PRICE PER NIGHT
IN SEATTLE

Analyzing prevailing market data trends and forecast rental prices for AirBNB listings in the Seattle Metro area.

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OUR PROJECT
GOALS

PROJECT GOALS

KEY FEATURES AFFECTING PRICE PER NIGHT

What are the **key features** and characteristics that make certain properties **highly sought after**, ultimately influencing their **per-night pricing**?

PERCEPTION SHAPING PRICING DYNAMICS

How does the **perception** of property reliability, as influenced by **consumer feedback** and metrics, play a role in shaping these **pricing dynamics**?

PROJECT GOALS

BACKGROUND

You want to **invest in AirBnB** real estate or want the **best deal possible**. Our central question was to find the **optimal AirBnB** to suite the **specific needs** of the businessman or consumer.

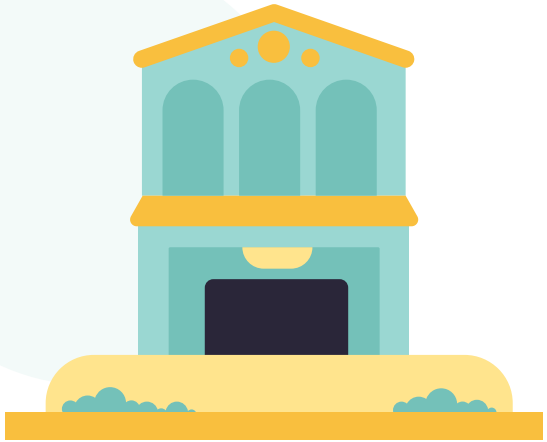
REASONING

AirBnBs are a marketplace that are very hard to find a great deal on. Because of this, it is very useful to **analyze AirBnB data** to view many different details about them throughout their history.

SIGNIFICANCE

We were able to **predict the price of AirBnBs,** analyze trends via linear regression, and view multivariable relationships through general exploratory data analysis.

DATA SOURCES
& CLEANING



DATA SOURCES & CLEANING

Sourced **two** datasets from openly accessible **AirBNB archives.**

Combined dataset accentuating an array of features from over **3,000 properties** in the **Seattle region.**

Filled in **missing data**, removed i**dentical duplicates**, and dealt with **unusual data** points.

