ALCOHOL/WEAPON VENUES AND CRIME IN ATLANTA

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IT IS IMPORTANT TO KNOW CRIME INFLUENCERS

- Past research has shown for other US cities a correlation between alcohol-selling venues and crime. Is this true for Atlanta?

http://resources.prev.org/documents/alcoholviolencegruenewald.pdf

- If we are able to determine that certain venues are correlated with more crime, then better policing methods could be formed, citizens could be more aware, and more.

DATA ACQUISITION AND CLEANING

- Atlanta Neighborhood Data
  - 242 neighborhoods in Atlanta

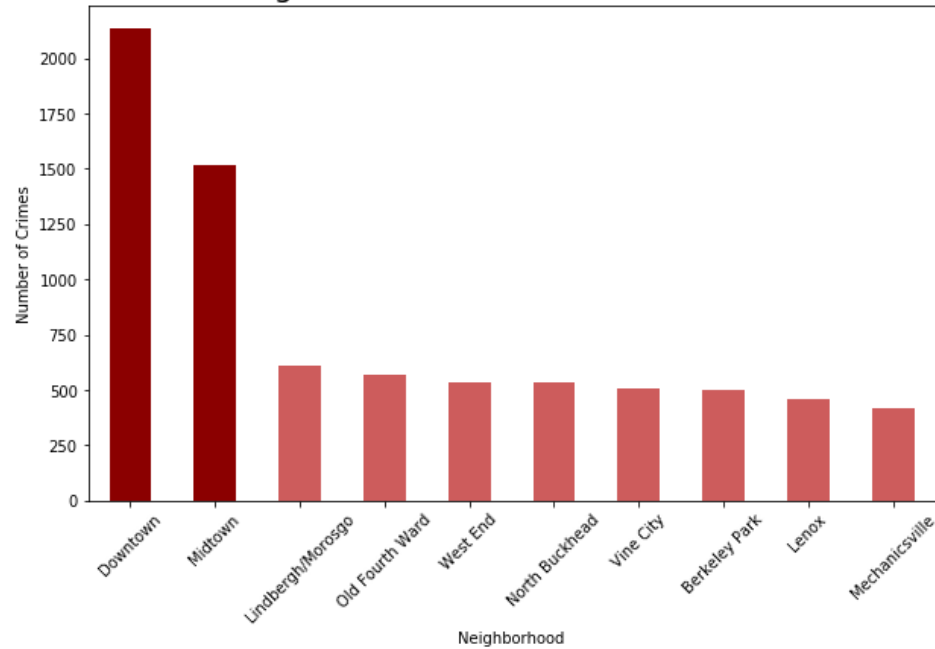https://en.wikipedia.org/wiki/Neighborhood_planning_unit

- Atlanta Crime Data
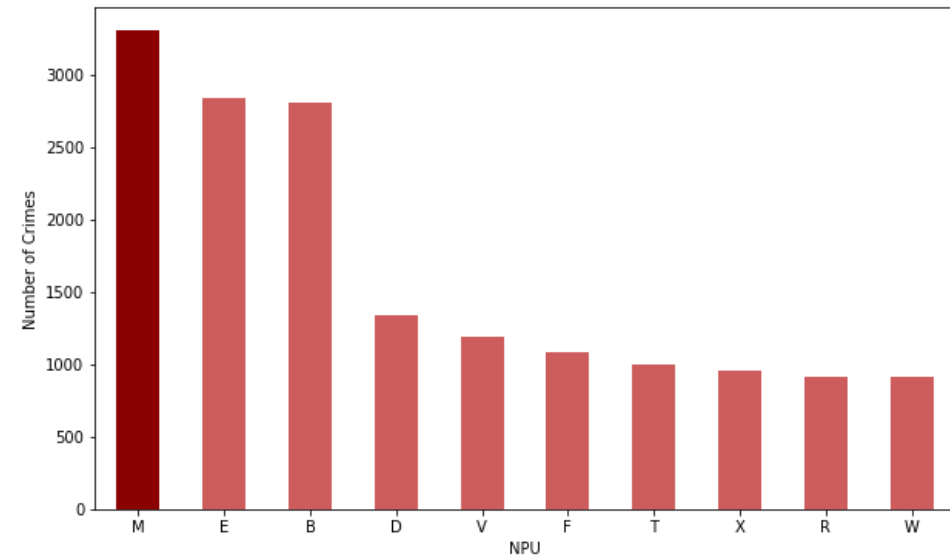 - Over 30,000 crimes committed in Atlanta, just in the year 2018

