

## **FireBnB Deliverable 1**

INSY 661

Section 075

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Group 4:

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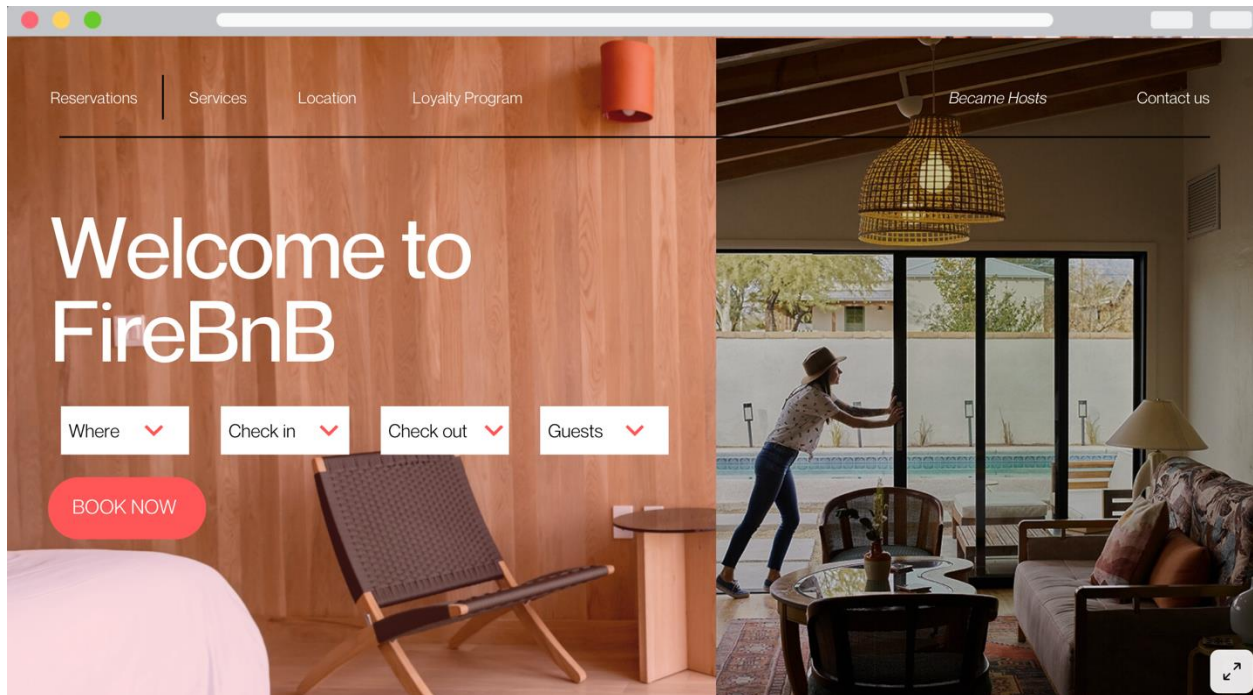
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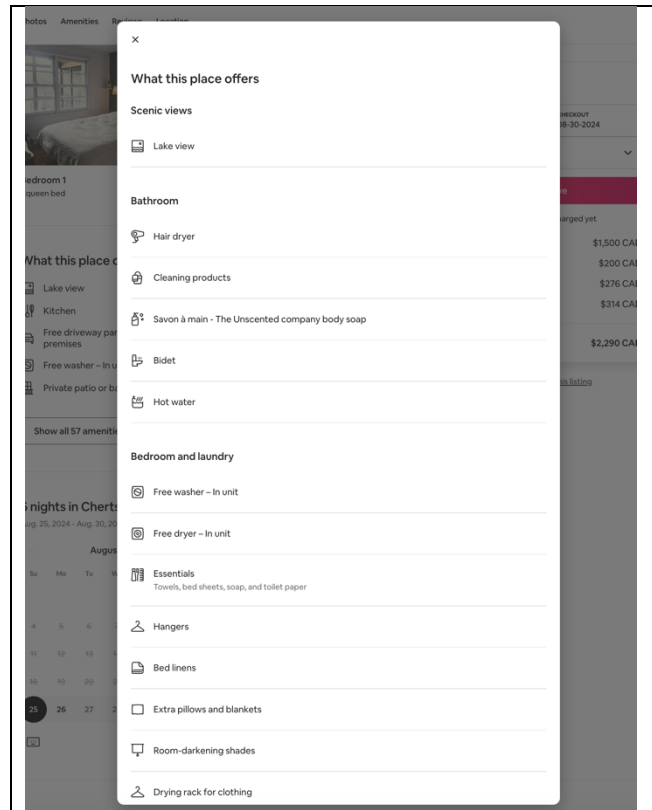
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## Overview of Business Scenario

FireBnB is an online marketplace that connects people seeking accommodations with those providing them, offering a user-friendly, transparent, and flexible platform.



