INSTITUTE FOR ADVANCED COMPUTING
AND SOFTWARE DEVELOPMENT AKURDI, PUNE

Documentation On

"ONLINE HOSPITAL MANAGEMENT SYSTEM (OHMS)"

PG-DAC SEPT2021

Submitted By:

Group No: 71

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Table of Contents

List of Figures

1. 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 doctors and patients 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 "Online 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.

Document Purpose:

OHMS was introduced to solve the complications coming from managing all the paper works of every patient associated with the various departments of hospitalization with confidentiality. HMS provides the ability to manage all the paperwork in one place, reducing the work of staff in arranging and analyzing the paperwork of the patients. HMS does many works like:

1. Book appointments
2. Maintain the medical records of the patient
3. Maintain the contact details of the patient
4. Keep track of the appointment dates
5. Save the insurance information for later reference
6. Tracking the bill payments

Problem Statement:

Existing Hospital Management System is based on our traditional way keeping records and details on paper and registers. These Access of these details and papers are not granted to common member in absence of the authority. It is hard to manage all the society system with pen and paper. It gets really hard to maintain the records and then keep track of past records. Hence this system is proposed to overcome the flaws of the existing system and giving power to the admin of the society so that he/she will be able to manage the society easily.

Product Scope:

The purpose of the OHMS is providing ease to user and hospital team also to create a convenient and easy-to-use application for hospital and user. In this application availability status of doctors and number of beds available in hospital will be managed. In this application user will be able to book his appointment. The system is based on a relational database having records of hospital team and appointment functions. We will take some hospitals information in our database server. This application indirectly saves the time and money of user.

- Information about Patients
- Bills are generated by recording price
- Diagnosis information to patients is generally recorded on the document
- Immunization records of children are maintained
- Information about various diseases is not kept as any document

Aims & Objectives:

Specific goals are:

- To produce a user friendly web-based system that allow the hospitals to keep record of each patient and doctors availability status up to date and manage the appointments on online basis.
- Admin can add hospitals update existing hospitals and this application help admin to analyze the user/ patient's feedback and suggestion to owners and provide functionalities to its role.

2)Overall Description

2.1)Product Perspective:

2.1.1 Existing system function:

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 doctors and patients 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 "Online 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.

PROPOSED SYSTEM

Product functionality:

1. **Check Doctors Status**
   a)The system will show the list of the registered Hospitals & Doctors.
   b) The system will allow Hospital staff to update the Doctor availability status.

2. **Book/Cancel Appointment**
   a) Patient can apply for appointment that request goes to Hospital.
   b) Based on Doctors Availability, Appointment option will be provided.
   c) Appointment will be approve/cancelled by Hospital staff or by Patient if needed.

3. **Show Bed Availability**
   - Patient will get all the information like number of beds available in hospital and that count will be updated by hospital staff.

2.2) Benefits of Hospital Management System :-

Some of the top benefits of implementing an HMS are role-based access control, data accuracy, revenue management, appointment booking, overall cost reduction, and data security.

2.3) Users and Characteristics:

Admin module

- Manage department of hospitals, user, doctor
- Watch appointment of doctors.
- Watch transaction reports of patient payment.

User Module (Patient)

- View appointment list and status with doctors
- View prescription details
- View medication from doctor
- View doctor list
- View operation history
- View admit 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

2.4) Operating Environment:

Server Side:

Hardware platform:

1. **Processor:** Intel core i5, with clock speed of 2.0 GHz
2. **Hard Disk:** Free Disk space of above 1GB.
3. **RAM:** 1 GB or above

Software platform:

1. **Front-end:** HTML, CSS, Bootstrap
2. **Database:** MySQL
3. **Back-end:** Java Spring boot API.

Supported tools:

1. MySQL Workbench, Spring Tool Suite

Client Side (minimum requirement):

1. **Processor:** Intel Dual Core
2. **HDD:** Minimum 80GB Disk Space
3. **RAM:** Minimum 1GB
4. **OS:** Windows 7, Linux

2.5) Design and Implementation Constraints:

1. User interface is only in English. No other language option is available.
2. User can log-in only with his assigned user-name, password
3. Limited to HTTP/HTTPS

Assumptions and Dependencies:

- **Assumptions:**
  1.There is an active internet connection with the system.
  2.The system has internet browser installed.
  3.User knows the English language, as the user interface will be provided in English.

- **Dependencies:**
  1. There is a need to update Doctors status.
  2.There is a need of give appointments to patient/user.

3) Requirement Specification

3.1)External Interface Requirements:

User Interfaces:
1. All the users will see the same page when they enter in this website. This page asks the users a username and a password.

2.After being authenticated by correct username and password, user will be redirect to their corresponding profile where they can do various activities.

3. The user interface will be simple and consistence, using terminology commonly understood by intended users of the system. The system will have simple interface, consistence with standard interface, to eliminate need for user training of infrequent users.

Hardware Interfaces:
1.No extra hardware interfaces are needed.

2.The system will use the standard hardware and data communication resources.

3.This includes, but not limited to, general network connection at the server/hosting site, network server and network management tools.

Application Interfaces:

OS: Windows 7 and above, Linux
Web Browser: The system is a web-based application; clients need a modern web browser such as Mozilla Firebox, Internet Explorer, Opera, and Chrome. The computer must have an Internet connection in order to be able to access the system.

Communications Interfaces:
1.This system uses communication resources which includes but not limited to, HTTP protocol for communication with the web browser and web server and TCP/IP network protocol with HTTP protocol.

