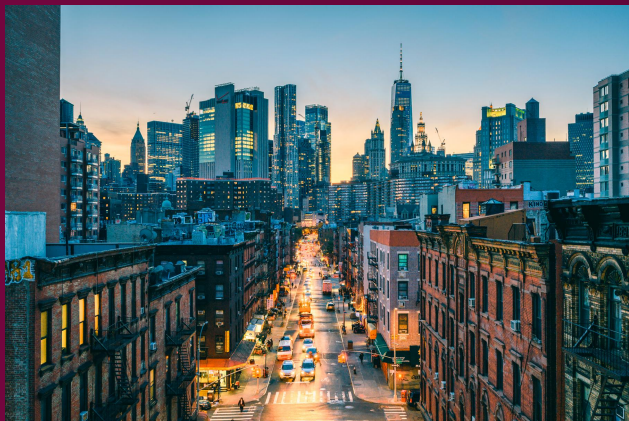


# NYC AirBNB Final Project

Seve Silvestre, Raina Rode, Ben Fujii



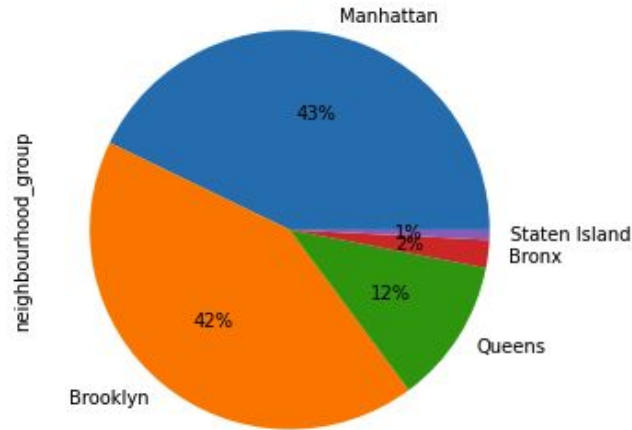
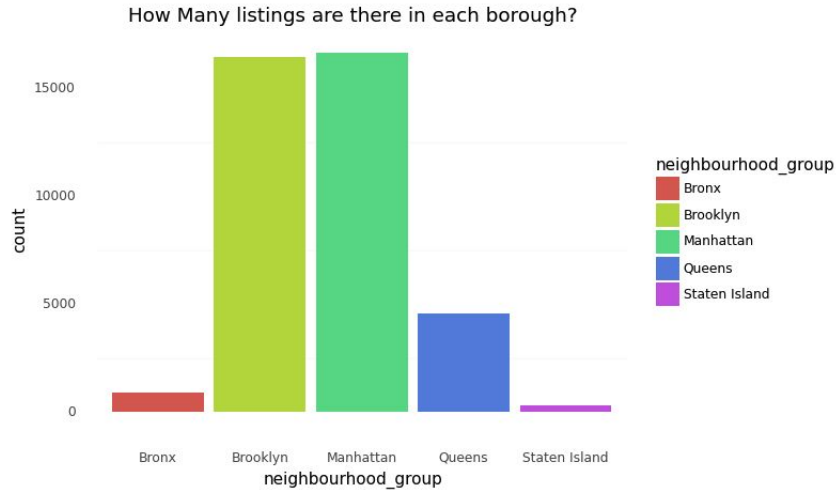
# Variables

- id: listing ID
- name: name of listing
- host\_id: host ID
- neighbourhood\_group: location (borough)
- neighbourhood: area
- room\_type: listing space type
- price: price in dollars
- minimum\_nights: amount of nights minimum
- number\_of\_reviews: number of reviews
- reviews\_per\_month: number of reviews per month
- calculated\_host\_listings\_count: amount of listings per host
- availability\_365: number of days when listing is available for booking

## Question 1:

How are AirBNB rentals distributed among the five boroughs of New York?

