



Airbnb Rentals

Fundamentals of Investing in the
Entertainment Capital - Las Vegas

Team 17

OUR TEAM

Divya Vakil

Kaivan Shah

Prachit Puranik



Suchit Sanghvi

Aniket Datar

Ronit Motiwale

TABLE OF CONTENTS



01

Kaggle
Competition

02

Business Case

03

Objective 1

Objective 2

04

Prediction

05

Recommendations

06

INTRODUCTION



Airbnb Experience

- A Personalized experience at an affordable price
- Experience Vegas by staying with the Nevadans.



01

Kaggle Competition

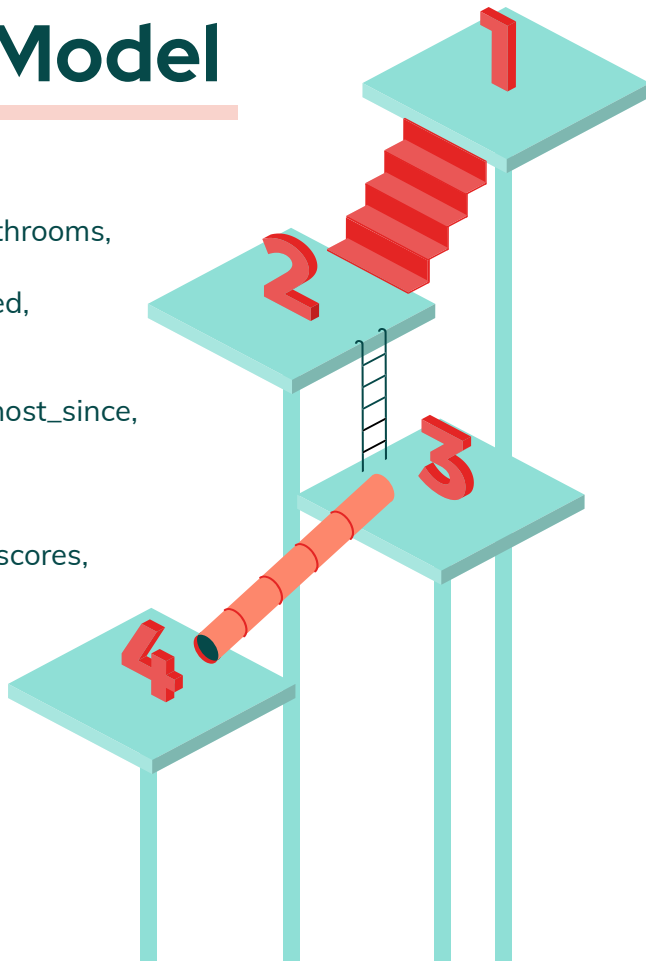
Building the Model

Variables

accommodates, amenities, availability, bathrooms, bed_type, bedrooms, cancellation_policy, cleaning_fee, extra_people, guests_included, host_about, host_has_profile_pic, host_identity_verified, host_is_superhost, host_listings_count, host_response_time, host_since, host_verifications, instant_bookable, is_location_exact, maximum_nights, minimum_nights, price, require_guest_phone_verification, review_scores, room_type, security_deposit, transit

AUC Score

0.93161



Data Processing

Imputing Missing Values, Factorizing, Transformation, Calculated Field, Pattern Extraction, String Manipulation, Recoding

Final Method

Random Forest with 10-fold cross-validation



02

Business Case

LAS VEGAS – MARKET OVERVIEW

- Airbnb has a yearly growth of 7.9% predicted
- Almost all year long influx of visitors.
- In 2019, around 42 Million visitors were recorded
- AirBnb's typical competition: Hotels
- AirBnb rental will typically cost half of Hotels like Hilton for a week long stay.



03

Objective 1

To recommend a property that will get high booking rates

RESEARCH QUESTIONS?



01

Which will be a favorable location for buying the property?

02

What type of property should the investor buy?

03

What should be the property layout?

