



PES University, Bengaluru

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UE19CS353 – Object Oriented Analysis and Design with Java

Theory ISA (Mini Project)

Report on

Pharmacy Inventory Management System

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1. Project Description

Pharmacy management system stores and manages Medicine, company and agent details.

- It helps in storing the data, organizes the entire system, controls the use of medication & improves customer satisfaction.
- Our project helps the business owner to control their stock, accounting and choose the right medication. With all the basic and advanced pharmacy features it helps in controlling all the business activities .
- Agents are able to sell the stock to different vendors and automatic bills get printed.

Link to Github repository -

<https://github.com/bkumarsp/PharmacyInventoryManagementSystem>

2. Analysis and Design Models

1) USE CASE DIAGRAM -:

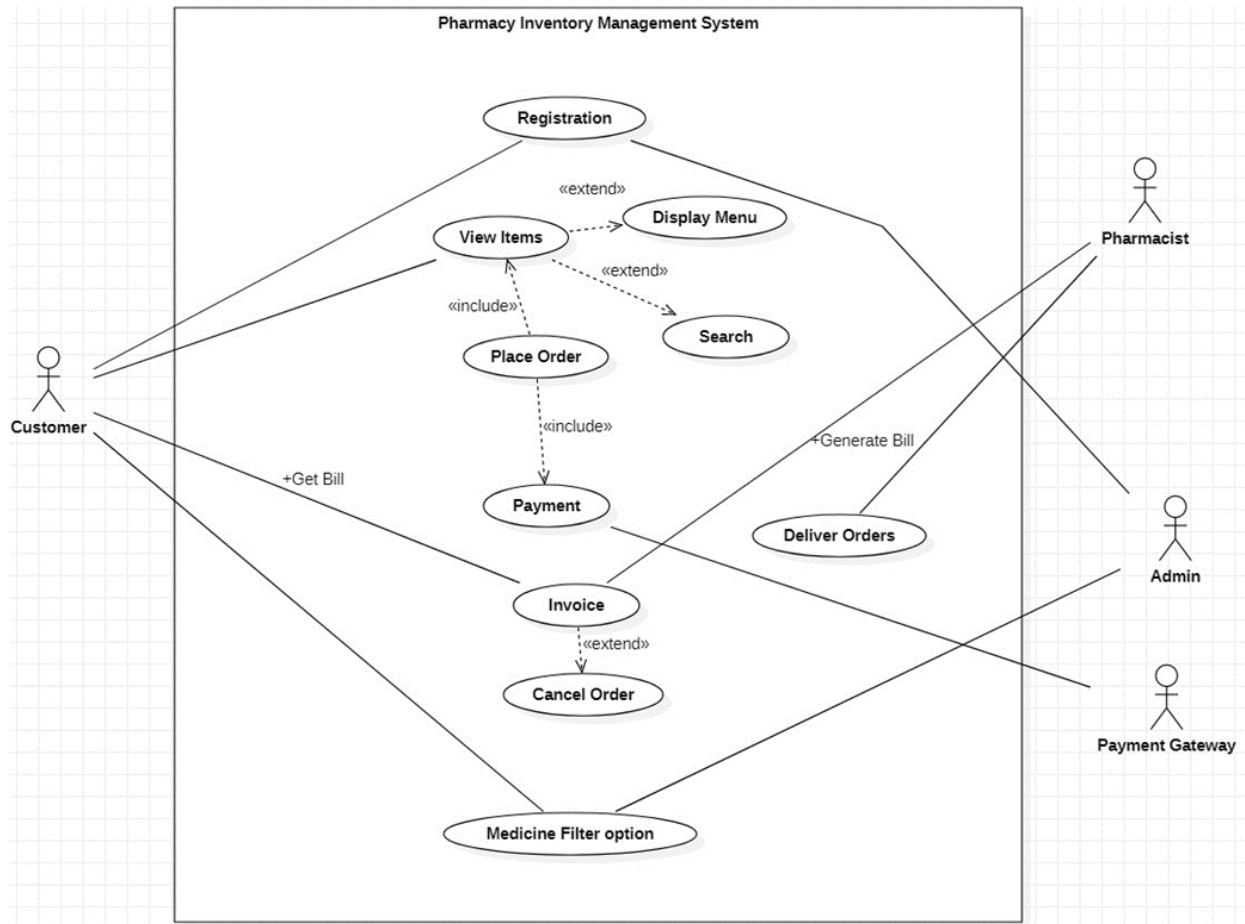


Fig1. Use Case Diagram

Name – Pharmacy Inventory Management System

Summary/Overview – Searching and Ordering medicines online

Actors – Customer, Pharmacist, Admin, Payment Gateway

Pre-conditions - Medicine must be available to place order

- Customer must have sufficient funds to do online payment

Description – Customer initially registers. They can then view items, look at the menu and search for desired medicines. They then place the order and make the payment. The payment gateway such as Google Pay, Net Banking, etc. The Pharmacist delivers the orders. He/ She can generate the bill/ invoice. The customer can cancel the order.

Exceptions - Insufficient funds, cannot identify account, power failure

2) Class Diagram -:

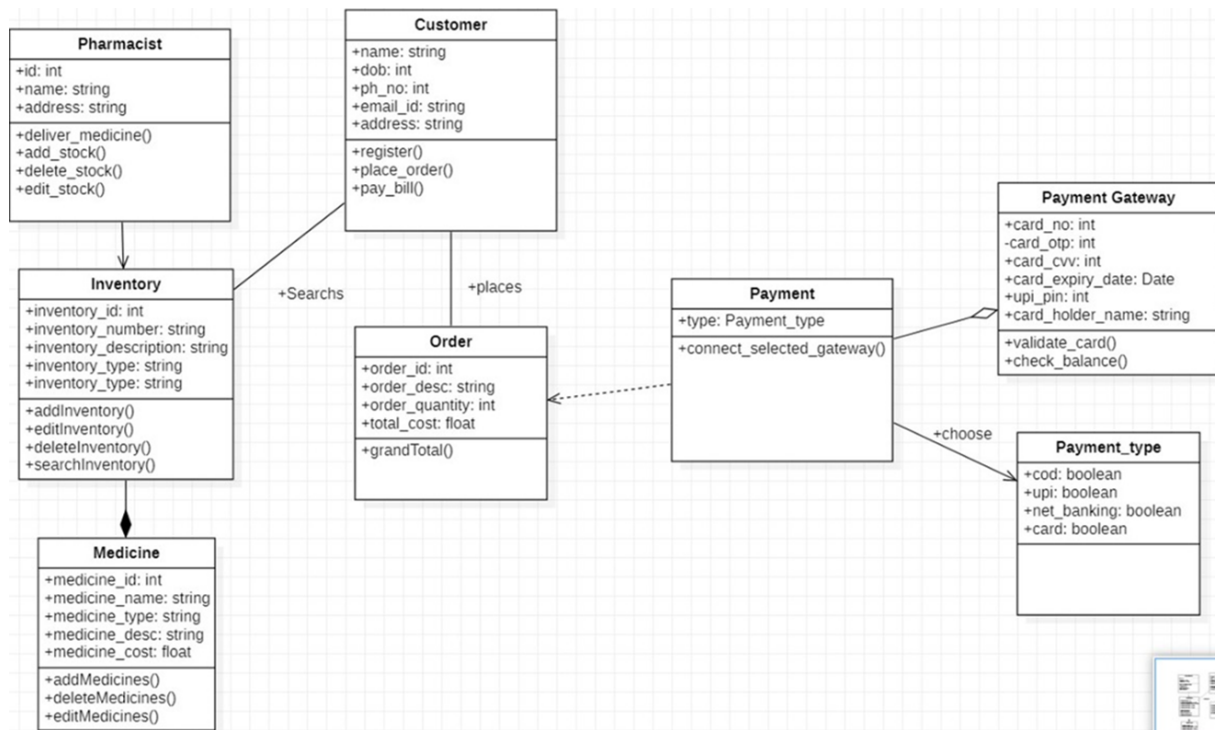


Fig2. Class Diagram

Specifications:-

Class **Customer** has their details such as name, date of birth, phone number, etc. These are accepted as data members. The functions that can be performed by them are `register()`, `place_order()`, `pay_bill()`, etc. Class **Inventory** has its unique id, number, description, etc. We can perform functions like add, edit, delete and search the inventory.

Class **Medicine** has composition relation with Class **Inventory**.

Class **Pharmacist** has data members as name, address, etc. They can deliver the medicine and also add, delete or edit the stock.