# How are AirBNB rentals distributed among the five boroughs of New York?



# Question 1: How would our answer be applicable to the real world

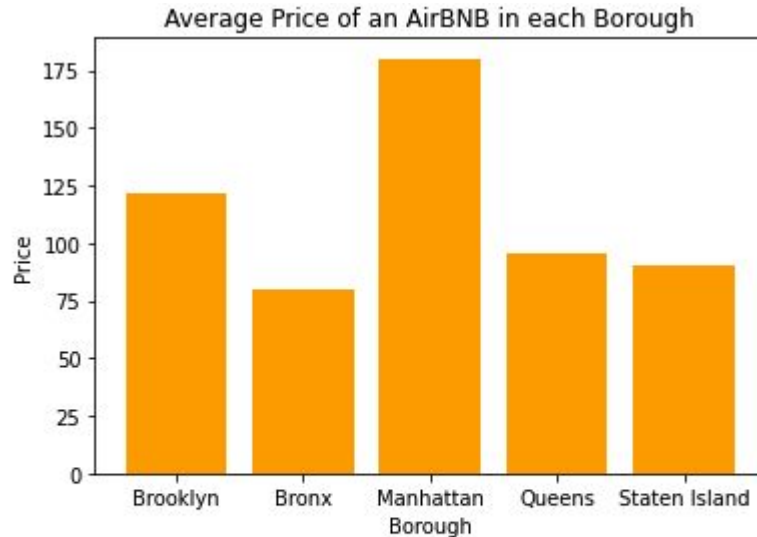
- Could be used for people in the Real Estate Industry looking to enter the AirBNB rental industry
- We can see that the most popular places customers enjoy renting are in both Manhattan and Brooklyn and the least popular places to rent are in Staten Island and Bronx
- This can be valuable information to a renter who is unsure of which borough they should purchase a property to rent out, which in this case, it would be Manhattan or Brooklyn.
- Could possibly allow people to find an opportunity to become a successful host in less popular areas such as Queens, Bronx, and Staten Island
  - Find ways to differentiate themselves amongst the competition in lower demand areas



## Question 2:

What is the price distribution of  
AirBNB rentals among the five  
boroughs?

# What is the price distribution of AirBNB rentals among the five boroughs?



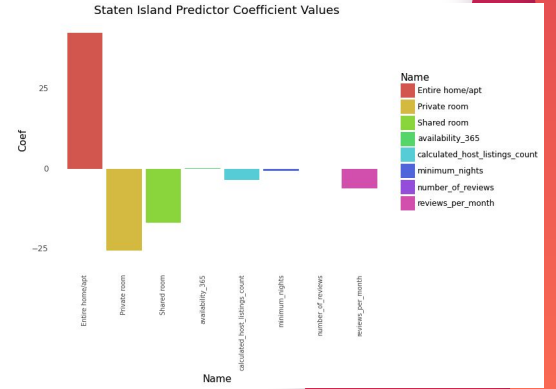
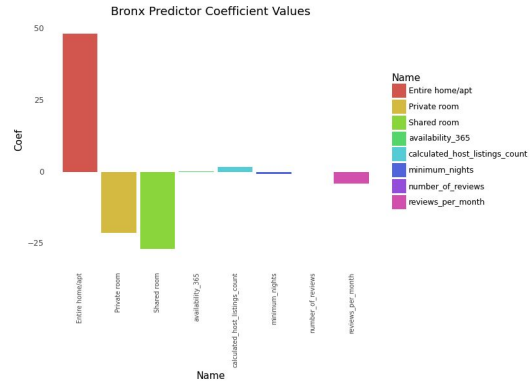
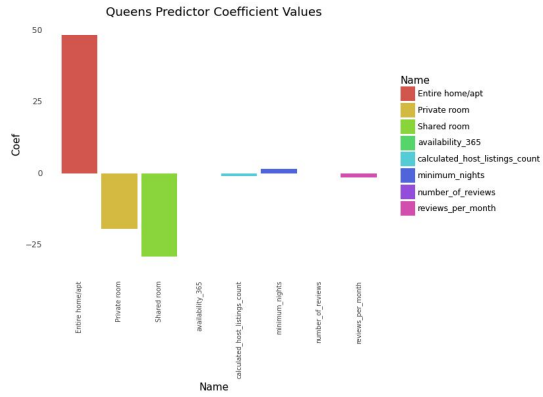
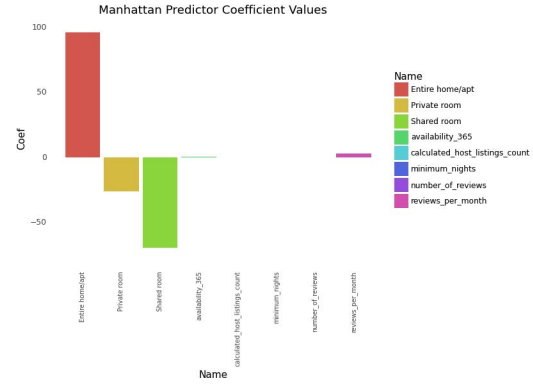
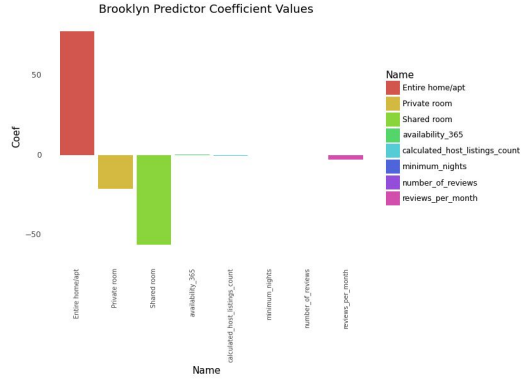
Average price in Brooklyn: 121.44871405119474

