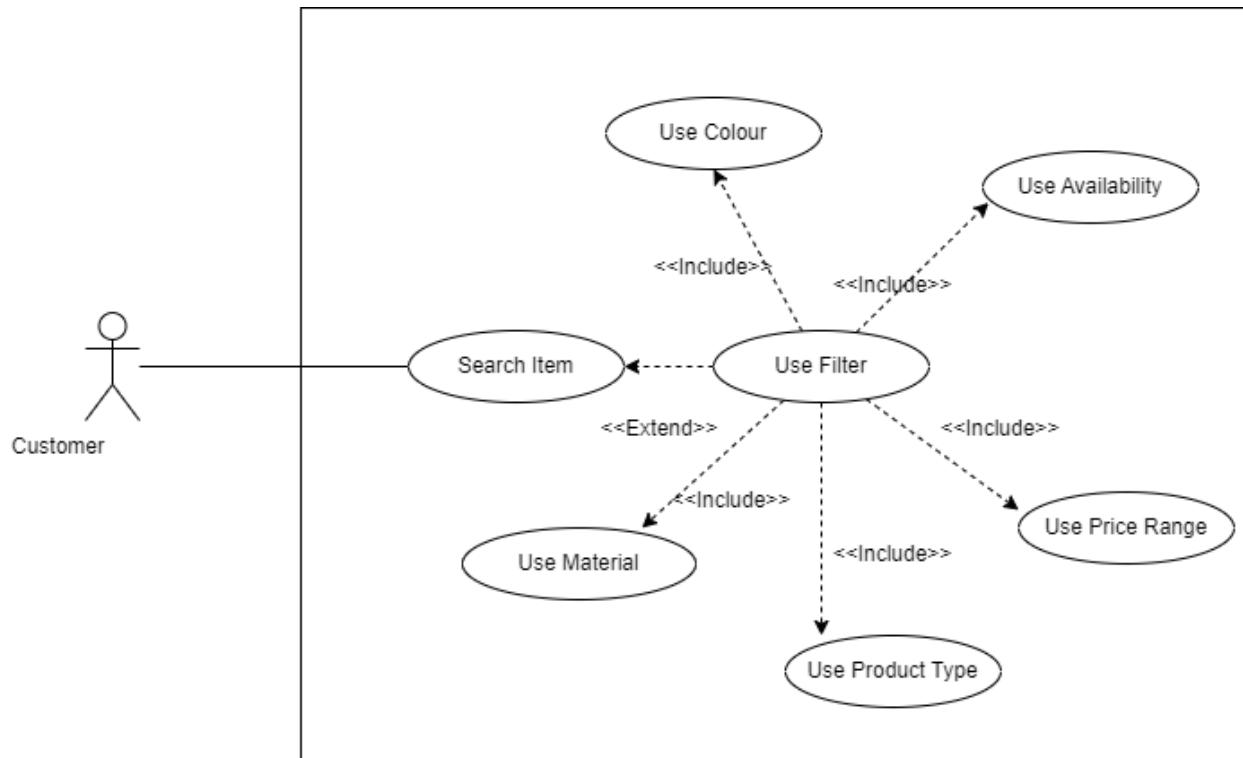
3.1.2 Use Case Diagram for Create Account(UC 01)



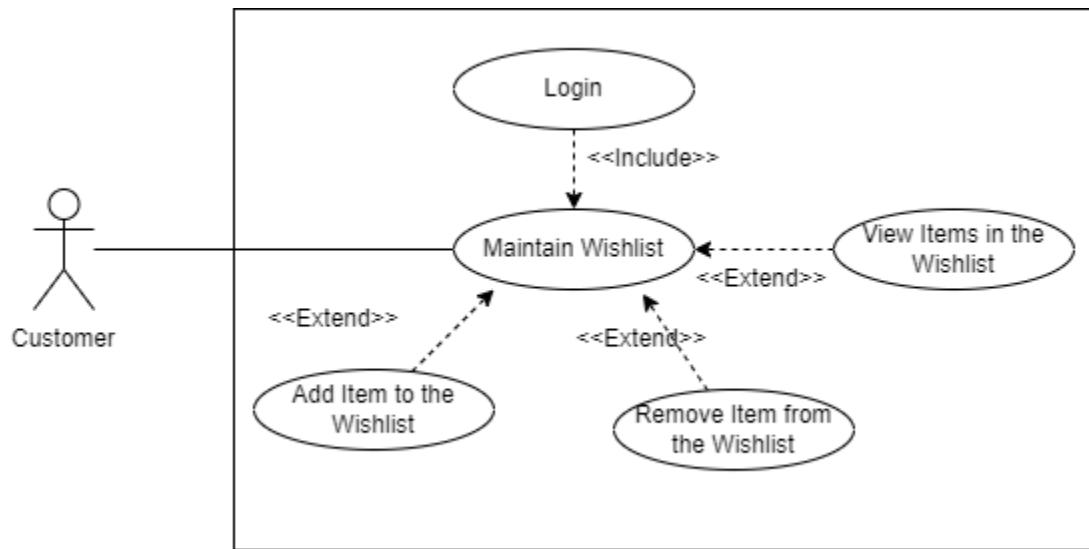
3.1.3 Use Case Diagram for Login(UC 02)



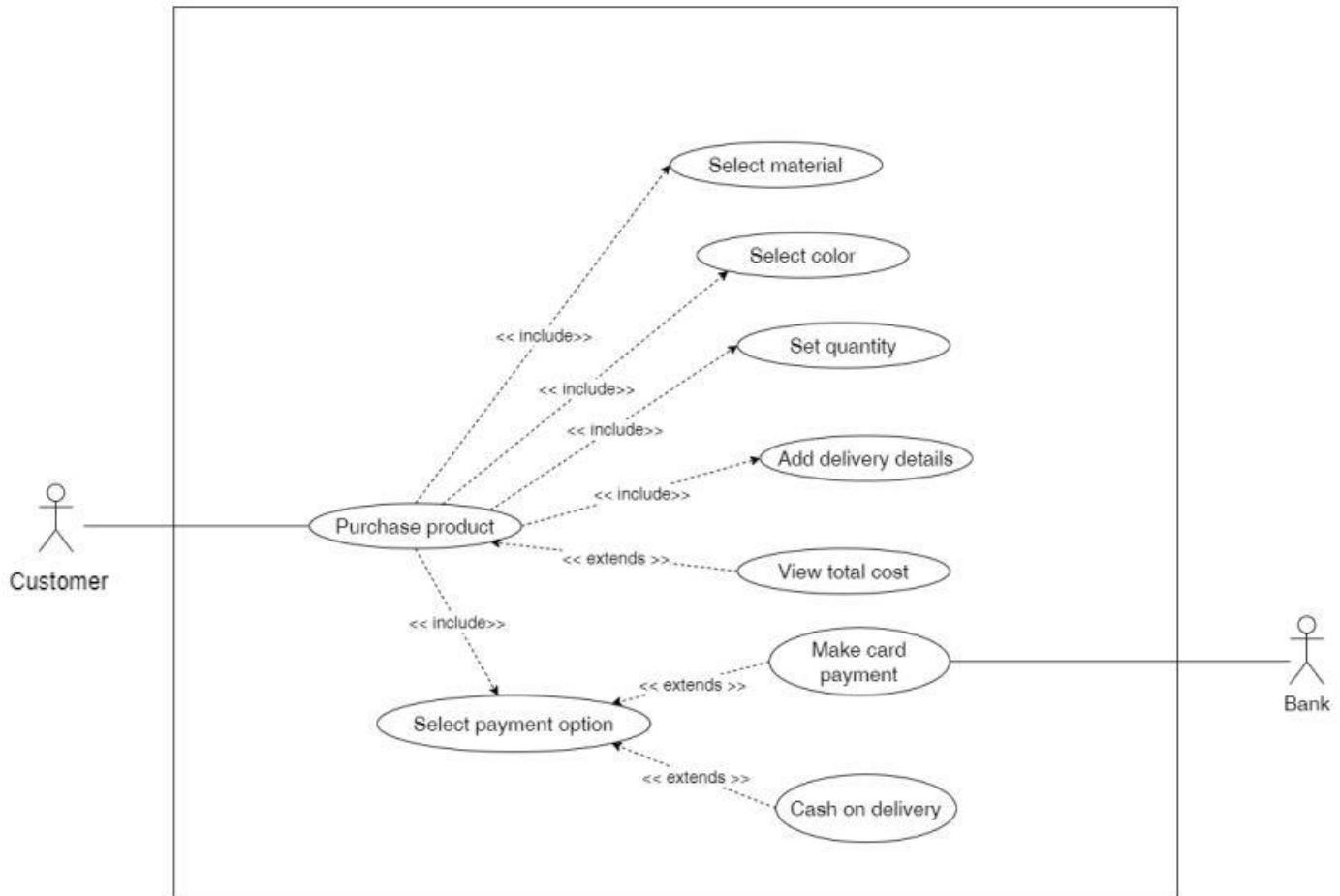
3.1.4 Use Case Diagram for Search Item(UC 03)



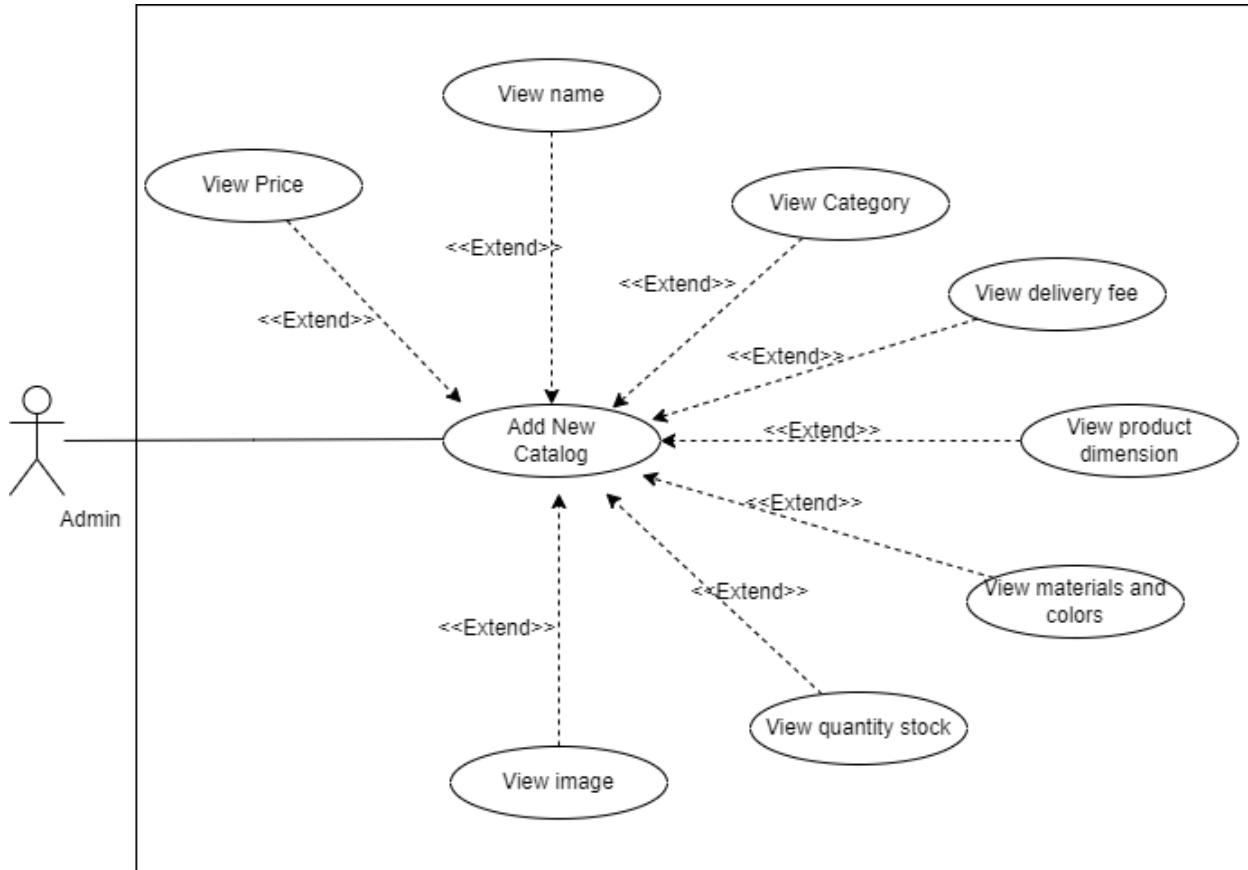
3.1.5 Use Case Diagram for Maintain Wish List(UC 04)



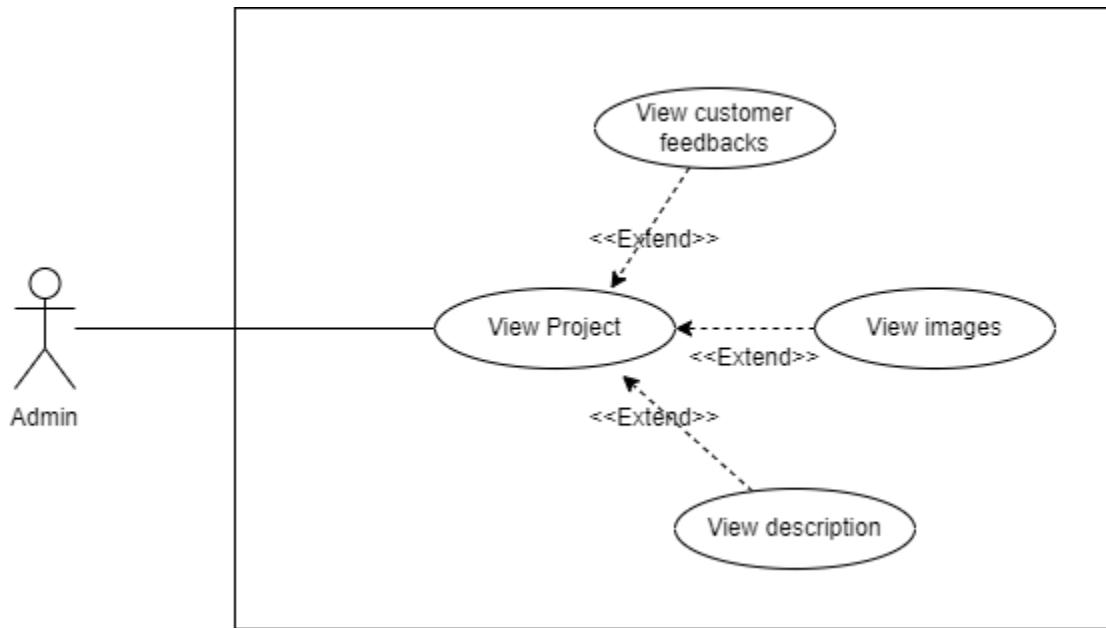
3.1.6 Use Case Diagram for Purchase Product (UC 05)



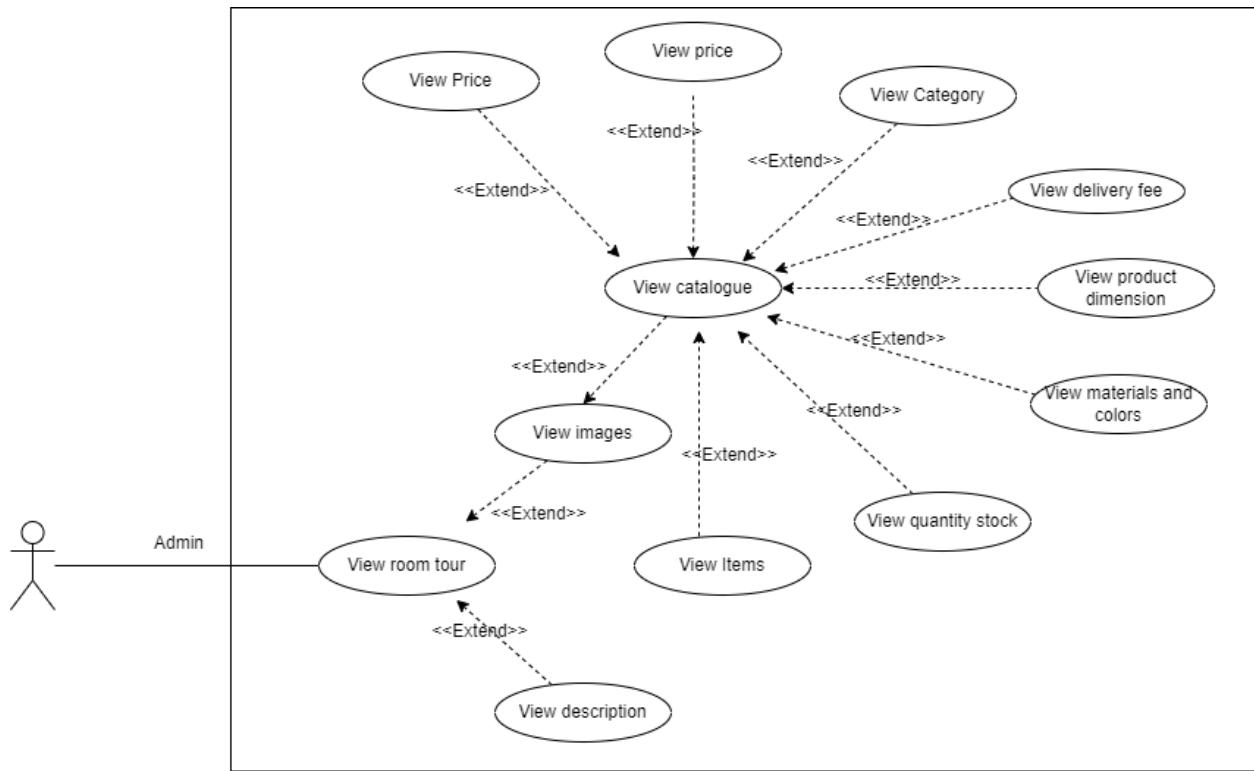
3.1.7 Use Case Diagram for View Product (UC 06)



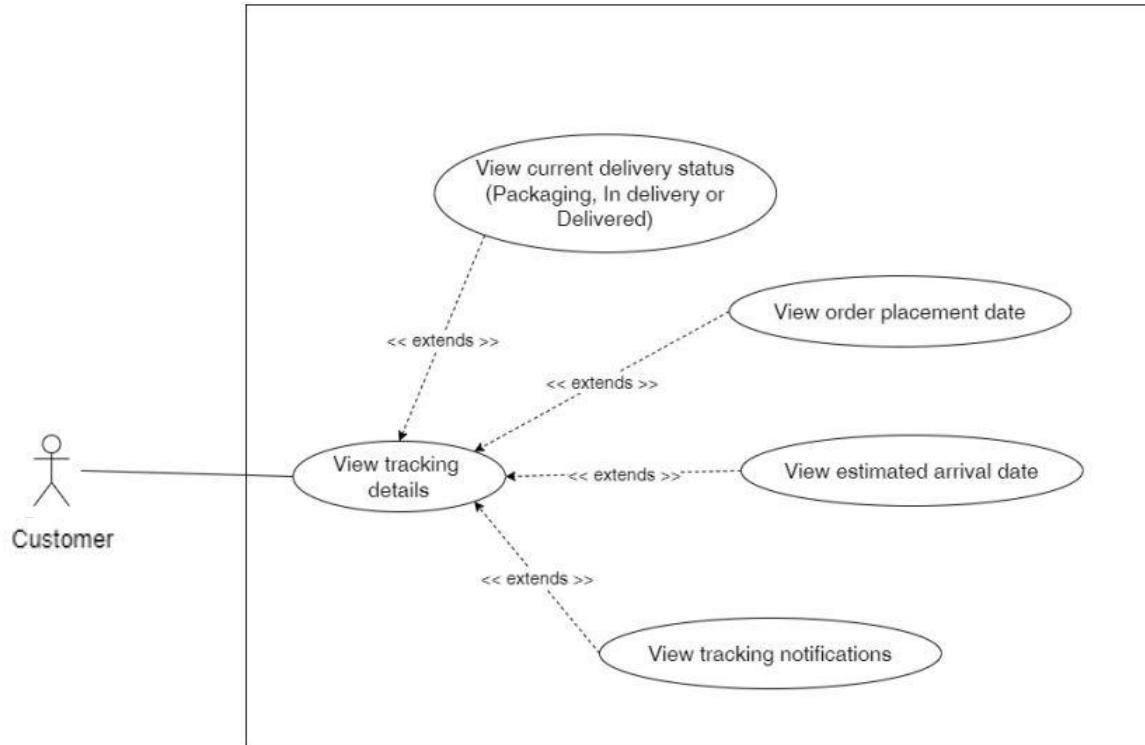
3.1.8 Use Case Diagram for View Projects (UC 07)



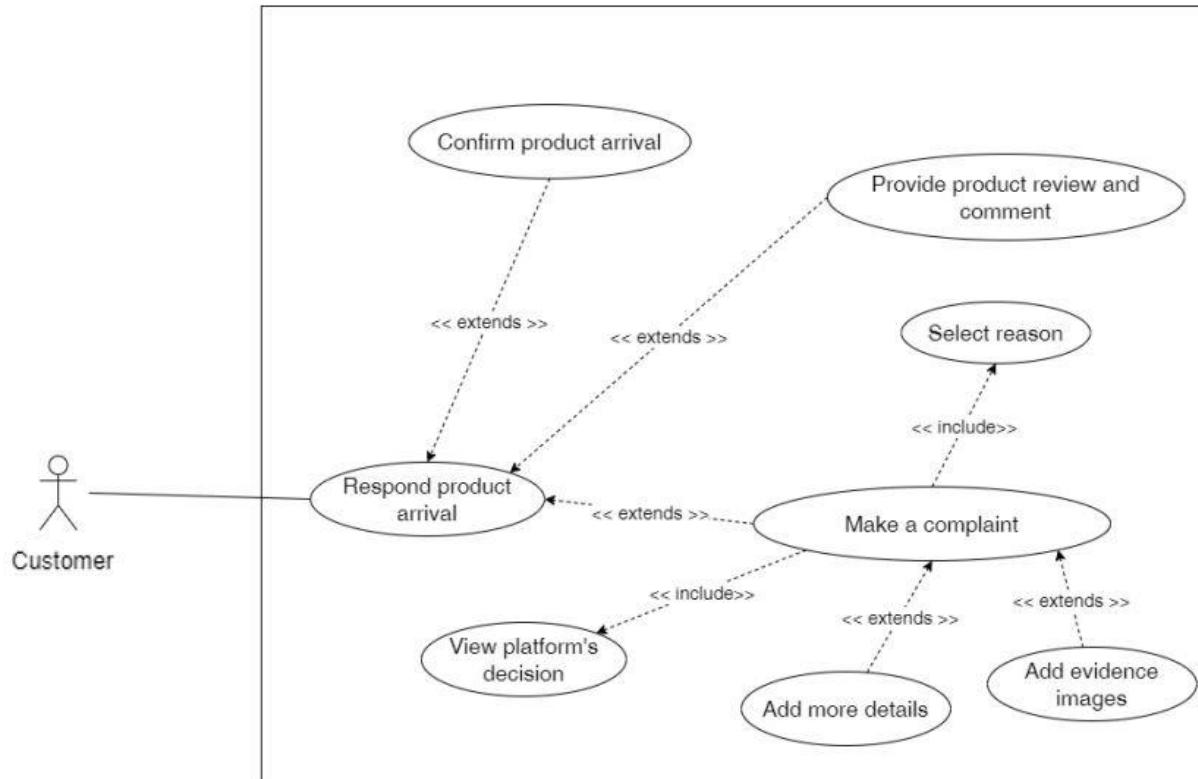
3.1.9 Use Case Diagram for View Room Tour (UC 08)



