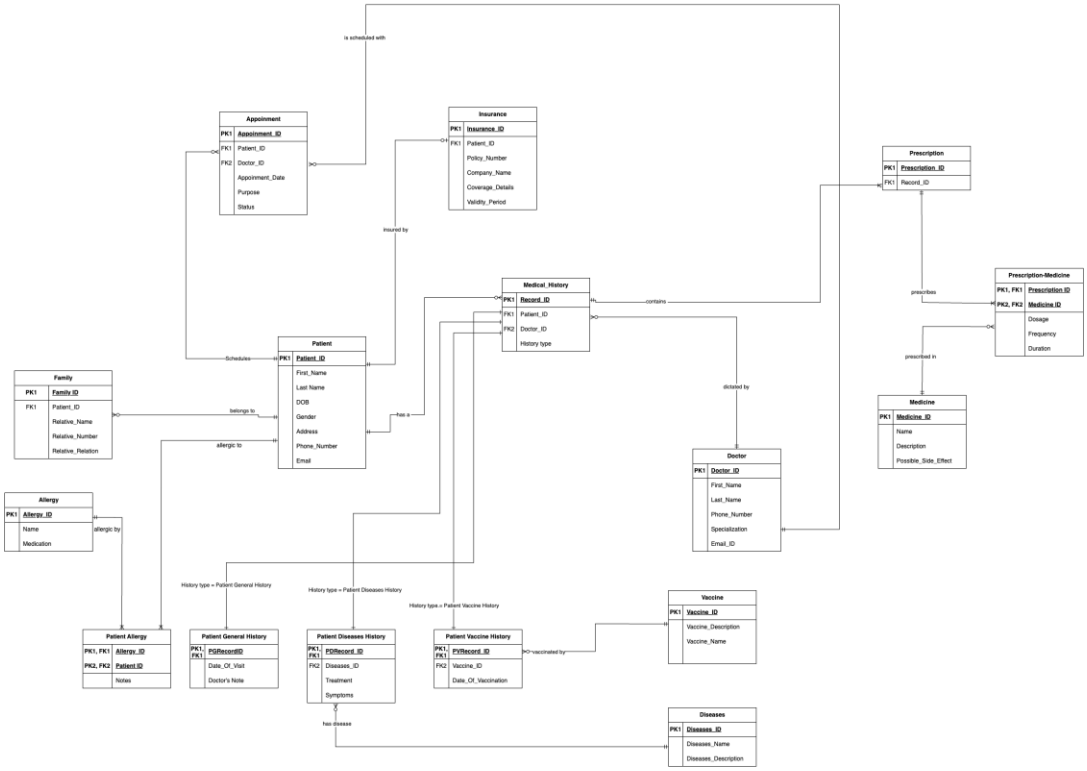
ER Diagram - Patient Record Management System



ERD Draw.io

Entities:

Patient: Represents the individual receiving medical care, with attributes ID, last name, first name, date of birth, gender, address, phone number, email.

Allergy: Captures information about the patient's allergies, including an ID for the allergy itself, the name of the allergen, and the medication used for treatment.

Patient Allergy: Connects patient information to specific allergies, with attributes allergy ID, patient ID, and notes regarding the patient's allergic reactions.

Patient General History: Maintains records of general health visits and observations, with the record ID, date of visit, and doctor's notes about the general health check-up.

Patient Diseases History: Contains details of the patient's past illnesses, with a unique record ID, the ID of the diagnosed disease, prescribed treatment, and observed symptoms.

Patient Vaccine History: Tracks vaccinations received by the patient, with a record ID, vaccine ID, and date of vaccination.

Diseases: Enumerates different illnesses with a unique disease ID, the name of the disease, and a detailed description of each.

Vaccine: Details vaccines administered, with a vaccine ID, a descriptive name for the vaccine, and a detailed description of the vaccine.

Medicine: Catalogues medications, with a medicine ID, the name of the medicine, a description, and any possible side effects associated with the medicine.

Prescription: Relates to the specific medication instructions given to a patient, with an ID for the prescription, linked record ID from Medical History.

Prescription-Medicine: Functions as a relational bridge between patient prescriptions and medicines, encoded with unique Prescription and Medicine IDs. It meticulously records medication regimens by detailing the dosage amounts, the intervals at which medications are to be taken, and the overall duration of the treatment.

Medical History: Records comprehensive medical data of the patient, with a unique record ID and foreign keys linking to the Patient, Doctor, and has history type which is either Patient General History, Patient Diseases History or Patient Vaccine History.

Insurance: Manages information regarding the patient's health insurance policy, with an insurance ID, patient ID, policy number, insurance company name, coverage details, and the validity period of the policy.

Family: Represents the family members related to the patient, containing the Family ID, patient's ID, and details about the relative including name, contact number, and the nature of their relationship to the patient.

Appointment: Details the scheduled appointments for the patient, with attributes such as appointment ID, linked patient ID, Doctor ID, appointment date, purpose of the visit, and the current status of the appointment.

Doctor: Details the healthcare providers, with attributes including Doctor ID, first name, last name, contact phone number, area of specialization, and email ID.

Relationships:

Belongs to: A patient may belong to zero or many families. Consequentially, a family may have one or many members who are patients.

Schedules: A patient may schedule zero or many appointments. An appointment must belong to a patient.

Insured by: A patient may or may not subscribe to an insurance policy that has a unique insurance ID. However, an insurance policy must belong to a patient.

Has A: A patient may or may not have a medical history; it depends on their prior medical records. A medical history, however, must belong to a patient.

Patient medical history is further specified into 3 subtypes. All subtypes will have one to one relationship with supertype:

1. Patient's general medical History: It maintains general visits to the hospitals.
2. Patient's disease History: It maintains patient's disease related historical records.
3. Patient's vaccination History: It maintains Patients vaccination related records.

Is Scheduled with: An appointment is scheduled by a patient with one or many doctors. A doctor may have zero or many appointments scheduled with the patients.

Contains: A medical history of a patient may have one or many prescriptions. A prescription must belong to medical history.

Prescribed In: A medicine may be prescribed in zero or many Prescription records. However, a prescription may have one or many medicines prescribed in it.

Specified In: A medical history may have zero or many vaccination records. A vaccine can be specified in zero or many medical histories.

Diagnosed In: A disease may be diagnosed in zero or many medical histories. However, medical history may have zero or many diseases diagnosed in it.

Dictated By: A medical history may be dictated by one or many doctors. However, a doctor may dictate zero or many medical histories.

Allergic to: A patient can have multiple allergies. One type of allergy can happen in multiple patients. It is a many-to-many relationship. We have created a separate table to maintain patient and their allergy related information.

Key Design Decisions:

The Patient Record Management System's ER diagram comprehensively captures crucial healthcare data, covering all aspects of patient care, from medical records to insurance details. Its design effectively connects vital elements, mirroring the dynamic relationships between patients and providers, and maintaining data accuracy through strategic key assignments. Built for scalability, the system easily accommodates additional patient data for seamless integration. Highlighting the key entities ensures that crucial healthcare

procedures are thoroughly documented. Furthermore, the diagram facilitates data analysis, simplifying the collection and synthesis of patient information to support both operational and clinical decision-making.

The system's modular elements allow for swift updates, mirroring the ever-changing nature of healthcare services. It efficiently manages complex relationships, such as patients with multiple physicians, capturing the intricate healthcare landscape. In addition, the ER diagram prioritizes seamless data accessibility, a critical component for prompt and well-informed patient care decisions, solidifying its role as the cornerstone of a robust healthcare database system.

GitHub Link: https://github.com/Ronak-Mahidharia/DMDD_T9