VARIABLES

12

Number of Variables added from domain knowledge

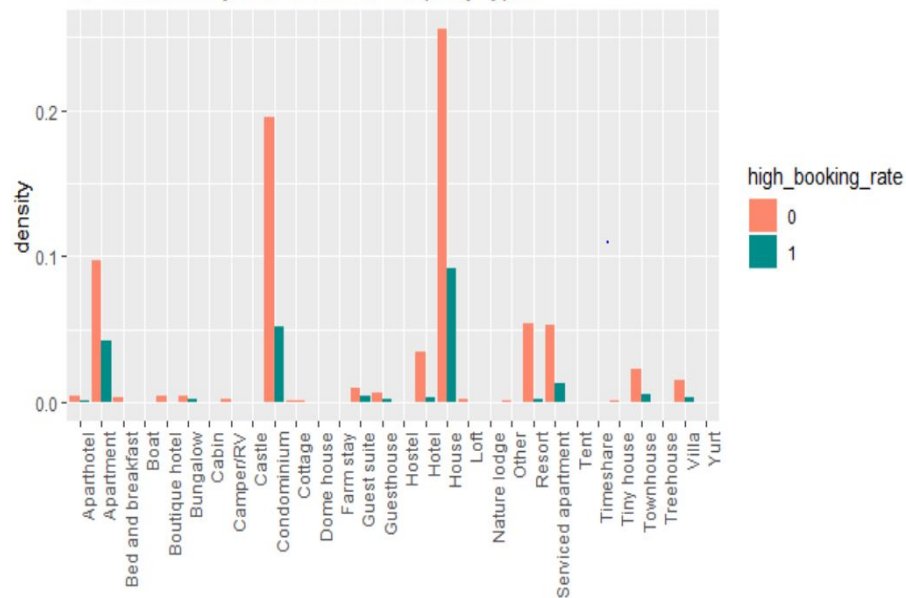
4

Number of Variables included in the final model

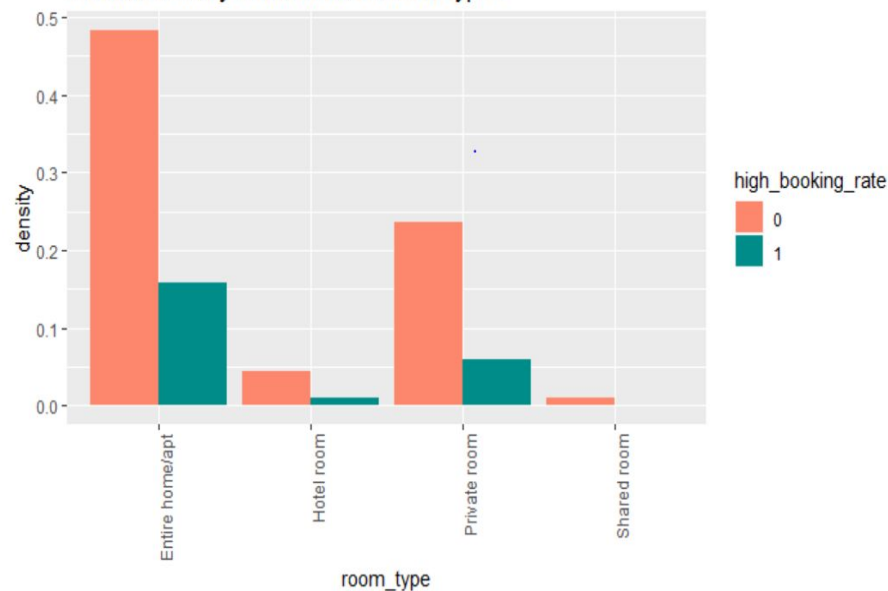
accommodates, amenities, bathrooms, bedrooms, beds, latitude, longitude,
~~neighborhood_overview~~, property_type, room_type, transit, zipcode