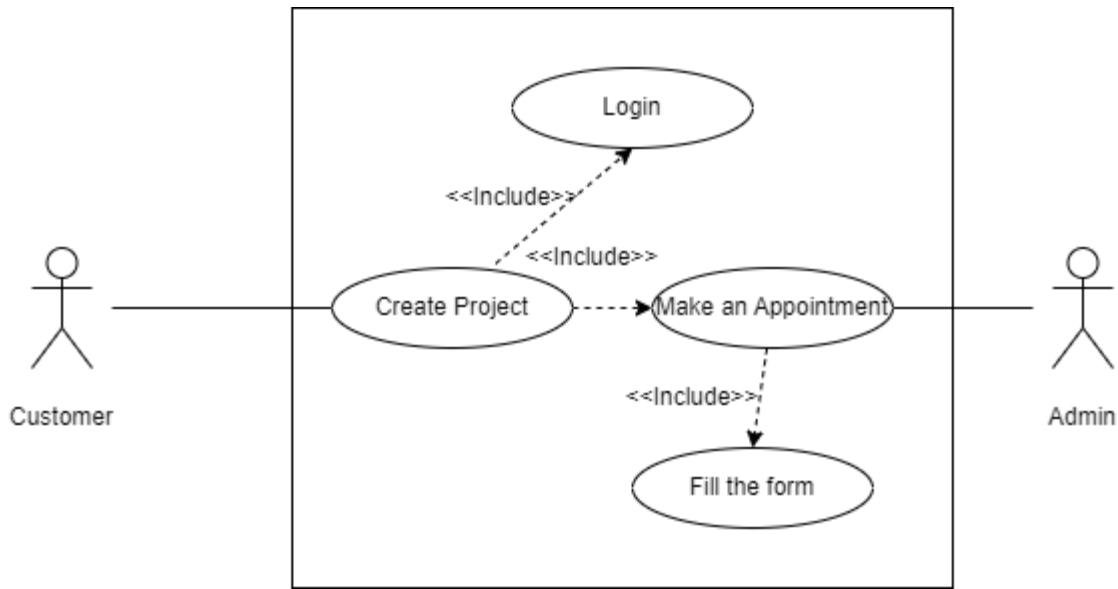
3.1.10 Use Case Diagram for View Tracking Details (UC 09)



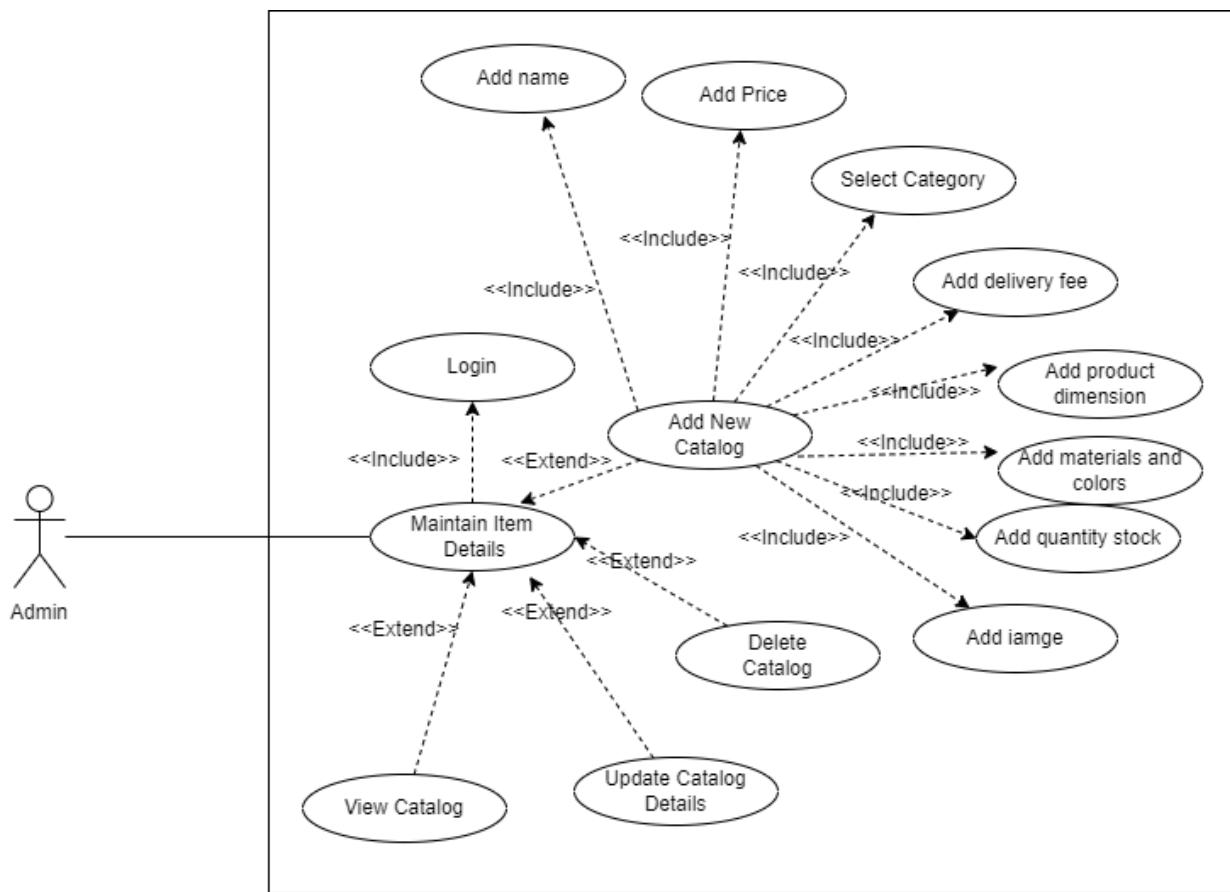
3.1.11 Use Case Diagram for Response Product Arrival (UC 10)



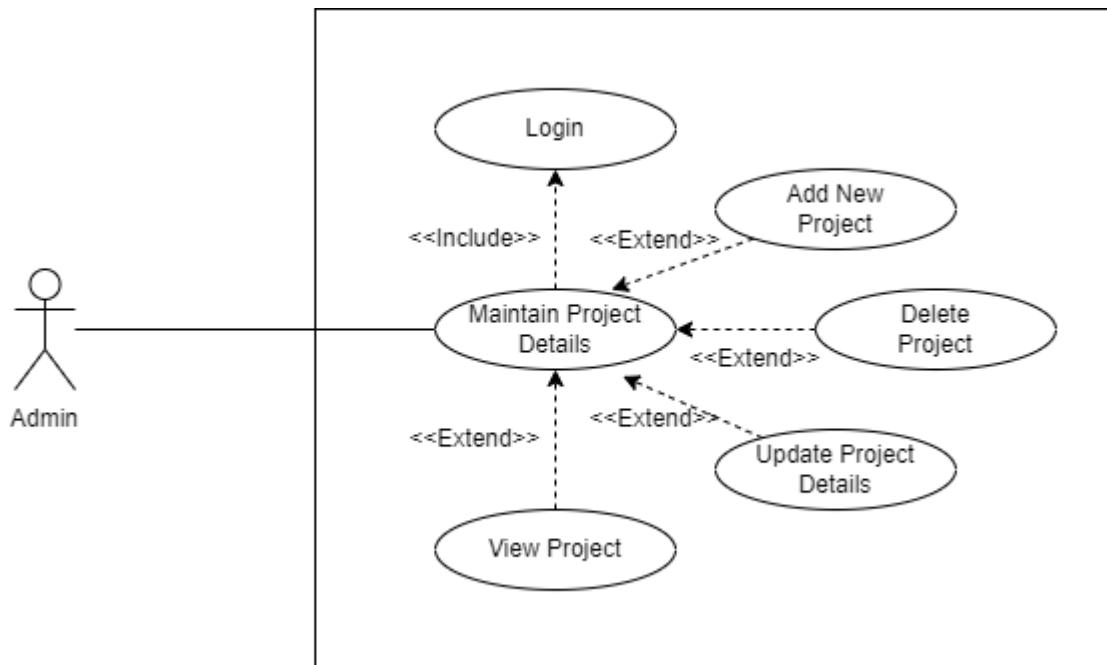
3.1.12 Use Case Diagram for Make an Appointment (UC 11)



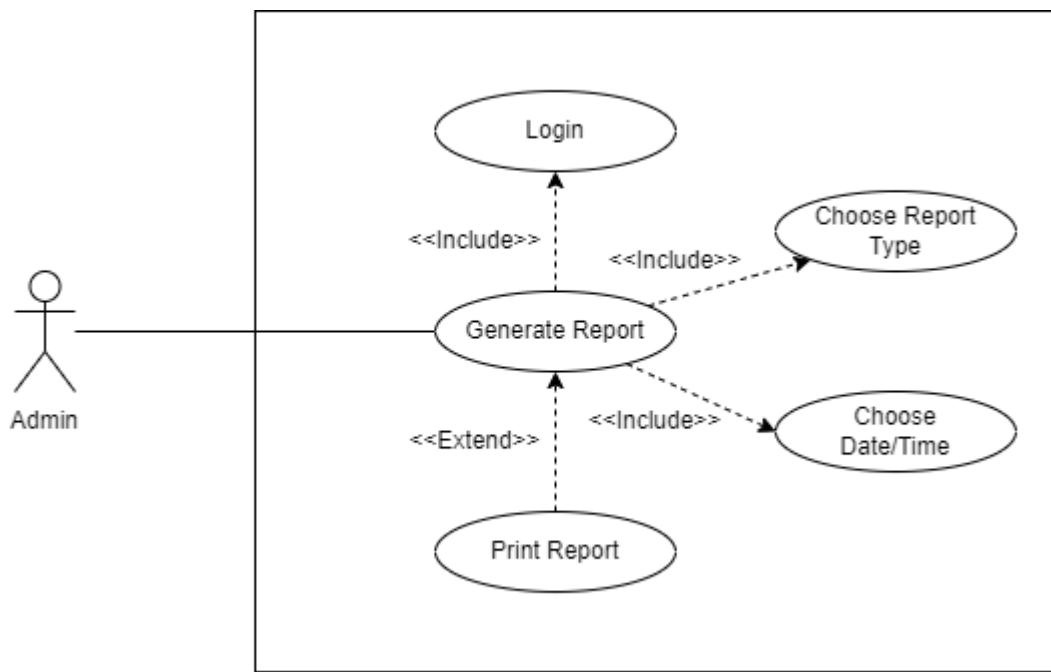
3.1.13 Use Case Diagram for Maintain Product Catalogue (UC 12)



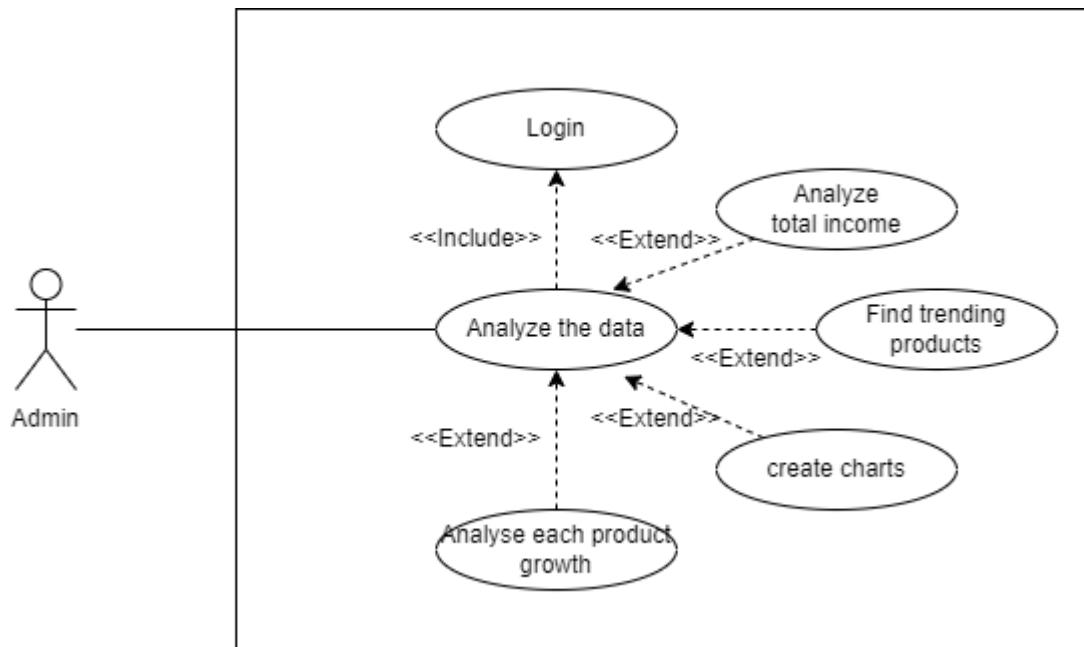
3.1.14 Use Case Diagram for Maintain Project Details (UC 13)



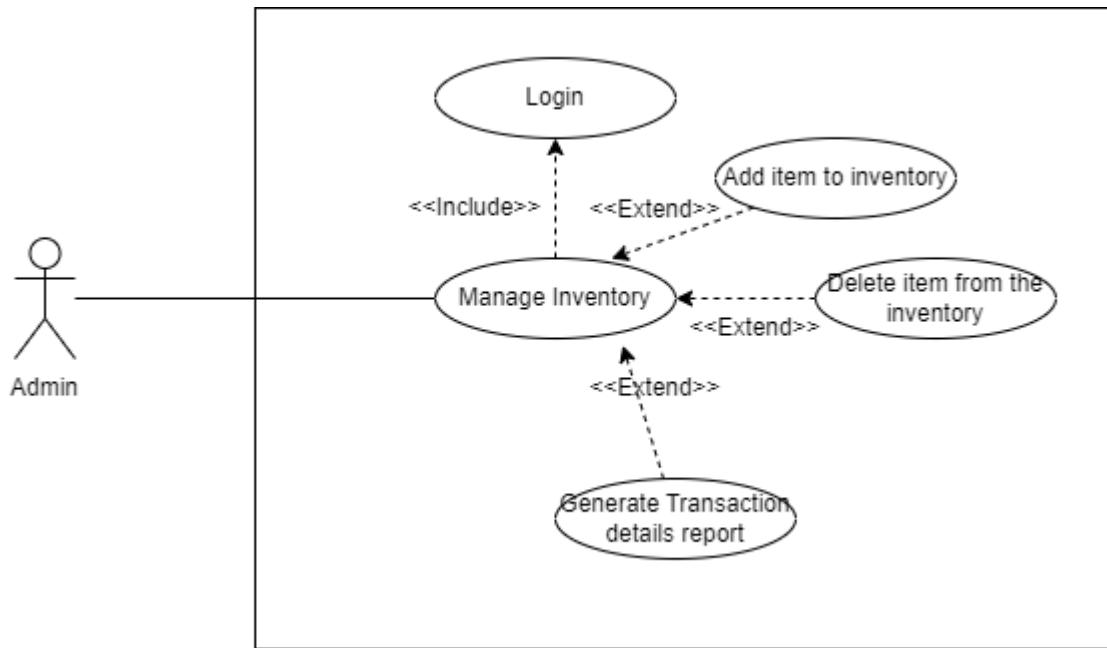
3.1.15 Use Case Diagram for Generate Reports (UC 14)



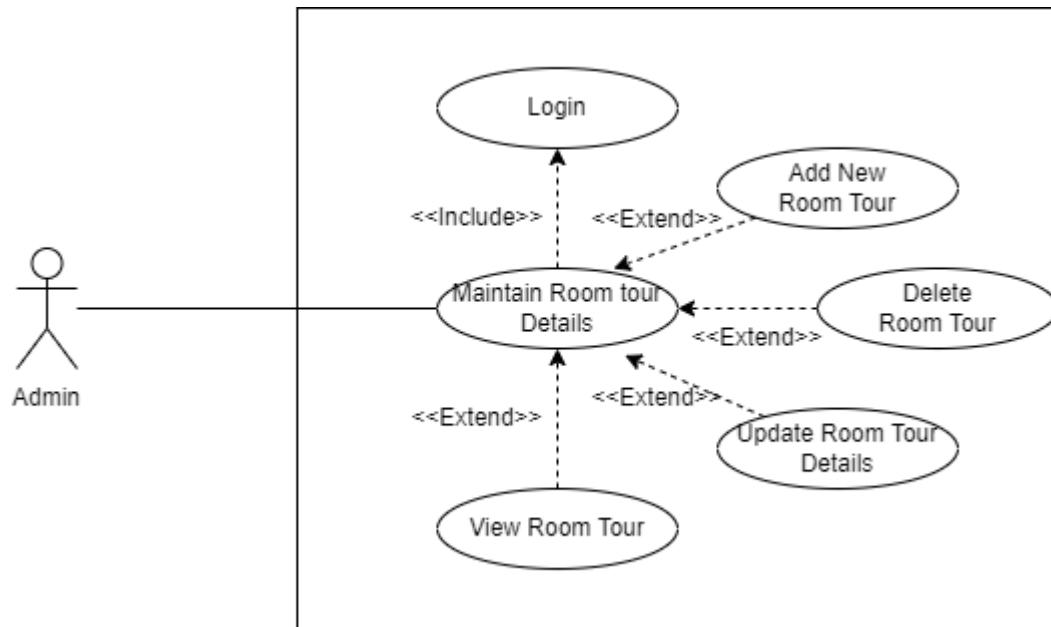
3.1.16 Use Case Diagram for Analyze the Data (UC 15)



3.1.17 Use Case Diagram for Manage Inventory (UC 16)



3.1.18 Use Case Diagram for Maintain Room Tour Details (UC 17)



3.2 Use Case Description for Proposed System

3.2.1 Use Case Description for Create Account

User Case ID	UC 01
Name	Create Account
Short description	The User create an account on the platform
Pre-condition	
Post-condition	An account is created on the platform
Error situations	<ol style="list-style-type: none">1. The username used for account creation already exists.2. The email used for account creation is invalid.3. The password doesn't meet the required criteria.4. A compulsory field is left empty
System state in the event of an error	An error message is shown.
Actors	Customer/ Admin
Trigger	User press the Create Account button.
Standard process	<ol style="list-style-type: none">1. User opens the website.2. User navigates to the Sign-Up page.3. User enters their username, email, and password (compulsory).4. Checks for username availability, email is verified, and password is checked to determine whether it meets the required criteria.5. Account is created
Alternative process	

3.2.2 Use Case Description for Login

User Case ID	UC 02
Name	Login
Short description	An already registered customer logs in to the platform
Pre-condition	The customer must already have an account on the platform.
Post-condition	The customer is logged in to the platform.
Error situations	<ol style="list-style-type: none"> 1. Entered email and/or password is invalid. 2. In forgot password option entered PIN is invalid. 3. In forgot password option entered new password doesn't meet the required criteria.
System state in the event of an error	An error message is shown.
Actors	Customer/ Admin
Trigger	User press the Create Account button.
Standard process	<ol style="list-style-type: none"> 1. User opens the website. 2. User navigates to the login page. 3. User enters email and password to log in. 4. Email and password are verified. 5. User is logged in to the system.
Alternative process	<ol style="list-style-type: none"> 1. User press Forgot password button. 2. User receive a PIN by email or text (as preferred). 3. User enters received PIN

- | | |
|--|---|
| | <ol style="list-style-type: none">4. PIN is verified.5. User gives a new password.6. New password is checked to determine whether it meets the required criteria.7. New password set.8. User can login again using the new password |
|--|---|

3.2.3 Use Case Description for Search (UC 03)

User Case ID	UC 03
Name	Search
Short description	The User searches for products on the platform
Pre-condition	None
Post-condition	The User is shown a list of relevant products
Error situations	The customer searches for an invalid product. No filtered search results are available.
System state in the event of an error	The customer receives no suggestions in the search results or filtered search results
Actors	Customer
Trigger	User enters a key word in the search bar and presses the search button.
Standard process	<ol style="list-style-type: none"> 1. User opens the website. 2. User navigates to the search bar. 3. User enters a key word 4. The system searches for products that match the key word. 5. The system displays a list of relevant products.
Alternative process	None

3.2.4 Use Case Description for Wishlist (UC 04)

User Case ID	UC 04
Name	Manage Wishlist
Short description	<p>Add to Wishlist</p> <p>The customer adds a product to their Wishlist.</p> <p>Remove from the Wishlist</p> <p>The customer delete product from the Wishlist.</p>
Pre-condition	<p>The customer must already be registered on the platform</p> <p>Remove from the Wishlist</p> <p>The particular product must already be in the wish list</p>
Post-condition	<p>Add to Wishlist</p> <p>The product is added to the User's Wishlist</p> <p>Remove from the Wishlist</p> <p>The product is deleted from their Wishlist</p>
Error situations	None
System state in the event of an error	None
Actors	Customer
Trigger	<p>Add to Wishlist</p> <p>User clicks the "Add to Wishlist" button on a product page.</p> <p>Remove from the Wishlist</p> <p>User clicks the “Delete” button on a Wishlist.</p>
Standard process	Add to Wishlist

	<ol style="list-style-type: none"> 1. Customer logins. 2. Customer selects the desired product. 3. Customer taps the Add to Wishlist button of the product. 4. Product is added to the wish list. <p>Remove from the Wishlist</p> <ol style="list-style-type: none"> 1. Customer navigates to the wish list. 2. Customer logins. 3. Customer selects the product to remove from wish list. 4. Customer taps the Remove from Wishlist button of the selected product. 5. Customer confirms to remove the product from the wish list 6. Product is removed from the wish list.
Alternative process	None

3.2.5 Use Case Description for Purchase Product (UC 05)

User Case ID	UC 05
Name	Purchase Product
Short description	A registered customer purchases a desired product from the platform
Pre-condition	The customer must already be registered on the platform.
Post-condition	Product purchased.
Error situations	<ul style="list-style-type: none"> 1. The selected product is out of stock. 2. The delivery service offered for the selected product does not cover the customer's delivery area. 3. Entered credit/debit card is invalid. 4. Entered credit/debit card balance is insufficient.
System state in the event of an error	An error message is shown.
Actors	Customer
Trigger	The customer wants to purchase the product
Standard process	<ul style="list-style-type: none"> 1. Customer logs in. 2. Customer selects the desired product. 3. Customer selects the material and color, sets the quantity, and adds delivery details. 4. Customer views the total cost. (subtotal + delivery fee) 5. Customer selects the desired payment option (Card payment or Cash on delivery). 6. Customer presses the Continue button to proceed to make the payment if the

	<p>selected payment option is card payment.</p> <ol style="list-style-type: none"> 7. Customer adds card details. 8. Card details are verified and checked for sufficient card balance to purchase the product. 9. Payment made. 10. Product purchased.
Alternative process	<ol style="list-style-type: none"> 1. The product is out of stock, or the delivery service does not support the entered address. 2. Credit/Debit card invalid or insufficient balance

3.2.6 Use Case Description for View Product (UC 06)

User Case ID	UC 06
Name	View Product
Short description	A customer (no need to be registered) views the product details of a particular product on the platform
Pre-condition	The customer must have gotten valid suggestions after a product search.
Post-condition	The User is shown a list of relevant products
Error situations	The customer gets the product details to be viewed
System state in the event of an error	The customer receives no suggestions in the search results or filtered search results
Actors	Customer
Trigger	The customer taps the View Product Details button of the desired product.
Standard process	<ol style="list-style-type: none"> 1. The customer identifies the product to view details from the search results. 2. Customer taps on the View Product Details button on the desired product. 3. Customer views the product details.
Alternative process	None

3.2.7 Use Case Description for View Projects (UC 07)

User Case ID	UC 07
Name	View Projects
Short description	A customer (no need to be registered) views the project details.
Pre-condition	None
Post-condition	The User is shown projects details and images
Error situations	None
System state in the event of an error	None
Actors	Customer
Trigger	The buyer taps the View Project Details button of the desired project.
Standard process	Customer views the completed project details and images.
Alternative process	None

3.2.8 Use Case Description for View Room Tour (UC 08)

User Case ID	UC 08
Name	View Room Tour
Short description	The customer views the furniture in the room tour images and they can purchase and view details them using their link
Pre-condition	None
Post-condition	The customers views information and purchase furniture
Error situations	None
System state in the event of an error	None
Actors	Customer
Trigger	User clicks on the "Room Tour" link in the navigation bar
Standard process	<ol style="list-style-type: none"> 1. User opens the website. 2. User clicks on the "Room Tour" link in the navigation bar 3. The system displays the images in the room tour 4. User purchase and view details in selected furniture in the selected image.
Alternative process	None

3.2.9 Use Case Description for View Tracking Details (UC 09)

User Case ID	UC 09
Name	View Tracking Details
Short description	A registered customer views tracking details of an ordered product
Pre-condition	The customer must already be registered on the platform. The product must already be ordered.
Post-condition	The customer gets the tracking details of the ordered product to be viewed.
Error situations	None
System state in the event of an error	None
Actors	Customer
Trigger	The customer wants to view tracking details of an ordered product.
Standard process	<ol style="list-style-type: none"> 1. Customer logins. 2. Customer navigates to the profile. 3. Customer views already ordered products. 4. Customer selects the desired product to view tracking details. 5. Customer views tracking details.
Alternative process	None

3.2.10 Use Case Description for Respond Product Arrival (UC 10)

User Case ID	UC 10
Name	Respond Product Arrival
Short description	A registered customer responds to a product's arrival.
Pre-condition	<p>The customer must already be registered on the platform.</p> <p>The product must already be ordered.</p> <p>The delivery status of the particular product must be as delivered.</p>
Post-condition	The customer responds to the product's arrival.
Error situations	A compulsory field is left empty. An invalid data/document is added.
System state in the event of an error	An error message is shown.
Actors	Customer
Trigger	The customer presses the Respond Product Arrival button of a product with delivery status as delivered.
Standard process	<ol style="list-style-type: none"> 1. Customer logins. 2. Customer navigates to the profile. 3. Customer views already delivered product list. 4. Customer selects the desired product. 5. Customer confirms product arrival. 6. The customer makes a review and a comment on the product received (optional).

