Development of
Supply Chain Management System for Bakery Products

A Practicum Report Submitted by

Md Shahriair Alam

ID: 20103204

In the Partial Fulfillment of the Requirements

for the Award of Bachelor of Computer Science and Engineering (BCSE)

Department of Computer Science and Engineering
College of Engineering and Technology
IUBAT – International University of Business Agriculture and Technology

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Md Shahriair Alam (20103204)

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The thesis has been examined and approved,

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Fall - 2023

Letter of Transmittal

19 October 2023

The Chair

Practicum and Placemen Board

Department of Computer Science and Engineering

IUBAT–International University of Business Agriculture and Technology

4 Embankment Drive Road, Sector 10, Uttara Model Town

Dhaka 1230, Bangladesh

Subject: Letter of Transmittal.

Dear Sir,

I am pleased to share the report titled "Development of Supply Chain Management System for Bakery Products," as part of fulfilling my Practicum course requirements.

Engaging in this project has been a valuable experience, allowing me to bridge theoretical knowledge with practical application and providing insights into the business practices of a renowned company.

I eagerly await your feedback on this performance report and would greatly appreciate your review of my work. Your consideration and comments will be sincerely valued.

Sincerely Yours,

_____

Md Shahriair Alam

20103204

Organization Certificate

KODEED LIMITED

CERTIFICATE
OF ACCOMPLISHMENT

THIS CERTIFICATE IS PROUDLY PRESENTED TO

Md Shahriair Alam

COMPLETION OF INSTRUCTOR-LED TRAINING ON

WEB DEVELOPMENT BOOTCAMP

HAS SUCCESSFULLY COMPLETED HIS BOOTCAMP PROGRAM OF 4 MONTHS WITH "KODEED LIMITED". THE BOOTCAMP START DATE WAS SEPTEMBER,2023AND THE END DATE WAS DECEMBER,2023.
DURING THIS PERIOD, MD SHAHRIAIR ALAM WORKED ON VARIOUS AREAS OF SOFTWARE DEVELOPMENT- AND SUCCESSFULLY MET THE OBJECTIVES THAT WERE SET AT THE BEGINNING OF THE BOOTCAMP. THE TECHNOLOGY HE USED FOR DEVELOPMENT INCLUDED PHP/LARAVEL,MYSQL,HTML,CSS,,JAVASCRIPT AND RELATED TECHNOLOGIES.
WE WOULD LIKE TO THANK HIM FOR HIS CONSISTENTLY VERY GOOD PERFORMANCE AND WISH HIM ALL THE BEST AND MUCH SUCCESS IN HIS PROFESSIONAL AND PERSONAL FUTURE.

Technical Lead
Mohammad Tohidul Islam

Chairman
Muhammad Sumon Molla Selim

Student's Declaration

I am Md Shahriair Alam, a student enrolled in the BCSE (Bachelor of Computer Science and Engineering) program at the College of Engineering and Technology (CEAT), International University of Business Agriculture and Technology (IUBAT). I am pleased to announce the completion of my practicum course through the preparation of this report titled "**Development of Supply Chain Management System for Bakery Products.**" This report is a requisite component of my Bachelor of Computer Science and Engineering degree.

I personally edited the report, ensuring that all modules and procedures for the research were meticulously executed, incorporating proper testing and online information. It is important to note that this report is exclusively crafted for the fulfillment of the practicum course requirements and is not intended for other purposes, awards, or presentations.

_____

Md Shahriair Alam

20103204

Supervisor's Certification

I hereby confirm that the practicum report titled "**Development of Supply Chain Management System for Bakery Products**" has been compiled by Md Shahriair Alam, bearing ID #20103204, as a fulfillment requirement for an effective practicum course at IUBAT–International University of Business Agriculture and Technology. I supervised the preparation of this report, which serves as a comprehensive record of successfully completed work.

To the best of my knowledge and in accordance with the declaration, no portions of this report have been previously posted for any degree, diploma, or certificate. You are now authorized to submit this report, and I extend my best wishes for success in your future endeavors.

Practicum Supervisor

_____

Tasnia Anjum Rifah

Lecturer

Department of Computer Science and Engineering

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Abstract

The **Supply Chain Management System for Bakery Products** is a sophisticated and comprehensive platform meticulously developed on the Laravel framework, incorporating a robust SQL database backend. This advanced system is designed to cater to a diverse spectrum of stakeholders, encompassing six key user roles: Administrator, Supplier, Manufacturer, Distributor, Retailer, and End User Customer. Administrators wield extensive control over system settings and user management, ensuring the smooth operation of the entire platform. Suppliers play a crucial role in managing the seamless supply of raw materials to Manufacturers, facilitating a streamlined production process. Manufacturers, in turn, leverage the system for a multitude of functions, including placing orders for raw materials, overseeing production processes, and maintaining a well-organized inventory. The platform extends its functionality to Distributors and Retailers, empowering them to efficiently handle the distribution of bakery products and manage local inventory effectively. For End User Customers, the system offers an intuitive and user-friendly website experience. Customers can peruse an extensive array of bakery products, place orders seamlessly, and conveniently execute online payments through the SSL Commerz option, tailored specifically to meet the needs of users in Bangladesh. One notable feature of the system is its meticulous attention to detail, providing transparent visibility across the entire bakery supply chain. This ensures a seamless and optimized process for all stakeholders involved, fostering efficiency, transparency, and collaboration throughout the entire supply chain.

Acknowledgments

First and foremost, I express my sincere gratitude to Almighty Allah for His gracious blessings, which have empowered me to successfully complete the practicum.

I would like to express my appreciation and gratitude to all those who have encouraged and supported me throughout this entire journey, playing a significant role in the completion of my Practicum and the report on the **"Development of Supply Chain Management System for Bakery Products."** First and foremost, I extend my thanks to Almighty for countless reasons, providing me with the strength to stay motivated throughout the task. I am also deeply thankful to my parents, whose immeasurable support and encouragement have been instrumental in achieving this significant milestone in my life.

I extend sincere thanks to our Vice Chancellor, **Dr. Abdur Rab**, for providing me with the opportunity to submit this report. My utmost gratitude goes to **Prof. Dr. Utpal Kanti Das**, Chairman of the Department of Computer Science and Engineering, **Rashedul Islam**, and **Shahinur Alam**, Coordinator of the Department of Computer Science and Engineering, for granting me permission to work on the project.

I express my gratitude to our academic supervisor, **Tasnia Anjum Rifah**, a Lecturer in the Department of Computer Science and Engineering at IUBAT-International University of Business Agriculture and Technology. Throughout the entire duration, she has been a source of encouragement, offering essential guidance and support whenever needed.

Finally, I extend my thanks to Tohidul Islam, Technical Lead at Kodeeo Limited, for providing me with the opportunity to complete my internship and project at the company.

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Chapter I. About Organization

1.1 Organization Overview

Kodeeo Limited, located in Bangladesh, is a software development company specializing in IT consulting and services. The company excels in software development, website and mobile application design and development, as well as the implementation of e-commerce solutions. With a track record spanning four years, Kodeeo Limited has successfully executed projects of varying sizes, catering to end users, businesses, organizations, associations, and governmental entities.

The company's approach revolves around understanding and meeting client requirements. By deploying its professional team and strategic planning, Kodeeo Limited consistently achieves goals and objectives for the client's benefit. This approach is guided by a win-win mindset, unwavering commitment, and thorough planning to directly enhance customer outcomes. The seasoned professionals at Kodeeo Limited bring years of experience to the table, delivering client-centric solutions with a targeted focus.

1.2 Organizational Service

Kodeeo Limited offers a diverse range of services to its clients. The primary services rendered by Kodeeo Limited include:

- Software Development
- Mobile App Development
- Website Development
- E-commerce Website
- ERP
- Domain and Hosting

1.2.1 Software Development

A functional software or web application benefits businesses of all sizes to run better through digital transformation and modern capabilities. Kodeeo Limited plans, designs, develops, tests, deploys and maintains software and web applications to drive efficiency and effectiveness.

For building efficient and client satisfactory software’s Kodeeo Limited has the followings,

- Custom development, integration, migration, and maintenance programs are offered both in the cloud and on-premises. This includes creating connected mobile applications on iOS and Android platforms that use both native and cross-platform technologies.
- Knowledge of certified and trained engineers specializing in well-known cloud platforms such as AWS.
- Implementation of DevOps workflow automation, continuous integration and deployment pipelines and knowledge of micro services architecture and docking.
- Providing automated and manual software testing services for both software and products. Kodeeo Limited has been actively engaged in conceiving, structuring, and delivering technology and business solutions to its clientele.

1.2.2 Website Development

A company's online identity is encapsulated in its website. Websites play a pivotal role in enhancing brand or product awareness, ultimately influencing sales and brand recognition based on the company's objectives. Serving as a global introduction, a website shapes the company's image, fost

Kodeeo Limited specializes in constructing effective websites designed to increase search engine traffic. This involves creating fast-loading web pages with intuitive navigation and compelling design elements, facilitating more impactful global communication. Whether a company seeks a dynamic or static site, Kodeeo Limited is well-equipped to provide the desired solution.

Tailoring solutions to meet specific client requirements, Kodeeo Limited ensures the development of websites that effectively target potential customers, establishing a dynamic online presence for the company.

1.2.3 Mobile App Development

To ensure the success of a mobile app, it is crucial to evaluate objectives and consider the broader perspective. Kodeeo Limited enhances its clients' global reach by crafting and developing intuitive native mobile applications optimized for various operating systems such as Android and Windows.

Kodeeo Limited stands out for its proficiency in expanding user bases and formulating growth strategies, leveraging advanced machine learning processes that primarily focus on user behavior. This approach yields valuable insights for optimization and enhancement.

With a rich portfolio, Kodeeo Limited has collaborated on diverse projects, including B2B networking platforms, live tracking applications, delivery systems, event registration portals, and more. The development of top-tier mobile apps is facilitated by a team of individuals boasting over a decade of experience.

1.2.4 Domain and Hosting

Think of a domain name as your distinct online identity, much like how each person in your phone agenda has a unique name associated with their phone number. Remembering numerous phone numbers can be daunting, just as recalling specific IP addresses for websites is impractical. In essence, a domain name functions as a comprehensive online directory. When you input a company's URL or domain name, your browser communicates with the hosting provider's DNS server to fetch the website's IP address. This IP address, comparable to a phone number, allows your brows

At Kodeeo Limited, we pride ourselves on offering budget-friendly domain and hosting services, ensuring our clients have seamless access to these fundamental components for establishing and maintaining a robust online presence.

1.3 Clients of the Organization

The list of clients of Kodeeo Limited software company:

- Data Bangla
- Municipal Association of Bangladesh (MAB)
- WABMART Limited
- Barakah Fresh (Pvt.) limited
- Courier Bengal
- Bakeboss
- Directorate General of Drug Administration DGDA

1.4 Organizations Expertise and Goals

Kodeeo Limited clearly defines its objectives across essential parameters and adheres to established processes and standards to consistently measure and achieve success, remaining focused on the target. Each team member firmly believes there is no alternative approach. The elevated customer appreciation rating for Kodeeo Limited is indicative of their consistent delivery on these vital parameters.

The company excels in strengthening existing relationships, forging new ones, and venturing into unexplored markets. Collaborations with alliance partners extend Kodeeo Limited's reach into markets where they lack a direct presence. Clients can trust Kodeeo Limited to be their comprehensive partner in the respective field of expertise. The enduring vision of Kodeeo Limited is, and always will be, to contribute to the success of their clients.

1.5 Organizational Mission

At Kodeeo Limited, we utilize our technical proficiency and expertise to combine graphic design, web page architecture, interactive design, and database content. This integration allows us to strategize, construct, and implement e-business solutions, positioning us as a leading IT service provider.

1.6 Organization Vision

We are dedicated to turning imagination into reality! At Kodeeo Limited, we strive to establish enduring relationships with our clients, aspiring to be the future partners in their success. Our focus is on surpassing competitors by prioritizing customer engagement and commitment over the formulation of grand vision statements.

1.7 My Position in the Organization

I am currently interning in the website development division at Kodeeo Limited, where I report to Md Tohidul Islam. He is a gentle and humble individual who consistently tackles challenges with a unique perspective, emphasizing the importance of thinking outside the box for generating original ideas. My internship experience at Kodeeo Limited has been exceptionally positive, with a welcoming work environment and effective collaboration among team members. Being part of this organization has provided me with valuable opportunities to

acquire new knowledge, and I am delighted to have the chance to intern at such a well-regarded company.

1.8 Organization Structure

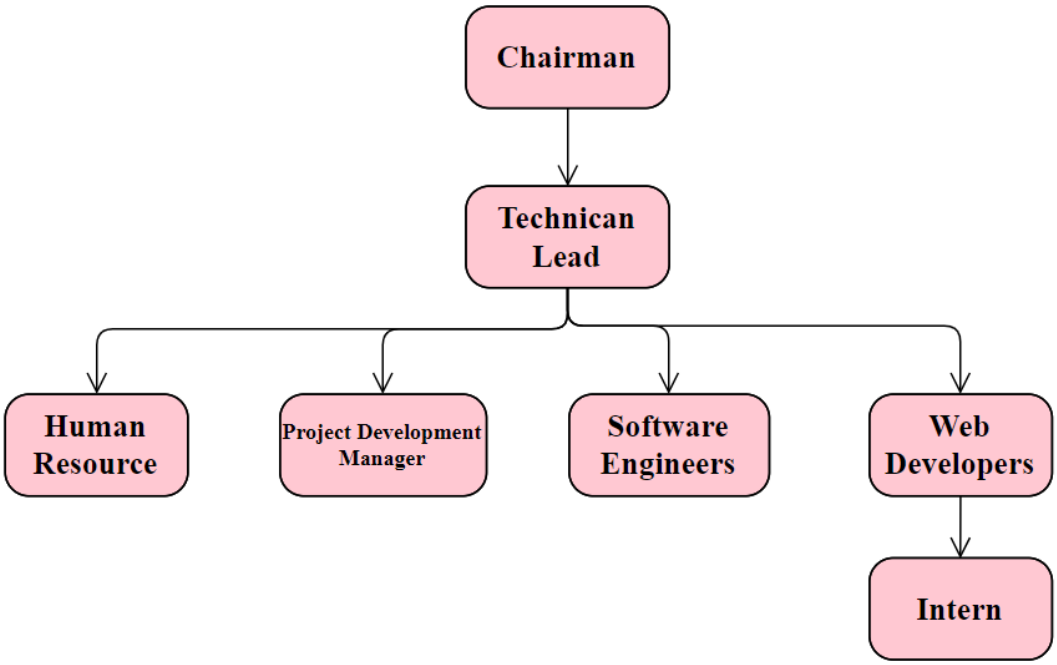

Figure 1.1 Organization Structure

Chapter 2. Project Introduction

2.1 Introduction

In the ever-evolving landscape of the bakery industry, where precision and efficiency are paramount, the adoption of a well-designed Supply Chain Management (SCM) system emerges as a strategic necessity. Bakeries, facing the dual challenges of fluctuating ingredient costs and the need to stay agile in response to dynamic market trends, find themselves at a crossroads. Conventional methods, often manual or lacking in organization, can result in operational inefficiencies and increased financial burdens.

This project report is dedicated to exploring the imperative of introducing a tailored SCM system in bakery operations. The primary focus is to optimize processes seamlessly, encompassing procurement, production, and distribution, ultimately leading to improved operational efficiency and the ability to meet the heightened demands of the market

The report will thoroughly examine the project's objectives, delving into the key components of the proposed SCM system, exploring opportunities for technology integration, and projecting the anticipated benefits for bakery operations. By simplifying complex processes and harnessing the power of practical technology solutions, this project aspires to empower bakeries, enabling them to navigate challenges adeptly and meet consumer expectations with ease in the competitive bakery market. Throughout the report, emphasis will be placed on the simplicity and practicality of the proposed SCM system to make it accessible and beneficial for bakery stakeholders at all levels.

2.2 Project Overview

The Supply Chain Management System (SCMS) project is designed to manage the way organizations based on their supply chain processes. In the contemporary business landscape, characterized by globalization, the SCMS aims to enhance efficiency, transparency, and collaboration manner within the supply chain. The primary objectives of the project include improving operational efficiency, providing real-time visibility into the entire supply chain, fostering collaboration among stakeholders, enabling data-driven decision-making, and automating routine processes. Key features of the SCMS encompass supplier management, inventory optimization, order tracking and fulfillment, collaborative planning, data analytics, and reporting, as well as security and compliance measures. By implementing the SCMS, organizations anticipate cost reduction, improved customer satisfaction, strategic decision-

making capabilities, and increased agility to adapt to dynamic market conditions. Ultimately, the SCMS project seeks to create a flexible and adaptable supply chain system that aligns with the evolving needs of businesses in today's complex environment.

2.3 Objectives

The central aim of the Supply Chain Management System Project is to effectively handle the details pertaining to Customer, Product, Order, and Shipment. It comprehensively manages information related to Customer, Delivery, and Product. The project is exclusively constructed for administrative use, ensuring that only the administrator has guaranteed access. Its overarching goal is to develop an application program that reduces manual efforts in handling Customer, Product, Delivery, and Product Company details. The system meticulously tracks information about Product Company, Order, and Shipment.

The key points of this project encompass:

- Enhancing the efficiency of procurement processes to ensure the timely and cost-effective of raw materials.
- Optimizing planning and scheduling to improve resource utilization and minimize time.
- Strengthening relationships with suppliers through the implementation of a collaborative Supplier Relationship Management (SRM) platform.
- Improving distribution and logistics to guarantee timely and cost-efficient product delivery.

2.4 Scope of the project

It can facilitate the meticulous gathering of detailed management information, ensuring a clear, straightforward, and meaningful collection in a short period. This aids individuals in gaining a precise and vivid understanding of the past year's management. Furthermore, it supports ongoing tasks related to the Supply Chain Management System, contributing to streamlined and cost-effective management collection procedures

Our project is centered on Business Process Automation, signifying our efforts to automate various aspects of the Supply Chain Management System. Within a computerized system, individuals are required to fill out various forms, and multiple copies of these forms can be easily generated simultaneously. Additionally, the computer system eliminates the need to

manually create manifests; instead, they can be directly printed, saving valuable time. The project's objectives include assisting staff in capturing efforts in their respective work areas, enhancing resource utilization through automation for increased productivity. The system generates various types of information that can be utilized for diverse purposes, satisfying user requirements with an easy-to-understand interface for both users and operators. The system is designed to be easy to operate, possess a good user interface, be expandable, and be delivered on schedule within the specified budget.

2.5 Methodology

The creation of the "Supply Chain Management System" has followed an incremental model, aligning with the structural framework outlined in Software Analysis and Design. This preliminary study on the development of the Supply Chain Management System emphasizes its early stages, with a focus on establishing a foundational understanding of the system's structure and functionality. The incremental approach adopted in the development process ensures a systematic and iterative enhancement of the system, aligning with best practices in software engineering for a comprehensive and effective Supply Chain Management System.

2.5 Limitation of the project

As mentioned earlier in this report, an internship serves as a bridge connecting theoretical knowledge to practical application. The internship program at IUBAT has provided me with a valuable opportunity to witness the translation of theory into real-world practice. Initially, upon joining the organization, I encountered numerous conditions and systems that were unfamiliar to me. Over time, however, I have become accustomed to these terms and have learned from the experiences of older classmates and friends who have undergone similar adjustments. It's important to note that a limitation of this internship project is the constraint of time. Developing comprehensive software within a short timeframe is a challenging task, even with the application of software engineering techniques. Consequently, the scope of the internship project had to be narrowed due to these time constraints.

2.6 Process model

I chose incremental process model to develop this project. The Incremental Process Model is a software development methodology that prioritizes breaking down the development process into smaller, manageable parts called increments. Each increment shows a part of the overall

system operation and is developed separately. The development team works on one increment at a time, delivering a partial system that can be tested and integrated into the existing system. This approach allows us for continuous development, testing, and refinement of the software in incremental steps.

