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CS 340

Project Step 1

4/15/18

Medical Office Database

**Project Outline**

I will be making a database that represents important information that might be stored in the database of a medical office. In my case, the entities would at least include Patients, Doctors, Appointments, and Insurance Carriers.

**Database Outline, in words**

The entities in my database are:

1. Patient – patients are the people who go to the medical office for treatment. They have a relation with every other entity. Patients have the following attributes:

a. id: automatically generated id number, which is the primary key and can’t be null

b. fname: First name of the patient, a string with max 255 chars. Can’t be null.

c. lname: Last name of the patient, a string with max 255 chars. Can’t be null.

d. Primary Provider: Id of the provider to which the patient belongs. Can’t be null, and must be a provider that exists in the database.

e. Insurance Carrier: IDNum of the patient’s insurance carrier. Defaults to null

f. Treatments completed: Number of incomplete appointments the patient is attached to. Defaults to 0, but cannot be null

2. Providers – The doctors who work in the medical clinic. They have a relationship with the patient, as well as the treatments they can perform.

a. id: autogenerated id, which is the primary key and can’t be null

b. fname: first name of the doctor, a string with max 255 chars. Can’t be null.

c. lname: Last name of the doctor, a string with max 255 chars. Can’t be null.

d. patients: number of patients who are linked to this provider.

e. specialty: specialty of the doctor. Enumerated data type that cannot be null. Might be important if we decide to use possible treatments for each provider later.

f. room number: The number of the room that this provider operates in. Cannot be null. Specific to this provider. Must exist in the database.

3. Appointments – the appointments that are performed by a provider for a patient.

a. idNum: the distinct id number of the appointment.

b. provider: id of the provider associated with this appointment. Can’t be null. Must already exist in the database.

c. patient: id of the patient associated with this appointment. Can’t be null. Must already exist in the database.

d. insuranceId: id of the insurance carrier who will pay for part or all of this appointment. Can be null. Defaults to null.

e. cost: total cost of this appointment.

f. Insurance portion: portion that insurance will pay. Cannot be null. Defaults to 0.

g. Patient portion: portion that patient will pay. Cannot be null. Defaults to 0.

h. Status: enumerated data type: defaults to “scheduled”. Can also be “complete” or “broken”. Cannot be null.

i. Room Number: The number of the room in which this appointment will take place. Cannot be null. Must exist in the database.

4. Insurance Carrier – the carrier that can be associated with a patient.

a. subscribers: number of subscribers to this plan. Cannot be null. Defaults to 0

b. coverage: percent that this plan will cover for every patient appointment. Cannot be null. Defaults to 0 (this is an oversimplification, but works for this purpose. Might add more complexity to this later).

c. name: name of the insurance company. Cannot be null. No default set.

d. Carrier ID: ID that the insurance provides to be used to associate it. Cannot be null. This is the primary key.

5. Room: The room that a provider uses to perform their operations. And integer. Cannot be null.

a. Room Number: an integer. Cannot be null. Does not have a default value.

b. Provider Number: the ID number of the provider associated with this room. Can be null. Can only be occupied by one provider. Must exist in the database.

**The Relationships in my database are:**

1. A patient has a primary provider. A patient can only have one *primary* provider, but a provider can have many patients. Therefore, the patient and provider entities are a one-to-many relationship

2. Appointments have a patient. An appointment can only have one patient associated with it, but a patient can have many appointments that they’re scheduled for. This is a one-to-many relationship between the patient and appointment entities.

3. Patients have insurance: A patient can have many insurance carriers (primary, secondary, tertiary, etc), and and insurance carrier can have many patients associated with it. Therefore, this is a many-to-many relationship.

4. Provider to Room: A provider can only have one room, and a room can only be associated with one provider at a time. Therefore, this is a one-to-one relationship.