STATISTICAL ANALYSIS RESULTS

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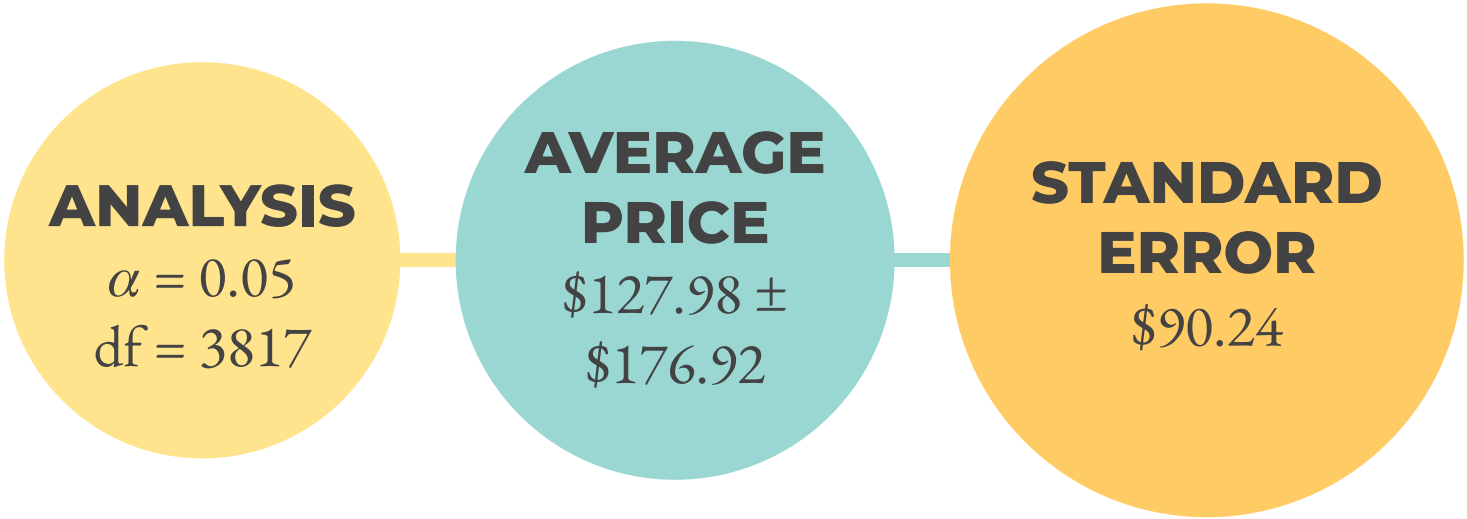
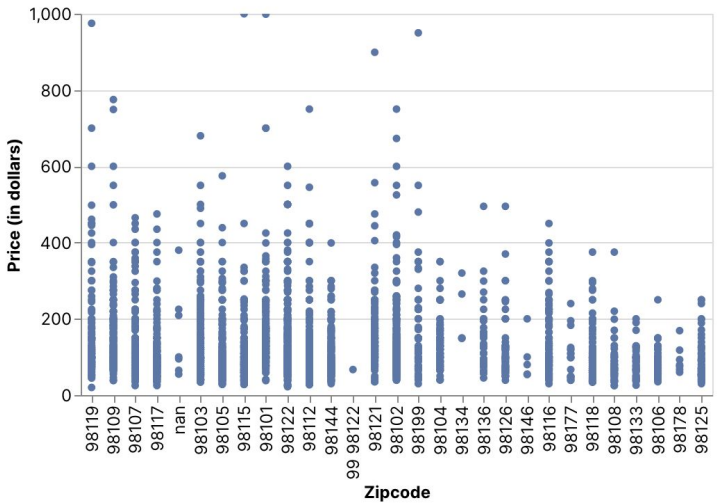
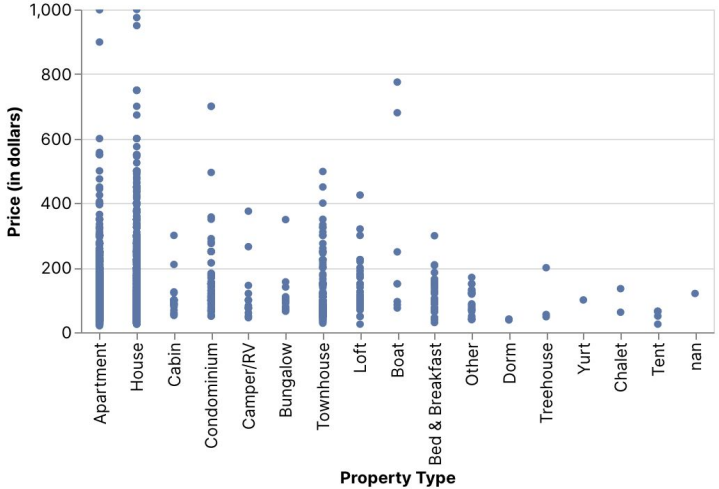


