**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.

