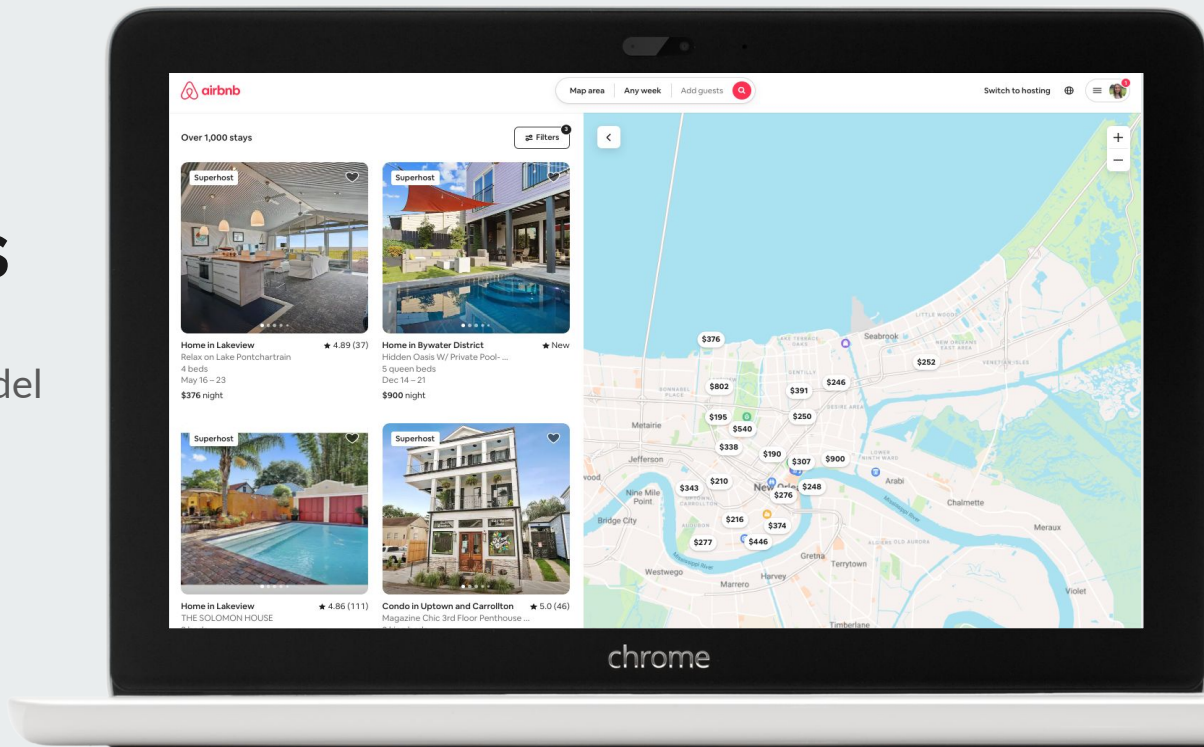# New Orleans Airbnb Analysis

Exploratory Data Analysis and
Machine Learning Predictive Model

Author: Rachel Fein

Summary

The goal of this analysis was to build a predictive model for nightly price and gain insight on the New Orleans short term rental market.

The model can predict the nightly price within $2.02. This can be used to help estimate profits on potential properties.

The analysis gives a general understanding of the New Orleans' Short term rental market. The observations found gives Alter a direction on where to start her property search.

art by Diane Millsap

Outline

art by Romare Bearden

The Problem

This analysis was completed for Sarah Alter, a private investor, who is interested in expanding her vacation rental portfolio to New Orleans, LA.

In 2019 New orleans welcomed 19.75 million tourist, these visitors spent 10.9 billion dollars of which 2.9 billion was spent on lodging.

