INDIRA GANDHI NATIONAL OPEN UNIVERSITY

Synopsis

MCSP-060

e-MEDICAL INFROMATION MANAGEMENT SYSTEM (e-MIMS)

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TITLE OF THE PROJECT

e-MEDICAL INFORMATION MANAGEMENT SYSTEM

INTRODUCTION AND OBJECTIVE

This project "e-Medical Information Management System" is a web based organized computerized system designed and programmed to deal with day to day operations and management of the hospital activities. The program can look after inpatients, outpatients, records, database treatments, status illness, billings in the pharmacy and labs. It also maintains hospital information such as ward id, doctors in charge and department administering.

This project includes registration of patients, storing their details into the system, and also computerized billing in the pharmacy, and labs. The software has the facility to give a unique id for every patient and stores the details of every patient and the staff automatically. It includes a search facility to know the current status of each room. User can search availability of a doctor and the details of a patient using the id. The e-MIMS can be entered using a username and password. It is accessible either by an administrator or receptionist. Only they can add data into the database. The data can be retrieved easily. The interface is very user-friendly. The data are well protected for personal use and makes the data processing very fast.

This project is powerful, flexible, and easy to use and is designed and developed to deliver real conceivable benefits to hospitals. It is designed to cover a wide range of hospital administration and management processes. It is an integrated end-to-end Hospital Management System that provides relevant information across the hospital to support effective decision making for patient care, hospital administration and critical financial accounting, in a seamless flow.

This project is a software product suite designed to improve the quality and management of hospital management in the areas of clinical process analysis and activity-based costing. Hospital Management System enables you to develop your organization and improve its effectiveness and quality of work. Managing the key processes efficiently is critical to the success of the hospital helps you manage your processes

This project modulates protocols and techniques to suit the requirement. Presently the whole functioning of Hospital Management is manual, which is very time consuming and inefficient. This project aims at eliminating all these manual works, which will be replaced by e-form based fully computerized system requiring very less manpower and adding transparency to the system. This gives a flexible way to perform all the task efficiently and at the same time assuring the following:-

- Time Efficient.
- Cost Effective.
- Paperless Office.
- Fast data access.
- No duplication of job.

- Fully integrated system.
- User friendly environment.
- Data security and reliability.
- Added Accountability for staffs.
- Added transparency to the system.

PROJECT CATEGORY

RELATIONAL DATA BASE MANAGEMENT SYSTEM (RDBMS)

The RDBMS model is based on the structure of a database. A database is simply a collection of one or more relations or tables with columns and rows. The use of set theory allows for data to be structured in a series of tables that has both columns and rows. Each column corresponds to an attribute of that relation, while each row corresponds to a record that contains data values for an entity.

The main elements of RDBMS are based on Ted Codd's 13 rules for a relational system, the concept of relational integrity, and normalization. The three fundamentals of a relational database are that all information must be held in the form of a table, where all data are described using data values. The second fundamental is that each value found in the table columns does not repeat. The final fundamental is the use of Standard Query Language (SQL).

RDBMS makes the system is simple, flexible, and productive. Because the tables are simple, data is easier to understand and communicate with others. RDBMS are flexible because users do not have to use predefined keys to input information. Also, RDBMS are more productive because SQL is easier to learn. This allows users to spend more time inputting instead of learning. More importantly, RDBMS's biggest advantage is the ease with which users can create and access data and extend it if needed. After the original database is created, new data categories can be added without the existing application being changed.

The benefits of this approach are:

1**. Reduce redundancy of information**:- Data's are being made simple and complex, we don't have to input as many data's which can only result in overloaded space in computer hard disk/ memory.

2**. Consistent data flow**:- Once the data's are being analyzed in sequence, once can easily identify the flow of information and hence, results will come in reliable output.

3**. Integration of data**:- Incorporating of data's in tables should result in a highly assimilation of information.

4. **Security and User privileges**:- Protection of data's from unwanted users and giving user's rights to what level they are to use the application.

5. **Ease of application development**:- It is a more comfortable workspace for the relevance of its factual purpose.

TOOLS / PLATFORM, HARDWARE & SOFTWARE REQUIREMENT:

To access this web application on client side, it only needs a PC/Laptop/Mobile with an integrated and updated web browser and having Local area network connection.

Desktop Browser : Google Chrome, Mozilla Firefox, Opera, Safari, IE, etc.
Mobile Browser : Android, Chrome, iOS Safari, etc.

On the server side, a PC with minimum these specifications-

HARDWARE:

Processor	:	Intel core 2 duo 2.20 GHZ or above
Memory	:	2GB or above
Cache memory	:	128 KB or above
Hard Disk	:	500 GB
Others	:	Keyboard, Mouse, Monitor, redundant power supply

SOFTWARE:

Operating System	:	Windows, Linux, Mac
Front-End Tool	:	HTML 5, PHP 8, CSS3, Java script, jQuery, Ajax
Back End Tool	:	MySQL 5.0 or above
Server	:	XAMPP version 8.0 or above
Web Browser	:	Chrome/ Safari/ Internet Explorer/ Edge

MySQL 5.X

MySQL is the world's most widely used open source relational database management system (RDBMS) that runs as a server providing multi-user access to a number of databases. The SQL phrase stands for Structured Query Language. The MySQL development project has made its source code available under the terms of the GNU General Public License, as well as under a variety of proprietary agreements. MySQL was owned and sponsored by a single for-profit firm, the Swedish company MySQL AB, now owned by Oracle Corporation. MySQL is a popular choice of database for use in web applications. Free-software-open source projects that require a full-featured database management system often use MySQL.

The new capabilities introduced in MySQL 5.7 are packaged to customers in different ways: as part of the base product, as new features are added and limitation are improved. A comprehensive list of new capabilities is available in the MySQL 5.7 documentation.

MySQL Database's Management console : phpmyadmin is free and open source administration tool for MYSQL and MariaDB. As a portable web application written primarily in PHP, it has become one of the most popular MySQL administration tools, especially for web hosting services.

Scripting Language: PHP

PHP is a dynamic and interactive server-side, object-oriented, open source scripting language. PHP is a language used to develop interactive and dynamic content on the web and it is often used together with the Apache web server. While PHP originally stood for Personal Home Page, it now stands for PHP: Hypertext Preprocessor. 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. It has also evolved to include a command-line interface capability and can be used in standalone graphical applications. PHP is free software released under the PHP License, which is incompatible with the GNU General Public License (GPL) due to restrictions on the usage of the term PHP. PHP can be deployed on most web servers and also as a standalone shell on almost every operating system and platform, free of charge.

HTML

Hyper Text Markup Language and Extensible markup Language are the predominant markup languages for web pages.It provides a means to describe the structure of text-based information in a document and to supplement that text with interactive forms, embedded images, and other objects

CASCADING STYLE SHEETS (CSS):

It is a style sheet language used for describing the look and formatting of a document written in a markup language. While most often used to style web pages and interfaces written in HTML and XHTML, the language can be applied to any kind of XML document, including plain XML, SVG and XUL. CSS is a cornerstone specification of the web and almost all web pages use CSS style sheets to describe their presentation. CSS is designed primarily to enable the separation of document content from document presentation, including elements such as the layout, colors, and fonts. This separation can improve content accessibility, provide more flexibility and control in the specification of presentation characteristics, enable multiple pages to share formatting, and reduce complexity and repetition in the structural content .

PROBLEM DEFINITION:

Presently the Hospital Management of the Hospital works as follows:

- There is manual system for Hospital Management.

- Patient has to report in reception for appointment where receptionist will make entry in register for OPD.

- Hospital staff will also maintain many register for patient, Doctor, Nurse and staff Management for different department.

- Doctor will prescribe medicine to OPD patient and admit patient as IPD patient in hospital for further investigation.

- Nurse will care of IPD patients and allot the room of wards and keep maintain records of individual patient till discharge.

- After patient discharge all patient records are transferred to record room for future references.

- Maintaining records of various level at different departments of hospital are cumbersome task.

The following difficulties are found in existing system.

Lack of immediate retrievals: -

The information is very difficult to retrieve and to find particular information like- E.g. - To find out about the patient's history, the user has to go through various registers. This results in convenience and wastage of time.

Lack of immediate information storage: -

The information generated by various transactions takes time and efforts to be stored at right place.

Lack of prompt updating: -

Various changes to information like patient details are difficult to make as paper work is involved.

Error prone manual calculation: -

Manual calculations are error prone and take a lot of time this may result in incorrect information. For example calculation of patient's bill based on various treatments.

Hence using "e-Medical Information Management System" web application will digitize the problem area. As a result, The availability of right type of system plays an important role in saving the time of many individual every day Which works as follows:

- Hospital addresses the problems of its record management using an e-Medical Information Management system.

- The system allows receptionist to register patient in hospital records and make their appointment with concern doctor online.

- Doctor has facility to treat OPD as well as IPD and suggest prescription and update record in online respective module.

- Nurse has facility to record medical information of IPD patients and update records in online respective module.

- Hospital staff will make billing of discharged patient and doctor fees and provides various discount to different kinds of patients.

- The report module will generate of various types of reports based on the data feed by various staff.

- The blood bank management module will provide prompt requirement of the blood to needy patients.

- The chatbot will be based on intelligence system which answer of users question based on the reply feed by admin in the system which will provide beneficial information to users.

REQUIREMENTS SPECIFICATIONS

FUNCTIONAL REQUIREMENTS:

Presently the whole functioning of e-Medical Information Management System is manual, which is very time consuming and inefficient. Bulky files and a lot of old-fashioned documents are kept to maintain records. Lots of queries also keep arising that needs cumbersome searching from these bulky records. The following functions will be performed by the system:

- There is user role based accessed in e-MIMS. Hospital Admin has full privilege to control all activities. They can create login ID and Password for receptionist, Doctor, Nurse and billing and report generation staff. They can control all other module and update and add department details.

- Patient will report to receptionist in hospital and the receptionist will register the patient details and patient will get the unique ID which can be access by the whole system for future reference.

- Doctor will get access by his individual login and will treat the OPD and IPD patient and access patient details by his unique ID and prescribe medicine and also admit OPD patient as IPD patient as per his condition.

- Nurse will get access by his individual login will governs all patient room of the hospital and allot room to admit in patient and keep records of medical information of patient.

- Hospital staff will make billing of discharge patient, update doctor fees and discount for different patient in billing.

- Report generation module will generate all types of reports like daily billing, patient's record.

- The blood bank management system will be access by the admin and it will keep records of all the donors and blood available in blood bank which will be provide available to the needy patient.

- The chatbot will interact with the user using message box. Admin has all control for the Chatbot giving answer to unanswered questions.