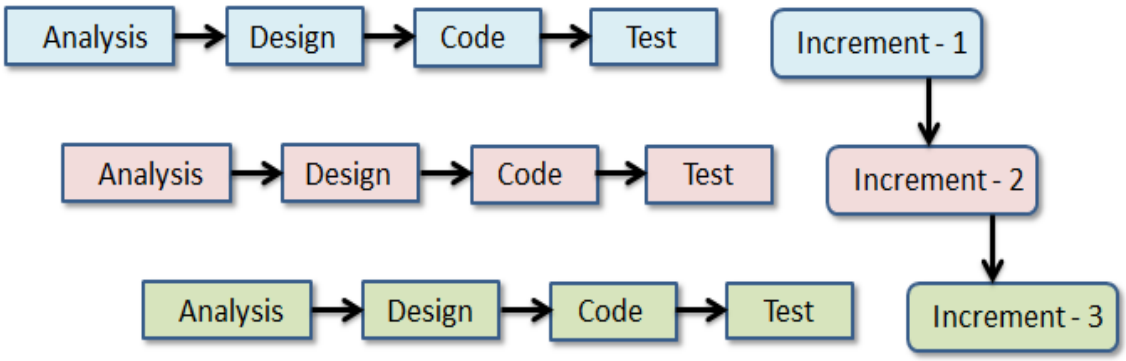

Figure 2.1 Incremental Process Model

2.6.1 The reason for Incremental Process Model

The Incremental Process Model offers several advantages in the software development lifecycle, contributing to a more flexible and adaptive approach. Here are some key advantages:

- Early Delivery: Provides functional parts of the system early in the development process.
- User Feedback: Facilitates continuous user feedback and involvement throughout development.
- Risk Reduction: Smaller increments reduce the overall risk of project failure.
- Flexibility: Adaptable to changing requirements, allowing easy incorporation of modifications.
- Testing Efficiency: Focused testing on specific functionalities simplifies identification and resolution of issues.
- Early Core Features: Core functionalities can be implemented early, forming a foundation for subsequent increments.
- Client Satisfaction: Regular delivery of usable features enhances client satisfaction.
- Resource Optimization: Efficient use of resources as teams focus on specific, manageable increments.

2.7 Feasibility Study

A feasibility study involves a comprehensive assessment and analysis to determine the practicality, viability, and potential success of a proposed project or business venture. This evaluation takes place before the project initiation to assess its merit. The study's objective is to equip stakeholders, including investors, management, and decision-makers, with the essential information required to make informed decisions about pursuing the project.

There are three main feasibility studies are:

- Technical feasibility
- Economic feasibility
- Operational feasibility

2.7.1 Technical Feasibility

Technical feasibility involves evaluating whether a proposed project or system can be successfully developed and implemented using available technology and resources. This assessment focuses on key aspects such as technology requirements, the expertise and skills of the project team, compatibility with existing systems, identification of potential technical risks, estimation of technology costs, and the availability of technical support for ongoing maintenance. A positive technical feasibility analysis suggests that the project can be effectively executed from a technological standpoint, while any identified challenges may prompt adjustments to the project scope, technology choices, or resource allocation. Technical feasibility is a crucial consideration in the overall feasibility study conducted before committing resources to a project.

Hardware/Software Requirements:

- Operating System (Windows 7 or more)
- Ram (4 GB or more)
- Web Browser (chrome or any suitable one)

Developing Tools

- Composer
- Visual Studio code
- PHP (Laravel Framework)
- XAMPP Server (MySQL)

2.7.2 Economic Feasibility

The objective of an economic feasibility evaluation is to ascertain the favorable economic advantages that a proposed system will bring to an organization. Our system demonstrates economic viability as it enables the completion of numerous tasks in a short time, tasks that cannot be simultaneously achieved by human efforts. Additionally, the system diminishes the workforce needed to manage products, order details, customer information, and payment details. Consequently, if the existing system demands a significant number of employees, the expenses associated with personnel decrease, resulting in cost savings.

2.7.3 Operational Feasibility

Operational feasibility involves evaluating whether a proposed project or system can be seamlessly integrated into an organization's current operations. This assessment examines the impact on daily activities, resource availability, training requirements for staff, alignment with organizational goals, user acceptance, legal compliance, scalability, and the development of a transition plan. The goal is to determine whether the proposed solution can be effectively implemented within the existing operational framework, minimizing disruptions and ensuring a smooth integration. A positive operational feasibility assessment indicates that the proposed project is likely to be operationally successful and align with the organization's strategic objectives. Identified challenges may necessitate adjustments to the project plan or a reevaluation of the proposed solution.

Chapter 3. Requirement Engineering

3.1 Requirement Analysis

The requirement analysis serves as a tool for the software designer to convert data, architectural, interface, and component level designs into information, function, and behavior. The completion of requirement analysis occurred during the task phases outlined in this chapter.

3.2 Requirement Engineering

Requirements engineering, as implied by its name, is a branch within engineering dedicated to the development of software systems and the identification of user needs. While various definitions exist for requirements engineering, they all converge on the idea that it revolves around comprehending user expectations for a computer system and deciphering the implications of these requirements on the design. This field shares close ties with software engineering, which principally concentrates on the process of constructing systems aligned with customer preferences.

The following requirements will be covered in this project-

- User requirements
- System requirements
- Functional requirements
- Non-Functional requirements

3.2.1 User Requirements

The Supply Chain Management System has 6 types of users,

1) Admin
2) Supplier
3) Manufacturer
4) Distributor
5) Retailer
6) Customer

The user requirements of the project Supply Chain Management System are as follows:

Admin

1. Admin can login to the system by username and password. Admin does not need to register to the system.
2. Admin can add other users and delete them.
3. Admin can assign permissions to the users.
4. Admit can add raw materials, products and also can delete and edit them.
5. Admin can manage category and unit of products.
6. Admin can see order status and recently placed order list.
7. Admin can generator reports for every section.

Supplier

1. Supplier can login to the system by user name password and doesn't need to register.
2. Supplier can see the product list but cannot update them.
3. Supplier can add, edit and delete raw materials.
4. Supplier can receive order of raw materials from the manufacturer.
5. Supplier can generate the report only for raw materials.
6. Supplier can manage unit of raw materials.
7. Supplier can see other users but cannot delete and edit them.

Manufacturer

1. Manufacturer can login to the system by username and password.
2. Manufacturer can see the raw materials list but cannot delete and edit them.
3. Manufacturer can place order to the supplier for the raw materials.
4. Manufacture can see the stock of raw materials.
5. Manufacturer can see the other users but cannot update them.
6. Manufacture can generate report only for the raw materials.
7. Manufacturer can upload the product, edit and delete them, also can manage the category.

Distributor

1. Distributors can login to the system by using username and password.
2. Distributors can add products, edit and delete them.
3. Distributor can manage product category and the report of products.
4. Distributor will get task from manufacturer.
5. Distributor will reach products to the retailer.

Retailer

1. Retailer can login to the system by username and password.
2. Retailer can see the raw materials but cannot edit and delete them.
3. Retailer can receive the order of bakery products from the customer.
4. Retailer can add product and edit and delete them.
5. Retailer can manage the payment of customer.
6. Retailer can generate the report.
7. Retailer can delete the registered customer.
8. Retailer can add the delivery man, also delete them and assign task for delivery the products to the customer.

Customer

1. Customer can visit website and can see the all of category of products.
2. Customer can register and login to the system.
3. Customer can view the products.
4. Customer can place order and make payment.
5. Customer can track the delivery man.
6. Customer care see the invoice and download the invoice.

3.3.2 System Requirements

Admin

1. **Admin can login to the system by username and password. Admin does not need to register to the system**

   1.1 There will have a special route for the admin login.

   1.2 A form will be there for entering the username and password.

   1.3 A button will be there below the form named “Sign in”.

2. **Admin can add other users and delete them.**

   2.1 There will be a button called users in the side bar of admin dashboard.

   2.2 Beside every user there have a button called Delete.

   2.3 Also there will have button for adding new users called Add Users.

3. **Admin can assign permissions to the users.**

   3.1 There will be a button called “All Roles” in the sidebar under the Users dropdown**.**

   3.2 There for every role admin can assign specific permissions to the specific role.

4. **Admit can add raw materials, products and also can delete and edit them.**

   4.1 In the site bar there will be a button named Raw Materials.

   4.2 In the raw materials page there will be button Add Raw Materials.

   4.3 For each raw material there will have button named View, Edit and Delete.

   4.3 Also in the site bar there will be a button named Products.

   4.5 In the raw products page there will be button Add Products

   4.6 For each product there will have button named View, Edit and Delete.

5. **Admin can manage category and unit of products.**

   4.1 In the sidebar there will have a button name Manage Category.

   4.2 Also in the sidebar there will be a button for unit’s name Manage Units.

   4.4 Beside each unit and category name there will be two button icon of edit and delete.

6. **Admin can see order status and recently placed order list.**

   5.1 In the admin dashboard there will be a portion for displaying the recently place order list.

5.2 Also beside the order list, order status will be visible there.

7. Admin can generator reports for every section.

6.1 In the sidebar there will have button named Report.

6.2 Also there will be a button beside every section named Generate Report.

Supplier

1. **Supplier can login to the system by user name and password and doesn't need to register.**

   1.1 Supplier will login to the system by the same route which is used by the admin but username and password will not be same.

   1.2 A form will be there for entering the username and password.

   1.3 A button will be there below the form named “Sign in”.

2. **Supplier can see the product list but cannot update them.**

   2.1 There will be a button on in the side named Products.

   2.2 Beside every product there will be a button called View.

   2.3 But there will be no button for editing and deleting.

3. **Supplier can add, edit and delete raw materials.**

   3.1 In the site bar there will be a button named Raw Materials.

   3.2 In the raw materials page there will be button Add Raw Materials.

   3.3 For each raw material there will have button named View, Edit and Delete.

4. **Supplier can receive order of raw materials from the manufacturer.**

   4.1 There will be a button named Orders in the sidebar.

   4.2 In the order page there will have the details of order and users.

   4.2 In the order section there will be for payment status to check the payment.

5. **Supplier can generate the report only for raw materials.**

   5.1 There will be a button in the side burn named Report.

   5.2 There will have only option of Raw Materials for generating the reports.

6. **Supplier can manage unit of raw materials.**
   6.1 In the sidebar there will be a button for unit's name Manage Units.
   6.2 Beside each unit name there will be two button icon of edit and delete.
7. **Supplier can see other users but cannot delete and edit them.**
   7.1 There will be a button called users in the side bar of dashboard.
   7.2 Also there will have no button for adding new users and delete them.

Manufacturer

1. **Manufacturer can login to the system by username and password.**
   1.1 Manufacturer will login to the system by the same route which is used by the admin but username and password will not be same.
   1.2 A form will be there for entering the username and password.
   1.3 A button will be there below the form named "Sign in".

2. **Manufacturer can see the raw materials list but cannot delete and edit them.**
   2.1 There will be a button on in the side named Raw Materials.
   2.2 Beside every material there will be a button called View.
   2.3 But there will be no button for editing and deleting.

3. **Manufacturer can place order to the supplier for the raw materials.**
   3.1 There will be option in the raw materials page for entering the amount of raw materials of placing order.
   3.2 Also there will be a button below named Place Order.

4. **Manufacturer can see the stock of raw materials.**
   4.1 There will be a button in the sidebar named Raw Materials.
   4.2 Beside every raw material it is show the availability of stock.

5. **Manufacturer can see the other users but cannot update them.**
   5.1 There will be a button called users in the side bar of dashboard.
   5.2 Also there will have no button for adding new users and delete them.
6. **Manufacture can generate report only for the raw materials.**
   6.1 There will be a button in the side burn named Report.

6.2 There will have only option of Raw Materials for generating the reports.

7. **Manufacturer can upload the product, edit and delete them, also can manage the category.**

8.1 In the site bar there will be a button named Products.

8.2 In the products page there will be button Add Products.

8.3 For each product there will have button named View, Edit and Delete.

Distributor

1. **Distributors can login to the system by using username and password.**

1.1 Distributor will login to the system by the same route which is used by the admin but username and password will not be same.

1.1 A form will be there for entering the username and password.

1.3 A button will be there below the form named “Sign in”.

2. **Distributors can add products, edit and delete them.**

2.1 In the site bar there will be a button named Products.

2.2 In the products page there will be button Add Products.

3.3 For each product there will have button named View, Edit and Delete.

3. **Distributor can manage product category and the report of products.**

4.1 In the sidebar there will have a button name Manage Category.

4.2 Beside each category name there will be two button icon of edit and delete.

4.3 There will be a button in the side burn named Report.

4.4 There will have only option of Products for generating the reports.

4. **Distributor will get task from manufacturer.**

4.1 There will be a button called Tasks in the side bar of dashboard.

4.2 After clicking the Tasks button, tasks will be appeared which is assign by the manufacturer.

5. **Distributor will reach products to the Retailer.**

5.1 When Distributor will click the tasks button there will be address of retailer with the tasks.

5.2 Distributor will confirm the delivery status to the manufacturer by clicking the Confirm button.

Retailer

1. **Retailer can login to the system by username and password.**
   1.1 Distributor will login to the system by the same route which is used by the admin but username and password will not be same.
   1.2 A form will be there for entering the username and password.
   1.3 A button will be there below the form named “Sign in”.

2. **Retailer can see the raw materials but cannot edit and delete them.**
   2.1 There will be a button on in the side named Raw Materials.
   2.2 Beside every material there will be a button called View.
   2.3 But there will be no button for editing and deleting.

3. **Retailer can receive the order of bakery products from the customer.**
   3.1 There will be button in the sidebar called Orders
   3.2 In the order page it is show all the orders and their details.

4. **Retailer can add product and edit and delete them.**
   4.1 In the site bar there will be a button named Products.
   4.2 In the products page there will be button Add Products.
   4.3 For each product there will have button named View, Edit and Delete.

5. **Retailer can manage the payment of customer.**
   5.1 There will be a button in the sidebar called Payment
   5.2 In the payments there will be status for customer order, payment done or not.
6. **Retailer can generator the report.**
   6.1 There will be a button in the sidebar named Report.
   6.2 Also there would be a button beside every order list Generate report.
7. **Retailer can delete the registered customer.**
   7.1 In the side bar there be a button called Customers.
   7.2 In the user list page there will be a button named Delete only for the customer.

8. **Retailer can add the delivery man, also delete them and assign task for delivery the products to the customer.**

8.1 There will be a button in the sidebar named Delivery.

8.2 In the delivery page there will be delivery list.

8.3 Also there will be a button called add delivery man.

8.4 Also there will have a button at task for the delivery.

Customer

1. **Customer can visit website and can see the all of category of products.**

1.1 There will be website which customer will visit.

1.2 Customer can visit all the categories of products by clicking the Category button.

1.3 Category button will be available in the navigation bar of the website.

2. **Customer can register and login to the system.**

2.1 There will be a button in the top right navigation bar named Sign Up.

2.2 A form will be there for entering the full name, email, password and confirm password.

2.3 A button will be there below the form named “Register”.

2.4 There will be a button in the top right navigation bar named Sign In.

2.5 A form will be there for entering the email and password.

2.6 A button will be there below the form named “Sign in”.

3. **Customer can view the products.**

3.1 In the navigation bar there will be button for Category, new arrivals and special items.

3.2 Products will be show when customers will click the buttons.

4. **Customer can place order and make payment.**

4.1 There will a button for every product named “Add to Cart”.

4.2 Customer can add products by clicking add to cart button.

4.3 After that in the cart page there will be two option for payment: Cash on delivery and online payment.

4.5 Customer can choose any of the payment method and place the orders.

5. **Customer can track the delivery man.**

   5.1 There will be button of the customer profile named Delivery.

   5.2 In the delivery page it will show correct status of delivery man.

6. **Customer care see the invoice and download the invoice.**

   6.1 There will be a button in beside every approved order named “Download Invoice”

   6.2 Customer can download the invoice by clicking the Download Invoice button.

3.2.3 Functional Requirements

Admin

1. A login form will be open by visiting the specific url for the sysem users.
2. Admin can only log in by username and password.
3. When Admin click users button a drop down will come and their two option will be : All Roles and All users.
4. When Admin click add users then a form will come for adding the users.
5. For every role there will be a button edit. When admin will click edit button a modal will appear for adding the permissions.
6. When Admin will click add items, a form will open form adding items. When click edit button a pop up form will open for editing. When click delete button, a warning will come and say “Are You sure?”.
7. When admin click generate report button report will be download automatically.

Supplier

1. A login form will be open by visiting the specific URL for the system users.
2. Supplier can only log in by username and password.
3. When Supplier click products button all products will show but there will not be any button for edit and delete.
4. When Supplier will click Orders button, then a page will come which will provide all the orders lists, pending, and payment status. Supplier can approve and cancel orders by clicking the approve or cancel button.
5. When Supplier will click add items, a form will open form adding items. When click edit button a pop up form will open for editing. When click delete button, a warning will come and say “Are You sure?”.

6. When Supplier will click generate report button report will be download automatically.
7. When click Manage Units button then all the units will be shown. A pop up modal will be appear for editing and view units.
8. When Supplier click users button all users will show but there will not be any button for edit and delete users.

Manufacturer

1. A login form will be open by visiting the specific URL for the system users.
2. Manufacturer can only log in by username and password.
3. When Manufacturer click raw materials button, all materials will show but there will not be any button for edit and delete.
4. There will be add to cart button, when manufacture will click a pop up form will come for entering the quantity. Quantity will be more than one.
5. When Manufacturer will click cart button a cart page will come and there will be a option form updating the quantity. Also Manufacturer can remove the materials form the cart by clicking the remove button.
6. There will be two payment button, if Manufacturer clicks Cash on delivery then orders will be placed by providing all the shipping information.
7. If Manufacturer clicks online payment then a payment page will come for the online payment like Bkash, Nagad etc.

Distributor

1. A login form will be open by visiting the specific URL for the system users.
2. Distributor can only log in by username and password.
3. When Distributor will click add items, a form will open form adding items. When click edit button a pop up form will open for editing. When click delete button, a warning will come and say “Are You sure?”.
4. When click Manage Category button then all the categories will be shown. A pop up modal will be appear for editing and view categories.
5. When Distributor clicks the tasks button then one page will come the task lists. Distributor will get the address of retailer. Also Distributor can confirm to the Manufacturer, that delivery is completed by clicking the confirm button.

Retailer

1. A login form will be open by visiting the specific URL for the system users.
2. Retailer can only log in by username and password.
3. When Retailer click raw materials button, all materials will show but there will not be any button for edit and delete.
4. When Retailer will click Orders button, then a page will come which will provide all the orders lists, pending, and payment status. Retailer can approve and cancel orders by clicking the approve or cancel button.
5. In the order page payment status will be shown, Retailer can check the payment status is it COT or Online payment.
6. When Retailer clicks the Registered Customers button, then all the customers list will come. And Retailer can delete the customer by clicking the delete button.
7. When click delete button, a warning will come and say “Are You sure?”.
8. When Retailer clicks delivery button then all the delivery man list will come. When clicks add delivery button, one form will come for entering delivery man details. When click edit button a pop up form will open for editing. When click delete button, a warning will come and say “Are You sure?”.

Customer

1. Customer can visit the website by entering the specific URL. When customer click Category button then all the products will come category based. When click popular item button, then all the popular products will come.
2. When click sign up button a form will come for register the customers. After entering all the information when clicks Register button then it will redirect to the log in page and a pop up message will come “Registration Successfully Done”.
3. Customer can log in using Email and password.
4. There will be add to cart button, when customer will click on add to cart button, then cart items will be increased. Quantity will be one.
5. When Customer will click cart button a cart page will come and there will be a option form updating the quantity. Also customer can remove the items form the cart by clicking the remove button.
6. There will be two payment button, if customer clicks Cash on delivery then orders will be placed by providing all the shipping information.

