Specification Document

1) What roles (person/user groups) are there?

- hosts

- guests

- administrators

2) What actions do these roles perform?

- host:

    - makes profile

    - rent out rooms/places/houses

    - chat with potential guests

    - charge payment

- guest:

    - makes profile

    - browse places to rent

    - find deals

    - chat with hosts

    - provide information

    - make bookings

    - make payments

- administrators:

    - store and manage host and guest information

    - store and manage conversation messages between host and guest

    - store and manage address locations of rooms/homes

    - store and manage reviews, host levels

    - store and manage payment transactions

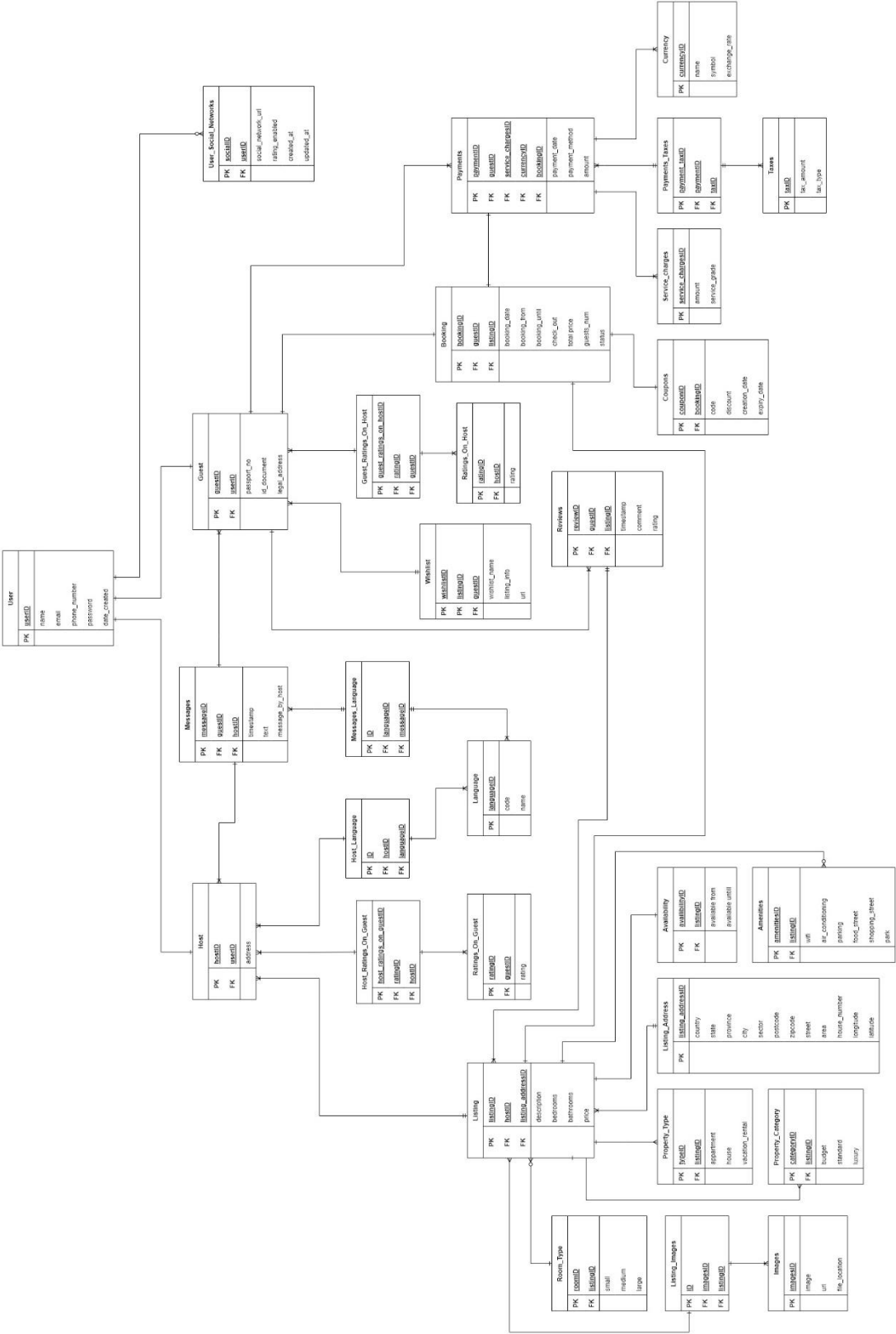   - manage availability of locations for rent

3) Which data and functions are required?

