

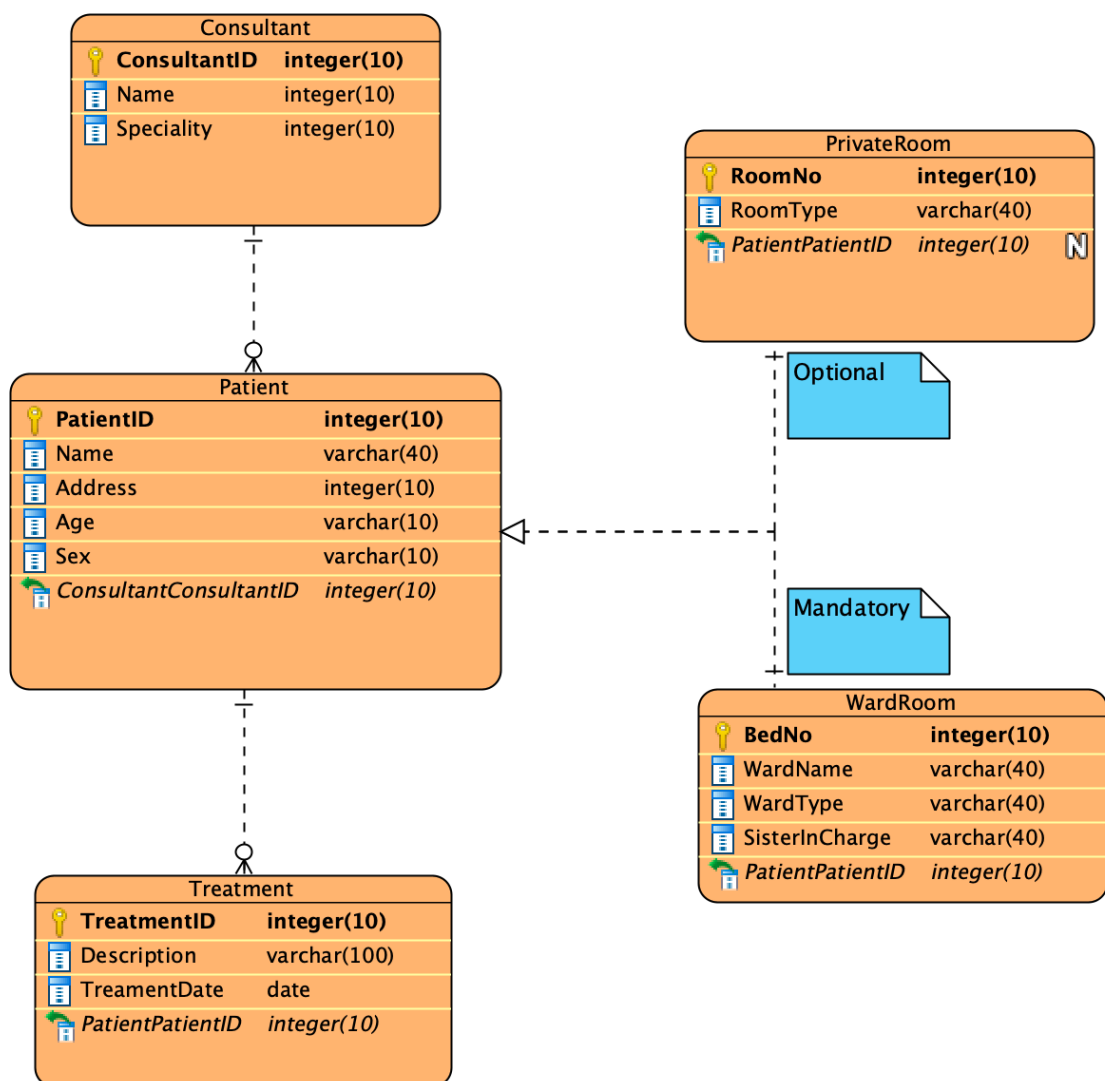
ER Modelling Exercise – Hospital

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.



ConsultantId	Name	Speciality
39485	Mark H.	Oncology
19283	Lisa C.	Endocrinology
27364	Tim A.	Cardiology

Consultant (ConsultantID {pk}, Name, Speciality)

Patient ID	Name	Address	Age	Sex	ConsultantConsultantID
978654	Kim T.	Rg3 1pw	32	F	39485
253746	Ann J.	Yg3 8rv	56	F	19283
584378	Ron P.	Aq1 8bg	16	M	27364

Patient (PatientID {pk}, Name, Address, Age, Sex, ConsultantConsultantID)

FOREIGN KEY ConsultantConsultantID references
Consultant(ConsultantID)

TreatmentID	Description	TreatmentDate	PatientPatientID
Chemotherapy	medicine is used to kill cancer cells	15/11/2021	978654
Hormone Therapy	stops the growth of hormone-sensitive tumours	04/04/18	253746
Cardioversion	low-energy shocks to restore a regular heart rhythm	14/07/09	584378

Treatment (TreatmentID {pk}, Description, TreatmentDate, PatientPatientID)

FOREIGN KEY PatientPatientID references Patient(PatientID)

RoomNo	RoomType	PatientPatientID
05	standard	978654
08	deluxe	253746
06	palatial	584378

PrivateRoom (RoomNo {pk}, RoomType, PatientPatientID)

FOREIGN KEY PatientPatientID references Patient(PatientID)

BedNo	WardName	WardType	SisterIn charge	PatientPatient ID
07	Cancer	Oncology	Marge T.	978654
18	Hormone	Endocrinology	Ruth M.	253746
21	Heart	Cardiology	Poppy D.	584378

WardRoom (BedNo {pk}, WardName, WardType, SisterIncharge, PatientPatientID)

FOREIGN KEY PatientPatientID references Patient(PatientID)