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CSE3001

SOFTWARE ENGINEERING

FINAL PROJECT REPORT

Hospital Management System

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1. Introduction

1.1 Purpose

This document is the updated version of the document covering the detailed requirements of “Bharath Hospital Management System” stated in the project template documentation provided by the customer. The scope of the project is to computerize end to end management of Bharath Hospital by developing stand-alone application which is user friendly simple, fast, and cost effective. This software requirement specification ensures that the project requirements are documentation properly and is understood clearly.

1.2 Document Conventions

The document is prepared using Microsoft Word 2010 and has used the font type 'Times New Roman'. The fixed font size that has been used to type this document is 12pt with 1.5 line spacing. Major headings are in bold 18pt font, and sub headings in bold 14pt font. All pages except the cover page are numbered. The numbers appear on the lower right hand corner of the page. Every image and data table are numbered and referred to the in the main text.

1.3 Intended Audience and Reading Suggestions

The intended audience of this document would be the customer and specific roles like admin and receptionist of Bharath Hospital and project development team, supervisor with the objective to refer and analyze the information. The SRS document can be used in any case regarding the requirements of the project and the solutions that have been taken. The document provides a clear idea about the software system that is getting developed.

1.4 Product Scope

Currently Bharath hospital is using a manual system to handle the hospital process. When patients arrive they make an appointment at the reception to consult a Doctor. These are being recorded in a file manually. Then again the patients diagnosed symptoms related disease details, ward details and other necessary details are being recorded and those files are being stored in special locations. Calculation of bills and inventory are done manually. There is a need to computerize the current manual system.

The Bharath hospital management system replaces their existing manual paper-based system with an automated stand-alone application which performs all the basic process of the hospital. The proposed new system manages patients, doctor records and creates appointments for them. Also generates prescriptions for the patients. Also manages the drug details for the pharmacists and generates sales reports automatically.

The SRS Document will provide a detailed description of functional and non-functional requirements of the project. Also provides the software and hardware requirements used ER diagrams, database tables used and GUI screens of interfaces that will finally be developed in the subsequent sections.

1.5 References

Karl E. Wiegers, Software Requirement Specification (SRS) template, 1999

2. Overall Description

2.1 Product Perspective

The various tools used for developing the project front end and back end and other tools used are discussed here

1. Front End:

Front End code is implemented using core Java and GUI designed using Java swings

Core Java:

Java is a simple, efficient, general-purpose language. Java was originally designed for embedded network applications running on multiple platforms. It is a portable, object-oriented, interpreted language.

JavaSwings:

Swing in Java is a lightweight GUI toolkit which is part of Java foundation class which is lightweight and platform independent. It is used for creating window based applications. It includes components like button, scroll bar, text field etc. Putting together all these components makes a graphical user interface. Following container classes are used to construct the GUI

Panel – It is used to organize components on to a window

Frame – A fully functioning window with icons and titles

Dialog – It is like a pop up window but not fully functional like the frame

2. Back End:

Back end is implemented using MySQL databases.

MySQL is world's second most widely used open source RDBMS. SQL stands for Structure Query The data in MySQL is stored in tables. A table is a collection of related data, and it consists of columns and rows. Databases are useful when storing information categorically.

3. Other Tools:

XAMPP Control Panel used for efficient management of MySQL database and tables. It provides a Control Panel for efficient management of the software in the XAMPP package. You can use the Control Panel to determine whether Apache and MySQL are currently running and to start or stop them. Before you can use your development environment, Apache and MySQL must be running.

2.2 Product Functions

- Admin shall be able to create the user types (Doctor, Receptionist, Patient, and Pharmacist).
- Login to the system using username and password according to the role

- (Admin or Receptionist should be able to manage the records of Patients (Add/Modify/Delete)
- Manage the records of Doctor (Add/Modify/Delete)
- Create and Manage Appointments (for room booking) for Patients with Doctors.
- Receptionist should be able to create, modify and delete appointments (Add/Modify/Delete)
- Doctor should be able to create prescription for patients after consultation
- Pharmacist should be able to view prescription and add drugs accordingly
- Pharmacist should be able to add/modify or delete drugs
- Pharmacist should be able to generate a drugs purchase screen for the patient to select drugs from the drugs list and generate bill for the purchased drugs
- Pharmacist should be able to generate consolidated sales inventory report

2.3 User Classes and Characteristics

This project consists of four roles with different security privileges: Admin, Receptionist, Doctor and Pharmacist. These roles form the main user classes. The system shall be secure enough and only accessible via valid usernames and passwords for each user. There four main user classes and their characteristics are as below.

Admin

- Admin shall be able to create the user types (Doctor, Receptionist, Patient, and Pharmacist).
- Receptionist shall be able to add the patient details.
- Receptionist shall be able to edit and delete the patient details
- Able to view doctor details
- Receptionist shall be able to create the appointment for patients to concerned doctors

Doctor

After creating the doctor by user, doctor shall be to login in to the system.

- Doctors shall be able to fill the registration form
- Doctors shall be able to retrieve their details.
- Doctors shall be able to view the appointment details.
- After examining the patient, doctor shall be able to click the prescription button. It will take you to the prescription form for writing the prescription.
- Doctors shall be able to create the prescription details.

Pharmacist

- Pharmacist shall be able to add/update/delete the drug items.
- Pharmacist shall be able to view the prescription details upon requested by doctor.
- Pharmacist shall be able to handle the inventory of the drugs and create sales receipt for drugs purchased.
- Pharmacist shall be able to view the consolidated sales report

2.4 Operating Environment

System Specification

- **Hardware requirement**

Processor	-	Intel(R) Core(TM) i5 CPU M 540 @ 2.53GHz 2.53 GHz
RAM	-	4 GB
Hard Disk	-	500 GB
Keyboard	-	101 keys
Mouse	-	Any pointing device

- **Software requirement**

- Front end:
 - Java
- IDE:
 - Apache NetBeans IDE 12.3
- Webserver:
 - XAMPP Server
- Connectivity Drivers:
 - MySQL
 - JDBC
- Operating System:
 - Windows 10

2.5 Design and Implementation Constraints

- Product should use less RAM and processing power.
- Database is password protected
- Each role should have individual ID and password and should be able to login according to their privileges
- Only administrator can access the whole system
- System is wirelessly networked with an encryption

2.6 User Documentation

Software Life Cycle Phase	Documentation	Intended Activities
Requirement Gathering, Analysis and Specification	Project Scenario Template Software Requirement and Specification (SRS) which	Includes the customer expected software features, constraints, interfaces and other attributes.

	includes <ul style="list-style-type: none"> • Functional and non-functional requirements • ER Diagrams/table schemas • Use case scenarios 	Moreover the objectives and the features of the system are clearly documented
Software Design	Software Design Document	Describes the design of the software derived from requirement document
Implementation	Technical Documentation	Contains information regarding the implementations of the system using the programming concepts
Software Testing	Software Test Documentation(STD)	Test procedures to validate and verify the software results. Main types of testing techniques are unit testing, integration testing, system testing and acceptance testing
Software Documentation	User Documentation	Manual for the users to use the system

2.7 Assumptions and Dependencies

- Hospital should have enough trained staff to take care of the developed system.
- Each user must have a valid user id and password
- Server must be running for the system to function
- Only the Administrator can delete records

3. External Interface Requirements

3.1 User Interfaces

The following GUI screens will be developed as part of the project

- Login Screen
- Main screen
- User Account Creation screen
- Patient registration screen
- Doctor registration screen
- Create/View Appointments Screen
- Create/view prescription screen
- Pharmacist screen to add/modify/delete drugs
- Screen to purchase the drugs
- Consolidated sales report screen

3.2 Hardware Interfaces

Laptop/Desktop PC

Processor		Intel(R) Core(TM) i5 CPU M 540 @ 2.53GHz
RAM	-	4 GB
Hard Disk	-	500 GB
Keyboard	-	101 keys
Mouse	-	Any pointing device

3.3 Software Interfaces

- Front end:
 - Java
- IDE:
 - Apache NetBeans IDE 12.3
- Web Interface:
 - XAMPP Server (web interface for managing database)
- Connectivity Drivers:
 - MySQL (for database connectivity)
 - JDBC (interaction between program and database)
- Operating System:
 - Windows 10

3.4 Communications Interfaces

TCP/IP Protocol
Network card

4. System Features

4.1 Login Screen

4.1.1 Description and Priority

The application will first have a login screen where the user can enter their username, password and user type (Admin, Doctor, Receptionist or pharmacist) according to their role. The priority of this feature is **HIGH**

4.1.2 Stimulus/Response Sequences

- After entering the correct username, password and user type, the system should be able to login successfully
- Error should be prompted in case of incorrect username or password
- System should not accept empty username or password

4.1.3 Functional Requirements

- After entering correct user name, password and usertype and click on Login button should be able to login to system successfully and home screen should be displayed
- Password should be displayed in asterisks
- Appropriate Error should be prompted in case of incorrect username or password
- There should be a cancel button to cancel the login screen

4.2 User Account Creation

4.2.1 Description and Priority

Admin shall be able to create the user types (Doctor, Receptionist, Patient, and Pharmacist).

The priority of this feature is **HIGH**

4.2.2 Stimulus/Response Sequences

- Login to system using Admin username and password successfully
- From Admin Screen, there should be User Account creation button to create user.

4.2.3 Functional Requirements

- User Account creation screen should have provision to enter name, username, password and usertype values
- The screen should have Create and Cancel buttons
- Clicking create button should create the users successfully in the database.
- Clicking on cancel button should not create the users and the screen should be closed.

4.3 Patient Registration Screen

4.3.1 Description and Priority

Admin or Receptionist should be able to manage the records of Patients. There should be provision to add, modify or delete the patient records. The priority of this feature is **HIGH**

4.3.2 Stimulus/Response Sequences

1. Login to system using Admin username and password successfully
2. From Admin Screen, there should be Patient button to create patients records.

4.3.3 Functional Requirements

- Patient Registration screen should automatically display the patient number
- Patient Registration screen should have provision to enter patient name, address and phone number.
- The screen at the bottom should have Create, Update, Delete, Clear and Exit buttons
- Clicking Create button should create the patients successfully in the database. Also the created patient details should be displayed at the right side panel of the screen with correct details
- After selected a particular patient record, the patient details should be displayed on the left side and should be able to modify patient details
- Patient data should be modified after clicking on Update button and modified details should be displayed.
- Should be able to delete the patient details after clicking delete button.
- Clicking on Exit button should not create the users and the screen should be closed.

4.4 Doctor Registration Screen

4.4.1 Description and Priority

Admin or Receptionist should be able to manage the records of Doctor. There should be provision to add, modify or delete the doctor records. The priority of this feature is **HIGH**

4.4.2 Stimulus/Response Sequences

1. Login to system using Admin username and password successfully
2. From Admin Screen, create usertype as doctor and create a doctor account
3. Login successfully as doctor username and password with usertype doctor

4.4.3 Functional Requirements

- Doctor Registration screen should automatically display the doctor number
- Doctor Registration screen should have provision to enter doctor name, speciality, Qualification, Consultation, email id and Room number.
- The screen at the bottom should have Create, Update, Delete, Clear and Exit buttons
- Clicking Create button should create the doctor successfully in the database. Also the created doctor details should be displayed at the right side panel of the screen with correct details
- After selected a particular doctor record, the doctor details should be displayed on the left side and should be able to modify doctor details
- Doctor data should be modified after clicking on Update button and modified details should be displayed.
- Should be able to delete the doctor details after clicking delete button.
- Clicking on Exit button should not create the users and the screen should be closed.

4.5 Create Appointment Screen

4.5.1 Description and Priority

Admin or Receptionist should be able to create appointment for patients with the specific doctor. There should be provision to create or delete the appointment. The priority of this feature is **HIGH**

4.5.2 Stimulus/Response Sequences

1. Login to system using Admin username and password successfully
2. From Admin Screen, click on Create Appointment button
3. Create Appointment Screen should be displayed successfully

4.5.3 Functional Requirements

- Create Appointment screen should automatically display the appointment number
- Create Appointment screen should have provision to enter doctor name, patient name, Room number and appointment date.
- The screen at the bottom should have Create, Delete and Close buttons
- Clicking Create button should create the appointment successfully in the database. Also the created appointment details should be displayed at the right side panel of the screen with correct details
- After selected a particular appointment record, the appointment details should be displayed on the left side and should be able to select it and delete the appointment after clicking Cancel button
- Clicking on close button, the screen should be closed.

4.6 Create Prescription Screen

4.6.1 Description and Priority

Doctor should be able to create prescription for patients after consultation. There should be provision to create prescription from appointment screen. The priority of this feature is **HIGH**

4.6.2 Stimulus/Response Sequences

1. Login to system using doctor username and password successfully
2. From View Appointment screen, click on “Prescription” button
3. Create Prescription Screen should be displayed successfully

4.6.3 Functional Requirements

- Create Prescription screen should automatically display the prescription number
- Create Prescription screen should have provision to enter appointment number, doctor name, Disease type and description.
- The screen at the bottom should have Save, Update and Cancel buttons
- Clicking Create button should create the prescription successfully in the database. Also the created prescription details should be displayed at the right side pane of the screen with correct details

- After selected a particular prescription record, the prescription details should be displayed on the left side and should be able to modify prescription details
- prescription data should be modified after clicking on Update button and modified details should be displayed
- After selected a particular prescription record, the prescription details should be displayed on the left side and should be able to select it and delete the prescription after clicking Cancel button

4.7 Create New Drug Screen

4.7.1 Description and Priority

Pharmacist should be able to create new drugs to the list of available drugs in the store. There should be provision to create, update or delete drugs. The priority of this feature is **HIGH**

4.7.2 Stimulus/Response Sequences

1. Login to system using Pharmacist username and password successfully
2. From Pharmacist Screen, click on Create Drug button
3. Create Drug Screen should be displayed successfully

4.7.3 Functional Requirements

- Create Drug screen should automatically display the drug number
- Create Drug screen should have provision to enter drug name, description, sell price, buy price and quantity available.
- The screen at the bottom should have Create, Update, Delete and Clear buttons
- Clicking Create button should create and add the drug successfully in the database. Also the created drug details should be displayed at the right side panel of the screen with correct details
- After selected a particular drug record, the drug details should be displayed on the left side and should be able to modify it and update the drug details after clicking Update button
- After selected a particular drug record, the drug details should be displayed on the left side and should be able to select it and delete the drug after clicking delete button
- Clicking on close button, the screen should be closed.

