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Lab 3

1) Based on the above assumptions, what do you choose to be the primary key of Person table? Why?

Based on the assumptions, I would choose PerSSN to be the primary key because no person will have the same PerSSN as another person. Each and every PerSSN assigned to a person is unique making it the most unique way to identify different people, so having it as the primary key of the Person table would be best. It is assumed that "Every person in the world has a different SSN".

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

One example of the insertion anomaly in the person table would be adding a new location without a person associated with the new location. This is an anomaly because the primary key is a person's PerSSN, so we can't add a new location without an SSN. A new entry into the database must start with the PerSSN. PerSSN cannot be NULL in order to add a new location, without it, it's an anomaly. For example adding in the city of, San Marcos, California, without having a PerSSN would cause an anomaly

One example of the deletion anomaly in the person table would be when deleting the only person in a city, state, or country. This is an anomaly because when you delete that only person you lose the data of the location they were in. We couldn't have SSN to be NULL either because without it there wouldn't be the location that came with it too. For example, if I was the only person living in San Marcos, California, and I were to be removed from the database, I would have to delete all the information about San Marcos, California.

One example of the update anomaly in the person table would be updating a location's name because they changed the location name to a different name. Having to do so would be an update anomaly because you would have to change all the people who are living at that location's name. For example if people who entered were living in San Marcos, California and the city council decided to change the name of San Marcos to Sanmarc, everyone who is listed in San Marcos would have the location name changed.

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

Person(PerSSN, PerName, PerDofB, PerAdd, CtyCode*)
City(CtyCode, CtyName, CtySize, StateCode*)
State(StateCode, StateName, StateRgn, ConID*)
Country(ConID, ConName)

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