- The whole process is to be made paperless. Thus saving lots of papers and contributing towards the cleaning of the environment.

TECHNICAL SPECIFICATIONS

The software will require following modules to be developed:

Reception Module	:	It caters the initial registration of patients and make appointment with doctors.
Doctor Module	:	It caters for prescription of medicine for OPD and IPD patients.
Nurse Module	:	It provides the facility to the nurse to patient medication and its input/output records, patient's history.
Staff Module	:	It provide the facility to hospital staff for generating bill of patient, print invoice, print receipt.
Report Module	:	It provides report of patient masterlist, individual patient, output patient, admit and discharge patient. It also provide daily sales and doctor fees report.
Blood Bank Module	:	It provides the blood bank management for needy patient it is controlled by the admin.
Chatbot Module	:	It interacts with user for informative purpose only. All reply are controlled by the admin.
Admin Module	:	It has overall control over the all modules and its has additional features for hospital management.

The following Database Tables may be used to capture data of the project:

USERS	:	It stores records of hospital management authority.
USERS_ROLE	:	It stores roles of users and provides role based access.
COMPANY_INFO	:	It stores hospital information.
DEPARTMENT	:	It stores department information.
DESIGNATION	:	It stores designation information.
PATIENT_PERSONAL_INFO	:	It stores data of patient basic information and provide unique ID for future reference.
PATIENT_APPOINTMENT	:	It stores data of patient appointment with doctor in hospital with date and time.
PATIENT_DETAILS_IOP	:	It stores data of admitted patient in the hospital
MEDICINE_CATEGORY	:	It stores data of medicine category.
MEDICINE_DRUG_NAME	:	It stores data of medicine drug name with other details.
DIAGNOSIS	:	It stores data of diagnosis information.
FLOOR	:	It stores data of floor information.
ROOM MASTER	:	It stores data of room information.

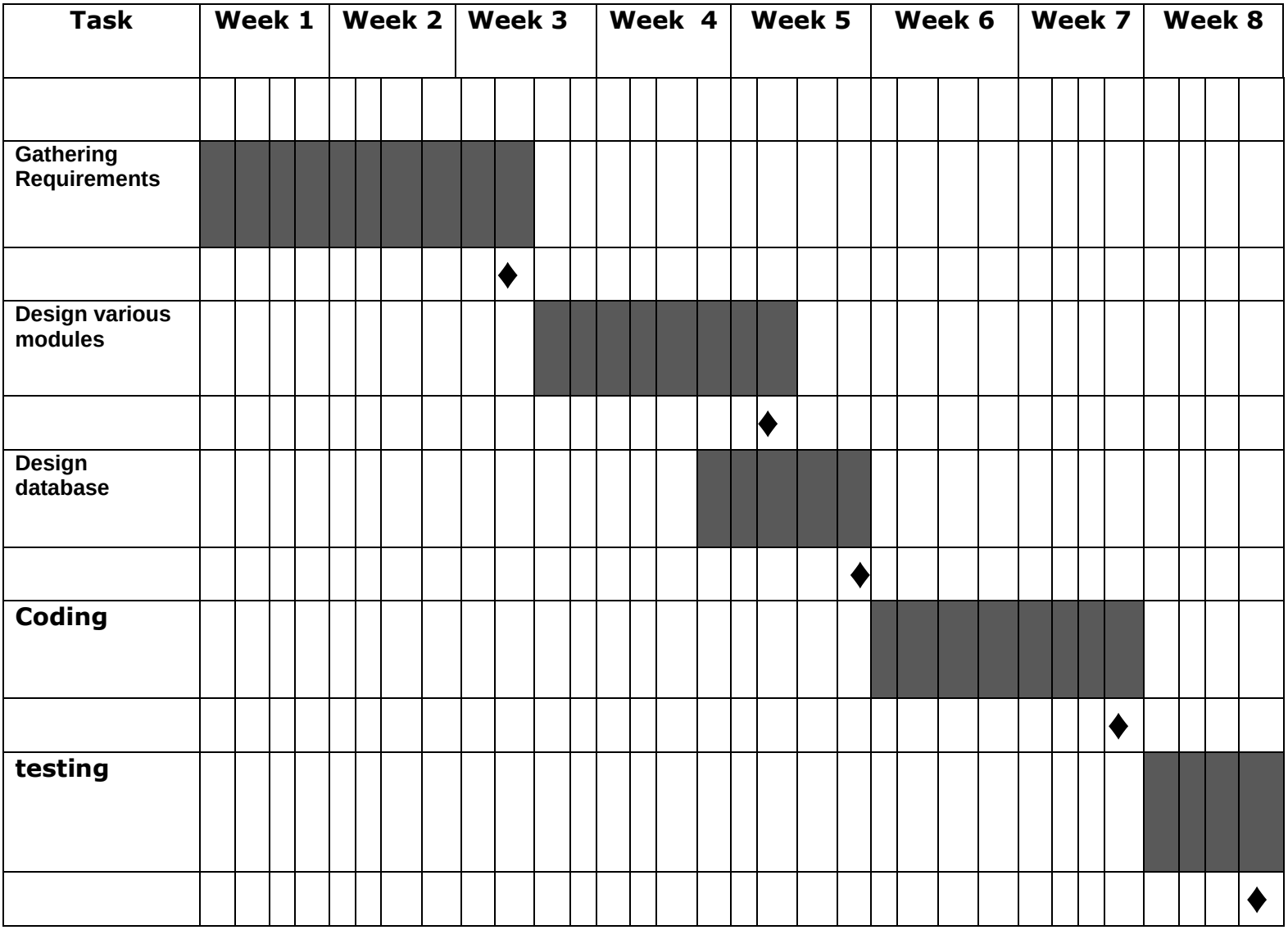
ROOM CATEGORY	:	It stores data of room category.
ROOM BEDS	:	It stores data of Beds available in particular room.
DOCTOR_FEE	:	It stores data of Doctor fees.
BILL_GROUP_NAME	:	It stores data of bill group name.
BILL_PARTICULAR	:	It stores data of particular patient bill.
PATIENT_DETAILS_IOP	:	It keeps records of admitted patient details.
IOP_BILLING	:	It stores of discharged patient biiling details.
IOP_BED_SIDE_PROCEDURE	:	It stores data of bed side procedure feed by nurse
IOP_COMPLAINTS	:	It stores data of admitted patient complaint
IOP_DIAGNOSIS	:	It stores data of admitted patient diagnosis.
IOP_DISCHARGE_SUMMARY	:	It stores data of patient discharge summary.
IOP_INTAKE_RECORD	:	It stores data of patient intake records.
IOP_MEDICATION	:	It stores data of patient medication.
IOP_LABORATORY	:	It stores data of patient laboratory test.
IOP_NURSE_NOTES	:	It stores data of nurse notes for patient condition.
IOP_OPERATION_THEATER	:	It stores data of Operation Theater available.
IOP_OUTPUT_RECORDS	:	It stores data of output patient records.
IOP_PROGRESS_NOTE	:	It stores data of patient progress note.
IOP_ROOM_TRANSFER	:	It stores data of patient room transfer.
IOP_VITAL_PARAMETERS	:	It stores data of patient vital parameters.
BB_BLOOD_INVENTORY	:	It stores data of blood bank inventory
BB_DONORS	:	It stores list of donors available for Blood donation.
BB_REQUESTS	:	It stores list of users request for blood.
BB_HANDEDOVER_REQUEST	:	It stores list of users to whom blood was given.
CB_QUESTIONS	:	It stores list of questions asked by the users.
CB_RESPONSES	:	It stores list of answer for each questions.
CB_UNANSWERED	:	It stores list of unanswered questions

PROJECT PLANNING AND SCHEDULING:

The project of "**e-MEDICAL INFORMATION MANAGEMENT SYSTEM"** will be completed in a phased manner. We plan to complete the project into the following few steps:-

1. Requirements Gathering.
2. Design the look and feel of various modules.
3. Design Database tables and other structures.
4. Coding the system.
5. Test the system unit-wise & also the complete Software.

Gantt chart for the project (Milestones are displayed using ♦ symbol) **:**



SCOPE OF THE SOLUTION:

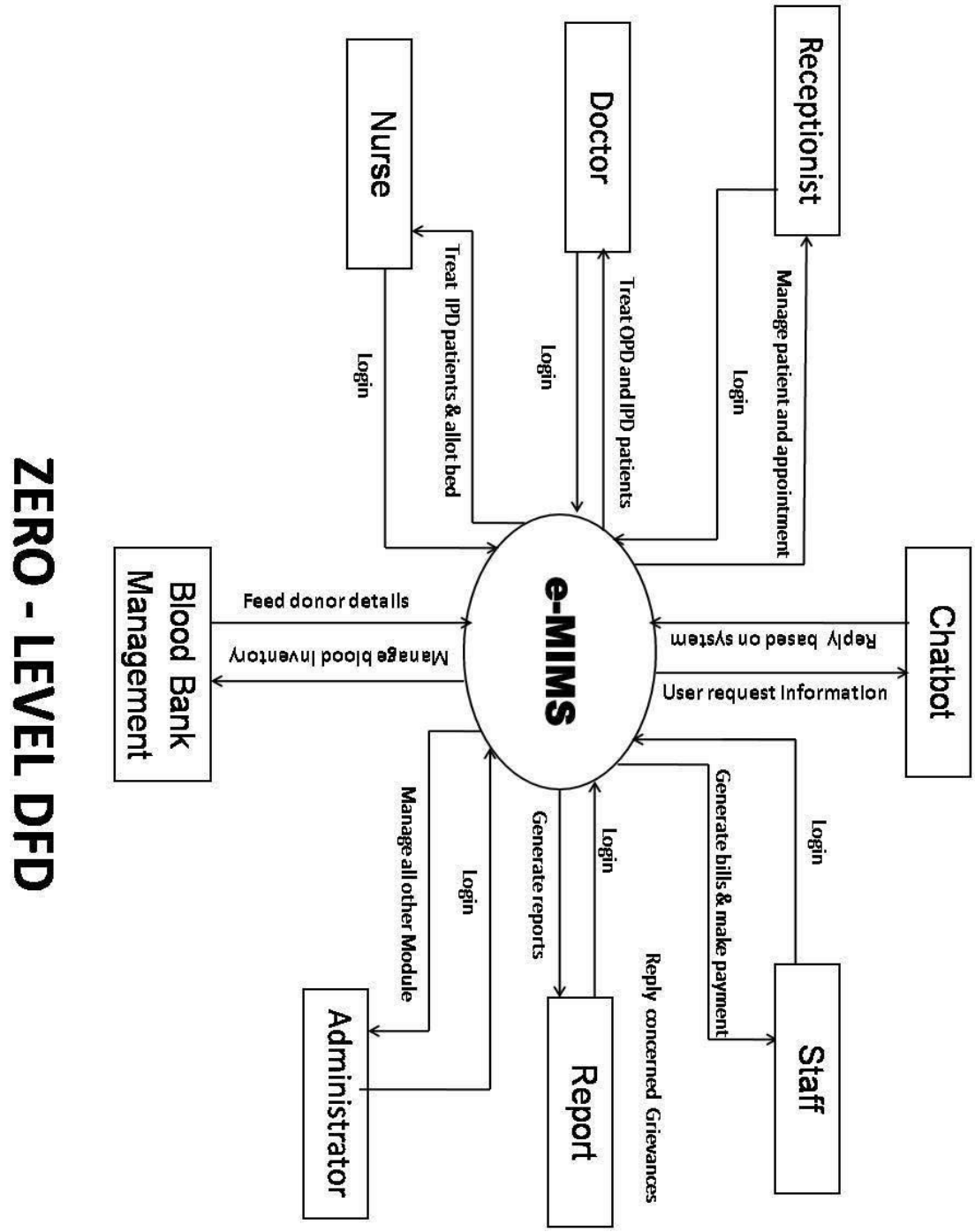
It may help collecting perfect management in details. In a very short time, the collection will be obvious, simple and sensible. It will help a person to know the management of passed year perfectly and vividly. It also helps in current all works relative to Hospital Management . It will be also reduced the cost of collecting the management & collection procedure will go on smoothly.

