

# Executive summary

## Introduction:

Airbnb is a marketplace for long-term and short-term homestays and acts as a platform for guests and hosts to connect. In short, hosts can take advantage of it for business opportunities. This is no trivial task since the host needs to ensure a high-quality experience for guests while considering profit margins. With this in mind, we aim to reduce the burden on hosts by streamlining their decision-making process, thereby enhancing their overall experience on the platform.

## Objective:

1. Provides rental price recommendation for a new listing on Airbnb for hosts in LA.
2. Recommend amenities to make the listing popular.

## Solution:

### **Customized pricing for new listings using structural modeling and machine learning.**

Our approach considers various factors such as property locations, amenities, host ownership, substitution between nearby listings, etc to maximize the host's profit. The structural model captures supply & demand dynamics and machine learning helps identify consumer consideration sets (hotspot market). We utilize rich features using machine learning and provides recommended price for a listing. We found that XGBoost is the best model for our prediction task.

### **Identifying popular hotspots with the highest rate of return.**

We explored K-means clustering and made a comparison between the rate of return of default neighborhoods and our identified hotspots. We further provide insights on how they differ for each hotspot. It's important to note that the default neighborhood might not accurately represent the consumer's actual consideration set.

### **Identifying the most attractive amenities to consumers through machine learning.**

We investigated the importance of each of the features using machine learning and identified amenities that can attract the most customers. We found that free parking is the most sought-after amenity based on the number of reviews and ratings, followed by washer & dryer.

## Highlights: How to make money in LA with Airbnb?

1. Our project offers price range recommendations for new Airbnb listings by combining structural modeling and machine learning.
2. We identify areas with the best rate of return for hosts.
3. We suggest possible amenities that are attractive to consumers: Free parking, Freezer, Washer, and Dryer.
4. We emphasize the importance of becoming a superhost and responding fast to messages from customers.