SUPERIOR UNIVERSITY LAHORE

Faculty of Computer Science & IT

PROJECT REPORT

[Pharmacy POS and Management System]

Project ID: **[write ID here Issued by FYP Manager]**

Project Team

Student Name	Student ID	Program	Contact Number	Email Address
Ayesha Hussain	Bcsm-F17-309	Computer Science	+923349788887	hAisha068@gmail.com
Asim Zahid	Bcsm-F17-123	Computer Science	+923320443303	AsimZahid02@gmail.com

[Dr. Amna Khan]
([Assistant Professor])

Project Report

[Pharmacy POS and Management System]

Change Record

Author(s)	Version	Date	Notes	Supervisor's Signature
Ayesha Hussain, Asim Zahid	1.0		<Original Draft>	
			<Changes Based on Feedback from Supervisor>	
			<Changes Based on Feedback From Faculty>	
			<Added Project Plan>	
			<Changes Based on Feedback from Supervisor>	

APPROVAL

.

PROJECT SUPERVISOR

Comments: _____

_____

_

Name:_____

Date:_____ Signature:_____

.

PROJECT MANAGER

Comments: _____

_____

_

Date:_____ Signature:_____

HEAD OF THE DEPARTMENT

Comments: _____

_____

_

Date:_____ Signature:_____

Dedication

This work is dedicated to our respected teachers specially Madam Sabah, Dr. Amna Khan, Mr. Faheem and group fellows

Executive Summary

This project is insight into the design and implementation of a Pharmacy Management System. The primary aim of is to improve accuracy in the pharmaceutical store. Today management is One of the most essential features of all form. Management provides sophistication to perform any kind of task in a particular form. This is pharmacy management system; it is used to manage most pharmacy related activities in the pharmacy including records of medicine as sale, purchase, order, maintain stock as well as records of employees working in pharmacy and the record of companies deliver medicines into pharmacy store.

Table of Contents

Dedication iv
Acknowledgements v
Executive Summary vi
Table of Contents vii
List of Figures ix
List of Tables x
Chapter 1 1
Introduction 1
1.1. Background 2
1.2. Motivations and Challenges 2
1.3. Goals and Objectives 2
1.4. Literature Review/Existing Solutions 2
1.6. Proposed Solution 2
1.7. Project Plan 3
1.7.1. Work Breakdown Structure 3
1.7.2. Roles & Responsibility Matrix 3
1.7.3. Gantt Chart 3
1.8. Report Outline 3
Chapter 2 4
Software Requirement Specifications 4
2.1. Introduction 5
2.1.1. Purpose 5
2.1.2. Document Conventions 5
2.1.3. Intended Audience and Reading Suggestions 5
2.1.4. Product Scope 5
2.1.5. References 6
2.2. Overall Description 6
2.2.1. Product Perspective 6
2.2.2. Product Functions 6
2.2.3. User Classes and Characteristics 6
2.2.4. Operating Environment 7
2.2.5. Design and Implementation Constraints 7
2.2.6. User Documentation 7
2.2.7. Assumptions and Dependencies 7
2.3. External Interface Requirements 8
2.3.1. User Interfaces 8
2.3.2. Hardware Interfaces 8
2.3.3. Software Interfaces 8
2.3.4. Communications Interfaces 9
2.4. System Features 9
2.4.1. System Feature 1 9
2.4.1.1. Description and Priority 9

2.4.1.2. Stimulus/Response Sequences 9
2.4.1.3. Functional Requirements 9
2.4.2. System Feature 2 10
2.4.2.1. Description and Priority 10
2.4.2.2. Stimulus/Response Sequences 10
2.4.2.3. Functional Requirements 10
2.4.3. System Feature 3 (and so on) 11
2.5. Other Nonfunctional Requirements 11
2.5.1. Performance Requirements 11
2.5.2. Safety Requirements 11
2.5.3. Security Requirements 12
2.5.4. Software Quality Attributes 12
2.5.5. Business Rules 12
2.6. Other Requirements 12
Chapter 3 13
Use Case Analysis 13
3.1. Use Case Model 14
Chapter 4 15
System Design 15
4.3. Entity Relationship Diagram with data dictionary 16
4.4. Class Diagram 17
Chapter 5 20
Implementation 20
5.1. Important Flow Control/Pseudo codes 21
5.2. Components, Libraries, Web Services and stubs 21
5.3. 21
5.4. Tools and Techniques 22
5.5. Best Practices / Coding Standards 22
5.6. Version Control 22
29

Chapter 1

Introduction

Chapter 1: Introduction

Pharmacy management system is a management system that is designed to improve accuracy and to enhance safety and efficiency in the pharmaceutical store. It is a computer based system which helps the Pharmacist to improve management.

