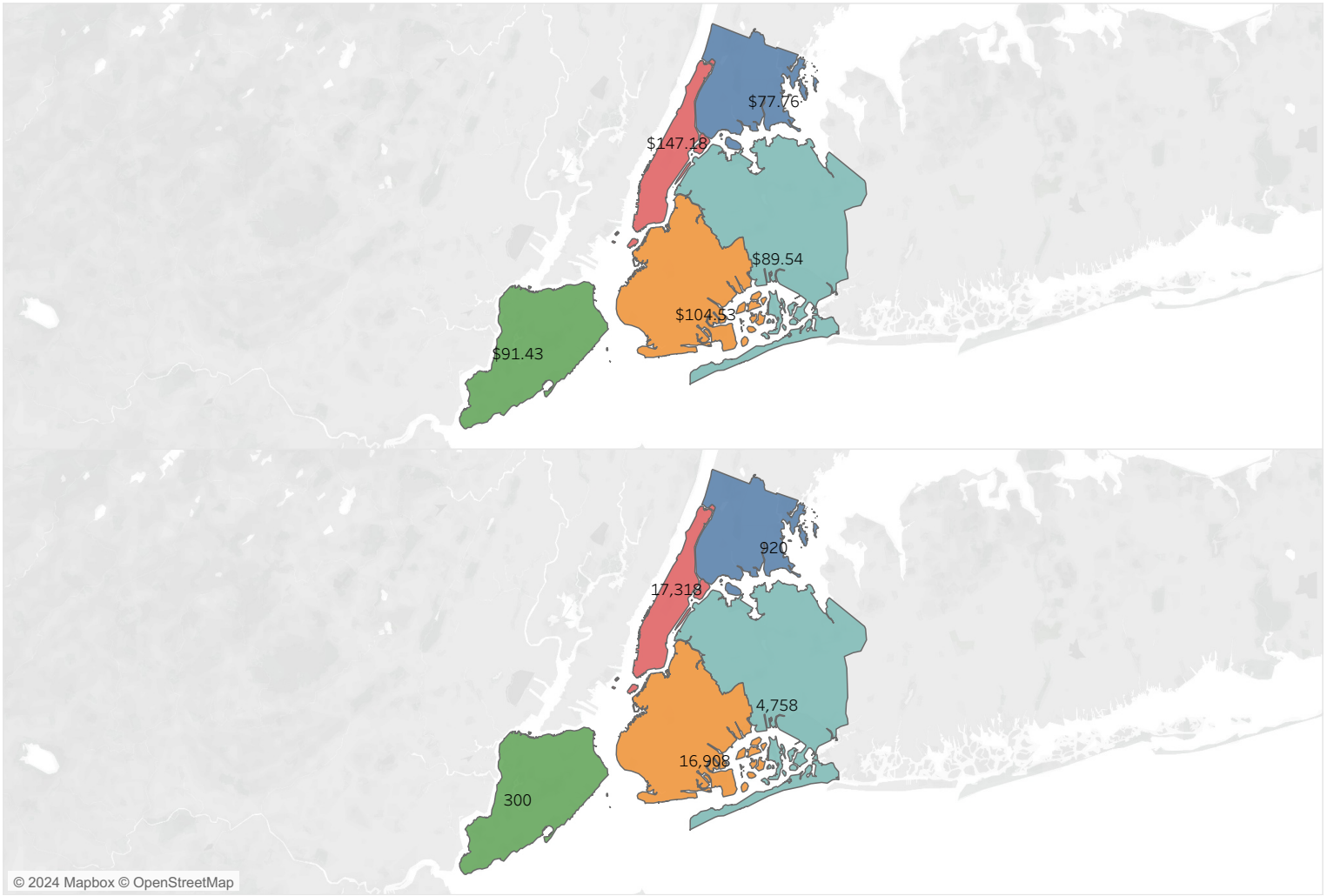
FINAL

As expected, Manhattan, the borough with a majority of New York City's attractions and the highest average rent prices, has the highest number of Airbnb listings as well as the highest average nightly price. As this is the most popular borough for tourists/visitors, the demand is high.