From the perspective of the guest, FireBnB enables access to a wide range of properties beyond the traditional hotel. Having variety in selecting trip accommodations allows trip planners to shape their vacation in a way that provides a more authentic experience. Getting to live like a local, stay in a unique home, and affordability are some of the many benefits of booking a stay through FireBnB. Furthermore, being able to search for both short- and long-term stays, as well as the opportunity to be more selective with respects to your choice of amenities such as having a kitchen to cook your own meals or a pool to go swimming in, are examples of flexibility in being able to customize your stay.



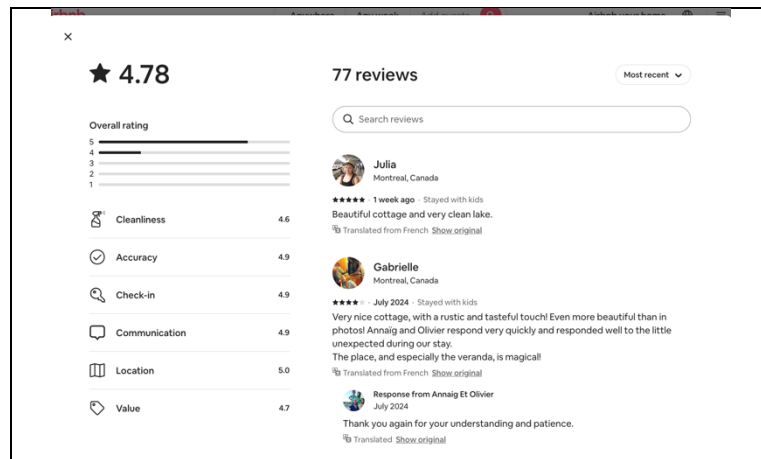
*Exhibit A: A list of amenities associated with a property*

For hosts, FireBnB provides an opportunity to earn supplemental income by renting out their available properties, ranging from spare rooms to entire vacation homes. Like guests, hosts have flexibility to control their listings, pricing and availability, adjusting them based on demand and seasonality to maximize their potential earnings. Additionally, the globality of this platform maximizes their potential reach for those around the world to find and book one's property, which provides a rare chance to connect people of different backgrounds and cultures.

\$280 CAD night		\$263 CAD night	
CHECK-IN 09-04-2024	CHECKOUT 09-10-2024	CHECK-IN 09-06-2024	CHECKOUT 09-12-2024
GUESTS 1 guest		GUESTS 1 guest	
Reserve		Reserve	
You won't be charged yet		You won't be charged yet	
\$280 CAD x 6 nights		\$263 CAD x 6 nights	
\$1,680 CAD		\$1,580 CAD	
Cleaning fee		Cleaning fee	
\$200 CAD		\$200 CAD	
Airbnb service fee		Airbnb service fee	
\$305 CAD		\$289 CAD	
Taxes		Taxes	
\$347 CAD		\$329 CAD	
Total		Total	
\$2,532 CAD		\$2,398 CAD	

*Exhibit B: Pricing adjustments to the accommodation, made by the host*

Both types of users benefit from the platform's emphasis on protection and security. FireBNB has a review system in which allows users to rate and review each other based on whether the property they stayed met their accommodations, if the guest was respectful, and if there were any complications in the booking process from either end. This provides a source of accountability and transparency, thus increasing the safety and community-feel of users on this platform.



