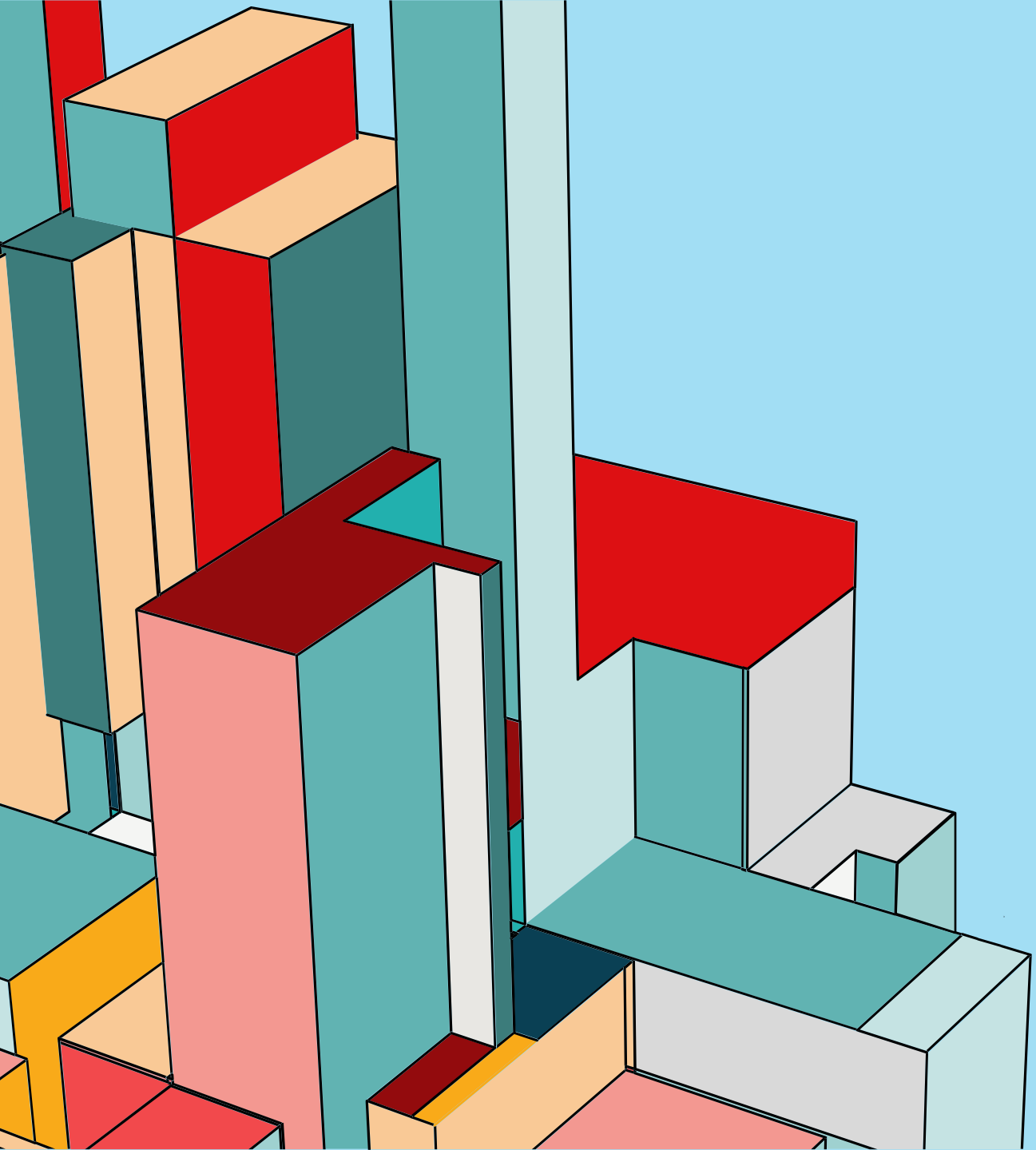


NYC AIRBNB PRICING & DEMAND

Course: DATA-VISUALIZATION-IT-7100-F2-2025-OG-Yang

Instructor: Professor Jian Yang

Term : EMBA Fall 2 2025

Made By : Ojesvi Dogra

INTRODUCTION

- Project Overview
- Understanding the Business Context
- Story Structure
- Price Does Not Predict Review Activity Across NYC Listings
- Neighborhood Groups Have Surprisingly Similar Average Prices
- Hotel Rooms Drive the Highest Average Prices Across Neighborhoods
- Business Implications
- Insights learned
- Conclusion
- Reference

