

# Boston Airbnb

Data Analysis by Angela Corcino

# Data Source

- **Calendar.csv** - <https://data.world/boston-airbnb-open-data/workspace>
  - Period: 06/09/2016 to 05/09/2017
- **Listing.csv** - <https://data.world/boston-airbnb-open-data/workspace>
  - Period: 11/11/2008 to 07/09/2016
- **Reviews.csv** - <https://data.world/boston-airbnb-open-data/workspace>
  - Period: 21/03/2009 to 06/09/2016
- **Boston's People and Economy** - <https://www.boston.gov>
- **Boston's Population** - <https://worldpopulationreview.com/us-cities/boston-ma-population>

# Boston Airbnb Analysis

Airbnb is one of the most well known short-term rental online. It's specialised in accommodation deals, homestay and tourism experiences.

To identify which options could be more profitable we will explore Airbnb business in Boston, Massachusetts - EUA through the data analysis and help the investors making decision based on it.

# Notes

- Analyzing the dataset, we found 3585 unique listings which 543 the value is null to neighborhood, so we will work based on the 3042 listings.
- Despite of 30 unique neighborhood lists, considering that Boston has only 23 neighborhoods, 3 of these lists belong to the Downtown Boston Neighborhood which are:
  - **Downtown Crossing** - Shopping district in Downtown Boston
  - **Government Center** - an area in downtown Boston, centered on City Hall Plaza
  - **Theater District** - the center of Boston's theater scene in Downtown Boston

# Notes

- The other listings correspond specifically to :
  - **Brookline** - a town in Norfolk County, Massachusetts, in the United States, and part of the Boston metropolitan area)
  - **Cambridge** - a city in Massachusetts, across the Charles River from Boston.
  - **Harvard Square** - a triangular plaza at the intersection of Massachusetts Avenue, Brattle Street, and John F. Kennedy Street, near the center of Cambridge, Massachusetts, United States
  - **Somerville** - a city located directly to the northwest of Boston, and north of Cambridge, in Middlesex County, Massachusetts, United States.

# Background

- The city of Boston was home to an estimated 687,788 people in 2017
  - Greater Boston area was home to an estimated 4.7 million.
- The Annual Growth Rate in 2017 was 1.17%
- Boston has become the **economic engine and cultural hub** of New England.

# In Boston



## Visitors

- 19 million people visited Boston in 2017.
- An estimated 1.3 million were international visitors to Greater Boston.

## Tourism

- Historical sites and museums,
- sporting events,
- restaurants,
- theatre
- business conventions.

