

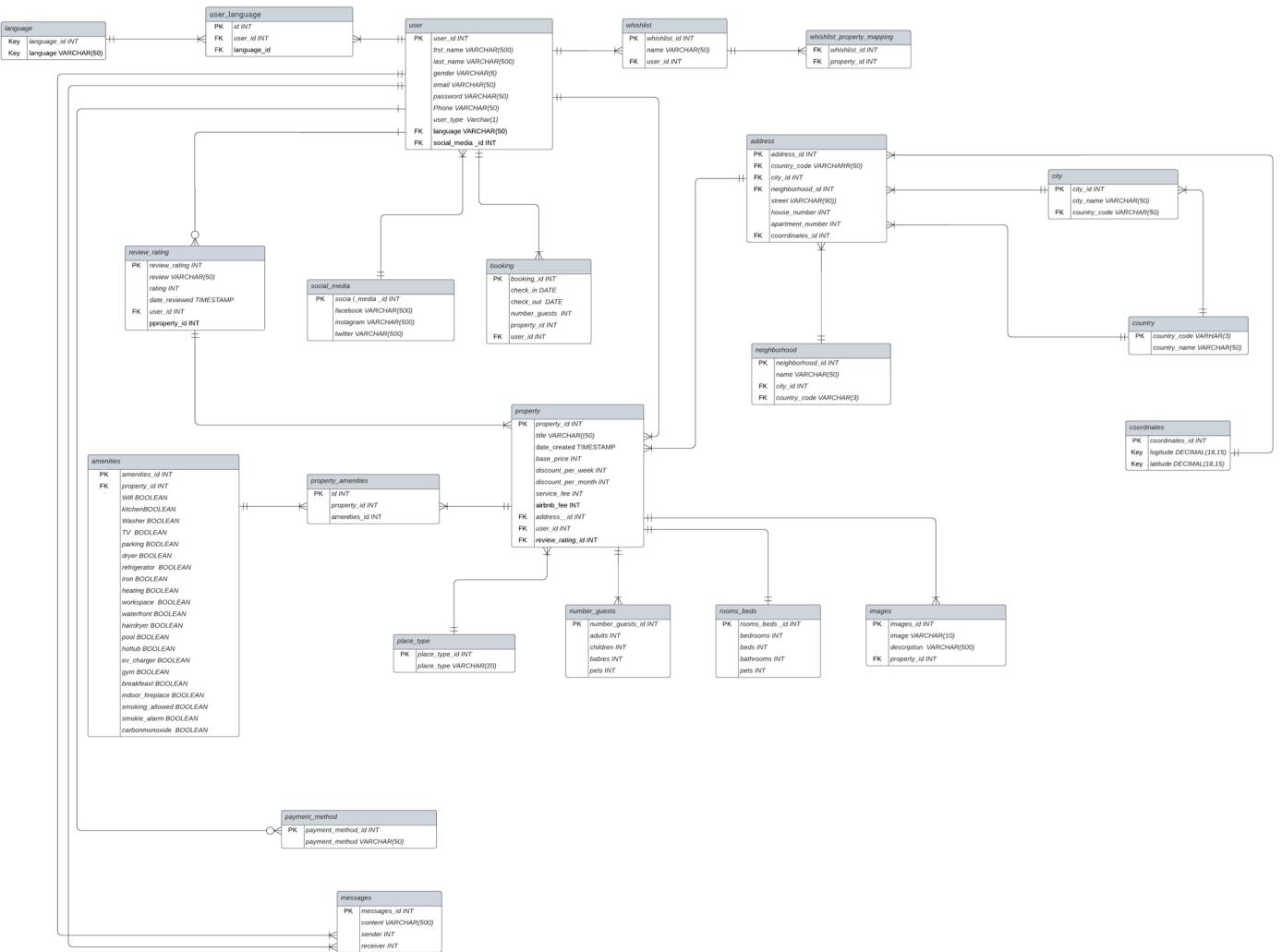
SQL DATA MART

Airbnb SQL Data Mart

08 September 2023

https://github.com/Oumaymabamoh/Sql_Data_Mart

AIRBNB ERM



ERD updated version

CREATE TABLES

The SQL include:

- o Create Table
- o Attribute Type
- o Primary Keys
- o Foreign keys

PostgreSQL was selected as the database management system for this project to run SQL queries within the PgAdmin4 environment

To view the SQL files, their documentation, and the data dictionary, please refer to my GitHub repository. https://github.com/Oumaymabamoh/Sql_Data_Mart

```
-- Create Airbnb Schema  
CREATE SCHEMA IF NOT EXISTS Airbnb;
```

CREATE SCHEMA

COUNTRY TABLE

country_code	country_name
[PK] character varying (3)	character varying (50)
CHE	Switzerland
USA	United States
AUS	Australia
IT	Italy
BR	Brazil
MEX	Mexico
ES	Spain
MA	Morocco
UK	United Kingdom
CA	Canada
FR	France
GER	Germany
GR	Greece
NIG	Nigeria
CH	China
KE	Kenya
KOR	Korea
JP	Japan
NL	Netherlands
GHA	Ghana
PT	Portugal

```
-- Table Airbnb.country
DROP TABLE IF EXISTS Airbnb.country CASCADE;

CREATE TABLE IF NOT EXISTS Airbnb.country (
    country_code VARCHAR(3) NOT NULL,
    country_name VARCHAR(50) NULL DEFAULT NULL,
    PRIMARY KEY (country_code));

SELECT * FROM Airbnb.country;
```

The Airbnb.country table holds country details. Each country is identified by a unique country_code and includes a country_name. The country_code serves as the primary key, ensuring uniqueness. This table helps categorize properties based on their respective countries.

city_id	city_name	country_code
[PK] integer	character varying (50)	character varying (3)
1	Venise	IT
2	Berlin	GER
3	Kenya	KE
4	Lausanne	CHE
5	Miami	USA
6	New York	USA
7	Porto	PT
8	London	UK
9	Liverpool	UK
10	Perth	AUS
11	Amsterdam	NL
12	Accra	GHA
13	New Mexico	MEX
14	Manchester	UK
15	Paris	FR
16	Strasbourg	FR
17	Toronto	CA
18	Seville	ES
19	Ottawa	CA
20	Kiyoto	JP
21	Tokyo	JP

The Airbnb.city table stores city information. Each city is identified by a unique city_id and has a city_name. The table is linked to the Airbnb.country table using the country_code column through a foreign key constraint. An index is created on the country_code column for optimized queries involving city-country relationships. This table helps categorize properties based on different cities.