7. If Customer clicks online payment then a payment page will come for the online payment like Bkash, Nagad etc.
8. If orders are approved, customer can download the invoice by clicking the download invoice button.

3.2.4 Non-Functional Requirements

- Performance: Make sure the system responds quickly and can handle lots of things at once.
- Reliability: Keep the system working well all the time and fix problems without losing information.
- Scalability: Design the system so it can handle more work as we need it to.
- Security: Protect important information by keeping it secret and controlling who can see it.
- Usability: Make the system easy to use with a simple design and provide instructions for users.
- Compatibility: Ensure the system works well with other programs and can be used on different devices and web browsers.
- Maintainability: Keep the system easy to update and fix by using good coding practices and providing clear instructions.
- Compliance: Follow the rules and standards for managing bakery products in the industry.
- Data Management: Regularly save and protect information to avoid losing important data.

3.3 Use Case Diagram

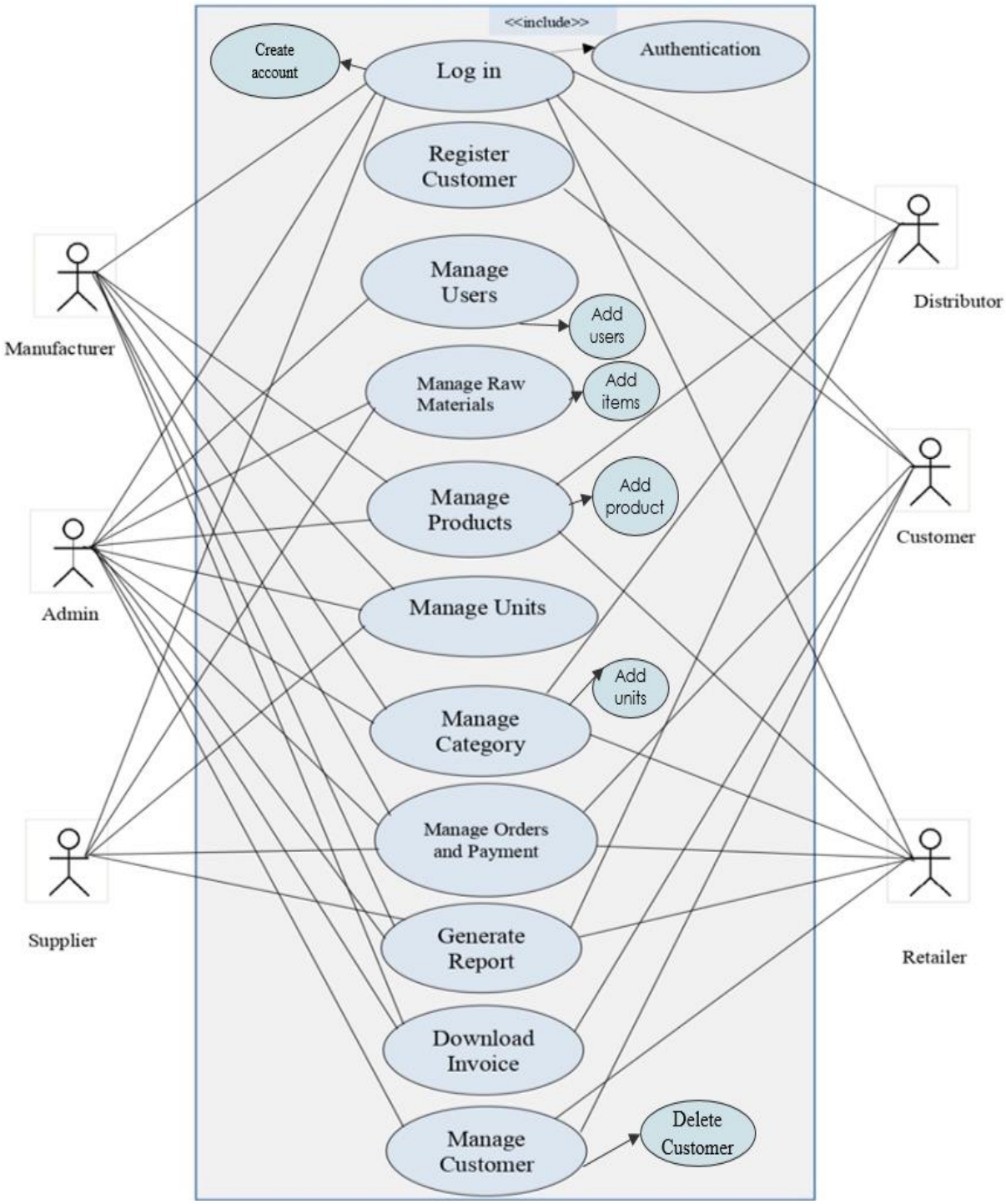

Figure 3.1 Use Case Diagram

Chapter 4. System Planning

4.1 Functions of the System

The function description outlines a function by detailing its possible inputs, expected outputs, and the associated database table.

Table 4.1 Functions of the System

	Functionality	Input	Output
1	User can login by username and password.	Username and password.	Redirect to user dashboard or, show username or password incorrect
2	Admin can add, delete and edit another users.	Click on add, edit and delete button.	Message: Successful or error.
3	Admin can assign role and permissions to the user or edit them.	Role and Permissions	Message: Successful or error.
4	Admin, Supplier and Retailer can manage raw materials , products, category and units.	Click on add, delete , edit and view button.	Message: Successful or error.
5	System users can generate report.	Click on the report button.	Successfully generated report.
6	Admin, Manufacturer, Supplier and Retailer can manage stock. Admin, Supplier and Retailer can manage payment system .	Quantity, Cash on delivery or online payment	Quality updated and payment system confirmation message.
7	Admin, Supplier and Retailer can manage order.	Approve or cancel.	Successfully updated order status.
8	Manufacturer can order raw materials	Click on order place button .	Order placed successfully.
9	Manufacturer can add Distributors and delete them.	Click on ad and delete button.	Message: Successful or error
10	Distributor will get task form manufacture.	Click on task button.	Showed task details.
11	Retailer can manage product Stock.	Increase and decrease quantity	Update Stock Quantity
12	Customer can register to the system .	Profile picture , name , email , password, address etc.	Message: Successful or error
13	Customer can log in to the system by email an password.	Email and password	Redirect to the home page.
14	Customer can place the order .	Click on place order button.	Message: Successful or error
15	Customer and Manufacturer can download the invoice of order.	Click on download report button	Invoice downloaded successfully.

4.2 Project Planning

Before we start a project, it's important to figure out what needs to be done, what resources we'll need, how long it will take from beginning to end, and to check if the project is doable. In this project, we're going to follow these steps for software project planning:

- Project Estimation
- Function Related Metrics
- Process Based Estimation
- Task Distribution
- Project Schedule Chart
- Cost Estimation

4.2.1 Project Estimation

The accuracy of estimating a software project relies on several factors:

- Ensuring a precise estimation of the product's size.
- Effectively translating size estimates into human effort, calendar time, and financial resources.
- Aligning the project plan with the capabilities of the software team or engineer.
- Considering the stability of both the product requirements and the environment supporting the software engineering effort.

The primary concern in my software project was accurately estimating the software size. Inaccurate size calculations could lead to various issues such as scheduling problems and budgetary constraints. Therefore, before proceeding with estimating the software size, I needed to confirm that the scope of the software was well-defined.

4.2.2 Function Oriented Metrics

Function point-based estimation centers around information domain values instead of software values. The calculation of function points involves the comparison of five characteristics within the information domain.

The Domain values are:

Functions:

Data

Internal Logical File

External Interface File

Transaction Functions

External Inputs

External Outputs

External Inquires

Number of external outputs – Every user output that furnishes application-oriented information is taken into account.

Number of external inquires – An inquiry, characterized as an online input that leads to the generation of an immediate software response presented as an online output, is tallied for each unique inquiry.

Number of Internal Logical files – Every logical internal file constitutes a logical collection of data situated within the application's boundaries and is managed through external inputs.

Numbers of external interfaces – Every machine-readable interface employed for the transmission of information to another system is taken into consideration.

4.2.3 Function Point Estimation

Identifying Complexity (Transaction Function)

Table 4.2 Identifying Complexity (Transaction Function)

	Transection Functions	TF	Fields/File Involvement	FTR	DET
1	User can login by username and password.	EI	Fields: username and password File: users	1	2
2	Admin can add, delete and edit another user. And manufacturer can add Distributor and delete them.	EI	Fields: username, email, password, address, city File: users	1	5
3	Admin can assign role and permissions to the user or edit them.	EI	Fields: role name, permissions File: permissions	1	2
4	Admin, Supplier and Retailer can manage raw materials , products, category and units.	EI	Fields: image, name, price, unit, category, stock, description File: items, users	5	35
5	System users can generate report. And manufacturer , customer can download the invoice.	EQ	Fields: name, email, phone, address, product details, subtotal, shipping charge, total price File: orders	1	9
6	Admin, Manufacturer, Supplier and Retailer can manage stock. Admin, Supplier and Retailer can manage payment system .	EI	Fields: quantity, payment status File: orders	1	2
7	Admin, Supplier and Retailer can manage order.	EI	Fields: name, email, phone, address, product details, payment status, delivery status, subtotal, shipping charge, total price File: orders, order details,	2	11
8	Manufacturer and customer can order items.	EI	Fields: name, email, phone, address, order id, date, payment method, products details, subtotal, shipping charge, total price File: items, users	2	12
9	Customer can register to the system .	EI	Fields: picture, username, full name email, password, address, city, occupation File: customers	1	8
10	Customer can log in to the system by email an password.	EI	Fields: email and password File: customers	1	2

Identifying Complexity (Data Function)

Table 4.3 Identifying Complexity (Data Function)

	Data Functions	Fields/File Involvement	RET	DET
1	users (ILF)	Id , user name, email, password, address, city, role	1	7
3	items(ILF)	Id, image, material name, price, unit, stock, description	1	7
4	customers(ILF)	Id, full name , picture, user name , email ,password, address, city, zip, occupation	1	10
5	orders(ILF)	Id, name , email, mobile, address, delivery status, payment status, total price	1	8

Unadjusted Function Point Contribution (Transaction Function)

Table 4.4 Unadjusted Function Point Contributions (Transaction Function)

Transection Functions	TF	FTR	DET	Complexity	UFP
User can login by username and password.	EI	1	2	LOW	3
Admin can add, delete and edit another user. And manufacturer can add Distributor and delete them.	EI	1	5	LOW	3
Admin can assign role and permissions to the user or edit them.	EI	1	2	LOW	3
Admin, Supplier and Retailer can manage raw materials , products, category and units.	EI	5	35	HIGH	6
System users can generate report. And manufacturer , customer can download the invoice.	EQ	1	9	LOW	3
Admin, Manufacturer, Supplier and Retailer can manage stock. Admin, Supplier and Retailer can manage payment system .	EI	1	2	LOW	3
Admin, Supplier and Retailer can manage order.	EI	2	11	AVG	4
Manufacturer and customer can order items.	EI	2	12	AVG	4
Customer can register to the system .	EI	1	8	LOW	3
Customer can log in to the system by email an password.	EI	1	2	LOW	4
				Total UFP=	36

Unadjusted Function Point Contribution (Data Function)

Table 4.5 Unadjusted Function Point Contribution (Data Function)

Data Functions	RET	DET	Complexity	UFP
users(ILF)	1	7	LOW	7
items(ILF)	1	7	LOW	7
customers(ILF)	1	10	LOW	7
orders(ILF)	1	8	LOW	7
				Total UFP = 28

TDI -Total Degree of Influence

Table 4.6 Total Degree of Influence

General System Characteristic		Brief Description	DI
1	Data communications	How many communication facilities are there to aid in the transfer or exchange of information with the application or system?	3
2	Distributed data processing	How are distributed data and processing functions handled?	0
3	Performance	Was response time or throughput required by the user?	3
4	Heavily used configuration	How heavily used is the current hardware platform where the application will be executed?	4
5	Transaction rate	How frequently are transactions executed daily, weekly, monthly, etc.?	0
6	On-Line data entry	What percentage of the information is entered On-Line?	5
7	End-user efficiency	Was the application designed for end-user efficiency?	3
8	On-Line update	How many ILF's are updated by On-Line transaction?	2
9	Complex processing	Does the application have extensive logical or mathematical processing?	1
10	Reusability	Was the application developed to meet one or many user's needs?	1
11	Installation ease	How difficult is conversion and installation?	2
12	Operational ease	How effective and/or automated are start-up, back-up, and recovery procedures?	2
13	Multiple sites	Was the application specifically designed, developed, and supported to be installed at multiple sites for multiple organizations?	4
14	Facilitate change	Was the application specifically designed, developed, and supported to facilitate change?	3
		Total Degree of Influence (TDI)=	33

Value Adjustment Factor (VAF) =	.65 + (.01 x TDI) = .65 + (.01 x 33)
	= 0.98

Final Calculation

Total UFP = UFP (TF) + UFP (DF)

= 36 + 28

=64

Value adjustment factor (VAF) = (0.65+ (0.01* TDI))

= (0.65+ (0.01* 3)

= 0.98

Adjusted Function Point (AFP) = Total UFP * VAF = 64*0.98 = 62.72

Effort for PHP = 53.33 * 62.72

= 3324.16 Person Hours

= 3324.16 / 8 Person Days (Working 8 Hours in a day)

= 415.52 Person Days

= 415.52 / 25 Man Months (25 working days in a month)

= 16.62 Man Months

=16.62 / 4 = 4.1

Approximately 4.1 months required for 4 persons to finish the project.

4.2.4 Task Distribution/Scheduling

Project scheduling involves allocating the estimated efforts across the planned project duration. Several fundamental principles govern project scheduling:

Segmentation: The project needs to be broken down into manageable activities and tasks.

Mutual Dependence: Identify the interdependencies among compartmentalized activities or tasks. Some tasks must follow a sequential order, while others can proceed concurrently.

Time Allocation: Assign a specific number of work units to each task being scheduled.

Effort Verification: Validate that the scheduling does not exceed the allocated number of staff members available at any given time.

Specified Roles: Assign each scheduled task to a specific team member with clear responsibilities.

Outcomes: Ensure that every scheduled task has a well-defined outcome, usually a work product or a component of a work product

4.2.5 Scheduling Chart

Complete system development involves a series of tasks that need to be executed in a sequential and timely manner. The project schedule generates a roadmap for the system developer.

Presented below is the schedule chart for this project:

Table 4.7 Scheduling Chart

Task	Sub Task	Total Weeks															
Analysis		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	Use Case																
	ER Diagram																
	DFD																
Design	System Design																
	Input Design																
	Output Design																
Coding	Coding																
	Documentation																
Testing	Testing																

4.2.6 Cost Estimation

Cost estimation involves estimating the expenses associated with a program. In this project, the cost is analyzed and calculated based on five factors.

Presented below are these factors:

- Personnel cost
- Software cost
- Hardware cost
- Other cost

Personnel Cost:

Table 4.8 Personnel Cost

Types	Number of Members	Months	Salary (Taka)
System Analyst	1	4	60,000
System Designer	1	4	40,000
Coder	2	4	2,00000
System Tester	1	4	32,000
		Total=	332,000 taka

Hardware Cost:

Computer life = 3 year

Printer Life = 3 years

Computer usage= 16 weeks = 4 months

Table 4.9 Hardware cost

Computer	Qty.	Each Parts	Qty.	Price (Taka)	Depreciation Calculation	Depreciation Cost	Total
Desktop	2	Motherboard	2	9,900	2((9,900/36)*4)	2,200	6,639
		Processor	2	11,999	2((11,999/36)*4)	2,266	
		AMD Ryzen 3 8GB RAM	2	3,400	2((3,400/36)*4)	755	
		256 GB SSD	2	2,700	2((2,700/36)*4)	600	
		Monitor	2	8,000	2((8,000/36)*4)	622	
		Keyboard	2	850	2((850/36)*4)	188	
		Mouse	2	420	2((420/36)*4)	8	
Printer	1	Printer	1	19,500	(19,500/36)*4	4,333	4,333
Total=10,972 Taka							

Software Cost:

Table 4.10 Software cost

Name	Price (taka)
Microsoft windows 10	15,520
Microsoft Office 13	15,000
Visual Studio Code	00
Xampp Server	00
Total = 30,520 taka	

Other Cost:

Table 4.11 Other cost

Name	Price (taka)
Transportation	3,000
Furniture	2,500
House Rent	40,000
Electricity bill	1,500
Extra	25,00
Total =	49,500 taka

Total Development Cost:

Table 4.12 Total Development Cost

Types	Total (taka)
Personnel cost	332,000
Software cost	30,520
Hardware cost	10,972
Other cost	49,500
	Total = 422,992 taka

Chapter 5. Risk Management

5.1 Risk Management Process

The process of understanding and addressing uncertainties faced by a system development team is referred to as risk analysis and management. During the development of a system, various challenges may emerge, and a risk is a potential problem that may or may not occur. Managing risks involves several steps. Initially, risks are identified, followed by an assessment of their likelihood and potential impact. Once this information is gathered, risks are documented, and a strategy is devised to address high-impact risks.

1) **Risk identification:** Risk identification refers to the activity of collecting information to recognize possible hazards or risks. Various tools and techniques are available for acquiring and processing data. The team has initiated the identification of potential threats to web resources, employing both automated and manual approaches. One notably effective technique for obtaining insights into the condition of web pages and websites is through web crawling.
2) **Risk Analysis:** The process of evaluating the probability of particular risk scenarios or sequences of events that could lead to harm or loss is termed risk assessment. Various sources emphasize risk assessment, with Rosenthal providing descriptors such as "transparent, coherent, consistent, complete, comprehensive, impartial, uniform, balanced, defensible, sustainable, flexible," and it should be accompanied by appropriate and adequate guidance when outlining the characteristics of a standard risk assessment.
3) **Risk Planning:** Risk planning is the systematic process of recognizing, evaluating, prioritizing, and formulating strategies to handle and minimize potential risks within a project or business venture. This comprehensive approach involves identifying potential challenges, developing a plan to address them, and ensuring the organization is well-prepared to navigate unforeseen circumstances. The goal of risk planning is to reduce the impact of unexpected events, enhance project resilience, and increase the probability of overall success. It encompasses the establishment of clear risk management processes, delineation of roles and responsibilities, and the formulation of effective communication strategies to adeptly manage uncertainties throughout the project's life cycle.
4) **Risk Monitoring:** Risk monitoring is the ongoing and systematic observation of potential risks within a project or business environment. It involves regularly assessing

identified risks, identifying new ones, and making adjustments to mitigation strategies as needed. The goal is to ensure that risk management remains effective, enabling timely responses to emerging threats and contributing to the overall success of the project or business initiative.

5.2 Risk Management Implementation

The establishment of guidelines, processes, and systems to handle and respond to recognized risks is outlined in the implementation of risk management. The execution of the program should find a harmonious equilibrium between the expenses—both direct and indirect—incurred in preventing or recovering from harm or loss and the intrinsic value of assets.

In the development of any project, it is essential to take into account various categories of risks.

The risks are:

1) **Organizational risks:** These risks pose a threat to the project plan, potentially leading to delays in the project schedule and increased costs if they materialize. Risks associated with the budget, schedule, personnel, resources, customers, and requirements of the software project are collectively referred to as project risks.
2) **Technical risks:** The risks outlined pose a threat to the development of the software. If a technical risk materializes, it may become challenging or even impossible to implement the software. Technical risks involve potential issues with design, implementation, interface, verification, and maintenance
3) **People Risks:** People risks involve challenges related to team dynamics, skills variation, leadership effectiveness, and staff turnover. Managing these risks requires fostering a positive team culture, ensuring effective communication, and addressing human-centric factors for successful project outcomes
4) **Tools Risks:** Tools risks involve challenges with tool suitability, technological obsolescence, integration issues, vendor reliability, and the learning curve. Mitigating these risks requires strategic tool selection, staying updated on technology, ensuring seamless integration, and considering vendor reliability and learning requirements for the team.
5) **Requirements Risks:** Requirements risks refer to potential challenges tied to defining and managing project specifications. These risks encompass issues such as incomplete or unclear requirements, changing specifications during development, instability in

project requirements, and misalignments with stakeholder expectations.