Alternative process	<ol style="list-style-type: none">1. Customer makes a complaint.2. Customer selects a complaint reason (compulsory).3. Customer adds evidence images and more details (optional).4. Customer waits for the platform's decision.
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3.2.11 Use Case Description for Make an Appointment (UC 11)

Make an Appointment

User Case ID	UC 11
Name	Make an Appointment
Short description	The User makes an appointment with a furniture specialist
Pre-condition	The customer must already be registered on the platform.
Post-condition	An appointment is scheduled
Error situations	None
System state in the event of an error	None
Actors	Customer
Trigger	User clicks on the "Project" link in the navigation bar
Standard process	<ol style="list-style-type: none"> 1. User opens the website 2. User clicks on the "project" link in the navigation bar 3. The system displays a form for the User to fill out with their appointment details 4. User enters their name, email, phone number, and preferred appointment time 5. User submits the form. 6. The system confirms the appointment and sends a confirmation email to the User.
Alternative process	None

3.2.12 Use Case Description for Maintain Product Catalogue (UC 12)

User Case ID	UC 12
Name	Maintain Product Catalogue
Short description	The Admin maintains the product catalogue on the website
Pre-condition	The Admin is logged in
Post-condition	The particular product is updated.
Error situations	Updated data and/or documents related to the product are invalid.
System state in the event of an error	An error message is shown
Actors	Admin
Trigger	The admin presses the Edit Item button.
Standard process	<ol style="list-style-type: none"> 1. Admin logs in. 2. Admin goes to their profile 3. Admin views listed items list. 4. Admin selects the required product. 5. Admin taps the Edit Item button. 6. Admin updates one or many from the name, price, category, delivery fee, description, dimensions, materials and available colors, images, videos, product 3D modal, estimated arrival days and quantity in stock 7. Platform verifies for updated data and documents. 8. The product information is updated.
Alternative process	None

3.2.13 Use Case Description for Maintain Project Details (UC 13)

User Case ID	UC 13
Name	Maintain Project Details
Short description	Admin maintain the project details.
Pre-condition	The Admin is logged in
Post-condition	Project details are updated
Error situations	None
System state in the event of an error	None
Actors	Admin
Trigger	The Admin taps the edit project details button.
Standard process	<ol style="list-style-type: none"> 1. Admin logs in. 2. Admin goes to their profile 3. Admin views listed project details. 4. Admin taps the Edit Item button. 5. Platform verifies for updated project and documents. 6. The project information is updated.
Alternative process	None

3.2.14 Use Case Description for Generate Reports (UC 14)

User Case ID	UC 14
Name	Generate Reports
Short description	The Admin generates various reports on the website
Pre-condition	The Admin is logged in
Post-condition	The requested report is generated
Error situations	<ul style="list-style-type: none"> 1. The Admin enters invalid parameters for a report. 2. The requested report data is unavailable or incomplete.
System state in the event of an error	An error message is displayed to the Admin.
Actors	Admin
Trigger	Admin clicks on the "Reports" link in the admin dashboard.
Standard process	<ul style="list-style-type: none"> 1. Admin logs in to the website. 2. Admin navigates to the "Reports" page in the admin dashboard. 3. Admin can select from a list of available reports to generate. 4. Admin can specify the parameters for the report, such as date range or product category. 5. The system generates the report and displays it to the Admin.
Alternative process	None

3.2.15 Use Case Description for Analyze the Data (UC 15)

User Case ID	UC 15
Name	Analyze the Data
Short description	The Admin analyzes the data in the generated reports
Pre-condition	The Admin is logged in and has generated a report
Post-condition	The data in the report is analyzed
Error situations	None
System state in the event of an error	None
Actors	Admin
Trigger	Admin clicks on the "Reports" link in the admin dashboard and selects a generated report
Standard process	<ol style="list-style-type: none"> 1. Admin logs in to the website. 2. Admin navigates to the "Reports" page in the admin dashboard. 3. Admin selects a generated report to analyze. 4. Admin analyzes the data in the report using statistical tools or visualizations. 5. Admin draws conclusions and makes decisions based on the analyzed data.
Alternative process	None

3.2.16 Use Case Description for Manage Inventory (UC 16)

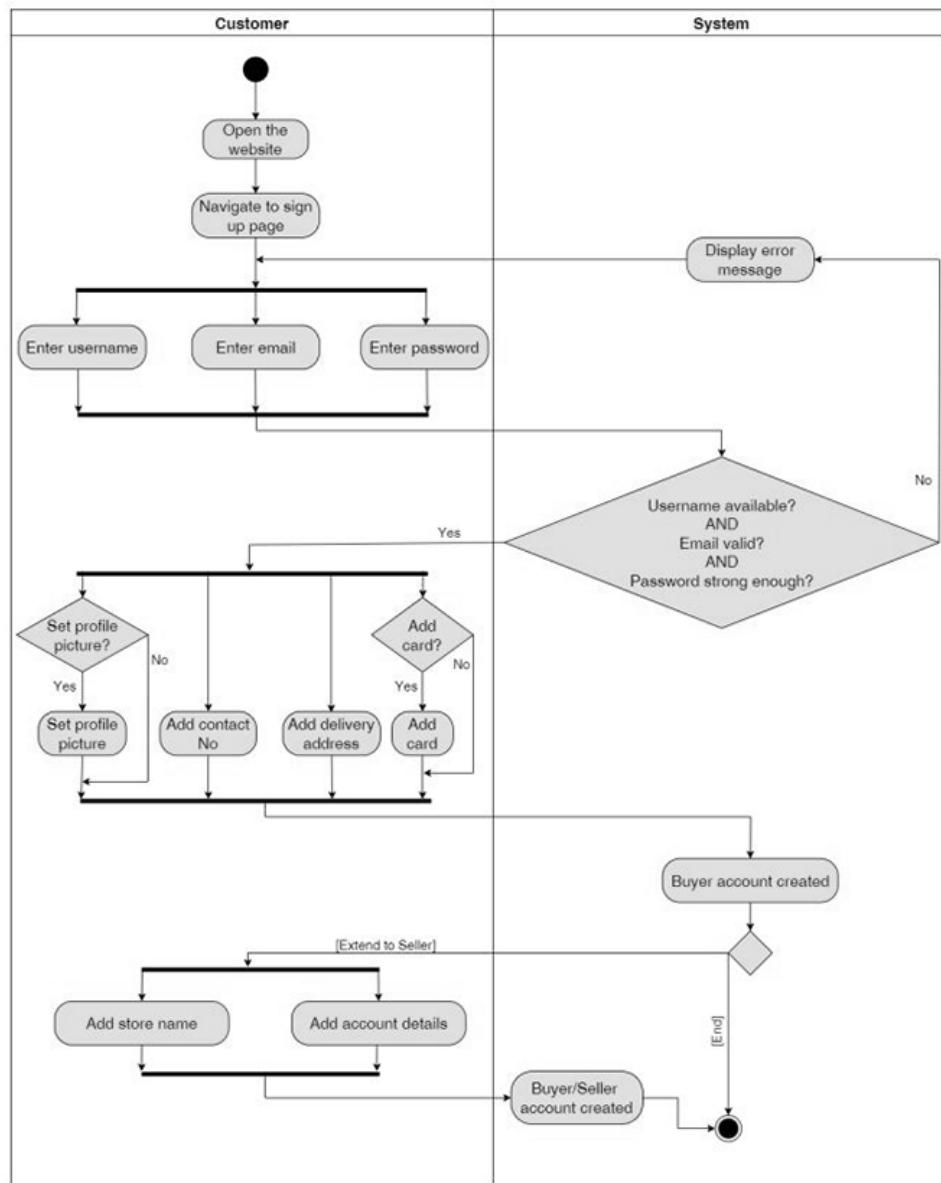
User Case ID	UC 16
Name	Manage Inventory
Short description	The Admin manages the inventory of products on the website
Pre-condition	The Admin is logged in
Post-condition	The inventory of products is updated
Error situations	<ol style="list-style-type: none"> 1. The Admin enters invalid information for a product. 2. The Admin tries to update the inventory of a product that is unavailable.
System state in the event of an error	An error message is displayed to the Admin.
Actors	Admin
Trigger	Admin clicks on the "Inventory" link in the admin dashboard
Standard process	<ol style="list-style-type: none"> 1. Admin logs in to the website. 2. Admin navigates to the "Inventory" page in the admin dashboard. 3. Admin can view a list of all products currently available on the website. 4. Admin can add new products to the inventory or edit existing products. 5. Admin can update the stock levels of products or mark products as unavailable.
Alternative process	None

3.2.17 Use Case Description for Maintain Room Tour Details (UC 17)

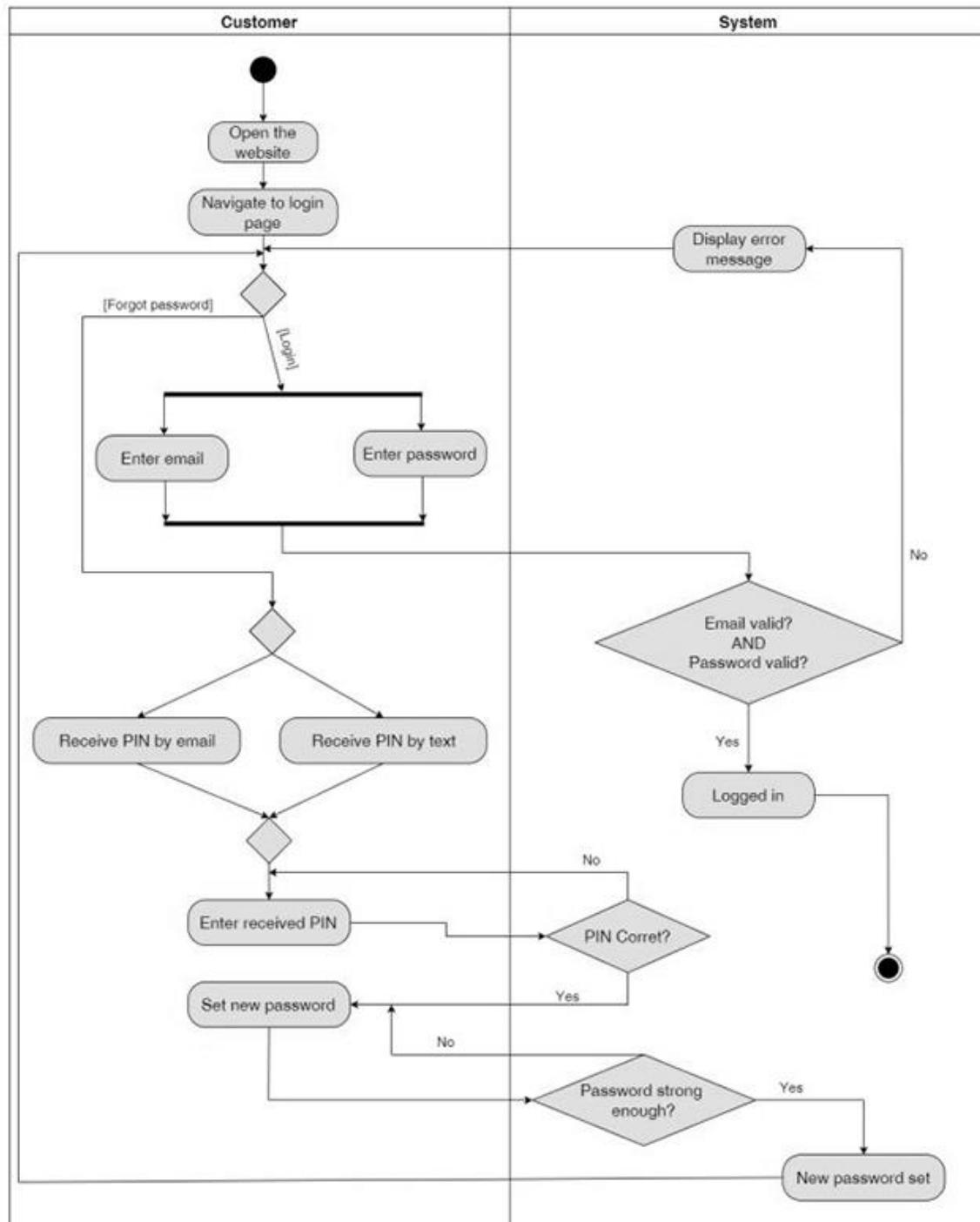
User Case ID	UC 17
Name	Maintain Room Tour Details
Short description	The Admin maintains the details of room tours available on the website
Pre-condition	The Admin is logged in
Post-condition	The details of room tours are updated
Error situations	<ol style="list-style-type: none"> 1. The Admin enters invalid information for a room tour. 2. The Admin tries to update the details of a room tour that is not available.
System state in the event of an error	An error message is displayed to the Admin.
Actors	Admin
Trigger	Admin clicks on the "Room Tours" link in the admin dashboard
Standard process	<ol style="list-style-type: none"> 1. Admin logs in to the website. 2. Admin navigates to the "Room Tours" page in the admin dashboard. 3. Admin can view a list of all room tours currently available on the website 4. Admin can add new room tours to the inventory or edit existing room tours. 5. Admin can update the details of room tours or mark room tours as unavailable.
Alternative process	None

3.3 Activity Diagram for Proposed System

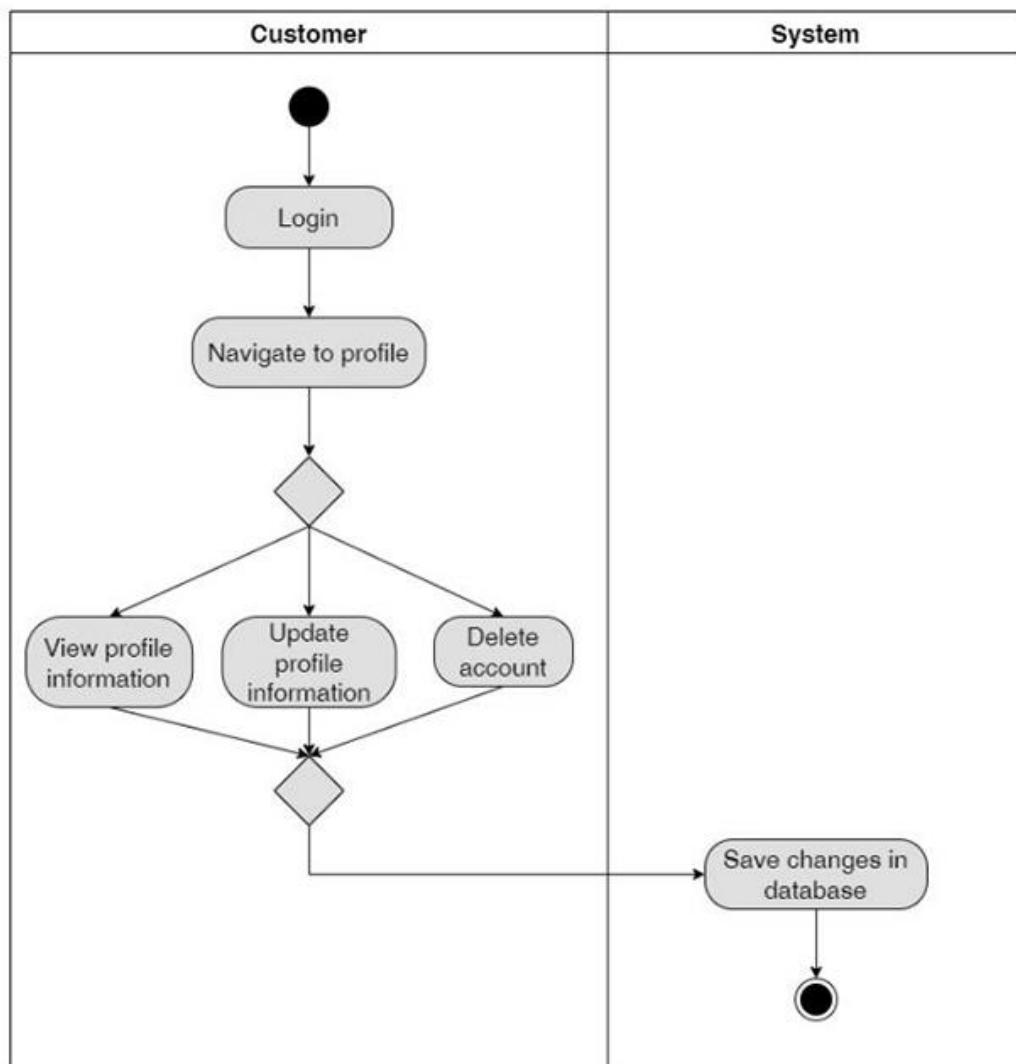
3.3.1 Activity Diagram for Create Account