PROJECT OVERVIEW

- Final data visualization case study using the NYC Airbnb dataset.
- Three Tableau visualizations created and refined.
- Focus on transforming analysis into a coherent story.
- Guided by Storytelling with Data principles

UNDERSTANDING THE BUSINESS CONTEXT

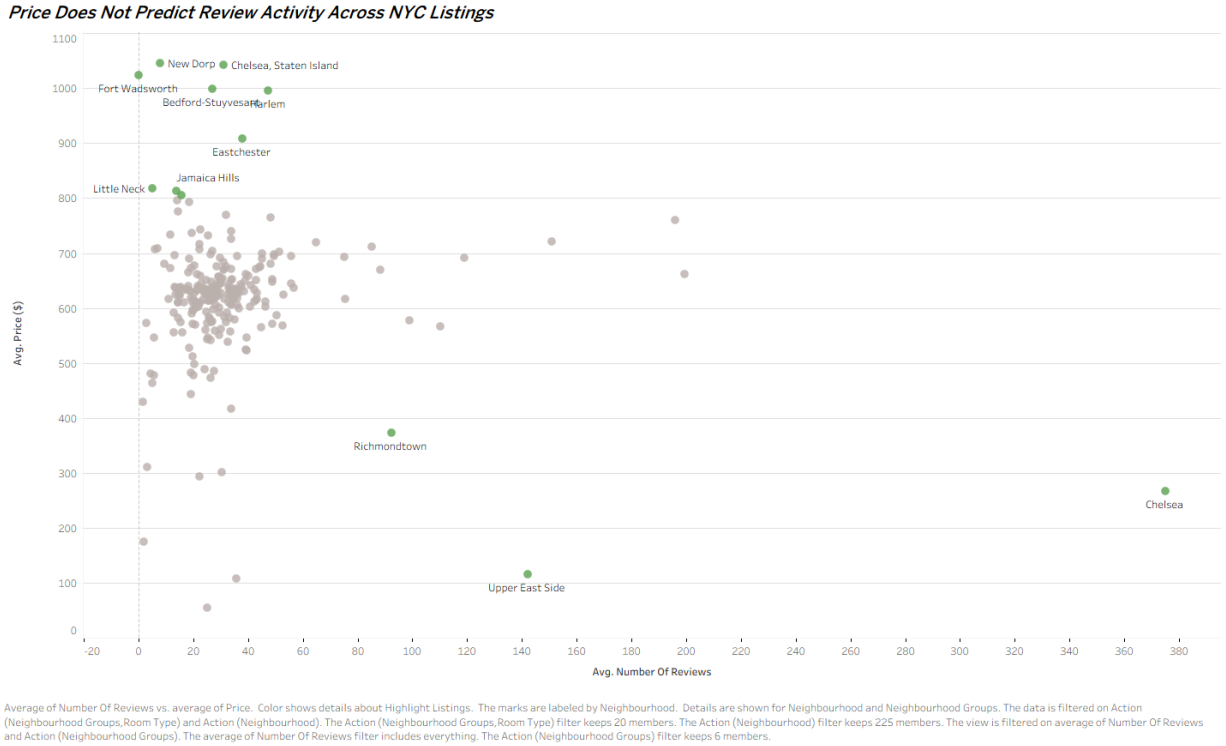
- Audience: business and strategy decision-makers.
- Objective: understand pricing and demand patterns in NYC listings.
- Decisions supported: pricing strategy and market positioning.
- Big Idea: Price alone does not explain demand or value

STORY STRUCTURE

- Story follows a clear beginning, middle, and end.
- Uses Horizontal Logic for narrative flow.
- Each chart answers a specific question.
- Insights build progressively toward a conclusion.

