Project Title: Online Medical Consultation System

Problem Description:

Our aim is to build a system for managing online medical consultation data for a chain of hospitals which has its branches located all across the country. Our system will maintain and keep track of all the information regarding patients, doctors, hospital's branches, the medical branches available for consultation within each branch of the hospital, appointment details, online payment records, video/voice/chat data which is created in the actual consultation process, patient reports, digital prescription, laboratories and online pharmacies our hospital has a tie-up with. Our database is not going to store details of hospital, laboratory or pharmacy management.

Database Requirements:

- The primary users of our system are patients and doctors.
- Patient has patient Id, first name, last name, dob, gender, mobile number, address, email id, password, height, weight, allergies, medical history, photo and Id proof.
- Doctor has doctor Id, first name, last name, qualification, specialization, experience, dob, gender, mobile number, address, email Id, password, languages known, charge per consultation, medical license, digital signature, rating, photo and Id proof.
- Hospital has registration id, name and digital signature.
- Hospital Branch has branch Id, phone number, email Id, address and stamp.
- Medical Branch has medical branch Id, name and description.
- Availability of Doctor has availability Id, weekday, number of days, start time and end time.
- Appointment has appointment Id, date of appointment, time of appointment, duration of appointment, symptoms listed by the patient and appointment status (pending/conducted/follow-up/cancelled).
- Payment has payment Id, amount of transaction, payment gateway, UPI Id and refund(yes/no).
- Patient Record is a weak entity and it has patient record Id, doctor's observation, doctor's diagnosis, digital prescriptions, lab reports and ordered medicine(yes/no).
- Meet Detail has meet link, video recording link, telephonic recording link, chat data and doctor's feedback. It is a weak entity and it is dependent upon appointment.
- Feedback has feedback Id, review by patient and rating.
- Laboratory has lab id, name, phone number, email Id and address.
- Pharmacy has pharmacy id, name, phone number, email Id, address and website URL.
- State has state Id and name.
- City has city Id and name.

- FAQ has faq Id, question and answer.
- A hospital can have many branches and a branch can belong to only one hospital.
- One hospital branch can have many medical branches and one medical branch can be a part of many hospital branches.
- A doctor can work in only one hospital branch and one hospital branch can have many doctors.
- A doctor can work in only one medical branch and one medical branch can have many doctors.
- A doctor can have many availabilities for appointment booking but every availability can belong to only one doctor.
- A patient can book one or many appointments but one appointment can be booked by only one patient.
- A doctor can be booked for many appointments but one appointment can be booked for only one doctor.
- For one appointment only one payment can be made and one payment can be made for only one appointment.
- A patient can have many patient records but one patient record has details of only one patient.
- A patient record can be made for only one appointment and one appointment can have only one patient record.
- A patient can have only one patient record for an appointment.
- A patient can book only one doctor for an appointment.
- Each appointment can have only one meet detail and one meet detail can be stored for only one appointment.
- A patient can give one feedback for one appointment.
- For one appointment, at most one lab can be booked.
- For each patient record, medicine might be ordered from the online pharmacy.
- A state can have many cities but one city can be a part of only one state.
- A hospital branch can be located in only one city and one city can have only one hospital branch.
- A hospital can have many FAQs and each FAQ belongs to a hospital.
- Each laboratory belongs to a specific hospital branch.

Queries that the database system should be able to answer:

- For a patient ‘XYZ’, retrieve doctor’s diagnosis, digital prescription and lab reports.
- Retrieve the patient details and recorded video consultation for a given appointment Id.
- List all doctors from ‘M’ medical branch working at ‘H’ branch of the hospital.
- List all the patient details who booked an appointment since 1st March, 2020 in the ‘M’ medical branch.
- List the number of consultations held for a patient ‘P’ in the year 2019 and 2020.
- List names of top 5 doctors from ’D’ department who completed maximum number of consultations in July 2020.
- List the hospital branch with least number of consultations in 2020.
- Retrieve the patient details who booked a specific lab Id in ‘H’ hospital branch for a pathology test at home.
- List the doctors with high consultation charges grouped by their consultation time.
- Retrieve the patients who have paid more than Rs. 10,000 in the year 2020 for their online consultation.
- List the doctor details who has been booked for the second highest number of appointments.
- List the patient details who have ordered medicine from the online pharmacy in 2020.
- Retrieve the reviews given by a patient ‘P’ for a doctor ‘D’.
- List the patients who gave doctor ‘Q’ a rating of more than 3 out of 5.
- List the doctor who has the lowest rating in the ‘X’ medical branch.
- List the hospital branches located in ‘X’, ‘Y’, or ‘Z’ cities.
- List the appointments having appointment status as ‘cancelled’ for a doctor ‘A’.
- List the top 3 labs which have been booked the maximum number of times in the year 2019.
- List the top 5 doctors whose patients have booked labs the minimum number of times.
- List the average consultation fees a patient has to pay for a medical branch ‘J’.