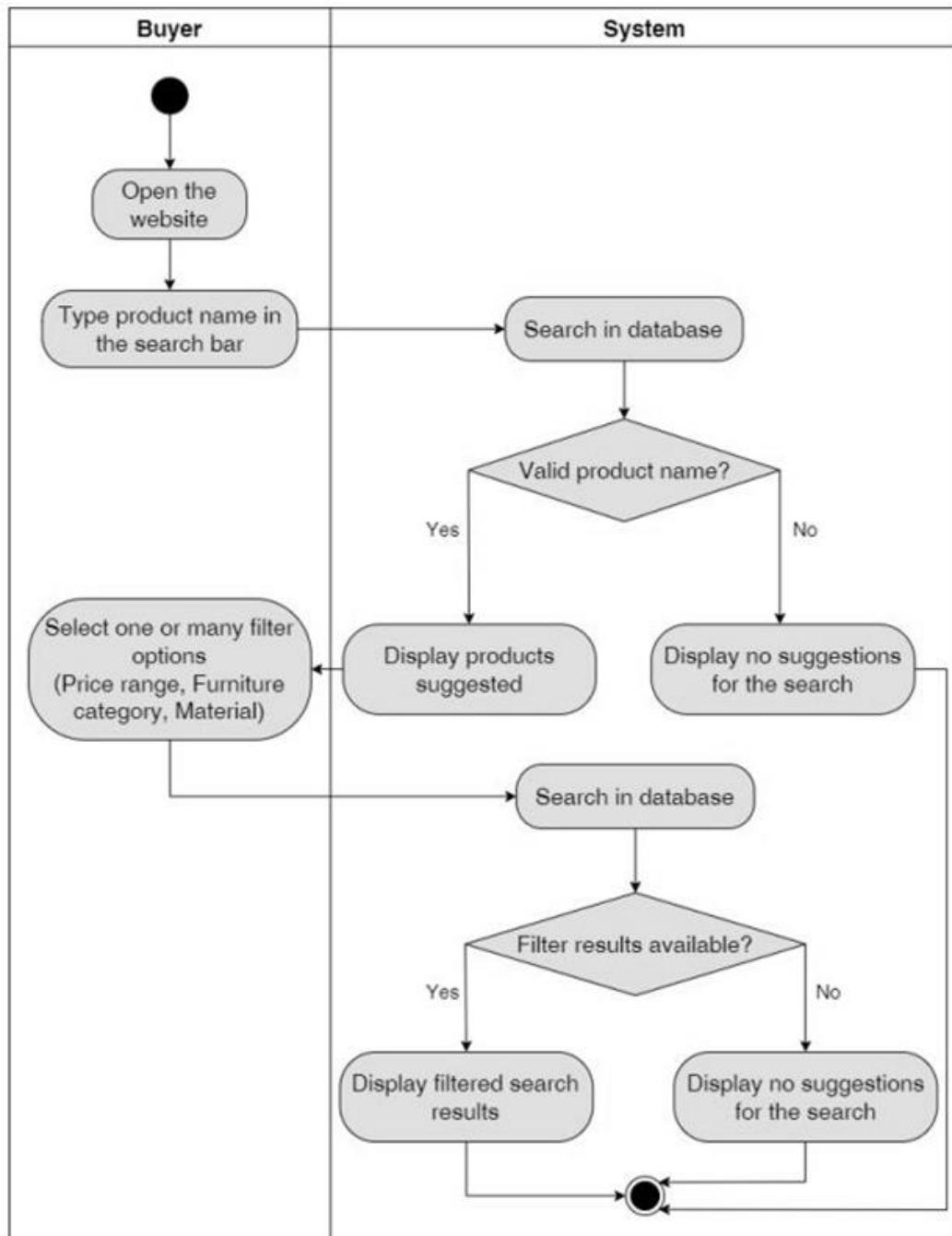
3.3.2 Activity Diagram for Login



3.3.3 Activity Diagram for Manage account.

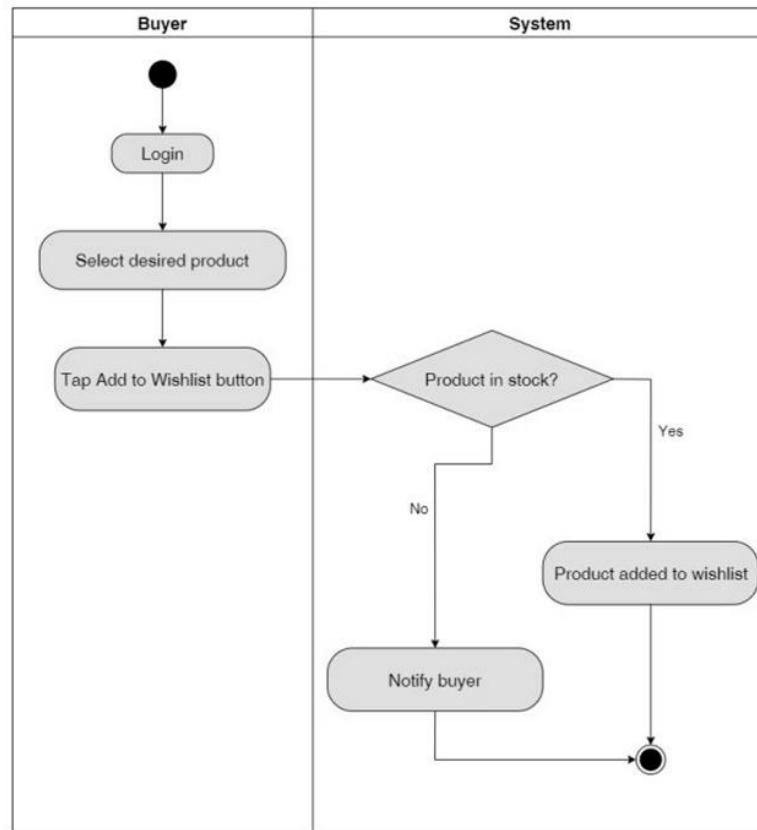


3.3.4 Activity Diagram for Search

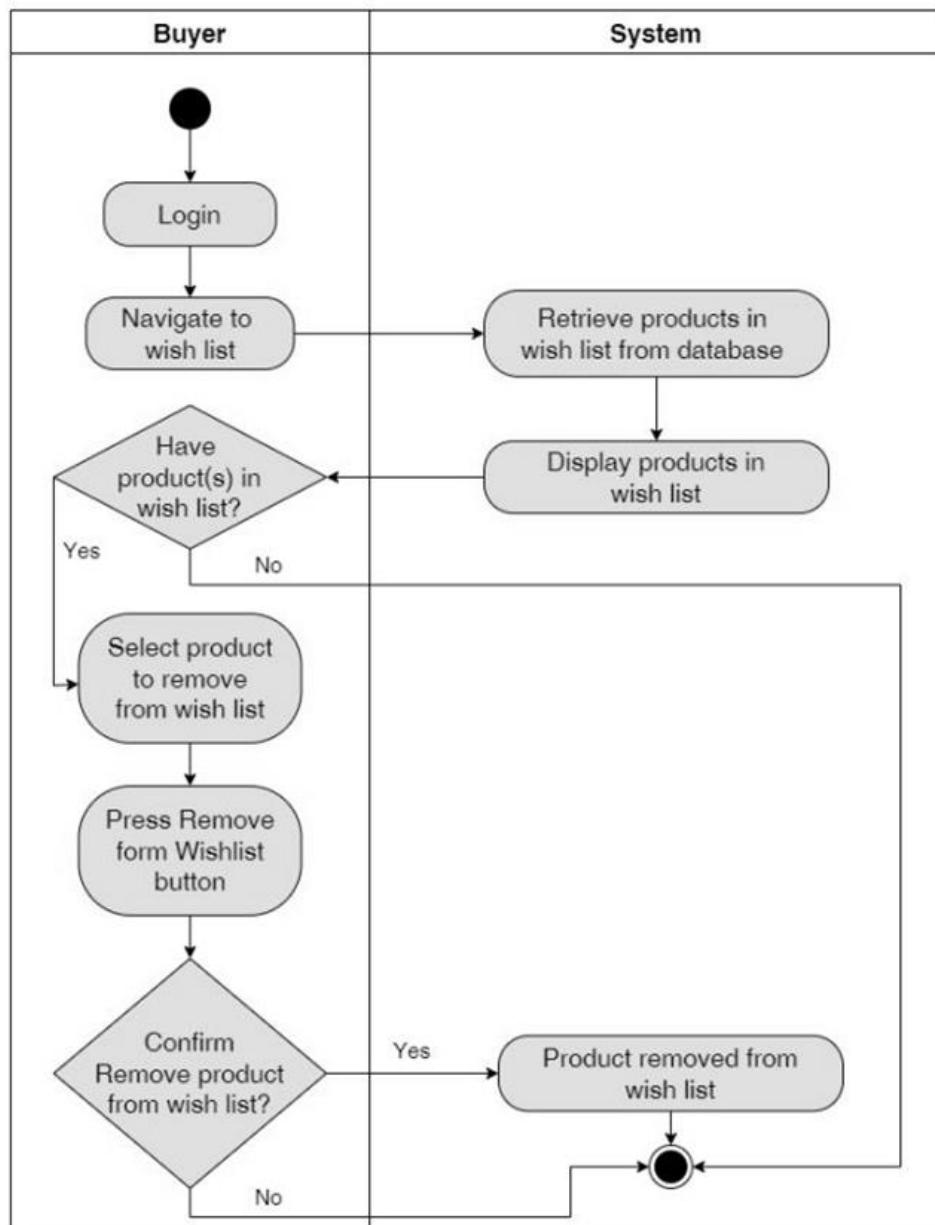


3.3.5 Activity Diagram for Wishlist

3.3.5.1 Activity Diagram for Add to Wishlist

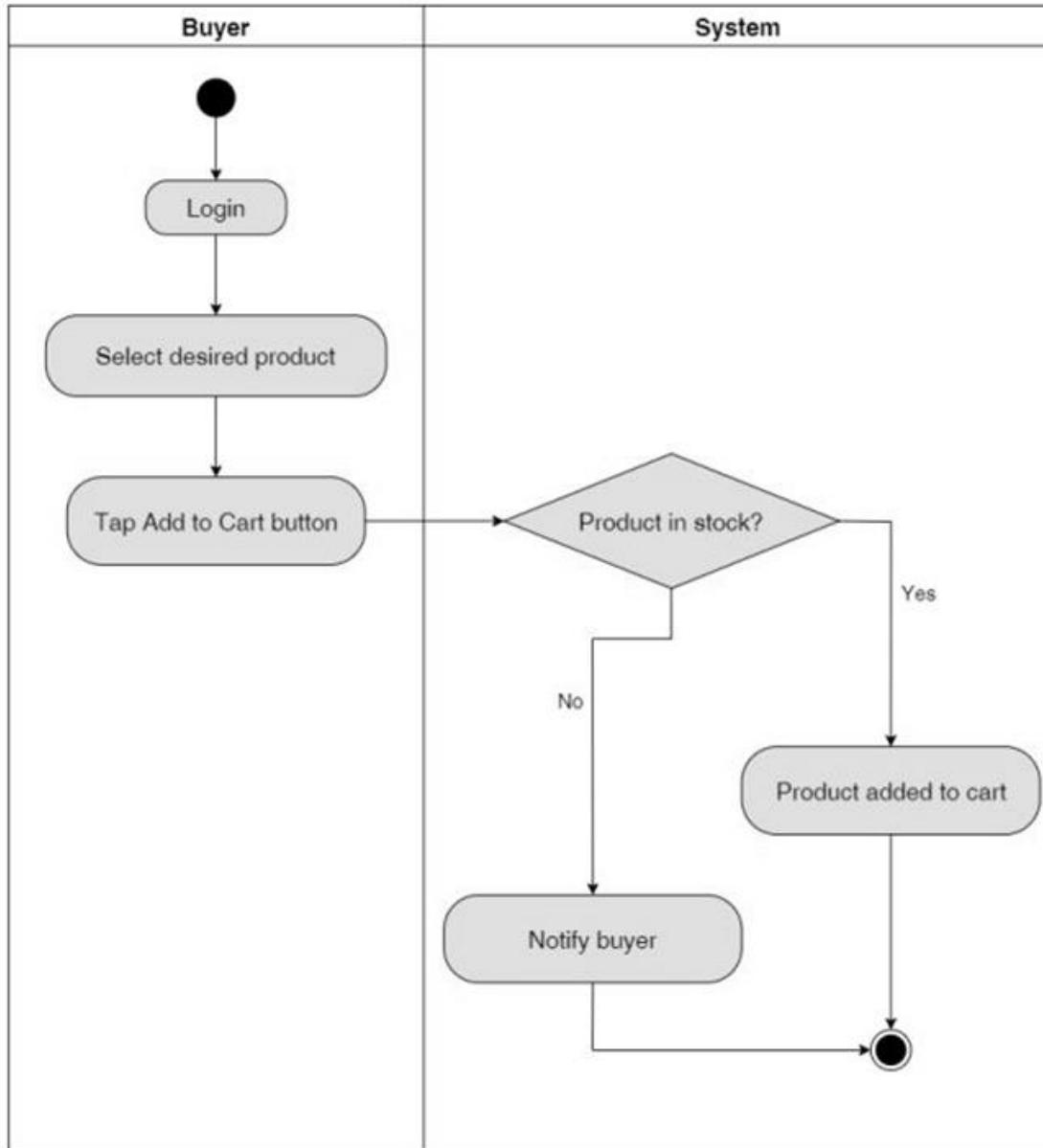


3.3.5.2 Activity Diagram for Remove from Wishlist

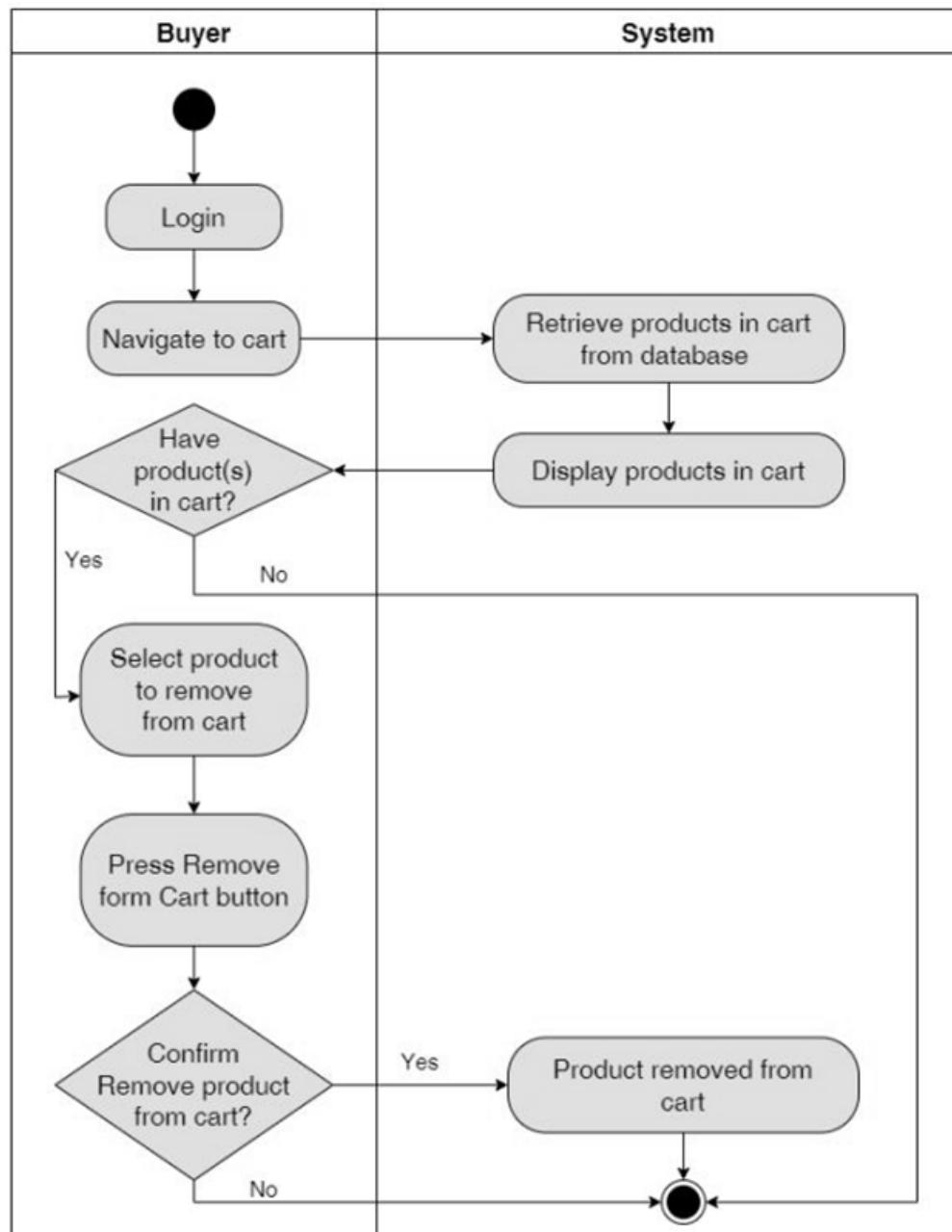


3.3.6 Activity Diagram for Cart

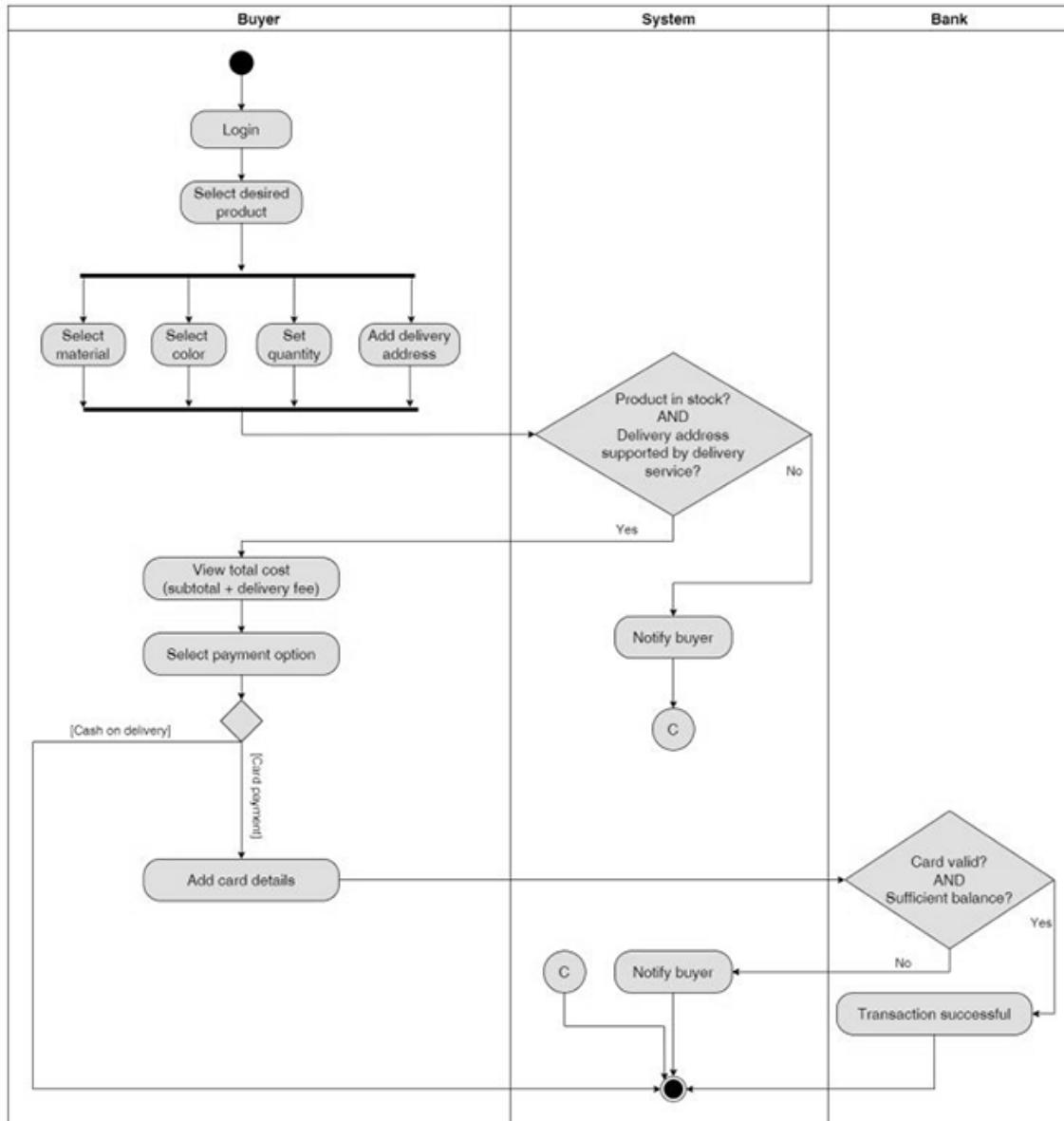
3.3.6.1 Activity Diagram for Add to Cart



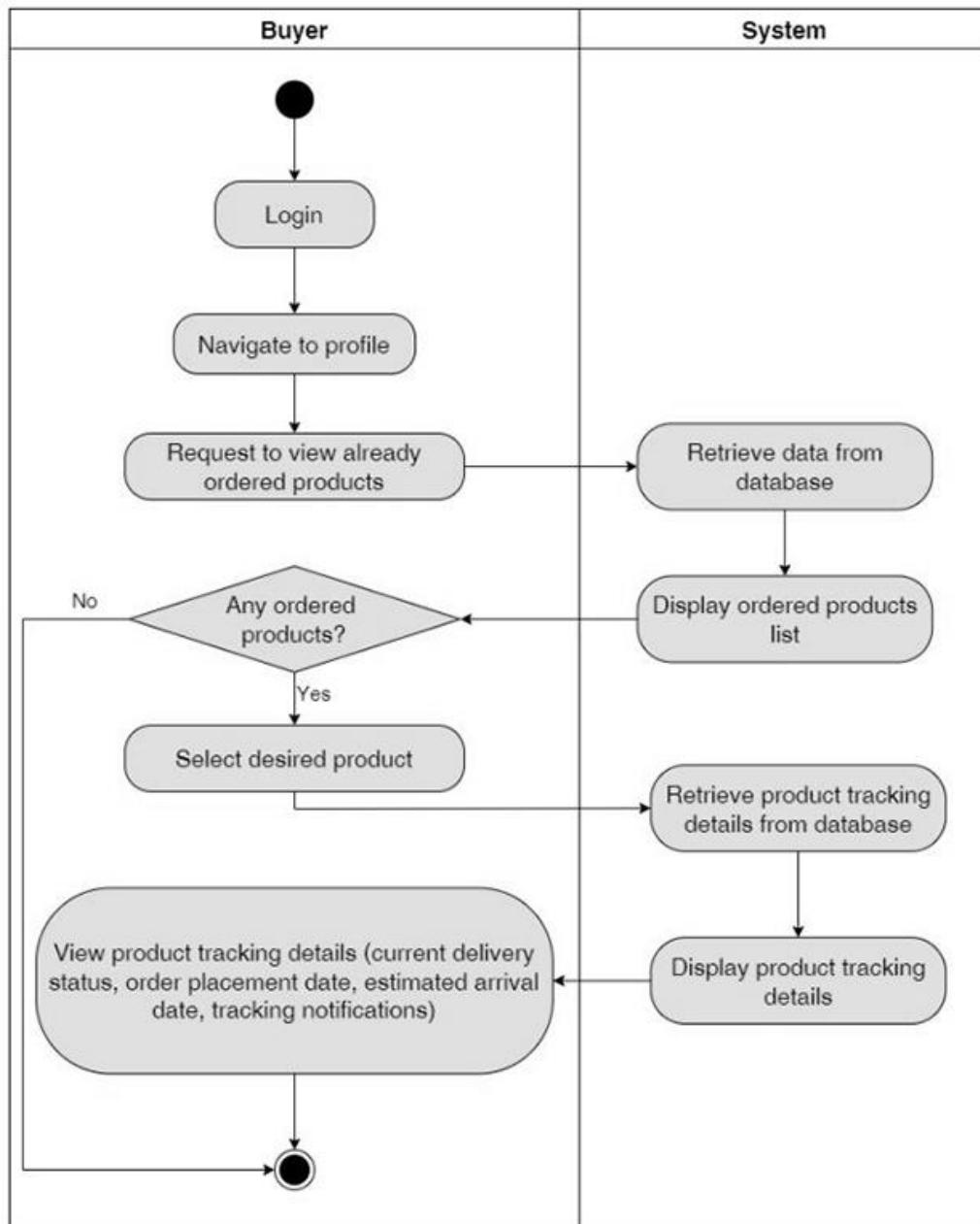
3.3.6.2 Activity Diagram for Remove from Cart



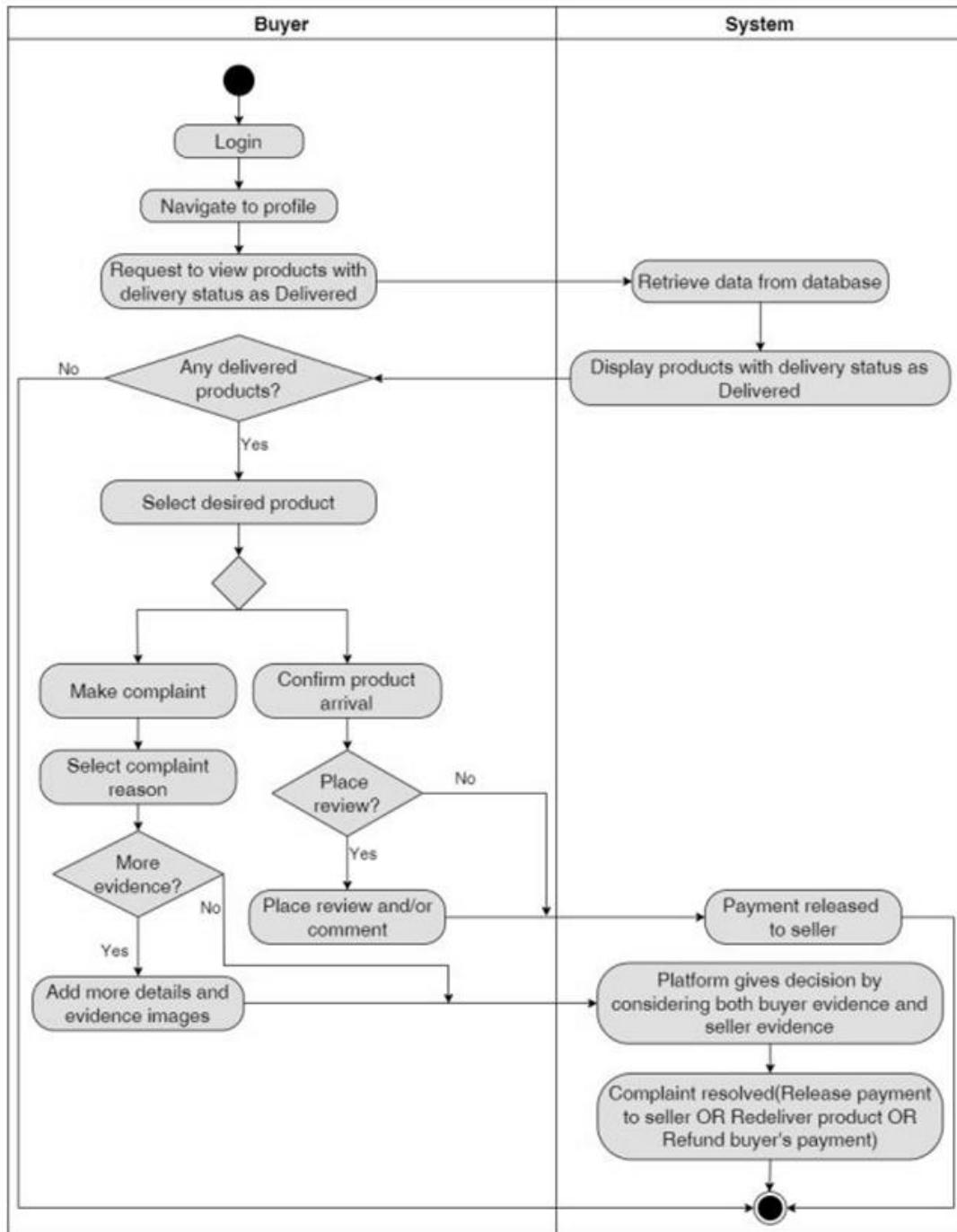
3.3.7 Activity Diagram for Purchase product



