

AirBNB Simulation

CSI 2132: Databases1

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## Introduction

The following document demonstrates the results of a recreation of the database structure of the AirBNB service. The user interface and functional elements of the project were developed with Java and the JDBC library for PostgreSQL database management system.

**IMPORTANT NOTE:** All test data was written using a single author's name for simplicity only. All authors are equally represented in terms of effort in this project. The data in the examples below is no longer valid, **see the DDL for valid data**

## Data Definition Statements

The data definition statements used to build the database are shown below.

```
SET search_path = test;

CREATE TABLE Country (
    CountryID VARCHAR(2),
    CountryName VARCHAR(56),
    primary key (CountryID)
);

CREATE TABLE Branch (
    BranchID VARCHAR(4),
    CountryID VARCHAR(4),
    Created DATE,
    primary key (BranchID),
    foreign key (CountryID) references Country
);

CREATE TABLE Employee(
    EmployeeID SERIAL,
    BranchID VARCHAR(4),
    Password VARCHAR(30),
    FirstName VARCHAR(32),
    LastName VARCHAR(64),
    DOB DATE,
    AddressNum VARCHAR(8),
    AddressStreet VARCHAR(64),
    AddressCity VARCHAR(16),
    AddressPostal VARCHAR(6),
    CountryID VARCHAR(2),
    Email VARCHAR(345),
    Phone VARCHAR(12),
    Position VARCHAR(30),
    Salary FLOAT,
```

```
Created DATE,  
Status VARCHAR(8),  
primary key (EmployeeID),  
foreign key (CountryID) references Country,  
foreign key (BranchID) references Branch  
);
```

```
CREATE TABLE PlatformUser (  
    UserID SERIAL,  
    Pword VARCHAR(64),  
    FirstName VARCHAR(32),  
    LastName VARCHAR(64),  
    DOB DATE,  
    AddressNum VARCHAR(8),  
    AddressStreet VARCHAR(64),  
    AddressCity VARCHAR(16),  
    AddressPostal VARCHAR(6),  
    CountryID VARCHAR(2),  
    Email VARCHAR(345),  
    Phone VARCHAR(12),  
    About VARCHAR (200),  
    UserType VARCHAR (8),  
    Created DATE,  
    Status VARCHAR(8),  
    primary key (UserID),  
    foreign key (CountryID) references Country  
);
```

```
CREATE TABLE Property (  
    PropertyID SERIAL,  
    UserID INT,  
    BranchID VARCHAR(4),  
    AddressNum VARCHAR(8),  
    AddressStreet VARCHAR(64),  
    AddressCity VARCHAR(16),  
    AddressPostal VARCHAR(6),  
    CountryID VARCHAR(2),  
    Description VARCHAR(200),  
    Rooms INTEGER,  
    Bathrooms NUMERIC(2,1),  
    MinimumStay INTEGER,  
    RefundType VARCHAR(16),  
    Created DATE,  
    Status VARCHAR(8),  
    primary key (PropertyID),
```

```

foreign key (UserID) references PlatformUser,
foreign key (BranchID) references Branch,
foreign key (CountryID) references Country
);

CREATE TABLE RentalAgreement (
    AgreementID SERIAL,
    PropertyID INT,
    StartDate DATE,
    EndDate DATE,
    Signing VARCHAR(20),
    Created DATE,
    Status VARCHAR(8),
    primary key (AgreementID),
    foreign key (PropertyID) references Property
);

CREATE TABLE GuestReview (
    GReviewID SERIAL,
    UserID INT,
    WriterID INT,
    Review VARCHAR(180),
    Rating INT,
    Created DATE,
    Status VARCHAR(15),
    primary key (GReviewID),
    foreign key (UserID) references platformuser,
    foreign key (WriterID) references platformuser
);

CREATE TABLE HostReview (
    HReviewID SERIAL,
    UserID INT,
    WriterID INT,
    PropertyID INT,
    Review VARCHAR(180),
    Location INT,
    Accuracy INT,
    Checkin INT,
    Communication INT,
    Cleanliness INT,
    Value INT,
    Created DATE,

