**Final Project**

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The database system that I created is designed to support a healthcare facility’s operational and clinical needs. It captures and manages patients, appointments, prescriptions, and insurance data. This healthcare database is structured around several different entities: patients, Doctors, Appointments, Prescriptions, Insurance, Medical Records, and Departments. Each is important for the information they share with each other and is important for data reliability crucial for healthcare. Each of these is represented as a table in the database.

The patient table stores personal data and contact information, which is important for identification and communication. The doctor table captures details about medical professionals, including their specialty, so the database can be efficient doctor-to-patient. The appointment table links patients and doctors and records details about the visit. The department's table manages details about hospital departments housing the doctors. The prescriptions table contains details about the prescription issued by a doctor to ensure proper use of medication. The insurance table holds insurance details for patient's billing and claims. Finally, the medical record table captures diagnosis, treatment, and follow-up information. These are all crucial to work as one for a healthcare facility to operate correctly. I decided on these choices as these are the key foundations of a healthcare system that puts patients first.

The design of this database shows the importance of integrity and data normalization. The database aimed to avoid data redundancy and make the data consistent, as data must be accurate in the healthcare environment. The database linked important information across tables through foreign keys to maintain reliable and accurate data relationships.

The database queries show just that. In query 1, we can see John Doe’s appointments. This is crucial in showing the administration the patient's name, contact information, and insurance details so the administration can verify their coverage before the appointment and any paperwork needed. This links many tables to get this information and shows the reliability that each part of a hospital system has on each other. This relies heavily on the joins from the appointment, patients, doctor, and insurance tables and is important for the patient intake process. In query 2, the database showcases that through foreign keys, we can see the volume of prescriptions from each doctor through joins. It shows them in descending order so you can view any abnormal amounts for safety purposes. Query 3 can be used as a follow-up report to view the patients that require a follow-up and show how many days until their next visit and the date of that visit. This links medical records and patients if the follow-up is required and shows the next appointment date. For any healthcare system, this is very important because the doctor needs to know and be prepared for this, as well as the administration. Query 4 is big and links most of the tables together to get the needed results. It is used as a detailed overview of patient’s appointments to ensure everything is coordinated correctly. It provided important patient information, prescription and insurance information for those patients, the appointment date, time, and purpose, and the doctor's information. This query can be used if you need more information on a patient and can be used in almost all cases. It is ordered by doctors' first names so doctors can easily see the information tied to them, but it can be sorted in whichever way it needs to be. This is a huge aid for patient care management. These queries tested the database and showed the importance of linking this information in a database, especially in a healthcare environment where you need the information to be reliable and fast.

I had many challenges making this database, mainly with data integration, especially with the number of tables that share information with joins and foreign keys. It took a few restarts and dropping tables many times because, at the start, I tried to create tables with foreign keys but realized after a few tries that it was best to create the tables and then separately add the foreign keys. The queries took me some time to think of just one scenario for some of these queries as they can still be used for many things, but I had fun creating them. This took some time to create, especially the data inside, which required research for hospital terminology. I had fun making up medication and most of the information while still making it look professional. I took what I messed up with in my previous projects and tried to improve on those areas.