Not every investment is a good one. Without a good understanding of the market and nightly rates, the chances of buying a bad investment property can rise.
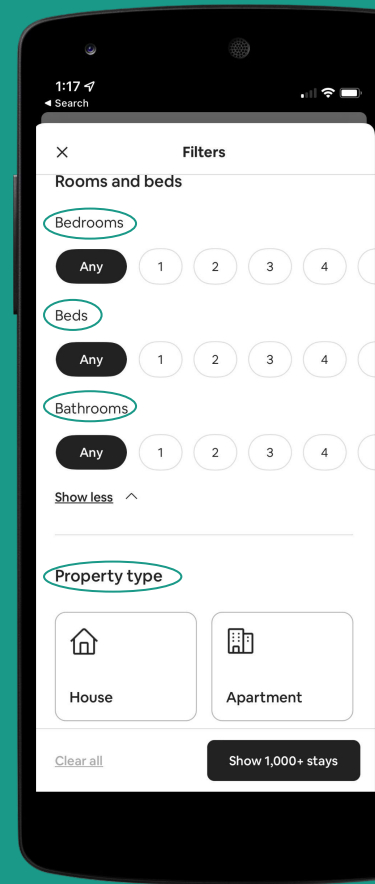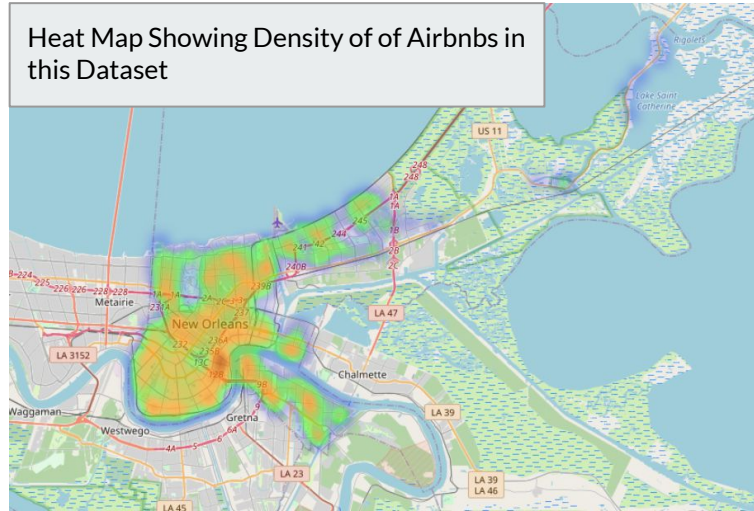
Data

The dataset in this analysis comes from Kaggle, however it is noted the dataset was originally pulled from Inside Airbnb.

Why this dataset is good for solving our problem?

➢ Contains 6,028 Airbnb Listings, all of which are in New Orleans
➢ Includes property features such as number of bedrooms and bathrooms
➢ Gives insight on each Airbnb's success, such as nightly price and availability

Heat Map Showing Density of of Airbnbs in this Dataset

Methods

Data Cleaning Methods

➢ Replace or remove missing or illogical data

Preprocessing Methods

➢ Take steps to prepare the data to help us get a well performing model

Modeling Methods

➢ Create and continuously improve upon models until we got the best performing model

Results

Results showed Alter could use this analysis as a guide as she starts her search.

Exploratory Data Analysis

Proved to find general relationships among the data to get a grasp on the New Orleans short term rental market. Some highlights from EDA are shown in the following slides.
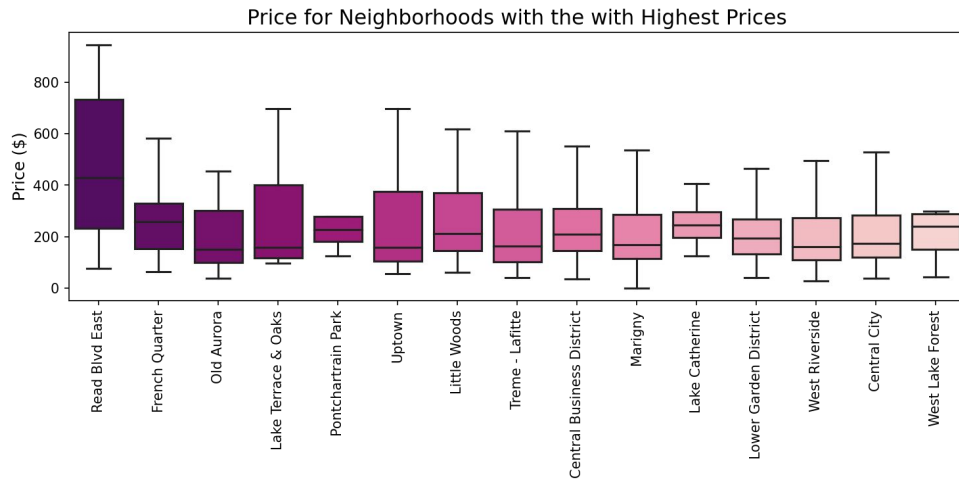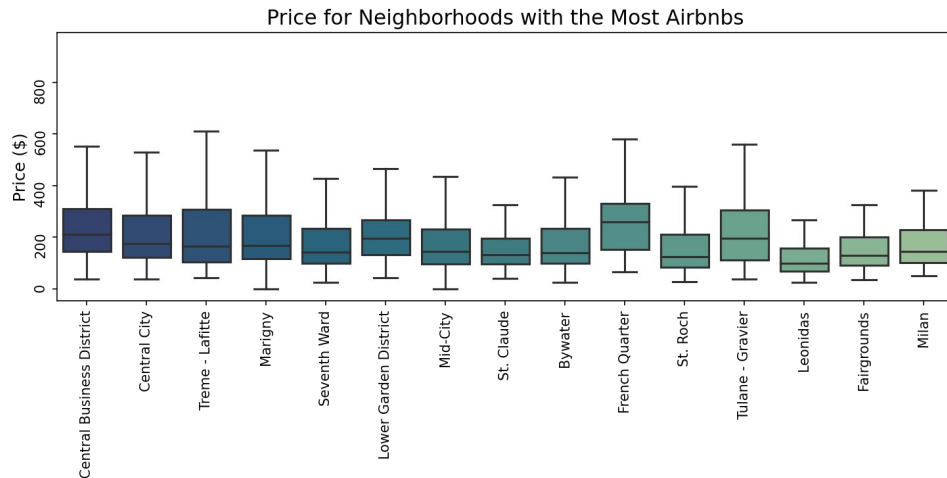
Predictive Model