EXPLORATORY ANALYSIS

Relative density distribution of Property types

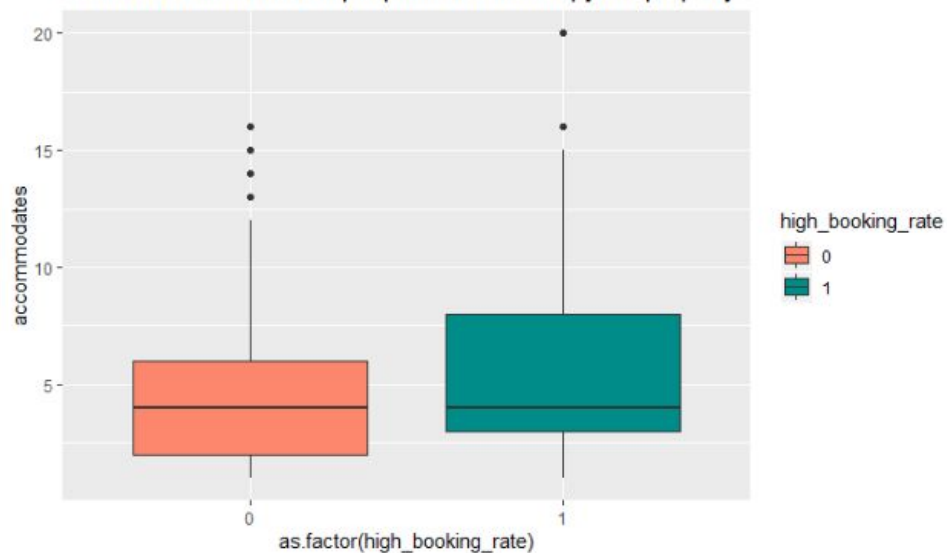


Relative density distribution of Room types

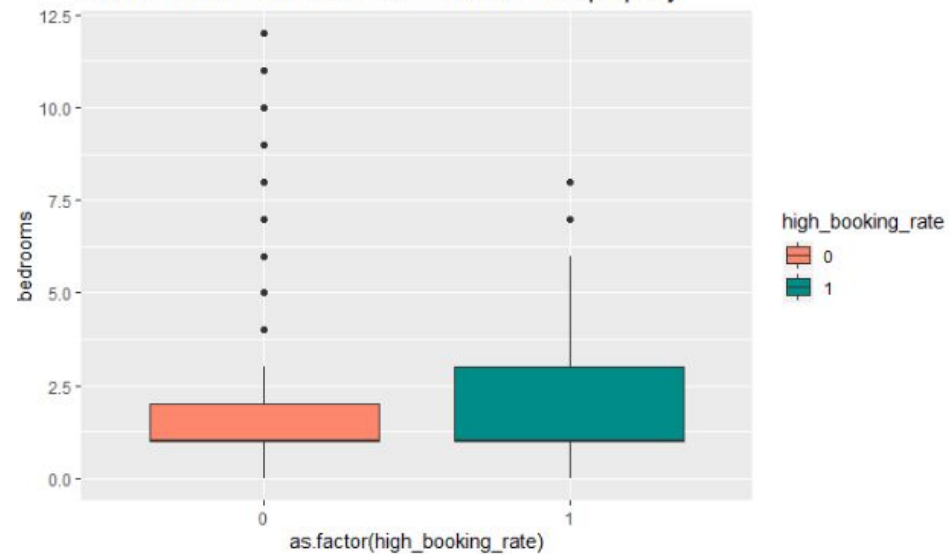


EXPLORATORY ANALYSIS

Distribution of Number of people that can occupy the property

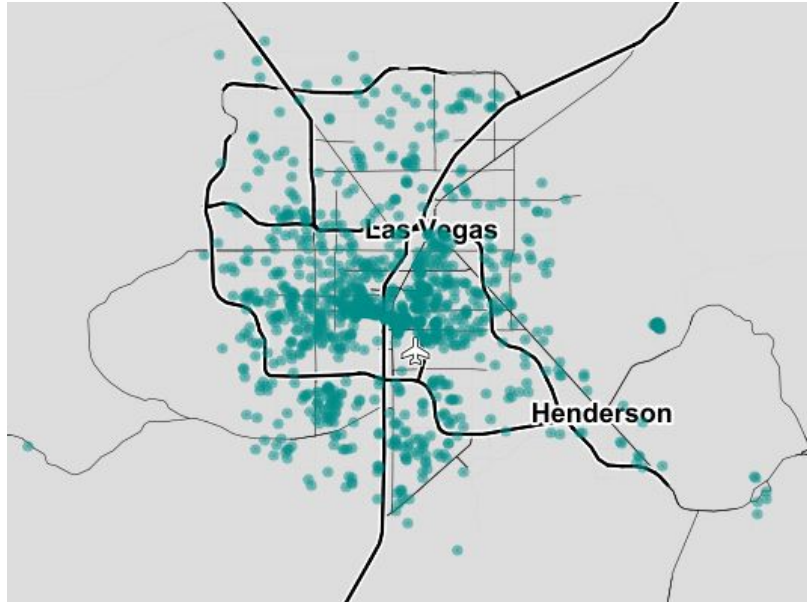


Distribution of Number of Bedrooms within the property