The system allows the user to enter a manufacturing and expiry date for a particular product or drug during opening stock and sales transaction. The system will also give report showing the list of products expiry after a specified date before the product eventually expires. It also involves manual entry upon arrival of new batches of drugs and upon drug movement out of the pharmacy for a certain period, e.g. every month, the pharmacist may want to generate report for the movement of drugs in and out of the pharmacy, getting information about the drugs e.g. expiry date, date purchased, number of drug type left, location of a drug in the pharmacy. Moreover it also involves the record of employees working in pharmacy and the record of companies deliver drugs to pharmacy.

1.1. Background

Due to the size and quality service of the pharmacy, the pharmacy has a very large customer base. These customers tend to visit the pharmacy for services mostly when they close from work. At this period, the number of customers that patronize the pharmacy is on the increase, thereby making the workload of the pharmacists much more tedious. This case makes it difficult for the pharmacist to attend to customers in a short period.

Meanwhile the pharmacist has to ensure satisfaction in services to keep their customers. The factors mentioned above, results in delay of the services being rendered to the customers, thereby slowing down sales and risk losing valuable customers in the long run. Also pharmacist has to manually keep the record of the sales and inventory that is very tedious and takes a lot of long time.

1.2. Motivations and Challenges

While we think about **Ittehad Pharmacy** we faced many challenges like understanding how a typical pharmacy system works? How pharmacy, supplier and manufacturer connect with each other? Designing the database. GUI (user interface) design that is very easy to navigate for the user. Database selection and connection with GUI.

1.3. Goals and Objectives

Our goal is to provide a facility to pharmacist to overcome the problems faced at daily bases.

1. Digitize the pharmacy records.
2. Maintain the invoices and medicine records.
3. Keep all sale and purchase records.
4. Maintain all employee records.
5. Serve customers as in short time as possible

The aim of this project is to develop software for the effective management of a pharmaceutical store that will be able to achieve the following objectives:

1. Ensuring effective policing by providing statistics of the drugs in stock.
2. Maintaining correct database by providing an option to update the drugs in stock.
3. Improving the efficiency of the system by ensuring effective monitoring of services and activities.
4. To provide optimal drug inventory management by monitoring the drug movement in the pharmacy.
5. To ensure that there exists a level of restricted access based on functionality and role.
6. To ensure that the system is user friendly.
7. To be able to generate report within a specified period of time.

1.4. Literature Review/Existing Solutions

Currently, Ittehad pharmacy using old traditional khata/ledger system and human intuition to manage itself. In case of any accident or unavailability of a trained human pharmacy does not function.

Although, there are many pharmacy management systems in the market. But Ittehad Pharmacy wants to develop a system for their own pharmacy, That fit their needs.

1.5. Proposed Solution

We are building an automated pharmacy management system that will help pharmacist and pharmacy owners to keep the record of the inventory and sales of the pharmacy and will also help in quality service and faster delivery to the customers.