```

```

        Status VARCHAR(15),
        primary key (HReviewID),
        foreign key (UserID) references platformuser,
        foreign key (WriterID) references platformuser,
        foreign key (PropertyID) references property
    );

```

```

CREATE TABLE Amenity(
    AmenityID SERIAL,
    Type VARCHAR(30),
    Name VARCHAR(30),
    Created DATE,
    Status VARCHAR(30),
    primary key (AmenityID)
);

```

```

CREATE TABLE PropertyAmenities(
    PropAmeID SERIAL,
    AmenityID INT,
    PropertyID INT,
    Created DATE,
    Status VARCHAR(30),
    primary key (PropAmeID),
    foreign key (AmenityID) references amenity,
    foreign key (PropertyID) references property
);

```

```

CREATE TABLE RenterRate(
    RateID SERIAL,
    PropertyID INT,
    Price FLOAT,
    GuestNumber INT,
    Type VARCHAR(30),
    Created DATE,
    Status VARCHAR(30),
    primary key (RateID),
    foreign key (PropertyID) references property
);

```

```

CREATE TABLE Payment(
    PaymentID SERIAL,
    PayeeID INT,
    ReceiveeID INT,
    Type VARCHAR(30),
    Amount FLOAT,

```

```

    Created DATE,
    Status VARCHAR(30),
    primary key (PaymentID),
    foreign key (PayeeID) references platformuser,
    foreign key (ReceiveeID) references platformuser
);

CREATE TABLE Booking(
    BookingID SERIAL,
    UserID INT,
    PropertyID INT,
    PaymentID INT,
    Check_In_Date DATE,
    Check_Out_Date DATE,
    Booking_Date DATE,
    Status VARCHAR(30),
    primary key (BookingID),
    foreign key (UserID) references platformuser,
    foreign key (PropertyID) references property,
    foreign key (PaymentID) references payment
);

INSERT INTO Country VALUES (
    'CA', 'Canada');

INSERT INTO Country VALUES (
    'US', 'The United States of America');

INSERT INTO Country VALUES (
    'FR', 'France');

INSERT INTO Branch VALUES (
    'TOR', 'CA', '2017-02-24');

INSERT INTO Branch VALUES (
    'MTL', 'CA', '2018-03-03');

INSERT INTO Branch VALUES (
    'MRS', 'FR', '2018-12-16');

INSERT INTO Branch VALUES (
    'KCM', 'US', '2019-12-06');

INSERT INTO Employee VALUES (

```

```

    DEFAULT, 'MTL', 'password123', 'Lebron', 'James', '1984-12-
25', '23', 'King Road', 'Cleveland', 'K1N623', 'US', 'lebron@email.com', '8903526
3', 'Hardware Engineer', '125000.00', '2015-06-23', 'Active' );

INSERT INTO Employee VALUES(
    DEFAULT, 'MTL', 'password123', 'Kobe', 'Bryant', '1978-08-
21', '8', 'Mamba Street', 'Philadelphia', 'M4MB4', 'US', 'kobe@email.com', '12678
328', 'Test Engineer', '100000.00', '2013-07-15', 'Active' );

INSERT INTO Employee VALUES(
    DEFAULT, 'TOR', 'password123', 'Tony', 'Stark', '1964-04-
14', '16', 'Avenger Road', 'Los Angelos', 'AVG3N3', 'US', 'tony@email.com', '3567
32983', 'Manager', '25000.00', '2010-09-20', 'Active' );

INSERT INTO Employee VALUES(
    DEFAULT, 'TOR', 'password123', 'Steve', 'Rogers', '1912-01-
10', '89', 'Basic Road', 'New York', 'ST3V3', 'US', 'steve@email.com', '67835634'
, 'Software Engineer', '150000.00', '2011-10-24', 'Active' );

INSERT INTO Employee VALUES(
    DEFAULT, 'TOR', 'password123', 'Gerald', 'Smallface', '1976-07-
17', '22', 'Street Road', 'Burlington', 'B1G0N3', 'CA', 'real@emaildomain.com', '
12983987262', 'Software Engineer', '100000.00', '2012-09-25', 'Active' );

INSERT INTO PlatformUser VALUES(
    DEFAULT, 'password123', 'Gerald', 'Smallface', '1976-07-
17', '22', 'Street Road', 'Burlington', 'B1G0N3', 'CA', 'arealemailaddress@emaild
omain.com', '12983987262', 'Just a guy doing some stuff', 'Renter', '2012-09-
25', 'Active');

INSERT INTO PlatformUser VALUES(
    DEFAULT, 'paswrld111', 'Annie', 'Anomaly', '1988-05-
13', '1033', 'Road Crescent', 'Hell', '16758', 'US', 'someone@somewhere.com', '12
8379936636', 'Enjoys when people sleep in buildings that arent owned by them', 'O
wner', '2014-04-24', 'Active');

INSERT INTO PlatformUser VALUES(
    DEFAULT, 'm0b4lyf3', 'Tony', 'Smartguy', '1969-05-
30', '1635', 'Tax Evasion Street', 'New York', '45645', 'US', 'dontworryaboutit@n
onyabusiness.com', '138390238902', 'You ask too many questions', 'Owner', '2015-
11-14', 'Active');

INSERT INTO PlatformUser VALUES(
    DEFAULT, 'apassword', 'Jacques', 'Fromage', '1990-03-
04', '36', 'Rue du Baguette', 'Paris', '09877', 'FR', 'courriel@emaildomain.com',