4.8 View Prescription Screen

4.8.1 Description and Priority

Pharmacist should be able to view the list of available prescriptions of all patients after its creation. There should be provision to view prescription from pharmacist home screen. The priority of this feature is **Medium**

4.8.2 Stimulus/Response Sequences

1. Login to system using pharmacist username and password successfully
2. from home screen, click on "View Prescription" button

3. View Prescription Screen should be displayed successfully

4.8.3 Functional Requirements

- View Prescription screen should automatically display the list of available prescriptions.
- Each prescription should have Prescription number, appointment number, doctor name, Disease type and description.
- The screen at the bottom should have Inventory and Cancel buttons
- Pharmacist should be able to select a particular prescription and click on Inventory button
- Clicking Inventory button should show the Sales Inventory screen to purchase drugs for the given prescription

4.9 Sales Inventory Bill Screen

4.9.1 Description and Priority

Pharmacist should be able to create Sales Inventory Receipt for the drugs purchased by the customer. There should be provision to create or cancel the sales receipt. The priority of this feature is **Medium**

4.9.2 Stimulus/Response Sequences

1. Login to system using Pharmacist username and password successfully
2. From Pharmacist Screen, click on View Prescription button
3. From View Prescription screen, click on Inventory button.
4. Clicking Inventory button should show the Sales Inventory screen to purchase drugs for the given prescription

4.9.3 Functional Requirements

- Sales Inventory screen should automatically display the prescription ID
- User should be able to enter the Drug code.
- Clicking Enter button on the drug code should display the drug name automatically.
- User should be able to enter quantity of drugs to be purchased and click on Add button.
- User should be able to add many drugs by clicking on Add button
- The screen at the bottom should list the drugs added with details like Prescription ID, Drug name, quantity, cost of each drug and total cost for the quantity purchased.
- At the bottom, total cost, paid amount is displayed.
- Balance amount to be given back to customer should be displayed after clicking Create Bill button and the Sales Inventory bill should be added to the database
- Clicking Cancel button will cancel the order

4.10 Consolidated Sales Report Screen

4.10.1 Description and Priority

Pharmacist should be able to view the consolidated sales report. There should be provision to view consolidated sales report from pharmacist home screen. The priority of this feature is **Medium**

4.10.2 Stimulus/Response Sequences

1. Login to system using pharmacist username and password successfully
2. From home screen, click on “Report” button
3. Consolidated Sales Report Screen should be displayed successfully

4.10.3 Functional Requirements

- Consolidated Sales Report screen should automatically display the list of sales inventory bills purchased.
- Each prescription should have Prescription number, appointment number, doctor name, Disease type and description.
- The screen at the bottom should have Inventory and Cancel buttons
- Pharmacist should be able to select a particular prescription and click on Inventory button
- Clicking Inventory button should show the Sales Inventory screen to purchase drugs for the given prescription

5. Other Nonfunctional Requirements

5.1 Performance Requirements

- Response time

The system should give responses within 1 second after checking the patient information and other information.

- Capacity
 - The system must support 500 people at a time
- User interface
 - User interface screen will response within 5 seconds.

5.2 Safety Requirements

If there is extensive damage to a wide portion of the database due to failure, such as a disk crash, the recovery method should restore a past copy of the database that was backed up to archival storage and reconstructs a more current state by reapplying or redoing the operations of committed transactions from the backed up log, up to the time of failure.

5.3 Security Requirements

Admin and other roles have unique logins so system can understand who is login to the system and so no intruders are allowed to change record or valuable data.

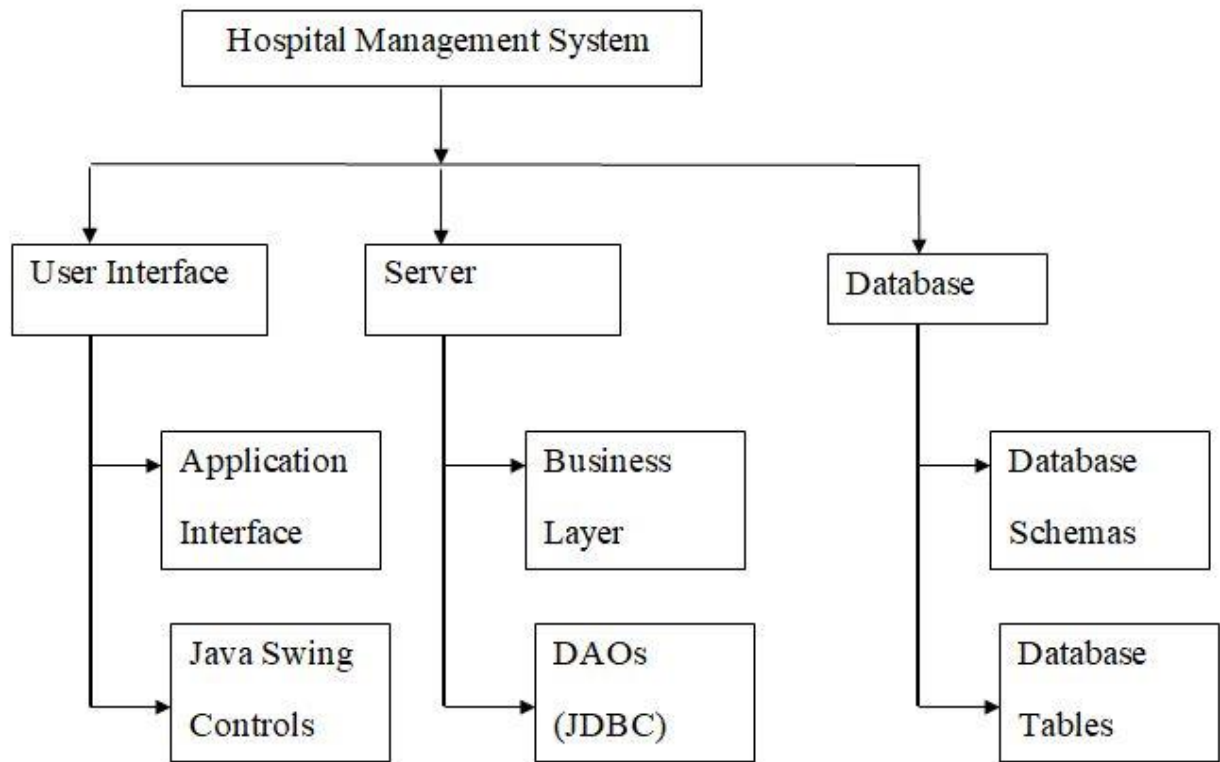
5.4 Software Quality Attributes

- **Availability:** The system shall be available all the time.
- **Correctness:** bug free software which fulfills the correct requirements of the customer
- **Maintainability:** The ability to maintain and modify information and update bug fix in the system
- **Usability:** software should be easy to learn and operate without difficulty.
- **Portability:** Should be easily transferred to another environment, including installation.
- **Accuracy:** The reliability on the information/output. Can depend/be sure of the outcome.
- **Stability:** The system outcome/output should not change time to time. Same output should be given always for a given input.

5.5 Business Rules

- Should take the responsibility of failures due to hardware malfunctioning.
- Warranty period of maintaining the software would be one year.
- If any error occur due to a user's improper use. Warranty will not be allocated to it.

6. Work Breakdown Structure

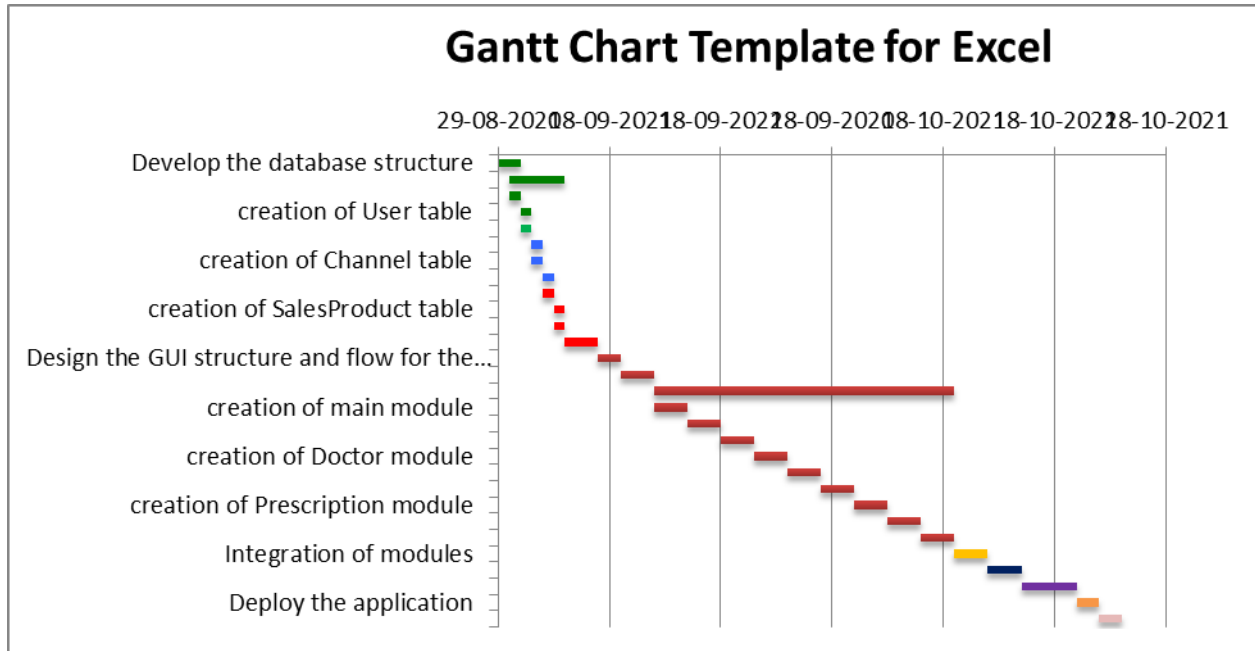


WBS Number	Task Name	WBS Description	Must Start by Date	Must End by Date	Task Level of Effort (in hours)	Task Duration (in days)	Predecessor (Finish-to-Start Dependency) (comma separated)	Resource Name(s)
	Develop the Hospital Management System	Stand-alone application needs to be developed for hospital management system. This effort requires development of a database, schema and tables. Front-end need to be developed using java language						
1	Develop the database structure	Create database structure for backend	29-08-2021	29-08-2021	16	2		Surya
1.1	Design the Database Structure using Entity relationship Diagram	Convert the requirements to ER diagram after identifying the entities and relationships	30-08-2021	03-09-2021	40	5		Surya, Nilavan
1.2	Develop ER to Schemas and tables	Develop ER to schemas and tables. Identify the table fields, Primary key and relationship among the tables	30-08-2021	30-08-2021	8	1		
1.2.1	creation of User table		31-08-2021	31-08-2021	8	1	ER diagram, Schema	Surya
1.2.2	creation of Doctor table		31-08-2021	31-08-2021	8	1		Surya
1.2.3	creation of Patient table		01-09-2021	01-09-2021	8	1		Surya

