The Mayo Clinic

STAKEHOLDERS

ACTOR	What he can do on the Software Created
Administrative staff	• The registration staff will give each patient a patient ID. This ID will be used by the patient throughout their stay in hospital. The patient ID will be deleted from the system when the patient checks out. • It keeps tracks of all the beds in the hospital. It will show the list of all the occupied and unoccupied beds in the hospital. Every 6 hours, the person in charge for the hospital floor will update the bed occupancy. • HMS will total up all the expenses of a patient at one time and produce a complete bill at the end of the consultation or at discharge.
Doctors	• The doctor can log in the system and enter the patient ID and view them directly. This eliminates the need of paper reports and retrieval is also easy.
Nurses	• While conducting patient care the nurse just looks up the system to understand which medicine or what line of treatment, they need to give the patients.
Senior Management	• Reports are generated from the HMS for senior management to have a clear understanding on the hospital's revenue, expenses, bed occupancy, and other details.
Patients	• Patients can select the doctor they would like to visit based on the appointment slot available for that doctor. • They will get an email and SMS reminders of appointment by the system.

Scope

Mention the scope of the system. How this will help respective stakeholder.

Patients Appointment Management:

- Display doctors' timings on the website for patient selection
- Allow patients to book appointments online.

- Send email and SMS reminders one day prior to the appointment.

Patient Registration:

- Registration of new patients with a unique patient ID.
- Patients' medical records and their history.
- Delete patients ID when the patient checks out.

Bed Occupancy:

- Show the list of all the occupied and unoccupied beds in the hospital.
- Update bed occupancy in every 6 hours.

Billing:

- Total up all the expenses of a patient at one time.
- Produce a complete bill at the end of the consultation or at discharge.

Laboratory, Blood Bank, and Radiation Departments Management:

- Manage tests prescribed by doctors.
- Receive and upload test reports.
- Direct access for doctors to view reports.

Reports:

- Generate reports for senior management on revenue, expenses, bed occupancy, etc.

Staff Management:

- Store the names and timings of the nurses and ward boys on duty with their respective ward numbers.

Instructions for Patients:

- Enter doctor**s' instructions for nurse reference during patient care.**

Insurance:

- Store insurance details for patients with insurance.

WORKFLOW OF THE PROPOSED SYSTEM

Create a pictorial workflow for the proposed system. [PDF Name - HMS FlowChart.drawio]

SCOPE using Use Case Diagram (UML)

Create a use case diagram including all the actors and processes for an end to end process of the system.

IN SCOPE

Mention the name of features and what they are used for. You can also mention the system reports generated and what will they be used for.

- **Patients Appointment Management:** Enables patients to schedule appointments online.
- **Patient Registration:** Streamlines the registration process and maintains accurate patient records.
- **Bed Occupancy:** Efficiently manages bed availability in the hospital.
- **Billing:** Consolidates patient expenses into a single bill**.**
- **Laboratory, Blood Bank, and Radiation Departments Management:** Facilitates communication and efficient management of diagnostic departments.
- **Reports:** Provides insights to senior management on revenue, expenses, and bed occupancy.
- **Staff Management:** Manages staff schedules and assignments.
- **Instructions for Patients:** Ensures standardized patient care based on doctors' instructions.
- **Insurance:** Stores insurance details for easy claim processing**.**

System Reports Generated:

1. **Bed Occupancy for Each Day:**

   Monitors and plans bed availability for efficient patient allocation**.**

2. **Doctors' Appointments and Revenue Generated through OPDs:**

   Tracks appointments and revenue to assess operational efficiency.

3. **Total Number of OPD Patients and Admitted Patients:**

   Provides an overview of outpatient and inpatient numbers**.**

4. **Doctors Generating Maximum Revenue:**

   Identifies top-performing doctors for strategic planning**.**

5. **Total Earnings through OPD and Admitted Patients:**

   Summarizes overall revenue generated through different services**.**

6. **Total Earnings Generated through Laboratory and Radiology:**

   Evaluates the financial contribution of diagnostic services**.**

OUT OF SCOPE

What are the facilities or features the are out of scope or cannot be implemented at present? You can also mention caveats.