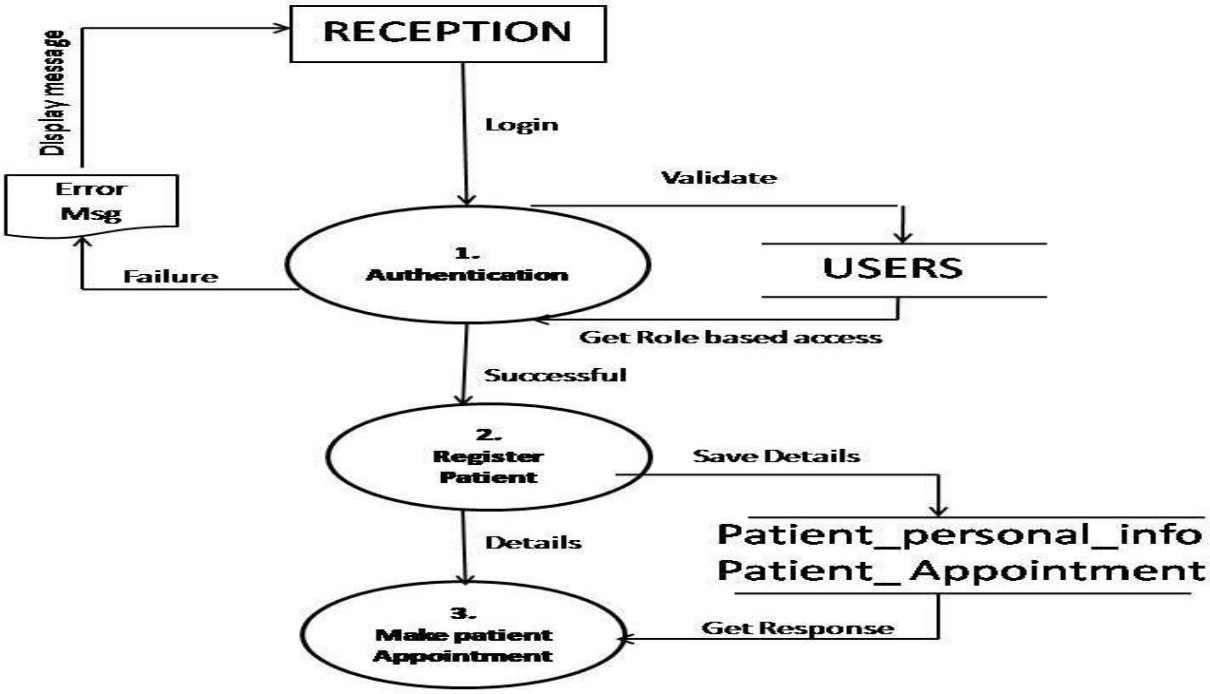
- Our project aims at Business process automation, i.e. we have tried to computerize various processes of Hospital Management.
- In computer system the person has to fill the various forms & number of copies of the forms can be easily generated at a time.
- In computer system, it is not necessary to create the manifest but we can directly print it, which saves our time.
- To assist the staff in capturing the effort spent on their respective working areas.
- To utilize resources in an efficient manner by increasing their productivity through automation.
- The system generates types of information that can be used for various purposes.
- It satisfy the user requirement.
- Be easy to understand by the user and operator.
- Be easy to operate
- Have a good user interface.
- Be expandable
- Delivered on schedule within the budget.

The scope of the project is to fully automate the Hospital management of the Hospital. Since the Hospital is hosting website on intranet for informative purpose. Hence the same hardware specification can be utilise to host the e-MIMS And Hospital staff can use this platform.

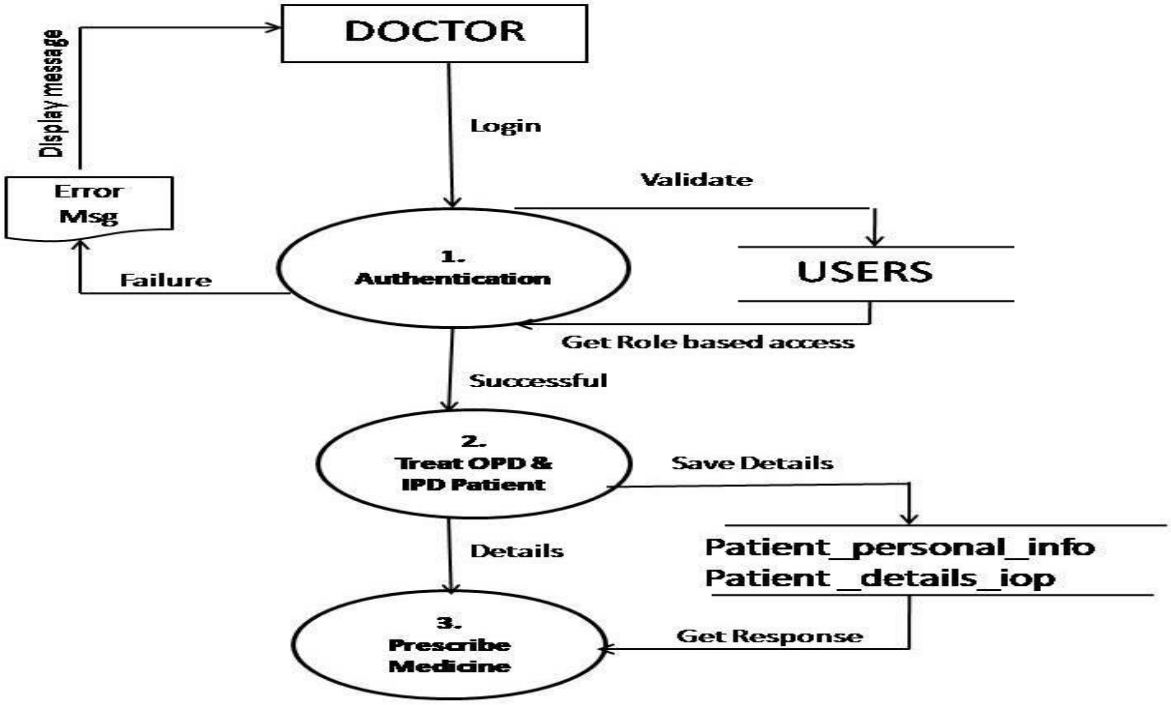
As a result, the availability of the right type of systems plays an important role in saving the time of many individual every day. So having online e-Medical Information Management System. it will save the Hospital staff as well as patient precious time and will be more convenient way to get the best service from the system. This software can be of great help for all of them to tackle difficulties.

