



Department of Computer Science & Engineering

Mini-Project Synopsis- Academic Year 2023-24

1	Title of the Project	Hospital Management System
2	Team No	A1
3	Department	Department of Computer Science & Engineering
4	Project Area/Domain	Database Management System
5	Project Type	Software
6	Name of the Students with USN	1. Deeya Das – 4SF21CS039 2. Jampala Poojitha – 4SF21CS062
7	Name of Guide	Dr. Priya R Kamath

8. Abstract

A database management system (DBMS) refers to the technology for creating and managing databases. DBMS is a software tool used to organize (create, retrieve, update, and manage) data in a database. The main aim of a DBMS is to supply a way to store and retrieve database information that is both convenient and efficient.

Hospital Management System (HMS) utilizes the DBMS as a software tool to organize and manage patients, doctors, appointments, prescriptions, bills, and administrative data within a relational database. The primary goal of incorporating the DBMS into the HMS is to provide a convenient and efficient means of storing and retrieving healthcare information. This integration optimizes data management processes, ensuring the seamless organization of medical records, scheduling, billing, and administration within the hospital ecosystem.



9. Problem Statement

Manual hospital appointment systems create long wait times, frustrate patients, and waste resources for doctors and healthcare establishments. These traditional methods lack real-time doctor availability, clear communication, and accessibility, which only compounds the problem. To address these issues, we propose a comprehensive and innovative Hospital Management System (HMS). Our system provides patients the ability to book appointments online, while doctors can manage their schedules in real time. Appointment confirmations are clear, and the software is easily adaptable to the varying needs of healthcare establishments. By implementing HMS, we aim to significantly reduce wait times, improve communication, optimize doctor schedules, increase accessibility, streamline administration, and ultimately deliver a more positive and patient-centric healthcare experience. We believe that our solution will transform the healthcare industry by providing a more efficient and effective healthcare experience for all parties involved.

Requirements

The system revolves around key entities, including Patients, Doctors, Appointments, Departments, Hospitals, Payments, Prescriptions, Bills, and an Admin entity for system administration.

Patients are characterized by their Patient ID (PID), Name, Date of Birth, Blood Group, Email ID, Address, and Mobile Number.

Each patient can have multiple appointments and a one-to-one link with a Prescription entity, capturing details like Remarks, Medicine, and Advice.

Doctors are identified by Doctor ID (DID), Age, Gender, Schedule, Experience, Mobile Number, Email ID, and Specialization, forming one-to-many relationships with Appointments

Appointments encompass attributes such as Date, Time, PID, Consultant Fee, Specialization, and Doctor Name, establishing many-to-one relationships with both Patients and Doctors.

Including a Bill entity, with attributes like Bill No, PID, date, time, and amount, establishes a one-to-one relationship with the patient and admin.

Finally, an Admin entity is introduced, featuring attributes such as Admin ID(AID), name, date of birth, mobile no, email ID, gender and address, to manage system administration. This structured database model aims to streamline healthcare processes, reduce wait times, enhance communication, and improve overall patient experiences.



Description:

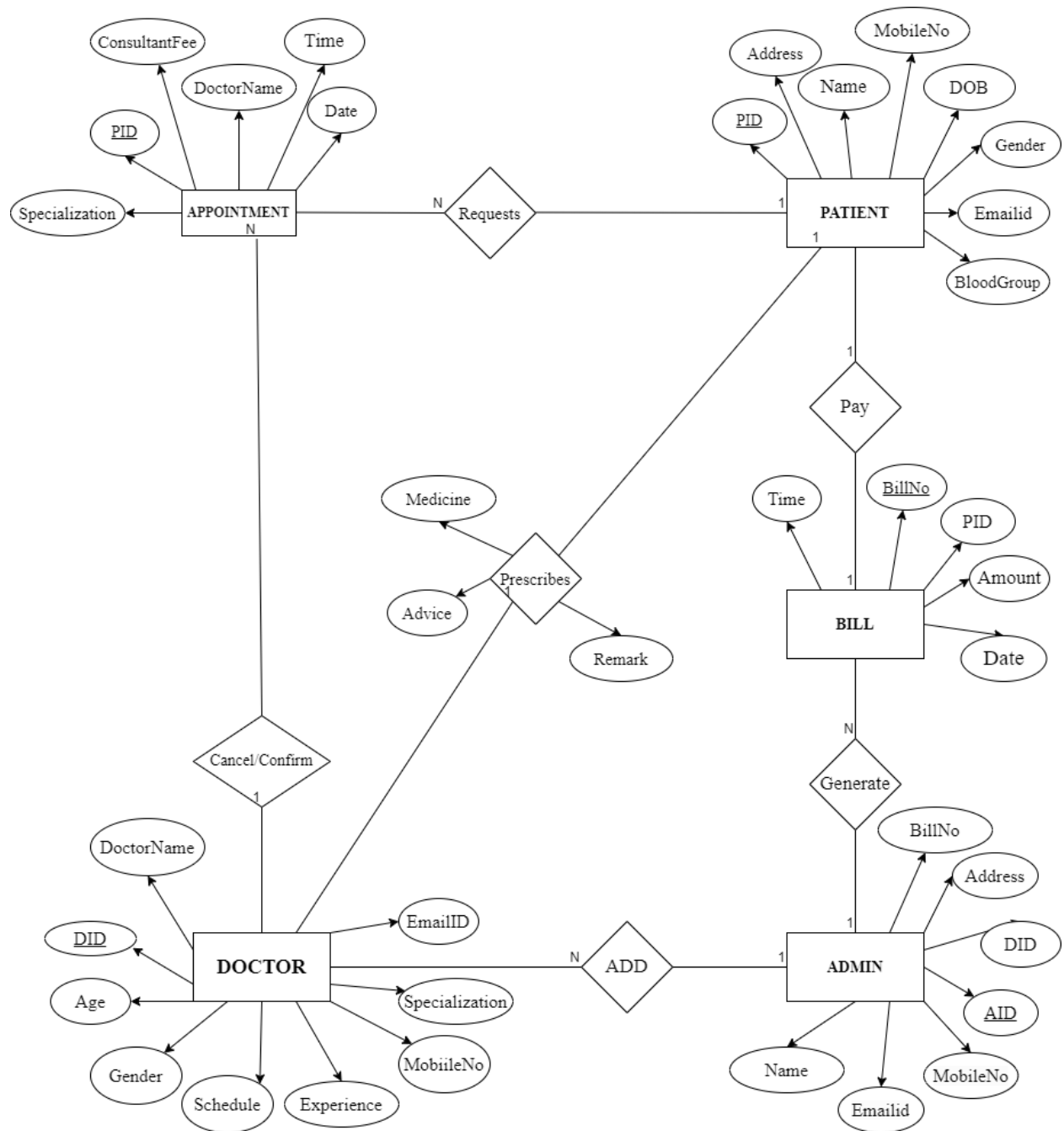
The current manual hospital appointment systems have been proven to be inefficient, resulting in extended wait times, frustrated patients, and a misallocation of resources for both healthcare providers and establishments. Traditional methods are magnified by the absence of real-time doctor availability, transparent communication, and easy accessibility, compounding the challenges faced by the healthcare system. To address these issues, we propose a comprehensive Hospital Management System (HMS).

The main objective of the HMS is to address the shortcomings of the current manual appointment systems by using advanced technology and streamlined processes. By implementing the HMS, we aim to empower both patients and healthcare providers. Patients will benefit from the convenience of online appointment booking, ensuring a simplified and hassle-free scheduling experience. Real-time doctor schedules will be made available, allowing patients to choose appointments that suit their needs. Clear confirmation processes will alleviate any uncertainties, fostering a more transparent and reliable communication channel between healthcare providers and patients.

The HMS will also provide administrative tools for optimizing doctor schedules, ensuring a balanced distribution of appointments and efficient resource utilization. Accessibility features will enhance the overall user experience, making it easier for patients to interact with the system. The seamless integration of software will facilitate a cohesive and interconnected healthcare environment, where information can flow seamlessly across various components of the system.

Scalability is a key feature of the proposed HMS, ensuring adaptability to diverse healthcare needs. The system is designed to evolve with the changing landscape of healthcare, accommodating new technologies, procedures, and requirements. Through the implementation of the HMS, we anticipate a substantial reduction in wait times, an improvement in communication channels, optimization of doctor schedules, increased accessibility for patients, and a more streamlined administrative process. Ultimately, the HMS aims to deliver a positive and patient-centric healthcare experience, transforming the way appointments are managed and enhancing the overall quality of healthcare services provided.

ER Diagram





10. Relational Schema

STEP 1:

Mapping of regular entity types. The regular entity types of our project are shown in figure.

PATIENT

<u>PID</u>	Name	DOB	Gender	BloodGroup	Emailid	Address	MobileNo
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DOCTOR

<u>DID</u>	Age	Gender	Schedule	Experience	MobileNo	Specialization	Emailid	<u>Doctorname</u>
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APPOINTMENT

<u>PID</u>	DoctorName	Time	ConsultantFee	Specialization	Date
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BILL

PID	<u>BillNo</u>	Date	Time	Amount
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ADMIN

