New York City Airbnb Data Analysis

Introduction

New York City is one of the most popular tourist destinations in the world, and Airbnb has quickly become a popular choice for visitors looking for affordable and unique places to stay. In this project, I aim to analyse the New York City Airbnb market using data analysis techniques to gain insights into the key factors that impact the Airbnb market in the city.

Methodology

I performed data cleaning using Microsoft Excel. I removed outliers with the help of histograms on the price and minimum nights column. I used descriptive statistics, correlation analysis and data visualization to explore the relationships between variables and identify trends and patterns in the data. I also used Tableau for the visualizations as it is an important tool that helps to provide in-depth visualizations for better understanding.

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The Problem

The business problem is to understand the distribution of Airbnb listings by neighbourhood in New York City and identify the key factors that impact the availability, price, and popularity of Airbnb listings in order get actionable insights on how to create customer satisfaction and also increase revenue.

Research questions

1. What is the distribution of Airbnb listings by neighbourhood in New York City?

2. What is the distribution of room types across New York City by popularity?

3. How does the availability of listings vary by neighbourhood, and what factors might be influencing this?

4. What is the average price of listings and how does this vary by neighbourhood and room type?

5. What is the correlation between the price of listings and their location? Are there any hotspots where prices are particularly high or low?

6. How does minimum nights impact price and popularity? Are there any differences by neighbourhood or room type?

7. What are the top 20 neighbourhoods by popularity and what room types are most common in those neighbourhoods?
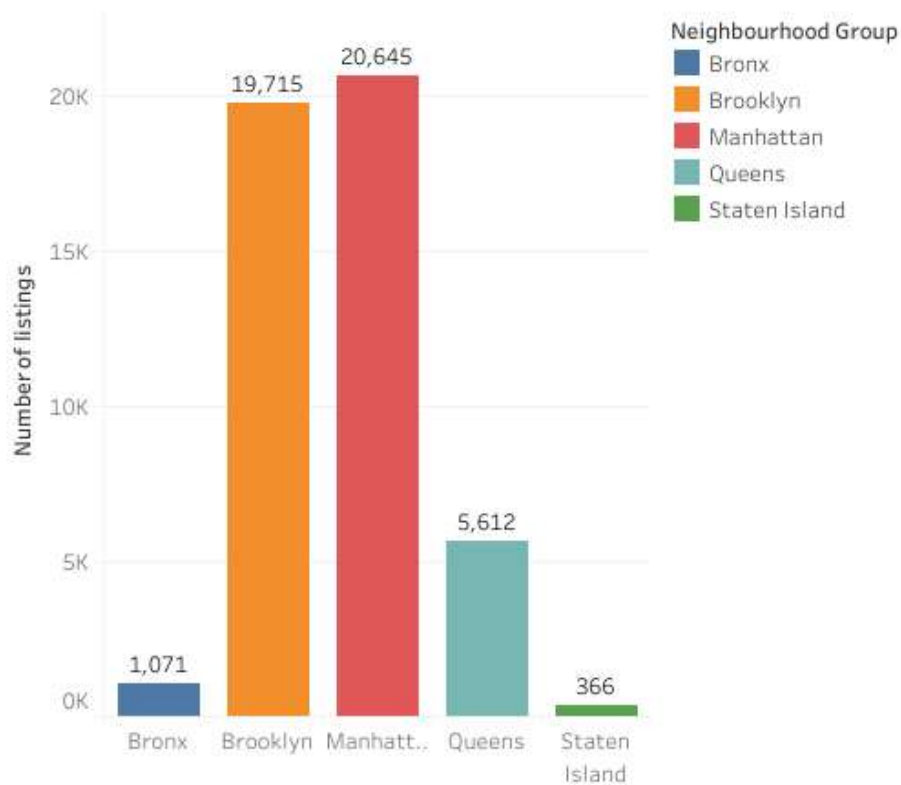
Findings

Finding 1

Manhattan has the most listings and Brooklyn follows closely with 20,645 and 19,715 listings respectively. Staten Island has the least listings with only 366 listings.

Figure 1

Distribution of listings in NYC by neighbourhood

Finding 2

Entire home/apt and Private room make up approximately 98% in popularity.

