

Abstract

The goal of the Airbnb Database Development Project is to build a reliable and effective Data Mart in SQL that can handle the many features offered by the Airbnb platform. The project satisfies the necessity for a clear and understandable data model, which is used to seize user interactions, bookings, accommodations, reviews, preferences and others. The main goals are to guarantee data integrity, enhance the efficiency of information retrieval, and improve user experience.

Because of the importance of reliability and performance orientation of the diverse platform Airbnb, the refined and robust database is necessary to ensure optimal operation and to manage intricate interactions between users, accommodations and other entities.

Taking into account all specific details the project offers an accurate Entity-Relationship Model integrating functions such as feedback opportunities, iterative possibilities, preference maintenance and others. Here also incorporated adding triple connections, implementing a recursive relationship ("UserHasPreference"), and improving the model structure.

At first, for the development, it is important to determine entities (key entities such as User, Accommodation, Booking, Preference, Review, Location, Amenity, Host, Guest, Connection, and more). Then to model relationships (setting relationships between entities). Next, there are triple relationships (such as UserChoosesAccommodation, AccommodationSavedAsPreference, and UserReviewsAccommodation, to improve the expressive nature of the model). In addition, to include a recursive relationship (created the "UserHasPreference" recursive relationship, which enables users to specify and control their preferences inside the platform). Afterward, cardinality specifications (a clear depiction of one-to-many, many-to-many, and one-to-one connections were ensured by using Chen Notation to determine cardinalities). Furthermore data dictionary (created a specimen data dictionary that lists each entity's properties, data types, and other details).

Requirements specification

Introduction

The objective of the Airbnb project is to build a database that will hold and handle information about hosts who provide accommodations and guests who are searching for special and personalized housing experiences.

Roles and actions

Guest

Actions:

- Look for suitable lodgings according to preferences and tags;
- Explore information about the accommodation before making a choice (e.g. description, amenities, reviews, pictures, pricing, etc.);
- Book housings and select available dates;
- Give feedback including rating and comments for visited lodgings;
- Communicate with the hosts about accommodations through messages.

Host

Actions:

- Put properties up for rent, and give accurate information about it (description, amenities, photos, etc.);
- Manage lodgings availability and status of reservations;
- Answer inquiries about bookings and interact with guests;

Data and Functions required

Accommodation data to describe housing

Used attributes: AccommodationID [PK], HostID [FK], Title, Description, LocationID, Type, Capacity, Rating, RulesID, AmenitiesID, PhotoID.

User data to describe the person who uses system (guest or host)

Used attributes: UserID [PK], Name, Email, Phone, RegistrationDate, Password, Type, DateOfBirth.

Booking data to describe the deal while making a booking

Used attributes: BookingID [PK], GuestID [FK], AccommodationID [FK], CheckInDate, CheckOutDate, TotalCost, BookingStatus.

Review data to describe the information provided in a review of accommodation

Used attributes: ReviewID [PK], GuestID [FK], AccommodationID [FK], Ranking, CommentToReview, ReviewDate.

Messaging functionality

Functionality:

Exchanging of messages. Messages can be sent and received between users within the system. Thread-based organization of conversations offers a lucid picture of communication history, which is stored.

Tracking Message Status. The system keeps track of messages to show whether they have been sent, delivered, or viewed by the intended recipient.

Recommendations and search functionality

Functionality:

Effective search capabilities that take into account guest preferences, types of accommodations, and location.

A recommendation system that provides customized housing options.

Leaving reviews functionality

Functionality:

Permit guests to review and evaluate accommodation.

Give guests insights into the reputation of the accommodations, so they can choose the best option.

Tagging functionality

Functionality:

Give visitors the ability to find suitable accommodations using appropriate keywords (tags).

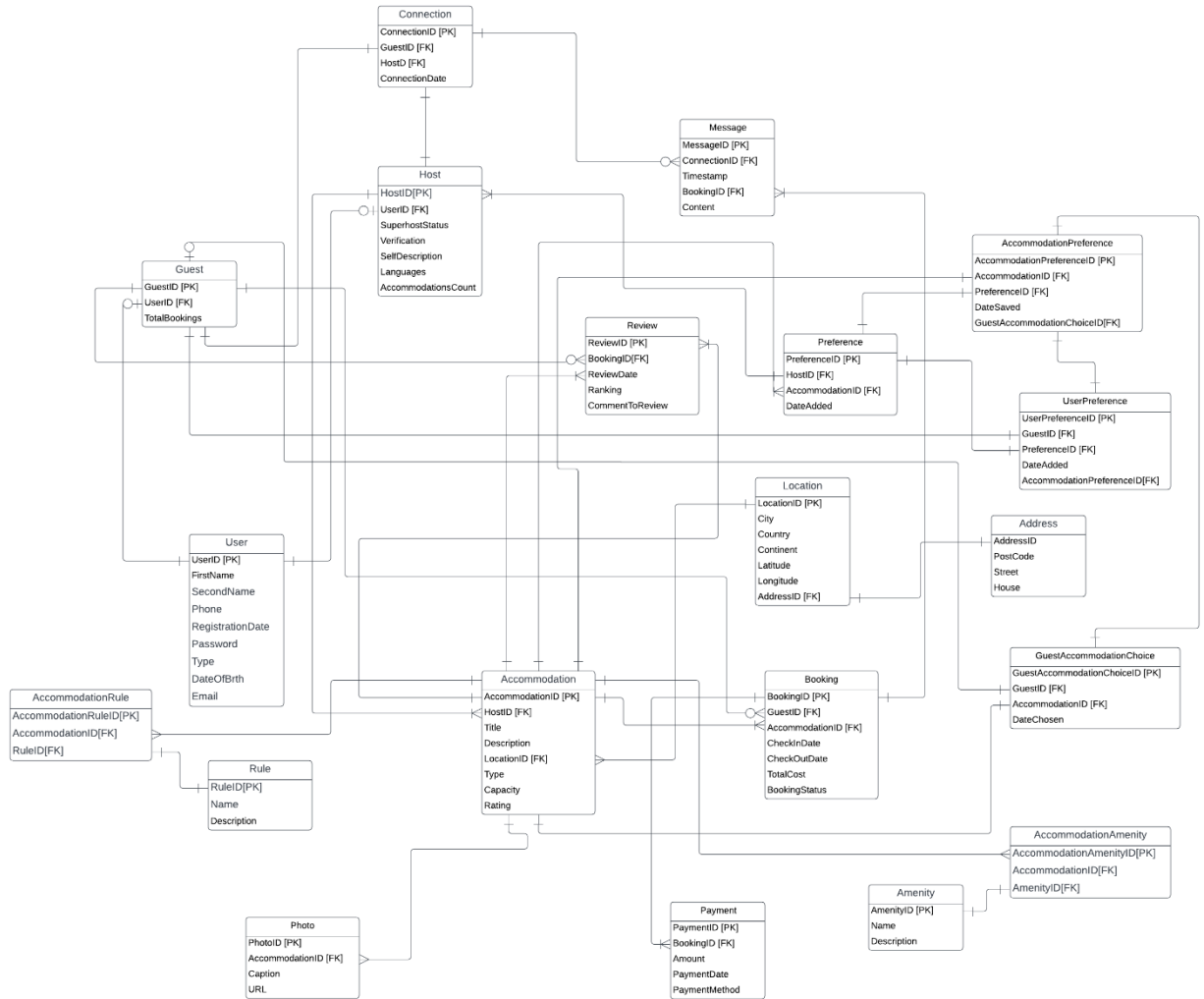
Make it easier to arrange the material driven by users.

Booking coordination functionality

Functionality:

Implement a reliable and efficient booking system to preserve all information. Keep track of reservation specifics, such as the dates of arrival and departure.

Entity Relationship Model (ERM)



Data dictionary

1. User

UserID [PK]: INT - Unique identifier for each user.

FirstName: VARCHAR - First name of the user.

SecondName: VARCHAR – Second name of the user.

Email: VARCHAR - Email address of the user.

Phone: VARCHAR - Phone number of the user.

RegistrationDate: DATE - Date of the user registration.

Password: VARCHAR - Account password of the user.

Type: VARCHAR - Type of user (host, guest).

DateOfBirth: DATE - Date of birth of the user.

2. Host

HostID [PK]: INT - Unique identifier for each host.

UserID [FK]: INT (Foreign key referencing User relation) - User ID linked to the host.

AccommodationsCount: INT - Quantity of accommodations the user has hosted.

SuperhostStatus: BOOLEAN - Shows if the host has superhost status.

Verification: VARCHAR - Status of host verification.

SelfDescription: TEXT - The host gives a brief description of themselves.

Languages: VARCHAR - Languages that the host speaks.

3. Guest

GuestID [PK]: INT - Unique identifier for each guest.

UserID [FK]: INT (Foreign key referencing User relation) - User ID linked to the guest.

TotalBookings: INT - Total amount of reservations the guest has made.

4. Accommodation

AccommodationID [PK]: INT - Unique identifier for each accommodation.

HostID [FK]: INT (Foreign key referencing Host relation) - Host ID linked to the accommodation.

Title: VARCHAR - Title of the accommodation.

Description: TEXT - Elaborated description of the accommodation.

LocationID [FK]: INT (Foreign key referencing Location relation) - Location ID linked to the accommodation.

Type: VARCHAR - Type of accommodation.

Capacity: INT - Maximum amount of visitors that the accommodation can hold.

Rating: DECIMAL – Accommodation's average rating.

5. Booking

BookingID [PK]: INT - Unique identifier for each booking.

GuestID [FK]: INT (Foreign key referencing Guest relation) - Guest ID linked to the booking.

AccommodationID [FK]: INT (Foreign key referencing Accommodation relation) - Accommodation ID linked to the booking.

CheckInDate: DATE - Date of check-in.

CheckOutDate: DATE - Date of check-out.

TotalCost: DECIMAL - Total cost of the booking.

BookingStatus: VARCHAR - Status of the booking.

6. Review

ReviewID [PK]: INT - Unique identifier for each review.

AccommodationID [FK]: INT (Foreign key referencing Accommodation relation) - Accommodation ID linked to the review.

Ranking: DECIMAL - The guest's numerical rating.

CommentToReview: TEXT - Textual feedback from the visitor.

ReviewDate: DATE - The submission date of the review.

7. Location

LocationID [PK]: INT - Unique identifier for each location.

City: VARCHAR - Name of the city.

Country: VARCHAR - Name of the country.

Continent: VARCHAR - Name of the continent.

Latitude: FLOAT - The location's latitude coordinate.

Longitude: FLOAT - The location's longitude coordinate.

AddressID [FK]: INT (Foreign key referencing Address entity) - Address ID linked to the location.

8. Address

AddressID [PK]: INT - Unique identifier for each address.

PostCode: VARCHAR - Postal code of the address.

Street: VARCHAR - Street name of the address.

House: VARCHAR - Number of the building.

9. Amenity

AmenityID [PK]: INT - Unique identifier for each amenity.

Name: VARCHAR - Name of the amenity.

Description: TEXT - Description of the amenity.

10. Rule

RuleID [PK]: INT - Unique identifier for each rule.

Name: VARCHAR - Name of the rule.

Description: TEXT - Description of the rule.

11. Message

MessageID [PK]: INT - Unique identifier for each message.

Connection [FK]: INT (Foreign key referencing Connection relation) – Connection ID linked to the message.

BookingID [FK]: INT (Foreign key referencing Booking relation) - Booking ID linked to the message.

Content: TEXT - Message's textual content.

Timestamp: TIMESTAMP - Message's send date and time.

12. Payment

PaymentID [PK]: INT - Unique identifier for each payment.

BookingID [FK]: INT (Foreign key referencing Booking relation) - Booking ID linked to the payment.

Amount: DECIMAL - The amount that was paid for the booking.

PaymentDate: DATE - Date when the payment was made.

PaymentMethod: VARCHAR - Method of payment.

13. Preference

PreferenceID [PK]: INT - Unique identifier for each preference.

HostID [FK]: INT (Foreign key referencing Host relation) - Host ID linked to the preference.

AccommodationID [FK]: INT (Foreign key referencing Accommodation relation) - Accommodation ID linked to the preference.

DateAdded: DATE - The addition date of the preference.

14. Photo

PhotoID [PK]: INT - Unique identifier for each photo.

AccommodationID [FK]: INT (Foreign key referencing Accommodation relation) - Accommodation ID linked to the photo.

Caption: VARCHAR - Caption of the photo.

URL: VARCHAR

15. GuestAccommodationChoice

GuestAccommodationChoiceID [PK]: INT - Unique identifier for each guest's accommodation choice.

GuestID [FK]: INT (Foreign key referencing Guest relation) - Guest ID linked to the choice.

AccommodationID [FK]: INT (Foreign key referencing Accommodation relation) - Accommodation ID chosen by the guest.

DateChosen: DATE - Date when the accommodation was chosen by the guest.

16. AccommodationPreference

AccommodationPreferenceID [PK]: INT - Unique identifier for each accommodation preference.

AccommodationID [FK]: INT (Foreign key referencing Accommodation relation) - Accommodation ID linked to the accommodation preference.

PreferenceID [FK]: INT (Foreign key referencing Preference relation) - Preference ID linked to the accommodation preference.

DateSaved: DATE - Date when the preference was saved for the accommodation.

GuestAccommodationChoiceID[FK]: INT (Foreign key referencing GuestAccommodationChoice relation) - GuestAccommodationChoice ID linked to the accommodation preference.

17. UserPreference

UserPreferenceID [PK]: INT - Unique identifier for each user's preference.

GuestID [FK]: INT (Foreign key referencing Guest relation) - Guest ID linked to the guest preference.

PreferenceID [FK]: INT (Foreign key referencing Preference relation) - Preference ID linked to the guest preference.

DateAdded: DATE - Date when the preference was added.

AccommodationPreferenceID [FK]: INT (Foreign key referencing AccommodationPreference relation) - AccommodationPreference ID linked to the guest preference.

18. Connection

ConnectionID [PK]: INT - Unique identifier for each connection.

GuestID [FK]: INT (Foreign key referencing Guest relation) - Guest ID linked to the connection.

HostID [FK]: INT - (Foreign key referencing Host relation) - Host ID linked to the connection

ConnectionDate: DATE - Date when the connection was firstly established.

19. AccommodationRule

AccommodationRuleID[PK]: INT - Unique identifier for each accommodation rule.

AccommodationID[FK]: INT (Foreign key referencing Accommodation relation) - Accommodation ID linked to the accommodation rule.

RuleID[FK]: INT (Foreign key referencing Rule relation) - Rule ID linked to the accommodation rule.

20. AccommodationAmenity

AccommodationAmenityID[PK]: INT - Unique identifier for each accommodation amenity.

AccommodationID[FK]: INT (Foreign key referencing Accommodation relation) - Accommodation ID linked to the accommodation amenity.

Amenity[FK]: INT (Foreign key referencing Rule relation) - Rule ID linked to the accommodation amenity.

