



# HOME AWAY FROM HOME

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## OVERVIEW

Airbnb is an online platform that makes it easy to list and rent local homes by connecting hosts and guests.



# Business Understanding

- Predict the booking rates of listings based on their features.
- Which features increase the booking rates?



# TODAY'S AGENDA

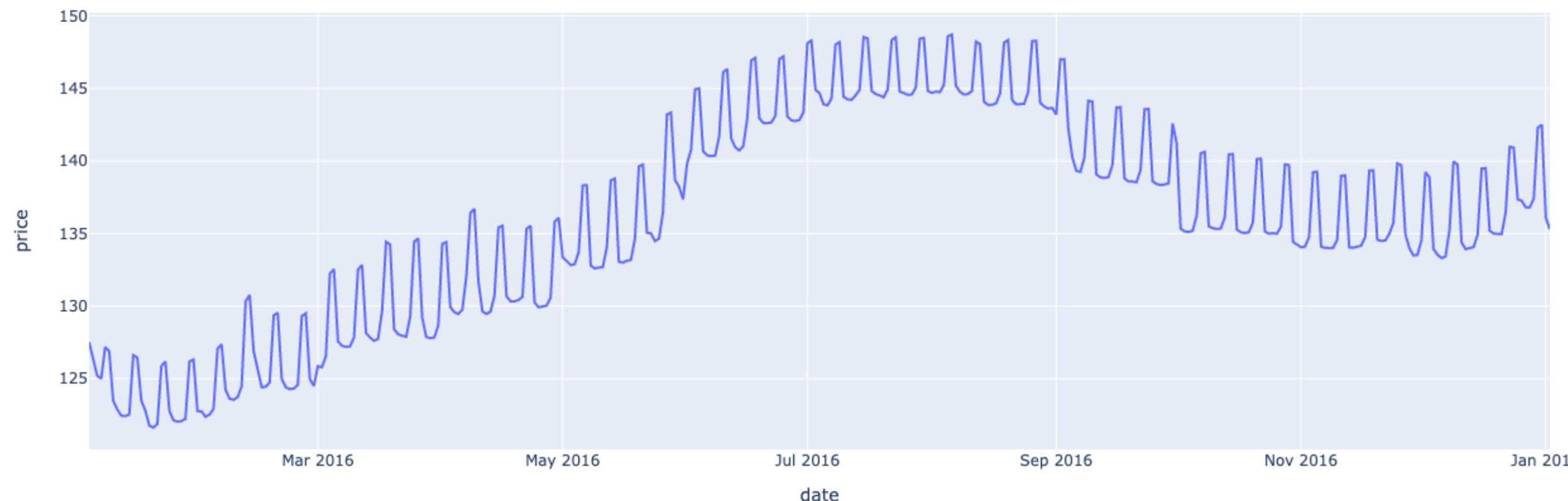
- 1. DATA & METHODS
- 2. FINDINGS
- 3. ML MODELS
- 4. RESULTS
- 5. RECOMMENDER SYSTEM