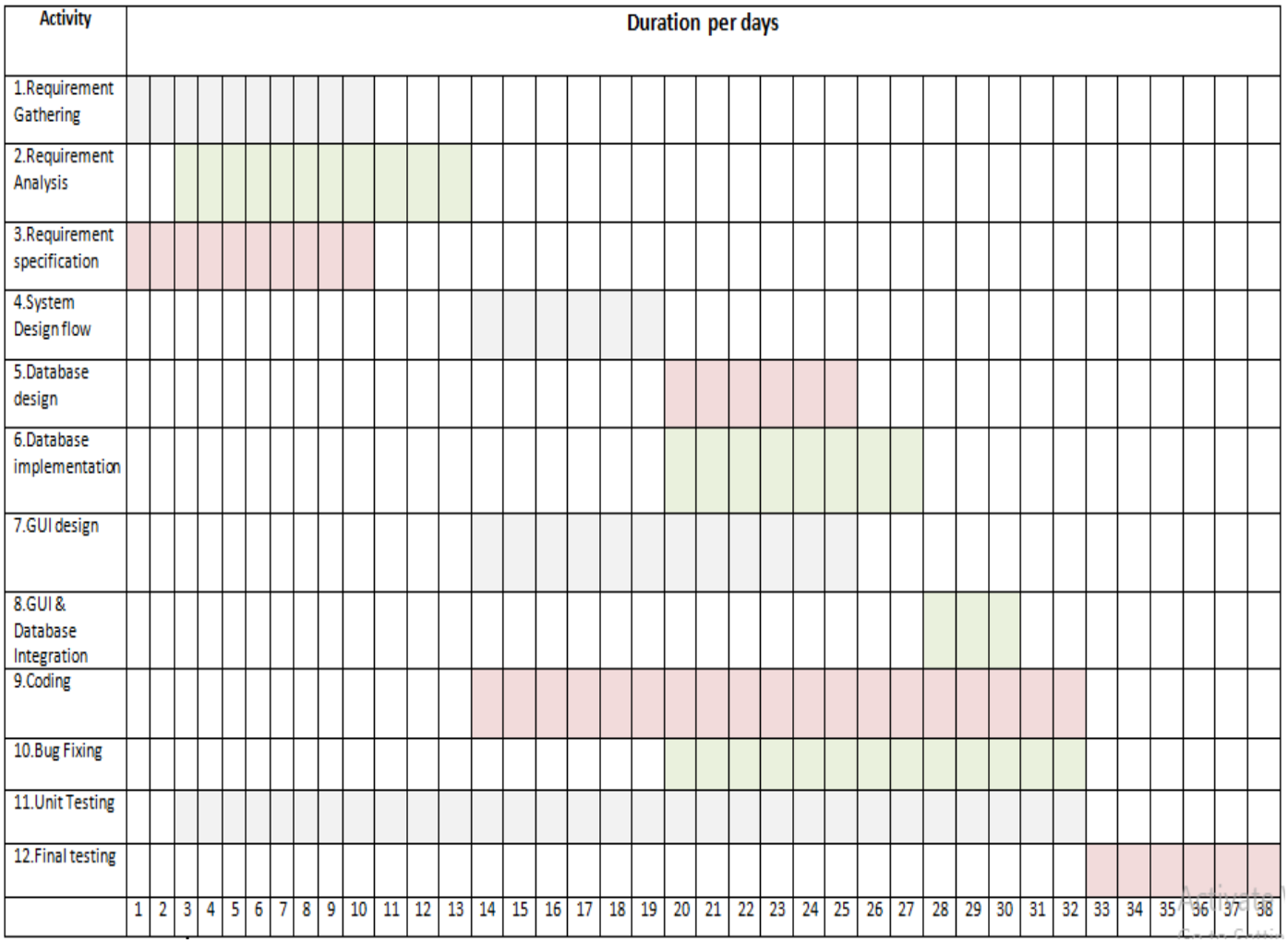
1.5.1. Work Breakdown Structure (WBS)

1. Requirement gathering
2. Design the system flow
3. Database design
4. Database implementation
5. GUI design
6. GUI Implementation
7. GUI backend programming
8. Testing the system
9. Deploying the system on client side.

1.5.2. Roles & Responsibility Matrix

WBS #	WBS Deliverable	Activity #	Activity to Complete the Deliverable	Duration (# of Days)	Responsible Team Member(s) & Role(s)
01	Requirement gathering	1.0		6	All of us
02	System Design flow	1.1		7	Ayesha Hussain, Asim Zahid
03	Database design	1.2		4	Ayesha Hussain, Asim Zahid
04	Database implementation	1.3		2	Asim Zahid, Ayesha Hussain
05	GUI design	1.4		5	Ayesha Hussain
06	GUI & Database Integration			4	Ayesha Hussain, Asim Zahid
07	Coding	1.5		10	Ayesha Hussain, Asim Zahid
08	Bug Fixing	1.6		--	Ayesha Hussain, Asim Zahid
09	Final Testing	1.7		2	Ayesha Hussain, Asim Zahid

1.5.3. Gantt chart



1.6. Report Outline

This article includes all the information of our project included.