Explanation of database design and implementation procedure

User entity

Creation of table:

```
CREATE TABLE User (  
    UserID INTEGER AUTO_INCREMENT,  
    FirstName VARCHAR(255) NOT NULL,  
    SecondName VARCHAR(255) NOT NULL,  
    Phone VARCHAR(20),  
    RegistrationDate DATE NOT NULL,  
    Password VARCHAR(15) NOT NULL,  
    Type VARCHAR(10) NOT NULL,
```



```
    DateOfBirth DATE,  
    Email VARCHAR(255) NOT NULL,  
    PRIMARY KEY (UserID)  
);
```

Inserting values:

```
INSERT INTO User (FirstName, SecondName, Phone, RegistrationDate, Password, Type,  
DateOfBirth, Email) VALUES  
( 'Alice', 'Carter', '+4915296431257', '2024-01-30', 'Alice555Carter', 'Guest', '1995-03-28',  
'alice.carter77@gmail.com'),  
( 'Josh', 'Readly', '+4915134697524', '2020-03-14', 'JoshRead341', 'Host', '1980-11-02',  
'josh.readly@gmail.com'),  
( 'Emly', 'Luis', '+33748976543', '2021-11-17', 'EmilyOneTwo', 'Guest', '2000-05-13',  
'emily.luis8@gmail.com'),  
( 'Juan', 'Lopez', '+34932769435', '2019-01-17', 'EmilyOneTwo', 'Guest', '2000-01-19',  
'juan.lo67@gmail.com'),  
( 'Francesca', 'Agosti', '+390279643021', '2014-09-04', 'Fran5Agosti8', 'Host', '1989-10-21',  
'fran.agosti1@gmail.com'),  
( 'Ricardo', 'Braga', '+351219634568', '2023-06-21', 'Braga4braga', 'Guest', '1995-07-07',  
'braga.ric5@gmail.com'),  
( 'Maximilian', 'Fischer', '+491527865431', '2019-12-03', 'MaxFisch52', 'Host', '1985-08-19',  
'max.fischer@gmail.com'),  
( 'Jack', 'Day', '+14987249864', '2022-01-22', 'DayofJack', 'Guest', '2001-04-27',  
'jack.day33@gmail.com'),  
( 'Olga', 'Shevchenko', '+380509896654', '2020-04-23', 'ShevaOlga3', 'Guest', '1988-03-16',  
'olga.shevchenko23@gmail.com'),  
( 'Lora', 'Sunny', '+61495643487', '2017-05-08', 'Loralora88', 'Host', '1980-07-15',  
'loralora2@gmail.com'),  
( 'Jack', 'Day', '+14987249864', '2022-01-22', 'DayofJack', 'Guest', '2001-04-27',  
'jack.day33@gmail.com'),  
( 'Ava', 'Robinson', '+4402039643158', '2019-04-15', 'AvaRobi2020', 'Guest', '2000-02-18',  
'ava.robinson@example.com'),  
( 'Noah', 'Taylor', '+4402036543980', '2015-07-02', 'Noah101Taylor', 'Host', '1978-11-30',  
'noah.taylor5@example.com'),  
( 'Liam', 'Garcia', '+349366345872', '2024-01-01', 'LiamGar456', 'Guest', '1989-08-15',  
'liam.garcia@example.com'),  
( 'Mark', 'Johnson', '+14996458723', '2018-10-12', 'Johnson543Mark', 'Guest', '2000-09-02',  
'johnson999@example.com'),  
( 'Yegor', 'Kowalski', '+380669573216', '2020-12-18', 'Kowal7712534', 'Guest', '1997-08-25',  
'yegor.kowalski9@example.com'),  
( 'William', 'Martinez', '+351215546932', '2019-10-25', 'William456', 'Host', '1985-09-10',  
'william.martinez@example.com'),  
( 'Sophia', 'Brown', '+61495996345', '2022-06-30', 'Sophia78Brown', 'Guest', '1997-07-15',  
'sophia.brown@example.com'),  
( 'James', 'Anderson', '+149963020169', '2018-03-04', 'James101gg', 'Host', '1976-04-22',  
'james.anderson11@example.com'),  
( 'Isabella', 'Wilson', '+4402036492578', '2021-03-17', 'Isabella2020Wil', 'Guest', '1998-10-28',  
'isabella.wilson@example.com'),  
( 'Benjamin', 'Lopez', '+351216793420', '2023-05-17', 'Benjamin123Lo', 'Host', '1983-12-07',  
'benjamin.lopez4@example.com'),  
( 'Sophie', 'Clark', '+14967923461', '2020-10-22', 'SophieClar555', 'Guest', '1990-07-12',  
'sophie.clark@example.com'),  
( 'Alexander', 'Adams', '+14778956432', '2024-01-22', 'Alex4563214', 'Host', '1982-04-28',  
'alexander.adams@example.com'),  
( 'Charlotte', 'Evans', '+390233649552', '2022-05-08', 'Charlotte78ev9', 'Guest', '1995-11-03',  
'charlotte.evans@example.com'),
```

('Daniel', 'Wright', '+44020564998732', '2023-08-30', 'Daniel101here', 'Host', '1974-09-20', 'daniel.wright@example.com'),
('Emily', 'Scott', '+44590231578', '2021-03-17', 'Emily2020Scott', 'Guest', '1993-12-05', 'emily.scott@example.com'),
('Michael', 'King', '+19645231087', '2019-09-25', 'Michael4kk56', 'Host', '1987-06-18', 'michael.king@example.com'),
('Mia', 'Baker', '+390633279554', '2017-07-11', 'Mia7bak89', 'Guest', '1998-02-14', 'mia.baker@example.com'),
('Ethan', 'Morris', '+15632245988', '2019-02-03', 'Ethan106541', 'Host', '1979-03-30', 'ethan.morris@example.com'),
('Amelia', 'Hill', '+4915266493200', '2022-11-20', 'Amelia202022', 'Guest', '1996-08-22', 'amelia.hill@example.com'),
('Henry', 'Young', '+1420132289', '2023-04-05', 'Henrystyle123', 'Host', '1981-01-15', 'henry.young@example.com'),
('Oliver', 'Turner', '+12301659877', '2019-03-12', 'Oliver1tur23', 'Guest', '1994-09-10', 'oliver.turner@example.com'),
('Ella', 'White', '+49152323265987', '2023-05-25', 'Ella78888', 'Host', '1988-12-18', 'ella.white@example.com'),
('James', 'Jackson', '+146598742', '2022-01-01', 'Jamespol99', 'Guest', '1991-10-28', 'james.jackson@example.com'),
('Avery', 'Campbell', '+44020656498732', '2017-06-14', 'Avery45camb', 'Host', '1986-07-02', 'avery.campbell@example.com'),
('Luna', 'Parker', '+61493326894', '2020-09-07', 'Lunaluno', 'Guest', '1997-04-15', 'luna.parker@example.com'),
('Jacob', 'Miller', '+4402125698732', '2021-07-18', 'Jacobmill54', 'Host', '1977-03-08', 'jacob.miller@example.com');

Screenshots of inserts:

| | UserID | FirstName | SecondName | Phone | RegistrationDate | Password | Type | DateOfBirth | Email |
|----|------------|------------|------------|-----------------|------------------|-----------------|-------|-------------|------------------------------|
| 1 | Alice | Carter | | +915296431257 | 2024-01-30 | Alice555Carter | Guest | 1995-03-28 | alice.carter77@gmail.com |
| 2 | Josh | Readly | | +915134697524 | 2020-03-14 | JoshRead341 | Host | 1980-11-02 | josh.readly@gmail.com |
| 3 | Emily | Luis | | +33748976543 | 2021-11-17 | EmilyOneTwo | Guest | 2000-05-13 | emily.luis8@gmail.com |
| 4 | Juan | Lopez | | +34932769435 | 2019-01-17 | EmilyOneTwo | Guest | 2000-01-19 | juan.lo67@gmail.com |
| 5 | Francesca | Agosti | | +390279643021 | 2014-09-04 | Fran5Agosti8 | Host | 1989-10-21 | fran.agosti1@gmail.com |
| 6 | Ricardo | Braga | | +351219634568 | 2023-06-21 | Braga4braga | Guest | 1995-07-07 | braga.ric5@gmail.com |
| 7 | Maximilian | Fischer | | +491527865431 | 2019-12-03 | MaxFisch52 | Host | 1985-08-19 | max.fischer@gmail.com |
| 8 | Jack | Day | | +14987249864 | 2022-01-22 | DayofJack | Guest | 2001-04-27 | jack.day33@gmail.com |
| 9 | Olga | Shevchenko | | +380509896654 | 2020-04-23 | ShevaOlga3 | Guest | 1988-03-16 | olga.shevchenko23@gmail.com |
| 10 | Lora | Sunny | | +61495643487 | 2017-05-08 | Loralora88 | Host | 1980-07-15 | loralora2@gmail.com |
| 11 | Ava | Robinson | | +4402039643158 | 2019-04-15 | AvaRobi2020 | Guest | 2000-02-18 | ava.robinson@example.com |
| 12 | Noah | Taylor | | +4402036543980 | 2015-07-02 | Noah101Taylor | Host | 1978-11-30 | noah.taylor5@example.com |
| 13 | Liam | Garcia | | +349366345872 | 2024-01-01 | LiamGar456 | Guest | 1989-08-15 | liam.garcia@example.com |
| 14 | Mark | Johnson | | +14996458723 | 2018-10-12 | Johnson543M... | Guest | 2000-09-02 | johnson999@example.com |
| 15 | Yegor | Kowalski | | +380669573216 | 2020-12-18 | Kowal7712534 | Guest | 1997-08-25 | yegor.kowalski9@example.com |
| 16 | William | Martinez | | +351215546932 | 2019-10-25 | William456 | Host | 1985-09-10 | william.martinez@example.com |
| 17 | Sophia | Brown | | +61495996345 | 2022-06-30 | Sophia78Brown | Guest | 1997-07-15 | sophia.brown@example.com |
| 18 | James | Anderson | | +149963020169 | 2018-03-04 | James101gg | Host | 1976-04-22 | james.anderson11@example.... |
| 19 | Isabella | Wilson | | +4402036492578 | 2021-03-17 | Isabella2020Wil | Guest | 1998-10-28 | isabella.wilson@example.com |
| 20 | Benjamin | Lopez | | +351216793420 | 2023-05-17 | Benjamin123Lo | Host | 1983-12-07 | benjamin.lopez4@example.com |
| 21 | Sophie | Clark | | +14967923461 | 2020-10-22 | SophieClar555 | Guest | 1990-07-12 | sophie.clark@example.com |
| 22 | Alexander | Adams | | +14778956432 | 2024-01-22 | Alex4563214 | Host | 1982-04-28 | alexander.adams@example.com |
| 23 | Charlotte | Evans | | +390233649552 | 2022-05-08 | Charlotte78ev9 | Guest | 1995-11-03 | charlotte.evans@example.com |
| 24 | Daniel | Wright | | +44020564998732 | 2023-08-30 | Daniel101here | Host | 1974-09-20 | daniel.wright@example.com |
| 25 | Emily | Scott | | +44590231578 | 2021-03-17 | Emily2020Scott | Guest | 1993-12-05 | emily.scott@example.com |
| 26 | Michael | King | | +19645231087 | 2019-09-25 | Michael44k56 | Host | 1987-06-18 | michael.king@example.com |
| 27 | Mia | Baker | | +390633279554 | 2017-07-11 | Mia7bak89 | Guest | 1998-02-14 | mia.baker@example.com |
| 28 | Ethan | Morris | | +15632245988 | 2019-02-03 | Ethan106541 | Host | 1979-03-30 | ethan.morris@example.com |
| 29 | Amelia | Hill | | +4915266493200 | 2022-11-20 | Amelia202022 | Guest | 1996-08-22 | amelia.hill@example.com |
| 30 | Henry | Young | | +1420132289 | 2023-04-05 | Henrystyle123 | Host | 1981-01-15 | henry.young@example.com |
| 31 | Oliver | Turner | | +12301659877 | 2019-03-12 | Oliver1tur23 | Guest | 1994-09-10 | oliver.turner@example.com |
| 32 | Ella | White | | +49152323265987 | 2023-05-25 | Ella78888 | Host | 1988-12-18 | ella.white@example.com |
| 33 | James | Jackson | | +146598742 | 2022-01-01 | Jamespol99 | Guest | 1991-10-28 | james.jackson@example.com |
| 34 | Avery | Campbell | | +44020656498732 | 2017-06-14 | Avery45camb | Host | 1986-07-02 | avery.campbell@example.com |
| 35 | Luna | Parker | | +61493326894 | 2020-09-07 | Lunaluno | Guest | 1997-04-15 | luna.parker@example.com |
| 36 | Jacob | Miller | | +4402125698732 | 2021-07-18 | Jacobmil54 | Host | 1977-03-08 | jacob.miller@example.com |
| 37 | Liam | Wilson | | +440223659964 | 2018-10-12 | Liamwilwil2 | Host | 1990-07-12 | liam.wilson@example.com |
| 38 | Olivia | Moore | | +14689574390 | 2024-01-07 | Olivia45mormor | Host | 1982-04-28 | olivia.moore@example.com |
| 39 | Noah | Roberts | | +61456789432 | 2021-05-08 | Noahrobb3 | Host | 1995-11-03 | noah.roberts@example.com |
| 40 | Emma | Hall | | +19863216549 | 2019-08-30 | Emma101333 | Host | 1974-09-20 | emma.hall@example.com |
| 41 | Ava | Palo | | +3512156554897 | 2022-03-17 | Avapalolo77 | Host | 1993-12-05 | ava.johnson@example.com |

Host Entity

Creation of table:

```
CREATE TABLE Host (
  HostID INTEGER AUTO_INCREMENT,
  UserID INTEGER NOT NULL,
  AccommodationsCount INT NOT NULL,
  SuperhostStatus BOOLEAN NOT NULL,
  Verification BOOLEAN NOT NULL,
  SelfDescription TEXT,
  Languages VARCHAR(255),
  PRIMARY KEY (HostID),
  FOREIGN KEY (UserID) REFERENCES User(UserID)
  ON UPDATE CASCADE ON DELETE CASCADE
);
```

Inserting values:

```
INSERT INTO Host (UserID, SuperhostStatus, Verification, SelfDescription, Languages, AccommodationsCount)
VALUES
(2, TRUE, TRUE, 'Attention nature lovers! If you are craving adventure and outdoor exploration, look no further. My rustic cabin is the perfect basecamp for your wilderness adventures. Surrounded by towering trees and wildlife, you will experience the beauty of nature up close. From hiking trails to starlit nights by the firepit, get ready for an unforgettable outdoor experience!', 'German, English, Dutch', 2),
```

(5, TRUE, TRUE, 'Hola amigos! I am a proud resident of this vibrant neighborhood, and I can not wait to share its rich culture and heritage with you. My charming guesthouses are a hidden gem, filled with colorful decor and authentic charm. From sipping coffee on the patio to exploring local markets, I will show you the true essence of our community. ¡Bienvenidos a casa!', 'Spanish, Italian, English', '2'),

(7, TRUE, TRUE, 'Welcome to my urban oasis! As a seasoned host, I take pride in providing a comfortable and stylish space for travelers seeking a home away from home. Nestled in the heart of the city, my apartments offer modern amenities and breathtaking views. Whether you are here for business or pleasure, I will ensure your stay is nothing short of exceptional.', 'German, English', 4),

(10, TRUE, TRUE, 'Hi there! I am a passionate traveler who loves meeting new people and sharing stories. Hosting guests from all over the world is not just a hobby for me; it is a way of life. My cozy homes are always open to fellow adventurers looking to explore the beauty of our city. From local tips to warm hospitality, I will make sure your stay is unforgettable!', 'English, Italian, Spanish', 3),

(12, FALSE, TRUE, 'Escape to tranquility at my countryside retreat! Tucked away from the hustle and bustle, my farmhouse offers peace, serenity, and panoramic views of rolling hills. Whether you are seeking a romantic getaway or a family adventure, you will find solace in nature's embrace. Come unwind, recharge, and create lasting memories in this idyllic setting.', 'English, French', 1),

(16, TRUE, TRUE, 'Greetings from my sunny seaside villa! As a beach lover and hospitality aficionado, I take pride in offering guests a slice of paradise just steps from the shore. Whether you are lounging by the pool or soaking up the sun on the sand, my beachfront retreat promises relaxation, rejuvenation, and endless ocean views. Pack your swimsuit and leave your worries behind!', 'English, Spanish, Portuguese', 2),

(18, TRUE, TRUE, 'Welcome to my historic townhouse in the heart of the Old Quarter! Steeped in charm and character, my homes offer a glimpse into the rich tapestry of past of our city. From cobblestone streets to hidden courtyards, every corner tells a story waiting to be discovered. Let me be your guide as we explore the secrets of this enchanting neighborhood together.', 'English, French', 2),

(20, FALSE, TRUE, 'Hola from my vibrant casita in the heart of the pueblo! As a proud local and cultural ambassador, I am excited to share the rhythms and flavors of our lively community with you. From salsa dancing in the town square to savoring homemade tamales, every moment here is a celebration of life and tradition. Bienvenidos a mi hogar!', 'English, Spanish', 1),

