

INTRODUCTION TO DATA SCIENCE PROJECT 2

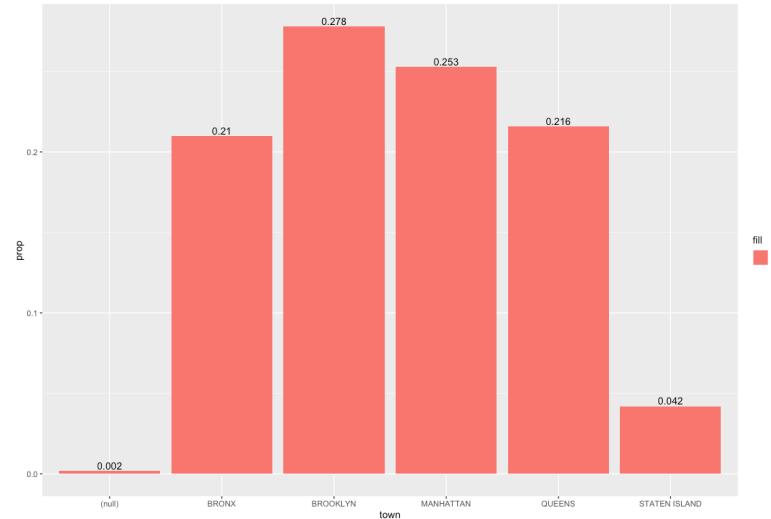
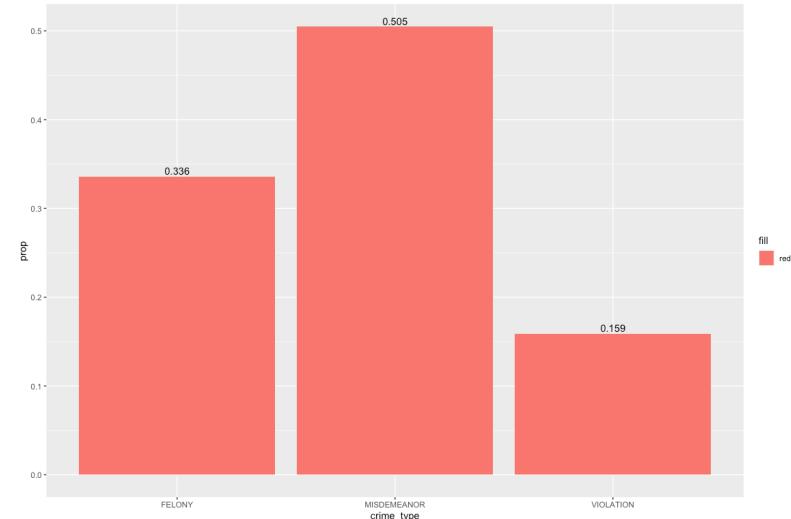
MEHRAD HAGHSHENAS

RESEARCH QUESTION:

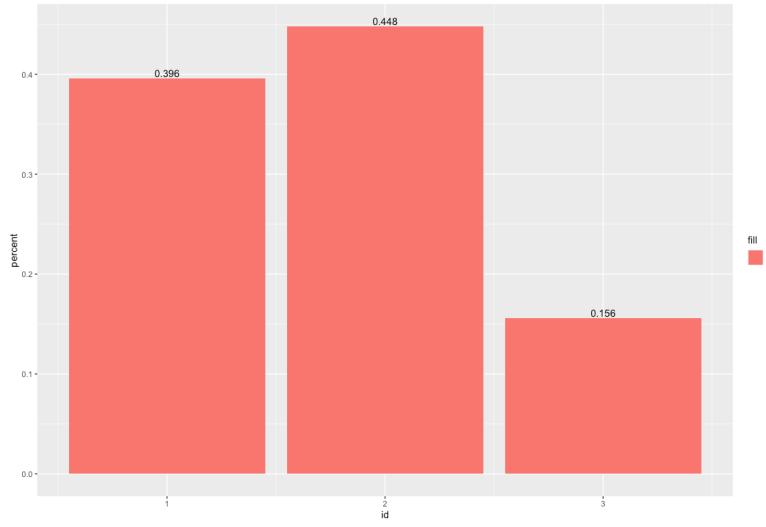
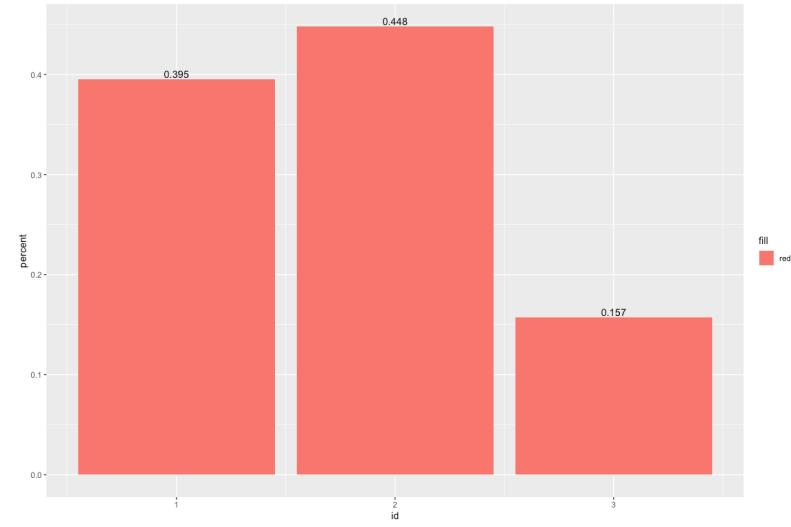
To what extent does the presence of local police stations contribute to deterring crime in New York City?

DATASETS

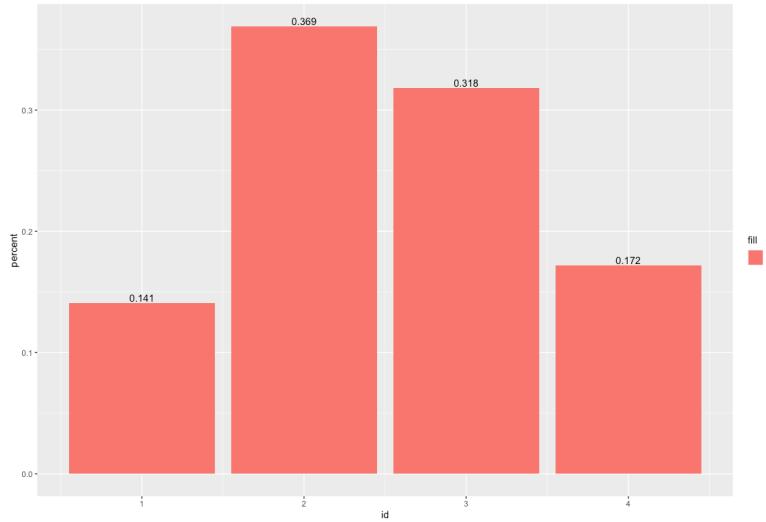
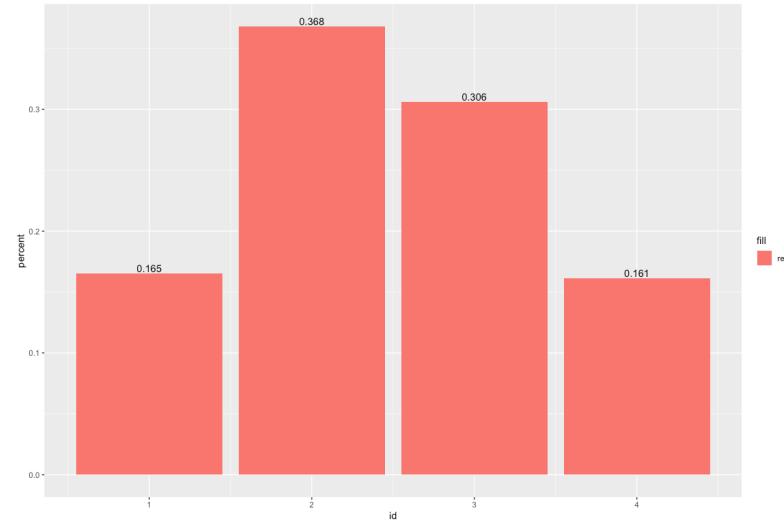
- NYPD crime dataset:
 - A breakdown of every felony, misdemeanor, and violation crime denoted by the New York Police Department between 1 January 2022 and 30 September 2022.
 - This dataset has 396979 observations and 36 predictors: 1- age 2- sex 3- time 4- coordinates 5- crime types ...
- Police stations in NYC dataset:
 - This dataset has 77 observations (precincts) and 3 predictors: 1- name 2- latitude 3- longitude