## DATA & METHODS

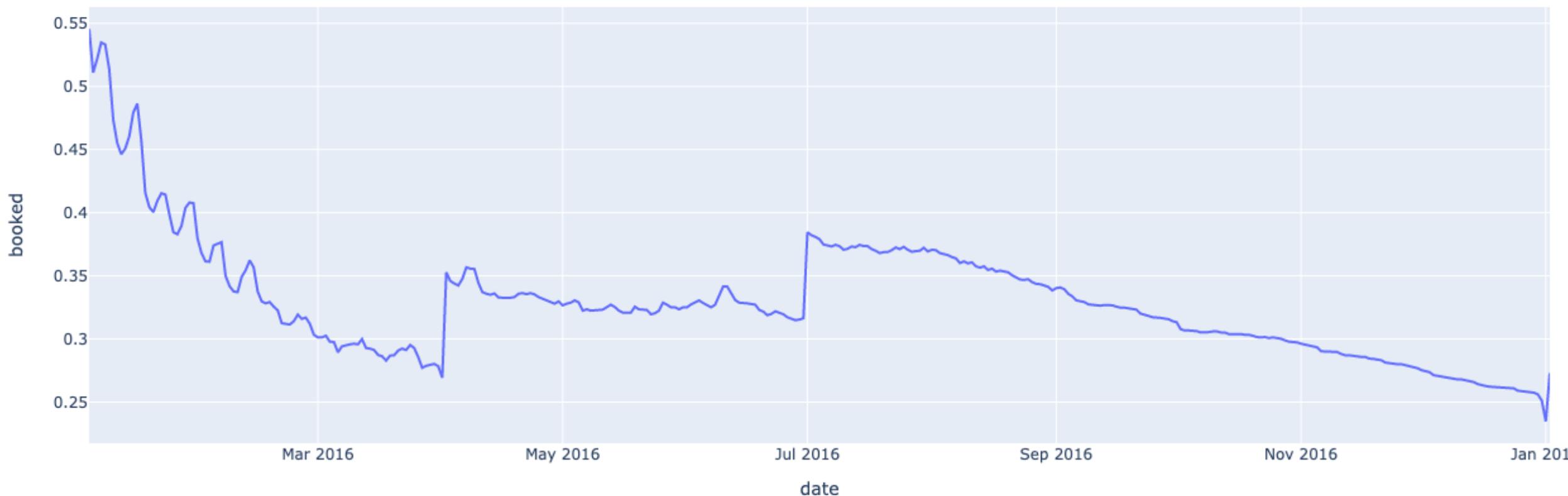
- Airbnb data with over 3,800 listings and 92 features in Seattle, WA
- Natural language processing technique predicting booking rate
- User input recommender system



Price Trend in Seattle, WA



Occupancy Trend in Seattle, WA



MARCH 2022



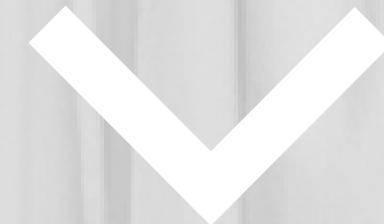
# METHODS IN NATURAL LANGUAGE PROCESSING

- Lowercase
- Split words
- Remove punctuation & contractions
- Remove stopwords
- Lemmatize words to their roots
- Word Embedding
- TF-IDF

