

# **CRIME REPORTS IN BOSTON WITH CORRESPONDING POLICE STATIONS**

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## **Introduction:**

Because crime rate is an essential determining factor in residential safety, our motivation behind analyzing Boston's crime rate is centered on providing the necessary information to individuals who are newcomers to the city coming from various locations of the world seeking decent areas in Boston to live. While it is stated, according to [bpdnews.com](http://bpdnews.com), that "violent crimes have dropped 13% percent since 2014" ([bpdnews.com](http://bpdnews.com)), it is still necessary to take into account of the specific crimes and any possible contributing factors that influences the "still existing" crime rate in Boston.

Our interests are to appeal to the specific people who are looking to rent apartments in the city and to experience good and safe living conditions. We wanted to gather information pertaining to crime rate in the specific residential locations in Boston as well as the number of police stations and reports within the corresponding districts. Because of how large the city of Boston is and due to time constraints and limitations on how much information we can actually include, we have decided that we were not able to report every piece of data from every single district and town in Boston. Therefore, we limited our specific locations down to the given locations provided by the data set containing the list of police stations in Boston (stored in `policeStation.py`). We figured that if we can gather just enough information on how many crimes have been reported in the specific districts of the police stations (from `policeStations.py`), we would be able to generate enough information that can provide an idea of which areas in Boston are safer than others. By adding information on police stations, we are also providing safety measures for individuals who live in the area to give them the opportunity to report any incidents or crimes within the surrounding area of the specific police station. We hypothesized that specific districts of Boston closer to the downtown area (where it is more populated) would contain a higher amount of crime reports. By testing this hypothesis, we wanted to use a map

with a chart to provide a visual opportunity for individuals (specifically those who are interested in settling down in Boston) to compare and contrast the various locations in Boston as a determining factor on which areas contain a safer living environment. By doing so, we gathered this information to form a visualization that would serve as an informational resource for our newcomers looking for places in Boston to live.

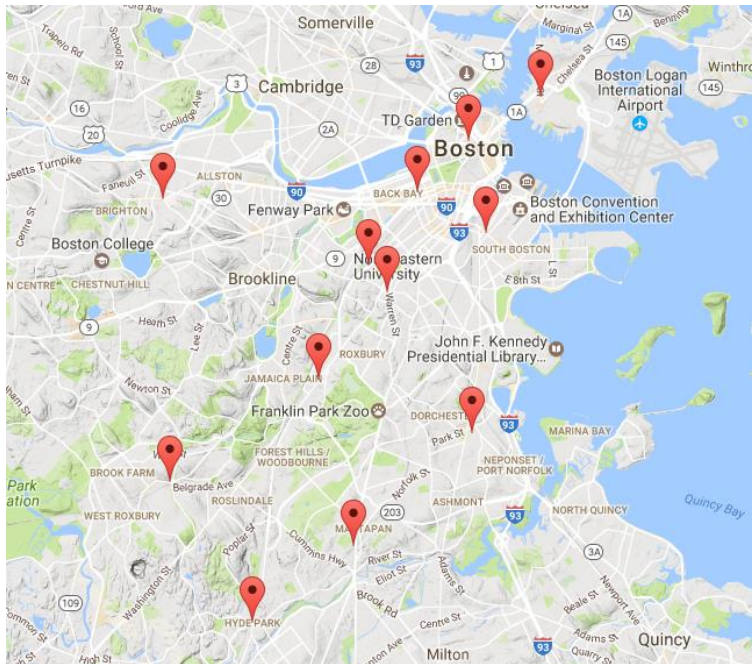
### **The Project/Method/Main Idea:**

The main goal of our project is to use our datasets to provide a visualization on the living conditions of Boston based on the city's crime reports and density of police stations. The plan we executed to achieve the visualization we wanted, involved using the Google Maps API which would allow us to pin-point the specific locations of crime reports and the specific locations of police stations in the city. This data would be shown by two maps of Boston. One map would contain the pin-needles pointing to the specific locations of crime reports. The other map would display pin-needles pointing to the specific locations of the city's police stations. We would then use our given maps to provide a visual contrast between the two data sets (from `crimeReports.py` and `policeStation.py`) to help determine the ideal residential locations for our newcomer audience members. For the sake of specificity, the crime reports that we have considered are but not limited to gun violence, sexual assault, burglary/robbery, murder. This is just to address any questions on what we were classifying as crimes. After we gathered all of the information pertaining to the list of districts containing quantity values of their crime reports and their police stations we were able to begin our implementation process.

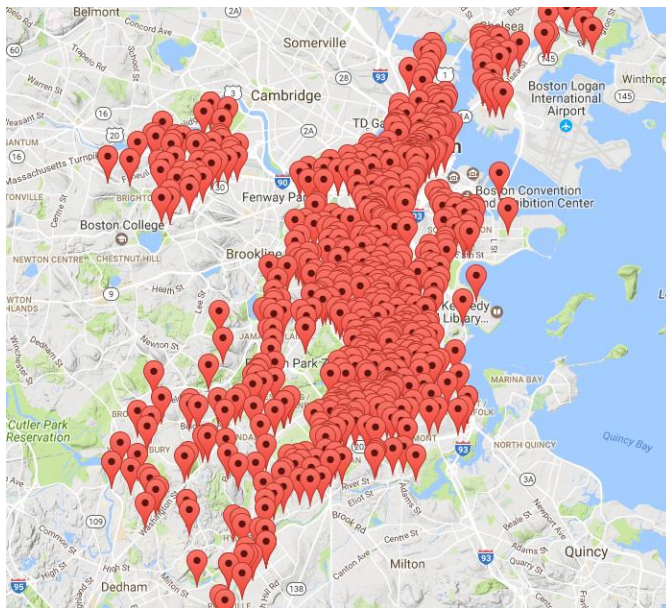
### **Implementation:**

We came up with an algorithm that is able to find the closet police station for every crime report in Boston, so we can determine which districts in Boston has the highest crime rate. We calculated each distance between the crime incident and the location of the police station, and determined which police station had the closest distance to that crime report. Then we used this algorithm to come up with our bar graph chart to show the police stations that received the most crime reports in their surrounding area.

