PharmaTech Documentation

Overview

This project presents a system model for Pharma Tech, a pharmaceutical company. It solves problems in order processing, stock management, delivery, and accounting using UML and DFD diagrams.

Our Team (G4)

Name	ID
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Introduction

Pharma Tech is a pharmaceutical company that manufactures and distributes medicines. The company operates through several departments including manufacturing, sales, accounting, and warehousing. To improve operational efficiency and address common workflow issues, our team designed a comprehensive system using UML and DFD diagrams. The aim is to streamline the ordering process, ensure accurate inventory management, enhance communication between departments, and provide transparent transaction records.

Interview

1. Could you explain the sales process from start to finish?

2. How are new customers registered? Are their details verified?

3. How are the sold products tracked? Is there any monitoring of stock quantities?

4. What are the most common issues sales representatives face in the field?

5. Are any offers or discounts provided? How are they managed?

6. What kind of reports do you rely on to make sales decisions?

7. Does the current system help you predict sales or identify the most in-demand products?

8. How important is the integration between the sales, inventory, and accounting systems?

9. What is your opinion on the current system's user interface? Is it easy or complicated to use?

10. If a new system were developed, what is the first feature you would want it to have?

Questionnaire

Objective: We are working on developing the current sales system. Your feedback and suggestions are essential to improve performance and meet business needs.

Please fill in the following information accurately.

Name (Optional): _____

Department/Job Title: _____

Section 1: General Information

1. What is your job title?

☐ Sales Representative

☐ Internal Sales Officer

☐ Sales Manager

☐ Technical Support Staff

☐ Other: _____

2. Are you currently using a system to manage sales operations?

☐ Yes

☐ No

3. If yes, what is the name of the system? _____

Section 2: Current System Evaluation

4. What features are available in the current system? (Check all that apply)

☐ Invoice Issuing

☐ Order Tracking

☐ Customer Data Archiving

☐ Periodic Reports

☐ Inventory Integration

☐ None of the above

5. What are the main issues you face with the current system? (Check all that apply)

☐ System Slowness

☐ Lack of Information

☐ Difficult to Use

☐ Poor Reporting

☐ Not Mobile-Friendly

☐ Other: _____

6. What features would you like to see in the new system?

_____

_____

7. How often is customer and inventory data updated?

☐ Daily

☐ Weekly

☐ Monthly

☐ Only When Needed

8. How are orders currently entered?

☐ Manually

☐ Electronically

9. What types of reports do you need on a regular basis?

_____

10. Rate the current system from 1 (Very Poor) to 10 (Excellent):

□ 1 □ 2 □ 3 □ 4 □ 5 □ 6 □ 7 □ 8 □ 9 □ 10

Problem Analysis and Solution 

Problem 1: Manual Stock Tracking

- **Issue:** Warehouse employees used spreadsheets or paper to manage inventory, causing frequent errors and stock-outs.
- **Solution:** Implemented a digital inventory system linked with real-time stock updates, visible to warehouse staff and managers.

Problem 2: Delivery and Payment Issues

- **Issue:** Delivery agents collected payments manually with no digital confirmation, creating accountability issues.
- **Solution:** Added a delivery module where agents log cash collection and mark orders as delivered, which the accountant sees instantly.

Problem 3: Delayed Transaction Logging

- **Issue:** Accountants had to wait for verbal or written confirmation to record payments, delaying reporting and auditing.
- **Solution:** Integrated the payment system with the accountant dashboard to automatically register completed transactions.

Problem 4: Poor Managerial Oversight

- **Issue:** Managers lacked real-time data on sales, stock levels, and customer satisfaction.
- **Solution:** Built an admin dashboard with visual analytics (e.g., sales graphs, stock alerts, customer feedback summaries).

Problem 5: Disconnected Departments

- **Issue:** Communication between sales, warehouse, and delivery teams was slow and often manual.
- **Solution:** All departments were linked through a unified platform with role-based access and automated workflows.