*Exhibit C: A look at the information stored in an accommodation's review*

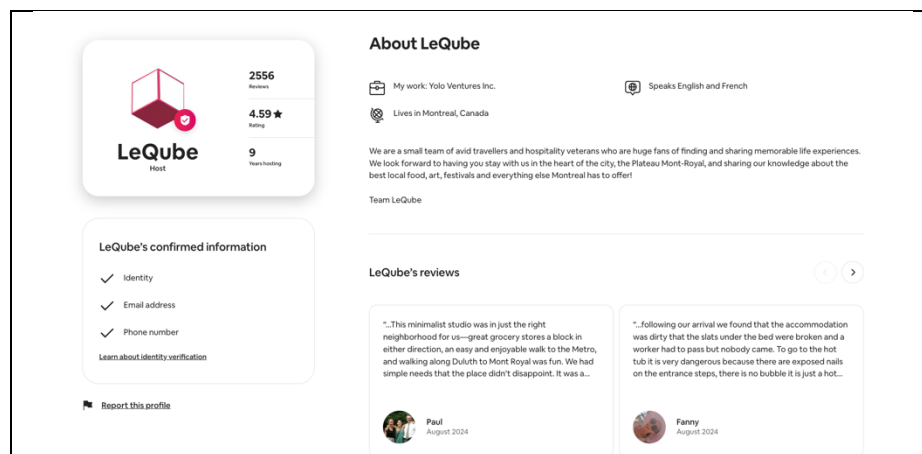
In terms of value proposition, one keyway that FireBnB differentiates us from competitors is the introduction of our loyalty program for guests. For those who are frequent travelers or planning a trip with multiple stops, guests can subscribe to our tiered membership, which provides a discount on bookings to further promote our core value of enhancing the accommodation experience and create memorable stays.

## Mission Statement:

The mission of FireBnB is to facilitate a memorable and authentic accommodation for travelers, while empowering hosts to unlock their full potential of their spaces. We aim to create a global community where guests and hosts can connect in a safe and transparent environment, promoting cultural exchange and sustainable tourism.

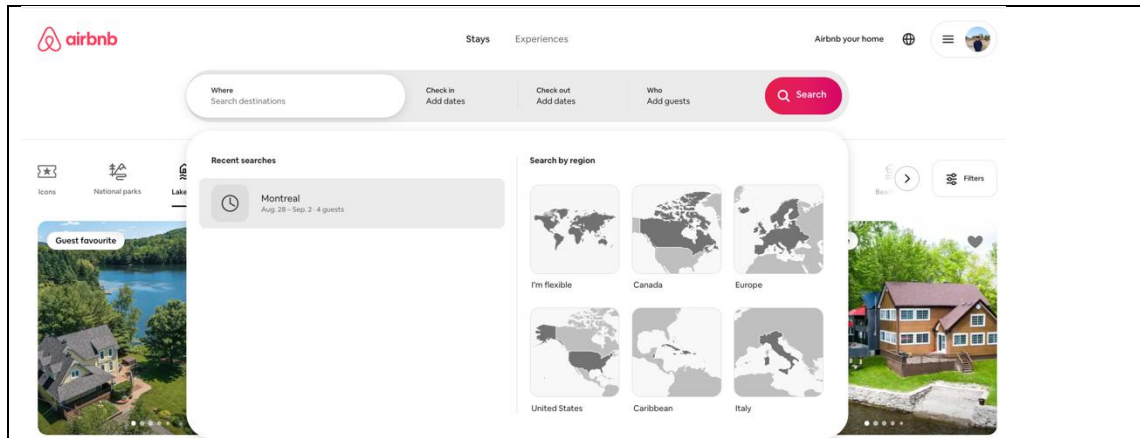
## Objectives:

- 1. Provide a safe and secure environment for all users:** The database will store user reviews and ratings that fosters trust and transparency among users. It will track and store reviews left by both guests and hosts, helping to establish a safe community environment. Each review will be associated with a specific booking, ensuring that reviews are tied to actual stays. The rating system will provide transparency and help build trust between users on the platform.