4)System Design

4.1)Use case Diagram

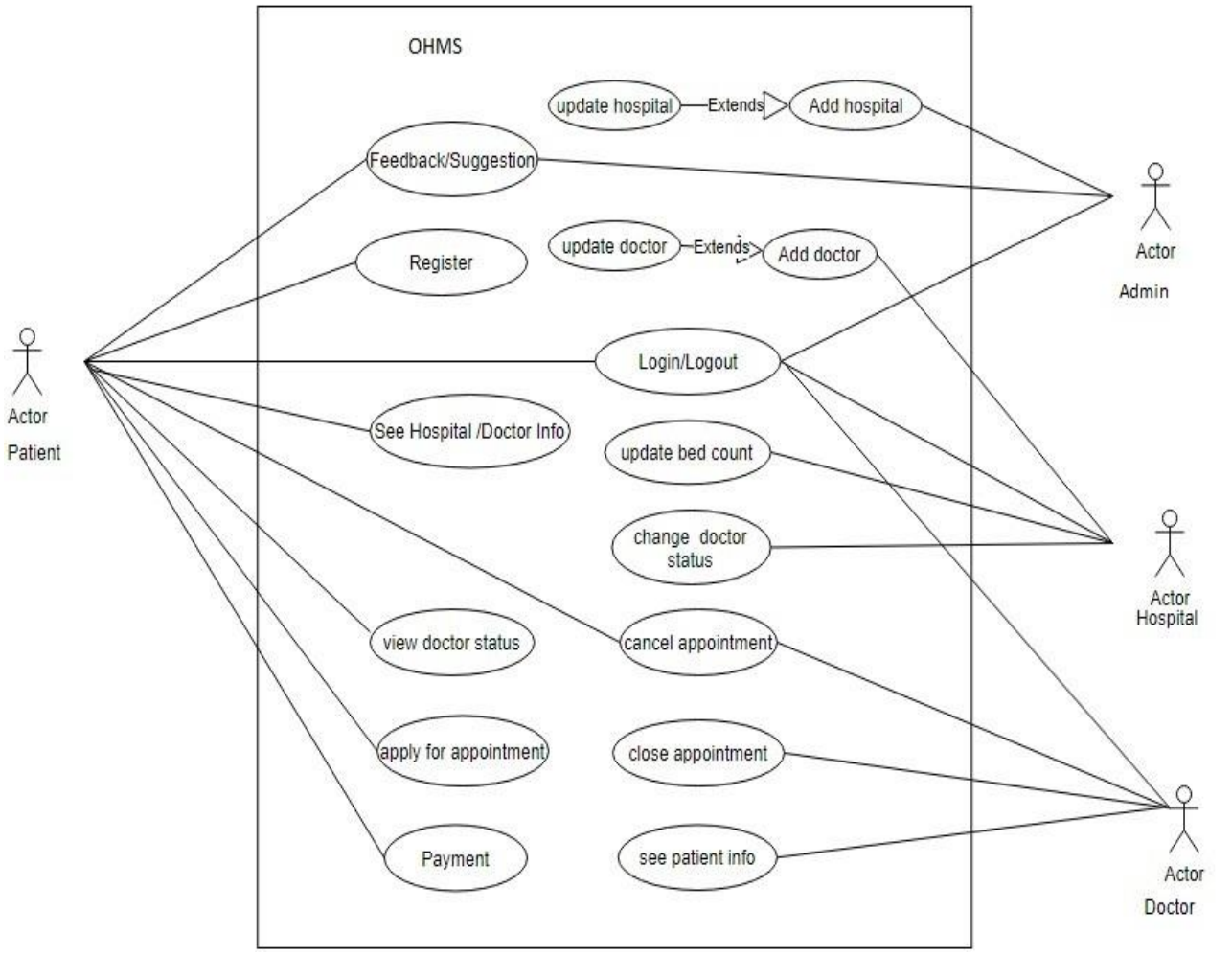
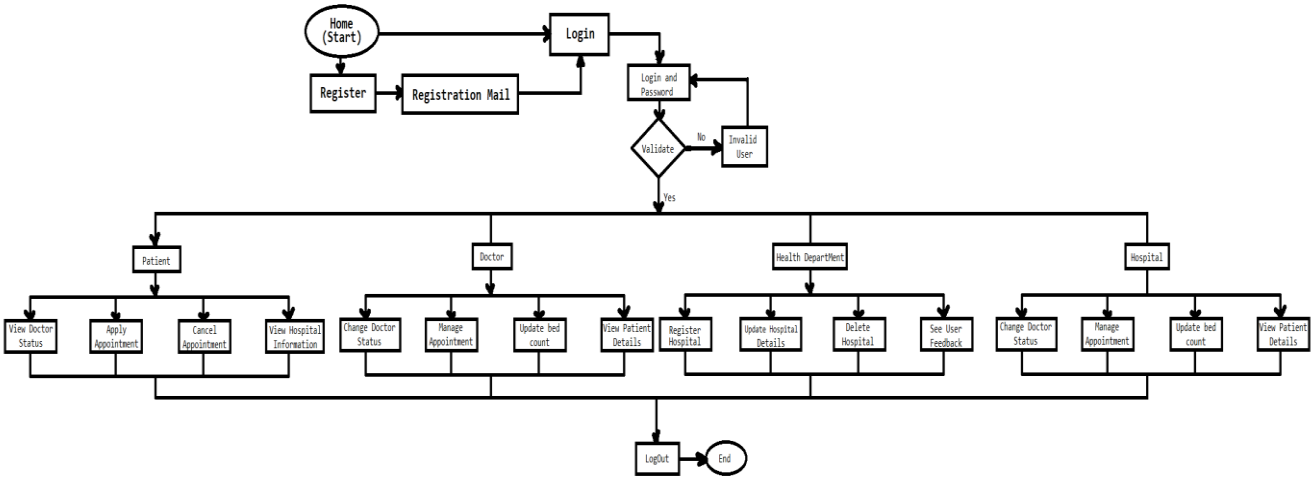
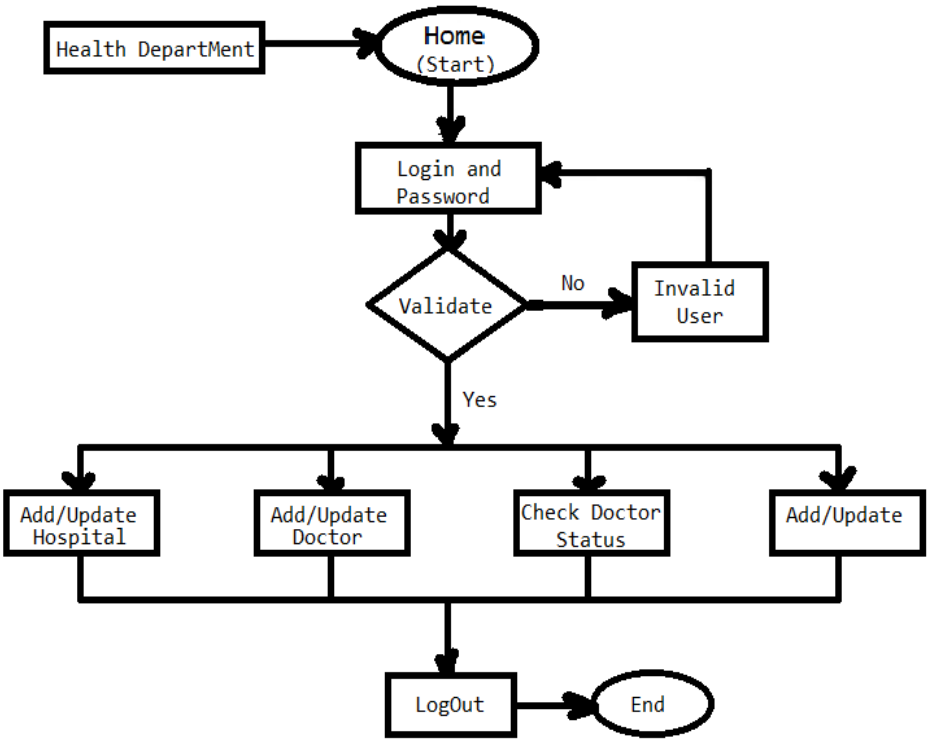