Class **Order** has id, quantity and the `grandTotal()` function to compute total cost.

Class **Payment** has attribute payment type which can be GPay, netbanking, etc. On knowing the type, we can connect to the selected one.

Class **Payment Gateway** is aggregated to class **Payment**. It takes in all the details of the card and checks if the card is valid and the balance.

Class **Payment Type** is extended from **Payment** and checks if UPI ID, netbanking, cash on delivery, etc.

3) State Diagram -:

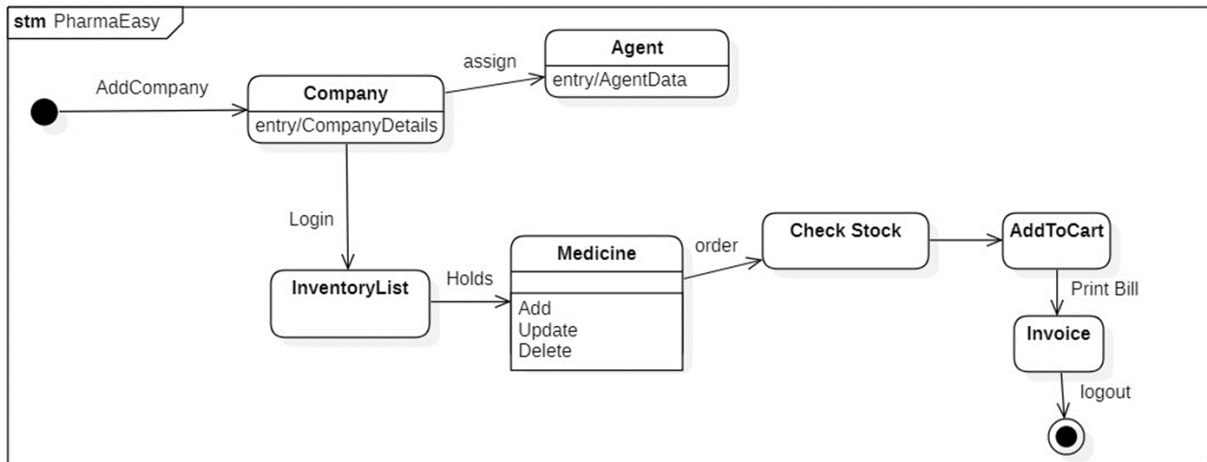


Fig3. State Diagram

4) Activity Diagram -:

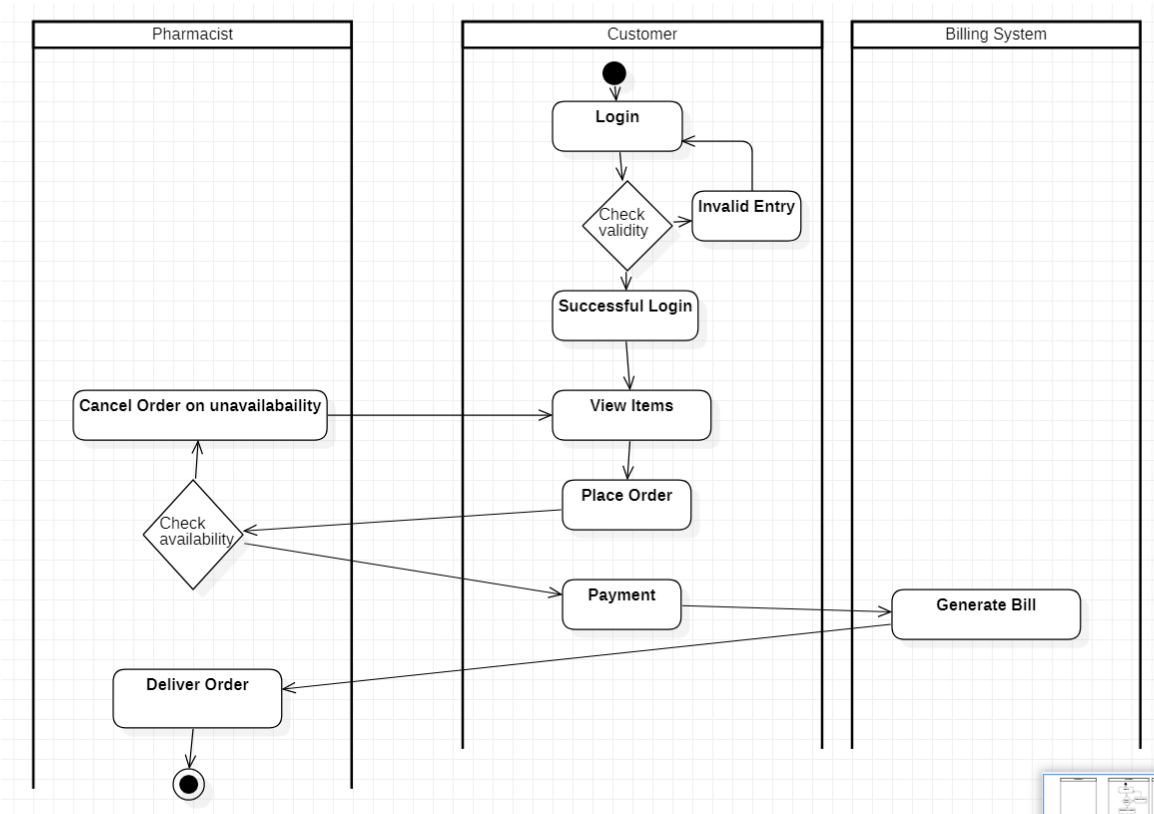


Fig4. Activity Diagram

3. Tools and Frameworks Used

IDE:NetBeans

NetBeans is an integrated development environment for Java. NetBeans allows applications to be developed from a set of modular software components called modules.

DATABASE: JavaDB

Java DB is a relational database management system (RDBMS). Data is stored and queried via SQL or JDBC.

FRAMEWORK: Swing

The Swing Application Framework is a Java specification for a simple application framework.

4. Design Principles and Design Patterns Applied

•Design Principle:- Single responsibility Principle(SRP)

–MedicineClass

–AgentClass

–CompanyClass

•Design Patterns:- Facade

–SellerClass

–Facade is a structural design pattern that provides a simplified interface to a complex system of classes, library or framework.

