PROJECT 2

20290372 - Fatih Yalçın - fatihyalcin.cs@gmail.com
20290122 - Elvin Huseynli - elvinnhuseynli@gmail.com
20290168 - Mohammed Natour - bgd4500@gmail.com

TASK A:

Hospital Database

This database mainly includes the interactions between Doctor, Nurse and Receptionist in a hospital between patients. In this database Patients can be appointed to the rooms that are supervised by nurses. Differently ranked doctors have patients to take care of. Payments for the medical services. Recordings are kept by the receptionists.

TASK B:

ENTITIES & RELATIONS

EMPLOYEE

Employee is the generalized entity and its attributes are as follows: Salary, phone number(multivalued), age, employee ID (key attribute), name (composed attribute of [First Name, Middle Name, Last Name]), birth date (derived attribute from age).

Not all employees must be either a doctor, receptionist or nurse. They could be a technician for example, but other than these three roles are not in this database's scope. Thus there is no total participation relation of Employee for its disjoint subclasses. Doctor, nurse and receptionist entities inherit from the superclass Employee.

DOCTOR

All of the doctors must be in either of these disjoint subclass entities of Doctor: Intern, Permanent, and Visitor. Visitor-Doctors have visitor IDs, Intern-Doctors have experience duration, Permanent-Doctors have their ranks as their attributes.

Doctor's binary HAS relation with Patient: Cardinality ratio 1 to N, total participation of Patients

- A Doctor may have multiple(N) patients
- Each patient may have only 1 doctor
- Not all doctors need to have patients

NURSE

A nurse is a weak entity that completely inherits from Employee.

Nurse's binary SUPERVISES relation with Rooms: Cardinality ratio M to N, total participation of Nurses

- A nurse can supervise 1 or more (N) Rooms
- Not all of the rooms must be supervised by a Nurse (it could be someone from outer scope of the database)
- Rooms can be supervised by 1 or more (M) Nurses

ROOM's attributes: Room ID (key), Period, Room Type

RECEPTIONIST

Receptionist has bout attribute.

Receptionist's binary KEEPS relation with Record: Cardinality ratio 1 to N

- A Receptionist may keep multiple (N) Records
- Not all records must be kept by a receptionist

- The kept records may have only one receptionist
- Not all receptionists need to keep records

The KEPT RECORD has attributes as: Appointment, Record Number (Key Attr.), Patient ID

PATIENT

Patient is the customer entity of this hospital, can be appointed to Rooms, can make payments. Patient's attributes are as follows: Patient ID (key attribute), phone number (multivalued), Patient Det (composed attribute of [Admit Date, Discharge Date]), Patient Name (composed attribute of [First Name, Middle Name, Last Name])

Patient's binary APPOINTED relation with Room: Cardinality ratio 1 to 1

- Not all patients must be appointed to a room
- Not all rooms must be appointed by a patient
- Each patient - room matching must contain only 1 patient and only 1 room

Patient's ternary PAYS relation with Medicament and Medication.

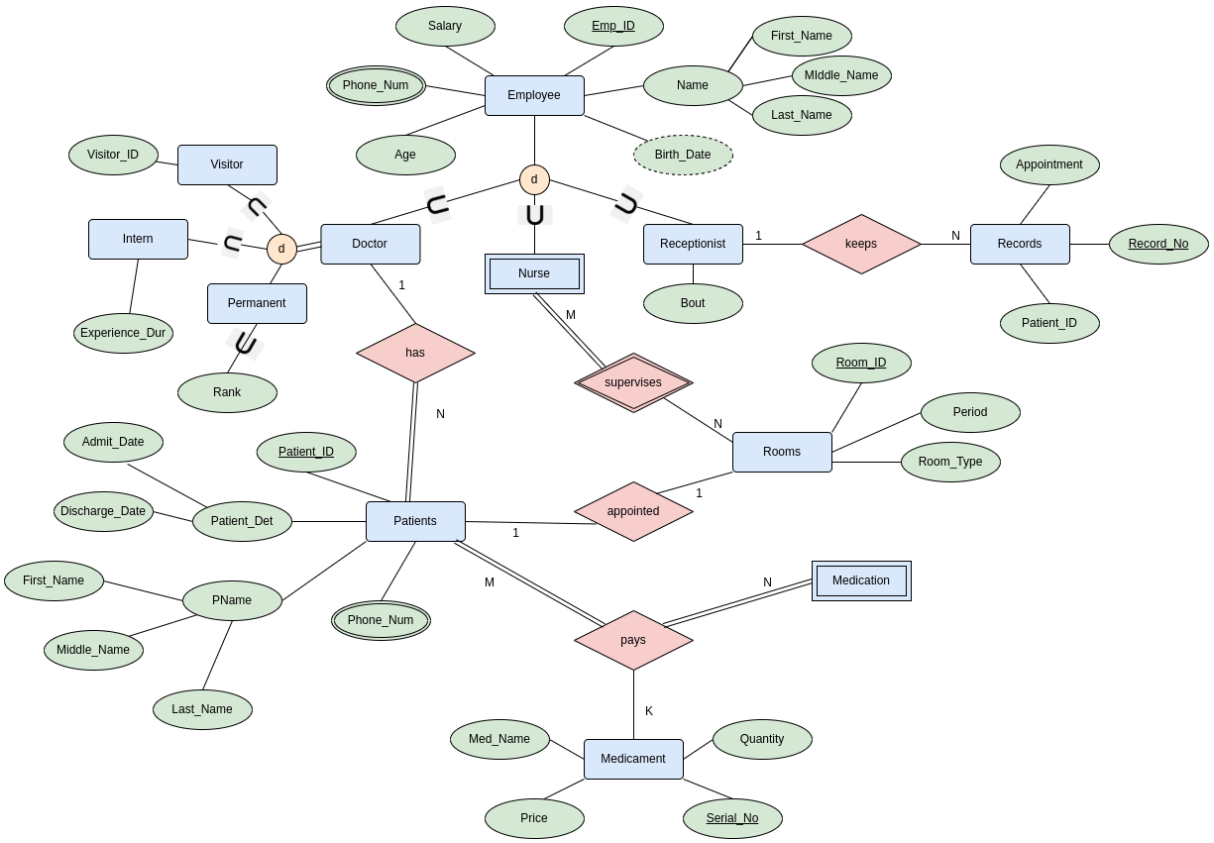
Patient-Medication: M to N, total participation of both entities

