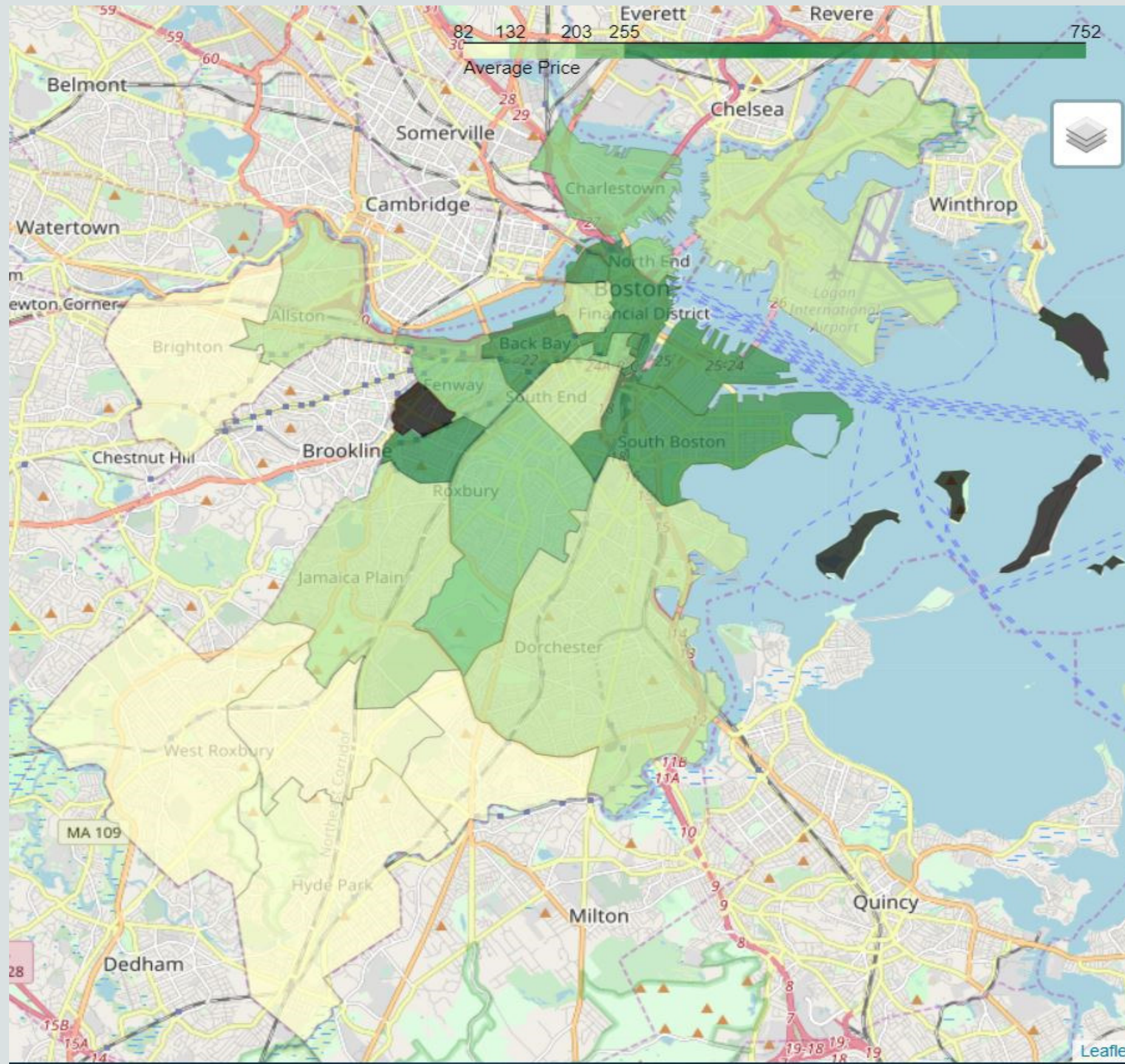


# SocioEconomic Effects on Airbnb Rates

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## Introduction

Due to the high property value in the Boston area, we were curious about the factors that contribute to them. Specifically, we wanted to find out what causes Airbnb rates to be high or low in the Greater Boston Area so we compared the rates with various social and economic qualities of Boston neighborhoods.



## Datasets

- Crimes in Boston since 2015
- Airbnb rates
- Boston community center
- Swimming pools managed by Boston Center
- Boston Public Schools
- Boston Police Stations

## Project Goals

Our project consider two factors that might influence the prices of Airbnb, the first is the number of Crime, and the second is the number of public places: community center, swimming pools, public schools and police stations. We aim to conclude whether these two factors really make a difference.