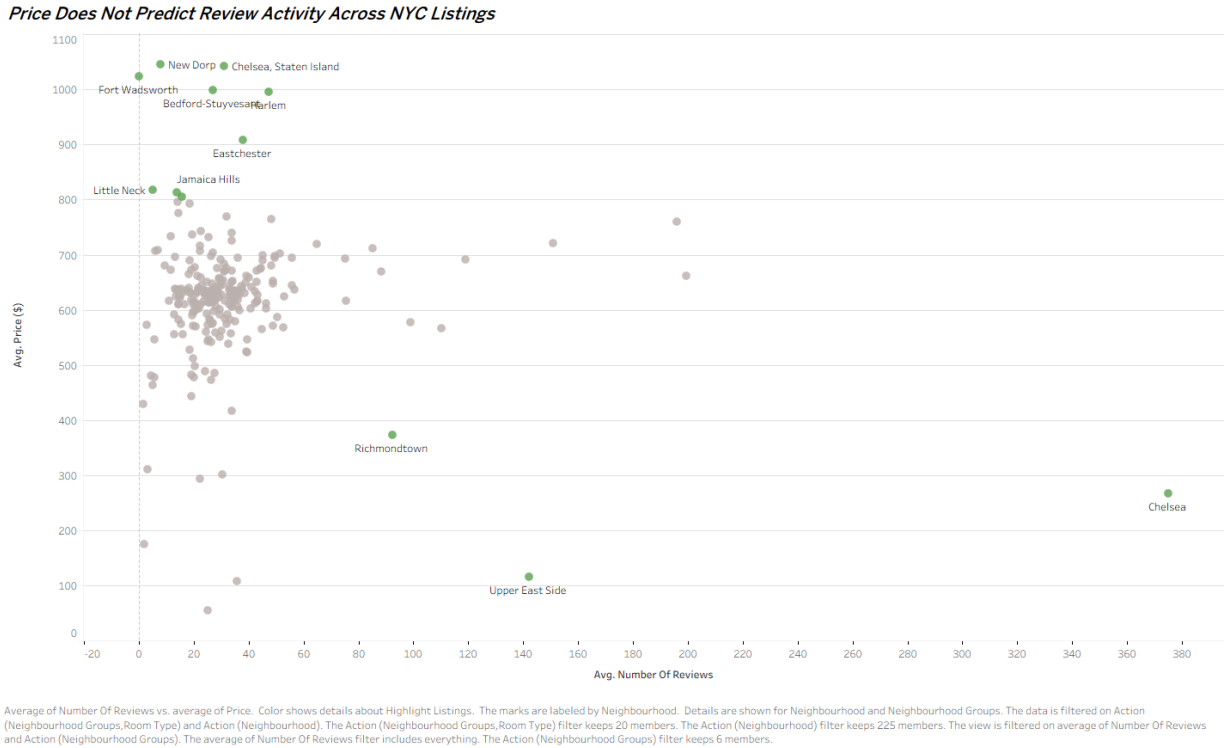
PRICE DOES NOT PREDICT REVIEW ACTIVITY ACROSS NYC LISTINGS

- Question explored: Does higher price reduce engagement or demand?
- Engagement is measured using the average number of reviews.
- This chart challenges a common assumption that higher prices discourage customer activity.
- Scatterplot chosen to observe relationships rather than trends.



