

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.

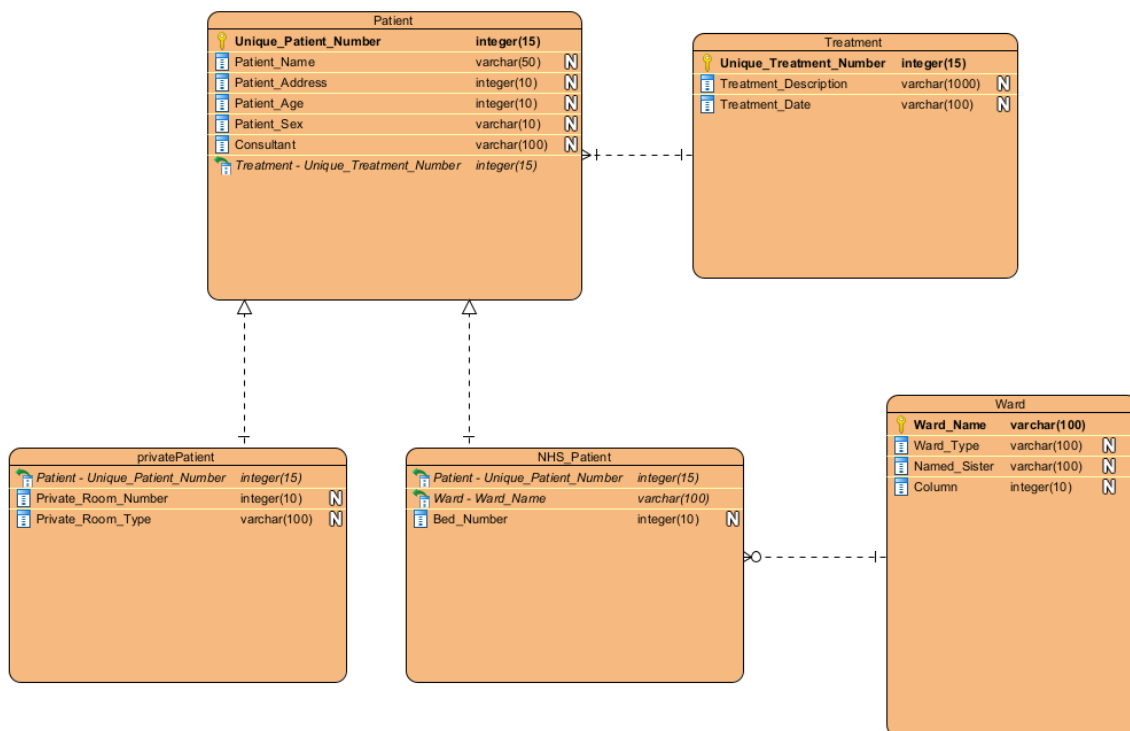
Private patients are allocated a private room, identified by the room number. Private rooms are of different types, e.g., standard, deluxe, palatial, etc.

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., paediatric, 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.



Patient(Unique Patient Number, Patient_Name, Patient_Address, Patient_Age, Patient_Sex, Consultant)

FOREIGN KEY Unique_Treatment_Number REFERENCES Treatment(Unique_Treatment_Number)

Treatment(Unique Treatment Number, Treatment_Description, Treatment_Date)

privatePatient(Private Room Number, Private_Room_Type)

FOREIGN KEY Unique_Patient_Number REFERENCES Patient(Unique_Patient_Number)

NHS_Patient(Bed Number)

FOREIGN KEY Unique_Patient_Number REFERENCES Patient(Unique_Patient_Number)
FOREIGN KEY Ward_Name REFERENCES Ward(Ward_Name)

Ward(Ward_Name, Ward_Type, Named_Sister)