The final model in this analysis was able to predict the nightly price for a airbnb in New Orleans within $2.02.

Having a well performing predictive model will prove helpful when comparing properties to buy and help you determine the price point you should expect to rent a property at.
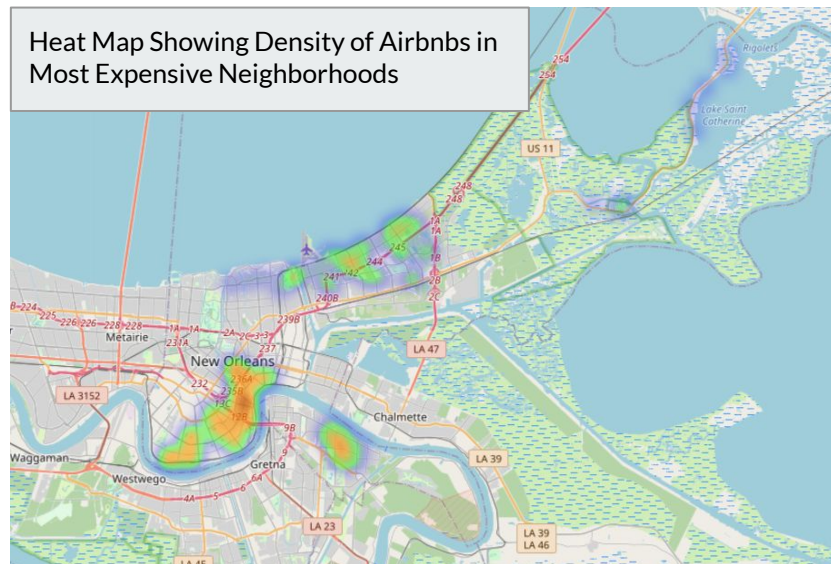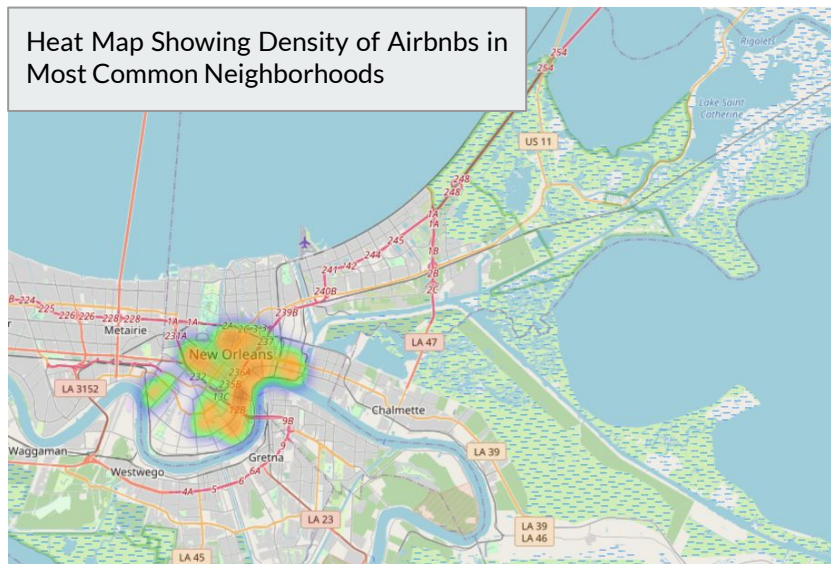
Data Exploration

Knowing where the most densely populated areas are for airbnbs give a lead to the best neighborhoods to purchase an Airbnb.