(22, FALSE, TRUE, 'Hello from my lakeside cabin in the Great Lakes region! Perched on the shores of one of America's largest freshwater lakes, my cozy retreat offers the perfect blend of natural beauty and outdoor adventure. Whether you are fishing off the dock or watching the sunset from the porch swing, you will find peace and tranquility in every moment. Welcome to the lake life!', 'English', 1),

(24, FALSE, TRUE, 'Greetings from my charming cottage in the Cotswolds! Nestled in the heart of the English countryside, my cozy retreat offers a quintessentially British experience. Whether you are strolling through quaint villages or enjoying a traditional cream tea in the garden, you will find warmth and hospitality around every corner. Welcome to the Cotswolds!', 'English', 1),

(26, FALSE, TRUE, 'Greetings from my desert oasis in Arizona! Nestled amidst rugged canyons and towering saguaros, my adobe hacienda offers a peaceful retreat in the heart of the Sonoran Desert. Whether you are exploring ancient petroglyphs or stargazing by the fire pit, you will find wonder and adventure in the desert landscape. Come experience the magic of the Southwest!', 'English, French', 1),

(28, FALSE, TRUE, 'Welcome to my coastal cottage in sunny California! Perched on the cliffs overlooking the Pacific Ocean, my home offers breathtaking views and endless opportunities for adventure. Whether you are catching waves at the nearby surf break or sipping wine in the garden at sunset, you will find bliss and relaxation in every moment. Come experience the magic of California living!', 'English', 1),

(30, TRUE, TRUE, 'Howdy from my sprawling farm in the Midwest! As a proud farmer and dedicated host, I am excited to share the beauty and bounty of rural America with guests from

around the world. From harvesting fresh produce in the fields to gathering around the bonfire under the stars, every moment here is a celebration of simple living and heartfelt hospitality. Welcome to the farm!', 'English', 2),

(32, FALSE, TRUE, 'Herzlich willkommen from my charming Bavarian chalet! Nestled in the foothills of the Alps, my cozy retreat offers the perfect blend of tradition and comfort. Whether you are exploring fairytale castles or sampling hearty Bavarian cuisine, you will experience Gemütlichkeit at its finest. Willkommen in Bayern!', 'German, English', 1),

(34, FALSE, TRUE, 'Welcome to my elegant townhouse in the heart of London! Situated in one of the city most prestigious neighborhoods, my home offers luxury and sophistication at every turn. From exploring world-class museums to dining at Michelin-starred restaurants, London is a treasure trove of culture and excitement. Make your stay in the capital truly unforgettable!', 'English, French', 1),

(36, FALSE, TRUE, 'Hello from my historic castle in Scotland! Steeped in centuries of history and surrounded by breathtaking landscapes, my majestic estate offers a truly regal experience. Whether you are exploring ancient ruins or sampling single malt whiskies in the drawing room, you will feel like royalty during your stay. Come and experience the magic of Scotland castles!', 'English', 1),

(37, FALSE, TRUE, 'Howdy from my picturesque farmhouse in the Lake District! Surrounded by rolling hills and sparkling lakes, my rustic retreat offers a peaceful escape from the hustle and bustle of modern life. Whether you are exploring quaint villages or hiking through the fells, you will find solace and serenity in the beauty of the Lake District. Make memories in the countryside!', 'English, Italian', 1),

(38, TRUE, TRUE, 'Aloha from my island oasis in Hawaii! Set amidst lush tropical gardens and swaying palms, my Hawaiian hideaway offers the perfect blend of luxury and tranquility. From snorkeling in crystal-clear waters to savoring farm-to-table cuisine, every moment here is a celebration of island life. Come experience the beauty and spirit of aloha in paradise!', 'English, Spanish, Hawaiian', 2),

(39, FALSE, TRUE, 'Hey from my beachfront villa on the Gold Coast! Welcome to paradise, where the sun always shines, and the surf is never far away. Whether you are catching waves at Surfers Paradise or exploring the lush hinterland, you will experience the best of Queensland coastal lifestyle right here. Welcome to the Gold Coast!', 'English, French', 1),

(40, FALSE, TRUE, 'Welcome to my charming Victorian home in San Francisco! Nestled in the heart of the city, my historic house offers a blend of old-world charm and modern amenities. With iconic landmarks like the Golden Gate Bridge and Alcatraz Island just a short drive away, you will experience the best of San Francisco vibrant culture and stunning views. Welcome to the City by the Bay!', 'English', 1),

(41, FALSE, TRUE, 'Hello from my cozy apartment in the heart of Barcelona! Situated in the lively neighborhood of El Born, my flat combines the city historic charm with modern comforts. With iconic landmarks like the Sagrada Familia, Park Güell, and Las Ramblas within walking distance, you will immerse yourself in Barcelona vibrant cultural life. Welcome to Catalonia!', 'English, Spanish', 1);

Screenshots of inserts:

| | HostID | UserID | AccommodationsCount | SuperhostStatus | Verification | SelfDescription | Languages |
|----|--------|--------|---------------------|-----------------|--------------|--|------------------------------|
| 1 | 2 | 2 | 1 | 1 | 1 | Attention nature lovers! If you are craving adv... | German, English, Dutch |
| 2 | 5 | 2 | 1 | 1 | 1 | Hola amigos! I am a proud resident of this vibran... | Spanish, Italian, English |
| 3 | 7 | 4 | 1 | 1 | 1 | Welcome to my urban oasis! As a seasoned hos... | German, English |
| 4 | 10 | 3 | 1 | 1 | 1 | Hi there! I am a passionate traveler who loves ... | English, Italian, Spanish |
| 5 | 12 | 1 | 0 | 1 | 1 | Escape to tranquility at my countryside retreat!... | English, French |
| 6 | 16 | 2 | 1 | 1 | 1 | Greetings from my sunny seaside villa! As a bea... | English, Spanish, Portuguese |
| 7 | 2 | 2 | 1 | 1 | 1 | Attention nature lovers! If you are craving adv... | German, English, Dutch |
| 8 | 5 | 2 | 1 | 1 | 1 | Hola amigos! I am a proud resident of this vibran... | Spanish, Italian, English |
| 9 | 7 | 4 | 1 | 1 | 1 | Welcome to my urban oasis! As a seasoned hos... | German, English |
| 10 | 10 | 3 | 1 | 1 | 1 | Hi there! I am a passionate traveler who loves ... | English, Italian, Spanish |
| 11 | 12 | 1 | 0 | 1 | 1 | Escape to tranquility at my countryside retreat!... | English, French |
| 12 | 16 | 2 | 1 | 1 | 1 | Greetings from my sunny seaside villa! As a bea... | English, Spanish, Portuguese |
| 13 | 2 | 2 | 1 | 1 | 1 | Attention nature lovers! If you are craving adv... | German, English, Dutch |
| 14 | 5 | 2 | 1 | 1 | 1 | Hola amigos! I am a proud resident of this vibran... | Spanish, Italian, English |
| 15 | 7 | 4 | 1 | 1 | 1 | Welcome to my urban oasis! As a seasoned hos... | German, English |
| 16 | 10 | 3 | 1 | 1 | 1 | Hi there! I am a passionate traveler who loves ... | English, Italian, Spanish |
| 17 | 12 | 1 | 0 | 1 | 1 | Escape to tranquility at my countryside retreat!... | English, French |
| 18 | 16 | 2 | 1 | 1 | 1 | Greetings from my sunny seaside villa! As a bea... | English, Spanish, Portuguese |
| 19 | 18 | 2 | 1 | 1 | 1 | Welcome to my historic townhouse in the heart ... | English, French |
| 20 | 20 | 1 | 0 | 1 | 1 | Hola from my vibrant casita in the heart of the ... | English, Spanish |
| 21 | 22 | 1 | 0 | 1 | 1 | Hello from my lakeside cabin in the Great Lakes ... | English |
| 22 | 24 | 1 | 0 | 1 | 1 | Greetings from my charming cottage in the Cots... | English |
| 23 | 26 | 1 | 0 | 1 | 1 | Greetings from my desert oasis in Arizona! Nestl... | English, French |
| 24 | 28 | 1 | 0 | 1 | 1 | Welcome to my coastal cottage in sunny Califor... | English |
| 25 | 30 | 2 | 1 | 1 | 1 | Howdy from my sprawling farm in the Midwest! ... | English |
| 26 | 32 | 1 | 0 | 1 | 1 | Herzlich willkommen from my charming Bavarian ... | German, English |
| 27 | 34 | 1 | 0 | 1 | 1 | Welcome to my elegant townhouse in the heart ... | English, French |
| 28 | 36 | 1 | 0 | 1 | 1 | Hello from my historic castle in Scotland! Steepe... | English |
| 29 | 37 | 1 | 0 | 1 | 1 | Howdy from my picturesque farmhouse in the L... | English, Italian |
| 30 | 38 | 2 | 1 | 1 | 1 | Aloha from my island oasis in Hawaii! Set amidst... | English, Spanish, Hawaiian |
| 31 | 39 | 1 | 0 | 1 | 1 | Hey from my beachfront villa on the Gold Coast... | English, French |
| 32 | 40 | 1 | 0 | 1 | 1 | Welcome to my charming Victorian home in San ... | English |
| 33 | 41 | 1 | 0 | 1 | 1 | Hello from my cozy apartment in the heart of Ba... | English, Spanish |

Guest entity

Creation of table:

```
CREATE TABLE Guest (
  GuestID INTEGER AUTO_INCREMENT,
  UserID INTEGER NOT NULL,
  TotalBookings INT NOT NULL DEFAULT 0,
  PRIMARY KEY (GuestID),
  FOREIGN KEY (UserID) REFERENCES User(UserID)
  ON UPDATE CASCADE ON DELETE CASCADE
);
```

INSERT INTO Guest (UserID, TotalBookings)

VALUES

(1,3),

(3, 1),

(4,4),

(6,6),

(8,2),

(9,7),

(11, 3),

(13, 10),

(14, 6),

(15, 7),

(17, 5),

(19, 9),

(21, 11),

(23, 12),

(25, 7),

(27, 8),

(29, 12),

(31, 8),
(33, 5),
(35, 4);

Screenshots of inserts:

| | GuestID | UserID | TotalBookings |
|---|---------|--------|---------------|
| ▶ | 1 | 1 | 3 |
| | 2 | 3 | 1 |
| | 3 | 4 | 4 |
| | 4 | 6 | 6 |
| | 5 | 8 | 2 |
| | 6 | 9 | 7 |
| | 7 | 11 | 3 |
| | 8 | 13 | 10 |
| | 9 | 14 | 6 |
| | 10 | 15 | 7 |
| | 11 | 17 | 5 |
| | 12 | 19 | 9 |
| | 13 | 21 | 11 |
| | 14 | 23 | 12 |
| | 15 | 25 | 7 |
| | 16 | 27 | 8 |
| | 17 | 29 | 12 |
| | 18 | 31 | 8 |
| | 19 | 33 | 5 |
| | 20 | 35 | 4 |

Accommodation entity

Creation of table:

```
CREATE TABLE Accommodation (  
  AccommodationID INTEGER AUTO_INCREMENT,  
  HostID INTEGER NOT NULL,  
  Title VARCHAR(255) NOT NULL,  
  Description TEXT NOT NULL,  
  LocationID INTEGER NOT NULL,  
  Type VARCHAR(255) NOT NULL,  
  Capacity INTEGER NOT NULL,  
  Rating DECIMAL(5,2),  
  PRIMARY KEY (AccommodationID),  
  FOREIGN KEY (HostID) REFERENCES Host(HostID)  
  ON UPDATE CASCADE ON DELETE CASCADE,  
  FOREIGN KEY (LocationID) REFERENCES Location(LocationID)  
  ON UPDATE CASCADE ON DELETE CASCADE);
```

```
INSERT INTO Accommodation (HostID, Title, Description, LocationID, Type, Capacity, Rating)  
VALUES
```

```
(2, 'Rustic Cabin Retreat', 'Attention nature lovers! If you are craving adventure and outdoor  
exploration, look no further. My rustic cabin is the perfect basecamp for your wilderness adventures.  
Surrounded by towering trees and wildlife, you will experience the beauty of nature up close. From  
hiking trails to starlit nights by the firepit, get ready for an unforgettable outdoor experience!', 1,  
'Cabin', 2, 4.82),
```

```
(2, 'Mountain View Lodge', 'Escape to the mountains and experience the ultimate alpine getaway  
at my cozy lodge. Nestled among towering peaks and lush forests, my mountain retreat offers  
breathtaking views and endless opportunities for outdoor adventure. Whether you are hitting the
```

slopes in winter or hiking through wildflower meadows in summer, you will find beauty and tranquility in every season.', 2, 'Lodge', 4, 4.95),

(5, 'Charming Guesthouses', 'Hola amigos! I am a proud resident of this vibrant neighborhood, and I cannot wait to share its rich culture and heritage with you. My charming guesthouses are a hidden gem, filled with colorful decor and authentic charm. From sipping coffee on the patio to exploring local markets, I will show you the true essence of our community. ¡Bienvenidos a casa!', 3, 'Guesthouse', 2, 5.0),

(5, 'Bohemian Loft', 'Welcome to my bohemian loft, where creativity and comfort collide in a colorful explosion of style. Located in the heart of the arts district, my loft is the perfect retreat for artists, dreamers, and free spirits. From eclectic decor to inspiring views of the city skyline, every corner invites you to unleash your imagination and embrace the vibrant energy of urban living.', 4, 'Loft', 2, 4.9),

(7, 'Urban Oasis Apartments', 'Welcome to my urban oasis! As a seasoned host, I take pride in providing a comfortable and stylish space for travelers seeking a home away from home. Nestled in the heart of the city, my apartments offer modern amenities and breathtaking views. Whether you are here for business or pleasure, I will ensure your stay is nothing short of exceptional.', 5, 'Apartment', 4, 4.87),

(7, 'Downtown Penthouse Suite', 'Indulge in luxury living at my downtown penthouse suite, where style meets sophistication in the heart of the city. From panoramic skyline views to designer furnishings, every detail has been curated to elevate your stay to new heights of elegance. Whether you are entertaining guests in the spacious living area or unwinding in the private jacuzzi, you will experience the pinnacle of urban chic.', 6, 'Penthouse', 2, 5.0),

(10, 'Cozy Homes in the City', 'Hi there! I am a passionate traveler who loves meeting new people and sharing stories. Hosting guests from all over the world is not just a hobby for me; it is a way of life. My cozy homes are always open to fellow adventurers looking to explore the beauty of our city. From local tips to warm hospitality, I will make sure your stay is unforgettable!', 7, 'House', 3, 4.82),

(10, 'Sunny Apartment with City Views', 'Welcome to my sunny apartment with panoramic views of the city skyline! Located in the heart of downtown, my spacious flat offers the perfect blend of modern comfort and urban convenience. Whether you are sipping coffee on the balcony or exploring the vibrant streets below, you will feel right at home in this bustling metropolis.', 8, 'Apartment', 2, 4.91),

(12, 'Tranquil Countryside Farmhouse', 'Escape to tranquility at my countryside retreat! Tucked away from the hustle and bustle, my farmhouse offers peace, serenity, and panoramic views of rolling hills. Whether you are seeking a romantic getaway or a family adventure, you will find solace in nature's embrace. Come unwind, recharge, and create lasting memories in this idyllic setting.', 9, 'Cottage', 1, 4.75),

(16, 'Sunny Seaside Villa', 'Greetings from my sunny seaside villa! As a beach lover and hospitality aficionado, I take pride in offering guests a slice of paradise just steps from the shore. Whether you are lounging by the pool or soaking up the sun on the sand, my beachfront retreat promises relaxation, rejuvenation, and endless ocean views. Pack your swimsuit and leave your worries behind!', 10, 'Villa', 2, 4.9),

