



PES UNIVERSITY

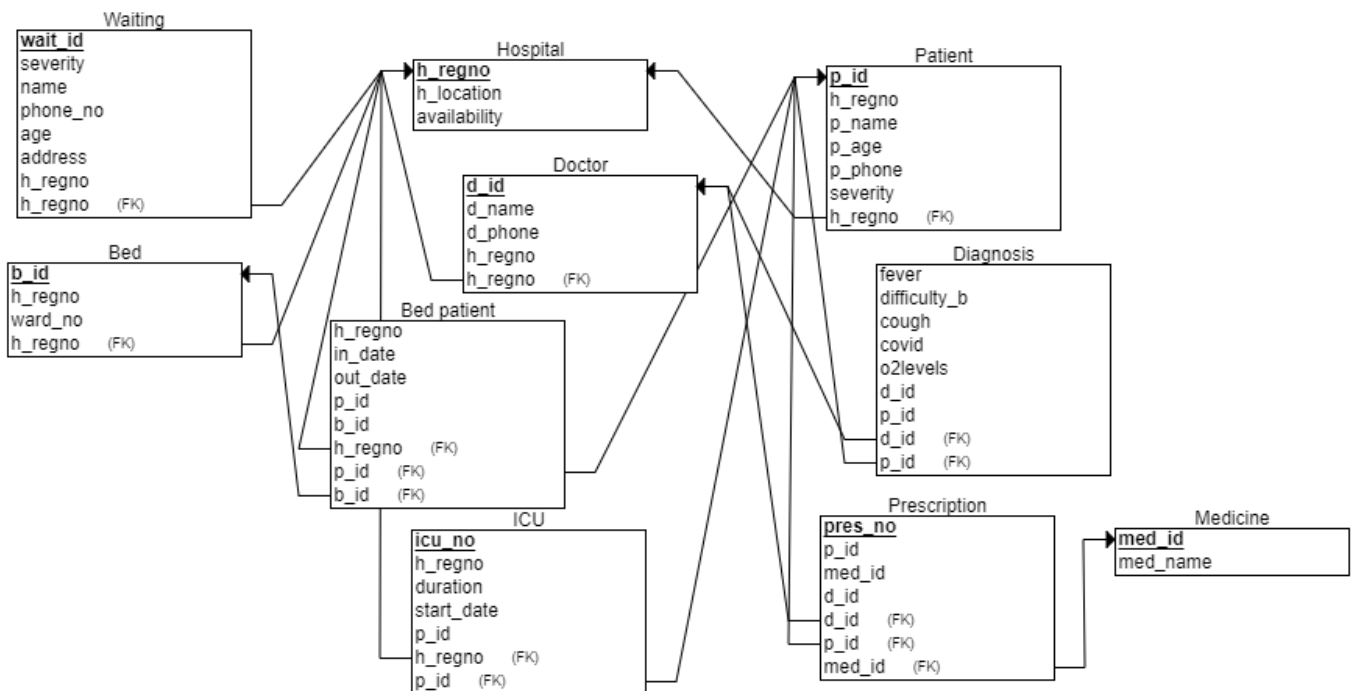
(Established under Karnataka Act No. 16 of 2013)
100 Feet Ring Road, BSK III Stage, Bengaluru-560 085
Department of Computer Science and Engineering
Session: Aug – Dec 2021
SEMESTER – 5

Assignment – 2 (10 marks)

