Sri Lanka Institute of Information Technology

Pharmaceutical Management System

Software Requirement Specification

Information Systems Project 2024

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Revision History

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1. Introduction

1.1 Purpose

The project aims to create a comprehensive "Desktop Pharmaceutical Management Application" for "Medicare Pharmaceuticals" to address the limitations and inefficiencies of the company's current manual methods. The Java programming language will be used to create an advanced software application that will automate and streamline crucial business tasks. The four main functional modules will address issues like inaccurate stock, customer support problems, and inefficient decision-making. The goal is to complete the application before the end of the semester to ensure a strong device for the ever-changing pharmaceutical industry.[3][4]

1.2 Document Conventions

IEEE standardized document conventions are followed by this project to guarantee consistency and clarity in the Software Requirements Specification (SRS). For ease of reading, the content uses Times New Roman font style and 12 font size. Main Heading uses 18 font size and Subheadings uses 14 font size. Those font sizes were used to highlight priority of the key features. The line spacing in the content is 1.5 and all the page numbers are at the right corner. All the diagrams in this SRS document are named in the same structure.

1.3 Intended Audience and Reading Suggestions

This document is intended for developers, project managers, pharmacist, QA engineers, System maintenance engineers and documentation writers working on this project. Technical specifications for developers, QA engineers and system maintenance engineers may be found in the system architecture sections, while project managers can learn about the project scope, timing, and budget forecasts in the overview sections and plan the system development process. Pharmacist will read about application capabilities such as inventory management and sales through extensive descriptions and check whether system meet her requirements. Documentation writers will find extensive resources for producing user manuals. It is recommended to begin with overview parts before delving into detailed specifics pertinent to each function.

1.4 Product Scope

The "Desktop Pharmaceutical Management Application" is being developed for "Medicare Pharmaceuticals" to streamline their operations and improve operational efficiency. The software aims to automate critical processes such as medicine inventory management, stock details, supplier and employee management, customer and order management, and sales and billing. It uses Java programming to offer real-time data accuracy, automated processes, and sophisticated functionalities across four main modules. The key benefits include effective inventory management, improved stock control, improved supplier relationships, enhanced customer service, increased employee productivity, order accuracy, data-driven decision-making capabilities, customer loyalty enhancement, financial accuracy, and advanced business analysis.[3][4]

Some of the key benefits of the proposed system:

- Effective Inventory Management
- Better Stock Management
- Improvement of Supplier Relationships
- Improved Customer Service
- Employee Productivity
- Order accuracy.
- Data-Driven Decision Making
- Customer Loyalty
- Financial Accuracy
- Business Analysis
- Financial Reporting

1.5 References

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2.Overall Description

2.1 Product Perspective

From a product point of view, the Java Desktop Pharmacy Application for Medicare Pharmaceuticals includes a full suite of capabilities designed to streamline pharmacy operations. Its primary functions include efficient management of medicine inventories, dealing with clients, order processing, and sales tracking. In terms of pharmaceutical inventory management, the application allows for the seamless addition, updating, and deletion of medicines, as well as real-time stock management based on expiration dates and inventory levels. This ensures effective stock control and timely replacement. Customer and staff management functions allow for the simple insertion, update, and removal of customer and employee information, improving service delivery and internal organization. The system also calculates loyalty points for customers, which improves customer retention and engagement. The order details management system confirms that orders are processed efficiently by allowing users to add, update, and delete order information, as well as validate stock availability. The automatic creation of unit prices, total order amounts, and detailed order reports improves the whole order fulfillment process. The sales and billing management element includes end-to-end sales operations such as net amount computation, loyalty point addition, discount generation for loyal clients, and receipt production in PDF format for detailed transaction documentation. Additionally, the program gives useful insights through monthly sales analysis, allowing for more informed decision-making and strategic planning. This includes finding top-selling medications, assessing overall net sales, and creating detailed monthly sales statistics. Overall, the program provides an effective and user-friendly platform meant to streamline pharmacy operations, improve customer experience, and increase business.[3][4][5]

2.2 Product Functions

2.2.1 Function 01 – Medicine Inventory & Stock Management

The suggested desktop pharmaceutical application for Medicare Pharmaceuticals has a systematic and efficient workflow for its Medicine Inventory and Stock Management function. Upon logging in, the pharmacist will be navigated to the Dashboard, where all the key business functions are accessible. After directing to the Medicine Inventory Management page, a comprehensive CRUD system will be displayed. Initiating with the addition of a new medicine, those details will be automatically incorporated into the "Available Medicines Table". The pharmacist will be able to view, modify, or remove medicine listings here, ensuring that the inventory is kept up to date. Using a medicine ID, the search function enables rapid access to specific medicine details. There is also a user input field that captures the initial stock quantity of all the newly added medicines.

"Re-ordering page" will navigate the user to the page with a table, which tracks the real-time medicine quantities of the currently available medicines.

The pharmacist will be able to update medicine quantities in the inventory, as stock arrives, and real-time stock movements are reflected in deductions made in response to customer orders. When necessary, an automated email feature speeds up the supplier re-ordering process. Using the reports generating feature, a thorough daily medicine inventory report is generated to wrap up the day.

The Stock management function provides a concurrent CRUD to manage the stocks effectively. In addition to offering facilities for adding, editing, removing, viewing, and searching available stock, the Stock Details page also highlights the number of days left before expiration. Through this meticulous procedure, Medicare Pharmaceuticals is guaranteed to manage its drug stock and inventory as efficiently as possible, improving overall accuracy and efficiency in day-to-day operations.[4][5]

2.2.2 Function 02 – Supplier & Employee Management

The objective of the second key business function, Supplier and Employee Management function, is to improve operational efficiency. Starting with the Supplier Management feature, the pharmacists can easily register new suppliers and link them to certain medicine IDs that they are supplying, because in this company every medicine is supplied only by a specific supplier.

The system provides an easy-to-use capability for updating supplier details and allows inactive suppliers to be permanently deleted from the system database. Pharmacists can type the supplier ID into a search field to filter and display specific supplier details.

Moving onto the employee management feature, the procedure starts registering new employees, whose information is added to a centralized "Employee Details" table. By erasing entries from the database permanently, the pharmacist is still able to make changes to employee data and start the resignation procedure.

Prominently, the feature allows the pharmacist to keep track of each employee's attendance with its special "Daily Attendance Tracking" feature. Based on daily attendance and the daily rate, monthly salary calculations are automatically generated.

It is possible to generate detailed salary reports at the end of each month. Medicare Pharmaceuticals' business operations are optimized overall because of this integrated approach to supplier and employee management, which guarantees a methodical and efficient workflow. [4][5]

2.2.3 Function 03 – Customer & Order Management

This third main business function is also reserved for the pharmacist, who can use it to manage orders and customers efficiently. The pharmacist can add new customers, update their information, and remove entries as needed. Effective and well-organized management is made possible by the pharmacist's capacity to search the registered customer database quickly and easily.

Only registered customers are allowed for order placing, which encourages effective customer interaction because every new registration earns a loyalty point. This improves customer relations and enhances customer satisfaction.

Because of the seamless connection between the order management system, the pharmacist may easily add, edit, remove, and search through orders. When there isn't enough inventory to complete an order, an integrated feature prevents incomplete transactions by displaying an error notification. This guarantees precise and consistent transactions in addition to improving the customer experience.

Accurate order listings give an in-depth review and include important details about order statuses, like completed or due orders. The pharmacist is more capable of tracking and handling each order's progress with efficiency because of this detailed overview.

In summary, the system that only the pharmacist has access to creates a solid basis for managing orders and customers. It offers an effortless and streamlined range of features that encourage accuracy, efficiency, and customer loyalty. [4][5]

2.2.4 Function 04 – Sales & Billing Management

The sales and billing management feature is precisely designed to efficient the invoicing process and effectively evaluate sales data. After completing a customer's order, the system methodically calculates the entire price due, taking into consideration the drugs purchased.

Loyalty points collected from prior transactions are considered, as well as discounts granted based on the customer's loyalty point status. After discounts are applied, the system accurately calculates the total amount to be paid by the customer, logging the payment, and computing the remaining balance. Detailed receipts with detailed information on purchased drugs, applied discounts, reward points used, and the total amount paid are provided for client reference, with the option of printing if asked.

The system continually updates clients' loyalty points and changes sales data to reflect the most recent transactions. In the event of any problems or changes to the purchase before the transaction is completed, billing information can be quickly deleted and cleared to assure correctness. Monthly sales data is thoroughly analyzed to establish overall sales revenue and the quantity of medications sold, allowing for the accurate identification of the month's best-selling medicine. This comprehensive sales analysis results in the creation of a full report summarizing monthly sales data for strategic insights and decision-making. [4][5]

2.3 User Classes and Characteristics

The project is designed for the use of main pharmacist of "Medicare Pharmaceuticals." The pharmacist will oversee all business functions and have full access to all capabilities, which requires a prominent level of technical skill. Main Pharmacist is also responsible for inventory management and customer relations and must have modest technical proficiency. Moreover, she also uses the app for sales interactions and have minimal technological skills. Moreover, she oversees billing and financial analysis, which necessitates a good accounting experience as well as technical skills. Effectively fulfilling the demands of the user is critical for effective implementation and adoption.

2.4 Operating Environment

Table 2.1 : Software & Hardware Requirements

Software	**Hardware**
NetBeans	Windows Server
MySQL	Monitor
Backup Software	Printer
Security Software (Antivirus Software & Firewall)	32 GB RAM
ChatGPT	2GHz Processor (i7 CORE)

2.5 Design and Implementation Constraints

Hardware limits, scalability problems, and regulatory compliance are some of the design and implementation constraints for the "Medicare Pharmaceuticals" Java Desktop Pharmacy Application. To begin, the application's performance may be influenced by the hardware limits of users' computers, potentially resulting in slower reaction times or reduced functionality on older or less capable devices. Second, guaranteeing scalability is critical to allowing for future expansion in data volume and user population. The application should be designed with scalability in mind to avoid performance degradation as the system grows. Finally, compliance with regulatory standards, such as HIPAA (Health Insurance Portability and Accountability Act) in the United States, limits data handling, storage, and security to safeguard patient confidentiality and meet legal obligations. To protect sensitive medical information, these limits require strong encryption algorithms, secure storage systems, and rigorous access controls. Addressing these limits necessitates careful attention during the design and implementation phases to ensure that the application fulfills performance objectives, scales successfully, and adheres to any rules.

2.6 Project Documentation

The project documentation for our comprehensive system, which includes medicine inventory and stock management, supplier and employee management, customer and order management, and sales and billing management, will consist of three key components: the Project Charter, Project Proposal, and Software Requirements Specification (SRS). These publications will act as thorough user manuals, with step-by-step instructions for each module. It is critical that we follow industry standards in our documentation to ensure user accessibility and clarity. To improve the user experience, we expect to include interactive guides in the program and give additional PDFs as additional resources. These tutorials will guide users through the functionality of each module, allowing them to fully utilize the system. We seek to adapt to varied learning preferences by providing multiple delivery forms, including interactive lessons and PDFs, and to ensure that users can easily access and use the system's capabilities. Our documentation strategy prioritizes clarity, accessibility, and user empowerment, resulting in a seamless user experience for our stakeholders.[6][7]

2.7 User Documentation

The user documentation for the Java Desktop Pharmacy Application for "Medicare Pharmaceuticals" contains detailed guidance for both demonstration and user operation. A complete demo manual has been created to provide step-by-step instructions for demonstrating the application's functionality. This handbook explains how to use the application, access each of the four core business activities, and execute important tasks like adding, updating, deleting, and searching for data on medicines, customers, employees, and orders. It also shows how to build reports and evaluate monthly sales data successfully. The user manual is a comprehensive reference guide for application users. It provides thorough descriptions of each feature and function in the application, as well as clear instructions for how to complete specific tasks. Pharmacist will learn how to effectively manage medicine inventory and supplier information, customer and personnel management, order data, and sales and billing. The manual also explains how to calculate loyalty points, generate discounts, manage payments, and generate receipts. It also demonstrates how to assess monthly sales, identify the best-selling drugs, and develop sales reports to gain comprehensive business information. Both instructions attempt to help customers use the application effectively and optimize its benefits for pharmaceutical business operations.[6][7]

2.8 Assumptions and Dependencies

This project's assumptions and dependencies serve a crucial part in determining how it is developed and executed. The company will only sell medications, only pharmacists will have access to the system, and doctors managing centers and neighborhood pharmacies will be the company's main customers. Other important concerns are the requirement to register new suppliers prior to supplying medications and the assumption that orders can only be placed by registered customers. Another layer of assumption originates from the loyalty program, which gives each registered customer one loyalty point and a 5% discount. Dependencies include possible financial restrictions that could limit the scope of the project, technological limits that could affect the development of Java code, difficulties integrating third-party applications, adherence to legal requirements, and the effect that network infrastructure reliability has on system performance.