Figure 1:Usecase Diagram

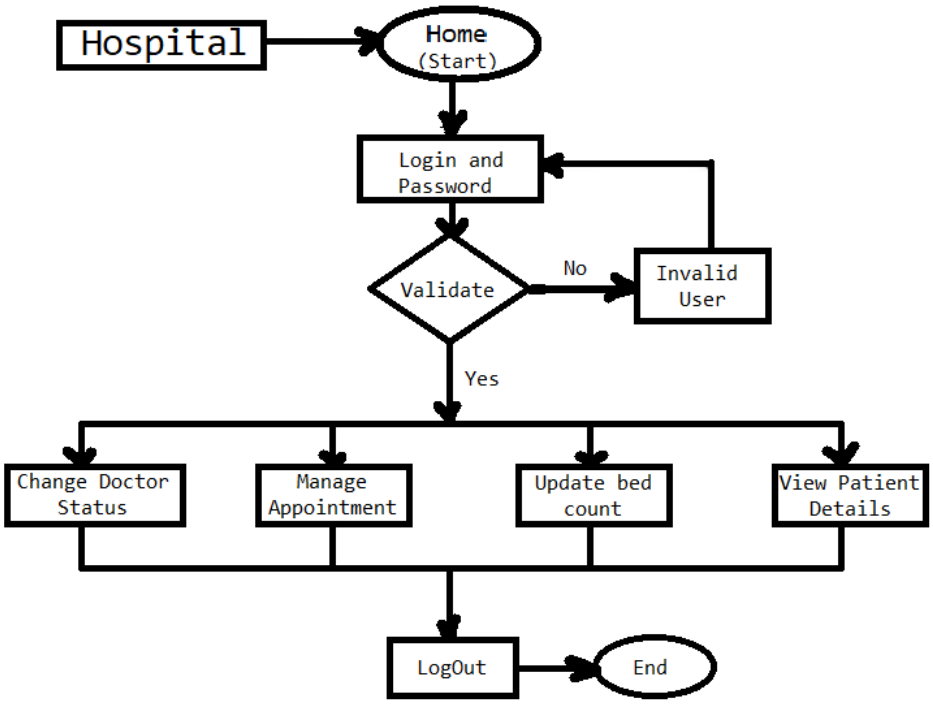
4.2)Page navigation Diagram



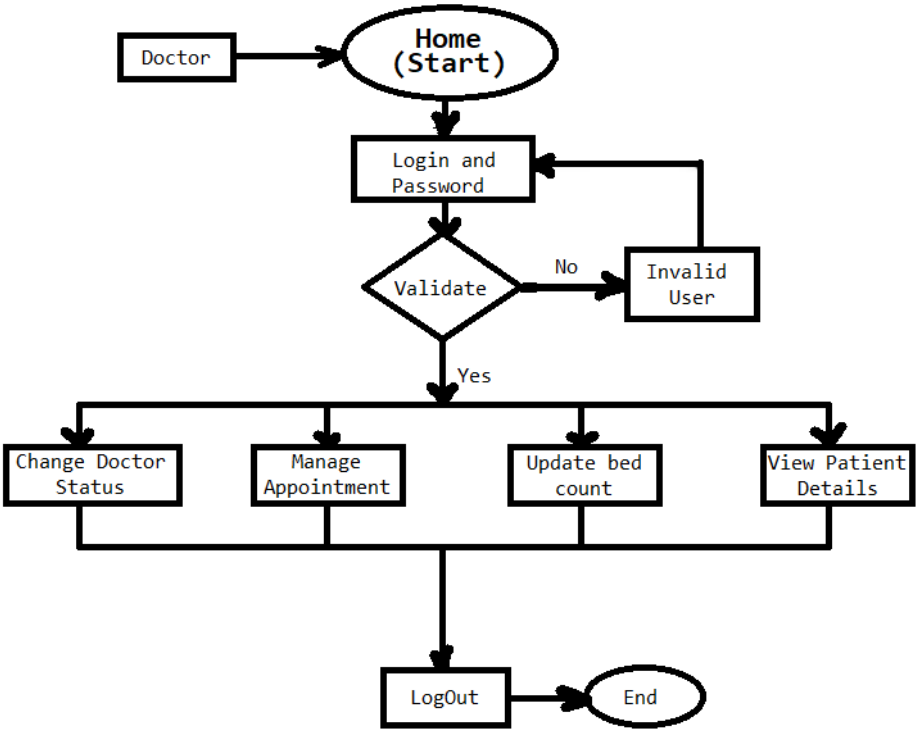
4.2.1) <u>For Admin</u>



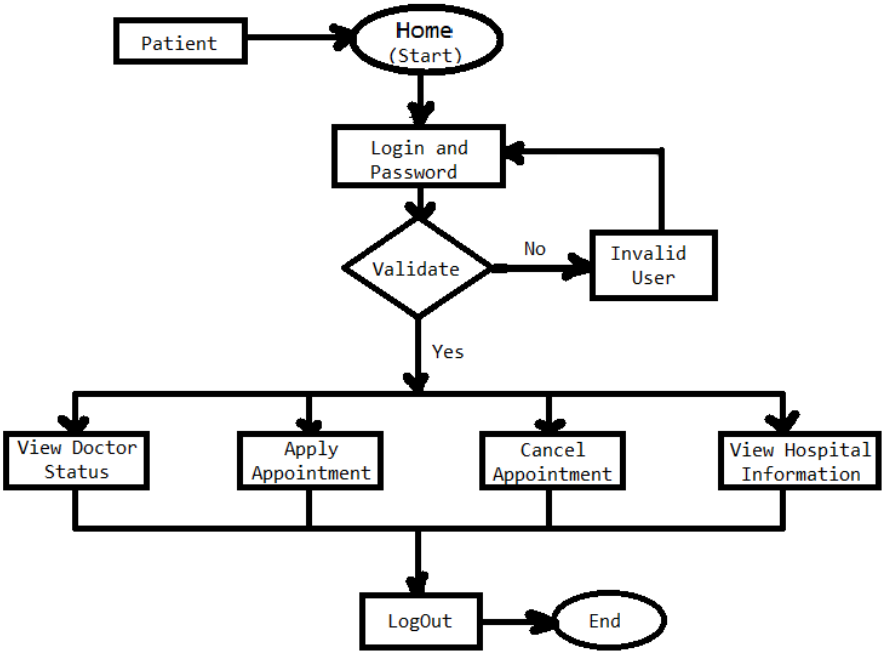
