An Investment Opportunity
—Unsupervised Pandas

Team members

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Files Provided

- Tableau Data Visualization
- Slides Presentation
- Video
- Extra:
    - Notebook for data analysis

Background Information

Median Prices in the Boroughs

Prices have increased in all boroughs since the fourth quarter of 2019.

BOROUGH	Q4-2019	Q4-2020	Q4-2021	TWO-YEAR INCREASE
Manhattan	$999,000	$1,050,000	**$1,165,000**	**16.6%**
Brooklyn	$800,000	$875,000	**$941,000**	**17.6**
Queens	$610,000	$668,000	**$718,000**	**17.7**
Bronx	$491,450	$530,000	**$575,000**	**17.0**
Staten Island	$536,617	$565,000	**$625,000**	**16.5**

Source: Miller Samuel/Douglas Elliman · By The New York Times

Data Preparation Process

- Remove Nulls (of course)
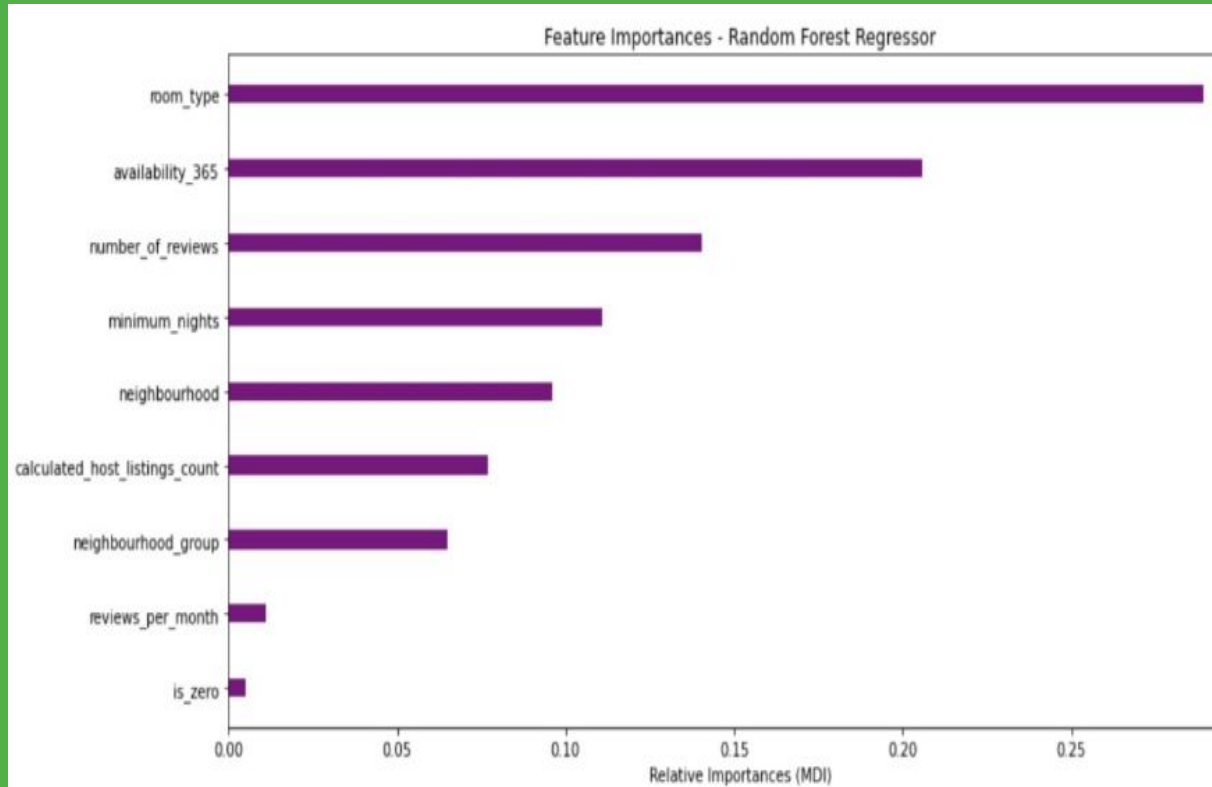- Remove Availability 365 equals to 0
- Remove Price less than 35

Model

What should we consider first when we select our neighbourhood?

