

## OVERVIEW

This document outlines a comprehensive data schema for the Airbnb platform. The primary objective is to develop a secure, robust, efficient, and scalable database structure and management system. This system will support the platform's functionality, enabling secure and effective access for users in different roles, such as hosts, guests, and administrators.

A well-structured and defined database schema is essential for the Airbnb platform to manage user information effectively. Without a standardized database, the system's performance can suffer, affecting accuracy, security, user information management, and overall functionality.

In account to this problem, a requirement specification detailing the different requirements, data, functionalities, actions and different type of roles is created. The corresponding ER diagram and Data dictionary are also provided to give a detailed description of the database including all the require information and representation. This document include all three of them. Further, the actual development of the database will be undergo based on these resources. Therefore, any mistakes in the definition of these resources could affect the entire database.

## REQUIREMENTS SPECIFICATION FOR AIRBNB PROJECT

### 1. Introduction

- **Purpose:** This specification defines the requirements, roles, and their associated functions and required data for developing Airbnb database that facilitates the listing, searching, booking, and reviewing of short-term rental properties in a secure and efficient manner.
- **Scope:** The project will focus exclusively on the database and database management system which include features for guests, hosts, and administrators, focusing on user management, property management, booking processes, and review systems.

### 2. Required Information

#### **a. Guest**

- **Sign up Information:** First Name, Last Name, Country, Phone Number, Date of Birth, Email, password.
- **Booking Information:** Information about location to be booked and its host, payment details including payment method such as UPI, Net Banking or Credit or Debit card, date of Check in and Check Out, booking details include total number of children and adults.
- **Others (Optional):** Photo, Address, Emergency Contact.

#### **b. Host**

- **Listing Information:** Details about address, type of place, place details including amenities, number of bedrooms, bathrooms etc, photo (at least 1), details about, payment method, textual description, critical information about the place such as existence of exterior security camera and security.
- **Personal Information:** First Name, Last Name, Country, Phone Number, Date of Birth, Email, Password, Bank details which match the possible payment method such as UPO, Net Banking or Credit or Debit Card.