DATA FLOW DIAGRAM:-

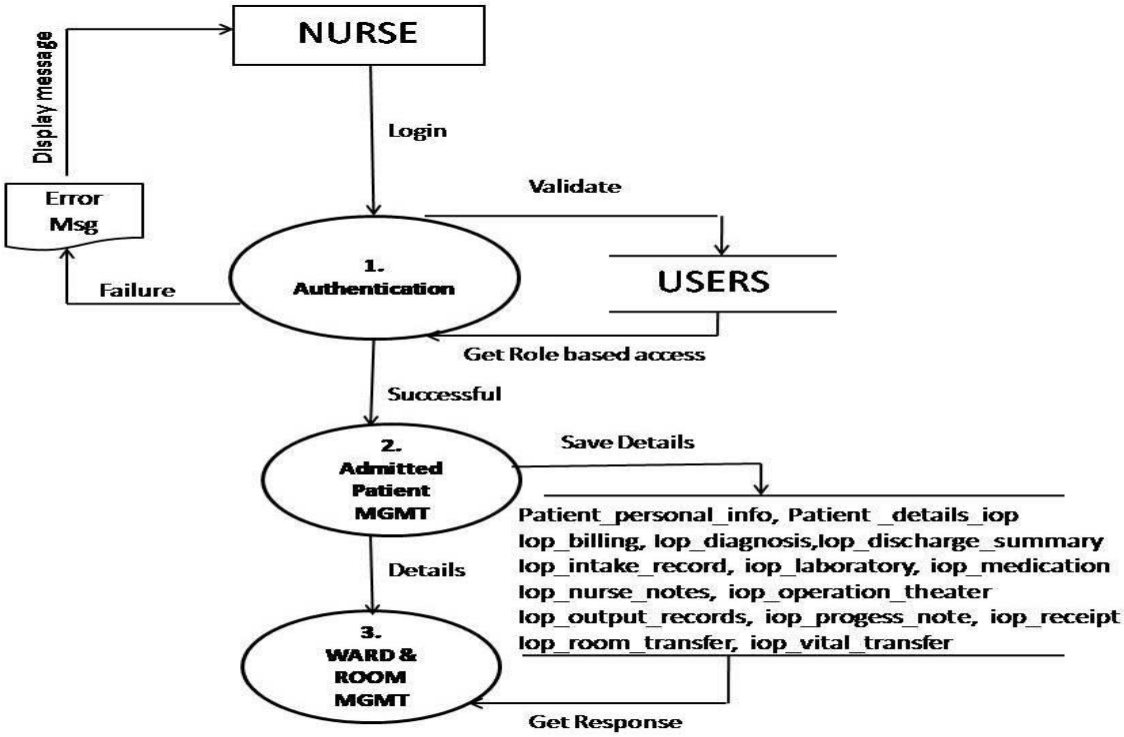




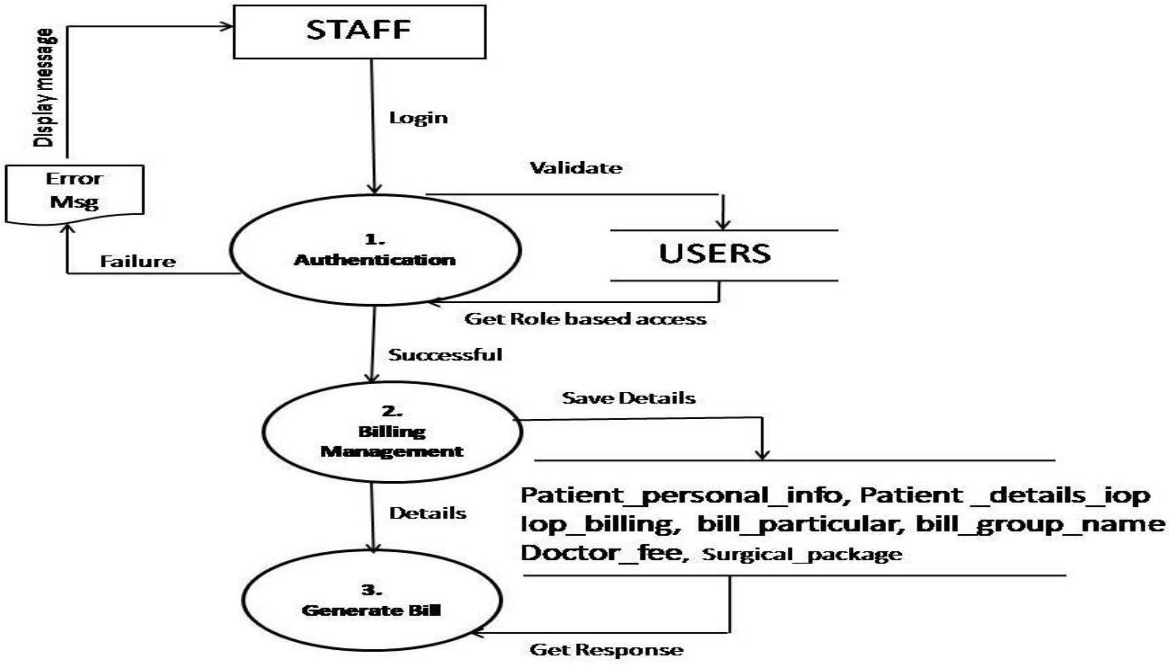
LEVEL 1 DFD (RECEPTION)



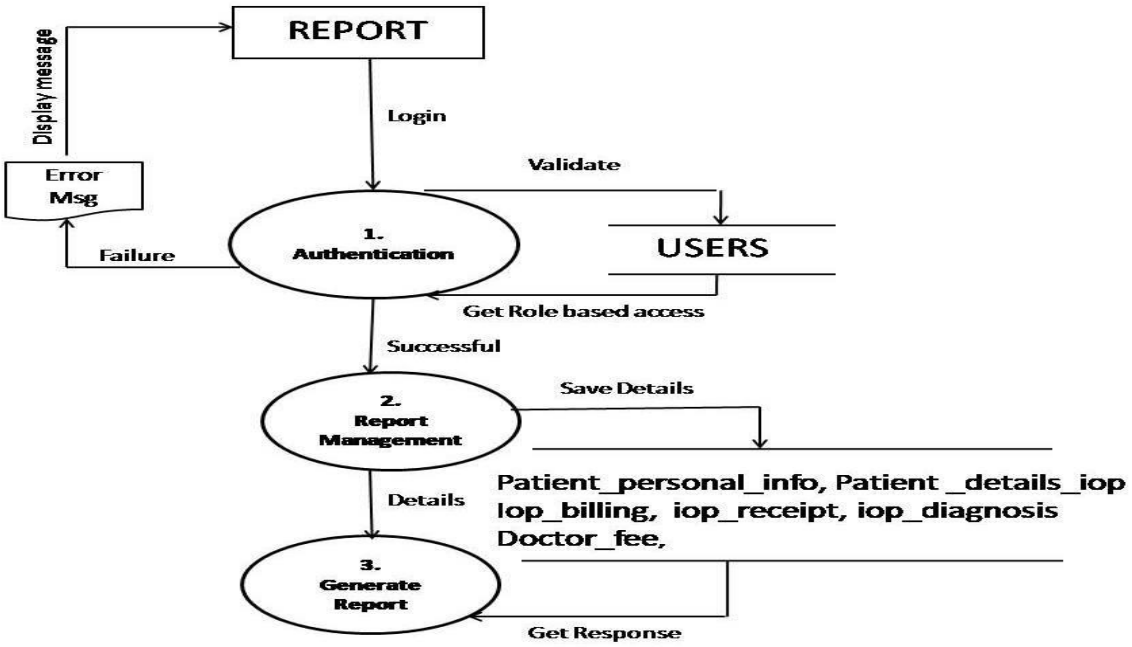
LEVEL 1 DFD (DOCTOR)



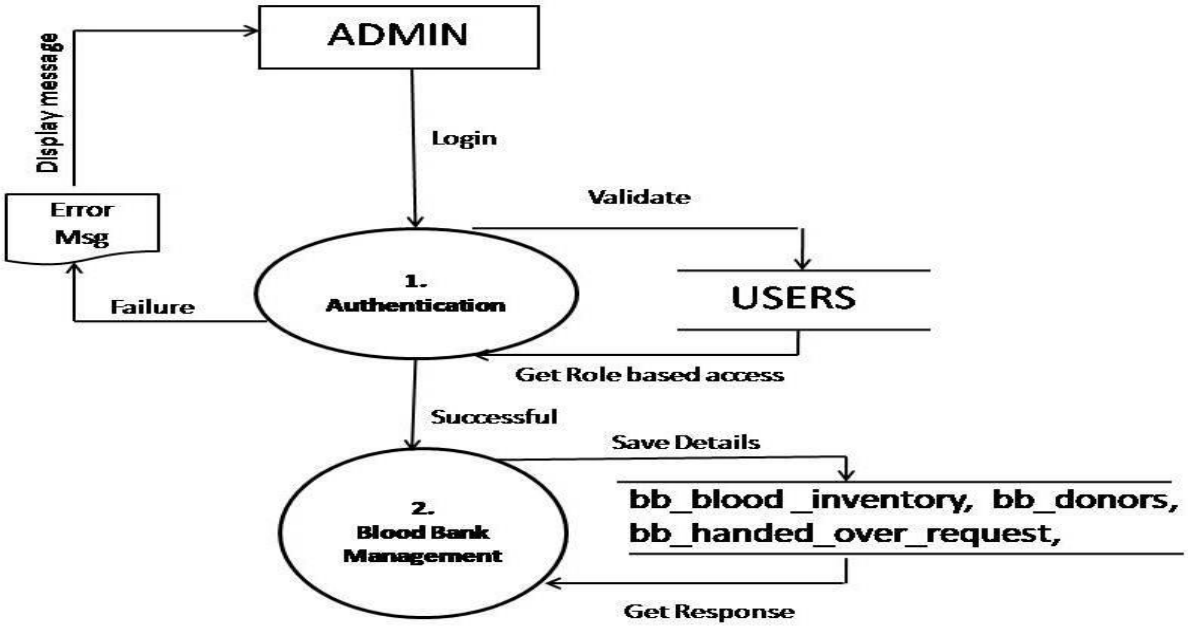
LEVEL 1 DFD (NURSE)



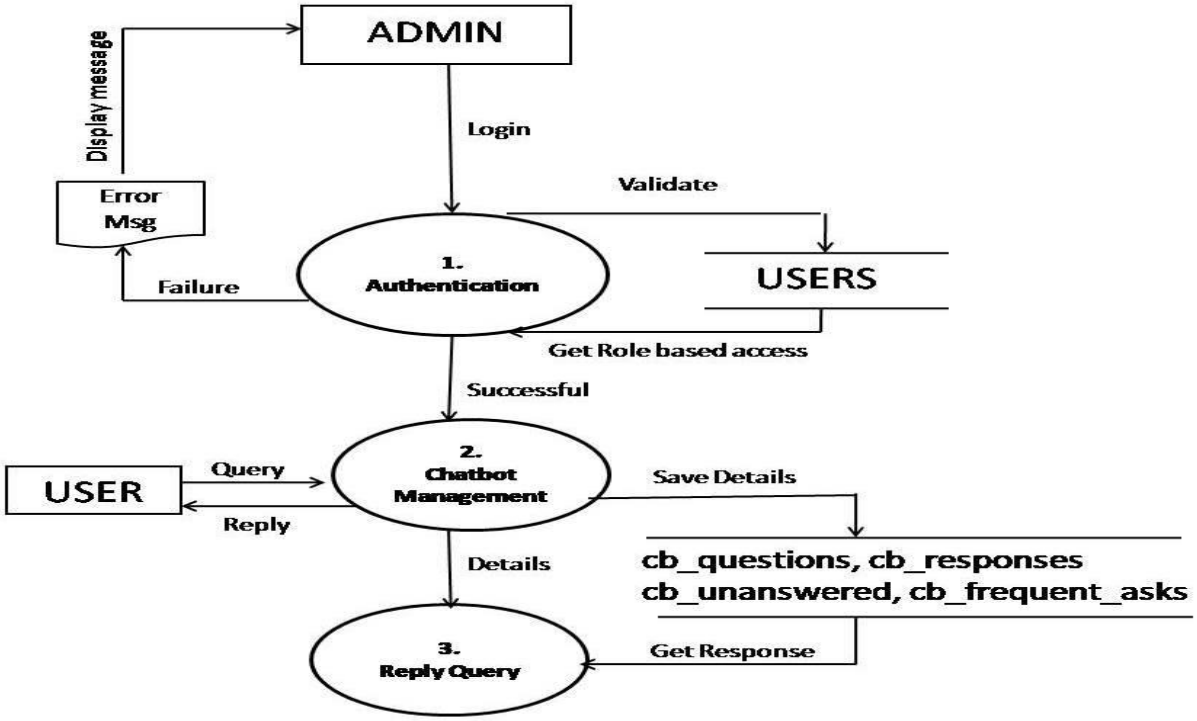
LEVEL 1 DFD (STAFF)



