AirBnB Owner Database

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IST 659

Part One

Summary

Airbnb is one of the most popular vacation stay apps/companies used today. Millions of people use this app to help find the perfect home for their vacation instead of staying in a hotel. Although Airbnb is focused on its users, there is another side of the platform that could benefit greatly from an updated database. To help with the process of those renting out these rooms, homes, properties I will be creating a database to ease tracking and figuring out costs.

Stakeholders

1. Property Owners
2. Real Estate Investors
3. Airbnb Board Members

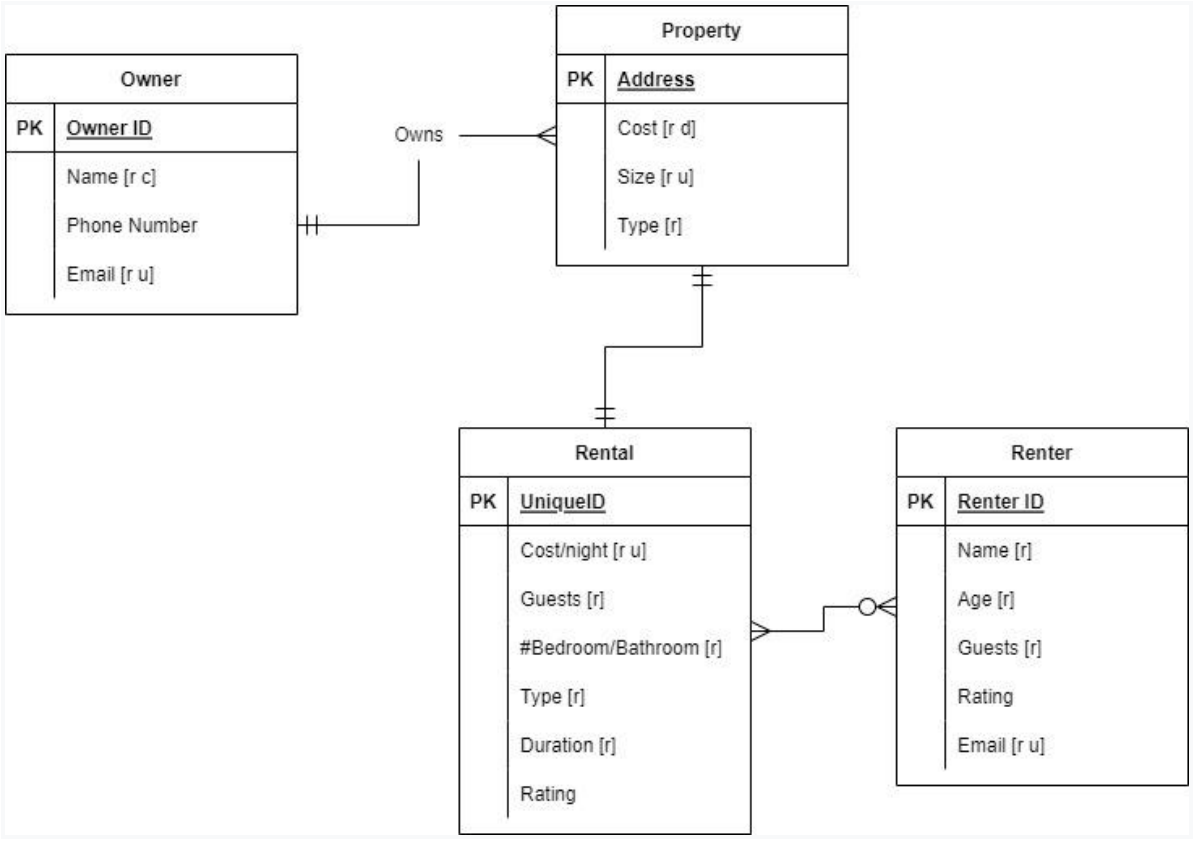
Business Rules

- Every property owner has to have at least 1 or more property able to rent out.
- Property owners must let renters know what type of property they will be renting. For example: house, part of the house, apartment etc.
- Each property has to be able to be rented out to at least 1 or more renters. The property owner has to state how many rooms/bathrooms are available on each property and how many guests are allowed to stay there.
- Renters can also do a long term rent of the property if the property owner allows.

