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## Introduction to Relational Databases Lab Notebook

### Lab Notebook Questions

**Q1: Explore the tables. What fields do you see? How would you describe these fields, using the language of string, double, and integer to describe the data types?**

- When looking at the tables, I found that they would be quite easy to join and understand to be able to synthesize the data in SQL. In the tables, the fields that I see that are helpful are "Combined\_Transactions.person\_id" as an integer, "Combined\_Transactions.Season" as an integer, "Player\_PoB.City" as a string, "Player\_PoB.State" as a string, "Player\_PoB.Country" as a string, "Team\_Locations.Team Name" as a string, and "Team\_Locations.State" as a string.

**Q2: What entities are in the Player\_Birthplaces, Team\_Locations, and Transactions tables? List the entities by their table and include some explanation of your thought process. If you're getting stuck, try describing the data included in each table using a sentence. Where are the nouns in each sentence?**

- Player-Birthplaces
  - Person
- Team\_Locations
  - Team
- Transactions
  - Person
  - Team

**Q3: What attributes are in the Player\_Birthplaces, Team\_Locations, and Transactions tables? What entities do these attributes describe? List the attributes by entity and table and include some explanation of your thought process. If you're getting stuck, go back to your list of entities from Q2. What non-entity information in each table might describe an entity?**

- Player-Birthplaces
  - Person\_id
  - City
  - State
  - Country
- Team\_Locations
  - Season
  - Team name
  - State
- Transactions
  - Person\_id
  - Season

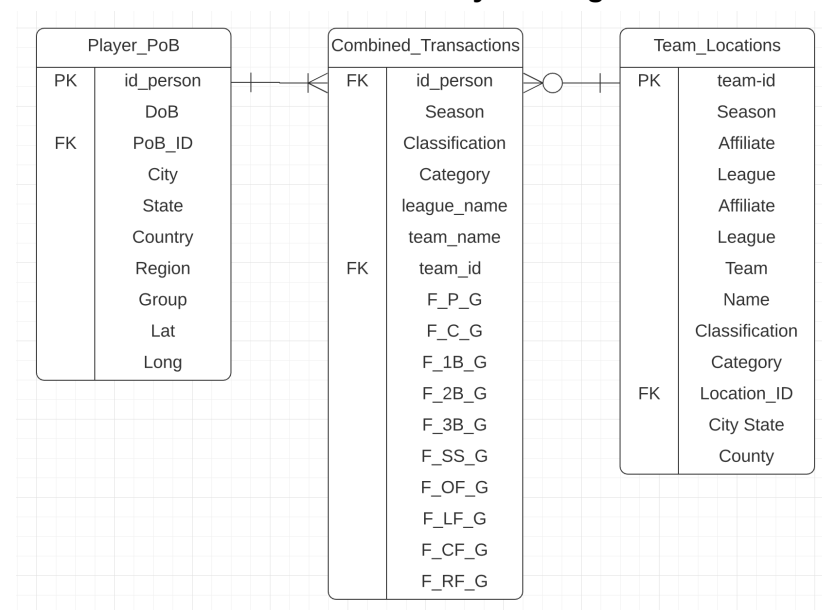
**Q4: What relationships do you see within and across entities in the Player\_Birthplaces, Team\_Locations, and Transactions tables? What entities do these relationships connect? Include some explanation of your thought process. If you're getting stuck, go back to your list of entities from Q2. How do these entities connect?**

- Player to Birthplaces is one required to many optional
  - Because one player is only born in one place and has to be born but many players couple be born in the same place but all players don't need to be born there
- Team to Team location is one required to many optional
  - Because many teams can share a city and

**Q5: Include the cardinality for the relationships you identified in Q4. Include some explanation of your thought process.**

- Player to Birthplaces is one required to many optional
  - Because one player is only born in one place and has to be born but many players couple be born in the same place but all players don't need to be born there
- Team to Team location is one required to many optional
  - Because many teams can share a city and

**Q6: Work with a colleague to build an ERD for the Player\_Birthplaces, Team\_Locations, and Transactions tables. Include your diagram as well as an explanation of your process.**

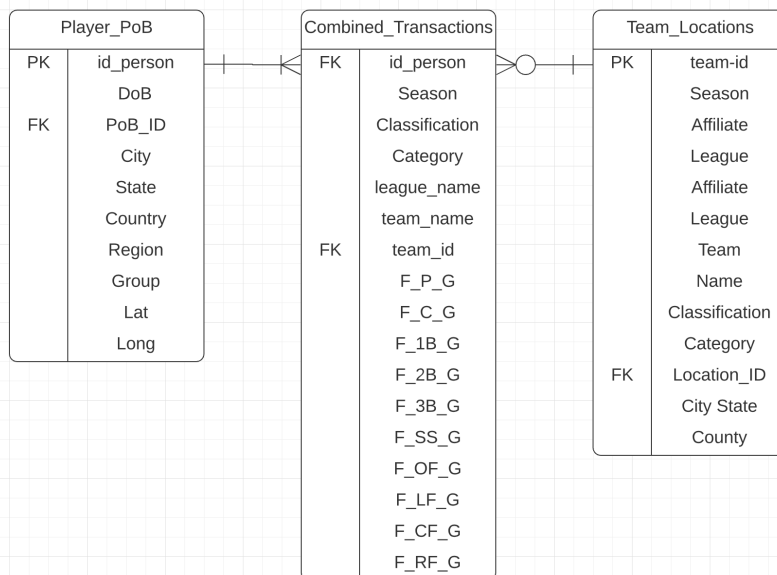


- In my process, I understood where the two tables would intersect and used that to create an ERD schema where those keys are the items that are used to understand how the data included in the individual tables are interconnected and used to create a more concise sheet that contains indicators that pertain to other information.