## Visuals:

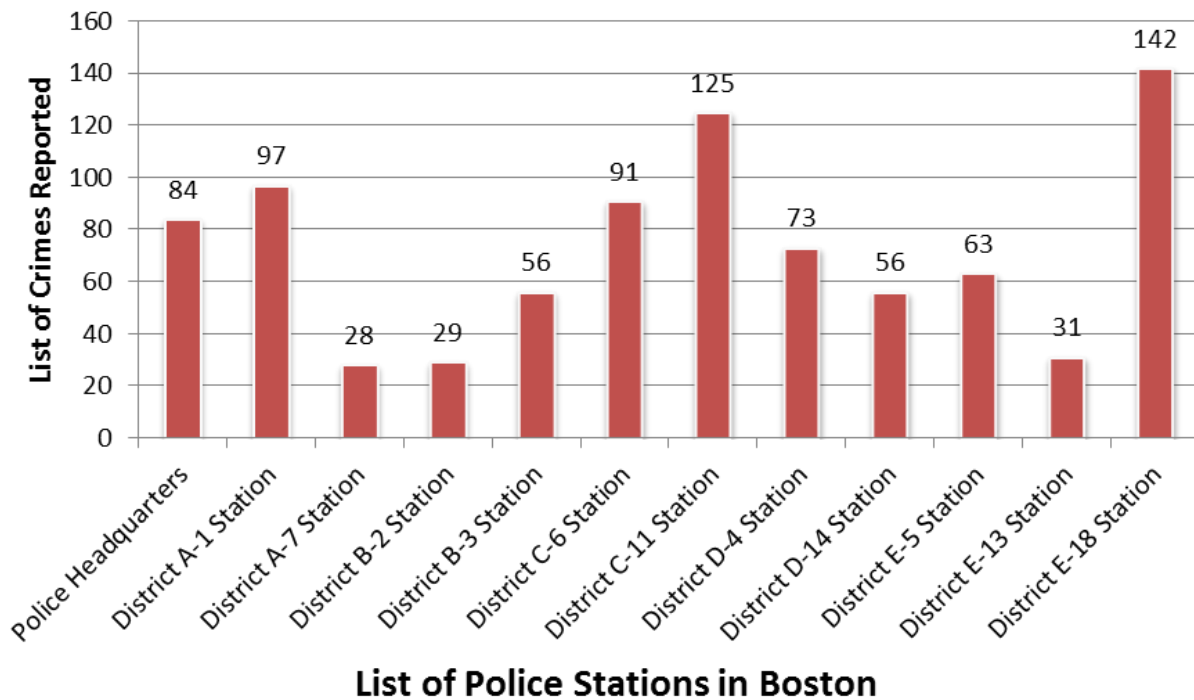


This was our map of Boston that displayed the location points of the police stations specific to their districts.



This was our map that displayed the location points of reported crimes in Boston since August 2015.

## List of Crimes Reported At Nearest Police Station in Boston, Aug 2015-Present



This graph displays the number of reported crimes within the districts specific to the police stations within our dataset.

### Conclusion:

Based on the given information and the data we were able to organize into a bar graph format, we have found that the number of crimes that have been reported within the given police stations that we have included in our data set, varied quite noticeably. As it is clearly indicated by both of our maps, it is irrefutable that the city of Boston holds a much higher crime report ratio to the number of police stations. However, when looking at the crime reports within the districts specific to the location of our selected police stations within our dataset (Figure 3), we found that District E-18, specifically Hyde Park, and District C-11, specifically Dorchester, had the most crime reports since August 2015. Districts A-7, specifically East Boston, district B-2, specifically Roxbury, district E-13, specifically Jamaica Plain, contained the least amount of

crime reports since August 2015 in contrast to the other districts within this dataset. According to this information, with the given districts that we have provided based on our police station dataset, it appeared that more of the locations with higher crime reports took place along the southern portion of our vicinity of data (Hyde Park and Dorchester) as opposed to the downtown area as we initially thought. Then again, it could simply be a matter of our given dataset that allowed our results to turn out that way. As mentioned earlier, because of how large Boston is (compared to us) with its true number of districts, we don't entirely conclude that our results are 100% definitive. The open problems that still do remain primarily pertain to the fact that we did not address the crime reports or police stations in every single district in Boston outside of our dataset. This means that there could be more crime reports in another district other than Hyde Park. There could also be less crime reports in a district other than East Boston.

Nonetheless, with this given information, we have a clearer indication of which specific areas in Boston are deemed more safe than others especially with the given chart that clearly displays the amount of crime reports in accordance to the corresponding police station within the district. However, because Boston is a large city like many others, it is unfortunately the truth that crimes are bound to happen anywhere. With respect to the size of Boston in itself though, every piece of information containing reported incidents as given above would do more to help the community rather than to hurt it.

**References:**

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