Applied Databases

Assignment 1

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Part **B**

1.

Relation List:

Items(itemID, name, currently, buyPrice, firstBid, numberOfBids, location, country, started, ends, description) Keys: itemID

Categories(CategoryID, category) Keys: categoryID

ItemHasCategory(itemID, categoryID) Keys: itemID, categoryID

Coordinates(coordinateID, latitude, longitude) Keys: coordinateID

ItemHasCoordinate(itemID, coordinateID) Keys: itemID, coordinateID

Bids(bidID, time, amount, bidderID) Keys: bidID

ItemHasBid(itemID, bidID) Keys: itemID, bidID

Bidders(userID, rating, location, country) Keys: userID

Sellers(userID, rating) Keys: userID

ItemHasSeller(itemID, userID) Keys: itemID, userID

2.

All my dependencies are completely non-trivial functional dependencies and they specify keys in my design.

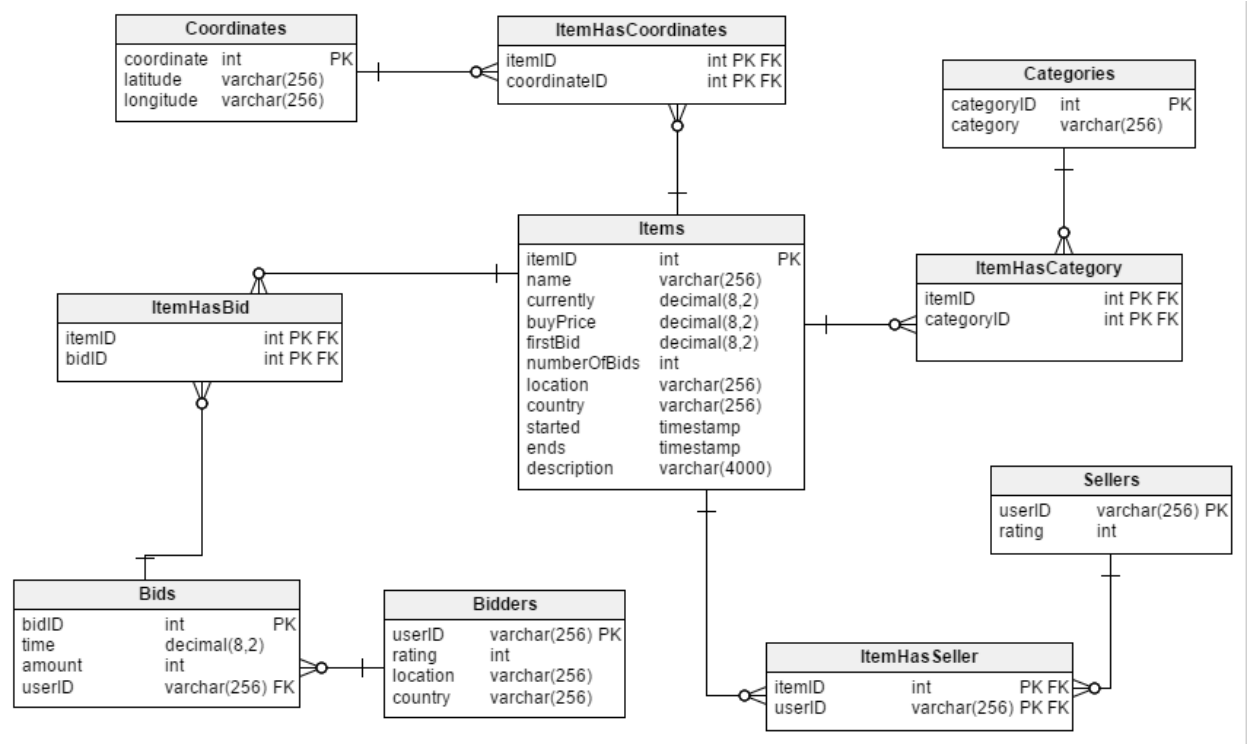
3.

Yes, my schema should be in BCNF because all my functional dependencies have a key on the left part.

4.

Yes, all my relations are in 4NF while I have no other internal relations.

My Design Schema



Declarations:

- In the XML files there are duplicate <Category> items. For example the item with ID = 1310018094 has duplicate the Category *Subwoofer*. In my parser I do not create duplicate lines in the tables. But it is really easy if we want to save this information to attach a new table that will ONLY store the Items with their multiple Categories.
- The tables are created with scalability for example there are HAS relations between the tables like *ItemHasCategory* where needed in order to reduce the duplicates and to make the queries easier plus every table has a PRIMARY KEY while there are no NULLs in my

tables. The tables are also created for difficult and more complicated queries than the 10 queries in the assignment.