STATISTICAL ANALYSIS RESULTS

Distribution of Property Price Based on Zipcode

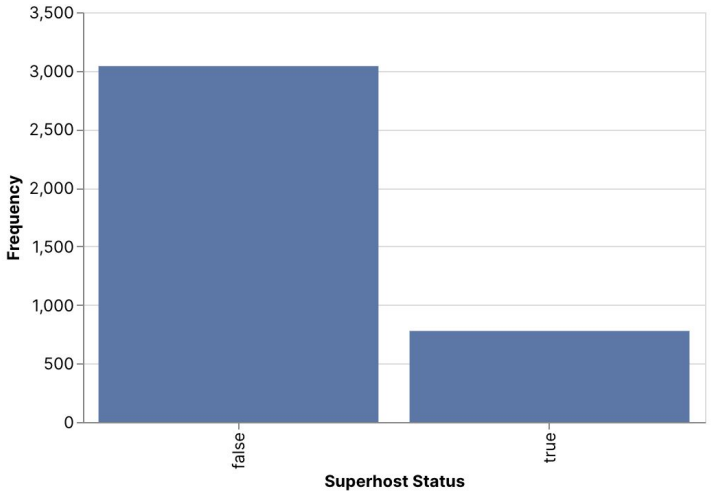


Distribution of Property Type vs. Price

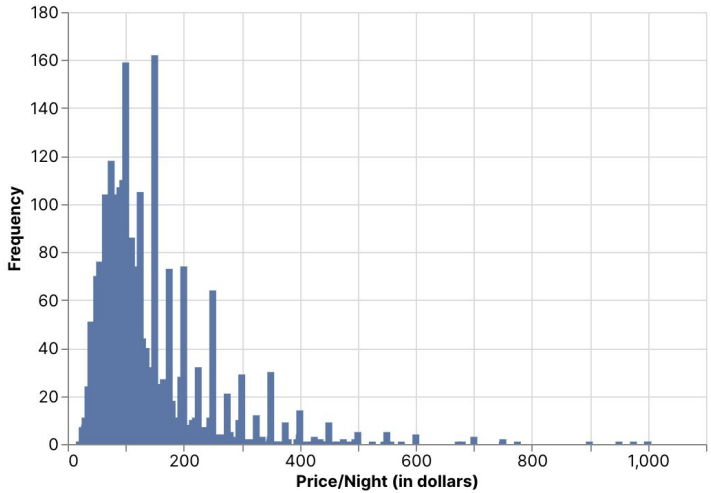


STATISTICAL ANALYSIS RESULTS

Number of Listings Posted by Superhosts vs. Non-Superhosts



Frequency Distribution of Price/Night Values for Airbnbs in Seattle

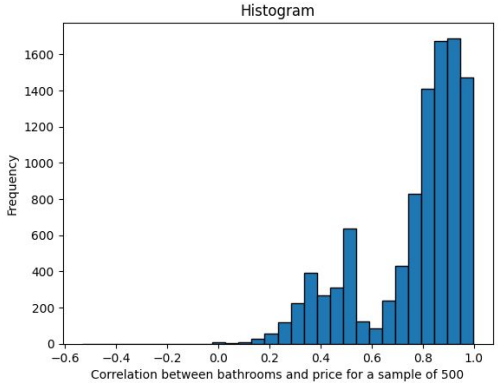


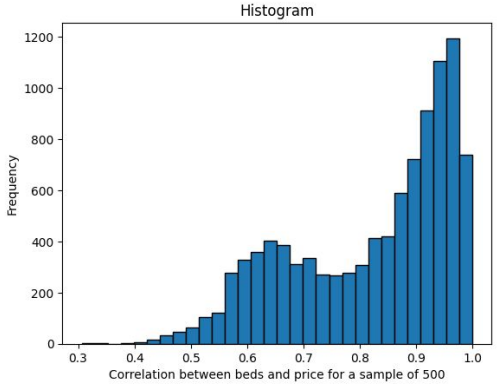
STATISTICAL ANALYSIS RESULTS

Bathrooms

VS.

Price

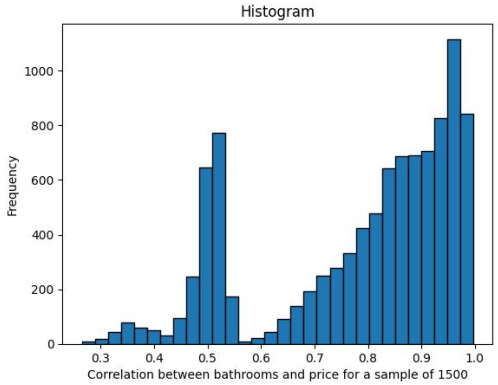


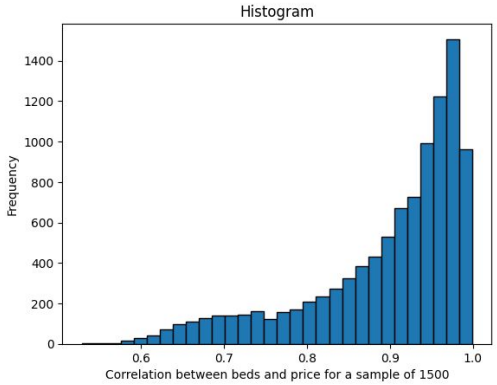


Beds

VS.

