Urban Data Mapping
URB-UY 3834

Assignment 1

Instructor: Avigail Vantu, MS

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Kevin Kuriakose Joseph
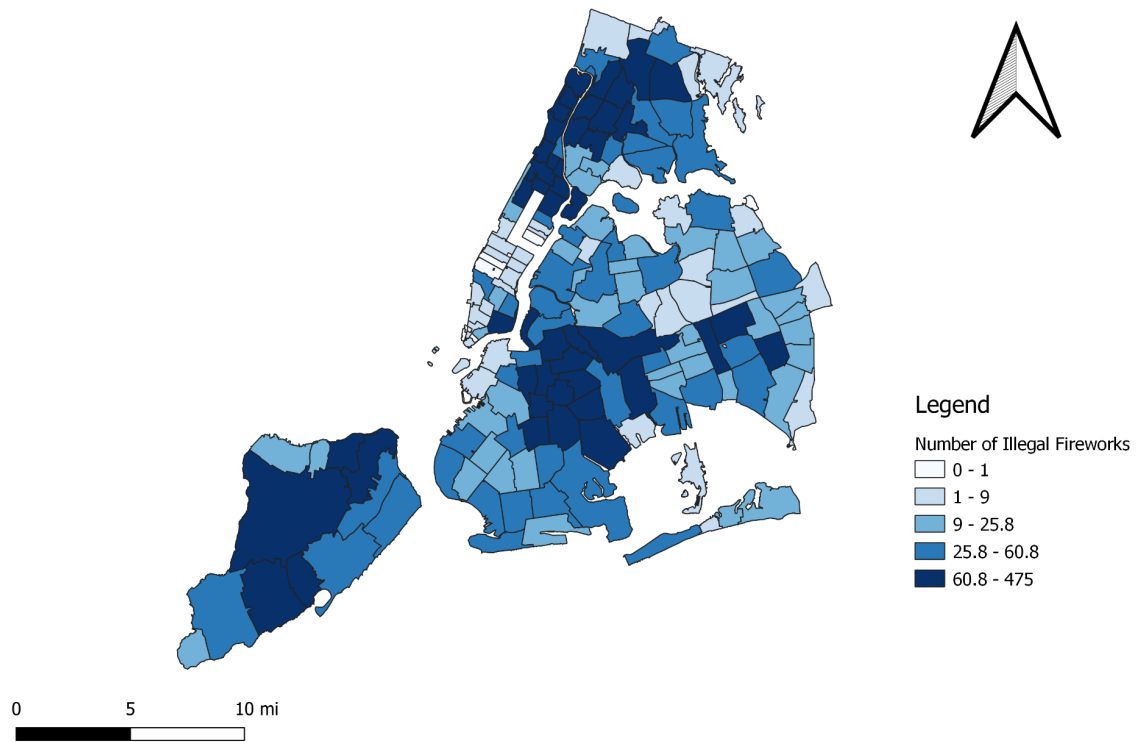*kevin.joseph@nyu.edu*

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Maps

<u>Quantile Representation of all 311 Complaints by Zip in New York City</u>

Legend

Number of Complaints
- 1 - 134
- 134 - 654
- 654 - 1179
- 1179 - 1911
- 1911 - 4560