Figure 2.1

Entire home/apt	Private room	Shared room	Grand Total
367	646	58	1071
9280	10026	409	19715
12349	7827	469	20645
2069	3350	193	5612
169	188	9	366
24234	22037	1138	47409

Figure 2.2

Room types in NYC by popularity

1.71%

Number Of Reviews
1,122,188

Room Type
Entire home/apt
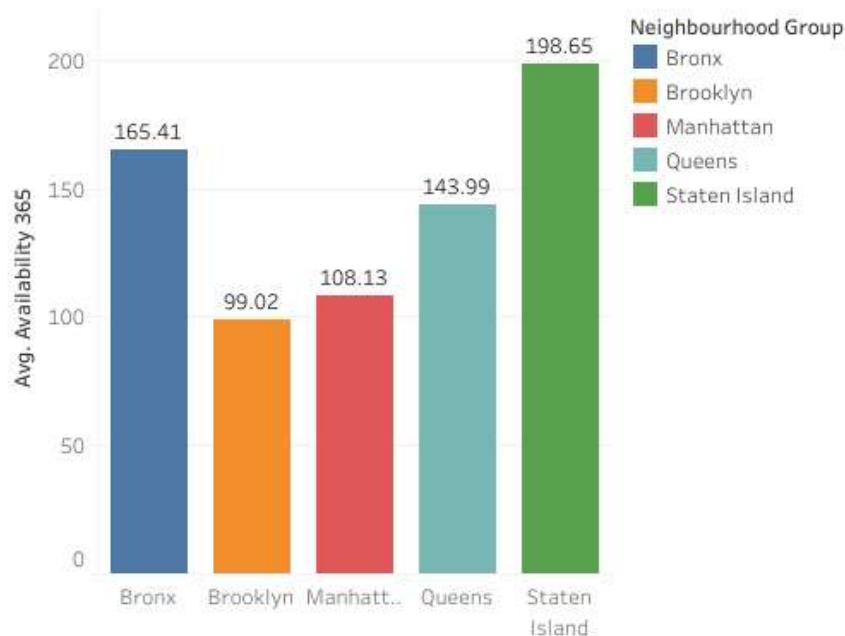Private room
Shared room

47.79%   50.50%
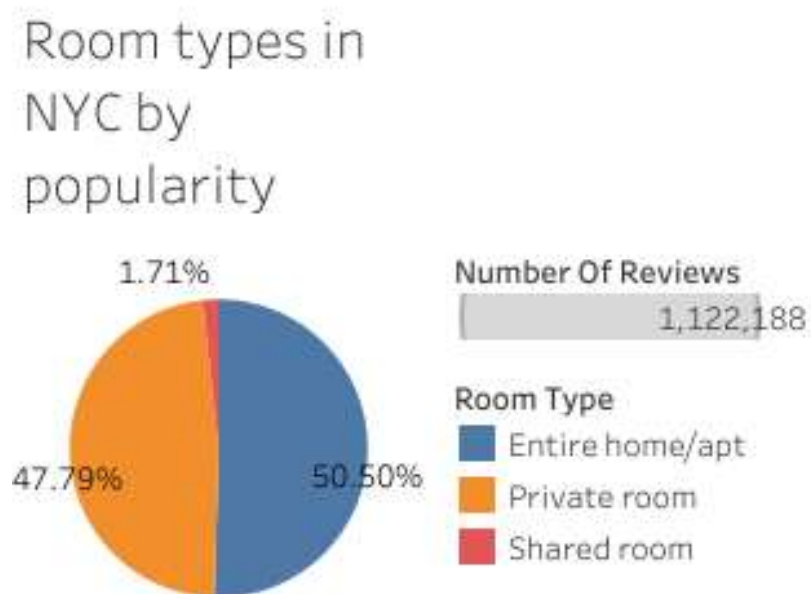
Finding 3

On average, Staten Island has more listings available throughout the year. Popularity factor might be influencing this outcome. The most popular locations with more customers will have less available listings per time.

Figure 3

Average listings availability by neighbourhood

Finding 4

Manhattan has the highest average price for every room type. Bronx has the lowest average price for every room type. Entire home/apt boasts the highest average prices while Shared room has the lowest average prices.