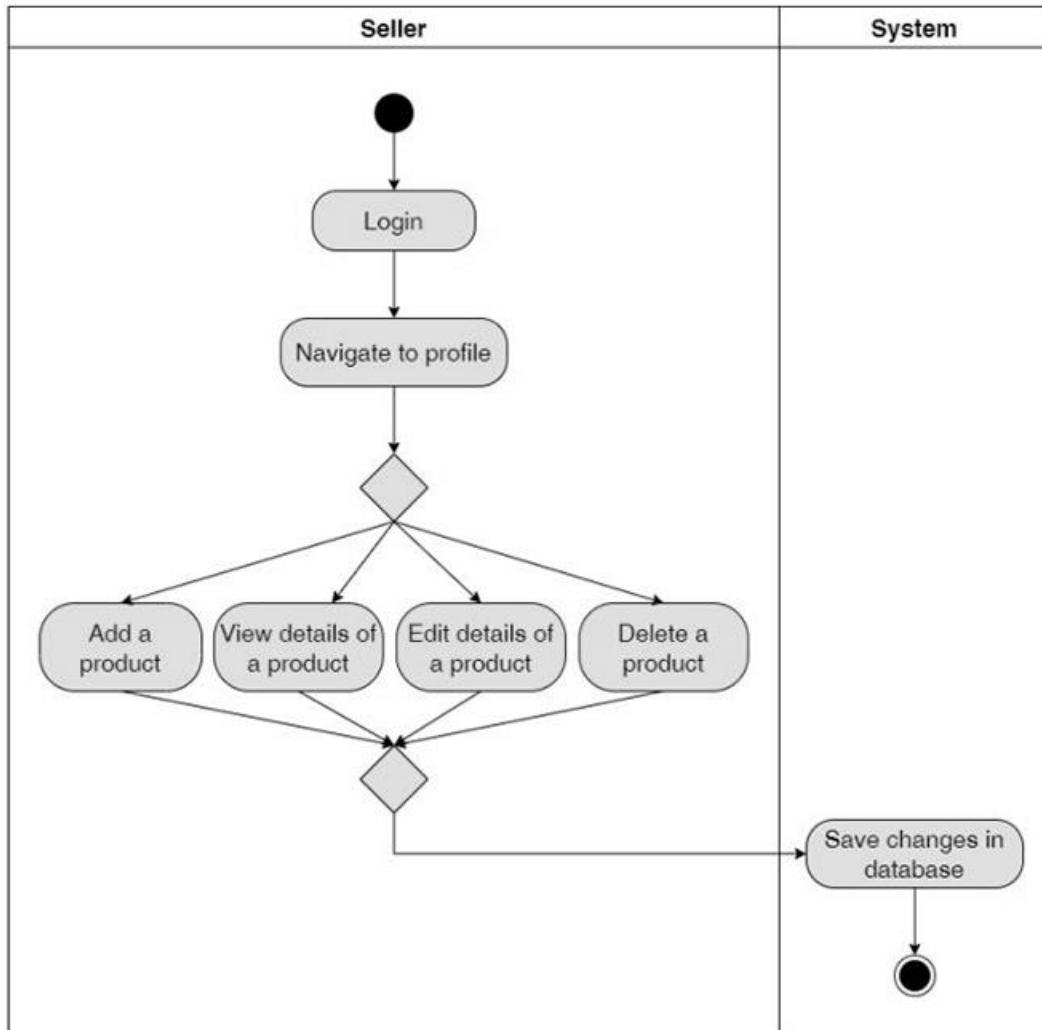
3.3.8 Activity Diagram for View tracking details



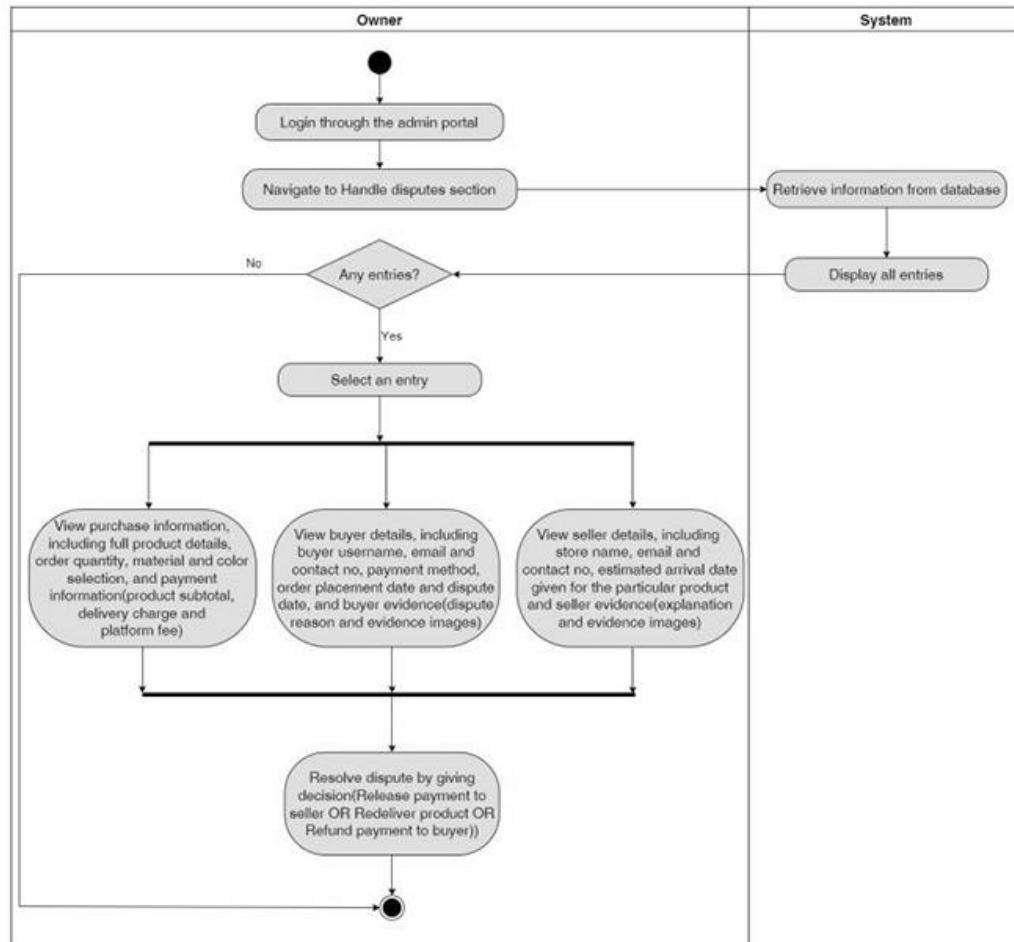
3.3.9 Activity Diagram for Respond product arrival



3.3.10 Activity Diagram for Manage products

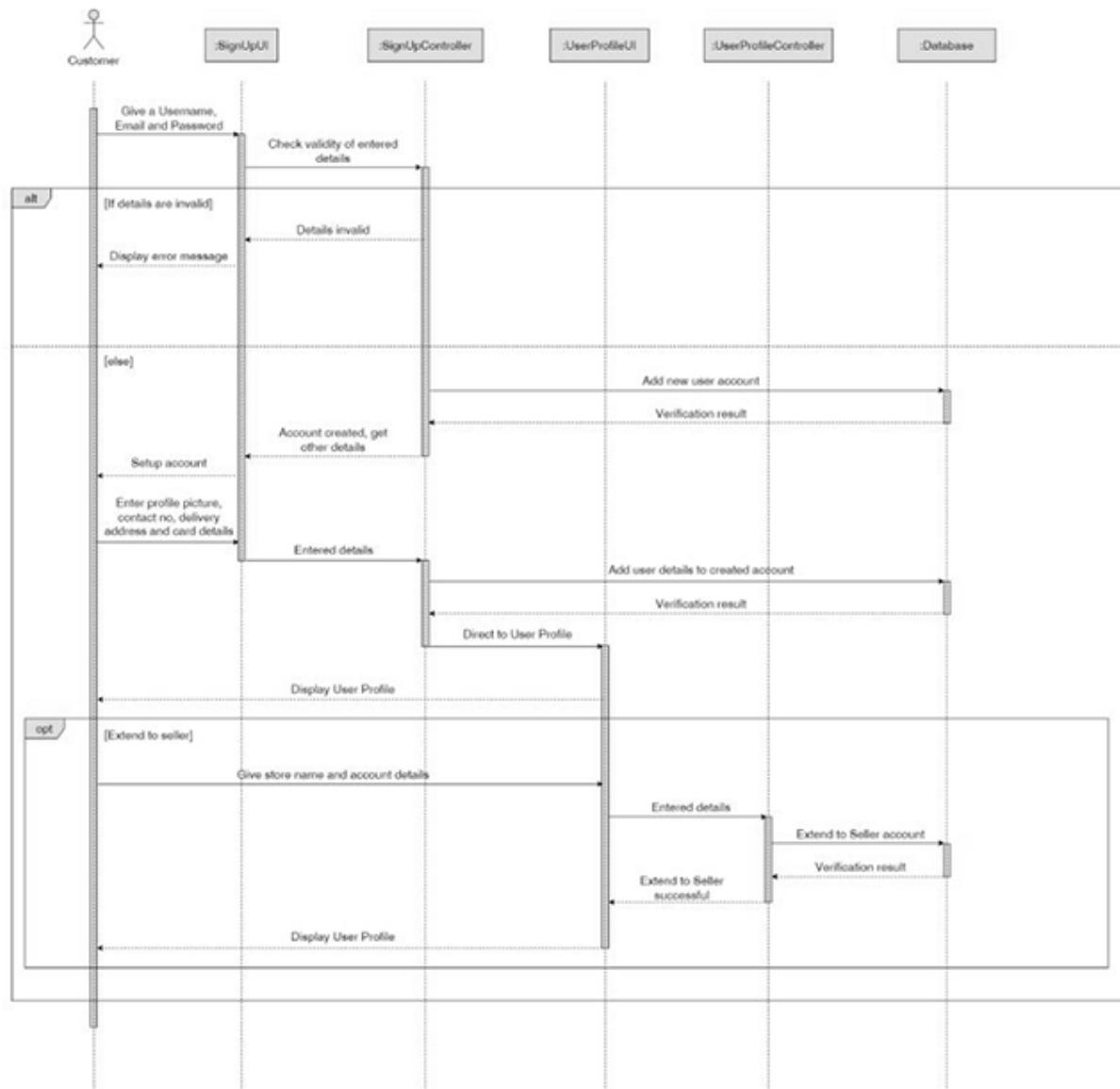


3.3.11 Activity Diagram for Handle disputes

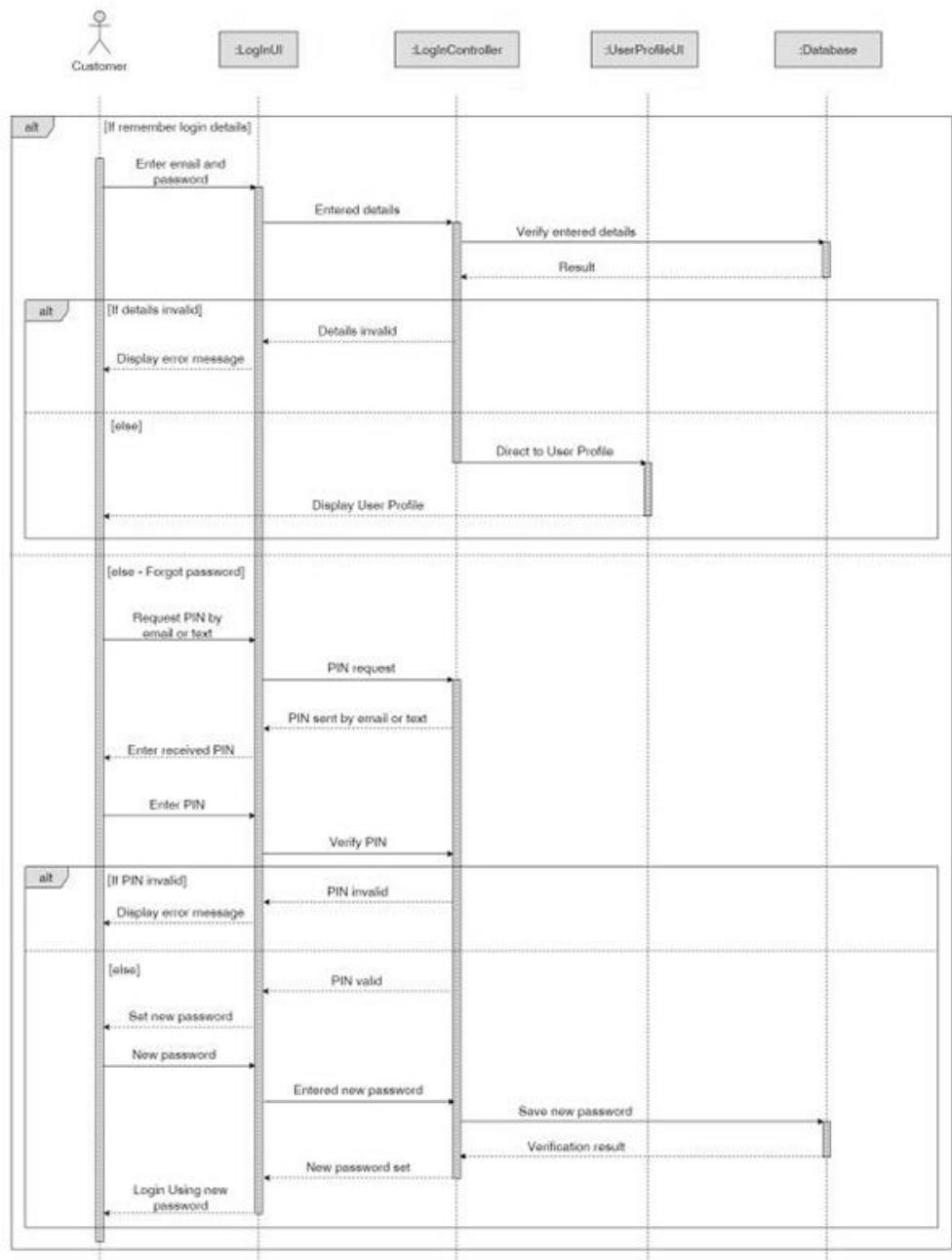


3.4 Sequence Diagram for Proposed System

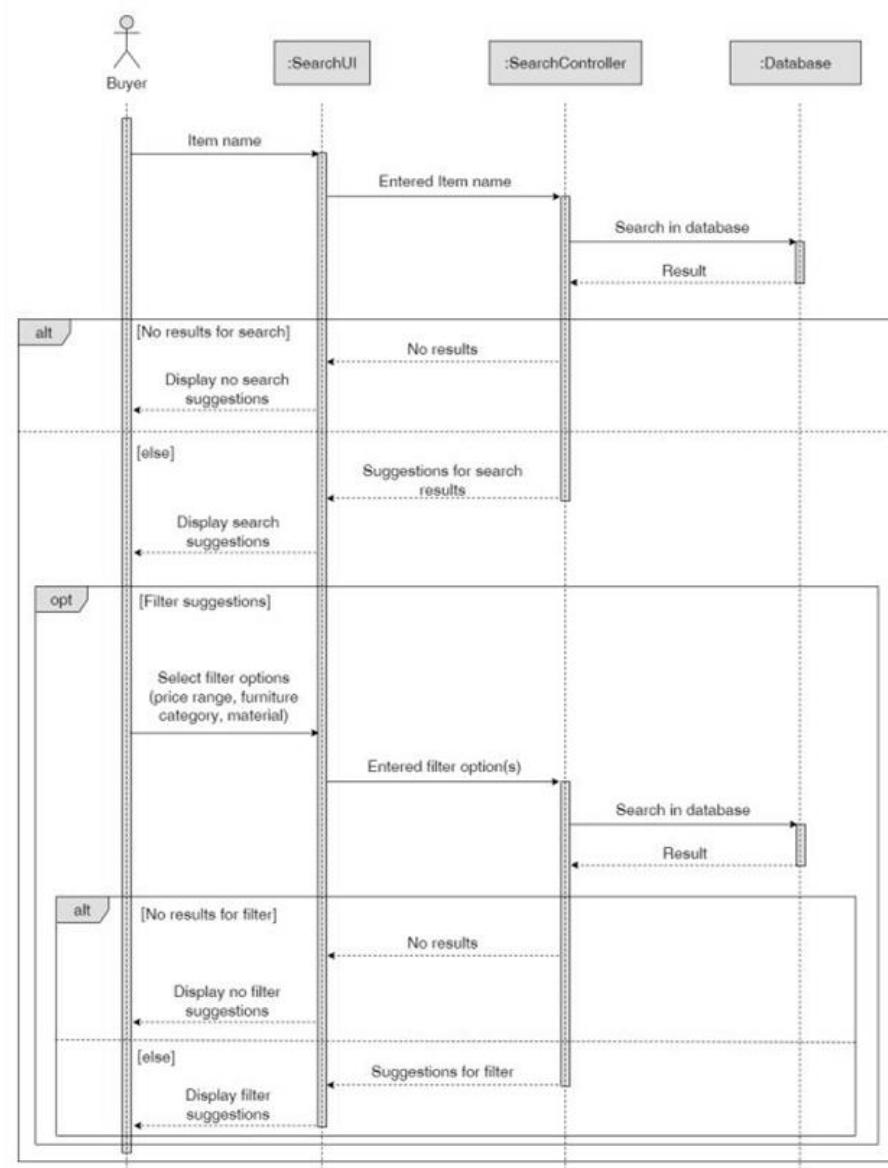
3.4.1 Sequence Diagram for Create Account