Price





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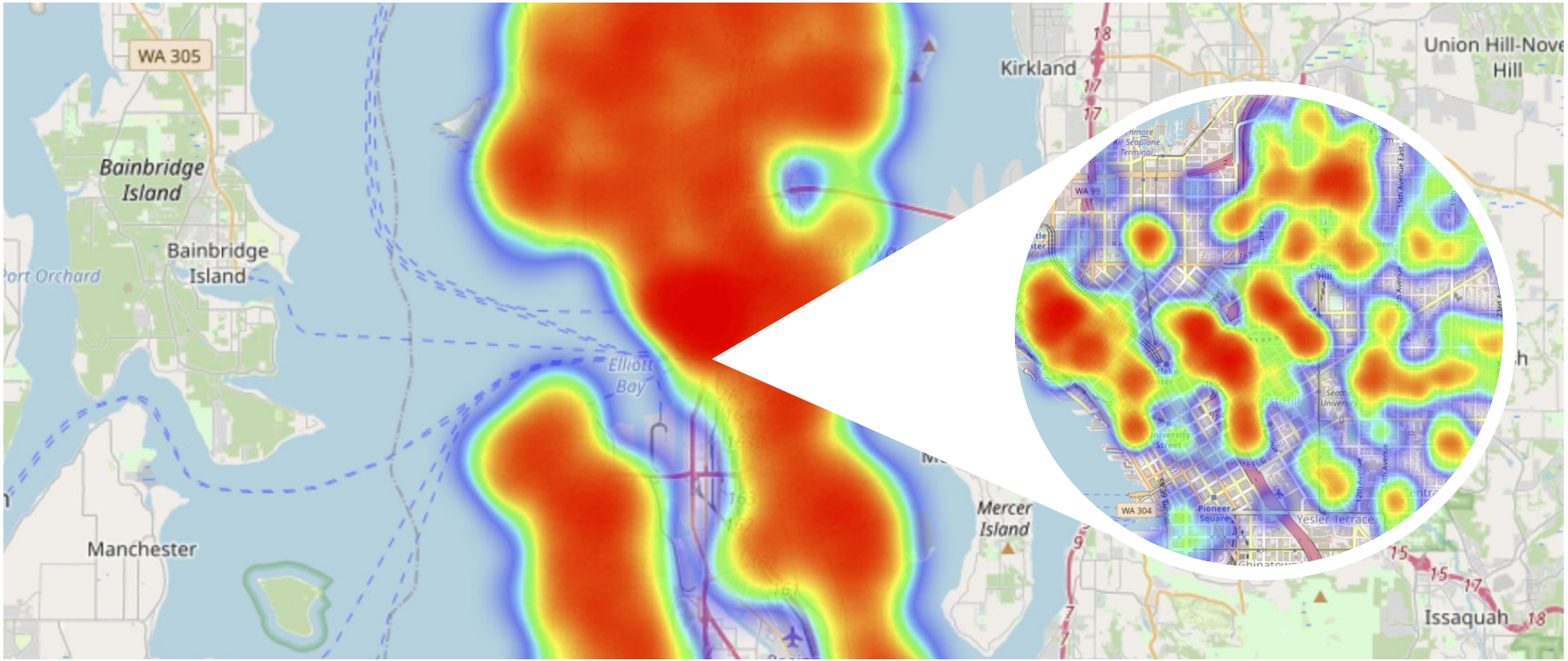
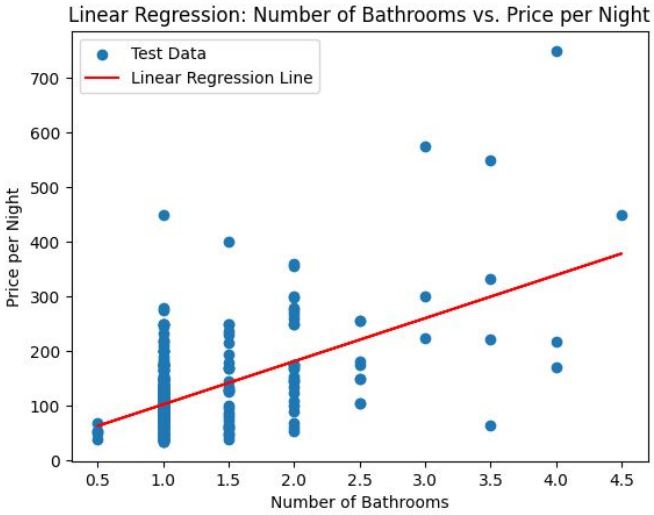
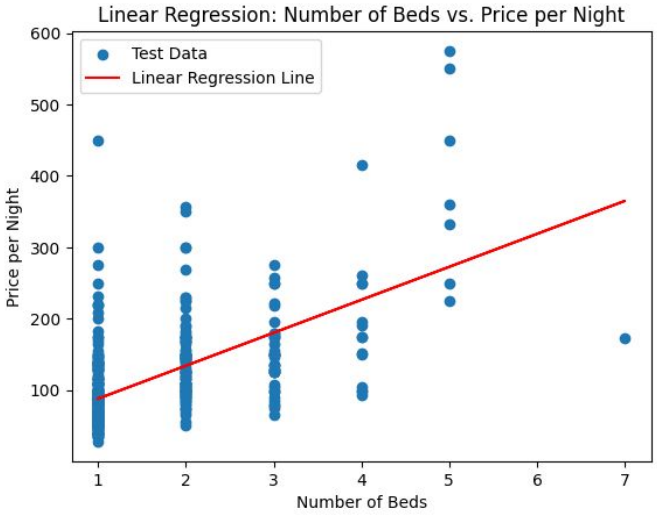


