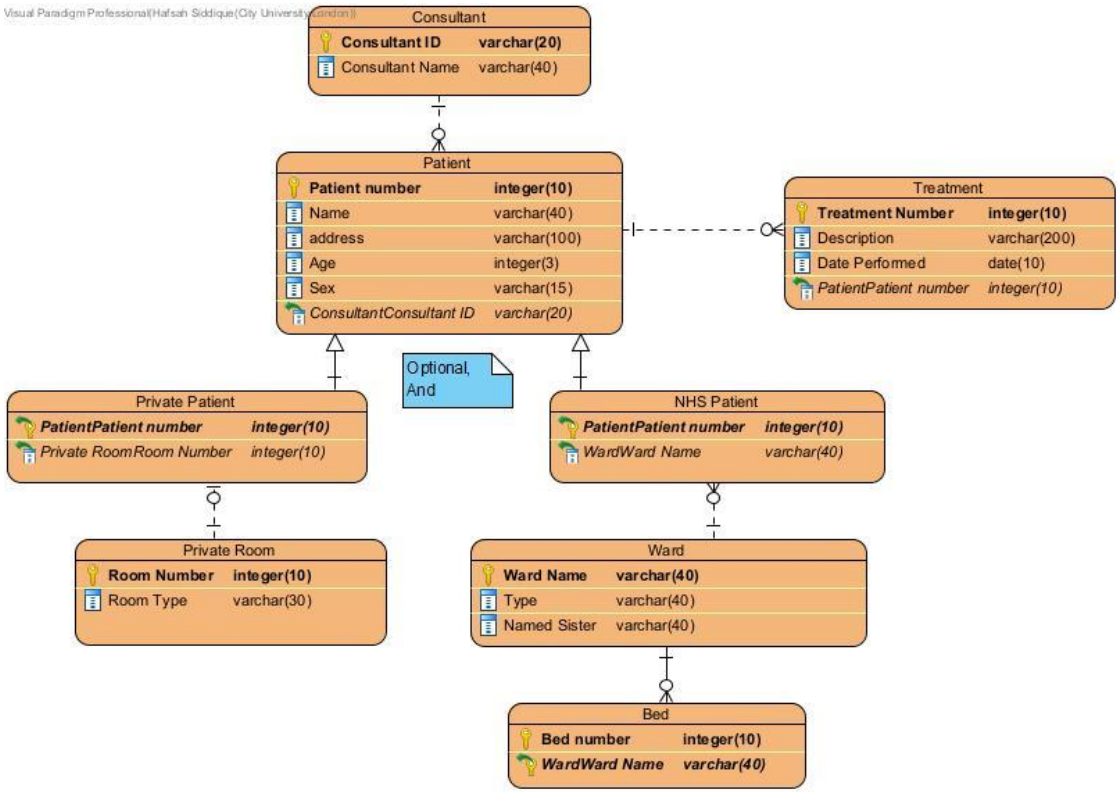
ER Modelling Exercise – Hospital

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 attributes, keys, cardinalities, and constraints. The relational scheme must be in third-normal form, with primary and foreign keys clearly indicated.



Consultant(**Consultant ID**, Consultant Name)

Treatment(**Treatment Number**, Description, Date Performed, Patient Number)

FOREIGN KEY Patient Number references Patient (Patient Number)

Patient(**Patient Number**, Name, Address, Age, Sex, Consultant ID)

FOREIGN KEY Consultant ID references Consultant (Consultant ID)

Private Patient(**Patient Number**, Room Number)

FOREIGN KEY Patient Number references Patient (Patient Number)

FOREIGN KEY Room Number references Private Room (Room Number)

NHS Patient(**Patient Number**, Ward Name)

FOREIGN KEY Patient Number references Patient (Patient Number)

FOREIGN KEY Ward Name references Ward (Ward Name)

Private Room(**Room Number**, Room Type)

Ward(**Ward Name**, Type, Named Sister)

Bed(**Bed number**, Ward Name)

FOREIGN KEY Ward Name references Ward (Ward Name)