```



```

'33989892982', 'Adore les lits dans les maisons des autres', 'Renter', '2013-08-22', 'Active');

INSERT INTO PlatformUser VALUES(
    DEFAULT, 'aword', 'Raj', 'Brown', '2000-01-14', '99', 'Brown Street', 'Montreal', '12345', 'CA', 'raj@email.com', '0987654', 'Brown guy that does some coding on the side', 'Renter', '2015-09-10', 'Active');

INSERT INTO PlatformUser VALUES(
    DEFAULT, 'aword', 'Rishabh', 'Jain', '1997-12-06', '90', 'Woodpark Way', 'Ottawa', 'K2J7G', 'CA', 'rish@email.com', '12345628', 'Just a smart guy going to university', 'Owner', '2013-10-23', 'Active');

INSERT INTO PlatformUser VALUES(
    DEFAULT, 'aword', 'Mehran', 'Moh', '1998-11-25', '248', 'Mount Way', 'Ottawa', '82423', 'CA', 'meh@email.com', '7892312', 'Another smart guy going to university', 'Owner', '2016-12-25', 'Active');

INSERT INTO Property VALUES (
    DEFAULT, '2', 'KCM', '3456', 'Avenue Place', 'Boston', '13654', 'US', 'Suburban home for young professionals', '8', '2.5', '7', 'full', '2009-12-30', 'Active');

INSERT INTO Property VALUES (
    DEFAULT, '3', 'KCM', '888', 'Court Boulevard', 'Brooklyn', '19763', 'US', 'For special business only, no families', '4', '0.5', '1', 'none', '2020-04-01', 'Active');

INSERT INTO Property VALUES (
    DEFAULT, '5', 'TOR', '12', 'Street Street', 'Queens', '16656', 'US', 'The typical place you can bring the wife and kids', '9', '2.5', '2', 'full', '2016-11-11', 'Active');

INSERT INTO Property VALUES (
    DEFAULT, '6', 'MTL', '123', 'Mamba Street', 'Ottawa', '27g3j1', 'CA', 'Great place to play basketball', '7', '3.5', '3', 'full', '2017-12-12', 'Active');

INSERT INTO renterrate VALUES(
    DEFAULT, '1', '1500', '10', 'House', '2019-10-10', 'Active');

INSERT INTO renterrate VALUES(
    DEFAULT, '2', '325', '6', 'House', '2019-04-15', 'Active');

INSERT INTO renterrate VALUES(

