

A large, thick red knot sculpture, resembling a reef knot (square knot), is positioned in the foreground. Behind it, a city skyline is visible under a clear sky. The skyline includes several skyscrapers, with the Freedom Tower (One World Trade Center) being the most prominent on the right side. The sky transitions from a light blue at the top to a pale pinkish-purple near the horizon, suggesting a sunset or sunrise. The overall image has a semi-transparent dark grey overlay where the text is placed.

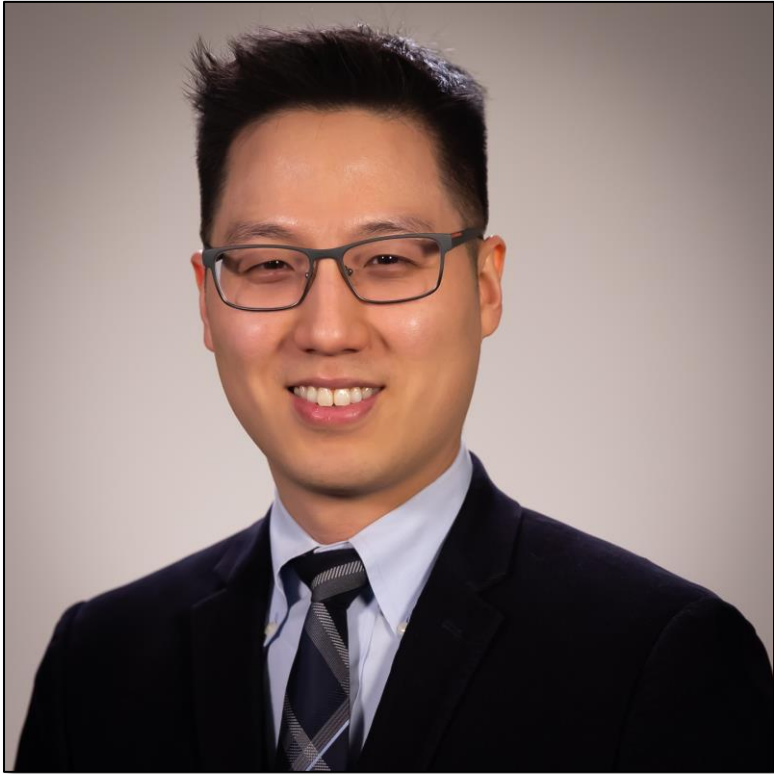
Deal or No Deal?

A Predictive Analysis of NYC Airbnb Listings

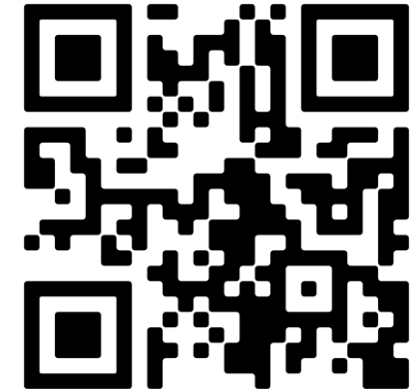
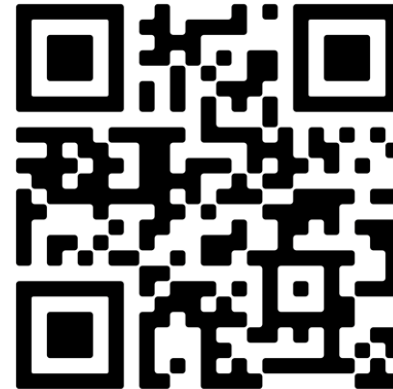
By: Sam Choe