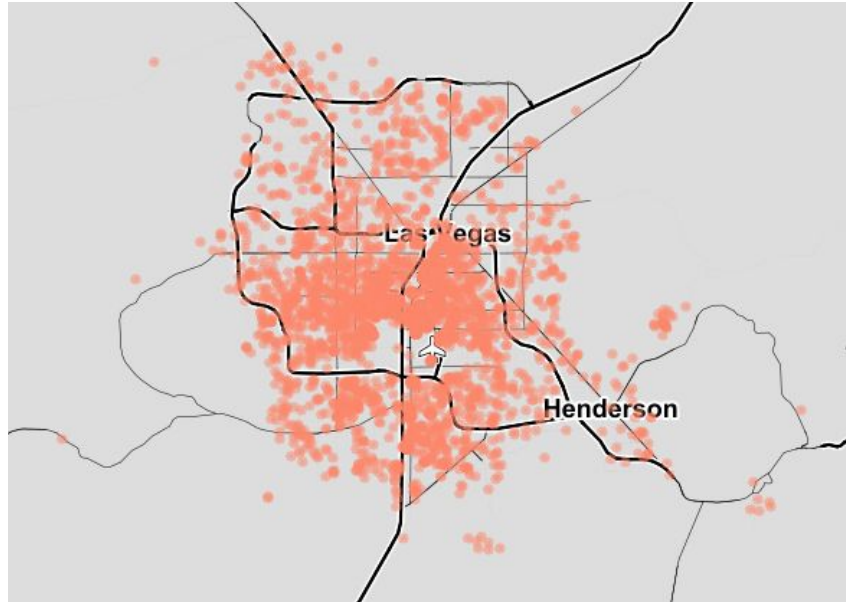


EXPLORATORY ANALYSIS

High Booking Rate: 1



High Booking Rate: 0





04

Objective 2

Recommendations to effectively manage the property

RESEARCH QUESTIONS?



01

What should be the ideal host benchmarks?

02

What are the essential amenities to be provided?

03

What should be the optimal reservation policy?