## Economy

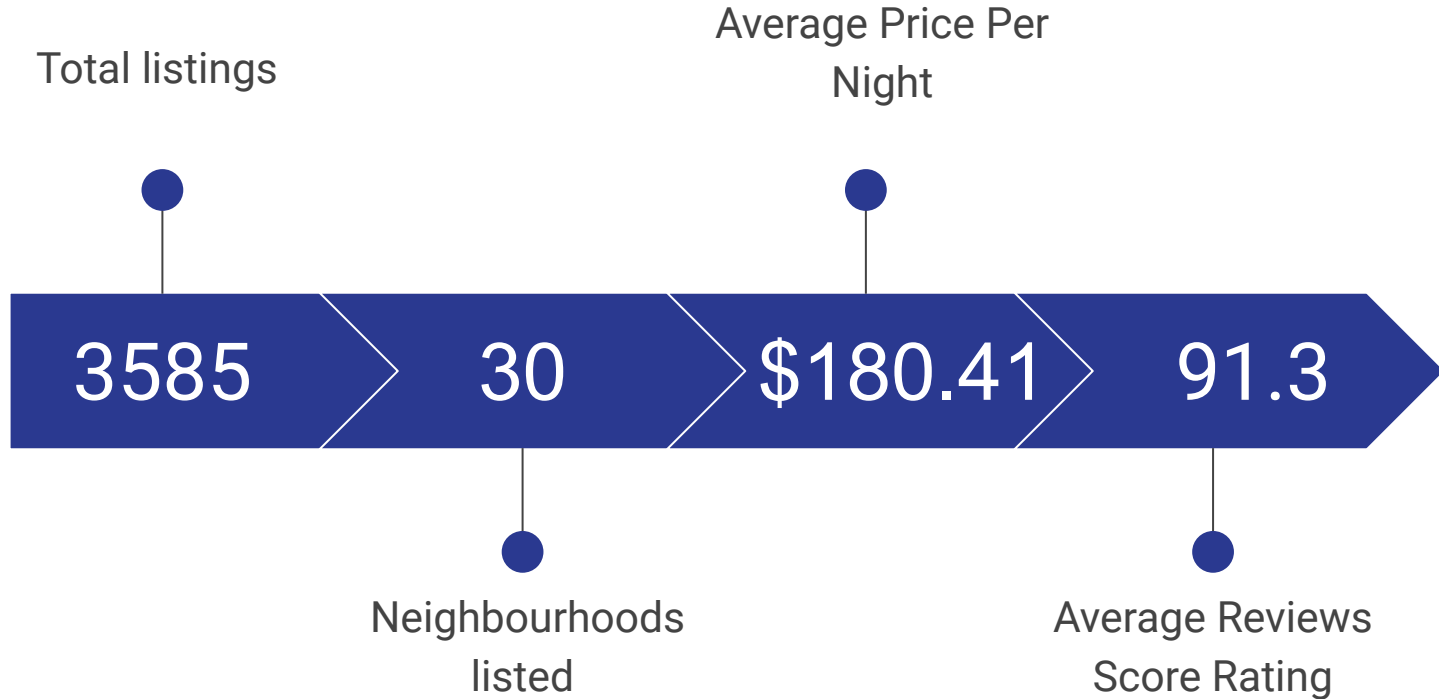
- 6<sup>o</sup> largest economy in USA
- 12<sup>o</sup> largest in the world

# Overview





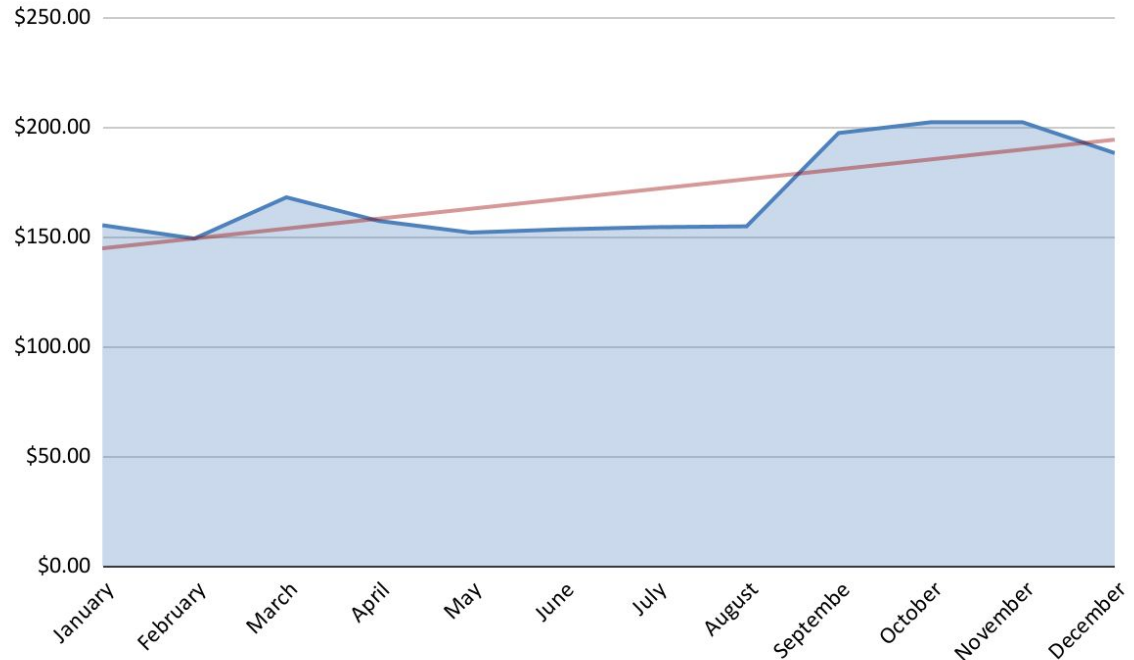
# Overview of all properties



# Booking Seasonality

The biggest peak start in September and we can notice the major events in Boston happen on the third and fourth quarter, such as:

- Boston Gay Pride Week
- Mayor's Cup Race and Hub on Wheels
- Head of the Charles Regatta
- Salem Halloween: Haunted Happenings
- Plymouth Thanksgiving Celebration & Parade



Evacuation Day and Saint Patrick's Day parades are holidays observed on March and schools and government offices are closed.