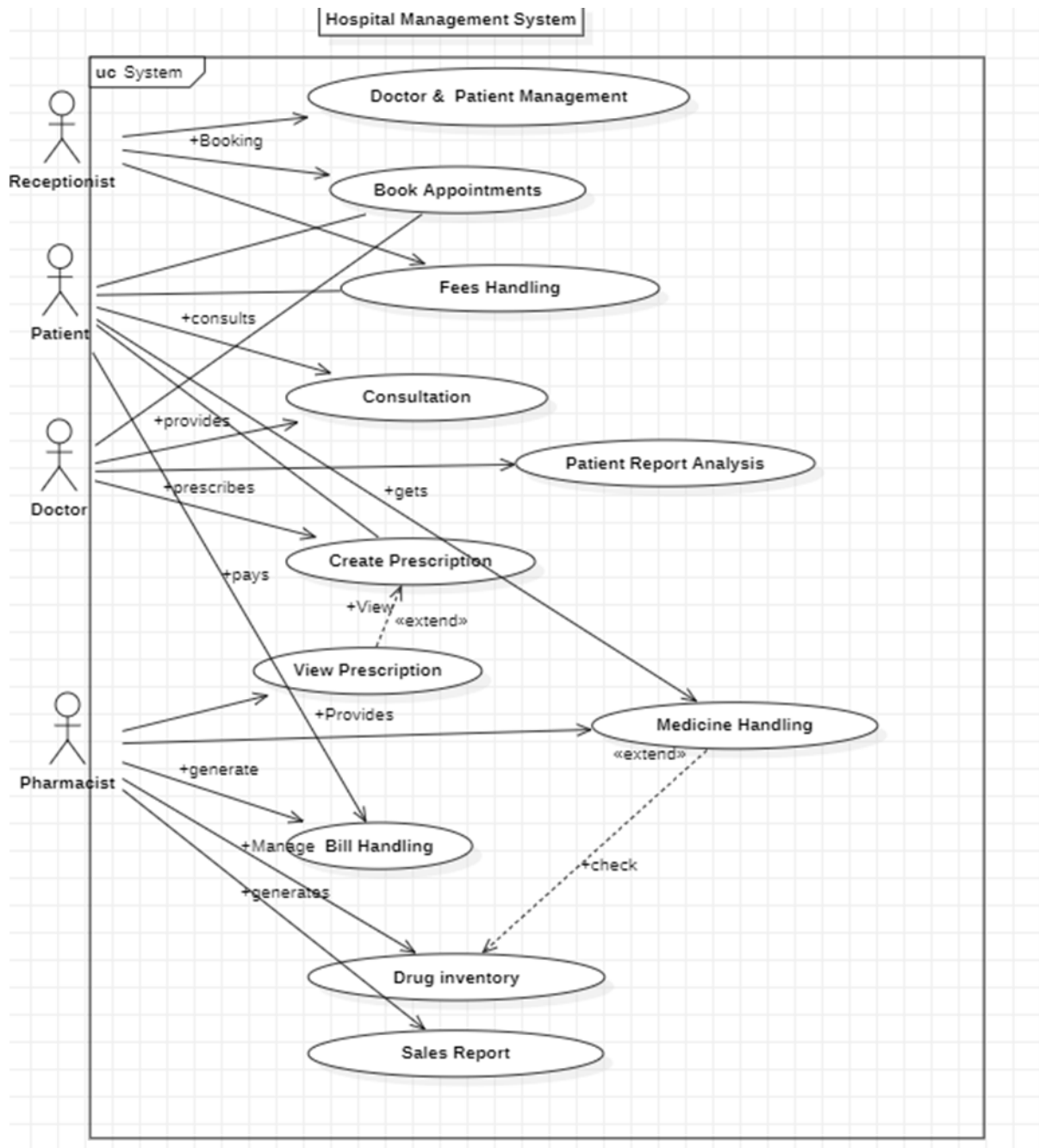
1.2.4	creation of Channel table		01-09-2021	01-09-2021	8	1		Surya
1.2.5	creation of Prescription table		02-09-2021	02-09-2021	8	1		Nilavan
1.2.6	creation of Sales table		02-09-2021	02-09-2021	8	1		Nilavan
1.2.7	creation of SalesProduct table		03-09-2021	03-09-2021	8	1		Nilavan
1.2.8	creation of Drug table		03-09-2021	03-09-2021	8	1		Nilavan
2	Develop the Front-end Application							
	Create and setup environment for front-end application	Install IDE for development of code setup of libraries for JDBC connectivity	04-09-2021	06-09-2021	24	3		Surya, Nilavan
3.1	Design the GUI structure and flow for the frontend application		07-09-2021	08-09-2021	16	2		Surya
3.2	Design the screens for the different roles/modules		09-09-2021	11-09-2021	24	3		Nilavan
3.3	Develop the code for different modules		12-09-2021	08-10-2021	216	27	Database and Environment setup	Surya, Nilavan
3.3.1	Creation of main module		12-09-2021	14-09-2021	24	3		Surya
3.3.2	creation of login module		15-09-2021	17-09-2021	24	3		Surya
3.3.3	creation of User module		18-09-2021	20-09-2021	24	3		Surya
3.3.4	creation of Doctor module		21-09-2021	23-09-2021	24	3		Surya
3.3.5	creation of Patient		24-09-2021	26-09-	24	3		Surya

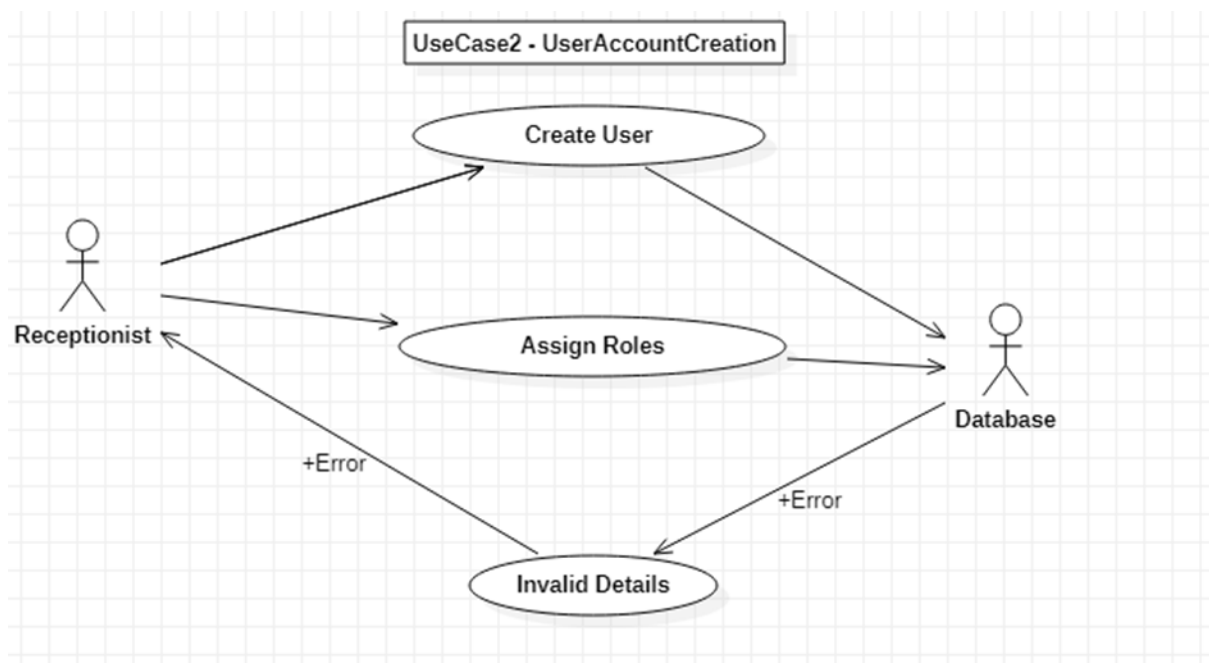
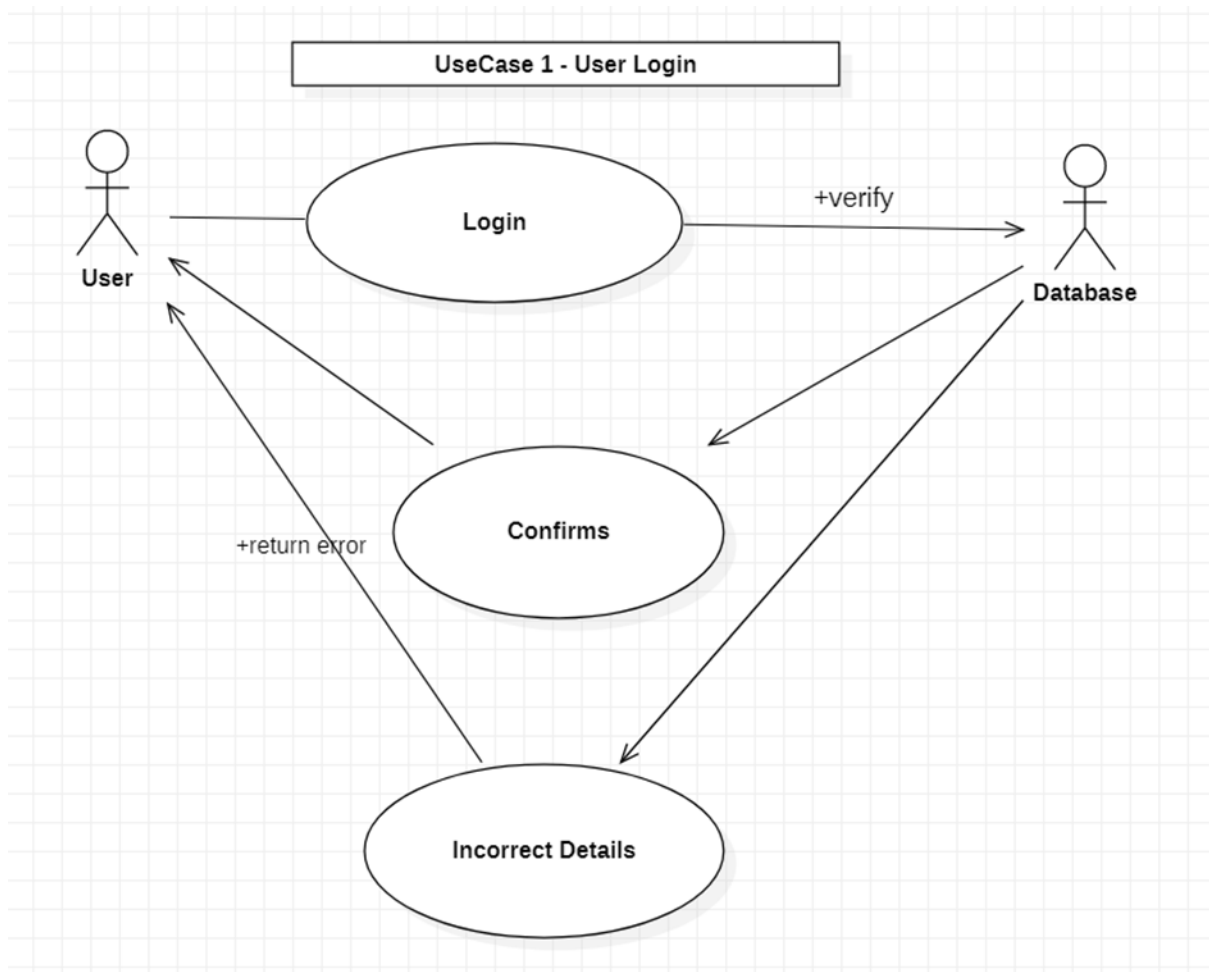
	module			2021				
3.3.6	creation of appointment module		27-09-2021	29-09-2021	24	3		Nilavan
3.3.7	creation of Prescription module		30-09-2021	02-10-2021	24	3		Nilavan
3.3.8	creation of drugs module		03-10-2021	05-10-2021	24	3		Nilavan
3.3.9	creation of inventory module		06-10-2021	08-10-2021	24	3		Nilavan
3.4	Integration of modules		09-10-2021	11-10-2021	24	3		Nilavan
3.5	Integration testing		12-10-2021	14-10-2021	24	3		Surya
3.6	system testing		15-10-2021	19-10-2021	24	5		Nilavan
3.7	Deploy the application		20-10-2021	21-10-2021	24	2		Surya
3.8	Prepare user documentat ion		22-10-2021	23-10-2021	24	2		Nilavan

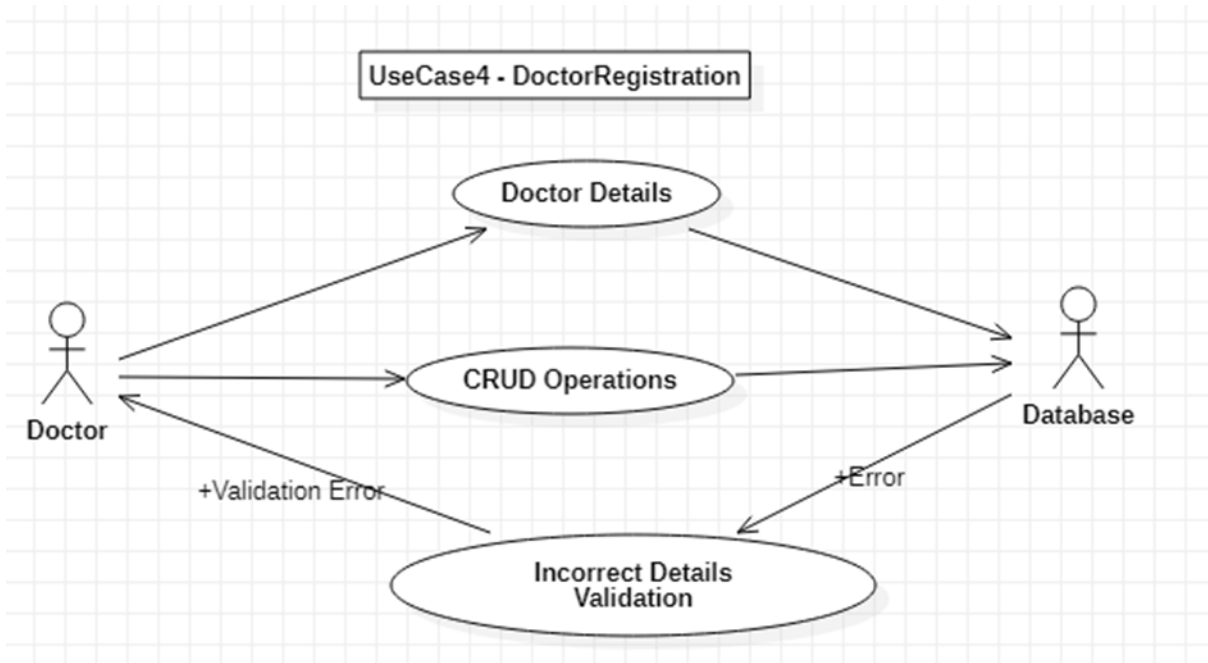
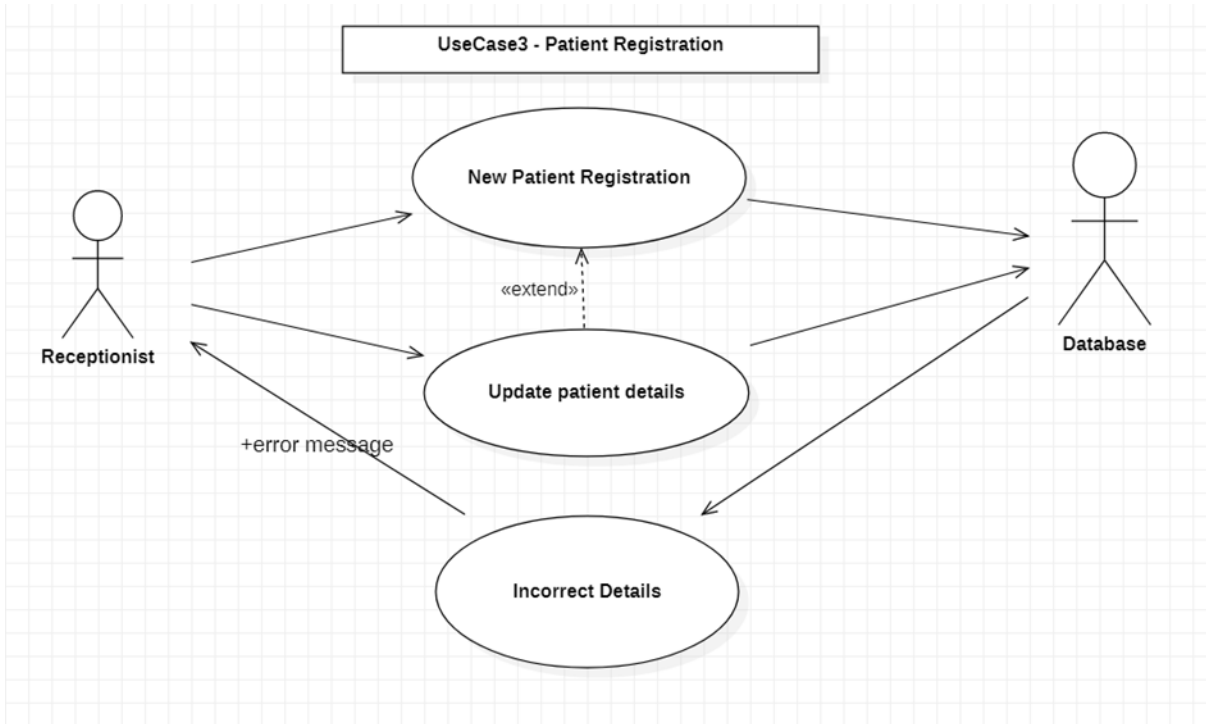
Gantt chart

