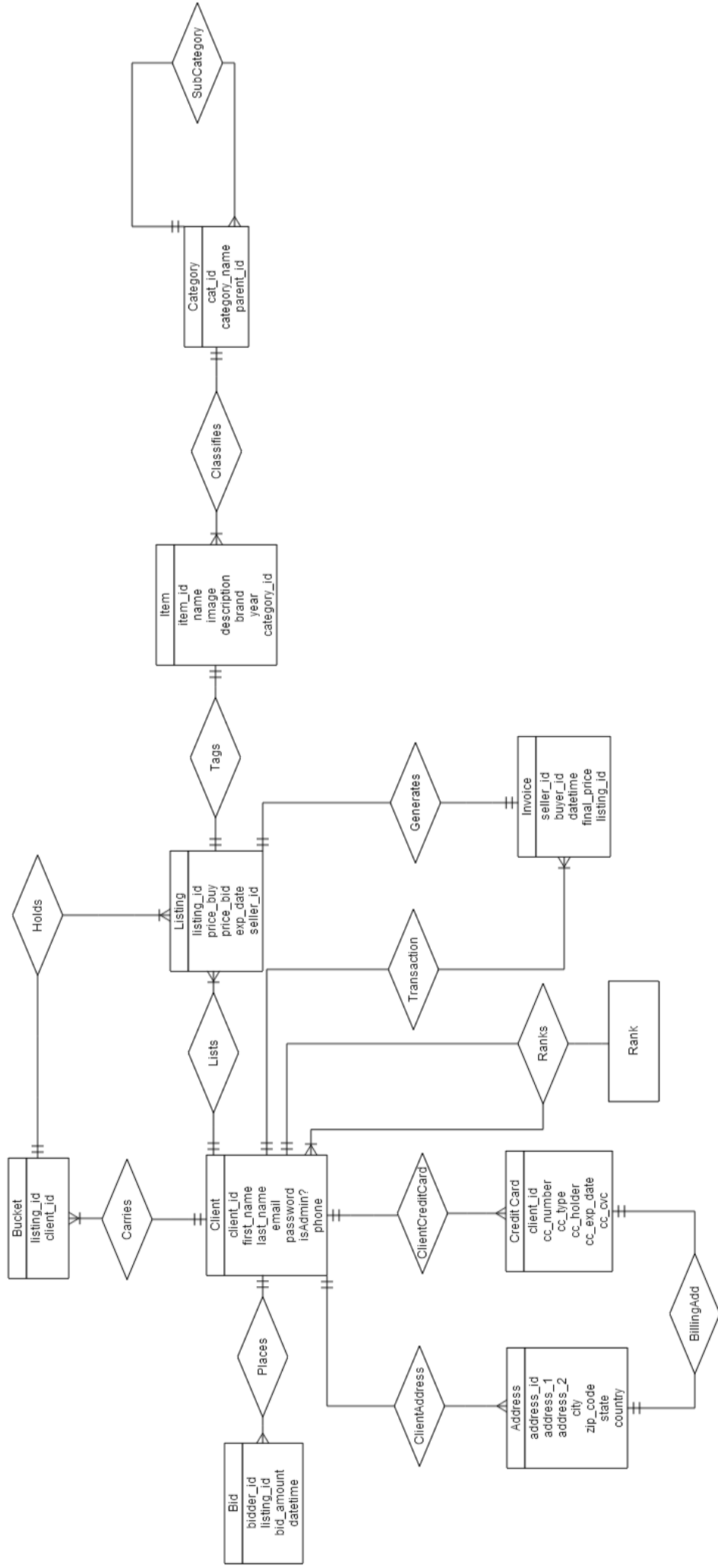Recinto Universitario de Mayagüez
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Database Systems Design Project:
LlamaBucket Mobile Auction Application

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Entities:

Client (Strong) – Registered user. Is attributes include general information that identify a registered user. The initial implementation of our entity includes a flag "*isAdmin?*" that classifies a user as an administrator or as a normal client.

- client_Id – The id of the client, auto increments.
- first_name – First name of the registered user.
- last_name – Last name of the registered user.
- email – The email the user used to register his/her account and is used as login credentials.
- password – The password the user uses to access his/her account. Necessary security measures will be taken into account.
- isAdmin? – Flag that classifies user as a Client (flag=0) or Administrator (flag=1)
- phone – Phone number associated with the user.