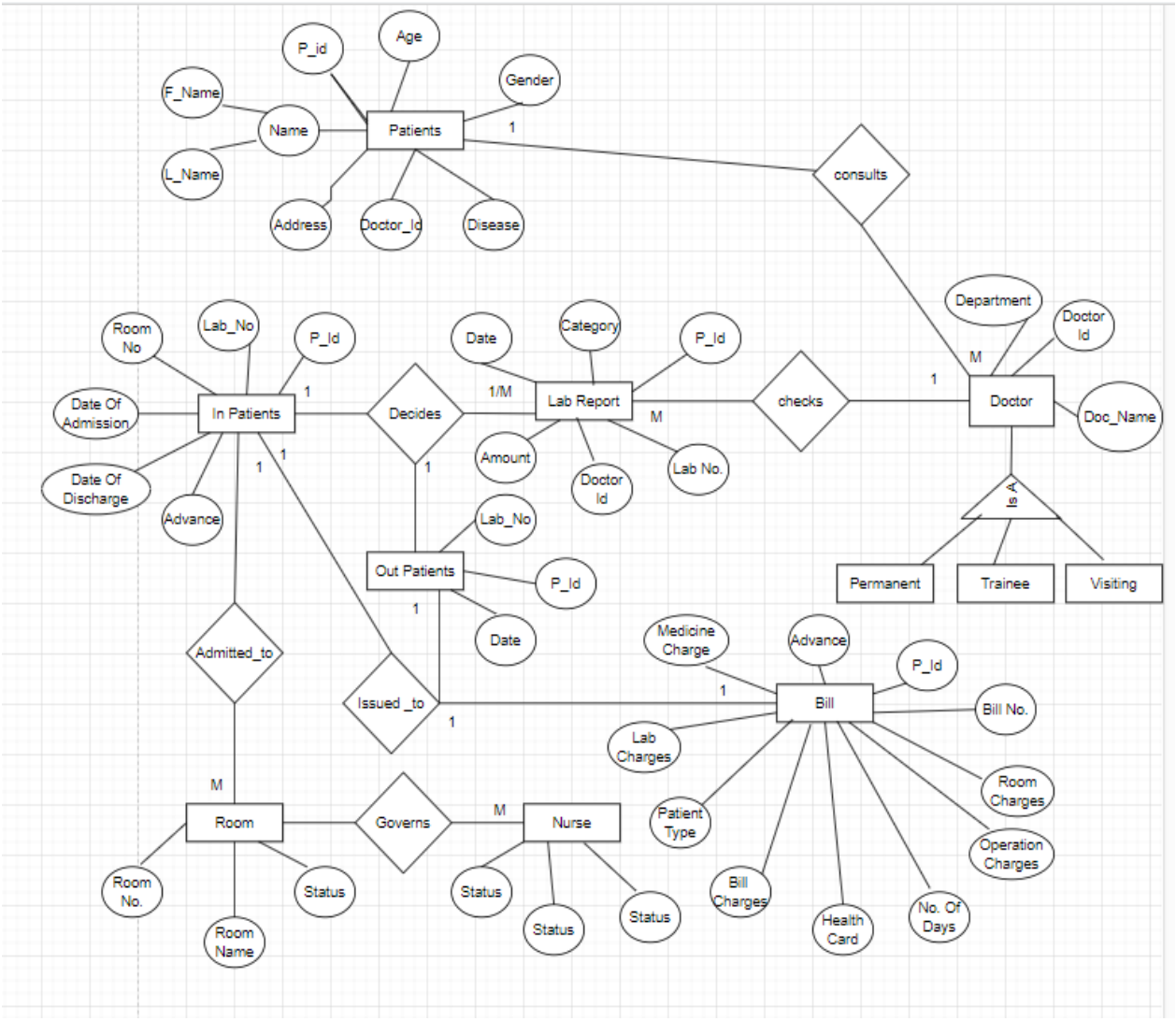
1. **Mobile Application for Patients**
2. **Real-Time Doctor-Patient Chat**
3. **E-medicine Services**

Caveats:

- **Response Time:** Responses in 1 second may not be consistent every time.
- **Capacity:** Only The system's capacity to support 500 people concurrently suggests potential scalability limitations.
- **Usability:** Ease of use varies from person to person; ongoing user input may be needed for enhancements.