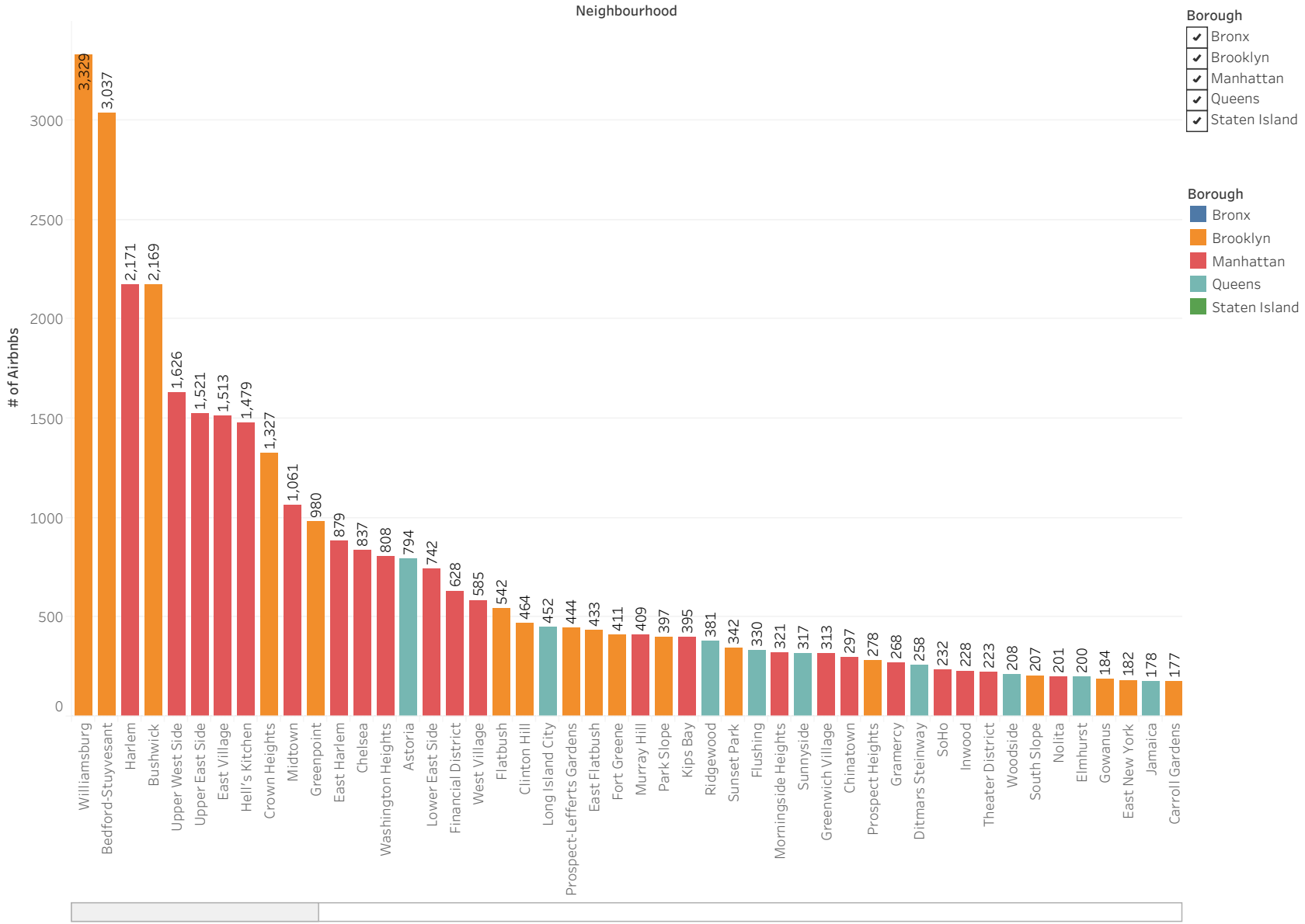
Price per night and count of Airbnbs by Borough