Key System Features

Real-time inventory tracking

Delivery and payment logging interface for agents

Transaction record visibility for accountants

Admin dashboard with sales and stock reports

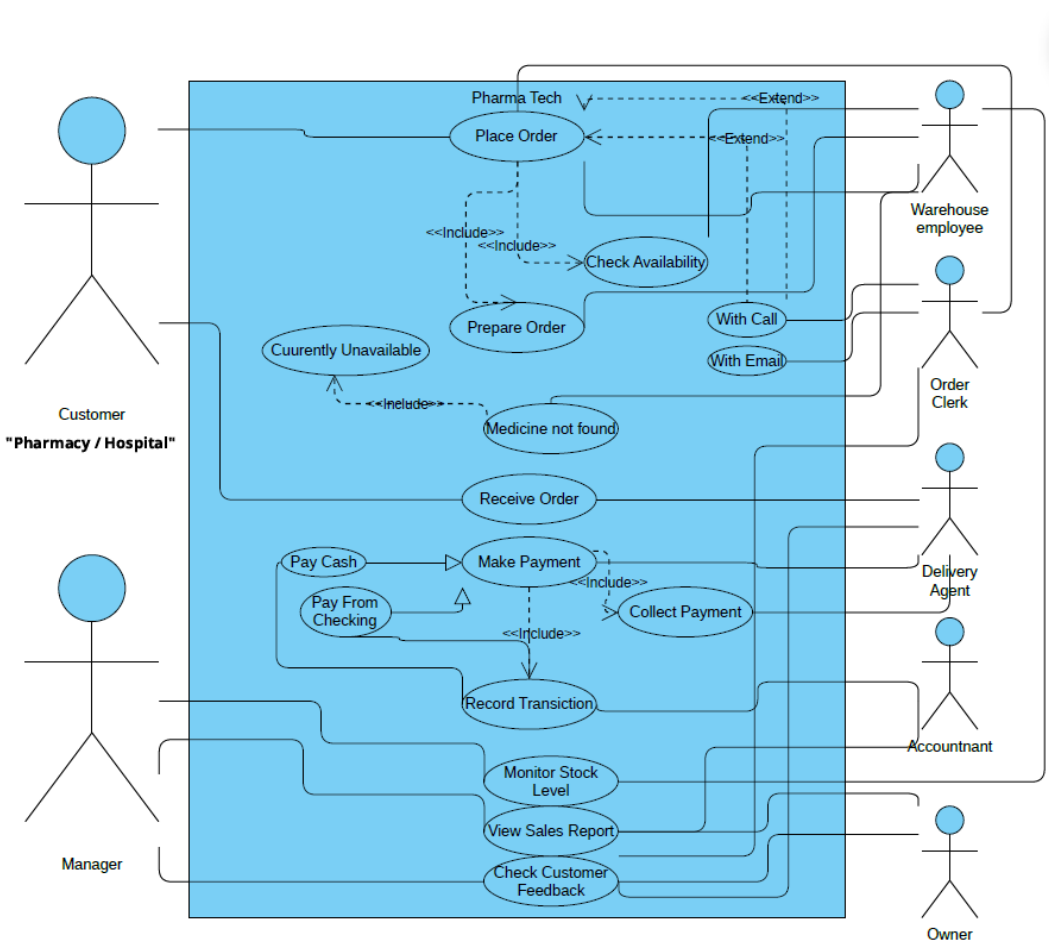
Role-based access control for security and clarity

Structured data flow between departments

UMLs Diagrams

Use Case Diagram **Purpose: Illustrates the interactions between users (actors) and the system functionalities.**

