ER Modelling Exercise – Hospital

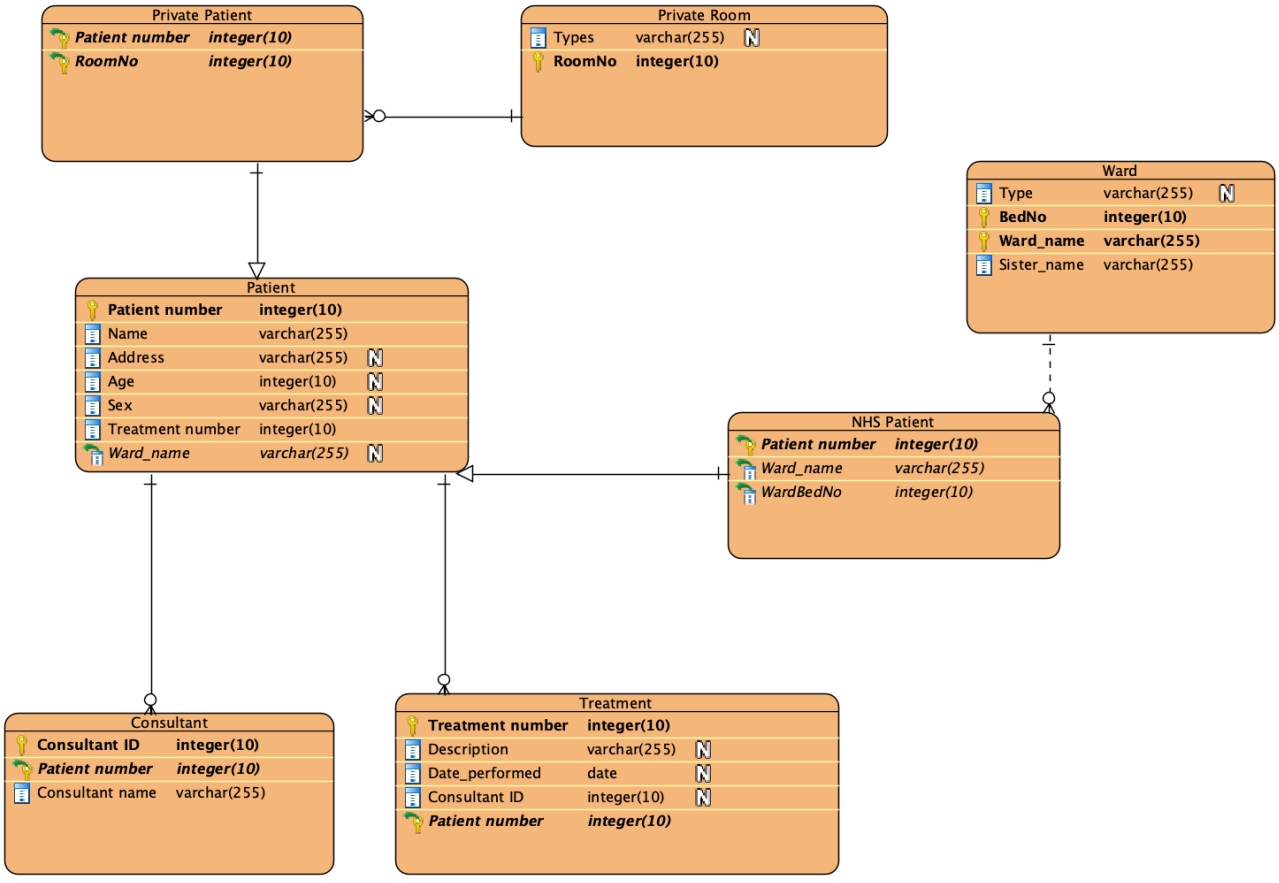
Consider the following requirements for inpatients at a hospital:

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 isperformed are recorded.

Design an E-R diagram for the above database. Derive a correspondingrelational 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.

E-R diagram:



Relationship scheme:

Patient (**Patient number**, Name, Address, Age, Sex, Treatment number, Ward_name)

FOREIGN KEY Ward_name REFERENCES NHS Patient (Ward_name)

Private Patient (**Patient number**, RoomNo)

FOREIGN KEY RoomNo REFERENCES Private Room (RoomNo)

Private Room **(**Types, **RoomNo**)

NHS Patient (**Patient number**, Ward_name, BedNo)

FOREIGN KEY Ward_name REFERENCES Ward (Ward_name)

FOREIGN KEY BedNo REFERENCES Ward (BedNo)

Ward (Type, Sister_name, **BedNo**, **Ward_name**)

Consultant (**Consultant ID**, Patient number, Consultant name)

FOREIGN KEY Patient number REFERENCES Patient (Patient number)

Treatment (**Treatment number**, Description, Date_performed, Consultant ID, Patient number)

FOREIGN KEY Patient number REFERENCES Patient (Patient number)