3. External Interface Requirements

3.1 User Interfaces

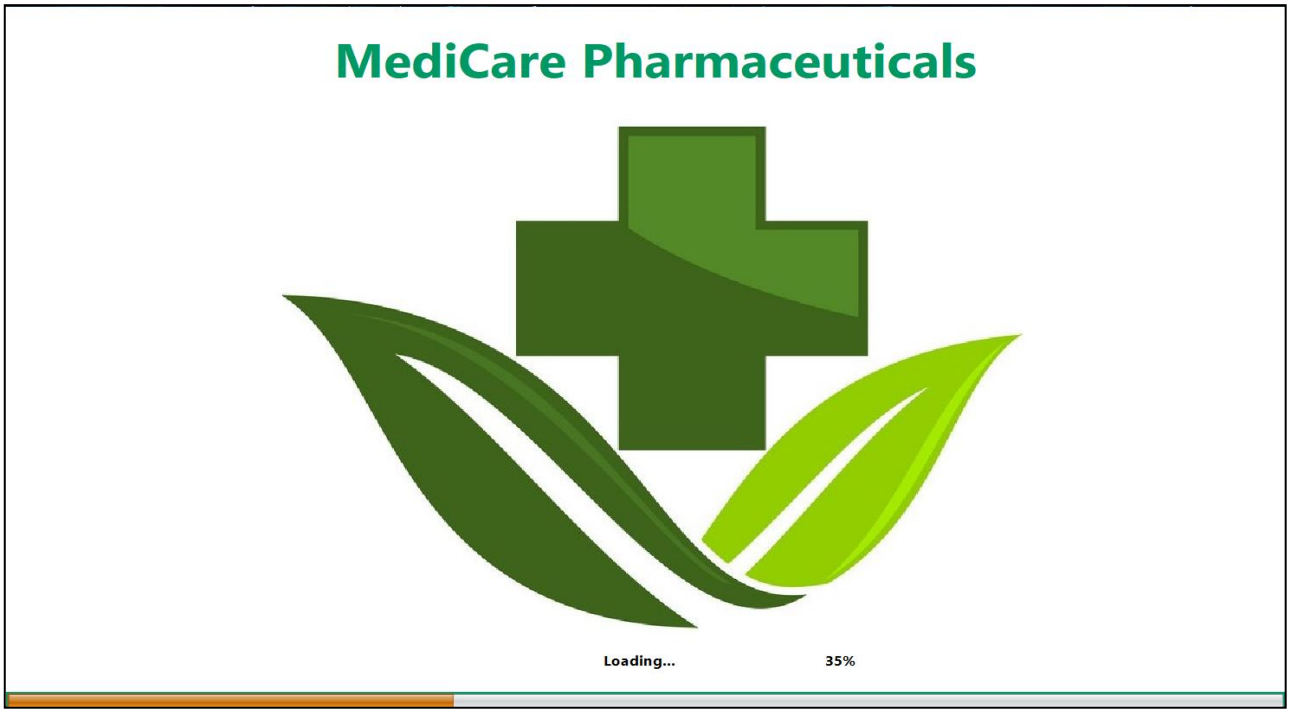

Figure 3.1: Splash Form

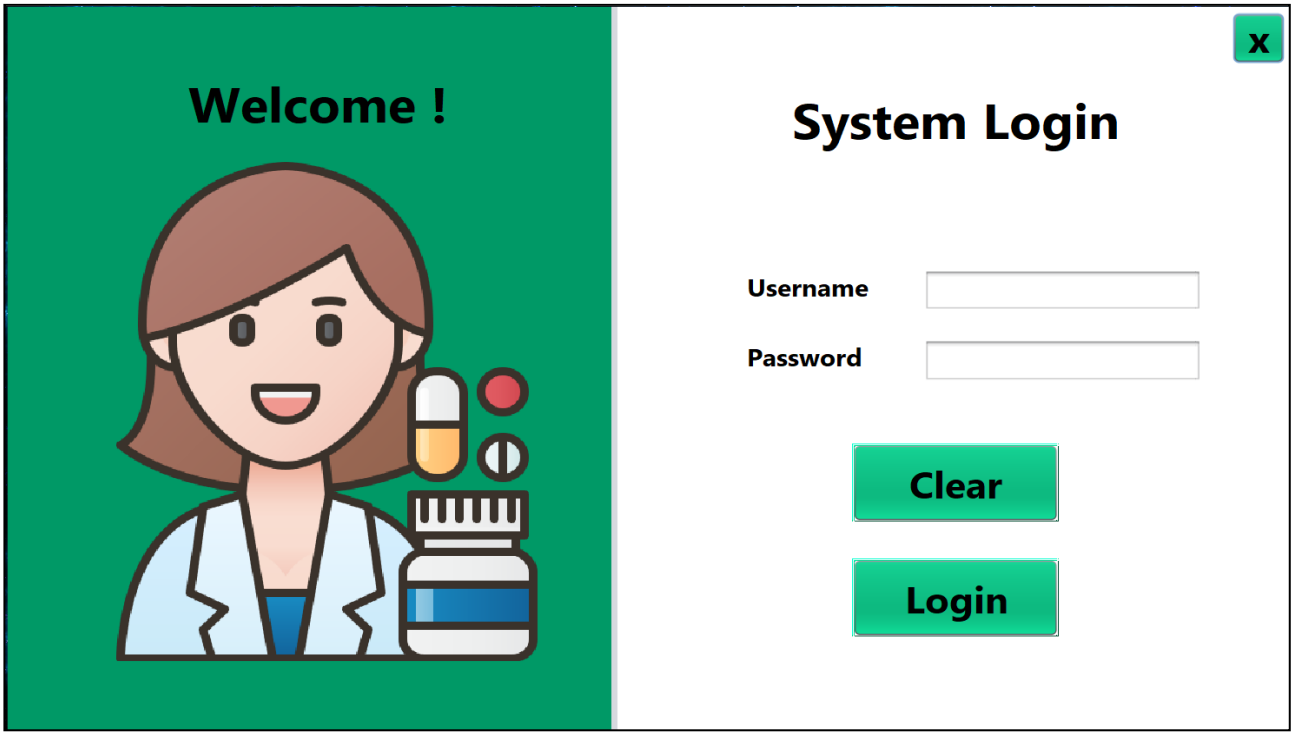

Figure 3.2: Login Form

Figure 3.3: Dashboard

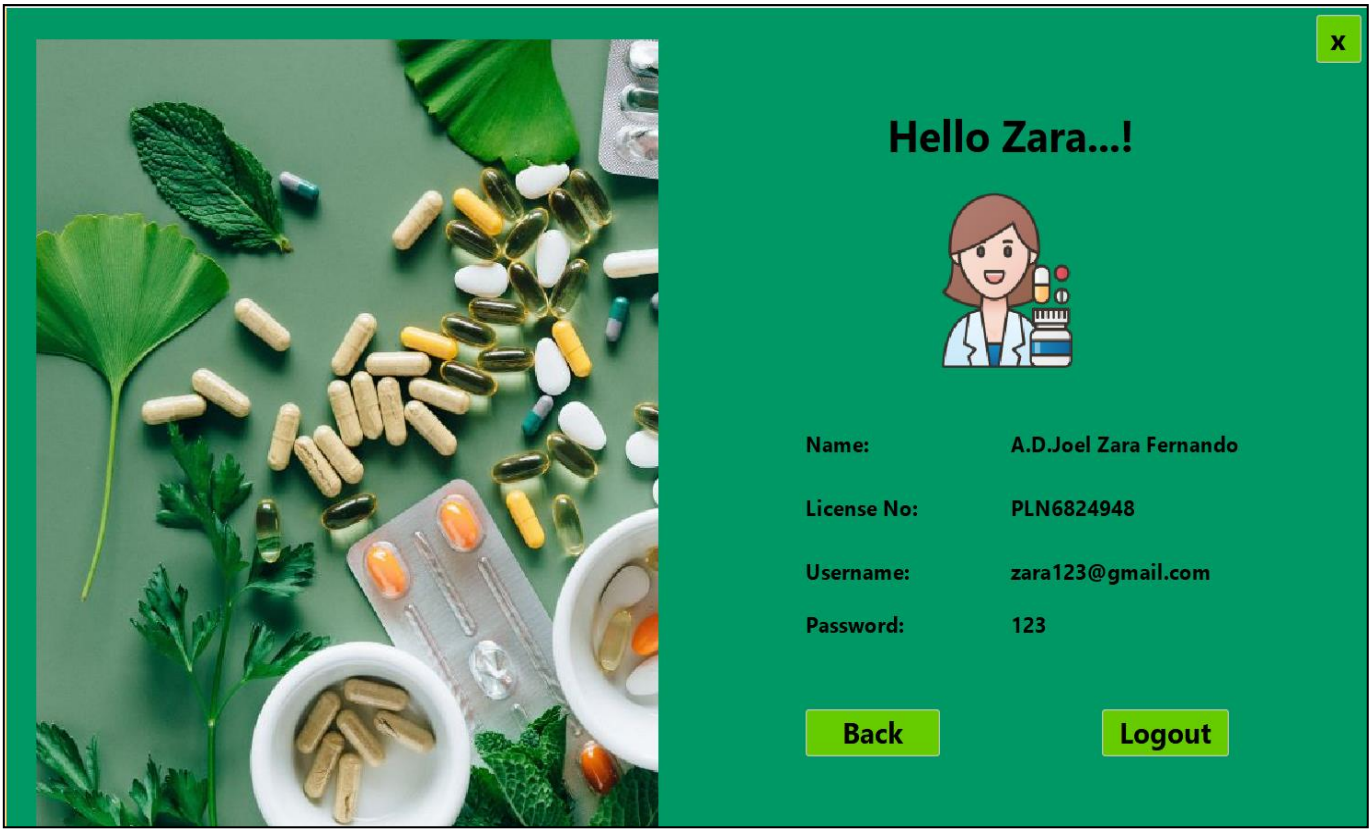

Figure 3.4: User Profile

- **Function 1 – Medicine Inventory & Stock Management**

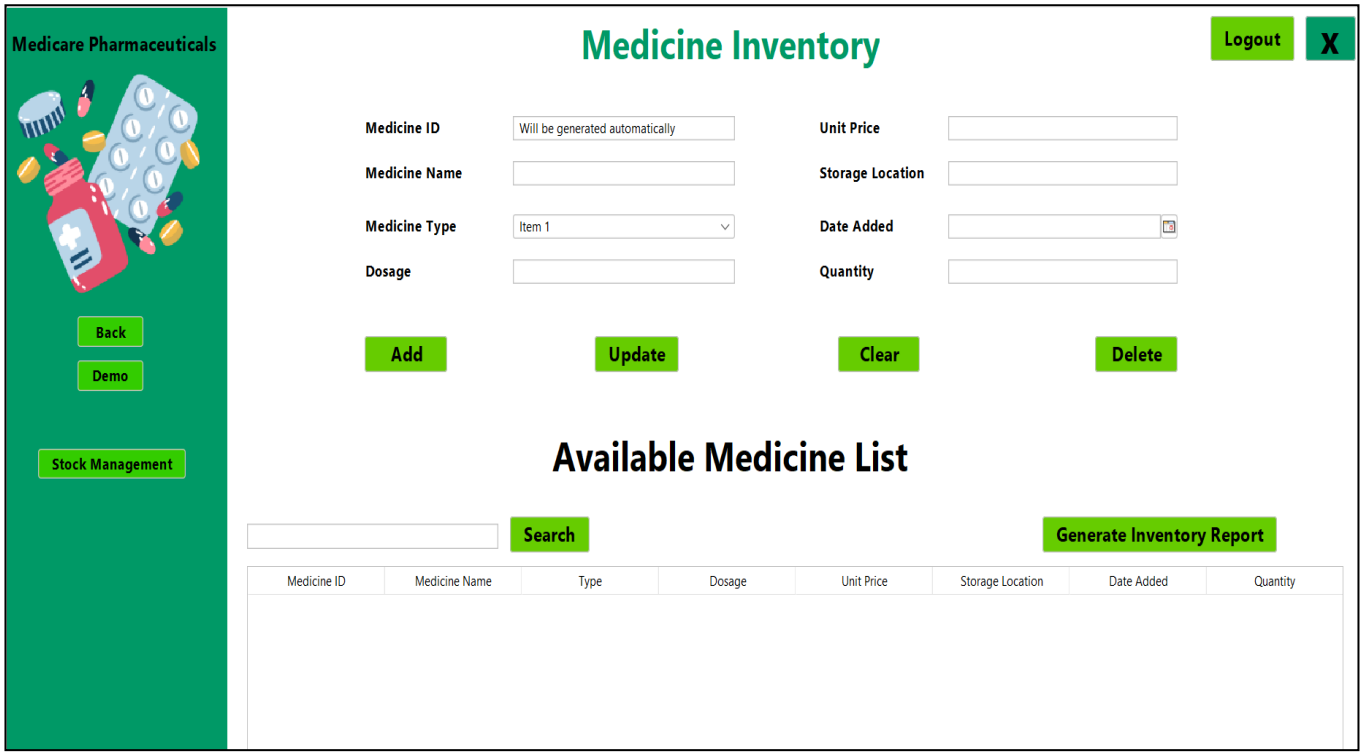

Figure 3.5: Medicine Inventory Page

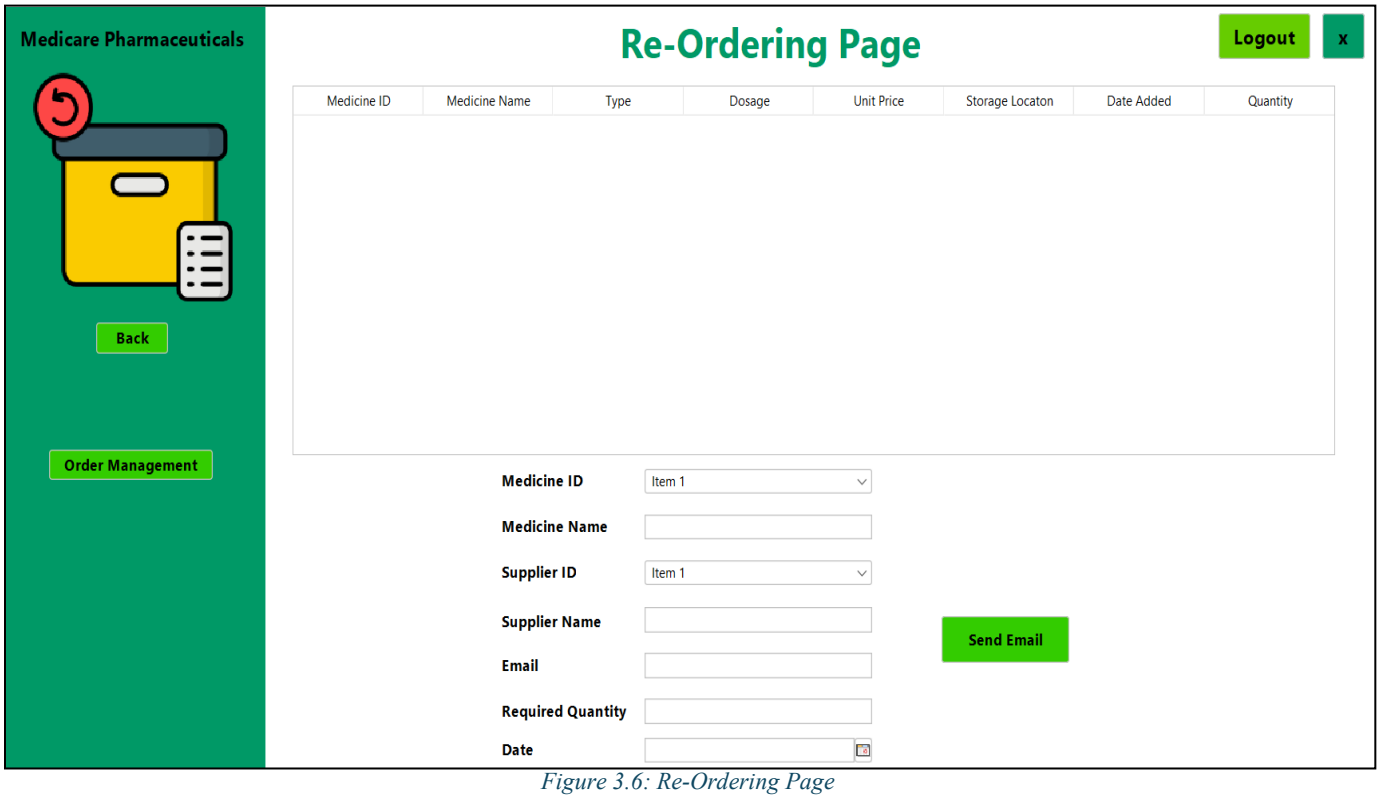

Figure 3.6: Re-Ordering Page

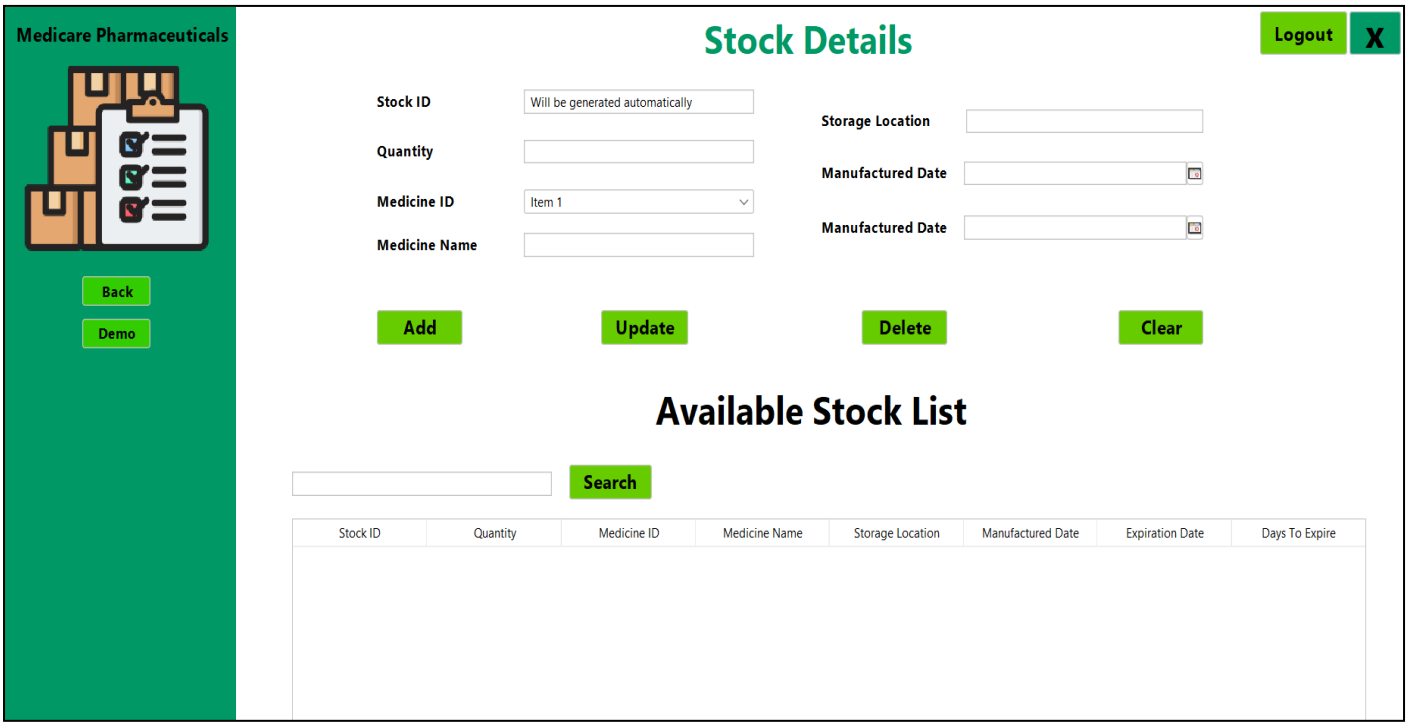

Figure 3.7: Stock Details

- **Function 2 - Supplier & Employee Management**

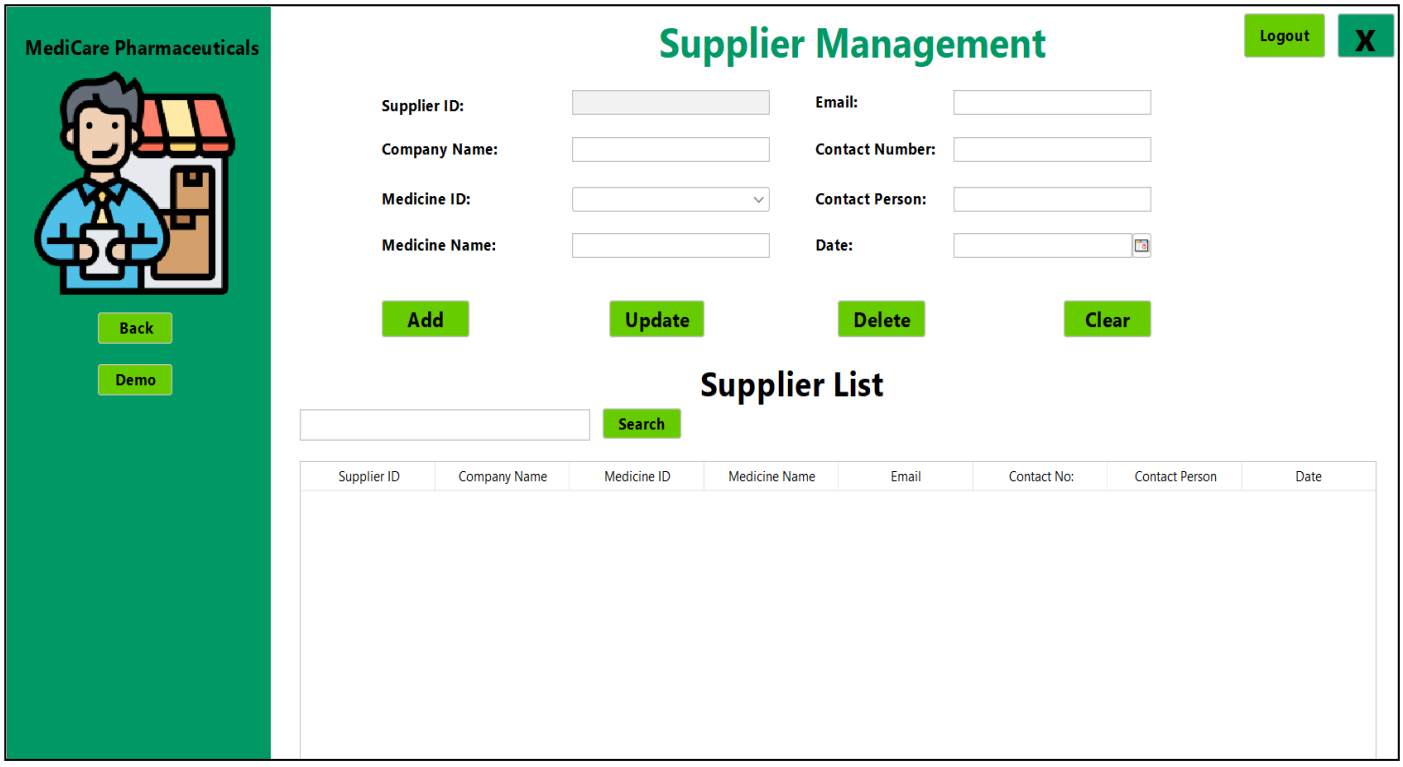

Figure 3.8: Supplier Details

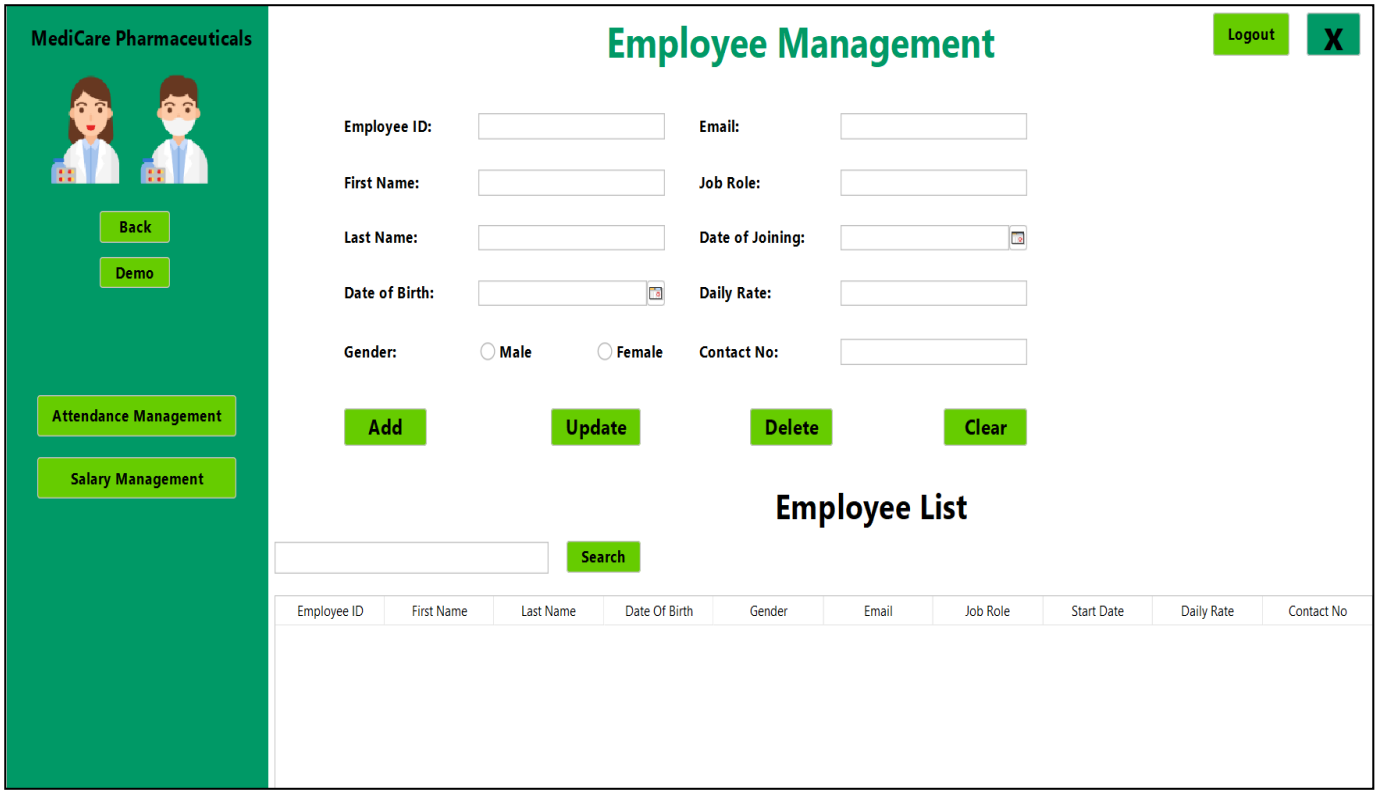

Figure 3.9: Employee Details

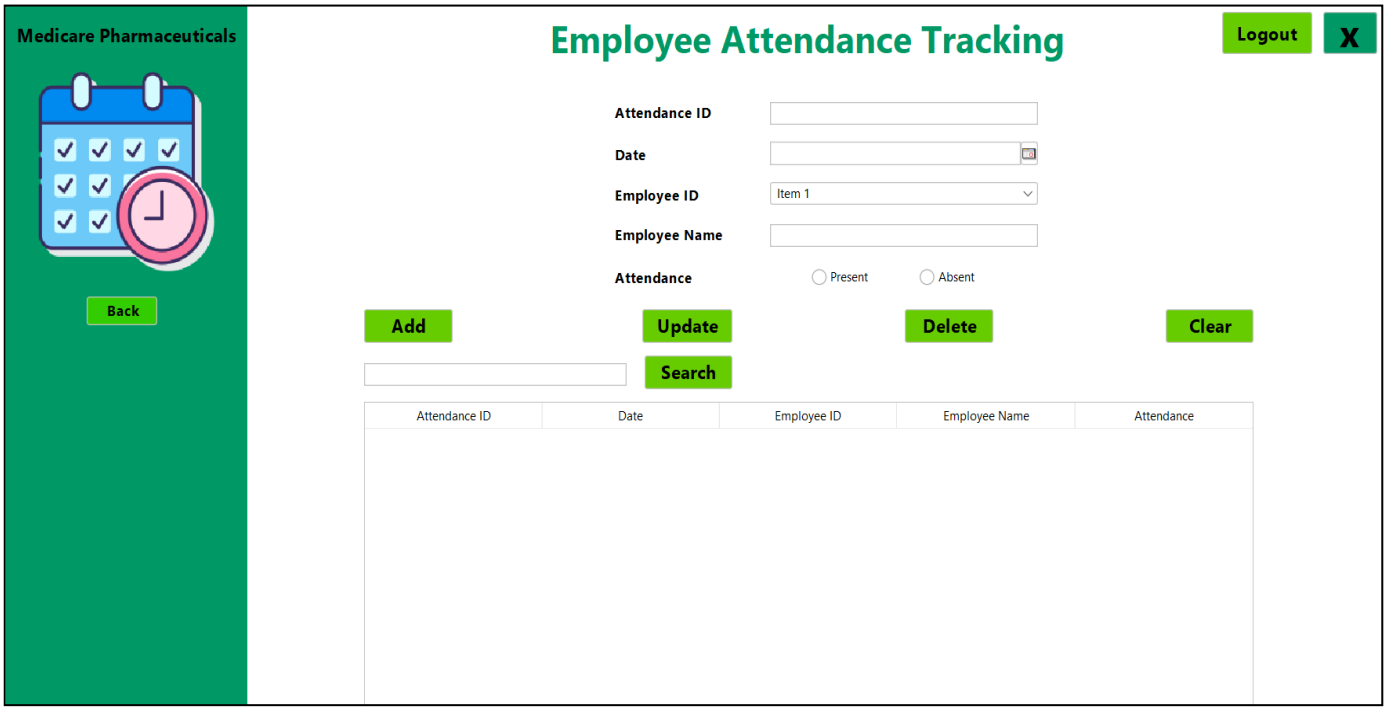

Figure 3.10: Employee Attendance Tracking

Figure 3.11: Employee Salary Calculation

- **Function 3 – Customer & Order Management**

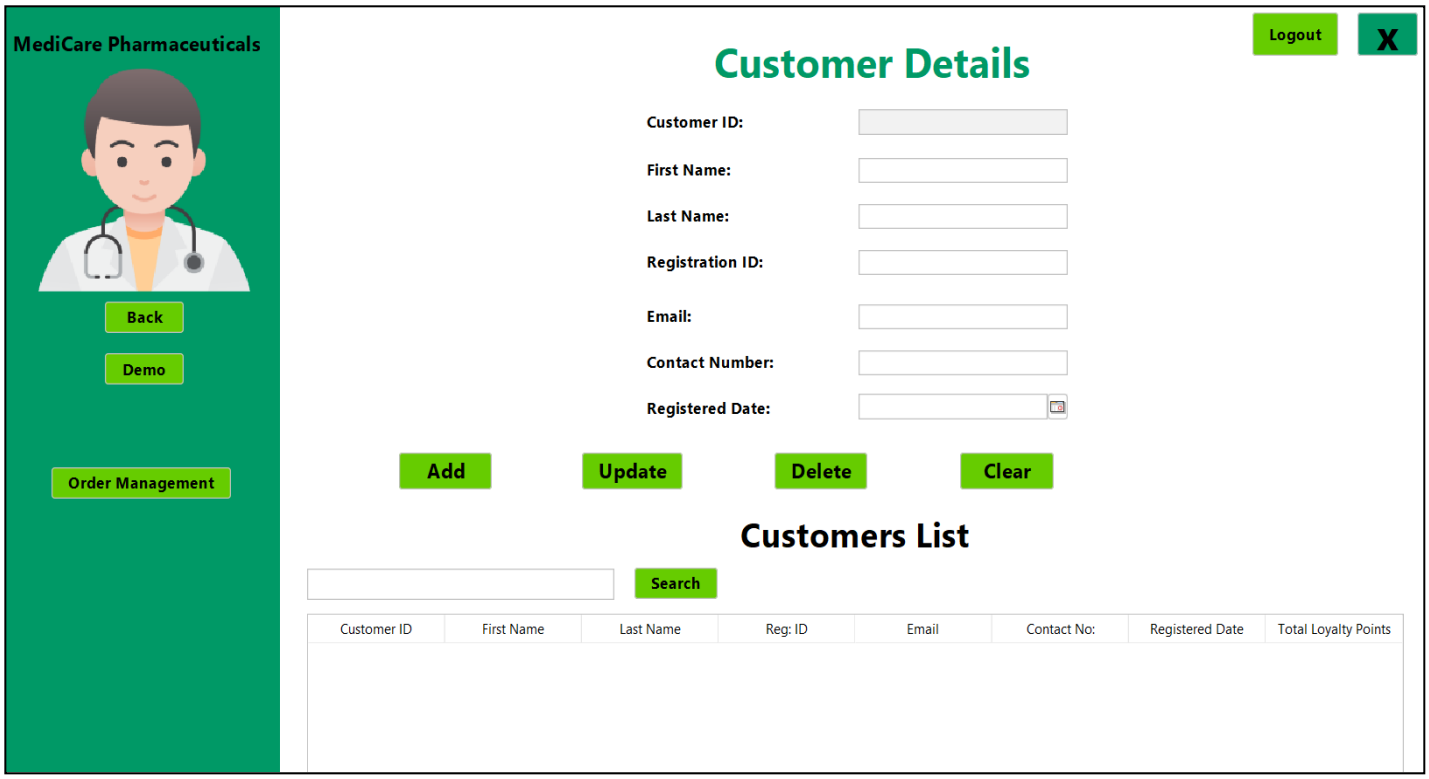

Figure 3.12: Customer Details

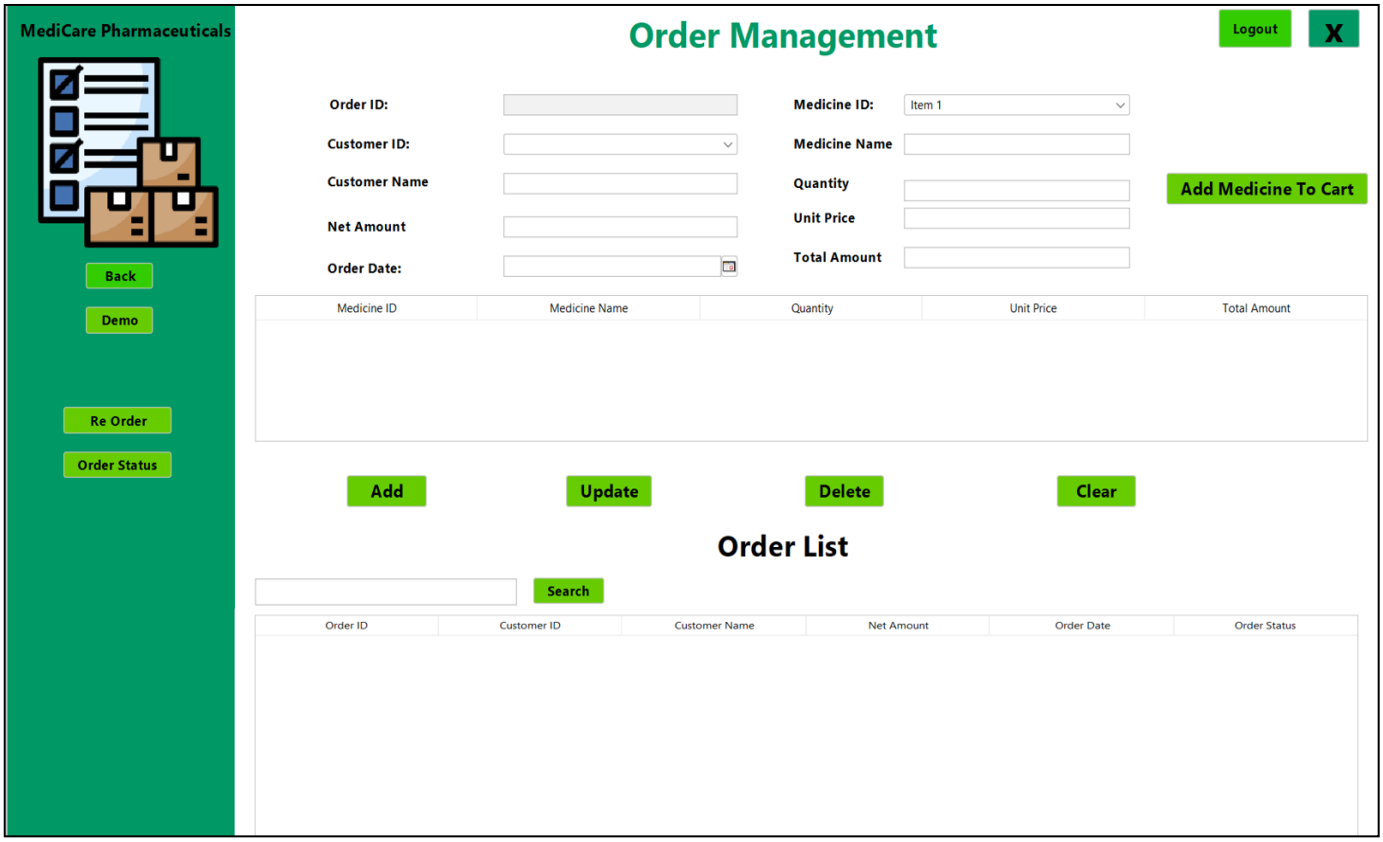

Figure 3.13: Order Details

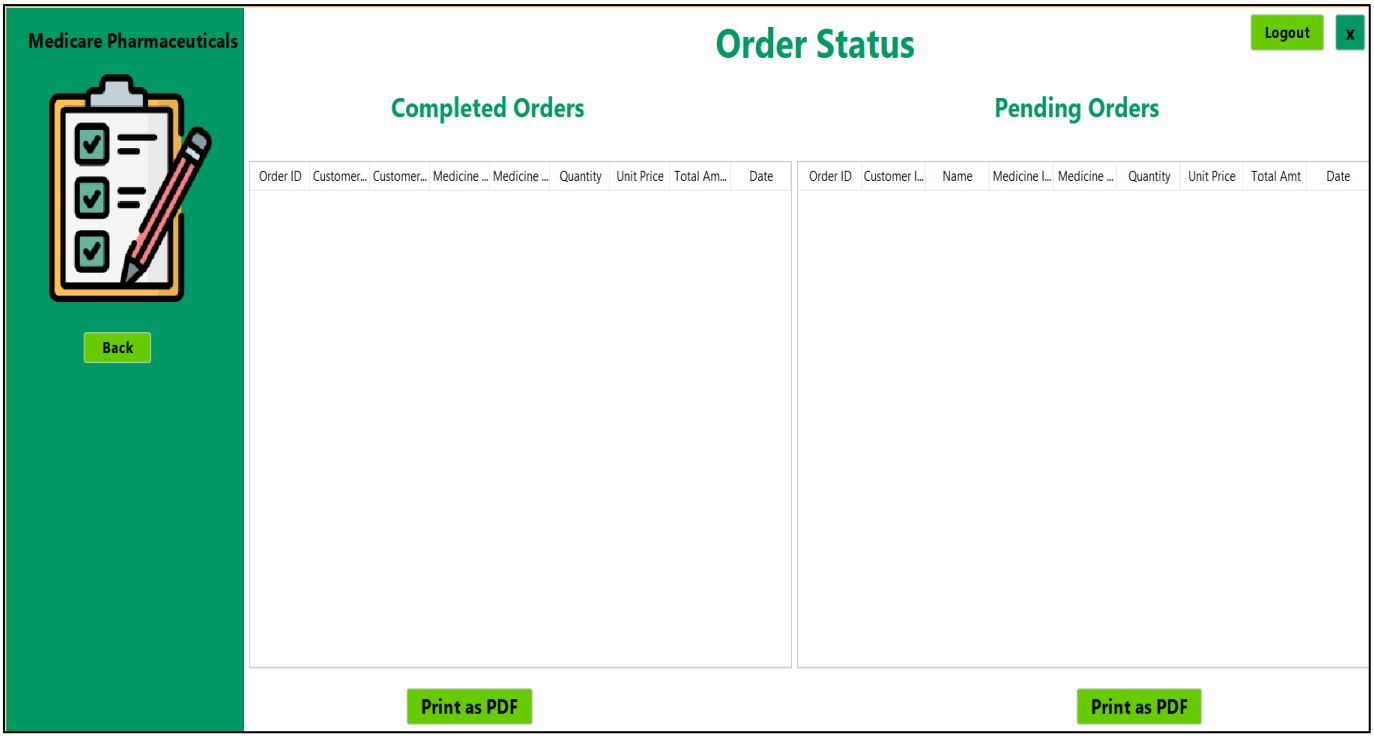

Figure 3.14: Order Status

- **Function 4 – Sales & Billing Management**

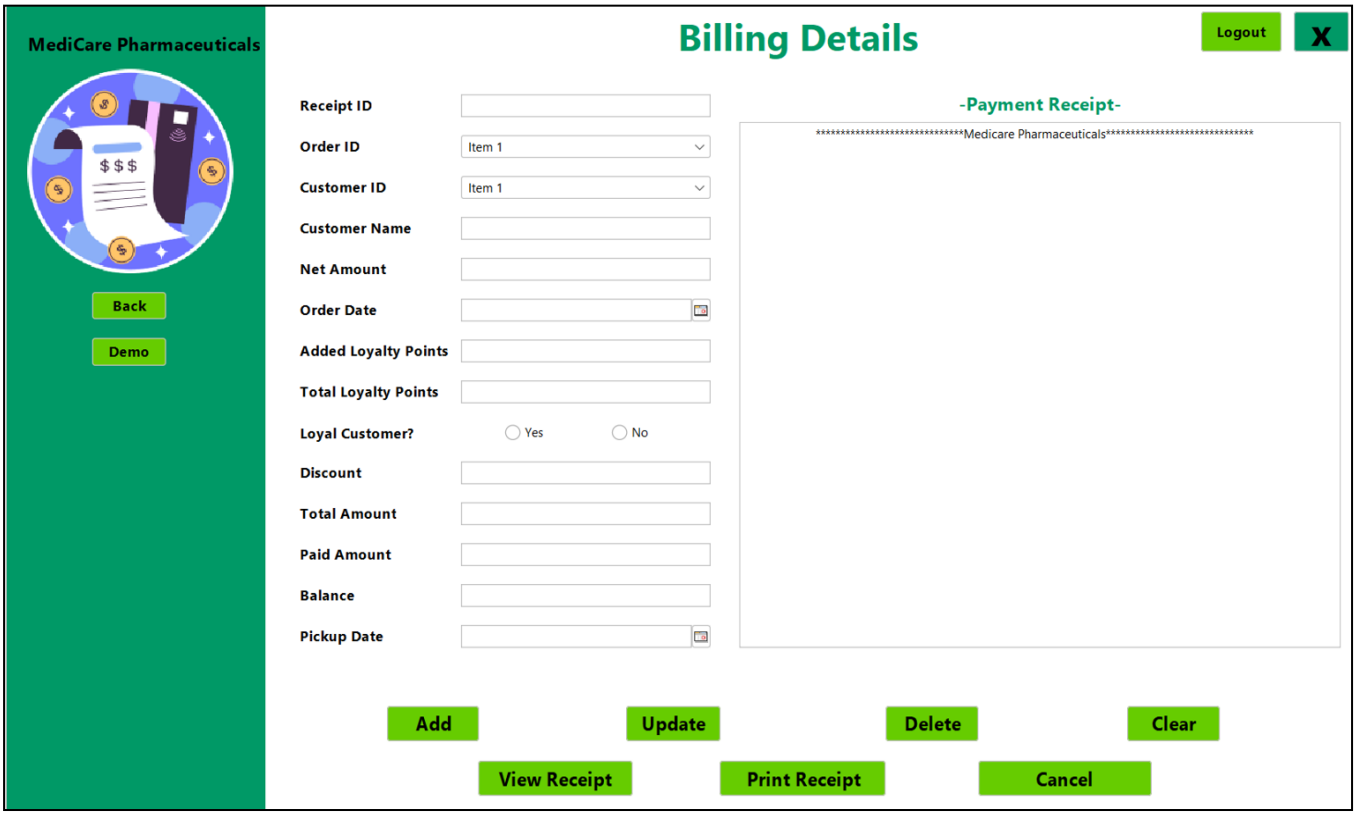

Figure 3.15: Billing Details

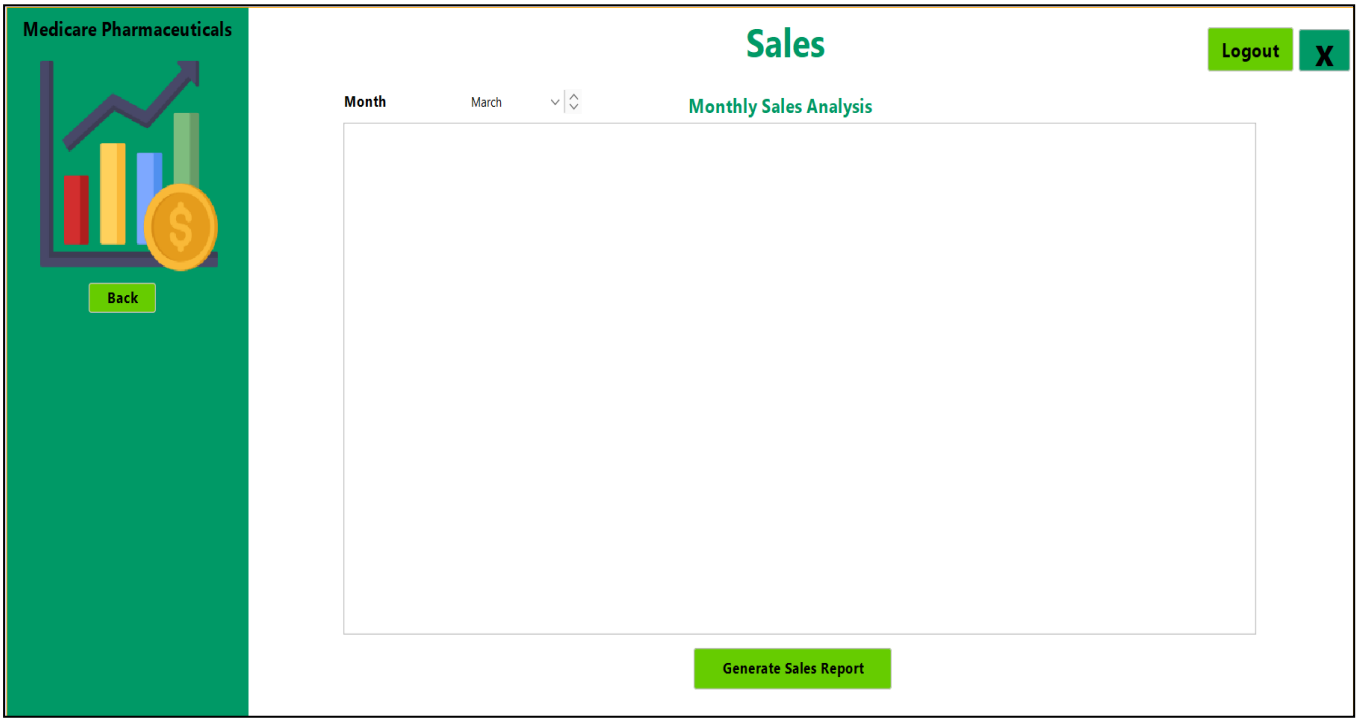

Figure 3.16: Sales Page

3.2 Hardware Interfaces

The "Medicare Pharmaceuticals" Java Desktop Pharmacy Application integrates with several hardware components to ensure seamless operation. The application is made to operate in a Windows Server environment, making use of the storage and processing capability of the server to handle data effectively. Pharmacy employees can easily complete activities related to inventory, customer administration, order data, and sales with the application's graphical user interface, which is presented on a monitor. For