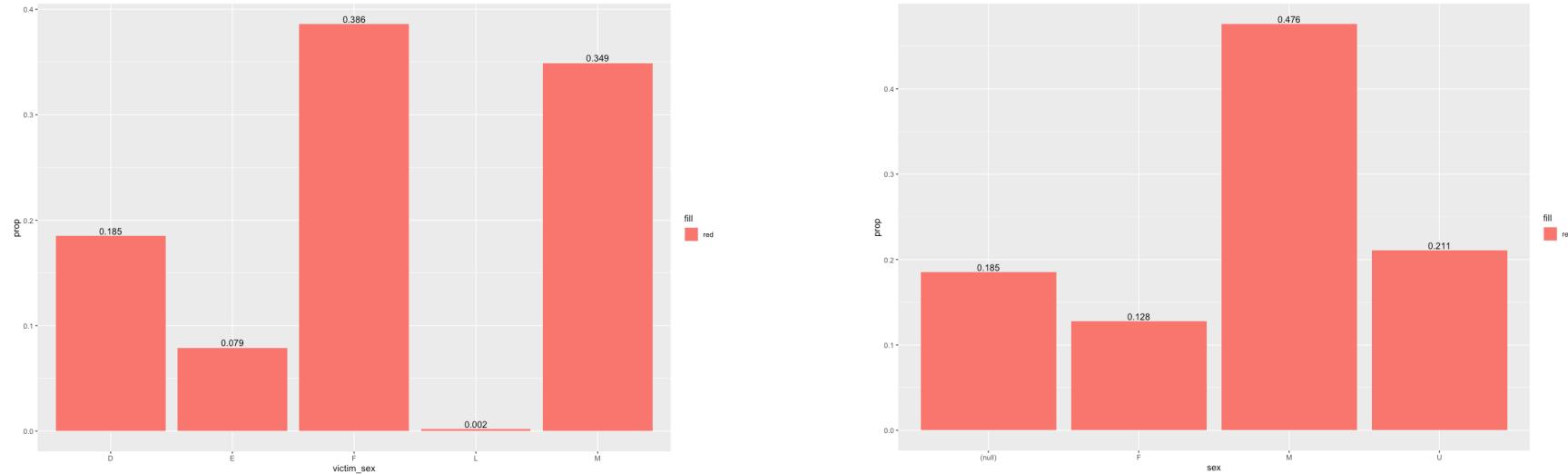
PROPORTION OF CRIME PER TYPE AND TOWN



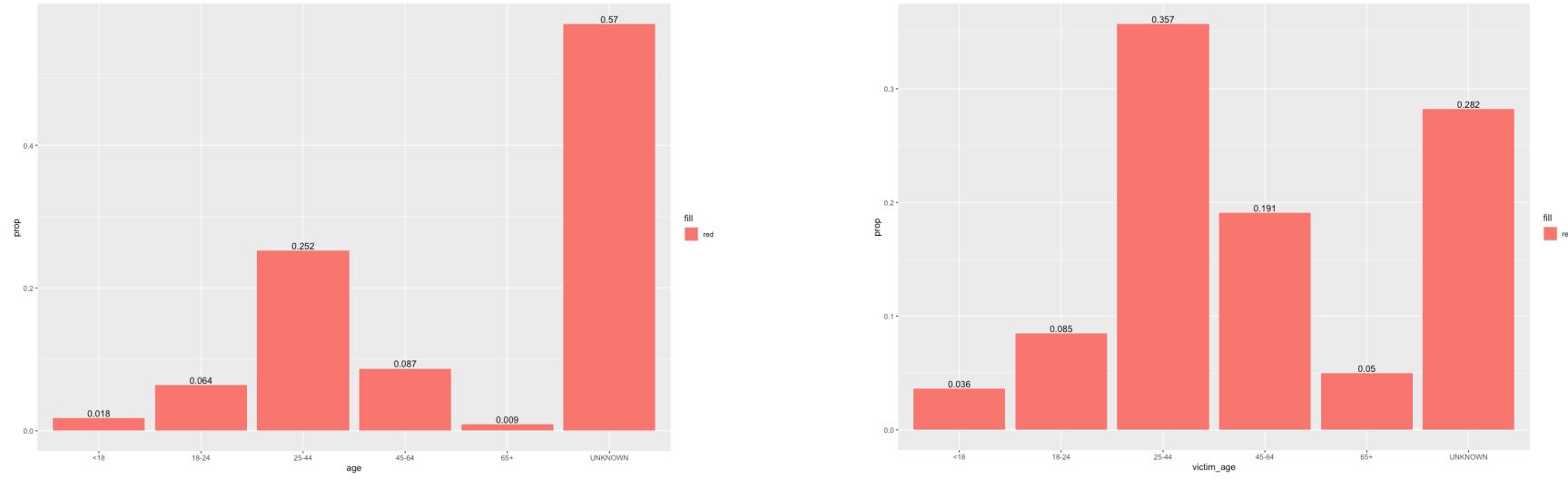