Random Forest

Feature Importances - Random Forest Regressor

Data Envelopment Analysis

Top 20	neighbourhood	Borough			neighbourhood	Borough
	Battery Park City	Manhattan			Allerton	Bronx
Minimum Income	Bay Ridge	Brooklyn	Minumum Income		Bay Terrace	Queens
Ratio without	Bay Terrace	Queens	Ratio with		Bay Terrace	Staten Island
Considering	Boerum Hill	Brooklyn	Considering		Castle Hill	Bronx
Ocupency	Chelsea	Manhattan	Ocupency		Castleton Corners	Staten Island
	Civic Center	Manhattan			City Island	Bronx
	Greenwich Village	Manhattan			Clifton	Staten Island
	Harlem	Manhattan			Concourse	Bronx
	Kips Bay	Manhattan			Coney Island	Brooklyn
	Lower East Side	Manhattan			DUMBO	Brooklyn
	Mount Hope	Bronx			East Elmhurst	Queens
	Murray Hill	Queens			Eltingville	Staten Island
	Murray Hill	Manhattan			Graniteville	Staten Island
	Park Slope	Brooklyn			Longwood	Bronx
	Spuyten Duyvil	Bronx			Lower East Side	Manhattan
	Sunnyside	Queens			Mount Hope	Bronx
	Upper West Side	Manhattan			Parkchester	Bronx
	Washington Heights	Manhattan			Springfield Gardens	Queens
	Windsor Terrace	Brooklyn			St. George	Staten Island
	Woodside	Queens			Tremont	Bronx

Investment Strategy

Initiation/Prototyping Phase	Growth Phase	Maturing Phase
Initial set-up to pilot test the target neighborhoods.	Accelerated acquisition of housing on the best yielding prototype.	Maximize efficiency and profit.
Standardize product offering (design prototype for a standard unit of housing).	Develop in-house teams	Investment recoup

Optimal Number of Properties

Depends on the leverage, initial investment.

Optimal Scenario:

$5M Initial Investments

100 Properties Roll-Out in Mount Hope, Bronx

Technology

Property management tool (apartment.com).

Develop own internal system for maintenance request management.

Incorporate database system to store valuable data on renters, application info, contractors, service providers.
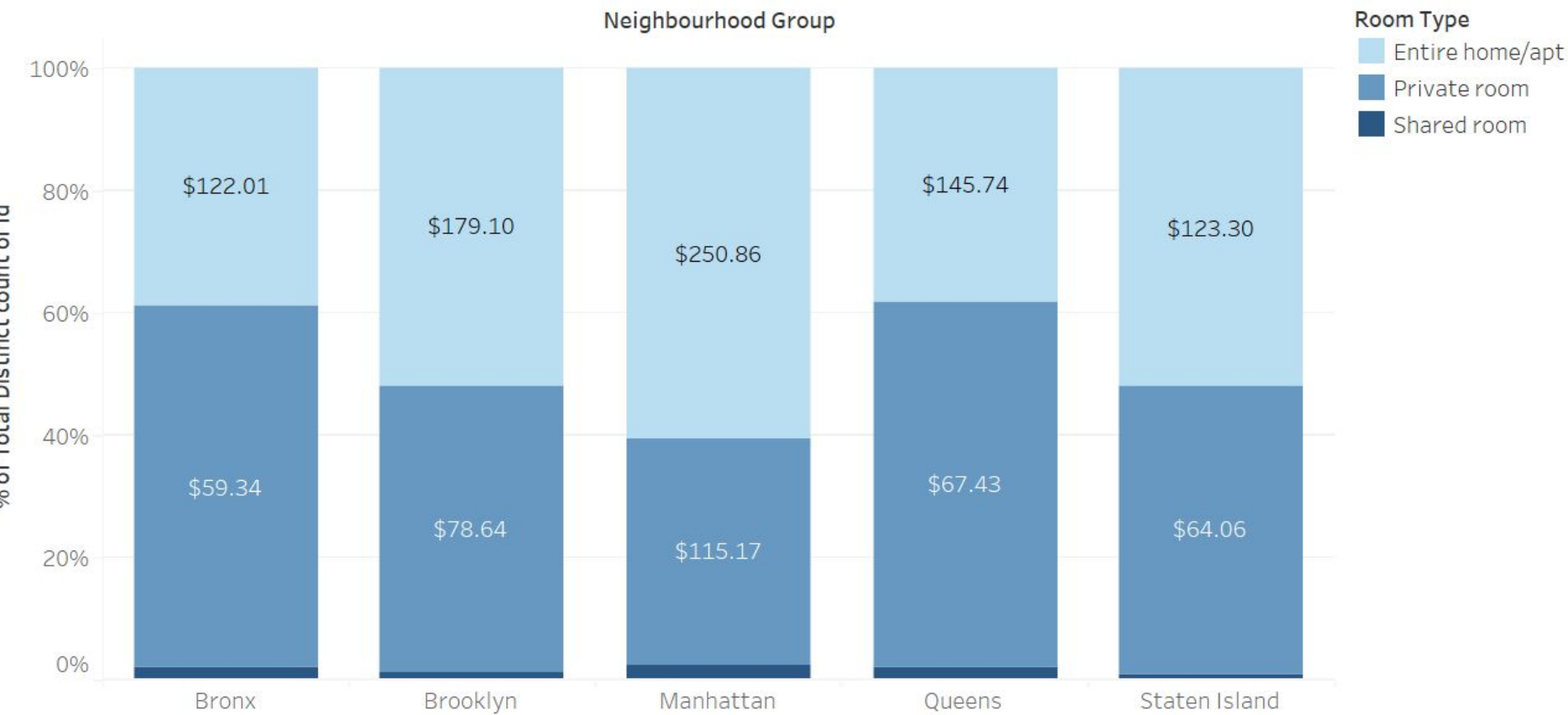
Potential Differentiation