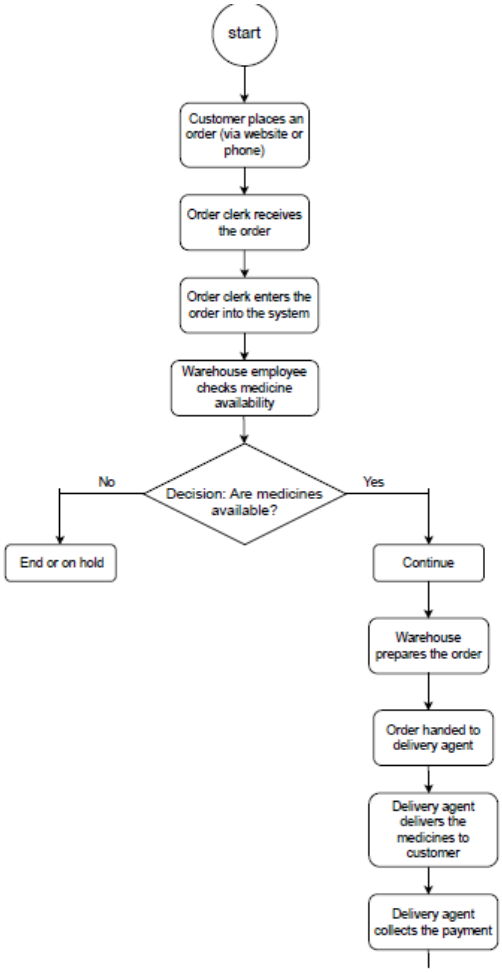
Scenario: This diagram shows how different users such as pharmacy staff, delivery agents, warehouse employees, and managers interact with the system—for example, placing orders, managing stock, and trackindeliveries.

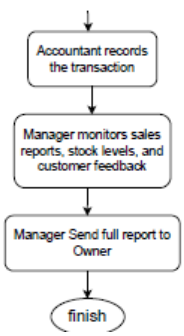


Activity Diagram

Purpose : Describes the dynamic flow of activities and decisions in the system.

Scenario : It details the step-by-step process of handling a medicine order—from the time it's placed, checked in the warehouse, confirmed, prepared, delivered, and finally recorded in the system.

