

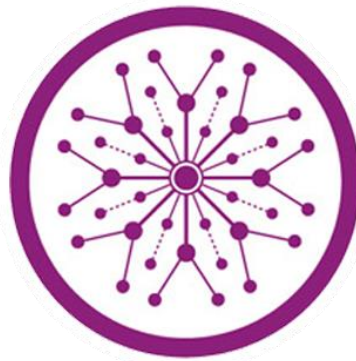
Hospital Management System

Final Year Project

Session 2018-2022

A project submitted in partial fulfillment of the degree of

BS in Computer Science



Department of Computer Science

Faculty of Computer Science & Information Technology

Superior University, Lahore

FALL 2021

Type (Nature of project)	[<input checked="" type="checkbox"/>] Development [<input type="checkbox"/>] Research [<input type="checkbox"/>] R&D			
Area of specialization	PHP with LARAVEL			
FYP ID	FYP-BCSM-F18-116			
Project Group Members				
Sr. #	Reg. #	Student Name	Email ID	*Signature
(i)	BCSM-F18-054	Muhammad Faique	faiqarain01@gmail.com	
(ii)	BCSM-F18-161	Neha Malik	nehamalik0563@gmail.com	
(iii)				

*The candidates confirm that the work submitted is their own and appropriate credit has been given where reference has been made to work of others

Plagiarism Free Certificate

This is to certify that, I Neha Malik S/D of , group leader of FYP under registration no FYP-BCSM-F18-116 at Computer Science Department, The Superior College, Lahore. I declare that my FYP report is checked by my supervisor.

Date: _____ Name of Group Leader: Neha Malik

Signature: _____

Name of Supervisor: Sir Fawad Nadeem Butt

Co-Supervisor: Mr. Jawad Ahmad

Designation: Lecturer

Designation: Associate Professor

Signature: _____

Signature: _____

HoD: Dr. Irfan

Signature: _____

Project Report

Hospital Management

Change Record

Author(s)	Version	Date	Notes	Supervisor's Signature
	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 Allah almighty, who gave us the grace and strength to walk this path, though extremely tough for us but pulled us up when we were down, gave us hope when there was no hope and walked with us when we were alone.

And, we will give a big thank you to Sir FAWAD Naseem and JAWAD Ahmed who made all effort to so be stand with during our period of trial. May God almighty in His infinity mercy answer your prayer and remain blesses in the name of our Allah

Acknowledgements

A project without proper guidance is like a ship without a navigator. A successful story is incomplete without paying tribute to those who inspired it. We would like to express our gratitude towards all those people who guided us for preparing this project, which was a great learning process for us.

We are thankful to **Sir Fawad Naseem** our supervisor for helping us in understanding and accomplishing this report.

We are also thankful to **Sir Jawad Ahmed** for helping us in learning and Co-supervising our project.

Executive Summary

Hospital Management System provides the benefits of streamlined operations, enhanced administration & control, superior patient care, strict cost control and improved profitability. HMS is powerful, flexible, and easy to use and is designed and developed to deliver real conceivable benefits to hospitals. More importantly it is backed by reliable and dependable support. The project 'Hospital Management System' is based on the database, object oriented and networking techniques. As there are many areas where we keep the records in database for which we are using MY SQL software which is one of the best and the easiest software to keep our information. This project uses HTML CSS as the front-end software and has connectivity with MY SQL. Hospital Management System is custom built to meet the specific requirement of the mid and large size hospitals across the globe. All the required modules and features have been particularly built to just fit in to the requirement. This package has been widely accepted by the clients. Not stopping only to this but they are highly satisfied and appreciating. Entire application is web based and built on 3 tier architecture using the latest technologies. The sound database of the application makes it more users friendly and expandable. The package is highly customizable and can be modified as per the needs and requirements of our clients. Prolonged study of the functionalities of the hospital and its specific requirement has given it a wonderful shape both technically and usability wise. It covers all the required modules right from Patient Registration, Medicine details, Doctor, Wards, Admin, Store, Patient appointment, bill payment, record modification, discharge details etc.

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
1.5. Gap Analysis	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
3.2.	Use Case Descriptions	14
Chapter 4	.....	15
System Design	.....	15
4.1.	Architecture Diagram	16
4.2.	Domain Model	16
4.3.	Entity Relationship Diagram with data dictionary	16
4.4.	Class Diagram	17
4.5.	Sequence / Collaboration Diagram	17
4.6.	Operation contracts	17
4.7.	Activity Diagram	18
4.8.	State Transition Diagram	18
4.9.	Component Diagram	18
4.10.	Deployment Diagram	19
4.11.	Data Flow diagram [only if structured approach is used - Level 0 and 1]	19
Chapter 5	.....	20
Implementation	.....	20
5.1.	Important Flow Control/Pseudo codes	21
5.2.	Components, Libraries, Web Services and stubs	21
5.3.	Deployment Environment	21
5.4.	Tools and Techniques	22
5.5.	Best Practices / Coding Standards	22
5.6.	Version Control	22
Chapter 6	.....	23
Testing and Evaluation	.....	23
6.1.	Use Case Testing	24
6.2.	Equivalence partitioning	24

6.3. Boundary value analysis	24
6.4. Data flow testing	24
6.5. Unit testing	25
6.6. Integration testing	25
6.7. Performance testing	25
6.8. Stress Testing	25
Chapter 7	26
Summary, Conclusion and Future Enhancements	26
7.1. Project Summary	27
7.2. Achievements and Improvements	27
7.3. Critical Review	27
7.4. Lessons Learnt	27
7.5. Future Enhancements/Recommendations	28
Appendices	29
Appendix A: User Manual	30
Appendix B: Administrator Manual	31
Appendix C: Information / Promotional Material	32
Reference and Bibliography	35
Index	37

List of Figures

1.1	Caption of first figure of first chapter	6
1.2	Caption of second figure of first chapter	7
2.1	Caption of first figure of second chapter	14
2.2	Caption of second figure of second chapter	22
2.3	Caption of third figure of second chapter	26
5.1	Caption of first figure of fifth chapter	49
5.2	Caption of second figure of fifth chapter	49

List of Tables

1.1	label of first table of first chapter	6
1.2	label of second table of first chapter	7
2.1	label of first table of second chapter	14
2.2	label of second table of second chapter	22
2.3	label of third table of second chapter	26
5.1	label of first table of fifth chapter	49
5.2	label of second table of fifth chapter	49

Chapter 1

Introduction

Chapter 1: Introduction

Introduction Hospital are the essential part of our lives, providing best medical facilities to people suffering from various ailments, which may be due to change in climatic conditions, increased work-load, emotional trauma stress etc. It is necessary for the hospitals to keep track of its day-to-day activities & records of its patients, doctors, nurses, ward boys and other staff personals that keep the hospital running smoothly & successfully. But keeping track of all the activities and their records on paper is very cumbersome and error prone. It also is very inefficient and a time-consuming process Observing the continuous increase in population and number of people visiting the hospital. Recording and maintaining all these records is highly unreliable, inefficient and error- prone. It is also not economically & technically feasible to maintain these records on paper. Thus, keeping the working of the manual system as the basis of our project. We have developed an automated version of the manual system, named as "Hospital Management System". The main aim of our project is to provide a paper-less hospital up to 90%. It also aims at providing low-cost reliable automation of the existing systems. The system also provides excellent security of data at every level of user- system interaction and also provides robust & reliable storage and backup facilities.