1. Introduction
2. Basics of functionality
3. Provided facilities.
4. Extreme with another competitor
5. Functionality of the system
6. User friendly interface
7. Provide complete cost estimation
8. Project plan

Chapter 2

Software Requirement Specifications

Chapter 2: Software Requirement Specifications

2.1 Introduction

Ittehad Pharmacy management system is a management system that is designed to improve accuracy and to enhance safety and efficiency of the ittehad pharmaceutical store. It is a computer based system which helps the Pharmacist to improve management.

The system allows the user to enter a manufacturing and expiry date for a particular product or drug during opening stock and sales transaction. The system will also give report showing the list of products expiry after a specified date before the product eventually expires. It also involves manual entry upon arrival of new batches of drugs and upon drug movement out of the pharmacy for a certain period, e.g. every month, the pharmacist may want to generate report for the movement of drugs in and out of the pharmacy, getting information about the drugs e.g. expiry date, date purchased, number of drug type left, location of a drug in the pharmacy. Moreover it also involves the record of employees working in pharmacy and the record of companies deliver drugs to pharmacy.

2.2 Purpose

The purpose of ittehad pharmacy management system is to provide the complete management for ittehad medical store including record of drugs, record of employees, and record of suppliers. Ittehad pharmacy management system should provide ease to pharmacist to manage the whole system of pharmacy as well as to serve customers in time except suffering from manual issues of any medicine record including stock availability and pricing.

Ittehad pharmacy management system should be given to a local pharmacy(ittehad medical store) to convert their manual record into a computer based system so that their all record should save with security and efficiently.it should accessed only by authorized users who have login-in in ittehad pharmacy management system. The Pharmacy Management System has a user friendly interface that makes it easy to use for pharmacist.

2.3 Document Conventions

This document is written in a simple English language 12pt body font size, 14pt headings font Size and Calibri font style. Every heading starts with number bullets to describe the sequence of Document.

2.3.1 Intended Audience and Reading Suggestions

This document is written for developers, owner and users of pharmacy management system.

2.3.2 Product Scope

Ittehad pharmacy management system should provide the complete management for pharmacy. It should provide the accurate results to fulfill user requirements. Ittehad pharmacy management system shall deploy to a local pharmacy to convert their Manual system into a computerized system.

2.3.3 References

- Interviews with client.
- Visiting different pharmacies to gather requirements.

2.4 Overall Description

2.4.1 Product Perspective

Ittehad pharmacy management system is a follow-on member of a pharmacy management systems but it as a not a replacement of existing system. Ittehad pharmacy management is specially built for ittehad medical store that was running under a manual management system. Ittehad pharmacy management system should fulfill the requirements of ittehad medical store.

2.4.2 Product Functions

The pharmacy management system will perform the following functions:

1. **Login**

a) Admin login

b) User login/employee/pharmacist

2. drugs record maintenance

a. add new drugs

b. remove expire drugs

c. search drugs

d. add drugs to the cart

e. generate bill

f. display status of each drug(price, manufacture date, expiry date, quantity)

3. Employee record maintenance

A. add new employee

a) Name

b) Date-of-birth

c) Contact/email

d) salary record

e) joining date

f) role

g) CNIC

B. Remove employee

1. Supplier

a) Add supplier

b) Remove supplier

c) Display supplier status

2. Supplier company

a) Record of supplier

3. Pharmacy

b) Record of pharmacy

2.4.3 User Classes and Characteristics

The pharmacy management system should be used by pharmacist who shall manage the records of drugs by pharmacist and the admin who should manage the record of employees.

2.4.4 Operating Environment

- Mac OS cheetah or above, Linux mint or above, Windows 7 or above.
- 4 GB RAM.
- 50 GB HDD.
- I3 2.5GHz or above.
- XAMPP
- Java SE 8 or above.