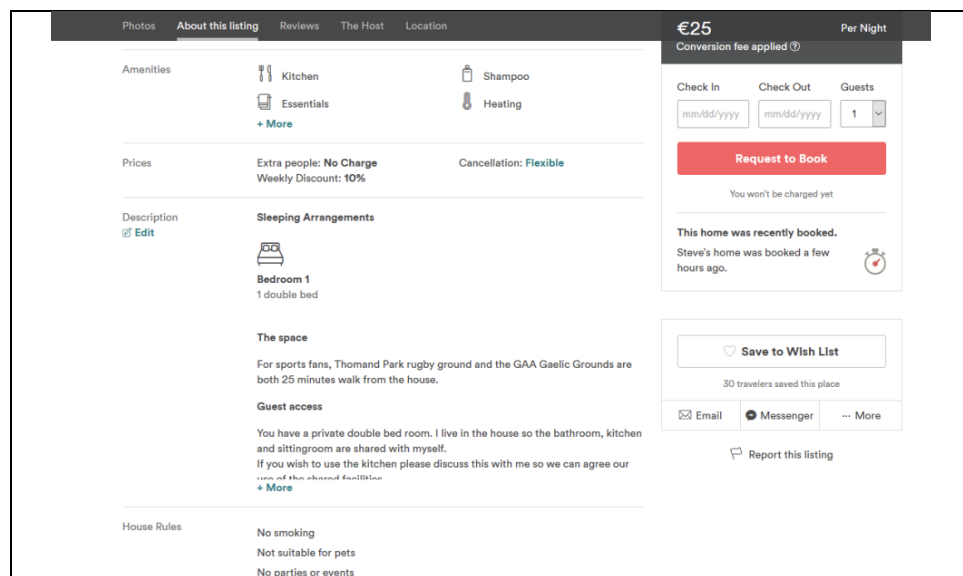
*Exhibit D: User Ratings*

- 2. Enhance the accommodation experience:** The database will manage information to property listings, amenities, and bookings. This will allow guests to search for and select properties for specified dates. Each booking will be tied to a specific guest, property, and host, ensuring that the booking details such as check-in, check-out, and the number of guests are accurately stored. The system will also track booking statuses (e.g., confirmed, cancelled, completed) to ensure clarity for both users.



*Exhibit E: Searching for listings, based on specific accommodation requirements*

3. **Giving the host a voice:** Providing hosts flexibility with respects to their property listings allows them to maximize income and delivers greater hospitality to guests. Hosts will be able to manage their property listings, pricing, property type, and maximum guests directly through the platform. The database will ensure that properties can have multiple amenities (e.g., pool, kitchen) linked to them, providing hosts with flexibility in listing their properties and guests with the ability to search for specific features.

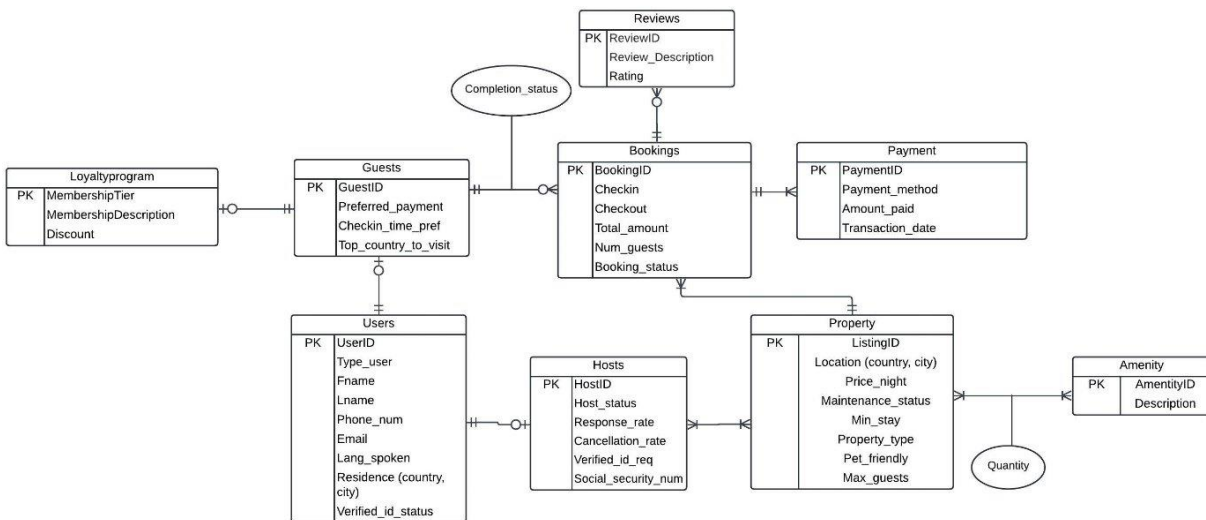


*Exhibit F: Host Listing, Editing Flexibility*

4. **Innovate and connect the world:** Through our guest loyalty program, users can subscribe to access a discount corresponding to a specific membership tier. Membership details, such as the tier level and associated benefits will be stored and applied to bookings made by guests. With this, we aim to further encourage frequent travelers to use our platform to connect with communities and cultures from around the globe.