Background

A Hospital is a place where Patients come up for general diseases.

Hospitals provide facilities like: -

- Consultation by Doctors on Diseases.
- Diagnosis for diseases.
- Providing treatment facility.
- Facility for admitting Patients (providing beds, nursing, medicines etc.)
- Immunization for Patients/Children.

Various operational works that are done in a Hospital are: -

- Recording information about the Patients that come.
- Generating bills.
- Recording information related to diagnosis given to Patients.
- Keeping record of the Immunization provided to children/patients.
- Keeping information about various diseases and medicines available to cure them.

The work is done as follows: -

- Information about Patients is done by just writing the Patients name, age and gender. Whenever the Patient comes up his information is stored freshly.
- Bills are generated by recording price for each facility provided to Patient on a separate sheet and at last they all are summed up.
- Diagnosis information to patients is generally recorded on the document, which contains Patient information. It is destroyed after some time period to decrease the paper load in the office.
- Immunization records of children are maintained in pre-formatted sheets, which are kept in a file.

- Information about various diseases is not kept as any document. Doctors themselves do this job by remembering various medicines. All this work is done manually by the receptionist and other operational staff and lot of papers are needed to be handled and taken care of.

Motivations and Challenges

Few Challenging problems that you face while implementing HMS

Human Challenges:

While considering the human factors, they include

- Awareness of HMS advantages & importance.
- In general, Experience, and knowledge of using computer applications.
- Impressions and Beliefs regarding HMS and making use of them efficiently.

The researchers in a study have identified three main human challenges that are being a barrier in adopting the HMS in healthcare industries namely.

- Shortage of professional healthcare faculty who have in-depth knowledge of HMS and other similar technologies.
- Poor acceptance of HMS Software.
- Shortage of health informatics professionals who are well capable of establishing and implementing the techniques.

Another few significant problems for unsuccessful HMS implementation includes.

- Healthcare specialists nature,
- the lack of time allowed training and learning on making use of the HMS,
- the lack of healthcare professional support, motivation, and more.

Many studies illustrate that HMS needs more effort, time, adds more works. There are high chances of HMS to get slow down and cause a decrease in productivity.

Technical Challenges:

Other few technical challenges that fail the implementation of HMS in the healthcare industry includes Networks and computer have different maintenance problems, lack of no standards for Data entry and data retrieval, difficulties in training users technically to use HMS.

Goals and Objectives

Goals:-

1-User friendly

2-Simple fast

3-Low cost and effective

4-It deals with the collection of patient's information

5- Diagnosis

Objective:-

1) Define hospital

2) Recording information about the Patients that come.

3) Generating bills.

4) Recording information related to diagnosis given to Patients.

5) Keeping record of the Immunization provided to children/patients.

6) Keeping information about various diseases and medicines available to cure them.

These are the various jobs that need to be done in a Hospital by the operational staff and Doctors. All these works are done on papers

Literature Review/Existing Solutions

Hospitals currently use a manual system for the management and maintenance of critical information. The current system requires numerous paper forms, with data stores spread throughout the hospital management infrastructure. Often information is incomplete or does not follow management standards. Forms are often lost in transit between departments requiring a comprehensive auditing process to ensure that no vital information is lost. Multiple copies of the same information exist in the hospital and may lead to inconsistencies in data in various datastores.

Gap Analysis

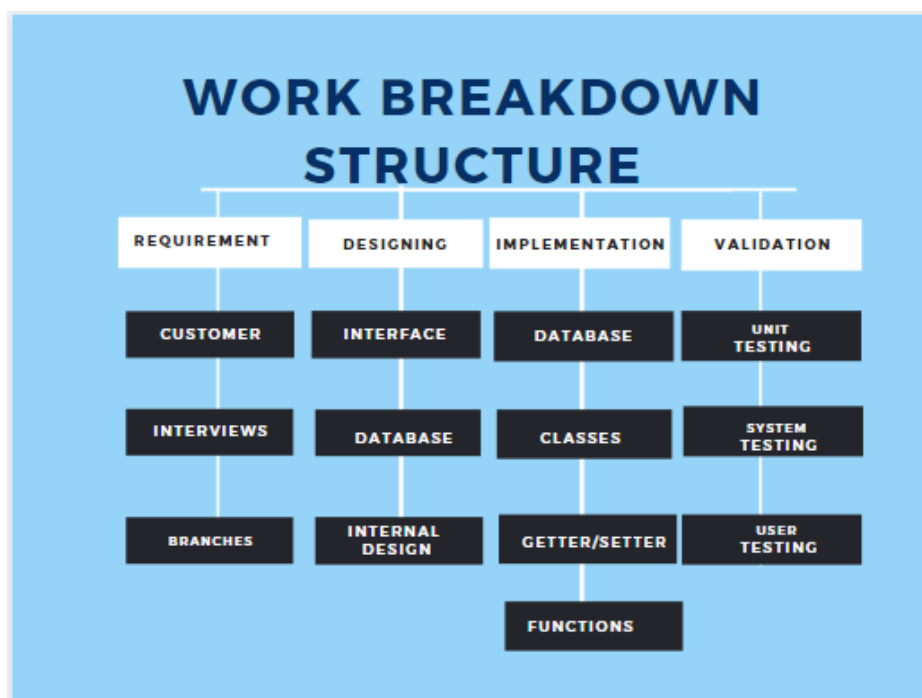
Gap analysis of all modules was conducted, and the gaps were identified in OPD, IP billing, IP management, radiology and OT management. In OPD module the entry of mobile number should be made mandatory, source of the patient should be made mandatory. In IP management VIP patients, should be marked separately, cover letter for insurance company to be typed in the system. In IP billing co-payment isn't calculated automatically nor are the emergency charges for surgeries, inter unit transfers cannot be done. In radiology module, the impressions aren't in bold. In OT module, which scrub nurse washes for which case isn't mapped, booking vs actual cases done isn't mapped either.

Proposed Solution

The Hospital Management System is designed for any hospital to replace their existing manual paper-based system. The new system is to control the information of patients. Room availability, staff and operating room schedules and patient invoices. These services are to be provided in an efficient, cost-effective manner, with the goal of reducing the time and resources currently required for such tasks.