quick handling of complex calculations and database activities, the system is powered by a powerful 2GHz processor (i7 CORE). The software can process and store large documents efficiently with 32GB RAM, resulting in fast and dynamic performance. Furthermore, the program connects with a printer to produce receipts in PDF format, providing a physical record of all transactions for both parties.

3.3 Software Interfaces

The "Medicare Pharmaceuticals" Java Desktop Pharmacy Application interacts with multiple software components to ensure reliable operation. This program, which was created with the NetBeans IDE 19, uses PHP My Admin to manage its database, namely a MySQL database. Data about medicine inventory, customers, employees, orders, and sales are all efficiently stored and retrieved because of the interaction with PHP My Admin. The Java program and MySQL database communicate seamlessly with the use of JDBC (Java Database Connectivity). Users have flexibility through operating system interactions, such as compatibility with multiple platforms, including Windows and Linux. The main development environment, NetBeans IDE, facilitates code deployment and organization. The application's functionality is improved with external libraries and PDFcreation. For the safety of important data, backup software is used to guarantee data integrity and recovery in the event of unexpected events. Protecting sensitive customer data within the application is made possible in large part by security software. Data sharing is the sharing of information between several modules, including order processing, customer management, and pharmaceutical inventory. The application uses RESTful API protocols to enable communication, and JSON is the data transfer format used to send information. Secure encryption methods and reliable internet access are requirements for real-time data processing and reporting, which are implementation restrictions.