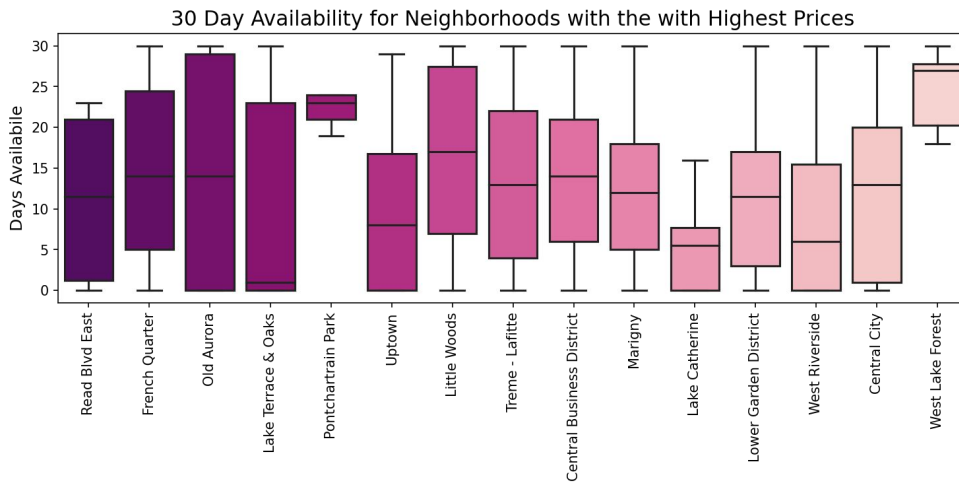Knowing where the highest priced Airbnbs is also important as higher prices can mean higher profits.

Price for Neighborhoods with the Most Airbnbs

Price for Neighborhoods with the with Highest Prices

Data Exploration

Consider purchasing in a neighborhood that overlaps in both these maps.

Heat Map Showing Density of Airbnbs in Most Common Neighborhoods

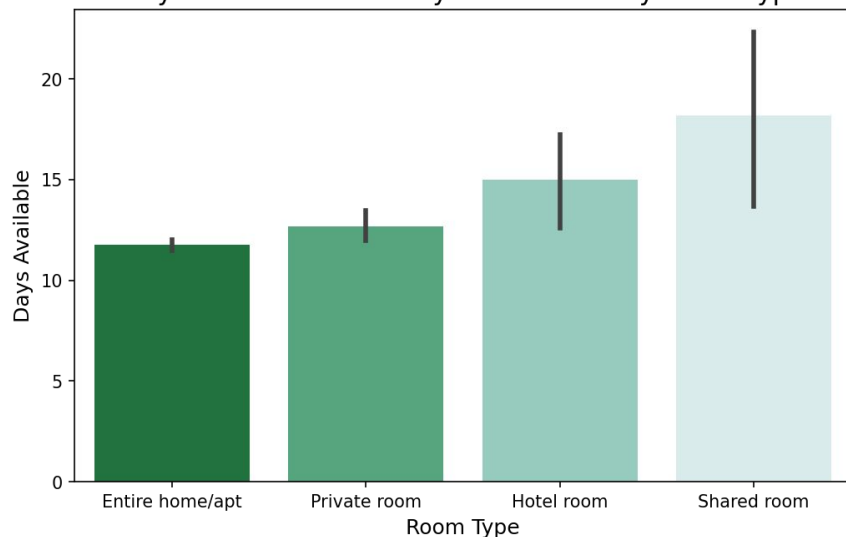Heat Map Showing Density of Airbnbs in Most Expensive Neighborhoods

Data Exploration

Having little availability at 30 days out is a good sign that the Neighbourhood is highly sought after by tourists and good business for the Airbnb owners.