PROPORTION OF CRIME PER SEASON



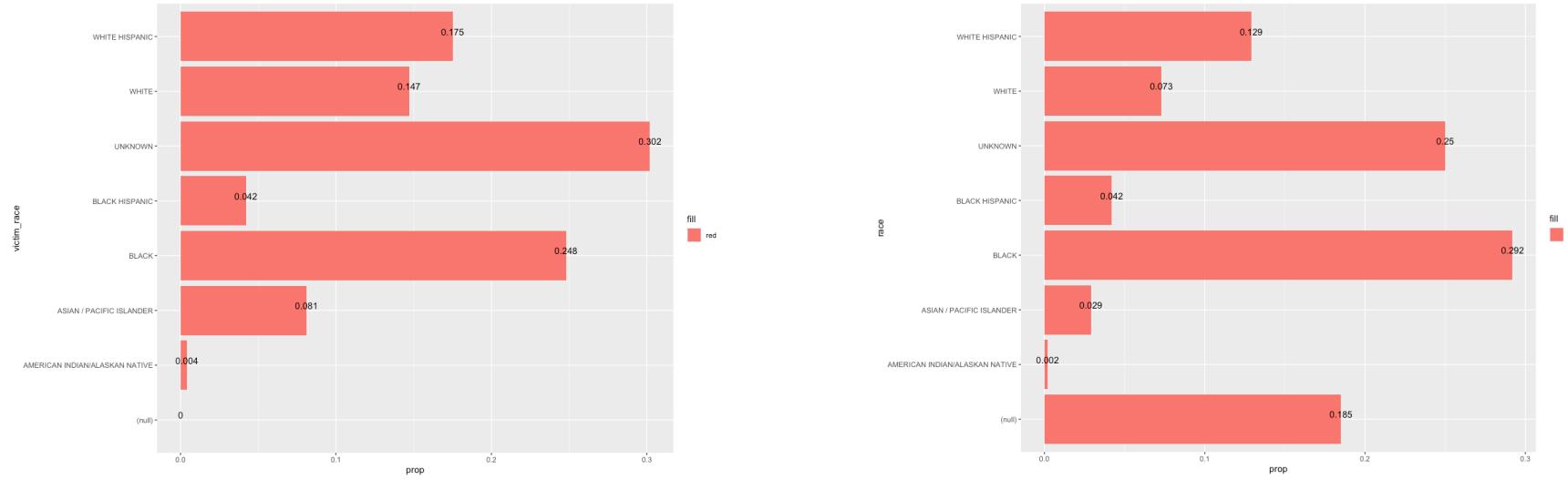
PROPORTION OF CRIME PER TIME OF DAY



PROPORTION OF CRIME