3.4 Communications Interfaces

In the ever-changing pharmaceutical sector, the Java Desktop Pharmacy Application for "Medicare Pharmaceuticals" depends on several kinds of communication interfaces to keep operations functioning properly and maintain connections. When reordering insufficient stock, the system communicates with suppliers effectively by using Microsoft Outlook 365. Automated email notifications are made possible by this integration, which makes precise and timely stock restocking possible. Furthermore, pharmacists use the web browser powered by Google Chrome to keep track of the most recent advancements and trends in the pharmaceutical sector. It enables them to make well-informed decisions about inventory control and customer requirements.

Teams may communicate more effectively by using Zoom and Microsoft Teams to facilitate collaborative meetings and conversations. The seamless connections made possible by these platforms improve coordination among staff members who handle different aspects of the pharmacy's operations. The organization's communication tools are chosen with efficiency, accessibility, and real-time information transmission in mind. The system follows established protocols for using these interfaces, such as SMTP for messaging via email and HTTP for web browser connection. Secure protocols, such as encryption, are employed to protect confidential data while communicating. Reactivity-optimized data transmission rates guarantee that the program can manage information exchange effectively. All things considered, these interfaces for communication assist the "Medicare Pharmaceuticals" application succeed by encouraging cooperation, sharing of knowledge, and keeping up with developments in the industry.