CITY TABLE

```
-- Create Table Airbnb.city
DROP TABLE IF EXISTS Airbnb.city CASCADE;

CREATE TABLE IF NOT EXISTS Airbnb.city (
    city_id SERIAL PRIMARY KEY NOT NULL,
    city_name VARCHAR(50) NOT NULL,
    country_code VARCHAR(3) NOT NULL,
    CONSTRAINT fk_city_country
        FOREIGN KEY (country_code)
        REFERENCES Airbnb.country (country_code)
        ON DELETE CASCADE
        ON UPDATE CASCADE);
-- Creating an index on country_code column
CREATE INDEX IF NOT EXISTS fk_city_country_idx ON Airbnb.city (country_code);
```

```
SELECT * FROM Airbnb.city;
```

NEIGHBORHOOD TABLE

neighborhood_id [PK] integer	name character varying (50)	city_id integer	country_code character varying (3)
1	Downtown	17	CA
2	Ribeira	7	PT
3	LaPalaya	18	ES
4	Kreuzberg	2	GER
5	Friedrichshain	2	GER
6	Castello	1	IT
7	Cannaregio	1	IT
8	Jordaan	11	NL
9	Westerpark	11	NL
10	Westend	2	GER
11	Ostend	2	GER
12	Downtown	5	USA
13	Manhattan	6	USA
14	SoHo	6	USA
15	OldTown	21	JP
16	Sydney H	10	AUS
17	ByWard Market	19	CA
18	Downtown	17	CA
19	Le Marais	15	FR

The table records neighborhood details. Each neighborhood is assigned a unique neighborhood_id and includes a name. The table is linked to related data in the Airbnb.country and Airbnb.city tables through foreign key constraints. Indexes are created for optimizing queries involving city_id and country_code. This table helps organize properties by neighborhoods within cities.

```
-- Table Airbnb.neighborhood
DROP TABLE IF EXISTS Airbnb.neighborhood CASCADE;

CREATE TABLE IF NOT EXISTS Airbnb.neighborhood (
    neighborhood_id SERIAL PRIMARY KEY NOT NULL,
    name VARCHAR(50) NOT NULL,
    city_id INT NULL DEFAULT NULL,
    country_code VARCHAR(3) NULL DEFAULT NULL,
    CONSTRAINT fk_country
        FOREIGN KEY (country_code)
            REFERENCES Airbnb.country (country_code)
        ON DELETE CASCADE
        ON UPDATE CASCADE,
    CONSTRAINT fk_neighborhood_city1
        FOREIGN KEY (city_id)
            REFERENCES Airbnb.city (city_id));
-- Creating indexes
CREATE INDEX IF NOT EXISTS fk_neighborhood_city1_idx ON Airbnb.neighborhood (city_id);
CREATE INDEX IF NOT EXISTS fk_country_idx ON Airbnb.neighborhood (country_code);
```

```
SELECT * FROM Airbnb.neighborhood;
```

coordinates_id	longitude	latitude
[PK] integer	numeric (18,15)	numeric (18,15)
1	-5.994072000000000	37.392529000000000
2	-118.243683000000000	34.052235000000000
3	-73.935242000000000	40.730610000000000
4	13.404954000000000	52.520008000000000
5	6.633597000000000	46.519962000000000
6	-85.766941000000000	86.783112000000000
7	91.146779000000000	0.18433000000000000
8	132.221576000000000	62.039040000000000
9	-59.259278000000000	44.039268000000000
10	-142.833542053200000	7.667052000000000
11	33.367663211200000	-16.574861209600000
12	-108.235957568800000	11.580463513600000
13	72.692534574300000	-24.338221772800000
14	100.873753942400000	-6.204551114900000
15	-136.260573865500000	-56.484510723200000
16	-138.967112241000000	6.964609945800000
17	-74.162321011700000	52.518248685300000
18	22.596504619100000	53.208190755066800
19	103.709601429600000	-10.733697666821800
20	-3.017009888513400	-105.228814580200000

COORDINATES TABLE

```
-- Table Airbnb.coordinates
DROP TABLE IF EXISTS Airbnb.coordinates CASCADE;

CREATE TABLE IF NOT EXISTS Airbnb.coordinates (
    coordinates_id SERIAL PRIMARY KEY NOT NULL,
    longitude DECIMAL(18,15) NOT NULL,
    latitude DECIMAL(18,15) NOT NULL);

SELECT * FROM Airbnb.coordinates;
```

The Airbnb.coordinates table holds geographic coordinates. Each set of coordinates has a unique coordinates_id and includes longitude and latitude values. This table is used to pinpoint precise locations on a map for Airbnb properties and other related data.

address_id [PK] integer	country_code character varying (3)	city_id integer	neighborhood_id integer	street character varying (90)	house_number integer	apartment_number integer	coordinates_id integer
1	NL	11	8	De Nieuwe Hoogstraat	260	7	1
2	NL	11	9	Javastraat	19	40	2
3	USA	5	3	fener sokak	433	2	3
4	FR	15	19	Revoli Street	45	9	4
5	FR	16	19	champs Street	351	4	5
6	JP	20	15	JPN Street	11	1	6
7	JP	20	15	Nakamise Dori	33	10	7
8	GER	3	10	Ostend Strasse	184	50	8
9	GER	2	10	Berliner Strasse	1154	8	9
10	ES	18	3	Las Rambalas	2	20	10
11	PT	7	2	Avenida Correia	42	6	11
12	ES	18	3	Champs Street	1789	33	12
13	PT	7	2	Rua de Paiva	2010	3	13
14	USA	5	7	Fifth Avenue	212	71	14
15	USA	6	7	Wall Street	1096	34	15
16	USA	6	13	Crosby Street	2169	12	16
17	CA	19	18	Yonge Street	43	59	17
18	CA	19	18	Sparks Street	34	60	18
19	AUS	21	16	Oxford Street	3891	5	19
20	AUS	21	16	Gloud Street	59	14	20

The Airbnb.address table stores property addresses. Each address has a unique address_id and includes details like country_code, city_id, neighborhood_id, street, house_number, and apartment_number. The table links to related tables (Airbnb.country, Airbnb.city, Airbnb.neighborhood, and Airbnb.coordinates) through foreign key constraints. Indexes optimize queries based on linked attributes (country_code, city_id, neighborhood_id, coordinates_id).