Borough
- Bronx
- Brooklyn
- Manhattan
- Queens
- Staten Island

FINAL

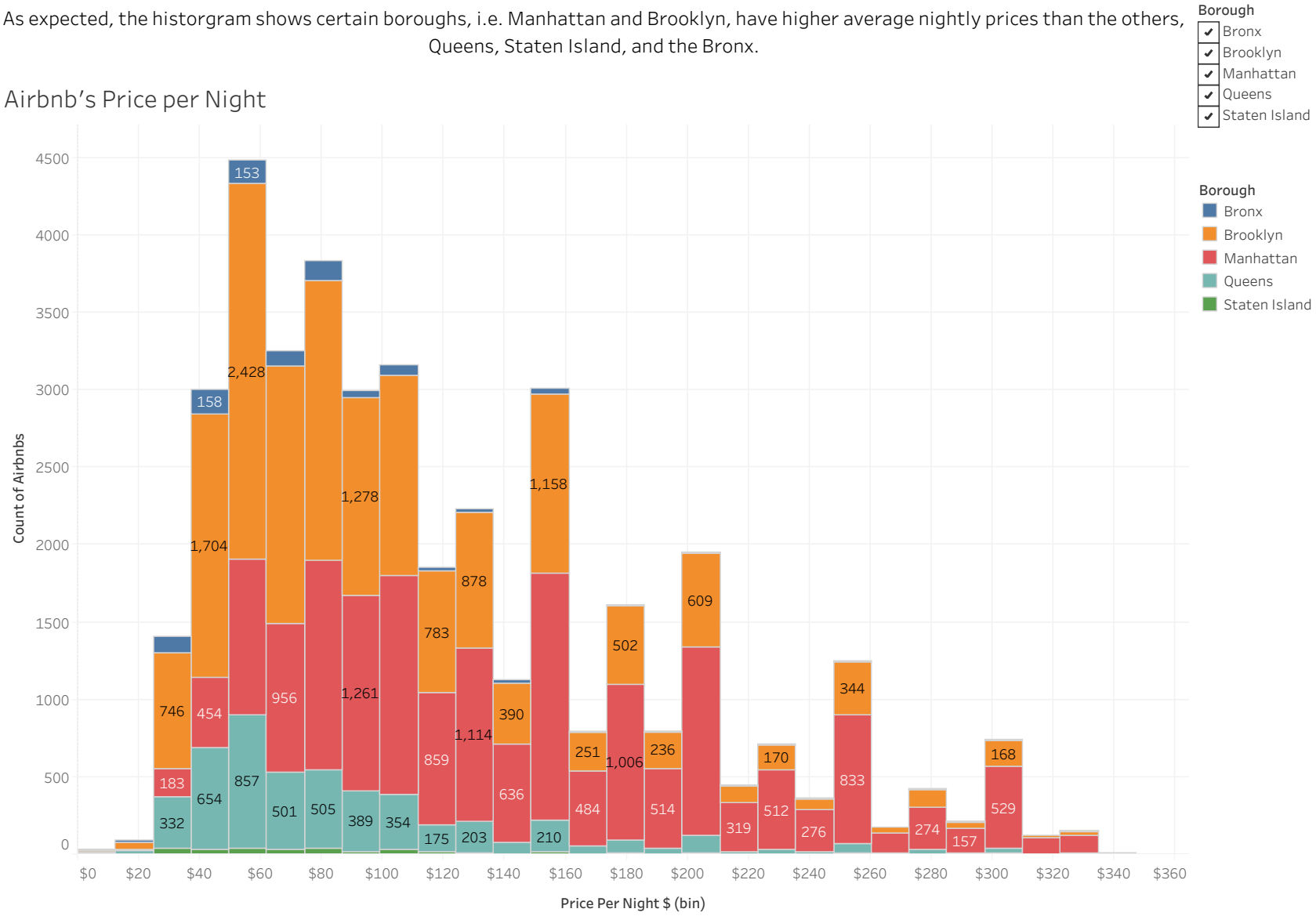
Airbnbs by Borough | **Airbnbs by Neighborhood** | Histogram - Price per Night | Exploratory Analysis | Regression Analysis - RPrice Per Night vs. R.. | Regression Analysis (by Borough) - Price p.. | Cluster Analysis - Price per Night vs. Number .. | Regression Analysis - Availability vs. Numb..



FINAL

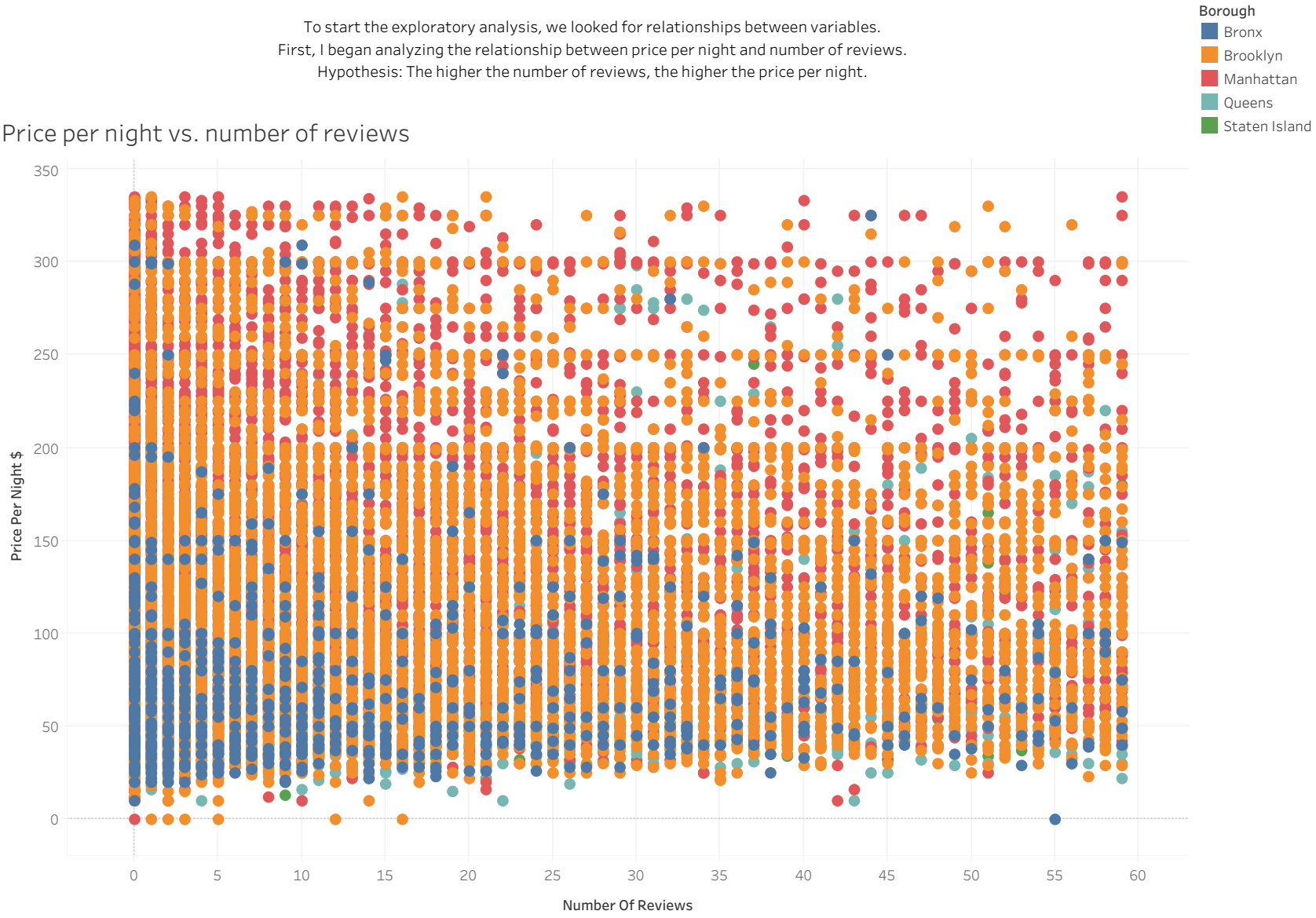
As expected, the historgram shows certain boroughs, i.e. Manhattan and Brooklyn, have higher average nightly prices than the others, Queens, Staten Island, and the Bronx.