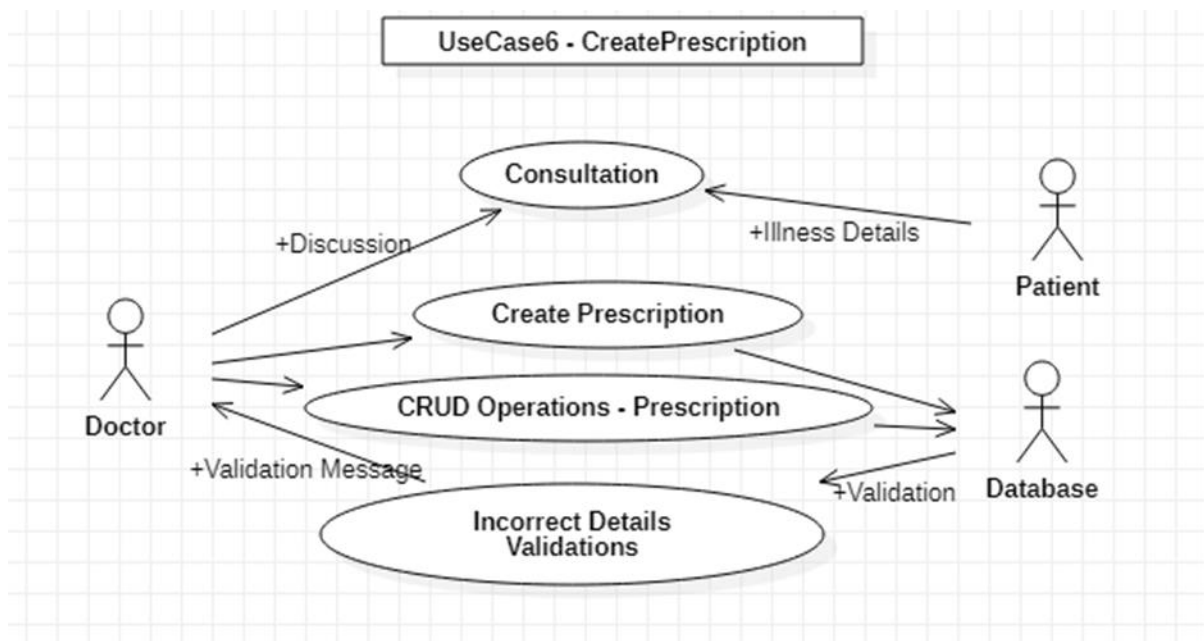
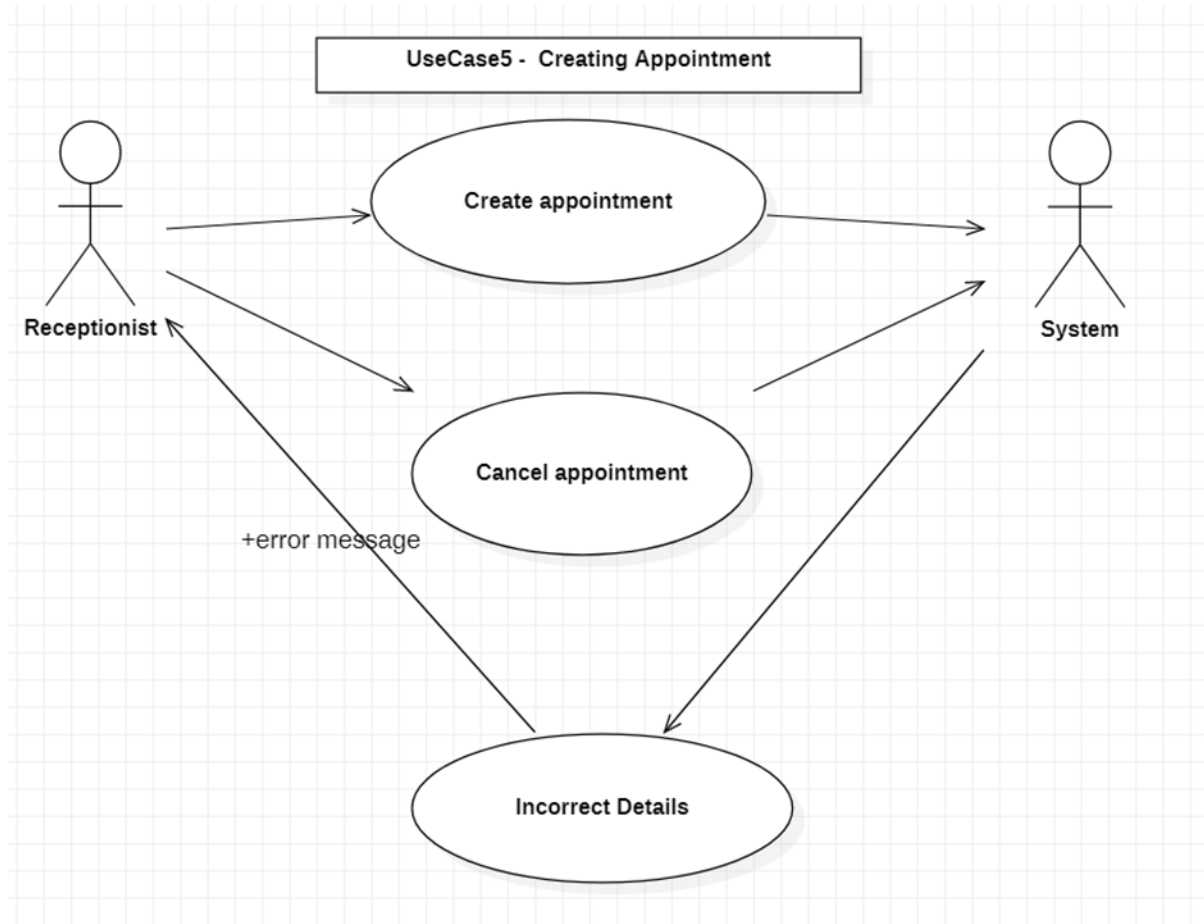


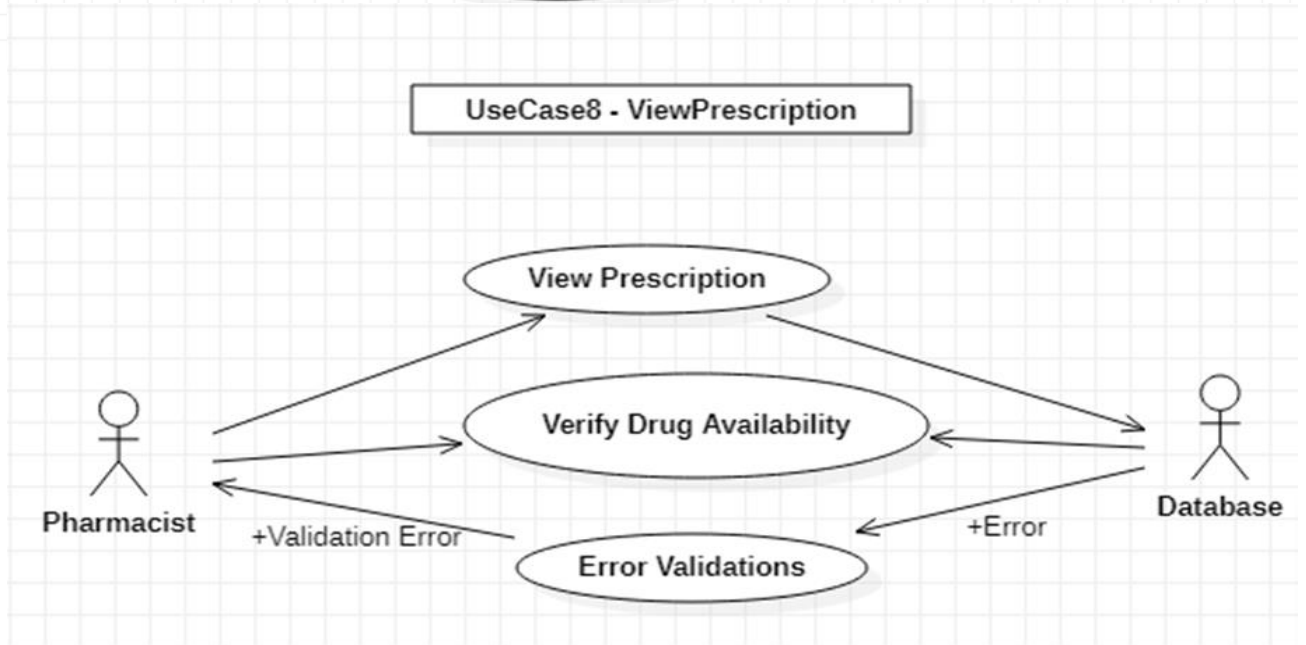
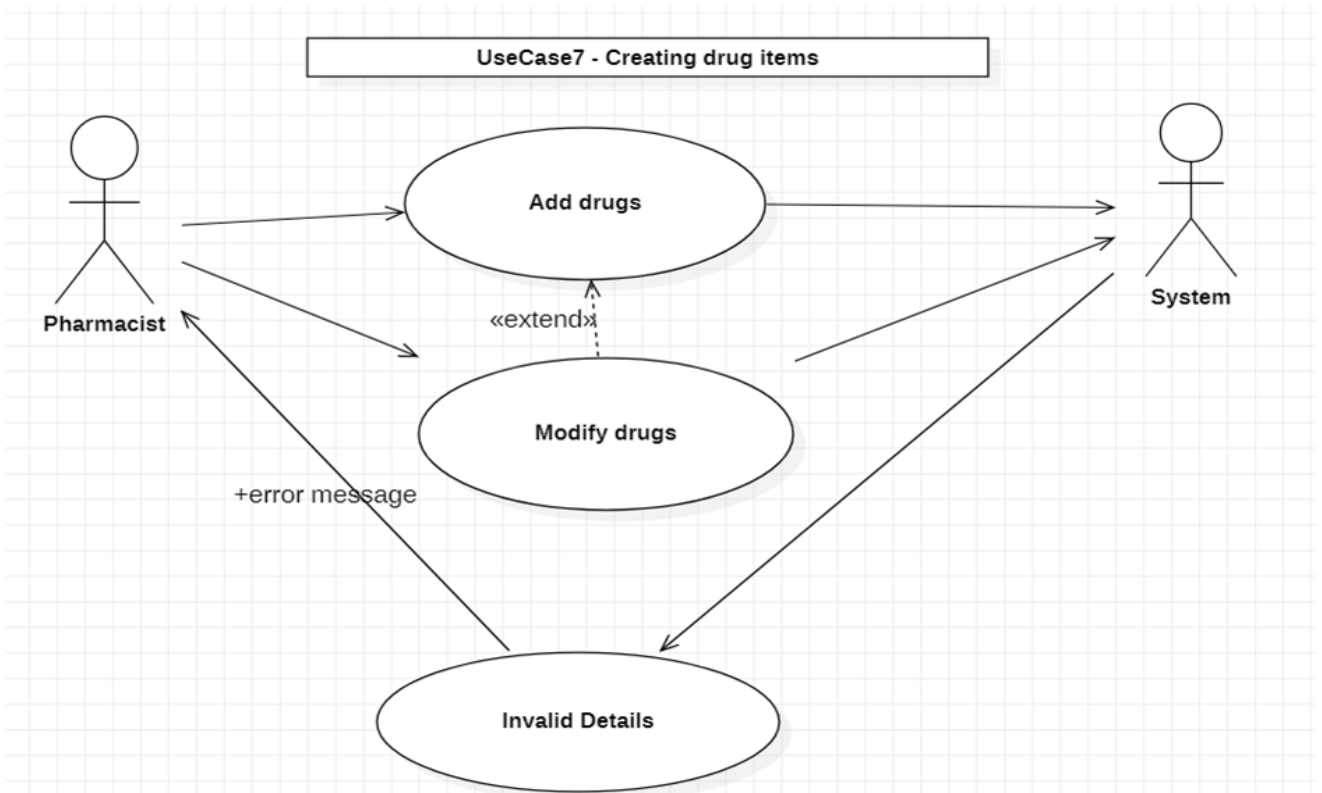
7. Use Case Diagrams