http://opendata.atlantapd.org/Crimedata/Default.aspx

- Duplicate data, NaN entries, and irrelevant information were accounted for and dropped from data frames accordingly.
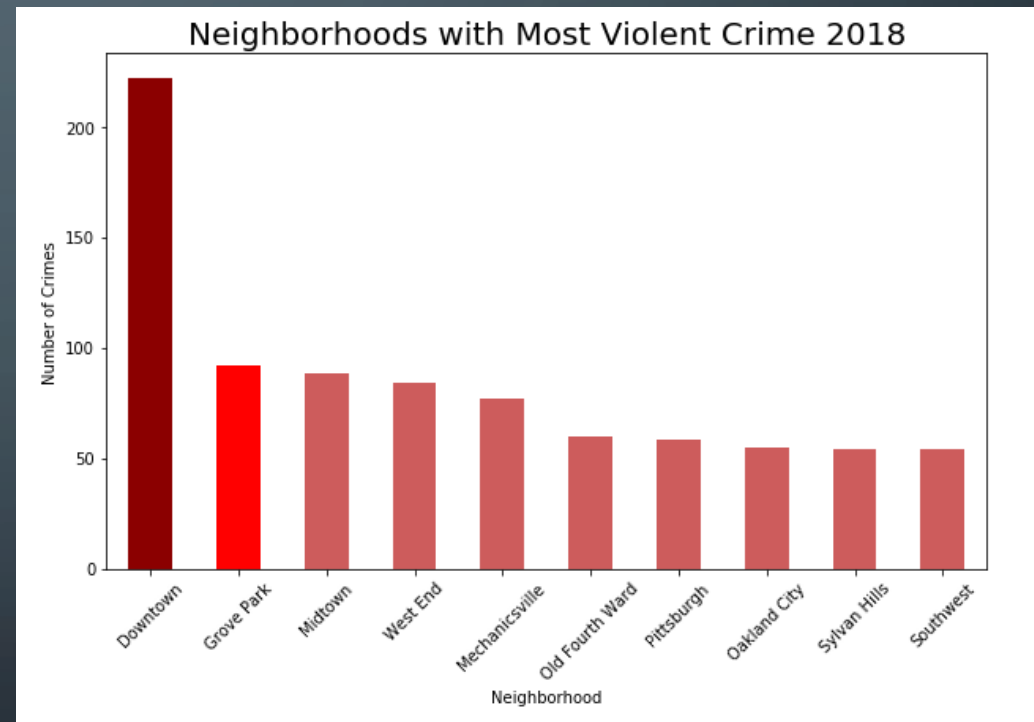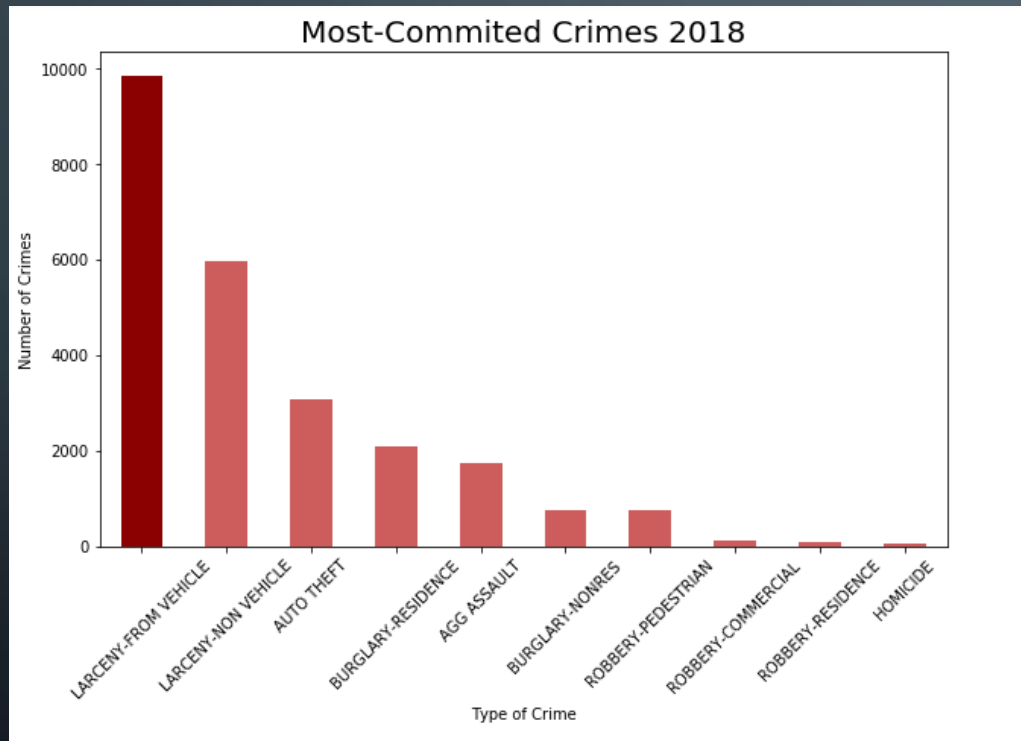
DATA EXPLORATION