May 30, 2024

Meet The Presenter



Presenter: Sam Choe
Data Scientist



Agenda

Business Problem



Data Overview



Analysis



Recommendations



Future Steps



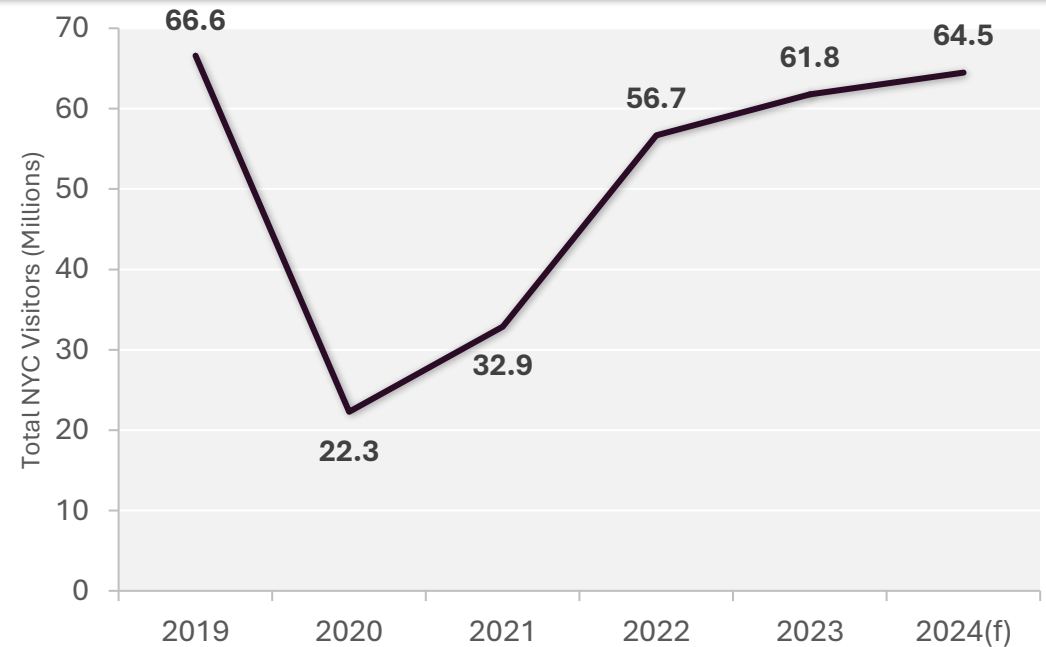
Business Problem



Welcome to NYC!

- NYC is a popular tourist destination
- Budget conscious tourists are on the hunt for great accommodation deals
- However, this city is very expensive...

NYC Tourism On The Rise



Source: NYC Tourism + Conventions (NYC Travel & Tourism Outlook)

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Data Overview

More Listings = More Options

- **Data Source**
 - Airbnb dataset with ~67,000 unique listings
- **Exploratory Data Analysis**
 - Data Manipulation
 - Feature Engineering
 - Target Variable (Airbnb Experience Quality)
- **Data Limitations**
 - Somewhat dated
 - NYC listings mostly concentrated in Manhattan and Brooklyn

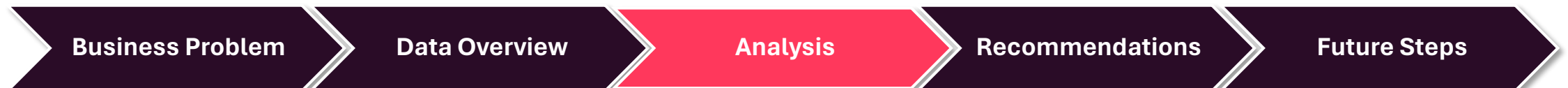


A photograph of a modern interior space, likely a dining or living area. On the left, a wooden dining table is partially visible with two yellow chairs. A black metal spiral staircase with a textured tread is positioned against a brick wall. A large, industrial-style pendant light hangs from the ceiling. In the center, a wooden dining table is set with white chairs. A potted plant sits on the floor. The background shows a bright room with large windows. The right wall is decorated with several framed artworks, including a colorful abstract piece and a poster with the word 'FLEA'. A dark purple horizontal band across the middle of the image contains the word 'Analysis' in white text.

