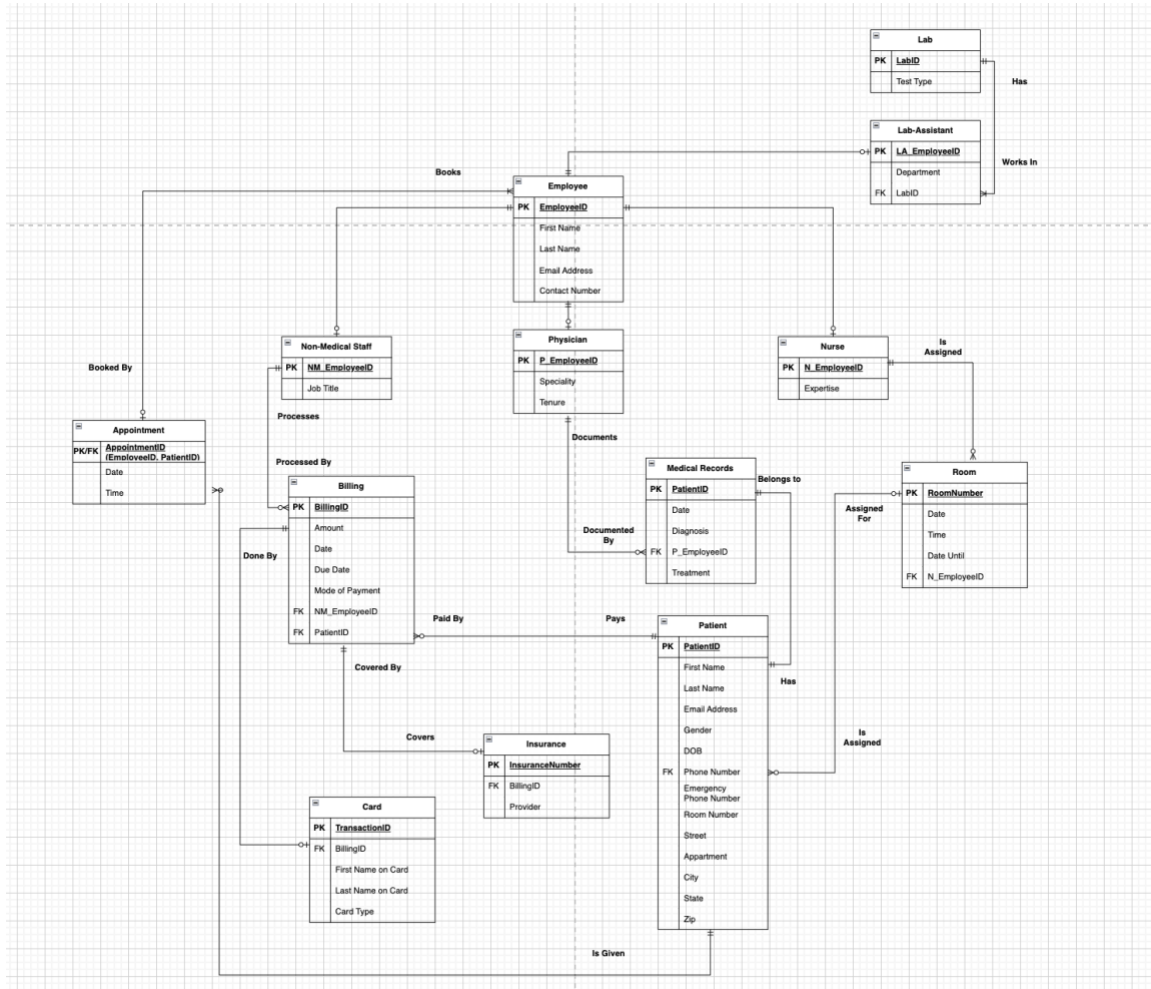


DMDD P3: DATABASE DESIGN, CONCEPTUAL MODEL



Entity Definitions:

Appointment

Represents a specific time and date when a patient is scheduled to meet with a medical professional. Attributes include an identifier, date, and time, and it is linked to both an employee and a patient.

Billing

A financial record of charges for medical services rendered to a patient. Contains details about the amount, date of the service, due date, and mode of payment, and is associated with non-medical staff and a patient.

Card

Payment information related to billing, detailing the transaction on a patient's payment card. Attributes include transaction identifier, linked billing information, and details about the cardholder and card type.

Employee

An individual working at the medical facility, which could include various roles in healthcare provision and administration. Attributes include an employee identifier, first and last name, and contact number.

Insurance

A record of the insurance coverage for a patient, detailing the insurance number and provider, and linked to a billing record.

Lab

A facility where medical tests are conducted and which generates medical data for patients. Attributes include a lab identifier and the types of tests performed.

Lab-Assistant

Staff members who assist in conducting tests and managing lab operations. Attributes include an employee identifier, department, and an association with a lab.

Medical Records

Documentation of a patient's medical history, diagnosis, and treatments provided. Attributes include patient identifier, date of record, diagnosis, and treatment, with links to an employee and patient.

Non-Medical Staff

Employees involved in administrative, clerical, or other non-medical functions within the medical facility. Attributes include an employee identifier and job title, with associations to appointments and billing.

Nurse

Medical professionals specializing in patient care and assistance to physicians. Attributes include an employee identifier and area of expertise.

Patient

Individuals receiving or registered to receive medical care. Attributes include a patient identifier, first and last name, phone number, gender, and date of birth, with associations to medical records, billing, and appointments.

Physician

Medical doctors responsible for diagnosing and treating patients. Attributes include an employee identifier, specialty, and tenure.

Room

A designated space within the medical facility where patients are treated or housed. Attributes include a room number and dates indicating the occupancy duration, with a link to an employee.

Business Rules:

- An appointment must have exactly one corresponding patient and employee.
- A patient may have multiple appointments and billing records but only one set of medical records.
- Each billing record is linked to one patient and at least one form of payment, either insurance or card.
- Medical records must be created and updated by employees (physicians, nurses, or lab assistants) who are treating or diagnosing the patient.
- Non-medical staff are responsible for scheduling appointments and overseeing the billing process.
- Insurance details are optional for patients and, if present, must be linked to a billing record.
- Physicians are linked to medical records, indicating their responsibility for patient care, and may have different specialties and tenures.
- Nurses assist with patient care and can have various areas of expertise.
- Rooms are used for patient treatment and have specific time frames of availability or usage linked to the responsible employee.
- Lab-Assistants are tied to labs and assist with medical testing.
- Labs must be linked to lab-assistants and are involved in the diagnostic process.