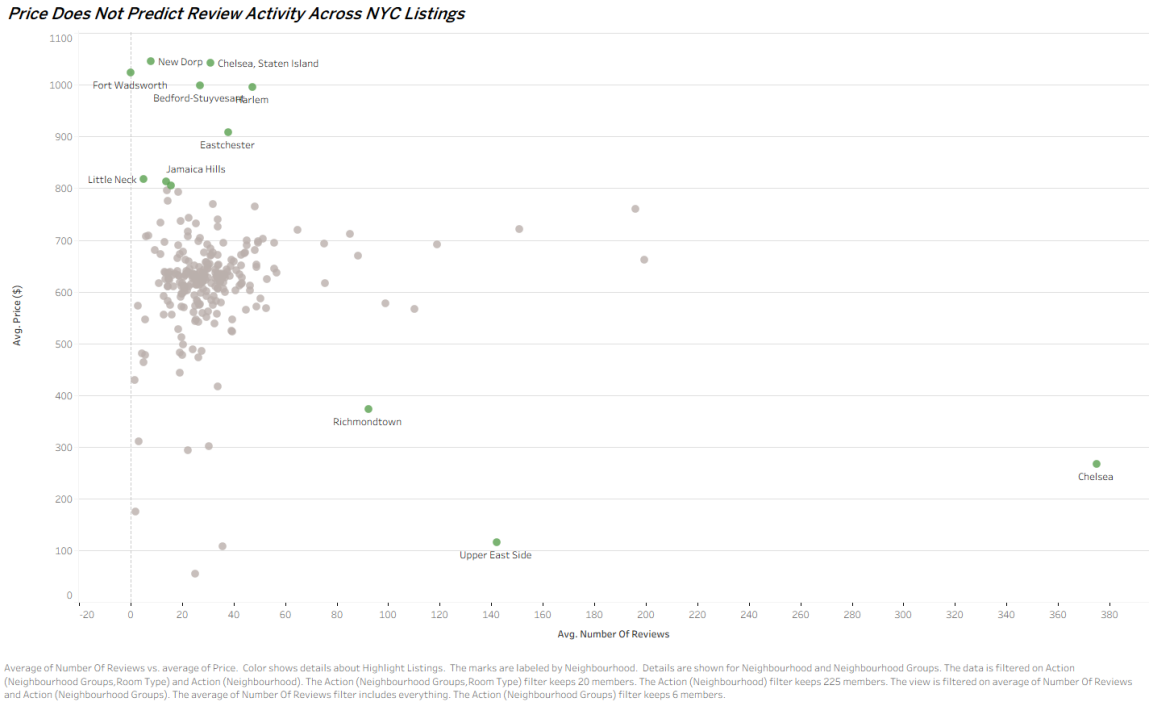
KEY INSIGHTS

- The data shows no strong correlation between price and number of reviews.
- Listings with moderate prices often receive both high and low engagement.
- Some high-priced listings still receive substantial reviews, indicating strong demand.
- This suggests that pricing alone does not predict customer behavior.



DESIGN AND CLARITY IMPROVEMENTS

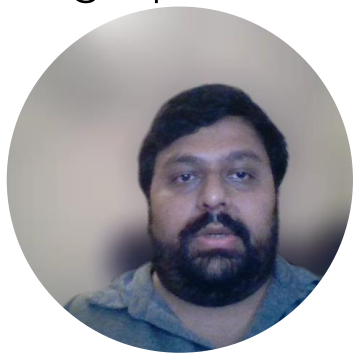
- Scatterplot is appropriate for relationship analysis.
- Muted base points reduce visual clutter.
- Highlighted neighborhoods draw attention to meaningful outliers .
- Action-oriented title states the insight directly, reducing interpretation effort.