VARIABLES

23

Number of Variables added from domain knowledge

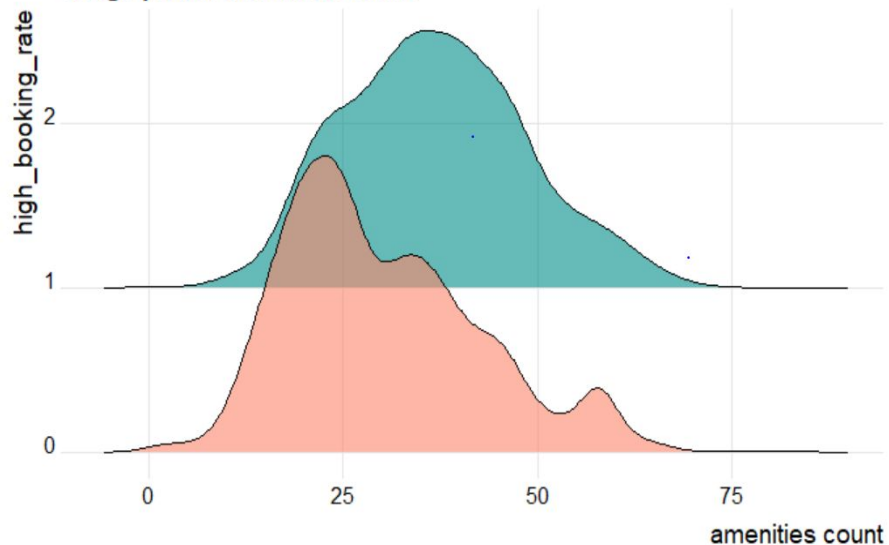
17

Number of Variables included in the final model

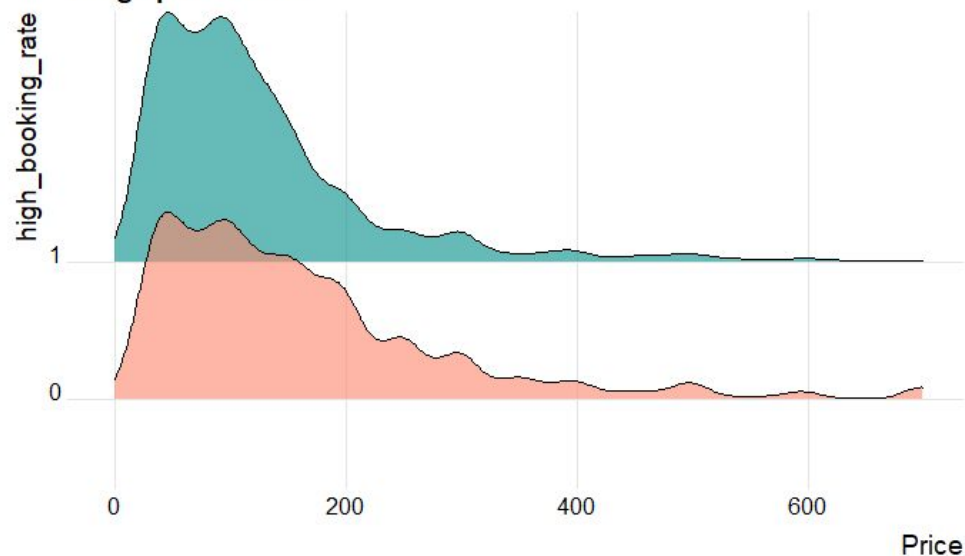
~~hostDays~~, ~~hostVerifications~~, ~~host_listings_count~~, ~~host_response_time~~, ~~host_is_superhost~~,
~~host_has_profile_pic~~, ~~host_identity_verified~~, ~~maximum_nights~~, ~~minimum_nights~~, ~~price~~,
~~cleaning_fee~~, ~~require_guest_phone_verification~~, ~~security_deposit~~, AmenitiesCount, dryer, hot
water, hairdryer, cancellation policy, dummyTransit, instant_bookable, dummyHostLocal