Average price in Bronx: 79.55365296803653

Average price in Manhattan: 180.05248917748918

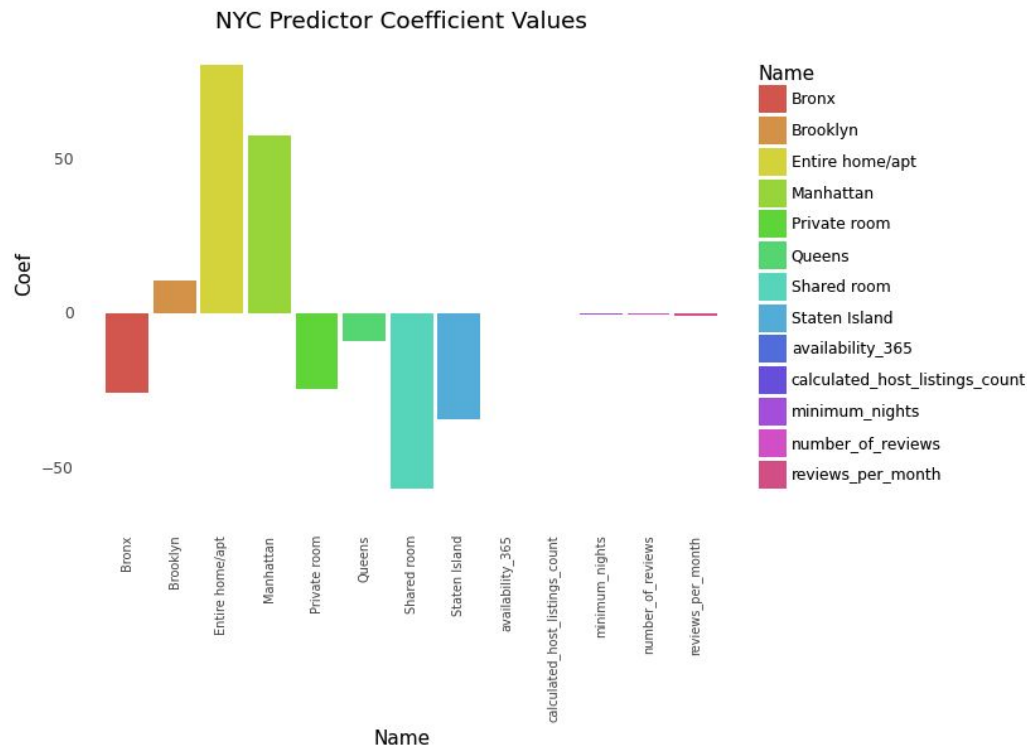
Average price in Queens: 95.76257105378225

