Functional Specification

Background

Homeowners and potential home buyers often rely on Zillow's Zestimate to estimate the market price of houses. The Zestimate predicts a home's value using publicly available housing data and a proprietary machine learning formula. It serves as a starting point for homeowners who are looking to sell their property and enables home buyers to gain a better understanding of the market.

Such a feature would be similarly useful to predict the market rental price of a short-term rental unit on Airbnb. A guest could compare the price of an Airbnb listing to its predicted price to know if they are getting a good deal. A host could easily determine a good price to list their unit.

User Profile

Guests:
People looking to rent an Airbnb unit. At least 18 years old. Has basic web-browsing and interface navigation experience. Potentially has no experience with short-term rentals.

Hosts:
People looking to list their home on Airbnb. At least 18 years old. Has basic web-browsing and interface navigation experience. Potentially has no experience with short-term rentals.

Data Sources

Inside Airbnb (http://insideairbnb.com/get-the-data.html) uses the publicly available data from Airbnb. The data has been released under a Creative Commons CC0 1.0 Universal (CC0 1.0) "Public Domain Dedication". This site includes multiple csv files for many cities compiled by Airbnb.

Listings.csv.gz: Detailed listing data. Some variables of interest include neighborhood, latitude, longitude, room_type, price, minimum_nights, maximum_nights, bathrooms, bedrooms, beds, and specific amenities such as air conditioning, indoor fireplace, washer, drier, and many more.

Calendar.csv.gz: Detailed calendar data for each listings

Reviews.csv.gz: detailed reviews data for each listing

Use Cases

1. Host wants to get a recommended listing price.
    a. User clicks "Host". Form is displayed
    b. User fills out form about unit specifications, clicks submit
    c. Specifications are inputted into model
    d. Page shows an interval with the predicted rental price of the unit

2. Guest wants to determine if a listing is overpriced
    a. User clicks “Guest”, city buttons are displayed
    b. User clicks the city the listing is in, map displays
    c. User enters address into search bar, map zooms in to address
    d. Map displays estimated rental price. A colour indicating the value of the actual listing (good, average, poor) is displayed