4. System Features

4.1 High Level Architecture Diagram

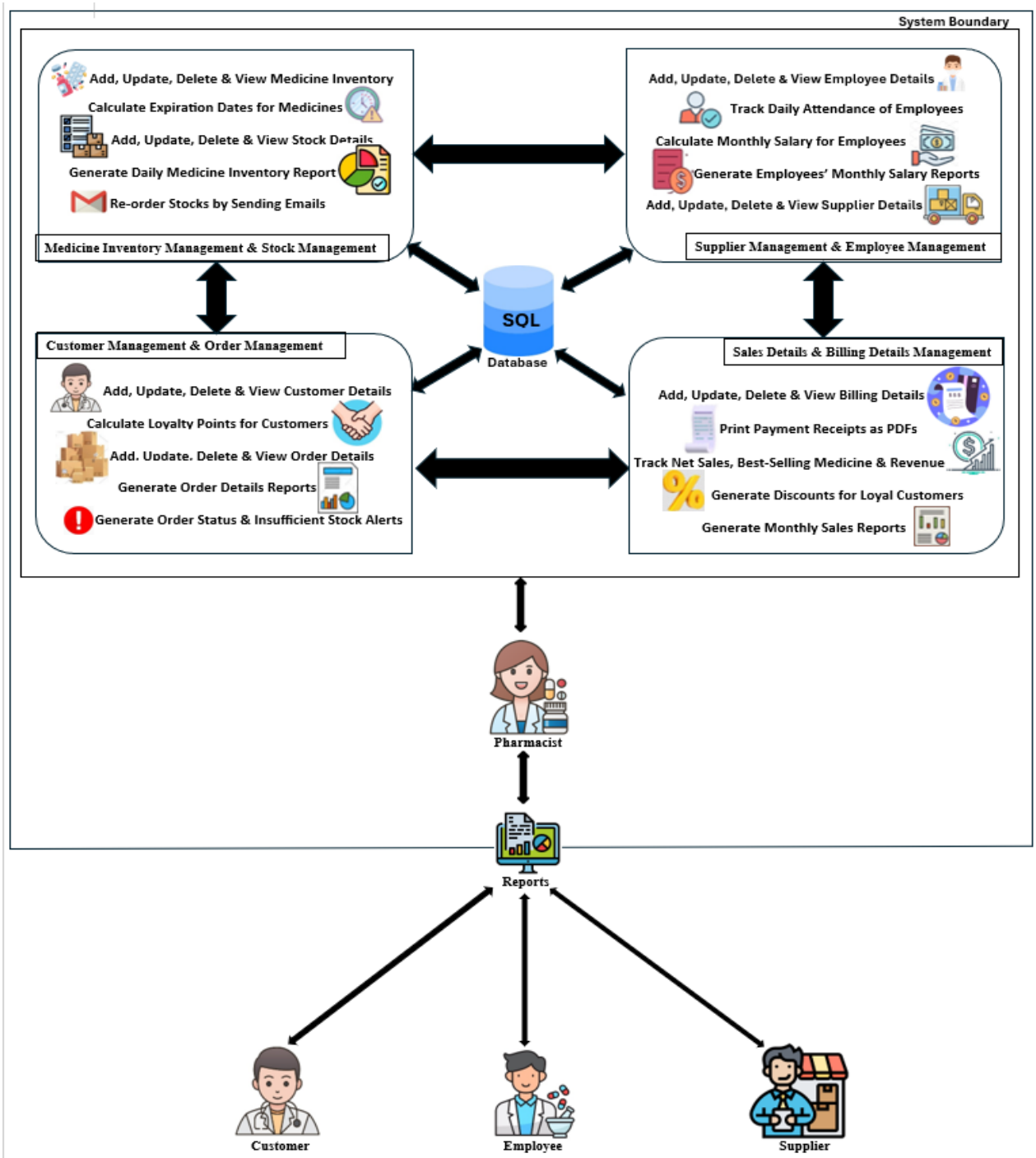

Figure 4.1: High – Level Architecture Diagram of the System

4.2 Use Case Diagram – Desktop Application for Medicare Pharmaceuticals [2]

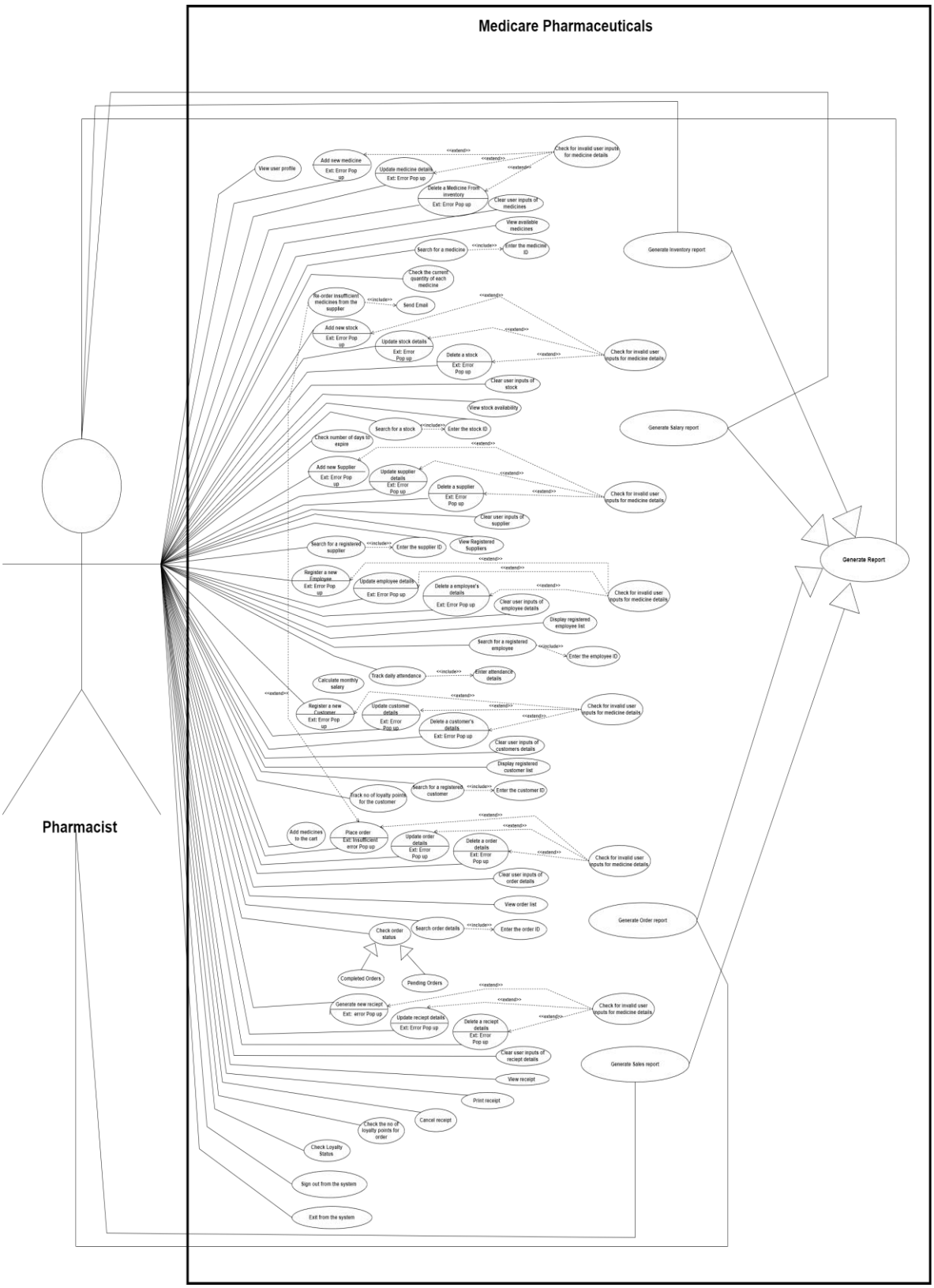

Figure 4.2: Use Case Diagram of the System

4.3 System Feature 1 – Medicine Inventory & Stock Management

IT22364692 KANDAGE K.T.S.

4.3.1 Functional Requirements – Medicine Inventory Management

FR1:	Add a New Medicine to the Inventory
Input:	Enter the Medicine Details (Med.ID, Med. Name, Type, Dosage, Unit Price, Storage Location, Date Added, Quantity)
Processing:	Verify the input details and add the new medicines to the inventory database.
Output:	Confirmation message showing that the medicine was added successfully.

FR2:	View Available Medicines using
Input:	Enter the Medicine Name or Medicine ID in the search bar.
Processing:	Obtain the inventory database's specifics regarding medicines.
Output:	Display a listing of all the added medicines with all the relevant information.

FR3:	Update Added Medicine Details
Input:	Medicine details should be updated.
Processing:	Verify input data, update medicine details in the inventory database.
Output:	Verification that the medicine data has been successfully updated.

FR4:	Remove Added Information About Medicines.
Input:	Medicine to be removed.
Processing:	Delete those specific medicines removed from an inventory database.
Output:	Verification that the medicine has been successfully deleted.

FR5:	Find More Information About Added Medicines
Input:	Find the criteria (Medicine Name, Medicine ID)
Processing:	Using search specifications to query the inventory database.
Output:	Display search results with specific medicine details.

4.3.2 Use Case Scenarios

Use Case No	01	
Use Case Name	Add a New Medicine to the Inventory	
Primary Actor	Pharmacist	
Pre-Condition	The Pharmaceutical Management System is logged into by the pharmacist.	
Post-Condition	The new medicine has been effectively introduced to the stock.	
Main Flow	**Step**	**Action**
	1	From the main menu, the pharmacist chooses to add new medicines.
	2	The pharmacist is prompted by the system to details entered such as the Medicine ID, Medicine Name, Type, Dosage, Unit Price, Storage Location, Data Added and Quantity.
	3	The pharmacist inputs the information needed.
	4	The entered data is checked by the system.
	5	The inclusion of the new medicine is confirmed by the pharmacist.
	6	The new medication is added to the inventory by the system.
Extension		The system notifies the pharmacist and allows changes, if the input of data is incorrect.
		Before adding the new medicines, the system requests confirmation.

Use Case No	02	
Use Case Name	View Medicine Details Added in Inventory	
Primary Actor	Pharmacist	
Pre-Condition	In the Pharmaceutical Management System, the pharmacist is currently logged in.	
Post-Condition	The pharmacist has access to added medicine details.	
Main Flow	**Step**	**Action**
	1	The pharmacist chooses from the main menu to check the details of the added.
	2	The list of all added medicines is shown by the system.
	3	A pharmacist chooses a certain medicine.
	4	The selected medicine’s comprehensive information is shown by the system.

Use Case No	03	
Use Case Name	Update, Added Details of Medicines	
Primary Actor	Pharmacist	
Pre-Condition	In the Pharmaceutical Management System, the pharmacist is currently logged in.	
Post-Condition	The chosen medicines information has been successfully updated.	
Main Flow	**Step**	**Action**
	1	From the main menu, the pharmacist chooses to update the details of newly added medicines.
	2	The list of all added medicines is shown by the system.
	3	A pharmacist chooses a certain medicine to update.
	4	The pharmacist is prompted by the system to change the specific of the chosen medicine.
	5	The changes are made by the pharmacist.
	6	Updated data is verified by the system.
	7	The pharmacist verifies the information.
	8	The updated medicines data are added to inventory by the system.
Extension		The system alerts the pharmacist and allow changes if data entry is wrong.
		The system verifies before completing the update.

4.3.3 Functional Requirements – Stock Management

FR1:	Add a New Stock to the Stock Table
Input:	Stock details (Stock ID, Quantity, Medicine ID, Medicine Name, Storage Location, Manufacture Date, Expire Date)
Processing:	Add new stock to the stock table and then verify the supplied data.
Output:	Display the confirmation message showing that the stock addition was successful.

FR2:	View Added Stock Details Using the Stock Details Table
Input:	
Processing:	Get details about the stock by viewing the stock table.
Output:	List all the added stocks along with the relevant details.

FR3:	Update the Added Stock Details in the Stock Table
Input:	Details of the specified stock will be updated.
Processing:	Verify the entered data and then update the stock details in the stock table.
Output:	Display the confirmation notice that stock details have been successfully updated.

FR4:	Remove the Added Details of the Stocks
Input:	Stock has been removed.
Processing:	Delete the specified stock removed from the stock table.
Output:	Display the confirmation message that the stock has been successfully deleted.

FR5:	View Available Medicine Quantity
Input:	
Processing:	Identify medicines in limited quantities or not available.
Output:	Display available medicines

FR6:	Re-Order Medicines by Sending Email.
Input:	Select Medicine ID and Supplier ID
Processing:	Send an email to the suppliers including the list of medicines that need to be reordered.
Output:	Verification confirming that the reordering procedure has been successfully completed.

4.3.4 Use Case Scenarios

Use Case No	01	
Use Case Name	Add a New Stock to the Stock Table	
Primary Actor	Pharmacist	
Pre-Condition	In the Pharmaceutical Management System, the pharmacist is currently logged in.	
Post-Condition	The pharmacist has access to added medicine details.	
Main Flow	**Step**	**Action**
	1	The option to add a new stock is chosen by the pharmacist from the main menu.
	2	The pharmacist is prompted by the system to enter information such as the Stock ID, Quantity, Medicine ID, Medicine Name, Storage Location, Manufacture Date, Expire Date.
	3	The pharmacist inputs the necessary data.
	4	The entered data is checked by the system.
	5	The inserting of the new stock is confirmed by the pharmacist.
	6	The new stock is added to the inventory by the system.
Extension		The system alerts the pharmacist and allows changes if data entry is wrong.
		The system requests confirmation before adding the new stock in completely full.

Use Case No	02	
Use Case Name	View New Stock Details Added in Stock Details Table	
Primary Actor	Pharmacist	
Pre-Condition	The Pharmaceutical Management System is logged into by the pharmacist.	
Post-Condition	The pharmacist has access to the added stock’s details.	
Main Flow	**Step**	**Action**
	1	From the main menu, the pharmacist chooses to view the added stock details option.
	2	The added stocks are listed on the system.
	3	A pharmacist chooses a certain stock.
	4	The selected stock’s full details shown by the system.

Use Case No	03	
Use Case Name	Update New Stock Details Added in Stock Details Table	
Primary Actor	Pharmacist	
Pre-Condition	The Pharmaceutical Management System is logged into by the pharmacist.	
Post-Condition	The chosen stock's details have been successfully updated.	
Main Flow	**Step**	**Action**
	1	The option to update added stock data is selected by the pharmacist from the main menu.
	2	The added stocks are listed on the system.
	3	A pharmacist chooses which stock to update.
	4	The pharmacist is prompted by the system to change the specifics of the chosen stock.
	5	The modifications are made by the pharmacist.
	6	The updated data is verified by the system.
	7	A pharmacist verifies the data entered.
	8	The updated stock details are reflected in the inventory by the system.
Extension		The system alerts the pharmacist and allows changes, if data entry is wrong.
		The system verifies before completing the updating process.

4.3.5 Activity Diagram

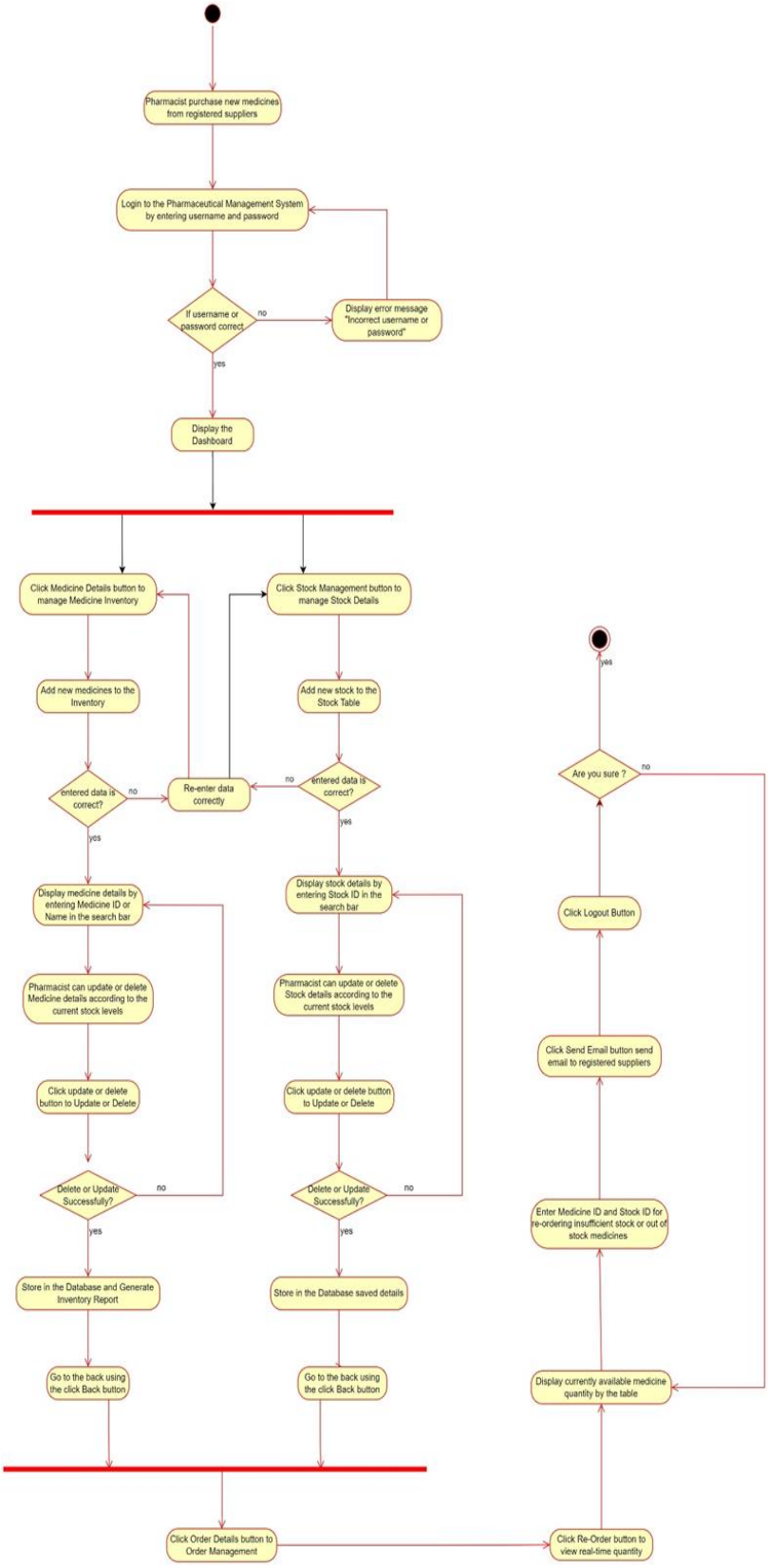

Figure 4.3: Activity Diagram – Medicine Inventory and Stock Management

4.4 System Feature 2 - Supplier & Employee Management

IT22319142 WIJESINGHE A.G.T.

4.4.1 Functional Requirements – Supplier Management

FR1:	Register a New Supplier to the system
Input:	Supplier's Details
Processing:	New suppliers' details are being added to the "Supplier Details Table" in system database after validating the entered details.
Output:	Display "New Supplier registered to the system successfully!" message and display the entry in the same user interface.
Definition	Supplier's details are Supplier ID, Supplier Name, Medicine ID, Medicine Name, Email, Contact Number, Contact Person & Registered Date

FR2:	Update details of a Registered Supplier
Input:	Supplier ID, Details that need to be updated
Processing:	Previously added details will be replaced by the updated details in the "Supplier Details Table" after validating the user inputs.
Output:	Display "Supplier Details Updated Successfully!" message and display the tuple with the updated details in the same user interface.
Definition	By entering the Supplier ID and the details that need to be updated, pharmacists can change the current supplier details in the system database. After the modifications have been verified and the database has been updated, the system sends out a confirmation message.

FR3:	Removing a Supplier's Details from the system
Input:	Supplier ID
Processing:	The details of the inactive supplier will be permanently deleted from the system database.
Output:	Display "Selected Supplier's Details Deleted Successfully!" message and display the updated supplier list in the same user interface.
Definition	By entering the Supplier ID, the system enables pharmacists to permanently remove inactive suppliers. The supplier is confirmed to be removed from the database by the system, which also displays a confirmation message.

FR4:	Search a Registered Supplier Details from the system
Input:	Supplier ID
Processing:	When the Supplier's ID has been entered in the Search bar, previously saved details of that supplier will be retrieved and display
Output:	Displays the details of the specific supplier on the screen after filtering out from the other entries.
Definition	By entering the supplier ID, the pharmacist will be able to do selective supplier searches. Pharmacist can obtain specific supplier details by using the system, which uses their input to retrieve and present the necessary details.

4.4.2 Use Case Scenarios (Supplier Management)

Use Case Number	01	
Use Case Name	Register a New Supplier	
Summary	Pharmacist registers a new supplier after giving the supplier a unique ID, with the medicine's details they supply.	
Priority	5 (1 = lowest priority, 5 = highest priority)	
Pre-Conditions	Pharmacist must log in to system	
Post-Conditions	New supplier's details have been stored in the system database	
Primary Actor(s)	Pharmacist	
Trigger	New supplier comes and the Pharmacist starts to register the supplier in the system.	
Main Scenario	**Step**	**Action**
	01	Pharmacist navigates to the Dashboard after signing in to the system.
	02	Clicks on "Supplier Details" button and go to the "Supplier Management Page".
	03	Enter the supplier's details; Supplier ID, Supplier Name, Medicine ID, Medicine Name, Email, Contact Number, Contact Person & Registered Date.
	04	Check and confirm the entered details and by clicking "Add Button".
	05	System will store the entered details in the company database.
Extensions	04a	System generates an error message if the user has entered invalid inputs and suggests how to correct the action.
	04b	If the required details are missing, then also system generates a pop-up message asking to fill out all the user input fields correctly.