# Property Analysis

# Type Of Investment Property

Among all properties type, we found **1.814** properties to invest,

where **84.95%** are **Apartment**,

**7.28%** are Condominium,

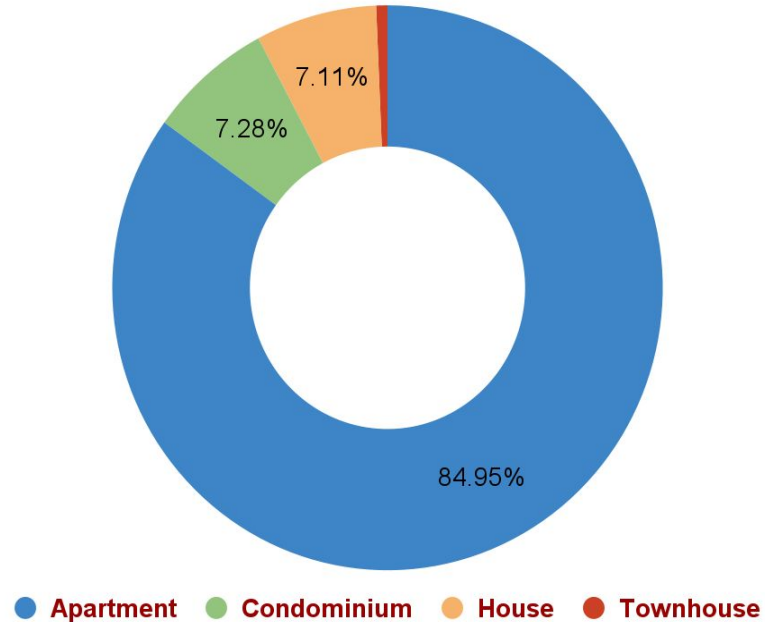
**7.11%** are House and

**0.66%** are Townhouse.



## Type Of Investment Property

Considering the more suitable type of investment property we will keep the focus on Apartment that present 84.95% of listings and likely more demand.



# Type of Investment Property

Property type: Apartment

Room Type: Entire home/apartment

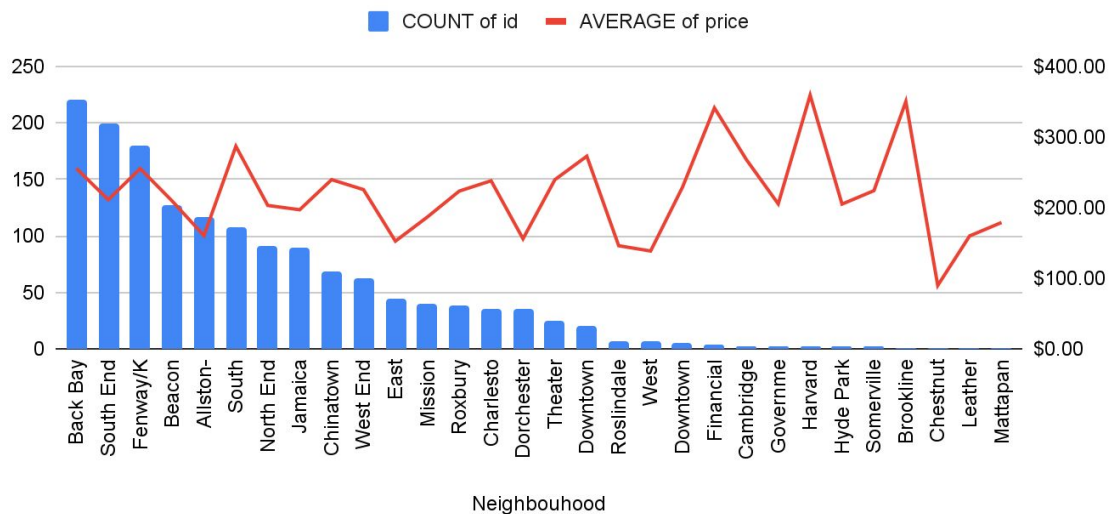
Number of room: Maximum 4 rooms

## Average price per neighbourhood's number

Among the three neighborhoods with the most number of properties we can realise that Back Bay and Fenway/Kenmore are 15.8% above the average price at all neighbourhood.