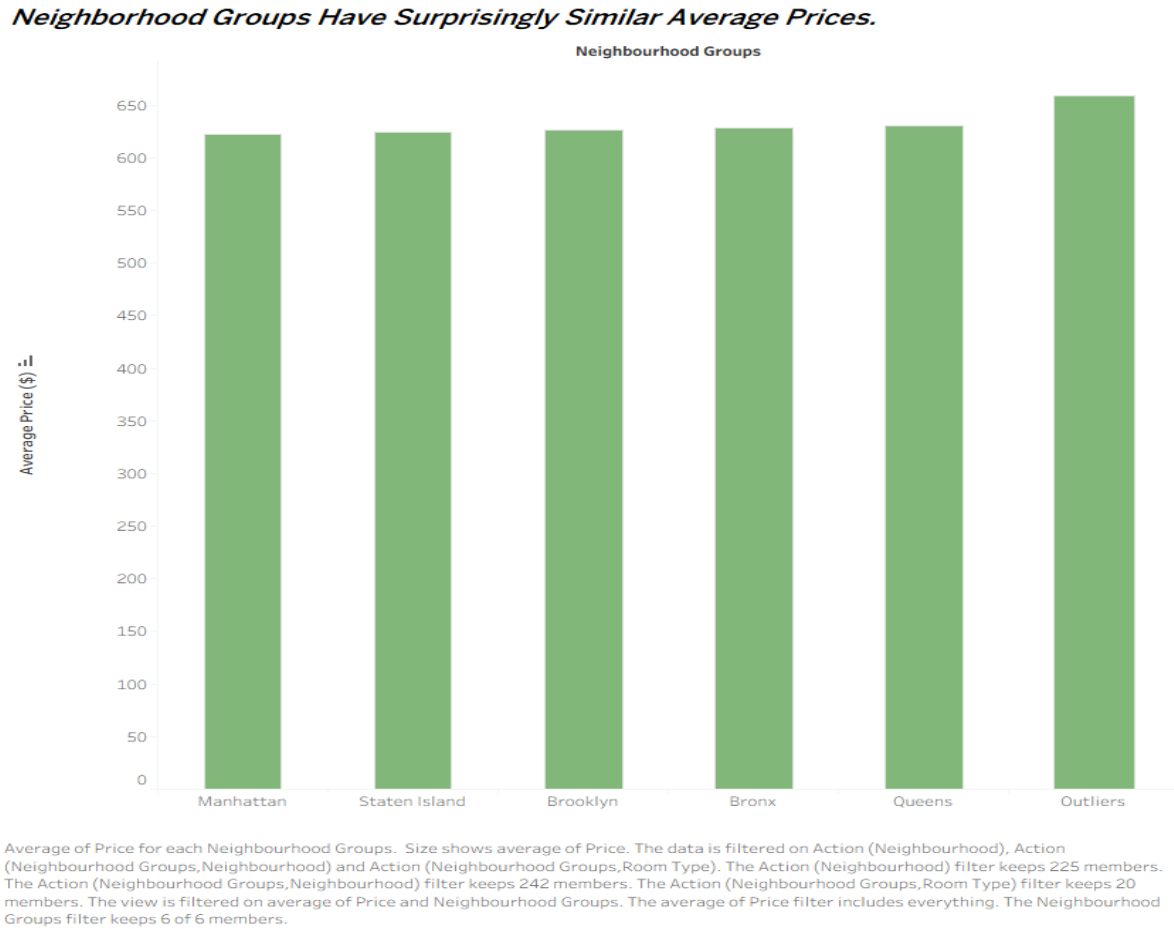


Average of Number Of Reviews vs. average of Price. Color shows details about Highlight Listings. The marks are labeled by Neighbourhood. Details are shown for Neighbourhood and Neighbourhood Groups. The data is filtered on Action (Neighbourhood Groups,Room Type) and Action (Neighbourhood). The Action (Neighbourhood Groups,Room Type) filter keeps 20 members. The Action (Neighbourhood) filter keeps 225 members. The view is filtered on average of Number Of Reviews and Action (Neighbourhood Groups). The average of Number Of Reviews filter includes everything. The Action (Neighbourhood Groups) filter keeps 6 members.

NEIGHBORHOOD GROUPS HAVE SURPRISINGLY SIMILAR AVERAGE PRICES

- Question Explored: Are some boroughs consistently more expensive than others?
- Common belief: Manhattan is significantly more expensive than other boroughs.
- Bar chart used to compare average prices across neighborhood groups.
- Focus shifts from demand to geographic assumptions.