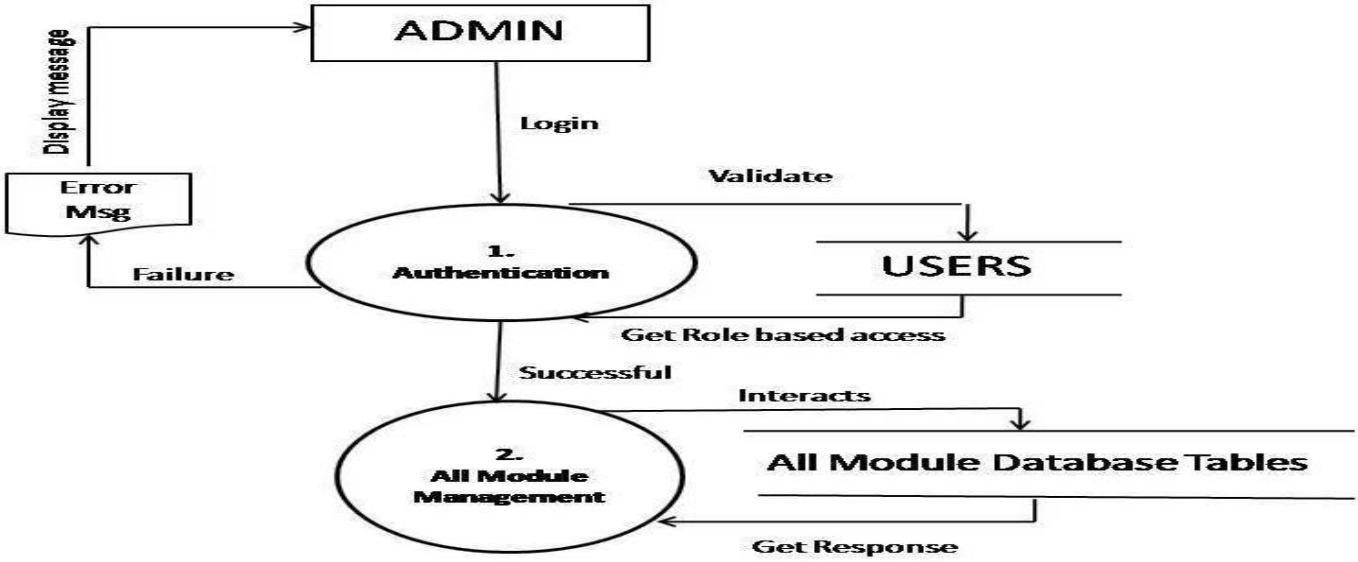
LEVEL 1 DFD (REPORT)



LEVEL 1 DFD (BLOOD BANK MANAGEMENT)

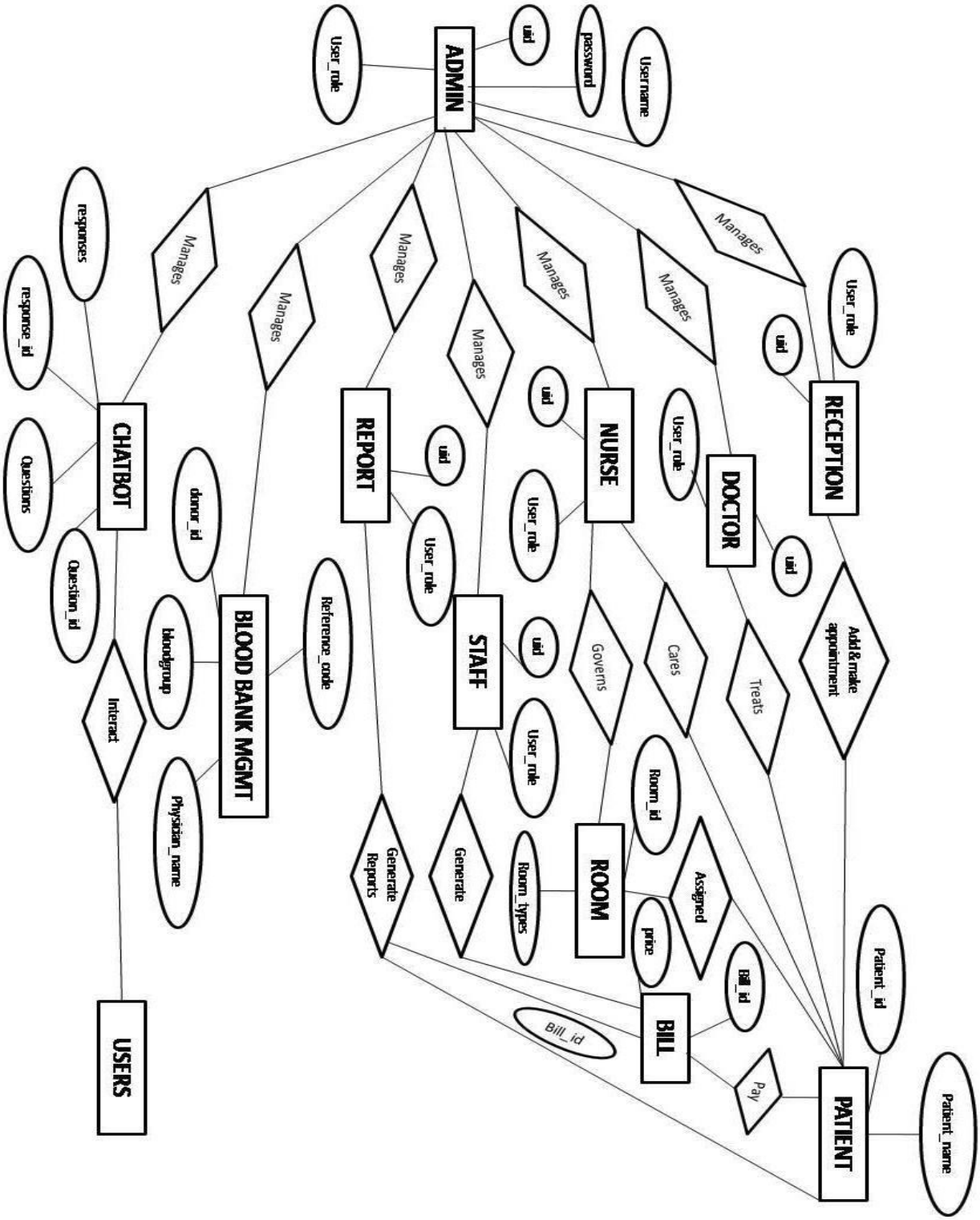


LEVEL 1 DFD (CHATBOT)



LEVEL 1 DFD (ADMIN)

ER DIAGRAM:-


ADMIN
uid
password
Username
User_role
Manages
RECEPTION
DOCTOR
NURSE
STAFF
REPORT
CHATBOT
BLOOD BANK MGMT
ROOM
BILL
PATIENT
USERS
responses
response_id
Questions
Question_id
donor_id
Bloodgroup
Physician_name
Reference_code
Interact
Add & make appointment
Treats
Cares
Governs
Generate Reports
Generate
Room_types
Room_id
price
Assigned
Bill_id
Pay
Patient_id
Patient_name

VARIOUS MODULES AND THEIR DESCRIPTIONS:-

(a.) Reception:-

This module caters registration of the patients who wants to visit the Hospital. Basic information are filled up through an online form in this module and on successful submission of the form an unique ID is generated for each patient. Whenever there is any change, the data needs to be updated using edit forms by receptionist in his individual login. This data entry and updation process goes through various validation checks. After registration, patient appointment with doctor can be booked by the receptionist. The receptionist can also book the in patient appointment. The receptionist Login ID and password will be given by the Admin of Hospital after entering his details in new users and selecting roles receptionist and this module having following sub modules.

(i) Dashboard:- show Today's Patient, New Patient and visited patient
(ii) Patient Appointment:- Add and Manage Patient appointment.
(iii) Patient Management:- Add and Manage Patient of OPD as well as IPD
(iv) User Profile:- update his profile and change the password.

(b.) Doctor:-

The Doctor Module is having the role based access. These IDs are created by the Admin of The Hospital. This module provide the doctor to login the web application by providing the user ID and Password and prescribe medicine to OPD and IPD Patient and this module having following sub modules.

(i) Dashboard:- show Today's Patient, New Patient and visited patient
(ii) Doctor Module:- view Out and In patient of the Hospital and prescribe medicine.
(iii) User Profile:- update his profile and change the password.

(c.) Nurse:-

The Nurse Module is having the role based access. These IDs are created by the Admin of The Hospital. This module provide the Nurse to login the web application by providing the user ID and Password and allow ward management and record in-patient medical records and intake records And this module having following sub modules.

(i) Dashboard:- show Today's Patient, New Patient and visited patient
(ii) Nurse Module:- ward management and record In patient of the Hospital medical and intakes record
(iii) User Profile:- update his profile and change the password.

(d.) Staff:-

Hospital staff are generally used for the admin work i.e: Billing, sanitization. In E-MIMS used the Staff for billing purpose only. Login ID and password will be created by admin and passed to concerned staff confidentially. After Login in staff module, staff name will be displayed on right top corner and. It is having following sub modules.

(i) Dashboard:- show Today's Patient, New Patient and visited patient
(ii) Billing:- Billing of discharged patient, Surgical quotation.

(iii) User Profile:- update his profile and change the password.

(e.) Report:-

This module has the interface that allows the hospital statistic staff to generate report of patient master list, individual patient record, out patient report, admitted patient report, Discharged patient report, Daily sales report, Docter's fee report and acknowledge receipt. This module is having following sub modules.

(i) Dashboard:- show Today's Patient, New Patient and visited patient
(ii) Report Generation:- Generation of various reports as mentioned above.
(iii) User Profile:- update his profile and change the password.

(f.) Blood bank Management:-

This Module interface was given in admin mode which helps the Hospital admin to maintain the data of blood donor and request made by the patient and blood donation records. This module is having following sub modules.

(i) Donor:- records of voluntary person for blood donations
(ii) Blood Donations:- records of blood donated.
(iii) Requests:- Records of blood is needed by the patient.
(iv) Handed Over:- records of blood is handed over to whom
(v) Users:- for Blood Bank User Management

(g.) Chatbot:-

This Module interface was given on login page and chatbot control interface was given in admin mode. Chatbot interact with users via chatting box for information based query that is stored in the system by the admin. This control module is having following sub modules.

(i) Dashboard:- Display of frequently asked questions by the user
(ii) setting:- Change the Chatbot name and Welcome message of the Chatbot.
(iii) Responses List:- Responses given to question asked by the users.
(iv) Unanswered List:- Unanswered questions which are not replied by Chatbot.