(16, 'Beach Bungalow Escape', 'Experience the ultimate beach getaway at my charming bungalow just steps from the shore. Nestled among swaying palms and turquoise waters, my seaside retreat offers the perfect blend of relaxation and adventure. Whether you are surfing the waves or sipping cocktails at sunset, you will find paradise in every moment.', 11, 'Bungalow', 2, 4.99),

(18, 'Historic Townhouse in the Old Quarter', 'Welcome to my historic townhouse in the heart of the Old Quarter! Steeped in charm and character, my homes offer a glimpse into the rich tapestry of past of our city. From cobblestone streets to hidden courtyards, every corner tells a story waiting to be discovered. Let me be your guide as we explore the secrets of this enchanting neighborhood together.', 12, 'Townhouse', 2, 4.77),

(18, 'Quaint Courtyard Cottage', 'Step back in time and discover the charm of old-world living at my quaint courtyard cottage. Tucked away down a cobblestone alley, my historic home offers a peaceful retreat from the bustling streets outside. Whether you are enjoying afternoon tea in the garden or exploring the nearby landmarks, you will experience the timeless beauty of our city.', 13, 'Cottage', 2, 4.86),

(20, 'Vibrant Casita in the Pueblo', 'Hola from my vibrant casita in the heart of the pueblo! As a proud local and cultural ambassador, I am excited to share the rhythms and flavors of our lively community with you. From salsa dancing in the town square to savoring homemade tamales, every moment here is a celebration of life and tradition. Bienvenidos a mi hogar!', 14, 'Casita', 1, 4.77),

(22, 'Lakeside Cabin Retreat', 'Hello from my lakeside cabin in the Great Lakes region! Perched on the shores of one of America's largest freshwater lakes, my cozy retreat offers the perfect blend of natural beauty and outdoor adventure. Whether you are fishing off the dock or watching the sunset from the porch swing, you will find peace and tranquility in every moment. Welcome to the lake life!', 15, 'Cabin', 1, 4.2),

(24, 'Charming Cottage in the Cotswolds', 'Greetings from my charming cottage in the Cotswolds! Nestled in the heart of the English countryside, my cozy retreat offers a quintessentially British experience. Whether you are strolling through quaint villages or enjoying a traditional cream tea in the garden, you will find warmth and hospitality around every corner. Welcome to the Cotswolds!', 16, 'Cottage', 1, 4.82),

(26, 'Desert Oasis Hacienda', 'Greetings from my desert oasis in Arizona! Nestled amidst rugged canyons and towering saguaros, my adobe hacienda offers a peaceful retreat in the heart of the Sonoran Desert. Whether you are exploring ancient petroglyphs or stargazing by the fire pit, you will find wonder and adventure in the desert landscape. Come experience the magic of the Southwest!', 17, 'Hacienda', 1, 4.7),

(28, 'Coastal Cottage in Sunny California', 'Welcome to my coastal cottage in sunny California! Perched on the cliffs overlooking the Pacific Ocean, my home offers breathtaking views and endless opportunities for adventure. Whether you are catching waves at the nearby surf break or sipping wine in the garden at sunset, you will find bliss and relaxation in every moment. Come experience the magic of California living!', 18, 'Cottage', 1, 4.97),

(30, 'Sprawling Farm in the Midwest', 'Howdy from my sprawling farm in the Midwest! As a proud farmer and dedicated host, I am excited to share the beauty and bounty of rural America with guests from around the world. From harvesting fresh produce in the fields to gathering around the bonfire under the stars, every moment here is a celebration of simple living and heartfelt hospitality. Welcome to the farm!', 19, 'Farm', 2, 4.65),

(30, 'Country Cottage Retreat', 'Escape to the countryside and experience the charm of rural living at my cozy cottage retreat. Surrounded by rolling fields and blooming wildflowers, my country home offers a peaceful escape from the hustle and bustle of city life. Whether you are roasting marshmallows around the fire pit or exploring the nearby trails, you will find warmth and serenity in every moment.', 9, 'Cottage', 2, 4.73),

(32, 'Bavarian Chalet', 'Herzlich willkommen from my charming Bavarian chalet! Nestled in the foothills of the Alps, my cozy retreat offers the perfect blend of tradition and comfort. Whether you are exploring fairytale castles or sampling hearty Bavarian cuisine, you will experience Gemütlichkeit at its finest. Willkommen in Bayern!', 21, 'Chalet', 1, 5.0),

(34, 'Elegant Townhouse in London', 'Welcome to my elegant townhouse in the heart of London! Situated in one of the city's most prestigious neighborhoods, my home offers luxury and sophistication at every turn. From exploring world-class museums to dining at Michelin-starred restaurants, London is a treasure trove of culture and excitement. Make your stay in the capital truly unforgettable!', 22, 'Townhouse', 1, 4.99),

(36, 'Historic Castle in Scotland', 'Hello from my historic castle in Scotland! Steeped in centuries of history and surrounded by breathtaking landscapes, my majestic estate offers a truly regal experience. Whether you are exploring ancient ruins or sampling single malt whiskies in the drawing room, you will feel like royalty during your stay. Come and experience the magic of Scotland's castles!', 23, 'Castle', 1, 5.0),

(37, 'Picturesque Farmhouse Retreat', 'Howdy from my picturesque farmhouse in the Lake District! Surrounded by rolling hills and sparkling lakes, my rustic retreat offers a peaceful escape from the hustle and bustle of modern life. Whether you are exploring quaint villages or hiking through the fells, you will find solace and serenity in the beauty of the Lake District. Make memories in the countryside!', 24, 'Farmhouse', 1, 4.56),

(38, 'Island Oasis in Hawaii', 'Aloha from my island oasis in Hawaii! Set amidst lush tropical gardens and swaying palms, my Hawaiian hideaway offers the perfect blend of luxury and tranquility. From snorkeling in crystal-clear waters to savoring farm-to-table cuisine, every moment here is a

celebration of island life. Come experience the beauty and spirit of aloha in paradise!', 25, 'Resort', 2, 5.0),

(38, 'Beachfront Bungalow Retreat', 'Escape to paradise at my beachfront bungalow retreat, where white sand beaches and turquoise waters await. Whether you are snorkeling with sea turtles or lounging in a hammock beneath swaying palms, you will find serenity and relaxation in every moment. Welcome to your private slice of paradise!', 26, 'Bungalow', 2, 4.98),

(39, 'Beachfront Villa on the Gold Coast', 'Hey from my beachfront villa on the Gold Coast! Welcome to paradise, where the sun always shines, and the surf is never far away. Whether you are catching waves at Surfers Paradise or exploring the lush hinterland, you will experience the best of Queensland coastal lifestyle right here. Welcome to the Gold Coast!', 27, 'Villa', 1, 4.89),

(40, 'Charming Victorian Home in San Francisco', 'Welcome to my charming Victorian home in San Francisco! Nestled in the heart of the city, my historic house offers a blend of old-world charm and modern amenities. With iconic landmarks like the Golden Gate Bridge and Alcatraz Island just a short drive away, you will experience the best of San Francisco vibrant culture and stunning views. Welcome to the City by the Bay!', 28, 'House', 1, 4.76),

(41, 'Cozy Apartment in Barcelona', 'Hello from my cozy apartment in the heart of Barcelona! Situated in the lively neighborhood of El Born, my flat combines the city historic charm with modern comforts. With iconic landmarks like the Sagrada Familia, Park Güell, and Las Ramblas within walking distance, you will immerse yourself in Barcelona vibrant cultural life. Welcome to Catalonia!', 29, 'Apartment', 1, 4.83);

Screenshots of inserts:

| | AccommodationID | HostID | Title | Description | LocationID | Type | Capacity | Rating |
|----|-----------------|--------|-------------------------------------|--|------------|------------|----------|--------|
| 1 | 2 | 2 | Rustic Cabin Retreat | Attention nature lovers! If you are craving adv... | 1 | Cabin | 2 | 4.82 |
| 2 | 2 | 2 | Mountain View Lodge | Escape to the mountains and experience the ult... | 2 | Lodge | 4 | 4.95 |
| 3 | 5 | 5 | Charming Guesthouses | Hola amigos! I am a proud resident of this vibra... | 3 | Guesthouse | 2 | 5.00 |
| 4 | 5 | 5 | Bohemian Loft | Welcome to my bohemian loft, where creativity ... | 4 | Loft | 2 | 4.90 |
| 5 | 7 | 7 | Urban Oasis Apartments | Welcome to my urban oasis! As a seasoned hos... | 5 | Apartment | 4 | 4.87 |
| 6 | 7 | 7 | Downtown Penthouse Suite | Indulge in luxury living at my downtown pentho... | 6 | Penthouse | 2 | 5.00 |
| 7 | 10 | 10 | Cozy Homes in the City | Hi there! I am a passionate traveler who loves ... | 7 | House | 3 | 4.82 |
| 8 | 10 | 10 | Sunny Apartment with City Views | Welcome to my sunny apartment with panorami... | 8 | Apartment | 2 | 4.91 |
| 9 | 12 | 12 | Tranquil Countryside Farmhouse | Escape to tranquility at my countryside retreat!... | 9 | Cottage | 1 | 4.75 |
| 10 | 16 | 16 | Sunny Seaside Villa | Greetings from my sunny seaside villa! As a bea... | 10 | Villa | 2 | 4.90 |
| 11 | 16 | 16 | Beach Bungalow Escape | Experience the ultimate beach getaway at my c... | 11 | Bungalow | 2 | 4.99 |
| 12 | 18 | 18 | Historic Townhouse in the Old Q... | Welcome to my historic townhouse in the heart ... | 12 | Townhouse | 2 | 4.77 |
| 13 | 18 | 18 | Quaint Courtyard Cottage | Step back in time and discover the charm of old... | 13 | Cottage | 2 | 4.86 |
| 14 | 20 | 20 | Vibrant Casita in the Pueblo | Hola from my vibrant casita in the heart of the ... | 14 | Casita | 1 | 4.77 |
| 15 | 22 | 22 | Lakeside Cabin Retreat | Hello from my lakeside cabin in the Great Lakes ... | 15 | Cabin | 1 | 4.20 |
| 16 | 24 | 24 | Charming Cottage in the Cotswo... | Greetings from my charming cottage in the Cots... | 16 | Cottage | 1 | 4.82 |
| 17 | 26 | 26 | Desert Oasis Hacienda | Greetings from my desert oasis in Arizona! Nestl... | 17 | Hacienda | 1 | 4.70 |
| 18 | 28 | 28 | Coastal Cottage in Sunny Califor... | Welcome to my coastal cottage in sunny Califor... | 18 | Cottage | 1 | 4.97 |
| 19 | 30 | 30 | Sprawling Farm in the Midwest | Howdy from my sprawling farm in the Midwest! ... | 19 | Farm | 2 | 4.65 |
| 20 | 30 | 30 | Country Cottage Retreat | Escape to the countryside and experience the c... | 9 | Cottage | 2 | 4.73 |
| 21 | 32 | 32 | Bavarian Chalet | Herzlich willkommen from my charming Bavarian ... | 21 | Chalet | 1 | 5.00 |
| 22 | 34 | 34 | Elegant Townhouse in London | Welcome to my elegant townhouse in the heart ... | 22 | Townhouse | 1 | 4.99 |
| 23 | 36 | 36 | Historic Castle in Scotland | Hello from my historic castle in Scotland! Steepe... | 23 | Castle | 1 | 5.00 |
| 24 | 37 | 37 | Picturesque Farmhouse Retreat | Howdy from my picturesque farmhouse in the L... | 24 | Farmhouse | 1 | 4.56 |
| 25 | 38 | 38 | Island Oasis in Hawaii | Aloha from my island oasis in Hawaii! Set amidst... | 25 | Resort | 2 | 5.00 |
| 26 | 38 | 38 | Beachfront Bungalow Retreat | Escape to paradise at my beachfront bungalow ... | 26 | Bungalow | 2 | 4.98 |
| 27 | 39 | 39 | Beachfront Villa on the Gold Coast | Hey from my beachfront villa on the Gold Coast... | 27 | Villa | 1 | 4.89 |
| 28 | 40 | 40 | Charming Victorian Home in San ... | Welcome to my charming Victorian home in San ... | 28 | House | 1 | 4.76 |
| 29 | 41 | 41 | Cozy Apartment in Barcelona | Hello from my cozy apartment in the heart of Ba... | 29 | Apartment | 1 | 4.83 |

Amenity entity

Creation of table:

```
CREATE TABLE Amenity (
    AmenityID INTEGER AUTO_INCREMENT,
    Name VARCHAR(255) NOT NULL,
    Description TEXT NOT NULL,
    PRIMARY KEY (AmenityID)
);

INSERT INTO Amenity (Name, Description) VALUES
('Nature', 'Garden view'),
('Internet', 'Fast Wi-Fi'),
('Parking', 'Free parking'),
('Electric car', 'Electric car charger'),
```

('Entertainment', 'HDTV, 50"' + Netflix, Standard cable TV'),
 ('Bathroom', 'Hairdryer'),
 ('Laundry', 'Washing machine'),
 ('Room', 'Iron'),
 ('Room', 'Strongbox'),
 ('Entertainment', 'Game console'),
 ('Cooling', 'Central air conditioning system'),
 ('Home safety', 'Medical kit'),
 ('Objects', 'Pool'),
 ('Objects', 'Sauna'),
 ('Kitchen', 'Refrigerator'),
 ('Kitchen', 'Dishes and cutlery'),
 ('Outside', 'Barbecue area'),
 ('Location', 'Seafront'),
 ('Heating', 'Heating'),
 ('Services', 'Electronic lock'),
 ('Bathroom', 'Bath'),
 ('Entertainment', 'Exercise equipment');

Screenshots of inserts:

| | AmenityID | Name | Description |
|---|-----------|---------------|--|
| ▶ | 1 | Nature | Garden view |
| | 2 | Internet | Fast Wi-Fi |
| | 3 | Parking | Free parking |
| | 4 | Electric car | Electric car charger |
| | 5 | Entertainment | HDTV, 50" + Netflix, Standard cable TV |
| | 6 | Bathroom | Hairdryer |
| | 7 | Laundry | Washing machine |
| | 8 | Room | Iron |
| | 9 | Room | Strongbox |
| | 10 | Entertainment | Game console |
| | 11 | Cooling | Central air conditioning system |
| | 12 | Home safety | Medical kit |
| | 13 | Objects | Pool |
| | 14 | Objects | Sauna |
| | 15 | Kitchen | Refrigerator |
| | 16 | Kitchen | Dishes and cutlery |
| | 17 | Outside | Barbecue area |
| | 18 | Location | Seafront |
| | 19 | Heating | Heating |
| | 20 | Services | Electronic lock |
| | 21 | Bathroom | Bath |
| | 22 | Entertainment | Exercise equipment |

Address entity

Creation of table:

```

CREATE TABLE Address (
  AddressID INTEGER AUTO_INCREMENT,
  PostCode VARCHAR(20) NOT NULL,
  Street VARCHAR(255) NOT NULL,
  House VARCHAR(50) NOT NULL,
  PRIMARY KEY (AddressID)
);
  
```

```

INSERT INTO Address (PostCode, Street, House)
VALUES
('10001', 'Main Street', '123'),
  