```

```

    DEFAULT, '3', '150','2', 'Room', '2018-12-23', 'Active');

INSERT INTO renterrate VALUES(
    DEFAULT, '4', '125','5', 'Room', '2017-12-01', 'Active');

INSERT INTO amenity VALUES(DEFAULT,'Basic','Wifi','2016-03-03','Active');

INSERT INTO amenity VALUES(DEFAULT,'Basic','Fireplace','2016-03-03','Active');

INSERT INTO amenity VALUES(DEFAULT,'Basic','Dryer','2016-03-03','Active');

INSERT INTO amenity VALUES(DEFAULT,'Basic','Iron','2016-03-03','Active');

INSERT INTO amenity VALUES(DEFAULT,'Basic','TV','2016-03-03','Active');

INSERT INTO amenity VALUES(DEFAULT,'Facilities','Free Parking on Premises','2016-
03-03','Active');

INSERT INTO amenity VALUES(DEFAULT,'Facilities','Free Street Parking','2016-03-
03','Active');

INSERT INTO amenity VALUES(DEFAULT,'Dining','Kitchen','2016-03-03','Active');

INSERT INTO amenity VALUES(DEFAULT,'Dining','Coffee Maker','2016-03-
03','Active');

INSERT INTO amenity VALUES(DEFAULT,'Dining','Microwave','2016-03-03','Active');

INSERT INTO amenity VALUES(DEFAULT,'Dining','Oven','2016-03-03','Active');

INSERT INTO amenity VALUES(DEFAULT,'Dining','Refrigerator','2016-03-
03','Active');

INSERT INTO propertyamenities VALUES(DEFAULT, '1', '1', '2016-03-03','Active');

INSERT INTO propertyamenities VALUES(DEFAULT, '2', '1', '2016-03-03','Active');

INSERT INTO propertyamenities VALUES(DEFAULT, '3', '1', '2016-03-03','Active');

INSERT INTO propertyamenities VALUES(DEFAULT, '4', '1', '2016-03-03','Active');

INSERT INTO propertyamenities VALUES(DEFAULT, '5', '1', '2016-03-03','Active');

INSERT INTO propertyamenities VALUES(DEFAULT, '6', '2', '2016-03-03','Active');

```

```
INSERT INTO propertyamenities VALUES(DEFAULT, '7', '2', '2016-03-03','Active');
INSERT INTO propertyamenities VALUES(DEFAULT, '8', '2', '2016-03-03','Active');
INSERT INTO propertyamenities VALUES(DEFAULT, '9', '2', '2016-03-03','Active');
INSERT INTO propertyamenities VALUES(DEFAULT, '10', '2', '2016-03-03','Active');
INSERT INTO propertyamenities VALUES(DEFAULT, '11', '3', '2016-03-03','Active');
INSERT INTO propertyamenities VALUES(DEFAULT, '12', '3', '2016-03-03','Active');
INSERT INTO propertyamenities VALUES(DEFAULT, '1', '3', '2016-03-03','Active');
INSERT INTO propertyamenities VALUES(DEFAULT, '2', '3', '2016-03-03','Active');
INSERT INTO propertyamenities VALUES(DEFAULT, '3', '3', '2016-03-03','Active');
INSERT INTO propertyamenities VALUES(DEFAULT, '4', '4', '2016-03-03','Active');
INSERT INTO propertyamenities VALUES(DEFAULT, '5', '4', '2016-03-03','Active');
INSERT INTO propertyamenities VALUES(DEFAULT, '6', '4', '2016-03-03','Active');
INSERT INTO propertyamenities VALUES(DEFAULT, '7', '4', '2016-03-03','Active');
INSERT INTO propertyamenities VALUES(DEFAULT, '8', '4', '2016-03-03','Active');
```

## Installation

The following are the steps for the user to install the program on a **windows** computer. **Ensure that you have Java installed** on your device before beginning.

1. Download the project from brightspace handin
2. Open the command prompt and navigate into the project folder
3. Run one of the two interfaces as follows:
  - a. To run the user program, in the command prompt, type “java -jar hotel20.jar”
  - b. To run the employee program, in the command prompt, type “java -jar hotel20-emp.jar”
4. Follow the onscreen prompts for use.