(h.) Admin:-

This module has the interface that allows the admin to search, add, update and delete various records like patient management, staff management, appointment management. This module can control the reception, doctor, nurse, staff, report, bloodbank, chatbot module. In addition this module are having the following sub module.
(i) Room Management:- records of the Hospital room for the patients.
(ii) EMR sheet:- records of Out & In Patient Electronic Medical sheet records.
(iii) User Management:- Create role based access for the users.
(iv) Administrator:- Allow admin management of the Hospital.

DATA STRUCTURE:-

Following are the Database tables used in this project. The Description of each of the tables is mentioned against them.

Column Name	Data Type	Constraint	Description
USER TABLE			
id	BIGINT(11)	Primary Key	Id
User_id	VARCHAR(15)	Not Null	User_ID
department	INT(11)	Not Null	Department name
Designation	INT(11)	Not Null	Designation name
title	INT(11)	Not Null	User title
lastname	VARCHAR(50)	Not Null	User last name
firstname	VARCHAR(50)	Not Null	User first name
middlename	VARCHAR(50)	Not Null	User middle name
age	INT(2)	Not Null	Age of users
Street	VARCHAR(50)	Not Null	Address details
Province	CHAR(50)	Not Null	State
Phone_no	VARCHAR(15)	Not Null	Office number
Mobile_no	VARCHAR(15)	Not Null	Mobile number
Gender	INT(1)	Not Null	Gender status
Civil_status	INT(1)	Not Null	Married status
birthday	DATE	Not Null	Date of birth
birthplace	VARCHAR(100)	Not Null	Birthplace name
Email_address	VARCHAR(75)	Not Null	User email Id
Username	VARCHAR(25)	Not Null	User id
password	VARCHAR(50)	Not Null	User password
picture	VARCHAR(100)	Not Null	Pic information
doctorIsIn	VARCHAR(10)	Not Null	Date & Time
doctorLastIn	VARCHAR(25)	Not Null	Date & Time
doctorLastOut	VARCHAR(25)	Not Null	Date & Time
InActive	INT(1)	Not Null	1 for inactive 0 for active
USER _ROLE TABLE			
Role_id	INT(11)	Primary Key	Role Id
module	VARCHAR(50)	Not Null	Module Name
Role_name	VARCHAR(50)	Foreign Key,Not Null	Role based access
Role_description	TEXT	Not Null	Role description
InActive	INT(1)	Primary Key	1 for inactive 0 for active

Column Name	Data Type	Constraint	Description
COMPANY_INFO TABLE			
Company_name	VARCHAR(150)	NOT NULL	HOSPITAL NAME
Company_address	TEXT	NOT NULL	HOSPITAL ADDRESS
Company_contactNO	VARCHAR(50)	NOT NULL	HOSPITAL CONTACT
TIN	VARCHAR(50)	NOT NULL	HOSPITAL TIN
logo	VARCHAR(900)	NOT NULL	HOSPITAL LOGO
DEPARTMENT TABLE			
Department_id	INT(11)	PRIMARY KEY	DEPARTMENT ID
Dept_code	VARCHAR(100)	FORIGEN KEY	DEPARTMENT CODE
Dept_name	VARCHAR(150)	NOT NULL	DEPARTMENT NAME
InActive	INT(1)	NOT NULL	STATUS
DEPARTMENT TABLE			
Designation_id	INT(11)	PRIMARY KEY	DESIGNATION ID
Designation	VARCHAR(50)	NOT NULL	DESIGNATION NAME
Description	VARCHAR(150)	NOT NULL	DESIGNATION DESC
InActive	INT(1)	NOT NULL	STATUS
PATIENT_PERSONAL_INFO			
Reg_no	BIGINT(11)	PRIMARY KEY	REGISTRATION NO
Patient_no	VARCHAR(15)	FORIEGN KEY	PATIENT ID
Title	INT(11)	NOT NULL	TITLE
Lastname	VARCHAR(35)	NOT NULL	LAST NAME
Firstname	VARCHAR(35)	NOT NULL	FIRST NAME
Middlename	VARCHAR(35)	NOT NULL	MIDDLE NAME
Gender	INT(11)	NOT NULL	GENDER
Civil_status	INT(11)	NOT NULL	MARRIED
Birthday	DATE	NOT NULL	DATE OF BIRTH
Birthplace	VARCHAR(150)	NOT NULL	BIRTH PLACE
Fathers_name	VARCHAR(150)	NOT NULL	FATHERNAME
Address1	TEXT	NOT NULL	ADDRES LINE
Address2	TEXT	NOT NULL	ADDRESS LINE
Age	INT(3)	NOT NULL	AGE
Religion	INT(11)	NOT NULL	RELIGION
Street	VARCHAR(50)	NOT NULL	STREET
Province	VARCHAR(90)	NOT NULL	STATE
Phone_no	VARCHAR(25)	NOT NULL	OFFICE NO
Mobile_no	VARCHAR(25)	NOT NULL	MOBILE NO
Email_address	VARCHAR(50)	NOT NULL	EMAIL ADDRESS
Picture	VARCHAR(100)	NOT NULL	PICTURE
Date_entry	DATETIME	NOT NULL	DATE ENTRY
Blood_group	INT(11)	NOT NULL	BLOOD GROUP
Insurance_comp	INT(11)	NOT NULL	INSURANCE COMP

Insurance_no	VARCHAR(25)	FORIEGN KEY	INSURANCE NO
InActive	INT(1)	NOT NULL	STATUS
Column Name	**Data Type**	**Constraint**	**Description**
PATIENT_APPOINTMENT			
appID	BIGINT(20)	PRIMARY KEY	APPLICATION ID
Patient_no	VARCHAR(25)	FORIEGN KEY	PATIENT NO
appointmentDate	DATE	NOT NULL	APPOINTMENT
appHour	TINYINT(2)	NOT NULL	APPOINT HOUR
appMinutes	TINYINT(2)	NOT NULL	APPOINT MINT
appAMPM	VARCHAR(10)	NOT NULL	
appointmentTime	TIME	NOT NULL	APPOINT TIME
AppointmentReason	VARCHAR(10)	NOT NULL	APPOINT REASON
consultantDoctor	VARCHAR(10)	NOT NULL	DOCTOR NAME
dateVisit	DATETIME	NOT NULL	DATE VISIT
appointmentStatus	CHAR(1)	NOT NULL	APPOINT STATUS
dateEntry	DATETIME	NOT NULL	DATE ENTRY
PATIENT_DETAILS_IOP			
Id	BIGINT(11)	PRIMARY KEY	ID
IO_ID	VARCHAR(15)	FOREIGN KEY	IPD PATIENT
Patient_no	VARCHAR(15)	FOREIGN KEY	PATIENT_NO
Patient_type	VARCHAR(5)	NOT NULL	PATIENT_TYPE
Date_visit	DATE	NOT NULL	DATE_VISIT
Time_visit	TIME	NOT NULL	TIME_VISIT
Doctor_id	VARCHAR(15)	FOREIGN KEY	DOCTOR_ID
Referral_doctor	INT(11)	NOT NULL	REFERRAL_DOCTOR
Room_id	INT(11)	FOREIGN KEY	ROOM_ID
Department_id	INT(11)	FOREIGN KEY	DEPARTMENT_ID
Provisional_diagnosis	TEXT	NOT NULL	PROV DIAGNOSIS
Complaints	TEXT	NOT NULL	COMPLAINTS
Allergies	TEXT	NOT NULL	ALLERGIES
Warnings	TEXT	NOT NULL	WARNINGS
Social_history	TEXT	NOT NULL	SOCIAL_HISTORY
Family_history	TEXT	NOT NULL	FAMILY_HISTORY
Personal_history	TEXT	NOT NULL	PERSONAL_HISTORY
Past_medical_history	TEXT	NOT NULL	PAST_MED_HISTORY
Pulse_rate	VARCHAR(150)	NOT NULL	PULSE_RATE
Temperature	VARCHAR(150)	NOT NULL	TEMPERATURE
Height	VARCHAR(150)	NOT NULL	HEIGHT
Bp	VARCHAR(150)	NOT NULL	BP
Respiration	VARCHAR(150)	NOT NULL	RESPIRATION
Weight	VARCHAR(150)	NOT NULL	WEIGHT
Nstatus	VARCHAR(15)	NOT NULL	NSTATUS
isPaid	INT(1)	NOT NULL	ISPAID

Column Name	Data Type	Constraint	Description
MEDICINE_CATEGORY			
Cat_id	INT(11)	PRIMARY KEY	CAT_ID
Med_category_name	VARCHAR(500)	NOT NULL	MED_CATE_NAME
Med_category_desc	TEXT	NOT NULL	MED_CATE_DESC
InActive	INT(11)	NOT NULL	INACTIVE
MEDICINE_DRUG_NAME			
Drug_id	INT(11)	PRIMARY KEY	DRUG_ID
Med_cat_id	INT(11)	FOREIGN KEY	MED_CAT_ID
Drug_desc	TEXT	NOT NULL	DRUG_DESC
Uom	INT(11)	NOT NULL	UOM
Re_order_level	FLOAT(11,2)	NOT NULL	RE_ORDER_LEVEL
nPrice	FLOAT(11,2)	NOT NULL	NPRICE
nStock	FLOAT(11,2)	NOT NULL	NSTOCK
InActive	INT(1)	NOT NULL	INACTIVE
DIAGNOSIS			
Diagnosis_id	INT(11)	PRIMARY KEY	DIAGNOSIS_ID
Diagnosis_name	VARCHAR(500)	NOT NULL	DIAGNOSIS_NAME
Diagnosis_desc	TEXT	NOT NULL	DIAGNOSIS_DESC
InActive	INT(1)	NOT NULL	INACTIVE
FLOOR			
Floor_id	INT(11)	PRIMARY KEY	FLOOR_ID
Floor_name	VARCHAR(25)	NOT NULL	FLOOR_NAME
Floor_description	TEXT	NOT NULL	FLOOR_DESC
InActive	INT(1)	NOT NULL	INACTIVE
ROOM_MASTER			
Room_master_id	INT(11)	PRIMARY KEY	ROOM_MASTER_ID
Category_id	INT(11)	FOREIGN KEY	CATEGORY_ID
Room_name	VARCHAR(50)	NOT NULL	ROOM_NAME
Floor	INT(11)	NOT NULL	FLOOR
Room_rates	FLOAT(11,2)	NOT NULL	ROOM_RATES
InActive	INT(1)	NOT NULL	INACTIVE
ROOM_CATEGORY			
Category_id	INT(11)	PRIMARY KEY	CATEGORY_ID
Category_name	VARCHAR(50)	NOT NULL	CATEGORY_NAME
Category_desc	TEXT	NOT NULL	CATEGORY_DESC
InActive	INT(1)	NOT NULL	INACTIVE