```

('90210', 'Ocean Avenue', '456'),
 ('SW1A 1AA', 'Buckingham Palace Road', '1'),
 ('EH1 1RF', 'Castlehill', 'Edinburgh Castle'),
 ('LA22 9JU', 'Cumbria', 'Lake District Cottage'),
 ('96815', 'Kalakaua Avenue', '1234'),
 ('321-1234', 'Beachfront Street', '5678'),
 ('4217', 'Beachfront Street', '91011'),
 ('94117', 'Steiner Street', '1234'),
 ('08002', 'El Born', '123'),
 ('94550', 'Main Street', '789'),
 ('90210', 'Mountain View Road', '789'),
 ('10001', 'Main Street', '456'),
 ('90210', 'Bohemian Boulevard', '123'),
 ('90210', 'Urban Oasis Street', '456'),
 ('90210', 'Downtown Penthouse Avenue', '789'),
 ('10001', 'City Homes Boulevard', '123'),
 ('90210', 'Sunny Street', '456'),
 ('10001', 'Lakeside Lane', '123'),
 ('GL56 0YG', 'Cotswold Street', '456'),
 ('85001', 'Desert Oasis Drive', '123'),
 ('90210', 'Coastal Cottage Avenue', '456'),
 ('60601', 'Midwest Farm Road', '123'),
 ('10001', 'Country Cottage Lane', '456'),
 ('80331', 'Bavarian Street', '123'),
 ('SW1A 1AA', 'Elegant Street', '1'),
 ('EH1 1RF', 'Castle Road', 'Edinburgh Castle'),
 ('LA22 9JU', 'Lake District Road', '456'),
 ('96815', 'Island Oasis Drive', '123'),
 ('321-1234', 'Beachfront Boulevard', '5678'),
 ('4217', 'Gold Coast Avenue', '91011'),
 ('94117', 'Victorian Street', '1234'),
 ('08002', 'Barcelona Street', '123');

Screenshots of inserts:

| | AddressID | PostCode | Street | House |
|---|-----------|----------|-------------------------|-----------------------|
| ▶ | 1 | 10001 | Main Street | 123 |
| | 2 | 90210 | Ocean Avenue | 456 |
| | 3 | SW1A 1AA | Buckingham Palace Road | 1 |
| | 4 | EH1 1RF | Castlehill | Edinburgh Castle |
| | 5 | LA22 9JU | Cumbria | Lake District Cottage |
| | 6 | 96815 | Kalakaua Avenue | 1234 |
| | 7 | 321-1234 | Beachfront Street | 5678 |
| | 8 | 4217 | Beachfront Street | 91011 |
| | 9 | 94117 | Steiner Street | 1234 |
| | 10 | 08002 | El Born | 123 |
| | 11 | 94550 | Main Street | 789 |
| | 12 | 90210 | Mountain View Road | 789 |
| | 13 | 10001 | Main Street | 456 |
| | 14 | 90210 | Bohemian Boulevard | 123 |
| | 15 | 90210 | Urban Oasis Street | 456 |
| | 16 | 90210 | Downtown Penthouse A... | 789 |
| | 17 | 10001 | City Homes Boulevard | 123 |
| | 18 | 90210 | Sunny Street | 456 |
| | 19 | 10001 | Lakeside Lane | 123 |
| | 20 | GL56 0YG | Cotswold Street | 456 |
| | 21 | 85001 | Desert Oasis Drive | 123 |
| | 22 | 90210 | Coastal Cottage Avenue | 456 |
| | 23 | 60601 | Midwest Farm Road | 123 |
| | 24 | 10001 | Country Cottage Lane | 456 |
| | 25 | 80331 | Bavarian Street | 123 |
| | 26 | SW1A 1AA | Elegant Street | 1 |
| | 27 | EH1 1RF | Castle Road | Edinburgh Castle |
| | 28 | LA22 9JU | Lake District Road | 456 |
| | 29 | 96815 | Island Oasis Drive | 123 |
| | 30 | 321-1234 | Beachfront Boulevard | 5678 |
| | 31 | 4217 | Gold Coast Avenue | 91011 |
| | 32 | 94117 | Victorian Street | 1234 |
| | 33 | 08002 | Barcelona Street | 123 |

Location entity

Creation of table:

```
CREATE TABLE Location (  
  LocationID INTEGER AUTO_INCREMENT,  
  City VARCHAR(255) NOT NULL,  
  Country VARCHAR(255) NOT NULL,  
  Continent VARCHAR(30) NOT NULL,  
  Latitude FLOAT NOT NULL,  
  Longitude FLOAT NOT NULL,  
  AddressID INTEGER NOT NULL,  
  PRIMARY KEY (LocationID),  
  FOREIGN KEY (AddressID) REFERENCES Address(AddressID)  
  ON UPDATE CASCADE ON DELETE CASCADE  
);
```

Inserting values:

```
INSERT INTO Location (City, Country, Continent, Latitude, Longitude, AddressID)  
VALUES  
(('Great Lakes Region', 'United States', 'North America', 43.103167, -88.395508, 1),  
(('Mountains', 'Canada', 'North America', 51.296407, -116.963146, 2),  
(('Old Quarter', 'Vietnam', 'Asia', 21.030451, 105.849838, 3), ('Arts District', 'United States', 'North  
America', 34.043017, -118.236957, 4),  
(('City Center', 'United States', 'North America', 40.712776, -74.005974, 5),  
(('Downtown', 'United States', 'North America', 34.052235, -118.243683, 6),  
(('City', 'United States', 'North America', 40.712776, -74.005974, 7),  
(('Downtown', 'United States', 'North America', 40.712776, -74.005974, 8),  
(('Countryside', 'United States', 'North America', 39.809734, -98.555619, 9),  
(('Seaside', 'United States', 'North America', 34.052235, -118.243683, 10),  
(('Beach', 'United States', 'North America', 21.306944, -157.858337, 11),  
(('Old Quarter', 'United Kingdom', 'Europe', 51.507351, -0.127758, 12),  
(('Cobblestone Alley', 'United Kingdom', 'Europe', 51.507351, -0.127758, 13),  
(('Pueblo', 'Mexico', 'North America', 19.432608, -99.133209, 14),  
(('Great Lakes Region', 'United States', 'North America', 43.103167, -88.395508, 15),  
(('Cotswolds', 'United Kingdom', 'Europe', 51.928218, -1.726925, 16),  
(('Sonoran Desert', 'United States', 'North America', 32.002697, -111.341761, 17),  
(('Pacific Coast', 'United States', 'North America', 34.052235, -118.243683, 18),  
(('Midwest', 'United States', 'North America', 41.878003, -93.097702, 19),  
(('Countryside', 'United States', 'North America', 38.47468, -122.89037, 20),  
(('Bavaria', 'Germany', 'Europe', 48.790447, 11.497889, 21),  
(('London', 'United Kingdom', 'Europe', 51.507351, -0.127758, 22),  
(('Scotland', 'United Kingdom', 'Europe', 56.4907, -4.2026, 23),  
(('Lake District', 'United Kingdom', 'Europe', 54.4609, -3.0886, 24),  
(('Hawaii', 'United States', 'North America', 20.798363, -156.331924, 25),  
(('Beach', 'United States', 'North America', 21.306944, -157.858337, 26),  
(('Gold Coast', 'Australia', 'Oceania', -28.016666, 153.399994, 27),  
(('San Francisco', 'United States', 'North America', 37.774929, -122.419418, 28),  
(('Barcelona', 'Spain', 'Europe', 41.3851, 2.1734, 29);
```

Screenshots of inserts:

| | LocationID | City | Country | Continent | Latitude | Longitude | AddressID |
|---|------------|--------------------|----------------|---------------|----------|-----------|-----------|
| ▶ | 1 | Great Lakes Region | United States | North America | 43.1032 | -88.3955 | 1 |
| | 2 | Mountains | Canada | North America | 51.2964 | -116.963 | 2 |
| | 3 | Old Quarter | Vietnam | Asia | 21.0305 | 105.85 | 3 |
| | 4 | Arts District | United States | North America | 34.043 | -118.237 | 4 |
| | 5 | City Center | United States | North America | 40.7128 | -74.006 | 5 |
| | 6 | Downtown | United States | North America | 34.0522 | -118.244 | 6 |
| | 7 | City | United States | North America | 40.7128 | -74.006 | 7 |
| | 8 | Downtown | United States | North America | 40.7128 | -74.006 | 8 |
| | 9 | Countryside | United States | North America | 39.8097 | -98.5556 | 9 |
| | 10 | Seaside | United States | North America | 34.0522 | -118.244 | 10 |
| | 11 | Beach | United States | North America | 21.3069 | -157.858 | 11 |
| | 12 | Old Quarter | United Kingdom | Europe | 51.5074 | -0.127758 | 12 |
| | 13 | Cobblestone Alley | United Kingdom | Europe | 51.5074 | -0.127758 | 13 |
| | 14 | Pueblo | Mexico | North America | 19.4326 | -99.1332 | 14 |
| | 15 | Great Lakes Region | United States | North America | 43.1032 | -88.3955 | 15 |
| | 16 | Cotswolds | United Kingdom | Europe | 51.9282 | -1.72693 | 16 |
| | 17 | Sonoran Desert | United States | North America | 32.0027 | -111.342 | 17 |
| | 18 | Pacific Coast | United States | North America | 34.0522 | -118.244 | 18 |
| | 19 | Midwest | United States | North America | 41.878 | -93.0977 | 19 |
| | 20 | Countryside | United States | North America | 38.4747 | -122.89 | 20 |
| | 21 | Bavaria | Germany | Europe | 48.7904 | 11.4979 | 21 |
| | 22 | London | United Kingdom | Europe | 51.5074 | -0.127758 | 22 |
| | 23 | Scotland | United Kingdom | Europe | 56.4907 | -4.2026 | 23 |
| | 24 | Lake District | United Kingdom | Europe | 54.4609 | -3.0886 | 24 |
| | 25 | Hawaii | United States | North America | 20.7984 | -156.332 | 25 |
| | 26 | Beach | United States | North America | 21.3069 | -157.858 | 26 |
| | 27 | Gold Coast | Australia | Oceania | -28.0167 | 153.4 | 27 |
| | 28 | San Francisco | United States | North America | 37.7749 | -122.419 | 28 |
| | 29 | Barcelona | Spain | Europe | 41.3851 | 2.1734 | 29 |

Connection entity

Creation of table:

```
CREATE TABLE Connection (
    ConnectionID INTEGER AUTO_INCREMENT,
    GuestID INT NOT NULL,
    HostID INT NOT NULL,
    ConnectionDate DATE NOT NULL,
    PRIMARY KEY (ConnectionID),
    FOREIGN KEY (GuestID) REFERENCES Guest(GuestID) ON UPDATE CASCADE
ON DELETE CASCADE,
    FOREIGN KEY (HostID) REFERENCES Host(HostID)
ON UPDATE CASCADE ON DELETE CASCADE
);
```

Inserting values:

```
INSERT INTO Connection (GuestID, HostID, ConnectionDate) VALUES
(1,2, '2024-02-01'),
(3, 5, '2022-10-03'),
(4,7, '2021-05-26'),
(6,7,'2023-08-13'),
(8, 10, '2022-08-21'),
(9, 12, '2021-03-07'),
(11, 16, '2023-07-04'),
(13, 18, '2024-01-20'),
(14, 20, '2023-08-13'),
(15, 22, '2024-02-02'),
(17, 24, '2023-11-12'),
(19, 26, '2021-12-01'),
(20, 28, '2022-11-02'),
(23, 34, '2022-02-18'),
(25, 32, '2023-06-23'),
```

(27, 36, '2020-04-09'),
 (29, 30, '2023-09-22'),
 (31, 37, '2019-11-25'),
 (33, 38, '2024-01-20'),
 (35, 39, '2021-06-22'),
 (4, 40, '2020-10-16'),
 (19, 41, '2023-01-29');

Screenshots of inserts:

| | ConnectionID | GuestID | HostID | ConnectionDate |
|---|--------------|---------|--------|----------------|
| ▶ | 1 | 1 | 2 | 2024-02-01 |
| | 2 | 3 | 5 | 2022-10-03 |
| | 3 | 4 | 7 | 2021-05-26 |
| | 4 | 6 | 7 | 2023-08-13 |
| | 5 | 8 | 10 | 2022-08-21 |
| | 6 | 9 | 12 | 2021-03-07 |
| | 7 | 11 | 16 | 2023-07-04 |
| | 8 | 13 | 18 | 2024-01-20 |
| | 9 | 14 | 20 | 2023-08-13 |
| | 10 | 15 | 22 | 2024-02-02 |
| | 11 | 17 | 24 | 2023-11-12 |
| | 12 | 19 | 26 | 2021-12-01 |
| | 13 | 20 | 28 | 2022-11-02 |
| | 14 | 23 | 34 | 2022-02-18 |
| | 15 | 25 | 32 | 2023-06-23 |
| | 16 | 27 | 36 | 2020-04-09 |
| | 17 | 29 | 30 | 2023-09-22 |
| | 18 | 31 | 37 | 2019-11-25 |
| | 19 | 33 | 38 | 2024-01-20 |
| | 20 | 35 | 39 | 2021-06-22 |
| | 21 | 4 | 40 | 2020-10-16 |
| | 22 | 19 | 41 | 2023-01-29 |

Message entity

Creation of table:

```
CREATE TABLE Message (
  MessageID INTEGER AUTO_INCREMENT,
  ConnectionID INT,
  BookingID INT NOT NULL,
  Content TEXT NOT NULL,
  Timestamp TIMESTAMP NOT NULL,
  PRIMARY KEY (MessageID),
  FOREIGN KEY (ConnectionID) REFERENCES Connection(ConnectionID) ON
UPDATE CASCADE ON DELETE CASCADE,
  FOREIGN KEY (BookingID) REFERENCES Booking(BookingID) ON UPDATE
CASCADE ON DELETE CASCADE
);
```

Inserting values:

```
INSERT INTO Message (ConnectionID, Timestamp, BookingID, Content) VALUES
(1, '2024-02-01 15:30:00', 1, 'Hello Alice! Hope you will like your stay. For any questions I am here.'),
(1, '2024-02-01 15:35:15', 1, 'Hello Josh! Thank you so much. I have some questions about accessing the housing.'),
(1, '2024-02-01 15:36:11', 1, 'Dear Alice, Keys will be under the carpet near the right door.'),
(2, '2022-10-03 13:10:54', 2, 'Ola amigo! Wish you great holiday and I am always in touch. Keys I will leave in box, code is 5978.'),
(2, '2022-10-03 13:14:22', 2, 'Thank you so much.'),
```

(3, '2021-05-26 20:55:21', 3, 'Hello, Juan! Welcome to the apartment, hope your stay will be pleasant.'),
 (3, '2021-05-26 21:10:37', 3, 'Hello, Maximilian! Thank you for information, could you, please, tell me how i will get keys and about area here. '),
 (3, '2021-05-26 21:12:16', 3, 'Sure. Keys will be in neighbour hous, just txt me when you will be here.'),
 (4, '2023-08-13 08:17:33', 4, 'Good mornin Ricardo. How are you? I will guide you in your journey.'),
 (4, '2023-08-13 08:22:35', 4, 'Good mornin Maximilian! Thank you I am fine, I will ask some question later.'),
 (4, '2023-08-13 08:25:22', 4, 'Sure. I will answer all your questions.'),
 (5, '2022-08-21 10:15:16', 5, 'Hey Jack, I wish you good stay and keys I will give you when you come to the housing.'),
 (5, '2022-08-21 10:16:18', 5, 'Thank you so much. I will come late, is this a problem?'),
 (5, '2022-08-21 10:15:16', 5, 'I am living in the hose near, so it is not a problem.'),
 (6, '2021-03-07 20:32:02', 6, 'Dear Olga, I m greeting you. My name is Noag and will guide you through all questions about accommodation.'),
 (6, '2021-03-07 21:27:10', 6, 'Thank, you Noah! Could ypu tell me something more about location?'),
 (6, '2021-03-07 21:33:24', 6, 'Location is very beautiful, so you can enjoy landscapes. There are no much supermarkets here, but still one good 500 m away. One more thing, keys are under the carpet.'),
 (6, '2021-03-07 21:35:45', 6, 'Thank you for information, have a great day!'),
 (7, '2023-07-04 13:35:42', 6, 'Good afternoon, Ava! Glad to help you. Your keys will be in box near the entrance door. For any further questions I am here.'),
 (7, '2023-07-04 13:35:42', 6, 'Thank you, William!');