# Text Cleaning & Preprocessing

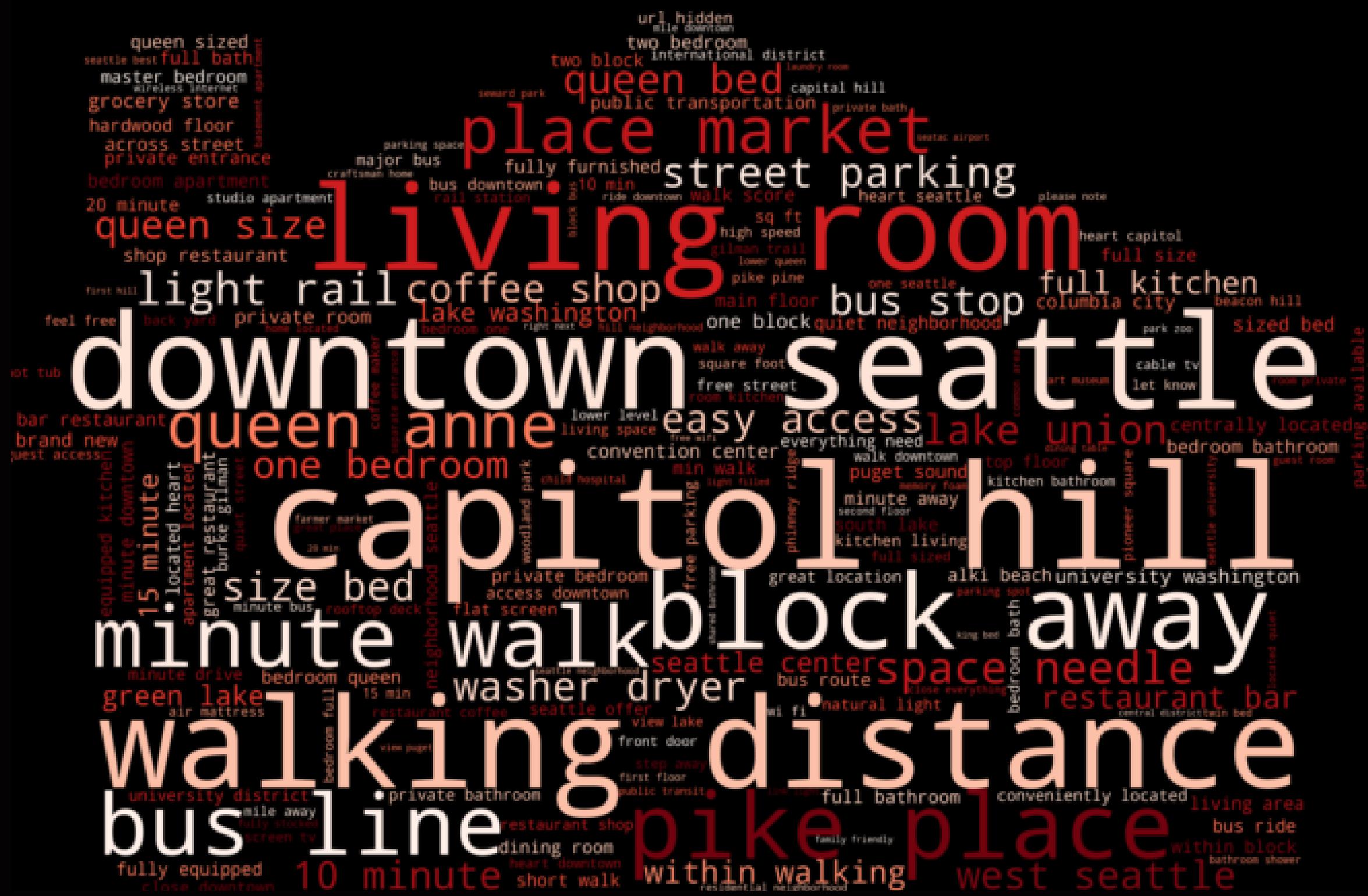
## Original Sentence:

The Apartment is perfectly-located just one block from the bus lines where you can catch a bus and be downtown Seattle in fifteen minutes or historic Ballard in ten or a quick five-minute walk will bring you to Whole Foods and Peet's Coffee or take a fifteen minute walk to the top of Queen Anne Hill where you will find a variety of eclectic shops, bars, and restaurants.



## Preprocessed Sentence:

apartment perfectly located one block bus line catch bus downtown seattle fifteen minute  
historic ballard ten quick five minute walk bring whole food peet coffee take fifteen minute walk  
top queen anne hill find variety eclectic shop bar restaurant