5. Application Screenshots

1) Inventory Page -:

MANAGE MEDICINE

COMPANY
AGENT
SELLER

ID: 1
NAME: Dolo
QUANTITY: 120
PRICE: 3
EXP.DATE: 23-Apr-2022
MFT.DATE: 12-Apr-2022
BRANCH: Bangalore south

ADD UPDATE DELETE CLEAR

MEDICINE LIST

M_ID	M_NAME	M_QUANTITY	M_PRICE	M_EXPDATE	M_MFTDATE	M_COMPANY
1	Dolo	120	3.0	2022-04-23	2022-04-12	Bangalore south
3	Anacin	40	7.0	2022-04-22	2021-04-16	Delhi
10	cipl	15	5.0	2023-04-29	2021-04-15	Kolkata

Message: Medicine 1 Updated Successfully

Fig5. Inventory Page Screenshot

2) Company Page -:

MANAGE COMPANY

MEDICINE
AGENT
SELLER

ID: 3
NAME: SunPharma
ADDRESS: Madras
EXPERIENCE: 27
PHONE: 522685

ADD UPDATE DELETE CLEAR

COMPANY LIST

C_ID	C_NAME	C_ADDRESS	C_EXP	C_PHONE
1	KarlMed	Bangalore	8	326326
5	Apolo	Chennai	25	522685
2	BioCon	Pune	9	965852
3	SunPharma	Madras	27	522685

Message: Company Successfully Added

Fig6. Company Page Screenshot

3) Agent Page -:

**MEDICINE
COMPANY
SELLER**

MANAGE AGENTS

ID

PHONE

NAME

EMAIL

AGE

GENDER
Male

PASSWORD

ADD

UPDATE

DELETE

CLEAR

AGENT LIST

A_ID	A_NAME	A_AGE	A_PASSWORD	A_PHONE	A_GENDER	A_EMAIL
92	Bhuvantej	20	bhuvan	8892374633	Male	bhuvan@pharm...
87	Bharath Kumar	20	bharath	6364440927	Male	bharath@phar...

Fig7. Agent Page Screenshot

4) Seller Page -:

**MEDICINE
AGENT
COMPANY**

BILLING

SELLER

BILL ID

MEDICINE

QTY.

ADD TO BILL

CLEAR

MEDICINE STOCK

26-04-2022

M_ID	M_NAME	M_QUANTI	M_PRICE	M_EXPDA	M_MFTDA	M_COMPA
1	Dolo	100	3.0	2022-04-23	2022-04-12	Bangalore s...
3	Anacin	30	7.0	2022-04-22	2021-04-16	Delhi
10	cipla	15	5.0	2023-04-29	2021-04-15	Kolkata

INVOICE

***** PHARMA-EASY *****

ID	Name	Price	Qty	Net
1	Anacin	7.0	10	70.0
2	Dolo	3.0	20	60.0

PRINT

General

Page Setup

Appearance

Print Service

Name: Microsoft Print to PDF

Properties...

Status: Accepting jobs

Type:

Info: ☐ Print To File

Print Range

☒ All
☐ Pages 1 To 1

Copies

Number of copies: 1

Collate

Print

Cancel

Fig8. Seller Page Screenshot

6. Team member contributions

B Pravena (PES2UG19CS076)	Bharath Kumar S P (PES2UG19CS087)	Bhuvantej R (PES2UG19CS092)
Medicine Class	Seller Class	Agent class
Company Class	Backend DB connection, Invoice	User table creations
DB queries for Inventory System	Bill generation and Medicine Queries	Database Query for Agent profile

Table1. Team Member Contributions

7. Conclusion

This project provides a user friendly environment for managing pharmacy inventory. This helps manage medicine, agents and company data. All the classes implement CRUD operations and follow Single Responsibility Principle. The **company class**, **Agent class** and the **Medicine class** forms the base of our project and links to DB server directly. The **Seller class** is where customers can order medicines from the inventory. The data is stored in Java DB where we can easily perform SQL operations. Once the order is placed, the invoice will be generated and provides the Print option.

8. References

- <https://netbeans.apache.org/kb/docs/java/quickstart-gui.html>
- <https://www.guru99.com/use-case-diagrams-example.html>
- <https://creately.com/blog/diagrams/class-diagram-relationships/>
- https://www.tutorialspoint.com/uml/uml_activity_diagram.htm
- <https://www.geeksforgeeks.org/unified-modeling-language-uml-state-diagrams/>