# Requirements specification

This requirement specification contains a requirements analysis for the project of Airbnb database building in SQL. It describes what roles exist in the Airbnb system and what actions these roles perform. It also indicates what data are needed to be stored in the Airbnb database and what functions these roles can perform.

Two kinds of roles were discovered: a user and a host. The user is a person who uses the Airbnb website to search for accommodation. The host is a person who rents their accommodation to the user of the Airbnb website.

As actions describe how the attributes of entities interact, it is certain that they define the relationships between entities. The following relationships were identified:

- Every user has exactly one language, and every language belongs to one or more users.
- A user can make any number of reservations, and each reservation belongs to exactly one user.
- Each reservation belongs to exactly one accommodation, and each accommodation can belong to any number of reservations.
- A user can make any number of payments, and each payment belongs to exactly one user.
- Exactly one payment is assigned to a reservation, each reservation belongs to exactly one payment.
- Each payment is assigned to no or exactly one personal discount, and each personal discount is assigned to no or exactly one payment.
- Each payment belongs to exactly one currency, and exactly one currency can belong to any number of payments.
- Every host has one or more accommodations, and every accommodation belongs to exactly one host.
- A user can leave any number of reviews, and each review belongs to exactly one user.
- Every country has one or more cities, and every city belongs to exactly one country.
- A city can belong to any number of accommodation addresses, and each accommodation address has exactly one city.
- Each accommodation can have any number of reviews, and each review belongs to exactly one accommodation.
- Exactly one accommodation has an accommodation address, and each accommodation address belongs to exactly one accommodation.
- Every accommodation belongs to exactly one accommodation category, and every accommodation category belongs to one or more accommodation.
- Every accommodation belongs to exactly one accommodation type, and every accommodation type belongs to one or more accommodation.

- Every accommodation belongs to exactly one place category, and every place type belongs to one or more accommodation.
- Each accommodation can have any number of accessibility features, and each accessibility feature belongs to at least one accommodation.
- Each accommodation can have any number of accommodation essentials, and each accommodation essential belongs to at least one accommodation.
- Each accommodation can have any number of accommodation services, and each accommodation service belongs to at least one accommodation.
- Each post-trip claim can have exactly one host, and each host can belong to any number of post-trip claims.
- Each post-trip claim is assigned to exactly one reservation, and each reservation can belong to any number of post-trip claims.
- Each accommodation can have none or exactly one top level stay, and each top level stay belongs to exactly one accommodation.

For the proper functioning of a database, it is essential to define what data are required to be mapped and stored in it. The Airbnb database will consist of twenty entities, and each of them will hold various attributes. The host and user's data will include their last name, first name, email, phone number, and date of birth. The user's description and language ID will be included in the user's data as well. Languages will need to be named and have a code.

A reservation will need the following data for its attributes: the user ID, the accommodation ID, the start and end date of a reservation, till which date it is possible to cancel it, and how much it will cost. The payment will need the following data for its attributes: the user ID, the reservation, personal discount ID, currency ID, amount of money, payment method, and the payment date. A personal discount will need to have a code and its deduction amount. Currency will need to be named. A review will need the accommodation ID, user ID, rating of the accommodation, and a comment.

Accommodation will need to have data about its address, host, reservations, accommodation category, accommodation type, place type, minimum and maximum available number of nights, quantity of bedrooms, beds, and bathrooms, essentials, services, and description. Such booking options as self check-in and instant booking will need to be indicated as well.

The accommodation's address will require country, city, street, house number, and postal code. Countries and cities will need to have a name; for cities, it will be required to indicate which countries they belong to. Accommodation category, accommodation type, and place type will need a name. As for accessibility features, essentials, and services, it will be needed to know which accommodation they belong to and their name.

Post-trip claims will require data about the host, reservation, and a description of why the user was not satisfied with the accommodation. Top level stay will need to have an accommodation ID and information about recognized hosts and quality accommodation.

As regards the required functions in the project, create, add, delete and update are the most frequently used functions. The user and host can add, delete, and update their personal information. The host can apply these functions to change the characteristics of their accommodation. The user can create a reservation and add the desired period to stay in the accommodation. The user can create a payment, where they can add a personal discount, and a review. Finally, the user can create a post-trip claim, where they can add a description of their issues regarding the accommodation.