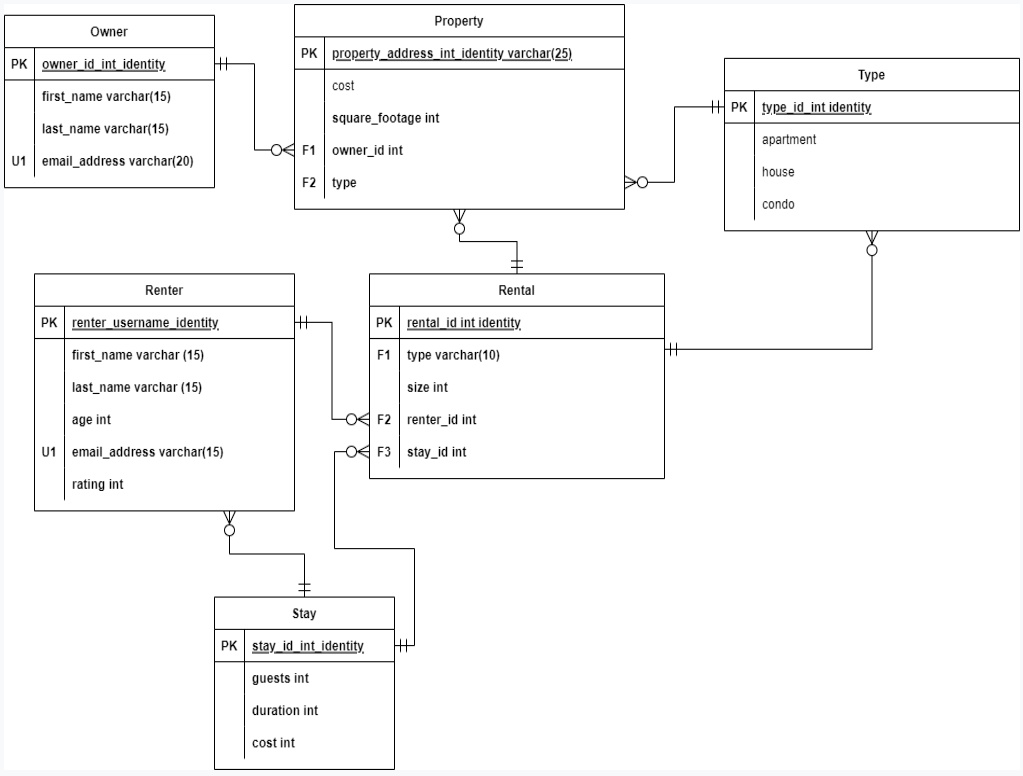
Data Questions

- Who are the people buying properties to rent out?
    - How many properties do they own?
- Who rents the properties?
- How much does the average property go for per month?