6) **Estimation Risks:** Risks from management estimates in resource allocation for system development involve uncertainties in personnel, time, and financial resources. Proactive mitigation is essential to ensure project success by effectively managing resources, timelines, and budget constraints.

5.3 The RMMM Plan

The RMMM plan primarily involves mitigating, monitoring, and managing project risks, considering their impact and likelihood of occurrence. They are:

- **Risk Mitigation:** Proactively planning to avoid potential risks.
- **Risk Monitoring:** Evaluating the occurrence of predicted risks, ensuring the proper application of preventive measures, collecting information for future risk analysis, and attempting to determine which risks contributed to specific issues.
- **Risk Management:** Taking actions in case mitigation steps fail and the risk becomes an active problem.
- **Impact Types:** Categorized as Catastrophic (1), Marginal (2), Tolerable (3), Critical (4).
- **Probability Types**: Classified as very low (<10%), low (10–25%), moderate (25–50%), high (50–75%), very high (>75%).

5.4 The Risks are:

5.4.1 Technical Risks

Technical risks pose a threat to the timeliness and quality of the schedule. Given that this is my practicum project, effective management of such risks becomes imperative.

Table 5.1 Technical Risk (1)

Technical Risk (TR1)	
Name	Computer Crash
Probability	Moderate (25-40%)
Impact	Catastrophic (1)
Description	Computer may crash due to several reasons.
Mitigation & Monitoring	It's essential to consistently monitor the status of computers, perform daily data backups, and employ IPS to prevent unforeseen shutdowns
Management	If our computer has been crashed, then we will restore backup.
Status	We did not face such issue yet

Table 5.2 Technical Risk (2)

Technical Risk (TR2)	
Name	Technology Doesn't Meet Specifications.
Probability	Low (25%)
Impact	Catastrophic (1)
Description	The customer lacks the technology according to their preferred specifications.
Mitigation & Monitoring	This ensures the equivalence between the product we are manufacturing and the customer's specifications. The customer needs to be promptly informed, and
Management	any necessary actions to address this issue should be taken.
Status	We have not encountered such issue yet

5.4.2 People Risks

Table 5.3 People Risk (1)

People Risk (1)	
Name	Poor Training Skill in Team Members.
Probability	Moderate (30%)
Impact	Catastrophic (1)
Description	Poor Training Skill in Team Members to Train the Client.
Mitigation & Monitoring	The training team should have a clear knowledge about the entire functionality of the software. System analyst need to ensure and monitor it while training session start.
Management	We should arrange a meeting with the train team and come to a point to solve this problem.
Status	We have not encountered such issue yet

Table 5.4 People Risk (2)

People Risk (2)	
Name	Key staff are ill and unavailable at critical times.
Probability	Moderate (30%)
Impact	Catastrophic (1)
Description	Stuff can be ill for some days.
Mitigation & Monitoring	The training team should have a clear knowledge about stuff. System analyst need to ensure and monitor the stuff health condition.
Management	We should arrange a meeting with the train team and come to a point to solve this problem so that all stuff must available at critical time.
Status	We have encountered such issue.

5.4.3 Estimation Risks

Table 5.5 Estimation Risk (1)

Estimation Risk (1)	
Name	Insufficient Budget
Probability	Low (10%)
Impact	Marginal (2)
Description	If the budget is low project may not complete.
Mitigation & Monitoring	We find several alternative streaming services to reduce the budget risk.
Management	A new plan for regulate the budget.
Status	Not encountered

Table 5.6 Estimation Risk (2)

Estimation Risk (2)	
Name	Not pay the installment of Software Cost.
Probability	Very Low (05%)
Impact	Catastrophic (1)
Description	Customer does not pay for the installment of Software Cost.
Mitigation & Monitoring	We should make a good communication between customers and ensure that the entire Installment will be completed.
Management	The only course of action available would be Find out the reason and come in a solution.
Status	Not encountered

5.4.4 Requirements Risks

Table 5.7 Requirements Risk

Requirements Risk	
Name	Changes the requirements
Probability	Low (25%)
Impact	Marginal (2)
Description	Customer may change their requirements
Mitigation & Monitoring	Requirements are redefined by the company due to time or business needs. Meeting will be held with the company regularly. This ensures that the product we are producing solves a problem.
Management	Emergency meeting between both parties to identify new project requirements and goals.
Status	Not occurred

5.4.5 Tools Risks

Table 5.8 Tools Risk

Tools Risk	
Name	Lack of necessary features
Probability	Moderate (30%)
Impact	Catastrophic (1)
Description	The absence of essential features hinders the comprehensive functionality and effectiveness of a system or product.
Mitigation & Monitoring	To mitigate the impact of lacking necessary features, consider implementing regular updates, user feedback incorporation, and strategic feature prioritization to enhance functionality and address user needs effectively.
Management	We should use such of tools which gives majority of the features for developing the system.
Status	We have encountered such issue .

Chapter 6. Analysis Modeling

6.1 Analysis Modeling

Analysis modeling presents requirements for data, function, and behavior in a way that is easily understandable and, crucially, straightforward to assess for accuracy, thoroughness, and coherence. This is achieved through a blend of textual descriptions and diagrammatic representations. This section includes references for UML, as well as resources for both traditional and object-oriented analysis (OOA) methods.

6.1.1 Goals of the Analysis Model

- The goals of the analysis model encompass:
- Domain Analysis
- Articulating the client's needs
- Providing a foundation for software design development
- Defining a set of requirements that can be verified after the software is constructed.

6.2 Activity Diagram

Activity diagrams provide visual representations of workflows, featuring stepwise activities and actions with support for choice, iteration, and concurrency. They are utilized in the Unified Modeling Language to model both organizational and computational processes, offering a depiction of the overall control flow.