Project Plan

Work Breakdown Structure



Roles & Responsibility Matrix

DELIVERABLE	FAIQ	NEHA
PROJECT PLANNING	A	R
REQUIREMENTS	I	S
DEVELOP OPTIONS	R	R
FINALIZE SOLUTION	RASI	RASI
END USER TRAINING-	R	S

Chapter 2

Software Requirement Specifications

Chapter 2: Software Requirement Specifications

1.

Introduction

Purpose

The Software is for the automation of Hospital Management.

- It maintains two levels of users
 1. Administrator Level (Handled through web server)
 2. User Level
- The Software includes Maintaining Patient details.
- Providing Prescription, Precautions and Diet advice.
- Providing and maintaining all kinds of tests for a patient

Document Conventions

- HMS: Hospital Management System
- LM: Login Module
- RUM: Registered Users Module
- NUM: Normal Users Module
- AM: Administrator Module
- SM: Server Module
- DB: Database
- DDB: Distributed Database
- ER: Entity Relationship

Intended Audience and Reading Suggestions

This document is to be read by the development team, the project managers, marketing staff, testers and documentation writers. Our stakeholders, company manufacturing associated hardware, company providing embedded operating system, shareholders, and distributors who markets the finished product, may review the document to learn about the project and to understand the requirements. The SRS has been organized approximately in order of increasing specificity. The developers and project managers need to become intimately familiar with the SRS

Product Scope

Currently Chap Medicare 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. 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. As the current system is a file based one, management of the hospital has to put much effort on securing the files. They can be easily damaged by fire, insects and natural disasters. Also could be misplaced by losing data and information. Limited storage space of the files is another issue that they currently face when the management is manually done. There occurs an issue with the organization of data information and schedules and running the process methodically which leads to the manual system malfunctioning.

If we want to check a previous record of a patient or other detail. Management will be in a great problem. It's a tough and time taking process to search for a record in a file. Keeping files takes much time and waste much precious man hours. The tendency of making mistakes is high when functioning manually. It is hard to rely on the accuracy of calculations done manually too. It is more obvious for problems to a rise. We plan to overcome the above mentioned problems through a standalone application, to manage the major functions of the Hospital System. The hospital management system we are going to implement will be covering all basic processes done in the hospital. It would handle Employee and Salary management, Patient and

management, Theatre and ward Management, Laboratory management, Transport Management, Pharmacy Management, OPD management and emergency management. In OPD unit, with the OPD and Consultation Management system, the manual doctors channeling details entering process has automated. So the staff does not need to spend time on writing appointment records and updating them in files. And the number issuing process becomes easier and efficient. And keeping the track of patients and medical prescription details allow them to review the details whenever needed. Implementing the Employee & Salary Management system we record Attendance, shifting of employees, their holidays and consulting doctors schedules. And the system performs calculations of EPF/ETP and OT hours, Shares of consulting doctors and do the payroll part. This is more efficient and more reliable and accurate as the system avoids incorrect data inputs whenever they are occurred. The proposed system for Mini-theatre & Ward Management records details of surgeons, in- patients who are assigned for Wards, different ward. The system developing for Emergency Treatment & Equipment Management automate the current processes of patient registering and propose a better way to keep records of equipment and medicines related to the emergency treatment unit in a computer based filesystem. The proposed system provides a simple interface to gather quick information of the patient and record them. So that in a case of special request by an external party, details of the patient history can be accessed and viewed. The Pharmacy Stock Management system is responsible for proper management of drug stocks, pop ups the notifications of expiry dates of stock items. This system allow the client to keep track of medicine stocks, notify the personals when the stock is running out of items and help the manager to reduce stock levels and eliminate stock waste. The Lab Management System records sample collection details, keep track of lab resources and participate in lab reports conclusion generating. This increases the accuracy of report generating process and save a lot of time in manual handling of report details and improve the efficiency and the productivity of

the organization. Our goal is to make a client satisfied system by full filling the client requirements and improving the current manual system with client needs which are not even particularly mentioned but what we have suggested by analyzing and got approved by

the client to improve the standard of the system and of the management of the hospital to its utmost. The scope of the SRS is basically for everyone involved to understand and have an idea about how and what is going to happen in the system. Using ER, User Case diagrams and GUI's which are in a form where everyone can understand. How the interfaces finally appear. To have an idea about the new employees that the client might have to get employed when the system is implemented

Overall Description

Product Perspective

The various system tools that have been used in developing both the front end, back end and other tools of the project are being discussed in this section.

FRONT END:

Java language is used to implement the frontend.

- **JAVA:**

Java is a language used to design User (GUI) on the web application.

BACK END:

The back end is implemented using MYSQL which is used to design the databases.

- **MYSQL:**

MySQL is the world's second most widely used open source relational database management system (RDMS). The SQL phrase stands for structured query.

- **PHP:**

PHP is a server-side scripting language designed for web development but also used as a general purpose programming language. PHP code is interpreted by a web server with a PHP processor module, which generates the resulting web page: PHP commands can be embedded directly into an HTML source document rather than calling an external file to process data. We will use php with Laravel framework.

Product Functions

The system will allow access only to authorized users with specific roles (Administrator, Operator). Depending upon the user's role, he/she will be able to access only specific modules of the system. A summary of the major functions that the software will perform: A login facility for enabling only authorized access to the system. When a patient is admitted, the front-desk staff checks to see if the patient is already registered with the hospital. If he is, his/her Name is entered into the computer. Otherwise a new Patient ID is given to this patient.

User Classes and Characteristics (overall project management)

Admin

Admin has the full access to the system which means he is able to manage any activity with regard to the system. He is the highest privileged user who can access to the system.

Key functions:

Manage employees, patients and equipment

Allocate resources

Administer the charges

Generate reports

Manage doctors

Manage salaries

Employee

Interacts with the systems most often to supply service to customers

Keep track of patient details

Keep track of test details

Make ambulance reservations

Keep track of progress of patients

Maintain bill details

Manage inventory

Operating Environment

Software requirements

API 16: Android 4. 1 (Jelly Bean)

PHP 7.3.29

MySQL server

Hardware Requirements

(Dual/quad) Core processor

2GB Ram

16GB of hard disk space in terminal machines

1TB hard disk space in Server Machine

Design and Implementation Constraints

System is wirelessly networked with an encryption

System is only accessible within the hospital premises only.

Database is password protected.

Should use less RAM and processing power.

Each user should have individual ID and password.

Only administrator can access the whole system.

User Documentation

As a part of the system itself a user documentation is provided to the customers which gives an overview of the system. It will include the full description about the product and complete orderly followed steps to install the software. The users will get the opportunity to use the system without having any trouble. The user manual will include the email addresses to contact us in need. Tasks are listed alphabetically or logically grouped often using cross referenced indexes which helps the users to know exactly what sort of information they are looking for.

Assumptions and Dependencies

- It is assumed that one hundred compatible computers will be available before the system is installed and tested.
- It is assumed that Hospital will have enough trained staff to take care of the system.