## Entity-Relationship Diagram (ERD)

Figure 1 illustrates the relationships between key entities in the system: Guests, Hosts, Properties, Bookings, Payments, Reviews, and the Loyalty Program. The diagram reflects the relationships and cardinality between these entities (e.g., a guest can have many bookings, a booking is tied to one property).



## Data Dictionary

### Description of the Entities

Entity Name	Description	Aliases	Occurrence
<b>Bookings</b>	Contains all of the information about the scheduled booking of an accommodation over a certain period of time.	Reservations, Stays	Bookings can have many reviews (maximum of 2 ie 1 each from guest and host). Each booking can only be linked to one property. Bookings can have multiple payments (pay installments option). Bookings can only be linked to one guest.
<b>Payment</b>	Contains the purchase information linked to the specific booking of an accommodation.	Purchase history, Posted transaction	A payment can only be linked to one booking, but multiple payments can be made for a single booking.
<b>Property</b>	An entity comprised of all of the information related to a specific, unique accommodation listing	Listing	A property can have many amenities. A property can have many bookings. A property can have many hosts (co-hosting).
<b>Reviews</b>	An evaluation provided by users that serves as a source of feedback for both parties (guests and hosts) and informed decision making	Feedback, Rating	A review can only be associated with one specific booking. Each booking may or may not have any reviews. Reviews can be written by guests and/or hosts, maximum of 1 review each from guest and host for each booking.
<b>Amenity</b>	A subclass of property that features information about the specific amenity as pertaining to the listing it belongs to	Facilities, Perks, Comforts	An amenity can be linked to many different properties. Each property needs to have at least one amenity.
<b>Users</b>	Contains the information about both kinds of users (guests and hosts) including their contact details and other relevant person-specific information	Account	One user may be considered a host, a guest or both.
<b>Host</b>	A subclass of Users that contains information about their listings including their years as a host, status and reviews.	Accommodator	A host must be a user. A host can have many properties.
<b>Guest</b>	A subclass of Users that contains information about their functionality as a guest, including their personal guest rating and their stays	Renter	A guest must be a user. A guest can have many bookings. A guest may be a part of the loyalty program.
<b>Loyaltyprogram</b>	A subclass of the Guest entity that indicates their membership in the subscription loyalty program, which provides them discounts on accommodation bookings based on a specific tier.	Subscription, Premium	A loyalty program subscription must be linked to only one guest.



### Description of the Attributes

Entity Name	Attributes	Description	Data Type	Nulls	Multi-Valued	Derived	Default
Bookings	BookingID	Unique identifier for each booking	10 VARCHAR	No	No	No	None
	Checkin	The date the guest can begin their stay at the property	DATE	No	No	No	None
	Checkout	The date the guest must leave the property	DATE	No	No	No	None
	Total_amount	The total cost of the booking	10, 2 DECIMAL	No	No	Yes	None
	Num_guests	The number of people staying at the property for the specific booking	Small INT	No	No	No	None
	Booking_status	'Pending', 'approved' or 'cancelled'	50 VARCHAR	No	No	No	None
Reviews	ReviewID	The unique identifier for each review	INT	No	No	No	None
	Review_Description	The actual body of the review written by the user	TEXT	Yes	No	No	None
	Rating	The score associated with the user's rating	4,2 DECIMAL	Yes	No	No	None
Payment	PaymentID	The unique identifier for each payment made	INT	No	No	No	None
	Payment_method	The means by which the purchase was made through (VISA, Mastercard, etc.)	50 VARCHAR	No	No	No	None
	Amount_paid	The amount paid for the specific payment ID	10, 2 DECIMAL	No	No	No	None
	Transaction_date	The date that the transaction/payment occurred	DATE	No	No	No	None
Property	ListingID	The unique identifier for each property	10 VARCHAR	No	No	No	None
	Location (country, city)	A composite attribute describing the country and city that the listing is located in	50 VARCHAR	No	No	No	None
	Price_night	The current cost that the listing is per night	10, 2 DECIMAL	No	No	No	None

