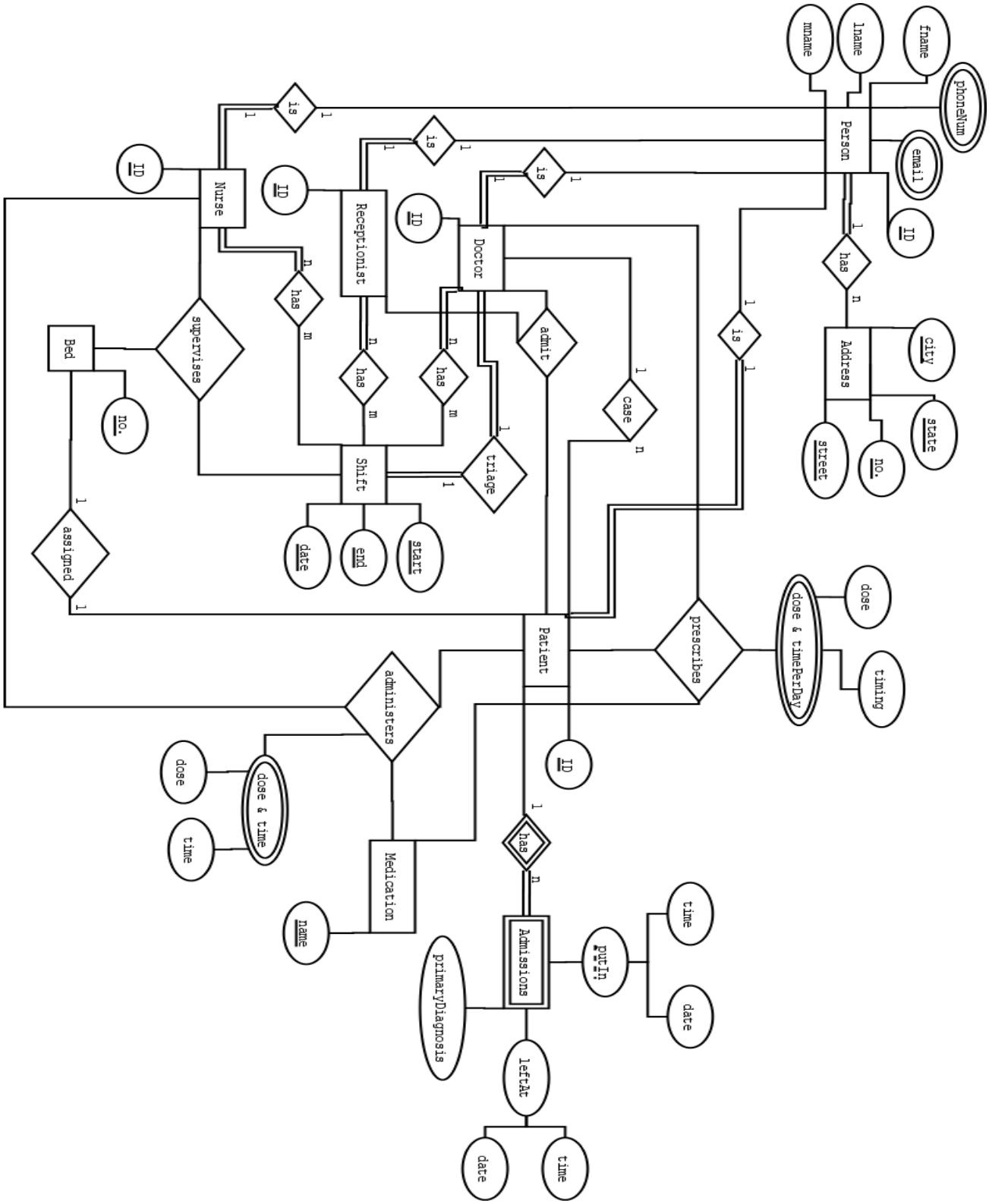
Database Systems **ERD: Project 1** **Fall 2021**

Phase 2: 80 points

Josh Craill, Sathvik Chereddy

ERD:



Assumptions:

Primary Keys:

- A bed is uniquely identified by its number
- A person is uniquely identified by their ID
- A doctor is uniquely identified by their employee ID
- A nurse is uniquely identified by their employee ID
- A receptionist is uniquely identified by their employee ID
- An address is uniquely identified by city, state, number, and street
- A shift is uniquely identified by their starting time, ending time, and date
- A patient is uniquely identified by their assigned ID
- An admission is uniquely identified by the date and time and patient ID of the patient put in MC-ER