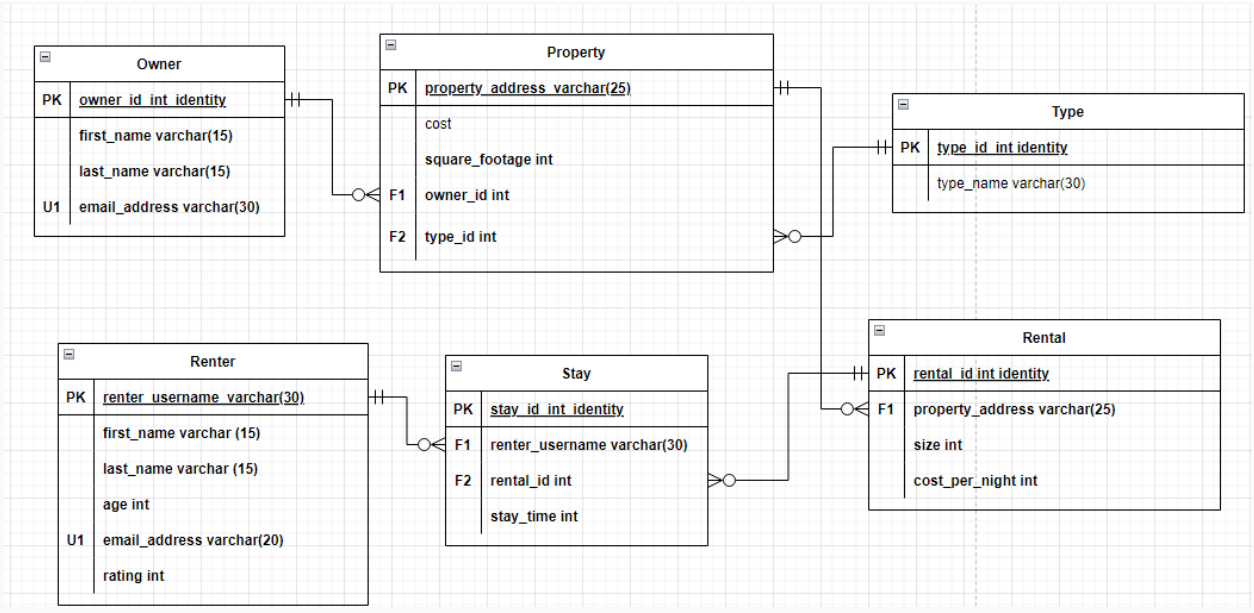
Conceptual Model



Logical Model



Logical Model 2.0



With the suggestions given to me about my previous logical model, I updated it to create the logical model that I will be using for my SQL code.

Part Two

Physical Database Design - Data Definition Language (DDL)

```
create table Owner(
    OwnerID int identity primary key
    ,FirstName varchar(15) not null
    ,LastName varchar(15) not null
    ,EmailAddress varchar(30) not null unique
)

create table Type(
    TypeID int identity primary key
    ,TypeName varchar(30) not null
)

create table Property(
    PropertyAddress varchar(25) primary key
    ,cost int not null
    ,SquareFootage int not null
    ,OwnerID int not null foreign key references Owner(OwnerID)
    ,TypeID int not null foreign key references Type(TypeID)
)

create table Renter(
    RenterUsername varchar(30) primary key
    ,FirstName varchar(15) not null
    ,LastName varchar(15) not null
    ,Age int not null
    ,EmailAddress varchar(20) not null unique
    ,Rating int not null
)

create table Rental(
    RentalID int primary key
    ,PropertyAddress varchar(25) foreign key references Property(PropertyAddress) not null
    ,Size int not null
    ,CostPerNight int not null
)

create table Stay(
    StayID int identity primary key
    ,RenterUsername varchar(30) foreign key references Renter (RenterUsername) not null
    ,RentalID int foreign key references Rental(RentalID) not null
    ,StayTime int not null
)
```

Data Creation

```
-- Data Creation
--Owner
insert into Owner (FirstName, LastName, EmailAddress)
    values ('James', 'Smith', 'jsmith123@gmail.com')
insert into Owner (FirstName, LastName, EmailAddress)
    values ('Ashley', 'Gonzeles', 'ashgonz@gmail.com')

--Type
insert into Type (TypeName)
    values ('House')
    , ('Guesthouse')
    , ('Apartment')
    , ('Hotel')

--Property
insert into Property (PropertyAddress, Cost, SquareFootage, OwnerID, TypeID)
    values ('1234 Highaldn Stone Ct', 500000, 2717, (select OwnerID from Owner where FirstName = 'James')
    , (select TypeID from Type where TypeName = 'House'))
insert into Property (PropertyAddress, Cost, SquareFootage, OwnerID, TypeID)
    values ('6826 W. 6th St', 350000, 1500, (select OwnerID from Owner where FirstName = 'Ashley')
    , (select TypeID from Type where TypeName = 'Apartment'))

--Renter
insert into Renter (RenterUsername, FirstName, LastName, Age, EmailAddress, Rating)
    values ('Gjones', 'Grace', 'Jones', 33, 'grjones@gmail.com', 5)
insert into Renter (RenterUsername, FirstName, LastName, Age, EmailAddress, Rating)
    values ('Chrisgooo', 'Chris', 'Gu', 21, 'chrisgooo@gmail.com', 4)

--Rental
insert into Rental (RentalID, PropertyAddress, Size, CostPerNight)
    values (541345, (select PropertyAddress from Property where PropertyAddress = '1234 Highaldn Stone Ct')
    , 2717, 250)
insert into Rental (RentalID, PropertyAddress, Size, CostPerNight)
    values (846242, (select PropertyAddress from Property where PropertyAddress = '6826 W. 6th St')
    , 1500, 110)

--Stay
--StayID is just confirmation # of the stay
SET IDENTITY_INSERT Stay on
insert into Stay (StayID, RenterUsername, RentalID, StayTime)
    values (5526, (select RenterUsername from Renter where RenterUsername = 'Gjones')
    ,(select RentalID from Rental where RentalID = 846242), 6)
insert into Stay (StayID, RenterUsername, RentalID, StayTime)
    values (9862, (select RenterUsername from Renter where RenterUsername = 'Chrisgooo')
    ,(select RentalID from Rental where RentalID = 541345), 4)
```