ADDRESS TABLE

```
-- Table Airbnb.address
DROP TABLE IF EXISTS Airbnb.address CASCADE;

CREATE TABLE IF NOT EXISTS Airbnb.address (
    address_id SERIAL PRIMARY KEY NOT NULL,
    country_code VARCHAR(3) NOT NULL,
    city_id INT NOT NULL,
    neighborhood_id INT NOT NULL,
    street VARCHAR(90) NOT NULL,
    house_number INT NOT NULL,
    apartment_number INT NULL DEFAULT NULL,
    coordinates_id INT NOT NULL,
    CONSTRAINT fk
        FOREIGN KEY (country_code)
            REFERENCES Airbnb.country (country_code)
        ON DELETE CASCADE
        ON UPDATE CASCADE,
    CONSTRAINT fk2
        FOREIGN KEY (city_id)
            REFERENCES Airbnb.city (city_id)
        ON DELETE CASCADE
        ON UPDATE CASCADE,
    CONSTRAINT fk3
        FOREIGN KEY (neighborhood_id)
            REFERENCES Airbnb.neighborhood (neighborhood_id)
        ON DELETE CASCADE
        ON UPDATE CASCADE,
    CONSTRAINT fk4
        FOREIGN KEY (coordinates_id)
            REFERENCES Airbnb.coordinates (coordinates_id)
        ON DELETE CASCADE
        ON UPDATE CASCADE);

-- Creating indexes
CREATE INDEX IF NOT EXISTS fk_idx ON Airbnb.address (country_code);
CREATE INDEX IF NOT EXISTS fk2_idx ON Airbnb.address (city_id);
CREATE INDEX IF NOT EXISTS fk3_idx ON Airbnb.address (neighborhood_id);
CREATE INDEX IF NOT EXISTS fk4_idx ON Airbnb.address (coordinates_id);
```

```
SELECT * FROM Airbnb.address;
```

AMENITIES TABLE

amenities_id [PK] integer	property_id integer	wifi smallint	kitchen smallint	washer smallint	tv smallint	parking smallint	dryer smallint	refrigerator smallint	iron smallint	heating smallint	workspace smallint	waterfront smallint	hairdryer smallint	pool smallint	ho smr
1	1	1	1	1	1	0	1	1	1	1	1	0	1	1	
2	2	1	1	0	1	0	1	1	0	1	0	1	0	0	
3	3	0	1	1	0	1	1	0	1	0	1	0	1	1	
4	4	1	0	0	1	0	0	1	0	0	0	1	0	0	
5	5	0	1	0	1	1	0	1	1	0	1	0	1	1	
6	6	1	0	1	0	0	1	1	0	1	0	1	1	0	
7	7	0	0	1	1	1	0	0	1	1	0	0	0	0	
8	8	1	1	0	0	0	1	1	1	0	1	1	1	0	
9	9	0	0	1	1	1	0	0	1	0	0	0	1	1	
10	10	1	1	1	0	0	1	0	1	0	1	0	0	0	

The Airbnb.amenities table records property amenities. Each amenity has a unique amenities_id. Amenities such as WiFi, kitchen, TV, etc., are marked with SMALLINT values indicating availability. The table associates amenities with a property_id through a foreign key. This table allows properties to list available amenities for guests.

```
-- Table Airbnb.amenities
DROP TABLE IF EXISTS Airbnb.amenities CASCADE;
```

```
CREATE TABLE IF NOT EXISTS Airbnb.amenities (
    amenities_id SERIAL PRIMARY KEY NOT NULL,
    wifi SMALLINT,
    kitchen SMALLINT,
    washer SMALLINT,
    tv SMALLINT,
    parking SMALLINT,
    dryer SMALLINT,
    refrigerator SMALLINT,
    iron SMALLINT,
    heating SMALLINT,
    workspace SMALLINT,
    waterfront SMALLINT,
    hairdryer SMALLINT,
    pool SMALLINT,
    hottub SMALLINT,
    ev_charger SMALLINT,
    gym SMALLINT,
    breakfast SMALLINT,
    indoor_fireplace SMALLINT,
    smoking_allowed SMALLINT,
    smoke_alarm SMALLINT,
    carbonmonoxide_alarm SMALLINT);
```

```
SELECT * FROM Airbnb.amenities;
```

<code>social_media_id</code>	<code>facebook</code>	<code>instagram</code>	<code>twitter</code>
1	user_a	user_a	user1
2	user_b	user_b	user2
3	user_c	user_c	user_c
4	user_d	user_d	user_d
5	user_e	user_e	user_e
6	user_f	user_f	user_f
7	user_g	user_g	user_g
8	user_h	user_h	user_h
9	user_i	user_i	user_i
10	user_j	user_j	user_j
11	user_k	user_k	user_k
12	user_l	user_l	user_l
13	user_m	user_m	user_m
14	user_n	user_n	user_n
15	user_o	user_o	user_o
16	user_p	user_p	user_p
17	user_q	user_q	user_q
18	user_r	user_r	user_r
19	user_s	user_s	user_s
20	user_t	user_t	user_t

SOCIAL MEDIA TABLE

-- Table Airbnb.social_media

`DROP TABLE IF EXISTS Airbnb.social_media CASCADE;`

`CREATE TABLE IF NOT EXISTS Airbnb.social_media (`
`social_media_id SERIAL PRIMARY KEY NOT NULL,`
`facebook VARCHAR(500) DEFAULT NULL,`
`instagram VARCHAR(500) DEFAULT NULL,`
`twitter VARCHAR(500) DEFAULT NULL);`

`SELECT * FROM Airbnb.social_media;`

The Airbnb.social_media table manages social media links for users. Each record has a unique `social_media_id` and includes optional links to Facebook, Instagram, and Twitter. This table allows users to provide their social media profiles for connecting on different platforms.