#### **c. Administrator**

**Personal Information:** First name, Last name, email, password and administrator id.

### **3. Actions:**

**a. Guest:** Search Listings, Book Listing, Provide Reviews, Manage Bookings **and** Manage Account

**b. Host:** List Property, Manage Listings, Manage Bookings, View Reviews **and** Manage Account

**c. Administrator:** Manage Users, Manage Host, Handle Complain, Monitor and Listings.

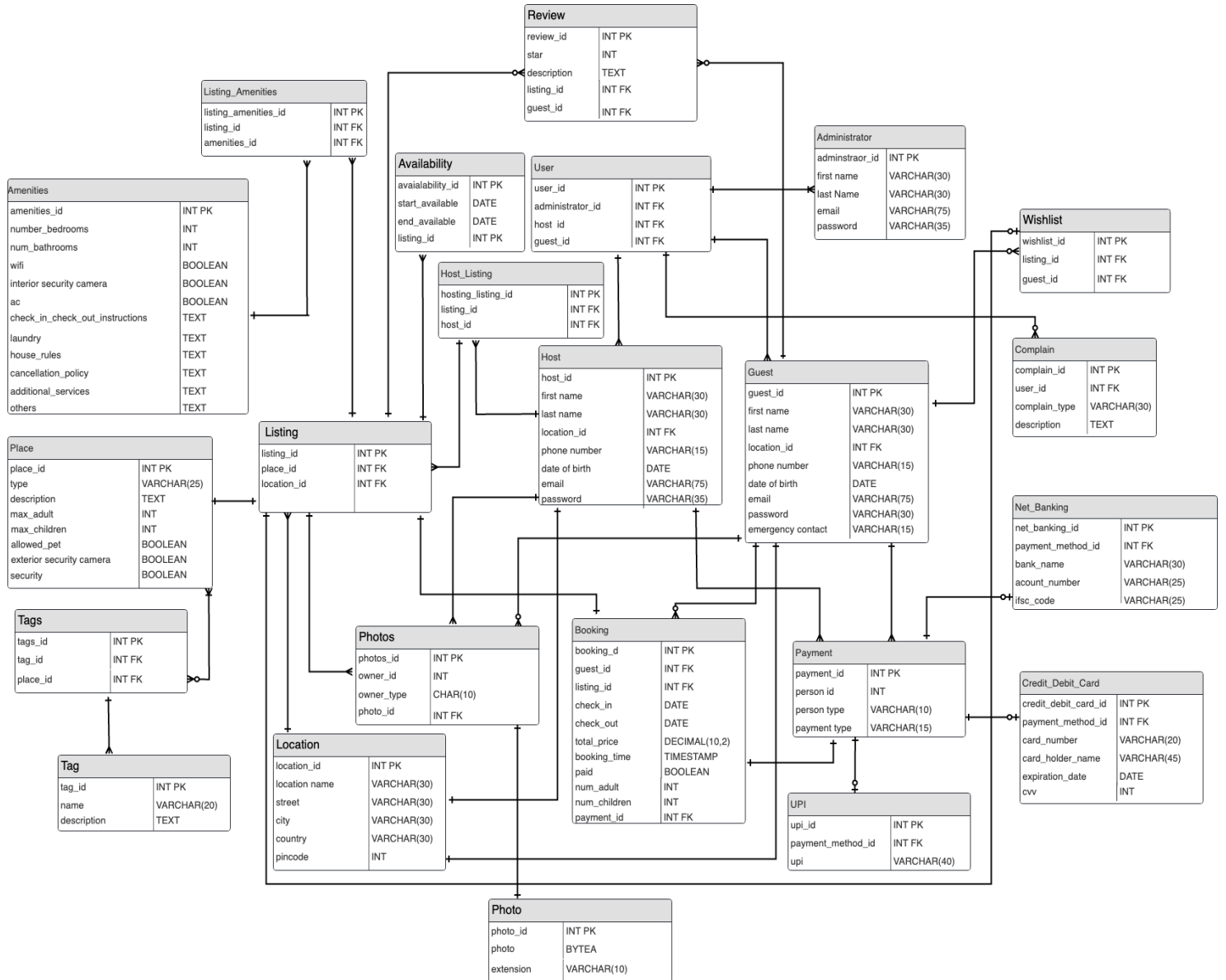
### **4. Functions:**

- a. Authentication:** Verify user credentials during login and sign up and ensure secure password storage.
- b. User Management:** Manage information of all roles including user, host and administrator by performing CRUD (Create, Read, Update, Delete) operation.
- c. Listing Management:** Manage information of all listings for all individual host by performing CRUD (Create, Read, Update, Delete) operation.
- d. Booking Management:** Manage information of all the bookings between host and guest by performing CRUD (Create, Read, Update, Delete) operation.
- e. Complain Management:** CRUD operations for complain and link it to relevant bookings, administrators, guest and host.

## **5. Conclusion:**

This requirements specification outlines the essential data and functions required for the database of an Airbnb-like platform. It ensures that all user roles (guests, hosts, administrators) are supported with the necessary CRUD operations and data management capabilities.

# ER DIAGRAM FOR DATABASE



# DATA DICTIONARY

HOST		
Host_id (PK)	Unique identifier for host	INT
First name	First name of the host	VARCHAR (30)
Last name	Last name of the host	VARCHAR (30)
Location_id (FK)	Reference to id of location table	INT
Phone_number	Phone number of the host	VARCHAR (15)
Date_of_birth	Date of birth of the host	DATE
Email	Email of the host	VARCHAR (75)
Password	Password of the host associated with the database	VARCHAR (35)

GUEST		
Guest_id (PK)	Unique identifier for guest	INT
First_name	First name of the guest	VARCHAR (30)
Last_name	Last name of the guest	VARCHAR (30)
Location_id (FK)	Reference to id of location table	INT
Phone_number	Phone number of the guest	VARCHAR (15)
Date_of_birth	Date of birth of the guest	DATE
Email	Email of the guest	VARCHAR (75)
Password	Password of the guest associated with the database	VARCHAR (35)
Emergency_contact	Emergency contact number for the guest	VARCHAR (15)

ADMINISTRATOR		
Administrator_id (PK)	Unique identifier for admin (administrator)	INT
First_name	First name of the admin	VARCHAR (30)
Last_name	Last name of the admin	VARCHAR (30)
Email	Email of the admin	VARCHAR (75)

Password	Password of the admin	VARCHAR (35)
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USER		
User_id (PK)	Unique identifier for different user administration.	INT
Administrator_id (FK)	Reference id of Administrator table	INT
Host_id (FK)	Reference id of Host table	INT
Guest_id (FK)	Reference id of Guest table	INT

BOOKING		
Booking_Id (PK)	Unique identifier for booking	INT
Guest_id (FK)	Reference id of Guest table	INT
Listing_id (FK)	Reference id of Listing table	INT
Check_in	Date at which the guest will check in	DATE
Check_out	Date at which the guest will check out	DATE
Total_price	Entire cost to be paid by guest	DECIMAL (10,2)
Booking_time	The exact time and date at which the booking is done.	TIMESTAMP
Paid	Whether the payment been transfer to host bank account.	BOOLEAN
Num_adult	Number of adults for the booking	INT
Num_children	Number of children for the booking	INT
Payment_id	Reference id of Payment table	INT

LOCATION		
Location_id (PK)	Unique identifier for location	INT
Location_name	Textual description of the location including house number or apartment number etc.	VARCHAR (30)
Street	The street where the location located	VARCHAR (30)
City	The city where the location located	VARCHAR (30)
Country	The country where the location located	VARCHAR (30)
Pincode	The pincode where the location located	INT