PER SEX FOR SUSPECT AND VICTIM



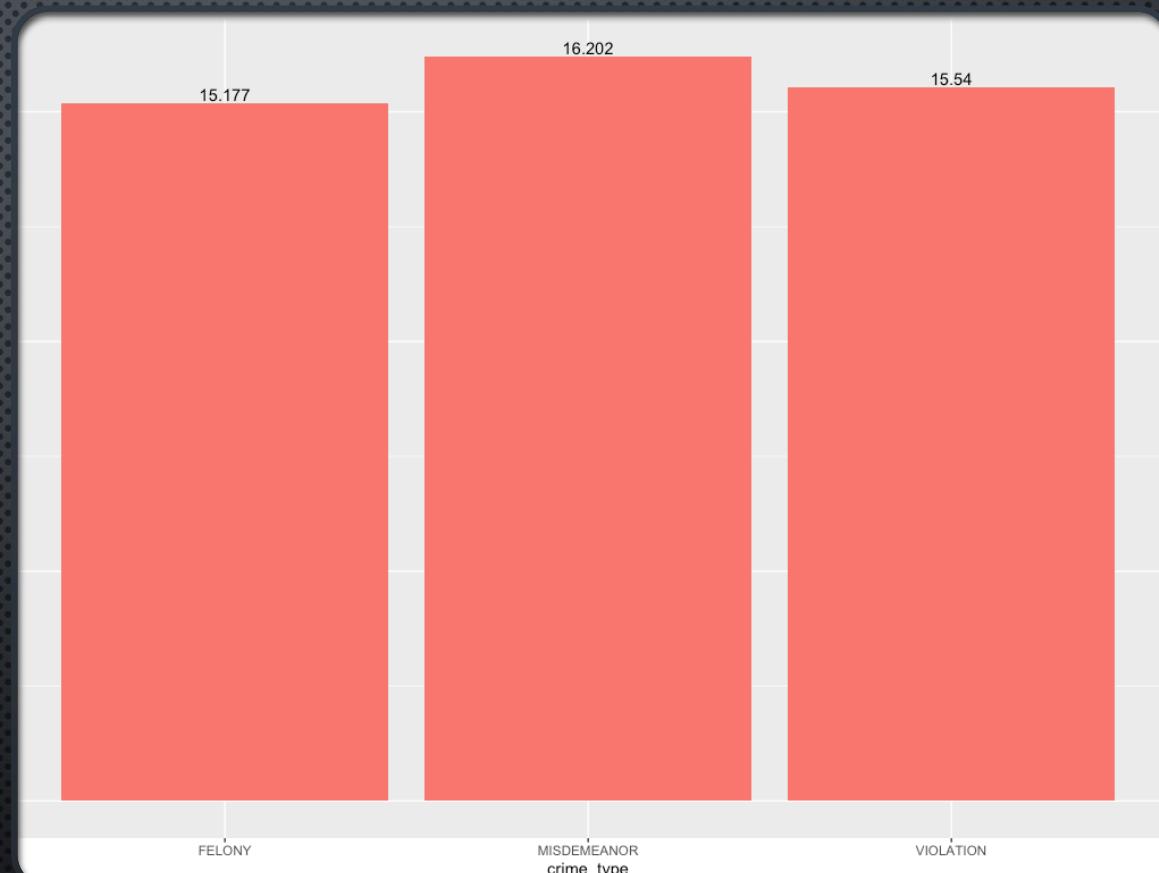
PROPORTION OF CRIME PER AGE FOR SUSPECT AND VICTIM