LANGUAGE TABLE

language
[PK] character varying (50) 
English
Deutch
Spanish
Arabic
French
Korean
japanese
Italish
korean
Portuguese

```
-- Table Airbnb.language
DROP TABLE IF EXISTS Airbnb.language CASCADE;

CREATE TABLE IF NOT EXISTS Airbnb.language (
    language VARCHAR(50) NOT NULL,
    PRIMARY KEY (language));

SELECT * FROM Airbnb.language;
```

The Airbnb.language table holds language options. Each language is represented by a unique language value, forming the primary key. This table allows users to select preferred languages.

USER TABLE

user_type	user_count
h	6
g	19

The Airbnb.user table stores user information. Each user is identified by a unique user_id and includes details like first_name, last_name, gender, email, password, phone, user_type, and preferred language. The table also links to Airbnb.social_media through social_media_id, and enforces language choice using foreign key constraints referencing Airbnb.language. Indexes are created for optimized queries on social_media_id and language.

```
-- Table Airbnb.user
DROP TABLE IF EXISTS Airbnb.user CASCADE;

CREATE TABLE IF NOT EXISTS Airbnb.user (
    user_id SERIAL PRIMARY KEY NOT NULL,
    first_name VARCHAR(50) NOT NULL,
    last_name VARCHAR(50) NOT NULL,
    gender VARCHAR(50) NOT NULL,
    email VARCHAR(50) NOT NULL,
    password VARCHAR(50) NOT NULL,
    phone VARCHAR(50) DEFAULT NULL,
    user_type VARCHAR(1) NOT NULL,
    language VARCHAR(50) NULL DEFAULT 'English',
    social_media_id INT NULL DEFAULT 1,
    CONSTRAINT fk_user_social_media1
        FOREIGN KEY (social_media_id)
            REFERENCES Airbnb.social_media (social_media_id),
    CONSTRAINT language
        FOREIGN KEY (language)
            REFERENCES Airbnb.language (language)
        ON DELETE CASCADE
        ON UPDATE CASCADE);
-- Creating indexes
CREATE INDEX IF NOT EXISTS fk_user_social_media1_idx ON Airbnb.user (social_media_id);
CREATE INDEX IF NOT EXISTS language_idx ON Airbnb.user ("language");
```

```
SELECT user_type, COUNT(*) as user_count
FROM Airbnb.user
GROUP BY user_type;
```

USER_LANGUAGE TABLE

user_id	first_name	last_name	email	language
integer	character varying (50)	character varying (50)	character varying (50)	character varying (50)
1	John	Doe	aa@example.org	English
2	Rita	Frazier	bb@example.net	Deutch
3	Andrew	Good	cc@example.org	Spanish
4	John	Char	dd@example.com	Arabic
5	Julie	Salinas	ee@example.org	French
6	John	Steph	ff@example.org	Korean
7	maria	Ith	gg@example.com	japanese
8	Heny	Jody	hh@example.org	Italish
9	Sarah	Too	ii@example.org	korean
10	Bella	Lee	jj@example.net	Portuguese

The Airbnb.user_language table manages user language preferences. Each user is uniquely identified by a user_id and can specify their preferred language. This choice personalizes their experience on Airbnb, ensuring content and communication align with their language selection. To maintain data integrity, foreign key constraints link user_id to the Airbnb.user table and language_id to the Airbnb.language table, verifying valid user-language associations. This table enhances Airbnb's ability to offer a tailored multilingual platform experience, while indexes on social_media_id and language optimize query performance.

```
--Table Airbnb.user_language
-- Drop the table if it exists
DROP TABLE IF EXISTS Airbnb.user_language;

-- Create the table if it doesn't exist
CREATE TABLE IF NOT EXISTS Airbnb.user_language (
    id SERIAL PRIMARY KEY NOT NULL,
    user_id INT NOT NULL,
    language_id INT NOT NULL,
    CONSTRAINT fk_join_user
        FOREIGN KEY (user_id)
        REFERENCES Airbnb.user (id)
        ON DELETE CASCADE
        ON UPDATE CASCADE,
    CONSTRAINT fk_join_language
        FOREIGN KEY (language_id)
        REFERENCES Airbnb.language (id)
        ON DELETE CASCADE
        ON UPDATE CASCADE
);

-- Creating indexes
CREATE INDEX IF NOT EXISTS fk_join_user_idx ON Airbnb.user_language (user_id);
CREATE INDEX IF NOT EXISTS fk_join_language_idx ON Airbnb.user_language (language_id);

SELECT
    u.user_id,
    u.first_name,
    u.last_name,
    u.email,
    l.language
FROM
    Airbnb.user_language ul
JOIN
    Airbnb.user u ON ul.user_id = u.user_id
JOIN
    Airbnb.language l ON ul.language_id = l.language_id;
```

```

SELECT p.property_id, p.title, COALESCE(MAX(r.rating), 0) AS highest_rating
FROM Airbnb.property p
LEFT JOIN Airbnb.review_rating r ON p.review_rating_id = r.review_rating_id
GROUP BY p.property_id, p.title
ORDER BY highest_rating DESC
LIMIT 5;

```

property_id [PK] integer	title character varying (50)	highest_rating integer
19	nulla pariatur	5
3	Excepteur sint	5
4	commodo consequat	5
15	adipisci velit	5
13	Nam libero	5

The table connects wishlists and property listings. Each mapping associates a wishlist_id with a property_id, forming a connection between user wishlists and desired properties. The primary key consists of both wishlist_id and property_id. Foreign key constraints ensure the integrity of relationships with the Airbnb.property and Airbnb.wishlist tables. Indexes are created to optimize queries involving property and wishlist IDs.