LINEAR PRICE PREDICTION MODELS

STATISTICAL ANALYSIS RESULTS





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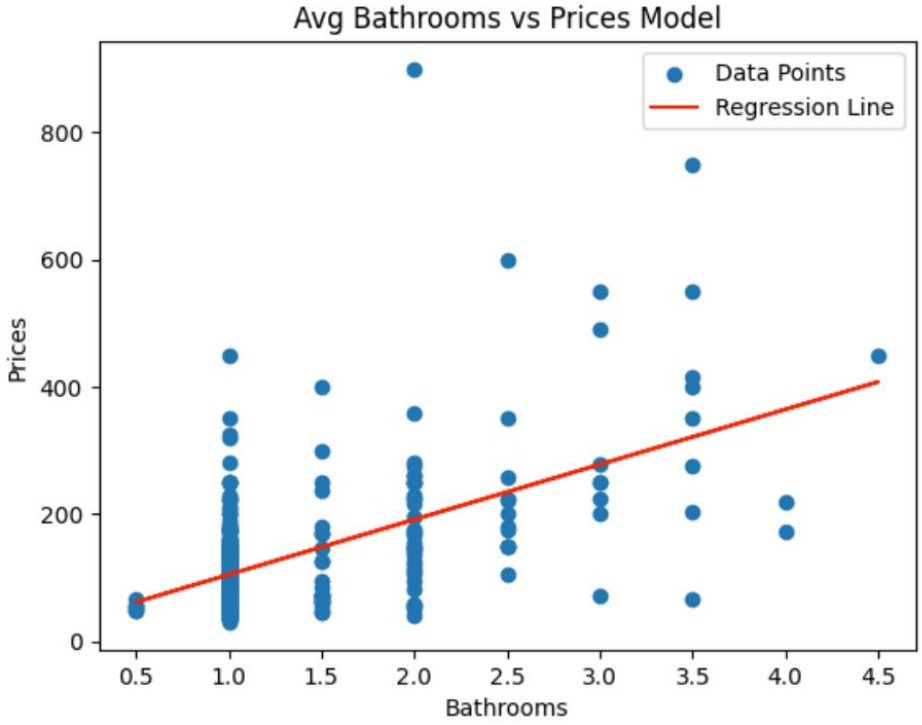