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Most-Commited Crimes 2018

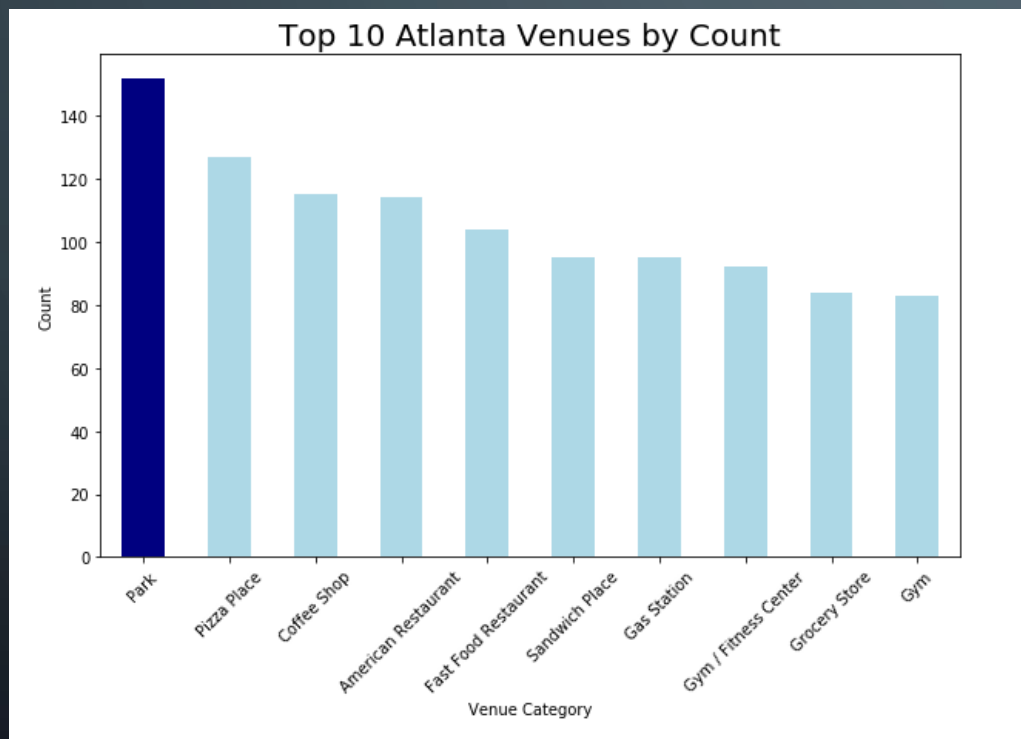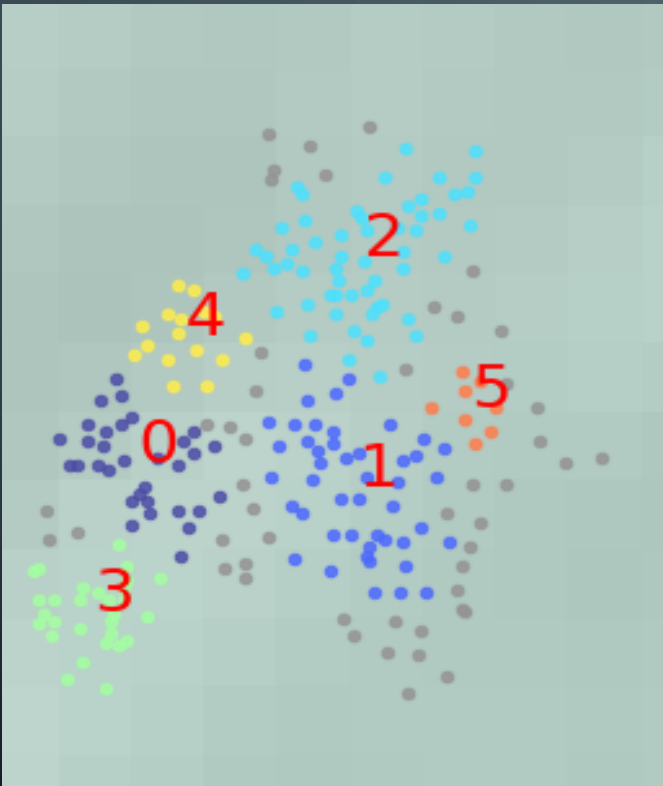Neighborhoods with Most Violent Crime 2018