Data Manipulation

```sql
-- Data Manipulation
-- Update clause to increase the cost per night of each Airbnb Rental
update Rental
set CostPerNight = 125
where RentalID = 846242

update Rental
set CostPerNight = 255
where RentalID = 541345

-- Adding bedroom column because one of the business rules states there must be
-- Number of bedrooms and bathrooms shown to renters
Alter table Rental
add bedroom int

update Rental
set Bedroom = 4
where RentalID = 541345

update Rental
set Bedroom = 2
where RentalID = 846242

-- Adding bathrooms column because one of the business rules states there must be
-- Number of bedrooms and bathrooms shown to renters
Alter table Rental
add Bathroom int

update Rental
set Bathroom = 3
where RentalID = 541345

update Rental
set bathroom = 1
where RentalID = 846242

--Adding long term option to Stay
Alter table Stay
add LongTerm varchar(5)

update Stay
set Longterm = 'No'
where RentalID = 846242

update Stay
set Longterm = 'No'
where RentalID = 541345

-- Extra code to put in if renter decides to change to longer stay time
select StayID, RenterUsername, RentalID, StayTime, LongTerm,
case
    when StayTime > 7 then 'Yes'
    else 'No'
end as LongTerm
from stay
```

Answering Data Questions

- Who are the people buying properties to rent out?
    - How many properties do they own?
        - Answered in implementation section
- Who rents the properties?
    -
```
-- Select age of renters and what type of place they rent
select Renter.RenterUsername, Renter.Age, Rental.PropertyAddress, Rental.RentalID, Stay.StayTime
from Renter
inner join Stay on Renter.RenterUsername = Stay.RenterUsername
inner join Rental on Rental.RentalID = Stay.RentalID
```
    -

	RenterUsername	Age	PropertyAddress	RentalID	StayTime
1	Gjones	33	6826 W. 6th St	846242	6
2	Chrisgooo	21	1234 Highaldn Stone Ct	541345	4

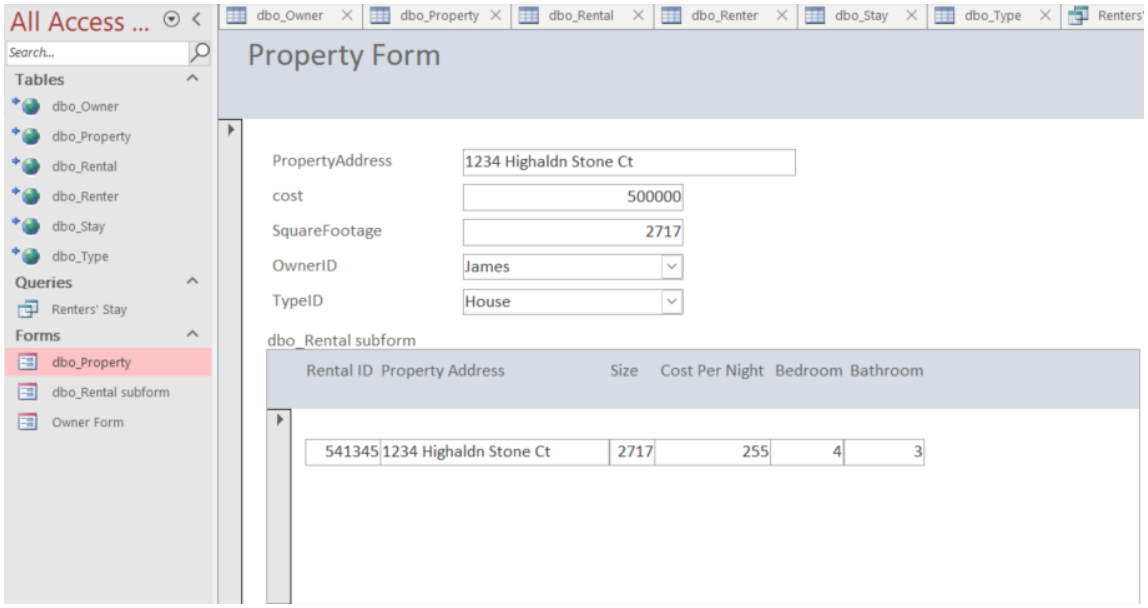
- How much does the average property go for per month?
    -
```
select PropertyAddress, bedroom, Bathroom, CostPerNight, StayTime,
case
    when StayTime > 0 then (CostPerNight * StayTime)
    else NULL
end TotalAmountStay
from Rental
inner join Stay
    on Rental.RentalID = Stay.RentalID
```
    -

