Leon Seferi

Homework 3 Task 1

(For full screen viewing of model, please see "Source1.pdf" in the 'HW 3' folder in Databases on GitHub).
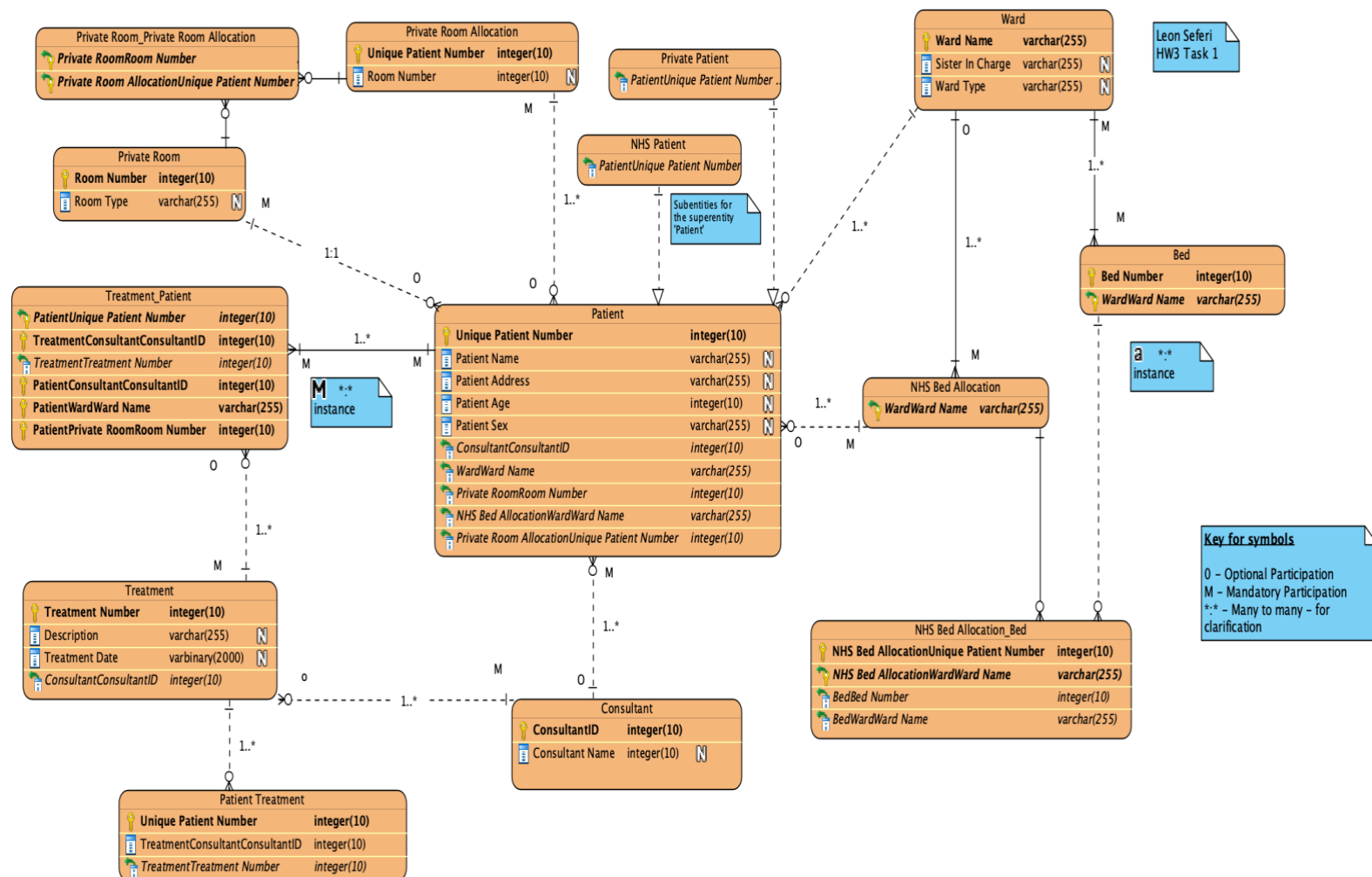
* Please refer to the blue notes for the keys that I have used to demonstrate constraints.

1::* - One to many

1:1 – One to one

: - Many to many

E-R Diagram:

Private Room_Private Room Allocation
- Private RoomRoom Number
- Private Room AllocationUnique Patient Number

Private Room Allocation
- Unique Patient Number   integer(10)
- Room Number   integer(10)

Private Patient
- PatientUnique Patient Number ..

Ward
- Ward Name   varchar(255)
- Sister In Charge   varchar(255)
- Ward Type   varchar(255)

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NHS Patient
- PatientUnique Patient Number

Private Room
- Room Number   integer(10)
- Room Type   varchar(255)

Subentities for the superentity 'Patient'

Bed
- Bed Number   integer(10)
- WardWard Name   varchar(255)

Treatment_Patient
- PatientUnique Patient Number   integer(10)
- TreatmentConsultantConsultantID   integer(10)
- TreatmentTreatment Number   integer(10)
- PatientConsultantConsultantID   integer(10)
- PatientWardWard Name   varchar(255)
- PatientPrivate RoomRoom Number   integer(10)

M   *:*
instance

Patient
- Unique Patient Number   integer(10)
- Patient Name   varchar(255)
- Patient Address   varchar(255)
- Patient Age   integer(10)
- Patient Sex   varchar(255)
- ConsultantConsultantID   integer(10)
- WardWard Name   varchar(255)
- Private RoomRoom Number   integer(10)
- NHS Bed AllocationWardWard Name   varchar(255)
- Private Room AllocationUnique Patient Number   integer(10)

NHS Bed Allocation
- WardWard Name   varchar(255)

a   *:*
instance

Treatment
- Treatment Number   integer(10)
- Description   varchar(255)
- Treatment Date   varbinary(2000)
- ConsultantConsultantID   integer(10)

Consultant
- ConsultantID   integer(10)
- Consultant Name   integer(10)

NHS Bed Allocation_Bed
- NHS Bed AllocationUnique Patient Number   integer(10)
- NHS Bed AllocationWardWard Name   varchar(255)
- BedBed Number   integer(10)
- BedWardWard Name   varchar(255)

Patient Treatment
- Unique Patient Number   integer(10)
- TreatmentConsultantConsultantID   integer(10)
- TreatmentTreatment Number   integer(10)

Key for symbols
0 – Optional Participation
M – Mandatory Participation
: – Many to many – for clarification

Relational schema in 3NF:

Patient [patient_id (**PK**), patient_name, address, age, sex, consultant_id (**FK**) Consultant **]**

Ward [ward_name (**PK**), sister_in_charge, ward_type **]**

Bed [Bed_Number (**PK**), ward_name (**FK**) Ward **]**

Private Room[private_room_number (**PK**), private_room_type **]**

Private Room Allocation[patient_id (**FK**) Patient, private_room_number (**FK**) Private Room **]**

NHS Bed Allocation [patient_id (**FK**), ward_name (**FK**) Ward, Bed_Number (**FK**) Bed **]**

Treatment[Treatment_Number (**PK**), Desc, Treatment_Date, consultant_id (**FK**) Consultant **]**

Consultant[consultant_id (**PK**), consultant_name **]**

Patient Treatment [patient_id (**FK**), consultant_id (**FK**) Consultant , Treatment_Number (**FK**) Treatment **]**