Analysis

Our Modeling Process

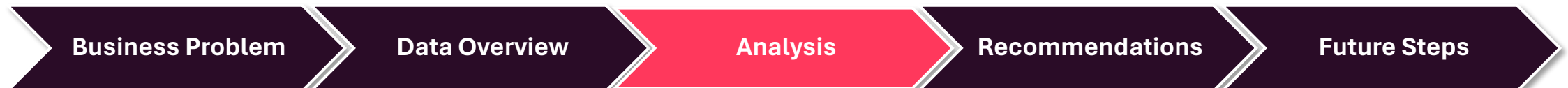
- **Models Explored:**
 - Logistics Regression
 - Random Forest Classifier
 - Gradient Boosting Classifier
 - XGBoost Classifier
- **Metrics:** Accuracy Scores



There Are Features That Matter

- **Model:** XGBoost Classifier (Accuracy Score: 46%)

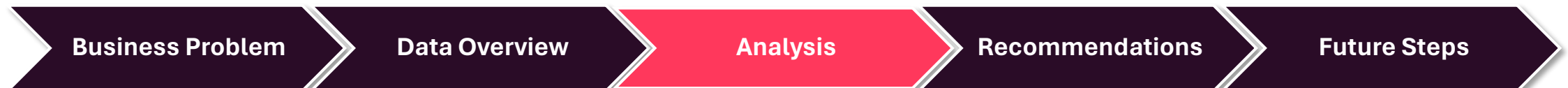
Feature Importance Table	
Rank	Feature
1	Number of Reviews
2	Brooklyn
3	Price Per Night
4	Bedrooms
5	Bathrooms
6	Manhattan
7	Amenities Count
8	Other Boroughs



What Are The Odds?

- **Model:** Logistics Regression (Accuracy Score: 42%)

For each 1% increase in:	Increase in odds of having good quality listing
Number of reviews	25%
Association with Brooklyn	16%
Listing's Price Per Night	6%

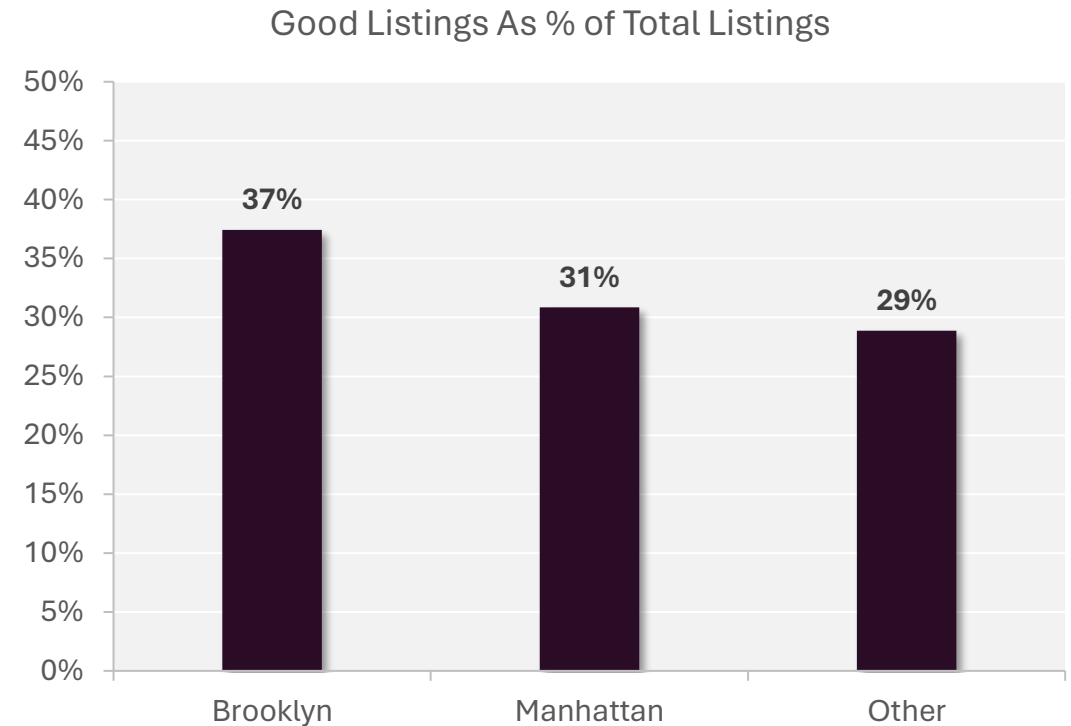


A rooftop terrace with outdoor furniture and a city view. The terrace features a wooden deck, a dining table with chairs, and lounge seating with cushions. In the background, there are trees and a city skyline with a prominent tower. A large white vent pipe is visible on the right side of the terrace.