3.4.2 Sequence Diagram for Login

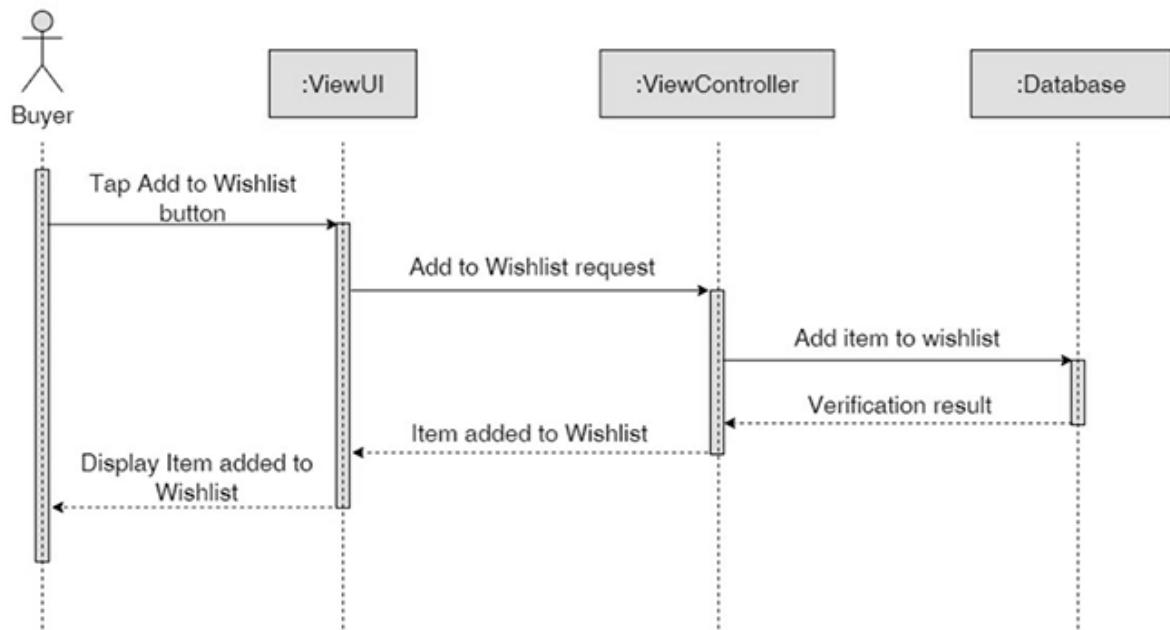


3.4.3 Sequence Diagram for Search

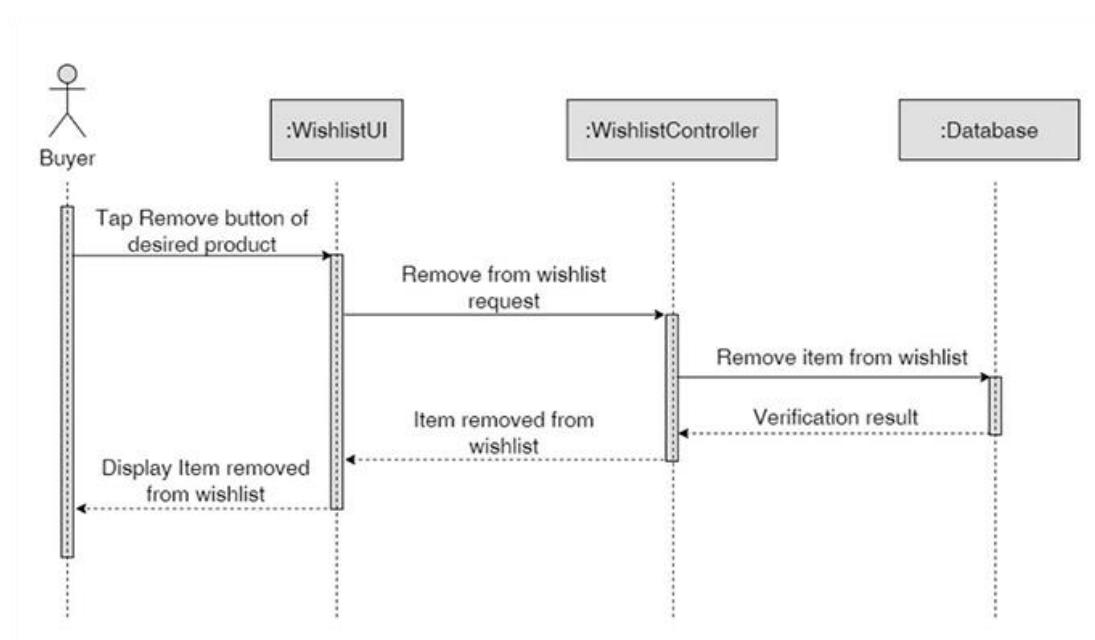


3.4.4 Sequence Diagram for Wishlist

3.4.4.1 Sequence Diagram for Add to Wishlist

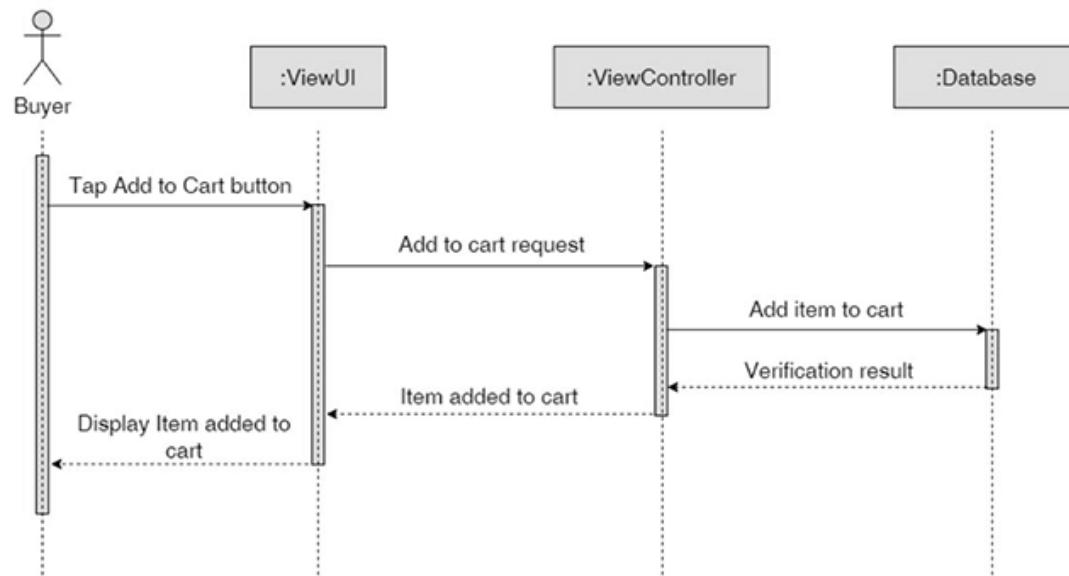


3.4.4.2 Sequence Diagram for Remove from Wishlist

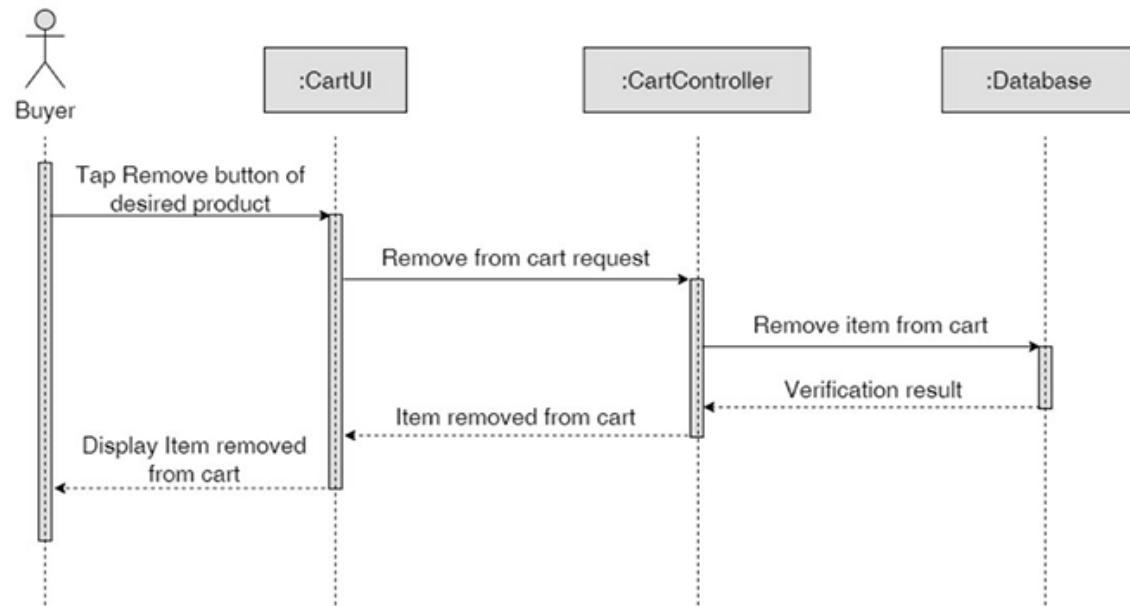


3.4.5 Sequence Diagram for cart

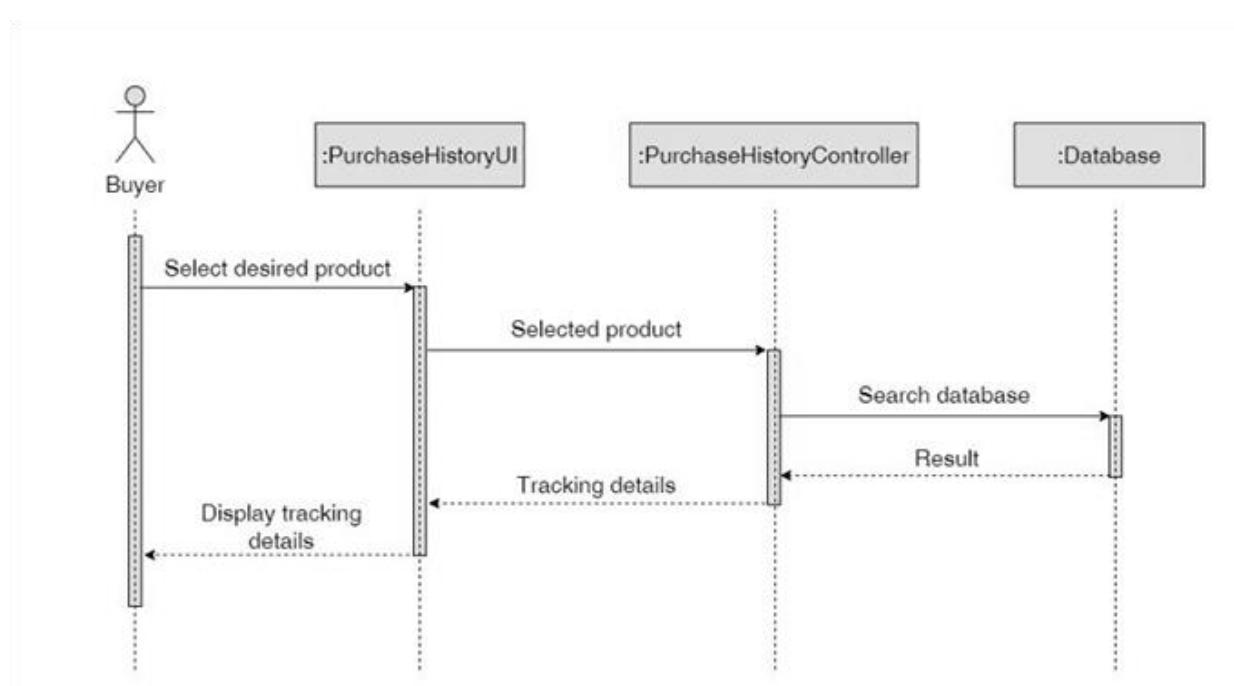
3.4.5.1 Sequence Diagram for Add to cart



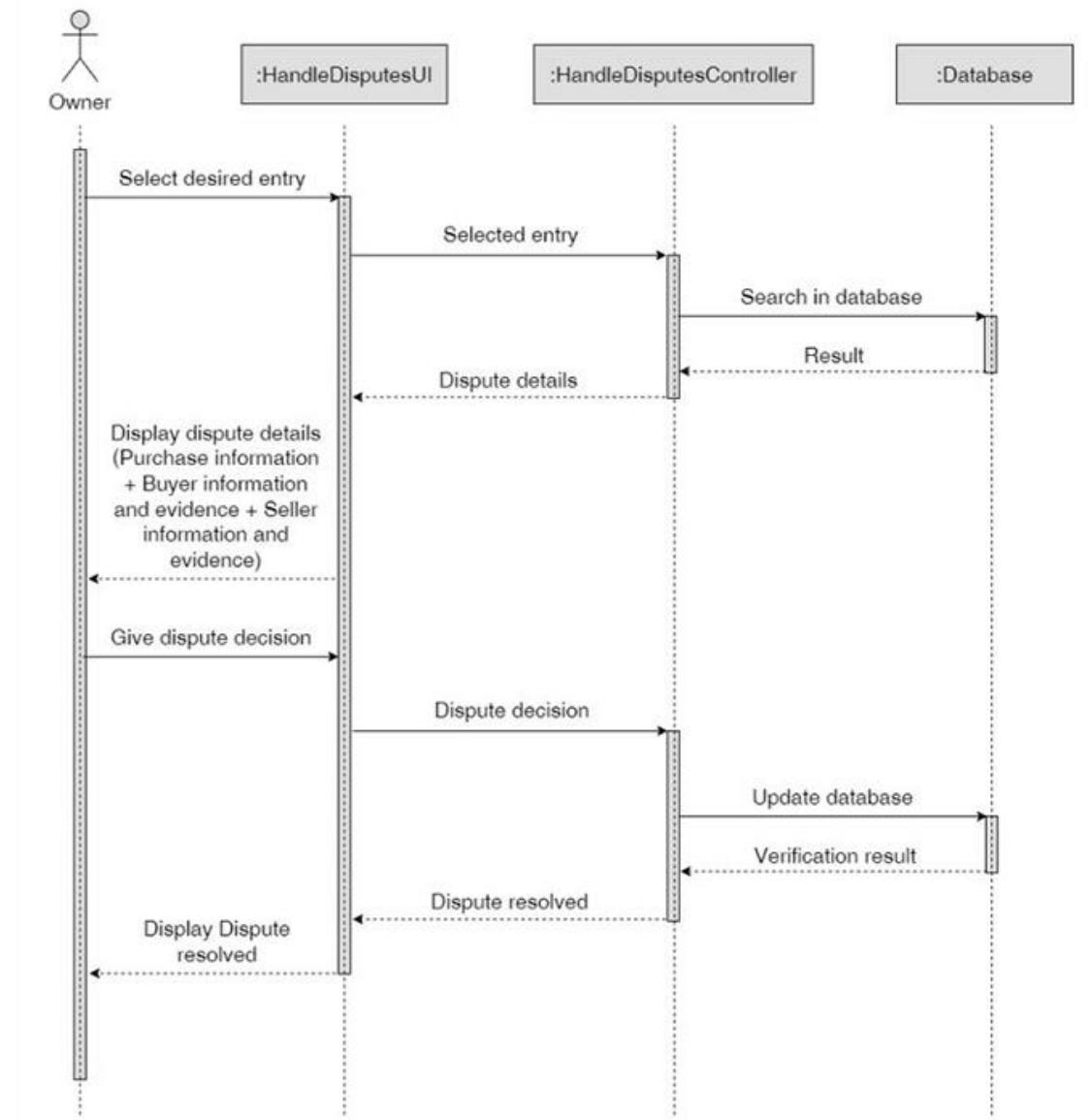
3.4.5.2 Sequence Diagram for Remove from cart



3.4.6 Sequence Diagram for View tracking details



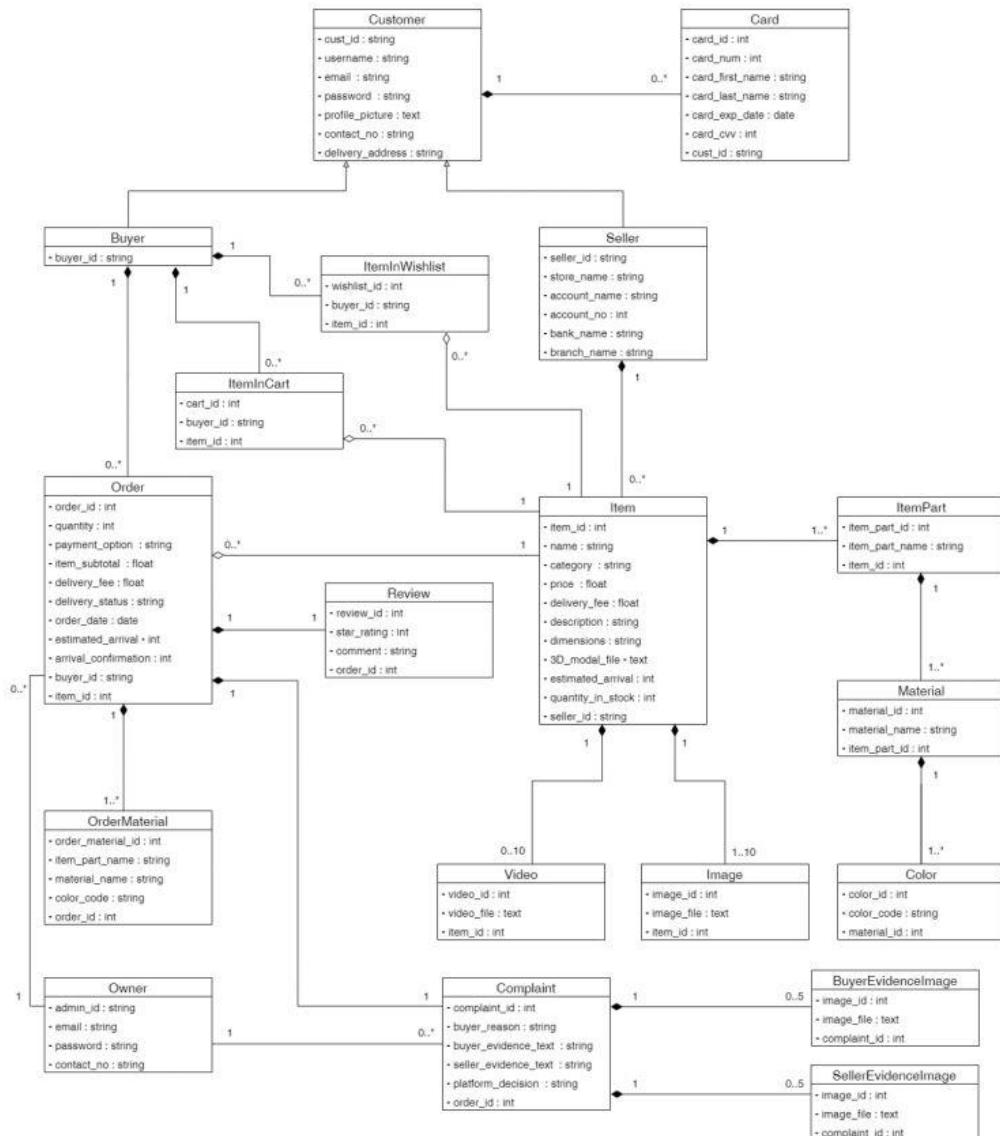
3.4.7 Sequence Diagram for Handle disputes



3.5 Class Diagrams for the Proposed System

In the context of a furniture website, class diagrams can help to visualize the different entities and their relationships within the system. By creating a blueprint for the implementation of the website, class diagrams can identify potential design issues and ensure that the website is well-organized and user-friendly. With the help of class diagrams, developers, stakeholders, and other interested parties can effectively communicate the structure and behavior of the furniture website. Ultimately, class diagrams contribute to the successful development and deployment of a high-quality furniture website that provides an exceptional user experience.

3.5.1 Model class



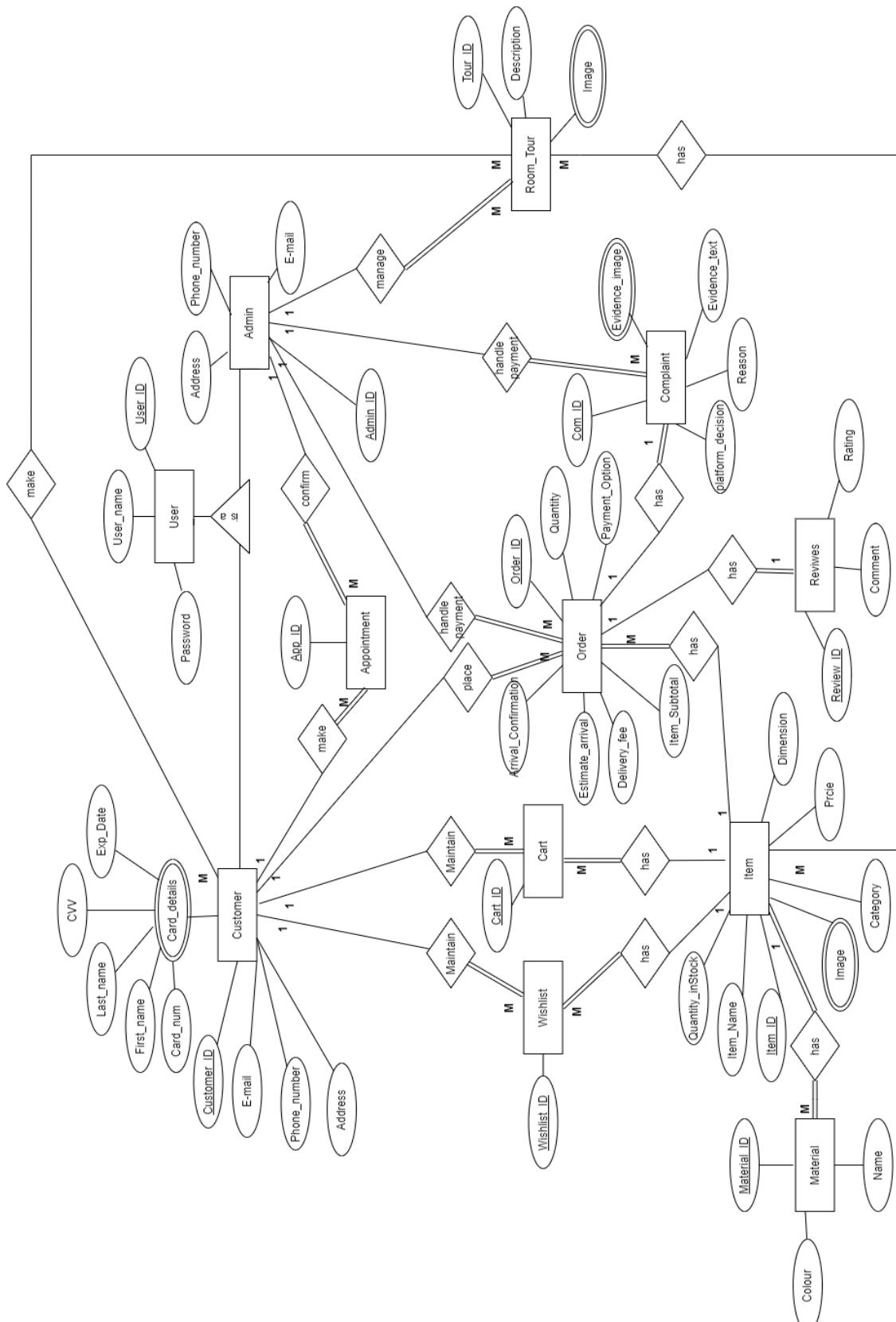
3.5.2 View Class

SignUp	UserProfile	Login
+ getUsername() + getEmail() + getPassword() + getProfilePicture() + getContactNo() + getDeliveryAddress() + getCardDetails()	+ displayProfileInformation() + getStoreName() + getAccountDetails() + getRemoveStoreRequest() + getRemoveAccountRequest()	+ getEmail() + getPassword() + getPINOption() + getPIN() + getNewPassword()
Search	View	Cart
+ getSearchKeyword() + displaySearchResults() + getFilterOptions() + displayFilterResults()	+ displayItemInformation() + display3DModal() + get3DModalInteractRequest() + addToCart() + addToWishlist()	+ displayItems() + removeItem() + purchaseItem()
Purchase	PurchaseHistory	Wishlist
+ getItemMaterial() + getMaterialColor() + getQuantity() + getDeliveryAddress() + displayCost() + getPaymentOptionandDetails() + displayPurchaseSuccess()	+ displayPurchasedItems() + getDesiredItemSelection() + displayItemTrackingDetails() + getItemArrivalConfirmation() + getItemReview() + getDisputeReason() + getDisputeEvidence() + displayDisputeDecision()	+ displayItems() + removeItem() + viewItem()
Tasks	AdminLogin	AddItem
+ displaySoldItems() + getDesiredItemSelection() + displayItemSalesDetails() + getDeliveryStatusSelection() + getArrivalExtensionDays() + displayDeliveryFeedback() + getSellerEvidenceforDispute() + displayDisputeDecision()	+ getEmail() + getPassword() + getPINSentByEmail() + getPINSentByText()	+ getItemDetailsAndDocs() + displayItemListSuccess()
ReleasePayment	ViewEditItem	ViewItem
+ displayEntries() + getDesiredEntrySelection() + displayEntryDetails() + getReleasePaymentRequest()	+ displayItemInformation() + editItemDetailsAndOrDocs() + displayItemUpdateSuccess()	+ displayItemInformation() + displayItemDeleteSuccess()
HandleDisputes		
+ displayEntries() + getDesiredEntrySelection() + displayEntryDisputeDetails() + getDisputeDecision()		

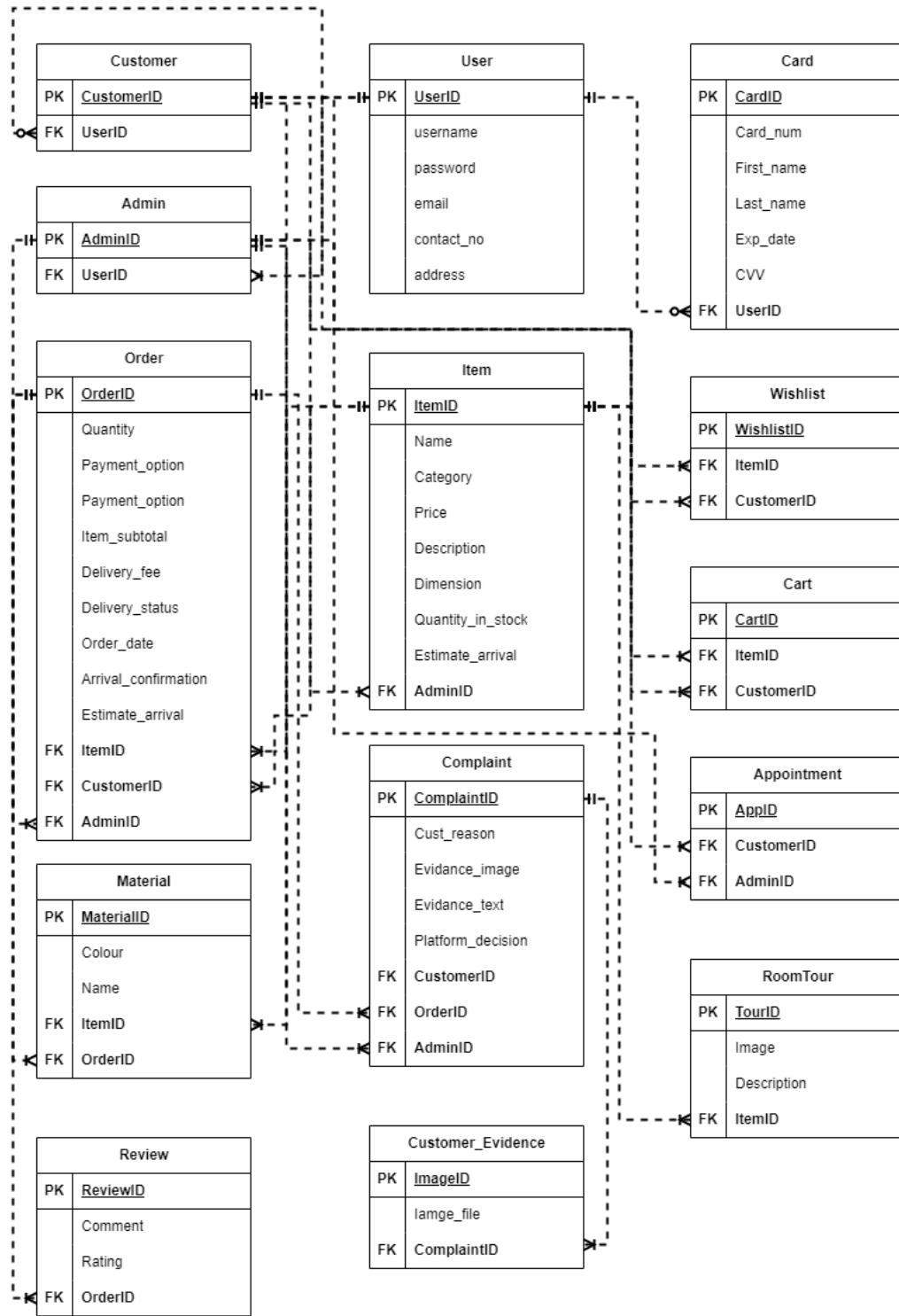
3.5.3 Controller Class

SignUpController	UserProfileController	LoginController
+ registerBuyer() + setupBuyerProfile()	+ retrieveProfileInformation() + extendToSeller() + removeStore() + removeAccount()	+ loginCustomer() + sendPIN() + verifyPIN() + ResetForgottenPassword()
SearchController	ViewController	CartController
+ search() + filterSearch()	+ retrieveViewItemInformation() + modify3DModal() + addSelectedItemToCart() + addSelectedItemToWishlist()	+ retrieveCartItems() + removeItemFromCart() + loadPurchase()
PurchaseController	PurchaseHistoryController	WishlistController
+ checkItemAvailability() + retrieveItemCost() + makePayment() + updatePaymentStatus()	+ retrievePurchasedItems() + retrieveItemTrackingDetails() + updateItemArrival() + addItemReview() + addDisputeDetails() + retrieveDisputeDecision()	+ retrieveWishlistItems() + removeItemFromWishlist() + loadView()
TasksController	AdminLoginController	AddItemController
+ retrieveSoldItems() + retrieveItemSalesDetails() + updateDeliveryStatus() + updateEstimatedArrival() + retrieveDeliveryFeedback() + sendToReleasePayment() + addSellerDisputeEvidence() + retrieveDisputeDecision()	+ verifyEmailAndPassword() + sendPINByEmail() + sendPINByText() + verifyEmailPIN() + verifyTextPIN() + loadAdminDashboard()	+ addItem()
ReleasePaymentController		ViewEditItemController
+ retrieveEntries() + retrieveEntryDetails() + releasePayment()		+ retrieveViewItemInformation() + updateItem()
		DeleteItemController
		+ deleteItem()
		HandleDisputesController
		+ retrieveEntries() + retrieveEntryDetails() + addDisputeDecision()