## Instructions for Users

This is a description of how to execute all the functionality provided by this program for regular users of the service. The flows for Employees are shown in the next section.

1. Follow the onscreen prompts to create an account on start up
2. Depending on if you chose to create an owner or a renter account, you will be greeted with one of two screens:

### Renter Portal:

```
-----  
Welcome liam maloney  
-----RENTER ACCOUNT-----  
1. Search for Property  
2. Rent a Property  
3. Post Review  
4. Cancel Booking  
5. View Property Amenities  
6. Log Out  
-----  
What do you want to do? (1/2/3/4):
```

In the renter portal you are presented with 6 options:

- **Search for property**: this function allows you to search for a property ID of a property that you would like to rent. You can search from different search criteria and the options will be listed based on that

```
What do you want to do? (1/2/3/4): 1  
Search By:  
1. City  
2. # of Rooms  
3. # of Bathrooms  
4. Minimum Stay  
Choice (1/2/3/4): 1  
Type a city: carp
```

---

```
ID: 2  
Address: 23 Road St carp k2h2i7  
Price per day: 200.0  
Property Type: House  
Rooms: 8  
Bathrooms: 3.0  
Total Guest: 5  
Minimum Stay: 7  
Refund Type: full
```

- **Rent a Property:** this function allows you to create a booking for a property if you have the property ID.

```

What do you want to do? (1/2/3/4): 2
Type Property ID to Start Booking: 2
Type Start Date (YYYY-MM-DD):
2020-04-07
Type End Date (YYYY-MM-DD):
2020-04-09
-----COMPLETE RENTAL AGREEMENT-----
Before making the booking you have to Esign this agreement.
Do you agree to book property 2
from Tue Apr 07 00:00:00 EDT 2020 to Thu Apr 09 00:00:00 EDT 2020? (Y/N):
y
SIGN HERE:
liammaloney
Agreement Signed. Proceed to payment...
1. Debit
2. Credit
Select Type of Payment: 1
1. Accept
2. Decline
Total cost: 400.0
1
Payment Successful
Successfully Booked Property 2 from 2020-04-07 to 2020-04-09

```

- **Post Review:** This function allows you to review a stay at a property.

```

What do you want to do? (1/2/3/4): 3
Below are Properties You have Booked:
-----
Booking ID:1
Property ID:2
Amount:400
Transaction Date:2020-04-07
Checkin: 2020-04-07
Checkout: 2020-04-09
Type BookingID of Property you would like to review: 1
Write your Review below (180 characters):
This was a good time, big fan of the floor and cieling and the doors and stuff
Type value from 1-10 for Location:
9
Type value from 1-10 for Accuracy:
9
Type value from 1-10 for Check-in:
6
Type value from 1-10 for Communication:
3
Type value from 1-10 for Cleaniness:
6
Type value from 1-10 for Value:
8
Review Successfully Created.

```

- **Cancel Booking:** This allows you to cancel a future booking.

```

What do you want to do? (1/2/3/4): 4
Below are Properties You have Booked:
-----
Booking ID:1
Property ID:2
Amount:400
Transaction Date:2020-04-07
Checkin: 2020-04-07
Checkout: 2020-04-09
-----
Booking ID:2
Property ID:3
Amount:8000
Transaction Date:2020-04-07
Checkin: 2020-08-09
Checkout: 2020-08-10
Type booking ID to cancel that booking: 2
Booking Cancelled Successfully.

```

## Owner Portal:

```

-----
Welcome liam maloney
-----OWNER ACCOUNT-----
1. Create Property
2. Delete Property
3. Read Your Reviews
4. Review a Host
5. List Your Properties
6. Log Out
-----
What do you want to do? (1/2/3/4/5/6):

```

In the owner portal you are presented with 6 options:

- **Create Property:** This function allows you to fill out a form with information about a property you own to create a posting for it. Once this happens, renting users can see your posting.

```
What do you want to do? (1/2/3/4/5/6): 1
Enter Street Number: 23
Enter Street Name: Road St
Enter City: carp
Enter Postal Code: k2h2i7
1. Canada
2. The United States of America
3. France
Enter Country from Available: 1
Enter Description: a nice home
Enter Room Number: 8
Enter Bathroom Number: 3
Enter Minimum Stay: 7
Enter Refund Type: full
Add any amenities to your property? (Y/N): n
Successfully Added Property
-----Complete Renter Rate Below-----
What is the Price per day?:
200
What is the total Guest Number:
5
1. House
2. Room
What type of Property (1/2): 1
Renter Rate Successfully Added
```

- **Delete Property:** This allows you to delete a property from its property ID. You can find the property ID by going to “List Properties” in the main menu.
- **Read Your Reviews:** This allows you to read the reviews from guests who stayed at your property

```
What do you want to do? (1/2/3/4/5/6): 3
Reviewer Name: liam maloney
PropertyID: 2
Review: This was a good time, big fan of the floor and cieling and the doors and stuff
Location Rating: 9
Accuracy Rating: 9
Checkin Rating: 6
Communication Rating: 6
Cleanliness Rating: 3
Value Rating: 8
Posted Date: 2020-04-07
```

- **Review a Host:** This allows you to review someone who booked one of your properties.

```
What do you want to do? (1/2/3/4/5/6): 4
Here are renters who have stayed at your properties:
```

---

```
Booking ID: 1
UserID: 6
Name: liam maloney
Booking Date: 2020-04-07
```

---

```
Booking ID: 2
UserID: 6
Name: liam maloney
Booking Date: 2020-04-07
```

---

```
Select UserID to review: 2
User has not stayed at your Properties.
Select UserID to review: 6
Write your Review below (180 characters):
Good guy, good at testing databases for demos.
Type value from 1-10 for Rating:
10
```

- **List Your Properties:** This function will provide you with a list of all the properties that you own along with their property IDs.

What do you want to do? (1/2/3/4/5/6): 5

```
ID: 1
Address: 23 street rd carp n2k2k2
Rooms: 8
Bathrooms: 2.0
Refund Type: full
Posted On: 2020-04-07
```

```
ID: 2
Address: 23 Road St carp k2h2i7
Rooms: 8
Bathrooms: 3.0
Refund Type: full
Posted On: 2020-04-07
```

- **Log out:** This function ends your session.

## Instructions for Employees

The following is a guide to using the employee portal for this program. Due to the fact that personal information is shown in this flow, you cannot onboard as an employee. Employee information must be inputted into the database directly, because of this, an employee was added manually with the following information for testing purposes:

Email: [employee@hotelemail.com](mailto:employee@hotelemail.com)

Password: password

The Employee portal main menu looks as follows:

```
-----
1.Users
2.Properties
3.Branches
4.Amenities
5.Cities
What information do you want to see? (1/2/3/4/5):
```

And it functions as a simple search, as an employee you can choose a search topic and expand elements you want to know more about. An example is shown below.

What information do you want to see? (1/2/3/4/5):

1

UserID: 5

UserID: 6

Enter the specific ID to see more information:

5

```
The user's password is password
The user's firstname is liam
The user's lastname is maloney
The user's date of birth is 1997-02-02
The user's street number is 34
The user's street name is street st
The user's city name is ottawa
The user's postal code is 93823
The user's country id is CA
The user's email address is lmalo034@uottawa.ca
The user's phone number is 20983209234
Something about the user: about me
The user's type is Owner
The created date is 2020-04-07
Status: Active
```

## Instructions for Admins

The following is the user guide for system administrators. This is the only flow where deletions of users, branches and properties can occur. Cascade deletions are employed where key constraints are present.

When you open the admin portal, the following is shown:

```
-----HOTEL 2.0-----  
You succesfully logged in as an admin.  
Do you want to check information or delete data?(C/D)|
```

If you choose to check information, the flow is the same as the employee flow. If you chose to delete data, the following options are presented:

```
|1.Users  
|2.Properties  
|3.Branches  
|The data you want to delete is in category: (1/2/3)?
```

After which you can choose a category and delete any data listed that you no longer want in the database.