Airbnb's Price per Night



FINAL

To start the exploratory analysis, we looked for relationships between variables.
First, I began analyzing the relationship between price per night and number of reviews.
Hypothesis: The higher the number of reviews, the higher the price per night.

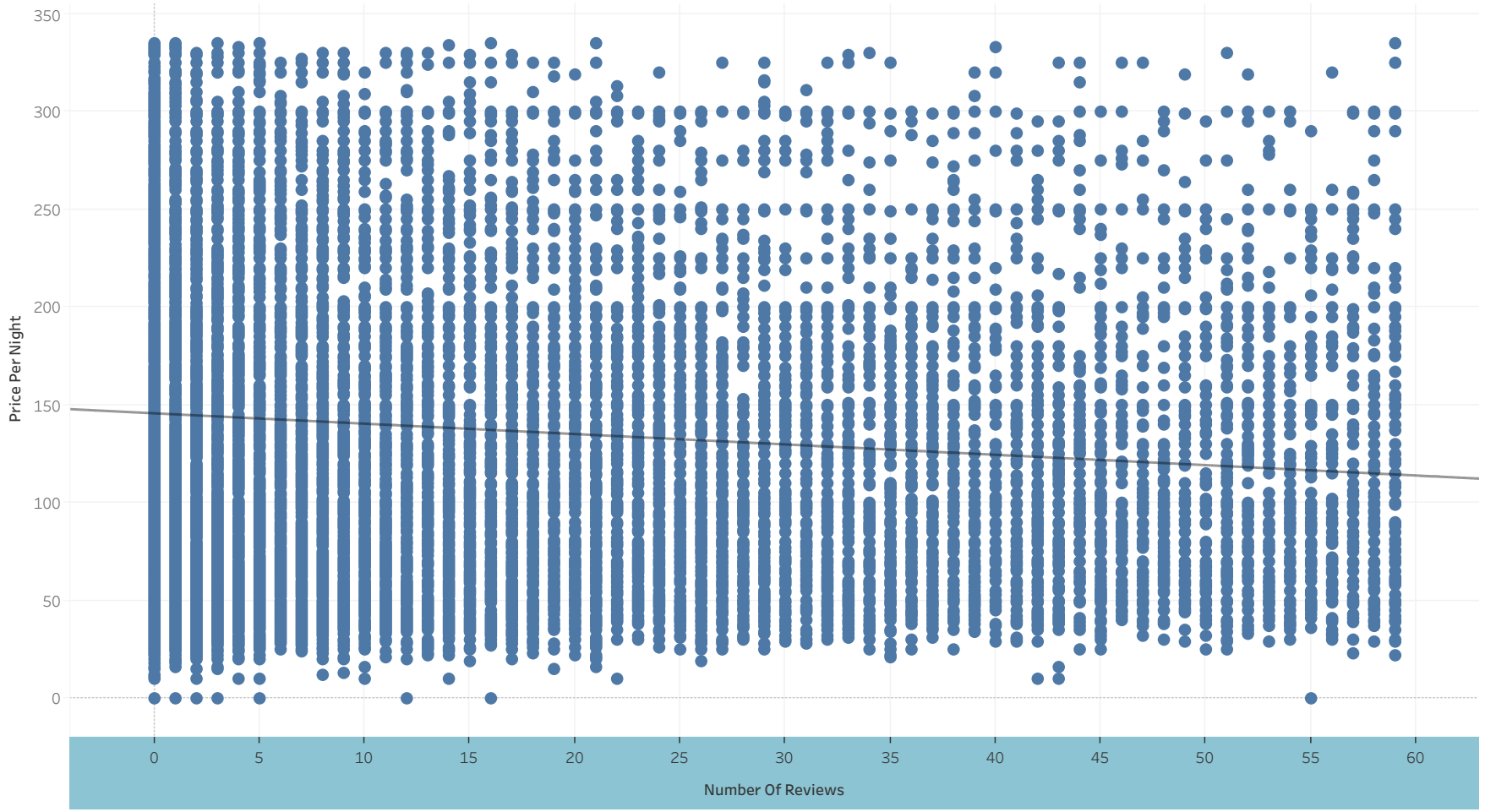


FINAL

Hypothesis: The higher the number of reviews, the higher the price per night.