Based on neighborhood demographic.

Based on specialized demand (student/nurse/professional)

Data Visualizations

The average price based on neighborhood groups and room types

Neighbourhood Group

% of Total Distinct count of Id

Room Type
- Entire home/apt
- Private room
- Shared room

	Entire home/apt	Private room
Bronx	$122.01	$59.34
Brooklyn	$179.10	$78.64
Manhattan	$250.86	$115.17
Queens	$145.74	$67.43
Staten Island	$123.30	$64.06

of Total Distinct count of Id for each Neighbourhood Group. Color shows details about Room Type. The marks are labeled by
verage of Price.

The top 10% neighbors based on the neighborgroups and average number of reviews
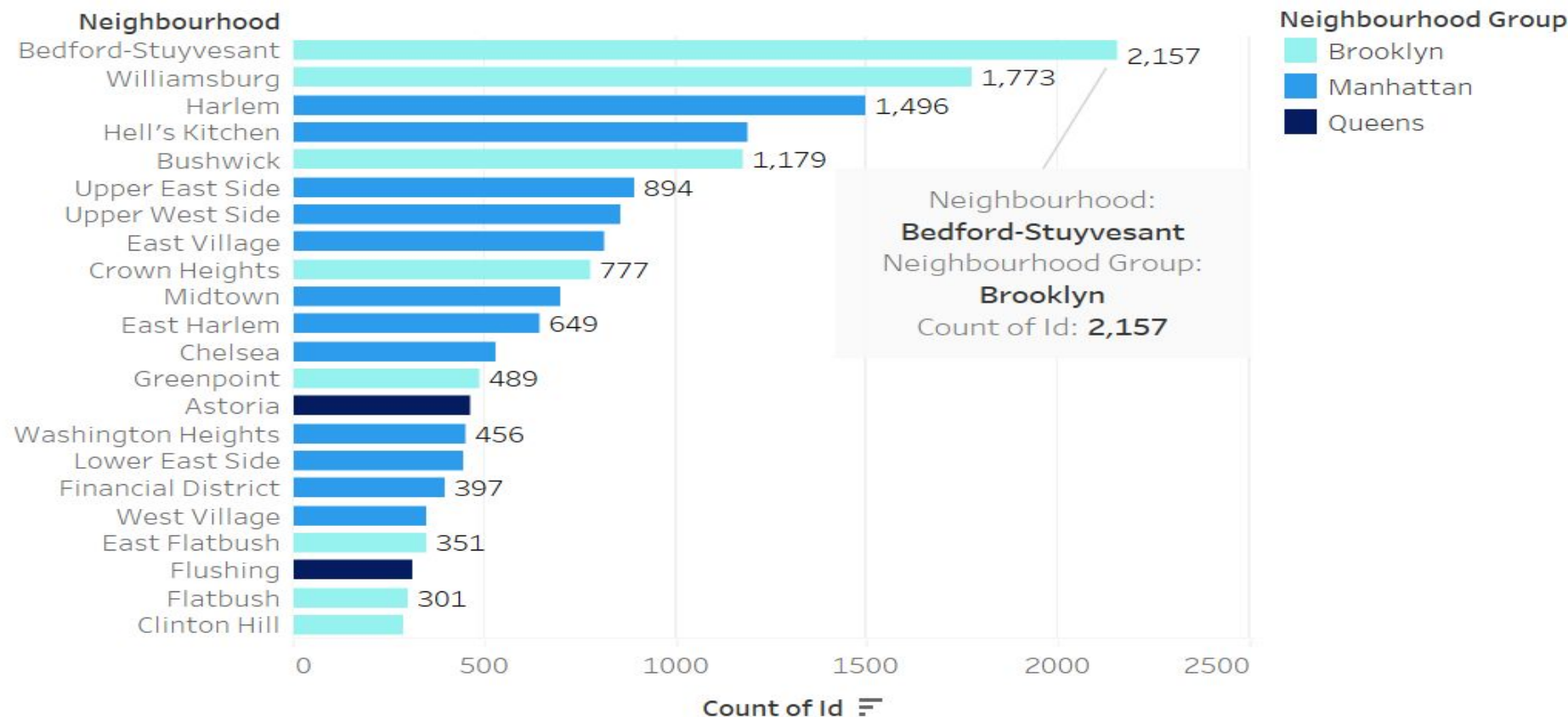
Neighbourhood