- All patients must pay for their medications
- The number of patient's medication can be multiple (N)
- All medications must be paid by patients
- Medications can be paid by multiple (M) patients

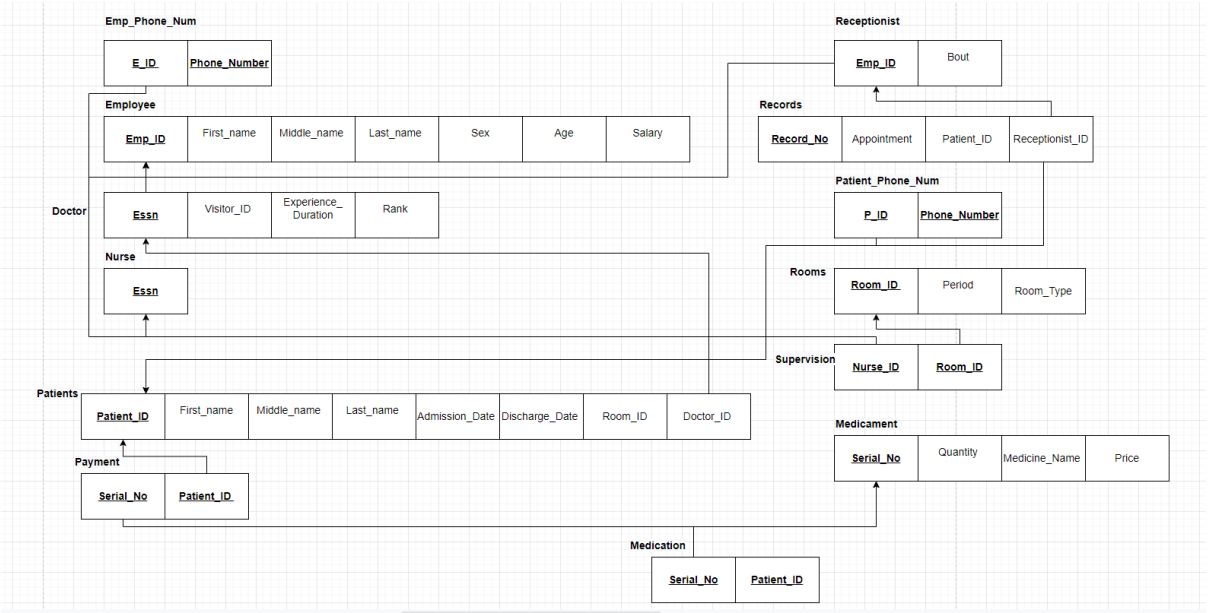
MEDICAMENT has attributes as follows: Medicament Name, Price, Serial Number (Key), and Quantity

Patients-Medicament: M to K, total participation of patients

- All patients must pay for medicaments
- Patients can pay for multiple (K) medicaments
- Medicaments can be paid by multiple (M) patients
- Not all medications must be paid (the rest is out of the database's scope)



TASK C:



Attribute Data Types:

Employee ID is a String of length 9
Phone number is a String of length 10
Doctor ranks and Names are Strings of length 20
Age, Room ID, Record No., Quantity, and Price are of Integer type
A medicine's Serial Number is a String of length 11
Salary has bigint type
Admission date and Discharge date have Date types