Average price in Staten Island: 89.96496815286625





# What is the price distribution of AirBNB rentals among the five boroughs?



## Question 2: How would our answer be applicable to the real world

- As a AirBNB host, it is important to know what the average price listings in the area of your listing to see if you are pricing too high or too low.
- This could prevent extra profits or prevent more rentals.
- Concluded that AirBNB listings that provide the customer an entire home/apartment tended to cause prices to jump, while shared rooms tended to causes prices to dip.
- This type of information would be very useful for AirBNB hosts struggling to determine the perfect price to their AirBNB and can even assist Real Estate Agents interested in the AirBNB industry to determine what kind of property in which borough they should try to purchase if they are trying to obtain the most profit, which would be Entire homes and apartments.



### Question 3:

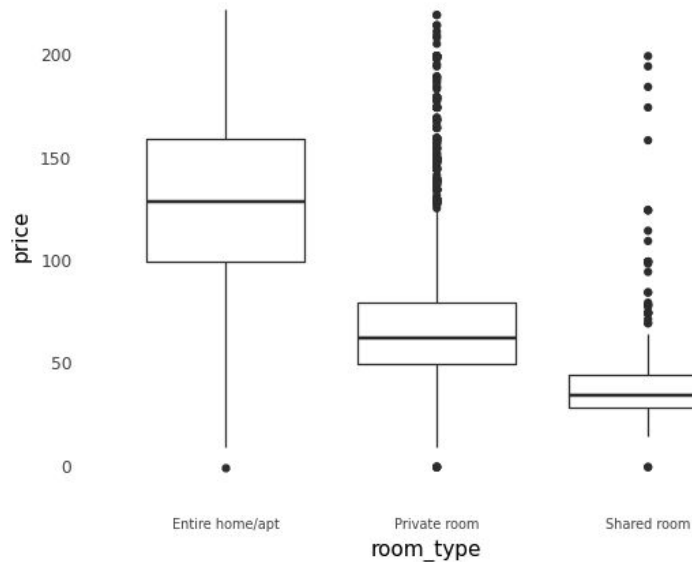
What can we learn from a clustering model of all the brooklyn listings using price and room\_types as variables?

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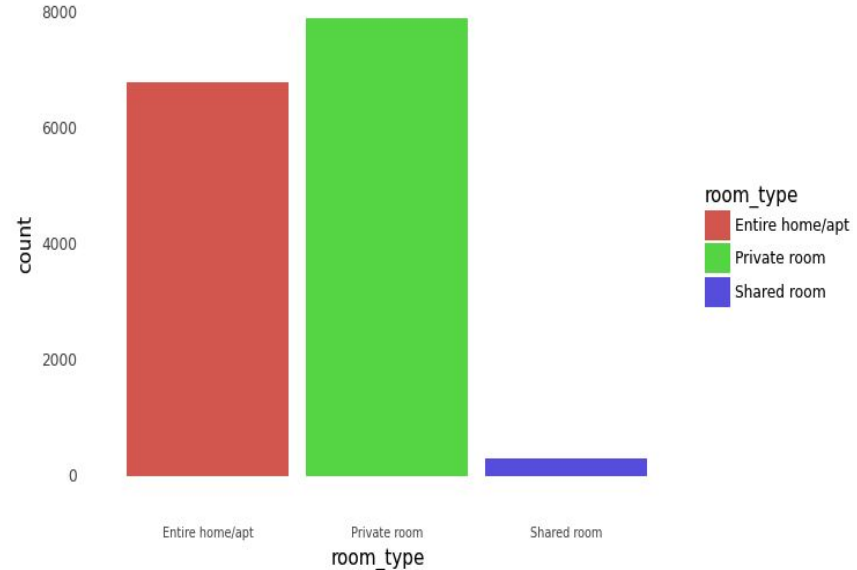
- Clustering method: K-prototype
  - An improved form of K-Means clustering to handle clustering with mixed data types (price = continuous, room\_types = categorical)
- Result: 3 Clusters