Use Case Number	02	
Use Case Name	Removing a Registered Supplier's details from the system	
Summary	Pharmacist permanently deletes the details of a registered supplier who is not providing products anymore to the company.	
Priority	5 (1 = lowest priority, 5 = highest priority)	
Pre-Conditions	The Pharmacist must log in to the system. Inactive supplier's details must be available in the system.	
Post-Conditions	Inactive supplier's details have been removed from the system database	
Primary Actor(s)	Pharmacist	
Trigger	There is an inactive supplier who is not supplying products anymore, and the Pharmacist want to delete that supplier's details from the company database.	
Main Scenario	**Step**	**Action**
	01	Pharmacist directs to the Dashboard after signing in to the system.
	02	Clicks on "Supplier Details" button and navigates to the "Supplier Management Page".
	03	Selects the specific row of the supplier from the "Registered Supplier Details" page.
	04	Check and confirm the deletion of the tuple by clicking "Delete Button".
	05	System will permanently remove the selected tuple's details in the company database.
Extensions	04a	System generates an error message if the specific supplier's details cannot be found in the database and asks pharmacist to select a valid supplier details row.
	04b	If the deletion was unsuccessful, the system notifies the pharmacist by displaying an error message saying, "Sorry! The deletion of the required supplier was unsuccessful…!".

Use Case Number	03	
Use Case Name	Search for an Available Supplier's Details in the system	
Summary	Pharmacist can search for a registered supplier's details and view the specific details by entering the Supplier ID in the search bar.	
Priority	3 (1 = lowest priority, 5 = highest priority)	
Pre-Conditions	The Pharmacist must log in to the system. Required supplier's details are available in the system.	
Post-Conditions	Required supplier's details have been sorted out from the other supplier details and displayed on the screen.	
Primary Actor(s)	Pharmacist	
Trigger	The pharmacist needs to find some specific details of a registered supplier.	
Main Scenario	**Step**	**Action**
	01	The Pharmacist access the Dashboard after signing in to the system.
	02	Clicks on "Supplier Details" button and go to the "Supplier Management Page".
	03	Enter the required supplier's ID on the search bar and click the search button.
	04	The system will filter out and retrieve the specific supplier's details on the screen.
Extensions	03a	If the required supplier's ID is invalid, an error message will be displayed saying "Please try again after entering a valid supplier ID".

4.4.3 Activity Diagram

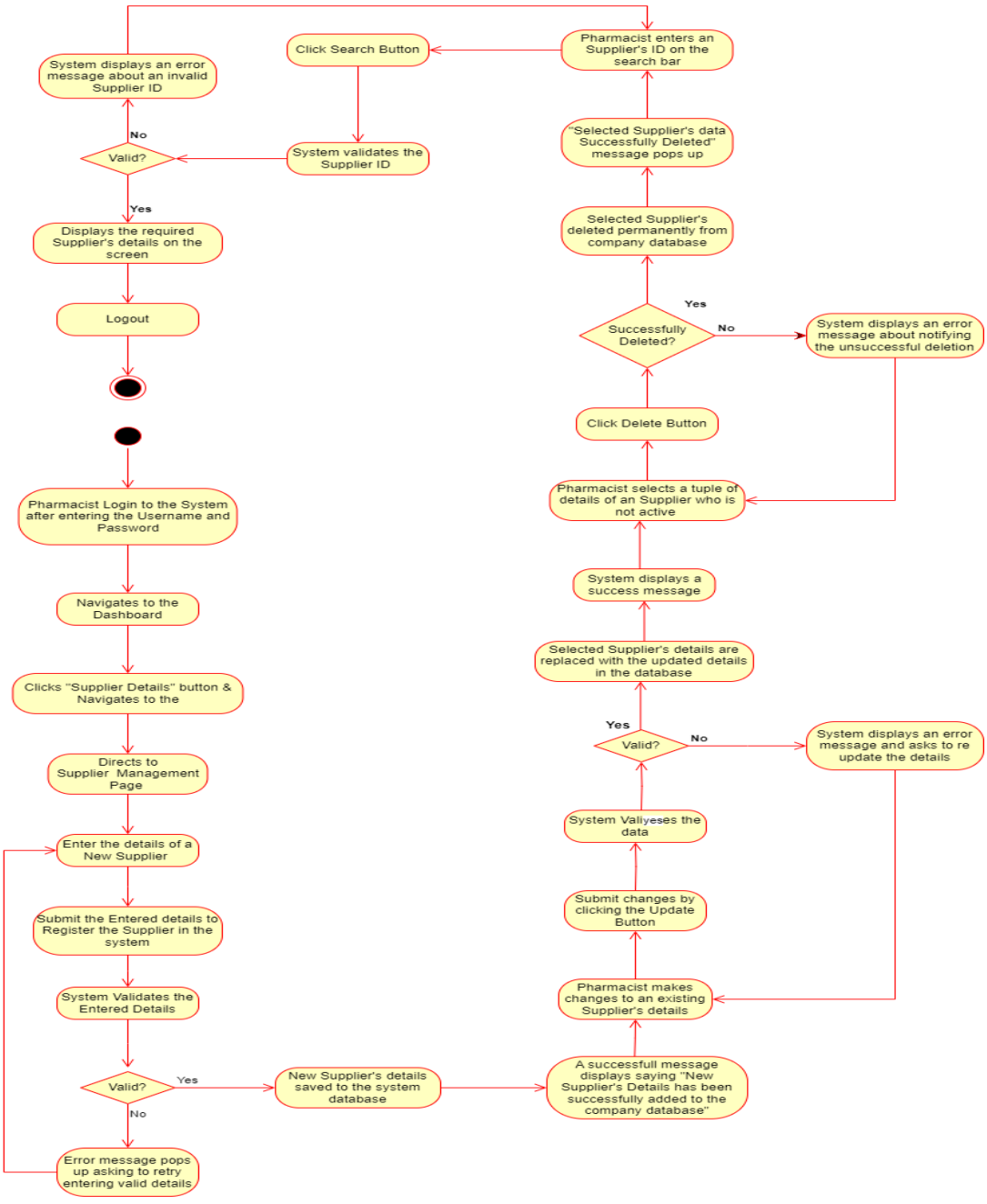

Figure 4.4: Activity Diagram – Supplier Management

4.4.4 Functional Requirements – Employee Management

FR5:	Register a Newly Appointed Employees' Details to the system
Input:	Employee Details
Processing:	New employee's details are being added to a centralized table called "Employee Details Table" in system database after validating the entered details.
Output:	Display "New Employee's Details were added to the system successfully!" message and display the new entry in the same user interface.
Definition	Employee's details are Employee ID, Employee's Name, Date of Birth, Gender, Email, Position, Registered Date, Daily Rate & Contact details.

FR6:	Update Registered Details of an Employee
Input:	Employee ID, Details that need to be updated
Processing:	Previously added details will be replaced by the updated details in the "Employee Details Table" after validating the user inputs.
Output:	Display "Selected Employee's Details Updated Successfully!" message and display the tuple with the updated details in the same user interface.
Definition	By entering the Employee ID and the details that need to be updated, pharmacists can change the current Employee details in the system database. After the modifications have been verified and the database has been updated, the system sends out a confirmation message.

FR7:	Delete Resigned Employee's Details from the database
Input:	Employee ID
Processing:	Confirm the employee's resignation and handle the resignation procedure properly.
Output:	Display "Selected Employee's Details Deleted Successfully!" message and the specific employee's will be permanently deleted from the company database. Then the updated table will be displayed.
Definition	The resignation procedure is started by the pharmacist by providing their employee ID. The system verifies the successful initiation of the resignation process, declares the employee as resigned, and conducts the required procedures

FR8:	Search a Registered Employee Details from the system
Input:	Employee ID
Processing:	When the Employee ID has been entered in the Search bar, previously saved details of that Employee will be retrieved and display
Output:	Displays the details of the specific Employee on the screen after filtering out from the other entries.
Definition	By entering the Employee ID, the pharmacist will be able to do selective supplier searches. Pharmacist can obtain specific supplier details by using the system, which uses their input to retrieve and present the necessary details.

FR9:	Track Daily Attendance of Employees
Input:	Employee ID, Date, Attendance Status
Processing:	Keep track of attendance each day to determine working days.
Output:	Display “Selected Employee’s Details Updated Successfully!” message and display the tuple with the updated details in the same user interface.
Definition	By entering the Employee ID and the details that need to be updated, pharmacists can change the current Employee details in the system database. After the modifications have been verified and the database has been updated, the system sends out a confirmation message.

FR10:	Calculate Monthly Salary of Employees
Input:	Employee ID, daily attendance, daily rate
Processing:	Determine the monthly salary automatically using the daily rate and attendance.
Output:	Monthly Salary Details of the Employee
Definition	Employees' monthly salaries are automatically calculated by the system using input variables like employee ID, daily attendance, and daily rate. The computation is done smoothly and generates comprehensive monthly salary details.

FR11:	Generate Salary Report
Input:	Month, year
Processing:	Gather and collect all employees' pay information for the given month.
Output:	Monthly Salary Details of the Employee
Definition	Employees' monthly salaries are automatically calculated by the system using input variables like employee ID, daily attendance, and daily rate. The computation is done smoothly and generates comprehensive monthly salary details.

4.4.5 Use Case Scenarios (Employee Management)

Use Case Number	01	
Use Case Name	Updating a Registered Employee's details in the system	
Summary	Pharmacist updates the details of a registered employee who is working in the company.	
Priority	4 (1 = lowest priority, 5 = highest priority)	
Pre-Conditions	The Pharmacist must log in to the system. Specific Employee's details must be stored in the system.	
Post-Conditions	Employee's details have been updated in the company database by the Pharmacist.	
Primary Actor(s)	Pharmacist	
Trigger	The Pharmacist want to update details of an employee.	
Main Scenario	**Step**	**Action**
	01	Pharmacist login to the system and navigates to the Dashboard.
	02	Clicks on "Employee Details" button and access the "Employee Management Page".
	03	Selects the specific row of the Employee that needs to be edited from the centralized table called "Employee Details Table".
	04	Enter the edited details and update the tuple by clicking "Update Button".
	05	System will replace the selected tuple's details with the updated details in the database.
Extensions	04a	System generates an error message if the employee's details are not available in the database and asks pharmacist to select a valid one.
	04b	If the details were not updated successfully, the system notifies the pharmacist by displaying an error message saying, "Sorry! The selected details were not updated successfully…!".

Use Case Number	02	
Use Case Name	Track the daily attendance of an Employee	
Summary	Pharmacist can track and monitor the daily attendance of each employee who is currently working in the company.	
Priority	3 (1 = lowest priority, 5 = highest priority)	
Pre-Conditions	The Pharmacist must log in to the system. Specific employee must be registered in the system.	
Post-Conditions	Employee's attendance has been tracked and recorded in the system.	
Primary Actor(s)	Pharmacist	
Trigger	The Pharmacist want to track the daily attendance of an employee.	
Main Scenario	**Step**	**Action**
	01	Pharmacist login to the system and directs to the Dashboard.
	02	Clicks on "Employee Details" button and access the Employee Management Page.
	03	Then navigates to the "Employee Attendance Tracking Page" through the Employee Management page.
	04	Pharmacist selects an employee from the available employees in the list.
	05	Enters the daily attendance (Absent or present).
	06	Confirms and submit the details by submitting.
	07	System records the attendance status of the specific employee with the date and the other details.
Extensions	06a	If the employee's details are not available in the database, system displays an error message and asks pharmacist to select a valid one.
	06b	The system notifies the pharmacist by displaying an error message saying, "Sorry! The attendance cannot be marked…!" if an error occurred while tracking the attendance.

Use Case Number	03	
Use Case Name	Calculate the Monthly Salary of an Employee	
Summary	Pharmacist needs to calculate the monthly salary of an employee.	
Priority	5 (1 = lowest priority, 5 = highest priority)	
Pre-Conditions	The Pharmacist must sign in to the system. Specific employee's details must be registered in the system. Employee's attendance has been tracked and recorded in the system.	
Post-Conditions	Monthly salary has been calculated and stored in the database.	
Primary Actor(s)	Pharmacist	
Trigger	The Pharmacist want to calculate the monthly salary for an employee.	
Main Scenario	**Step**	**Action**
	01	Pharmacist login to the system and directs to the Dashboard.
	02	Clicks on "Employee Details" button and access the Employee Management Page.
	03	Then navigates to the "Employee Salary Details Page" through the Employee Management page.
	04	Pharmacist selects an employee from the available employees in the list.
	05	When the Pharmacist selects the month, the monthly attendance will be displayed.
	06	Net salary calculates and displays automatically after the pharmacist input the daily rate of the employee.
	07	Confirms and submits the salary details.
	08	System records the monthly salary with the respect of the employee ID.
Extensions	05a 06a	If there are issues occurred while retrieving the attendance records, or calculating the monthly salary, the system generates error messages.
	07a	If the employee's details are not available in the database, system displays an error message and asks pharmacist to select a valid one.

4.4.6 Activity Diagram

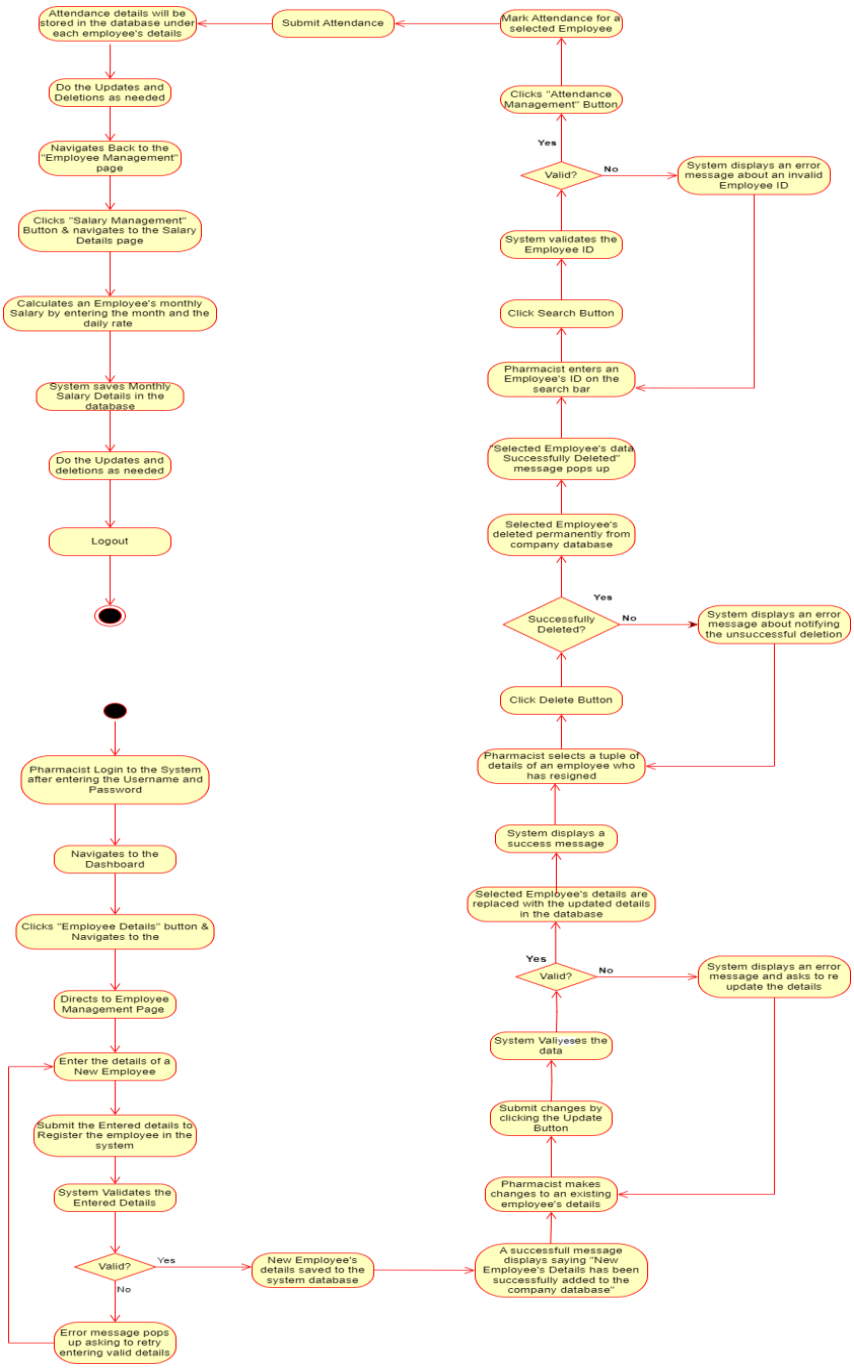

Figure 4.5: Activity Diagram – Employee Management

4.5 System Feature 3 – Customer & Order Management

IT22884138 RATHNAYAKA R.M.T.D.

4.5.1 Functional Requirements – Customer Management

FR1:	Pharmacist should be able to add new customers
Input	Customer information
Process	Validate the input customer information. Add the new customer information to the registered customer database.
Output	Successfully added the new customer.
Definition	This requirement mandates that the system must allow pharmacists to input and validate customer information, subsequently adding successfully validated data to the registered customer database.