DATA EXPLORATION

DBSCAN CLUSTERING BY LOCATION
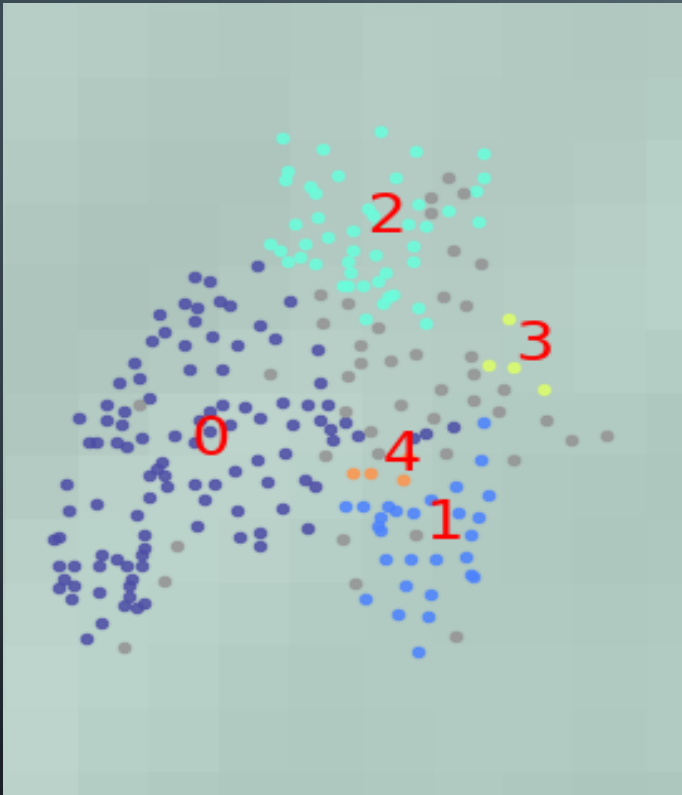

- Cluster 0, Avg Number of Crimes per Neighborhood: 31.75

- Cluster 1, Avg Number of Crimes per Neighborhood: 181.52173913043478

- Cluster 2, Avg Number of Crimes per Neighborhood: 100.41818181818182

- Cluster 3, Avg Number of Crimes per Neighborhood: 41.48275862068966

- Cluster 4, Avg Number of Crimes per Neighborhood: 52.375

- Cluster 5, Avg Number of Crimes per Neighborhood: 244.5

