This project focuses on the issue of gun violence in New York City in order to see what commonalities there are to shootings in this specific city. By starting with one city, more and more locations can be studied and compared, which can help educate us on the issues as well as address ethical concerns. Through the use of Mathematica programming, an NYPD dataset was analyzed. The research found how the five boroughs compare and contrast, what dates and times shootings are likely to occur, and what the common traits of victims are. Based on the patterns found, one can interpret what can decrease their chances of getting shot in NYC and discover what underlying ethical issues need to be addressed.

### Abstract

This project focuses on the issue of gun violence in New York City in order to see what commonalities there are to shootings in this specific city. By starting with one city, more and more locations can be studied and compared, which can help educate us on the issues as well as address ethical concerns. Through the use of Mathematica programming, an NYPD dataset was analyzed. The research found how the five boroughs compare and contrast, what dates and times shootings are likely to occur, and what the common traits of victims are. Based on the patterns found, one can interpret what can decrease their chances of getting shot in NYC and discover what underlying ethical issues need to be addressed.

### Background and Significance

Gun violence impacts our health and safety, political views, and culture. This has impacted how people in the U.S. view guns and why gun violence may be more prevalent in the U.S. compared to other nations. We could find a way to keep us safer since other nations have shown examples of how they are addressing this issue (Cook, 2014). It is important to educate ourselves on this to understand what factors that play a role and to see what changes we could make. Therefore, starting with analyzing New York City is helpful; we get to see what specifically affects it and if those factors are common in all boroughs. In the long run, this can contribute to raising ethical concerns and finding themes in gun violence overall.

### Methods

**Data Collection.** The data used for this study was retrieved from the NYPD database and it pertains to shooting incidents in NYC from the years 2013-2017. It was then imported into a Mathematica notebook to be analyzed. After analyzing the NYPD shooting data through Mathematica programming, I was able to compare boroughs, find common dates and times of shootings, and see what the victims of shooting incidents have in common.

**Analytic Methods.** Pie charts were created in order to illustrate the traits of the victims of shootings, such as race and sex. The ReverseSort and Counts functions were used to rank the number of shootings from highest to lowest that occurred at a certain time. The BarChart function enabled a figure to be created that revealed the total number of reported shootings in each borough. Length calculated how many incidents were reported each year in NYC.

### Results

**Boroughs.** Out of the 6,407 cases in the database, 2,646 of them came from Brooklyn, which is about 41%. The second most reported borough was the Bronx with a total of 1,838 cases, which is roughly 29%. The last three are Queens (15%), Manhattan (12%), and Staten Island (4%). The bar chart below, Figure 1, illustrates this.

**Dates and Times.** Many of the incidents took place during the weekend or close to the weekend and summer months were in the top ten most reported dates, which is shown below in Figure 2. It was also found that the most reported time for a shooting to occur is at 23:30, followed by 01:30 and 21:00, which are all close to midnight.

### Conclusion

Based on this analysis, one interpretation that can be made is that Brooklyn is the most dangerous borough for shootings while Staten Island is the safest. Approximately 84% and 70% of the victims were black in both Brooklyn and Staten Island, respectively. Comparing them showed that the patterns do not significantly vary across boroughs. One could be cautious by being careful when going out late and living in areas with lower shooting rates.

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### References