FR2:	Pharmacist should be able to update customer details
Input	Customer ID to specify the customer whose details are to be updated. Updated customer information, including any changes in given details.
Process	Update the customer information in the registered customer database based on the provided details.
Output	Successfully updated the customer details.
Definition	This requirement mandates that the system allows pharmacists to update customer information by specifying the customer ID and providing updated details, ensuring accurate and current customer records in the registered database.

FR3:	Pharmacist should be able to remove customer entries
Input	Customer ID to specify the customer whose entry is to be removed.
Process	Remove the specified customer entry from the registered customer database
Output	Successfully removed the customer entry.
Definition	This requirement ensures that the system allows pharmacists to remove a customer entry by providing the customer ID, resulting in the successful removal of the specified customer from the registered database.

FR4:	pharmacist's capacity to search the registered customer
Input	Enter the customer ID on the search bar
Process	Search the registered order database for orders that match the provided customer ID
Output	Display the registered customer list
Definition	This requirement entails enabling the pharmacist to search the registered customer database by entering a customer ID into the search bar, facilitating the display of the corresponding customer list.

4.5.2 Use Case Scenarios (Customer Management)

Use Case No	01	
Use Case Name	Add New Customer	
Summary	Pharmacist adds a new customer to the system.	
Primary Actor(s)	Pharmacist	
Pre-Condition	Pharmacist is logged into the system.	
Post-Condition	New customer added to the database.	
Trigger	Pharmacist initiates customer addition.	
Main Scenario	**Step**	**Actions**
	01	Pharmacist accesses add customer functionality in the system.
	02	System prompts for customer details
	03	Request customer details from the user
	04	Pharmacist enters the required customer information
	05	The Pharmacist select “Add customer” option.
	06	System validates the input for completeness and accuracy.
	07	Adds the new customer to the database.
	08	System generates a confirmation message.
	09	Pharmacist acknowledges the confirmation.
	10	System updates the customer database.
	11	Pharmacist receives a success notification.
	12	Pharmacist search for registered customers by customer ID
	13	Pharmacist can view the registered customers in the system.
Extensions	**Steps**	**Branching Actions**
	01.a	If the pharmacist is not logged in, the system prompts for authentication.
	05.a	If the pharmacist attempts to add an existing customer, the system notifies about the existing record.
	06.a	If validation fails, the system prompts the error message and re-enter details.

Use Case No	02	
Use Case Name	Remove Customer Entry	
Summary	Pharmacist removes an existing customer entry from the system.	
Primary Actor(s)	Pharmacist	
Pre-Condition	Pharmacist is logged into the system, and there is an existing customer record	
Post-Condition	Customer entry is removed from the database.	
Trigger	Pharmacist initiates customer removal.	
Main Scenario	**Step**	**Actions**
	01	Pharmacist accesses remove customer functionality in the system.
	02	Pharmacist selects "Delete Customer."
	03	System prompts for the customer ID
	04	Pharmacist provides the required identification
	05	System retrieves existing customer information.
	06	Pharmacist confirms the decision to remove the customer.
	07	System removes the customer entry from the database.
	08	Pharmacist receives a success notification.
Extensions	**Steps**	**Branching Actions**
	6.a	If the pharmacist decides to cancel, the system returns to the main menu without removing the customer.
	7.a	If there are technical issues during database update, the system displays an error message.

Use Case No	03	
Use Case Name	Update Customer Information	
Summary	Pharmacist updates existing customer information.	
Primary Actor(s)	Pharmacist	
Pre-Condition	Pharmacist is logged into the system, and there is an existing customer record.	
Post-Condition	New order is added to the system	
Trigger	Pharmacist initiates customer update.	
Main Scenario	**Step**	**Actions**
	01	Pharmacist accesses update order functionality in the system.
	02	Pharmacist selects "Update Customer."
	03	System prompts for the customer ID
	04	Pharmacist provides the required identification.
	05	System retrieves existing customer information.
	06	Pharmacist updates the necessary details
	07	System validates and updates the customer information.
	08	System generates a confirmation message.
	09	Pharmacist acknowledges the confirmation.
	10	System updates the customer database.
	11	Pharmacist receives a success notification
Extensions	**Steps**	**Branching Actions**
	01.a	If the pharmacist is not logged in, the system prompts for authentication.
	07.a	If validation fails, the system prompts the pharmacist to correct errors and re-enter details.

4.5.3 Functional Requirements – Order Management

FR5:	Add Items to the cart
Input	Catalogue items
Process	Check inventory levels to ensure there are enough of the selected items. Specific items are being added to the shopping cart with the selected quantities.
Output	Confirmation that the items have been successfully added to the cart.
Definition	This requirement involves allowing pharmacist to add selected items from the catalogue to their shopping cart, with the system ensuring sufficient inventory and providing confirmation upon successful addition.

FR6:	Update the order
Input	Order ID to specify the order to be updated. Revised details of the order, such as changes in item quantities, additions, or removals.
Process	Check inventory levels if there are changes in item quantities. Update the order details based on the provided revised information.
Output	Confirmation that the order has been successfully updated.
Definition	This requirement allows pharmacist to update the orders by providing the Order ID, revised order details, including changes in item quantities.

FR7:	Delete an order
Input	Order ID to specify the order to be deleted.
Process	Check if the order can be deleted, remove the specified order from the system
Output	Confirmation that the order has been successfully deleted
Definition	This requirement involves implementing a feature that allows pharmacists to delete a particular order by inputting the corresponding Order ID. The system must confirm the successful deletion of the specified order.

FR8:	Search for orders
Input	Enter the Order ID on the search bar
Process	Search the database for orders that match the provided Order ID
Output	View order list
Definition	This requirement entails allowing customers to search for orders by entering the Order ID, resulting in the display of the corresponding order list.

FR9:	Generate order status
Input	Order list.
Process	Retrieves the order status information
Output	Displays the order status as a completed orders and pending orders
Definition	This requirement involves retrieving and displaying order status information, categorizing orders into completed and pending statuses based on the provided order list.

FR10:	Generate order reports
Input	A comprehensive report containing order details
Process	Retrieves the order status information
Output	Printed or Saved Report
Definition	This requirement entails retrieving order details and compiling a comprehensive report, which can be either printed or saved for further reference or analysis.

4.5.4 Use Case Scenarios (Order Management)

Use Case No	01	
Use Case Name	Place order	
Summary	Pharmacist places a new order for a registered customer.	
Primary Actor(s)	Pharmacist	
Pre-Condition	Pharmacist is logged into the system, and there is a registered customer with sufficient inventory.	
Post-Condition	New order is added to the system	
Trigger	Pharmacist initiates order placement	
Main Scenario	**Step**	**Actions**
	01	Pharmacist accesses add order functionality in the system.
	02	System prompts for order details
	03	Request needed medicines from the user
	04	Pharmacist enters the required medicine information
	05	System verifies customer registration and available inventory.
	06	System displayed the selected medicine list on the screen
	07	Net amount and date are automatically displayed
	08	Pharmacist selects the" Add" option for a registered customer.
	09	System validates the input for completeness and accuracy.
	10	Adds the new order to the database.
	11	System generates a confirmation message.
	12	Pharmacist acknowledges the confirmation.
	13	System updates the order database.
	14	Pharmacist receives a success notification.
	15	Pharmacist search for orders by customer ID
	16	Pharmacist can view the newly added customer in the system.
Extensions	**Steps**	**Branching Actions**
	05.a	If the customer is not registered, the system prompts the pharmacist to register the customer first.
	05.b	If there is insufficient inventory, the system displays an error message and prevents order placement.

Use Case No	02	
Use Case Name	Search order	
Summary	Pharmacist searches for specific orders in the system	
Primary Actor(s)	Pharmacist	
Pre-Condition	Pharmacist is logged into the system	
Post-Condition	Relevant orders are displayed.	
Trigger	Pharmacist initiates order search.	
Main Scenario	**Step**	**Actions**
	01	Pharmacist accesses search customer functionality in the system.
	02	The Pharmacist enter the customer ID on the search bar
	03	System retrieves and displays relevant orders.
	04	System displays detailed order information.
	05	System generates order status as a completed orders and pending orders
	06	Pharmacist reviews the generated report.
	07	Pharmacist has the option to print the report. (PDF)
	08	Pharmacist acknowledges the completion of the search.
Extensions	**Steps**	**Branching Actions**
	04.a	If no relevant orders are found, the system notifies the pharmacist, and the search ends.

4.5.5 Activity Diagram

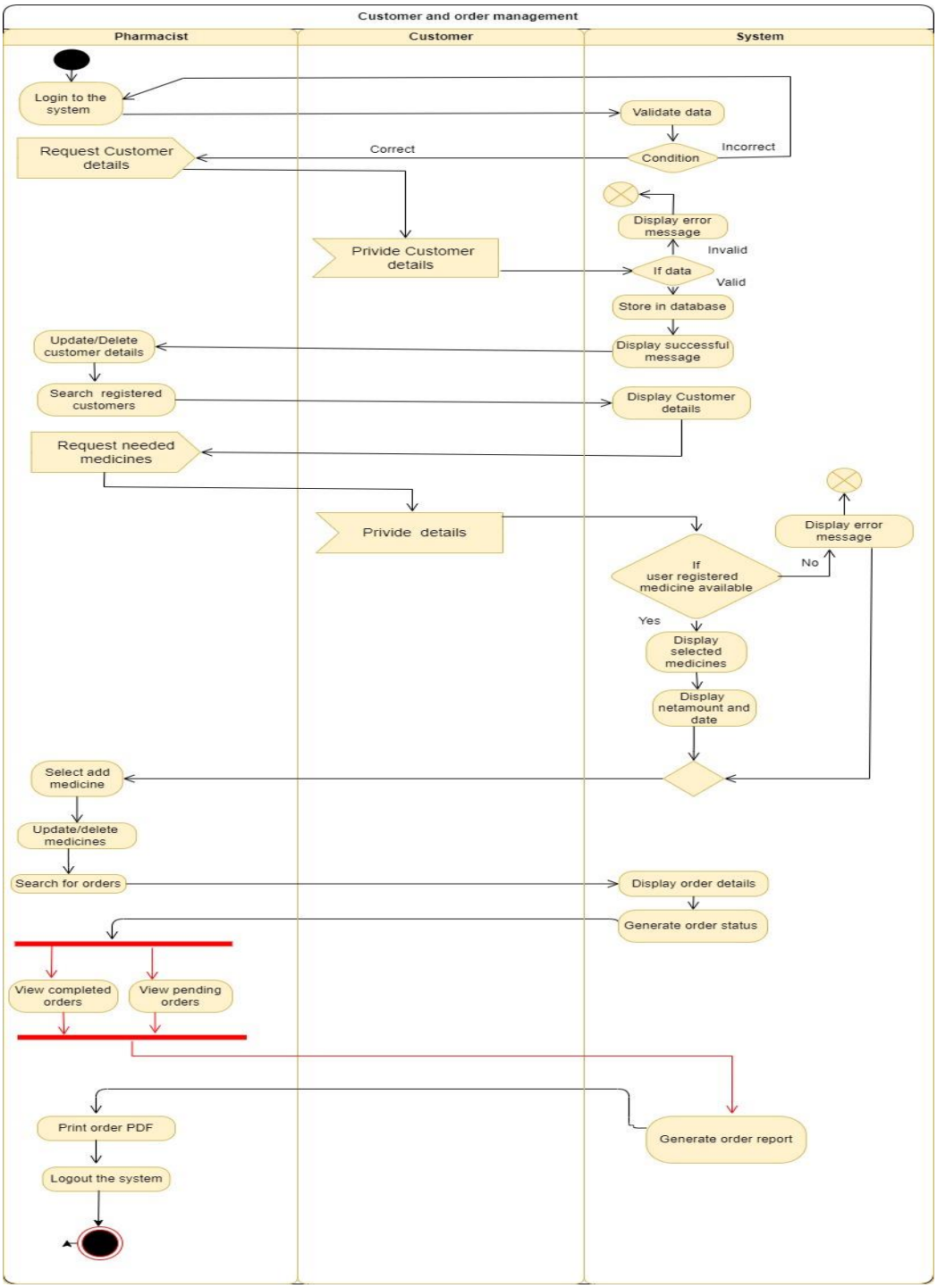

Figure 4.6: Activity Diagram – Customer & Order Management

4.6 System Feature 4 – Sales & Billing Management

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4.6.1 Functional Requirements – Billing Management

FR1:	Calculate the Due Total price
Input	Purchased medicines, loyalty points, Discounts
Process	The system estimates the total price due by considering prescription pricing, loyalty points, and any applicable reductions.
Output	Total Amount

FR2:	Remaining balance
Input	Amount paid by the customer
Process	The system logs the payment and calculates the remaining amount, if any.
Output	Remaining balance

FR3:	Generate Receipt
Input	Purchased medicines, discounts, loyalty points, total amount
Process	The system creates a full receipt with information on purchased drugs, applicable discounts, loyalty points spent, and total amount paid.
Output	Detailed receipt for customer's completed order

FR4:	Delete and clear billing details
Input	Request to delete or clear billing details
Process	Delete or clear billing details before the transaction is completed
Output	Confirmation of billing information deleted.

4.6.2 Use Case Scenarios (Billing Management)

Number		01
Name		Processing a Customer Order
Summary		The pharmacist processes a regular customer's order, using loyalty points and discounts as needed.
Priority		5 (1 = lowest priority, 5 = highest priority)
Preconditions		The system is operating, and a customer has placed an order.
Postconditions		The customer's order is successfully processed, and the payment is recorded.
Primary Actor(s)		Pharmacist
Trigger		A customer approaches the sales counter to make a purchase.
Main Scenario	**Steps**	**Action(s)**
	01	The pharmacist logs into the system.
	02	The pharmacist manually enters things.
	03	The system collects the customer's account and loyalty points.
	04	Loyalty points are assigned based on the customer's Order and status.
	05	Discounts are given if appropriate.
	06	The total amount is calculated and displayed.
	07	The customer makes a payment.
	08	The system changes loyalty points and finalizes the purchase.
Extensions		If a client does not have enough loyalty points or has problems with payment, the pharmacist may suggest alternate payment methods or inform the customer of their choices.
Open issues		Handling conditions in which the customer disputes the loyalty points or discounts awarded.

Number		02
Name		Delete and clear billing information
Summary		Clear information before the transaction is completed and delete information when returning the order or error occurred
Priority		4 (1 = lowest priority, 5 = highest priority)
Preconditions		Billing details are entered but not completed.
Postconditions		Billing details are cleared or cancelled.
Primary Actor(s)		Pharmacist
Trigger		The pharmacist identifies an error, or the customer wants to return the purchased order.
Main Scenario	**Steps**	**Action(s)**
	01	Identified errors in the order or purchased order.
	02	The system checks whether transaction details and information regarding the order.
	03	Notify the customer and make proper adjustments.
	04	Delete or clear billing information.
Extensions		If the transaction has been completed of returning order, then refund any payment made by the customer.

Number		03
Name		Update or changing billing details
Summary		The pharmacist update billing details for a customer’s order in the sales and billing function
Priority		5 (1 = lowest priority, 5 = highest priority)
Preconditions		There must be an existing client order that needs billing information updated.
Postconditions		The billing details are successfully updated.
Primary Actor(s)		Pharmacist
Trigger		Upon request from the customer.
Main Scenario	**Steps**	**Action(s)**
	01	Pharmacist access to the system.
	02	Select the bill that requests to update.
	03	Pharmacists update the billing details regarding customer’s needs.
	04	The pharmacist confirms the changes with the customer.
Extensions		If there are any issues in the billing details updating procedure, the pharmacist troubleshoots and resolves the issue before saving the changes.
Open issues		Are there any security measures in place to authenticate the pharmacist's identification before providing access to critical billing information?

4.6.3 Functional Requirements – Sales Management

FR1:	Generate sales report
Input	Monthly sales details
Process	The system analyses monthly sales revenue and quantity of medicines that are sold
Output	Generate report summarizing monthly sales details and identify best-selling medicine

4.6.4 Use Case Scenarios (Sales Management)

Number		04
Name		Generate monthly sales report
Summary		The pharmacist generates a report summarizing monthly sales.
Priority		5 (1 = lowest priority, 5 = highest priority)
Preconditions		The month has ended, and all transactions are done.
Postconditions		A monthly sales report is generated.
Primary Actor(s)		Pharmacist
Trigger		Upon request from the management
Main Scenario	**Steps**	**Action(s)**
	01	Pharmacist access to the system.
	02	Select the month that want to generate a sales report
	03	The system processes monthly sales
	04	Sales data was analyzed and compiled into the report to generate
Extensions		If an error occurs report may delay.
Open issues		Ensure that the resulting report is accurate and full.