2.4.5 Design and Implementation Constraints

The pharmacy management system is developed by using java programming language for Interface, data structures and object oriented programming and the local host server including MySQL database.

2.4.6 Assumptions and Dependencies

This pharmacy management system should run on:

- Mac OS cheetah or above, Linux mint or above, Windows 7 or above.
- 4 GB RAM.
- 50 GB HDD.

Database only support local host Xampp MySQL database. Any other host or sqlserver shall create trouble.

2.5 External Interface Requirements

2.5.1 User Interfaces

User interface consists of GUI including:

- Buttons

i. Logout
ii. Exit
iii. Action buttons

- Texts

i. Text fields

ii. Labels

2.5.2 Hardware Interfaces

1 Mac OS cheetah or above, Linux mint or above, Windows 7 or above.

2 4 GB RAM.

3 50 GB HDD.

4. I3 2.5GHz or above**.**

2.5.3 Software Interfaces

1. Java Net beans ide 8.2
   - Libraries

   a) J calendar(1.4 jar)
   b) Jdk 1.8
   c) MySQL jdbc driver

2. MySQL Database
   - XAMPP local host

2.5.4 Communications Interfaces

The pharmacy management system is a stand-alone application so that no internet is needed. It Should operate in a single computer system.

a. System Features

1. login
2. Drugs/product record maintenance

i. add new drug

ii. Search drugs

iii. Add drugs to the cart

iv. Generate bill

3. employee record maintenance
   i. add employee
   ii. update employee
   iii. delete employee
4. supplier record

i. add supplier
ii. update supplier
iii. delete supplier

5. supplier company record
    i. add supplier company
    ii. update supplier company
    iii. delete supplier company
6. medical company
7. pharmacy record

2.4 Functional Requirements

The pharmacy management system has following functional requirements

- login

Username	Admin
Password	123456

- add products

Product Id	1
Product Name	Panadol
Product type	Tablet
Product expiry date	22-6-2019
Quantity per-pack	10 tablets
Product-company Id	123

Supplier Id	19
Product Buying price	150
Product selling price	160
Product old price	140

- delete products
- add employee

Employee Id	1
Employee Name	Ahmed
Employee CNIC	123456789
Employee Address	House#368,johar town Lahore
Employee Gender	Male
Employee salary	20,000
Pharmacy Id	1

- generate bill

Product name	Panadol
Product quantity	10 tablets
Product price	100

Total amount	100

- supplier

Supplier Id	10
Supplier Name	Ahmad yaqoob
Supplier contact	0334-9384748
Product id	1

- supplier company

Company-Id	133
Company-Name	Sunshine
Comp-Contact	052-93746443
Supplier-id	10

2.5 Non-functional Requirements

- scalability
- availability
- reliability
- maintainability
- security
- easy to use
- reusability
-

b. Other Nonfunctional Requirements

i. Safety Requirements

- Each user must be logout after finishing work
- Each login (username, password) must be hidden from unauthorized persons.

ii. Business Rules

1. Admin

Admin has full access of the system. Admin can enter, update, and delete stock.

Admin also has access to employees record. She/he could add, remove, and view the employee data.

2. Pharmacist

Pharmacist could order the stock. Check the stock and maintain the stock and he/she can work as cashier.

