PROBLEM 2:

2. Apply the simple BCNF procedure to define BCNF tables using the FD list Table 2. Show the result of each step in your analysis. For the final result, you should show the tables, columns, primary key of each table, foreign keys, and unique constraints. You do not need to provide CREATE TABLE statements.

Table 2: FDs for the Big Patient Table

PatNo → PatAge
PatZip9 → PatCity
VisitNo → VisitDate
PatNo → PatZip9
ProvNo → ProvSpecialty
VisitNo → PatNo
VisitNo, ProvNo → Diagnosis
ProvNo → ProvEmail
ProvEmail → ProvNo

solution:

List of FD's:

PatNo---> PatAge,PatZip9
PatZip9---> PatCity
VisitNo---> VisitDate,PatNo
ProvNo---> ProvSpecialty,ProvEmail
ProvNo,VisitNo--->Diagnosis

BCNF tables:

patientTable(**PatNo**,PatAge,PatZip)
foreign key (PatZip) references patientAddressTable

patientAddressTable(PatZip,PatCity)

patientVisitTable(**VisitNo**,PatNo,VisitDate)
foreign key(PatNo) references patientTable

provTable(**ProvNo**,ProvEmail,ProvSpecialty)

diagnosisTable(**ProvNo**,**VisitNo**,diagnosis)
foreign key(provNo) references provTable
foreign key (VisitNo) references patientVisitTable