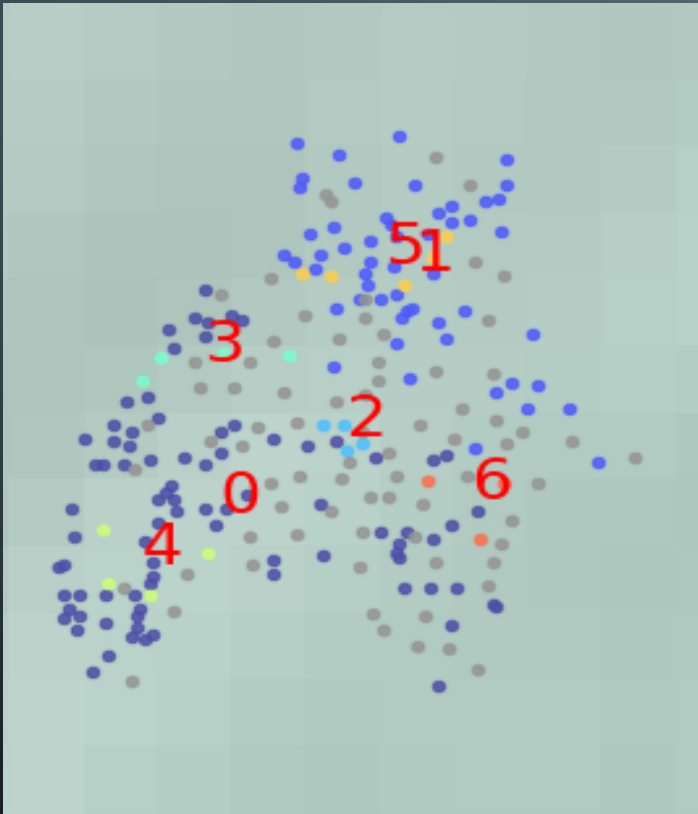# DBSCAN CLUSTERING BY LARCENY CRIMES

- Cluster 0, Avg Number of Larceny Crimes per Neighborhood: 40.83177570093458

- Cluster 1, Avg Number of Larceny Crimes per Neighborhood: 65.46428571428571

- Cluster 2, Avg Number of Larceny Crimes per Neighborhood: 34.833333333333336

- Cluster 3, Avg Number of Larceny Crimes per Neighborhood: 25.0

- Cluster 4, Avg Number of Larceny Crimes per Neighborhood: 185.5
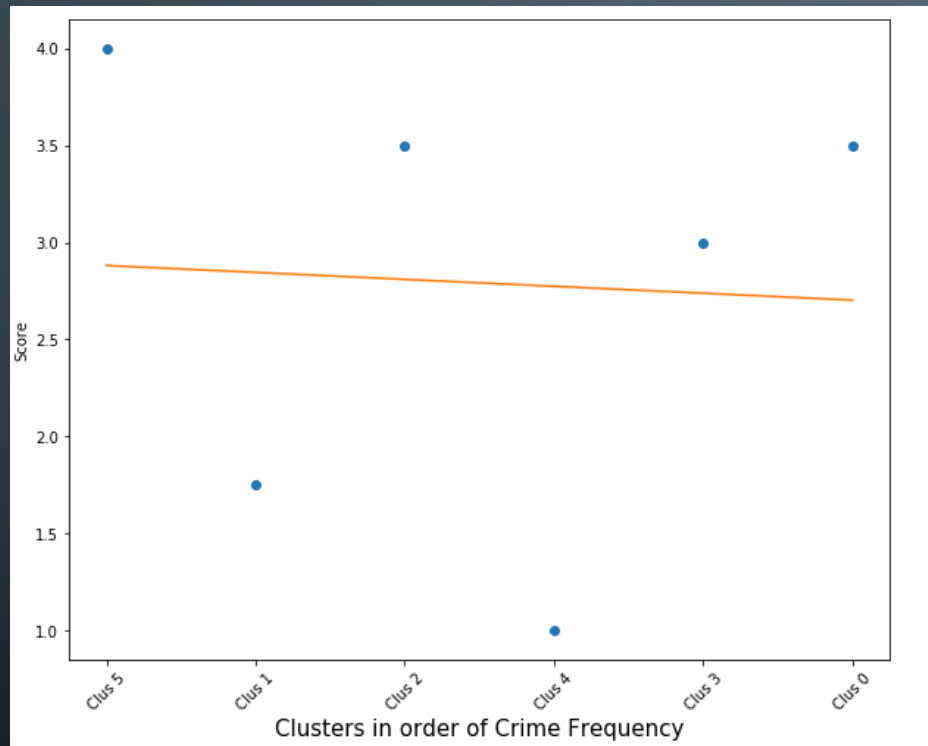
DBSCAN CLUSTERING BY VIOLENT CRIMES