Neighbourhood Group
- Bronx
- Brooklyn
- Queens
- Staten Island

Neighbourhood	Value
Silver Lake	147.00
Eltingville	114.00
East Elmhurst	
DUMBO	87.00
Richmondtown	
Springfield Gardens	
Manhattan Beach	67.17
Tompkinsville	
Mount Eden	61.50
Highbridge	
Bay Terrace	
South Slope	60.36
St. George	
Castle Hill	59.00
Clifton	
South Ozone Park	57.00
Huguenot	
University Heights	55.54
Jamaica	
Prospect Heights	54.43
Grant City	
Allerton	53.09

Neighbourhood: **Silver Lake**
Neighbourhood Group: **Staten Island**
Average number of reviews: 147.00

The average number of reviews ☰

Average of Number Of Reviews for each Neighbourhood. Color shows details about Neighbourhood Group. The marks are labeled by average of Number Of Reviews. The view is filtered on Neighbourhood, which keeps 22 of 217 members.

The top 10% neighbors based on the number of properties

Neighbourhood

Neighbourhood	Count
Bedford-Stuyvesant	2,157
Williamsburg	1,773
Harlem	1,496
Hell's Kitchen	1,179
Bushwick	1,179
Upper East Side	894
Upper West Side	
East Village	
Crown Heights	777
Midtown	
East Harlem	649
Chelsea	
Greenpoint	489
Astoria	
Washington Heights	456
Lower East Side	
Financial District	397
West Village	
East Flatbush	351
Flushing	
Flatbush	301
Clinton Hill	

Neighbourhood Group
- Brooklyn
- Manhattan
- Queens

Neighbourhood:
Bedford-Stuyvesant
Neighbourhood Group:
**Brooklyn**
Count of Id: **2,157**

Count of Id

Count of Id for each Neighbourhood. Color shows details about Neighbourhood Group. The marks are labeled by distinct count of Id. The view is filtered on Neighbourhood, which keeps 22 of 217 members.