PROPERTY TABLE

```

-- Table if it doesn't exist
-- Drop the table if it exists
DROP TABLE IF EXISTS Airbnb.property CASCADE;

CREATE TABLE IF NOT EXISTS Airbnb.property (
    property_id SERIAL PRIMARY KEY NOT NULL,
    title VARCHAR(50) NOT NULL,
    date_created TIMESTAMP NULL DEFAULT NULL,
    address_id INT NOT NULL,
    user_id INT NOT NULL,
    review_rating_id INT NULL DEFAULT NULL,
    base_price INT NULL DEFAULT NULL,
    discount_per_week INT NULL DEFAULT NULL,
    discount_per_month INT NULL DEFAULT NULL,
    service_fee INT NULL DEFAULT NULL,
    airbnb_fee INT NULL DEFAULT NULL,
    CONSTRAINT fk_property_address1
        FOREIGN KEY (address_id)
            REFERENCES Airbnb.address (address_id)
        ON DELETE CASCADE
        ON UPDATE CASCADE,
    CONSTRAINT fk_property_review_rating_1
        FOREIGN KEY (review_rating_id)
            REFERENCES Airbnb.review_rating (review_rating_id)
        ON DELETE CASCADE
        ON UPDATE CASCADE,
    CONSTRAINT fk_property_rooms_beds_1
        FOREIGN KEY (property_id)
            REFERENCES Airbnb.rooms_beds (rooms_beds_id)
        ON DELETE CASCADE
        ON UPDATE CASCADE,
    CONSTRAINT fk_property_type_of_place1
        FOREIGN KEY (property_id)
            REFERENCES Airbnb.place_type (place_type_id)
        ON DELETE CASCADE
        ON UPDATE CASCADE,
    CONSTRAINT fk_property_user1
        FOREIGN KEY (user_id)
            REFERENCES Airbnb.user (user_id)
        ON DELETE CASCADE
        ON UPDATE CASCADE,
    CONSTRAINT fk_property_amenities
        FOREIGN KEY (property_id)
            REFERENCES Airbnb.amenities (amenities_id)
        ON DELETE CASCADE
        ON UPDATE CASCADE
);

-- Creating indexes
CREATE INDEX IF NOT EXISTS fk_property_address1_idx ON Airbnb.property (address_id);
CREATE INDEX IF NOT EXISTS fk_property_user1_idx ON Airbnb.property (user_id);
CREATE INDEX IF NOT EXISTS fk_property_review_rating_1_idx ON Airbnb.property (review_rating_id);
CREATE INDEX IF NOT EXISTS fk_property_amenities_idx ON Airbnb.property (property_id);

```

AMENITIES_PROPERTY TABLE

property_id	property_title	user_first_name	user_last_name	amenities_id	wifi	kitchen	washer	tv
	character varying (50)	character varying (50)	character varying (50)	integer	smallint	smallint	smallint	smallint
1	Lorem ipsum	John	Doe	4	1	0	0	1
2	consectetur adipiscing	Rita	Frazier	6	1	0	1	0
3	Excepteur sint	Julie	Salinas	5	0	1	0	1
4	commodo consequat	maria	Ith	10	1	1	1	0
5	ut perspiciatis	John	Steph	9	0	0	1	1
6	Quis autem vel	Una	Yong	7	0	0	1	1
7	suscipit laboriosam	Mary	Lily	8	1	1	0	0
8	Nequa porro	Emily	Ghk	19	0	1	0	1
9	sed quia	Rose	Sky	1	1	1	1	1
10	At vero eos	Emily	Ghk	2	1	1	0	1
11	Temporibus autem	Noa	Nop	11	0	1	0	1
12	Itaque earum	Noa	Nop	12	1	0	1	0
13	Nam libero	John	Char	20	0	1	1	0
14	dolorum fuga	Una	Yong	18	1	0	1	0
15	adipisci velit	Henry	Jody	13	0	0	0	1
16	qui ratione	Adam	Efg	17	0	1	1	0
17	quasi architecto	Emily	Ghk	21	1	0	1	1
18	Ut enim	Sonia	Tuv	16	1	1	0	1
19	nulla pariatur	Mary	Lily	14	1	1	0	0
20	dolorem eum	Rose	Sky	11	0	1	0	1
21	irure dolor	Andrew	Good	20	0	1	1	0

The Airbnb.property_amenities table serves as a bridge between property listings and their associated amenities. It maintains a record of amenities linked to specific properties. Each entry in this table includes a unique id, a property_id referring to the property the amenity belongs to, and an amenities_id that references a specific amenity from the Airbnb.amenities table. Foreign key constraints are applied to ensure data integrity, with amenities_id referencing Airbnb.amenities and property_id referencing Airbnb.property. Indexes are created for optimized queries on the amenities_id.

```
-- Table Airbnb.property_amenities
-- Drop the table if it exists
DROP TABLE IF EXISTS Airbnb.property_amenities;

CREATE TABLE IF NOT EXISTS Airbnb.property_amenities (
    id SERIAL PRIMARY KEY NOT NULL,
    property_id INT NOT NULL,
    amenities_id INT NOT NULL,
    CONSTRAINT fk_join_amenities
        FOREIGN KEY (amenity_id)
        REFERENCES Airbnb.amenities (id)
        ON DELETE NO ACTION
        ON UPDATE NO ACTION,
    CONSTRAINT fk_join_property
        FOREIGN KEY (property_id)
        REFERENCES Airbnb.property (id)
        ON DELETE CASCADE
        ON UPDATE CASCADE
);

-- Creating an index
CREATE INDEX IF NOT EXISTS join_amenities_idx ON Airbnb.property_amenities (amenities_id);

SELECT
    p.property_id,
    p.title AS property_title,
    u.first_name AS user_first_name,
    u.last_name AS user_last_name,
    a.amenities_id,
    a.wifi,
    a.kitchen,
    a.washer,
    a.tv
FROM
    Airbnb.property p
JOIN
    Airbnb.property_amenities pa ON p.property_id = pa.property_id
JOIN
    Airbnb.amenities a ON pa.amenities_id = a.amenities_id
JOIN
    Airbnb.user u ON p.user_id = u.user_id
ORDER BY
    p.property_id;
```

property_id [PK] integer	title character varying (50)	image_count bigint
2	consectetur adipiscing	3
3	Excepteur sint	2
4	commodo consequat	3
5	ut perspiciatis	2
6	Quis autem vel	3
8	Neque porro	3
10	At vero eos	2
11	Temporibus autem	2
13	Nam libero	3
16	qui ratione	3
20	dolorem eum	3

The Airbnb.images table manages property images. Each image has a unique images_id and includes an image file name (image), a description (description), and is associated with a property (property_id). The foreign key constraint links the property to the Airbnb.property table, ensuring data consistency. An index on property_id optimizes queries related to property images.

