Assignment – 4

- My project is exported as file system from eclipse and is named as "ClinicDomain".
- Generated SQL Queries from entities are
    - CREATE TABLE Patient (ID BIGINT NOT NULL, BIRTHDATE DATE, NAME VARCHAR(255), PATIENTID BIGINT, PRIMARY KEY (ID))
    - CREATE TABLE Treatment (TREATMENTID BIGINT NOT NULL, TREATMENT_TYPE VARCHAR(31), DIAGNOSIS VARCHAR(255), PATIENT_ID BIGINT NOT NULL, PROVIDERS_ID BIGINT NOT NULL, PRIMARY KEY (TREATMENTID, PATIENT_ID, PROVIDERS_ID))
    - CREATE TABLE DrugTreatment (TREATMENTID BIGINT NOT NULL, DOSAGE FLOAT, DRUG VARCHAR(255), DRUGTREATMENTID BIGINT, PRIMARY KEY (TREATMENTID))
    - CREATE TABLE Provider (ID BIGINT NOT NULL, NAME VARCHAR(255), NPI BIGINT, PRIMARY KEY (ID))
    - CREATE TABLE Radiology (TREATMENTID BIGINT NOT NULL, RID BIGINT, PRIMARY KEY (TREATMENTID))
    - CREATE TABLE Surgery (TREATMENTID BIGINT NOT NULL, DATE DATE, PRIMARY KEY (TREATMENTID))
    - CREATE TABLE Radiology_date (Radiology_RID BIGINT, DATE DATE)
    - ALTER TABLE Treatment ADD CONSTRAINT FK_Treatment_PATIENT_ID FOREIGN KEY (PATIENT_ID) REFERENCES Patient (ID)
    - ALTER TABLE Treatment ADD CONSTRAINT FK_Treatment_PROVIDERS_ID FOREIGN KEY (PROVIDERS_ID) REFERENCES Provider (ID)
    - ALTER TABLE DrugTreatment ADD CONSTRAINT FK_DrugTreatment_TREATMENTID FOREIGN KEY (TREATMENTID) REFERENCES Treatment (TREATMENTID)
    - ALTER TABLE Radiology ADD CONSTRAINT FK_Radiology_TREATMENTID FOREIGN KEY (TREATMENTID) REFERENCES Treatment (TREATMENTID)
    - ALTER TABLE Surgery ADD CONSTRAINT FK_Surgery_TREATMENTID FOREIGN KEY (TREATMENTID) REFERENCES Treatment (TREATMENTID)
    - ALTER TABLE Radiology_date ADD CONSTRAINT FK_Radiology_date_Radiology_RID FOREIGN KEY (Radiology_RID) REFERENCES Radiology (RID)
    - CREATE TABLE SEQUENCE (SEQ_NAME VARCHAR(50) NOT NULL, SEQ_COUNT DECIMAL(38), PRIMARY KEY (SEQ_NAME))
    - INSERT INTO SEQUENCE(SEQ_NAME, SEQ_COUNT) values ('SEQ_GEN', 0)
- This SQL queries are also found in project folder.
- I have also recorded a video displaying sql generation from jpa entities.
- My entity classes are: Patient, Provider, Treatment, DrugTreatment, Radiology and Surgery.
- Database tables are: patient, provider, treatment, drugTreatment, Surgery, Radiology, Radiology_date and sequence.

- My Database diagram is as shown below. I have generated that diagram from postgresql database using Dbvisualizer tool.
- This diagram also serves as my basic E-R diagram.
- As per seen in this database structure diagram, patient and treatment and provider and treatment are coupled using foreign keys.
- Treatment table is parent table and child tables are drugtreatment, surgery and radiology.
- All child tables use treatmentid as their primary key because of inheritance in entities.
- Radiology dates are stored in radiology_date because of @ElementCollection. So radiology_date and radiology tables are tightly coupled.
- rid field in radiology table is also in the radiology_date table as radiology_rid. This field does the mapping between both of this tables.
- Treatment_type in treatment table describes which type of treatment is going on for the patient. And according to that treatment type, details found in related table using treatmentid.