4.6.5 Activity Diagram

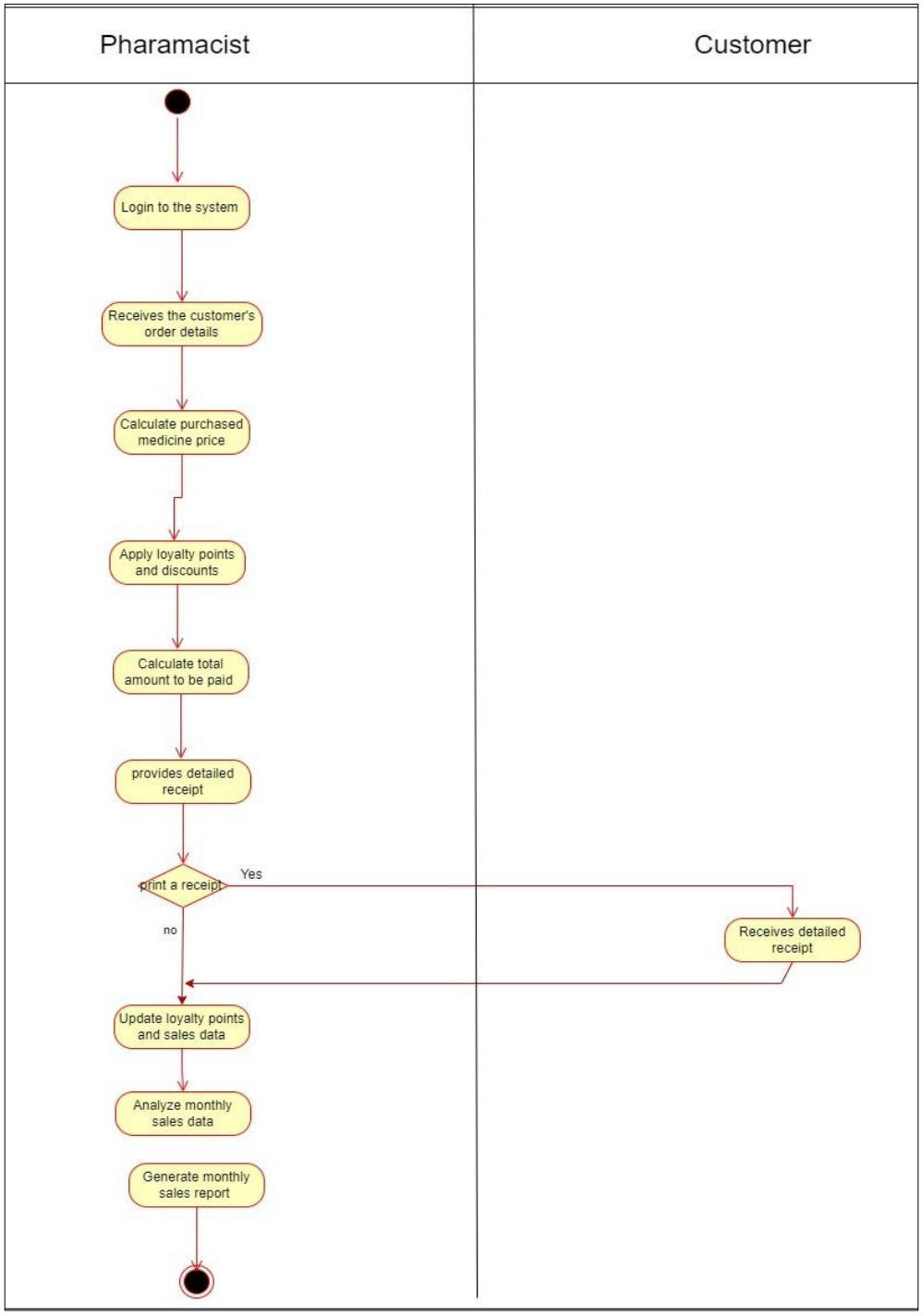

Figure 4.7: Activity Diagram – Sales and Billing Management

5. Other Nonfunctional Requirements

5.1 Performance Requirements

In terms of performance requirements for the Java Desktop Pharmacy Application created for "Medicare Pharmaceuticals," it is critical to ensure the efficient execution of the defined business tasks. The system must execute responsively because inventory management, supplier details, customer interactions, order processing, and sales management are all real-time. For example, while adding, modifying, or removing medical inventory, customer, or employee records, the application should respond quickly to user inputs, eliminating any delays in data processing. Similarly, order processing features, such as error handling for insufficient drug quantities and unit price and total amount computation, should be completed as soon as possible to ensure seamless transactional flows. Furthermore, for sales and billing administration, accurate processing of loyalty points, discounts, and final balance computations is critical to maintaining a consistent client experience. Overall, optimizing database queries, implementing efficient algorithms, and guaranteeing streamlined code execution are critical for meeting these performance goals and increasing customer satisfaction.

5.2 Safety Requirements

Safety criteria for the Java Desktop Pharmacy Application for "Medicare Pharmaceuticals" are critical to ensuring user protection and data integrity. There must be safeguards in place to prevent unauthorized access to sensitive information such as patient records and financial data. Encryption techniques should be used to protect data transit via networks. Regular database backups are required to reduce the risk of data loss caused by hardware failure or cyber-attacks. Access controls should be implemented to restrict access to specific capabilities depending on user roles, preventing unauthorized changes to sensitive data. Compliance with industry regulations, such as HIPAA (Health Insurance Portability and Accountability Act), for healthcare data privacy and security is required. Furthermore, the program must be thoroughly tested to discover and resolve any potential vulnerabilities or security flaws. Certification from relevant regulatory authorities confirming compliance with safety standards is required to build faith and confidence in the application's dependability and security measures.

5.3 Security Requirements

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5.4 Software Quality Attributes

In addition to the listed functional criteria, the non-functional requirements for the Java Desktop Pharmacy Application for "Medicare Pharmaceuticals" include numerous essential software quality attributes. Adaptability is essential for managing future changes in pharmacy legislation or company procedures. Availability should aim for at least 99% uptime to assure users' uninterrupted access. To be correct, all system actions and calculations must be exact to within a 0.1% margin of error. Maintainability requires any software updates or bug patches to be implemented within 48 hours after detection. Portability is required for the application to work smoothly across multiple operating systems, with a goal of compatibility with at least three major platforms. Usability should promote simplicity of navigation and task completion, with a maximum learning curve of one hour for new users. While all features are significant, usability and availability are prioritized over other qualities since they have a direct impact on user satisfaction and system accessibility.

5.5 Business Rules

Safety criteria for the Java Desktop Pharmacy Application for "Medicare Pharmaceuticals" are critical to ensuring user protection and data integrity. There must be safeguards in place to prevent unauthorized access to sensitive information such as patient records and financial data. Encryption techniques should be used to protect data transit via networks. Regular database backups are required to reduce the risk of data loss caused by hardware failure or cyber-attacks. Access controls should be implemented to restrict access to specific capabilities depending on user roles, preventing unauthorized changes to sensitive data. Compliance with industry regulations, such as HIPAA (Health Insurance Portability and Accountability Act), for healthcare data privacy and security is required. Furthermore, the program must be thoroughly tested to discover and resolve any potential vulnerabilities or security flaws. Certification from relevant regulatory authorities confirming compliance with safety standards is required to build faith and confidence in the application's dependability and security measures.

6. Other Requirements

To ensure the successful development, deployment, and maintenance of the Java desktop pharmacy application for "Medicare Pharmaceuticals," in addition to the core functionalities specified in the Software Requirements Specification (SRS), several other requirements need to be met.

- Legal Compliance**:** The application adheres to all relevant legal requirements and regulations governing pharmaceutical and healthcare software. This includes compliance with data protection laws, patient privacy regulations, and all the other applicable industry standards.
- Supplier Contracts: All supplier contracts, particularly those related pharmaceutical inventories, is recorded, and uploaded to the system. Ensuring smooth communication with suppliers is necessary to get latest updates on stock availability, prices, and other contractual obligations.
- External Services Contracts: Contracts defining the scope, duration, and terms of engagement with external services like database management or Quality Assurance (QA) testing is included if these services are outsourced. For all parties concerned, this guarantees a clear understanding of their roles and expectations.
- Database Requirements: The database needs are well defined, together with the data format, any database-related constraints, and the database management system (such as MySQL) to be utilized. Data management, retrieval, and storage will become more efficient as a result.
- Backup and Recovery: Creating a strong backup and recovery plan to protect important data. Specifying how often backups should be made, where they should be stored, and how to restore data in the event of a system failure or corrupted information.

In addition to performing its main tasks, the Java Desktop Pharmacy Application can operate in a framework that ensures legal compliance, efficient supplier, and external service collaboration by attending to these additional requirements.

Appendix A: Glossary

- **HIPAA (Health Insurance Portability and Accountability Act)**

  The Health Insurance Portability and Accountability Act is known by its acronym, HIPAA. It's an act of the federal government in the United States that was passed in 1996 and has since been changed. The purpose of HIPAA is to protect the confidentiality and integrity of personal health information.

  Key aspects of HIPAA include:

  - Privacy Rule: The protection of personally identifiable health information is governed by national standards established by this rule. It lays out limitations on the use and distribution of personal health information by covered entities and specifies the rights of persons with relation to that information.
  - Security Rule: This regulation creates national guidelines for safeguarding people's electronic personal health information (ePHI). It describes the precise security measures that must be put in place to guarantee the privacy, availability, and integrity of ePHI.
  - Transactions and Code Sets Rule: The electronic exchange of healthcare data is standardized under this guideline. It establishes the codes and formats required for certain electronic healthcare transactions.
  - Unique Identifiers Rule: Standard identifiers for businesses, health plans, and healthcare providers are established under this rule. It contributes to raising the healthcare system's accuracy and efficiency.

Health care clearinghouses, health plans, and healthcare providers that send electronic health information are examples of covered entities under HIPAA. Business affiliates are further subject to certain HIPAA regulations. Business associates are people or organizations that provide services to covered entities that involve the use or disclosure of protected health information. HIPAA compliance is essential to protecting patient privacy and preserving the confidentiality of medical records. Penalties, both civil and criminal, may arise from violations of the HIPAA regulations.[8]

Appendix B: Analysis Models [1]

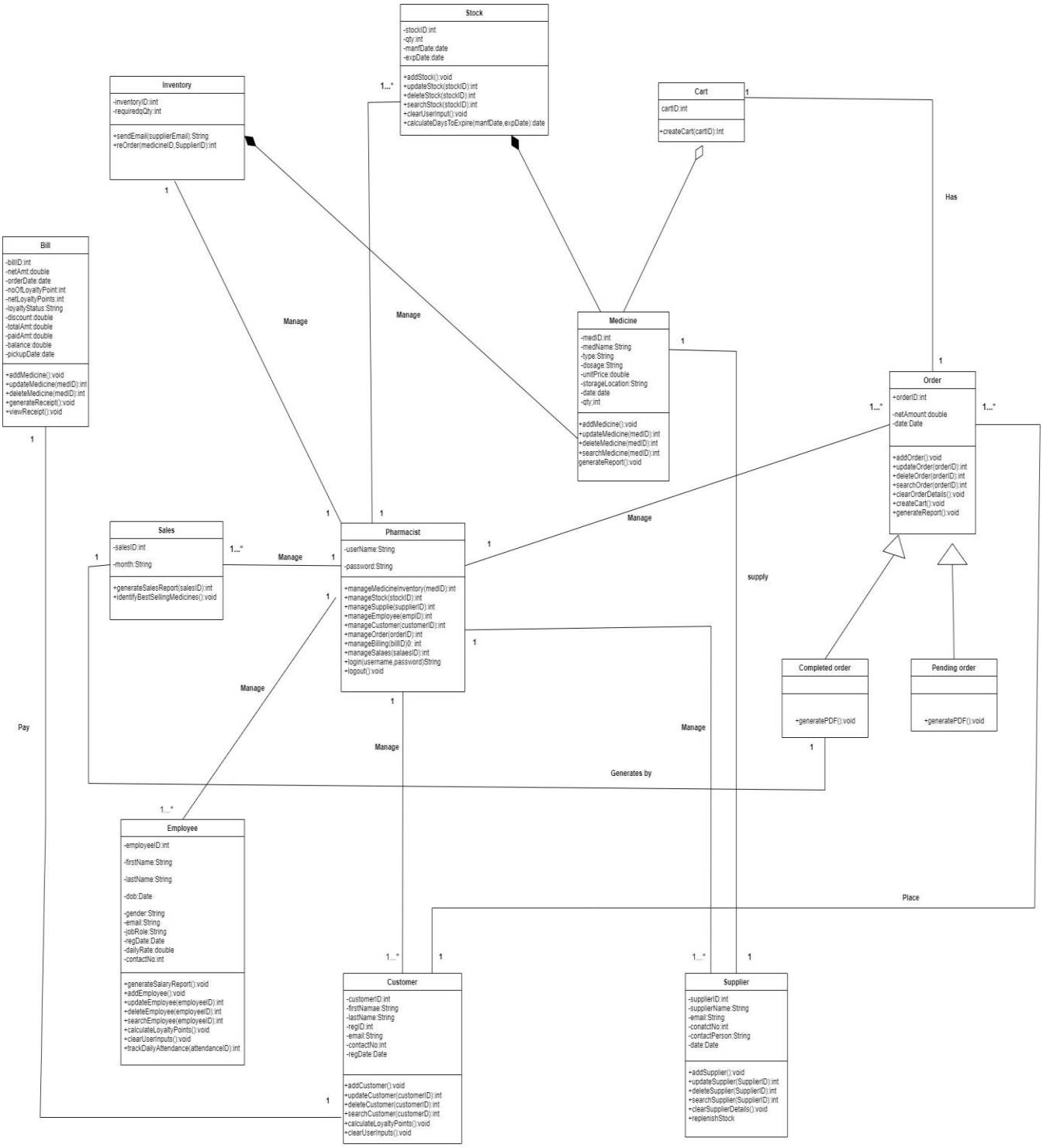

Figure 6.1: Class Diagram

Appendix C: To Be Determined List

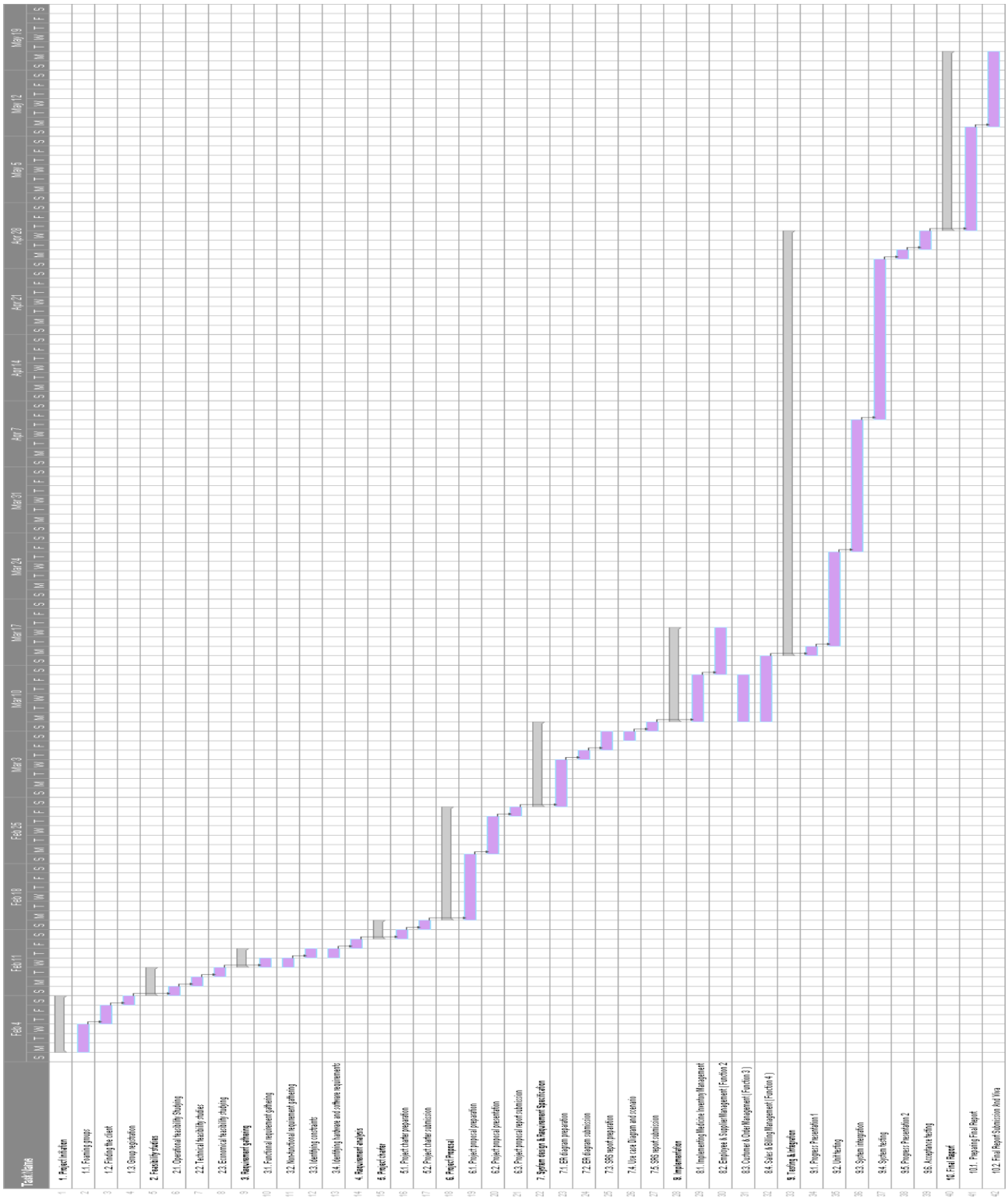

Figure 6.2: Gantt Chart