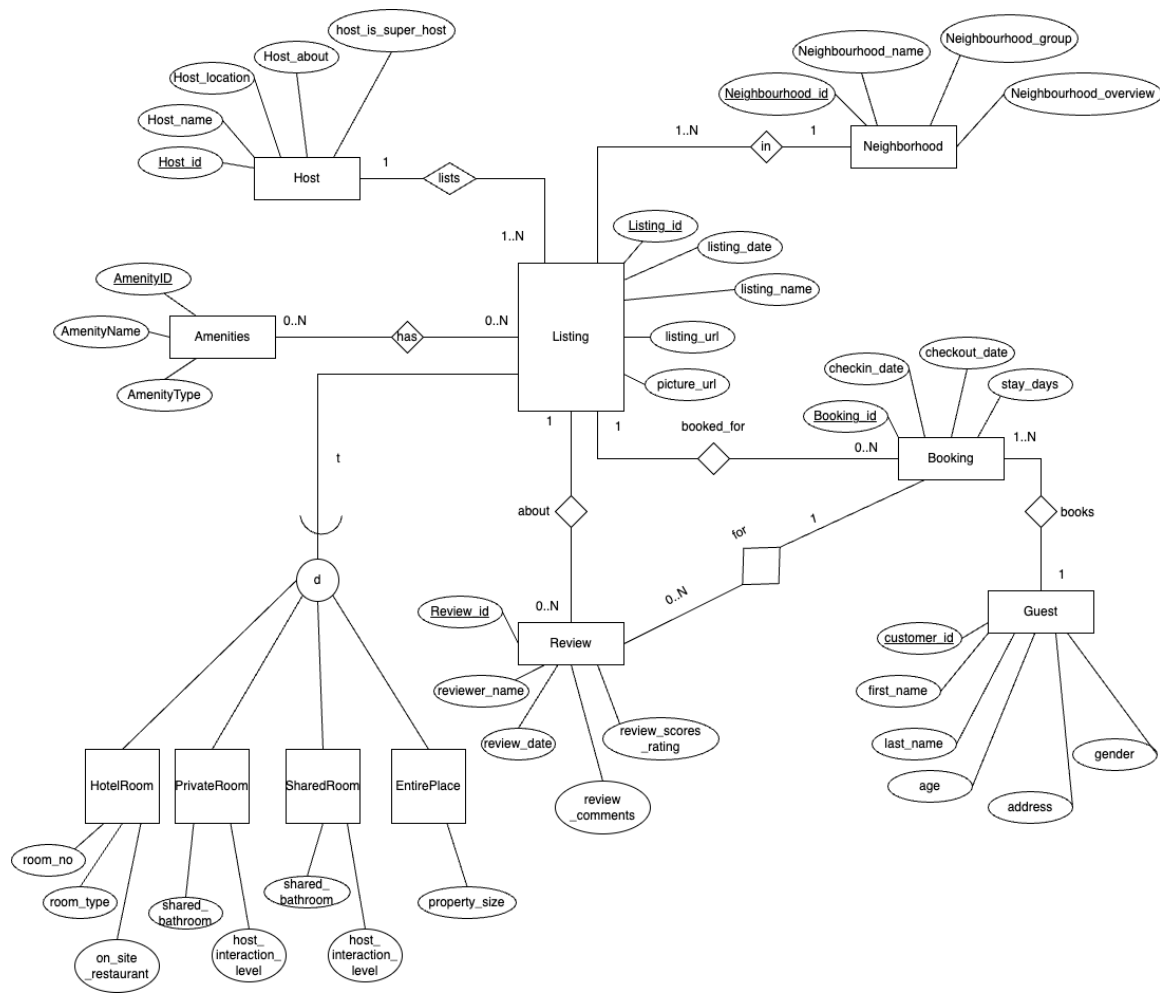


Conceptual Data Modeling

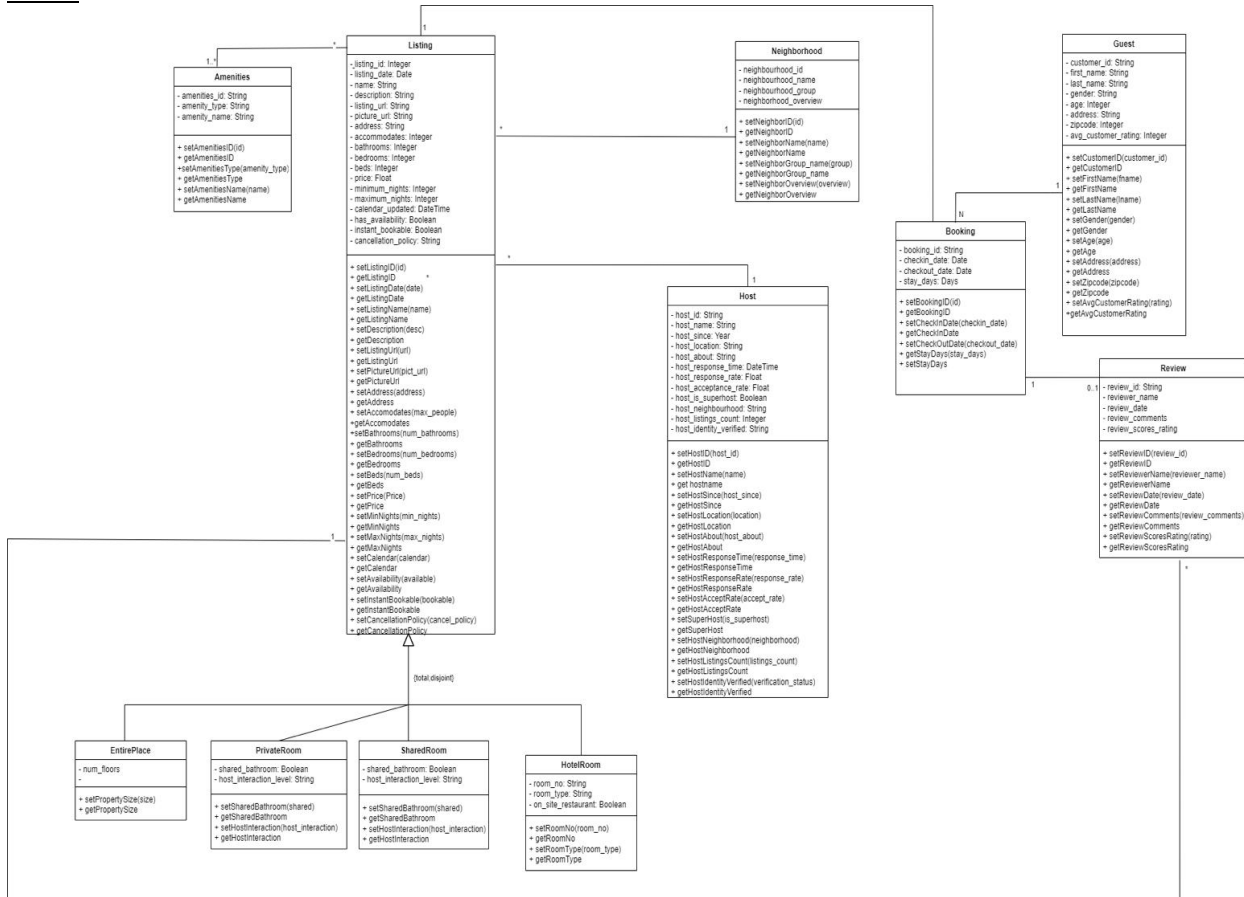
Entities and relationships:

- We have hosts registered with Airbnb and each host can have multiple listings
- Host is identified by host_id and has details like name, location, about and other related details.
- Each listing is present in a neighbourhood and a neighbourhood can have multiple listings.
- A listing is identified by listing_id and has other attributes giving more information about the listing.
- Each listing can have reviews by any number of reviewers and each reviewer is identified by reviewer_name and has details like name, date, listing_id, rating scores and comments.
- Each neighbourhood is identified by a unique id and has details like name, a group it belongs to and an overview of the neighbourhood.
- Each listing can have multiple bookings, but each booking can be for only one listing
- Each booking is booked by one and only one guest
- One guest can have multiple bookings

Conceptual data model using EER model



UML



Drive link for clearer UML image: [UML.drawio.png](#)

Mapping Conceptual Model to Relational Model

Relational model :

Listings (listing_id, listing_date, name, description, *host_id*, *neighbourhood_id*, listing_url, picture_url, address, accommodates, bathrooms, bedrooms, beds, price, min_nights, max_nights, calendar, has_availability, instant_bookable, cancellation_policy)

- *listing_id* is the primary key, NOT NULL
- *host_id* foreign key refers to host_id in Host, NOT NULL
- *neighbourhood_id* foreign key refers to neighbourhood_id in Neighbourhood, NOT NULL

