ER Modelling Exercise – Hospital

Consider the following requirements for inpatients at a hospital:

All patients admitted to the hospital are given a **unique patient number**. The patient's **name, address, age,** and **sex** are recorded. Private patients are allocated a private room, identified by the **room number**. Private **rooms** are of different **types**, e.g., standard, deluxe, palatial, etc. NHS patients are allocated a bed in a ward, beds being identified by the **ward name** and **bed number**. **Wards** are of different **types,** e.g., pediatric, cancer, etc, with a named **sister in charge** of each one. Each patient is allocated to a **named** consultant who supervises the medical care of the patient. The consultant decides on the treatments to be given to the patient. A treatment is any medical procedure performed on the patient. Each treatment is given a **unique treatment number**, and a **description of the treatment** and the **date it is performed** are recorded.

- Design an **E-R diagram** for the above database. Derive a **corresponding relational scheme** from your E-R diagram.
- The E-R diagram must show *(entities),* **attributes**, **keys**, **cardinalities, and constraints**. The relational scheme must be in **third-normal form, with primary** and *foreign* keys **clearly indicated.**

Primary Key & *Foreign key:*
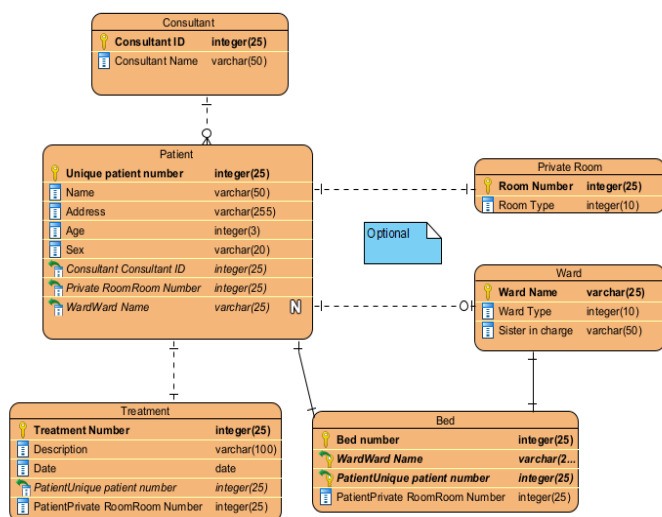
- Consultant(**Consultant ID**, Consultant Name)
- Patient (**Unique Patient Number**, Name, Address, Age, Sex, *Consultant ID, Private Room Number, Ward Name*)
- Private Room (**Room Number**, Room Type)
- Ward (**Ward Name**, Ward Type, Sister in Charge)
- Bed(**Bed Number** , Ward Name, Unique Patient Number, Private Room Number)
- Treatment (**Treatment Number,** *Patient Unique Number, Room Number,* Description, Date)