IMAGE TABLE

```
-- Create Table Airbnb.images
CREATE TABLE IF NOT EXISTS Airbnb.images (
    images_id SERIAL PRIMARY KEY NOT NULL,
    image VARCHAR(10) DEFAULT 'file.jpg',
    description VARCHAR(500),
    property_id INT,
    CONSTRAINT fk_images_property_1
        FOREIGN KEY (property_id)
        REFERENCES Airbnb.property (property_id)
        ON DELETE CASCADE
        ON UPDATE CASCADE
);
-- Creating index
CREATE INDEX IF NOT EXISTS fk_images_property_1_idx ON Airbnb.images (property_id);

SELECT p.property_id, p.title, COUNT(i.images_id) AS image_count
FROM Airbnb.property p
JOIN Airbnb.images i ON p.property_id = i.property_id
GROUP BY p.property_id, p.title
HAVING COUNT(i.images_id) > 1;
```

REVIEW RATING TABLE

first_name	last_name	Average_rating
character varying (50)	character varying (50)	numeric
luke	Lmn	5.00
Tim	May	5.00
Dan	Ijk	5.00
Sarah	Too	5.00
John	Doe	5.00
Sonia	Tuv	5.00
Una	Yong	5.00
Heny	Jody	5.00
Neil	Pal	4.50
Leah	black	4.00
maria	Ith	4.00
Noa	Nop	4.00

The Airbnb.review_rating table stores reviews and ratings for properties. Each review has a unique review_rating_id, containing review text (review), a rating (rating), and review date (date_reviewed). Users and properties are linked through foreign keys (user_id, property_id). Indexes on these keys optimize queries for reviews and ratings.

```
-- Table Airbnb.review_rating
DROP TABLE IF EXISTS Airbnb.review_rating CASCADE;

CREATE TABLE IF NOT EXISTS Airbnb.review_rating (
    review_rating_id SERIAL PRIMARY KEY NOT NULL,
    review VARCHAR(500) NULL DEFAULT NULL,
    rating INT NULL DEFAULT NULL,
    date_reviewed TIMESTAMP NULL DEFAULT NULL,
    user_id INT NOT NULL,
    property_id INT NOT NULL,
    CONSTRAINT fk_review_rating_property1
        FOREIGN KEY (property_id)
            REFERENCES Airbnb.property (property_id)
        ON DELETE CASCADE
        ON UPDATE CASCADE,
    CONSTRAINT fk_review_rating_user1
        FOREIGN KEY (user_id)
            REFERENCES Airbnb.user (user_id)
        ON DELETE CASCADE
        ON UPDATE CASCADE
);
-- Creating indexes
CREATE INDEX IF NOT EXISTS fk_review_rating_user1_idx ON Airbnb.review_rating (user_id);
CREATE INDEX IF NOT EXISTS fk_review_rating_property1_idx ON Airbnb.review_rating (property_id);
```

```
SELECT u.first_name, u.last_name,
ROUND(AVG(rr.rating), 2) AS "Average_rating"
FROM Airbnb.review_rating rr
JOIN Airbnb.user u ON rr.user_id = u.user_id
GROUP BY u.user_id
ORDER BY AVG(rr.rating) DESC
LIMIT 12;
```

MESSAGE TABLE

```
CREATE OR REPLACE VIEW sender_receiver_message AS
SELECT
    CONCAT(sender_user.first_name, ' ', sender_user.last_name) AS sender_name,
    CONCAT(receiver_user.first_name, ' ', receiver_user.last_name) AS receiver_name,
    messages.content,
    messages.messages_id
FROM Airbnb.messages messages
JOIN Airbnb.user sender_user ON messages.sender = sender_user.user_id
JOIN Airbnb.user receiver_user ON messages.receiver = receiver_user.user_id;
--  
SELECT * FROM sender_receiver_message;
```

sender_name	receiver_name	content	messages_id
Sarah Too	Sam Bert	Duis aute irure dolor in reprehenderit in voluptate velit esse cill...	2

The Airbnb.messages table stores messages between users. Each message has a unique messages_id. Messages contain text (content) and are sent by a user (sender) to another user (receiver). Foreign key constraints link the sender and receiver to the Airbnb.user table. Indexes are created on the sender and receiver columns for efficient querying.

```
-- Create Table Airbnb.messages
-- Drop Table if it exists
DROP TABLE IF EXISTS Airbnb.messages CASCADE;

CREATE TABLE IF NOT EXISTS Airbnb.messages (
    messages_id SERIAL PRIMARY KEY NOT NULL,
    content VARCHAR(500),
    sender INT,
    receiver INT,
    CONSTRAINT receiver_fk
        FOREIGN KEY (receiver)
        REFERENCES Airbnb.user (user_id)
        ON DELETE CASCADE
        ON UPDATE CASCADE,
    CONSTRAINT sender_fk
        FOREIGN KEY (sender)
        REFERENCES Airbnb.user (user_id)
        ON DELETE CASCADE
        ON UPDATE CASCADE
);
-- Creating indexes
CREATE INDEX IF NOT EXISTS sender_idx ON Airbnb.messages (sender);
CREATE INDEX IF NOT EXISTS receiver_idx ON Airbnb.messages (receiver);

SELECT *
FROM sender_receiver_message
WHERE sender_name = 'Sarah Too';
```

property_title	adults	children	babies	pets
character varying (50)	integer	integer	integer	integer
Lorem ipsum	2	1	0	0
consectetur adipiscing	4	2	1	1
Excepteur sint	3	0	0	0
commodo consequat	1	0	1	0
ut perspiciatis	2	0	0	1
Quis autem vel	6	3	2	0
suscipit laboriosam	2	1	1	1
Neque porro	4	2	0	0
sed quia	2	0	0	0
At vero eos	3	1	0	1
Temporibus autem	1	0	0	0
Itaque earum	2	1	1	0
Nam libero	4	0	0	0
dolorum fuga	2	0	0	1
adipisci velit	3	2	1	0
qui ratione	4	3	1	0
quasi architecto	1	0	0	0
Ut enim	2	0	0	1
nulla pariatur	1	3	1	0
dolorem eum	1	1	0	0
irure dolor	1	4	1	1

The table stores information about the number of guests allowed at property listings on Airbnb. Each entry has a unique ID (number_guests_id) and records the number of adults, children, babies, and pets allowed. The table is linked to property listings through a foreign key (number_guests_id), ensuring accurate guest information for each property.