4.2.2) For Hospital:



4.2.3) For Doctor

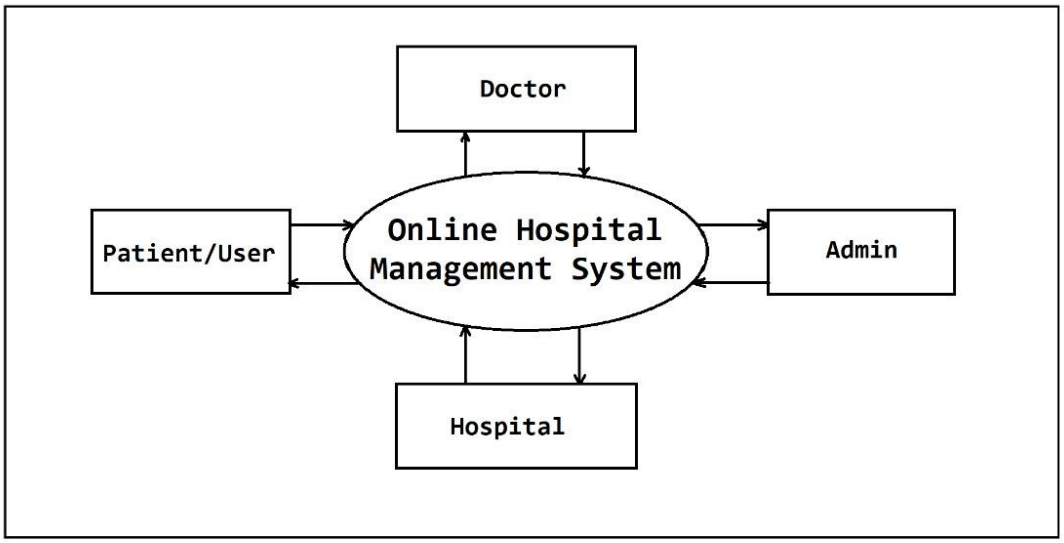


4.2.4) For User (Patient)



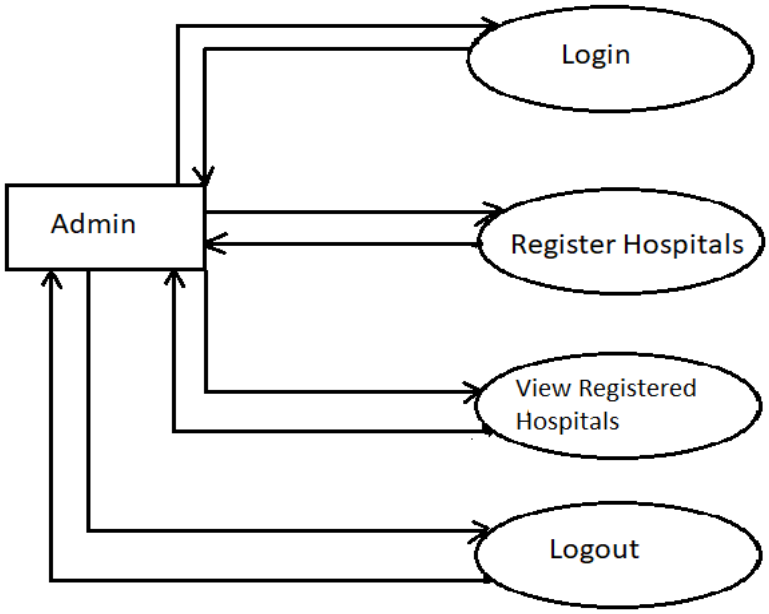
4.3)Data Flow Diagram:

4.3.1) Level 0

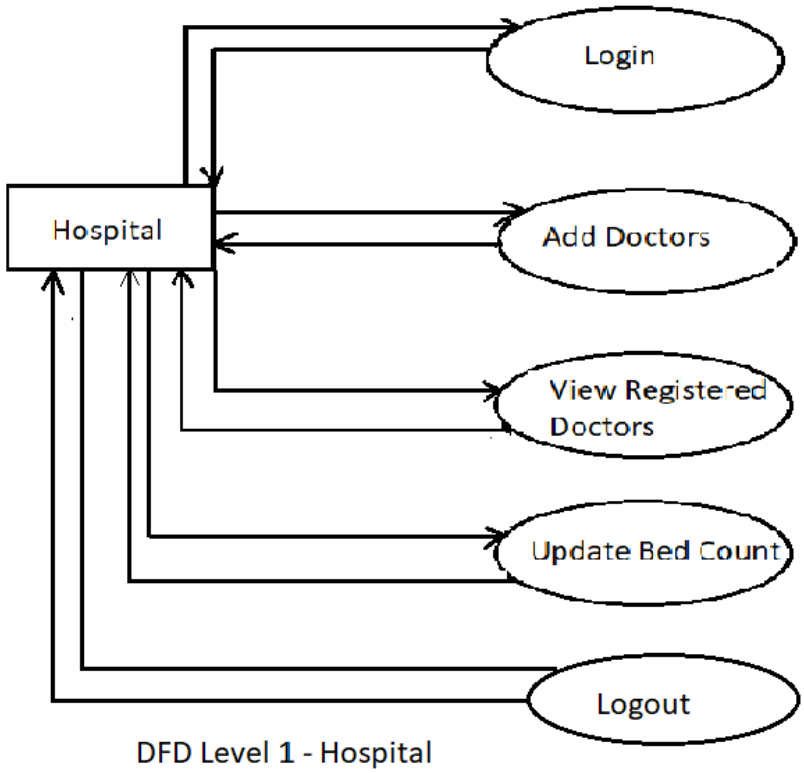


DFD 0 Level – Online Hospital Management System

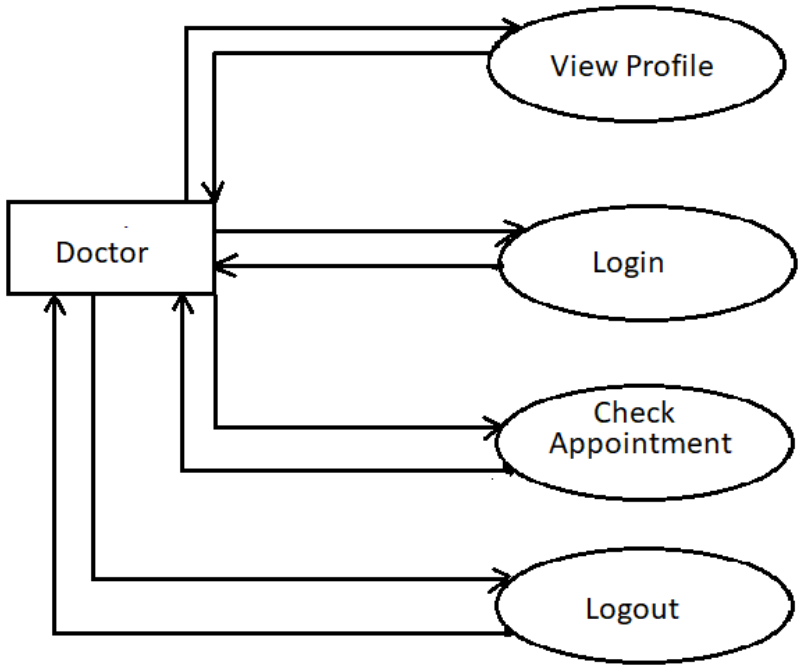
4.3.2) Level 1



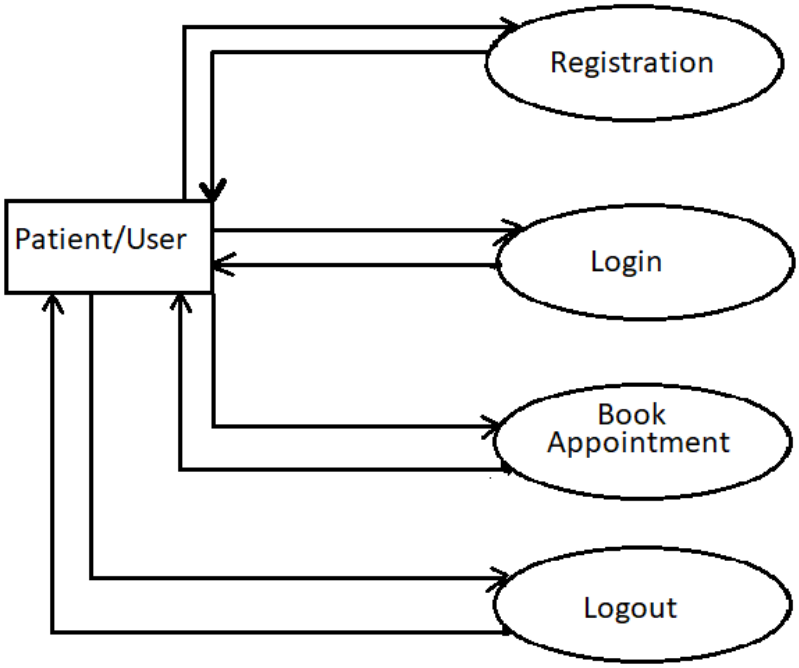
DFD Level 1 - Admin



DFD Level 1 - Hospital

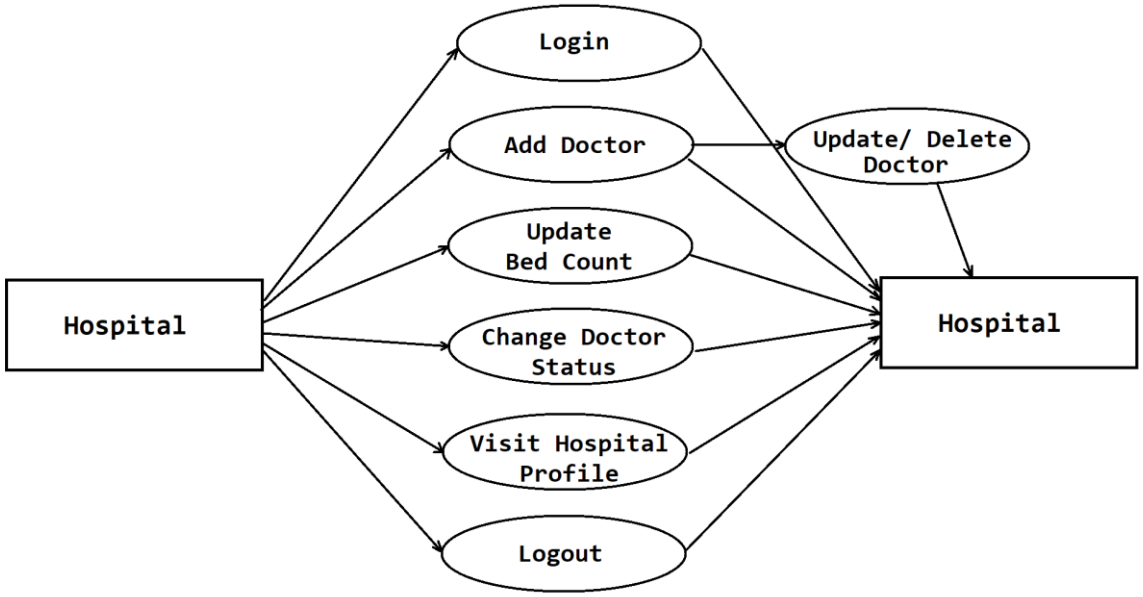


DFD Level1 - Doctor

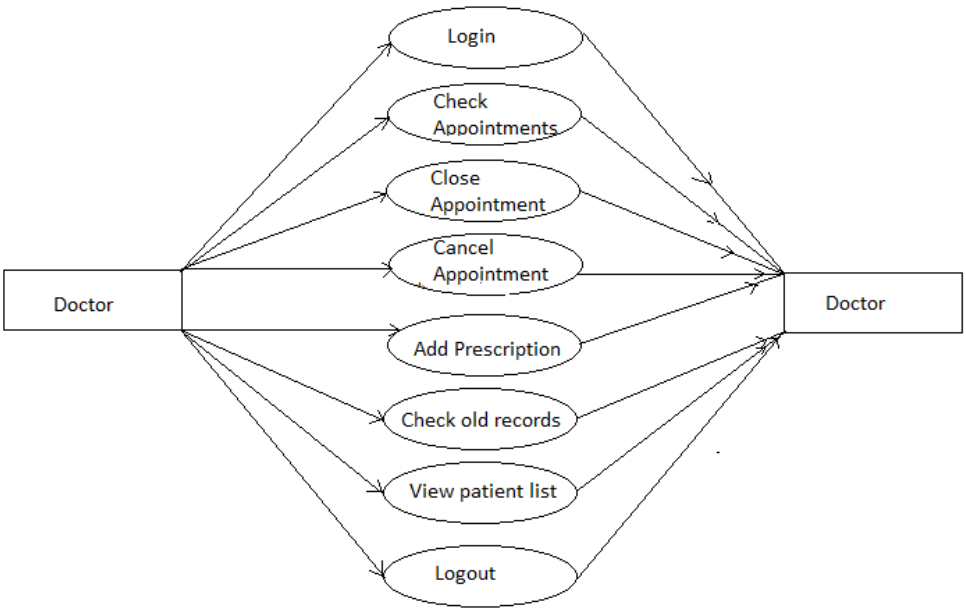


DFD Level 1 -patient/User

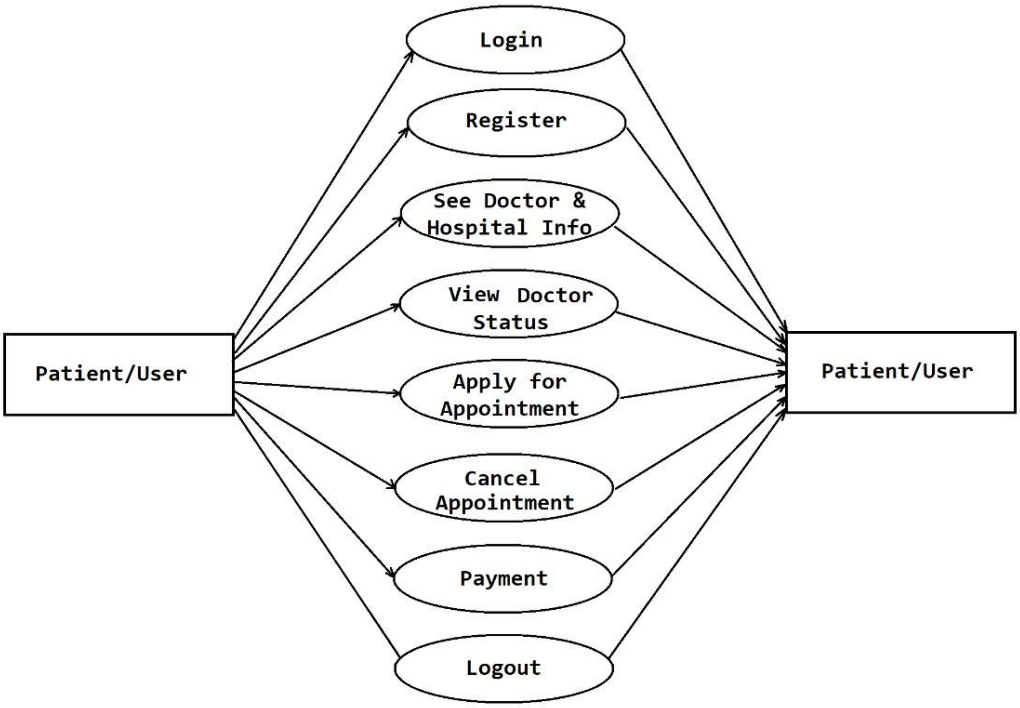
4.3.3) Level 2



DFD Level 2 Hospital

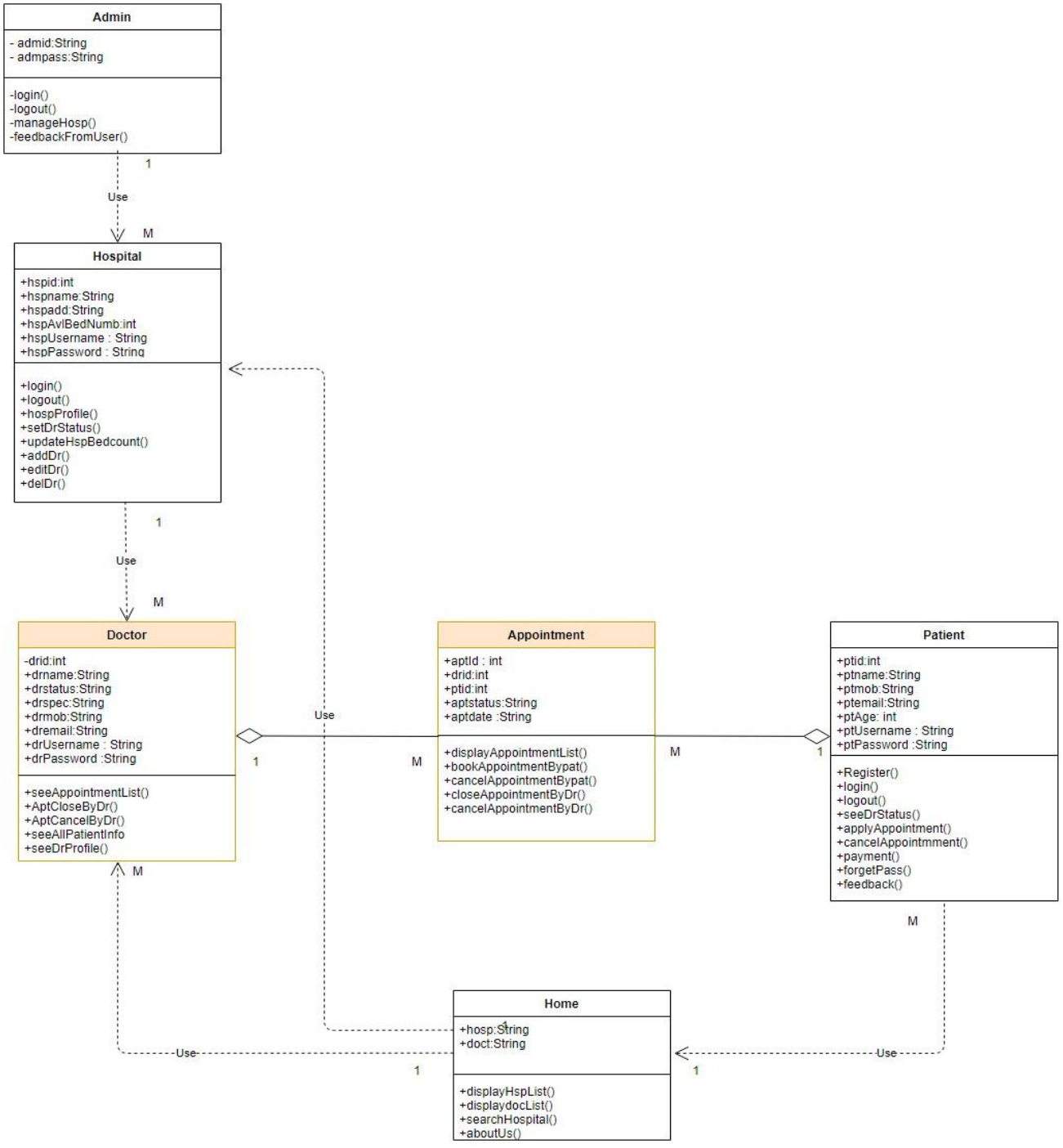


DFD Level 2 - Doctor

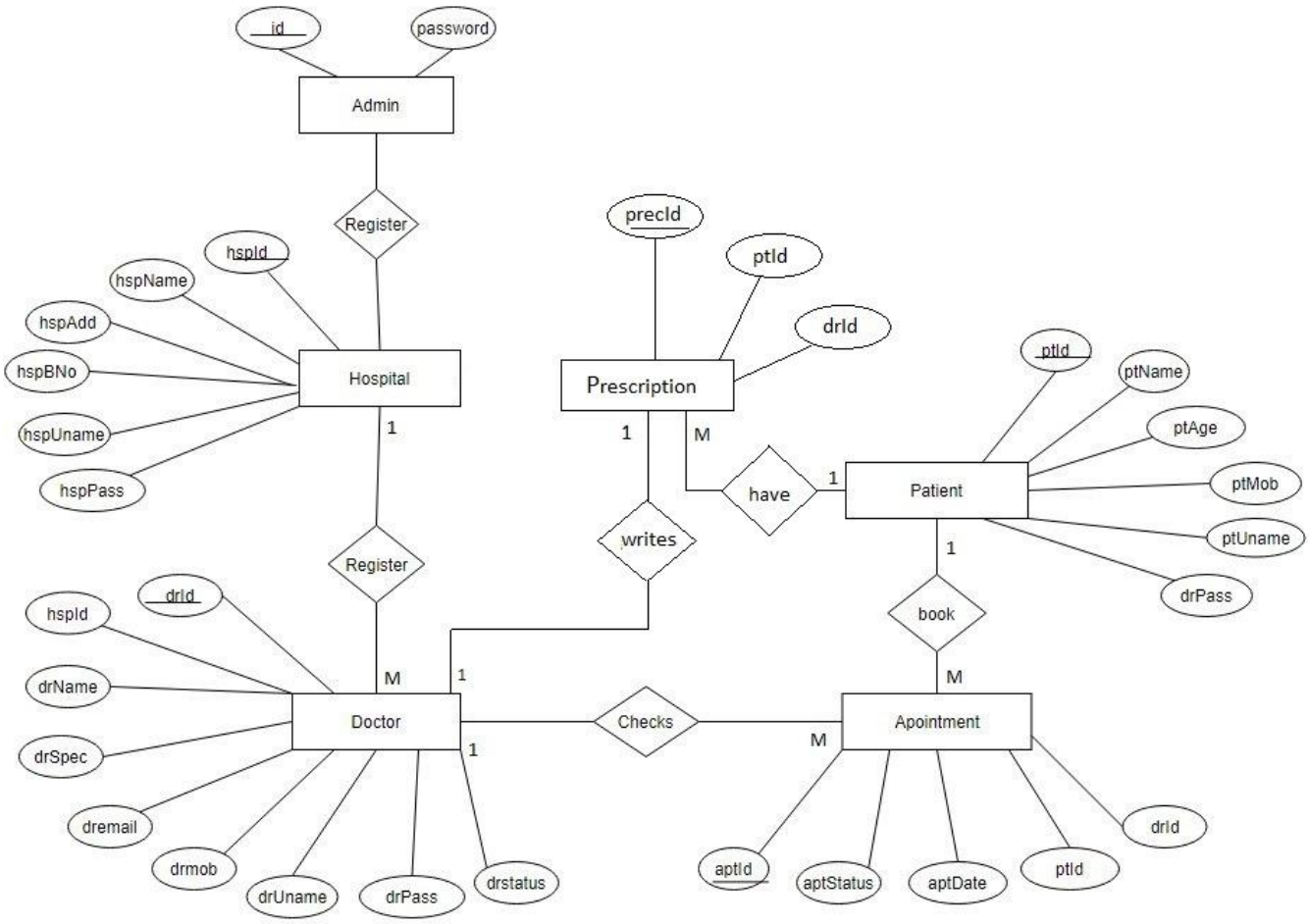


DFD Level 2 Patient

4.4) Class Diagram



5. ER diagram



E-R Diagram

Tables In OHMS

Tables_in_ohms
appointment
contactus
doctor
hospital
patient
prescription

5)Table Structure

5.1) Appointment:

Field	Type	Null	Key	Default	Extra
apt_id	int	NO	PRI	NULL	auto_increment
apt_date	varchar(255)	NO		NULL	
apt_status	varchar(255)	NO		NULL	
dr_id	int	NO		NULL	
pt_id	int	NO	MUL	NULL	

5.2) Contactus:

Field	Type	Null	Key	Default	Extra
ct_id	int	NO	PRI	NULL	auto_increment
ct_date	varchar(255)	YES		NULL	
ct_email	varchar(255)	YES		NULL	
ct_message	varchar(255)	YES		NULL	