Figure 4

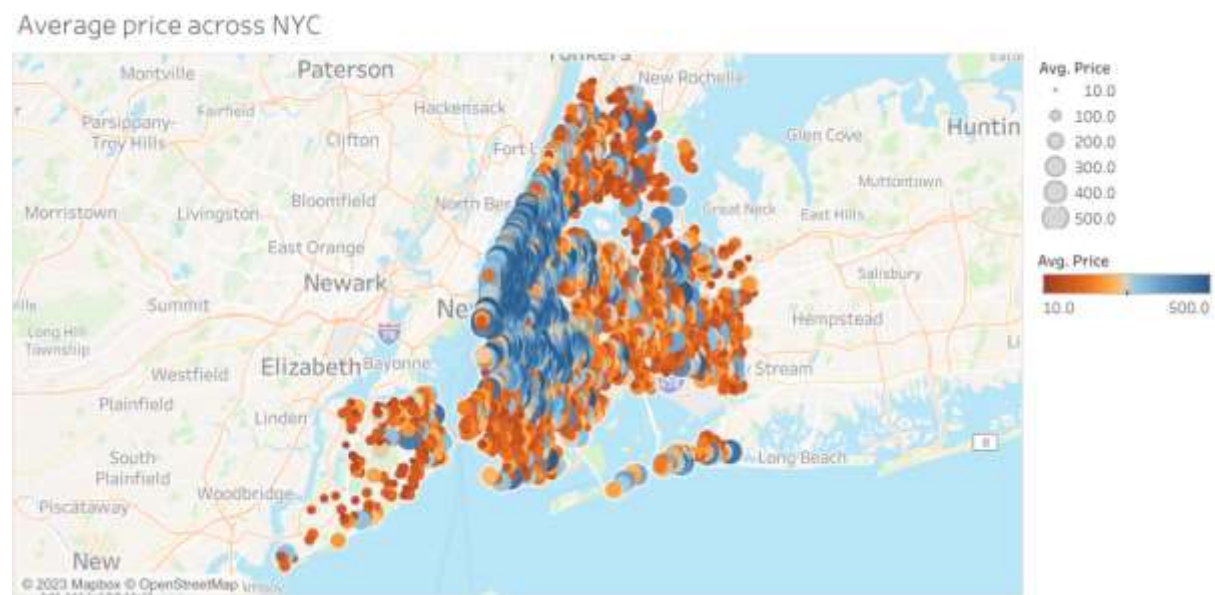Average price for different room types in each neighbourhood

Finding 5

Location obviously has an impact on the price of listings.

Manhattan is a hotspot for high prices and Staten Island seems

to be the hotspot for low prices.
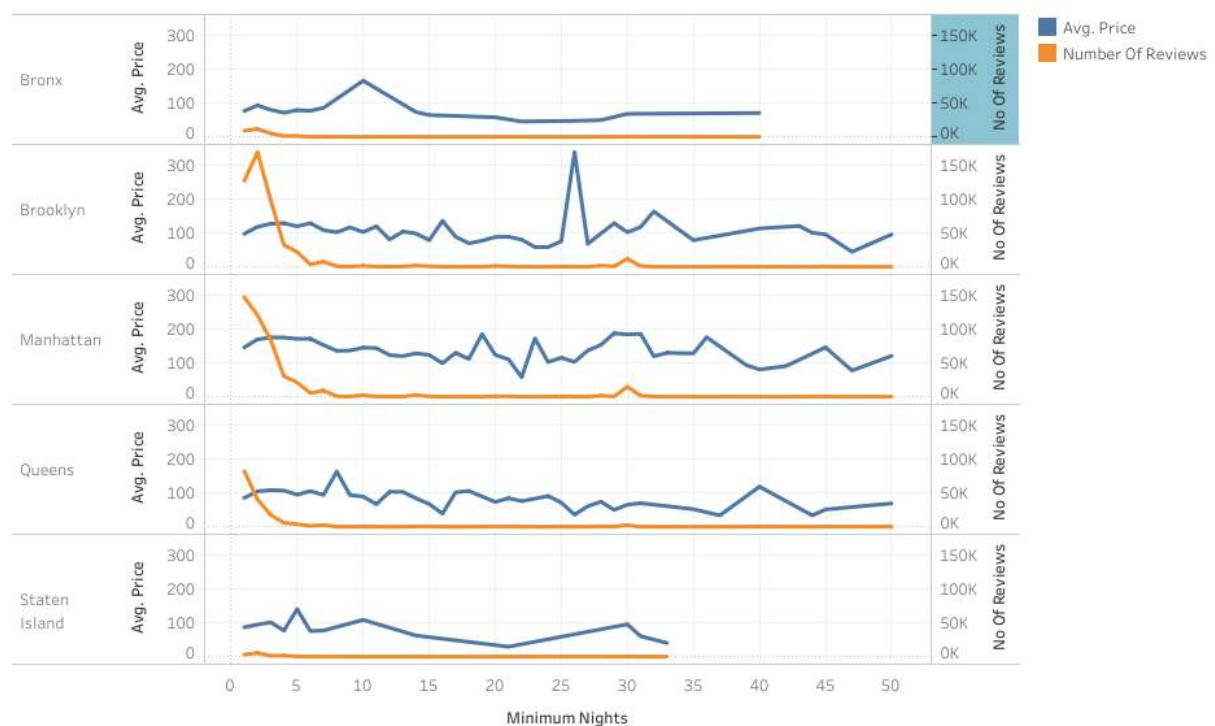
Figure 5

Average price across NYC

Finding 6

a. Minimum nights does not affect the price of the listings as shown in this graph. Popularity however decreases significantly the higher the minimum nights in all locations.