3.6 Entity Relationship Diagram

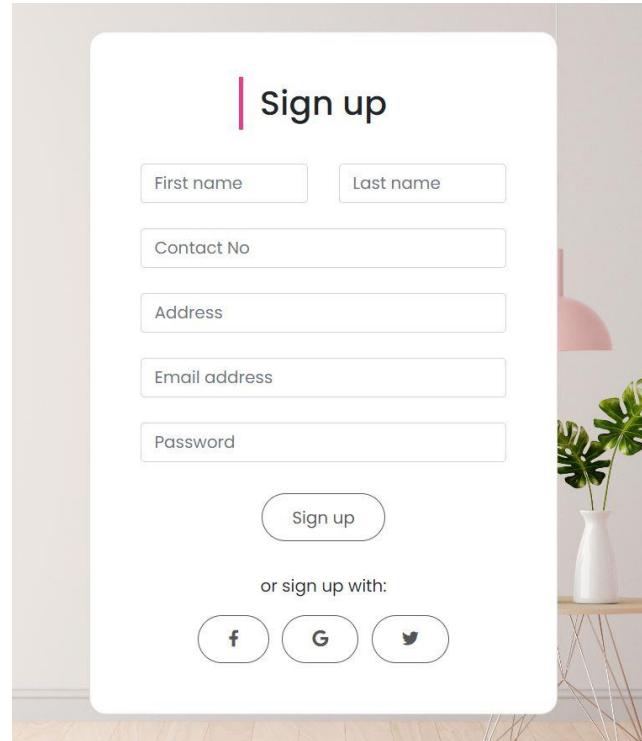


3.7 Normalized Database Design

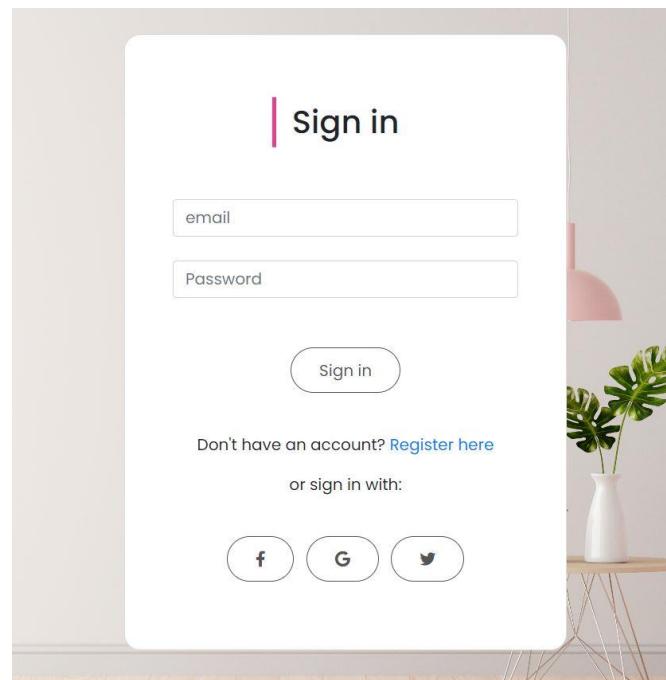


3.8 Graphical User Interfaces

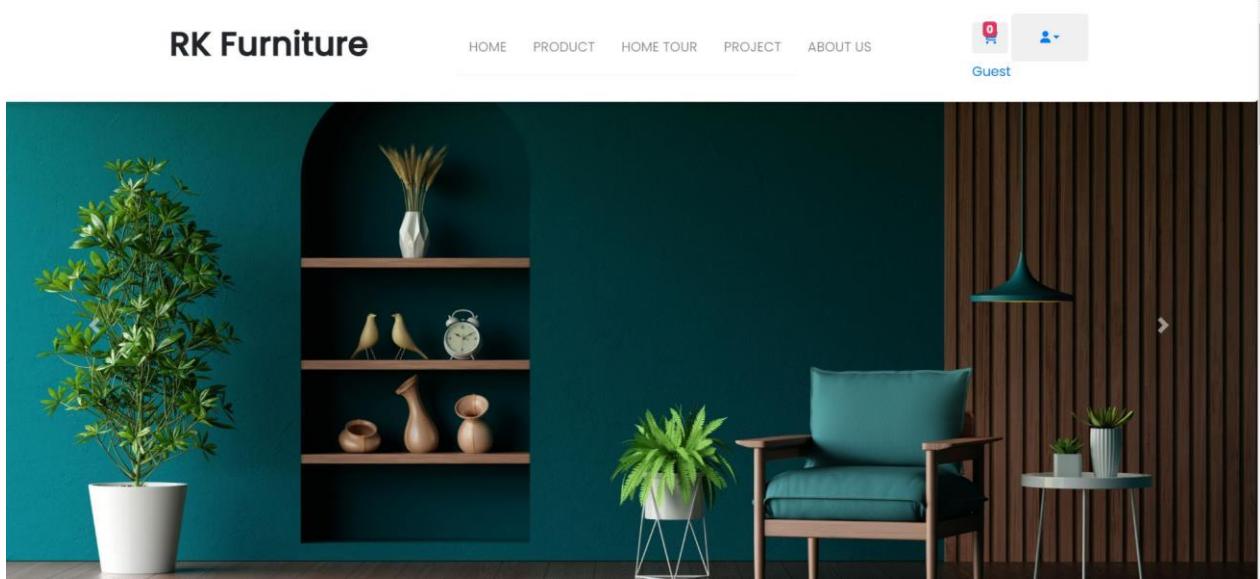
3.8.1. Create Account (Customer)



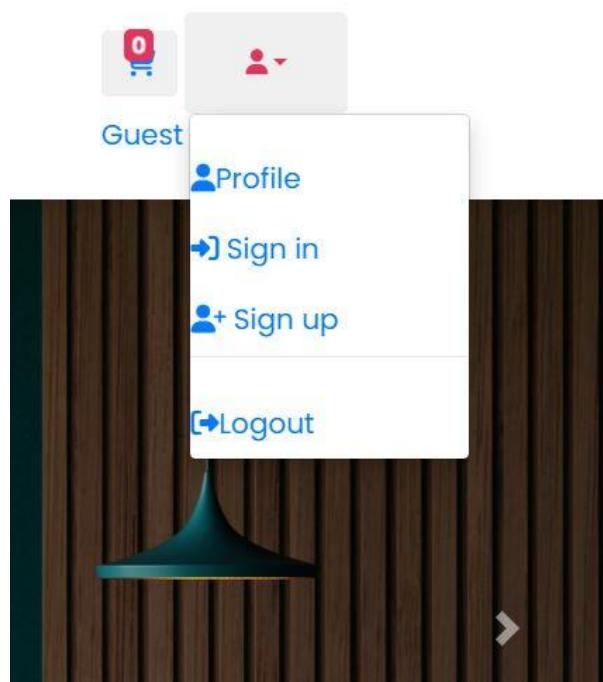
3.8.2 Login Account (Customer)



3.8.3 Home Page (With Carousel)



3.8.4 Account



3.8.5 Featured Collection

Featured Collection

 Sofa RK Furniture Sven-oxford-blue-sofa Rs.75000 View Details Add To Cart	 Gift RK Furniture Table-lamp Rs.10000 Rs.7500 View Details Add To Cart	 Sale RK Furniture Shelf Rs.25000 Rs.22449 View Details Add To Cart
 Sale RK Furniture Dining Chair Rs.10000 Rs.15999 View Details Add To Cart	 Desk RK Furniture Oak-desk Rs.33000 View Details Add To Cart	 Table RK Furniture Dining-table Rs.68000 View Details Add To Cart

3.8.6 Gift

Gift



RK Furniture

Table-lamp
Rs.10000 | Rs.7500

[View Details](#)

[Add To Cart](#)

3.8.7 Sale

Sale



RK Furniture

Shelf
Rs.25000 | Rs.22449

[View Details](#)

[Add To Cart](#)

3.8.8 Product



Bed

RK Furniture

King-bed
Rs.75000

[View details](#)

[Add To Cart](#)



Furniture Cover

RK Furniture

Sofa-cover
Rs.5000

[View details](#)

[Add To Cart](#)



Sets

RK Furniture

Brown-dining-set
Rs.80000

[View details](#)

[Add To Cart](#)

First Page 1 2



Lounging

RK Furniture

Lounge-chair
Rs.30000

[View details](#)

[Add To Cart](#)



Decor

RK Furniture

White Table Lamp
Rs.20000

[View details](#)

[Add To Cart](#)



Storage

RK Furniture

Media-unit
Rs.85000

[View details](#)

[Add To Cart](#)

114

3.8.9 Search and Filter

Categories Hide

Filter Categories 

 ... OTHERS

 OUTDOOR

 LIVING ROOM

 BEDROOM

Manufacturers Hide

Filter Manufacturers 

 RK FURNITURE

Products Categories Hide

Filter Product Categc 

 DECOR

 LOUNGING

 FURNITURE COVERS

 DESKS

 SEATING

3.8.10 Home Tour



Page 1

3.8.11 Project Page

Interior Design Service

"Need a hand? Get expert recommendations from one of our Interior Design Specialists."

Start A Design Project

We offer complete design plans for bigger jobs such as room redesigns, or moving/new space projects. Tell us about your home and your vision, and we'll create a custom layout including furniture options and color coordination.

It's perfect for:

- Creating custom designs for new spaces.
- Complete room redesigns for existing spaces.
- Exploring layout options to find the right fit.



[Contact us](#)



Before

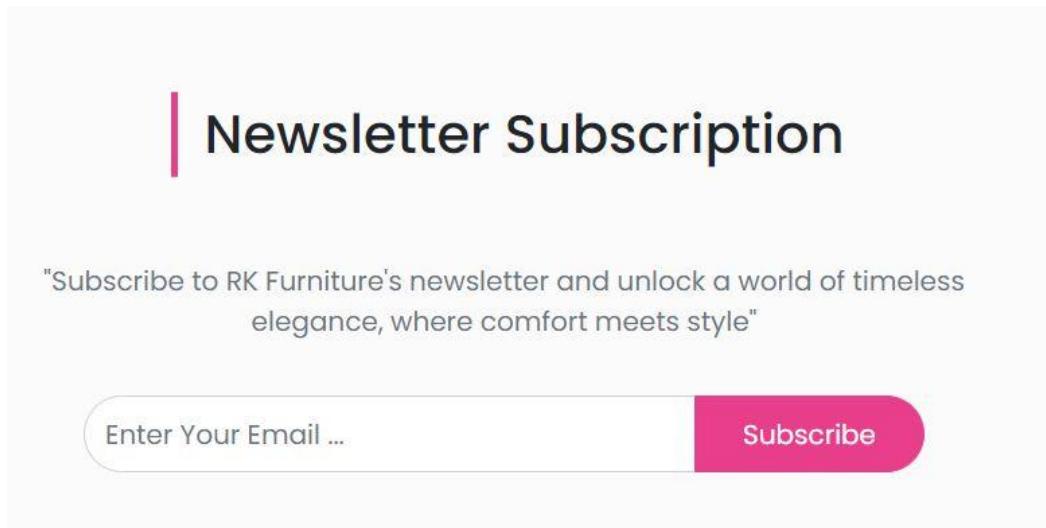
Personalized design



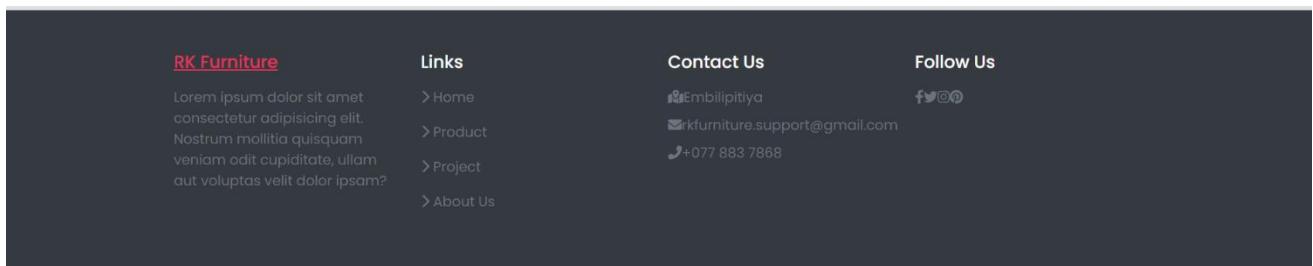
After

Customer Feedback : "I absolutely love the design! No revision necessary. This is perfect. Even better than we imagined!"

3.8.12 Newsletter Subscription



3.8.13 About Us / Footer



3.8.14 Add to Cart

You currently have 2 item(s) in your cart.

Product	Quantity	Unit Price	Size	Delete	Sub Total
Lounge-chair	1	Rs.30000.00		<input type="checkbox"/>	Rs.30000.00
Sofa-cover	2	Rs.5000.00		<input type="checkbox"/>	Rs.10000.00
Total					Rs.40000.00

Coupon Code: [Apply Coupon Code](#)

[Continue Shopping](#) [Update Cart](#) [Proceed to Checkout >](#)

Shipping and additional costs are calculated based on the values you have entered.

Order	Rs.40000.00
Subtotal	
Shipping and handling	Rs.0.00
Tax	Rs.0.00
Total	Rs.40000.00

[Sale](#)  [Table](#)  [Sofa](#) 

3.8.15 Offline Payment

Please Confirm Your Payment

Invoice No:

Amount Sent:

Select Payment Mode:

Select Payment Mode

Transaction/Reference Id:

Code:

Payment Date:



Confirm Payment

3.8.16 My Orders



Name : Gayani Vitharana

My Orders

[Pay Offline](#)

[Edit Account](#)

[Change Password](#)

[My WishList](#)

[Delete Account](#)

[Logout](#)

My Account

My Orders

Your orders on one place.

If you have any questions, please feel free to [contact us](#), our customer service center is working for you 24/7.

#	Amount	Invoice	Qty	Size	Order Date	Status	Action
1	Rs.44898	I799865369	2	Select a Size	2023-08-02	Paid	Confirm If Paid
2	Rs.7500	I599601220	1	Select a Size	2023-08-02	Paid	Confirm If Paid
3	Rs.65000	I425063709	1		2023-10-22	Unpaid	Confirm If Paid
4	Rs.65000	I921385225	1		2023-10-22	Paid	Confirm If Paid
5	Rs.65000	I1815464014	1		2023-10-22	Paid	Confirm If Paid
6	Rs.10000	I289724546	1		2023-10-22	Paid	Confirm If Paid
7	Rs.75000	I232877046	1		2023-10-22	Unpaid	Confirm If Paid
8	Rs.75000	I1982306685	1		2023-10-22	Unpaid	Confirm If Paid
9	Rs.0	I1982306685	0		2023-10-22	Paid	Confirm If Paid

3.8.17 Edit Account

My Account



Name : Gayani Vitharana

[My Orders](#)

[Pay Offline](#)

[Edit Account](#)

[Change Password](#)

[My WishList](#)

[Delete Account](#)

[Logout](#)

Edit Your Account

Customer Name:

Customer Email:

Customer Country:

Customer City:

Customer Contact:

Customer Address:

Customer Image: No file chosen



Update Now

3.8.18 Change Password



Name : Gayani Vitharana

[My Orders](#)

[Pay Offline](#)

[Edit Account](#)

[Change Password](#)

[My WishList](#)

[Delete Account](#)

[Logout](#)

My Account

Change Password

Enter Your Current Password

Enter Your New Password

Enter Your New Password Again

 Change Password

3.8.19 My Wishlist

My Account



Name : Gayani Vitharana

[My Orders](#)

[Pay Offline](#)

[Edit Account](#)

[Change Password](#)

[My WishList](#)

[Delete Account](#)

[Logout](#)

My Wishlist

Your all Wishlist Products on one place.

Wishlist No:	Wishlist Product	Delete Wishlist
1	 Table-lamp	Delete
2	 Oak-desk	Delete

3.8.20 Delete Account Page

My Account



Name : Gayani Vitharana

[My Orders](#)

[Pay Offline](#)

[Edit Account](#)

[Change Password](#)

[My WishList](#)

[Delete Account](#)

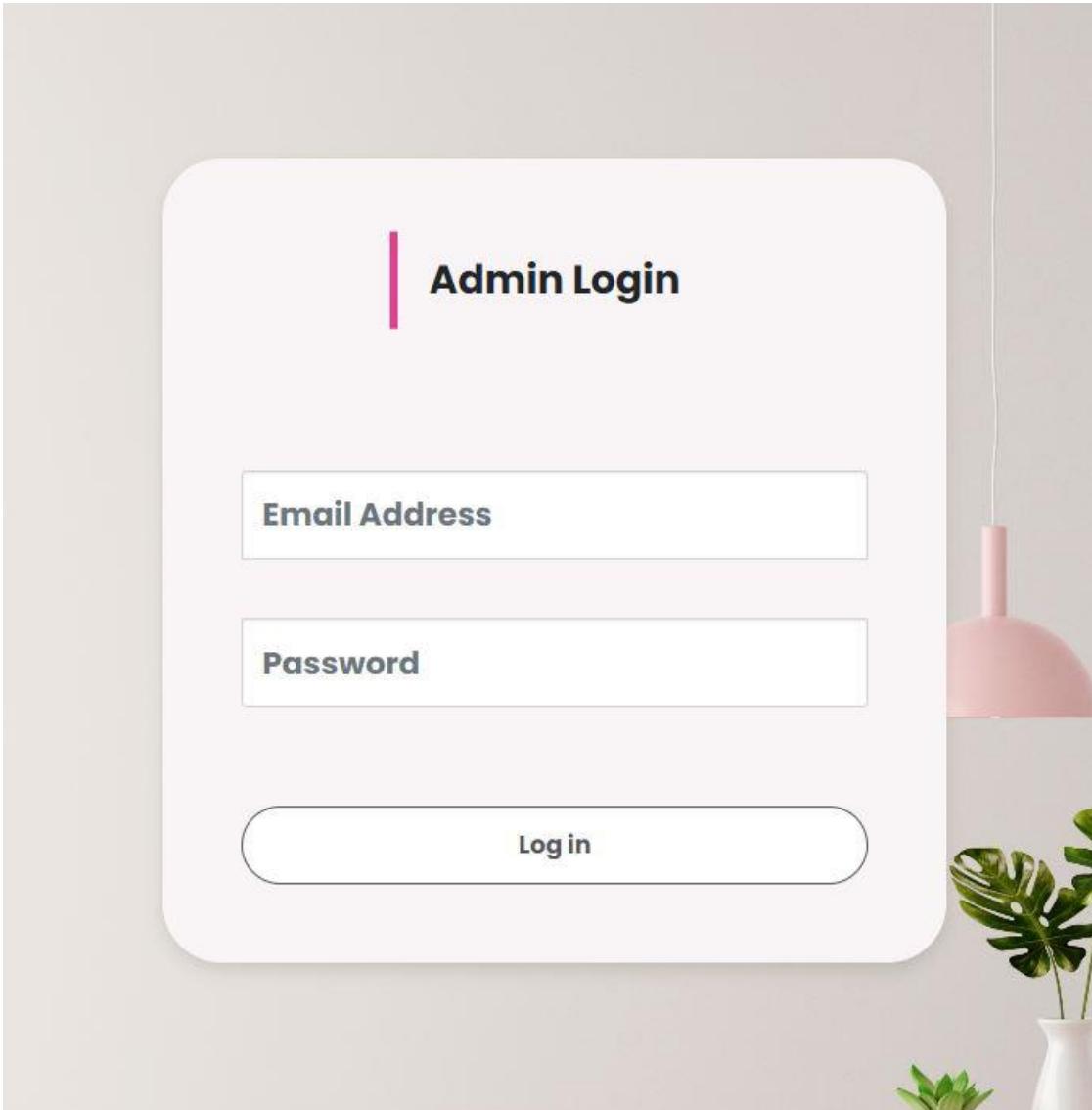
[Logout](#)

Do You Reaaly Want To Delete Your Account!

[Yes, I want to delete](#)

[No, I Don,t want to delete](#)

3.8.21 Login Page(**Admin Page**)



3.8.22 Admin Dashboard

The screenshot displays the Admin Panel interface. On the left, a dark sidebar menu lists various administrative functions: Dashboard, Products, Bundles, Assign Products To Bundles Relations, Manufacturers, Products Categories, Categories, Coupons, View Customers, View Orders, View Payments, Home Tour, and Log Out. At the top right, the administrator's name "Administrator" is shown. The main content area features a dashboard with four primary statistics: 17 Products (blue card), 2 Customers (green card), 9 Products Categories (orange card), and 18 Orders (red card). Below these are secondary metrics: Earnings (\$192398, green card), Pending Orders (12, yellow card), Completed Orders (6, light blue card), and Total Coupons (4, pink card). A section titled "New Orders" contains a table with the following data:

Order #	Customer	Invoice No	Product ID	Qty	Size	Status
1	wggayanivitharana@gmail.com	2003174909	22	1		Pending
2	wggayanivitharana@gmail.com	1037521792	27	2		Pending
3	wggayanivitharana@gmail.com	1037521792	25	1		Pending
4	wggayanivitharana@gmail.com	1982306685	30	0		Complete
5	wggayanivitharana@gmail.com	1982306685	20	1		Pending

3.8.23 Insert Product

Dashboard / Insert Products

Insert Products

Product Title

Product Url

Product Url Example : navy-blue-t-shirt

Select A Manufacturer

Product Category

Category

Product Image 1 No file chosen

Product Image 2 No file chosen

Product Image 3 No file chosen

Product Price

Product Sale Price

Product Keywords

Product Tabs Product Description Product Features Sounds And Videos

Product Label

Insert Product

3.8.24 View Product

View Products								
#	Title	Image	Price	Sold	Keywords	Date	Delete	Edit
1	Lounge-chair		Rs 75000	0	Lounge-chair	2023-10-22 18:45:59	Delete	Edit
2	Sven-oxford-blue-sofa		Rs 75000	7	Sofa	2023-10-22 18:46:24	Delete	Edit
3	Coffee-table		Rs 50000	0	Table	2023-08-02 01:06:19	Delete	Edit
4	Oval-coffee-table		Rs 75000	1	Table	2023-08-02 01:20:23	Delete	Edit
5	Media-unit		Rs 85000	0	Storage	2023-08-02 01:25:31	Delete	Edit
6	White Table Lamp		Rs 20000	0	Decor	2023-08-02 01:30:27	Delete	Edit
7	Lounge-chair		Rs 30000	1	30000	2023-08-02 01:34:40	Delete	Edit
8	Brown-dining-set		Rs 80000	0	80000	2023-08-02 01:39:20	Delete	Edit
9	Sofa-cover		Rs 5000	1	Furniture Cover	2023-08-02 01:43:10	Delete	Edit
10	King-bed		Rs 75000	0	Bed	2023-08-02 01:49:55	Delete	Edit
11	Dining-table		Rs 68000	1	Table	2023-08-02 01:53:38	Delete	Edit
12	Oak-desk		Rs 33000	1	33000	2023-08-02 01:59:43	Delete	Edit
13	Sven-oxford-blue-sofa		Rs 75000	0	Chair	2023-08-02 08:37:52	Delete	Edit

3.8.25 Insert Bundle (Gift/Sale)

Dashboard / Insert Bundle

Insert Bundle

Bundle Title

Bundle Url

Bundle Url Example : navy-blue-t-shirt

Select A Manufacturer

Product Category

Category

Bundle Image 1 No file chosen

Bundle Image 2 No file chosen

Bundle Image 3 No file chosen

Bundle Price

Bundle Sale Price

Bundle Keywords

Bundle Tabs

Bundle Label

Insert Bundle

3.8.26 View Bundle (Gift/Sale)

The screenshot shows a table titled "View Bundles" with the following data:

#	Title	Image	Price	Sold	Keywords	Date	Delete	Edit
1	gdfgdgd		Rs 88	0	sas	2023-07-31 23:34:47		
2	Dining Chair		Rs 18000	0	Chair	2023-08-02 02:41:50		
3	Shelf		Rs 25000	1	Storage	2023-08-02 02:50:11		
4	Table-lamp		Rs 10000	1	Lamp	2023-08-02 02:56:10		

3.8.27 Insert Relation

The screenshot shows a form titled "Insert Relation" with the following fields:

- Relation Title:
- Select Product:
- Select Bundle:
-

3.8.28 View Relations

The screenshot shows a table titled "View Relations" with the following data:

#	Title	Product	Bundle	Delete	Edit
1	Discount	Lounge-chair	Dining Chair		

3.8.29 Insert Manufacturer

The screenshot shows a web-based form titled 'Insert Manufacturer'. At the top left is a breadcrumb navigation: 'Dashboard / Insert Manufacturer'. The main form area has a title 'Insert Manufacturer' with a back arrow icon. It contains three input fields: 'Manufacturer Name' with a text input field, 'Show as Top Manufacturers' with a radio button group ('Yes' or 'No'), and 'Select Manufacturer Image' with a file upload input field ('Choose File') showing 'No file chosen'. A large blue 'Insert Manufacturer' button is at the bottom.

3.8.30 View Manufacturer

The screenshot shows a table titled 'View Manufacturers' under the 'Dashboard / View Manufacturers' path. The table has four columns: '#', 'Manufacturer', 'Delete', and 'Edit'. It lists two entries: '1 RK Furniture' with 'Delete' and 'Edit' links, and '2 Damro' with 'Delete' and 'Edit' links.