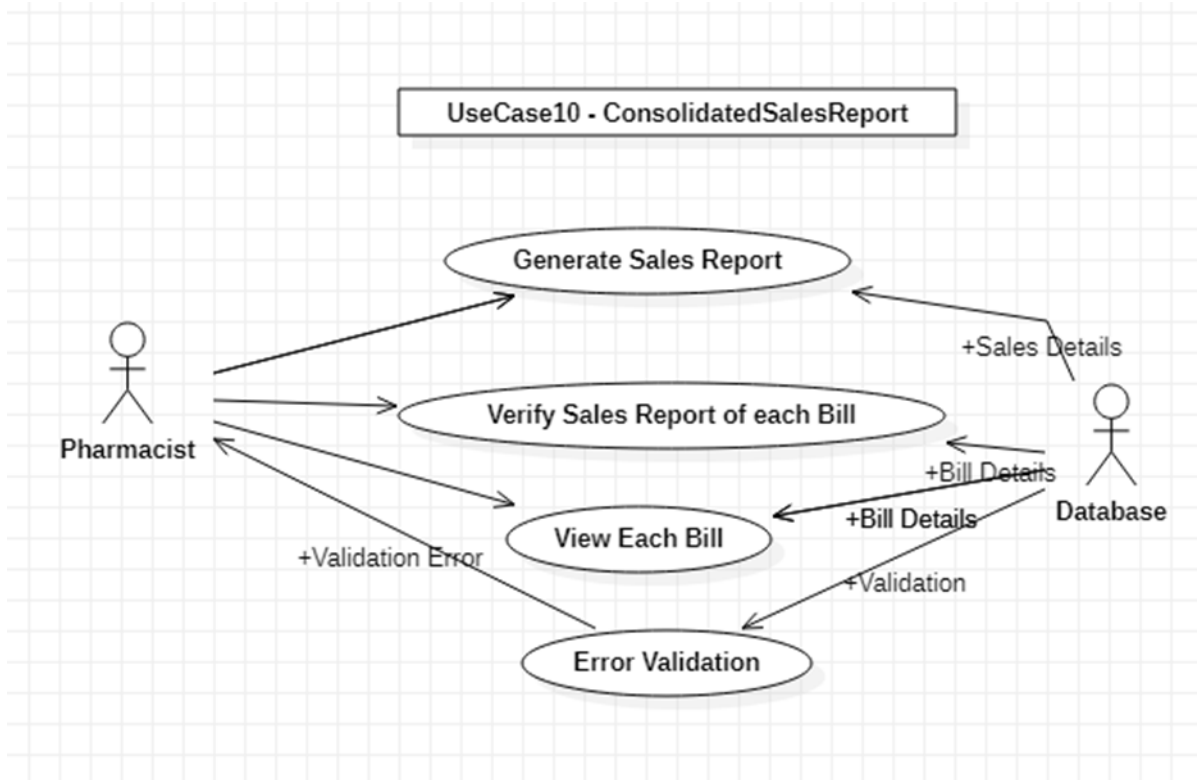
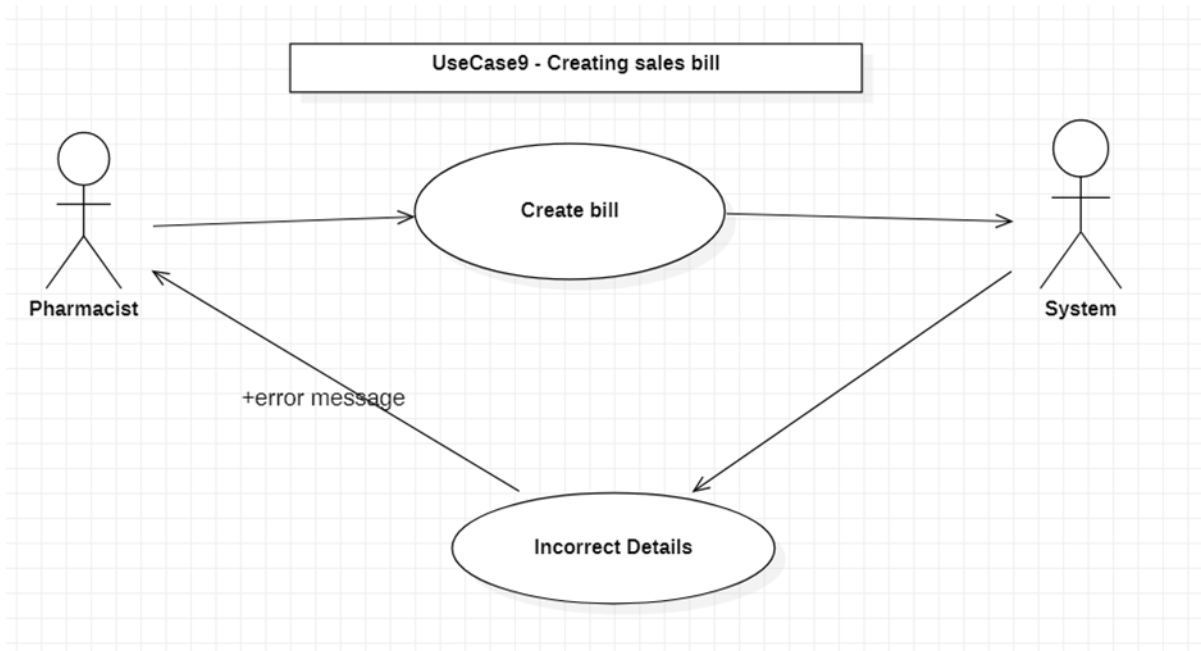