EXPLORATORY ANALYSIS

Ridge plot of amenities count

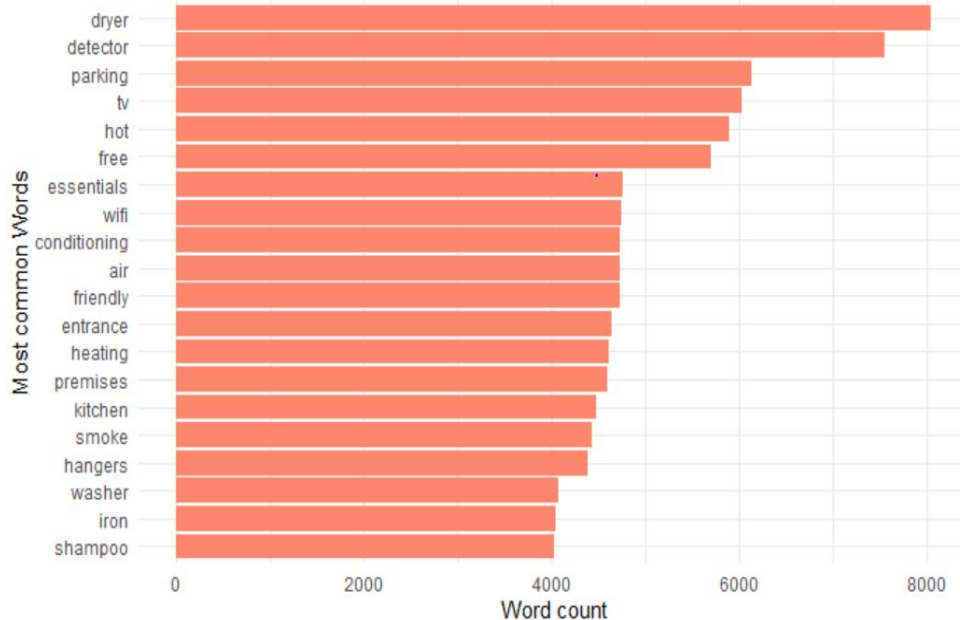


Ridge plot of Price

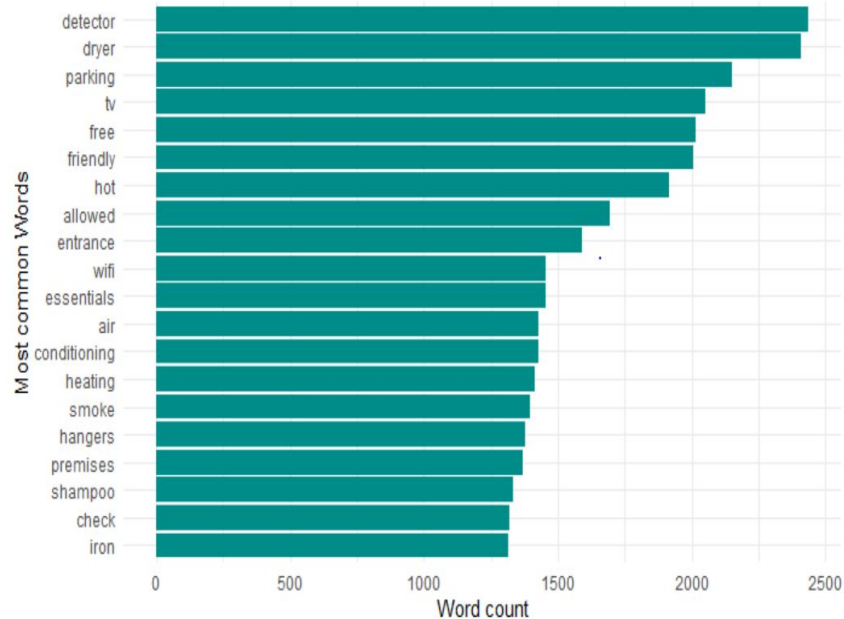


EXPLORATORY ANALYSIS

Top 20 words in amenities low booking rates

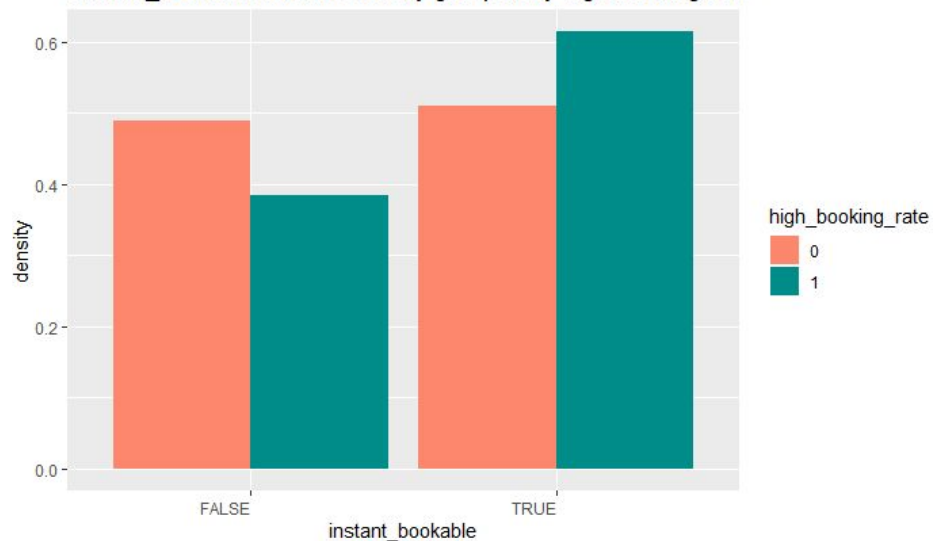


Top 20 words in amenities having high booking rates

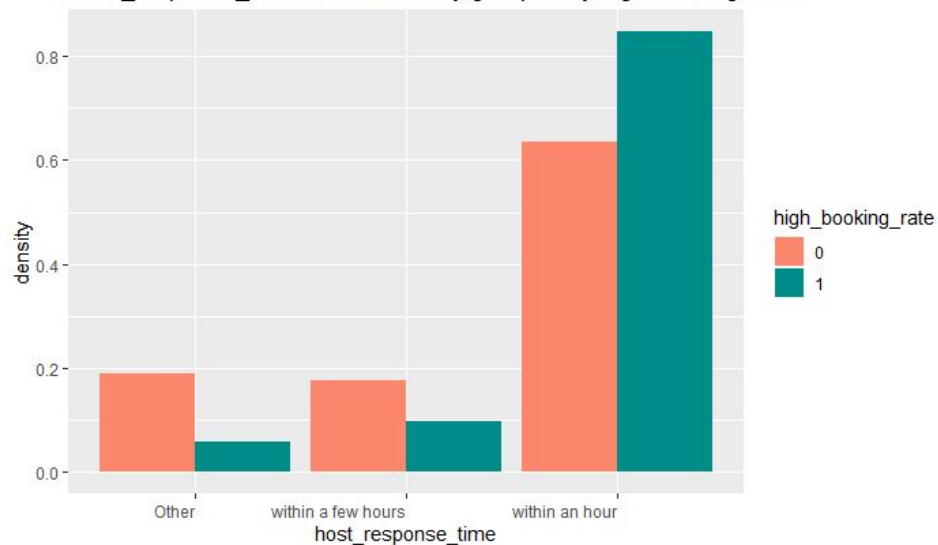


EXPLORATORY ANALYSIS

instant_bookable relative density grouped by high booking rate



host_response_time relative density grouped by high booking rate





05

Predictive Modeling

OUR MODELS

01

Logistic Model

To understand features

02

Ensemble Model

To predict probability of high booking rate