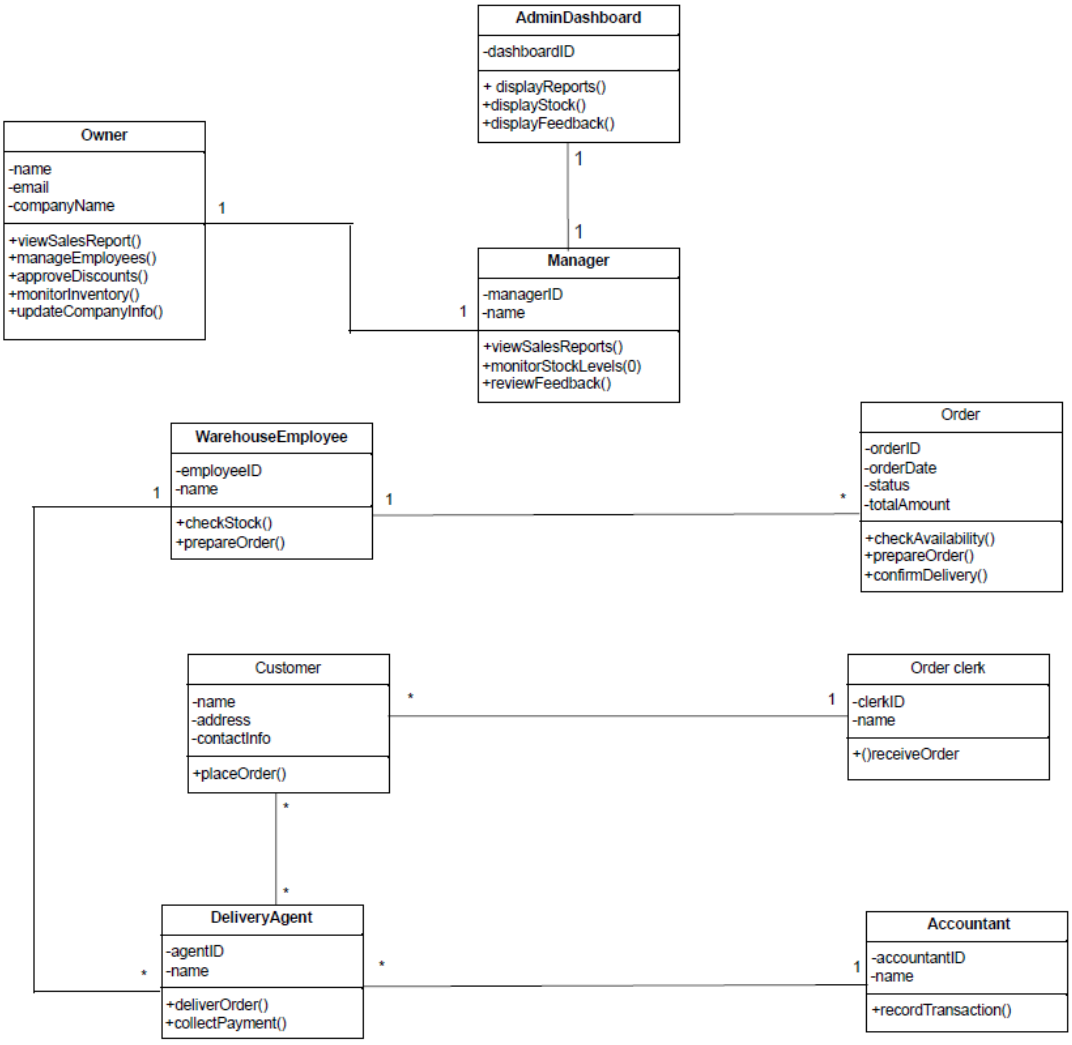




Class Diagram

Purpose : Represents the static structure of the system through classes, their attributes, and relationships.

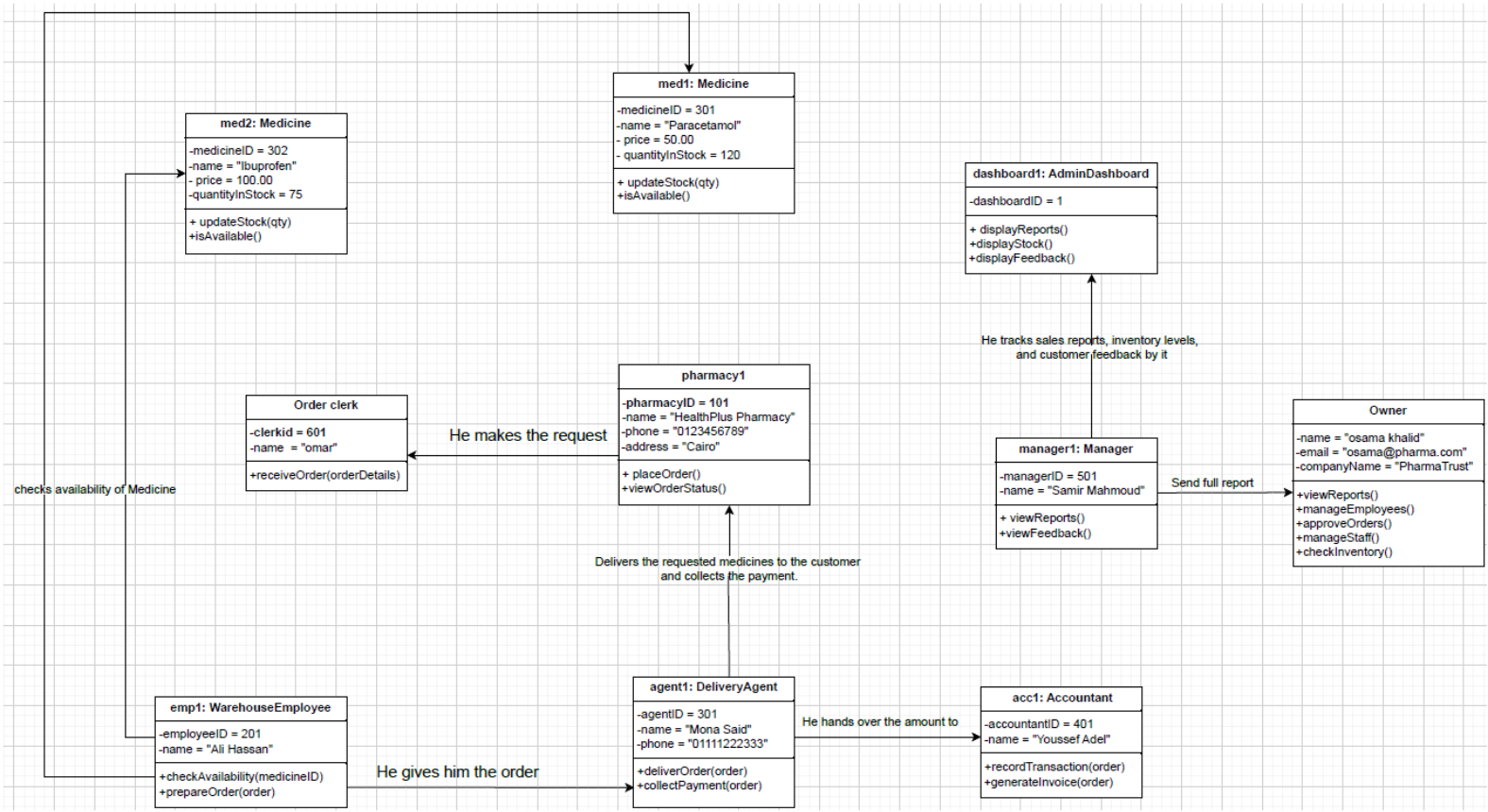
Scenario :The diagram includes classes like Order, Medicine, User, Warehouse, Delivery Agent, and Accountant, showing how they are connected and what data they hold.



