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Design Assignment
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Database Schemas:

Patient (<u>pSSN</u> , p_first_name, p_last_name, DOB, address, p_phone, insurance_co, member_no)	ck: <u>pSSN</u>
Contact (<u>contactID</u> , c_first_name, c_last_name, c_phone)	ck: <u>contactID</u>
Dentist (<u>dSSN</u> , d_first_name, d_last_name)	ck: <u>dSSN</u>
Diagnosis (<u>diagName</u> , diagCode, diagDescription)	ck: <u>diagName</u> ; diagCode
Procedure (<u>proName</u> , proCode, proDescription, proFee)	ck: <u>proName</u> ; proCode
Tooth (<u>toothID</u>)	ck: <u>toothID</u>
Xray (<u>xrayID</u> , xrayNumber, date)	ck: <u>xrayID</u> , <u>xrayNumber</u>
Emergency_Contact (<u>pSSN</u> , contactID)	ck: <u>pSSN</u>
Primary_Dentist (<u>pSSN</u> , dSSN)	ck: <u>pSSN</u>
Treatment_Options (<u>diagName</u> , <u>proName</u>)	ck: <u>diagName</u> , <u>proName</u>
Visit (<u>pSSN</u> , <u>date</u> , dSSN, totalFees)	ck: <u>pSSN</u> , <u>date</u>
Treatment (<u>pSSN</u> , <u>date</u> , <u>toothID</u> , diagName, proName)	ck: <u>pSSN</u> , <u>date</u> , <u>toothID</u>
Xray_Tooth (<u>xrayID</u> , <u>xrayNumber</u> , <u>toothID</u> , comment)	ck: <u>xrayID</u> , <u>xrayNumber</u> , <u>toothID</u>

Assumption: Diagnosis-Procedure is a many to many relation

Loss-Less Proof:

Patient \leftrightarrow Emergency_Contact

Patient \cap Emergency_Contact \rightarrow Emergency_Contact as we have **FD: pSSN \rightarrow contactID**

Patient \leftrightarrow Primary_Dentist

Patient \cap Primary_Dentist \rightarrow Primary_Dentist as we have **FD: pSSN \rightarrow dSSN**

Patient \leftrightarrow Visit

Patient \cap Visit \rightarrow Visit as we have **FD: pSSN, date \rightarrow dSSN, totalFees**

Patient \leftrightarrow Treatment

Patient \cap Treatment \rightarrow Treatment as we have **FD: pSSN, date, toothID \rightarrow diagName, proName**

Contact \leftrightarrow Emergency_Contact

Contact \cap Emergency_Contact \rightarrow Emergency_Contact as we have **FD: pSSN \rightarrow contactID**

Dentist \leftrightarrow Primary_Dentist

Dentist \cap Primary_Dentist \rightarrow Primary_Dentist as we have **FD: pSSN \rightarrow dSSN**

Dentist \leftrightarrow Visit

Dentist \cap Visit \rightarrow Visit as we have **FD: pSSN, date \rightarrow dSSN, totalFees**

Diagnosis \leftrightarrow Treatment_Options

Diagnosis \cap Treatment_Options \rightarrow Diagnosis as we have **FD: diagName \rightarrow diagCode, diagDescription**

Diagnosis \leftrightarrow Treatment

Diagnosis \cap Treatment \rightarrow Treatment as we have **FD: pSSN, date, toothID \rightarrow diagName, proName**

Procedure \leftrightarrow Treatment_Options

Procedure \cap Treatment_Options \rightarrow Procedure as we have **FD: proName \rightarrow proCode, proDescription**

Procedure \leftrightarrow Treatment

Procedure \cap Treatment \rightarrow Treatment as we have **FD: pSSN, date, toothID \rightarrow diagName, proName**

Tooth \leftrightarrow Treatment

Tooth \cap Treatment \rightarrow Treatment as we have **FD: pSSN, date, toothID \rightarrow diagName, proName**

Tooth \leftrightarrow Xray_Tooth

Tooth \cap Xray_Tooth \rightarrow Xray_Tooth as we have **FD: xrayID, xrayNumber, toothID \rightarrow comment**

Xray \leftrightarrow Xray_Tooth

Xray \cap Xray_Tooth \rightarrow Xray_Tooth as we have **FD: xrayID, xrayNumber, toothID \rightarrow comment**

Visit \leftrightarrow Treatment

Visit \cap Treatment \rightarrow Visit as we have **FD: pSSN, date \rightarrow dSSN, totalFees**

Treatment_Options \leftrightarrow Treatment

Treatment_Options \cap Treatment \rightarrow Treatment

as we have **FD: pSSN, date, toothID \rightarrow diagName, proName**