ER Diagram for HMS

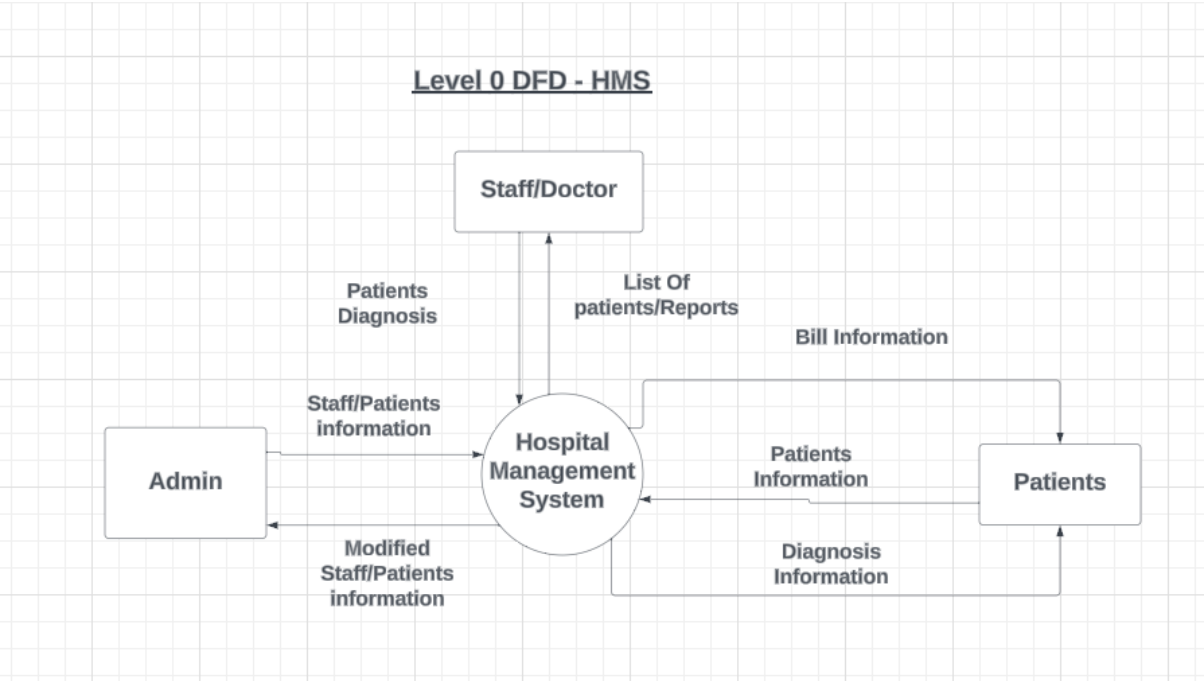
Create an ER Diagram for the system you have designed. **[PDF ER Diagram HMS]**



Data Flow Diagram for HMS

Create a Data Flow diagram for the hospital management system you have designed.

[PDF – Level 0 DFD Hospital Management System]



Flow chart for patient admission

Create a Flow Chart to depict how patient admission will be done. **[PDF Flowchart Patient Admission]**

FUNCTIONAL REQUIREMENTS

Write down all the functional requirements for the system.

- **Patients Appointment Management**
- **Patient Registration**
- **Bed Occupancy**
- **Billing**
- **Laboratory, Blood Bank, and Radiation Departments Management**
- **Reports**
- **Staff Management**
- **Instructions for Patients**
- **Insurance**
- **System Reports Generated**
- **Database**
- **Operating System**
- **Web-Based**
- **Response Time**
- **Capacity**
- **Errors**
- **Availability**
- **Usability**

NON-FUNCTIONAL REQUIREMENTS

System Requirement:

- Database: MySQL Database to be used since it is open source and free.
- Operating System: Shall be Windows 2016
- Web-Based: The system shall be a web-based application.
- Response Time: The system shall give responses in 1 second.
- Capacity: The System must support 500 people using it at a time
- Errors: The system shall keep a log of all the errors.
- Availability: The system shall be available all the time.

Usability:

- The screens should be self-explanatory and very user friendly. Management would not want employees not ordering from the system as they cannot understand the screens and data fields on screen. The users should not find the system cumbersome.
- Video should be available for the basic functionalities.
- Voice feature should be built in the application.

Screen Wireframes

Create wireframes for every screen that will appear to the users of the system.

[PDF - HMS Project - Home & Patient Registration Screen]