## Factor one

Crime vs Average Airbnb prices

### Join

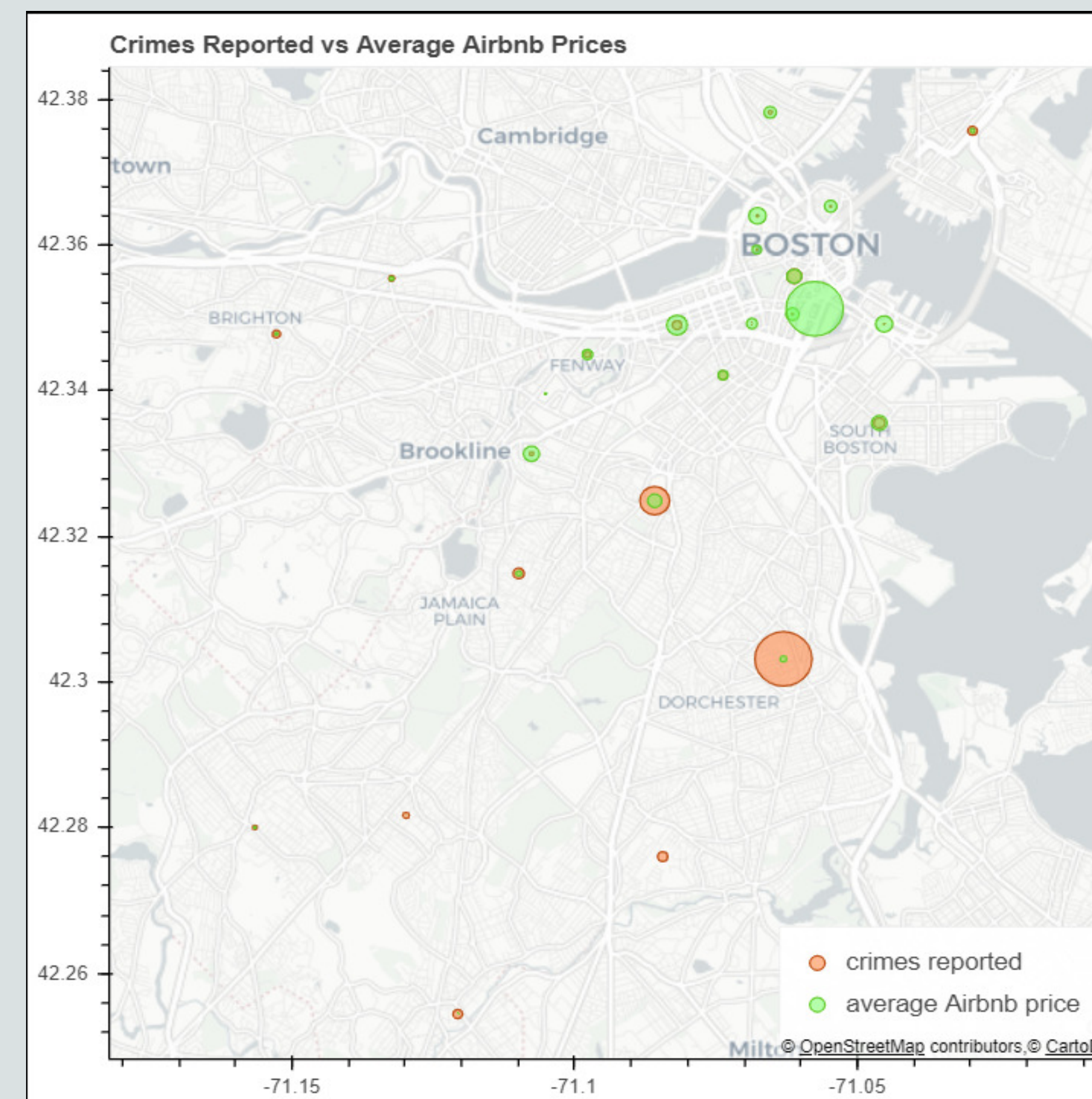
At first, we joined the Boston crime dataset and the Airbnb dataset based on neighborhood

### Sum

For each neighborhood we summed up the numbers of crime occurred in that neighborhood