ct_mobile	varchar(255)	YES		NULL	
ct_name	varchar(255)	YES		NULL	
ct_subject	varchar(255)	YES		NULL	

5.3) Doctor

Field	Type	Null	Key	Default	Extra
dr_id	int	NO	PRI	NULL	auto_increment
dr_email	varchar(255)	NO	UNI	NULL	
dr_mobile	varchar(255)	NO	UNI	NULL	
dr_name	varchar(255)	NO		NULL	
dr_password	varchar(255)	NO	UNI	NULL	
dr_spec	varchar(255)	NO		NULL	
dr_status	bit(1)	NO		NULL	
dr_username	varchar(255)	NO	UNI	NULL	
hsp_id	int	NO	MUL	NULL	

5.4) Hospital

Field	Type	Null	Key	Default	Extra
hsp_id	int	NO	PRI	NULL	auto_increment
hsp_add	varchar(255)	NO		NULL	
hspbno	int	NO		NULL	
hsp_name	varchar(255)	NO		NULL	
hsp_password	varchar(255)	NO	UNI	NULL	
hsp_username	varchar(255)	NO	UNI	NULL	

5.5) Patient

Field	Type	Null	Key	Default	Extra
pt_id	int	NO	PRI	NULL	auto_increment
pt_age	int	NO		NULL	
pt_gmail	varchar(255)	NO	UNI	NULL	
pt_mobile	varchar(255)	NO	UNI	NULL	
pt_name	varchar(255)	NO		NULL	
pt_password	varchar(255)	NO	UNI	NULL	
pt_username	varchar(255)	NO	UNI	NULL	

5.6) Prescription

Field	Type	Null	Key	Default	Extra
prec_id	int	NO	PRI	NULL	auto_increment
allergies	varchar(50)	YES		NULL	
blood_pressure	int	YES		NULL	
date_time	date	YES		NULL	