6.2.1 Activity Diagram of Admin

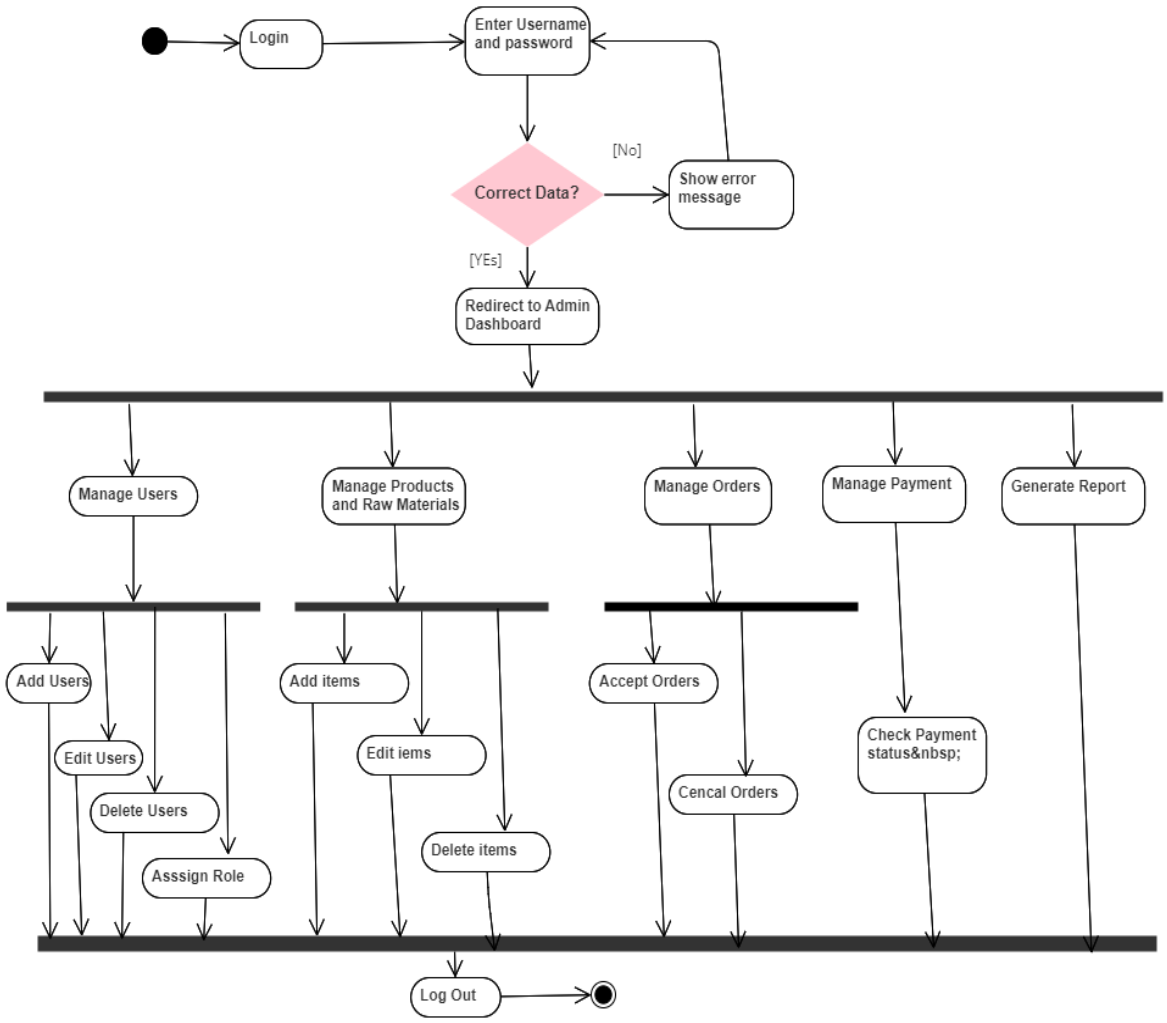

Figure 6.1 Activity Diagram of Admin

6.2.2 Activity Diagram of Manufacturer

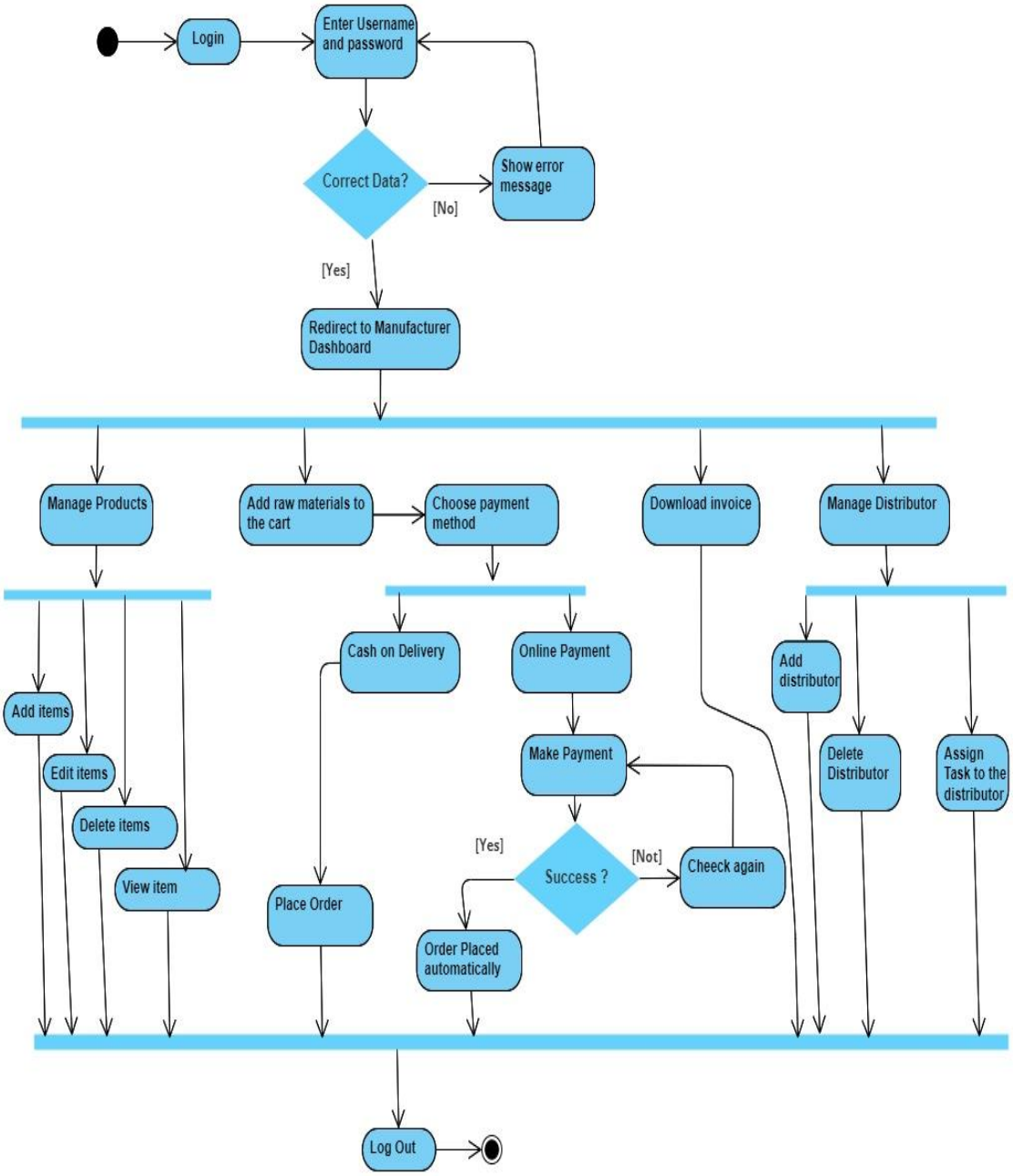

Figure 6.2 Activity Diagram of Manufacturer

6.2.3 Activity Diagram of Supplier

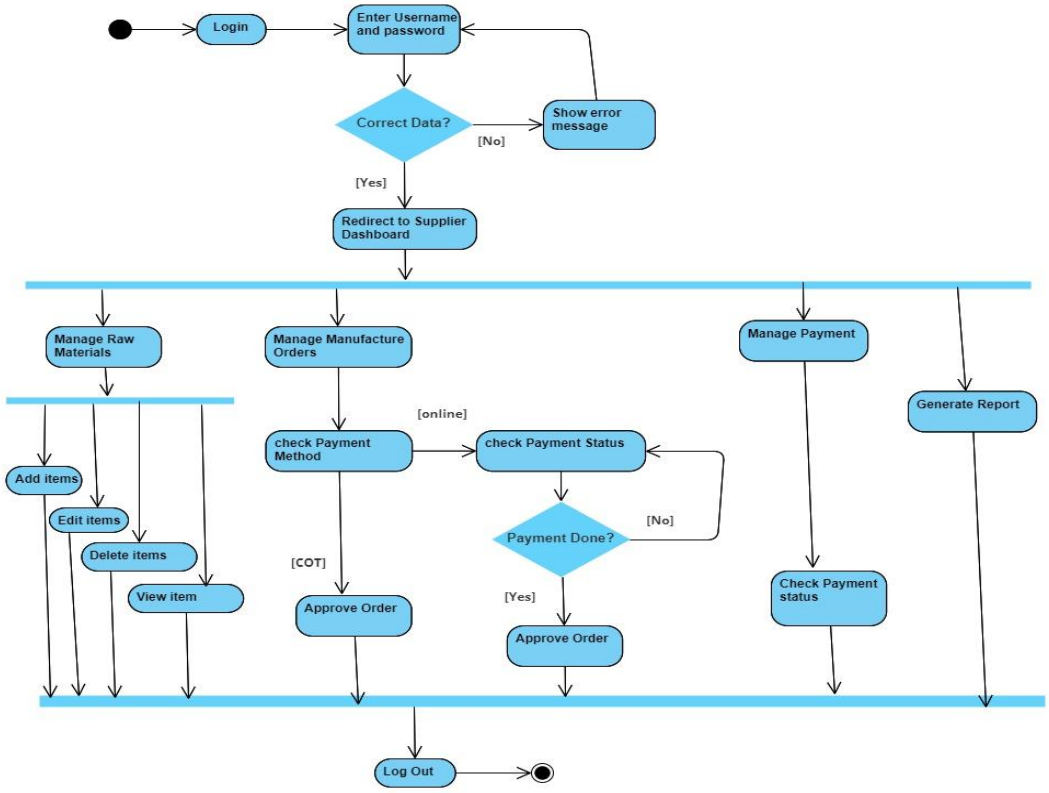

Figure 6.3 Activity Diagram of Supplier

6.2.4 Activity Diagram of Distributor

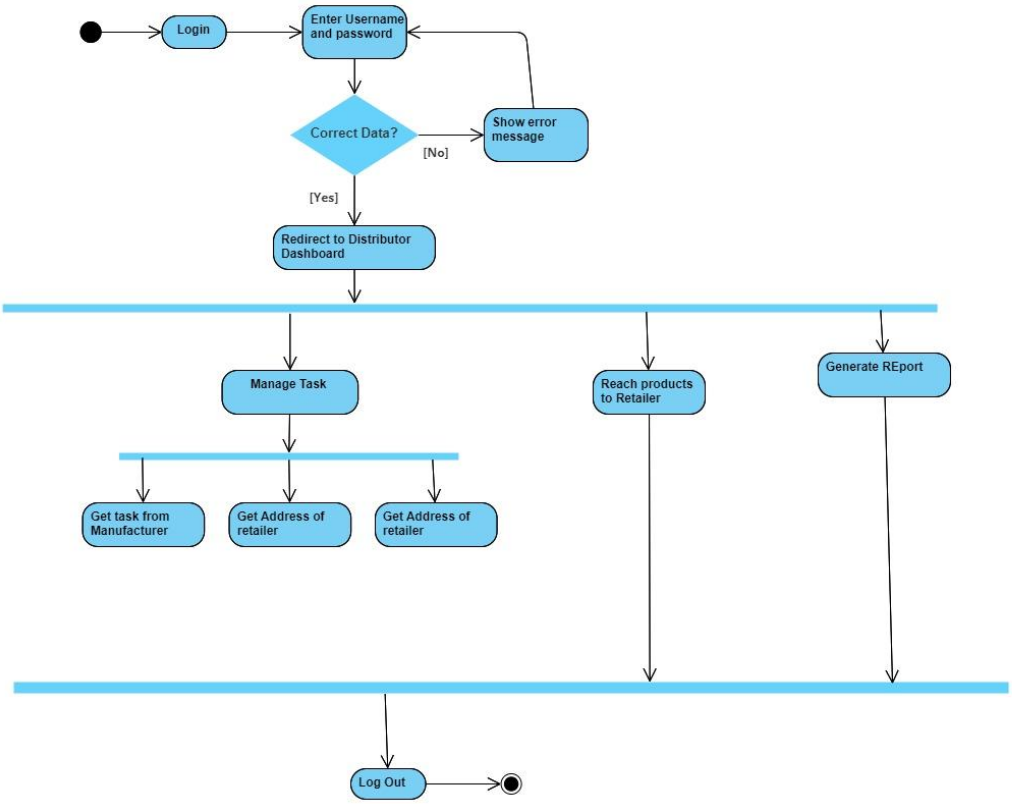

Figure 6.4 Activity Diagram of Distributor

6.2.5 Activity Diagram of Retailer

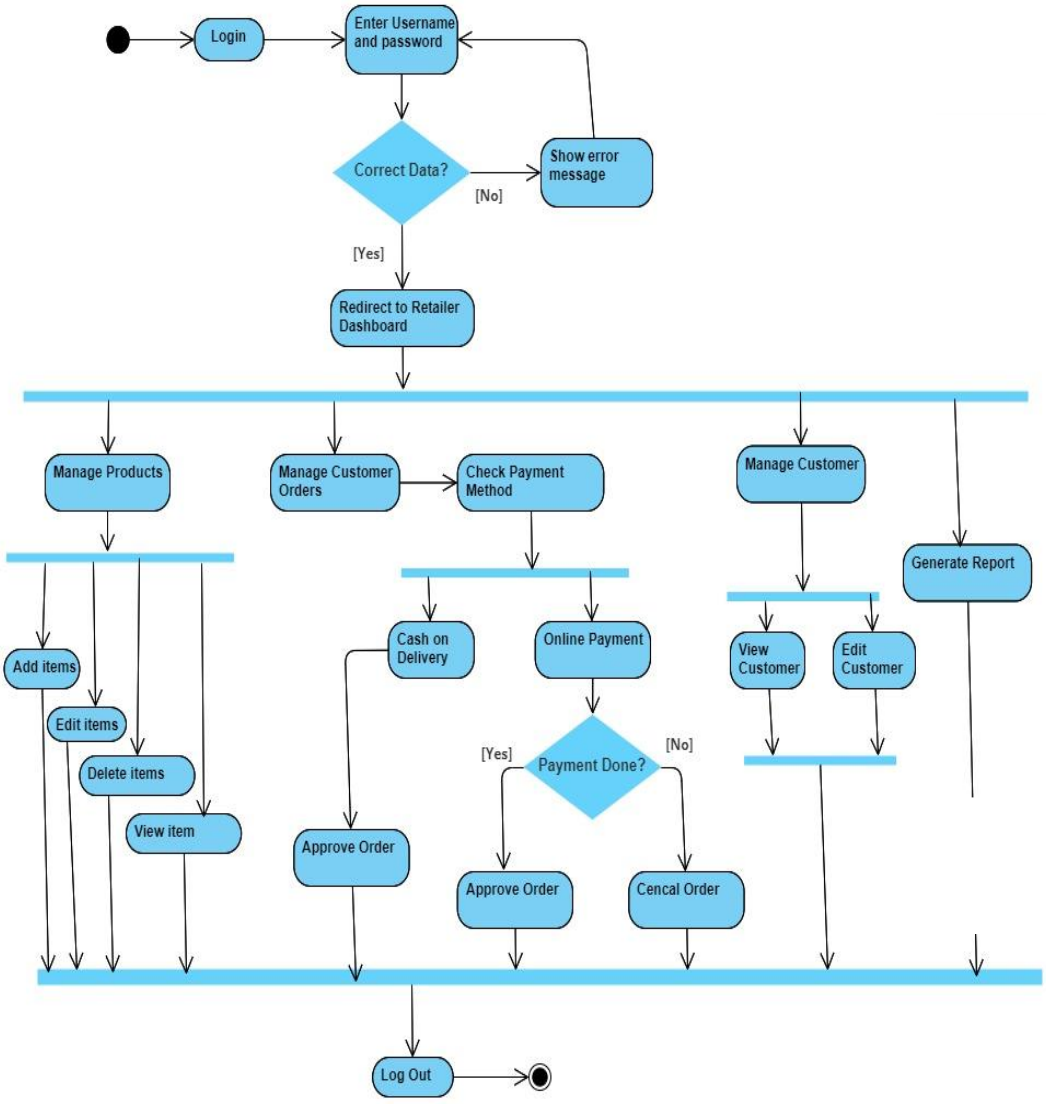

Figure 6.5 Activity Diagram of Retailer

6.2.6 Activity Diagram of Customer

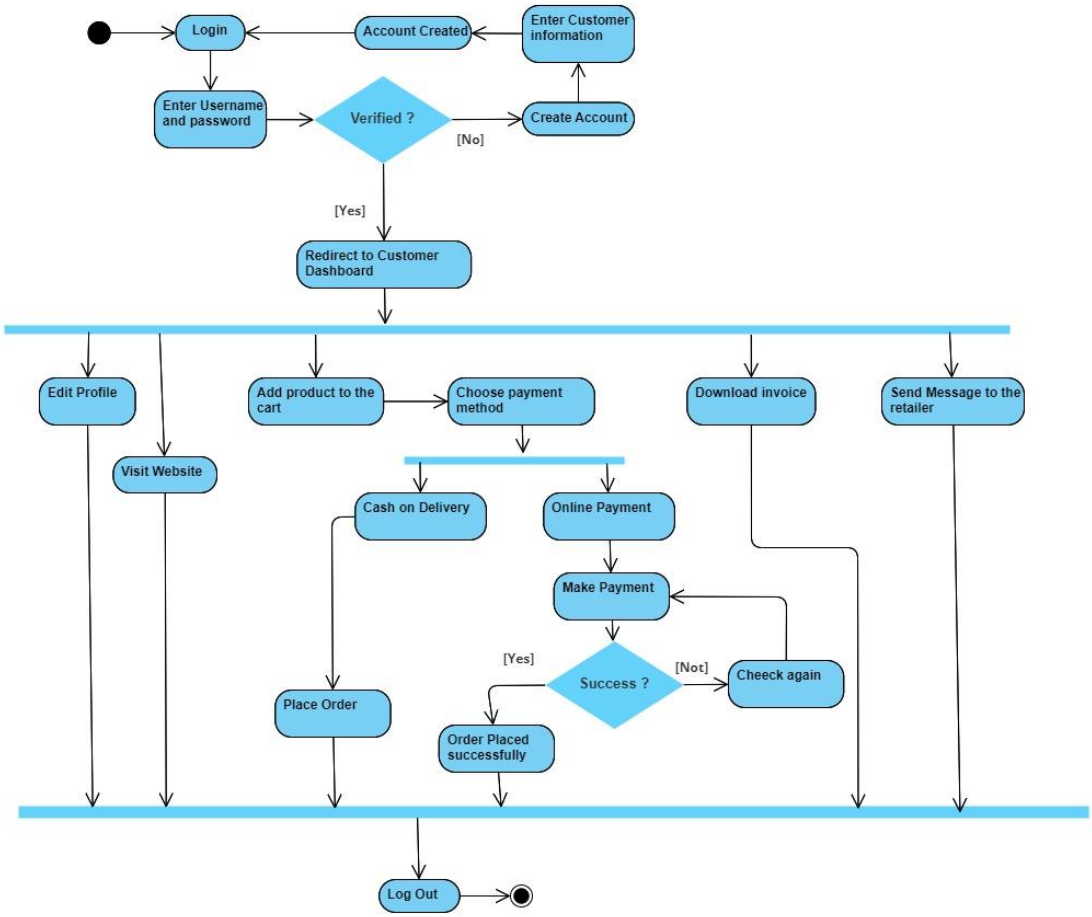

Figure 6.6 Activity Diagram of Customer

6.3 Entity Relationship Diagram (ERD)

An entity relationship diagram (ERD), alternatively referred to as an entity relationship model, visually illustrates the connections among individuals, objects, locations, concepts, or events within an information technology (IT) system. Employing data modeling techniques, an ERD is instrumental in defining business processes and setting the foundation for a relational database.

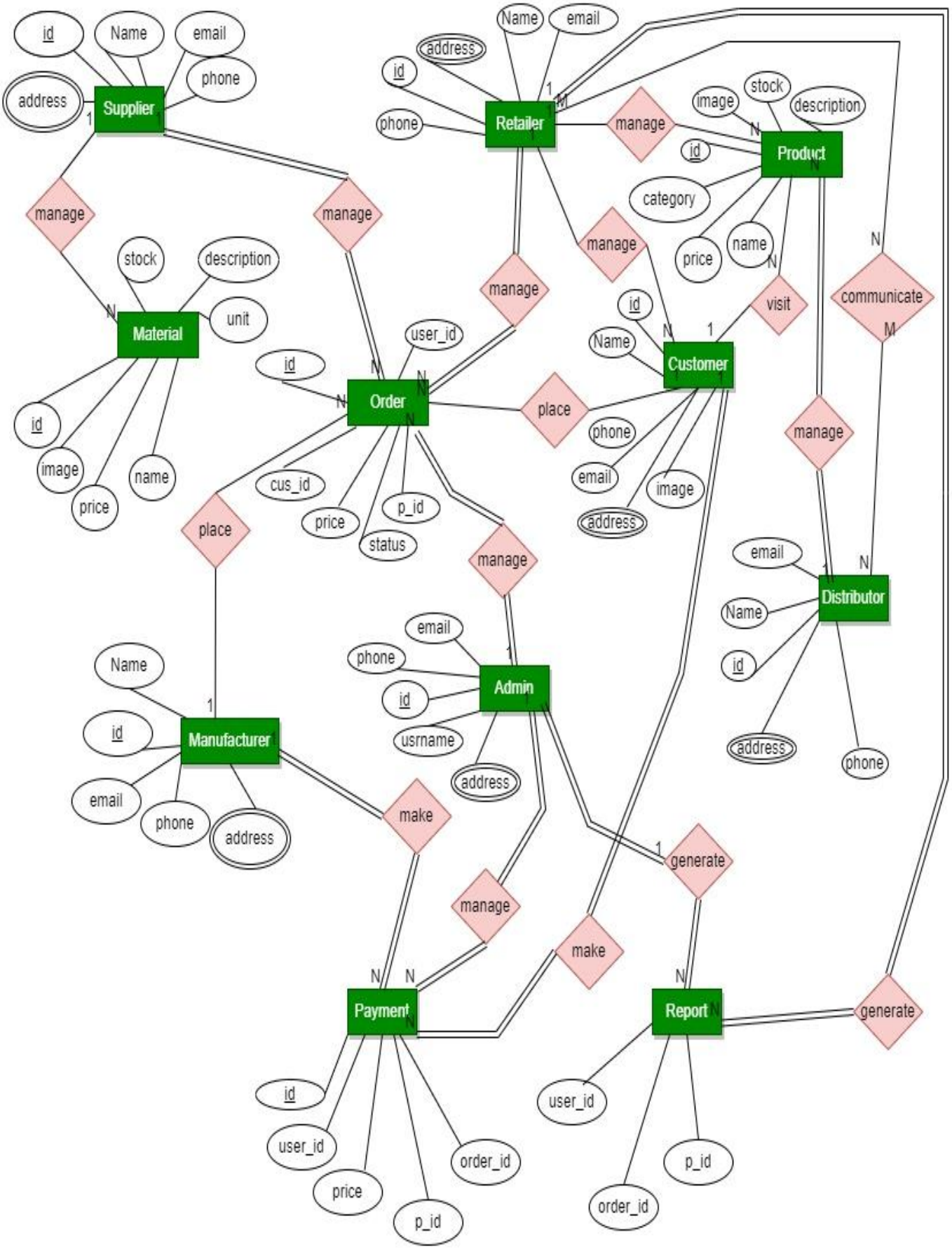

Figure 6.7 Entity Relationship Diagram

6.4 Data Flow Diagram (DFD)

A data flow diagram (DFD) visually portrays the movement of data within an information system, capturing the procedural aspects of its processes. Typically employed as an initial depiction, a DFD serves as the groundwork for the subsequent development of a more comprehensive system overview. Moreover, DFDs are employed for visualizing data processing procedures.