	Maintenance_status	The status to which the property is maintained. Limited to 'Yes', 'No' options	3 VARCHAR	No	No	No	None
	Min_stay	The minimum number of days the property can be booked for	Small INT	No	No	No	1
	Property_type	The type of the specific property (house, room, etc.)	50 VARCHAR	No	No	No	None
	Pet_friendly	Whether or not the guest is allowed to bring their pets	BOOLEAN	No	No	No	None
	Max_guests	The maximum number of guests allowable at the property for each booking	Small INT	No	No	No	None
Amenities	AmenityID	The unique identifier for the amenity belonging to the property	Small INT	No	No	No	None
	Description	A description of what the amenity offered is	TEXT	No	No	No	None
Users	UserID	The unique identifier for each user	INT	No	No	No	None
	Type_user	What kind of user they are: can be a host, a guest or both	10 VARCHAR	No	No	No	None
	Fname	The first name of the user	50 VARCHAR	No	No	No	None
	Lname	The last name of the user	50 VARCHAR	No	No	No	None
	Phone_num	The phone number of the user	50 VARCHAR	No	No	No	None
	Email	The email address of the user	100 VARCHAR	No	No	No	None
	Lang_spoken	The language spoken by the user	50 VARCHAR	Yes	No	No	None
	Residence (Country, City)	A composite attribute comprising of the country and city where the user is located	500 VARCHAR	No	No	No	None
	Verified_id_status	Options limited to 'Verified' or 'Not verified'	50 VARCHAR	No	No	No	None

Hosts	HostID	The unique identifier for the host	INT	No	No	No	None
	Host_status	The status of the host. Options limited to normal or superhost	50 VARCHAR	No	No	No	Normal Host
	Response_rate	How well the host is at responding to guests and other users	4, 2 DECIMAL	Yes	No	No	None
	Cancellation_rate	The price that is set by them to cancel an upcoming stay	4, 2 DECIMAL	Yes	No	No	None
	Verified_id_req	Whether the host requires guests to be verified before making a reservation. Options limited to 'Yes', 'No'	3 VARCHAR	No	No	No	None
	Social_security_num	The social security number of the host for tax purposes	15 VARCHAR	No	No	No	None
Guests	GuestID	The unique identifier for the guest	INT	No	No	No	None
	Preferred_payment	The preferred method of payment utilized by the guest	50 VARCHAR	Yes	No	No	None
	Checkin_time_pref	The preferred time at which the guest would like to check in at	TIME	Yes	No	No	None
	Top_country_to_visit	The main country the guest would wish to visit	50 VARCHAR	Yes	No	No	None
Loyaltyprogram	MembershipTier	The specific membership tier (gold, silver, bronze)	50 VARCHAR	No	No	No	None
	MembershipDescription	A description of what the membership tier provides	TEXT	No	No	No	None
	Discount	The discount percentage off each booking that the guest is entitled to	4, 2 DECIMAL	No	No	No	None

### Relational Schema

The relational schema for this database follows the ERD and ensures that the relationships between entities are captured through foreign keys. Each table will have a primary key, and foreign keys will be used to link tables, ensuring referential integrity.

Users (UserID, Type\_user, Fname, Lname, Phone\_num, Email, Lang\_spoken, Country, City, Verified\_id\_status)

Primary Key: UserID

Hosts (HostID, Host\_status, Response\_rate, Cancellation\_rate, Verified\_id\_req, Social\_security\_num)

Primary Key: HostID

Foreign Key: HostID references Users (UserID)

Loyaltyprogram (MembershipTier, MembershipDescription, Discount)

Primary Key: MembershipTier

Guests (GuestID, MembershipTier, Preferred\_payment, Checkin\_time\_pref, Top\_country\_to\_visit)

Primary Key: GuestID

Foreign Key: GuestID references Users (UserID), MembershipTier references Loyaltyprogram (MembershipTier)

Property (ListingID, Location\_country, Location\_city, Maintenance\_status, Min\_stay, Property\_type, Pet\_friendly, Max\_guests)

Primary Key: ListingID

Host\_Property (HostID, ListingID)