Recommendations

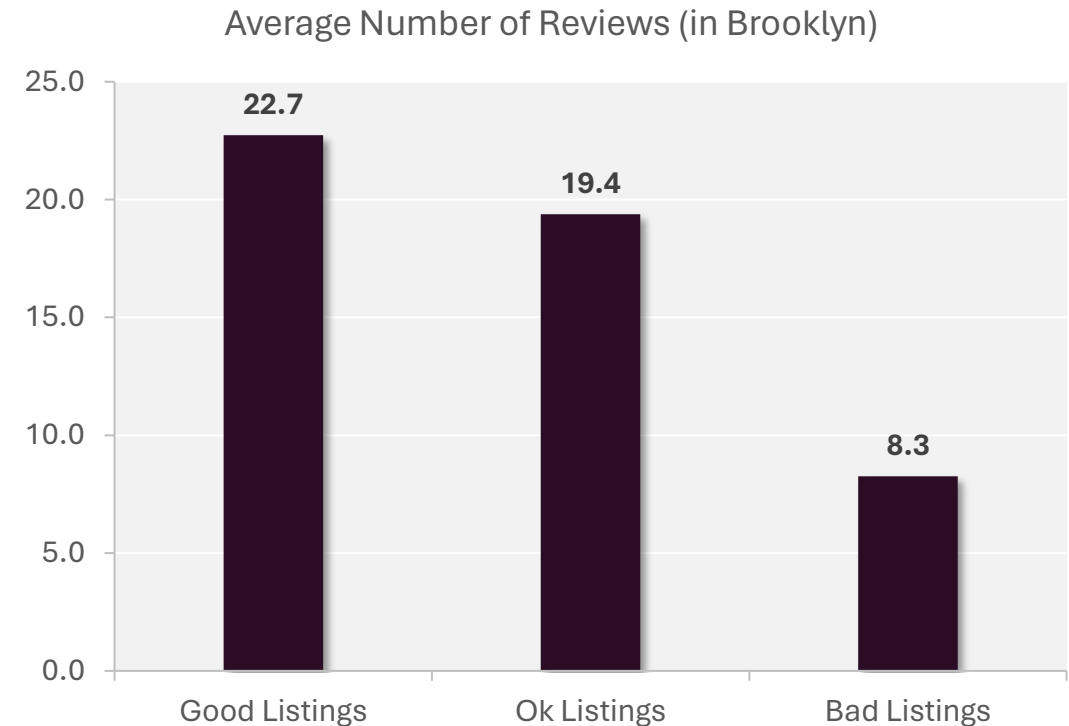
Deals Grow In Brooklyn

- Proportionally, Brooklyn has access to more good experience quality listings
- **Recommendation 1:** Favor Brooklyn Listings



Reliable Listings Have More Reviews

- Better listings are associated with more user reviews
- **Recommendation 2:** Target listings with more than 20 reviews



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Pay Up For Premium

- Good experience quality listings generally have higher price tags
- **Recommendation 3:** Pay a slight premium (~10-20%) to secure better Airbnb experiences



Business Problem

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We Can Do More....

- Expand our dataset to incorporate Airbnb API
- Rerun analysis to look at other geographies
- Delve deeper into quality control data around the user/host verification process
- Consider other model implementations



The background of the slide features a repeating pattern of the Airbnb logo, which consists of a stylized 'A' made of three interlocking loops, with the word 'airbnb' in lowercase below it. A large, three-dimensional red geometric shape, resembling a stylized house or a cube, is positioned in the center. A dark purple horizontal band is overlaid across the middle of the image.

Questions?