6.4.1 Context Level DFD

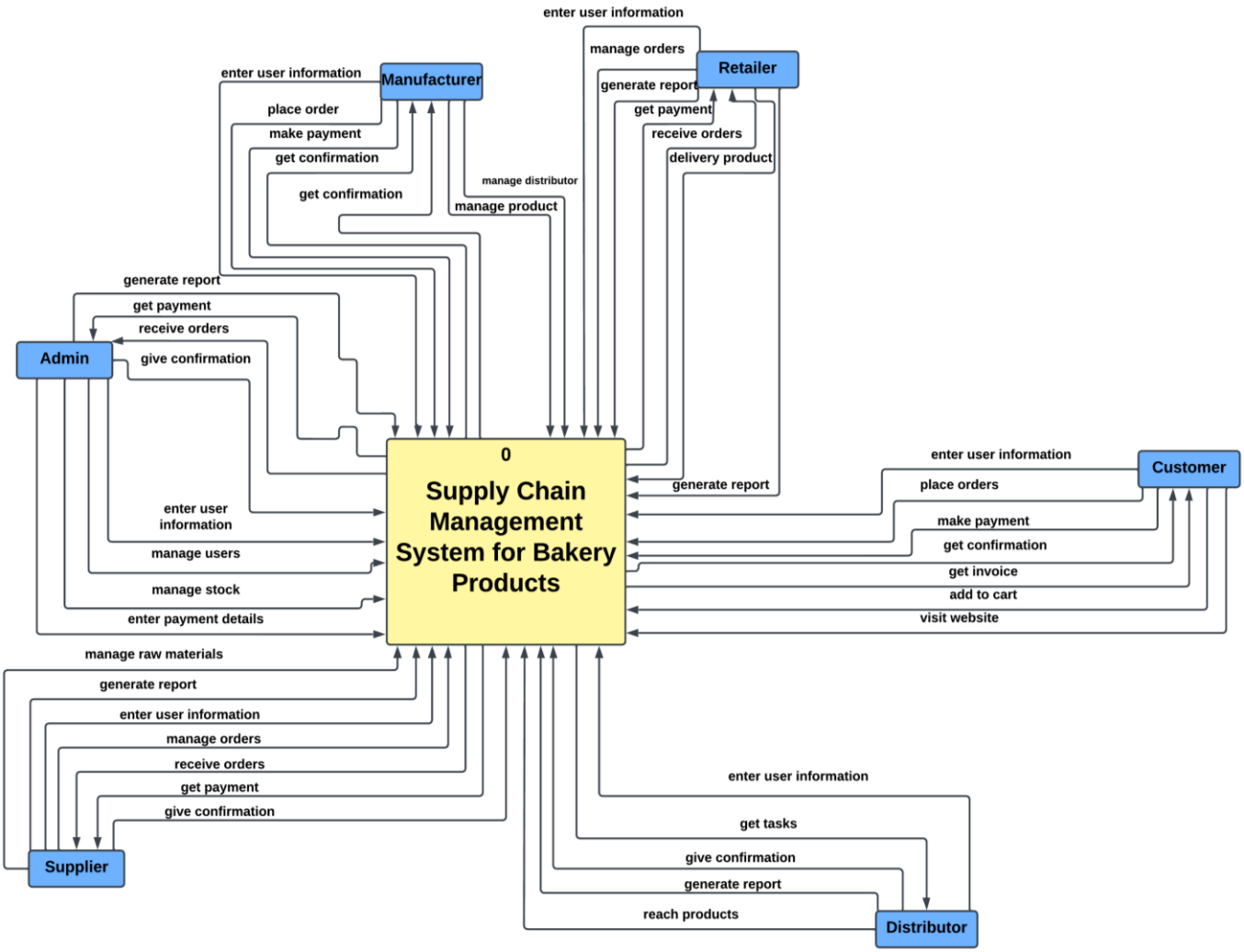

Figure 6.8 Level 0 DFD

6.4.2 Level 1 DFD

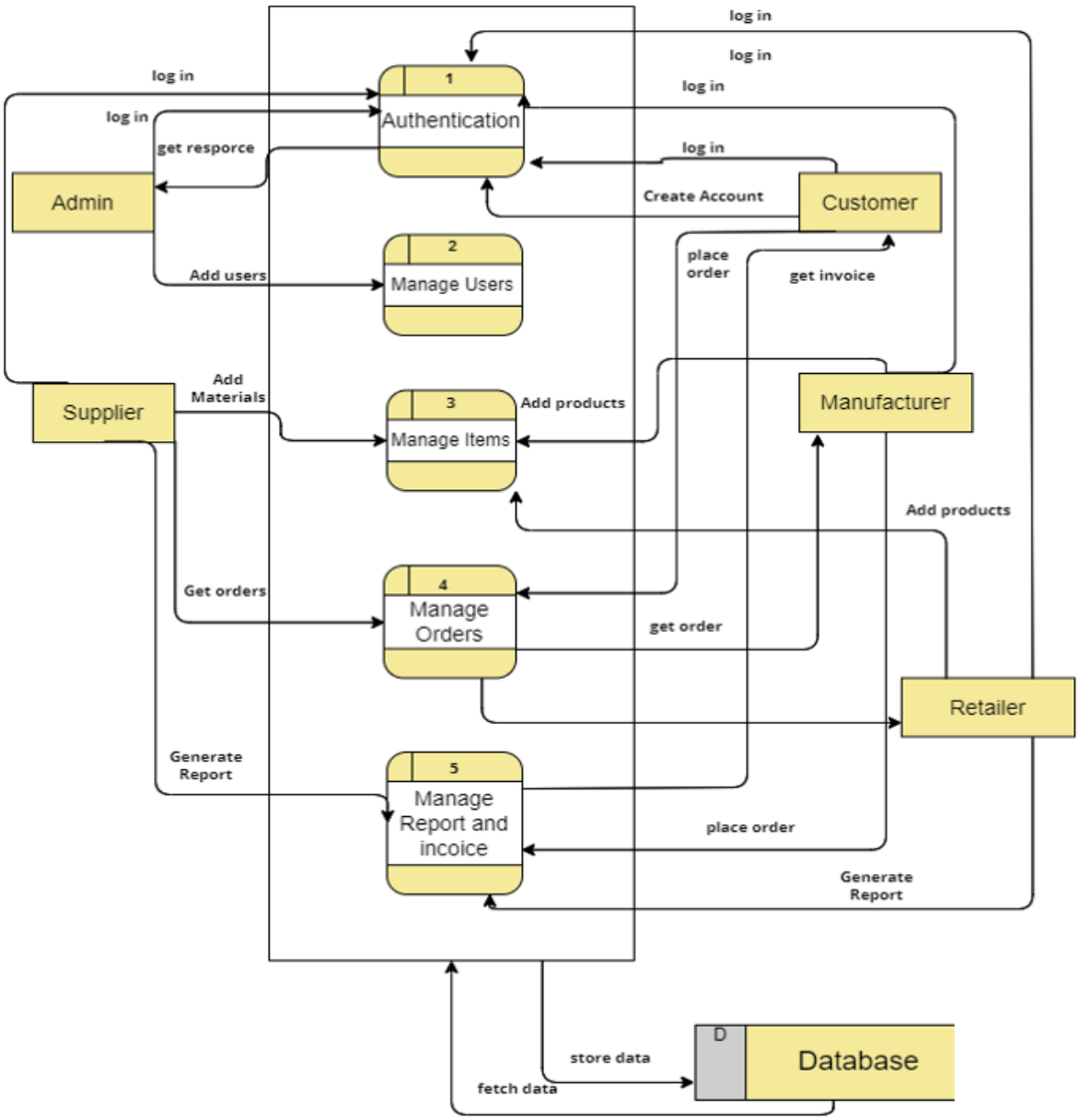

Figure 6.9 level 1 DFD

6.4.3 Level 2 DFD of Process 1

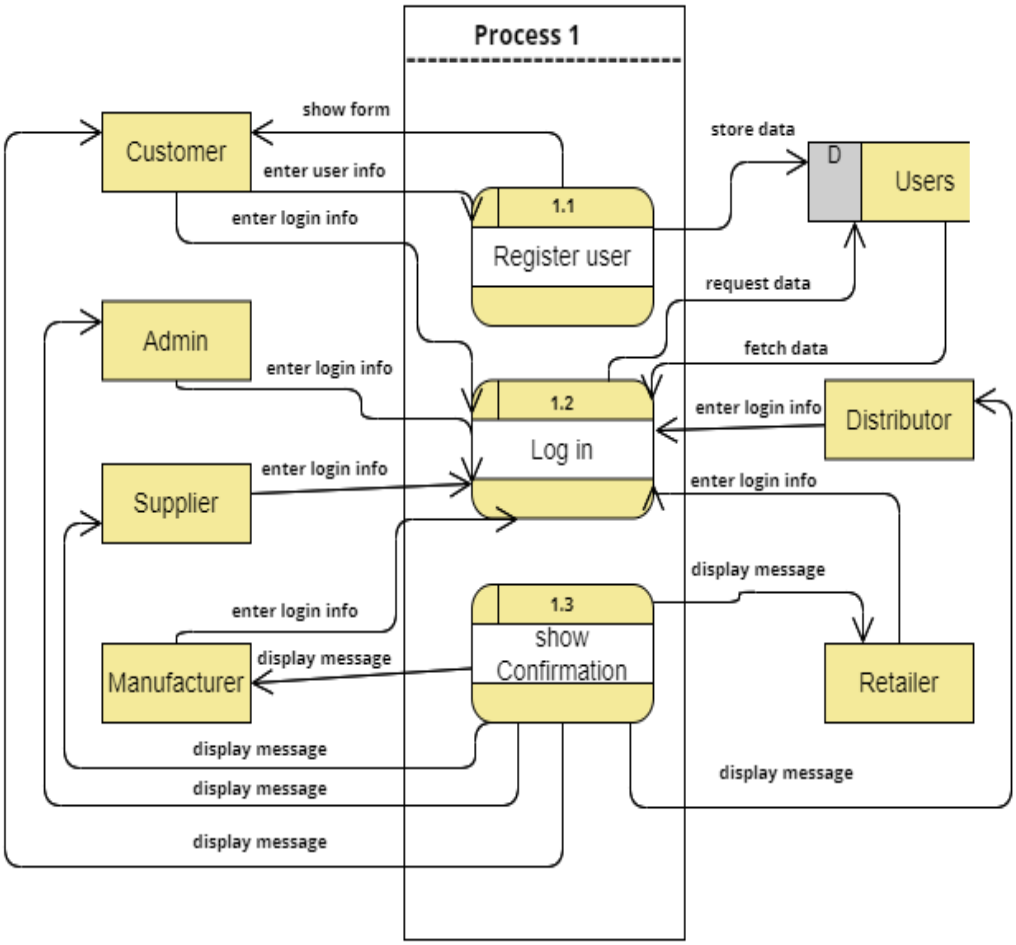

Figure 6.10 Level 2 DFD of Process 1

6.4.4 Level 2 DFD of Process 2

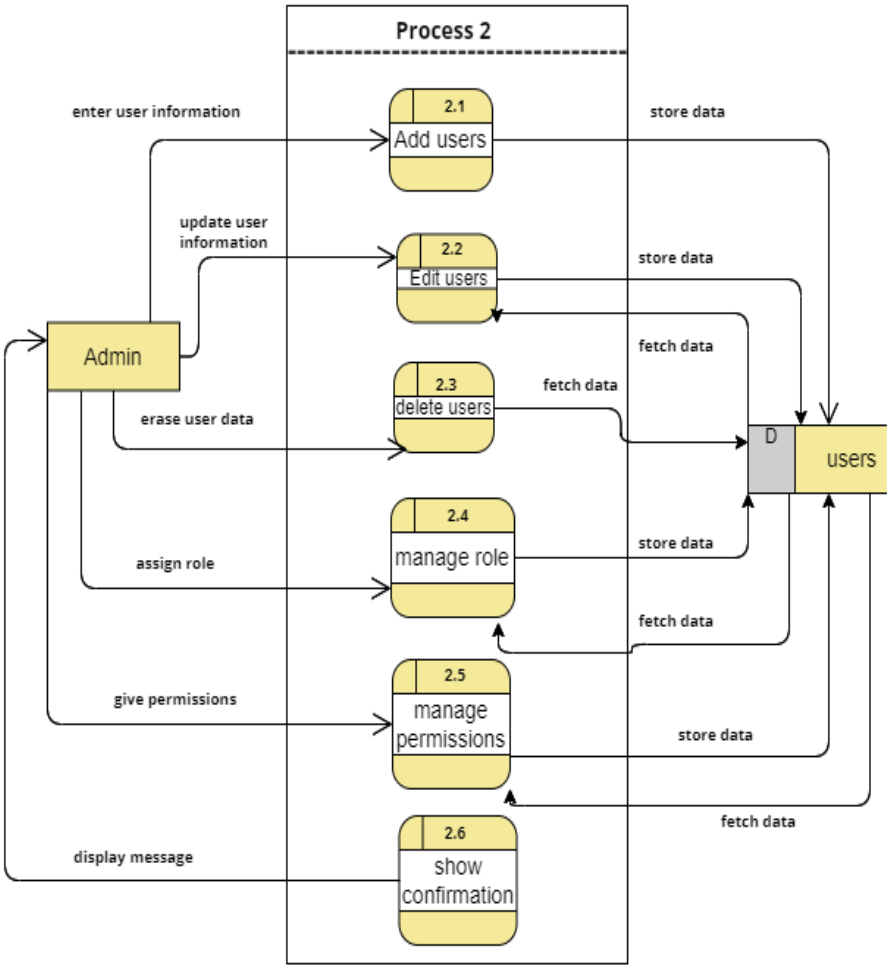

Figure 6.11 Level 2 DFD of Process 2

6.4.5 Level 2 DFD of Process 3

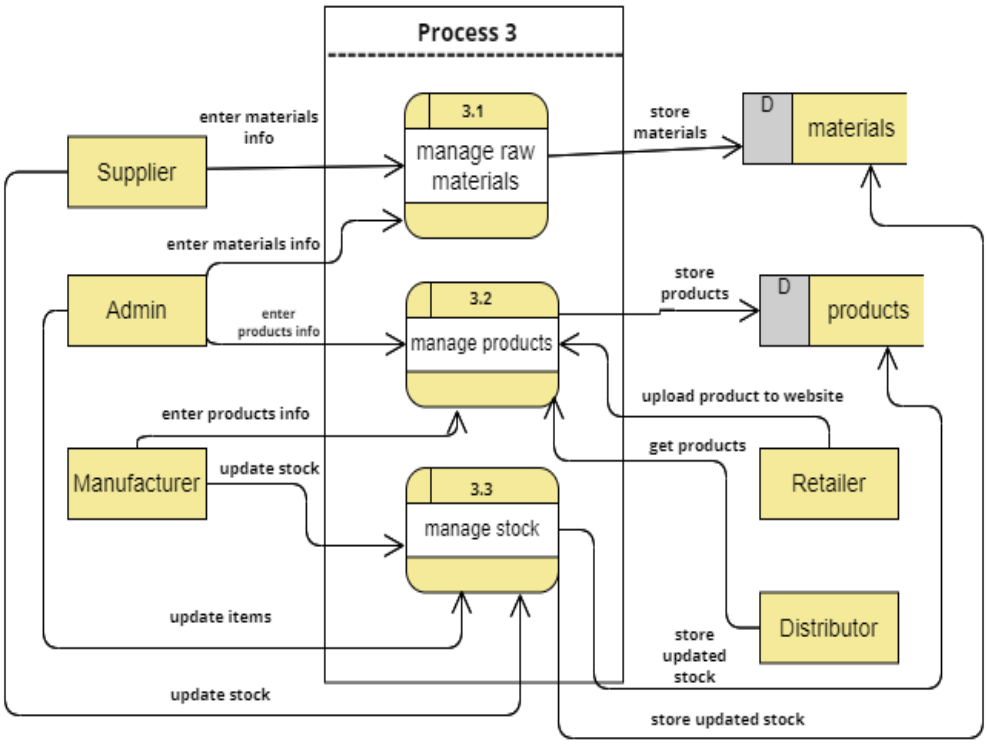

Figure 6.12 Level 2 DFD of Process 3

6.4.6 Level 2 DFD of Process 4

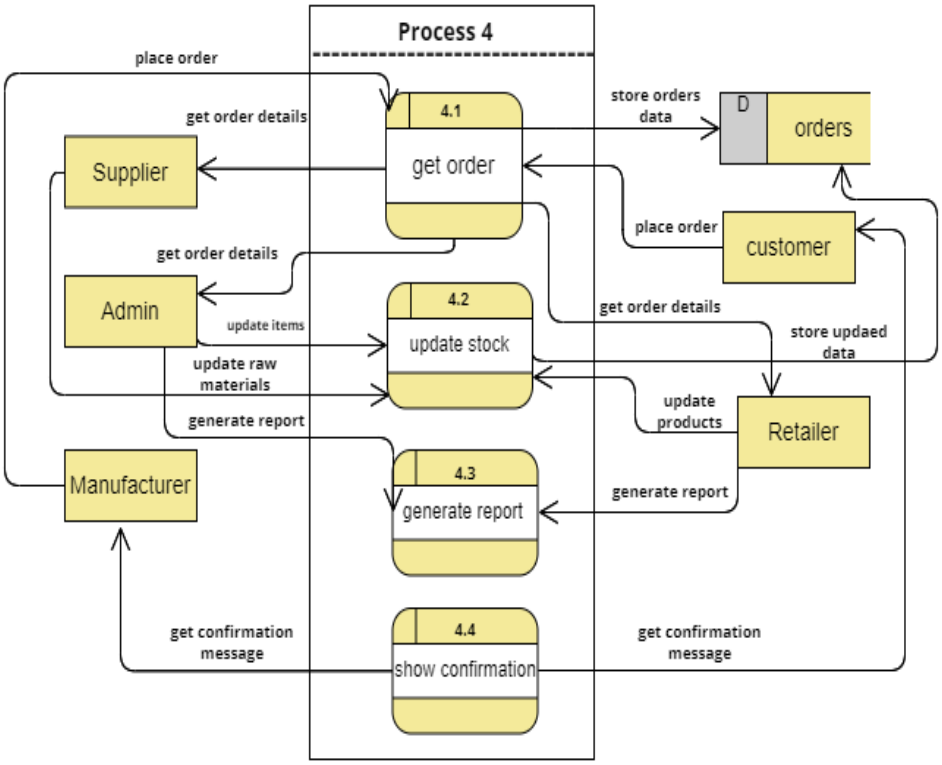

Figure 6.13 Level 2 DFD of Process 4

6.4.7 Level 2 DFD of Process 5

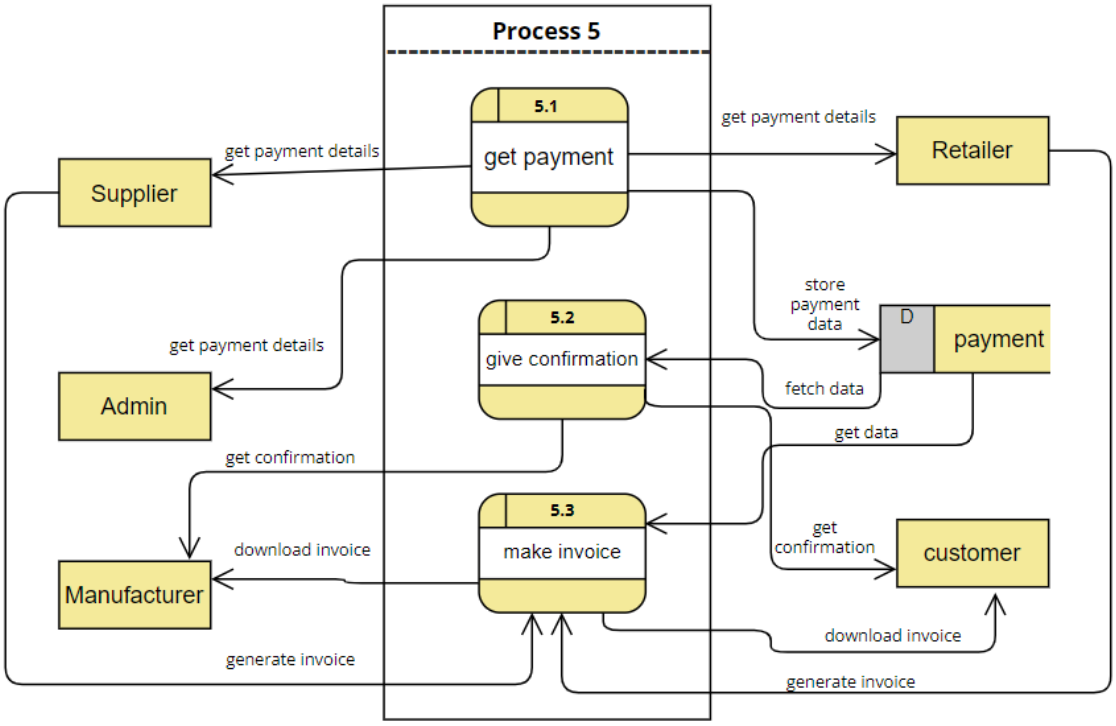

Figure 6.14 Level 2 DFD of Process 5

6.4.8 Level 2 DFD of Process 6

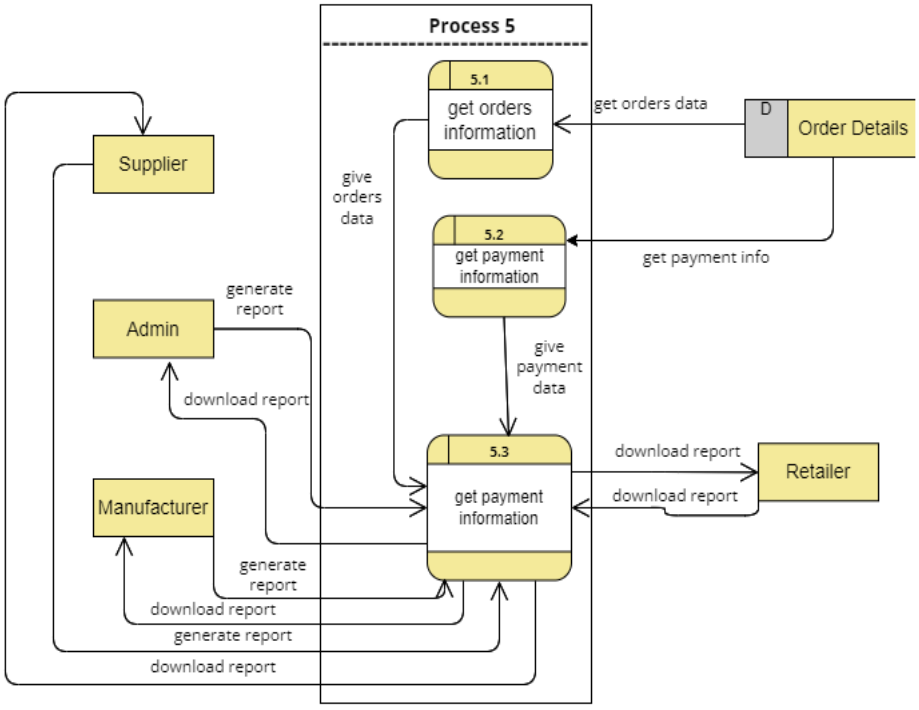

Figure 6.15 Level 2 DFD of Process

Chapter 7. Designing

7.1 Database Field Design

Table List

	Table	Action	Rows	Type	Collation	Size
☐	carts	Browse Structure Search Insert Empty Drop	0	InnoDB	utf8mb4_unicode_ci	16.0 KiB
☐	categories	Browse Structure Search Insert Empty Drop	8	InnoDB	utf8mb4_unicode_ci	16.0 KiB
☐	customers	Browse Structure Search Insert Empty Drop	1	InnoDB	utf8mb4_unicode_ci	32.0 KiB
☐	cus_oder_details	Browse Structure Search Insert Empty Drop	0	InnoDB	utf8mb4_unicode_ci	32.0 KiB
☐	cus_orders	Browse Structure Search Insert Empty Drop	0	InnoDB	utf8mb4_unicode_ci	16.0 KiB
☐	c_carts	Browse Structure Search Insert Empty Drop	0	InnoDB	utf8mb4_unicode_ci	16.0 KiB
☐	failed_jobs	Browse Structure Search Insert Empty Drop	0	InnoDB	utf8mb4_unicode_ci	32.0 KiB
☐	materials	Browse Structure Search Insert Empty Drop	0	InnoDB	utf8mb4_unicode_ci	16.0 KiB
☐	migrations	Browse Structure Search Insert Empty Drop	16	InnoDB	utf8mb4_unicode_ci	16.0 KiB
☐	model_has_permissions	Browse Structure Search Insert Empty Drop	0	InnoDB	utf8mb4_unicode_ci	32.0 KiB
☐	model_has_roles	Browse Structure Search Insert Empty Drop	1	InnoDB	utf8mb4_unicode_ci	32.0 KiB
☐	order1s	Browse Structure Search Insert Empty Drop	0	InnoDB	utf8mb4_unicode_ci	32.0 KiB
☐	order_details	Browse Structure Search Insert Empty Drop	0	InnoDB	utf8mb4_unicode_ci	32.0 KiB
☐	password_reset_tokens	Browse Structure Search Insert Empty Drop	0	InnoDB	utf8mb4_unicode_ci	16.0 KiB
☐	permissions	Browse Structure Search Insert Empty Drop	26	InnoDB	utf8mb4_unicode_ci	32.0 KiB
☐	personal_access_tokens	Browse Structure Search Insert Empty Drop	0	InnoDB	utf8mb4_unicode_ci	48.0 KiB
☐	products	Browse Structure Search Insert Empty Drop	0	InnoDB	utf8mb4_unicode_ci	16.0 KiB
☐	roles	Browse Structure Search Insert Empty Drop	5	InnoDB	utf8mb4_unicode_ci	32.0 KiB
☐	role_has_permissions	Browse Structure Search Insert Empty Drop	27	InnoDB	utf8mb4_unicode_ci	32.0 KiB
☐	units	Browse Structure Search Insert Empty Drop	3	InnoDB	utf8mb4_unicode_ci	16.0 KiB
☐	users	Browse Structure Search Insert Empty Drop	1	InnoDB	utf8mb4_unicode_ci	32.0 KiB

Figure 7.1 List of Database tables

Users table

id	user_name ↓ 1	email	password	Adress	City	Role
4	shaib33	shariar@gmail.com	$2y$10$bMMC8Bs7.AvNUh0S9Glus.spXeqAJDb60SQn8wIKN5r...	Khulna	Sador	Distributor
3	shaib	sakib@gmail.com	$2y$10$neJttM7yCjChvalQpK0s5OGQ8VMRx7j2lpLoWSxs9HX...	Dhaka	uttara	Manufacturer
2	Lemona	shahridddairlemon@gmail.com	$2y$10$KIZqO4Z1ZjxFsuJkalH8MeGWhuhX/UD3f1/Rz.v53Jd...	Belaichandi	Parbatipur	Supplier
5	ami23444	ami@gmail.com	$2y$10$yTfYqDRDkgw7kTI1hyLi/eCv5O.vZ/BY7nmFlgQ2lps...	Feni	Dubay	Retailer
1	admin	admin@gmail.com	$2y$10$uUyqOTWXxw0jPiY5QZqDfO3/aC2TF8RlW5T0yRWE1ND...	*NULL*	*NULL*	Admin

Figure 7.2 Structure of Users table

Roles Table

id	name	guard_name	created_at	updated_at
1	Admin	web	2023-12-13 09:46:17	2023-12-13 09:46:17
2	Supplier	web	2023-12-13 09:46:17	2023-12-13 09:46:17
3	Manufacturer	web	2023-12-13 09:46:17	2023-12-13 09:46:17
4	Distributor	web	2023-12-13 09:46:17	2023-12-13 09:46:17
5	Retailer	web	2023-12-13 09:46:17	2023-12-13 09:46:17

Figure 7.3 Structure of Roles table

Permissions Table

id	name	guard_name	created_at	updated_at
1	dashboard.view	web	2023-12-15 23:56:26	2023-12-15 23:56:26
2	add.materials	web	2023-12-15 23:56:26	2023-12-15 23:56:26
3	view.material	web	2023-12-15 23:56:26	2023-12-15 23:56:26
4	edit.material	web	2023-12-15 23:56:26	2023-12-15 23:56:26
5	delete.material	web	2023-12-15 23:56:26	2023-12-15 23:56:26
6	add.product	web	2023-12-15 23:56:26	2023-12-15 23:56:26
7	view.product	web	2023-12-15 23:56:26	2023-12-15 23:56:26
8	edit.product	web	2023-12-15 23:56:26	2023-12-15 23:56:26
9	delete.product	web	2023-12-15 23:56:26	2023-12-15 23:56:26
10	add.category	web	2023-12-15 23:56:26	2023-12-15 23:56:26
11	edit.category	web	2023-12-15 23:56:26	2023-12-15 23:56:26
12	delete.category	web	2023-12-15 23:56:26	2023-12-15 23:56:26
13	add.unit	web	2023-12-15 23:56:26	2023-12-15 23:56:26
14	edit.unit	web	2023-12-15 23:56:26	2023-12-15 23:56:26
15	delete.unit	web	2023-12-15 23:56:26	2023-12-15 23:56:26
16	add.user	web	2023-12-15 23:56:26	2023-12-15 23:56:26
17	delete.user	web	2023-12-15 23:56:26	2023-12-15 23:56:26
18	material.invoice	web	2023-12-15 23:56:26	2023-12-15 23:56:26
19	product.invoice	web	2023-12-15 23:56:26	2023-12-15 23:56:26