Figure 6.1

Effect of minimum nights on price and popularity by neighbourhood.

b. This is also observed to be true by room type. The popularity of

all room types is affected by the minimum nights. Customers

prefer listings with low number of nights.

Figure 6.2

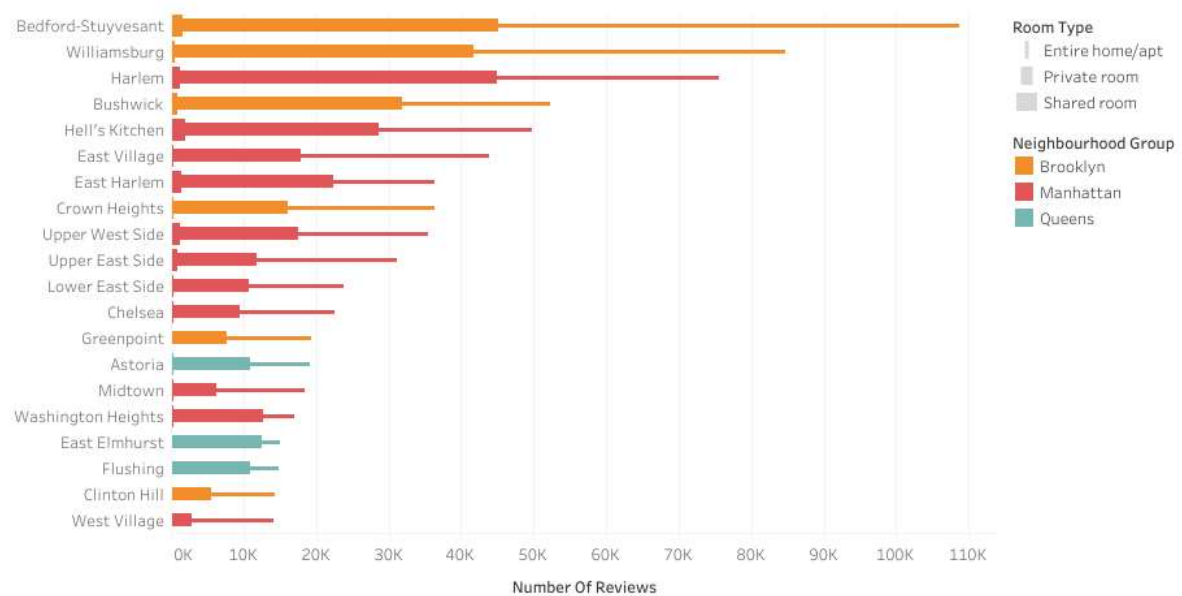Effect of minimum nights on price and popularity by room type

Finding 7

The most popular neighbourhoods are located in Brooklyn, Manhattan and Queens. The most common room types are Entire room/apt and Private room.

Figure 7

Top 20 most popular neighbourhoods.

Summary of Findings

Highest Listings

Manhattan has the most listings with 20,645 listings in total.

Brooklyn has the second highest with 19,715 listings.

Most popular room types

Entire home/apt and Private room are most popular among customers.

Listings prices

Manhattan has the highest prices on average compared to other areas while Bronx has the lowest prices on average.

Availability

Staten Island and Bronx have more available listings on average while Brooklyn and Manhattan have the least available listings on average.

Customer behaviour

More customers are willing to book listings that have fewer number of nights required.

Actions and Recommendations

Product recommendations

Hosts should focus on providing more Entire home/apt and Private room listings in Manhattan and Brooklyn because these areas are the most popular among customers but the availability is lower on average compared to other areas. Hosts should also consider reducing the minimum number of nights required for booking because customers prefer listings with low minimum nights.

Marketing recommendations

It is evident that customers are willing to pay more for Entire home/apt and Private room listings in Manhattan and Brooklyn therefore, marketing and advertising campaigns should be geared more towards Entire home/apt and Private room listings in Manhattan and Brooklyn.