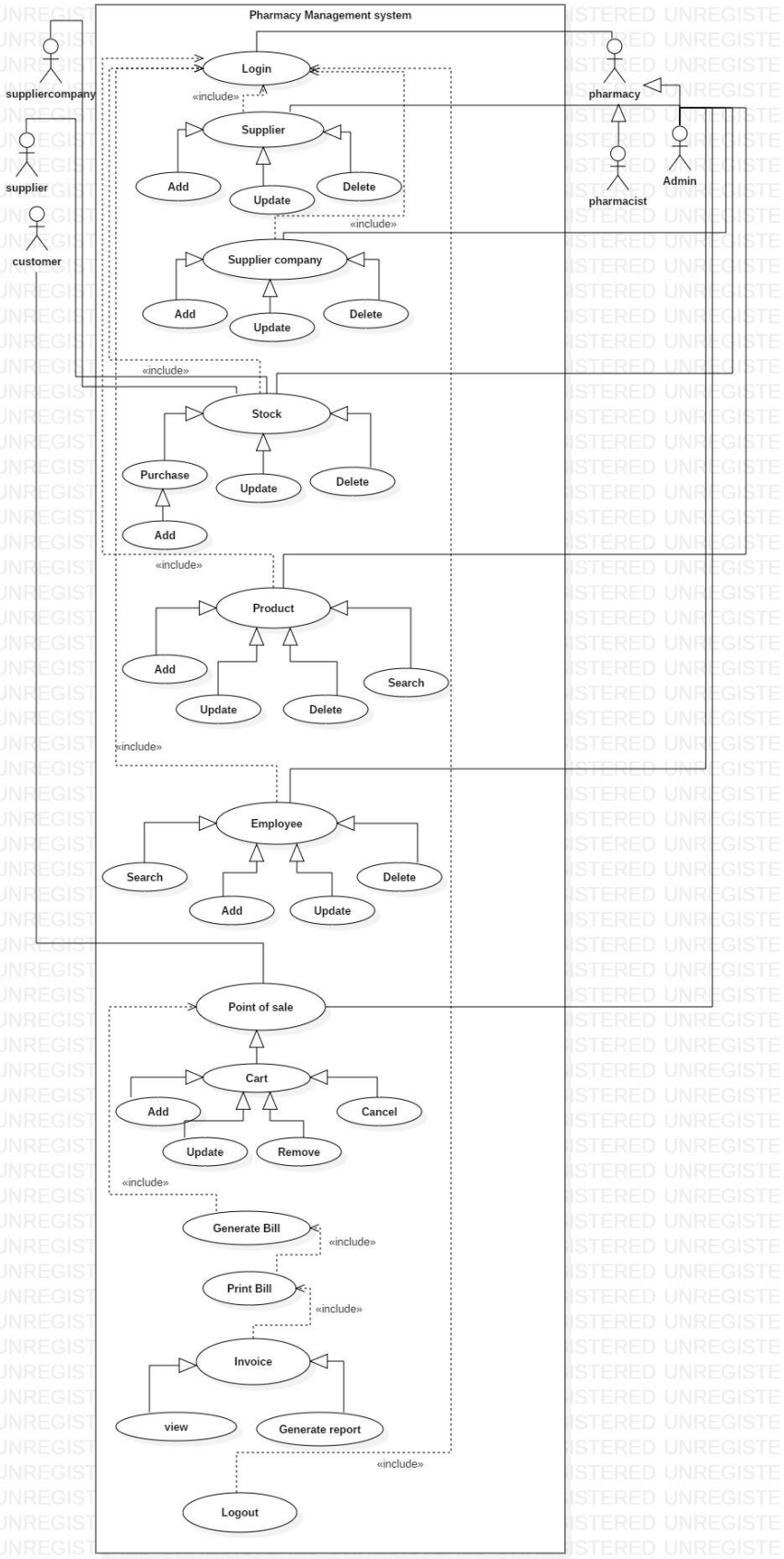
Chapter 3

Use Case Analysis

Chapter 3: System Analysis

This chapter consists of use case modeling, which is mostly used to model interactions between a system and external actors (users or other systems).

3.1 Use Case Model


Pharmacy Management system
suppliercompany
supplier
customer
pharmacy
pharmacist
Admin
Login
«include»
Supplier
Add
Update
Delete
Supplier company
Stock
Purchase
Product
Search
Employee
Point of sale
Cart
Cancel
Remove
Generate Bill
Print Bill
Invoice
view
Generate report
Logout