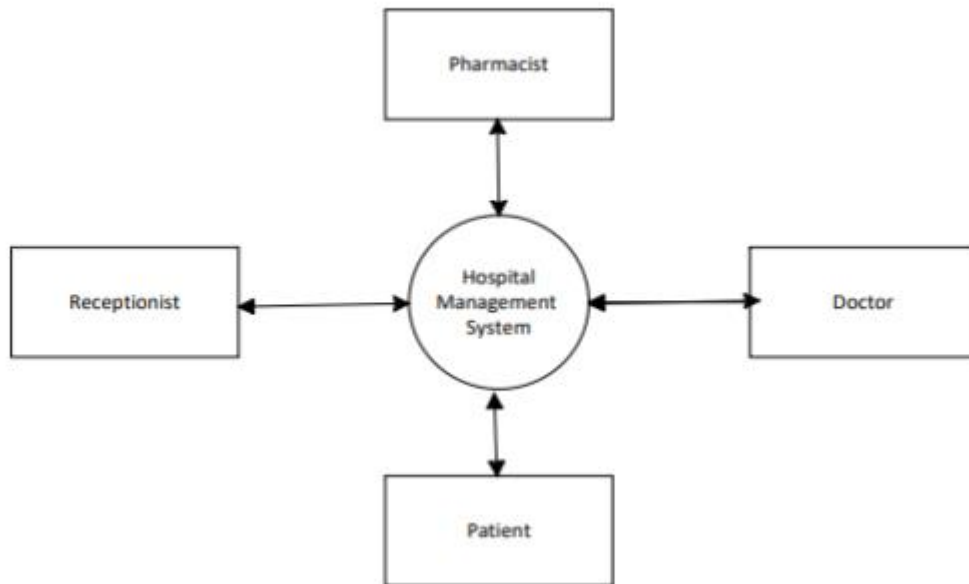




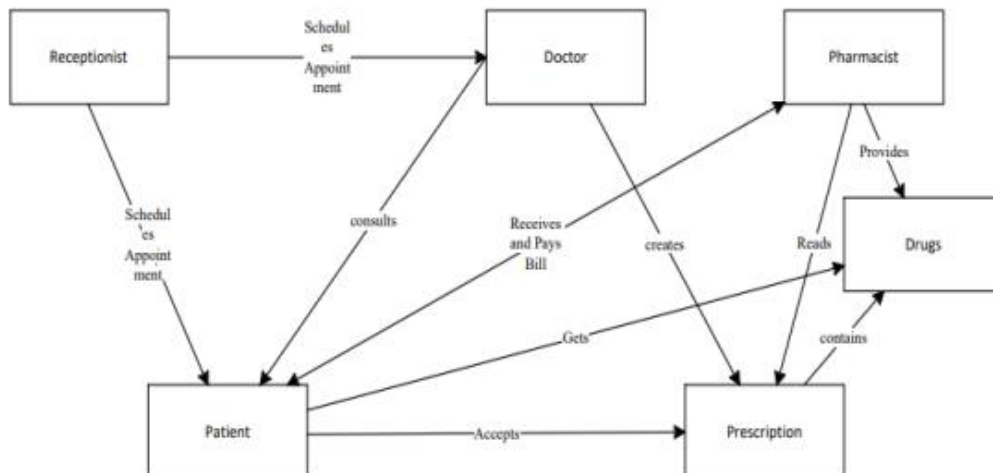


8. Data Flow Diagram

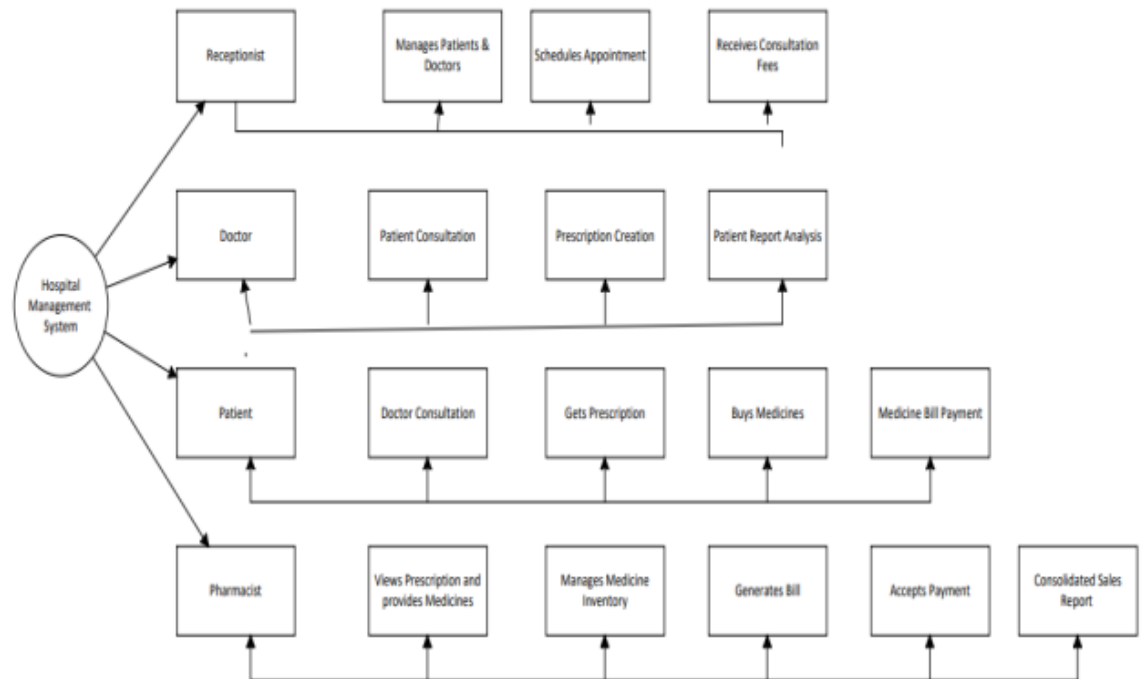
Context Level 0 DFD Diagram



Level 1 DFD Diagram

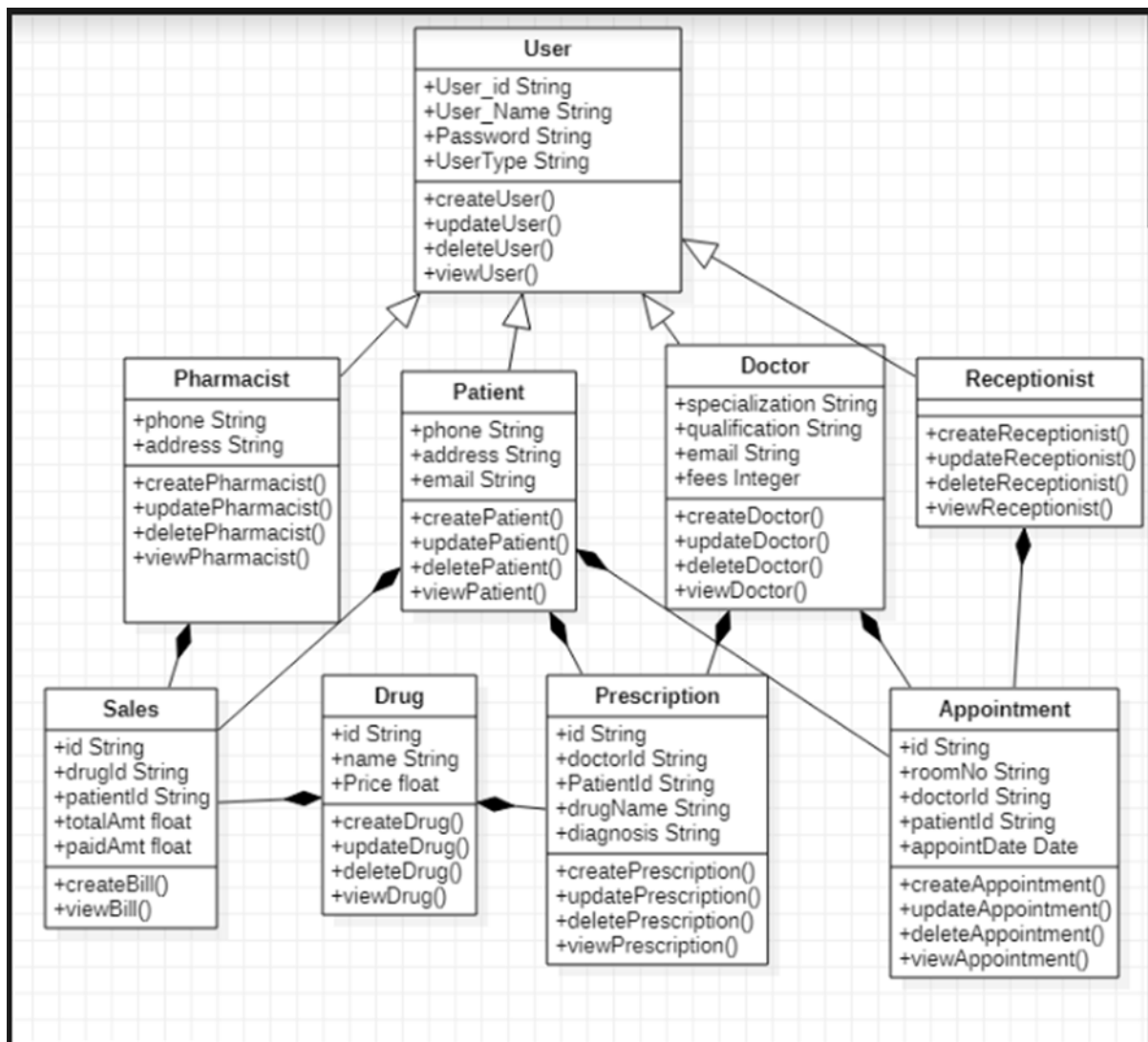


Level 2 DFD Diagram

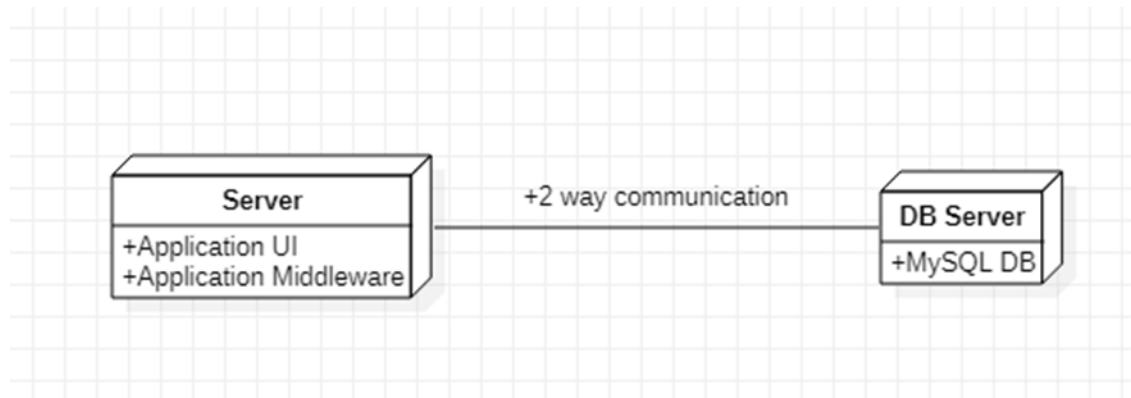


9. UML Diagrams

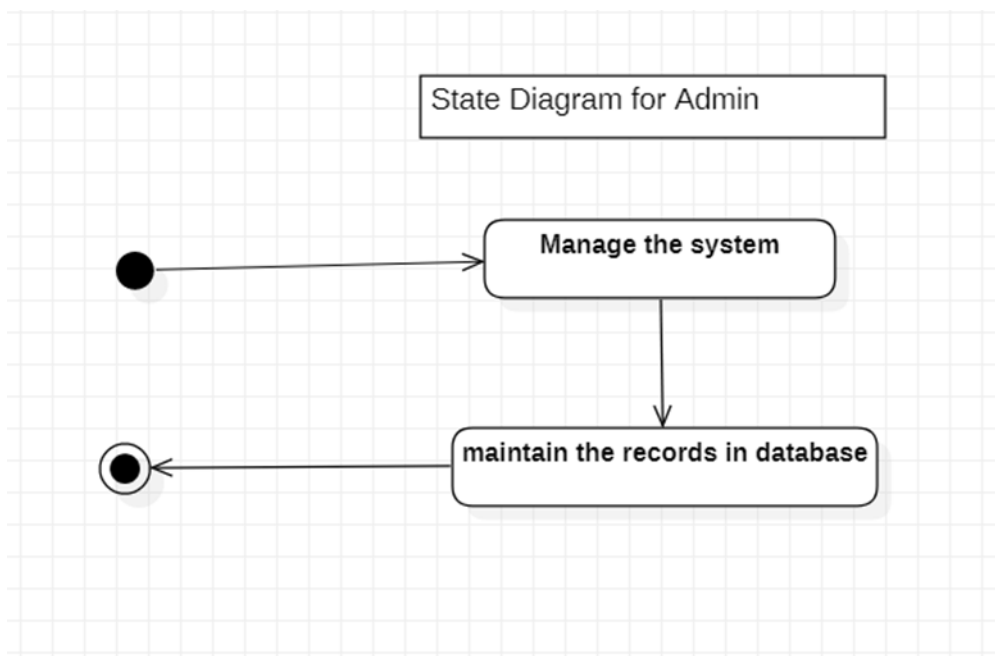
9.1 Class Diagram

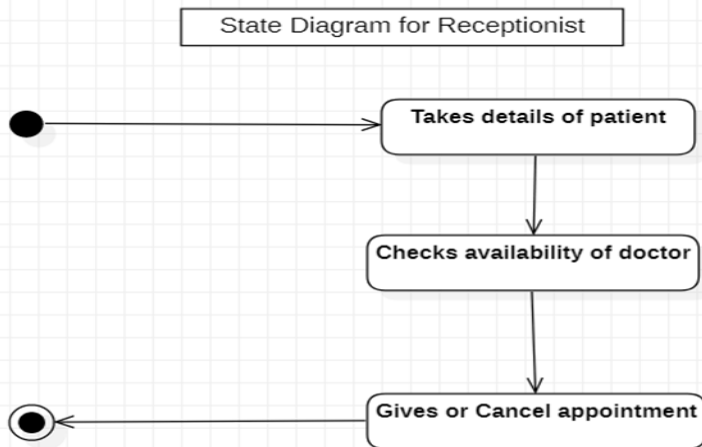
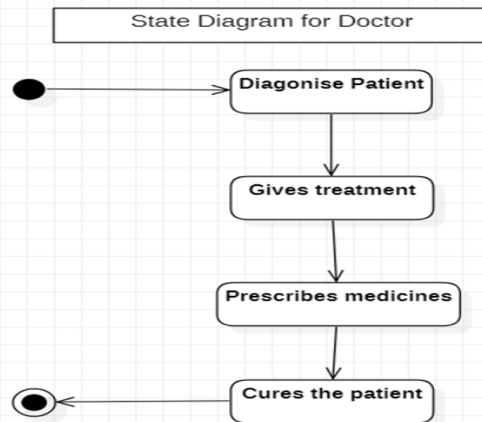


9.2 Deployment Diagram

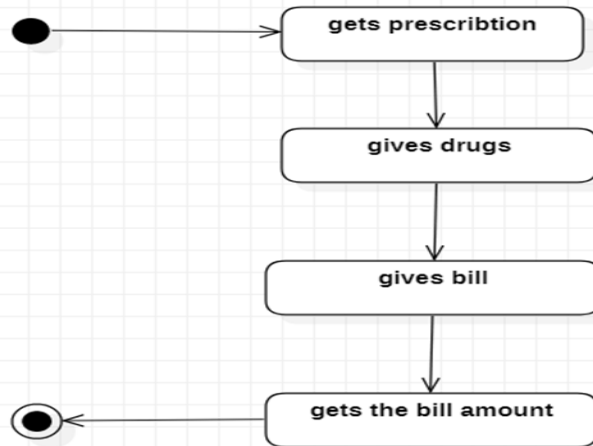


9.3 State Diagram





State Diagram for Pharmacist



10. Test Cases

Login Module

Test Case#	Test Title	Test Summary	Test Steps	Test Data	Expected Result	Post-condition
1	User should be able to login successfully in to the application as admin	The application will first have a login screen where the user can enter their username, password and user type as admin. User should be able to login after entering correct details	1. Launch the application 2. Enter the correct username, password 3. Select the user type as admin from the listbox 4. Click on Login button	username (surya) password (surya123) usertype (admin)	1.The system should be able to login successfully 2. Password entered should be displayed in asteriks 3. The Main page should be displayed with username (surya) and usertype (admin) displayed on the main page	1.Main page should be displayed after successful login 2. The created users should be available in the database
2	User should be able to login successfully in to the application as doctor	The application will first have a login screen where the user can enter their username, password and user type as doctor. User should be able to login after entering correct details	1. Launch the application 2. Enter the correct username, password 3. Select the user type as doctor from the listbox 4. Click on Login button	username (doctor) password (doctor123) usertype (doctor)	1.The system should be able to login successfully 2. Password entered should be displayed in asteriks 3.The Main page should be displayed with username (doctor) and usertype (Doctor) displayed on the main page	1.Main page should be displayed after successful login 2. The created users should be available in the database
3	User should be able to login successfully in to the application as receptionist	The application will first have a login screen where the user can enter their username, password and user type as receptionist	1. Launch the application 2. Enter the correct username, password 3. Select the user type as receptionist from the listbox	username (test) password (test123) usertype (doctor)	1.The system should be able to login successfully 2. The Main page should be displayed with username (test) and usertype (Receptionist) displayed on the main page	1.Main page should be displayed after successful login 2. The created users should be available in the database
4	User should be able to login successfully in to the application as Pharmacist	The application will first have a login screen where the user can enter their username, password and user type as Pharmacist. User should be able to login after entering correct details	1. Launch the application 2. Enter the correct username, password 3. Select the user type as Pharmacist from the listbox 4. Click on Login button	username (pharma) password (pharma123) usertype (Pharmacist)	1.The system should be able to login successfully 2. The Main page should be displayed with username (pharma) and usertype Pharmacist displayed on the main page	1.Main page should be displayed after successful login 2. The created users should be available in the database
5	User should not be able to login with incorrect credentials and error message should be displayed	Entering incorrect username or password should display popup box with correct error message and user should not be able to login	1. Launch the application 2. Enter the correct username and incorrect password 3. Select the user type as admin from the listbox 4. Click on Login button	username (surya) incorrect password (surya) usertype (admin)	1.The system should not be able to login to the system 2. Error popup "Username and password do not match" should be displayed 3. Username and password field should be cleared and prompted to enter again	Error message to be displayed

User Creation

Test Case#	Test Title	Test Summary	Test Steps	Test Data	Expected Result	Post-condition	Actual Result	Status
1	Able to create user with usertype doctor	Should be able to create usertype doctor from usercreation screen	1. From User Account Creation page, Enter Name,Username,Password and Usertype 2. Click on "Create User" button	Name: Testdoctor Username: doctor Password: doctor123 Usertype: Doctor	User Created message should be displayed Created user with doctor type should be available in the database	should be able to login to system with created user	User created successfully as doctor usertype	Pass
2	Able to create user with usertype receptionist	Should be able to create usertype receptionist from usercreation screen	1. From User Account Creation page, Enter Name,Username,Password and Usertype 2. Click on "Create User" button	Name: Testdoctor Username: receipt Password: receipt123 Usertype: Receptionist	User Created message should be displayed Created user with doctor type should be available in the database	should be able to login to system with created user	User created successfully as Receptionist usertype	Pass
3	Able to create user with usertype pharmacist	Should be able to create usertype pharmacist from usercreation screen	1. From User Account Creation page, Enter Name,Username,Password and Usertype 2. Click on "Create User" button	Name: Testdoctor Username: pharma Password: pharma123 Usertype: pharmacist	User Created message should be displayed Created user with doctor type should be available in the database	should be able to login to system with created user	User created successfully as pharmacist usertype	Pass
4	Able to create user with usertype admin	Should be able to create usertype admin from usercreation screen	1. From User Account Creation page, Enter Name,Username,Password and Usertype 2. Click on "Create User" button	Name: Administrator Username: surya Password: surya123 Usertype: Admin	User Created message should be displayed Created user with doctor type should be available in the database	should be able to login to system with created user	User created successfully as pharmacist usertype	Pass
5	Giving incorrect and empty details should not create user	Should be able to create user by giving incorrect and empty details	1. From User Account Creation page, Enter Name,Username,Password as blank 2. Click on "Create User" button		User should not be created	User should not be created with empty or incorrect details		Fail
6	Clicking cancel button should not create users and close the screen	Clicking cancel button should not create users and close the screen	1. From User Account Creation page, Enter Name,Username,Password as blank 2. Click on "Cancel" button		User should not be created User creation screen should close and back to main screen		User not be created User creation screen is closed and back to main screen	Pass