To test this hypothesis, a linear regression was conducted.

With an r-squared value of 0.01, we can deduce that this model is not a good fit.
With a p-value of near 0, we can reject our null hypothesis - there is no relationship between the number of reviews and the price per night of an Airbnb.

Linear Regression



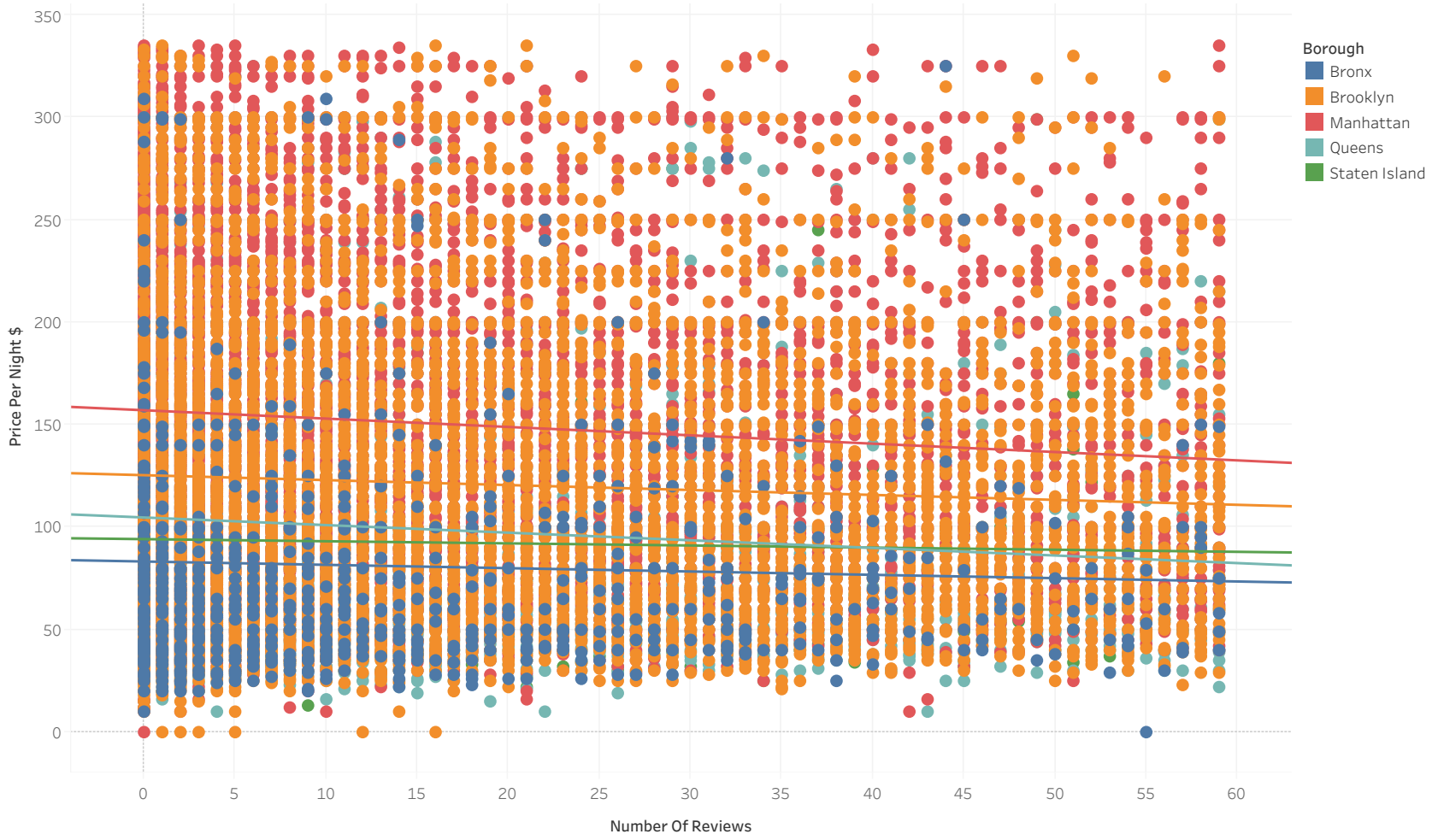
FINAL

We see the same lack of fit when looking at each borough individually.

