

Battle of Neighborhoods

IBM Data Science Capstone Project

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Analyzing Boston Real Estate Market with respect to Crimes and rents



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Introduction: Business Problem

In this project we will try to find an optimal location for opening a new restaurant. Specifically, this report will be targeted to stakeholders interested in opening a restaurant in **Boston**, Massachusetts. There are many factors that influence the decision of opening a new restaurant. However, we will focus primarily on the rents in Boston neighborhoods and prevalence of crimes. Based on these criteria, we should determine the best possible location for opening a new restaurant. In addition, this should also provide insights to city planners and law enforcement agencies.

Data

To cater this problem, we will need the following data sets data set which are freely available.

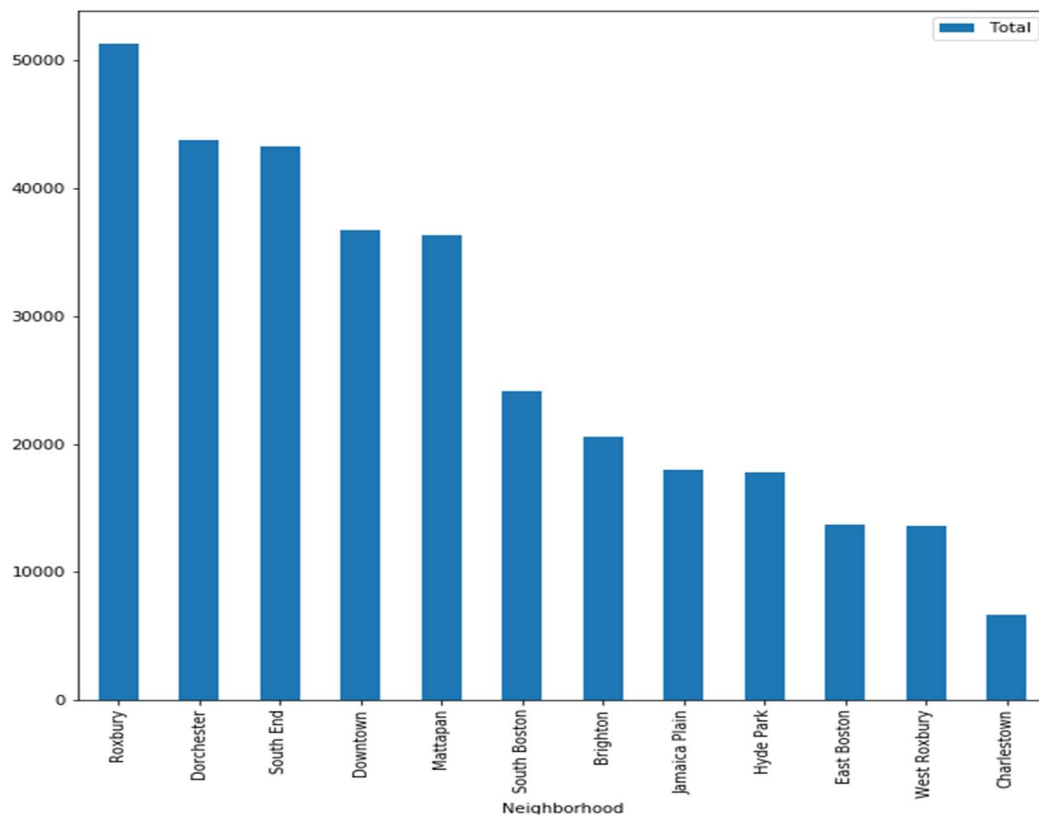
[Crimes in Boston](#) from Kaggle which contains the data of all the crimes occurred in different neighborhoods in Boston in recent times.

[Boston Rental Data](#) from Zillow which is real estate website containing most up to date rental data in Boston Neighborhoods.