The neighbourhood from Downtown has a significant increasing average price at Financial District, Harvard Square and Brookline corresponding to 58.9% more than overall average price but having between 4 and 1 properties.

Average Price per Neighbourhood



# Top Three Neighbourhood by number of Properties



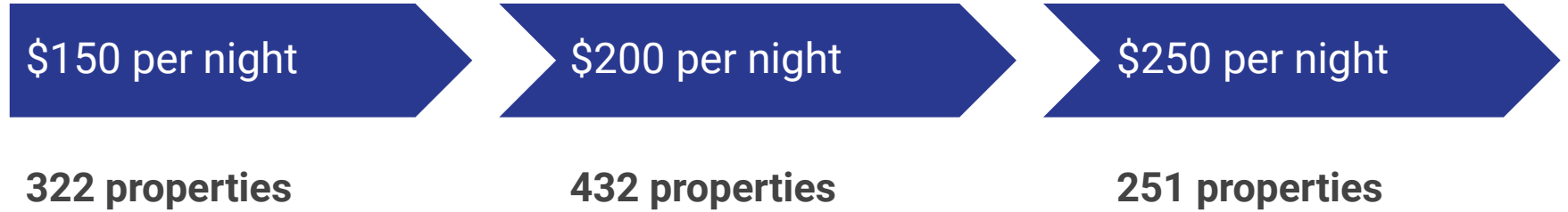
1° Back Bay - 220 properties

2° South End - 200 properties

3° Fenway/Kenmore -  
180 Properties



# Number of properties per price

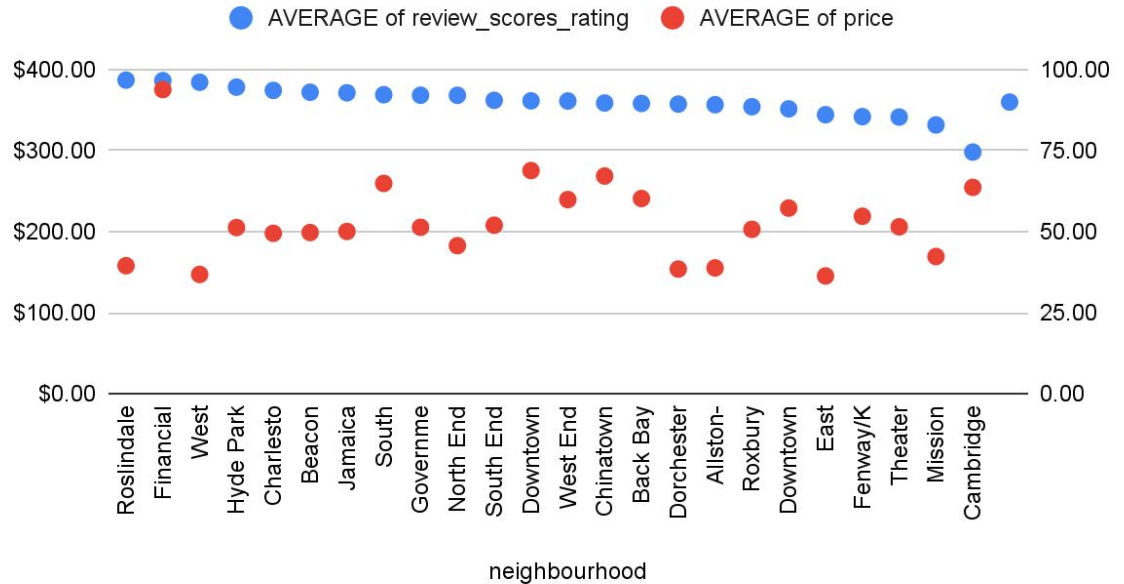


Back Bay, Fenway/Kenmore are on the 251 properties group whilst South End is on the 432 properties group with an average price of \$211.15 per night corresponding to 3.9% less than the overall average price.