- Cluster 0, Avg Number of Homicide/Agg Assault Crimes per Neighborhood: 48.74

- Cluster 1, Avg Number of Homicide/Agg Assault Crimes per Neighborhood: 48.5

- Cluster 2, Avg Number of Homicide/Agg Assault Crimes per Neighborhood: 73.0

- Cluster 3, Avg Number of Homicide/Agg Assault Crimes per Neighborhood: 27.66

- Cluster 4, Avg Number of Homicide/Agg Assault Crimes per Neighborhood: 168.66

- Cluster 5, Avg Number of Homicide/Agg Assault Crimes per Neighborhood: 83.66

- Cluster 6, Avg Number of Homicide/Agg Assault Crimes per Neighborhood: 149.33

- Cluster 7, Avg Number of Homicide/Agg Assault Crimes per Neighborhood: 15.0
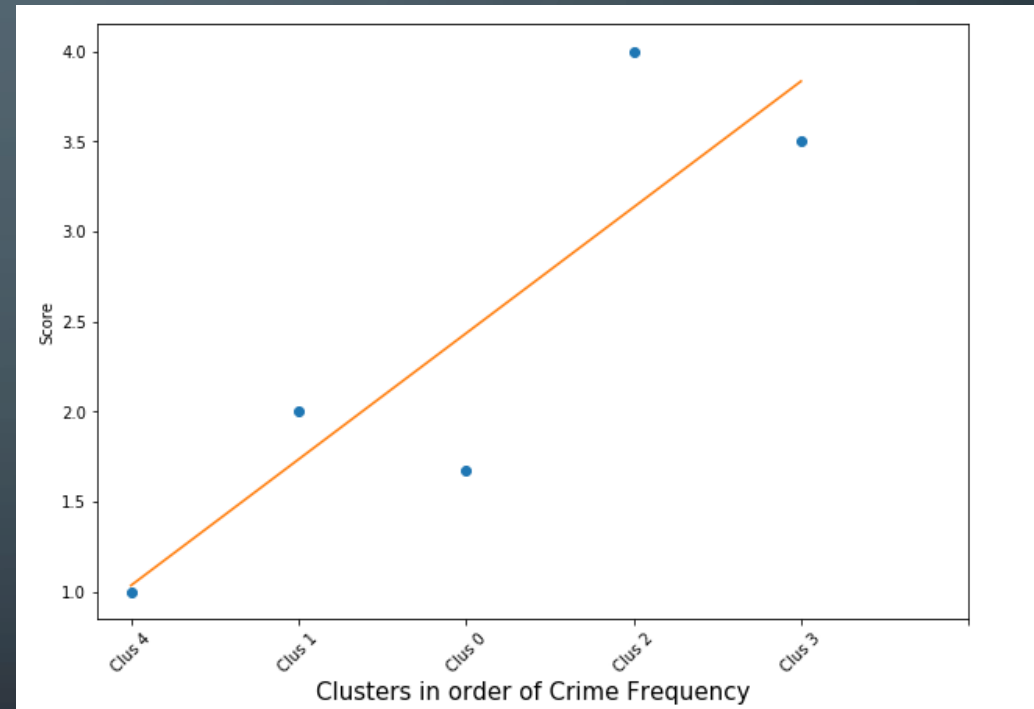
DBSCAN CLUSTERING BY ROBBERY CRIMES

- Cluster 0, Avg Number of Robbery Crimes per Neighborhood: 19.564705882352943

- Cluster 1, Avg Number of Robbery Crimes per Neighborhood: 59.98148148148148

- Cluster 2, Avg Number of Robbery Crimes per Neighborhood: 104.25

- Cluster 3, Avg Number of Robbery Crimes per Neighborhood: 37.0

- Cluster 4, Avg Number of Robbery Crimes per Neighborhood: 20.5

- Cluster 5, Avg Number of Robbery Crimes per Neighborhood: 42.0

- Cluster 6, Avg Number of Robbery Crimes per Neighborhood: 93.66666666666667

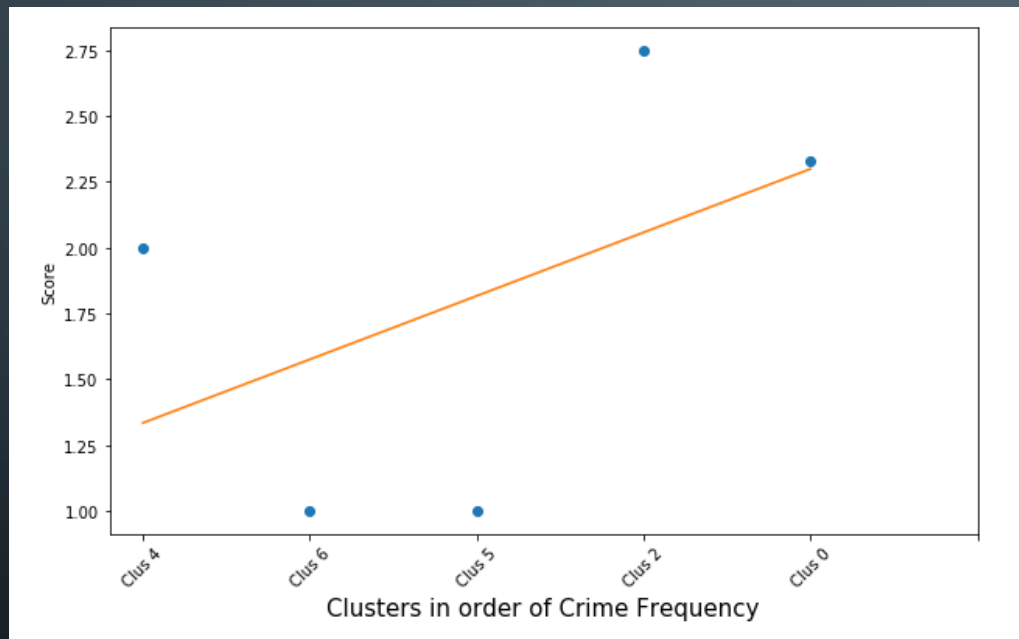# RESULTS (FOR METHODOLOGY SEE REPORT AND CODE)