NUMBER GUEST TABLE

```
-- Table Airbnb.number_guests
DROP TABLE IF EXISTS Airbnb.number_guests CASCADE;

CREATE TABLE IF NOT EXISTS Airbnb.number_guests (
    number_guests_id SERIAL PRIMARY KEY NOT NULL,
    adults INT NOT NULL,
    children INT NULL DEFAULT NULL,
    babies INT NULL DEFAULT NULL,
    pets INT NULL DEFAULT NULL,
    CONSTRAINT fk_number_of_guests_property
        FOREIGN KEY (number_guests_id)
        REFERENCES Airbnb.property (property_id)
        ON DELETE CASCADE
        ON UPDATE CASCADE);

SELECT
    p.title AS property_title,
    ng.adults,
    ng.children,
    ng.babies,
    ng.pets
FROM
    Airbnb.property p
JOIN
    Airbnb.number_guests ng ON p.property_id = ng.number_guests_id;
```

PRICE TABLE

property_id	property_title	base_price	discount_per_week	discount_per_month	service_fee	airbnb_fee
		integer	integer	integer	integer	integer
1	Lorem ipsum	59	7	12	10	8
2	consectetur adipiscing	45	8	10	5	3
3	Excepteur sint	68	5	12	2	4
4	commodo consequat	97	5	15	10	8
5	ut perspiciatis	32	2	12	10	5
6	Quis autem vel	29	4	15	18	2
9	sed quia	76	1	16	12	6
10	At vero eos	102	2	14	5	2
12	Itaque earum	46	6	13	9	14
13	Nam libero	111	1	13	12	8
14	dolorum fuga	119	0	11	9	5
16	qui ratione	120	5	14	3	5
18	Ut enim	92	6	10	18	2
19	nulla pariatur	62	3	10	20	4
20	dolorem eum	84	7	8	13	1
21	irure dolor	80	2	7	13	4

The table manages pricing details for property listings on the Airbnb platform. Each property's price is assigned a unique `price_id`, and the table stores various pricing components such as `base_price`, `discount_per_week`, `discount_per_month`, `service_fee`, and `airbnb_fee`. The table also includes a foreign key constraint to the `Airbnb.property` table via the `price_id`, ensuring that pricing information is associated with specific property listings. This table enables Airbnb to effectively track and manage property prices, discounts, and fees for different listings.

```

SELECT
    p.property_id,
    p.title AS property_title,
    pr.base_price,
    pr.discount_per_week,
    pr.discount_per_month,
    pr.service_fee,
    pr.airbnb_fee
FROM
    Airbnb.property p
JOIN
    Airbnb.price pr ON p.property_id = pr.price_id
WHERE
    pr.base_price BETWEEN 8 AND 120;

```

```

SELECT
    p.property_id,
    p.title AS property_title,
    pr.base_price,
    pr.discount_per_week,
    pr.discount_per_month,
    pr.service_fee,
    pr.airbnb_fee
FROM
    Airbnb.property p
JOIN
    Airbnb.price pr ON p.property_id = pr.price_id
WHERE
    pr.base_price BETWEEN 8 AND 120;

```

PAYMENT METHODS TABLE

user_id	first_name	last_name	payment_method
1	John	Doe	googlepay
2	Rita	Frazier	debit_card
3	Andrew	Good	applepay
4	John	Char	credit_card
5	Julie	Salinas	paypal
6	John	Steph	paypal
7	maria	Ith	debit_card
8	Heny	Jody	paypal
9	Sarah	Too	googlepay
10	Bella	Lee	debit_card
11	Adam	Efg	applepay
12	Emily	Ghk	paypal
13	Dan	Ijk	applepay
14	luke	Lmn	googlepay
15	Rose	Sky	googlepay
16	Una	Yong	credit_card
17	Noa	Nop	applepay
18	Sonia	Tuv	applepay
19	Mary	Lily	googlepay
20	Neil	Pal	credit_card

The table stores information about different payment methods available on the Airbnb platform. Each payment method is assigned a unique payment_method_id and described by the payment_method column. The table includes a foreign key constraint to the Airbnb.user table through the payment_method_id, allowing users to associate specific payment methods with their profiles. This table facilitates the management of various payment options for Airbnb transactions.

```
-- Table Airbnb.payment_method
DROP TABLE IF EXISTS Airbnb.payment_method;

CREATE TABLE IF NOT EXISTS Airbnb.payment_method (
    payment_method_id SERIAL PRIMARY KEY NOT NULL,
    payment_method VARCHAR(50) NULL DEFAULT NULL,
    CONSTRAINT fk_paymentmethod_user_1
        FOREIGN KEY (payment_method_id)
        REFERENCES Airbnb.user (user_id)
        ON DELETE CASCADE
        ON UPDATE CASCADE);

SELECT
    u.user_id,
    u.first_name,
    u.last_name,
    pm.payment_method
FROM
    Airbnb.user u
JOIN
    Airbnb.payment_method pm ON u.user_id = pm.payment_method_id;
```

WISHLIST TABLE

wishlist_id	wishlist_name	first_name	last_name
integer	character varying (50)	character varying (50)	character varying (50)
1	Nemo enim ipsam voluptatem	John	Doe
14	amet, consectetur adipiscing	John	Steph
20	ante dictum mi,	Heny	Jody
15	Temporibus autem quibusdam	Heny	Jody
9	porttitor scelerisque neque.	Heny	Jody

The Airbnb.wishlist table is designed to manage users' wishlists on the Airbnb platform. Each wishlist is identified by a unique wishlist_id and is associated with a specific user (user_id). The table stores the names of the wishlists, enabling users to create lists of properties they're interested in. The foreign key constraint ensures that each wishlist is connected to a valid user in the Airbnb.user table. This table allows Airbnb users to organize and keep track of properties they want to save for later consideration.

```
--Table Airbnb.wishlist
DROP TABLE IF EXISTS Airbnb.wishlist CASCADE;

CREATE TABLE IF NOT EXISTS Airbnb.wishlist (
    wishlist_id SERIAL PRIMARY KEY NOT NULL,
    name VARCHAR(50) NOT NULL,
    user_id INT NOT NULL,
    CONSTRAINT fk_wishlist_user1
        FOREIGN KEY (user_id)
        REFERENCES Airbnb.user (user_id));
-- CREATE INDEX
CREATE INDEX IF NOT EXISTS fk_wishlist_user1_idx ON Airbnb.wishlist (user_id);
```

```
SELECT
    w.wishlist_id,
    w.name AS wishlist_name,
    u.first_name,
    u.last_name
FROM
    Airbnb.wishlist w
JOIN
    Airbnb.user u ON w.user_id = u.user_id
LIMIT 5;
```