Object Diagram

Purpose : Shows a snapshot of the system at a particular moment, using actual instances of classes.

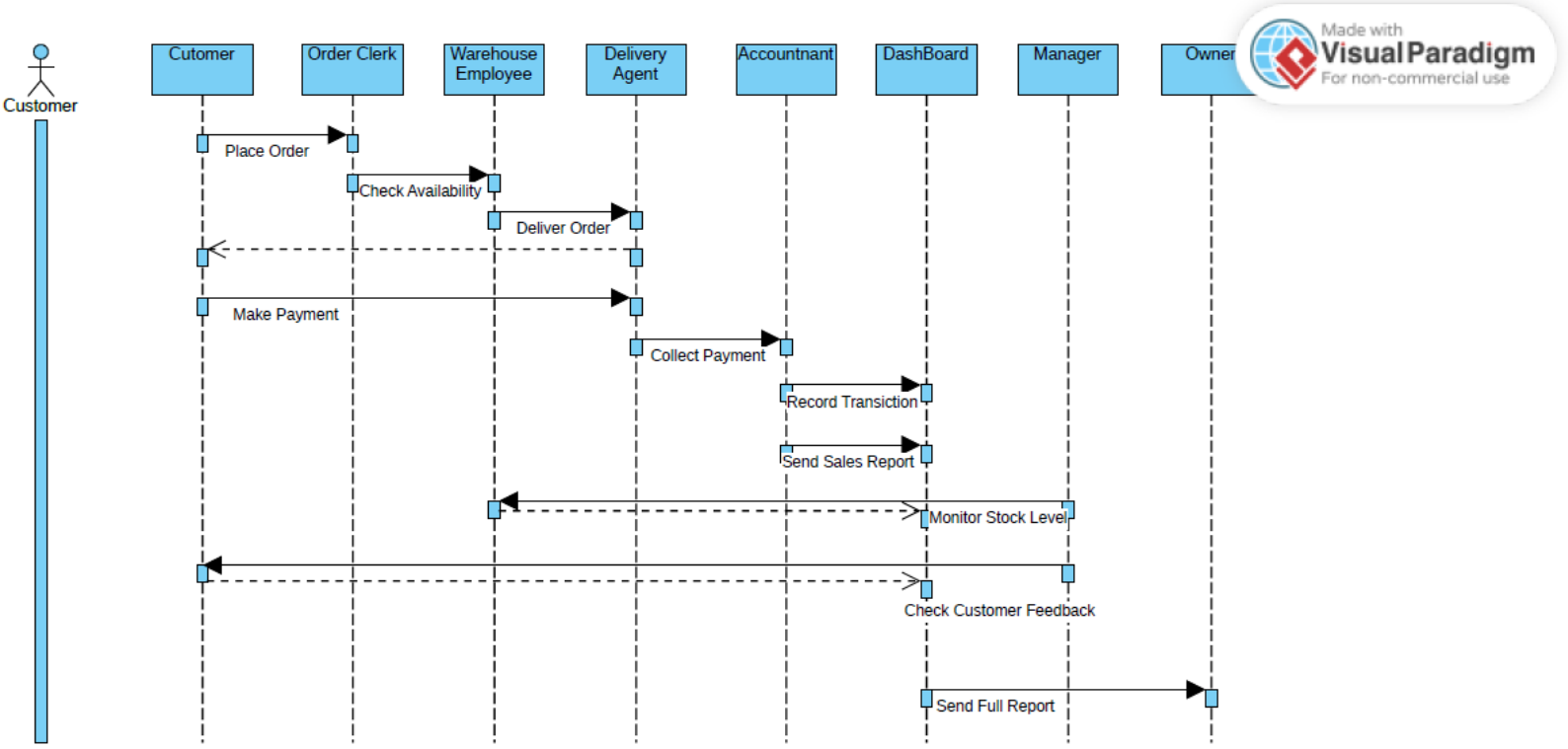
Scenario : This diagram demonstrates an example situation where a pharmacy places an order for certain medicines, and the specific instances involved in the transaction are displayed.