Screenshots of inserts:

| | RuleID | Name | Description |
|---|--------|------------------------|--|
| ▶ | 1 | Check-in and check-out | Dear guests, please, notice than arriving is pos... |
| | 2 | Check-in and check-out | Dear guests, please, notice than arriving is pos... |
| | 3 | Check-in and check-out | Dear guests, check-in in any time but check-out... |
| | 4 | Cancellation Policy | Partial Refund: 50% of all nights upon return. I... |
| | 5 | During your stay | Not allowed with pets |
| | 6 | During your stay | No parties or events |
| | 7 | During your stay | No smoking |
| | 8 | Additional rules | Please provide your expected arrival time at lea... |
| | 9 | Additional rules | I would like to ask you not to use real candles |
| | 10 | Cancellation Policy | Free cancellation within 48 hours. Please review... |
| | 11 | Precautionary measures | The apartment is rather unsuitable for small chil... |
| | 12 | During your stay | Hours of silence 21:00 – 10:00 |
| | 13 | Check-in and check-out | Self-arrival (numeric code) |
| | 14 | Cancellation Policy | This booking is non-refundable. |
| | 15 | Additional rules | Please note that we do not allow parties or eve... |
| | 16 | During your stay | Commercial photography is prohibited |
| | 17 | During your stay | Hours of silence 22:00 – 08:00 |
| | 18 | Additional rules | Minimum Age - The minimum age of the Lead Gu... |
| | 19 | Additional rules | Accommodation Rates - Your stay is based on t... |
| | 20 | Additional rules | Electric car fee. Vehide charging is available an... |

Booking entity

Creation of table:

```
CREATE TABLE Booking (
  BookingID INTEGER AUTO_INCREMENT,
  GuestID INT NOT NULL,
  AccommodationID INT NOT NULL,
```



```

        CheckInDate DATE NOT NULL,
        CheckOutDate DATE NOT NULL,
        TotalCost DECIMAL(10,2) NOT NULL,
        BookingStatus VARCHAR(50) NOT NULL,
        PRIMARY KEY (BookingID),
        FOREIGN KEY (GuestID) REFERENCES Guest(GuestID) ON UPDATE CASCADE
ON DELETE CASCADE,
        FOREIGN          KEY          (AccommodationID)          REFERENCES
Accommodation(AccommodationID) ON UPDATE CASCADE ON DELETE CASCADE
    );

```

Inserting values:

```

INSERT INTO Booking (GuestID, AccommodationID, CheckInDate, CheckOutDate, TotalCost,
BookingStatus) VALUES
(1, 1, '2024-08-10', '2024-08-15', 125.25, 'in process'),
(3, 3, '2023-03-03', '2023-03-10', 560.70, 'processed'),
(4, 5, '2021-09-11', '2021-09-14', 400.32, 'processed'),
(6, 6, '2023-11-17', '2023-11-21', 440.5, 'in process'),
(8, 7, '2022-10-06', '2022-10-11', 1110.25, 'processed'),
(9, 12, '2021-05-16', '2021-05-25', 123.29, 'in process'),
(11, 11, '2023-09-01', '2023-09-11', 1205.2, 'processed'),
(13, 12, '2024-04-22', '2024-04-24', 152.36, 'processed'),
(14, 14, '2023-08-22', '2023-08-26', 284.4, 'processed'),
(15, 15, '2024-10-18', '2024-10-28', 312.24, 'in process'),
(17, 16, '2024-02-09', '2023-02-14', 255.5, 'processed'),
(19, 17, '2022-05-20', '2022-05-23', 153.45, 'processed'),
(20, 18, '2022-08-11', '2022-08-17', 221.38, 'processed'),
(23, 22, '2022-06-10', '2022-02-18', 431.95, 'processed'),
(25, 21, '2023-09-15', '2023-09-20', 755.25, 'in process'),
    (27, 23, '2020-10-06', '2020-10-10', 1305.24, 'processed'),
    (29, 20, '2023-12-27', '2024-01-02', 720.3, 'in process'),
    (31, 24, '2020-03-19', '2020-03-23', 164.24, 'processed'),
    (33, 25, '2024-06-04', '2024-06-14', 2230.42, 'processed'),
    (35, 27, '2021-08-03', '2021-08-12', 827.32, 'processed'),
    (4, 28, '2021-07-23', '2021-07-27', 446.28, 'processed'),
    (19, 29, '2023-05-17', '2023-05-23', 368.42, 'processed');

```

Screenshots of inserts:

| | BookingID | GuestID | AccommodationID | CheckInDate | CheckOutDate | TotalCost | BookingStatus |
|---|-----------|---------|-----------------|-------------|--------------|-----------|---------------|
| ▶ | 1 | 1 | 1 | 2024-08-10 | 2024-08-15 | 125.25 | in process |
| | 2 | 3 | 3 | 2023-03-03 | 2023-03-10 | 560.70 | processed |
| | 3 | 4 | 5 | 2021-09-11 | 2021-09-14 | 400.32 | processed |
| | 4 | 6 | 6 | 2023-11-17 | 2023-11-21 | 440.50 | in process |
| | 5 | 8 | 7 | 2022-10-06 | 2022-10-11 | 1110.25 | processed |
| | 6 | 9 | 12 | 2021-05-16 | 2021-05-25 | 123.29 | in process |
| | 7 | 11 | 11 | 2023-09-01 | 2023-09-11 | 1205.20 | processed |
| | 8 | 13 | 12 | 2024-04-22 | 2024-04-24 | 152.36 | processed |
| | 9 | 14 | 14 | 2023-08-22 | 2023-08-26 | 284.40 | processed |
| | 10 | 15 | 15 | 2024-10-18 | 2024-10-28 | 312.24 | in process |
| | 11 | 17 | 16 | 2024-02-09 | 2023-02-14 | 255.50 | processed |
| | 12 | 19 | 17 | 2022-05-20 | 2022-05-23 | 153.45 | processed |
| | 13 | 20 | 18 | 2022-08-11 | 2022-08-17 | 221.38 | processed |
| | 14 | 23 | 22 | 2022-06-10 | 2022-02-18 | 431.95 | processed |
| | 15 | 25 | 21 | 2023-09-15 | 2023-09-20 | 755.25 | in process |
| | 16 | 27 | 23 | 2020-10-06 | 2020-10-10 | 1305.24 | processed |
| | 17 | 29 | 20 | 2023-12-27 | 2024-01-02 | 720.30 | in process |
| | 18 | 31 | 24 | 2020-03-19 | 2020-03-23 | 164.24 | processed |
| | 19 | 33 | 25 | 2024-06-04 | 2024-06-14 | 2230.42 | processed |
| | 20 | 35 | 27 | 2021-08-03 | 2021-08-12 | 827.32 | processed |
| | 21 | 4 | 28 | 2021-07-23 | 2021-07-27 | 446.28 | processed |
| | 22 | 19 | 29 | 2023-05-17 | 2023-05-23 | 368.42 | processed |

Review entity

Creation of table:

```
CREATE TABLE Review(
ReviewID INTEGER AUTO_INCREMENT,
BookingID INTEGER NOT NULL,
Ranking DECIMAL(3, 1) NOT NULL,
CommentToReview TEXT,
ReviewDate DATE NOT NULL,
PRIMARY KEY (ReviewID),
FOREIGN KEY (BookingID) REFERENCES Booking(BookingID) ON UPDATE
CASCADE ON DELETE CASCADE);
```

Inserting values:

```
INSERT INTO Review (BookingID, Ranking, CommentToReview, ReviewDate)
VALUES
(1, 4.7, 'Nice place with good accommodations', '2024-08-15'),
(2, 4.8, 'I liked his place really good', '2023-03-11'),
(3, 4.6, 'Was glad to be here', '2021-09-14'),
(4, 4.9, 'Nice place with good facilities', '2023-11-22'),
(5, 4.8, 'I had great experience here', '2022-10-11'),
(6, 4.9, 'I had really great holidays and awesome emotions', '2021-05-26'),
(7, 4.5, 'Housing was amazing and are as well. Only one problem is broken iron', '2024-08-15'),
(8, 4.9, 'My family and I were so amazed to visit this accommodation', '2024-08-16'),
(9, 5.0, 'I am so happy that I was here', '2023-08-26'),
(10, 4.8, 'I am excited about my trip and stay here', '2024-10-30'),
(11, 5.0, 'Nice place and good host', '2024-08-15'),
(12, 4.9, 'Time here is really memorable', '2022-05-23'),
(13, 4.8, 'My family really liked this journey', '2022-08-18'),
(14, 4.6, 'Beautiful housing', '2022-02-18'),
(15, 5, 'Thank you for great experience here', '2023-09-21'),
(16, 4.9, 'Housing was really pretty and the host was so responsive', '2020-10-11'),
(17, 4.7, 'Thank you for your hospitality', '2024-01-03'),
(18, 4.5, 'I am delighted!', '2020-03-23'),
(19, 5, 'Only best memories', '2024-06-14'),
```

(20, 4.8, 'Great experience!', '2021-08-12');

Screenshots of inserts:

| | ReviewID | BookingID | Ranking | CommentToReview | ReviewDate |
|---|----------|-----------|---------|---|------------|
| ▶ | 1 | 1 | 4.5 | Nice place with good accommodations | 2024-08-15 |
| | 2 | 2 | 4.7 | I liked ris place really good | 2023-03-11 |
| | 3 | 3 | 5.0 | Was glad to be here | 2021-09-14 |
| | 4 | 4 | 4.8 | Nice place with good facilities | 2023-11-22 |
| | 5 | 5 | 4.8 | I had great experience here | 2022-10-11 |
| | 6 | 6 | 4.9 | I had really great holidays and awesome emotions | 2021-05-26 |
| | 7 | 7 | 4.9 | Housing was amazing and are as well. Only one ... | 2024-08-15 |
| | 8 | 8 | 5.0 | My family and I were so amazed to visit this acc... | 2024-08-16 |
| | 9 | 9 | 5.0 | I am so happy that I was here | 2023-08-26 |
| | 10 | 10 | 4.7 | I am excited about my trip and stay here | 2024-10-30 |
| | 11 | 11 | 5.0 | Nice place and good host | 2024-08-15 |
| | 12 | 12 | 4.9 | Time here is rwily memorable | 2022-05-23 |
| | 13 | 13 | 4.7 | My family relly liked this journey | 2022-08-18 |
| | 14 | 14 | 4.8 | Beautiful housing | 2022-02-18 |
| | 15 | 15 | 4.9 | Thank you for great experience here | 2023-09-21 |
| | 16 | 16 | 5.0 | Housing was really pretty and the host was so r... | 2020-10-11 |
| | 17 | 17 | 4.9 | Thank you for your hospitality | 2024-01-03 |
| | 18 | 18 | 4.7 | I am delighted! | 2020-03-23 |
| | 19 | 19 | 5.0 | Only best memories | 2024-06-14 |
| | 20 | 20 | 4.5 | Great experience! | 2021-08-12 |

Photo entity

Creation of table:

```
CREATE TABLE Photo (  
    PhotoID INTEGER AUTO_INCREMENT,  
    AccommodationID INT NOT NULL,  
    Caption VARCHAR(255) NOT NULL,  
    URL VARCHAR(255) NOT NULL,  
    PRIMARY KEY (PhotoID),  
    FOREIGN KEY (AccommodationID) REFERENCES  
Accommodation(AccommodationID) ON UPDATE CASCADE ON DELETE CASCADE  
);
```

Inserting values:

```
INSERT INTO Photo (AccommodationID, Caption, URL) VALUES  
(1, 'Cabin housing inside', 'https://photocabinin/213'),  
(1, 'Cabin housing outside', 'https://photocabinout/125'),  
(1, 'Cabin housing inside 2', 'https://photocabin2/218'),  
(2, 'Mountain Lodge', 'https://photolodge/114'),  
(2, 'Mountain Lodge inside', 'https://photolodgein/173'),  
(2, 'Mountain Lodge outside', 'https://photolodgeout/125'),  
(2, 'Mountain Lodge inside 2', 'https://photolodgein2/324'),  
(3, 'Guesthouse', 'https://photoguesthose/239'),  
(3, 'Guesthouse inside', 'https://photoguesthousein/230'),  
(3, 'Guesthouse outside', 'https://photoguesthouseout/230'),  
(3, 'Guesthouse inside 2', 'https://photoguesthousein2/231'),  
(4, 'Loft', 'https://photoloft/335'), (4, 'Loft inside', 'https://photoloftin/337'),  
(4, 'Loft inside 2', 'https://photoloftin2/257'),  
(4, 'Loft outside', 'https://photoloftout/258'),  
(5, 'Apartments', 'https://photoloft/587'),
```

(5, 'Apartments inside', 'https://photolofin/574'),
 (5, 'Apartments inside 2', 'https://photolofin2/575'),
 (5, 'Apartments outside', 'https://photoloftout/576'),
 (6, 'Penthouse Suite', 'https://photopenthouse/576'),
 (6, 'Penthouse Suite inside', 'https://photopenthousein/644'),
 (6, 'Penthouse Suite inside 2', 'https://photopenthousein2/645'),
 (6, 'Penthouse Suite outside', 'https://photopenthouseout/646');

Screenshots of inserts:

| | PhotoID | AccommodationID | Caption | URL |
|---|---------|-----------------|--------------------------|--------------------------------|
| ▶ | 1 | 1 | Cabin housing inside | https://photocabinin/213 |
| | 2 | 1 | Cabin housing outside | https://photocabinout/125 |
| | 3 | 1 | Cabin housing inside 2 | https://photocabin2/218 |
| | 4 | 2 | Mountain Lodge | https://photolodge/114 |
| | 5 | 2 | Mountain Lodge inside | https://photolodgein/173 |
| | 6 | 2 | Mountain Lodge outside | https://photolodgeout/125 |
| | 7 | 2 | Mountain Lodge inside 2 | https://photolodgein2/324 |
| | 8 | 3 | Guesthouse | https://photoguesthouse/239 |
| | 9 | 3 | Guesthouse inside | https://photoguesthousein/230 |
| | 10 | 3 | Guesthouse outside | https://photoguesthouseout/230 |
| | 11 | 3 | Guesthouse inside 2 | https://photoguesthousein2/231 |
| | 12 | 4 | Loft | https://photoloft/335 |
| | 13 | 4 | Loft inside | https://photoloftin/337 |
| | 14 | 4 | Loft inside 2 | https://photoloftin2/257 |
| | 15 | 4 | Loft outside | https://photoloftout/258 |
| | 16 | 5 | Apartments | https://photoloft/587 |
| | 17 | 5 | Apartments inside | https://photolofin/574 |
| | 18 | 5 | Apartments inside 2 | https://photoloftin2/575 |
| | 19 | 5 | Apartments outside | https://photoloftout/576 |
| | 20 | 6 | Penthouse Suite | https://photopenthouse/576 |
| | 21 | 6 | Penthouse Suite inside | https://photopenthousein/644 |
| | 22 | 6 | Penthouse Suite inside 2 | https://photopenthousein2/645 |
| | 23 | 6 | Penthouse Suite outside | https://photopenthouseout/646 |

Preference entity

Creation of table:

```
CREATE TABLE Preference (
  PreferenceID INTEGER AUTO_INCREMENT,
  HostID INT NOT NULL,
  AccommodationID INT NOT NULL,
  DateAdded DATE NOT NULL,
  PRIMARY KEY (PreferenceID),
  FOREIGN KEY (HostID) REFERENCES Host(HostID) ON UPDATE CASCADE ON
DELETE CASCADE,
  FOREIGN KEY (AccommodationID) REFERENCES
Accommodation(AccommodationID) ON UPDATE CASCADE ON DELETE CASCADE
);
```

Inserting values:

```
INSERT INTO Preference (HostID, AccommodationID, DateAdded) VALUES
(2, 1, '2022-10-17'),
(2, 2, '2021-06-14'),
(5, 3, '2018-09-13'),
(5, 4, '2016-09-22'),
(7, 5, '2020-06-25'),
(7, 6, '2021-04-05'),
(10, 7, '2017-06-14'),
(10, 8, '2018-09-08'),
```

```
(12, 9, '2015-07-10'),
(16, 10, '2019-12-03'),
(16, 11, '2020-01-20'),
(18, 12, '2018-03-10'),
(18, 13, '2018-05-15'),
(20, 14, '2023-05-20'),
(22, 15, '2024-01-25'),
(24, 16, '2023-09-01'),
(26, 17, '2019-09-30'),
(28, 18, '2019-02-16'),
(30, 19, '2023-04-10'),
(30, 20, '2023-06-12'),
(32, 21, '2023-05-30'),
(34, 22, '2023-10-20');
```