Data	Functions
host data	How many locations does a host own?
guest data	How many guest users from the guest user base make bookings in a given time period?
locations data	Which locations have been booked the most?
transaction data	Which were the largest transactions?
price changes data	What is the sum of all transactions in a given month?
guest reviews data	How many guests give good reviews to a given location?

Half Page Summary:

We have to create a database for AirBnB business. The first step is to find out the necessary entities and their attributes that will be included in the database. For this we consider how many different groups are involved in the process. These are the hosts, guests and AirBnB's administrators. Then we identify how the guests and hosts will behave, how they will interact with the AirBnB website. How administrators will behave and what they will do with users – the guests and hosts. Their different actions become part of the database entities such as: guests make account on website, browse places, talk to hosts and make bookings. Similarly, hosts make account on website, upload photos of their rooms offered for rent, update prices etcetera. AirBnB's administrators store information in their database such as information of hosts and guests, locations, reviews, transaction details, coupons and deals etcetera. After all entities with their attributes have been identified, an Entity-Relationship Model is created and their cardinality is defined.

Entity Relationship Model

User: PK userID, name, email, phone_number, password, date_created

User_Social_Networks: PK socialID, FK userID, social_network_url, rating_enabled, created_at, updated_at

Currency: PK currencyID, name, symbol, exchange_rate

Payments: PK paymentID, FK guestID, FK service_chargesID, FK currencyID, FK bookingID, payment_date, payment_method, amount

Payments_Taxes: PK paymentID, FK taxID

Taxes: PK taxID, tax_amount, tax_type

Service_charges: PK service_chargesID, description, amount, service_grade

Booking: PK bookingID, FK guestID, FK listingID, booking_date, booking_from, booking_until, check_out, total_price, guests_num, status

Coupons: PK couponID, FK bookingID, code, discount, creation_date, expiry_date

Guest: PK guestID, FK userID, passport_no, id_document, legal_address

Guest_Ratings_On_Host: PK guest_ratings_on_hostID, FK ratingID, FK guestID

Ratings_On_Host: PK ratingID, FK hostID, rating

Reviews: PK reviewID, FK guestID, FK listingID, timestamp, comment, rating

Wishlist: PK wishlistID, FK listingID, FK guestID, wishlist_name, listing_info, url

Messages: PK messageID, FK guestID, FK hostID, timestamp, text, message_by_host

Messages_Language: PK ID, FK languageID, FK messageID

Host_Language: PK ID, FK hostID, FK languageID

Language: PK languageID, code, name

Host: PK hostID, FK userID, address

Host_Ratings_On_Guest: PK host_ratings_on_guestID, FK ratingID, FK guestID

Ratings_On_Guest: PK ratingID, FK guestID, FK hostID, rating

Listing: PK listingID, FK hostID, FK listing_addressID, description, bedrooms, bathrooms, price

Availability: PK availabilityID, FK listingID, available_from, available_until

Amenities: PK amenitiesID, FK listingID, wifi, air_conditioning, parking, food_street, shopping_street, park

Listing_Address: PK listing_addressID, country, state, province, city, sector, postcode, zipcode, street, area, house_number, longitude, latitude

Property_Type: PK typeID, FK listingID, appartment, house, vacation_rental

Property_Category: PK categoryID, FK listingID, budget, standard, luxury

Room_Type: PK roomID, FK listingID, small, medium, large

Listing_Images: PK ID, FK imagesID, FK listingID

Images: PK imagesID, image, url, file_location

Data Dictionary

Entity	Description
User	Contains information about registered users of the platform such as name, email, password and account details. Attributes :- INTEGER: userID VARCHAR: name, email, password, phone_number DATETIME: date_created
Host	Contains information about individuals who have listed properties for rent, such as their name, contact information, and property listings. Attributes :- INTEGER: hostID, userID VARCHAR: address
Listing	Contains information about the properties available for rent such as location, description, number of bedrooms, and photos. Attributes :- INTEGER: hostID, listingID, listing_addressID, bedrooms, bathrooms DECIMAL: price VARCHAR: description
Listing_Address	Contains information about the locations of properties, including the city, state, and country. Attributes :- VARCHAR: country, state, province, city, sector, postcode, zipcode, street, area, house_num INTEGER: listing_addressID DECIMAL: longitude, latitude
Amenities	Contains information about the amenities available at each property, such as Wi-Fi, air conditioning, and parking. Attributes :- INTEGER: amenitiesID, listingID BOOLEAN: wifi, air_conditioning, parking, food_street, park, shopping_street, park
Propery_Type	Contains information about the type of property, such as apartment, house, or vacation rental. Attributes :- INTEGER: typeID, listingID BOOLEAN: appartment, house, vacation_rental
Property_Category	Contains information about the category of property, such as budget, standard, or luxury. Attributes :- INTEGER: categoryID, listingID BOOLEAN: budget, standard, luxury