Task 1: Mapping conceptual model to Relational data model

- The hospital entity has attributes h_location with the hospital's location, h_regno a 6 digit number as the hospital's registration number which is a primary key, availability 3 digit number.
- Doctor entity has attributes d_id 6 digit number for doctor's id is a primary key, d_name as varchar for the name of the doctor, d_phone 10 digit number of the doctor, h_regno which is the foreign key here.
- The patient entity has the attributes h_regno as a foreign key, p_id 6 digit number which is the primary key, p_name varchar, p_age 3 digit number, p_phone 10 digit number, severity 1-10 scale.
- The Diagnosis entity has the attributes fever null or any value, difficulty_b yes or no, cough yes or no, covid positive yes or no, o2levels value and not null, d_id as a foreign key, p_id as a foreign key.
- The prescription entity has pres_no 6 digit number as primary key, p_id as a foreign key, med_id as a foreign key, d_id as a foreign key.
- Medicine entity has med_id 6 digit number which is a primary key, med_name name of the medicine.
- Bed entity has h_regno as a foreign key, b_id 3 digit number which is the primary key, ward_no 3 digit number.
- Bed_patient entity has h_regno as a foreign key, in_date valid date, out_date valid date, p_id as a foreign key, b_id as a foreign key.

- ICU entity has h_regno as a foreign key, icu_no 3 digit number which is a primary key, duration decimal in hours, start_date valid date, p_id as a foreign key.
- Waiting entity has severity 1-10 range, name varchar value, wait_id 3 digit number which is a primary key, phone_no 10 digit number, age 3 digit number, address varchar, h_regno as a foreign key.
- RDBMS is used as the DBMS since we are going to use primary-foreign key relationships.



Relational schema made using ERDPlus

Task 2: Implementation of the database and populating the database with suitable values.

Create .sql file:

```
drop database covidhospital;
create database covidhospital;
```

```
\c covidhospital
```

```
CREATE TABLE hospital (
    h_location VARCHAR(400),
```

```

        h_regno INT PRIMARY KEY CHECK(h_regno BETWEEN 100000 AND
999999),
        availability INT CHECK(availability BETWEEN 0 AND 999)
);

CREATE TABLE doctor (
        d_id INT PRIMARY KEY CHECK(d_id BETWEEN 100000 AND 999999),
        d_name VARCHAR(300),
        d_phone INT CHECK(d_phone BETWEEN 1000000000 AND 9999999999),
        h_regno INT CHECK(h_regno BETWEEN 100000 AND 999999),
        FOREIGN KEY(h_regno) REFERENCES hospital(h_regno) ON DELETE SET
NULL
        ON UPDATE CASCADE
);

CREATE TABLE patient (
        h_regno INT CHECK(h_regno BETWEEN 100000 AND 999999),
        p_id INT PRIMARY KEY CHECK(p_id BETWEEN 100000 AND 999999),
        p_name VARCHAR(300),
        p_age INT CHECK(p_age BETWEEN 0 AND 200),
        p_phone INT CHECK(p_phone BETWEEN 1000000000 AND 9999999999),
        severity INT CHECK(severity BETWEEN 0 AND 10),
        FOREIGN KEY(h_regno) REFERENCES hospital(h_regno) ON DELETE SET
NULL
        ON UPDATE CASCADE
);

CREATE TABLE diagnosis (
        fever DECIMAL(3,2),
        difficulty_b VARCHAR(3) CHECK(difficulty_b IN ('yes','no')),
        cough VARCHAR(3) CHECK(cough IN ('yes','no')),
        covid VARCHAR(3) CHECK(covid IN ('yes','no')),
        o2levels DECIMAL(3,2) NOT NULL,
        d_id INT CHECK(d_id BETWEEN 100000 AND 999999),
        p_id INT CHECK(p_id BETWEEN 100000 AND 999999),
        FOREIGN KEY(d_id) REFERENCES doctor(d_id) ON DELETE SET NULL
        ON UPDATE CASCADE,
        FOREIGN KEY(p_id) REFERENCES patient(p_id) ON DELETE SET NULL
        ON UPDATE CASCADE
);

CREATE TABLE bed (
        h_regno INT CHECK(h_regno BETWEEN 100000 AND 999999),
        b_id INT PRIMARY KEY CHECK(b_id BETWEEN 100 AND 999),
        ward_no INT CHECK(ward_no BETWEEN 0 AND 999),