RANDOM FOREST REGRESSOR ALGORITHM

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ML ALGORITHM

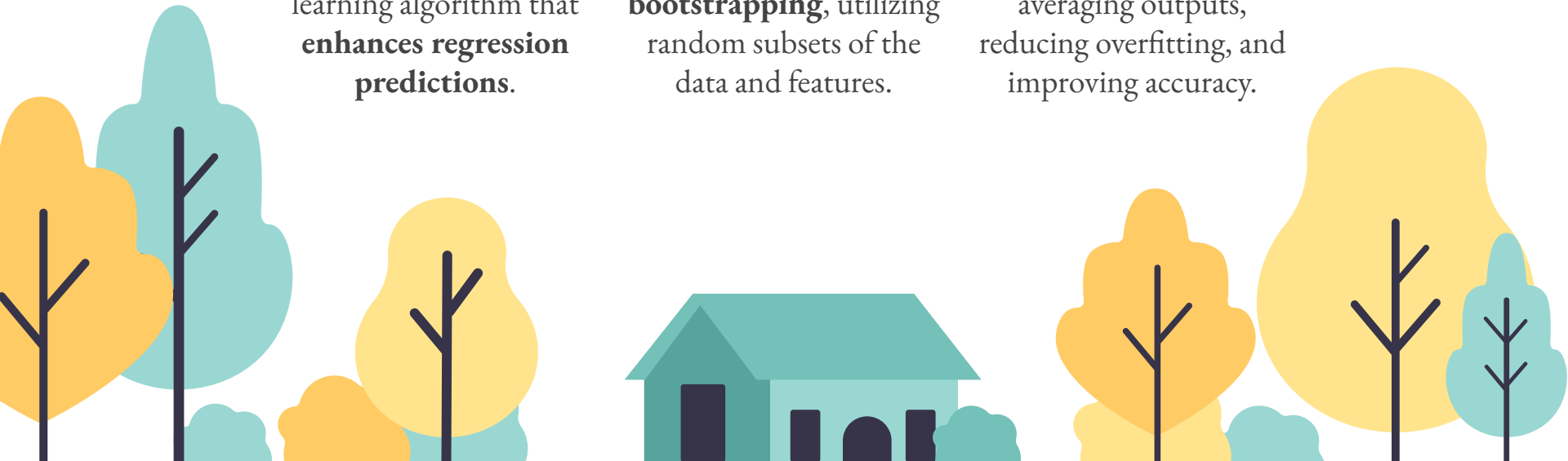
The Random Forest Regressor is a Machine learning algorithm that **enhances regression predictions**.

DECISION TREES

It builds multiple decision trees through **bootstrapping**, utilizing random subsets of the data and features.

PREDICTIONS

Decision trees are **used to make predictions** by averaging outputs, reducing overfitting, and improving accuracy.

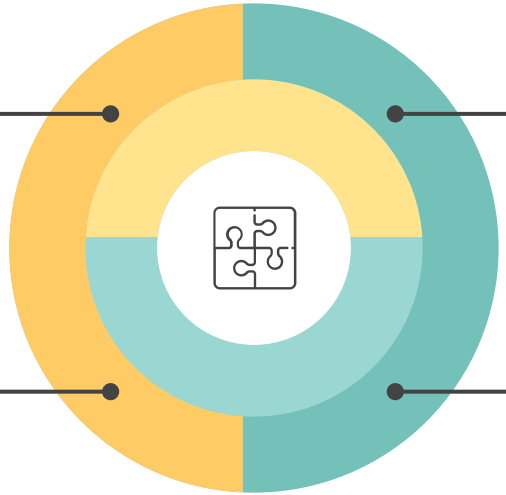


RANDOM FOREST REGRESSOR ALGORITHM

Host_listings_count: 5
Accomodation_capacity: 10
Bathrooms: 5
Bedrooms: 4
Beds: 7
Security_deposit: 45
Cleaning_fee: 50
Guests_included: 7
Price_per_head_over_max_capacity: 25
Minimum_nights: 1
Maximum_nights: 10
Availability_365: 156
Number_of_reviews: 500
Review_scores_rating: 8
Calculated_host_listings_count: 20
Reviews_per_month: 10

FINAL
TAKEAWAYS

FINAL TAKEAWAYS



1
Perform an in-depth EDA on various variables

2
Create 2 linear regression and a randomized linear regression model

3
Code a Random Forest Regressor to accurately predict price values

4
Make a density-heat map to visualize price fluctuations in Seattle