## Aggregation

For each neighborhood we calculate the average Airbnb price in that neighborhood



## Statistical Analysis

	Correlation Coefficient
Crimes reported	-0.16378839031967327

## Results

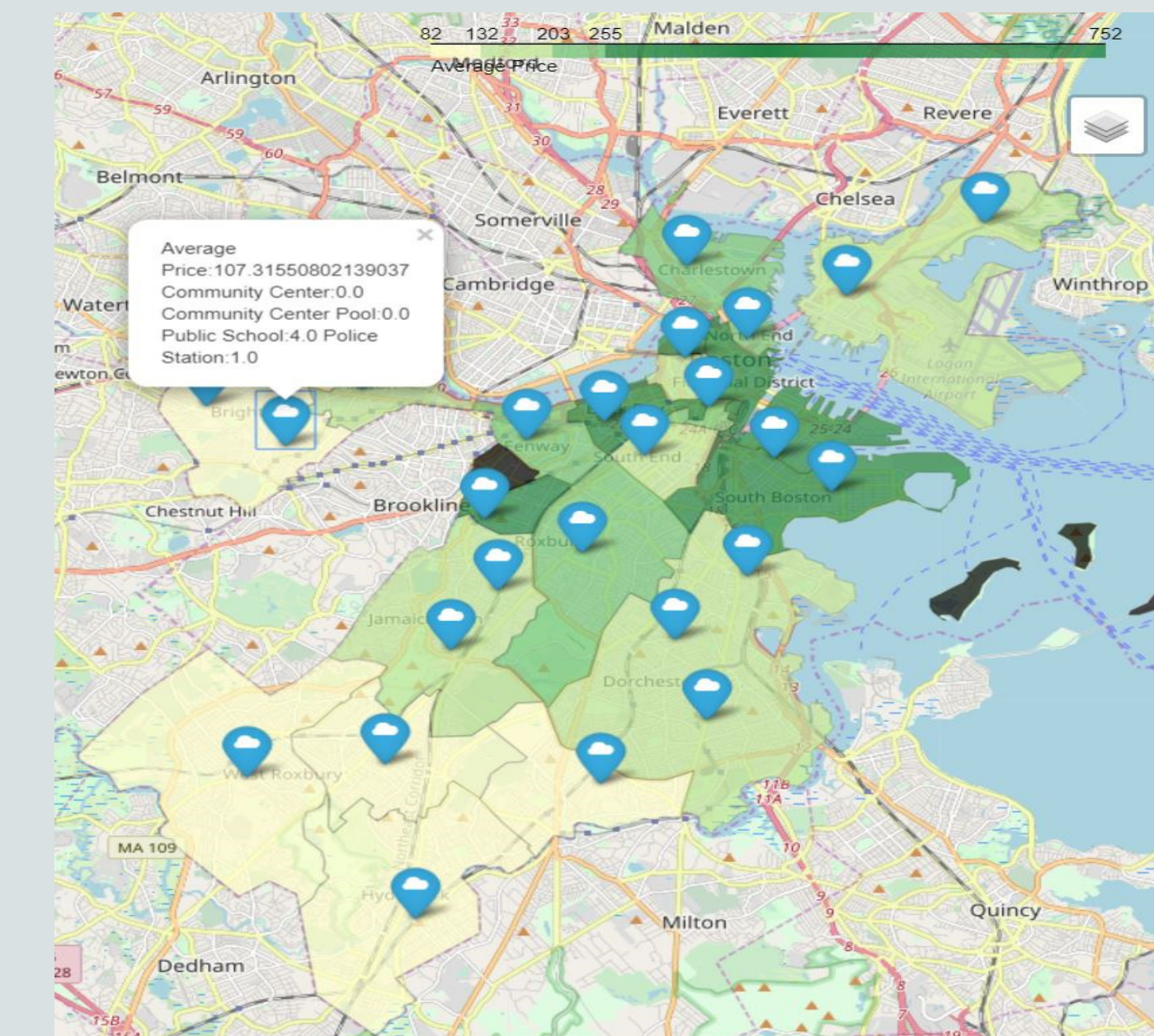
To our surprise, the correlation between price and crime rate was low. It is likely that other positive factors outweigh the crime rate. And the what disappointed too is that there were almost no relation between price and public places, the two factors we consider are not really playing important roles.

## Factor two

Public Places vs Average Airbnb prices

### K-means

According to latitude and longitude, we used the k-means algorithm to cluster Airbnb houses, then we calculate the average Airbnb prices of each cluster. After that, we use the means we got to cluster public places in order to have a cluster of average Airbnb prices and total numbers of every public place.



## Correlation Coefficient

By using the clustered data, we calculated the correlation coefficient between the total number of public places and Airbnb average prices

	Correlation Coefficient
No. of center	-0.15939130465865842
No. of swimming pool	0.019961379242068346
No. of public school	-0.33146333954281415
No. of police station	-0.122010212532738

## Future Work

Unfortunately, we got the wrong direction. However, we will try other factors that have significant impact over a person's decision to live/rent in a given neighborhood. We will keep using the techniques such as data transformation, statistic analysis and visualizations based on real world datasets so that we could get a reasonable conclusion.