PROPORTION OF CRIME PER RACE GROUP FOR SUSPECT AND VICTIM

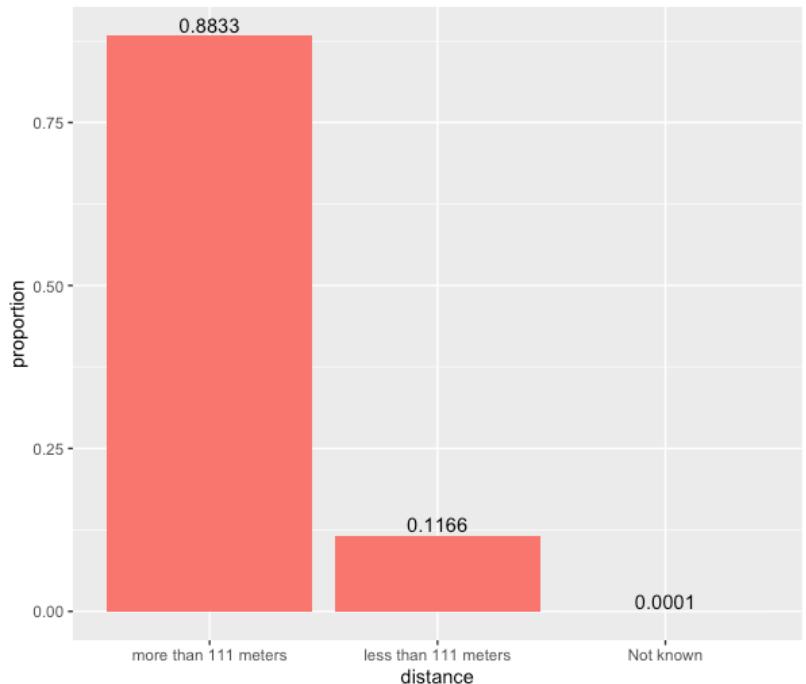
NUMBER OF DAYS A PRECINCT IS INVOLVED WITH A CRIME PER CRIME TYPE

- THERE IS A SIGNIFICANT CORRELATION BETWEEN THE NUMBER OF DAYS AND CRIME TYPE WITH A SIGNIFICANCE LEVEL OF 0.05.
- KRUSKAL-WALLIS TEST:
P-VALUE = (2.2e-16)