```

```
        FOREIGN KEY(h_regno) REFERENCES hospital(h_regno) ON DELETE SET  
NULL  
        ON UPDATE CASCADE  
);
```

```
CREATE TABLE medicine (  
        med_id INT PRIMARY KEY CHECK(med_id BETWEEN 100000 AND 999999),  
        med_name VARCHAR(200)  
);
```

```
CREATE TABLE prescription (  
        pres_no INT PRIMARY KEY CHECK(pres_no BETWEEN 100000 AND  
999999),  
        p_id INT CHECK(p_id BETWEEN 100000 AND 999999),  
        med_id INT CHECK(med_id BETWEEN 100000 AND 999999),  
        d_id INT CHECK(d_id BETWEEN 100000 AND 999999),  
        FOREIGN KEY(p_id) REFERENCES patient(p_id) ON DELETE SET NULL  
        ON UPDATE CASCADE,  
        FOREIGN KEY(med_id) REFERENCES medicine(med_id) ON DELETE SET  
NULL  
        ON UPDATE CASCADE,  
        FOREIGN KEY(d_id) REFERENCES doctor(d_id) ON DELETE SET NULL  
        ON UPDATE CASCADE  
);
```

```
CREATE TABLE bed_patient (  
        h_regno INT CHECK(h_regno BETWEEN 100000 AND 999999),  
        in_date DATE,  
        out_date DATE,  
        p_id INT CHECK(p_id BETWEEN 100000 AND 999999),  
        b_id INT CHECK(b_id BETWEEN 0 AND 999),  
        FOREIGN KEY(h_regno) REFERENCES hospital(h_regno) ON DELETE SET  
NULL  
        ON UPDATE CASCADE,  
        FOREIGN KEY(p_id) REFERENCES patient(p_id) ON DELETE SET NULL  
        ON UPDATE CASCADE,  
        FOREIGN KEY(b_id) REFERENCES bed(b_id) ON DELETE SET NULL  
        ON UPDATE CASCADE  
);
```

```
CREATE TABLE icu(  
        h_regno INT CHECK(h_regno BETWEEN 100000 AND 999999),  
        icu_no INT CHECK(icu_no BETWEEN 0 AND 999),  
        duration DECIMAL(3,2),  
        start_date DATE,
```

```

        p_id INT CHECK(p_id BETWEEN 100000 AND 999999),
        FOREIGN KEY(h_regno) REFERENCES hospital(h_regno) ON DELETE SET
NULL
        ON UPDATE CASCADE,
        FOREIGN KEY(p_id) REFERENCES patient(p_id) ON DELETE SET NULL
        ON UPDATE CASCADE
    );

CREATE TABLE waiting (
    severity INT CHECK(severity BETWEEN 0 AND 10),
    name VARCHAR(300),
    wait_id INT CHECK(wait_id BETWEEN 100 AND 999),
    phone_no INT CHECK(phone_no BETWEEN 1000000000 AND 9999999999),
    age INT CHECK(age BETWEEN 0 AND 200),
    address VARCHAR(400),
    h_regno INT CHECK(h_regno BETWEEN 100000 AND 999999),
    FOREIGN KEY(h_regno) REFERENCES hospital(h_regno) ON DELETE SET
NULL
    ON UPDATE CASCADE
);