# The average daily price of neighbors based on their neighborhoods' groups

Neighbourhood Group
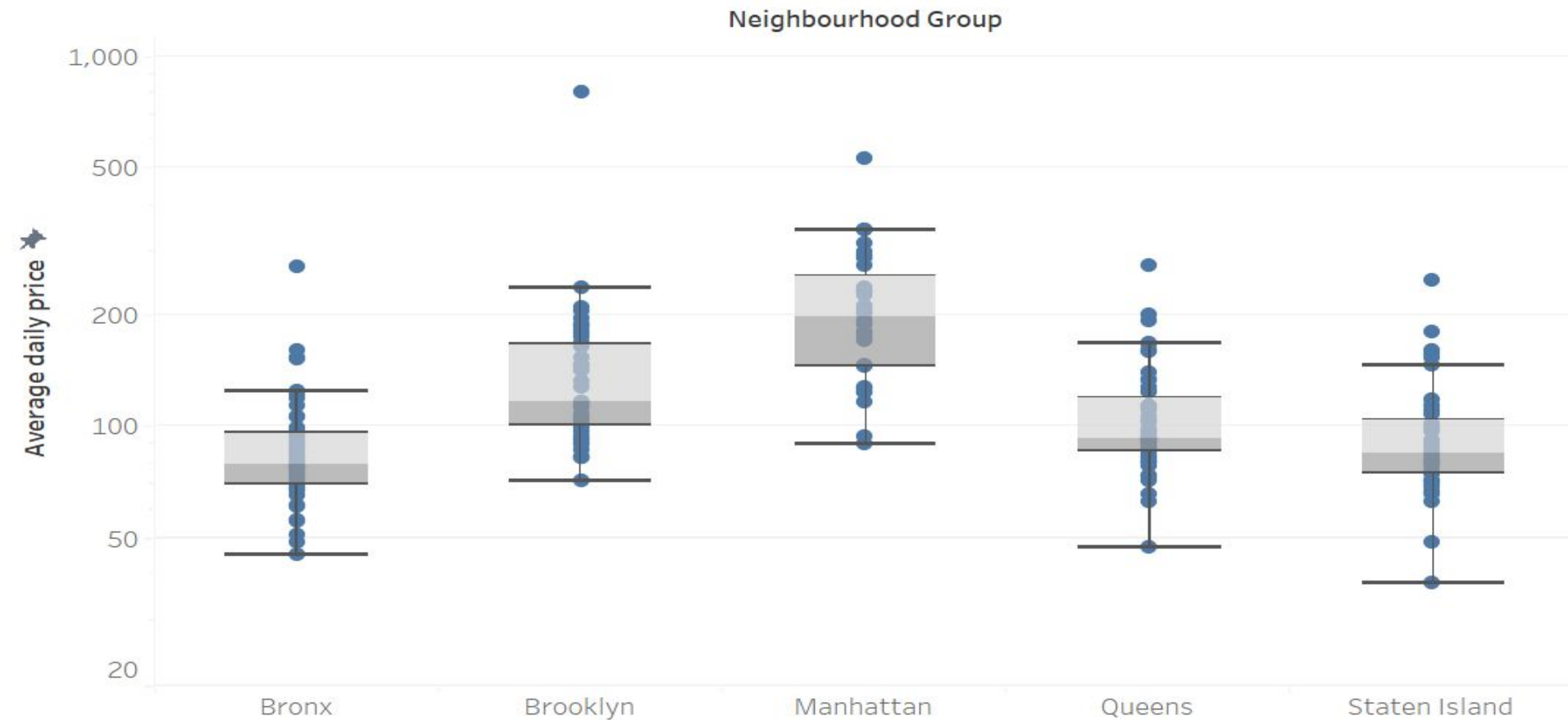
Average of Price for each Neighbourhood Group. Details are shown for Neighbourhood.