Hosts (host_id, host_name, host_since, host_location, host_about, host_response_time, host_response_rate, host_acceptance_rate, host_is_superhost, host_neighbourhood, host_listings_count, host_identity_verified)

- *host_id* is the primary key, NOT NULL

Neighborhood (neighbourhood_id, neighbourhood_name, neighbourhood_group, neighborhood_overview)

- Neighbourhood_id is the primary key, NOT NULL

Reviews (review_id, listing_id, booking_id, reviewer_name, review_date, review_comments, review_scores_rating)

- review_id is the primary key, NOT NULL
- *listing_id* foreign key refers to listing_id in Listing, NOT NULL
- *booking_id* foreign key refers to booking_id in Booking, NOT NULL

Booking (booking_id, listing_id, customer_id, checkin_date, checkout_date, stay_days)

- Booking_id is the primary key, NOT NULL
- *Listing_id* foreign key refers to listing_id in Listing, NOT NULL
- *Customer_id* foreign key refers to customer_id in Guest, NOT NULL

Guests (customer_id, first_name, last_name, gender, age, address, zipcode, avg_customer_rating)

- Customer_id is the primary key, NOT NULL

Amenities (amenity_id, amenity_type, amenity_name)

Listings_amenities (amenity_id, listing_id)

- *Listing_id* foreign key refers to listing_id in Listing, NOT NULL
- *Amenity_id* foreign key refers to amenity_id in Amenity, NOT NULL

EntirePlace (listing_id, property_size)

- *Listing_id* foreign key refers to listing_id in Listing, NOT NULL

PrivateRoom (listing_id, shared_bathroom, host_interaction_level)

- *Listing_id* foreign key refers to listing_id in Listing, NOT NULL

SharedRoom (listing_id, shared_bathroom, host_interaction_level)

- *Listing_id* foreign key refers to listing_id in Listing, NOT NULL

HotelRoom (listing_id, room_no, room_type, on_site_restaurant)

- *Listing_id* foreign key refers to listing_id in Listing, NOT NULL