```

Insert .sql file: Data taken is random and self made.

```
\c covidhospital
```

```

INSERT into HOSPITAL values('Ramamurthy Nagar', 431276, 15);
INSERT into HOSPITAL values('Kormangala', 109468, 4);
INSERT into HOSPITAL values('Kammanahalli', 241487, 26);
INSERT into HOSPITAL values('Electronic City', 518651, 10);
INSERT into HOSPITAL values('Sarjapur', 072501, 6);
INSERT into HOSPITAL values('Banshankari', 143806, 11);
INSERT into HOSPITAL values('JP nagar', 834781, 21);
INSERT into HOSPITAL values('Sarjapur', 072501, 6);
INSERT into HOSPITAL values('Kammanahalli', 241487, 26);
INSERT into HOSPITAL values('Ramamurthy Nagar', 431276, 15);
INSERT into HOSPITAL values('Majestic', 737863, 3);

INSERT into DOCTOR values(681473, 'Shrivatsa Sarna', 9087622972,
241487);
INSERT into DOCTOR values(194282, 'Manish Rao', 9814242043, 431276);
INSERT into DOCTOR values(846198, 'Vedanti Krishna', 5949107414,
109468);
INSERT into DOCTOR values(149681, 'Adnan Kalita', 8973471358,
518651);

