# Homework 1
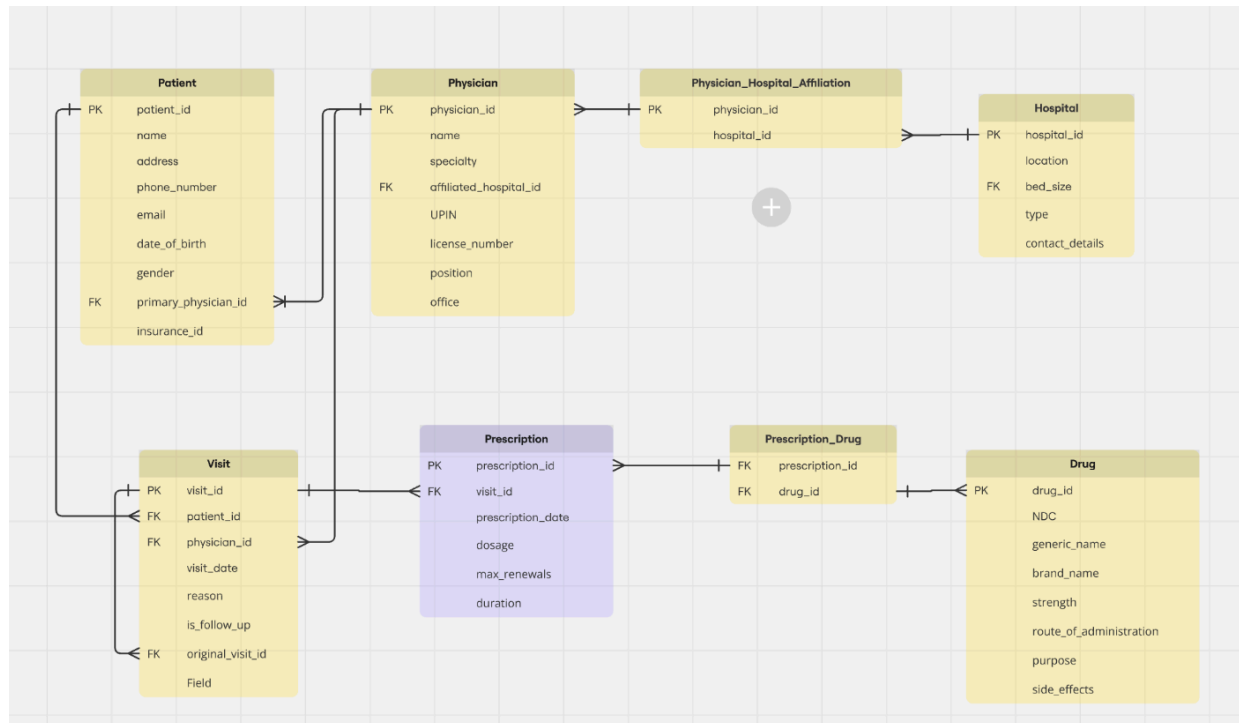


1. Patient Table

   a. Purpose: Stores detailed information about each patient, including personal details, insurance, and their primary care physician.

   b. Attributes:

      i. patient_id (Primary Key): Unique identifier for each patient.

      ii. name, address, phone_number, email, date_of_birth, gender: Personal information about the patient.

      iii. primary_physician_id (Foreign Key): Links to the Physician table, indicating the patient's primary care physician.

      iv. insurance_id: Identifier for the patient's insurance provider (not detailed as a separate table per assignment notes).

   c. Relationships:

      i. One-to-Many with Visit: Each patient can have multiple visits.

      ii. One-to-One with Physician (Primary Care): Each patient has one primary care physician, but a physician can have multiple patients.

   d. Assumptions:

      i. Each patient has only one primary physician.

      ii. Each patient has a single insurance provider.

2. Physician Table

   a. Purpose: Stores information about healthcare providers, including personal details, specialties, and unique identification numbers.

   b. Attributes:

   i. physician_id (Primary Key): Unique identifier for each physician.

   ii. name, specialty, UPIN, license_number, position, office: Details about each physician.

  c. Relationships:

   i. One-to-Many with Visit: Each physician can have multiple visits associated with different patients.

   ii. Many-to-Many with Hospital through Physician_Hospital_Affiliation: A physician may work at multiple hospitals, and each hospital may have multiple physicians.

   iii. One-to-Many with Patient: A physician can be the primary care provider for multiple patients.

  d. Assumptions:

   i. Each physician can be affiliated with multiple hospitals.

   ii. Each visit involves only one physician.