External Interface Requirements

User Interfaces

Input from the user will be via keyboard input and mouse point and click. The user will navigate through the software by clicking on icons and links. The icons will give appropriate responses to the given input.

Hardware Interfaces

All components able to be executed on Android Mobile phones, personal computers with Windows OS platforms and other platforms like Linux, Unix.

(Dual/Quad) core android processor

Hard disk: 16 GB

RAM: 2 GB

Operating system: window

Hard disk :40 GB

RAM: 256 MB

Processor: Pentium(R)Dual-core CPU

Software Interfaces (web part)

All the interfaces will be HTML/PHP pages running within the internet browser. The SMS must integrate with the DB though SQL Interface. The system will be hosted in a web server running on Windows Server 2005.

HTML

PHP 7.3.29

MS SQL server 2005

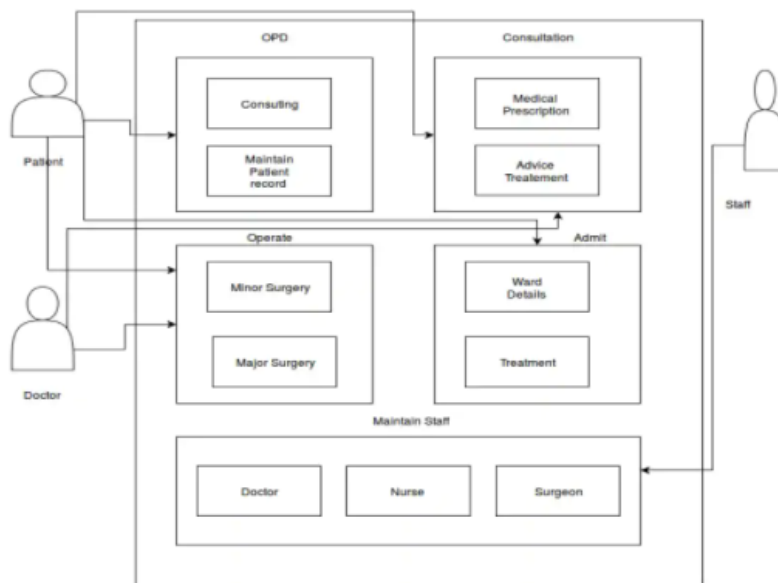
Communications Interfaces

This project can compatible with all platforms. Connections to the system will be over TCP/IP connection, project supports all types of web browsers. I have used database so my system can work offline.

- Window

System Features

System Architecture



The entire project mainly consists of 7 modules, which are:

1. Admin module
2. User module (patient)
3. Doctor module
4. Nurse module
5. Surgeon module
6. Laboratories module
7. Staff module

Description and Priority

Patient:

In patient module here, we can register the new patient, during registration we enter the basic information regarding patient. There are two types of patient one is inpatient and another is Outpatient. If patient is inpatient then we can check the availability of room in particular ward.

Appointment Scheduling:

In appointment scheduling we schedule the appointment for new patient in which we assign the date, time, department and doctor is available that time. If patient want particular doctor then we can search the doctors scheduling and available time for that doctor. Here we add the urgency and reminder to patient. We can also cancel the appointment of particular patient.

Admission:

In this module we can search the only admitted patient. Here we can update his details like prescription, notes and reports, measurement, birth details, pregnancies and we can cancel the particular admission.

Employee:

In this module we can register the new employee, for which we can enter the basic information about employee and his professional details.

Doctors:

In this module we can view the today's doctor on call schedule department-wise. Here we can create the duty plan of doctor and edit or update the duty plan of particular doctor. Here we can add/delete the doctor to particular department.

Operation Room:

Here we can search the patient who is gone through any operation and his detail information like operation date, surgeon, therapy, special notice, operation type, operation room number. Here we can also give the quick view of today's nurses on standby duty and we can create the duty plan for particular nurse.

Laboratories:

In this module we have to fill up the form and send the request to laboratory test. Here we can also see the pending request. We can also search the particular patient and view the laboratory information of particular patient.

Stimulus/Response Sequences

Admin module:

- manage department of hospitals, user, doctor, nurse, pharmacist, laboratorist accounts.
- watch appointment of doctors
- watch transaction reports of patient payment, Bed, ward, cabin status
- watch blood bank report
- watch medicine status of hospital stock
- watch operation report
- watch birth report

- watch diagnosis report
- watch death report

user module(patient):

- View appointment list and status with doctors
- View prescription details
- View medication from doctor
- View doctor list
- View operation history
- View admits history. like bed, ward, ICU etc.
- Manage own profile

Doctor module:

- Manage patient account opening and updating
- Create, manage appointment with patient
- Create prescription for patient
- Provide medication for patients
- Issue for operation of patients and creates operation report
- Manage own profile

Nurse module:

- Manage patient account opening and updating
- Allot bed, ward, cabin for patients
- Provide medication according to patient prescription
- Manage blood bank and update status
- Keep record of patient operation, baby born and death of patient
- Manage own profile

Pharmacist module:

- Maintain medicine
- Keep records of hospitals stock medicines and status
- Manage medicine categories
- Watch prescription of patient
- Provide medication to prescriptions

Laboratorist module:

- Watch prescription list

- Upload diagnostic report
- Preview of report files. like X-Ray images, CT scan, MRI reports
- Manage own profile

Accountant module:

- Create invoice for payment
- Order invoice to patient
- Take cash payment
- Watch payment history of patients
- Manage own profile

Functional Requirements

The software provides good graphical interface for the user any administrator can operate on the system, performing the required task such as create, update, viewing the details of the book. Allows user to view quick reports like Book Issues/Returned etc in between particular time. Stock verification and search facility based on different criteria.

Other Nonfunctional Requirements

Performance Requirements

The performance of our software is at its best when the following are regularly done:

- Password Management
- Regular Database Archiving
- Virus Protection

Safety Requirements

Humans are error-prone, but the negative effects of common errors should be limited. E.g., users should realize that a given command will delete data, and be asked to confirm their intent or have the option to undo

Security Requirements

Each member is required to enter an individual Username & password when accessing the software. Administrators have the option of increasing the level of password security their members must use. The data in the database is secured through multiple layers of Protection. One of those security layers involves member passwords. For maximum Security of your software, each member must protect their password.

Software Quality Attributes

The Quality of the system is maintained in such a way so that it can be very user-friendly. The software quality attributes are assumed as under:

- Accurate and hence reliable.

- Secured.
- Fast Speed.
- Compatibility.

