Conception Phase

Objective:

The main objective of this project is to design an SQL database for Airbnb use case with the key goal being the construction of an Entity Relationship Model (ERM), commonly referred to as an ERM. this process is a crucial part to guarantee a well-functioning database. PostgreSQL was selected as the database management system for this project.

What is Airbnb?

Airbnb is an online marketplace where people can rent out their homes or guest rooms to travelers. It provides hosts with a platform to offer their accommodations and guests with the opportunity to search and book unique and affordable accommodations. With a presence in more than 220 countries, Airbnb offers a convenient alternative to traditional hotels for those seeking a more personal and local experience when traveling.

What roles are on Airbnb?

Airbnb requires two main roles: hosts and guests. Hosts list their homes or spare rooms on the platform and welcome guests into their accommodations. Guests book and stay in these accommodations during their travels. Both hosts and guests are rated based on their behavior and overall experience. In addition to hosts and guests, Airbnb acts as an intermediary between hosts and guests.

What actions do the roles perform?

Host:

- Create listings for their homes or spare rooms on the platform
- Set prices, discount and availability for their listings
- Maintain and manage their listings such as photos, property type, min and max number of guests

Guest:

- Create an account with personal information such as name, anniversary date, email.
- Search and browse listings based on their preferences and needs destination dates, number of guests
- Book and pay for accommodations on the platform with their desired transaction method.
- Guests can create and manage Wishlist of properties they are interested in.

Data attributes overview:

Data:

- User information: This data is stored in the user table, which includes attributes such as first name, last name, email, and phone.

- Property details: Property details, including titles, are stored in the property table . Other property-specific details like address, coordinates, and type are associated through foreign keys.

- Pricing information: Pricing details are managed in the price table, including attributes like base price, discount, service fee.

- Reviews and ratings: Reviews and ratings data are captured in the review rating table associated with both users and properties.

- Payment data: Payment methods are recorded in the payment method table, while specific payment details might be stored in a separate financial system.

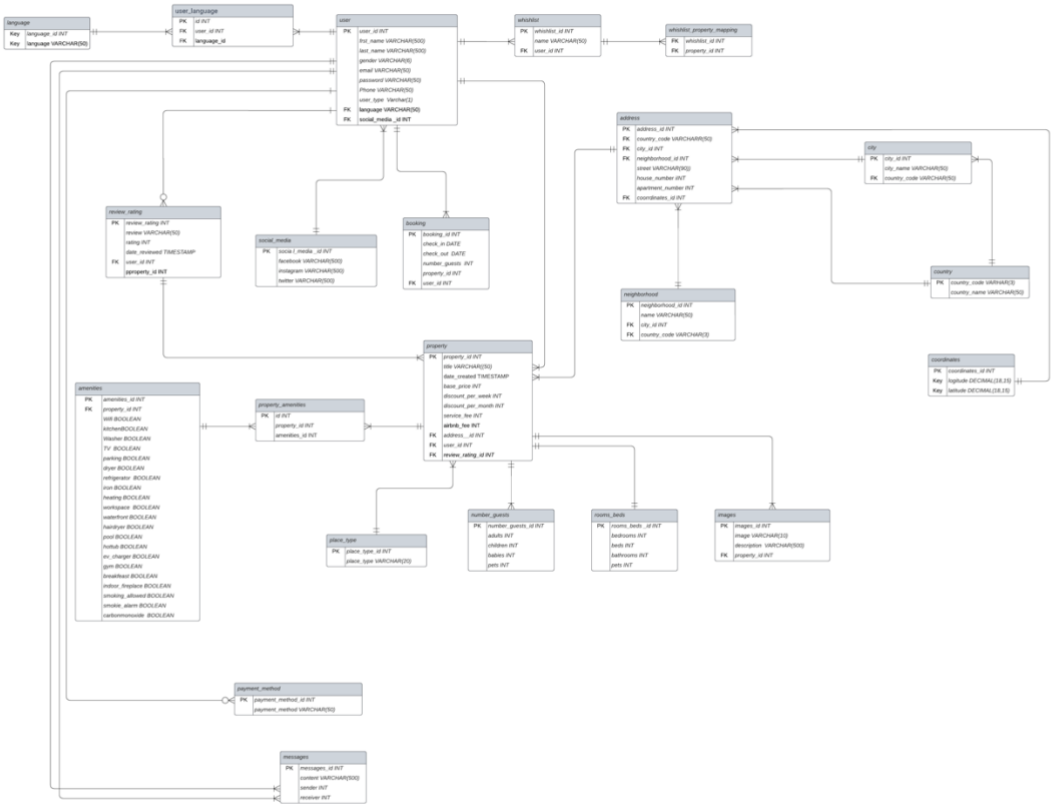
- Geographic data: Geographic information, including country, city, neighborhood, and coordinates, is distributed across several tables: country, city, neighborhood and coordinates.

- Messaging data: Communication between hosts and guests is not directly represented in the provided tables. It would typically require additional tables to store message content, sender, receiver, timestamps, etc., and could be named something like messages.

Summary:

The development of the entity relationship model (ERM) for the Airbnb database resulted from a comprehensive analysis of the platform's functionality and user interactions. Initial investigation of Airbnb revealed distinct user roles-hosts and guests-with hosts offering accommodations and guests searching and booking them, forming the foundation of the ERM structure. Closer examination revealed the central role of geographic location in Airbnb's operations, leading to the integration of entities such as countries, cities, neighborhoods and coordinates. Properties are localized, and guests often search for accommodations based on geographic preferences. This realization directed efforts toward integrating geographic elements into the ERM, resulting in a coherent and refined model.

Fig.1 ERM



Source: own representation