Sequence Diagram

Purpose : Displays the order of messages exchanged between objects to complete a process.

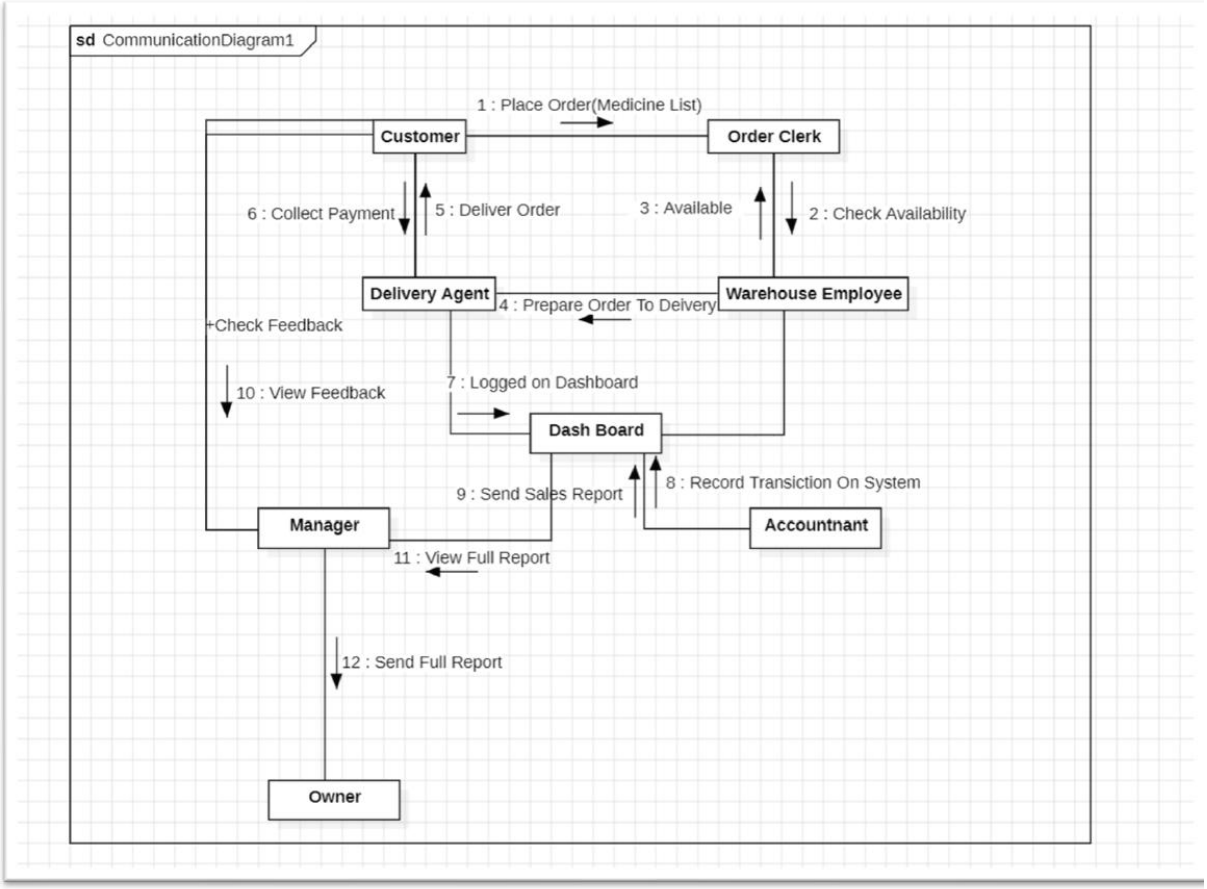
Scenario : Models the process of a user placing an order, the warehouse confirming availability, the delivery being arranged, payment collection, and the accountant logging the transaction.