Chapter 4

System Design

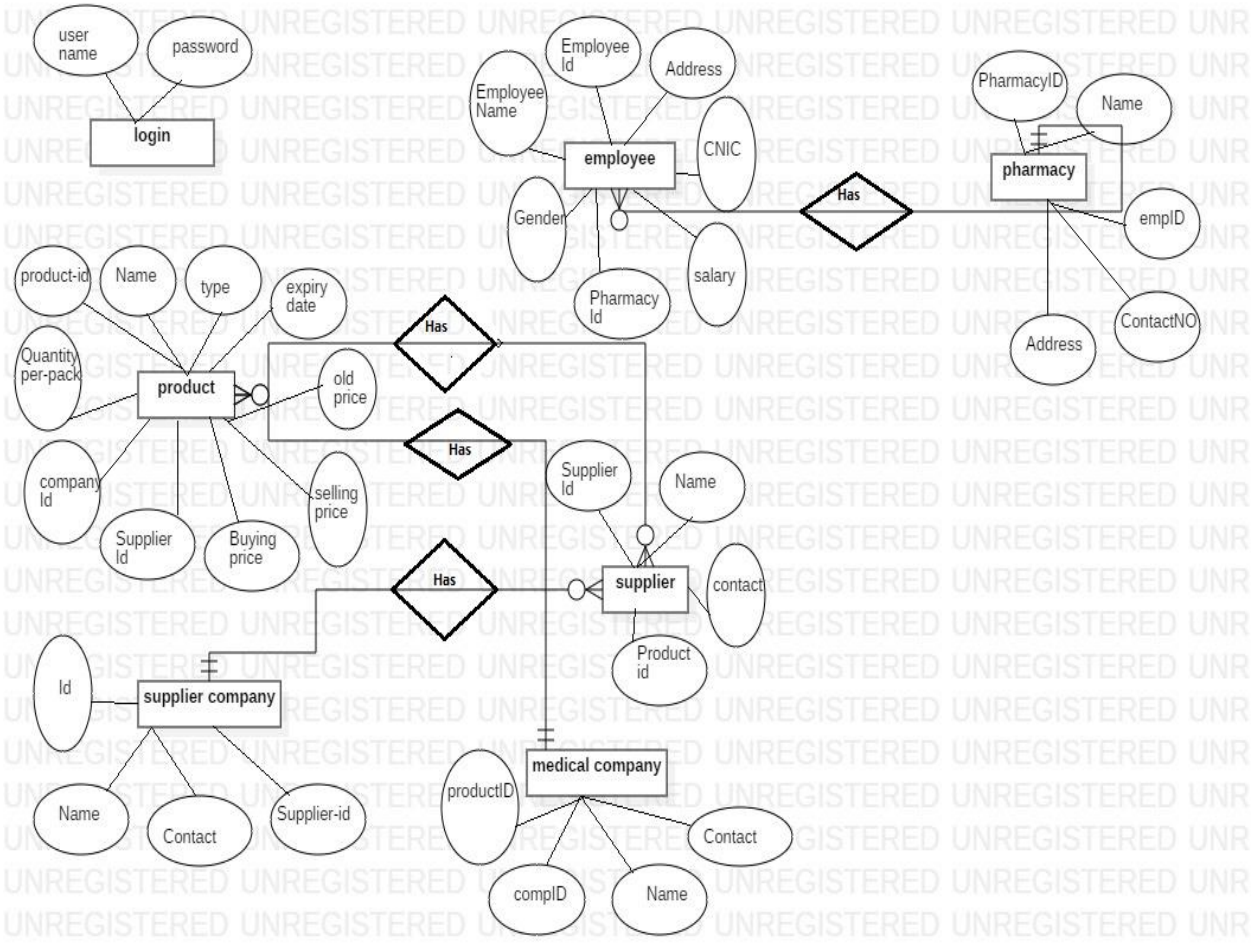
Chapter 4: System Design

This chapter consists of system designs

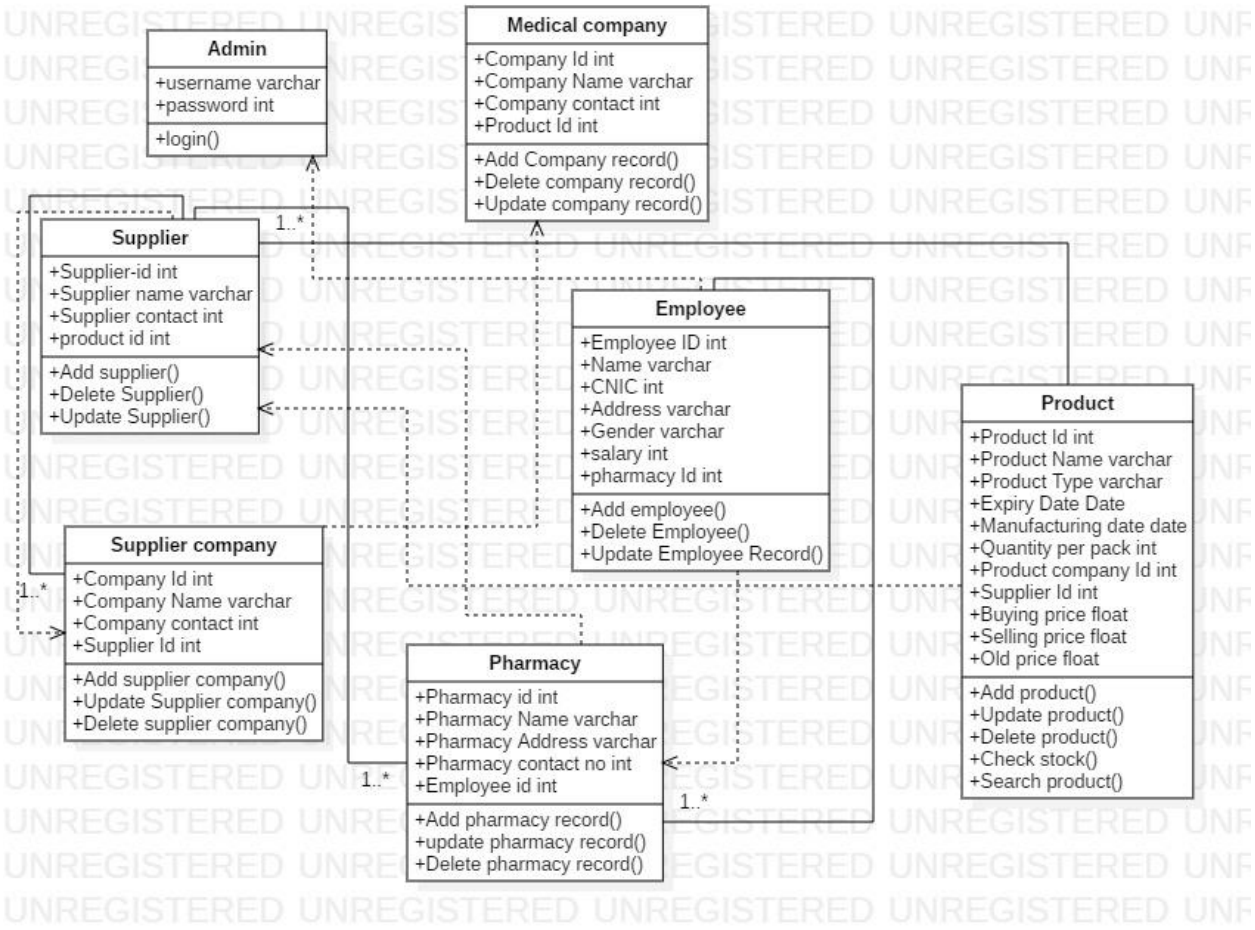
- ERD
- Class Diagram

It describes the entities, attributes and their relationships, dependencies on one another.

4.1. Entity Relationship Diagram with data dictionary



4.2. Class Diagram



Chapter 5

Implementation

Chapter 5: Implementation

This chapter is about implementation of pharmacy management system, the tools and techniques, coding standards, flow of program. It should help to understand how much this system is efficient and sufficient to meet functional requirements

5.1. Components, Libraries, Web Services and stubs

Pharmacy management system is based on java programming language including object oriented programming and programming fundamentals. Database queries are based on stored procedures, triggers DML and DDL queries.

5.2. Tools and Techniques

Net beans Ide and local host xampp are used to implement pharmacy management system.

Different algorithms are applied for different operations.

5.3. Best Practices / Coding Standards

MYQSL Database and Java coding standards are used to implement pharmacy management system. Java language has some constraints that should fulfill to acquire the accurate results

Code is efficient and can be reused.

References

2. Ittehad pharmacy store

3. Abdul wajid owner of pharmacy store (requirements gathering)

4. Muhammad Pharmacy

5.green pharmacy