Overall Crime(Location) Appears to be a negative correlation surprisingly. We would expect the score average to increase(meaning lower frequency of the targeted venues) by my hypothesis.
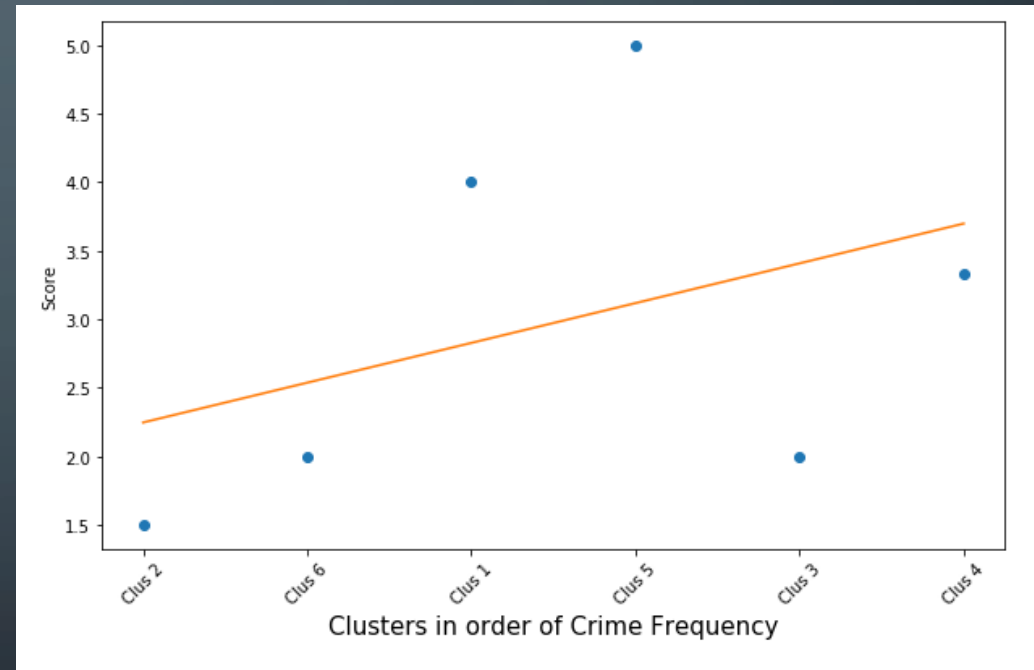

Larceny Crimes The most common crime committed in Atlanta in 2018, there was a clear positive correlation between the frequency of the targeted venues and the average crime per neighborhood in the respective cluster.

RESULTS (FOR METHODOLOGY SEE REPORT AND CODE)

Agg Assualt/Homicide Crimes Although to a lesser extent than larceny crimes, there is still a clear positive relationship between the frequency of the targeted venues and the average crime per neighborhood in the clusters.

Robbery Crimes Yet again, there is a positive correlation between the frequency of the targeted venues and the average number of robbery crimes per neighborhood committed in 2018.

CONCLUSION

- Based on these findings, I can conclude that there appears to be a positive correlation between the frequency of alcohol-selling venues and crime(gun shops and pawn shops were included in finding the results but their mean frequency was usually 0 among clusters). There may be other variables at play that also contribute to crime, so it is not definitive that reducing alcohol-selling venues would guarantee a decrease in crime. However, it is something to keep in mind for various groups of people such as police officers, venue owners, citizens, and more.