Primary Key: HostID, ListingID

Foreign Key: HostID references Hosts (HostID), ListingID references Property (ListingID)

Amenities (AmenityID, Description)

Primary Key: AmenityID

Property\_Amenities (ListingID, AmenityID, Quantity)

Primary Key: ListingID, AmenityID

Foreign Key: ListingID references Property (ListingID), AmenityID references Amenities (AmenityID)

Bookings (BookingID, ListingID, HostID, GuestID, Checkin, Checkout, Total\_amount\_Num\_guests, Booking\_status, Completion\_status)

Primary Key: BookingID

Foreign Key: ListingID references Property (ListingID), GuestID references Guests (GuestID), HostID references Hosts (HostID)

Reviews (ReviewID, Review\_UserID, BookingID, Review\_Description, Rating)

Primary Key: ReviewID

Foreign Key: Review\_UserID references Users (UserID), BookingID references Bookings (BookingID)

Payments (PaymentID, BookingID, Payment\_method, Amount\_paid, Transaction\_date)

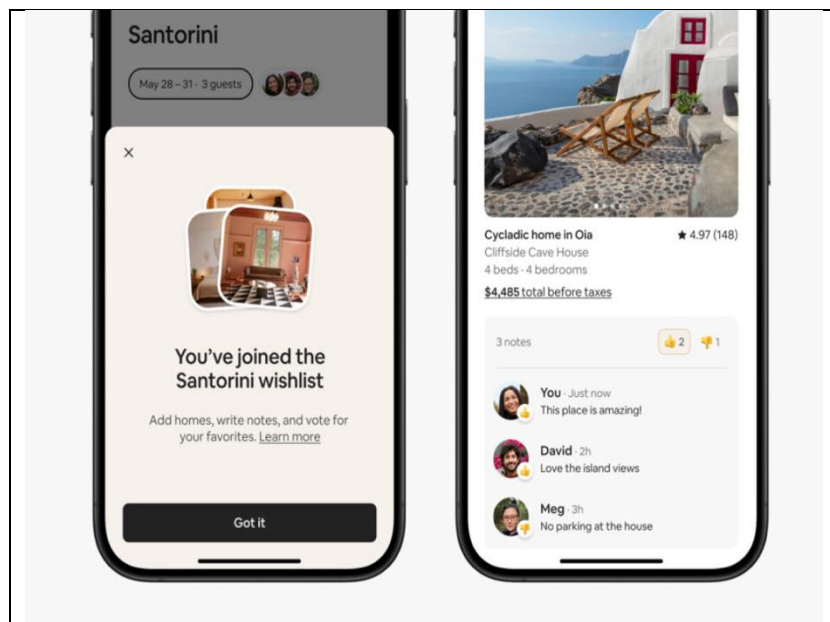
Primary Key: PaymentID

Foreign Key: BookingID references Bookings (BookingID)

## Project Limitations and Opportunities for Future Development

Considering FireBnB is still in its early stages of development and a relatively small booking service compared to competitors, there are some features that while we wish to incorporate in the future, extending beyond the scope of the current project.

One example is the AirBnB's feature to add multiple users to a trip booking. When you invite other users to join your trip, it provides them with access to all the booking details. Prior to booking a trip, you can create shared group wish lists and leave notes about potential places you and your travel companions wish to stay at (See Figure 2). Furthermore, this would also complicate the relationships between the Bookings and Review entities, as it would allow multiple users to submit reviews and multiple users to be reviewed following their stay. This is a feature that we currently do not have but hope to incorporate in the future.



*Exhibit G: AirBnB's ability to share wishlists with other users.*

A second limitation that currently exists with FireBnb is that, given the scope of the project and small business size, is the lack of its own form of currency to pay for accommodations. AirBnB offers gift cards that users can use as guests to book accommodations (See Figure 3). Giving the ability to book a stay as a gift to someone else inspires them to travel, explore the world, or experience a nice getaway is a great way to encourage non-users to make purchases for those who utilize the service.



Redeem

Buy now

## You give. They go.

Bring the world of Airbnb to friends and family. Celebrate holidays, recognize important moments, and inspire travel. Help them go wherever, whenever, since they never expire.

Purchasing for business?

[Buy gift cards in bulk](#)

Pick your design



*Exhibit H: AirBnB's Gift Card purchase site*