Payment		
Payment_id(PK)	Unique identifier for payment	INT
Person_id	The id of the person either host id or guest id	INT
Person_type	The type of the person either host or guest	VARCHAR (10)
Payment_type	The payment type either net_banking, credit_debit_card or upi.	VARCHAR (20)

NET_BANKING		
Net_Banking_id (PK)	Unique identifier for net banking	INT
Payment_method_id	References id of payment Table	INT
Bank_name	Name of Bank	VARCHAR (30)
Account_number	Account number of the person	VARCHAR (25)
Ifsc_code	Ifsc code of the person	VARCHAR (25)

CREDIT_DEBIT_CARD		
Credit_debit_card_id (PK)	Unique identifier for credit_debit_card table	INT
Payment_method_id	References id of payment Table	INT
Card_number	The debit or credit card number of the person	VARCHAR (20)
Card_holder_name	The name of the given card holder.	VARCHAR (45)
Expiration_Date	The expiration date of the card	DATE
cvv	The cvv of the card	INT

UPI		
Upi_id (PK)	Unique identifier for upi table	INT
Payment_method_id	Reference id of payment table	INT
Upi	The upi id of the person	VARCHAR (40)

PHOTO		
Photo_id (PK)	Unique identifier for photo	INT
Photo	The actual photo	BYNTEA

Photo_type	The type of phot such as profile picture or listing picture etc	VARCHAR (10)
Extension	The extension of the photo	VARCHAR (10)

REVIEW		
Photo_id (PK)	Unique identifier for review	INT
Star	The star given to a listing	INT
Description	Detail textual review of the list	TEXT
Listing_id (FK)	References to id of Listing Table	INT
Guest_id (FK)	References to id of Guest Table	INT

COMPLAIN		
Complain_id (PK)	Unique identifier for complain	INT
User_id (FK)	References to the id of the User table.	INT
Complain_type	The type of complain as title	VARCHAR (30)
Description	Description about the complain	TEXT

WISHLIST		
Wishlist_id (PK)	Unique identifier for wishlit	INT
Guest_id(FK)	Reference id of Guest table	INT
Listing_id (FK)	Reference id of listing table	INT

PLACE		
Id (PK)	Unique identifier for place	INT
Type	Type of the place include apartment, flat etc	VARCHAR (25)
Description	Description of the place.	TEXT
Max_adult	Maximum number of adults allowed	INT
Max_children	Maximum number of children allowed	INT
Allowed_pet	Whether pet is allowed or not.	BOOLEAN
Exterior_security_camera	Whether security camera is located at exterior.	BOOLEAN
Security	Whether security is available	BOOLEAN



AMENITIES		
Id (PK)	Unique identifier for amenities	INT
Num_bedrooms	Number of bedrooms in the place	INT
Num_bathrooms	Number of bathrooms in the place	INT
Wifi	Whether wifi are available	BOOLEAN
Interior_security_camera	Whether there is security camera inside the room	BOOLEAN
AC	Availability of AC in the place.	BOOLEAN
Laundry	Description of available laundry services or machine	TEXT
House_rules	Description of the rules to followed	TEXT
Cancellation_policy	Policy of any cancellation of the location	TEXT
Additional_services	Any additional services or machines available for used	TEXT
Check_in_check_out_instructions	Instructions and any necessary documents required for check in and check out.	TEXT
Others	Any further information relevant for the guest to know of.	TEXT

AVAILABILITY		
Availability_Id (PK)	Unique identifier for availability	INT
Start_available	Starting date of availability	DATE
End_available	Ending date of availability	DATE
Listing_id (FK)	References id of Listing table	INT

LISTING		
Listing_Id (PK)	Unique identifier for listing	INT
Place_Id (FK)	References id of Place table	INT
Location_id (FK)	References id of Location table	INT

TAGS		
Tags_Id (PK)	Unique identifier for tags	INT
Tag_id (FK)	The id of tag given to a place	INT
Place_id (FK)	The place to given tag are given	INT

TAG		
Tag_Id (PK)	Unique identifier for tag	INT
Name	The name of individual tag	VARCHAR (20)
Description	Description of the tag	TEXT

PHOTOS		
Photos_Id (PK)	Unique identifier for photos	INT
Owner_id	Storing id of owner)	INT
Owner_type	Storing type of owner ((guest, host or listing)	IN
Photo_id (FK)	References id of Photo table	INT

LISTING_AMENITIES		
Listing_Amenities_Id (PK)	Unique identifier for listing amenities connection	INT
Listing_id (FK)	References id of Listing table	INT
Amenities_id (FK)	References id of Amenities table	INT

HOST_LISTING		
Host_Listing_id (PK)	Unique identifier for Host Listing table	INT
Host_id(FK)	Reference id of Host table	INT
Listing_id (FK)	Reference id of listing table	INT