Column Name	Data Type	Constraint	Description
ROOM_BEDS			
Room_bed_id	INT(11)	PRIMARY KEY	ROOM_BED_ID
Room_master_id	INT(11)	FOREIGN KEY	ROOM_MASTER_ID
Bed_name	VARCHAR(25)	NOT NULL	BED_NAME
nStatus	VARCHAR(15)	NOT NULL	NSTATUS
Patient_no	VARCHAR(25)	NOT NULL	PATIENT_NO
InActive	INT(1)	NOT NULL	INACTIVE
DOCTOR_FEE			
doctorfeeID	INT(11)	PRIMARY KEY	DOCTORFEEID
User_id	VARCHAR(11)	FOREIGN KEY	USER_ID
Invoice_no	VARCHAR(25)	NOT NULL	INVOICE_NO
Date	DATE	NOT NULL	DATE
CompleteDate	VARCHAR(50)	NOT NULL	COMPLETEDATE
feeType	VARCHAR(25)	NOT NULL	FEETYPE
Value	FLOAT(11,2)	NOT NULL	VALUE
TotalFee	FLOAT(11,2)	NOT NULL	TOTALFEE
notes	TEXT	NOT NULL	NOTES
BILL_GROUP_NAME			
Group_id	INT(11)	PRIMARY KEY	GROUP_ID
Group_name	VARCHAR(150)	NOT NULL	GROUP_NAME
Group_desc	TEXT	NOT NULL	GROUP_DESC
InActive	INT(1)	NOT NULL	INACTIVE
BILL_PARTICULAR	INT(11)	PRIMARY KEY	
Particular_id	INT(11)	NOT NULL	PARTICULAR_ID
Group_id	VARCHAR(150)	NOT NULL	GROUP_ID
Particular_desc	TEXT	NOT NULL	PARTICULAR_DESC
Charge_amount	FLOAT(11,2)	NOT NULL	CHARGE_AMOUNT
InActive	INT(11)	NOT NULL	INACTIVE
IOP_BILLING			
Bill_id	INT(11)	PRIMARY KEY	BILL_ID
Receipt_no	VARCHAR(25)	NOT NULL	RECEIPT_NO
Iop_id	VARCHAR(25)	FOREIGN KEY	IOP_ID
Patient_no	VARCHAR(25)	FOREIGN KEY	PATIENT_NO
Payment_type	VARCHAR(25)	NOT NULL	PAYMENT_TYPE
Invoice_no	VARCHAR(50)	FOREIGN KEY	INVOICE_NO
dDate	DATE	NOT NULL	DDATE
Discount	FLOAT(11,2)	NOT NULL	DISCOUNT
Reason_discount	INT(5)	NOT NULL	REASON_DISCOUNT
Sub_total	FLOAT(11,2)	NOT NULL	SUB_TOTAL
Total_amount	FLOAT(11,2)	NOT NULL	TOTAL_AMOUNT

Total_purchased	FLOAT(11,2)	NOT NULL	TOTAL_PURCHASED
creditCardNo	INT(11)	NOT NULL	CREDITCARDNO
creditCardHolder	INT(11)	NOT NULL	CREDITCARDHOLDER
Insurance_company	INT(11)	NOT NULL	INSURAN_COMPANY
Remarks	TEXT	NOT NULL	REMARKS
inActive	INT(1)	NOT NULL	INACTIVE
Column Name	**Data Type**	**Constraint**	**Description**
IOP_BED_SIDE_PROCEDURE			
Bed_pro_id	INT(11)	PRIMARY KEY	BED_PRO_ID
Iop_id	VARCHAR(25)	FOREIGN KEY	IOP_ID
dDate	DATE	NOT NULL	DDATE
dDateTime	VARCHAR(50)	NOT NULL	DDATETIME
Qty	INT(5)	NOT NULL	QTY
Notes	TEXT	NOT NULL	NOTES
cPreparedBy	VARCHAR(25)	NOT NULL	CPREPAREDBY
InActive	INT(1)	NOT NULL	INACTIVE
IOP_COMPLAINTS			
Iop_com_id	INT(11)	PRIMARY KEY	IOP_COM_ID
Iop_id	VARCHAR(25)	FOREIGN KEY	IOP_ID
Complain_id	INT(11)	FOREIGN KEY	COMPLAIN_ID
Remarks	TEXT	NOT NULL	REMARKS
dDate	DATE	NOT NULL	DDATE
InActive	INT(1)	NOT NULL	INACTIVE
IOP_DIAGNOSIS			
Iop_diag_id	INT(11)	PRIMARY KEY	IOP_DIAG_ID
Iop_id	VARCHAR(11)	FOREIGN KEY	IOP_ID
Diagnosis_id	INT(11)	NOT NULL	DIAGNOSIS_ID
Remarks	TEXT	NOT NULL	REMARKS
dDate	DATETIME	NOT NULL	DDATE
InActive	INT(1)	NOT NULL	INACTIVE
IOP_DISCHARGE_SUMMARY			
Dis_id	INT(11)	PRIMARY KEY	DIS_ID
Iop_id	VARCHAR(25)	FOREIGN KEY	IOP_ID
dDate	DATE	NOT NULL	DDATE
dDateTime	DATETIME	NOT NULL	DDATETIME
Reason_admission	TEXT	NOT NULL	REASON_ADMISSION
Condition_upon_discharge	INT(11)	NOT NULL	COND_UPON_DISC
Admitting_impression	TEXT	NOT NULL	ADMITTING_IMP
Final_diagnosis	TEXT	NOT NULL	FINAL_DIAGNOSIS
Physical_exam_findings	TEXT	NOT NULL	PHYS_EXAM_FINDIS
Course_ward	TEXT	NOT NULL	COURSE_WARD

Column Name	Data Type	Constraint	Description
IOP_INTAKE_RECORD			
Intake_id	INT(11)	PRIMARY KEY	INTAKE_ID
Iop_id	VARCHAR(25)	FOREIGN KEY	IOP_ID
particulars	VARCHAR(500)	NOT NULL	PARTICULARS
IV_fluids	VARCHAR(25)	NOT NULL	IV_FLUIDS
oral	VARCHAR(25)	NOT NULL	ORAL
No_stool	VARCHAR(25)	NOT NULL	NO_STOOL
No_urine	VARCHAR(25)	NOT NULL	NO_URINE
dDate	DATE	NOT NULL	DDATE
dDateTime	VARCHAR(50)	NOT NULL	DDATETIME
InActive	INT(1)	NOT NULL	INACTIVE
IOP_MEDICINE			
Iop_med_id	INT(11)	PRIMARY KEY	IOP_MED_ID
Iop_id	VARCHAR(25)	FOREIGN KEY	IOP_ID
Medicine_id	INT(11)	FOREIGN KEY	MEDICINE_ID
instruction	TEXT	NOT NULL	INSTRUCTION
advice	TEXT	NOT NULL	ADVICE
days	INT(2)	NOT NULL	DAYS
Total_qty	INT(5)	NOT NULL	TOTAL_QTY
InActive	INT(1)	NOT NULL	INACTIVE
dDate	DATETIME	NOT NULL	DDATE
IOP_LABORATORY			
Io_lab_id	INT(11)	PRIMARY KEY	IO_LAB_ID
Iop_id	VARCHAR(11)	FOREIGN KEY	IOP_ID
dDate	DATE	NOT NULL	DDATE
dDateTime	VARCHAR(100)	NOT NULL	DDATETIME
Category_id	INT(11)	NOT NULL	CATEGORY_ID
Laboratory_id	INT(11)	NOT NULL	LABORATORY_ID
Findings	TEXT	NOT NULL	FINDINGS
Result	TEXT	NOT NULL	RESULT
Doctor	INT(11)	NOT NULL	DOCTOR
InActive	INT(1)	NOT NULL	INACTIVE
IOP_NURSE_NOTES			
Nurse_notes_id	INT(11)	PRIMARY KEY	NURSE_NOTES_ID
Iop_id	VARCHAR(25)	FOREIGN KEY	IOP_ID
dDate	DATE	NOT NULL	DDATE
dDateTime	VARCHAR(50)	NOT NULL	DDATETIME
Focus	VARCHAR(50)	NOT NULL	FOCUS
Notes	TEXT	NOT NULL	NOTES
InActive	INT(1)	NOT NULL	INACTIVE

Column Name	Data Type	Constraint	Description
IOP_OPERATION_THEATER			
Operation_id	INT(11)	PRIMARY KEY	OPERATION_ID
Iop_id	VARCHAR(25)	FOREIGN KEY	IOP_ID
dDate_from	DATE	NOT NULL	DDATE_FROM
dTime_from	TIME	NOT NULL	DTIME_FROM
dDate_to	DATE	NOT NULL	DDATE_TO
dTime_to	TIME	NOT NULL	DTIME_TO
Operation_name	VARCHAR(250)	NOT NULL	OPERATION_NAME
Bed_id	INT(11)	FOREIGN KEY	BED_ID
Diagnosis	TEXT	NOT NULL	DIAGNOSIS
Name_of_surgeon	VARCHAR(25)	NOT NULL	NAME_OF_SURG
Name_of_anesthesia	VARCHAR(25)	NOT NULL	NAME_OF_ANESIA
Assistant_name	VARCHAR(150)	NOT NULL	ASSISTANT_NAME
Operation_procedure	TEXT	NOT NULL	OPATION_PRORE
Notes	TEXT	NOT NULL	NOTES
Date_created	TIMESTAMP	NOT NUL	DATE_CREATED
IOP_OUTPUT_RECORD			
Output_id	INT(11)	PRIMARY KEY	OUTPUT_ID
Iop_id	VARCHAR(25)	FOREIGN KEY	IOP_ID
Urine	VARCHAR(25)	NOT NULL	URINE
Feaces	VARCHAR(25)	NOT NULL	FEACES
Respitation	VARCHAR(25)	NOT NULL	RESPITATION
Skin	VARCHAR(25)	NOT NULL	SKIN
dDate	DATE	NOT NULL	DDATE
dDateTime	VARCHAR(50)	NOT NULL	DDATETIME
InActive	INT(1)	NOT NULL	INACTIVE
IOP_PROGRESS_NOTE			
Progess_id	INT(11)	PRIMARY KEY	PROGESS_ID
Iop_id	VARCHAR(25)	FOREIGN KEY	IOP_ID
dDate	DATE	NOT NULL	DDATE
dDateTime	VARCHAR(50)	NOT NULL	DDATETIME
Progess	TEXT	NOT NULL	PROGESS
Treatment	TEXT	NOT NULL	TREATMENT
Remarks	TEXT	NOT NULL	REMARKS
IOP_ROOM_TRNASFER			
Transfer_id	INT(11)	PRIMARY KEY	TRANSFER_ID
Iop_id	VARCHAR(25)	FOREIGN KEY	IOP_ID
dDate	DATE	NOT NULL	DDATE
dDateTime	VARCHAR(50)	NOT NULL	DDATETIME
Room_category_id	INT(3)	FOREIGN KEY	ROOM_CATRY_ID
Room_master_id	INT(3)	FOREIGN KEY	ROOM_MASTER_ID