Accuracy

Specificity

ROC
Value

0.7967

0.92135

0.8147855

0.8332

0.9224

0.874834



06

Conclusion

Location

In close proximity to
the Strip, Downtown,
Fremont Street

Property Characteristics

Ideal property type,
number of bed/bath,
room type

Amenities

Total number of amenities,
Top amenities

Transit

Access to public transit

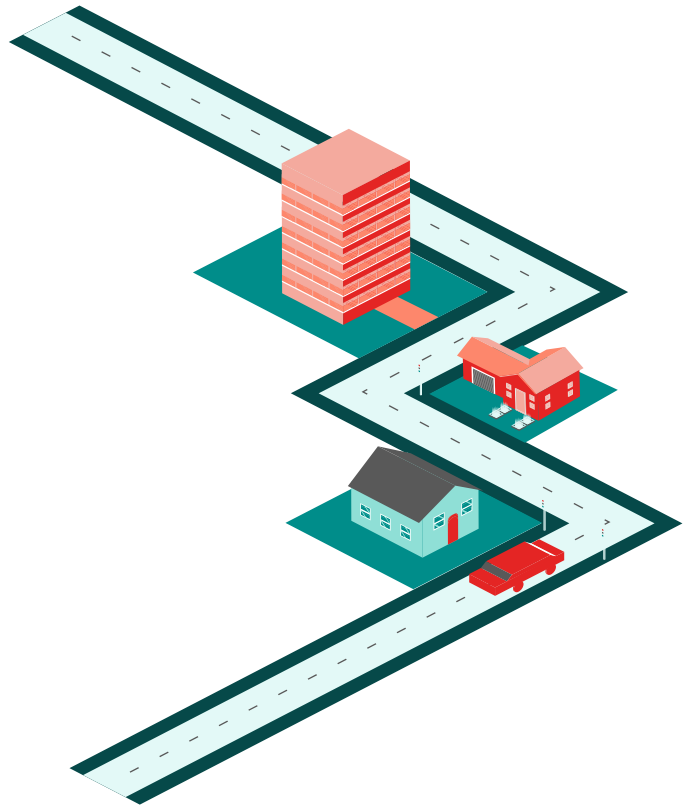
Best time to invest

Lowest median prices in
January and more
options in September

Management

Focus on customer
interaction and flexible
policy

FINAL RECOMMENDATION



Use our model to determine booking rate for the property and to better understand it's features.

THANKS