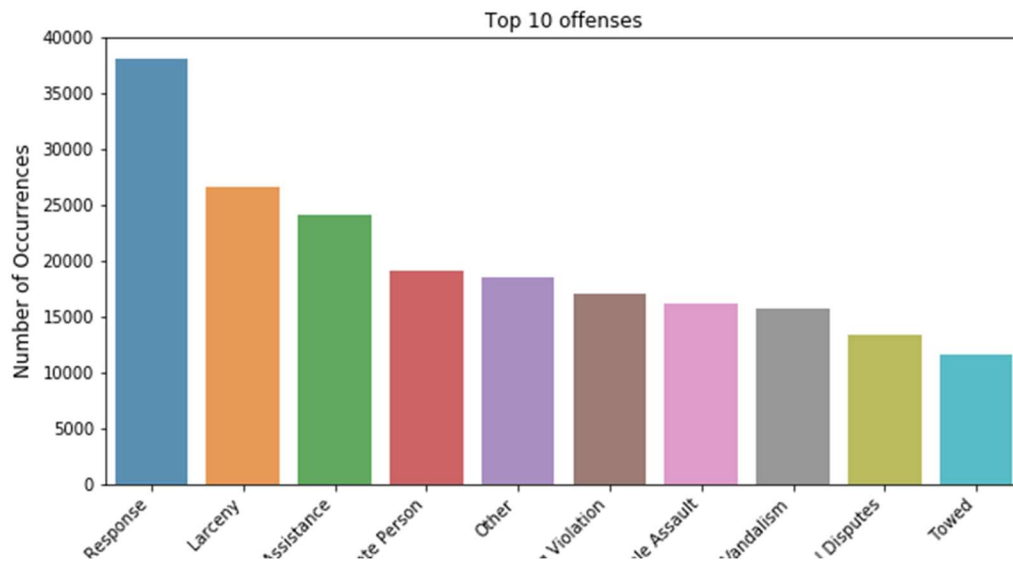
[Boston Police Districts](#) from Boston Police Department website. We need this because we need to encode District Abbreviations into Boston Neighborhoods

Methodology

In the first part of our analysis, we analyzed the Boston Crimes data set and tried to use Matplotlib to visualize the data set and get the following insights

