PES UNIVERSITY

Department of Computer Science and Engineering

UE21CS351A: Database Management System

Project Title:

Healthcare Management System

Team Members:

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Abstract

The Healthcare Management System is a comprehensive software solution designed to streamline and enhance the operations of a healthcare facility, such as a hospital or clinic. In today's complex healthcare environment, efficient data management and patient care are essential. This system serves as a vital tool to optimize hospital processes, improve patient care, and facilitate the work of medical staff.

Features:

1. **Patient Management:** The system allows for the efficient management of patient information, including registration, medical history, and treatment plans.

2. **Doctor and Nurse Management:** Healthcare providers can manage doctor and nurse schedules, patient assignments, and medical staff information.

3. **Appointment Scheduling:** Patients can book appointments online, and the system assists in appointment scheduling, reducing waiting times and improving patient satisfaction.

4. **Prescriptions and Medical Records:** Doctors can create and manage prescriptions and medical records electronically, ensuring accurate and accessible patient information.

5. **Medical Departments:** The system categorizes medical services into departments such as General, Cardiology, Neurology, Dermatology, and more, streamlining healthcare specialization.

6. **Ward Management:** Hospitals can efficiently manage different types of wards, including General, Emergency, Operation Theatre, and ICU.

7. **Billing and Payment:** The system offers billing functionality for healthcare services, facilitating easy payment processing for patients.

User Requirement Specifications

Functional Requirements:

1. Patient Management:

Allow hospital staff to register new patients with personal and medical information.
Maintain and update patient records, including medical history and treatments.
Enable medical staff to access patient information for diagnosis and treatment.

2. Doctor and Nurse Management:

Provide a platform for the hospital administration to manage doctor and nurse schedules.
Assign patients to doctors and nurses based on their expertise and availability.
Maintain doctor and nurse profiles, including qualifications and responsibilities.

3. Appointment Scheduling:

Allow patients to schedule appointments online or through the system.
Ensure that appointments do not conflict with doctor and nurse schedules.
Send appointment reminders to patients via email or SMS.

4. Prescriptions and Medical Records:

Allow doctors to create, update, and manage electronic prescriptions and medical records.
Ensure the security and privacy of patient records, following healthcare data protection regulations.

5. Medical Departments:

Categorize healthcare services into various departments (e.g., Cardiology, Neurology).
Assist patients in selecting the appropriate department for their medical needs.

6. Ward Management:

Enable the hospital staff to manage different types of wards.
Assign patients to specific wards based on their medical condition and treatment requirements.

7. Billing and Payment:

Generate bills for healthcare services provided to patients.
Allow patients to make payments online or at the hospital.
Maintain a record of payments and outstanding balances.

Non-Functional Requirements:

1. Technology Stack:

Frontend: HTML, CSS, JavaScript, ReactJS (for a responsive and interactive UI).
Backend: Node.js (for server-side logic).
Database: MySQL (for data storage and retrieval).

2. Performance:

Ensure the system responds quickly to user interactions, providing a seamless experience.
Implement caching mechanisms to improve performance.

3. Security:

Implement robust security measures to protect patient data and comply with healthcare data privacy regulations.
Use encryption for data transmission and storage.

4. Scalability:

Design the system to accommodate future growth in terms of patients, doctors, and medical facilities.

5. Usability:

Develop an intuitive and user-friendly interface for both hospital staff and patients.
Conduct usability testing to ensure an efficient user experience.

6. Data Backup and Recovery:

Regularly back up patient data to prevent data loss.
Establish a data recovery plan to restore data in case of unexpected incidents.

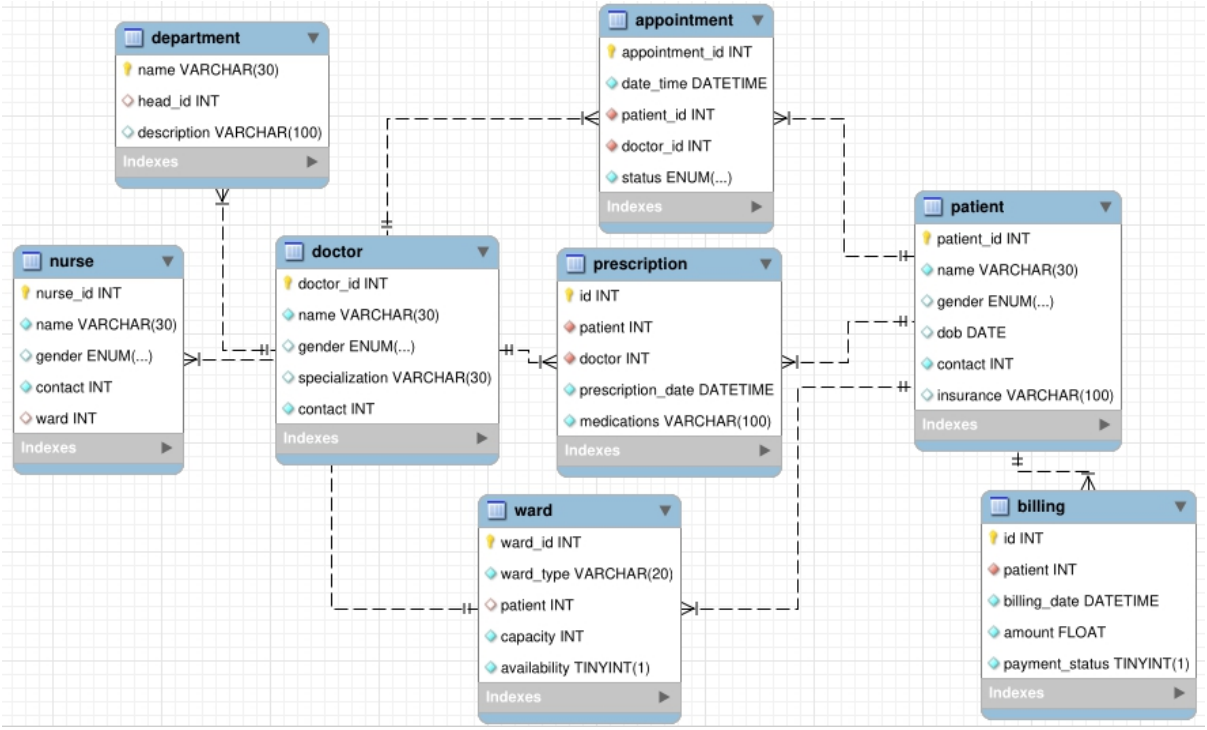
7. Integration:

Ensure the system can integrate with external systems or APIs, such as insurance providers or laboratory services.

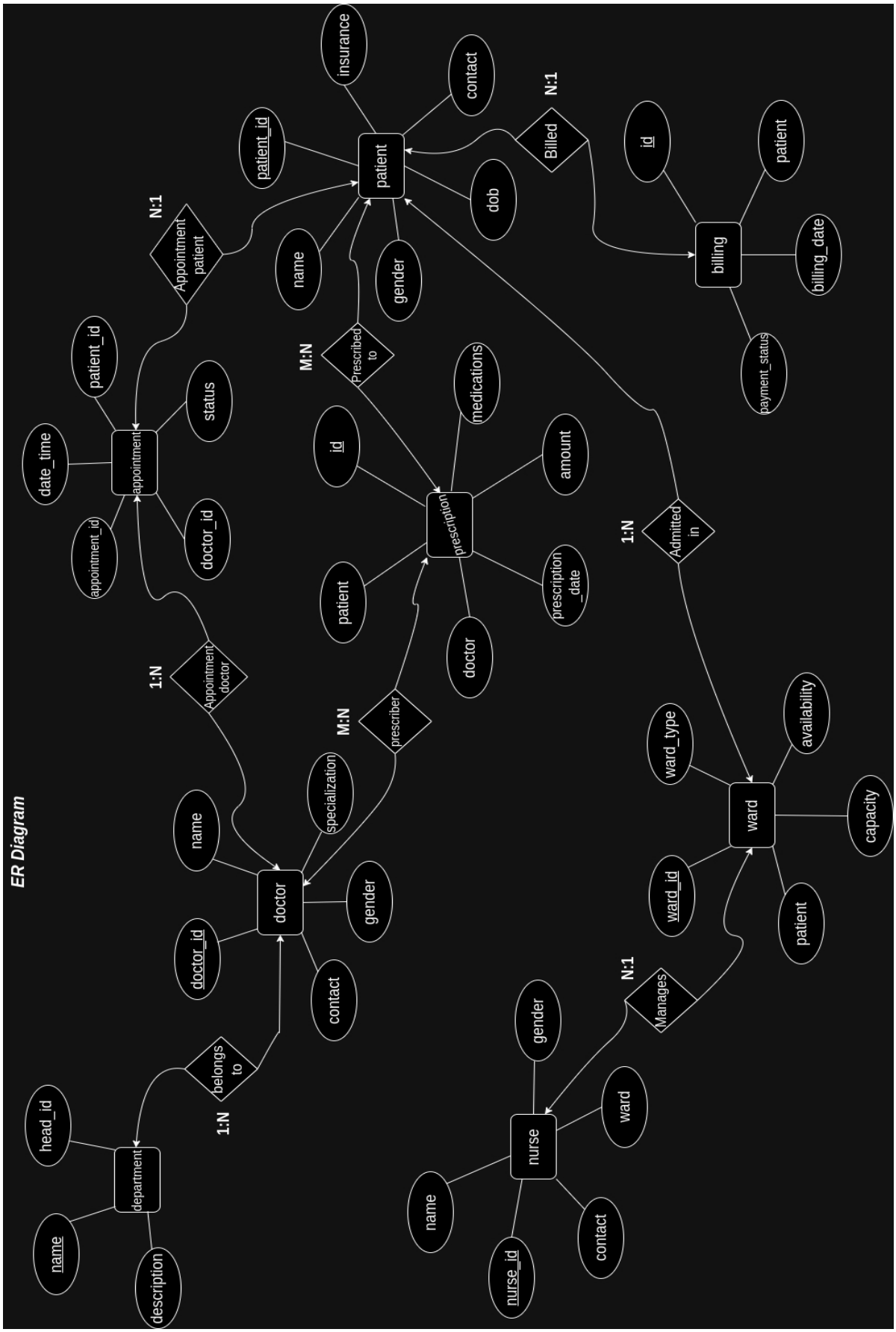
8. Compliance:

Ensure compliance with healthcare regulations and standards, such as HIPAA, to protect patient privacy and data security.

Relation Schema:



ER Diagram:


ER Diagram
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belongs to
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Conclusion:

This Healthcare Management System aims to provide hospitals and healthcare facilities with a powerful tool to streamline their operations, improve patient care, and ensure data security. It leverages modern web development technologies to deliver a responsive and user-friendly experience for both healthcare providers and patients.