Other Requirements

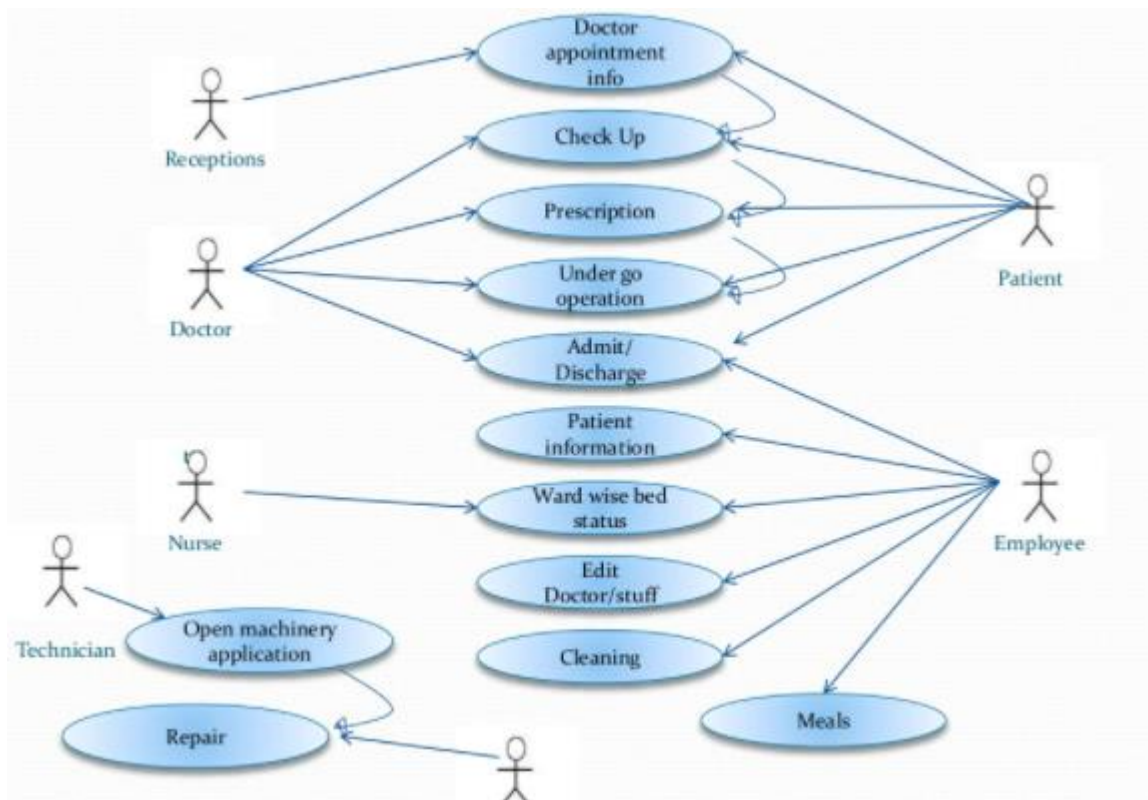
A degraded mode of operation should be possible in which each system can operate independently of central scheduling. The software shall have failure and error recognition codes acting as a safety net, thus keeping the software from performing any major catastrophic functions.

Chapter 3

Use Case Analysis

Chapter 3: System Analysis

Use Case Model



Use Case Descriptions

Receptionist:

USE CASE NAME	Appointment/ Reception
Priority	Mid
Primary Business Actor	Patient
Other participating actor	Physician, Pathologist
Other interested stakeholders	
Description	Patients are refer for physician or else where need after successfully taking all the data.
Precondition	Need an appointment

Patient:

USE CASE NAME	Treatment
Priority	High
Primary Business Actor	Patient
Other participating actor	Nurse, Receptionist, Physician
Other interested stakeholders	Pathologist
Description	A patient comes to a doctor and he prescribe patient as he needs. Sometimes he refer for pathological test or sugary.
Precondition	Need an appointment

Physician:

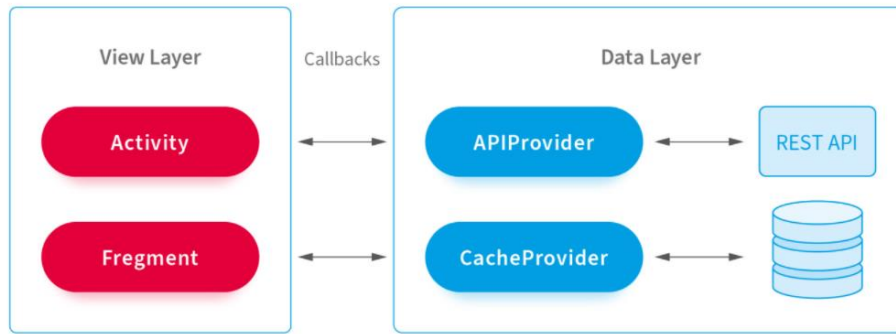
USE CASE NAME	Prescribe
Priority	High
Primary Business Actor	Patient
Other participating actor	Nurse, Receptionist
Other interested stakeholders	Pathologist
Description	A physician always for treatment a patient in bad or emergency condition. Sometimes he refer them to consultant or surgery.
Precondition	Need an appointment

