**The Hospital Administrator’s Database**

Your assignment:

1. Identify the entities to track.
2. Identify the attributes for each entity.
3. List the business rules that will control the relationships/associations.
4. Create an ERD with the following elements:
   1. Entities
   2. Attributes
   3. Relationships (degree, cardinality, optionality).
   4. \*\*- Make sure to look for data intersections describing certain relationships.
5. Create an EERD and apply associative entities to any eligible M:M relationship, any relationship that has data intersections, or any relationship that requires an identifier for each instance of the relationship.
6. Create the Relational Schema
7. Create a data dictionary listing the attributes, data types and constraints for each table.

**NARRATIVE**

The hospital employs numerous nurses. Each nurse is assigned a unique sequential employee number when they are hired. In addition to this number, the hospital records the nurse’s name (first and last) and home phone number. The supervisory relationship between nurses is also recorded, as some nurses supervise one or more other nurses. No nurse is supervised by more than one nurse, and some nurses are unsupervised.

The hospital is made up of several different wards (treatment areas). Each ward has a unique name. In addition to the name of the ward, the hospital records the ward’s location and phone number.

Each day, the nurses on duty are assigned to wards. Each ward always has at least one nurse assigned to it. A given nurse is always assigned to at least one ward and may be assigned to more than one. The hospital records the specific dates that each nurse is assigned to each ward, as well as the number of hours worked in the ward by each nurse on that date.

Each ward has exactly one charge nurse. This nurse is in charge of maintaining the medical records of the ward. Not all nurses act in this capacity, but those that do are in charge of only one ward.

Wards are made up of beds. Each bed is identified by a unique sequential bed number and is assigned to only one ward. The hospital stores information on its beds including their size (small, large, extra-large) and type (whether or not the head and the foot of the bed can be elevated electrically or manually). Most beds are large size and manually operated.

Information on patients is stored with a required patient number (a unique sequential number assigned to each patient upon each admission), the patient’s name (first and last), gender, and date of birth.

The date the patient is admitted to the hospital and the date the patient is discharged are also recorded.

The specific bed to which each patient is assigned at any given time is also tracked. Not all beds are necessarily in use at any given time, and a bed may not be assigned to more than one patient.

Each patient is admitted to the hospital by one physician. Some of the staff physicians admit many patients while others admit none. Information stored about each physician includes his or her DEA Number (a unique identifier assigned to each physician by the state), name (first and last), phone number, and the one or more medical specialties in which he or she is certified (e.g., cardiology, obstetrics, etc.).

The hospital records information on the specific treatments that it provides to patients. Each of the treat­ments available to administer to the hospital’s patients is identified by a unique sequential treatment number. Additional informa­tion stored for each treatment includes its name, description, and charge.

In addition to admitting patients, many physicians are involved in the treatment of patients. The hospital tracks which treatments are administered to which patients by which physicians. It also tracks the date and time of each treatment administration and the results. Some physicians (e.g., lab researchers) are not directly involved in patient treatments while others are frequently involved in treating patients.

A given patient may receive no treatments or may receive many, and some patients may receive their treatments from more than one physician. Some treatments have yet to be used while others have been used often.

In addition to treatments, patients also incur numerous other charges during their stay in the hospital. The hospital tracks these charges as “items” and stores information on what items have been charged to which patients, based on date and quantity. Information that is to be stored for each item includes a unique sequential item number, the item name and charge. All patients incur some charges for items upon admission and others during their stay. Some items are widely used by patients while others may be new or unusual in nature and will not necessarily be charged to any of the patients in the hospital.

Lastly, the hospital tracks interactions between nurses and the patients. Each interaction is an event. There are several types of events: wellness check, medication, food service, assistance, treatment admin, and “other.” Given the number of shifts and wards, a patient will typically be seen by more than one nurse during his/her stay.