Screenshots of inserts:

| | PreferenceID | HostID | AccommodationID | DateAdded |
|----|--------------|--------|-----------------|------------|
| 1 | 2 | 1 | | 2022-10-17 |
| 2 | 2 | 2 | | 2021-06-14 |
| 3 | 5 | 3 | | 2018-09-13 |
| 4 | 5 | 4 | | 2016-09-22 |
| 5 | 7 | 5 | | 2020-06-25 |
| 6 | 7 | 6 | | 2021-04-05 |
| 7 | 10 | 7 | | 2017-06-14 |
| 8 | 10 | 8 | | 2018-09-08 |
| 9 | 12 | 9 | | 2015-07-10 |
| 10 | 16 | 10 | | 2019-12-03 |
| 11 | 16 | 11 | | 2020-01-20 |
| 12 | 18 | 12 | | 2018-03-10 |
| 13 | 18 | 13 | | 2018-05-15 |
| 14 | 20 | 14 | | 2023-05-20 |
| 15 | 22 | 15 | | 2024-01-25 |
| 16 | 24 | 16 | | 2023-09-01 |
| 17 | 26 | 17 | | 2019-09-30 |
| 18 | 28 | 18 | | 2019-02-16 |
| 19 | 30 | 19 | | 2023-04-10 |
| 20 | 30 | 20 | | 2023-06-12 |
| 21 | 32 | 21 | | 2023-05-30 |
| 22 | 34 | 22 | | 2023-10-20 |

Rule entity

Creation of table:

```
CREATE TABLE Rule (
    RuleID INTEGER AUTO_INCREMENT,
    Name VARCHAR(255) NOT NULL,
    Description TEXT NOT NULL,
    PRIMARY KEY (AmenityID) PRIMARY KEY (RuleID),
);
```

```
INSERT INTO Rule (Name, Description) VALUES
('Check-in and check-out', 'Dear guests, please, notice than arriving is possible from 1
pm. and leaving must be till 10 am.'),
('Check-in and check-out', 'Dear guests, please, notice than arriving is possible from 3
pm. and leaving must be till 12 am.'),
('Check-in and check-out', 'Dear guests, check-in in any time but check-out before 11
pm.'),
('Cancellation Policy', 'Partial Refund: 50% of all nights upon return. If canceled after
12:00 local time, payment for that night will not be refunded. Night stays and service
fees are non-refundable.'),
('During your stay', 'Not allowed with pets'),
```


('During your stay', 'No parties or events'),
 ('During your stay', 'No smoking'),
 ('Additional rules', 'Please provide your expected arrival time at least 2 days in advance and telephone if there are any changes. This is important as we are a family rental and do not have fixed admission. Arrival from 14:00 to 21:00 (early arrival on request)Check out at 11:00 (late check out on request)Upon arrival we will ask for a security deposit of EUR 300 to be paid in CASH.Animals are prohibited.The communal pool, garden and self-service pool are only available in summer.'),
 ('Additional rules', 'I would like to ask you not to use real candles'),
 ('Cancellation Policy', 'Free cancellation within 48 hours.Please review our cancellation policy. They will apply even if you cancel your booking due to coronavirus.'),
 ('Precautionary measures', 'The apartment is rather unsuitable for small children. The stone floor is cold and there is an oven that cannot be separated.'),
 ('During your stay', 'Hours of silence 21:00 – 10:00'),
 ('Check-in and check-out', 'Self-arrival (numeric code)'),
 ('Cancellation Policy', 'This booking is non-refundable.'),
 ('Additional rules', 'Please note that we do not allow parties or events. This is a residential area and we ask that you stay for a few hours after 9:00 pm. No smoking, no smoking, no hookah. We live upstairs. Violators will be immediately expelled without refund.'),
 ('During your stay', 'Commercial photography is prohibited'),
 ('During your stay', 'Hours of silence 22:00 – 08:00'),
 ('Additional rules', 'Minimum Age - The minimum age of the Lead Guest is 25 years old and must remain on the property for the entire duration of your stay.'),
 ('Additional rules', 'Accommodation Rates - Your stay is based on the number of guests stated on your booking. We charge £50 per additional guest per night for all additional guests on your overnight booking.'),
 ('Additional rules', 'Electric car fee. Vehicle charging is available and if used at the rate stated on our online arrival form at the time of booking (kWh) or part thereof. ');

Screenshots of inserts:

| RuleID | Name | Description |
|--------|------------------------|--|
| 1 | Check-in and check-out | Dear guests, please, notice than arriving is pos... |
| 2 | Check-in and check-out | Dear guests, please, notice than arriving is pos... |
| 3 | Check-in and check-out | Dear guests, check-in in any time but check-out... |
| 4 | Cancellation Policy | Partial Refund: 50% of all nights upon return. I... |
| 5 | During your stay | Not allowed with pets |
| 6 | During your stay | No parties or events |
| 7 | During your stay | No smoking |
| 8 | Additional rules | Please provide your expected arrival time at lea... |
| 9 | Additional rules | I would like to ask you not to use real candles |
| 10 | Cancellation Policy | Free cancellation within 48 hours. Please review... |
| 11 | Precautionary measures | The apartment is rather unsuitable for small chil... |
| 12 | During your stay | Hours of silence 21:00 – 10:00 |
| 13 | Check-in and check-out | Self-arrival (numeric code) |
| 14 | Cancellation Policy | This booking is non-refundable. |
| 15 | Additional rules | Please note that we do not allow parties or eve... |
| 16 | During your stay | Commercial photography is prohibited |
| 17 | During your stay | Hours of silence 22:00 – 08:00 |
| 18 | Additional rules | Minimum Age - The minimum age of the Lead Gu... |
| 19 | Additional rules | Accommodation Rates - Your stay is based on t... |
| 20 | Additional rules | Electric car fee. Vehide charging is available an... |

AccommodationPreference entity

Creation of table:

```

CREATE TABLE AccommodationPreference (
  AccommodationPreferenceID INTEGER AUTO_INCREMENT,
  AccommodationID INT NOT NULL,
  INT NOT NULL,
  PreferenceID INT NOT NULL,

```

```

        INT NOT NULL,
        DateSaved DATE NOT NULL,
        GuestAccommodationChoiceID INT NOT NULL,
        PRIMARY KEY(AccommodationPreferenceID),
        FOREIGN KEY (AccommodationID) REFERENCES
Accommodation(AccommodationID) ON UPDATE CASCADE ON DELETE CASCADE,
        FOREIGN KEY (PreferenceID) REFERENCES Preference(PreferenceID) ON
UPDATE CASCADE ON DELETE CASCADE,
        FOREIGN KEY (GuestAccommodationChoiceID) REFERENCES
GuestAccommodationChoice(GuestAccommodationChoiceID) ON UPDATE CASCADE ON
PreferenceIDDELETE CASCADE
    );

```

Inserting values:

```

INSERT INTO AccommodationPreference (AccommodationID, PreferenceID, DateSaved,
GuestAccommodationChoiceID) VALUES
(1, 1, '2024-02-01', 1),
(3, 3, '2023-04-09', 2),
(3, 3, '2022-10-02', 3),
(7, 7, '2022-11-09', 4),
(5, 5, '2021-05-21', 5),
(6, 6, '2023-08-11', 6),
(6, 6, '2023-10-18', 7),
(7, 7, '2022-08-10', 8),
(12, 12, '2021-03-02', 9),
(11, 11, '2023-07-03', 10),
(12, 12, '2024-01-16', 11),
(14, 14, '2023-08-21', 12),
(14, 14, '2023-08-06', 13),
(15, 15, '2024-02-01', 14),
(16, 15, '2023-11-08', 15),
(12, 12, '2023-10-09', 16),
(17, 17, '2021-11-16', 17),
(18, 18, '2022-10-06', 18),
(18, 18, '2022-09-24', 19),
(22, 22, '2022-02-16', 20);

```

Screenshots of inserts:

| | AccommodationPreferenceID | AccommodationID | PreferenceID | DateSaved | GuestAccommodationChoiceID |
|----|---------------------------|-----------------|--------------|------------|----------------------------|
| 1 | 1 | 1 | 1 | 2024-02-01 | 1 |
| 2 | 3 | 3 | 3 | 2023-04-09 | 2 |
| 3 | 3 | 3 | 3 | 2022-10-02 | 3 |
| 4 | 7 | 7 | 7 | 2022-11-09 | 4 |
| 5 | 5 | 5 | 5 | 2021-05-21 | 5 |
| 6 | 6 | 6 | 6 | 2023-08-11 | 6 |
| 7 | 6 | 6 | 6 | 2023-10-18 | 7 |
| 8 | 7 | 7 | 7 | 2022-08-10 | 8 |
| 9 | 12 | 12 | 12 | 2021-03-02 | 9 |
| 10 | 11 | 11 | 11 | 2023-07-03 | 10 |
| 11 | 12 | 12 | 12 | 2024-01-16 | 11 |
| 12 | 14 | 14 | 14 | 2023-08-21 | 12 |
| 13 | 14 | 14 | 14 | 2023-08-06 | 13 |
| 14 | 15 | 15 | 15 | 2024-02-01 | 14 |
| 15 | 16 | 15 | 15 | 2023-11-08 | 15 |
| 16 | 12 | 12 | 12 | 2023-10-09 | 16 |
| 17 | 17 | 17 | 17 | 2021-11-16 | 17 |
| 18 | 18 | 18 | 18 | 2022-10-06 | 18 |
| 19 | 18 | 18 | 18 | 2022-09-24 | 19 |
| 20 | 22 | 22 | 22 | 2022-02-16 | 20 |

GuestAccommodationChoice entity

Creation of table:

```
CREATE TABLE GuestAccommodationChoice (  
    GuestAccommodationChoiceID INTEGER AUTO_INCREMENT,  
    GuestID INT NOT NULL,  
    AccommodationID INT NOT NULL,  
    DateChosen DATE NOT NULL,  
    PRIMARY KEY( GuestAccommodationChoiceID),  
    FOREIGN KEY (GuestID) REFERENCES Guest(GuestID) ON UPDATE CASCADE  
ON DELETE CASCADE,  
    FOREIGN KEY (AccommodationID) REFERENCES  
Accommodation(AccommodationID) ON UPDATE CASCADE ON DELETE CASCADE,  
    FOREIGN KEY (BookingID) REFERENCES Booking(BookingID) ON UPDATE  
CASCADE ON DELETE CASCADE  
);
```

Inserting values:

```
INSERT INTO GuestAccommodationChoice (GuestID, AccommodationID, DateChosen)  
VALUES  
(1, 1, '2024-01-30'),  
(1, 3, '2023-04-08'),  
(3, 3, '2022-10-01'),  
(3, 7, '2022-11-08'),  
(4, 5, '2021-05-20'),  
(6,6, '2023-08-10'),  
(8,6, '2023-10-17'),  
(8, 7, '2022-08-09'),  
(9, 12, '2021-03-01'),  
(11, 11, '2023-07-02'),  
(13, 12, '2024-01-15'),  
(13, 14, '2023-08-20'),  
(14, 14, '2023-08-05'),  
(15, 15, '2024-01-30'),  
(17, 16, '2023-11-07'),  
(17, 12, '2023-10-08'),  
(19, 17, '2021-11-15'),  
(20, 18, '2022-10-05'),  
(19, 18, '2022-09-023'),  
(23, 22, '2022-02-15');
```

Screenshots of inserts:

| | GuestAccommodationChoiceID | GuestID | AccommodationID | DateChosen |
|----|----------------------------|---------|-----------------|------------|
| 1 | 1 | 1 | 1 | 2024-01-30 |
| 2 | 1 | 3 | 3 | 2023-04-08 |
| 3 | 3 | 3 | 3 | 2022-10-01 |
| 4 | 3 | 7 | 7 | 2022-11-08 |
| 5 | 4 | 5 | 5 | 2021-05-20 |
| 6 | 6 | 6 | 6 | 2023-08-10 |
| 7 | 8 | 6 | 6 | 2023-10-17 |
| 8 | 8 | 7 | 7 | 2022-08-09 |
| 9 | 9 | 12 | 12 | 2021-03-01 |
| 10 | 11 | 11 | 11 | 2023-07-02 |
| 11 | 13 | 12 | 12 | 2024-01-15 |
| 12 | 13 | 14 | 14 | 2023-08-20 |
| 13 | 14 | 14 | 14 | 2023-08-05 |
| 14 | 15 | 15 | 15 | 2024-01-30 |
| 15 | 17 | 16 | 16 | 2023-11-07 |
| 16 | 17 | 12 | 12 | 2023-10-08 |
| 17 | 19 | 17 | 17 | 2021-11-15 |
| 18 | 20 | 18 | 18 | 2022-10-05 |
| 19 | 19 | 18 | 18 | 2022-09-23 |
| 20 | 23 | 22 | 22 | 2022-02-15 |

UserPreference entity

Creation of table:

```
CREATE TABLE UserPreference (
    UserPreferenceID INTEGER AUTO_INCREMENT,
    GuestID INT NOT NULL,
    PreferenceID INT NOT NULL,
    DateAdded DATE NOT NULL,
    AccommodationPreferenceID INT NOT NULL,
    PRIMARY KEY(UserPreferenceID),
    FOREIGN KEY (GuestID) REFERENCES Guest(GuestID) ON UPDATE CASCADE
ON DELETE CASCADE,
    FOREIGN KEY (PreferenceID) REFERENCES Preference(PreferenceID) ON
UPDATE CASCADE ON DELETE CASCADE,
    FOREIGN KEY (AccommodationPreferenceID) REFERENCES
AccommodationPreference(AccommodationPreferenceID) ON UPDATE CASCADE ON DELETE
CASCADE
);
```

Inserting values:

```
INSERT INTO UserPreference (GuestID, PreferenceID, DateAdded,
AccommodationPreferenceID) VALUES (1,1,'2024-02-02',1),
(1,3,'2023-04-10',2),
(3,3,'2022-10-03',3),
(3,7, '2022-11-10', 4),
(4,5, '2021-05-22', 5),
(6,6, '2023-08-12',6),
(8,6, '2023-10-19', 7),
(8,7,'2022-08-11',8),
(9,12,'2021-03-03', 9),
(11,11, '2023-07-04',10),
(13,12, '2024-01-17', 11),
(13,14, '2023-08-22',12),
(14,14, '2023-08-07', 13),
(15,15, '2024-02-02', 14),
(17,15, '2023-11-09', 15),
(17,12, '2023-10-10', 16),
```

(19,17, '2021-11-17', 17),
 (20,18, '2022-10-07', 18),
 (19,18, '2022-09-25', 19),
 (23,22, '2022-02-17', 20);

Screenshots of inserts:

| | UserPreferenceID | GuestID | PreferenceID | DateAdded | AccommodationPreferenceID |
|----|------------------|---------|--------------|------------|---------------------------|
| 1 | 1 | 1 | 1 | 2024-02-02 | 1 |
| 2 | 1 | 3 | 3 | 2023-04-10 | 2 |
| 3 | 3 | 3 | 3 | 2022-10-03 | 3 |
| 4 | 3 | 7 | 7 | 2022-11-10 | 4 |
| 5 | 4 | 5 | 5 | 2021-05-22 | 5 |
| 6 | 6 | 6 | 6 | 2023-08-12 | 6 |
| 7 | 8 | 6 | 6 | 2023-10-19 | 7 |
| 8 | 8 | 7 | 7 | 2022-08-11 | 8 |
| 9 | 9 | 12 | 12 | 2021-03-03 | 9 |
| 10 | 11 | 11 | 11 | 2023-07-04 | 10 |
| 11 | 13 | 12 | 12 | 2024-01-17 | 11 |
| 12 | 13 | 14 | 14 | 2023-08-22 | 12 |
| 13 | 14 | 14 | 14 | 2023-08-07 | 13 |
| 14 | 15 | 15 | 15 | 2024-02-02 | 14 |
| 15 | 17 | 15 | 15 | 2023-11-09 | 15 |
| 16 | 17 | 12 | 12 | 2023-10-10 | 16 |
| 17 | 19 | 17 | 17 | 2021-11-17 | 17 |
| 18 | 20 | 18 | 18 | 2022-10-07 | 18 |
| 19 | 19 | 18 | 18 | 2022-09-25 | 19 |
| 20 | 23 | 22 | 22 | 2022-02-17 | 20 |