```

```
INSERT into DOCTOR values(980716, 'Prabhat Atwal', 6148038031,
072501);
INSERT into DOCTOR values(261090, 'Janya Garg', 9831551571, 834781);
INSERT into DOCTOR values(541740, 'Nakul Krishnamurthy', 9874376177,
143806);
INSERT into DOCTOR values(807466, 'Dhruv Andra', 9908787321, 737863);
INSERT into DOCTOR values(087346, 'Lata Deep', 9838477317, 072501);
INSERT into DOCTOR values(105846, 'Akanksha Narayanan', 9875102875,
241487);
INSERT into DOCTOR values(194282, 'Manish Rao', 9814242043, 431276);
```

```
INSERT into DIAGNOSIS values(99,'yes','yes','yes',87, 194282,210021);
INSERT into DIAGNOSIS values(98,'yes','no','yes',92, 846198,258702);
INSERT into DIAGNOSIS values(97,'no','no','no',96, 681473,078248);
INSERT into DIAGNOSIS values(NULL,'no','yes','no',90, 149681,928788);
INSERT into DIAGNOSIS values(99,'no','no','yes',95, 541740,134650);
INSERT into DIAGNOSIS values(98,'no','yes','yes',97, 980716,212897);
INSERT into DIAGNOSIS values(100,'yes','yes','yes',91,
261090,712804);
INSERT into DIAGNOSIS values(97,'no','no','yes',96, 807466,872508);
INSERT into DIAGNOSIS values(99,'yes','yes','yes',89, 087346,928752);
INSERT into DIAGNOSIS values(97,'no','no','yes',95, 105846,528701);
INSERT into DIAGNOSIS values(98,'no','yes','yes',95, 087346,098571);
```

```
INSERT into BED_PATIENT values(072501,'2021-05-03','2021-05-10',
928752,056);
INSERT into BED_PATIENT values(241487,'2021-05-13','2021-03-17',
528701,401);
INSERT into BED_PATIENT values(431276,'2021-04-11','2021-04-21',
098571,1345);
INSERT into BED_PATIENT values(431276,'2021-03-12','2021-03-16',
210021,1345);
INSERT into BED_PATIENT values(109468,'2021-03-10','2021-03-13',
258702,119);
INSERT into BED_PATIENT values(241487,'2021-04-03','2021-04-05',
078248,401);
INSERT into BED_PATIENT values(518651,'2021-05-12','2021-05-16',
928788,121);
INSERT into BED_PATIENT values(143806,'2021-04-15','2021-04-21',
134650,106);
INSERT into BED_PATIENT values(072501,'2021-03-07','2021-03-17',
212897,056);
```

```
INSERT into BED_PATIENT values(737863,'2021-04-11','2021-04-19',  
872508,145);  
INSERT into BED_PATIENT values(834781,'2021-05-02','2021-05-08',  
712804,215);
```

```
INSERT into MEDICINE values(075653,'thrombolysis');  
INSERT into MEDICINE values(016171,'ibuprofen');  
INSERT into MEDICINE values(031851,'remdesvir');
```

```
INSERT into BED values(241487,401,7);  
INSERT into BED values(518651,3,11);  
INSERT into BED values(431276,1345,10);  
INSERT into BED values(109468,119,4);  
INSERT into BED values(072501,056,11);  
INSERT into BED values(143806,106,9);  
INSERT into BED values(737863,145,10);  
INSERT into BED values(834781,215,4);  
INSERT into BED values(072501,056,3);  
INSERT into BED values(241487,401,19);  
INSERT into BED values(431276,1345,5);
```

```
INSERT into PRESCRIPTION values(210044,078248,016171, 681473);  
INSERT into PRESCRIPTION values(134980,928788,075653, 194282);  
INSERT into PRESCRIPTION values(086166,210021,031851, 194282);  
INSERT into PRESCRIPTION values(641836,258702,031851, 846198);  
INSERT into PRESCRIPTION values(876781,210021,031851, 980716);  
INSERT into PRESCRIPTION values(671019,134650,031851, 541740);  
INSERT into PRESCRIPTION values(598146,712804,031851, 261090);  
INSERT into PRESCRIPTION values(346873,872508,031851, 807466);  
INSERT into PRESCRIPTION values(143524,928752,031851, 087346);  
INSERT into PRESCRIPTION values(564534,528701,031851, 105846);  
INSERT into PRESCRIPTION values(143565,098571,031851, 194282);
```

```
INSERT into ICU values(518651,4,15.3,'2021-05-12',928788);  
INSERT into ICU values(431276, 13,'2021-03-10',29.3,210021);
```

```
INSERT into PATIENT values(072501,212897,'Arathi',51,8712324598,2);  
INSERT into PATIENT values(143806,134650,'Vasu',27,7203756142,9);  
INSERT into PATIENT values(834781,712804,'Vishal',27,7203756142,10);  
INSERT into PATIENT  
values(241487,078248,'Parushuram',43,8765121278,8);  
INSERT into PATIENT values(518651,928788,'Hamsa',38,9786584268,2);
```

```

INSERT into PATIENT values(431276,210021,'Satish',37,7203756142,8);
INSERT into PATIENT values(109468,258702,'Veena',29,4870922531,3);
INSERT into PATIENT values(737863,872508,'Satish',37,7203756142,8);
INSERT into PATIENT values(072501,928752,'Satish',37,7203756142,8);
INSERT into PATIENT values(241487,528701,'Satish',37,7203756142,8);
INSERT into PATIENT values(431276,098571,'Satish',37,7203756142,8);

INSERT into WAITING values(7,'Ramesh',23,6843214908,56,'113, 3rd main
road, Whitefield',431276);
INSERT into WAITING values(6,'Veena',13,9876351559,71,'134, 2nd main
road, Kormangala',109468);
INSERT into WAITING values(6,'Mary',05,8974693524,34,'564, 4th main
road, Bilal road',241487);
INSERT into WAITING values(4,'Sufi',14,5418192825,62,'146, 6th main
road, Kasturi Nagar',518651);
INSERT into WAITING values(9,'Mani',23,9876541678,45,'12, 3rd main
road, Indira Nagar',737863);
INSERT into WAITING values(8,'Hazif',17,6879878624,23,'541, 2nd main
road, MG Road',072501);
INSERT into WAITING values(6,'Bhagat',19,7658358627,65,'12, 4th main
road, Hosa Road',241487);
INSERT into WAITING values(9,'Shravani',40,6875642583,43,'133, 5th
main road, Marathahalli',143806);

```

Contribution:

Anjali Praveen (PES2UG19CS047): Writing create statements in .sql file according to the constraints.

with their properties. Time spent: 30 minutes

Anusha M S (PES2UG19CS055): Designing the relational model and deciding the constraints.

problem statement. Time spent: 20 minutes

Apurva Pothumarthi (PES2UG19CS060): Writing the insert statements in .sql file according to the create statement and constraints with data. Time spent: 20 minutes

The report was done together and took about 1 hour to finish and submit.