# Impact of Reviews score rating per Average Price

The score rating does not have significant impact based on average price but Cambridge who has the lowest reviews score rating whilst Financial District is the second big one despite of the average price being the highest as well.

Reviews and Average Price



The Top three neighbourhood with best score rating by average price are:

1° Roslindale - 96.67

2° Financial District - 96.50

3° West Roxbury - 96.00

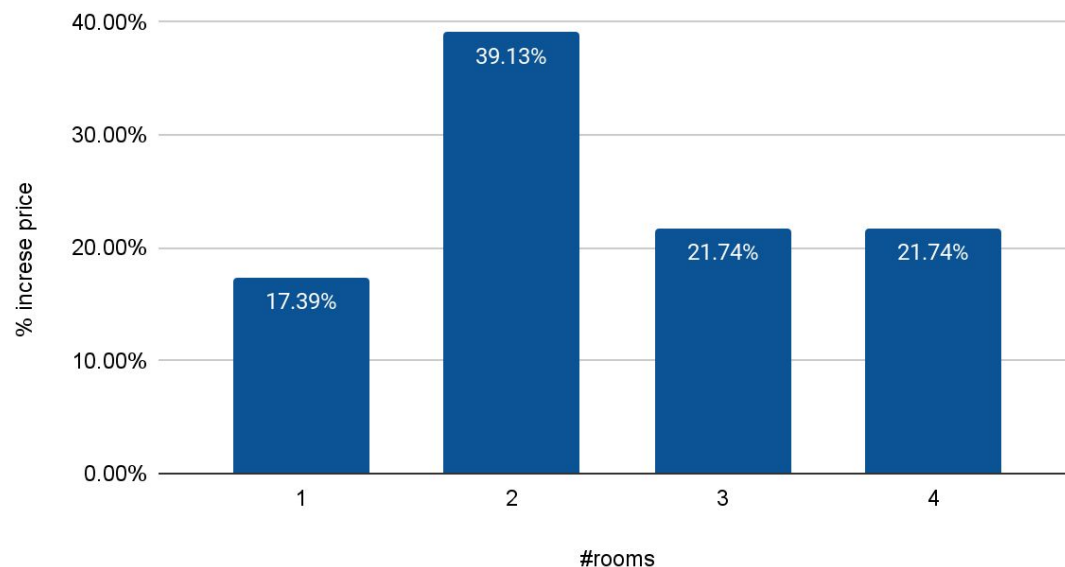
# Total increasing average price vs Number of bedrooms

The highest price difference in total correspond to apartments with 2 bedrooms . Besides that, we can realize that almost every neighbourhood has two bedrooms properties.

The best neighbourhood option for two bedrooms is on East Boston with 103% of increasing average price.

Otherwise, considering apartments with 3 bedrooms we can find better options in South End and Beacon Hill increasing up to 124% and 184% respectively.