0   5   10 mi
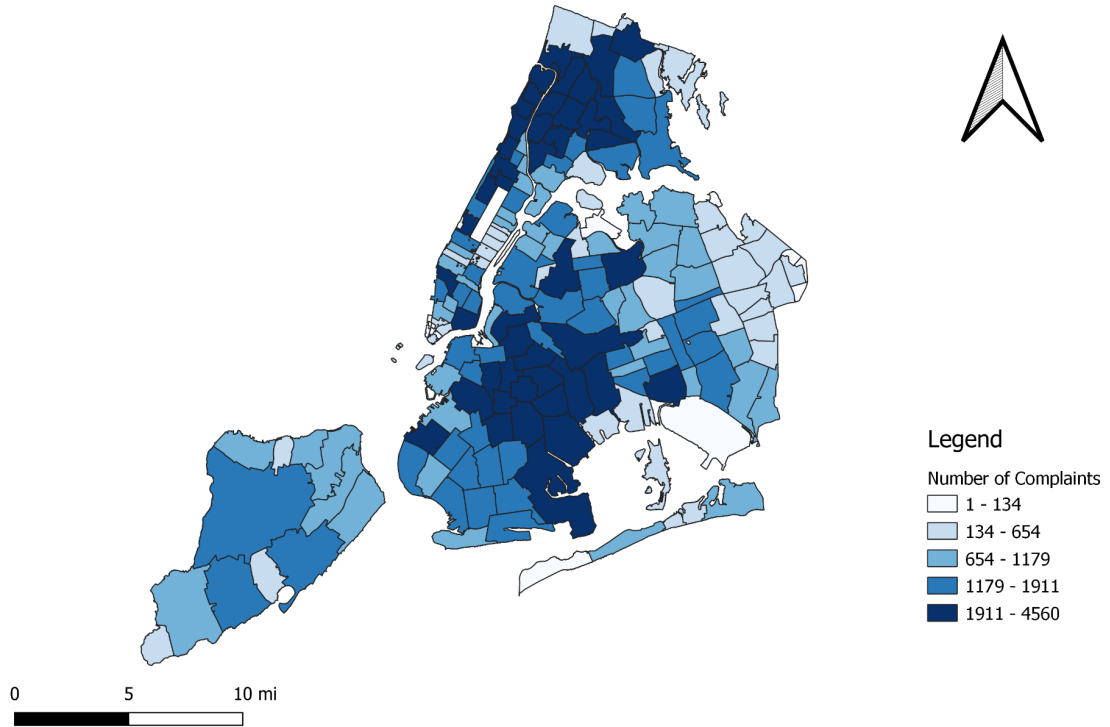
Quantile Representation of Illegal Fireworks in New York City

Legend

Number of Illegal Fireworks

- 0 - 1
- 1 - 9
- 9 - 25.8
- 25.8 - 60.8
- 60.8 - 475

0   5   10 mi

Quantile representation of the Percentage of Illegal Fireworks from the total 311 complaints in New York City

