Art Gallery Management System
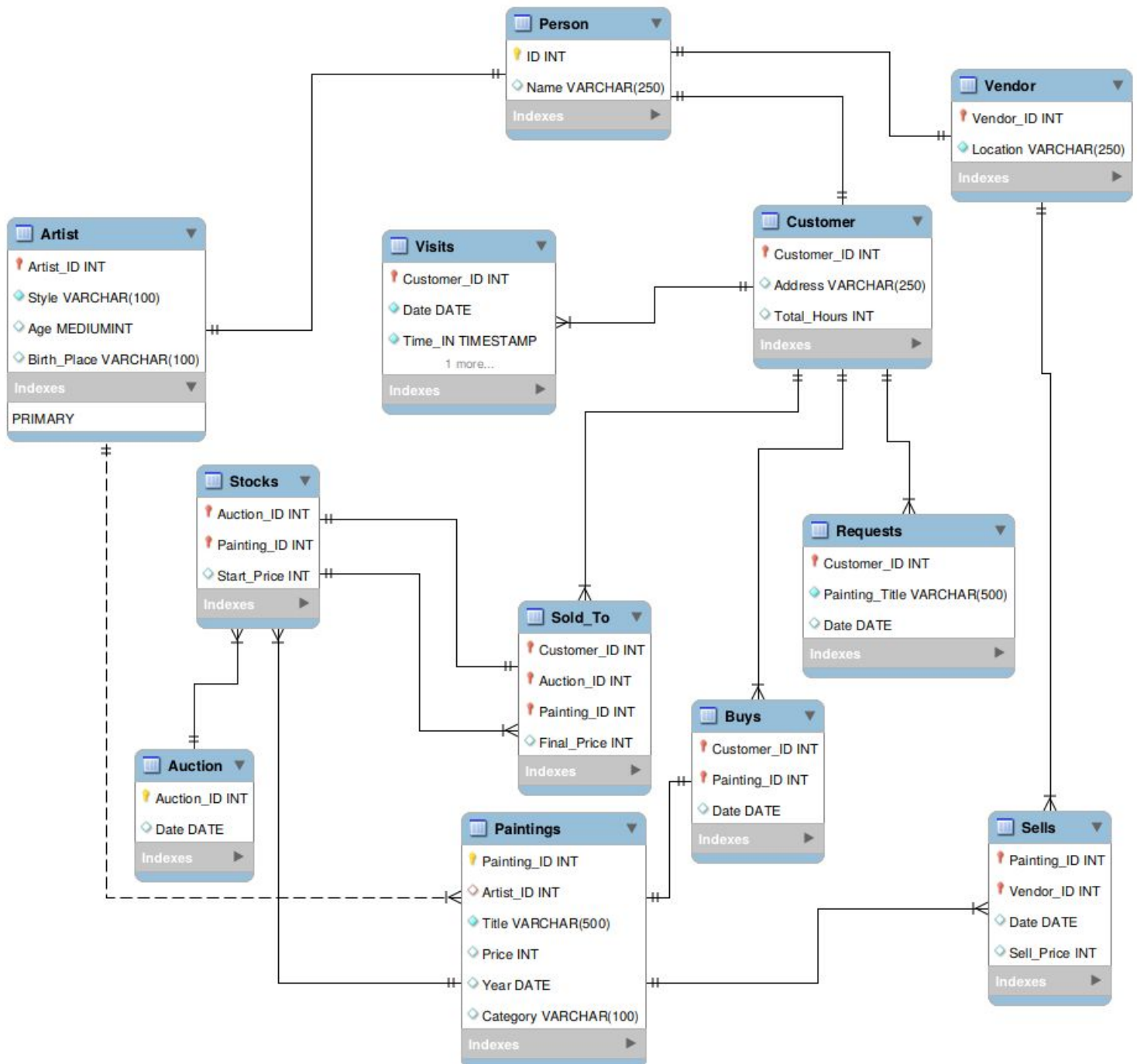
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Final Model:

Person
- ID INT
- Name VARCHAR(250)
- Indexes

Vendor
- Vendor_ID INT
- Location VARCHAR(250)
- Indexes

Artist
- Artist_ID INT
- Style VARCHAR(100)
- Age MEDIUMINT
- Birth_Place VARCHAR(100)
- Indexes
- PRIMARY

Visits
- Customer_ID INT
- Date DATE
- Time_IN TIMESTAMP
- 1 more...
- Indexes

Customer
- Customer_ID INT
- Address VARCHAR(250)
- Total_Hours INT
- Indexes

Stocks
- Auction_ID INT
- Painting_ID INT
- Start_Price INT
- Indexes

Requests
- Customer_ID INT
- Painting_Title VARCHAR(500)
- Date DATE
- Indexes

Sold_To
- Customer_ID INT
- Auction_ID INT
- Painting_ID INT
- Final_Price INT
- Indexes

Auction
- Auction_ID INT
- Date DATE
- Indexes

Buys
- Customer_ID INT
- Painting_ID INT
- Date DATE
- Indexes

Paintings
- Painting_ID INT
- Artist_ID INT
- Title VARCHAR(500)
- Price INT
- Year DATE
- Category VARCHAR(100)
- Indexes

Sells
- Painting_ID INT
- Vendor_ID INT
- Date DATE
- Sell_Price INT
- Indexes

Some Assumptions / Things to know:

- Each Painting_ID refers to a unique painting - I.e only one of each Painting_ID Exists
- All of the foreign keys are set to Cascade - i.e. if a Person is deleted, the underlying Artist with the same ID would also be deleted. Similarly, if a Vendor was deleted it probably means that the vendor being there was a data-entry error in the first place thus any entry of his in the Sells table would also be deleted.
- A Python Script was used to populate the table.
- The same "Painting Title" can be painted by different artists. Why? Since most artists only paint just one painting of a certain title and the rest are some sort of copies. For example - if a customer were to request the "Mona Lisa" painting - that does not mean they want the original Mona Lisa since that is not for sale - it means they want another copy of the Mona Lisa painted by some other artist. This is, however, a trivial issue and can be dealt with by simply adding a "Copy" or "Original" into the Title while doing data-entry, but the point is that since multiple Titles are allowed - such a case is possible.
- The Auctions table is an added feature in which a Painting is put into its stock and can be auctioned.

Optimizations:

Most of the optimizations in all the queries are similar - where we have minimized the use of JOINs and have also minimized the number of tuples through which SELECT has to iterate through in order to reach an answer.