However, there are 2 boroughs where we **cannot** reject the null hypothesis due to the p-value: Staten Island (.66) and the Bronx (0.23).

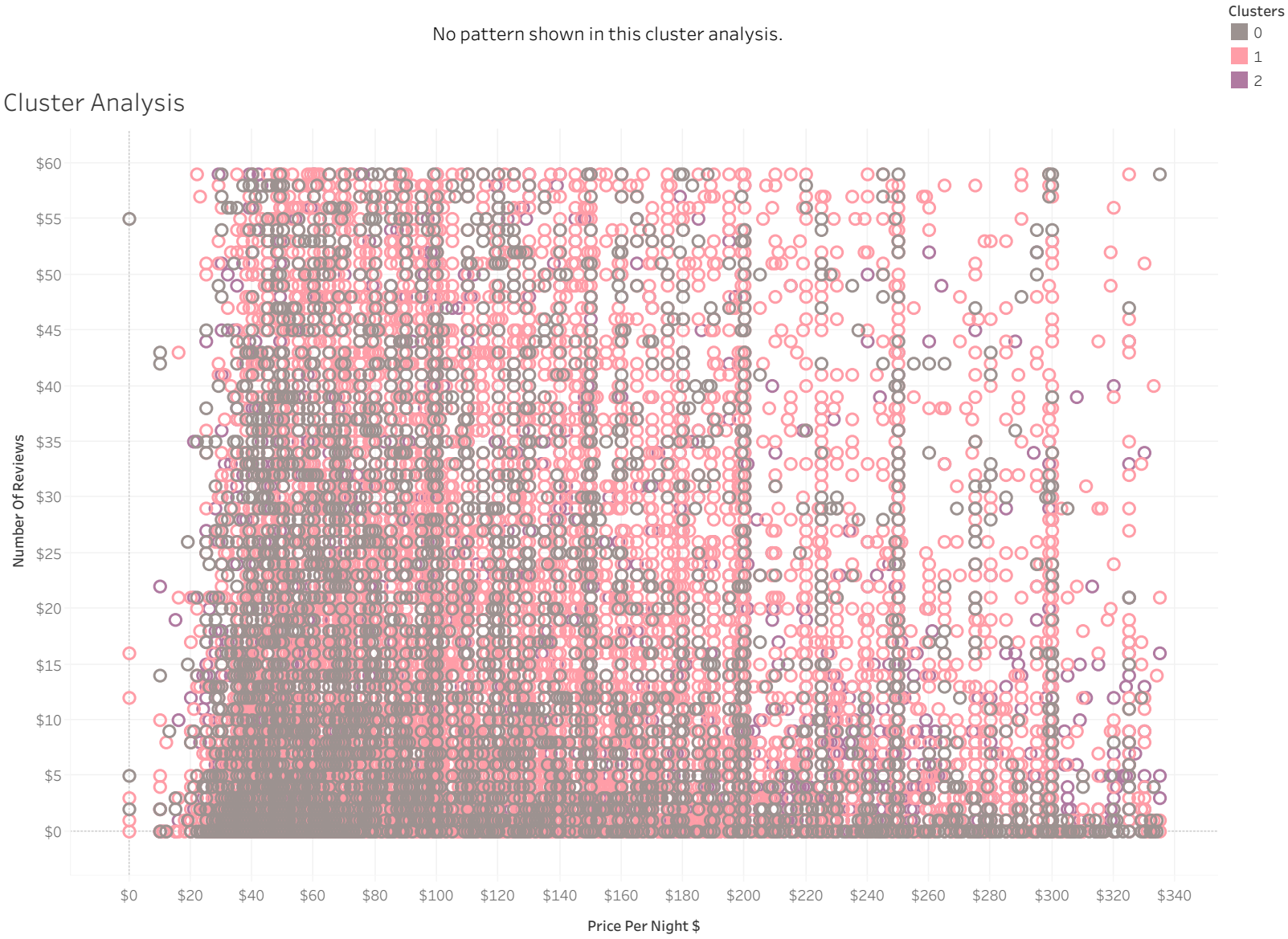
Borough
- ✔ Bronx
- ✔ Brooklyn
- ✔ Manhattan
- ✔ Queens
- ✔ Staten Island

Price Per Night vs. Number of Reviews by Borough



FINAL

No pattern shown in this cluster analysis.