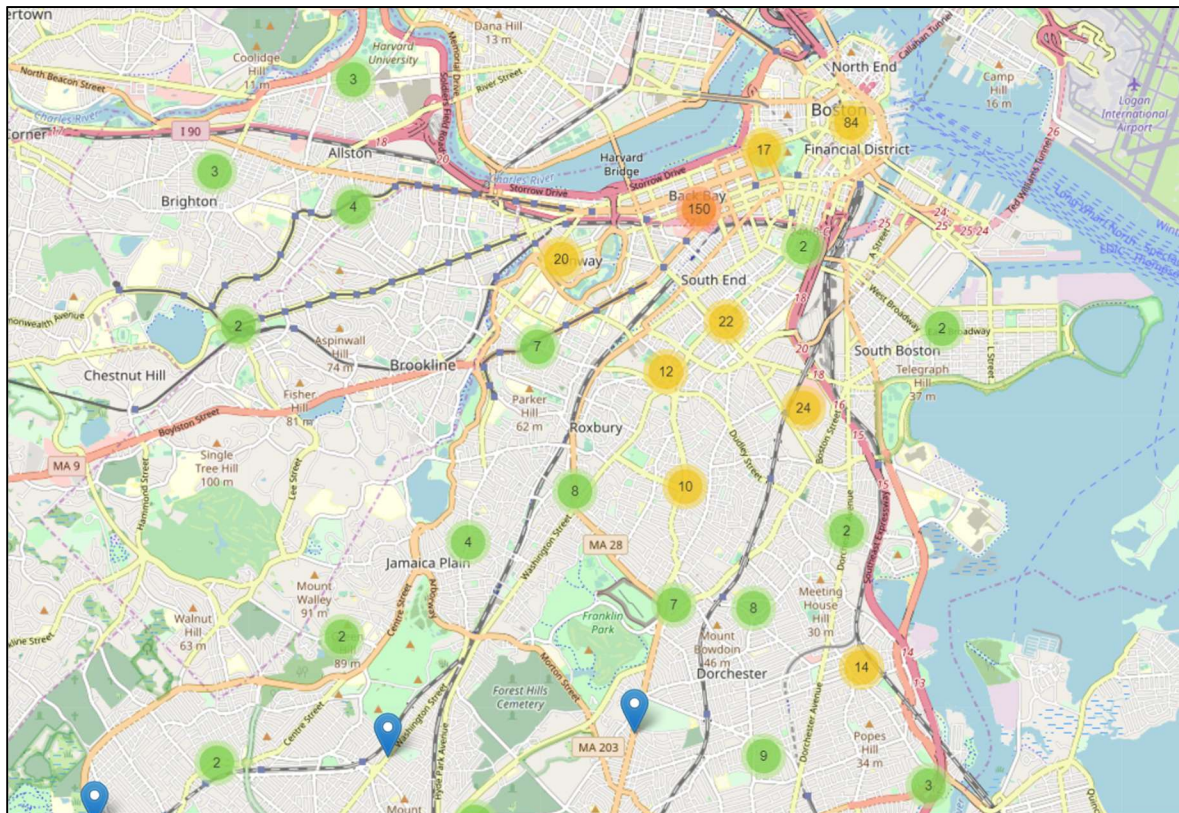


Crime counts in each neighborhood

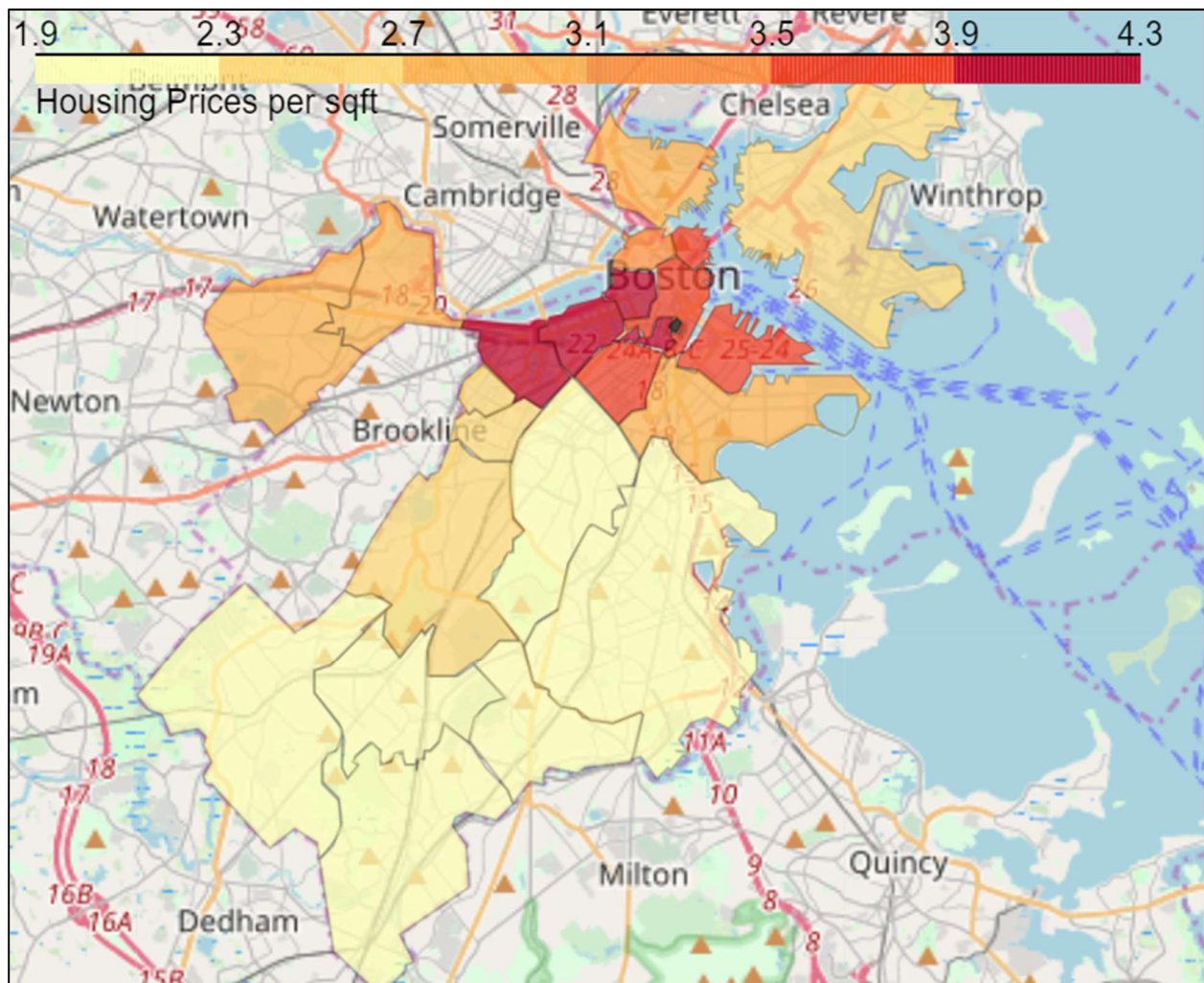


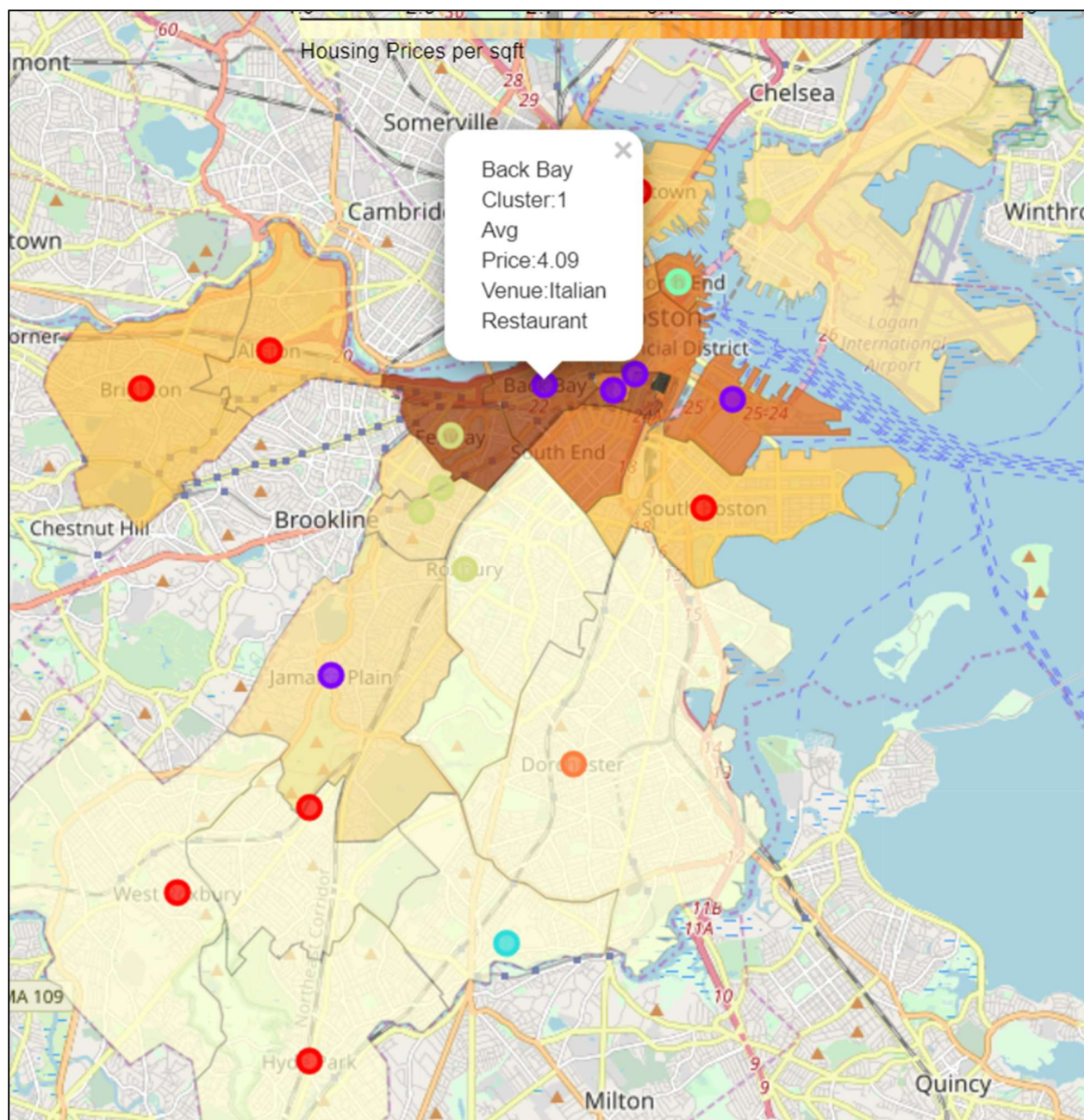
Top 10 offense counts in Boston

Afterwards, I created a folium map with cluster of venues using folium plugin tool. We can observe that most of the crimes are clustered in the south region of Boston.



In the second part of our analysis I created **choropleth** map of Boston Neighborhoods with respect of rents.





Results

From the bar plot we can see that the crime rate is highest in Roxbury, Dorchester, South end have the highest crime rate in the city.

The second most occurred offense is larceny which is also known as robbery and contains counts of shoplifting.

In terms of rental prices, the southern region of Boston has highest rent prices. Therefore, a new restaurant should be opened in that region only if there are not budget constraints.

Finally, if we look at the clusters of venues, we can see that most of the restaurants in clusters 1 which is in south Boston.

Discussion

As per the choropleth maps, it is evident that the south region of Boston has a very high rent. Therefore, it would require higher budgeting. However, it also provides an opportunity of greater earnings at the same time since that region is a metropolitan region. Thus, real estate agents can better position themselves in the market.

Secondly, there is higher crime rate in South Boston and especially offenses related to larceny are very frequent. Thus, law enforcement agencies such as Boston Police Department can take measures to minimize these offenses, providing a peaceful atmosphere for business.

Lastly, entrepreneurs can see the clusters of different venue categories. Thus, they can make an informed decision about opening a new restaurant in the region.

Conclusion

In this report, we tried to analyze the Boston real estate data based on two factors i.e. Crimes in Boston and Rents in Boston. Based on these two parameters we generated crime clusters, choropleth map and venues cluster. With the help of folium library, we were able to visualize these clusters for better understanding. These plots give insights to law enforcement agencies, new restaurant owners and real estate agents for further improvement in the region.