Figure 7.4 Structure of Permissions table

Products table

id	Product_Image	Product_Name	Price	Unit_Type	Category	Stock	Description
1	/storage/product_images/17024948121.png	Cake	665	Piece	Cakes	56	Nice
2	/storage/product_images/17024948682.png	Burger	110	Piece	Bread	66	Healthy
3	/storage/product_images/17024949103.png	Biscuit	69	KG	Biscuits	77	Healthy
4	/storage/product_images/17024949676.jpg	Jambo Burger	150	Piece	Cookies	6	Nice

Figure 7.5 Structure of Products table

Raw Materials table

id	Material_Image	Material_Name	Price	Unit_Type	Stock	Description
1	/storage/material_images/17024951251.png	Sugar	140	KG	333	Low prices to sell
2	/storage/material_images/17024951533.png	Salt	50	KG	100	Healthy
3	/storage/material_images/17024951842.png	Egg	10	PCS	498	Low price
4	/storage/material_images/17024952104.png	Flour	80	KG	66	Wow low price

Figure 7.6 Structure of Raw Materials table

Customers table

id	c_picture	c_fullname	c_username	c_about	c_email	password	c_address	c_city
1	NULL	Shahriair Lemon	lemona	NULL	shahriairlemon@gmail.com	$2y$10$38Eli9AOn28laAHDV0ExOuQ.4ys0m.cbi9lMKZSfmQ/...	NULL	NULL
2	/storage/customer_images/17024953582.png	Shahriair Alam	shaib33	NULL	shahriairglemon@gmail.com	$2y$10$6wXYjXVHW4IY8jMdwvwgG.QcV6l06EKpImnsHlcxp4R...	Belaichandi	Parbatipur
3	/storage/customer_images/17024954592.png	sakib hasan	shaib33	NULL	sakib@gmail.com	$2y$10$e7LvPy1T1vhC4MlTcPE53.pXbgZn/FquPl0P.H4jgXc...	74/d	uttara
4	/storage/customer_images/17024955336.jpg	Shahriaira	shahriair33	NULL	shakib44@gmail.com	$2y$10$S5t3t13H8.pQZnrITSc0reAtmf9lpWGHncO2bzNiSvQ...	road 5/e	Dinajpur

Figure 7.7 Structure of Customers table

Carts table

email	id	name	phone	address	material_name	price	quantity	image	material_id	user_id
admin@gmail.com	3	admin	NULL	NULL	Egg	330	33	/storage/material_images/17024951842.png	3	1
admin@gmail.com	4	admin	NULL	NULL	Flour	1680	21	/storage/material_images/17024952104.png	4	1
admin@gmail.com	2	admin	NULL	NULL	Salt	2200	44	/storage/material_images/17024951533.png	2	1
admin@gmail.com	1	admin	NULL	NULL	Sugar	840	6	/storage/material_images/17024951251.png	1	1

Figure 7.8 Structure of Carts table

Orders table

id	name	email	mobile	address	user_id	delevery_status	total_price	payment_status	order_note
1	Shahriair Alam	shahriairlemon@gmail.com	01935586601	Belaichandi	1	Processing	5050	Cash_On_Delivery	NULL
2	sakib	sakib@gmail.com	0174563564	uttara sector 11	1	Processing	4210	Cash_On_Delivery	NULL
3	Lemon	lemon@gmail.com	0165345342	kamarpara	1	Processing	2010	Cash_On_Delivery	NULL
4	AMi	ami@gmail.com	01916472942	Asulia bazar	1	Processing	1680	Cash_On_Delivery	NULL

Figure 7.9 Structure of Orders table

Order details table

id	order_id	product_name	price	quantity	subtotal	c
1	1	Sugar	140	6	840	2
2	1	Salt	50	44	2200	2
3	1	Egg	10	33	330	2
4	1	Flour	80	21	1680	2
5	2	Salt	50	44	2200	2
6	2	Egg	10	33	330	2
7	2	Flour	80	21	1680	2
8	3	Egg	10	33	330	2
9	3	Flour	80	21	1680	2
10	4	Flour	80	21	1680	2

