Describing data model

Database structure:

1. Auction Company:

- `id (PK)` : This field serves as the primary key and is essential for uniquely identifying each auction company.
- `auctions (FK to Auction)` : This foreign key establishes a relationship between the Auction Company and Auction tables. It's necessary to associate an auction company with the auctions it conducts.
- `clients (FK to Client)` : This foreign key connects Auction Company to the Clients table, linking the company to its clients. It's necessary to manage the relationships between auction companies and their clients.

2. Auctions:

- `id (PK)` : The primary key is essential for uniquely identifying each auction.
- `date` : The date field is crucial for recording when an auction takes place.
- `place` : The place field is necessary to store the location where the auction is held.

3. Item:

- `lot number (PK)` : This primary key uniquely identifies each item, which is fundamental for database integrity.
- `starting price` : This field is essential to record the initial price of the item.
- `auction id (FK to Auction)` : The foreign key is necessary to link an item to a specific auction.
- `seller id (FK to Seller)` : It establishes the relationship between the item and its seller, which is vital for tracking item ownership.
- `specifications (FK to Specification)` : This foreign key links the item to its specifications, ensuring that each item has associated details.

4. Specifications:

- `id (PK)` : The primary key is necessary to uniquely identify each set of specifications.
- `material` : It stores information about the material of an item, which is essential for describing the item's characteristics.
- `date of creation` : This field records when the specifications were created and is crucial for tracking historical data.
- `executed style (FK to Styles)` : The foreign key establishes a link between item specifications and predefined styles.
- `estimated cost` : This field is important for storing the estimated cost of an item.
- `item description` : It is essential for providing a textual description of an item.

5. Seller:

- `id (PK)` : This primary key is used to uniquely identify each seller.
- `amount of sold items` : It is crucial to track the number of items sold by each seller.

6. Purchase:

- `id (PK)` : The primary key is essential for uniquely identifying each purchase record.
- `item id (FK to Item)` : This foreign key links the purchase to a specific item.
- `buyer id (FK to Buyer)` : The foreign key connects the purchase to the buyer.
- `purchase date` : This field records when the purchase took place.
- `actual price paid` : It stores the actual price paid for the item.

7. Buyer:

- `id (PK)` : This primary key uniquely identifies each buyer.
- `average bid` : This field calculates the average bid amount for a buyer, which is crucial for analysis.

8. Client:

- `id (PK)` : The primary key is necessary for uniquely identifying each client.
- `as seller (FK to Seller)` : This foreign key is used to associate clients with their roles as sellers.
- `as buyer (FK to Buyer)` : It links clients to their roles as buyers.
- `name` : This field is necessary for recording the name of the client.
- `contacts (FK to Base of Contacts)` : The foreign key connects clients to their contact information.

9. Base of Contacts:

- `id (PK)` : The primary key is used to uniquely identify each contact entry.
- `number` : It stores contact numbers for clients.
- `email` : This field is essential for recording client email addresses.
- `social media` : It is crucial for storing social media contact information.

Usage scenario:

Scenario: An Auction Event

Imagine an upcoming auction event for a prestigious auction company, "Artistic Auctions." They have a vast collection of valuable art and antiques to offer, and they want to use their well-designed database system to manage the entire process.

1. **Auction Company:**
   - "Artistic Auctions" is the auction company hosting the event, and its unique identifier (`id`) links all data associated with this company. This allows for multiple auction companies to exist in the database, each with its own set of auctions and clients.
2. **Auctions:**
   - "Artistic Auctions" schedules an auction event with a specific date and location. For instance, an auction event on November 15, 2023, at the Grand Gallery Hall.
3. **Item:**
   - The auction company receives various items for auction. Each item has a unique lot number, which is essential for distinguishing between them. For example, Lot 101 is a rare painting.
   - The starting price for Lot 101 is $5,000, and it is associated with the auction event on November 15, 2023 (via the `auction id` field). The seller of the painting is Mr. John Smith (`seller id`), an art collector. The specifications of the painting, including its material, creation date, style, estimated cost, and a detailed description, are recorded in the `specifications` table.
4. **Seller:**
   - Mr. John Smith, the seller, is registered as a seller in the database. The database keeps track of the number of items he has sold through the `amount of sold items` field.
5. **Purchase:**
   - During the auction, a buyer, Mrs. Jane Doe, places the winning bid of $10,000 for Lot 101. This information is recorded as a purchase with a unique `id` . The purchased item is associated with Lot 101 (`item id`), and Mrs. Jane Doe is the buyer (`buyer id`). The purchase date and the actual price paid are also stored.
6. **Buyer:**
   - Mrs. Jane Doe is registered as a buyer in the database. Her average bid amount is tracked through the `average bid` field.
7. **Client:**
   - Mrs. Jane Doe, as a registered client of "Artistic Auctions," is associated with the auction company (`as buyer`). Her contact information, such as her name and contact details, is linked to the `base of contacts` .
8. **Base of Contacts:**
   - The `base of contacts` stores the contact information for clients. For Mrs. Jane Doe, this would include her phone number, email address, and social media profiles, which are essential for communication and maintaining the client relationship.