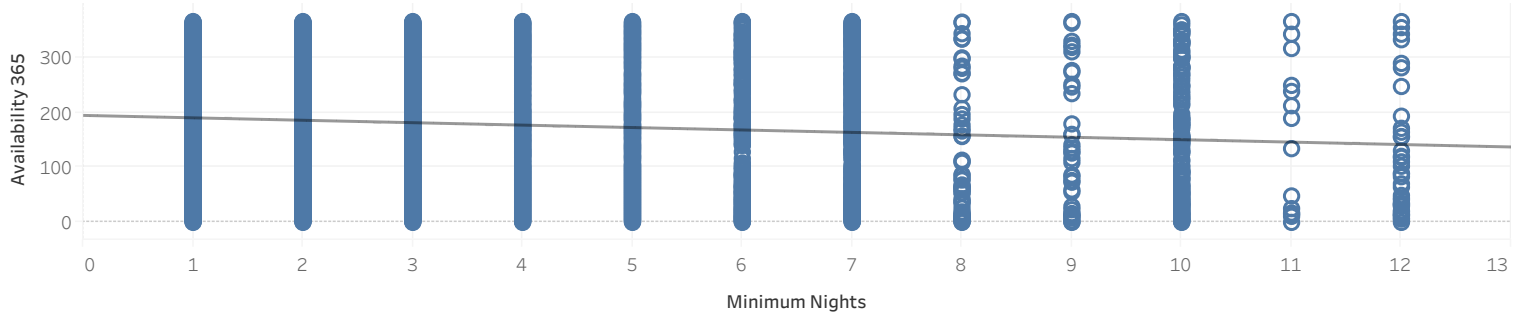


FINAL

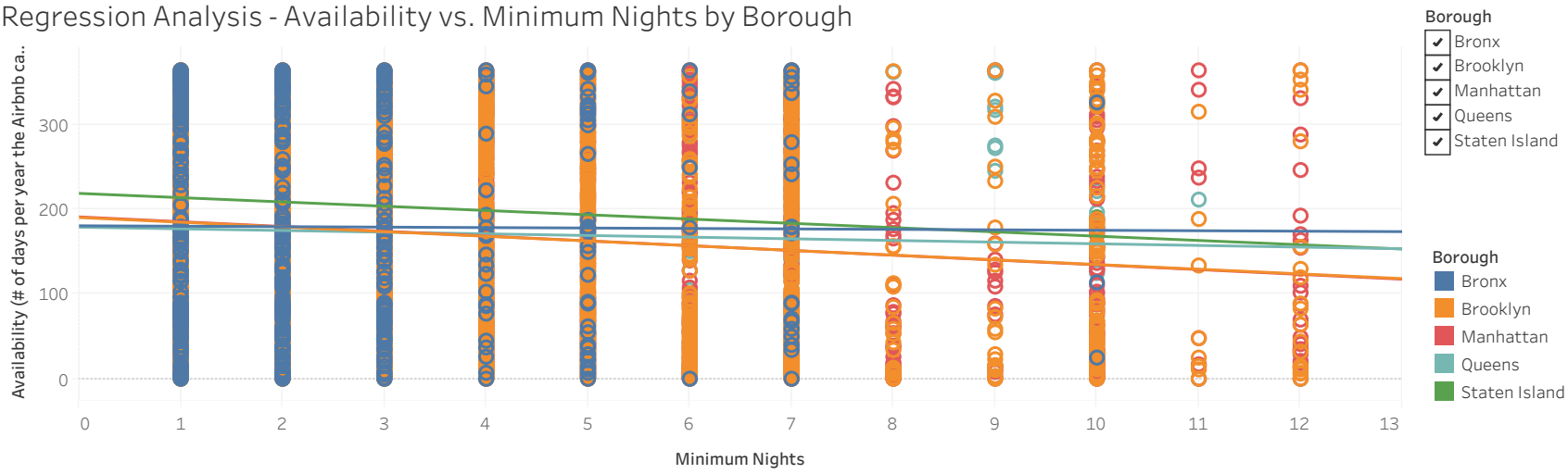
Hypothesis: The higher the minimum nights required to book, the higher the year-round availability.
To test this hypothesis, a linear regression was conducted.

With an r-squared value of 0.01, we can deduce that this model is not a good fit.
With a p-value of near 0, we can reject our null hypothesis - there is no relationship between the number of reviews and the price per night of an Airbnb when looking at all boroughs.
However, looking into individual boroughs, there are 3 boroughs where we **cannot** reject the null hypothesis due to the p-value: Staten Island (0.32), the Bronx (0.87) and Queens (0.22)...