Availibility	Contains information about the availability of each property, including the dates that are available. Attributes :- INTEGER: availabilityID, listingID DATE: available_from, available_until
Room_Type	Contains information about room size including small, medium and large Attributes:- INTEGER: roomID, listingID BOOLEAN: small, medium, large
Images	Contains information about the images associated with each property, including the file name and the URL. Attributes :- INTEGER: imageID BLOB: image TEXT: url, file_location
Listing_Images	Junction table between listing table and images table. Attributes:- INTEGER: ID, listingID, imageID
Guest	Contains information about individuals who rent out properties and become guests. Includes passport number of a guest and other identification documents. Attributes :- INTEGER: guestID, userID VARCHAR: passport_no, legal_address, id_document
Booking	Contains information about confirmed bookings, including the dates of the stay, the guests, and the payment details. Attributes :- INTEGER: bookingID, guestID, listingID, guest_num DATE: booking_from, booking_until DATETIME: booking_date, check_in, check_out DECIMAL: total_price TEXT: status
Payments	Contains information about payments made through the platform, including the amount, the payment method, and the date. Attributes :- INTEGER: paymentID, guestID, service_chargesID, currencyID, bookingID DATETIME: payment_date VARCHAR: payment_method DECIMAL: amount
Service_Charges	Contains information about the service fees charged by Airbnb, including the amount and the grade of service. Attributes :- INTEGER: serviceID VARCHAR: service_grade DECIMAL: amount

Taxes	Contains information about taxes charged on bookings, including the amount and the type of tax. Attributes :- INTEGER: taxID, VARCHAR: tax_type DECIMAL: tax_amount
Payments_Taxes	Junction table between payments table and taxes table. Attributes:- INTEGER: payments_taxesID, paymentID, taxID
Coupons	Contains information about coupons offered by Airbnb, including the code, the discount amount, expiration date etc. Attributes :- INTEGER: bookingID, couponID VARCHAR: code DECIMAL: discount DATETIME: creation_date, expiry_date
Currency	Contains information about the currency used for each booking, including the name, the symbol, and the exchange rate. Attributes :- INTEGER: currencyID VARCHAR: name, symbol DECIMAL: exchange_rate
Reviews	Contains information about reviews written by guests about their stay, including the date, the property, and the rating. Attributes :- INTEGER: reviewID, listingID, guestID, rating DATETIME: timestamp TEXT: comment
Messages	Contains information about messages exchanged between guests and hosts, such as the date, the subject, and the content. Attributes :- INTEGER: messageID, guestID, hostID DATETIME: timestamp VARCHAR: text BOOLEAN: message_by_host
Language	Contains information about the language preferences of users, including the language code and the display name. Attributes :- INTEGER: languageID VARCHAR: name, code
Messages_Language	Junction table between messages table and language table. Attributes:- INTEGER: ID, messageID, languageID

Host_Language	Junction table between host table and language table. Attributes:- INTEGER: ID, hostID, languageID
Ratings_On_Guest	Contains information about the ratings of a guest from the hosts. Atributes :- INTEGER: ratingID, guestID, rating
Host_Ratings_On_Guest	Junction table between host table and ratings_on_guest table. Attributes:- INTEGER: ID, ratingID, hostID
Ratings_On_Host	Contains information about the ratings of a host from the guests. Atributes :- INTEGER: ratingID, hostID, rating
Guest_Ratings_On_Host	Junction table between guest table and ratings_on_host table. Attributes:- INTEGER: ID, ratingID, guestID
User_Social_Networks	Contains information about social networks linked to users' profile for rating. Includes network name, creation and update dates and other details. Attributes :- INTEGER: socialID, userID VARCHAR: social_network BOOLEAN: rating_enabled DATETIME: created_at, updated_at
Wishlist	Contains information about the places the guests would like to rent in future in cluding the name of their list and the place. Attributes :- INTEGER: wishlistID, guestID, listingID VARCHAR: wishlist_name TEXT: listing_info, url