K-mean clusters for neighborhoods

Cluster

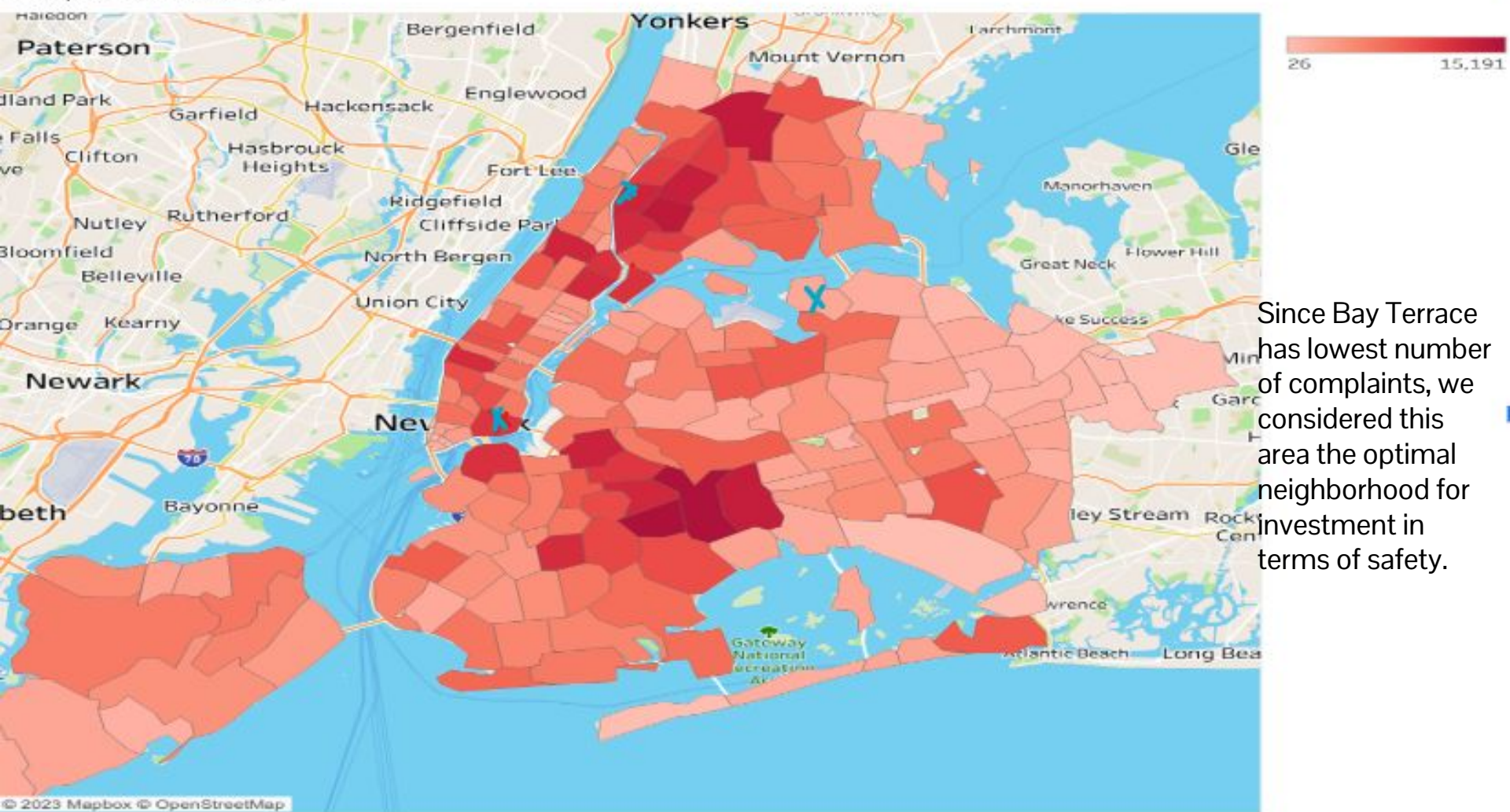0   3

Tottenville

© 2023 Mapbox © OpenStreetMap
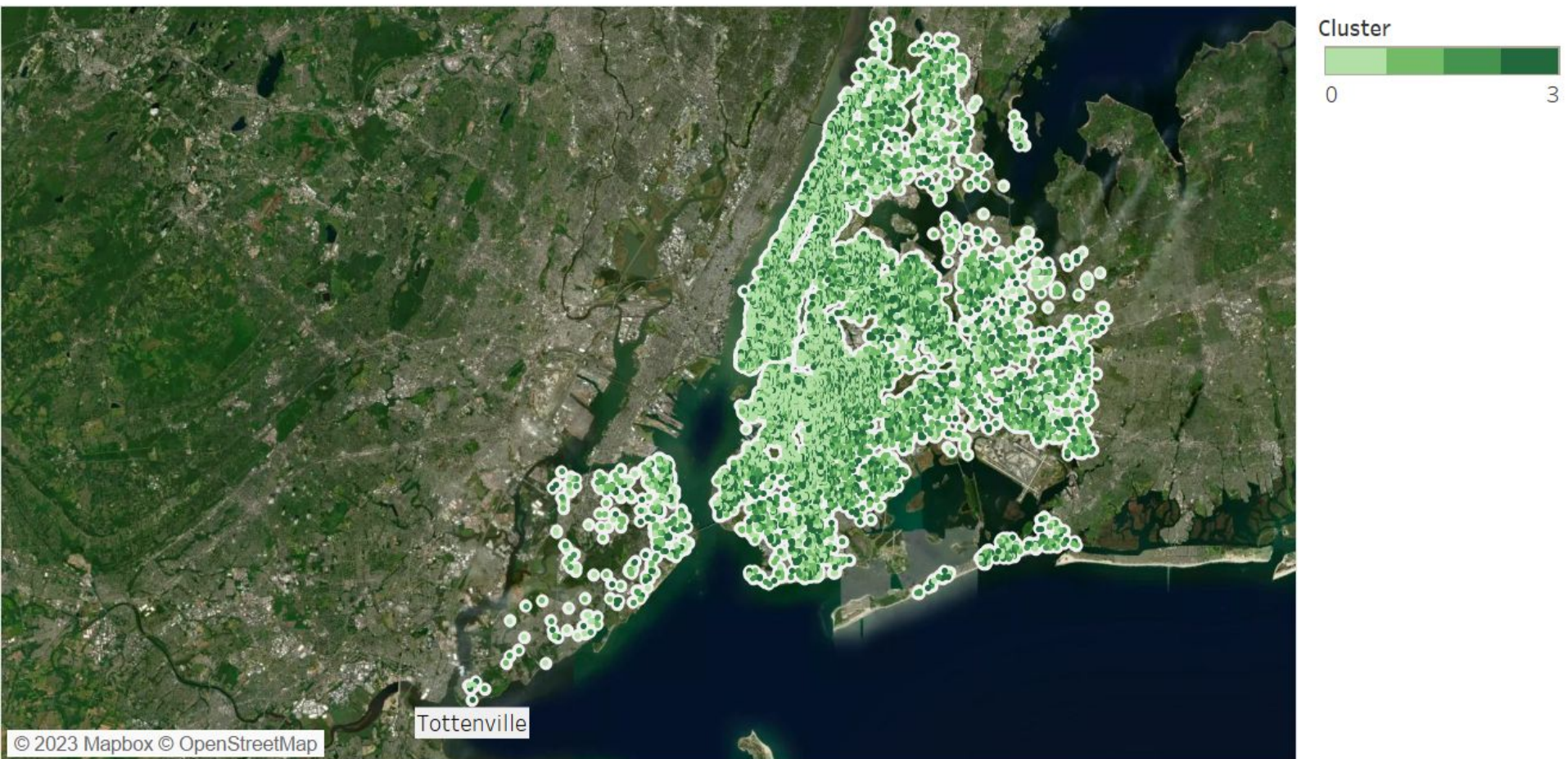
Map based on Longitude and Latitude. Color shows sum of Cluster. The marks are labeled by Neighbourhood Name.
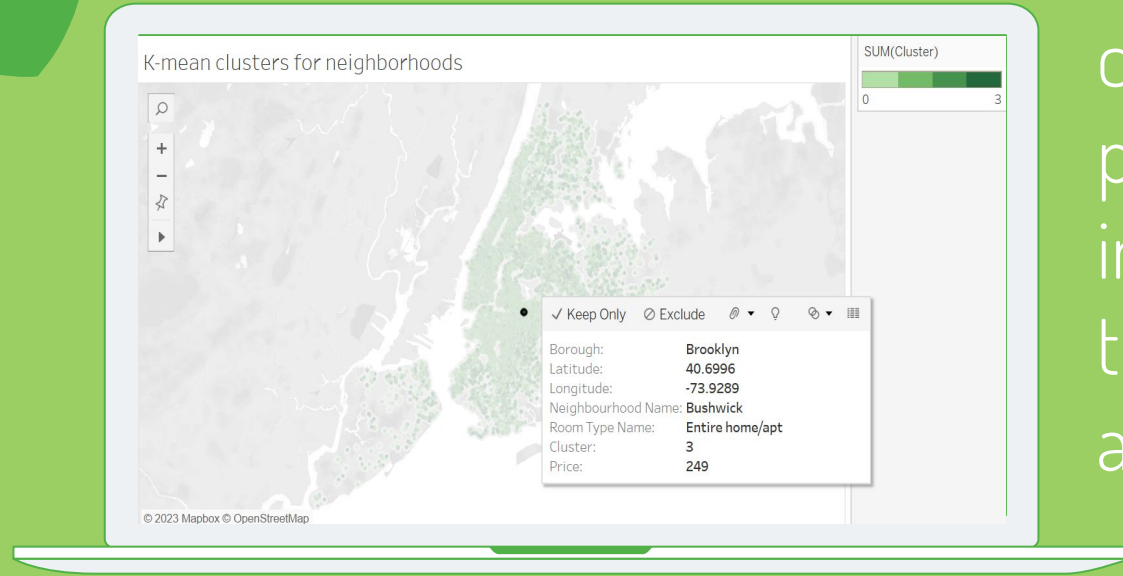
Investors can choose the specific properties to invest in zooming in on the neighborhood and by hovering

Complaints In NYC

Since Bay Terrace has lowest number of complaints, we considered this area the optimal neighborhood for investment in terms of safety.

Thanks!

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