WISHLIST PROPERTY MAPPING TABLE

```
SELECT p.property_id, p.title  
FROM Airbnb.property p  
JOIN Airbnb.wishlist_property_mapping wpm ON p.property_id = wpm.property_id  
WHERE wpm.wishlist_id = 5;
```

property_id [PK] integer	title character varying (50)
15	adipisci velit
17	quasi architecto

```
-- Table Airbnb.wishlist_property_mapping  
DROP TABLE IF EXISTS Airbnb.wishlist_property_mapping CASCADE;  
  
CREATE TABLE IF NOT EXISTS Airbnb.wishlist_property_mapping (  
    wishlist_id INT NOT NULL,  
    property_id INT NOT NULL,  
    PRIMARY KEY (wishlist_id, property_id),  
    CONSTRAINT fk_wishlist_property_mapping_property  
        FOREIGN KEY (property_id)  
            REFERENCES Airbnb.property (property_id)  
        ON DELETE CASCADE  
        ON UPDATE CASCADE,  
    CONSTRAINT fk_wishlist_property_mapping_wishlist  
        FOREIGN KEY (wishlist_id)  
            REFERENCES Airbnb.wishlist (wishlist_id)  
        ON DELETE CASCADE  
        ON UPDATE CASCADE  
);  
  
-- Creating indexes  
CREATE INDEX IF NOT EXISTS idx_wishlist_property_mapping_property ON Airbnb.wishlist_property_mapping (property_id);  
CREATE INDEX IF NOT EXISTS idx_wishlist_property_mapping_wishlist ON Airbnb.wishlist_property_mapping (wishlist_id);
```

This table establishes a connection between Wishlist and the properties that users add to their Wishlist on the Airbnb platform.

BOOKING TABLE

property_id	booking_count
15	4
3	2
8	2
5	2
13	2
7	2
18	2
11	1
17	1
12	1
6	1
1	1

This table records booking information for accommodations on the Airbnb platform. It stores essential details related to guest reservations and stays.

```
-- Create Table Airbnb.booking
-- Drop Table if it exists
DROP TABLE IF EXISTS Airbnb.booking CASCADE;

CREATE TABLE IF NOT EXISTS Airbnb.booking (
    booking_id SERIAL PRIMARY KEY NOT NULL,
    check_in DATE NOT NULL,
    check_out DATE NOT NULL,
    number_guests INT NOT NULL,
    property_id INT NOT NULL,
    user_id INT NOT NULL,
    CONSTRAINT fk_booking_property1
        FOREIGN KEY (property_id)
            REFERENCES Airbnb.property (property_id)
        ON DELETE CASCADE
        ON UPDATE CASCADE,
    CONSTRAINT fk_booking_user1
        FOREIGN KEY (user_id)
            REFERENCES Airbnb.user (user_id)
        ON DELETE CASCADE
        ON UPDATE CASCADE
);
-- Creating indexes
CREATE INDEX IF NOT EXISTS fk_booking_property1_idx ON Airbnb.booking (property_id);
CREATE INDEX IF NOT EXISTS fk_booking_user1_idx ON Airbnb.booking (user_id);

SELECT property_id, COUNT(*) AS booking_count
FROM Airbnb.booking
GROUP BY property_id
ORDER BY booking_count DESC;
```

PLACE TYPE TABLE

property_id	title	place_type
1	Lorem ipsum	apartment
2	consectetur adipiscing	room
6	Quis autem vel	room
7	suscipit laboriosam	room
10	At vero eos	apartment
13	Nam libero	room
14	dolorum fuga	apartment
15	adipisci velit	room
16	qui ratione	room
20	dolorem eum	room
21	irure dolor	room

This table stores the different types of accommodation that hosts can assign to their properties on the Airbnb platform. Each type describes the type of accommodation offered so that guests can better understand what to expect from the accommodation.

```
-- Create Table Airbnb.place_type
-- Drop Table if it exists
DROP TABLE IF EXISTS Airbnb.place_type CASCADE;

CREATE TABLE IF NOT EXISTS Airbnb.place_type (
    place_type_id SERIAL PRIMARY KEY NOT NULL,
    place_type VARCHAR(20) NOT NULL,
    CONSTRAINT chk_place_type CHECK (place_type IN ('hotel', 'apartment', 'room', 'bed'))
);

SELECT b.property_id, b.title, a.place_type
FROM Airbnb.place_type a
JOIN Airbnb.property b
ON a.place_type_id = b.property_id
WHERE place_type = 'room' OR place_type = 'apartment'
ORDER BY property_id
```

ROOMS BEDS TABLE

avg_bedrooms	avg_beds	avg_bathrooms
numeric 1.81	numeric 2.24	numeric 1.43

table serves to store information about the number of bedrooms, beds, and bathrooms within a property listing. It allows tracking the accommodation specifics, such as the bedroom count, bed count, and bathroom count, which are essential details for potential guests evaluating properties on Airbnb. Each record in this table represents a specific configuration of rooms, beds, and bathrooms within a property listing.

```
-- Table Airbnb.rooms_beds
DROP TABLE IF EXISTS Airbnb.rooms_beds CASCADE;

CREATE TABLE IF NOT EXISTS Airbnb.rooms_beds (
    rooms_beds_id SERIAL PRIMARY KEY NOT NULL,
    bedrooms INT DEFAULT NULL,
    beds INT NOT NULL,
    bathrooms INT NULL DEFAULT NULL);
```

```
SELECT
    ROUND(AVG(bedrooms), 2) AS avg_bedrooms,
    ROUND(AVG(beds), 2) AS avg_beds,
    ROUND(AVG(bathrooms), 2) AS avg_bathrooms
FROM Airbnb.rooms_beds;
```

THANK YOU