Figure 7.10 Structure of Order details table

7.2 Interface Designing

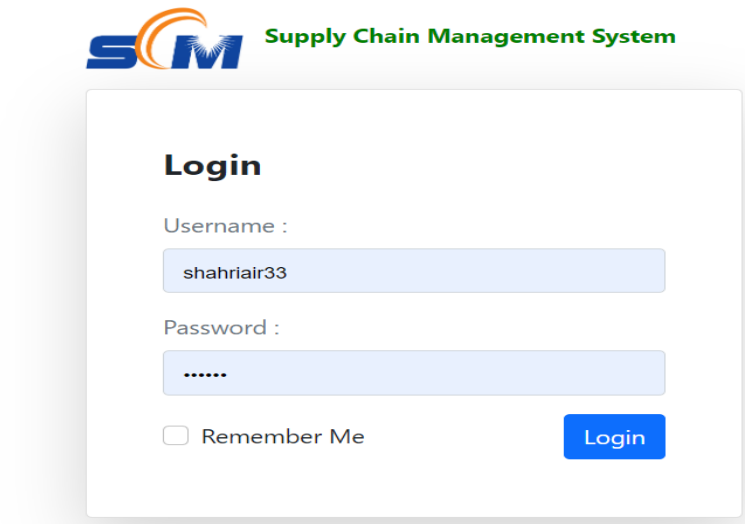

Figure 7.11 System User Login interface

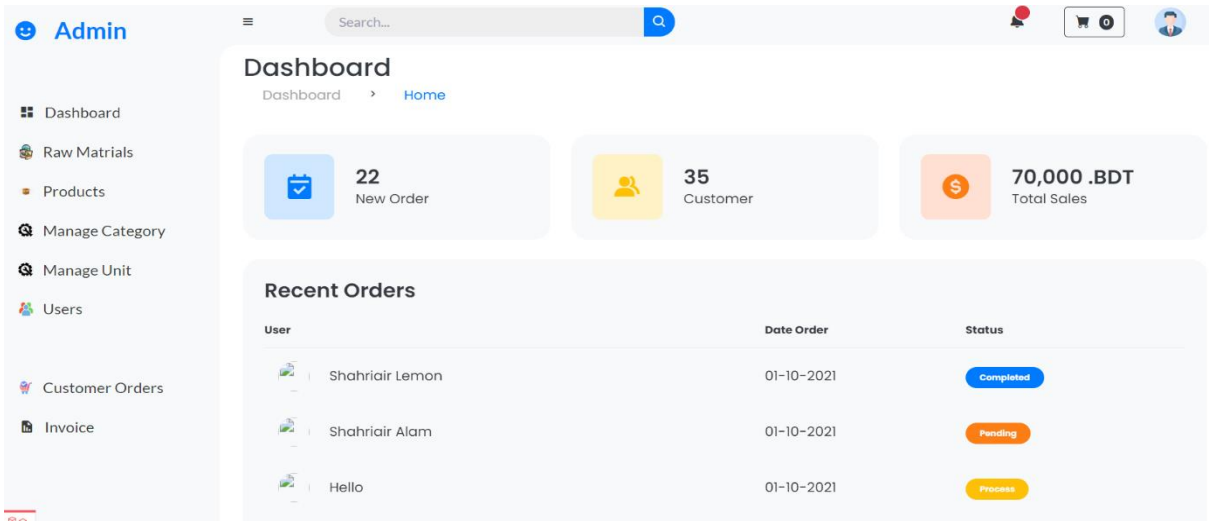

Figure 7.12 System User Dashboard interface

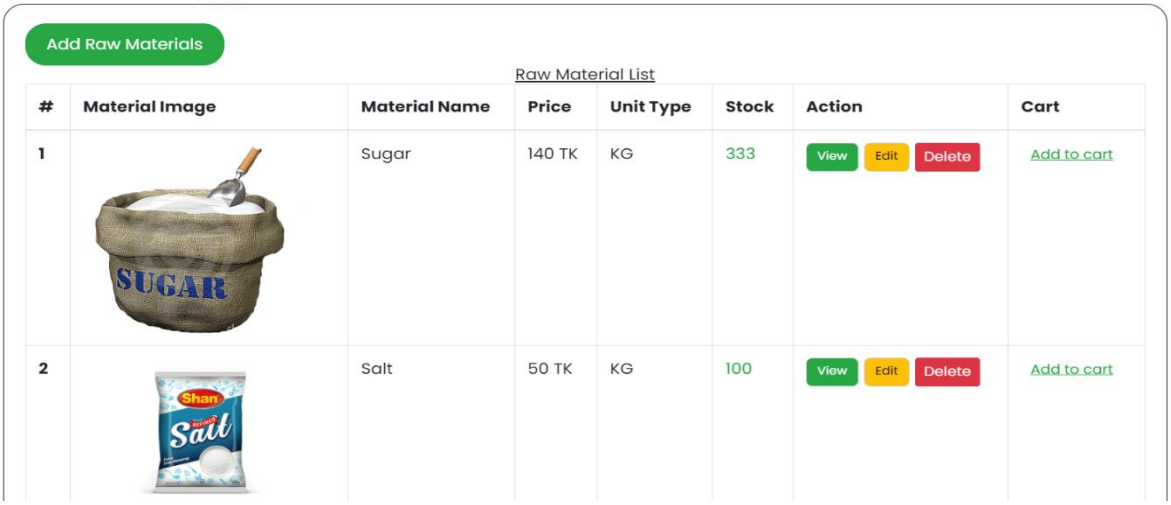

Figure 7.13 Materials page interface

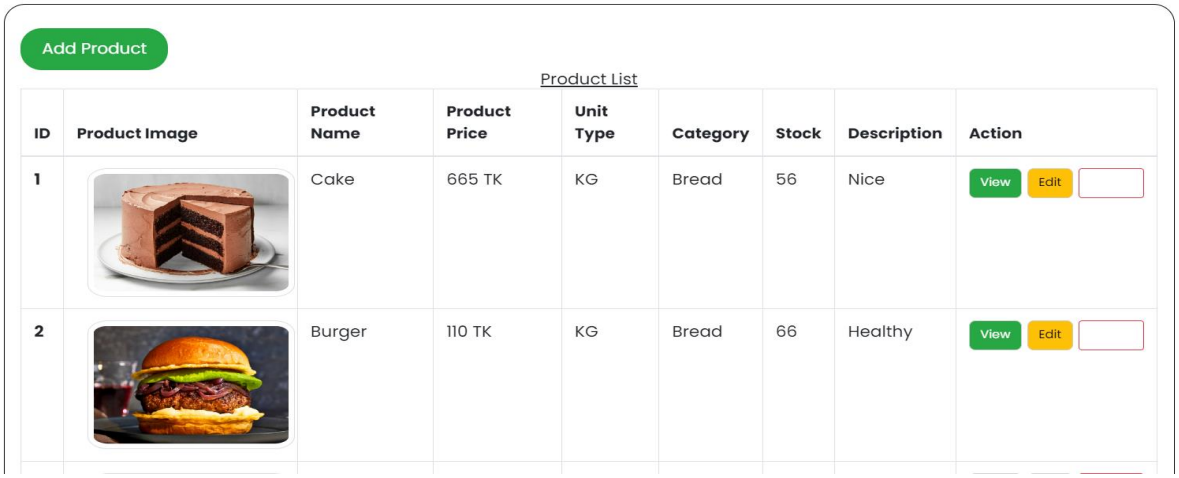

Figure 7.14 Products page interface

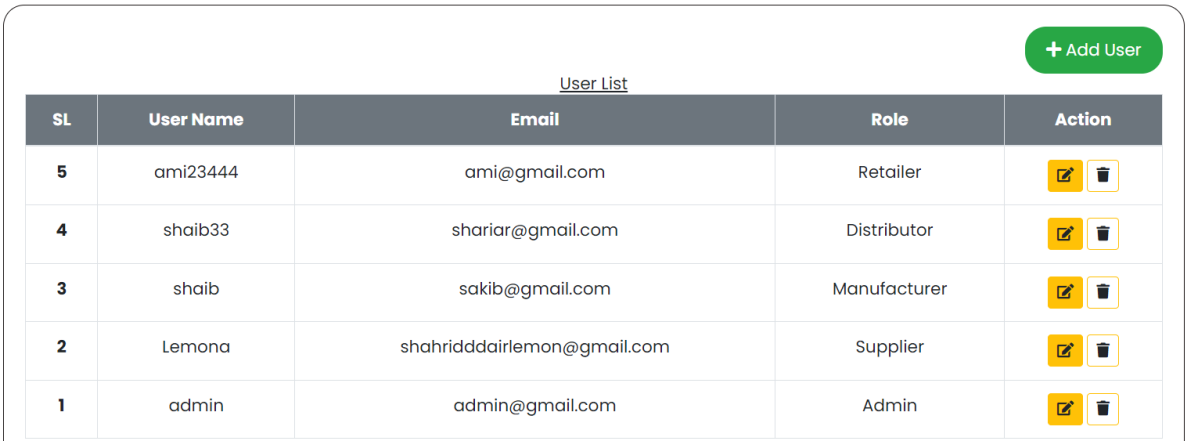

Figure 7.15 Users page interface

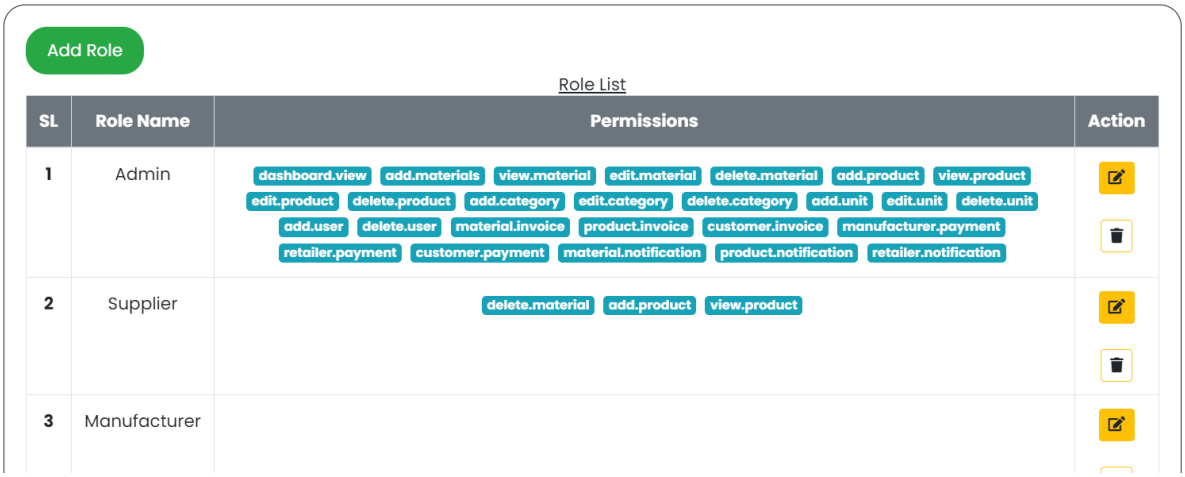

Figure 7.16 Roles and Permissions page interface

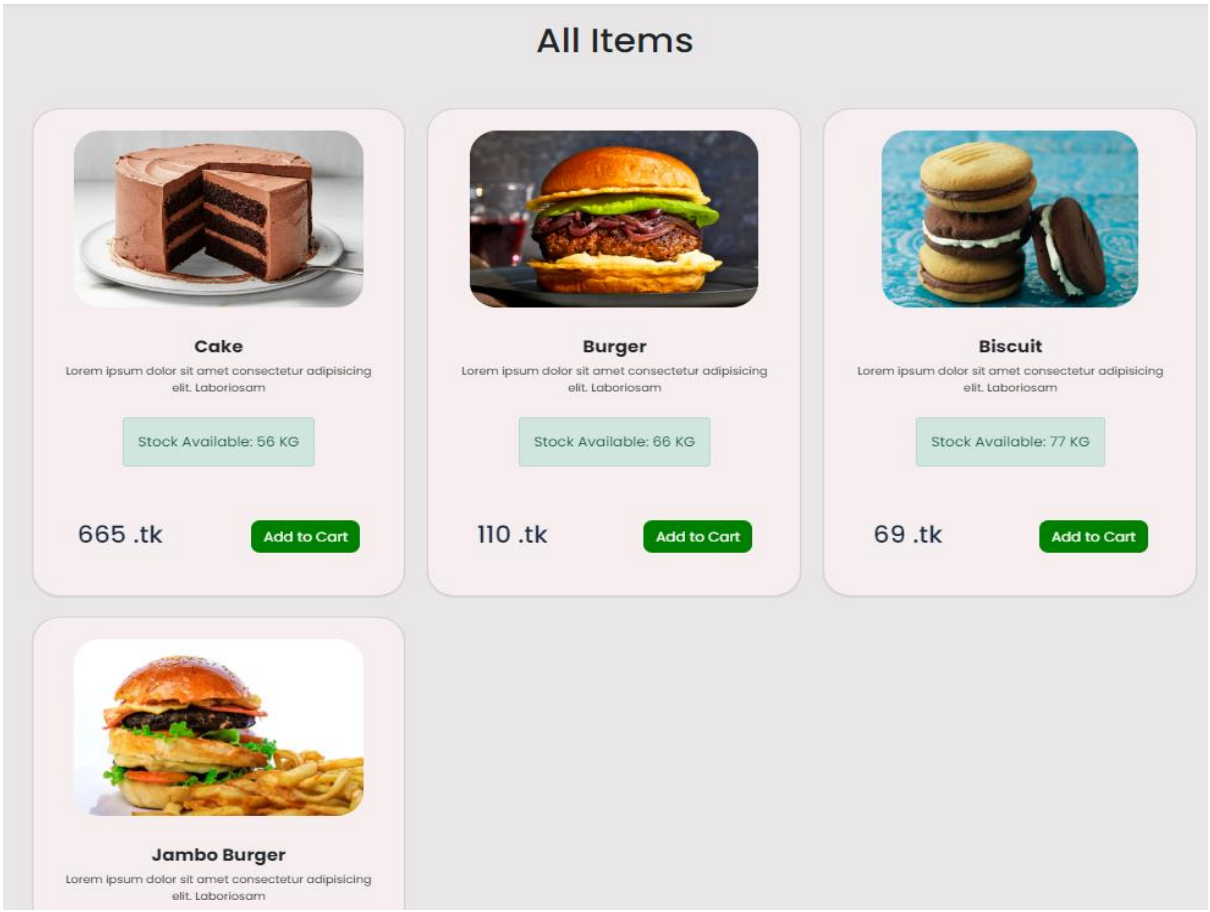

Figure 7.17 Website interface

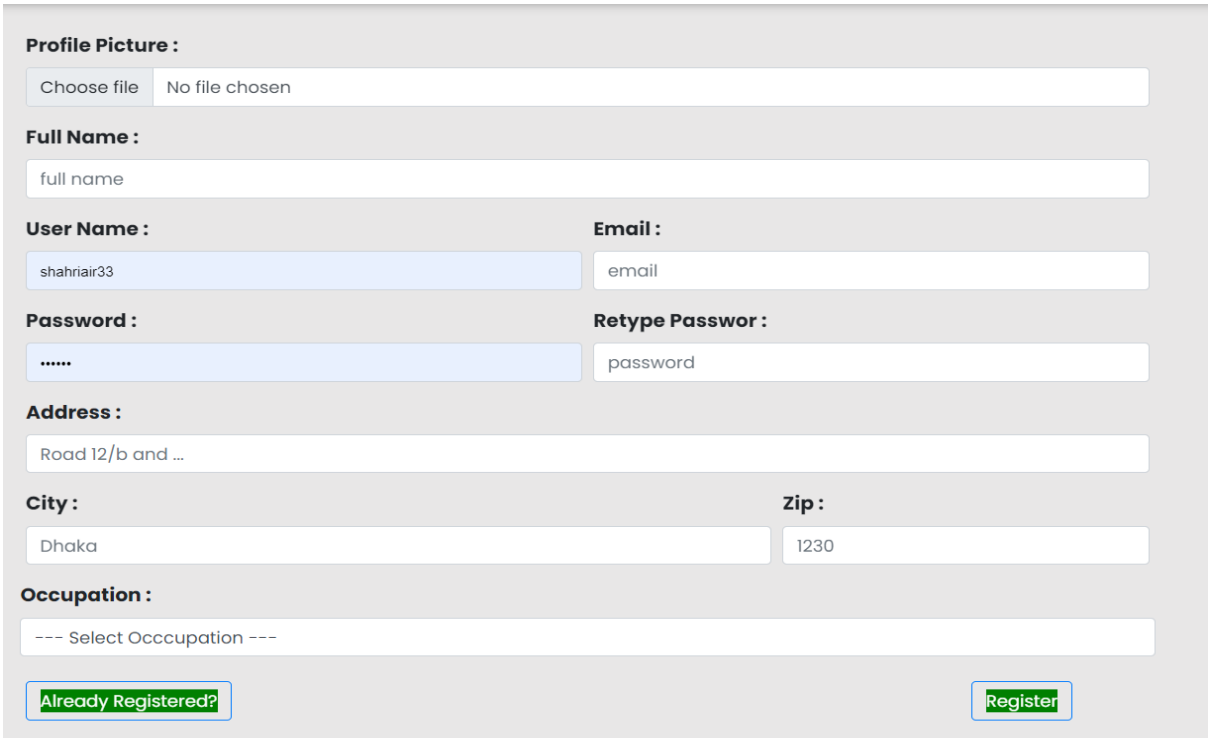

Figure 7.18 Customer Registration page interface

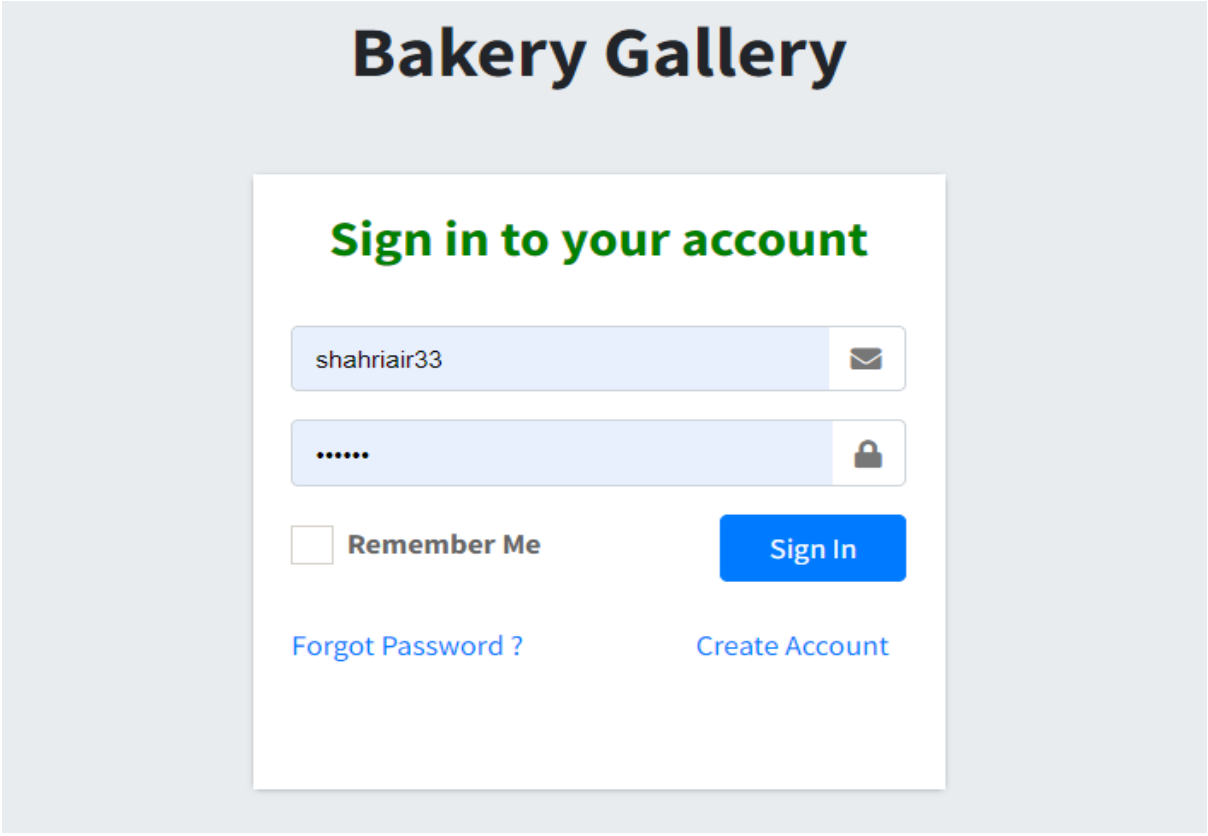

Figure 7.19 Customer Log interface

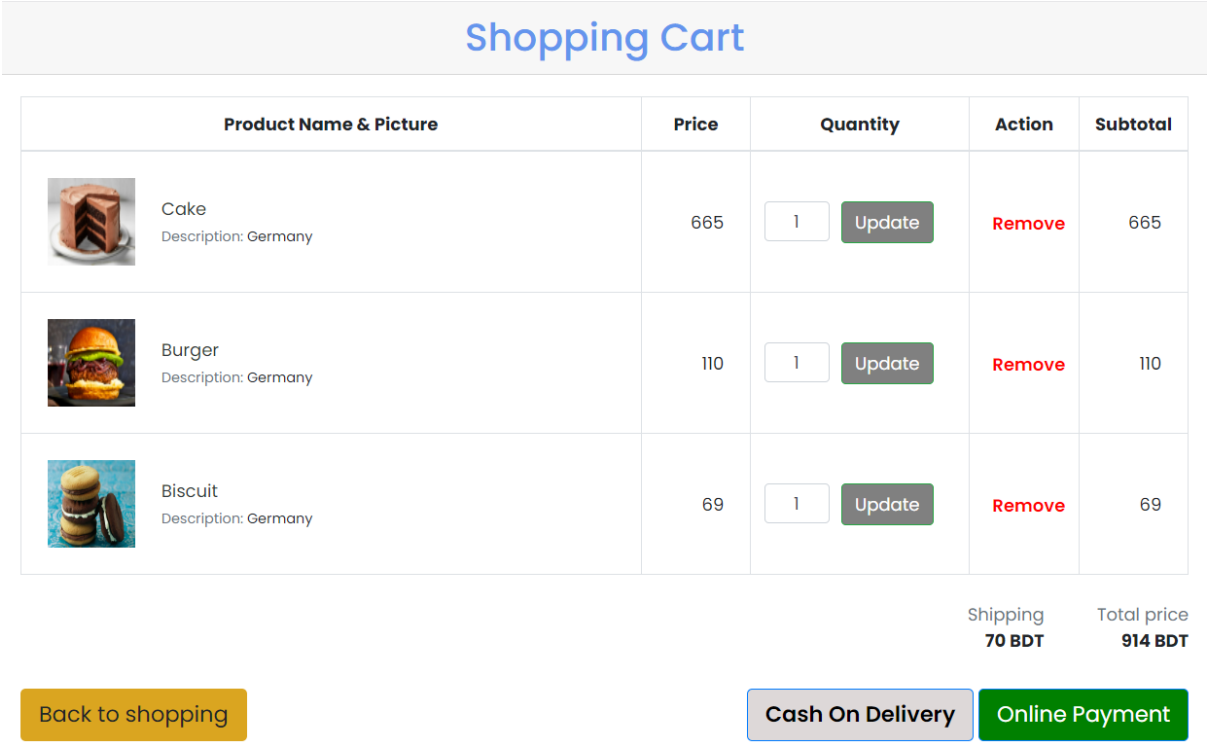

Figure 7.20 Shopping Cart interface

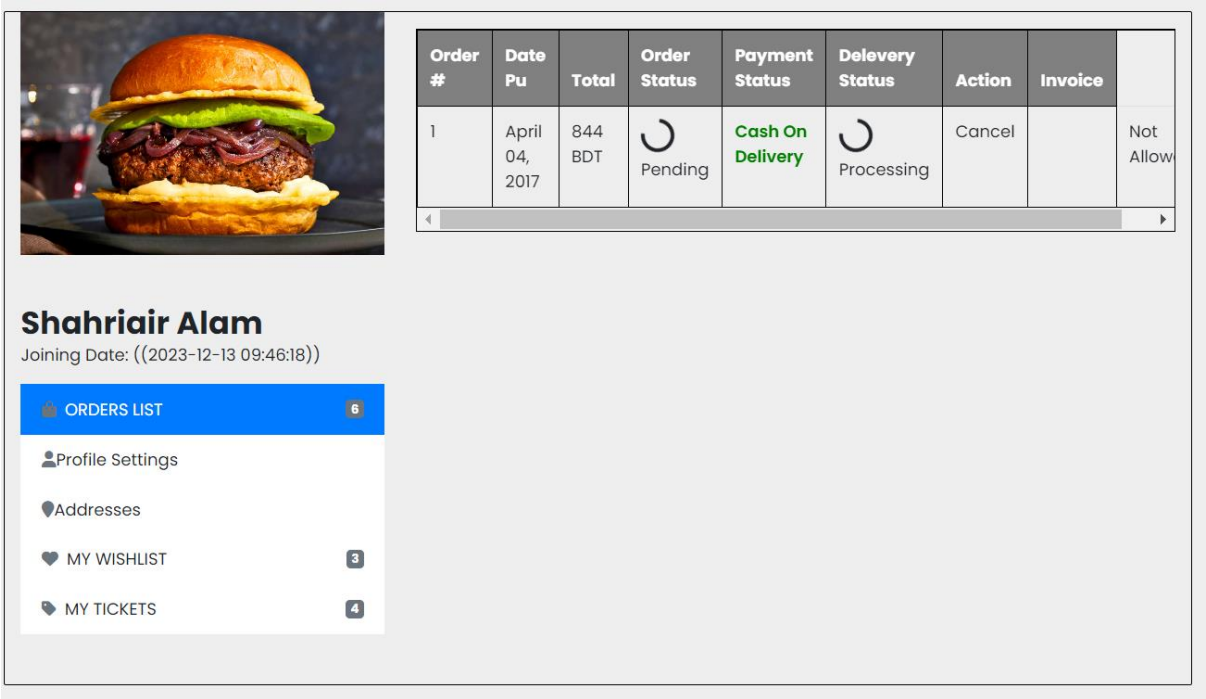

Figure 7.21 Customer profile interface

Chapter 8. Quality Assurance

8.1 Software Testing

Software testing involves evaluating a software item to identify discrepancies between provided input and anticipated output, as well as examining the characteristics of the software item. It aims to gauge the quality of the product and is an integral part of the development process, serving as a verification and validation process.

Verification and Validation process

During the verification phase, the client has the choice to either inspect the program or observe its performance in a test environment. It is essential for the client, with specific software requirements and expectations, to confirm that the product aligns with the initially specified characteristics. Only after obtaining this assurance should the subsequent steps in the verification and validation process proceed. While this phase does not represent the final opportunity for adjusting the program to meet its intended functions, it does signify one of the last stages before project completion. Hastily approving the software at this point may lead to potential issues later, requiring additional expenses for future software revisions.

The purpose of a system audit is to provide an impartial assessment of compliance with running laws, standards, guidelines, plans, and procedures concerning software products and processes. This audit follows a formally structured approach, with participants assuming designated roles such as lead auditor, auditor, recorder, initiator, and a representative from the organization under audit. The audit aims to identify instances of nonconformance and generate a report that necessitates corrective measures to be implemented by the team.

8.2 Software Testing Strategy

Black box testing: Black box testing doesn't require an in-depth understanding of the internal architecture or knowledge of the code; it primarily focuses on functionality, specifications, and requirements. Conversely, white box testing involves a comprehensive understanding of the

core design and code, subjecting specific code statements and coding styles to tests.

Unit Testing: Unit testing examines specific functions or code modules at the smallest scale and is typically conducted by the programmer due to its requirement for a thorough understanding of the internal program architecture and coding.

Incremental integration testing: Incremental integration testing involves testing a program regularly as new features are added. Different aspects of the application's functionality must be sufficiently independent to work individually before all sections of the programmer are completed or test drivers are produced, with programmers or testers overseeing this process.

Functional Testing: Functional testing, focusing on an application's functional requirements, is performed using black box testing. Software testers are typically responsible for this, although programmers should also test their code before release.

System testing: System testing, conducted in a black box, is based on overall requirements specifications, encompassing all components that constitute a system. End-to-end testing is similar to system testing, involving putting the entire application environment through its paces in a real-world setting, potentially interfacing with databases, communicating across networks, or interacting with other hardware, software, or systems.

Load/stress/performance testing evaluates how well an application handles substantial loads, simulating high-traffic situations to identify when the system starts to fail or cause problems.

Usability testing: Usability testing assesses whether a program is user-friendly and is determined by the client or user through methods such as interviews, surveys, video recordings, etc. Programmers and testers are generally unsuitable for the role of usability testers.

Security Testing: Security testing evaluates how effectively a system protects itself from illegal access, both internally and externally, as well as malicious damage, possibly requiring advanced testing procedures.

Compatibility testing: Compatibility testing assesses the software's performance in various environments, including hardware, software, operating system, and network environments. For instance, testing a website in different browsers and browser versions.

8.3 Testing Design

Table 8.1 Testing Scenario 1

Testing Scenario No:1	
Scenario	Login testing scenario of our system
Input	Username and password of all users for login
Desired Output	When enter username, password then get access level define.
Actual Output	For login our system works properly.
Verdict	Getting result from desired outputs and actual outputs decided this system is successful for login.

Table 8.2 Testing Scenario 2

Testing Scenario No:2	
Scenario	Create account testing scenario of our system
Input	All the information of customer.
Desired Output	Valid account created.
Actual Output	For creating account to our system works properly.
Verdict	Getting result from desired outputs and actual outputs decided this system is successful for creating account.

Table 8.3 Testing Scenario 3

Testing Scenario No:3	
Scenario	Insert items details testing scenario of the system
Input	System users will give all the items information as input.
Desired Output	User will get a confirmation message.
Actual Output	For managing items our system works properly.
Verdict	Our system is worked correctly and successfully.

Table 8.4 Testing Scenario 4

Testing Scenario No: 4	
Scenario	Manage ordering process testing scenario of the system
Input	User will add product to the cart and place order by providing their information.
Desired Output	User will get confirmation message for add to cart and place order.
Actual Output	I check this process and get actual outputs
Verdict	Our system is worked correctly and successfully.

Table 8.5 Testing Scenario 5

Testing Scenario No: 5	
Scenario	Payment testing scenario of the system
Input	User will insert Payment Details if it is online payment.
Desired Output	User will be notified order placed successfully that means payment is done. Admin and other authorized user will check the payment status.
Actual Output	After testing I got the desired output. So, this is successful.
Verdict	The system is worked correctly and successfully.

Table 8.6 Testing Scenario 6

Testing Scenario No: 6	
Scenario	Report Generation testing scenario of the system.
Input	Admin and other authorized user will generate report by clicking the report button.
Desired Output	Report generation with all data
Actual Output	The report was generated perfectly with all data elements. So, this is successful..
Verdict	The system is worked correctly and successfully

Chapter 9. Conclusion

9.1 Preface

In the contemporary era marked by advancements in science, technology, and online communication, the seamless functioning of operational and management processes is crucial for development. A dedicated team of software specialists at Kodeeo Limited is diligently collaborating to ensure continuous and enhanced services for employees. I feel fortunate and grateful for the opportunity to work alongside these efficient, hardworking, and amiable engineers. My heartfelt thanks and appreciation go out to these remarkable individuals.

9.1.1 Practicum and Its Value

Working hard in your job can help you move up, just like putting in effort in other parts of life. We think that doing a hands-on program called a Practicum can link what you learn in engineering college to real-world jobs.

Doing a Practicum has many good points for students:

- It shows how to use what you learn in a practical way.
- It helps you get better at things in the area you're studying.
- It makes you more likely to get a job.

Practicum is not just about getting hands-on experience; it also helps you fit in better with society. Meeting new people and trying new things gives you a practical view of life. There are some challenges during a Practicum that you can only understand if you go through them.

This program connects what you learn in school with real-world skills, helping you start a professional career. Nowadays, companies that hire engineers like it when you have practical experience more than just good grades. So, doing a Practicum can be an advantage for new engineers looking for a job.

At the College of Engineering and Technology (CEAT) at IUBAT, students do this Practicum program for one semester, after they finish their regular classes. They work on it for 6 credit hours, and after completing it, they write a report, do a presentation, and take a big test covering everything they learned in the four years of their education.

9.2 Conclusion

My internship at Kodeeo Limited has been an incredible experience. In just 12 weeks, I've learned a lot that will have a positive impact on my future career goals. During this internship, my assignment was to complete a project called "Supply Chain Management System for Bakery Products." This report provides detailed information about the project, including its development phases and strategies.

Supply Chain Management System for Bakery Products is a system designed to efficiently manage the production and delivery of bakery products, optimizing processes and ensuring quality. Implementing an effective Supply Chain Management System for bakery products in Bangladesh holds great promise for enhancing efficiency and ensuring the consistent delivery of high-quality goods. The adoption of advanced technologies and streamlined processes can address existing challenges within the supply chain, promoting cost-effectiveness and operational excellence. Collaboration among key stakeholders, including suppliers and distributors, is essential for the successful integration of this system. Regular monitoring and evaluation will be crucial to identify areas for improvement and ensure the sustained success of the bakery's supply chain. By embracing these advancements, bakeries in Bangladesh can position themselves for long-term success, contributing to the growth of the industry while meeting the demands of a dynamic market.

Throughout the project development, I encountered various challenges, with the most significant being the constraint of time. The time limitation imposed several constraints on the project. Should I be afforded the opportunity to continue working on this system, I have

comprehensive plans to transform it into an ideal "Supply Chain Management System for Bakery Products."

9.3 Limitations

Due to time constraints, constructing an ideal system proved challenging, resulting in several limitations within the "Supply Chain Management System for Bakery Products."

The limitations are:

- There is no shipping option for every chain. Shipping facility is available only for customer.
- There is no option for live customer support.
- It might struggle if the bakery gets a lot bigger or if things change a lot.
- There is no mobile OTP verification.

9.4 Future Plan

If I get to keep working on this project, I have ideas to make it work better for everyone.

The followings are the future plans:

- I will make the shipping facility for every chain in this system, not only for the end user.
- I will keep live customer support.
- If the bakery size is bigger then I will change the functionality so that it works fine for the large data. Also I will change my database server.

Glossary

Short Name	Abbreviations
DFD	Data Flow Diagram
ERD	Entity Relationship Diagram
RE	Requirement Engineering
CC	Customer Communication
FP	Function Point
FTR	File Type Reference
DET	Data Element Type
RET	Record Element Type
UFP	Unadjusted Function Point
AFP	Adjusted Function Point
TDI	Total Degree of Influence
RMMM	Risk Mitigation, Monitoring, and Management Plan

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