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Lab 3

**Question 1**

**Based on the above assumptions, what do you choose to be the primary key of Person Table? Why?**

A primary key of Person Table would be **Per SSN** because one of the assumptions given is that “Every person in the world has a *different* SSN”, the social security number uniquely identifies each person. Since the purpose of the Person Table is to keep track of every person, having a unique attribute to identify each person such as **Per SSN** would be easier.

**Question 2**

**Explain the anomalies exist in the Person Table. Choose only one example of insert anomaly, one example of delete anomaly and one example of update anomaly. Not that update does not mean adding or deleting records. It refers to modifications of values in some rows of the table.**

* **Insert Anomaly**  
  An example of an Insert Anomaly would be trying to insert a new city because in order to add a new city, a new person would have to be allocated to the new city because since **Per SSN** is a primary key, **Per SSN** can’t be empty or null.
* **Delete Anomaly**  
  An example of a Delete Anomaly would be trying to delete a person who is the only person living in a city because if that single person was deleted, all information regarding that city would be gone.
* **Update Anomaly**  
  An example of a Update Anomaly would be updating **Per Add** because if a person moved and changed their address, all information such as **Con ID**, **Con Name**, **Con Pop**, **Con Size**, **State Code**, **State Name**, **State Rgn**, **State Size**, **State Pop**, **Cty Code**, **Cty Name**, and **Cty Size** would also have to be updated alongside **Per Add** so all information corresponds with **Per Add**. If **Per Add** was only updated but not everything else, all other information would not correspond with **Per Add** and would cause problems in the database.

**Question 3**

**Normalize the table; create as many as tables necessary such that all new tables are in third normal form. All the transitive and derived dependencies must be removed.**

Table 1: Person(Per SSN, Per Name, Per DofB, Per Add, Cty Code\*)

Table 2: City(Cty Code, Cty Name, State Code\*)

Table 3: State(State Code, State Name, State Rgn, Con ID\*)

Table 4: Country(Con ID, Con Name)

**Question 4**

**Draw your ERD based on fully normalized table (Reverse Engineering).**