#	Manufacturer	Delete	Edit
1	RK Furniture	Delete	Edit
2	Damro	Delete	Edit

3.8.31 Insert Product Category

The screenshot shows a web-based form titled "Insert Product Category". The form includes fields for "Product Category Title" (a text input), "Show as Top Product Category" (a radio button group with "Yes" and "No" options, where "Yes" is selected), "Select Product Category Image" (a file upload field showing "Choose File" and "No file chosen"), and a blue "Submit Now" button.

3.8.32 View Product Category

The screenshot shows a table titled "View Categories" listing six product categories. The columns are labeled "#", "Category Name", "Delete", and "Edit". Each row contains a category name and two action buttons: "Delete" and "Edit".

#	Category Name	Delete	Edit
1	Living Room	 Delete	 Edit
2	Others	 Delete	 Edit
3	Outdoor	 Delete	 Edit
4	Bedroom	 Delete	 Edit
5	Dining Room	 Delete	 Edit
6	Home Office	 Delete	 Edit

3.8.33 Insert Coupon

Insert Coupon

Coupon Title	<input type="text"/>
Coupon Price	<input type="text"/>
Coupon Code	<input type="text"/>
Coupon Limit	<input type="text"/> 1
Select coupon for Product Or bundle	<input type="text"/> Select Coupon Product
<input type="button" value="Insert Coupon"/>	

3.8.34 View Coupon

View Coupons

#	Title	Product	Coupon Price	Code	Limit	Used	Delete	Edit
1	demo	Lounge-chair	Rs25000	I2abc	3	0	Delete	Edit
2	sd	Sven-oxford-blue-sofa	Rs10000	asd	1	1	Delete	Edit
3	sd	Shelf	Rs10000	dg	1	0	Delete	Edit
4	sd	Oak-desk	Rs25000	asdsd	1	0	Delete	Edit

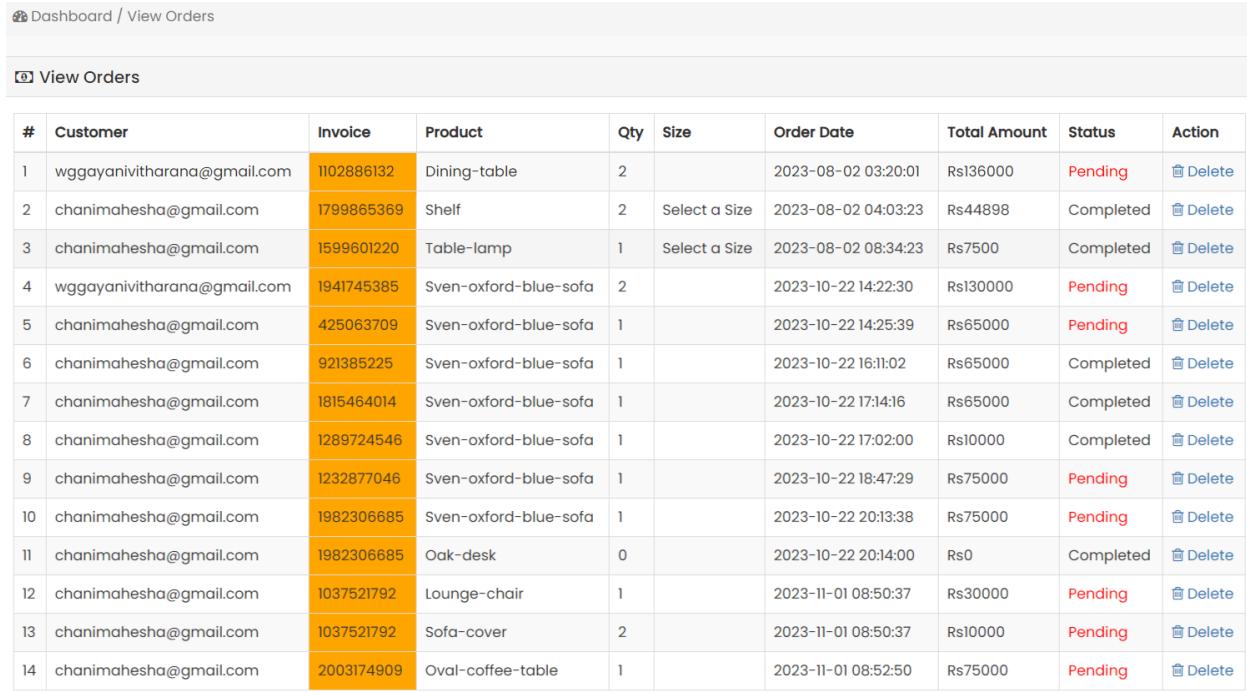
3.8.35 View Customers

① View Customers							
#	Name	Email	Image	Country	City	Phone Number	Delete
1	Chani Mahesha	chanimahesha@gmail.com		DemoCountry	DemoCity	0785896852	 Delete
2	Gayani Vitharana	wggayanivitharana@gmail.com		Sri Lanka	Udawalawa	0778837868	 Delete

3.8.36 View Payments

② View Payments							
#	Invoice No	Amount Paid	Payment Method	Reference #	Payment Code	Payment Date	Action
1	1824013332	Rs45000	Credit Card	2147483647	0	10/07/2023	 Delete
2	1824013332	Rs45000	Select Payment Mode	2147483647	0	10/07/2023	 Delete
3	1824013332	Rs45000	Select Payment Mode	2147483647	0	10/07/2023	 Delete
4	1824013332	Rs45000	Select Payment Mode	2147483647	0	10/07/2023	 Delete
5	1824013332	Rs45000	Select Payment Mode	2147483647	0	10/07/2023	 Delete

3.8.37 View Orders



#	Customer	Invoice	Product	Qty	Size	Order Date	Total Amount	Status	Action
1	wggayanivitharana@gmail.com	I102886132	Dining-table	2		2023-08-02 03:20:01	Rs136000	Pending	
2	chanimahesha@gmail.com	I799865369	Shelf	2	Select a Size	2023-08-02 04:03:23	Rs44898	Completed	
3	chanimahesha@gmail.com	I599601220	Table-lamp	1	Select a Size	2023-08-02 08:34:23	Rs7500	Completed	
4	wggayanivitharana@gmail.com	I941745385	Sven-oxford-blue-sofa	2		2023-10-22 14:22:30	Rs130000	Pending	
5	chanimahesha@gmail.com	I425063709	Sven-oxford-blue-sofa	1		2023-10-22 14:25:39	Rs65000	Pending	
6	chanimahesha@gmail.com	I921385225	Sven-oxford-blue-sofa	1		2023-10-22 16:11:02	Rs65000	Completed	
7	chanimahesha@gmail.com	I815464014	Sven-oxford-blue-sofa	1		2023-10-22 17:14:16	Rs65000	Completed	
8	chanimahesha@gmail.com	I289724546	Sven-oxford-blue-sofa	1		2023-10-22 17:02:00	Rs10000	Completed	
9	chanimahesha@gmail.com	I232877046	Sven-oxford-blue-sofa	1		2023-10-22 18:47:29	Rs75000	Pending	
10	chanimahesha@gmail.com	I982306685	Sven-oxford-blue-sofa	1		2023-10-22 20:13:38	Rs75000	Pending	
11	chanimahesha@gmail.com	I982306685	Oak-desk	0		2023-10-22 20:14:00	Rs0	Completed	
12	chanimahesha@gmail.com	I037521792	Lounge-chair	1		2023-11-01 08:50:37	Rs30000	Pending	
13	chanimahesha@gmail.com	I037521792	Sofa-cover	2		2023-11-01 08:50:37	Rs10000	Pending	
14	chanimahesha@gmail.com	I2003174909	Oval-coffee-table	1		2023-II-01 08:52:50	Rs75000	Pending	

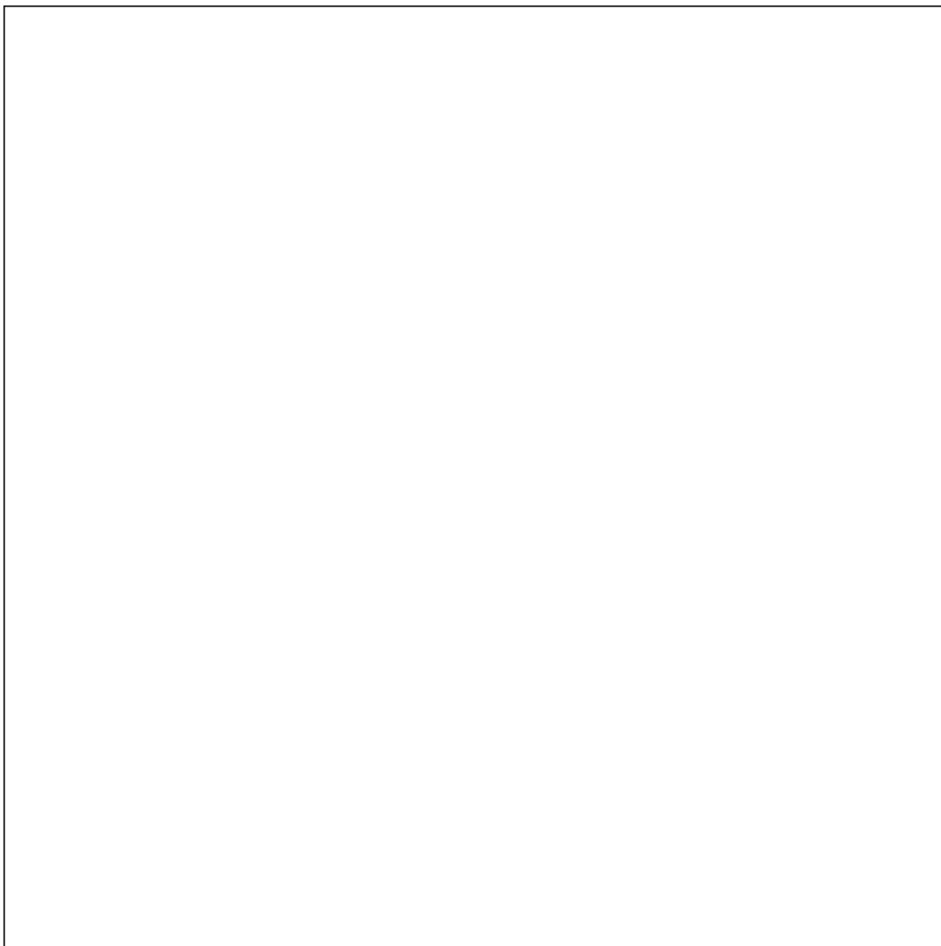
3.8.38 Home Tour

Image Name:

Image File:

Choose File No file chosen

Hotspots



Add Hotspot

Upload

3.9 Summary

Chapter 3 delves into the heart of the RK Furniture web application project, focusing on the design and structural elements of the proposed system. The chapter unfolds with a visual representation of the system's interactions and functionalities through Use Case Diagrams, providing a foundation for a deeper understanding of its components.

Moving forward, we provide detailed Use Case Descriptions, offering insights into specific actions and processes within the system. Activity Diagrams visually illustrate the flow of these processes, enhancing the clarity of the system's operational logic.

The Sequence Diagrams offer a dynamic visual narrative of how different system components interact and communicate, revealing the intricacies of the system's behavior.

Transitioning to the structural aspects, Class Diagrams define the system's essential classes and relationships. The Entity Relationship Diagram lays the groundwork for the database design, ensuring the organized and structured management of data.

A pivotal step in data management is the creation of a Normalized Database Design, aimed at guaranteeing data efficiency and integrity.

Finally, the chapter includes a representation of the Graphical User Interfaces (GUIs), showcasing the visual design and layout of the system

4. Chapter 4 - System Development

Outline of the Chapter

- 4.1 Introduction
- 4.2 Technologies
- 4.3 Front-end Development
- 4.4 Back-end Development
- 4.5 Summary

4.1 Introduction

In this section, we will provide an introductory overview of the development phase of the RK Furniture application. This phase is pivotal in transforming our conceptual design into a fully functional web application. It involves the implementation of various technologies and tools to create both the front-end and back-end components of the system. The following subsections explain the significance of the development phase in the project and outline the technologies and tools used for its execution.

Importance of the Development Phase

The development phase serves as the bridge between the planning and design stages and the eventual deployment of the RK Furniture application. Its importance can be highlighted in the following ways:

Transformation of Concept to Reality

During development, the abstract ideas and designs envisioned in the planning phase start taking shape as tangible features and functionalities. This is where the application's core features are coded and brought to life.

User-Facing Components

Front-end development in this phase focuses on creating the user interface and user experience. It is crucial in making the application visually appealing, intuitive, and engaging for end-users.

Data Handling and Functionality

Back-end development is responsible for handling data, implementing the business logic, and ensuring the application's functionality. It forms the backbone of the system, enabling data storage, retrieval, and processing.

Testing and Quality Assurance

Development is closely intertwined with the testing phase, as the code developed must undergo rigorous testing to identify and rectify bugs and issues. This is a critical step in delivering a reliable and robust application.

Iterative Improvement

Development allows for iterative improvements and enhancements to the application. It is a dynamic phase where feedback can be incorporated, and the application can evolve to meet changing requirements.

4.2 Technologies

HTML (HyperText Markup Language)

HTML is used for structuring the application's web pages. It defines the layout and content of each page.

CSS (Cascading Style Sheets)

CSS is employed for styling and presentation, ensuring a visually appealing and consistent user interface.

Bootstrap

Bootstrap is a front-end framework used to expedite the development of responsive and mobile-friendly web pages.

JavaScript

JavaScript is essential for client-side interactivity, enabling features such as dynamic page elements, form validation, and asynchronous data retrieval.

PHP (Hypertext Preprocessor)

PHP serves as the server-side scripting language, responsible for handling requests, business logic, and communication with the database.

SQL (Structured Query Language)

SQL is used for managing the application's database, including data storage, retrieval, and manipulation.

4.3 Front-end Development

Front-end development plays a crucial role in shaping the user interface and overall user experience of the RK Furniture application. In this section, we will delve into the front-end aspects of the application, highlighting the roles of HTML, CSS, and Bootstrap, providing examples of user interface design and layout, and discussing design principles and considerations.

Role of HTML, CSS, and Bootstrap

HTML (HyperText Markup Language)

HTML serves as the foundational language for structuring web pages in the RK Furniture application. It defines the content and layout of each page, specifying the hierarchy and arrangement of elements. HTML is responsible for creating the structure of product listings, navigation menus, forms, and various other user interface components.

CSS (Cascading Style Sheets)

CSS plays a pivotal role in styling and presentation. It defines the visual appearance of the application, including aspects such as colors, fonts, spacing, and responsiveness. CSS ensures a consistent and aesthetically pleasing design across all pages, enhancing the overall user experience.

Bootstrap

Bootstrap, as a front-end framework, accelerates the development process by providing a pre-designed set of UI components, grids, and responsive elements. It streamlines the creation of a mobile-friendly and responsive design, saving time and ensuring that the application is accessible across various devices and screen sizes. Bootstrap's grid system, navigation bars, and modals are examples of components used in the RK Furniture application.

User Interface Design and Layout

The RK Furniture application's front-end design adheres to a clean and user-friendly aesthetic. Here are some examples of the user interface design and layout elements:

Product Listings

The product listings are displayed in a grid format, with high-quality images, product names, prices, and brief descriptions. Each product listing is designed for quick browsing and easy access to detailed information.

Navigation Menu

A prominent navigation menu at the top of the page provides users with easy access to various categories, search functionality, and user account options. It ensures smooth and intuitive navigation throughout the application.

Responsive Design

The application employs responsive design principles, ensuring that the interface adapts gracefully to different screen sizes, including desktops, tablets, and mobile devices. This enhances the user experience across platforms.

User Forms

Forms for user registration, login, and product search are thoughtfully designed with clear labels, input validation, and user-friendly error messages to facilitate user interaction.

Visual Consistency

A consistent color scheme, typography, and spacing are maintained throughout the application. This consistency contributes to a cohesive and visually appealing user experience.

Design Principles and Considerations

In the front-end development of the RK Furniture application, several design principles and considerations were taken into account:

User-Centered Design

The user's needs and preferences were a central focus throughout the design process. User feedback and usability testing played a significant role in shaping the application's design.

Accessibility

The application adheres to web accessibility standards, ensuring that it is usable by individuals with disabilities. Proper HTML semantics, alt text for images, and keyboard navigation are implemented.

Performance

Front-end performance optimization techniques, such as image optimization and lazy loading, were employed to enhance page load times and overall application responsiveness.

Mobile-First Approach

The design follows a mobile-first approach, ensuring that the application functions seamlessly on mobile devices and progressively enhances on larger screens.

4.4 Back-end Development

In this section, we will delve into the back-end development aspects of the RK Furniture application, explaining the roles of JavaScript, PHP, and SQL. We will also describe the server-side logic, data storage, and database design, as well as how data is processed and retrieved.

Role of JavaScript, PHP, and SQL

JavaScript

JavaScript plays a crucial role in the back-end development of the RK Furniture application. While it is primarily a client-side scripting language, it is used on the server-side to handle asynchronous tasks, validate user input, and interact with the front-end. JavaScript, in combination with PHP, enables dynamic and interactive features, such as real-time updates to the shopping cart, form validation, and asynchronous data retrieval without page reloads.

PHP (Hypertext Preprocessor)

PHP serves as the server-side scripting language for the RK Furniture application. It is responsible for processing user requests, executing server-side logic, and generating dynamic content. PHP interacts with the database to retrieve product information, manage user accounts, and facilitate e-commerce functionalities.

SQL (Structured Query Language)

SQL is used for managing the application's database. It plays a pivotal role in data storage, retrieval, and manipulation. SQL queries are employed to create, read, update, and delete records in the database. The database design, which includes tables for products, user accounts, and orders, ensures efficient data organization and retrieval.

Server-Side Logic, Data Storage, and Database Design

Server-Side Logic

The back-end logic of the RK Furniture application includes handling user authentication, managing the shopping cart, processing orders, and ensuring secure communication with the database. PHP scripts are responsible for these tasks, performing actions like user registration, login, and order processing. Server-side logic also encompasses security measures to protect sensitive user data and transactions.

Data Storage

Data storage in the RK Furniture application is facilitated through a relational database management system (RDBMS). The database stores information related to products, user accounts, orders, and user preferences. This data is organized into tables, with relationships defined between them to maintain data integrity.

Database Design

The database design follows a normalized structure to reduce data redundancy and ensure efficient data retrieval. It typically includes tables for products (including product details and images), user accounts (containing user information and credentials), orders (recording order history), and cart items (temporary storage of selected products). The database design ensures that the application can scale and evolve with the addition of new features.

Data Processing and Retrieval

Data processing in the RK Furniture application involves several steps

User Input Handling

When a user interacts with the application, their input (e.g., search queries, form submissions, and shopping cart changes) is processed by the server-side scripts written in PHP. Input validation and sanitation are performed to ensure data integrity and security.

Database Interaction

PHP scripts communicate with the database using SQL queries. For example, when a user searches for a product, PHP queries the database to retrieve matching products. Similarly, when a user places an order, PHP inserts order details into the database.

Real-Time Updates

JavaScript is used to enhance the user experience by providing real-time updates, such as adding or removing items from the shopping cart without a page refresh. JavaScript communicates with the server-side logic to retrieve updated cart information.

4.5 Summary

Chapter 4 marks a significant turning point in the RK Furniture web application project as we shift our focus from design to development. This pivotal chapter commences with an introduction that sets the stage for the development phase, providing an overview of the path ahead.

Within the development phase, we delve into the core technologies that underpin the RK Furniture web application, exploring the tools and frameworks that bring the project to life. This section outlines the technical foundation upon which the system is constructed.

Subsequently, the chapter takes a deep dive into the front-end development, emphasizing the visual aspects and user interface design of the application. It showcases the aesthetic appeal, user experience, and interactivity that will define the customer's journey.

Moving to the back-end development, we delve into the system's inner workings, the server-side components, and the database management, ensuring the functionality, security, and efficiency of the application.

As we proceed into the upcoming chapters, the RK Furniture web application will evolve from a vision and design into a functional, dynamic platform, bringing us closer to realizing the project's objectives and enhancing the digital experience for both entrepreneurs and customers.

5. Chapter 5 - Conclusion

Outline of the Chapter

- 5.1 Degree of Objective Met
- 5.2 Usability, Accessibility, Reliability, and Friendliness
- 5.3 Limitations and Drawbacks
- 5.4 Future Modifications, Improvements, and Extensions Possible
- 5.5 Summary
- 5.6 References

5.1 Degree of Objective Met

The primary objective of the RK Furniture website project was to establish an efficient and effective platform for furniture buyers and sellers in Sri Lanka. This platform aimed to surpass existing alternatives by offering an enhanced shopping experience. In this section, we evaluate the extent to which this objective has been achieved.

We conducted a comprehensive analysis of the existing online furniture sales process in Sri Lanka using Object-Oriented Modeling. This analysis allowed us to identify both functional and non-functional requirements that aligned with the objectives of the RK Furniture website project. By considering various Business Solution Options (BSOs), we selected the most suitable solution, one that is both cost-effective and aligned with our objectives. We then utilized Object-Oriented Modeling techniques to analyze and develop the proposed system.

The System Development phase successfully addressed most of the functional and non-functional requirements, with only a few lower-priority requirements remaining to be fulfilled. System Testing was conducted to identify and rectify any system defects or bugs, bringing us closer to the final step of launching the platform for public use.

I hope this revision better aligns with your project. If you need further modifications or specific changes, please let me know.

5.2 Usability, Accessibility, Reliability, and Friendliness

Usability

The RK Furniture website's graphical user interfaces (GUIs) were meticulously designed after examining leading online sales platforms. The goal was to create highly interactive and user-friendly interfaces to enhance the usability of the platform. User experience was a central focus during the design phase.

Accessibility

The platform was designed for global accessibility, enabling users to access it from anywhere in the world, provided they have a reliable internet connection. Efforts were made to ensure inclusivity and accessibility for users with disabilities.

Reliability

Security measures such as data encryption and multi-factor authentication were implemented to safeguard sensitive user data. The platform was developed to facilitate accurate and reliable transactions. The emphasis was on establishing a trustworthy environment for users.

User-Friendliness

The platform was designed with simplicity and user-friendliness in mind, making it accessible to non-technical users. Clear error messages, instructions for error recovery, and feedback on actions were integrated to enhance the user-friendliness. A highly responsive design further contributed to user satisfaction.

5.3 Limitations and Drawbacks

The primary limitation of the platform's initial implementation is its reliance on a web-based solution, lacking a dedicated mobile application. While most competitors offer both a website and a mobile app, time constraints dictated the initial release's focus on the web platform. This limitation may affect the platform's accessibility on mobile devices.

5.4 Future Modifications, Improvements, and Extensions Possible

As part of our ongoing commitment to enhancing the RK Furniture website, we are considering the integration of Augmented Reality (AR) models for every furniture product. While the initial website implementation focused on providing a user-friendly and efficient platform, our vision for the future includes the development of AR models.

This innovative addition will allow users to visualize furniture items in their real-world environment through their mobile devices. By leveraging AR technology, customers can experience how RK Furniture products fit into their homes, enabling more informed purchasing decisions. It will not only provide an immersive and interactive experience but also contribute to higher user engagement and satisfaction.

The introduction of AR models aligns with our mission to continually improve user experience and stay at the forefront of technological advancements in the furniture sales industry. As technology evolves, we aim to evolve with it, ensuring that RK Furniture remains a cutting-edge platform that offers an exceptional shopping experience.

By incorporating AR models into the future roadmap of the RK Furniture website, we are confident that we can further elevate the platform's value and convenience for our users.

This addition to the report conveys your commitment to embracing emerging technologies and providing users with a forward-looking and engaging platform. It sets the stage for the future development of AR models, which can be a key differentiator for your website in the competitive furniture market.

5.5 Summary

This chapter summarizes the extent to which project objectives have been met, highlights limitations, emphasizes usability, accessibility, reliability, and user-friendliness, and outlines the platform's potential for future enhancements and growth. It serves as a comprehensive conclusion to the

5.6 References

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