3. Hospital Table

  a. Purpose: Stores information about hospitals affiliated with the healthcare providers.

  b. Attributes:

   i. hospital_id (Primary Key): Unique identifier for each hospital.

   ii. location, bed_size, type, contact_details: Information about the hospital's characteristics and contact information.

  c. Relationships:

   i. Many-to-Many with Physician through Physician_Hospital_Affiliation: Hospitals can have multiple affiliated physicians, and physicians can be affiliated with multiple hospitals.

  d. Assumptions:

   i. Each hospital can have multiple physicians affiliated with it.

4. Visit Table

  a. Purpose: Tracks each visit made by a patient to a physician, including the reason and whether it's a follow-up visit.

  b. Attributes:

   i. visit_id (Primary Key): Unique identifier for each visit.

   ii. patient_id (Foreign Key): Links to the Patient table.

   iii. physician_id (Foreign Key): Links to the Physician table.

   iv. visit_date, reason, is_follow_up: Tracks details of each visit, including date, reason for the visit, and whether it's a follow-up.

   v. original_visit_id (Foreign Key): Self-referencing key to link follow-up visits to the original visit.

  c. Relationships:

   i. One-to-Many with Prescription: Each visit can result in multiple prescriptions.

   ii. One-to-One with Patient (for each visit record): Each visit is associated with a single patient.

   iii. One-to-One with Physician (for each visit record): Each visit is associated with a single physician.

  d. Assumptions:

   i. Each visit is related to only one physician.

   ii. Follow-up visits are linked to the original visit for tracking purposes.

5. Prescription Table

  a. Purpose: Stores information about prescriptions issued during patient visits, including details about dosage, renewals, and duration.

  b. Attributes:

   i. prescription_id (Primary Key): Unique identifier for each prescription.

      ii.    visit_id (Foreign Key): Links to the Visit table to associate the prescription with a specific visit.

      iii.   prescription_date, dosage, max_renewals, duration: Details related to the prescription, including usage guidelines.

  c. Relationships:

      i.    One-to-Many with Prescription_Drug: Each prescription can include multiple drugs.

      ii.   One-to-One with Visit: Each prescription is associated with a specific visit.

  d. Assumptions:

      i.    Each prescription belongs to a single visit and is prescribed by the physician associated with that visit.

6. Drug Table

  a. Purpose: Contains information about each drug available in the system, used for prescriptions.

  b. Attributes:

      i.    drug_id (Primary Key): Unique identifier for each drug.

      ii.   NDC, generic_name, brand_name, strength, route_of_administration, purpose, side_effects: Details of each drug.

  c. Relationships:

      i.    Many-to-Many with Prescription through Prescription_Drug: Drugs can appear in multiple prescriptions, and each prescription can contain multiple drugs.

  d. Assumptions:

      i.    Each drug is identified uniquely by its NDC (National Drug Code).

7. Physician_Hospital_Affiliation Table

  a. Purpose: Resolves the many-to-many relationship between Physician and Hospital.

  b. Attributes:

      i.    physician_id (Foreign Key): Links to the Physician table.

      ii.   hospital_id (Foreign Key): Links to the Hospital table.

  c. Relationships:

      i.    Many-to-One with Physician and Hospital: Each record links one physician with one hospital.

  d. Assumptions:

      i.    Each physician can work at multiple hospitals, and each hospital can have multiple affiliated physicians.

8. Prescription_Drug Table

  a. Purpose: Resolves the many-to-many relationship between Prescription and Drug.

  b. Attributes:

      i.    prescription_id (Foreign Key): Links to the Prescription table.

      ii.   drug_id (Foreign Key): Links to the Drug table.

  c. Relationships:

      i.    Many-to-One with Prescription and Drug: Each record represents a drug included in a specific prescription.

  d. Assumptions:

      i.    Each prescription can have multiple drugs, and each drug can be prescribed in multiple prescriptions.