Cardinalities:

- A person must have 1 or more addresses
- An address must belong to 1 person
- A doctor must be a person
- A nurse must be a person
- A patient must be a person
- A receptionist must be a person
- A person can be a doctor and/or nurse and/or patient and/or receptionist
- A doctor can be assigned as the case doctor of multiple patients
- A patient can have 1 or more admissions
- An admission must belong to a patient
- A patient has 0 or many admissions in the MC-ER

Miscellaneous:

- The triage doctor of any shift prescribes medication with dosages and timings per day
- A nurse can administer a different dosage at different times to a patient
- A case doctor prescribes different dosages for different times in a day to a patient
- An admission is unique to a patient

Time Log:

Who	Location	Date	Start	End	Length	Topic	Action items
Josh C. Sathvik C.	Benton	10/21	3:30pm	4:10pm	0.75	Working on creating the well formed ERD on paper.	Finish up well formed ERD on paper
Josh C. Sathvik C.	Armstrong	10/21	4:15pm	5:00pm	0.75	Finalizing the well formed ERD.	Transfer ERD from paper to Dia
Josh C.	Home	10/22	5:15pm	6:15pm	1.00	Making well formed ERD in Dia and created shared document	Aesthetically refine ERD
Sathvik. Ch	Home	10/24	3:30pm	5:00pm	1.50	Condensing and refining ERD diagram made by Josh in Dia	Forward engineer refined ERD
Sathvik. Ch Josh C.	Home (Google Meet)	10/24	5:00pm	7:30pm	2.50	Forward engineering refined ERD; writing assumptions to shared document	Verify relational model by reverse engineering to ERD
Sathvik. Ch	Home	10/25	8:00pm	8:45pm	.75	Reverse engineering relational model to check and rectify errors; Print hard copy	N/A
Total - Josh					5		
Total - Sathvik					6.25		
Total - All					11.25		

Forward Engineering:

- Person(fname, mname, lname, ID)
- Shift(start, end, date, ID)
    - ID is FK to doctor
- Medication(name)
- Bed(no.)
- Address(city, state, no., street, ID)
    - ID is a FK to Person
- Doctor(ID, person_ID)
    - person_ID is a FK to Person
- Receptionist(ID, person_ID)
    - person_ID is a FK to Person
- Nurse(ID, person_ID)
    - person_ID is a FK to Person
- Patient(ID, person_ID, docID, bedNo.)
    - person_ID is a FK to Person
    - docID is FK to Doctor
    - bedNo. is FK to Bed
- Admissions(inTime, inDate, ID, leftTime, leftDate, primaryDiagnosis)
    - ID is FK to patient
- doseAndTimePerDay(doctor_ID,patient_ID,medication_Name, dose, timings)
    - doctor_ID, pateint_ID is FK, medication_Name is FK to Prescribes
- doseAndTime(patient_ID, medication_Name, nurse_ID, dose, time)
    - patient_ID, medication_Name, nurse_ID is FK to Administers
- PhoneNum(phoneNum,ID)
    - ID is a FK to Person
- Email(email,ID)
    - ID is a FK to Person
- docHas(doctor_ID, start, end, date)
    - doctor_ID is a FK to Doctor
    - start, end, date is a FK to Shift
- nurseHas(receptionist_ID, start, end, date)
    - receptionist_ID is a FK to Doctor
    - start, end, date is a FK to Shift
- recepHas(nurse_ID, start, end, date)
    - nurse_ID is a FK to Doctor
    - start, end, date is a FK to Shift
- Administers(patient_ID, medication_Name, nurse_ID)
    - patient_ID is FK to Patient
    - medication_Name is FK to Medication
    - nurse_ID is FK to Nurse
- Supervises(start, end, date, nurse_ID, bed_no.)
    - start, end, date is a FK to Shift
    - Nurse_ID is a FK to Nurse
    - bed_no. is a FK to Bed
- Prescribes(doctor_ID, patient_ID, medication_Name)
    - doctor_ID is FK to Doctor
    - pateint_ID is FK to Patient

    - medication_Name is FK to Medication
- Admit(<u>doctor_ID, recptionist_ID, patient_ID</u>)
    - doctor_ID is FK to Doctor
    - recpetionist_ID is FK to Receptionist
    - patient_ID is FK to patient