Chapter 4

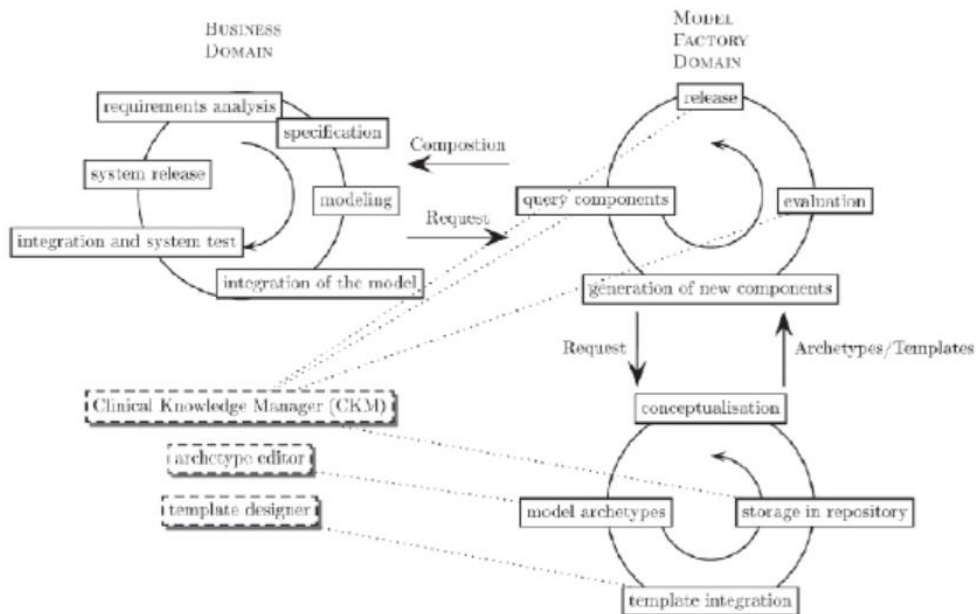
System Design

Chapter 4: System Design

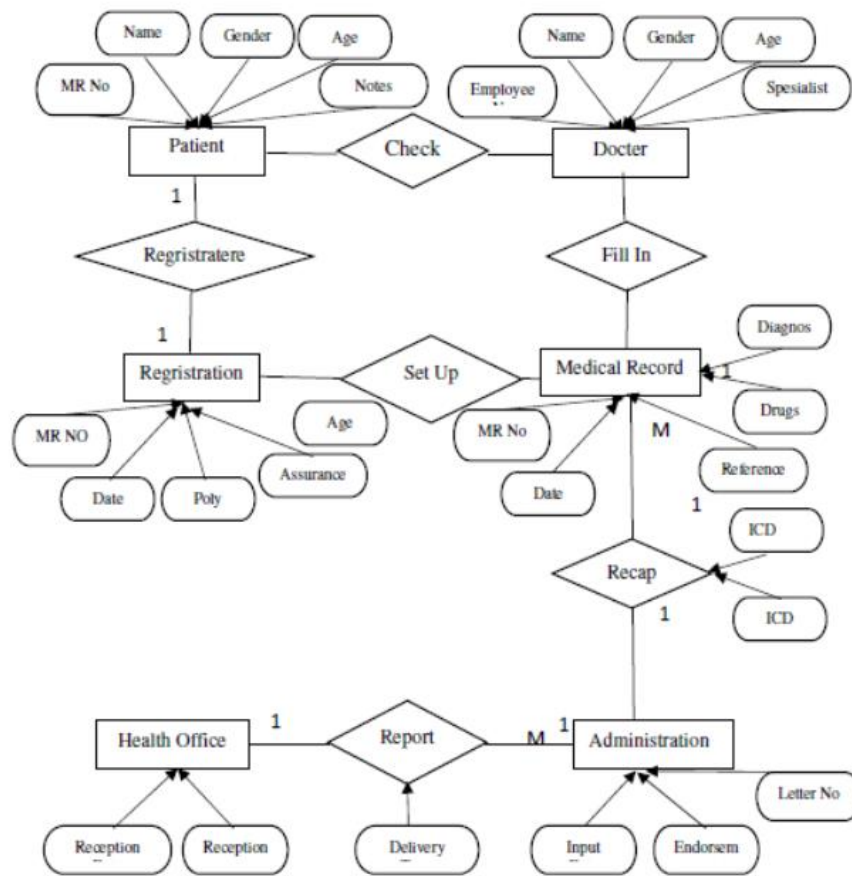
Architecture Diagram



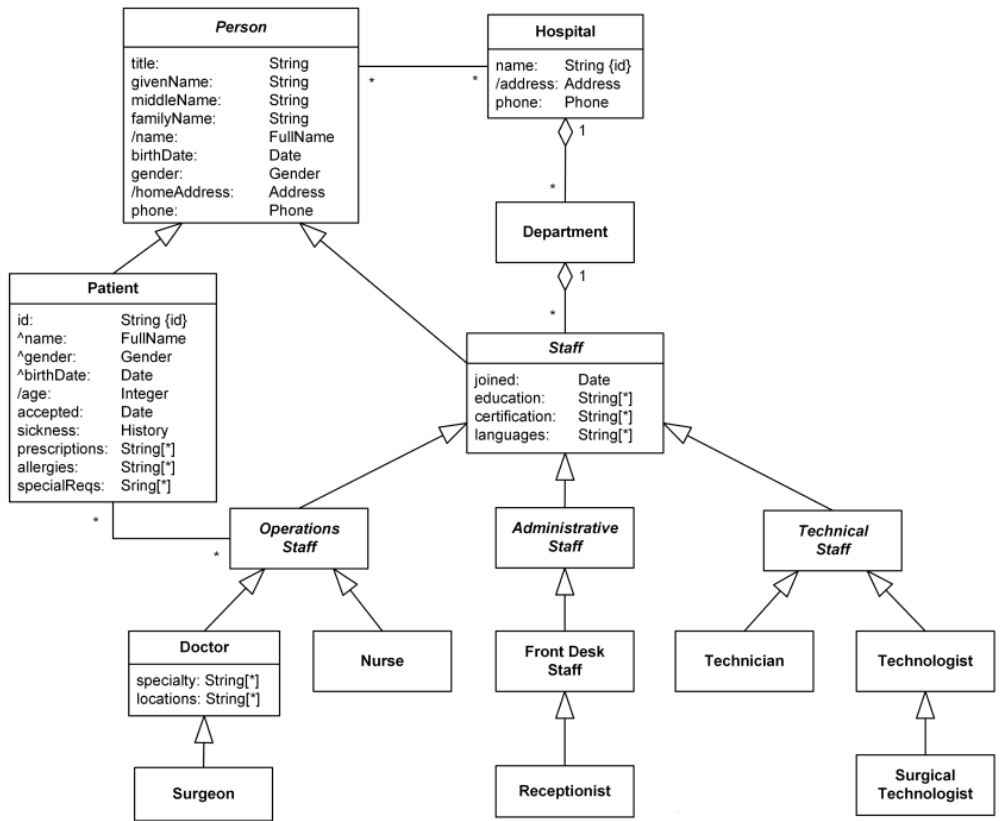
Domain Model



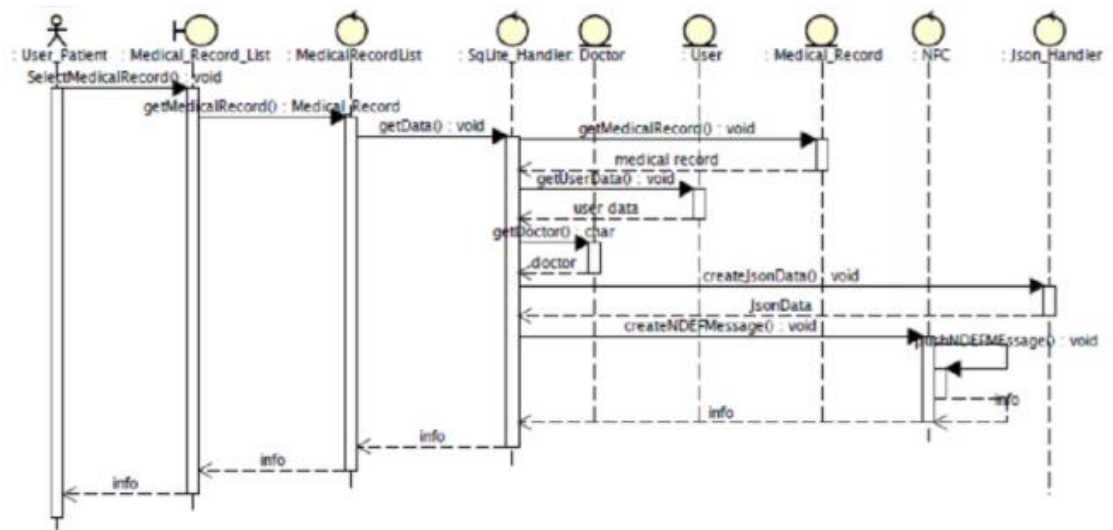
Entity Relationship Diagram with data dictionary