% increase price vs #rooms

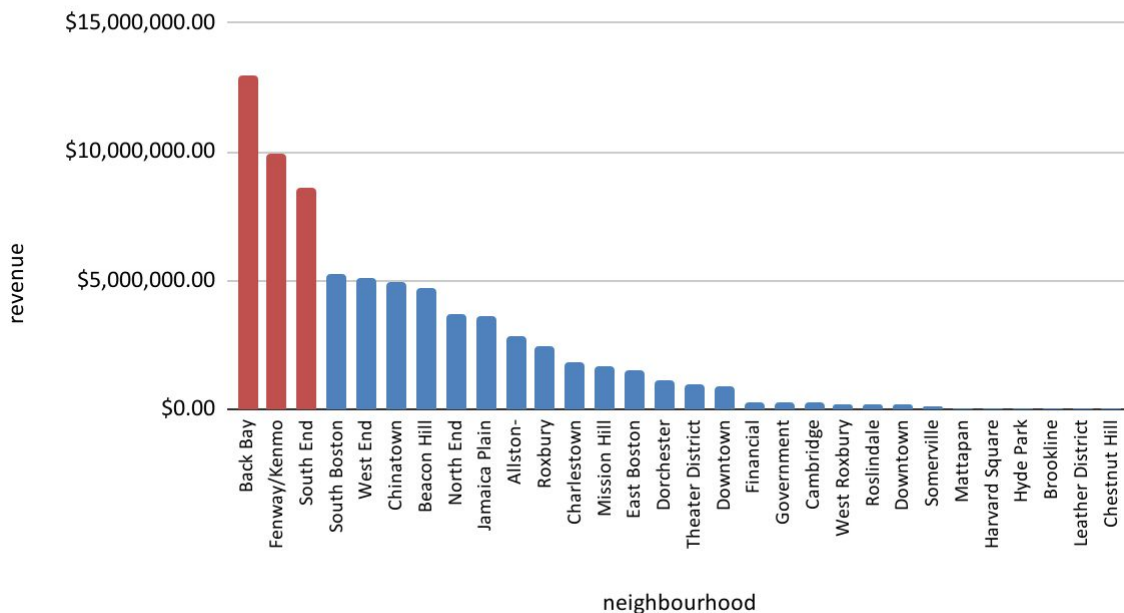


# Total Revenue by Neighbourhood

Back Bay, Fenway/Kenmore and South End have the highest total revenues, with respective numbers of \$12.9, \$9.9 and \$8.6 Million. The sum of these values responds for 42% of all total neighbourhood revenue.

Comparing the fourth-highest revenue neighbourhood South Boston that have \$5.3 Million represents 61.3% less than the third place South End.

Revenue by neighbourhood



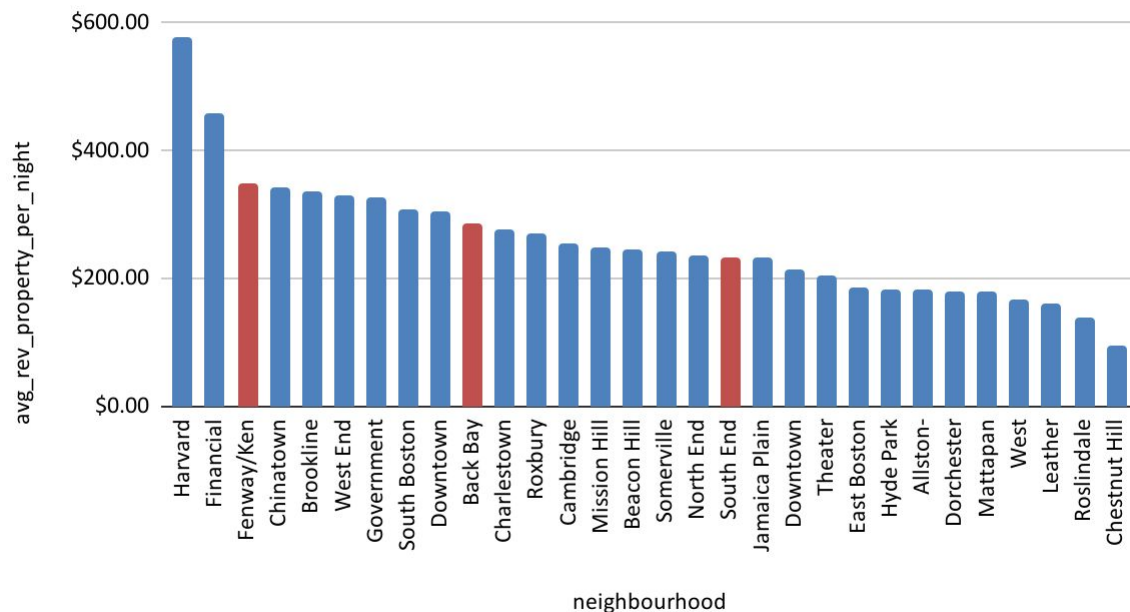
# Average Revenue per night by Neighbourhood

This chart bring us the average revenue per night by neighbourhood.

The three areas with the highest total revenue according to the previous chart, shows that two of them are still keeping a important position, which are Fenway/Kenmore and Back Bay.