Regression Analysis - Availability vs. Minimum Nights TOTAL

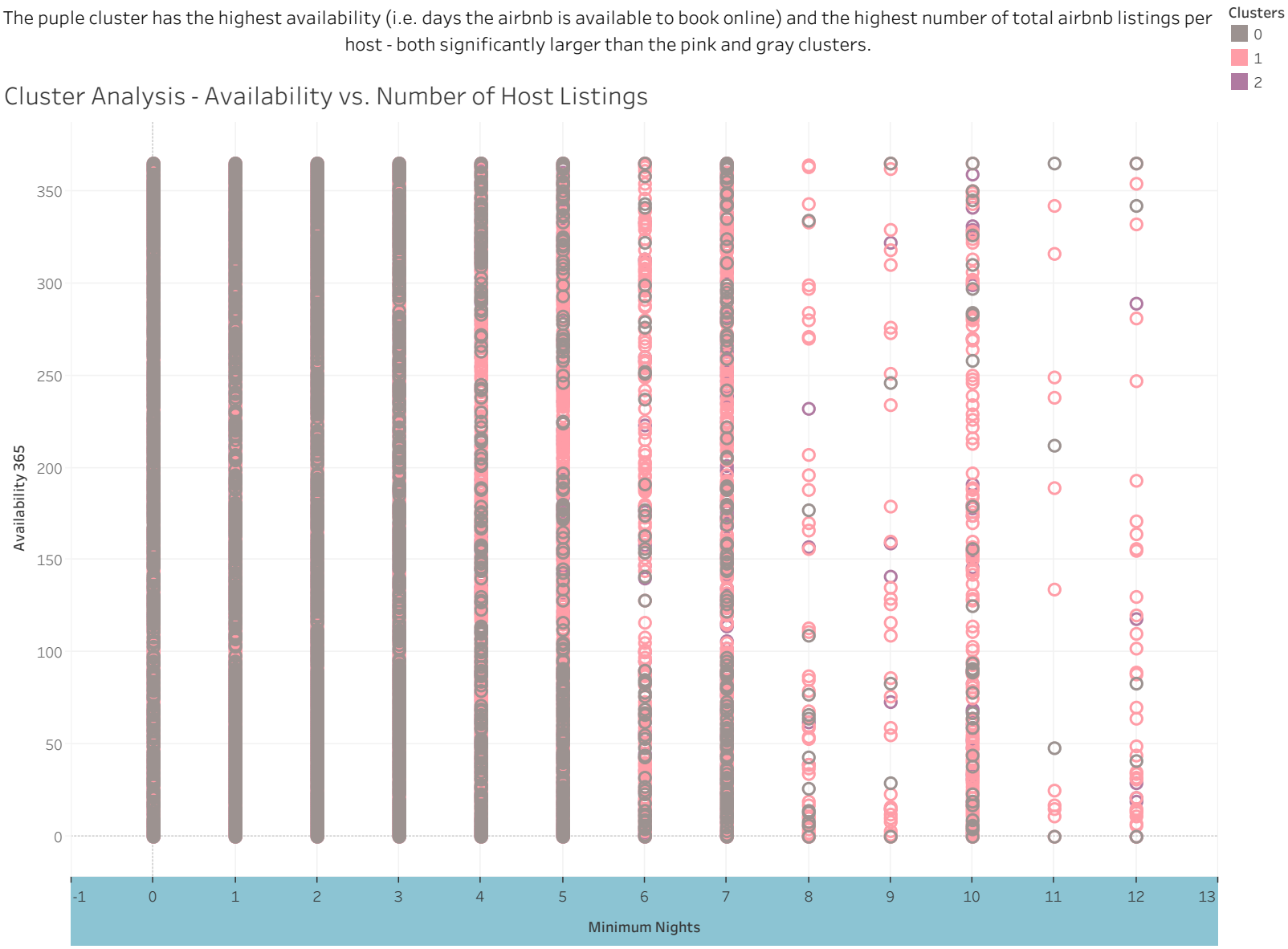


Regression Analysis - Availability vs. Minimum Nights by Borough



FINAL

The puple cluster has the highest availability (i.e. days the airbnb is available to book online) and the highest number of total airbnb listings per host - both significantly larger than the pink and gray clusters.



FINAL

Final Recommendations:

- In this analysis, we were able to determine if there are variables that contribute to an Airbnb's performance.

- My first hypothesis was: the higher the number of reviews, the higher the price per night. This was disproved by a linear regression analysis where the r-sqared and p-values were both insignificant.

- My second hypothesis was: the higher the minimum nights required to book, the higher the year-round availability. This was disproved by a linear regression analysis where the r-sqared and p-values were both insignificant.

Next Steps:

- Analyze the individual boroughs where we could NOT reject the null hypothesis:
    - Hypothesis 1: Staten Island and the Bronx
    - Hypothesis 2: Staten Island, the Bronx and Queens