Doctor

Test Case#	Test Title	Test Summary	Test Steps	Test Data	Expected Result	Post-condition
D1	Doctor should be able to register with new details successfully	Doctor should be able to register after entering his details successfully	1. Doctor Registration screen should automatically display the doctor number 2. Doctor Registration screen should have provision to enter doctor name, speciality, Qualification, Consultation, email id and Room number. 3. The screen at the bottom should have Create, Update, Delete, Clear and	Doctor Name: Satish Speciality: General Physician Qualification: MBBS Consulation Fee: 400 Email id: sathish@gmail.com Room Number: 10	1. Clicking Create button should create the doctor successfully in the database. 2. Also the created doctor details should be displayed at the right side panel of the screen with correct details	veirfy that the Doctor details should be available in the database
D2	Doctor should be able to update existing details successfully	Doctor should be able to update existing details successfully	1. Select the record on the right side pane. 2. Modify doctor details like Consultation fees and room number	Consultation Fees: 300 Room number: 12	1. After selected a particular doctor record, the doctor details should be displayed	veirfy that the Doctor details should be updated in the database
D3	Doctor should be able to delete existing details successfully	Doctor should be able to delete existing details and remove successfully from the system	1. Select the record on the right side pane. 2. Click on Delete button		1. Should be able to delete the doctor details after clicking delete	veirfy that the Doctor details should be deleted in the database
D4	Clicking on Exit button should exit from doctor registration page	Clicking on Exit button should exit from doctor registration page and should be back to doctor main page	click on Exit button			Verify that user can exit from doctor regisration screen and
D5	Should be able to view details of all doctors	Doctor should be able to view all doctors details	click on view Doctor button		Should be able to view all the registered doctors in the	
D6	Clicking Logout button should exit from doctors page	Clicking Logout button should exit from doctors page	Click on Logout button		Should be able to logout from the doctor main	

Patient

Test Case	Test Title	Test Summary	Test Steps	Test Data	Expected Result	Post-condition	Actual Result
P1	Patient should be able to register with new details successfully	Patient should be able to register after entering his details successfully	1. Patient Registration screen should automatically display the Patient number 2. Patient Registration screen should have provision to enter Patient name, Phone number and address. 3. The screen at the bottom should have Save, Update, Delete, Clear and Exit buttons 4. The Patient enters all the field values	Patient Name: Pat Address: 10,Greams Road,chennai Phone number:90123 2223	1. Clicking Create button should create the Patient successfully in the database. 2. Also the created Patient details should be displayed at the right side panel of the screen with correct details	veirfy that the Patient details should be available in the database	Able to register with given Patient details
P2	Patient should be able to update existing details successfully	Patient should be able to update existing details successfully	1. Select the record on the right side pane. 2.Modify Patient details like Phone number 3. Click on Update	Phone number: 9945513403	1. After selected a particular Patient record, the Patient details should be displayed	veirfy that the Patient details should be updated in the database	Able to update with given updated Patient details
P3	Patient should be able to delete existing details successfully	Patient should be able to delete existing details and remove successfully from the system	1. Select the record on the right side pane. 2. Click on Delete button		1. Should be able to delete the Patient details after clicking	veirfy that the Patient details should be deleted in the database	Able to delete the Patient details from the

Appointment

Test Case	Test Title	Test Summary	Test Steps	Test Data	Expected Result	Post-condition	Actual Result
A1	Able to create new appointment	Should be able to create appointment for patient with doctor successfully	1. Create Appointment screen should automatically display the appointment number. 2. Create Appointment screen should have provision to enter doctor name, patient name, Room number and appointment date. Enter the given details 3. The screen at the bottom should have Save, Update, Delete, Clear and Exit buttons	Doctor name: Doc1 Patient name: satish Room number: 12 Appointment date: 11/12/2021	1. Clicking Create button should create the appointment successfully in the database. Also, the created appointment details should be displayed at the right-side panel of the screen.	• The created appointments should be displayed at the right-side panel of the screen.	Appointment created successfully
A2	Able to update existing appointment	Should be able to update existing appointment successfully	1.Select a particular appointment record from right pane 2. Edit details like appointment date 3. click on update button	Appointment date: 10/12/2021	1. the appointment details should be displayed on the left side for editing 2. updated appointment date should be saved and displayed on the right side panel of the screen.		Appointment updated successfully
A3	Able to delete an existing appointment	Should be able to delete existing appointment successfully	1.Select a particular appointment record from right pane 2.click on Cancel button		1. the appointment details should be displayed on the left side for deletion 2. The cancelled appointment should be removed from right pane and deleted from the database.		Appointment deleted successfully

Prescription

Test Case#	Test Title	Test Summary	Test Steps	Test Data	Expected Result
PR1	Able to create new prescription	Should be able to create prescription for patient from doctor successfully	1. Create Prescription screen should automatically display the prescription number and appointment id 2. Create Prescription screen should have provision to enter doctor name, Disease type and description. 3. The screen at the bottom should have Save, Update and Cancel buttons 4. Enter all the details and click on create button	Doctor name: Doc1 Disease type: Fever Description: Fever,body pains	1. Clicking Create button should create the prescription successfully in the database. Also, the created Prescription details should be displayed at the right-side panel of the screen.
PR2	Able to update existing prescription	Should be able to update existing prescription successfully	1. Select a particular Prescription record from right pane 2. Modify prescription details like disease type 3. click on update button	Disease type: cough	1. After selected a particular prescription record, the prescription details should be displayed on the left side and should be able to modify prescription details 2. Prescription data should be modified after clicking on Update button and modified details should be displayed
PR3	Able to delete an existing prescription	Should be able to delete existing prescription successfully	1. Select a particular prescription record from right panel 2. click on delete button		1. the prescription details should be displayed on the left side for deletion 2. The deleted prescription should be removed from right pane and deleted from database
PR4	Able to close the prescription screen	Should be able to close the prescription screen	click on close button		the prescription screen should be closed successfully and back to main screen

Drugs

Test Case#	Test Title	Test Summary	Test Steps	Test Data	Expected Result	Post-condition	Actual Result
DR1	Able to create new drug item	Should be able to create drug to drug repository successfully	1. Create Drug screen should automatically display the drug number. 2. The screen at the bottom should have Create, Update, Delete and Clear buttons. 3. Create Drug screen should have provision to enter drug name, description, sell price, buy price and quantity available.	Drug name:Panadol Description:Acidity Sell Price: 15 Buy price: 13 Quantity:500	1. Clicking Create button should create and add the drug successfully in the database. 2.Also, the created drug details should be displayed at the right-side panel of the screen with correct details	• The created drugs should be displayed at the right-side panel of the screen.	drug created successfully
DR2	Able to update existing drugs details	Should be able to update existing drug details successfully	1.Select a particular drug record from right pane 2. Modify drug details like quantity 3. click on update button	Quantity: 1500	1. After selected a particular drug record, the drug details should be displayed on the left side and should be able to modify drug details 2. drug data should be modified after clicking on Update button and modified details should be displayed		drug data updated successfully
DR3	Able to delete an existing drug	Should be able to delete existing drug successfully	1.Select a particular drug record from right panel 2.click on delete button		1. the drug details should be displayed on the left side for deletion 2. The deleted drug should be removed from right pane and deleted from database		drug deleted successfully
DR4	Able to close the drug screen	Should be able to close the drug screen	click on close button		the drug screen should be closed successfully and back to main screen		the drug screen is closed successfully

11. Test Automation Summary

Login:

Summary Report

Page 1 of 1

Test Execution Summary



hospitalMgmt

● Test Cases Run: 5 ● Failed: 0 ● Warnings: 0
● Passed: 5 (100%)

Execution duration: 00:00:23

Test Case	Start Time ▲	Duration
✓ Admin Login	28-11-2021 02:58:57 PM	00:00:04
✓ Doctor Login	28-11-2021 02:59:01 PM	00:00:05
✓ Receptionist Login	28-11-2021 02:59:05 PM	00:00:05
✓ Pharmacist Login	28-11-2021 02:59:10 PM	00:00:05
✓ Incorrect Login	28-11-2021 02:59:15 PM	00:00:04

User Creation:

Test Execution Summary



hospitalMgmt

● Test Cases Run: 6 ● Failed: 0 ● Warnings: 0
● Passed: 6 (100%)

Execution duration: 00:00:28

Test Case	Start Time ▲	Duration
✓ Doctor Creation	28-11-2021 03:20:44 PM	00:00:05
✓ Receptionist Creation	28-11-2021 03:20:49 PM	00:00:05
✓ Admin Creation	28-11-2021 03:20:53 PM	00:00:05
✓ Incorrect Details of User	28-11-2021 03:20:58 PM	00:00:04
✓ Cancel Creation	28-11-2021 03:21:02 PM	00:00:05
✓ Pharmacist Creation	28-11-2021 03:21:07 PM	00:00:04

Doctor:

Test Execution Summary



hospitalMgmt

● Test Cases Run: 6 ● Failed: 0 ● Warnings: 0
● Passed: 6 (100%)

Execution duration: 00:00:30

Test Case	Start Time ▲	Duration
✓ Doctor Creation	28-11-2021 03:31:15 PM	00:00:05
✓ Doctor Updation	28-11-2021 03:31:20 PM	00:00:05
✓ Doctor Deletion	28-11-2021 03:31:25 PM	00:00:05
✓ Exit Registration	28-11-2021 03:31:30 PM	00:00:05
✓ View Doctors	28-11-2021 03:31:35 PM	00:00:05
✓ Doctor Logout	28-11-2021 03:31:39 PM	00:00:05

Patient:

Test Execution Summary



hospitalMgmt


● Test Cases Run: 4 ● Failed: 0 ● Warnings: 0
● Passed: 4 (100%)

Execution duration: 00:00:20

Test Case	Start Time ▲	Duration
✓ Patient Registration	28-11-2021 03:47:08 PM	00:00:05
✓ Patient Updation	28-11-2021 03:47:13 PM	00:00:05
✓ Patient Deletion	28-11-2021 03:47:18 PM	00:00:05
✓ Close Registration	28-11-2021 03:47:23 PM	00:00:04

Appointment:

Test Execution Summary



HospitalManagement

● Test Cases Run: 2

● Failed: 0

● Warnings: 0

● Passed: 2 (100%)

Execution duration: 00:00:20

Test Case	Start Time ▲	Duration
✓ NewAppointment	30-11-2021 16:29:37	00:00:11
✓ DeleteAppointment	30-11-2021 16:29:47	00:00:09

Prescription:

Summary Report

Page 1 of 1

Test Execution Summary



HospitalManagement

● Test Cases Run: 2 ● Failed: 0 ● Warnings: 0

● Passed: 2 (100%)

Execution duration: 00:00:25

Test Case	Start Time ▲	Duration
✓ CreatePrescription	30-11-2021 16:49:11	00:00:12
✓ UpdatePrescription	30-11-2021 16:49:23	00:00:13

Drugs:

Summary Report

Page 1 of 1

Test Execution Summary



HospitalManagement

● Test Cases Run: 3 ● Failed: 0 ● Warnings: 0

● Passed: 3 (100%)

Execution duration: 00:00:28

Test Case	Start Time ▲	Duration
✓ CreateDrug	30-11-2021 17:18:55	00:00:10
✓ UpdateDrug	30-11-2021 17:19:05	00:00:10
✓ DeleteDrug	30-11-2021 17:19:15	00:00:08

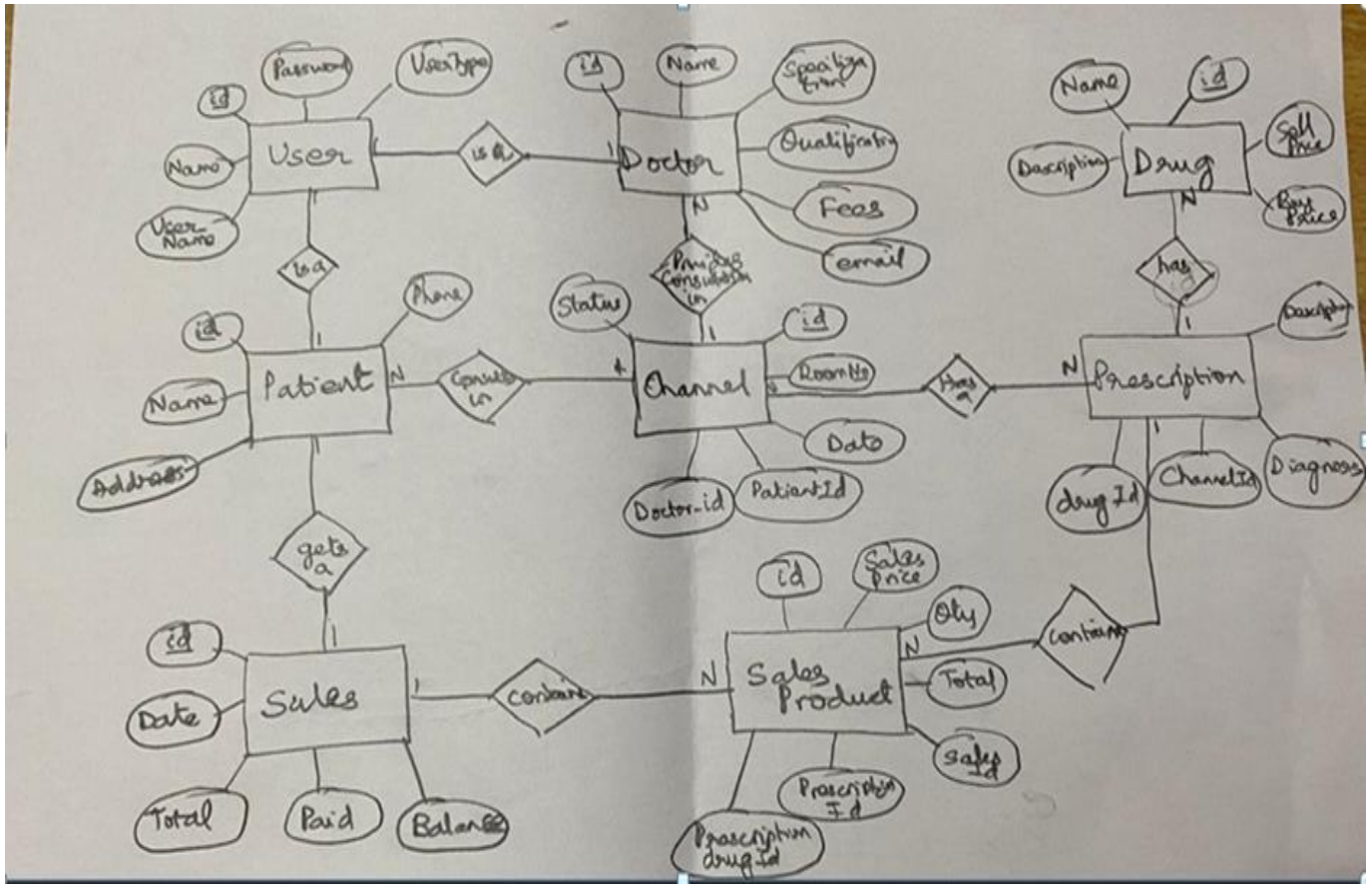
12. Glossary

1. **SRS** Software Requirement Specification
Document that describes what the software will do and how it will be expected to perform
2. **GUI** Graphical User Interface