Address (Strong) – The billing and shipping address of the user. Users may have many addresses, but one address is at least linked to one user, and may be more (many family members having various accounts in one household). Credit cards are linked 1 to 1 with a billing address.

- address_id – The id of the address, auto increments.
- address_1 – First line of an address.
- address_2 – Second line of an address.
- city – City of an address.
- zip_code – Zip code of an address.
- state – State of the address. Application may be expanded to cover worldwide user base.

CreditCard (Weak) – The credit card of a user. Users may have many credit cards, but a credit card may only be associated with one user. This constraint can be changed as we further develop the application and study necessary security problems.

- client_id – Id of the user linked to this credit card
- cc_number – Credit card number.
- cc_type – Credit card type (Visa, Mastercard, etc.).
- cc_holder – Name of the owner as it appears in the card.
- cc_exp_date – Expiration date of the credit card.
- cc_cvc – the card verification code of the card. Storage of this attribute is still uncertain because of security concerns that may arise.

Bucket (Weak) – The main selling point of LlamaBucket, the bucket contains items a user might be interested in; users add items that they want to watch, items they have bidded on, and items ready to be purchased. These types of categories can be filtered.

- listing_id – The listing of an item that a user wishes to save.
- client_id – The client associated with a bucket.

Item (Strong) – Representation of an item in our system. Our initial implementation contains only the essential attributes necessary to identify that item.

- item_id – Id of the item, auto increments.

- name – Name of the item.
- description – General description of the item, includes condition, dimensions, etc.
- brand –The brand of the item
- year – Year item was produced.
- image – The url of the image, for now it is hosted remotely.
- category_id – The category to which this item belongs to.

Category (Strong) – That which classifies an item. Both parent and child categories are contained in this table, with the most general categories having their parent set as *null*. A parent may have various children, but children may only have one parent.

- category_id – The i.d of the category, auto increments.
- category_name – The name of the category.
- parent_id – the *category_id* of the parent category.

Bid (Weak) – This table contains information about all the bids that have been placed. Other information may be inferred by making joins.

- bidder_id – The *client_id* of the user that has placed a bid.
- listing_id – The id of the listing being bid on.
- bid_amount – The amount of money offered in the bid.
- datetime – Information for calculating end times and whether or not a bid is on time, and not outbidded.

Listing (Strong) – This is the entry of the item as a sellable product. This entity depends on item to exist and contains general information about the item, such as price and seller.

- listing_id – The id of the listing, auto increments.
- price_buy – The buy-it-now price of the item.
- price_bid – The initial bid of the item, maybe expanded upon as the highest bid placed.
- exp_date – Date until the item is deactivated as a buyable product
- seller_id – The *client_id* of the seller

Invoice (Strong) – This table contains information about a transaction, who has bought an item from whom, what amount was paid, etc.

- seller_id – The *client_id* of the seller.
- buyer_id – The *client_id* of the buyer.
- datetime – Date and time of the transaction.
- final_price – The price paid for the item.
- listing_id – the id of the listing containing the item.

Relationships:

ClientAddress – 1 mandatory to many – Ties a client with his addresses.

BillingAdd – 1 mandatory to at least 1 – Ties a credit card to an address.

ClientCreditCard – 1 mandatory to many – Ties a client with his credit cards.

Places - 1 mandatory to many – Ties a client with his bidding history.

Carries - 1 mandatory to 1 or more – Ties a client with a bucket.

Lists - 1 mandatory to 1 or more – Ties a client to items in his/her store.

Holds - 1 mandatory to 1 or more – Ties a bucket with item listings.

Tags - 1 mandatory to 1 mandatory – Ties an item to its listing.

Generates - 1 mandatory to 1 mandatory – Ties a listing to its invoice.

Transaction - 1 mandatory to many – Ties a client with his transactions.

Ranks - 1 mandatory to 1 or more – Ties a client with the ranking of another client. Resulting attribute is the rank.

Classifies - 1 mandatory to 1 or more – Ties a listing to its category.

SubCategory - 1 mandatory to many – Ties a parent category to its children.