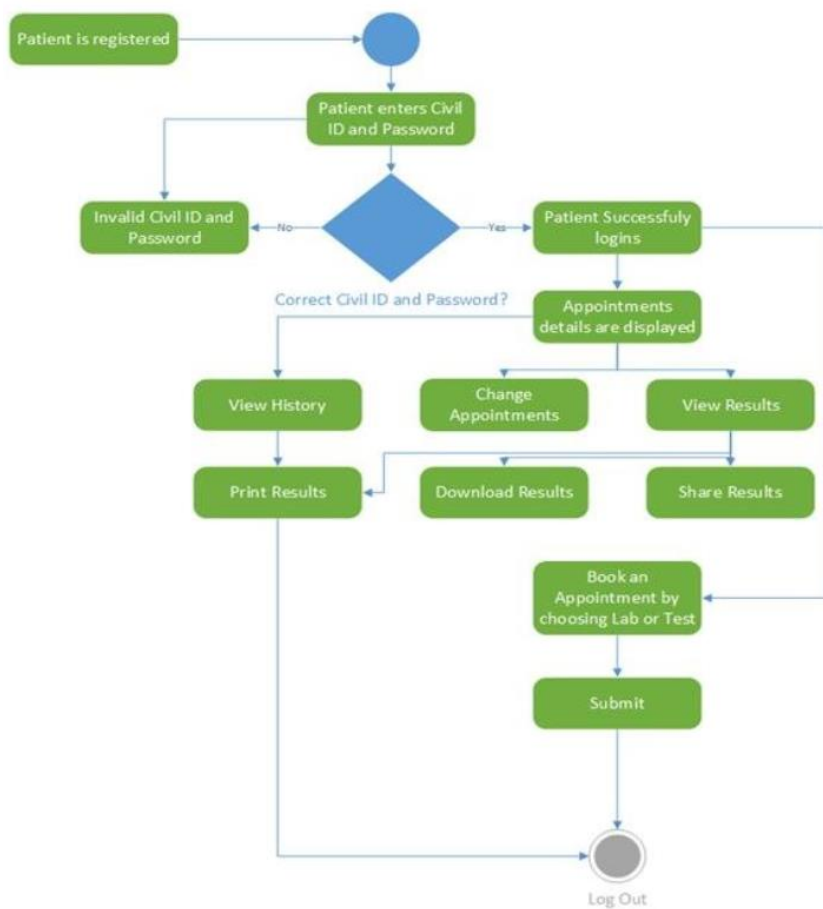
Class Diagram



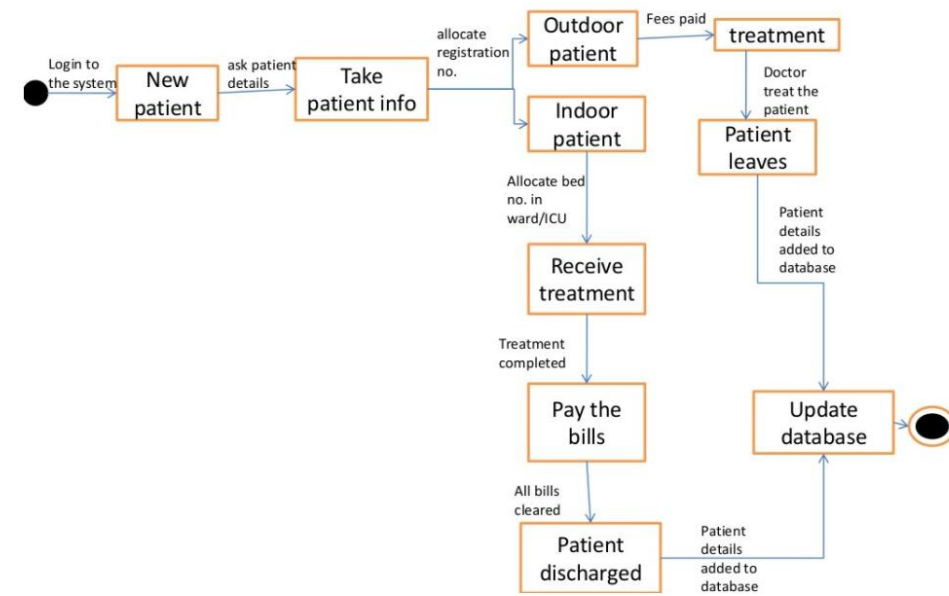
Sequence / Collaboration Diagram



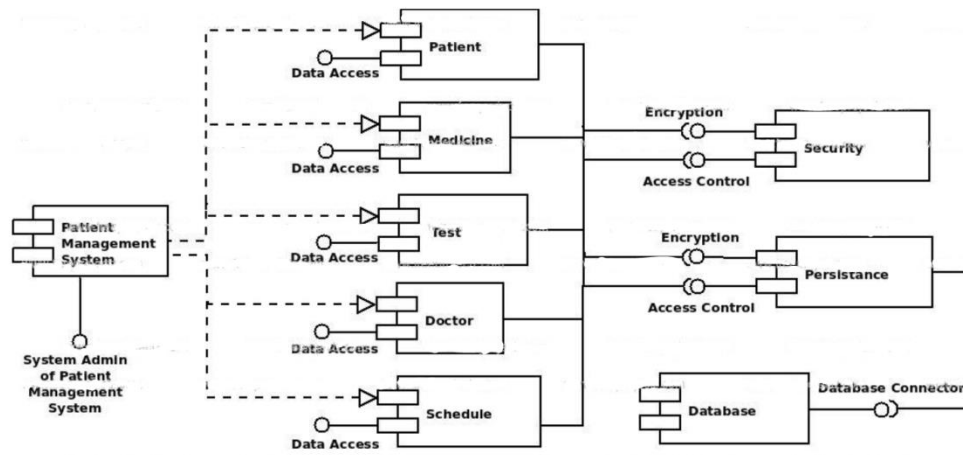
Activity Diagram



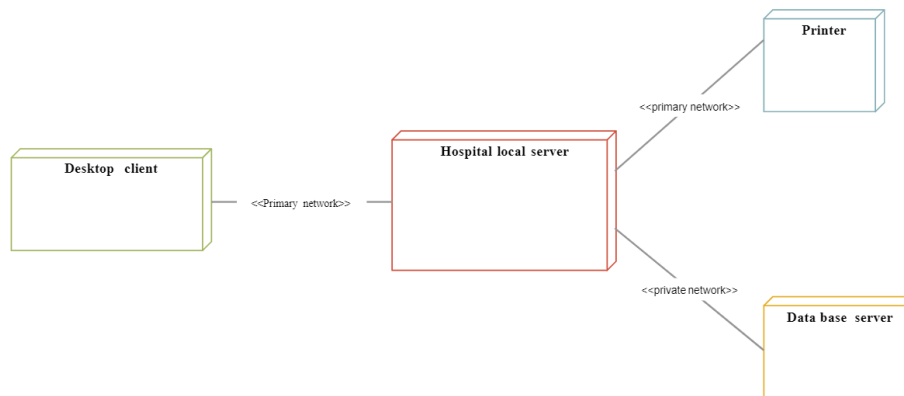
State Transition Diagram



Component Diagram

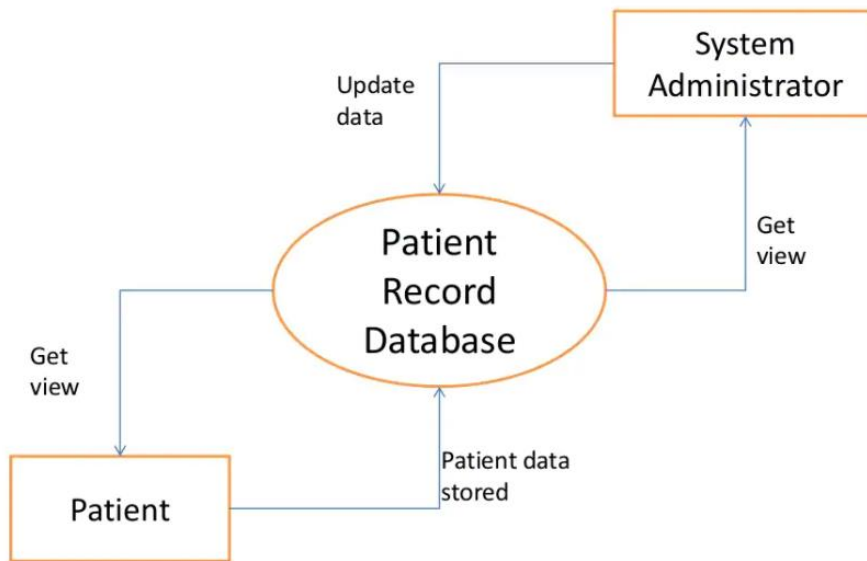


Deployment Diagram

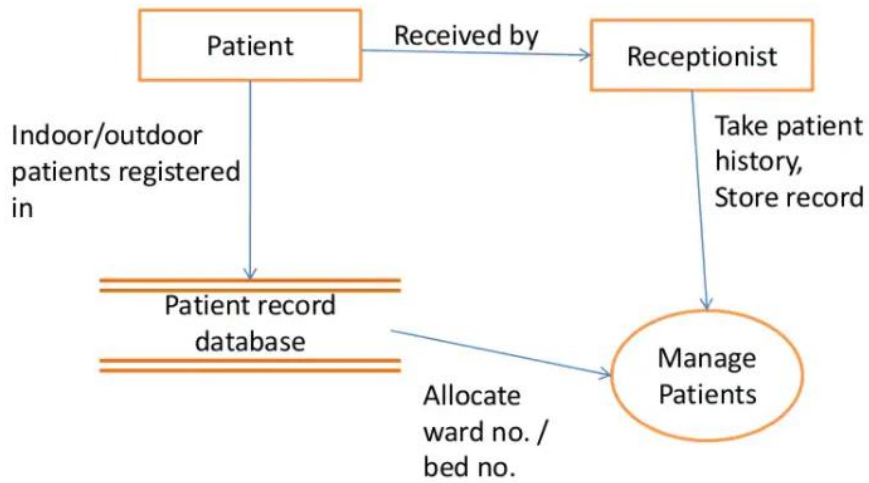


Data Flow diagram [only if structured approach is used - Level 0 and 1]

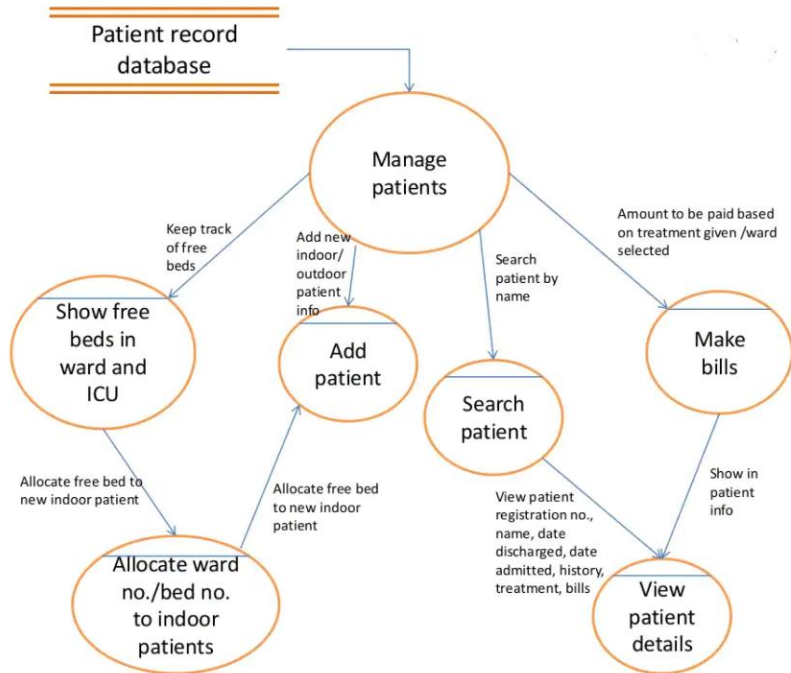
Level 0



Level 1



Level 2



Chapter 5

Implementation

Chapter 5: Implementation

[Paragraph Text 12 pt, Calibri, 1.5 Line Spacing, Justified]

[Between 4 to 8 lines describe what is this chapter all about]

Important Flow Control/Pseudo codes

[Paragraph Text 12 pt, Calibri, 1.5 Line Spacing, Justified]

Components, Libraries, Web Services and stubs

[Paragraph Text 12 pt, Calibri, 1.5 Line Spacing, Justified]

Deployment Environment

[Paragraph Text 12 pt, Calibri, 1.5 Line Spacing, Justified]

Tools and Techniques

[Paragraph Text 12 pt, Calibri, 1.5 Line Spacing, Justified]

Best Practices / Coding Standards

[Paragraph Text 12 pt, Calibri, 1.5 Line Spacing, Justified]

Version Control

[Paragraph Text 12 pt, Calibri, 1.5 Line Spacing, Justified]

Employee:

USE CASE NAME	Meals, Cleaning & Allotment
Priority	Mid
Primary Business Actor	Patient, Physicians
Other participating actor	Other's employer
Other interested stakeholders	
Description	Patient come to the hospital and will get their services in many ways like having meals medicines etc. Other employer clean the hole hospital daily as the system running best possible way.
Precondition	Need an appointment

Break]

[Text Wrapping