diagnosed_with	varchar(200)	YES		NULL	
disabilities	varchar(50)	YES		NULL	
dose1	varchar(50)	YES		NULL	
dose2	varchar(50)	YES		NULL	
drug1	varchar(100)	YES		NULL	
drug2	varchar(100)	YES		NULL	
pulse_rate	int	YES		NULL	
test1	varchar(50)	YES		NULL	
test2	varchar(50)	YES		NULL	
unit1	varchar(50)	YES		NULL	
unit2	varchar(50)	YES		NULL	
weight	int	YES		NULL	
dr_id	int	NO	MUL	NULL	
pt_id	int	NO	MUL	NULL	

LIMITATIONS:

- The size of the database increases day-by-day, increasing the load on the database back up and data maintenance activity.
- Training for simple computer operations is necessary for the users working on the system.

6) Conclusion

Online management system puts forth the actual working of a Hospitals. Administration, management, payment calculation, worker management, visitor management, etc. similar to a
society are the key features of our project. User can access services and functionalities from
the society anywhere and anytime for their own comfort.

6.1) Future Scope

Scope of Improvement, Summary and Conclusion The project Hospital Management System (HMS) is for computerizing the working in a hospital.

- It is a great improvement over the manual system.
- The computerization of the system has speed up the process.
- In the current system, the front office managing is very slow. The hospital managing system was thoroughly checked and tested with dummy data and thus is found to be very reliable.
- The software takes care of all the requirements of an average hospital and is capable to provide easy and effective storage of information related to patients that come up to the hospital.
- It provides the facility for searching the details and test reports of the patient.
- It also provides billing facility on the basis of patient's status whether it is an indoor or outdoor patient.
- The system also provides the facility of backup as per the requirement.
- FUTURE ENHANCEMENTS The proposed system is Hospital Management System. We can enhance this system by including more facilities like pharmacy system for the stock details of medicines in the pharmacy. Providing such features enable the users to include more comments into the system.

7) References :-

- Sahyadri Hospital, Pune
- Bhoite Hospital, Baramati

Online References :-

- www.academia.edu
- Youtube channel - Telusko