30 Day Availability for Neighborhoods with the Most Airbnbs

30 Day Availability for Neighborhoods with the with Highest Prices
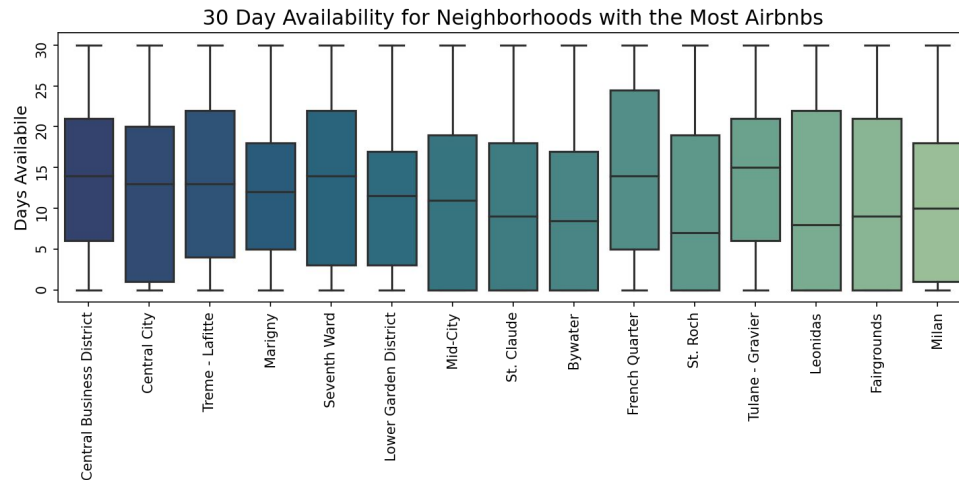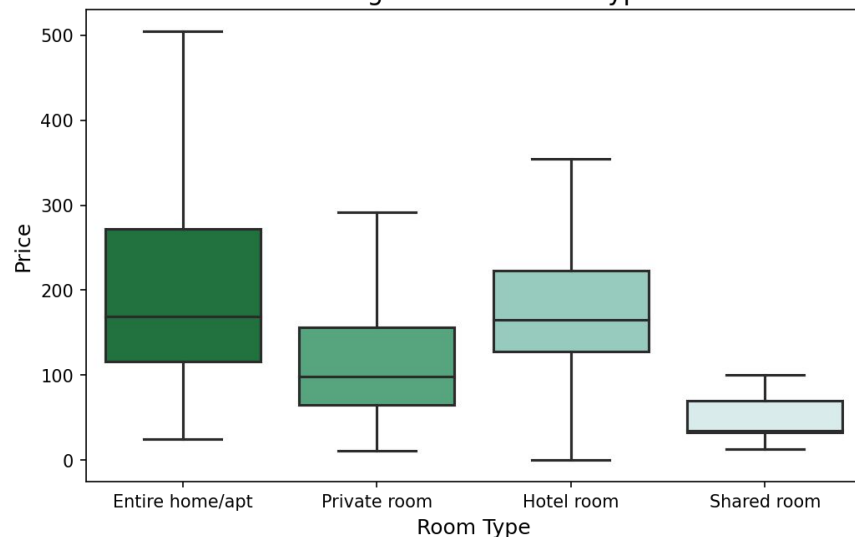
Data Exploration

To get a better understanding of what type of property is more valued by travelers we see which property type has the lowest availability and highest average price.

Conclusion

The model can predict the nightly price within $2.02. This can be used to help estimate profits on potential properties.

Start your search in the neighborhoods where the analysis found the most and highest priced Airbnbs.

Low availability is a sign a Neighborhood in demand.

On average, entire properties are more booked and rent for a higher price than other property types.

Next Steps:

Take into consideration seasonality.

Consider adding distance to tourist sites to the analysis.

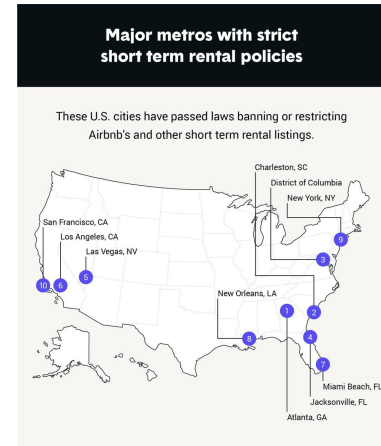Investigate rules & regulations on short term rentals.

Major metros with strict short term rental policies

These U.S. cities have passed laws banning or restricting Airbnb's and other short term rental listings.

Charleston, SC
District of Columbia
New York, NY

San Francisco, CA
Los Angeles, CA
Las Vegas, NV

New Orleans, LA

Miami Beach, FL
Jacksonville, FL

Atlanta, GA

Image from Zebra.com

Thank you!

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LinkedIn: linkedin.com/in/rachellfein/

References

D.K. Shifflet & Associates: New Orleans Tourism Report

Airbnb Stats

Data downloaded from Kaggle: New Orleans Airbnb Listings and Reviews

Data originally sourced from Inside Airbnb