ER Modeling & Schema Design - Report

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Schema Design:

To start designing our schema, we first studied the provided *items_schema.txt* file to gain an understanding of the attributes given in the data. We then used a Jupyter Notebook to more easily run tests and use functions to further break down the file, like retrieving all the keys from a single row, or checking the data types of dictionary or list elements. This would make it much easier to develop our code for Task C later on.

We decided that, based on the queries that we were required to complete with good performance in Task E, we would need at least the following relations: items, bidders, sellers, bids, and categories. Since the ItemID attribute is unique to each item and is a required attribute, we decided it was the ideal attribute to use as the primary key in the Items table. For Categories and Bids, we can use a tuple of the ItemID along with category or UserID and amount (respectively) as the primary keys for those tables. UserID's are unique to each user, so they can be used as primary keys for the Bidders and Sellers tables.

Items(ItemID, name, currently, buy_price, first_bid, number_of_bids, started, ends, Seller_UserID(foreign key), description)

Item_id is the primary key in Items and Seller_userid is the foreign key.

Categories(ItemID, category)

The tuple of (item_id, category) is the primary key in Categories

Sellers(UserID, rating, location, country)

UserID is the primary key in Sellers

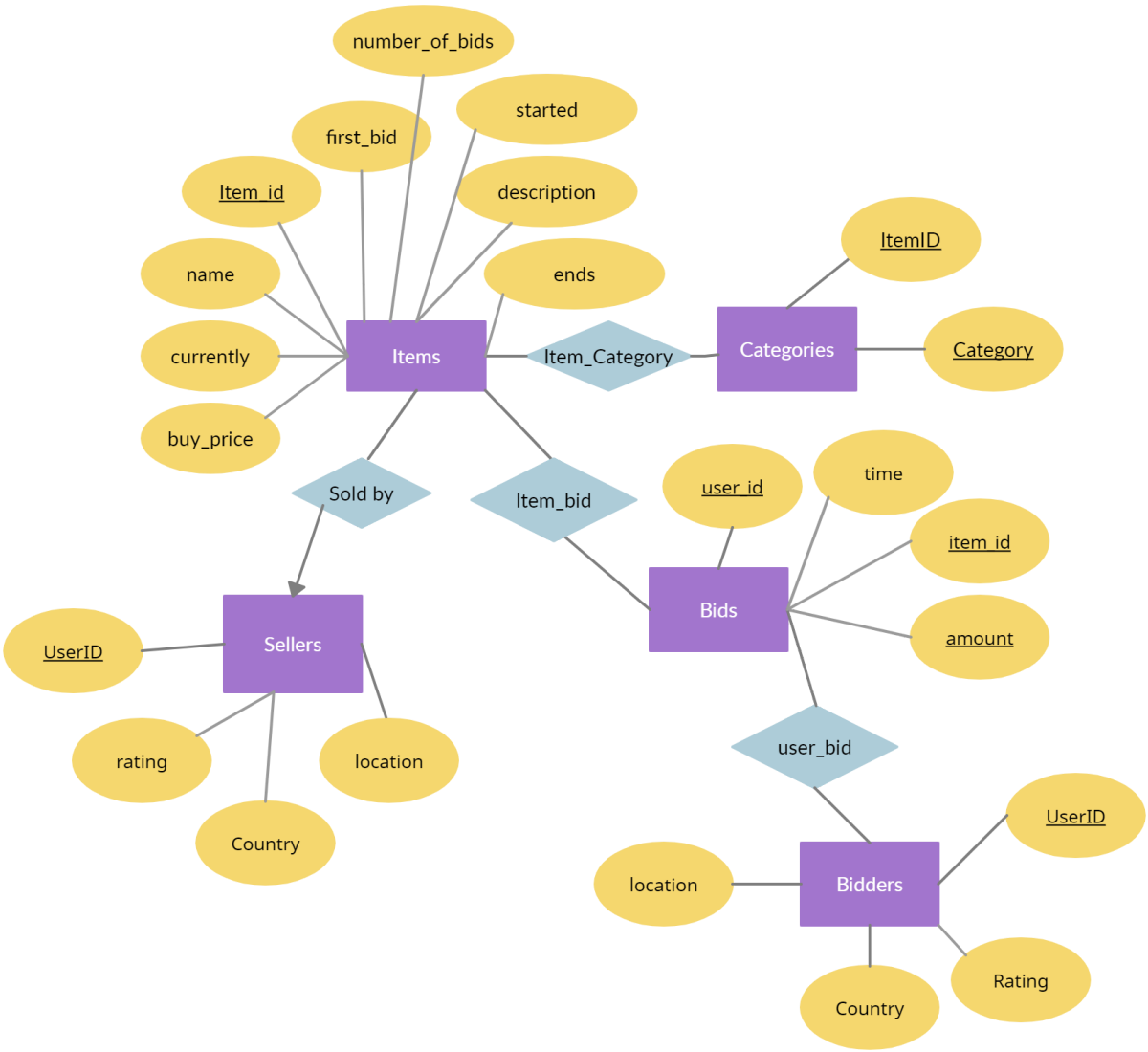
Bidders(UserID, rating, location, country)

UserID is the primary key in Bidders

Bids(ItemID(foreign key), Bidder_UserID (foreign key), Amount, Time)

The tuple of (ItemID, Bidder_UserID,Amount) is the primary key, and ItemID and Bidder_UserID are the foreign keys.

ER Diagram:


number_of_bids
started
first_bid
Item_id
description
name
ends
currently
Items
Item_Category
Categories
ItemID
Category
buy_price
Sold by
Item_bid
user_id
time
item_id
Bids
amount
UserID
Sellers
rating
location
Country
user_bid
UserID
location
Bidders
Rating
Country