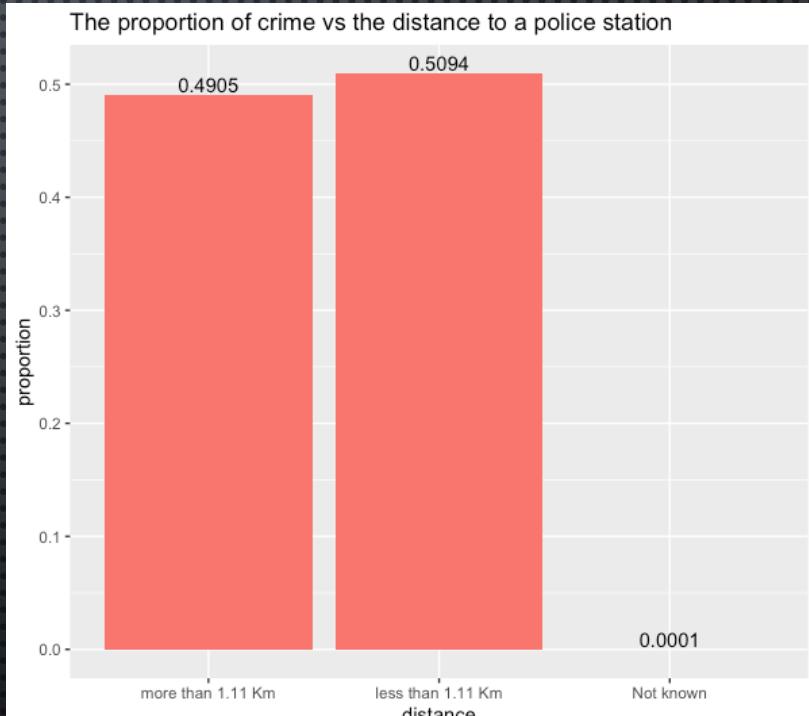


PROPORTION OF CRIME VS DISTANCE TO PATROL

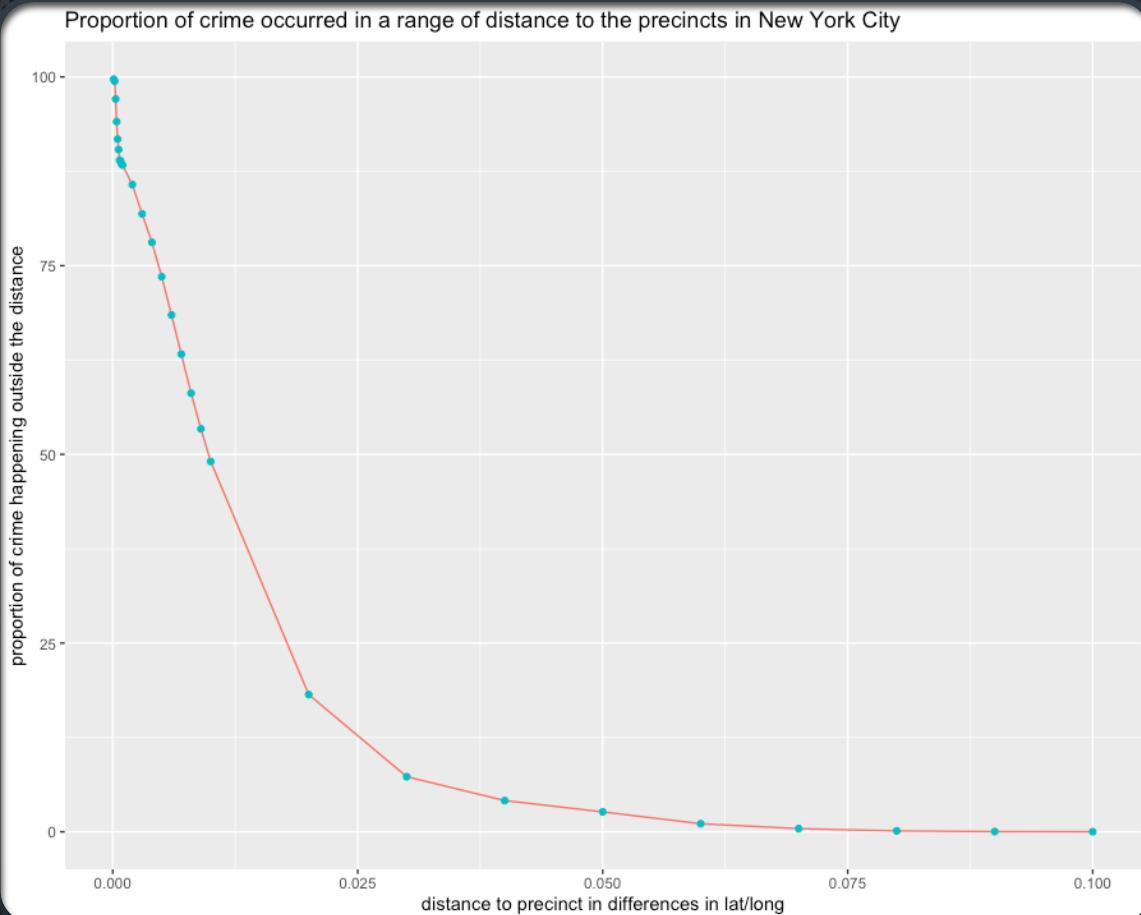
The proportion of crime vs the distance to a police station