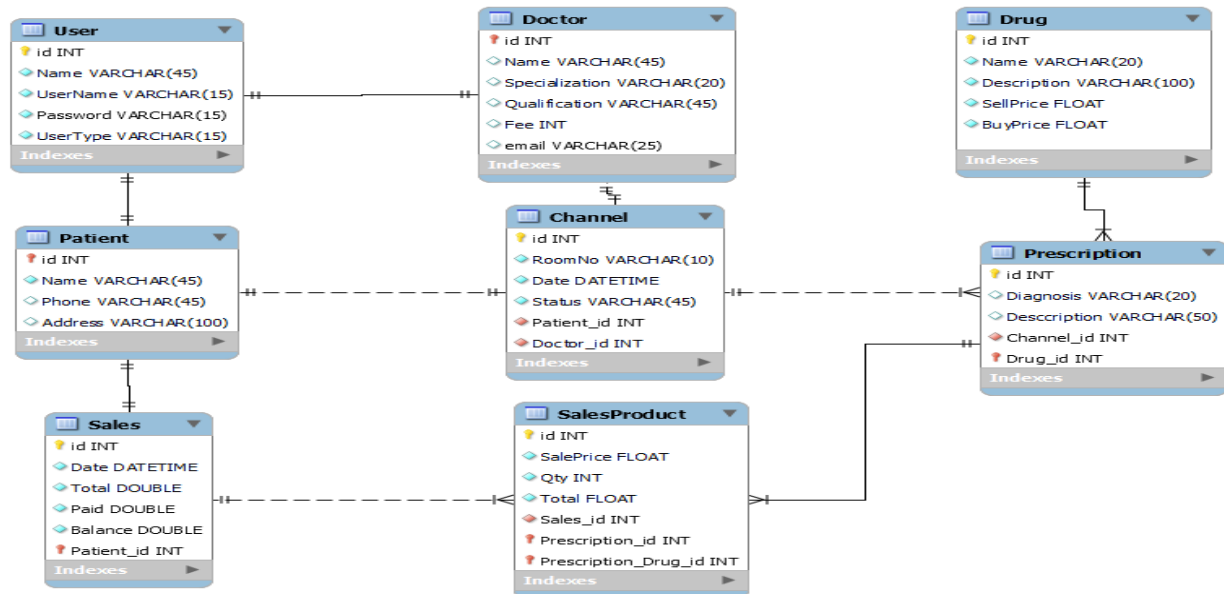
The interface which the user uses on graphics displaying hardware.
3. **ER** Entity Relationship

Shows the relationships of entity sets stored in a database
4. **XAMPP** 'X' Multiplatform 'A' Apache Server 'M' MariaDB 'P' perl 'P' PHP
Stack of software with a control panel for efficient management of the software in the package. Here we have used for managing MySQL server
5. **RDBMS** Relational Database Management System
DBMS designed for relational databases
6. **MySQL**
Open-source RDBMS. SQL stands for Structured Query Language. A programming language used for making queries to a database, and setting/retrieving data to/from it
7. **JDBC** Java Database Connectivity
Application Programming interface (API) for the Java language which defines how a client may access a database
8. **TCP** Transfer Control Protocol A protocol for transferring data to/from the internet.
9. **IP** Internet Protocol A protocol for allowing computers/devices with this to connect to the internet.

13. ER Diagram

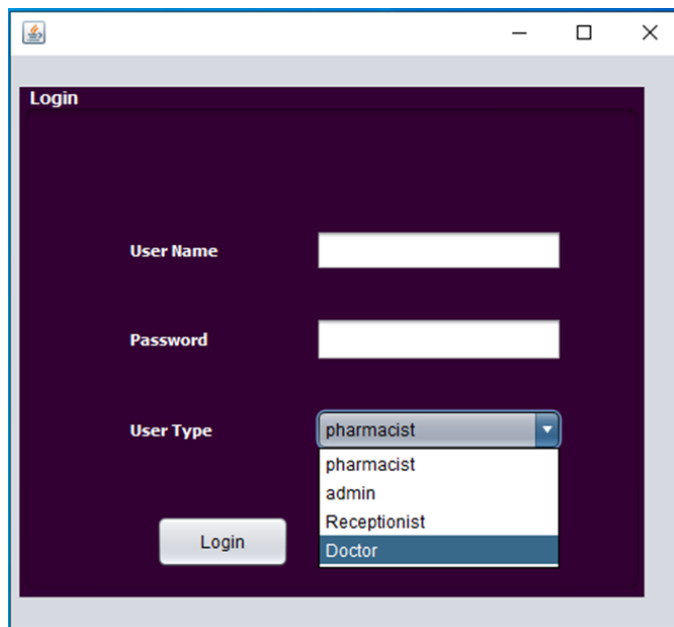


14. Schema Diagram



15. GUI Screenshots

Login Page

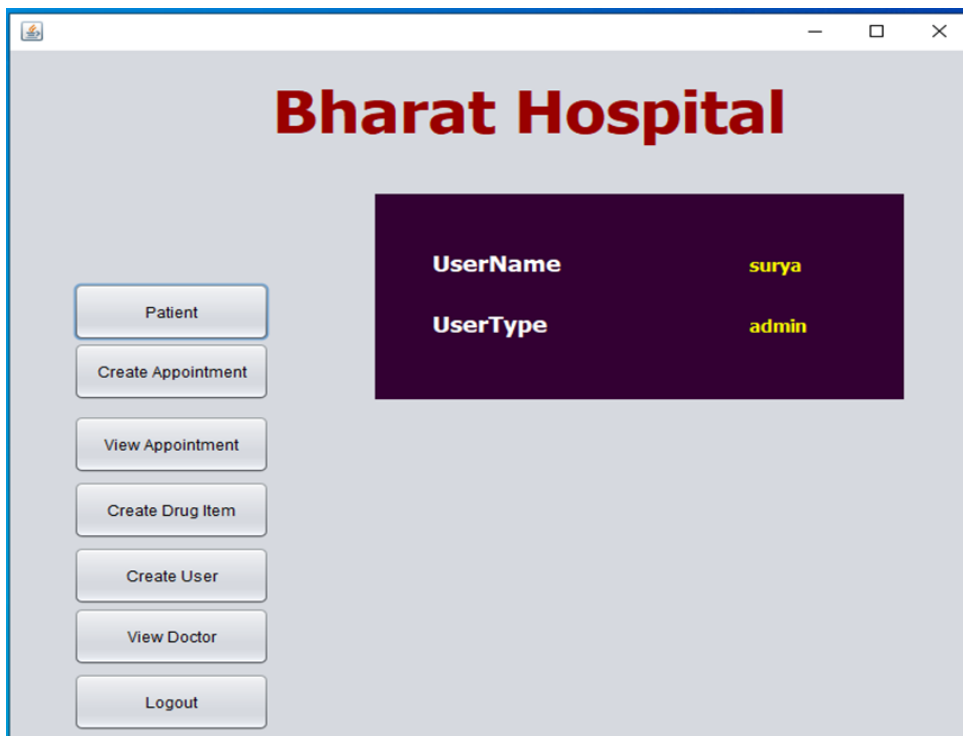


The screenshot shows a window titled "Login" with a dark purple background. It contains three input fields: "User Name", "Password", and "User Type". The "User Type" field is a dropdown menu with a list of options: "pharmacist", "admin", "Receptionist", and "Doctor". The "Doctor" option is currently selected and highlighted in blue. A "Login" button is located below the input fields.

Field	Value
User Name	
Password	
User Type	pharmacist

Login

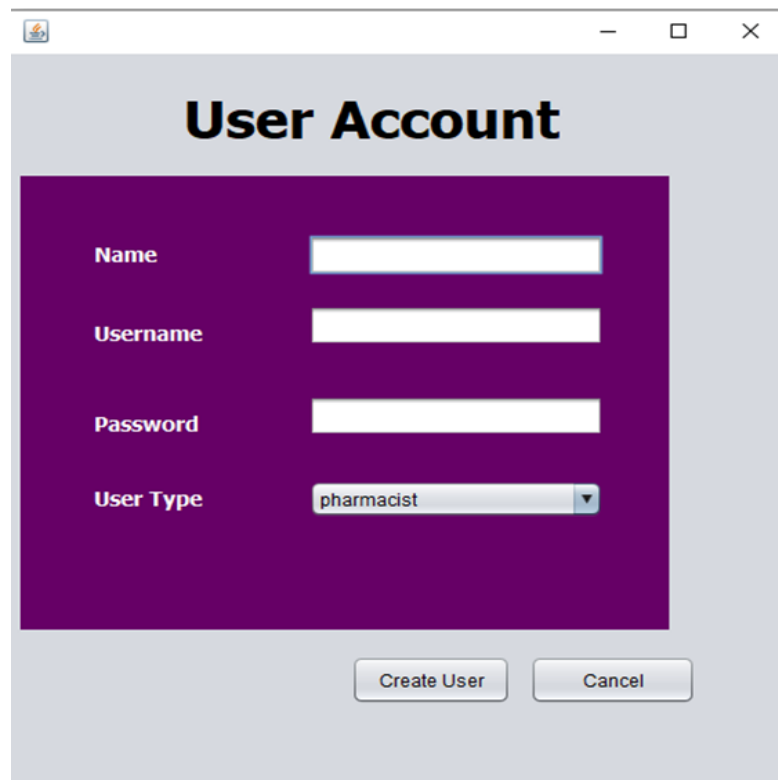
Main Page



The screenshot shows a web application window titled "Bharat Hospital". The window has a light gray background. On the left side, there is a vertical stack of seven buttons: "Patient", "Create Appointment", "View Appointment", "Create Drug Item", "Create User", "View Doctor", and "Logout". On the right side, there is a dark purple rectangular box containing two lines of text: "UserName" followed by "surya" and "UserType" followed by "admin".

UserName	Value
UserName	surya
UserType	Value
UserType	admin

User Account Creation



The screenshot shows a web application window titled "User Account". The window has a light gray background. In the center, there is a dark purple rectangular box containing four input fields: "Name", "Username", "Password", and "User Type". The "User Type" field is a dropdown menu with "pharmacist" selected. Below the purple box, there are two buttons: "Create User" and "Cancel".

Field	Value
Name	
Username	
Password	
User Type	pharmacist

Doctor Registration Page

Doctor Registration

Doctor No

DS016

Doctor Name

Specialization

Qualification

Consultation Fees

Email

Room

0

Save

Update

Delete

Clear

Exit

Doctor No	Name	Specialization	Qualification	Fee	Email	Room
-----------	------	----------------	---------------	-----	-------	------

Create New Appointment Screen

Create New Appointment

Appointment No	Doctor Name	Patient Name	Room No	Appointment Date
----------------	-------------	--------------	---------	------------------

Prescription

Close

Patient Registration Screen

Patient Registration

Employee Registration

Patient No

PS001

Patient Name

PhoneNo

Address

Save

Update

Delete

Clear

Exit

Patient No	Patient Name	Phone	Address
------------	--------------	-------	---------

Create Drug Screen

Create Drug

Channel

Item ID

DR001

Item Name

Description

Sell Price

Buy Price

Qty

Save

Update

Delete

Clear

Item ID	Item Name	Description	Sell price	Buy price	Qty
---------	-----------	-------------	------------	-----------	-----

Sales Receipt for Drugs purchased

Prescription ID

PC003

Drug Code

Drug name

Qty

22

Add

Prescription ID	Drug Code	Drug name	Qty	Price	Total Price
PC003	DR001	Pandol	12	10	120
PC003	DR003	vicks	100	2	200
PC003	DR002	Dolo 650	15	22	330

Message

i

Recorded Saved

OK

Total Cost

650

Pay

1000

Balance

350

Create

Cancel

Consolidated Sales Report for Pharmacist

Sales Report				
ID	Date	SubTotal	Pay	Balance
1	2021-06-12	105	105	0
2	2021-06-12	105	105	0
3	2021-06-12	120	120	0
4	2021-06-12	60	60	0
5	2021-06-12	105	105	45
6	2021-06-13	512	512	488
7	2021-06-13	436	436	564
8	2021-06-13	276	276	224

Close