**Q7: What fields in our tables are functioning as keys? Which ones are primary keys and which ones are foreign keys? Include some explanation of your thought process.**

- Player-Birthplaces
  - Person\_id (PK) → the overall identifier for the table
  - PoB\_id (FK) → an identifier from another table
- Team\_Locations
  - team\_id (PK) → the overall identifier for the table
  - location\_id (FK) → an identifier from another table
- Transactions
  - Person\_id (FK) → an identifier from another table
  - team\_id (FK) → an identifier from another table

**Q8: Work with a colleague to build a relational schema for a relational database that includes the Player\_Birthplaces, Team\_Locations, and Transactions tables. Include your diagram as well as an explanation of your process.**



- In my process, I took the ERD that I had created for Question 6 and pretty much realized that I didn't have much to edit. After taking a class about ERDs and SQL I have found that I've set myself into patterns that are to create things a certain way and complete them even if I don't need to. I almost did normalize this data but decided against it.

**Q9: Describe your experience installing DB Browser for SQLite based on the provided instructions and available documentation. What challenges did you encounter, and how did you solve those problems?**

- Answer in SQLite Jupyter Notebook

**Q10: Describe your experience loading `.csv` files into DB Browser based on the provided instructions and available documentation. What challenges did you encounter, and how did you solve those problems?**

- Answer in SQLite Jupyter Notebook

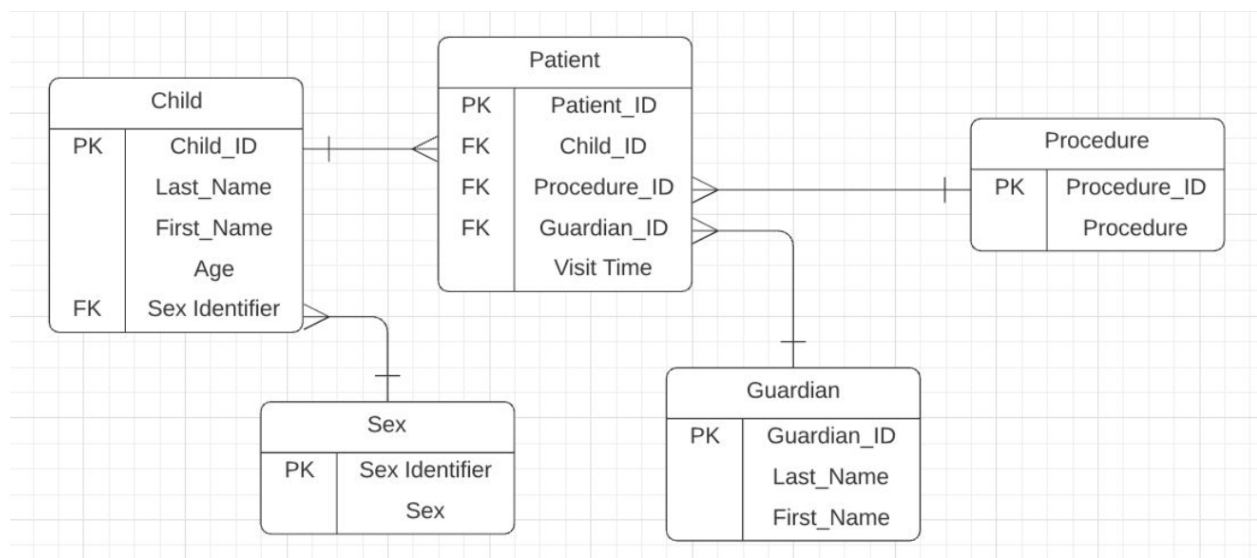
**Q11: Describe your experience setting key fields and building table relationships to form a relational database in DB Browser, based on the provided instructions and available documentation. What challenges did you encounter, and how did you solve those problems?**

- Answer in SQLite Jupyter Notebook

## Project Prompts

### Project #2

Describe a hypothetical situation in which you would be using/implementing a relational database. Build an ERD and RS for that implementation/use case. Include narrative or text that documents your thought process as well as ERD and RS diagrams.



In this situation, the schema which is also the ERD explains how the system for a children's hospital would work to catalogue its patients and their medical history. The system would use a set of tables that would hold information regarding the procedures that a patient could have had, who the patient is, and their guardian. This system is important to implement for a hospital because it allows for doctors and nurses to get an understanding of the patient, who they rely on for medical care and maybe medical advice, and what they have been through in the past. My thought process for this ERD/RS is that the combined list is going to be the patient list (have all the info point to it). Then, I knew that child and guardian and procedure would have to be different tables that all connected to the master list and through normalization realized that I could make a separate table for Sex of the child patient as it is something the doctors would need to know. This ERD is in third normal form.