Bed_id	INT(11)	NOT NULL	BED_ID
reason	TEXT	NOT NULL	REASON
Column Name	**Data Type**	**Constraint**	**Description**
IOP_VITAL_PARAMETERS			
Vital_id	INT(11)	PRIMARY KEY	VITAL_ID
Iop_id	VARCHAR(25)	FOREIGN KEY	IOP_ID
dDate	DATE	NOT NULL	DDATE
dDateTime	VARCHAR(50)	NOT NULL	DDATETIME
Pulse_rate	VARCHAR(25)	NOT NULL	PULSE_RATE
Temperature	VARCHAR(25)	NOT NULL	TEMPERATURE
Height	VARCHAR(25)	NOT NULL	HEIGHT
Bp	VARCHAR(25)	NOT NULL	BP
Respiration	VARCHAR(25)	NOT NULL	RESPIRATION
Weight	VARCHAR(25)	NOT NULL	WEIGHT
BB_BLOOD_INVENTORY			
Id	INT(30)	PRIMARY KEY	ID
Blood_group	VARCHAR(10)	NOT NULL	BLOOD_GROUP
Volume	FLOAT	NOT NULL	VOLUME
Status	TINYINT(1)	NOT NULL	STATUS
Donor_id	INT(30)	FOREIGN KEY	DONOR_ID
Request_id	INT(30)	FOREIGN KEY	REQUEST_ID
Date_created	DATETIME	NOT NULL	DATE_CREATED
BB_DONORS			
Id	INT(30)	PRIMARY KEY	ID
Blood_group	VARCHAR(10)	NOT NULL	BLOOD_GROUP
Name	TEXT	NOT NULL	NAME
Address	TEXT	NOT NULL	ADDRESS
Contact	VARCHAR(20)	NOT NULL	CONTACT
Email	VARCHAR(50)	NOT NULL	EMAIL
Date_created	DATETIME	NOT NULL	DATE_CREATED
BB_REQUESTS			
Id	INT(30)	PRIMARY KEY	ID
Ref_code	VARCHAR(20)	FOREIGN KEY	REF_CODE
Patient	TEXT	NOT NULL	PATIENT
Blood_group	VARCHAR(10)	NOT NULL	BLOOD_GROUP
Volume	FLOAT	NOT NULL	VOLUME
Physician_name	TEXT	NOT NULL	PHYSICIAN_NAME
Status	TINYINT(1)	NOT NULL	STATUS
Date_created	DATETIME	NOT NULL	DATE_CREATED

Column Name	Data Type	Constraint	Description
BB_HANEDOVER_REQUEST			
id	INT(30)	PRIMARY KEY	ID
Request_id	INT(30)	FOREIGN KEY	REQUEST_ID
Picked_up_by	TEXT	NOT NULL	PICKED_UP_BY
Date_created	DATETIME	NOT NULL	DATE_CREATED
CB_QUESTIONS			
Id	INT(30)	PRIMARY KEY	ID
Question	TEXT	NOT NULL	QUESTION
Response_id	INT(30)	FOREIGN KEY	RESPONSE_ID
CB_RESPONSES			
Id	INT(30)	PRIMARY KEY	ID
Response_message	TEXT	NOT NULL	RESP_MESAGE
CB_UNANSWERED			
Id	INT(30)	PRIMARY KEY	ID
Question	TEXT	NOT NULL	QUESTION
No_asks	INT(30)	NOT NULL	NO_ASKS

PROCESS LOGIC AND IMPLEMENTATION METHODOLOTY:

The complete Process Logic of various module and their implementation methodology is mentioned below:

(a) Reception:-

This module is logged in by the receptionist by his user id and password which will be provided by the system administrator. The receptionist can make patient management and they can add and edit patient details in the e-MIMS. Based on the registration patient can get unique ID for future reference. And receptionist can make registered patient appointment with doctor. All appointment will be displayed on the dashboard.

(b) Doctor:-

The Doctor will get the role based access on e-MIMS Web application. The doctor will treat the OPD & IPD patient and prescribe the medicine to patient and serious condition patient will be given admit advice by the doctor.

(c) Nurse:-

On successful login Nurse will come to dashboard of Nurse moduel. Where all IPD patient management will be done . where patient medicine records, intake/Output Records, Nursing progress notes, vital notes, Bed side Procedure, IP Room Transfer, patient History, Discharge Summary will be managed by the Nurse.

(d) Staff

For Hospital management staff portal login id and password is generated by the admin staff. After login in e-MIMS staff dashboard will open. Where all patient appointments will be displayed. He generate the patient bill and provides the surgical quotation. He can also update his profile and change password which is updated in staff database table.

(e) Report:-

For report generation staff portal login id and password is generated by the admin staff. After login in e-MIMS staff dashboard will open. Where all patient appointments will be displayed. He generate the patient master list report, individual patient report, output patient report, admitted patient report discharged patient report, doctor's fee, daily sales reports. patient bill and provides the surgical quotation. He can also update his profile and change password which is updated in concerned database table.

(f) Blood Bank Management:-

Blood bank management module is managed and control by admin staff of The Hospital. After login by the Admin staff he can keep record of donor list and blood handed over request and blood request. Timely blood can be provided to the needy patient.

(g) Chatbot:-

Chatbot module is managed and controlled by the admin staff of the Hospital. On main login page Chatbot can interact with user for the information which will be fed into the e-MIMS application by Admin staff. All responses to the questions will be given by the admin staff. And unanswered question list will be displayed in admin control blood bank dash board.

(h) Admin:-

Admin is having whole control of this e-Medical Information Management system. His login id and password is initial created by web application development team Which can be change in change password page after login. And the data is updated in user database table. On login e-MIMS dashboard will open. Where all others modules with additional module will be managed.

Admin module having access staff module, patient management module, nurse module and doctor module, report module, and blood bank management module and chatbot module and some addition module room management, EMR sheet records for in and Out patient, user management are done by the admin.

Hence Admin can control the whole activites of this application.

LIST OF REPORTS LIKELY TO BE GENERATED:-

Patient Masterlist report	:	view details of patient masterlist
Individual Patient report	:	View details of individual patient report
Out patient report	:	View details of out patient report
Admitted patient report	:	View details of admitted patient report
Discharged patient report	:	View details of discharged patient report
Daily sales report	:	View details of daily sales reports
Doctor's fee report	:	View details of Docter's fee report
Acknowledge receipt report	:	Vies details of acknowledge receipt report

OVERALL NETWORK ARCHITECTURE:-

As the Hospital is hosting its website and all users are having Local area network connected computers can access e-Medical Information Management system Web application. So All are connected through intranet.

Computer networks can be used for a variety of purposes:

- Facilitating communications:- Using a network, people can communicate efficiently and easily via email, instant messaging, telephone, video telephone calls, and video conferencing
- Sharing hardware:-In a networked environment, each computer on a network may access and use hardware resources on the network, such as printing a document on a shared network printer.
- Sharing files, data, and information:- In a network environment, authorized user may access data and information stored on other computers on the network. The capability of providing access to data and information on shared storage devices is an important feature of many networks
- Sharing software:- Users connected to a network may run application programmes on remote computers.
- Information preservation.
- Security.
- Speed up.

Security and Validations Check:-

Module Level Security and Validations:-

In this project different validation checks have been used. Once the form is being filled up, then it has to be validated properly after checking whether it satisfies all stipulated rules or not. Database constraints are used to stop data corruption. All the Tables are linked together using Primary key – Foreign key relationship.

Security is one of the one of the main component of the project. The concept of Secure Login has been implemented. Using Secure Login, all individuals will login to the software and do all their activities. All these activities will be monitored by capturing logs in various Audit tables.

The user password is kept secure using a very complex encryption algorithm. The password is to be at least 10 characters long, must contain a mix of alphabets, numbers and special characters.

In addition to module level security and validation checks, PHP and MYSQL has the edge in providing Strict Security and System integrity.

PHP provides following securities:-

(i) Authentication
(ii) Authorization
(iii) Data integrity
(iv) Data confidentiality.

MYSql 5.X provides following securities:-

(i) MySQL offers encryption using Secure Sockets Layer (SSL) protocol.
(ii) provides data masking..
(iii) authentication plugin, other layers of security to protect data integrity
(iv) MySQL supports multi-threading that makes it easily scalable.
(v) MySQL allows transactions to be rolled back, commit, and crash recovery.
(vi) Its efficiency is high because it has a very low memory leakage problem.
(vii) MySQL is faster, more reliable and, cheaper because of its unique storage engine architecture.
(viii) MySQL uses triggers, Stored procedures, and views that allow the developer to give higher productivity.
(ix) it is platform independent can be install and execute on most of the available operating systems.
(x) Partitioning features improves the performance and provides fast management of the large database.

FUTURE SCOPE OF THE PROJECT:-

The e-Medical Information Management System is aimed to provide the relief to the staff and patients of the Hospital from manual channel and to search through bulky files of reply of queries. If this system is implemented successfully, it will provide a very good communication channel within the Hospital. With some modifications depending on the feedback gained in run-time, more fruitful results can be obtained.

Once the Software is successfully completed and runs smoothly, it can be of great help for all other Hospital to automate their respective Hospital management system. Also, if the e-Medical Information management system gets automated, it will enhance the scope for further automation for by adding other module which will reduce the Hospital unnecessary paper work.

Here we can maintain the records of Hospital and Doctors. Also, as it can be seen that now-a-days the players are versatile, i.e. so there is a scope for introducing a method to maintain the Hospital Management System. Enhancements can be done to maintain all the Hospital, Doctors, Patient, staff, report. We have left all the options open so that if there is any other future requirement in the system by the user for the enhancement of the system then it is possible to implement them.

In the last we would like to thanks all the persons involved in the development of the system directly or indirectly. We hope that the project will serve its purpose for which it is develop there by underlining success of process.

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5. Lynn Beighley & Micchael Morrison :- The head first **PHP & MySQL** by O'REILLY.

Referred Web Pages:-

(a) Google for problem solving
(b) www.w3schools.com.
(c) www.codecademy.com
(d) www.udemy.com.
(e) www.tutorialspoint.com
(f) www.stackoverflow.com
(g) www.tutorialspoint.com/mysql/