

## **Relation Schema:**

**Account\_table** = (email, fname, lname, pass\_word, is\_admin, is\_client, phone\_number)

**Owner\_table** = (email[fk1])

fk1: email → **Account**.email

**Customer\_table** = (email[fk2], credit\_card#, CVV, Exp\_date, current\_location)

fk2: email → **Account**.email

**Book** = (customerID[fk3], airline\_name, flight\_number[fk4], number\_of\_seats)

fk3: customerID → **Customer**.email,

fk4: airline\_name, flight\_number → **Flight**.airline\_name, **Flight**.flight\_number

**Rates** = (ownerID[fk5], customerID[fk6], owner\_rates\_customer, score)

fk5: ownerID → **Owner**.email

fk6: customerID → **Customer**.email

**Property**(ownerID[fk7], property\_name, owner\_description, street, city, state, zip, cost\_per\_night\_per\_person, capacity)

fk7: ownerID → **Owner**.Email, OwnerID is non-null

**Amenities** = (ownerID, property\_name[fk8], amenity)

fk8: ownerID, property\_name → **Property**.ownerID, **Property**.name

**Reserve**(ownerID, property\_name[fk9], customerID[fk10], start\_date, end\_date, guests\_number)

fk9: ownerID, property\_name → **Property**.ownerID, **Property**.property\_name

fk10: customerID → **Customer**.email

**Review**(ownerID, property\_name[fk10], customerID[fk11], content, score)

fk10: ownerID, property\_name → **Property**.ownerID, **Property**.property\_name

fk11: customerID → **Customer**.email

**IsCloseTo**(ownerID, property\_name[fk12], airport[fk13], distance)

fk12: ownerID, property\_name → **Property**.ownerID, **Property**.property\_name

fk13: airport → **Airport**.airportID

**Airline** = (name, rating)

**Airport** = (airportID, airport\_name, street, city, state, zip, time\_zone)

**Attractions** = (airportID[fk14], attraction\_name)

fk14: AirportID → **Airport**.airportID

**Flight** = (airline\_name[fk15], flight\_number, departure\_time, arrival\_time, flight\_date, cost\_per\_seat, capacity, departure\_from[fk16], arrive\_to[fk17])

fk15: airline\_name → **Airline**.airline\_name,

fk16: departure\_from → **Airport**.airportID, departure\_from is not null,

fk17: arrive\_to → **Airport**.airportID, arrive\_to is not null

### **Unhandled Constraints:**

1. How to constrain the insert value of the database between a reasonable scope. For example, the review value cannot be a negative number.
2. How to make sure that an owner has at least a property.
3. How to make sure that an airline has at least a flight.
4. How to make sure that the start date of reservation must be later than the end date.
5. How to make sure that the number of guests in a reservation is within the capacity of the property.
6. How to make sure that the number of reservations for the flight tickets is less than the left seats on the flight?
7. When a person is an owner and a customer, how to ensure that he cannot order his own property and rate on himself.
8. Canceling reservations for property and booking for flights are not considered. Also, the 20% cancellation fee may need to be stored as a float number.
9. Now, the flight must take off and land on the same day. Flights that land on the second day are not dealt with.