Payment entity

Creation of table:

```
CREATE TABLE Payment (
    PaymentID INTEGER AUTO_INCREMENT,
    BookingID INT NOT NULL,
    Amount DECIMAL(10,2) NOT NULL,
    PaymentDate DATE NOT NULL,
    PaymentMethod VARCHAR(50) NOT NULL,
    PRIMARY KEY(PaymentID),
    FOREIGN KEY (BookingID) REFERENCES Booking(BookingID) ON UPDATE
    CASCADE ON DELETE CASCADE
);
```

Inserting values:

```
INSERT INTO Payment(BookingID, Amount, PaymentDate, PaymentMethod) VALUES
(1, 125.25, '2024-02-01', 'PayPal'),
(2, 560.7, '2022-10-03', 'ApplePay'),
(3, 400.32, '2021-05-26', 'Bank Transfer'),
(4, 440.5, '2023-08-13', 'ApplePay'),
(5, 1110.25, '2022-08-21', 'PayPal'),
(6, 123.29, '2021-03-07', 'Bank Transfer'),
(7, 1205.2, '2023-07-04', 'Credit Card'),
(8, 152.36, '2024-01-20', 'PayPal'),
(9, 284.4, '2023-08-13', 'ApplePay'),
(10, 312.24, '2024-02-02', 'Bank Transfer'),
(11, 255.5, '2023-11-12', 'Digital Wallet'),
(12, 153.45, '2021-12-01', 'ApplePay'),
(13, 221.38, '2022-11-02', 'Credit Card'),
```

(14, 431.95, '2022-02-18', 'Bank Transfer'),
 (15, 755.25, '2023-06-23', 'Digital Wallet'),
 (16, 1305.24, '2020-04-09', 'PayPal'),
 (17, 720.3, '2023-09-22', 'Credit Card'),
 (18, 164.24, '2019-11-25', 'Bank Transfer'),
 (19, 2230.42, '2024-01-20', 'ApplePay'),
 (20, 827.32, '2021-06-22', 'PayPal'),
 (21, 446.28, '2020-10-16', 'Credit Card'),
 (22, 368.42, '2023-01-29', 'PayPal');

Screenshots of inserts:

| | PaymentID | BookingID | Amount | PaymentDate | PaymentMethod |
|---|-----------|-----------|---------|-------------|----------------|
| ▶ | 1 | 1 | 125.25 | 2024-02-01 | PayPal |
| | 2 | 2 | 560.70 | 2022-10-03 | ApplePay |
| | 3 | 3 | 400.32 | 2021-05-26 | Bank Transfer |
| | 4 | 4 | 440.50 | 2023-08-13 | ApplePay |
| | 5 | 5 | 1110.25 | 2022-08-21 | PayPal |
| | 6 | 6 | 123.29 | 2021-03-07 | Bank Transfer |
| | 7 | 7 | 1205.20 | 2023-07-04 | Credit Card |
| | 8 | 8 | 152.36 | 2024-01-20 | PayPal |
| | 9 | 9 | 284.40 | 2023-08-13 | ApplePay |
| | 10 | 10 | 312.24 | 2024-02-02 | Bank Transfer |
| | 11 | 11 | 255.50 | 2023-11-12 | Digital Wallet |
| | 12 | 12 | 153.45 | 2021-12-01 | ApplePay |
| | 13 | 13 | 221.38 | 2022-11-02 | Credit Card |
| | 14 | 14 | 431.95 | 2022-02-18 | Bank Transfer |
| | 15 | 15 | 755.25 | 2023-06-23 | Digital Wallet |
| | 16 | 16 | 1305.24 | 2020-04-09 | PayPal |
| | 17 | 17 | 720.30 | 2023-09-22 | Credit Card |
| | 18 | 18 | 164.24 | 2019-11-25 | Bank Transfer |
| | 19 | 19 | 2230.42 | 2024-01-20 | ApplePay |
| | 20 | 20 | 827.32 | 2021-06-22 | PayPal |
| | 21 | 21 | 446.28 | 2020-10-16 | Credit Card |
| | 22 | 22 | 368.42 | 2023-01-29 | PayPal |
| | 23 | 1 | 125.25 | 2024-02-01 | PayPal |
| | 24 | 2 | 560.70 | 2022-10-03 | ApplePay |
| | 25 | 3 | 400.32 | 2021-05-26 | Bank Transfer |
| | 26 | 4 | 440.50 | 2023-08-13 | ApplePay |
| | 27 | 5 | 1110.25 | 2022-08-21 | PayPal |
| | 28 | 6 | 123.29 | 2021-03-07 | Bank Transfer |
| | 29 | 7 | 1205.20 | 2023-07-04 | Credit Card |
| | 30 | 8 | 152.36 | 2024-01-20 | PayPal |
| | 31 | 9 | 284.40 | 2023-08-13 | ApplePay |
| | 32 | 10 | 312.24 | 2024-02-02 | Bank Transfer |

AccommodationRule entity

Creation of table:

```
CREATE TABLE AccommodationRule(
  AccommodationRuleID INTEGER AUTO_INCREMENT,
  AccommodationID INT NOT NULL,
  RuleID INT NOT NULL,
  PRIMARY KEY(AccommodationRuleID),
  FOREIGN KEY (AccommodationID) REFERENCES
Accommodation(AccommodationID) ON UPDATE CASCADE ON DELETE CASCADE,
  FOREIGN KEY (RuleID) REFERENCES Rule(RuleID) ON UPDATE CASCADE ON
DELETE CASCADE
);
```

Inserting values:

```
INSERT INTO AccommodationRule (AccommodationID, RuleID) VALUES
(1, 14),
(1, 11),
(2, 1),
(2, 18),
```

(2, 7),
 (3, 3),
 (3, 20),
 (4, 7),
 (4, 13),
 (5, 1),
 (5, 4),
 (5, 5),
 (6, 9),
 (6, 7),
 (6, 16),
 (7, 15),
 (7, 12),
 (7, 6),
 (8, 4),
 (8, 13),
 (8, 7);

Screenshots of inserts:

| | AccommodationRuleID | AccommodationID | RuleID |
|---|---------------------|-----------------|--------|
| ▶ | 1 | 1 | 14 |
| | 2 | 1 | 11 |
| | 3 | 2 | 1 |
| | 4 | 2 | 18 |
| | 5 | 2 | 7 |
| | 6 | 3 | 3 |
| | 7 | 3 | 20 |
| | 8 | 4 | 7 |
| | 9 | 4 | 13 |
| | 10 | 5 | 1 |
| | 11 | 5 | 4 |
| | 12 | 5 | 5 |
| | 13 | 6 | 9 |
| | 14 | 6 | 7 |
| | 15 | 6 | 16 |
| | 16 | 7 | 15 |
| | 17 | 7 | 12 |
| | 18 | 7 | 6 |
| | 19 | 8 | 4 |
| | 20 | 8 | 13 |
| | 21 | 8 | 7 |

AccommodationAmenity entity

Creation of table:

```
CREATE TABLE AccommodationAmenity(
  AccommodationAmenityID INTEGER AUTO_INCREMENT,
  AccommodationID INT NOT NULL,
  AmenityID INT NOT NULL,
  PRIMARY KEY(AccommodationAmenityID),
  FOREIGN KEY (AccommodationID) REFERENCES
Accommodation(AccommodationID) ON UPDATE CASCADE ON DELETE CASCADE,
  FOREIGN KEY (AmenityID) REFERENCES Amenity(AmenityID) ON UPDATE
CASCADE ON DELETE CASCADE
);
```

Inserting values:

```
INSERT INTO AccommodationAmenity (AccommodationID, AmenityID) VALUES
```

(2, 1),
 (2, 5),
 (2, 6),
 (2, 7),
 (2, 8),
 (2, 9),
 (2, 11),
 (2, 12),
 (2, 13),
 (3, 2),
 (3, 8),
 (3, 13),
 (3, 15),
 (4, 2),
 (4, 3),
 (4, 5),
 (4, 6),
 (4, 7),
 (4, 8),
 (5, 21),
 (5, 20),
 (5, 8),
 (5, 9),
 (6, 2),
 (6, 3),
 (6, 4),
 (6, 9);

Screenshots of inserts:

| | AccommodationAmenityID | AccommodationID | AmenityID |
|---|------------------------|-----------------|-----------|
| ▶ | 1 | 2 | 1 |
| | 2 | 2 | 5 |
| | 3 | 2 | 6 |
| | 4 | 2 | 7 |
| | 5 | 2 | 8 |
| | 6 | 2 | 9 |
| | 7 | 2 | 11 |
| | 8 | 2 | 12 |
| | 9 | 2 | 13 |
| | 10 | 3 | 2 |
| | 11 | 3 | 8 |
| | 12 | 3 | 13 |
| | 13 | 3 | 15 |
| | 14 | 4 | 2 |
| | 15 | 4 | 3 |
| | 16 | 4 | 5 |
| | 17 | 4 | 6 |
| | 18 | 4 | 7 |
| | 19 | 4 | 8 |
| | 20 | 5 | 21 |
| | 21 | 5 | 20 |
| | 22 | 5 | 8 |
| | 23 | 5 | 9 |
| | 24 | 6 | 2 |
| | 25 | 6 | 3 |
| | 26 | 6 | 4 |
| | 27 | 6 | 9 |

Test Cases

Join of tables:

```

SELECT User.FirstName, User.SecondName, Host.Languages, Accommodation.Type FROM
Host JOIN User ON Host.UserID = User.UserID JOIN Accommodation ON Host.HostID =
Accommodation.HostID WHERE Accommodation.Type = 'Cottage';
  
```

Screenshot:

| | FirstName | SecondName | Languages | Type |
|---|-----------|------------|------------------------------|---------|
| ▶ | William | Martinez | English, Spanish, Portuguese | Cottage |
| | William | Martinez | English, Spanish, Portuguese | Cottage |
| | Ethan | Morris | English | Cottage |
| | Jacob | Miller | English | Cottage |
| | Olivia | Moore | English, Spanish, Hawaiian | Cottage |

Join of tables:

```
SELECT  Accommodation.Title,    Booking.TotalCost,    Review.Ranking FROM    Booking
JOIN    Accommodation ON Booking.AccommodationID = Accommodation.AccommodationID JOIN
Review ON Booking.BookingID = Review.BookingID WHERE    Review.Ranking >= 4.8;
```

Screenshot:

| | Title | TotalCost | Ranking |
|---|---------------------------------------|-----------|---------|
| ▶ | Charming Guesthouses | 560.70 | 5.0 |
| | Urban Oasis Apartments | 400.32 | 4.8 |
| | Downtown Penthouse Suite | 440.50 | 4.9 |
| | Cozy Homes in the City | 1110.25 | 4.9 |
| | Beach Bungalow Escape | 1205.20 | 5.0 |
| | Historic Townhouse in the Old Quarter | 123.29 | 4.9 |
| | Historic Townhouse in the Old Quarter | 152.36 | 4.9 |
| | Vibrant Casita in the Pueblo | 284.40 | 4.8 |
| | Lakeside Cabin Retreat | 312.24 | 4.9 |
| | Charming Cottage in the Cotswolds | 255.50 | 5.0 |
| | Desert Oasis Hacienda | 153.45 | 4.9 |

Summary of the implementation

Every table in the schema has been thoughtfully designed to uphold business standards and guarantee data integrity. For instance, the User table needs non-null entries in order to have columns like the user type, password, registration date, and name. This keeps user records from being inaccurate and guarantees that all users have the data they need to operate the system.

To create associations between tables, here employed foreign key restrictions. To link each host or guest a particular user record, for example, the host and guest tables contain a foreign key that references the User table. This connection guarantees that hosts and visitors are linked to legitimate user accounts inside the system.

To preserve the consistency of data, cascading actions—like ON DELETE CASCADE and ON UPDATE CASCADE—are used for foreign key restrictions. To avoid orphaned entries and preserve referential integrity across the database, for instance, deleting a user account also deletes any related host or guest records.

Depending on the type of data it holds, every column in the structure is given a suitable data type and length. For example, textual data such as addresses, names, and descriptions are kept as VARCHAR with appropriate lengths to effectively handle different input sizes. Numbers are kept as INTEGER or DECIMAL to guarantee precise representation and effective storage, including IDs and quantities.

Abstract

This article gives a summary of an extensive database management system that is intended for platforms that book lodging. The system effectively handles a number of different entities, such as users, hosts, guests, accommodations, bookings, reviews, locations, amenities, rules, messages, payments, preferences, photos, and more. It provides strong functionality to enable easy communication between users and accommodations, improving guest experiences and streamlining business processes in the hotel sector.

Overview of Functionality:

The primary features that our database management system provides are as follows:

User management: With the help of system's powerful user management features, anybody can easily register, authenticate, and maintain their profiles. It gathers necessary user information, including date of birth, user type (guest or host), email address, phone number, registration date, password, and first and last names, to provide secure authentication and customized experiences.

Accommodation Management: Hosts may effectively display their lodgings, including full descriptions, amenities, geographic information, and capacity statistics. By classifying listings according to several parameters including type, location, and amenities, the system helps customers find accommodations and makes decision-making easier.

Management of Bookings: Users can easily create and oversee reservations for lodging. In order to provide hosts and guests with a hassle-free experience, the system keeps track of essential booking information such as arrival and departure dates, total fee, and booking status. Throughout the reservation process, automated alerts and reminders improve communication and guarantee accurate information.

Reviews and ratings: Visitors may add to the trustworthiness and reliability of hosts and properties by leaving reviews and ratings for the lodgings they have been at. The technology compiles and shows evaluations next to lodging ads, giving potential visitors insightful information and building community trust.

Message System: Guests and hosts may communicate easily thanks to our integrated message system. It encourages productive engagement and teamwork by supporting a variety of communication channels, such as questions, reservations information, and other relevant data. Instantaneous alerts guarantee timely reactions and improve the user experience in general.

Payment Processing: The system accepts a variety of payment options and currency and manages booking payments in a safe and effective manner. In order to guarantee dependability and openness in financial transactions, it keeps track of crucial payment information such as the sum paid out, the date of payment, and the mode of payment. Users feel more confident knowing that their sensitive payment information is protected by cutting-edge encryption and safety measures.

Preferences and Rules: To guarantee individualized experiences and respect to policies, users can establish preferences and rules pertaining to accommodations. While customers can provide

choices to customize their lodging search, hosts can set unique regulations for their properties. The technology makes it easier to include rules and preferences into the booking process, which improves consumer comfort and satisfaction.

Metadata

The database is made up of twenty linked tables, each of which represents a distinct system entity.

Associated Entries: According to the most recent update, the database has a significant quantity of information in it, roughly speaking:

- Accommodations: 29 entries
- Bookings: 22 entries
- Messages: 20 entries
- Users: 41 entries
- Reviews: 20 entries
- Hosts: 33 entries
- Guests: 20 entries
- Preferences: 22 entries
- Messages: 20 entries
- Connections: 22 entries
- AccommodationPreferences: 20 entries
- UserPreferences: 20 entries
- Locations: 29 entries
- Addresses: 33 entries
- GuestAccommodationChoices: 20 entries
- Rule: 20 entries
- AccommodationRules: 21 entries
- Photos: 23 entries
- Payments: 44 entries
- Amenities: 22 entries
- AccommodationAmenities: 27 entries

Database Size: The database is approximately 0.78125 megabytes (MB) in size, including all tables and related data.

In summary, to support lodging booking platforms and associated services, our database management system offers extensive capability and effective data organization, guaranteeing seamless operations and improved user experiences.