# Cluster 0

Cluster 0 of Brooklyn Airbnb users



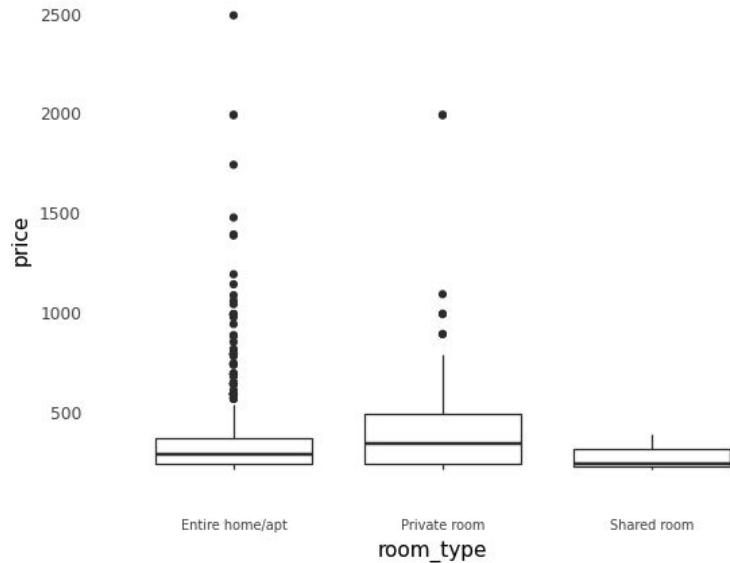
Number of Listings in Cluster 0 for each Room Type



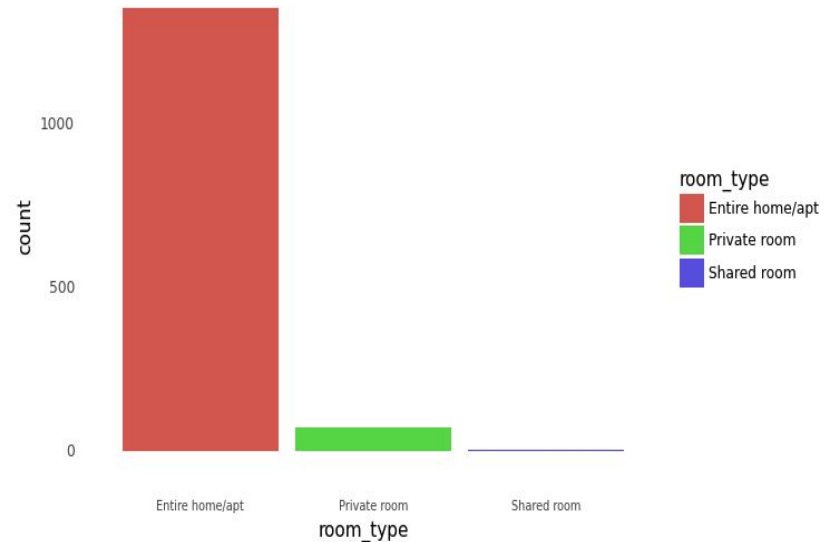
```
Number of Listings for Entire home/apt in Cluster 0: 6804
Number of Listings for Private room in Cluster 0: 7918
Number of Listings for Shared room in Cluster 0: 287
Average price of Listing in Cluster 0: $ 96.60850156572722
Average price of Entire Home/Apartment in Cluster 0: $ 131.76116990005877
Average price of Private Room in Cluster 0: $ 68.348825460975
Average price of Shared Room in Cluster 0: $ 42.88501742160279
```