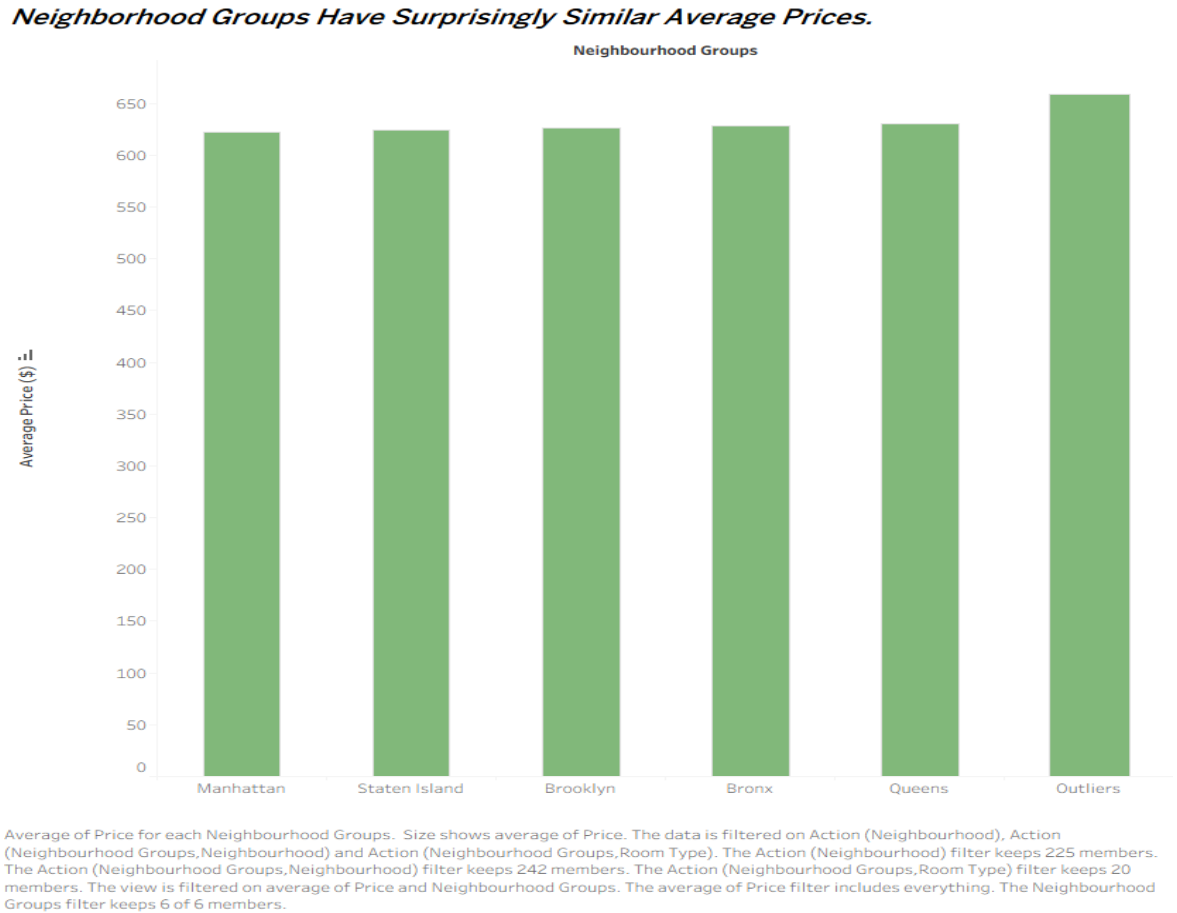




Average of Price for each Neighbourhood Groups. Size shows average of Price. The data is filtered on Action (Neighbourhood), Action (Neighbourhood Groups,Neighbourhood) and Action (Neighbourhood Groups,Room Type). The Action (Neighbourhood) filter keeps 225 members. The Action (Neighbourhood Groups,Neighbourhood) filter keeps 242 members. The Action (Neighbourhood Groups,Room Type) filter keeps 20 members. The view is filtered on average of Price and Neighbourhood Groups. The average of Price filter includes everything. The Neighbourhood Groups filter keeps 6 of 6 members.

KEY INSIGHTS

- Average prices across boroughs are remarkably similar.
- Differences between Manhattan, Brooklyn, Queens, and the Bronx are smaller than expected.
- Outliers slightly inflate averages but do not change the overall pattern.
- This reveals that borough-level pricing alone is not a strong differentiator.



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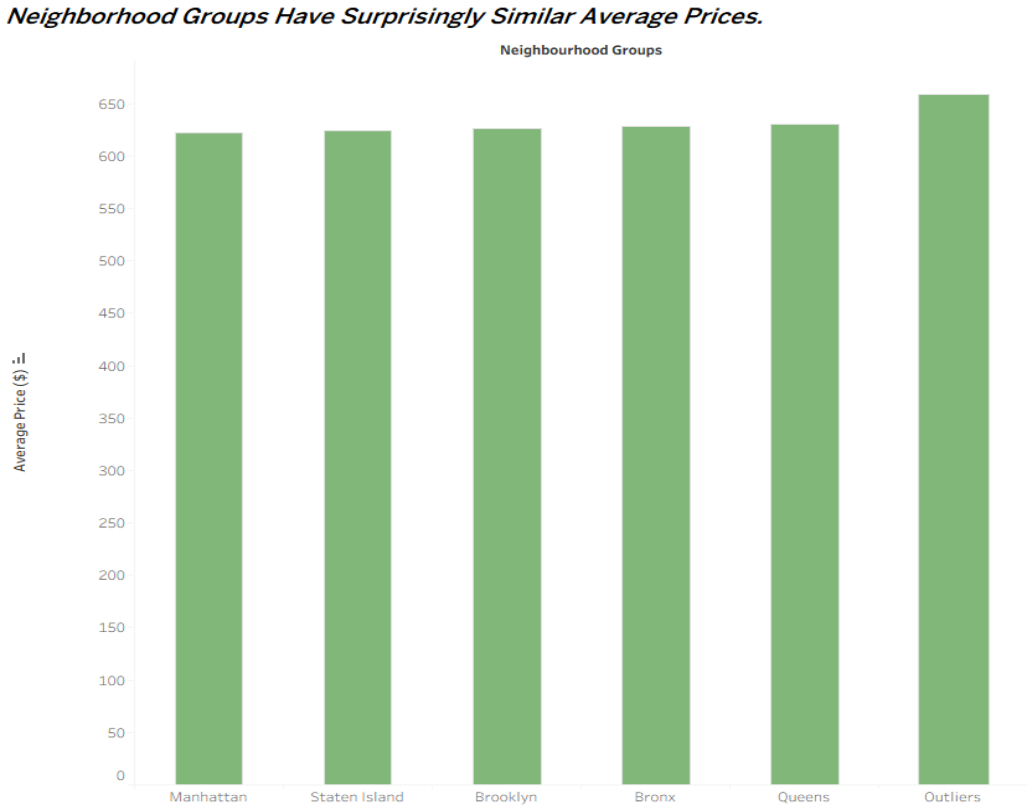
DESIGN AND ACCESSIBILITY

