



## **Model Assumptions**

- A user can register as a GUEST account or a HOST account.
- A user can have multiple phone numbers.
- A HOST can have zero or many LISTINGS, and a LISTING can have zero or many co-HOSTs. A LISTING can have zero HOST because it can be directly provided by Airbnb.
- A LISTING can have zero or many AMENITYs, and an AMENITY can be installed in zero or many LISTINGS.
- A GUEST can book zero or many LISTINGS, and a LISTING can be booked by zero or many GUESTs. However, bookings cannot overlap, therefore a booking activity must have and only have one BOOKINGDETAILS.
- Airbnb provides aircover service, which is a non-mandatory insurance program. The insurance can be provided to both listings and bookings.
- For a LISTING, there can be no or one LISTINGAIRCOVER.
- For a BOOKINGDETAILS, there can be no or one BOOKINGAIRCOVER.
- For a BOOKINGDETAILS, there can be no or one REVIEW. One REVIEW contains several comments and ratings attributes, because the GUEST and the LISTING can mutually rate.
- For a BOOKINGDETAILS, there must be at least one PAYMENT, because a PAYMENT must be made in order to make a booking. And there can be many PAYMENTS, for additional services or fines.
- A GUESTCONCERNREPORT can be posted by a GUEST. A GUEST can post zero or many GUESTCONCERNREPORTs.
- A HOSTCONCERNREPORT can be posted by a HOST. A HOST can post zero or many HOSTCONCERNREPORTs.
- ATTRACTION sites are separately stored in Airbnb to advertise for LISTINGS, so an ATTRACTION can be near to zero or many LISTINGS, and a LISTING can be near to zero or many ATTRACTIONS.
- LISTING, ATTRACTION and FOOD are in an n-ary relationship, interpreting as “this food option can be provided by the listing or the attraction or both”.

## **Relational Model**

GUEST (guestID, firstName, lastName, email, year, month, day, currentAvgRating)

GUEST\_PHONE (guestID, phoneNumber)

- Foreign Key (guestID) references GUEST

HOST (hostID, firstName, lastName, introduction, email, year, month, day)

HOST\_PHONE (hostID, phoneNumber)

- Foreign Key (hostID) references HOST

LISTING (listingID, currentAvgRating, longitude, latitude, country, state, city, streetName, zipCode)

AMENITY (amenityID, amenityCategory, amenityName)

ATTRACTION (attractionID, attractionName, country, state, city, streetName, zipCode)

FOOD (foodID, foodGenre, expectedPrice)

GUEST\_CONCERN\_REPORT (guestID, reportID, reportReason, country, state, city, streetName, zipCode, year, month, day, hour, minute)

- Foreign Key (guestID) references GUEST

HOST\_CONCERN\_REPORT (hostID, reportID, reportReason, country, state, city, streetName, zipCode, year, month, day, hour, minute)

- Foreign Key (hostID) references HOST

BOOKING\_DETAILS (bookingID, guestID, listingID, totalPrice, checkinYear, checkinMonth, checkinDay, checkinHour, checkoutYear, checkoutMonth, checkoutDay, checkoutHour)

- Foreign Key (guestID) references GUEST
- Foreign Key (listingID) references LISTING

BOOKING\_AIRCOVER (bookingID, guestID, listingID, policyNumber, policyStartYear, policyStartMonth, policyStartDay, policyEndYear, policyEndMonth, policyEndDay)

- Foreign Key (bookingID) references BOOKINGDETAILS
- Foreign Key (guestID) references GUEST
- Foreign Key (listingID) references LISTING

LISTING\_AIRCOVER (listingID, policyNumber, policyStartYear, policyStartMonth, policyStartDay, policyEndYear, policyEndMonth, policyEndDay)

- Foreign Key (listingID) references LISTING

REVIEW (bookingID, guestID, listingID, forGuestComment, forGuestRating, forListingComment, forListingRating)

- Foreign Key (bookingID) references BOOKINGDETAILS
- Foreign Key (guestID) references GUEST
- Foreign Key (listingID) references LISTING

PAYMENT (bookingID, guestID, listingID, paymentID, totalPayment, paymentMethod, year, month, day, hour, minute)

- Foreign Key (bookingID) references BOOKINGDETAILS
- Foreign Key (guestID) references GUEST
- Foreign Key (listingID) references LISTING

HOST\_HAS\_LISTING (hostID, listingID)

- Foreign Key (hostID) references HOST
- Foreign Key (listingID) references LISTING

LISTING\_HAS\_AMENITY (listingID, amenityID)

- Foreign Key (listingID) references LISTING
- Foreign Key (amenityID) references AMENITY

LISTING\_IS\_NEAR\_TO\_ATTRACTION (listingID, attractionID)

- Foreign Key (listingID) references LISTING
- Foreign Key (attractionID) references ATTRACTION

PROVIDE\_FOOD (listingID, attractionID, foodID)

- Foreign Key (listingID) references LISTING
- Foreign Key (attractionID) references ATTRACTION
- Foreign Key (foodID) references FOOD