# WORD CLOUD

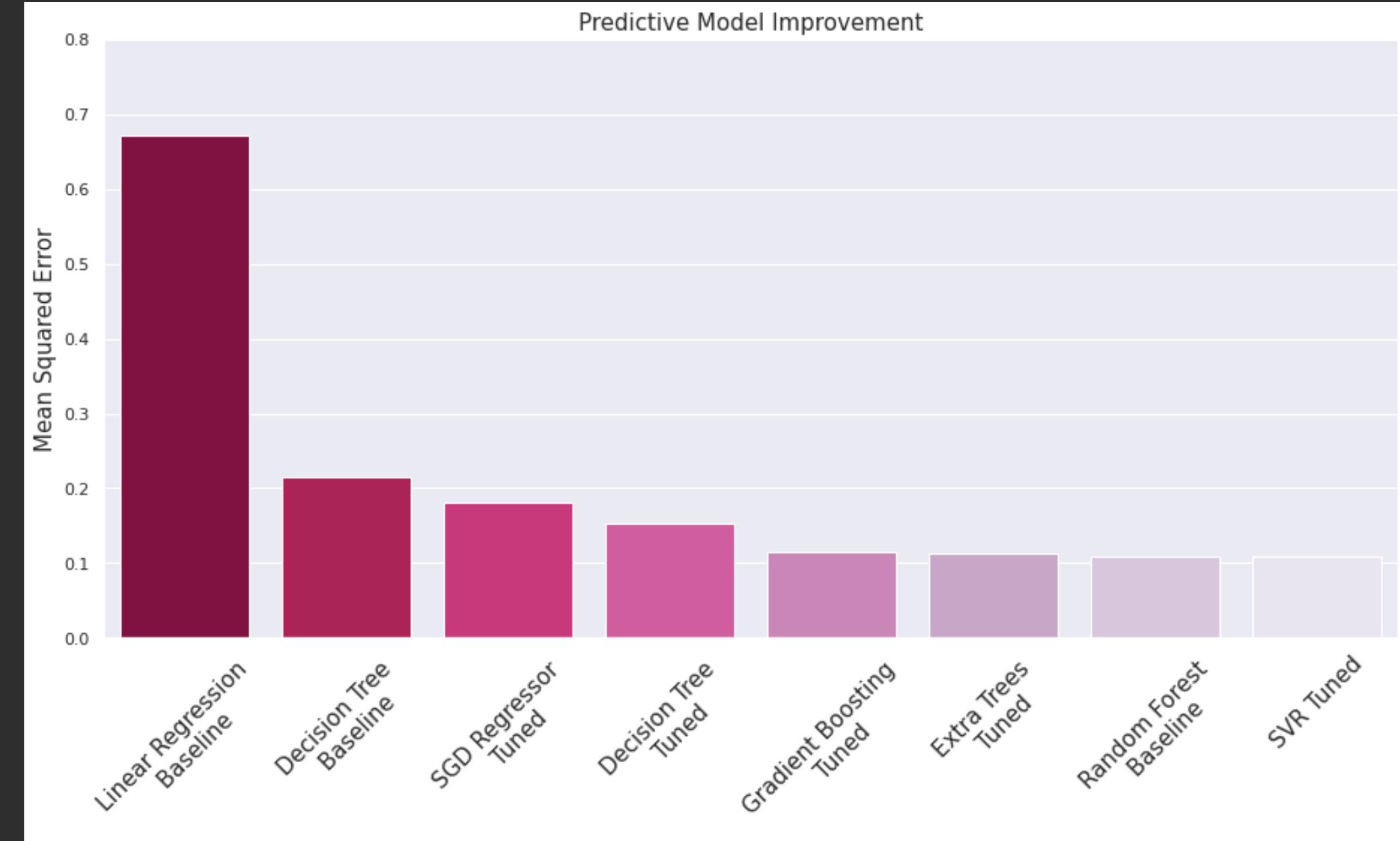
- What are the top words describing the listings?

## MODEL IMPROVEMENTS

# Support Vector Regression

Mean Squared Error:

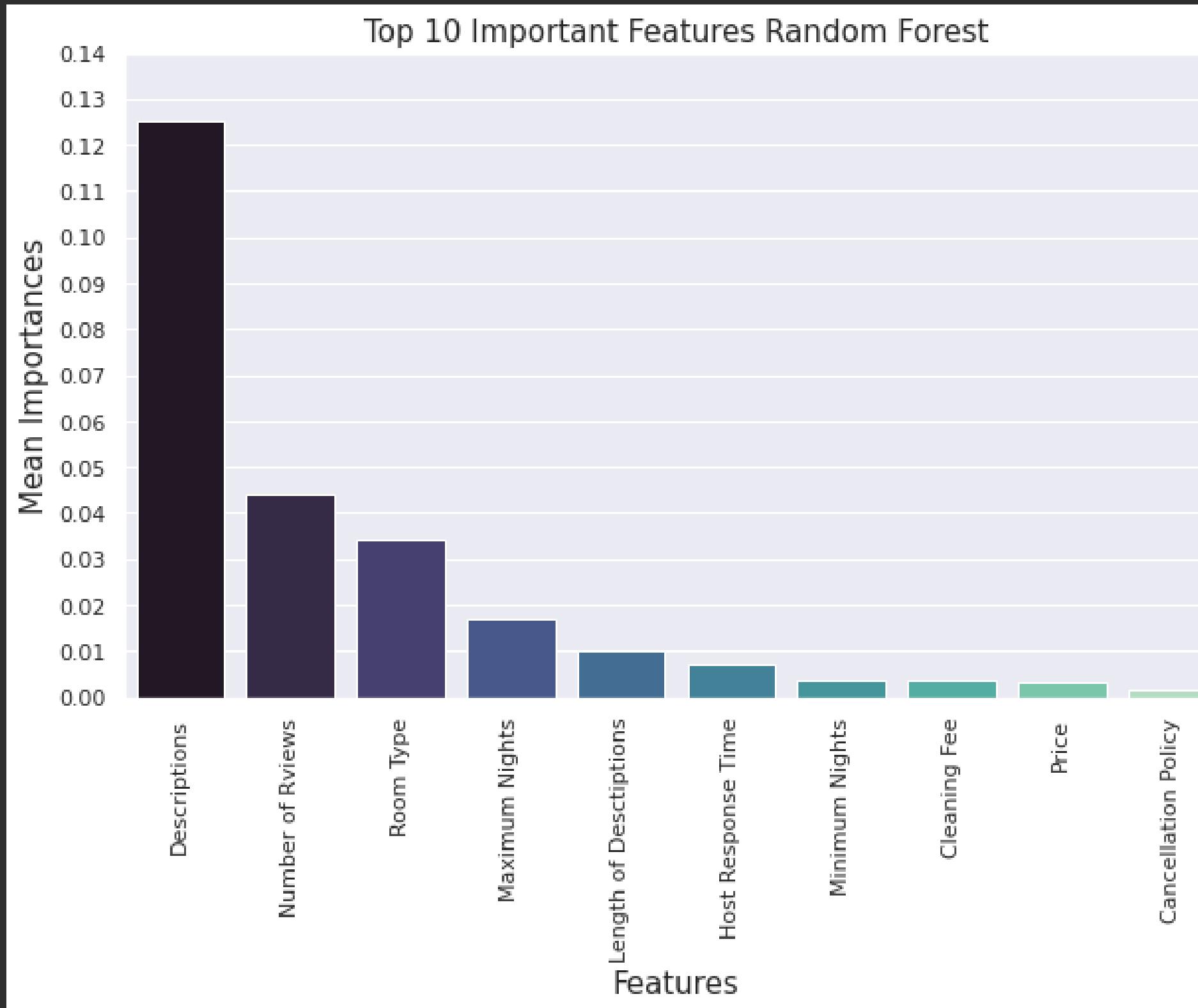
0.10



## TOP FEATURES

Which features have the most affect on booking rate of listings?

- 1) Listing Descriptions
- 2) Number of Reviews
- 3) Room Type



LOOKING FOR A PLACE TO  
STAY FOR YOUR NEXT  
DESTINATION?



# Web App

X

☰

Guest Preferences

Select Location:

Ballard

Select House Type:

Entire home/apt

Number of Guests:

1

Select Cancellation Policy:

flexible

Home Away From Home

Customize your next Airbnb stay with this recommendation engine based on your preferences! Decide from the top similar listings!

Recommend Listings

Enter features that you care about:

Select a Price Range:

0 1000

Recommend



THANK YOU!

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