- Bar chart enables quick category comparison.
- Single color palette reinforces similarity rather than contrast.
- Value labels reduce reliance on axes and improve readability.
- Minimal design supports accessibility and fast interpretation.



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HOTEL ROOMS DRIVE THE HIGHEST AVERAGE PRICES ACROSS NEIGHBORHOODS

- Question Explored: If boroughs are similar, what explains pricing differences?
- This chart examines room type across neighborhoods.
- Tree map selected to show part-to-whole relationships and relative contribution.
- Focus shifts from where listings are to what kind of listings they are.

Hotel Rooms Drive the Highest Average Prices Across Neighborhoods

Neighbourhood Groups, Room Type and average of Price. Color shows details about Highlightings for Tree Map. Size shows average of Price. The marks are labeled by Neighbourhood Groups, Room Type and average of Price. The data is filtered on Action (Neighbourhood) and Action (Neighbourhood Groups,Neighbourhood). The Action (Neighbourhood) filter keeps 225 members. The Action (Neighbourhood Groups,Neighbourhood) filter keeps 242 members. The view is filtered on Room Type and Action (Neighbourhood Groups). The Room Type filter keeps Entire home/apt, Hotel room, Private room and Shared room. The Action (Neighbourhood Groups) filter keeps 6 members.

KEY INSIGHTS

- Hotel rooms consistently command the highest average prices across neighborhoods.
- Entire homes and private rooms cluster in mid-range pricing.
- A small number of high-priced listings significantly influence overall averages.
- Room type is a stronger pricing driver than location alone.

Hotel Rooms Drive the Highest Average Prices Across Neighborhoods

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DESIGN AND VISUAL HIERARCHY

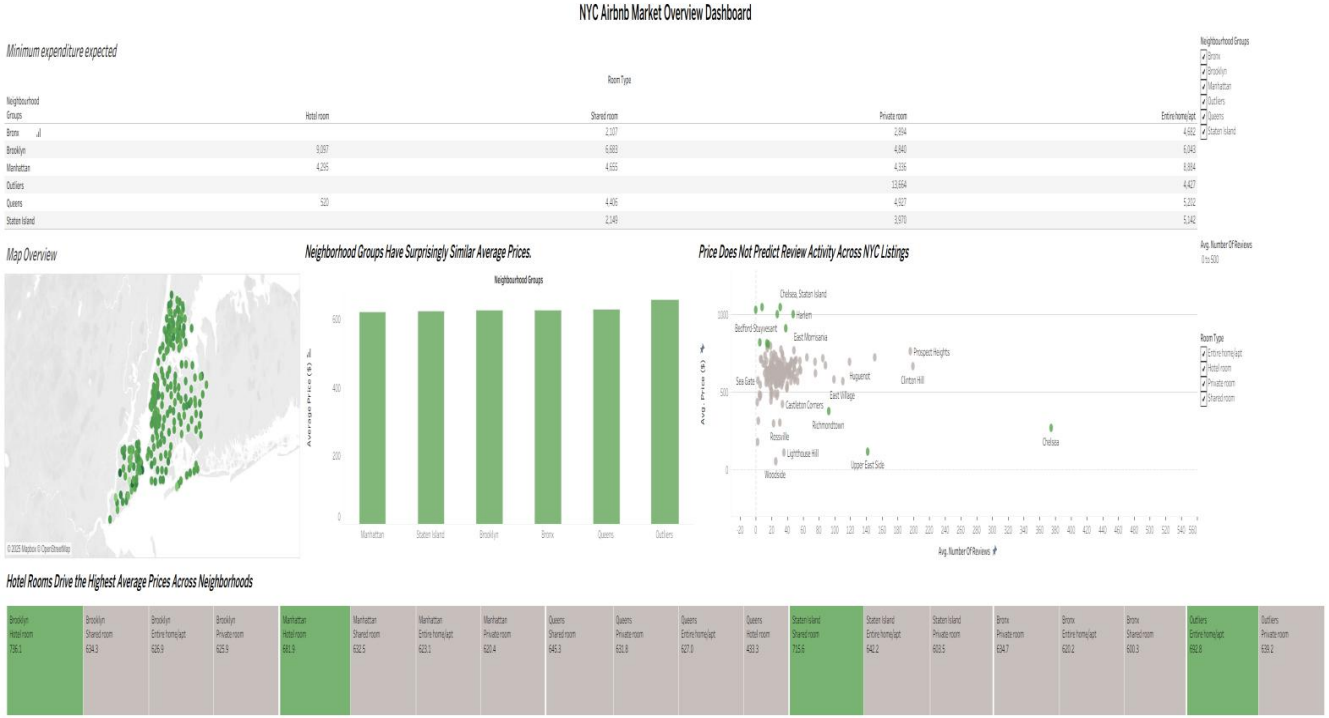
- Tree-map visually emphasizes dominant categories through size and color.
- Limited color palette improves aesthetic appeal and accessibility.
- Labels ensure insights remain clear even without interactivity.
- Visual hierarchy directs attention to premium segments immediately.

