

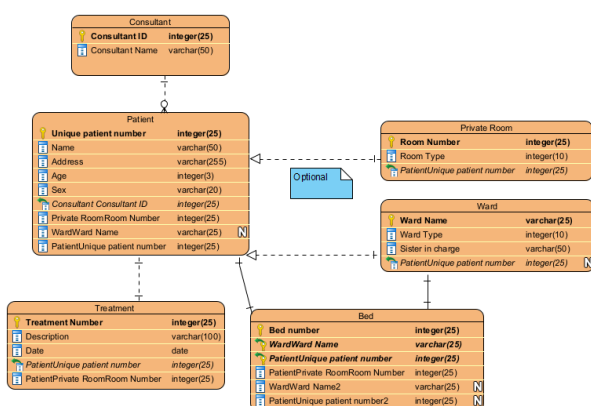
ER Modelling Exercise – Hospital

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*)