	PropertyAddress	bedroom	Bathroom	CostPerNight	StayTime	TotalAmountStay
1	6826 W. 6th St	2	1	125	6	750
2	1234 Highaldn Stone Ct	4	3	255	4	1020

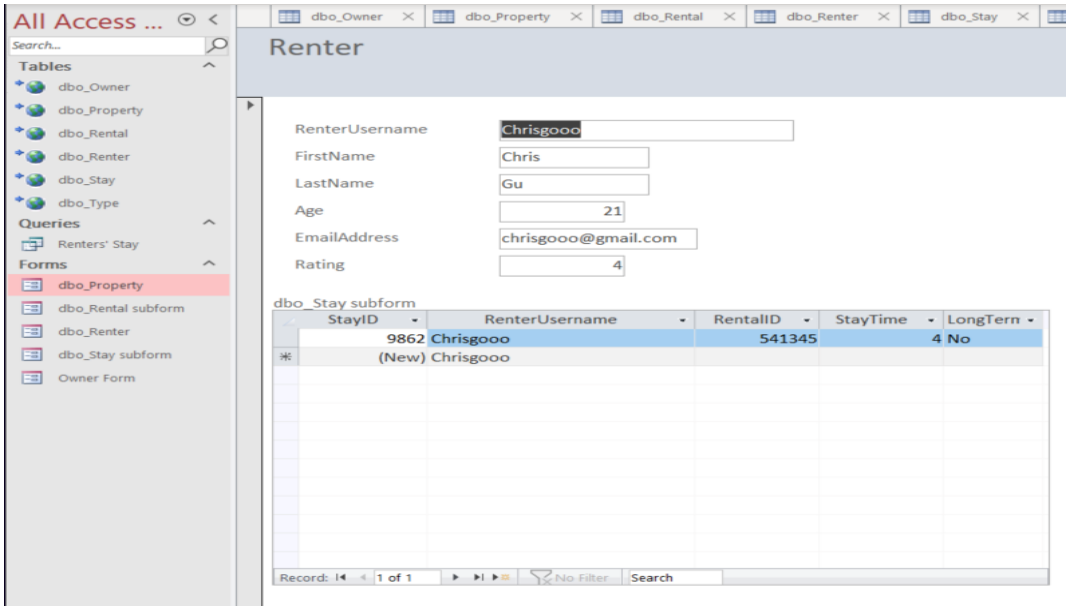
    - With the average stay at an AirBnb being about 21 days out of the month, we can calculate that the 6th st. property would average $2,625/month while the Highaldn Stone property would average $5,355