Collaboration Diagram

Purpose : Highlights the interactions between objects and their relationships, with focus on the structure rather than time.

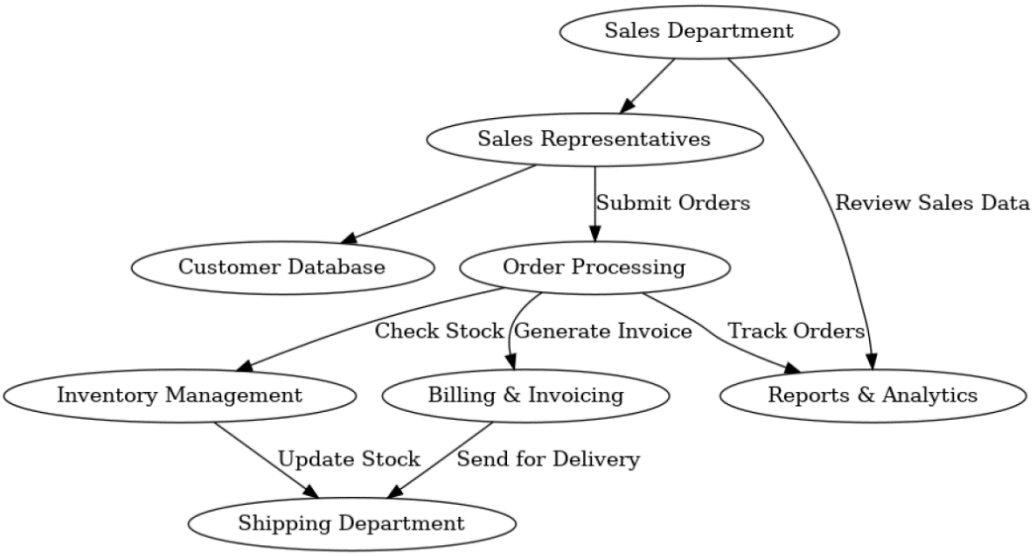
Scenario : Depicts how components like the Order Handler, Warehouse Checker, Delivery Coordinator, and Account System work together to fulfill an order.



Data Flow Diagram

Purpose : Visualizes how data moves through the system, including inputs, outputs, storage points, and data processing.

Scenario : Shows how order data flows from pharmacies/hospitals to the warehouse, to delivery, and finally into the accounting system for records and reports.



Conclusion

The PharmaTech system was designed to address inefficiencies in the medicine distribution workflow. Through these diagrams, we were able to visualize system behavior, clarify responsibilities, and propose solutions that ensure a smoother, more transparent operation. This documentation serves as a technical reference for developers, analysts, and stakeholders to understand the system's structure and functionality.