

Assignment 1

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1 Relational schema

- Bidder
 - User_ID
 - Rating
 - PRIMARY KEY (User_ID)
- Seller
 - User_ID
 - Rating
 - PRIMARY KEY (User_ID)

The Bidder and Seller tables include the User_ID and Rating and are not included in one table, because the Rating can vary if a User sells or buys Items.

- Location
 - User_ID
 - Location
 - Country
 - FOREIGN KEY (User_ID) REFERENCES User(User_ID)

The Location Table holds the bidders location. It references to the Bidder table by foreign key. The Bidders location is separated from the Bidder table to prevent unnecessary default values when the Bidder has no location specified. Even if there is in praxis a relationship between the Location and the Country (e.g. when as Location the city is chosen and multiple persons per city post an item) it is in our case unpractical to separate these into an mapping table because the location can be chosen by the user in an arbitrary way.

- Item
 - ItemID
 - Name
 - Currently
 - FirstBid
 - Number_Of_Bids
 - Started
 - Ends
 - BuyPrice
 - User_ID
 - Country

- Location
- Description
- PRIMARY KEY (ItemID)
- FOREIGN KEY (User_ID) REFERENCES User(User_ID)

Even if there is a strong possibility, that the Location and Country do not differ between items sold by the same Seller, they are by design added to the Items as attributes to also give the Seller the ability to change it from Item to Item.

- GeoLocation
 - ItemID
 - Latitude
 - Longitude
 - PRIMARY KEY (ItemID)
 - FOREIGN KEY (ItemID) REFERENCES Item(ItemID)

The GeoLocation table contains the information about the Latitude and Longitude of the offered item referred to by foreign key. It was detached from the Item table for the following two reasons: The default value is spared if no coordinates are given and there are certain databases like postgres, which can easier display the coordinates on a map if they are enclosed in an own table.

- ItemCategory
 - ItemID
 - Category
 - PRIMARY KEY (ItemID, Category)
 - FOREIGN KEY (ItemID) REFERENCES Item(ItemID)

The table ItemCategory has a compound primary key consisting out of ItemID and Category, whereas the ItemID refers to the ItemID in table Item.

- Bids
 - User_ID
 - Time
 - ItemID
 - Amount
 - PRIMARY KEY (User_ID, Time)
 - FOREIGN KEY (User_ID) REFERENCES Bidder(User_ID)
 - FOREIGN KEY (ItemID) REFERENCES Item(ItemID)

The Bid table contains the above listed columns. Because a Bidder can just post one bit at a time the compound primary key consists of the column names User_ID and Time.

2 Notes

- We use Sax Parser because of the most important advantage that the resulting program uses hardly any memory! Thus, it can handle huge XML files
- The Java Version in VM is "openjdk 17" so we changed the deprecated Class with SaxParserFactory [documentation](#)
- Because we had to handle not more than 8 files we included the classes of the different tables in the MySax.java file.