Implementation

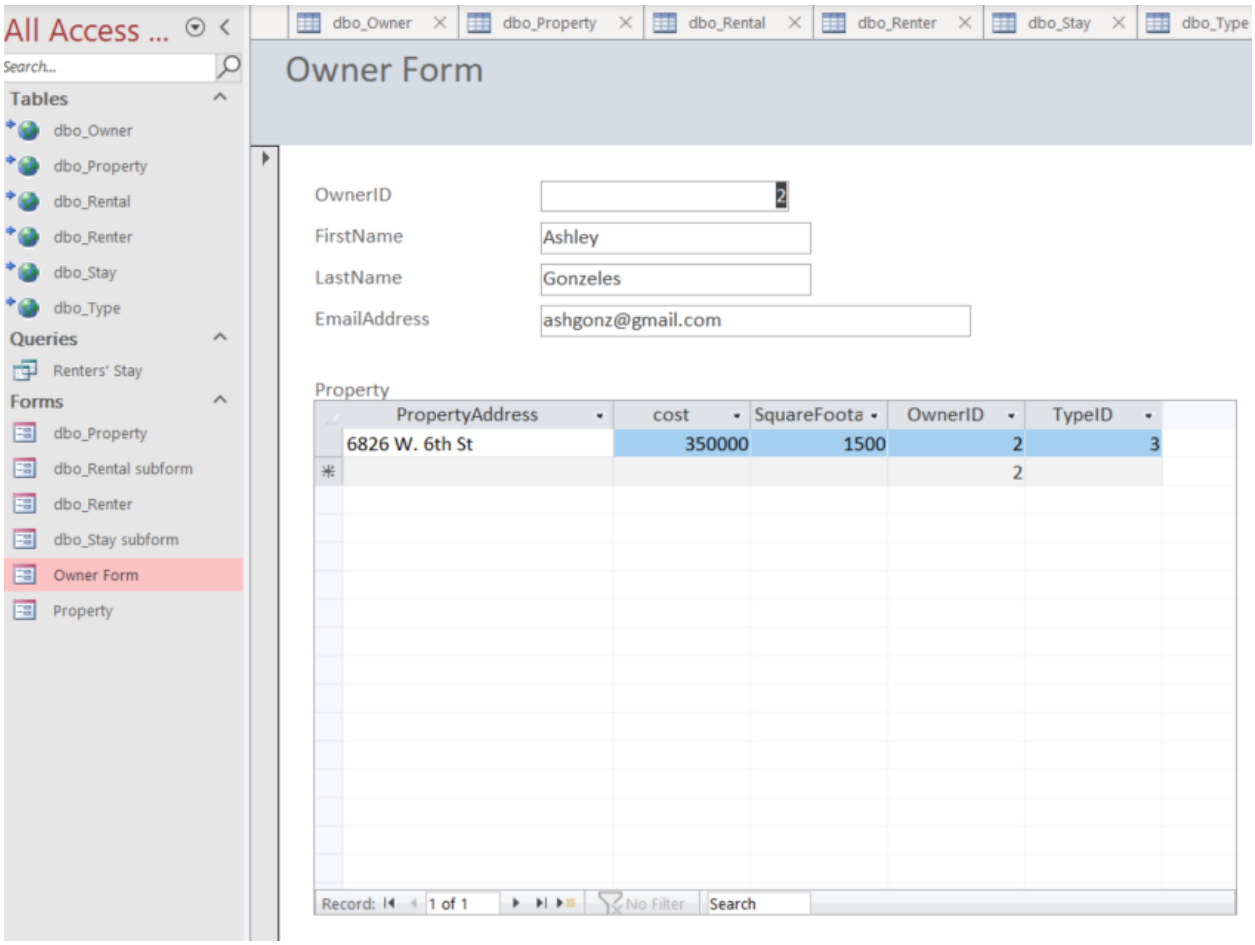
This is a Property Form for owners to help set their rental up for Airbnb.



This Renter Form shows who is renting, their stay ID (confirmation #), rental ID (helps find the property) and also their stay time.



The following is an Owner Form that also answers the first business question.



Reflection

When I first started this project I had no idea how I was going to incorporate my ideas into a usable database. But as I got further along and continued each step it was interesting to see everything come together. I assumed that, like any other project I have done, this could be done all at once and I could skip around to different sections of the project if I was stuck. I was glad that it was not though because I got to see step by step how my database came together. Although we were only allowed to have 5-10 insert statements for data creation, it would have been fun to add more to see how we can do different implementations or data manipulation within our data set. If I decide to keep trying around with this database I will definitely add more INSERT/VALUES to see what I can come up with in the database. Although there could be a bit more done and possible more tables to be added within the database. Maybe an extra table for Airbnb to show how much they take in from the Owners and Renters each time a rental property is used. That way Owners can see how much of their money goes to Airbnb as well.

Summary

This AirBnb database will help owners of property potentially make a transition to become hosts easier. With this database they can track and log all everything they need to help track their properties and potential earnings of each rental they have. The data questions were all able to be answered with this database as well as making it easy to use. Microsoft Access helped with the front end and the reason I choose it is because of the simplicity of the software, as well as the clarity it gives to the users who choose it.