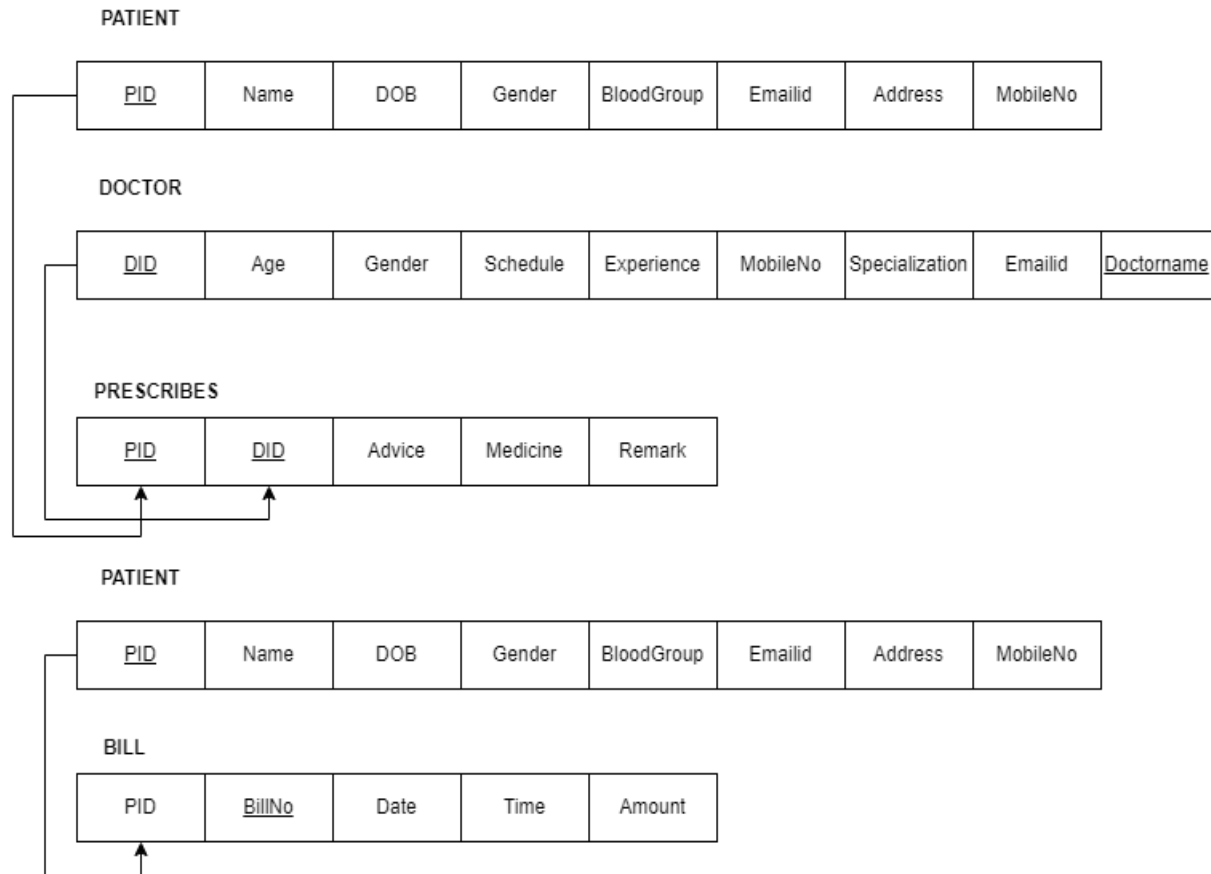
<u>AID</u>	Name	BillNo	MobileNo	Emailid	DID	Address
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STEP 2:

Mapping of weak entity types The ERD of our project doesn't contain weak entity

STEP 3:

Mapping of binary 1:1 relation types The ERD of our project contain 1:1 relation types.



STEP 4:

Mapping of 1: N relation types For every 1:N relation types identify the entity which is in the N-side. Make primary key of entity which is participating in 1 side as foreign key of entity which is N-side. If there are any attributes for the relationship add to the N-side. The ERD of our project 1:N relation type is shown below



ADMIN

<u>AID</u>	Name	BillNo	MobileNo	Emailid	DID	Address
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BILL

PID	<u>BillNo</u>	Date	Time	Amount
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DOCTOR

<u>DID</u>	Age	Gender	Schedule	Experience	MobileNo	Specialization	Emailid	<u>Doctorname</u>
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ADMIN

<u>AID</u>	Name	BillNo	MobileNo	Emailid	DID	Address
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DOCTOR

<u>DID</u>	Age	Gender	Schedule	Experience	MobileNo	Specialization	Emailid	<u>Doctorname</u>
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APPOINTMENT

<u>PID</u>	DoctorName	Time	ConsultFee	Specialization	Date
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STEP 5:

Mapping of M: N relation types The ERD of our project does not contain any M:N relation types.

STEP 6:

Mapping of multivalued attributes The ERD of our project does not contain any Multivalued Attributes.

STEP 7:

Mapping of N-ary relation types The ERD of our project does not contain any n-ary relations



SCHEMA