# Cluster 1

Cluster 1 of Brooklyn AirBNB users

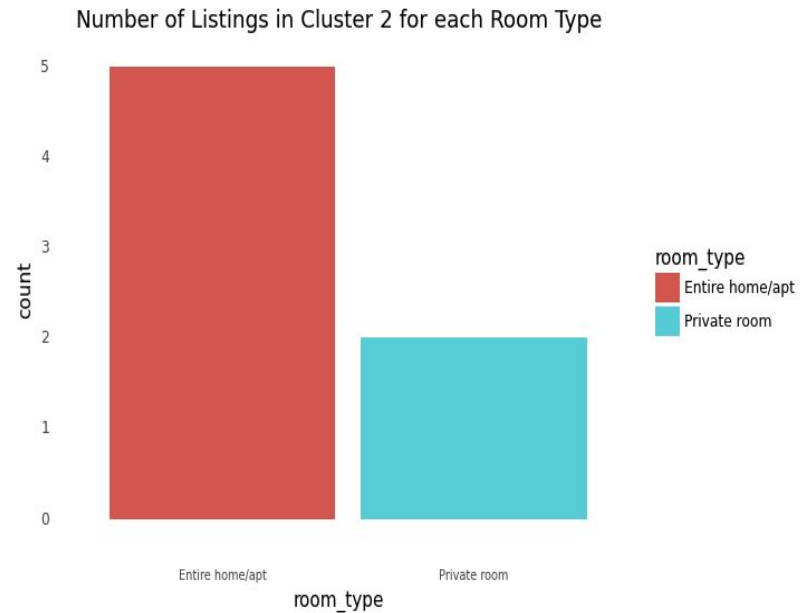
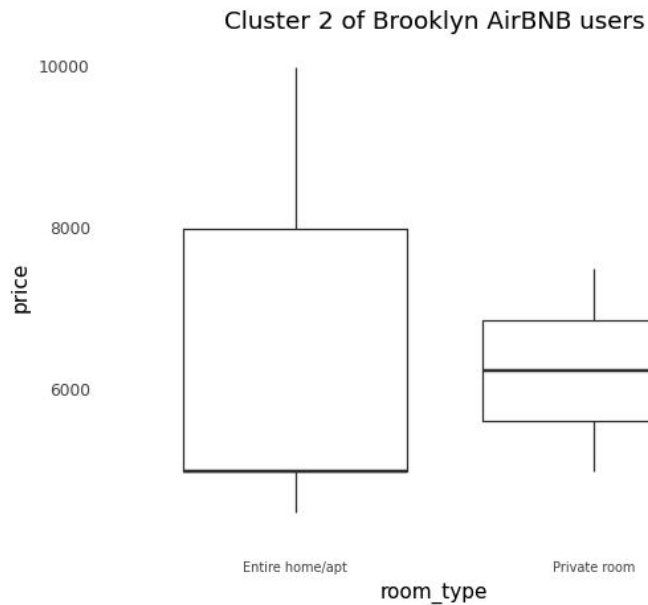


Number of Listings in Cluster 1 for each Room Type



Number of Listings for Entire home/apt in Cluster 1: 1355  
Number of Listings for Private room in Cluster 1: 73  
Number of Listings for Shared room in Cluster 1: 3  
Average price of Listing in Cluster 1: \$ 351.1320754716981  
Average price of Entire Home/Apartment in Cluster 1: \$ 346.18154981549816  
Average price of Private Room in Cluster 1: \$ 445.4657534246575  
Average price of Shared Room in Cluster 1: \$ 291.6666666666667

# Cluster 2



```
Number of Listings for Entire home/apt in Cluster 2: 5
Number of Listings for Private room in Cluster 2: 2
Number of Listings for Shared room in Cluster 2: 0
Average price of Listing in Cluster 2: $ 6428.571428571428
Average price of Entire Home/Apartment in Cluster 2: $ 6500.0
Average price of Private Room in Cluster 2: $ 6250.0
Average price of Shared Room in Cluster 2: $ nan
```

# Question 3: How would our answer be applicable to the real world

- This clustering model could be of very big use of a Real Estate Company or any AirBNB host
- Each cluster tells valuable information of groups they can target
  - Each cluster has a specific characteristic that stands out from other clusters and hosts can get an idea of what the AirBNB industry looks like.
- This will allow potential hosts to make real estate decisions to see if they are targeting customers who want to pay the lowest price, customers who will pay a solid price for an entire home/apartment, or customers who are willing to break their bank to rent out a nice place temporarily.







**Thank you for  
listening!**