Legend

Percentage

- [ ] 0% - 1%
- [ ] 1% - 2%
- [ ] 2% - 3%
- [ ] 3% - 5%
- [ ] 5% - 50%

0   5   10 mi
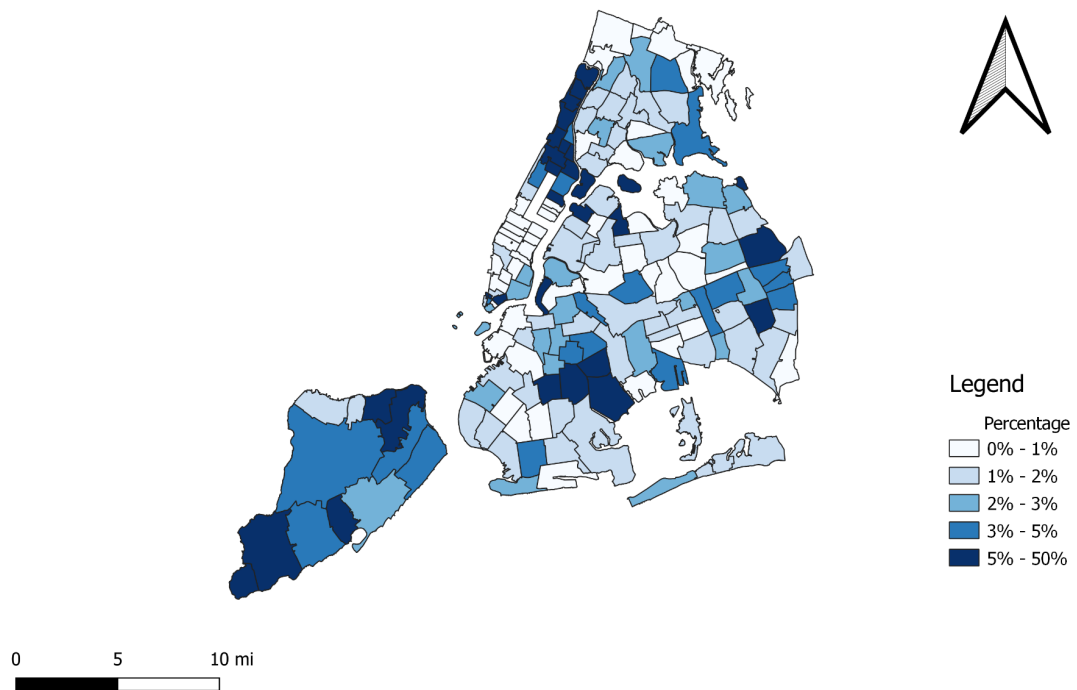
Discussion

Question: A brief write up (up to two paragraphs) discussing your understanding of these 3 maps and the way this data representation helps with your understanding of the trends.

In New York City, it is illegal to use, buy, sell, or transport all consumer fireworks, including sparklers. [1] According to a news article, fireworks complaints in New York City have increased 10 times in 2021 compared to that of 2020. Viewing data in CSV (Tabular) form from Open Data NY can be helpful for some purposes but it does not convey to the viewers the gravity of the issue. Geographical data visualization gives viewers a more cohesive picture about the issue or topic and conveys data more effectively and clearly. The map used above is called choropleth map which is a type of thematic map that shows a certain theme or concept geographically over the distribution of values over space.[2] The data visualization shown above makes it easy for viewers to visualize how a variable(here, complaints above fireworks) varies across a geographic area such as New York City. The different gradient of colours over a specific geographic area indicates the variability of the complaints related to fireworks in the region.

The first map is the depiction of the total number of all 311 complaints in New York City. It allows viewers to base their understanding of the total number of 311 complaints and the distribution across the city. The second map is the number of illegal fireworks in New York City. When the viewer views the second map after seeing the first map, the viewers can see the areas where complaints regarding the use of fireworks are reported to 311. However, viewing both of the maps separately is a little difficult as the viewers have to keep in mind the previous map to compare and analyze the distribution of fireworks related cases. The third map is the most comprehensive map as the calculation of percentage helps viewers understand the important takeaway which is the distribution of fireworks related complaints across the city. For example, in the west side of Brooklyn, specifically Williamsburg, the number of 311 complaints are relatively low compared to the rest of New York state. However, most of the complaints

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[1] https://portal.311.nyc.gov/article/?kanumber=KA-02249
[2] https://www.agiratech.com/graphical-data-representation-in-maps-and-its-classifications

received are related to fireworks, which is clearly seen in the second and third map (see figure 1). This is why this data representation helps with understanding the trends which can be used to inform the public about the issues faced or explain to readers who do not have knowledge about the problem. The second and third map also allows viewers to compare the data of each zip code with other zip codes allowing administrators to make relevant policies to counteract the problem. To conclude, showing all the three maps together can help viewers understand the data in the most comprehensible manner.

Figure 1: First image showing Total number of complaints to 311. Second Image showing total number of complaints related to Fireworks. Third Image showing the percentage of complaints only regarding Fireworks from 311 complaints.

Further Improvements

Question: Do you have any ideas on how to improve this data visualization to be more truthful and insightful?

Choropleth maps are increasingly used by governments agencies and others to illustrate an issue (here with complaints regarding fireworks) and display them in distributed value throughout the map. They help convey data and the message to the viewers in a cohesive and coherent manner. However, choropleth maps used above have a disadvantage which is that they show false impressions at the administrative boundary. For example, it is possible that most of the complaints related to fireworks might have arised from a specific household or specific neighbourhood in New York City. However, when visualised in choropleth map or the data representation above, it is viewed as the entire zip code has the issue. Choropleth maps

are based on a parameter(here, zip codes) to visualize and aggregate the data. An alternative solution to choropleth maps can be dot maps or heat wave maps which are not restricted to administrative boundaries. It can be easily represented on a map and can convey the same information in a better manner to the viewers.