Hotel Rooms Drive the Highest Average Prices Across Neighborhoods

Neighbourhood Groups, Room Type and average of Price. Color shows details about Highlightings for Tree Map. Size shows average of Price. The marks are labeled by Neighbourhood Groups, Room Type and average of Price. The data is filtered on Action (Neighbourhood) and Action (Neighbourhood Groups,Neighbourhood). The Action (Neighbourhood) filter keeps 225 members. The Action (Neighbourhood Groups,Neighbourhood) filter keeps 242 members. The view is filtered on Room Type and Action (Neighbourhood Groups). The Room Type filter keeps Entire home/apt, Hotel room, Private room and Shared room. The Action (Neighbourhood Groups) filter keeps 6 members.

STORYTELLING REVIEW

- Chart 1 challenges assumptions about price and demand.
- Chart 2 reframes location-based thinking.
- Chart 3 reveals the true pricing driver: room type.
- Together, the charts form a cohesive narrative rather than isolated analyses.



BUSINESS IMPLICATIONS

- Pricing strategies should be room-type driven.
- Location alone is insufficient for pricing decisions
- Hosts and platforms should consider room type as a primary pricing lever.
- High prices do not necessarily reduce engagement when value is perceived.
- Reinforces the need for nuanced market positioning that differentiates listings based on experience and structure, not just neighborhood.

INSIGHTS LEARNED

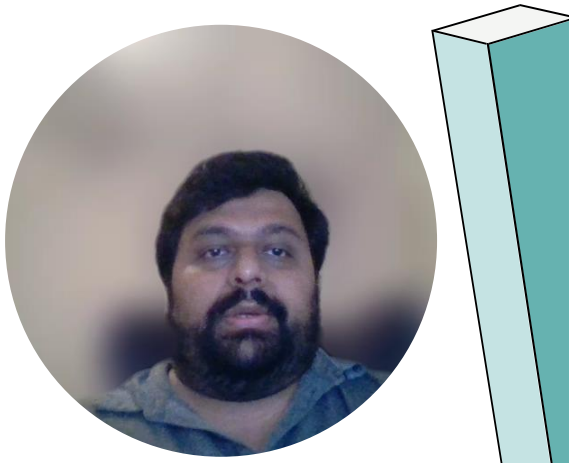
- Context determines visualization success.
- Decluttering improves comprehension and focus.
- Design choices influence interpretation and trust.
- Storytelling transforms charts into persuasive business tools.

CONCLUSION

- This project demonstrates the power of combining data visualization with storytelling.
- Applying Chapters 1–5 and 7 creates clarity, engagement, and insight.
- The final result moves beyond showing data to telling a meaningful story with data.

REFERENCE

- Knaflic, C. N. Storytelling with Data. Wiley.
- NYC Airbnb Open Dataset. (https://www.kaggle.com/datasets/arianazmoudeh/airbnbopendata)



THANK YOU

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