The two areas, Fenway/Kenmore and Back Bay have the average revenue per night fluctuating between \$348.32 and \$233.36, but South End is below the average revenue per night for all neighbourhood at \$258.49.

Avg\_revenue\_per\_night vs Neighbourhood

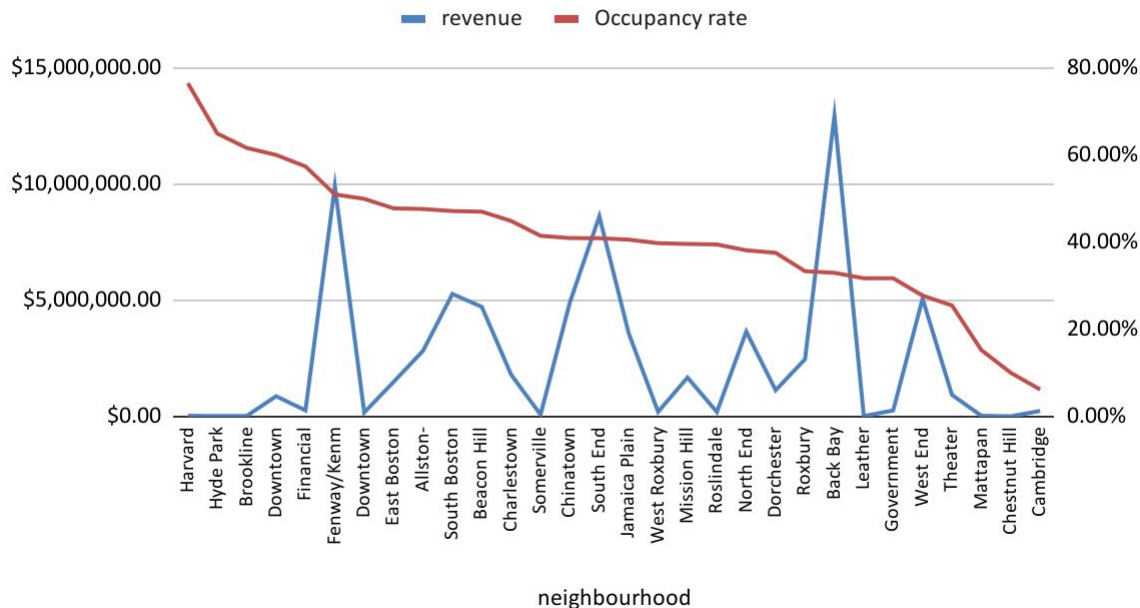


# Occupancy Rate and Revenue

We can notice that despite the Harvard, Hyde Park and Brookline have the highest Occupancy rate, Fenway/Kenmore is still in the fifth position having 24.3% more occupancy rate than the average.

Back Bay have 24% less than the average occupancy rate for all neighbourhood but some of their properties have a occupancy rate above the average.

revenue and Occupancy rate



# Recommendations



# Conclusion

Based on analysis, let's review the main insights gathered during this project:

- ❑ The fourth quarter is the busiest period in Boston. Visiting there mainly between October and December is the most expensive time to go.
- ❑ We segmented the analysis by apartment and entire home for the reason that most of properties have these characteristics and more options to invest.



# Conclusion

- ❑ The most of apartments have two rooms and have the highest total increasing average price.
- ❑ Back Bay, Fenway/Kenmore and South End also have the highest apartments listings, with 220, 200 and 180 units, respectively.

# Conclusion

- ❑ The two bedrooms apartment is the best option for the reason that most of those properties have them which open a variety options to be chosen based on the increasing average price.
- ❑ The top one Neighbourhood to invest is Fenway/Kenmore, having the more profitable Revenue linked to occupancy rate and Average price, followed by Back Bay that despite of have a low occupancy rate has the greatest number of properties and total revenue being a great option to find good properties to invest.

# Conclusion

- ❑ Considering the neighbourhood with more properties number, having the fourth position in total revenue besides that have 15% more than average occupancy rate for all properties, South Boston is a good option as well.

# Final Project submitted to Datascy - Master of Data Science and Analytics

## Thank you!

Angela Corcino  
angelacorcino.au@gmail.com