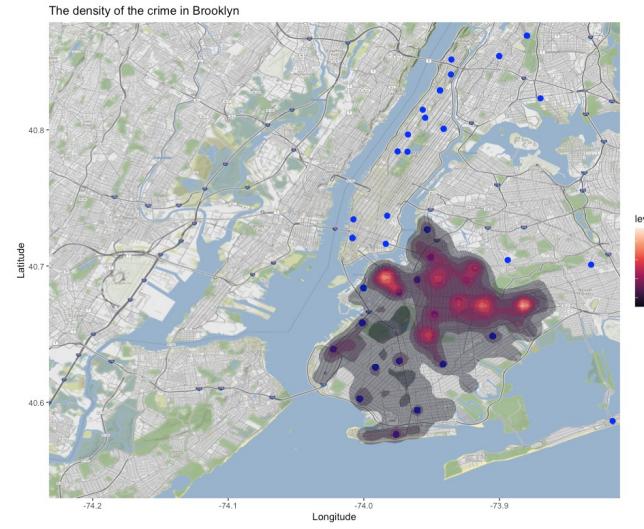
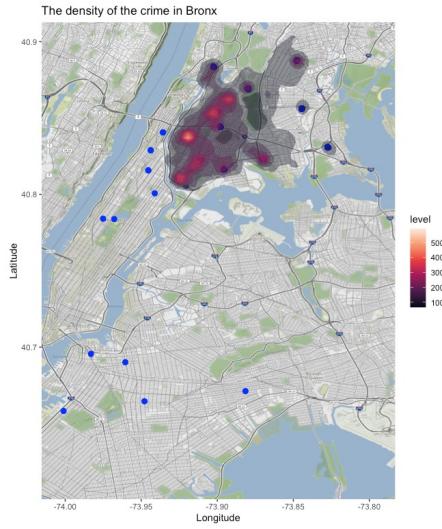


The proportion of crime vs the distance to a police station

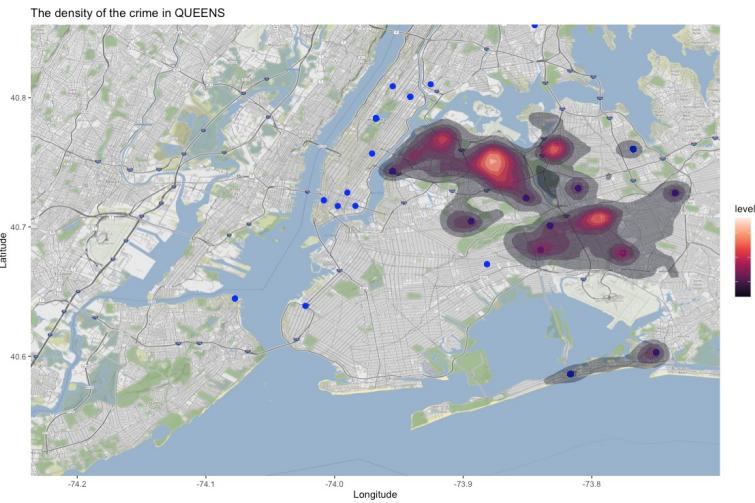
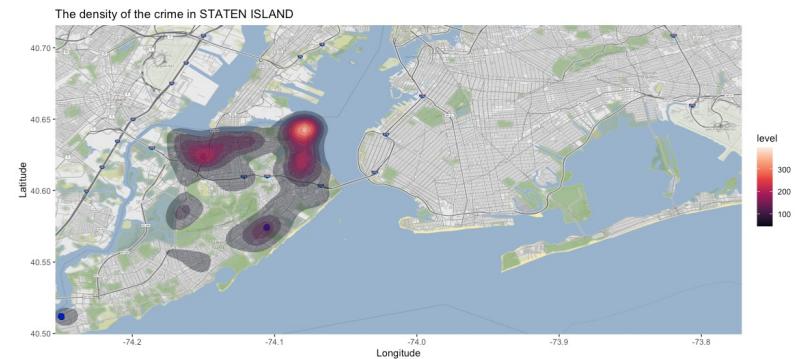


CRIME VS DISTANCE TO PATROL



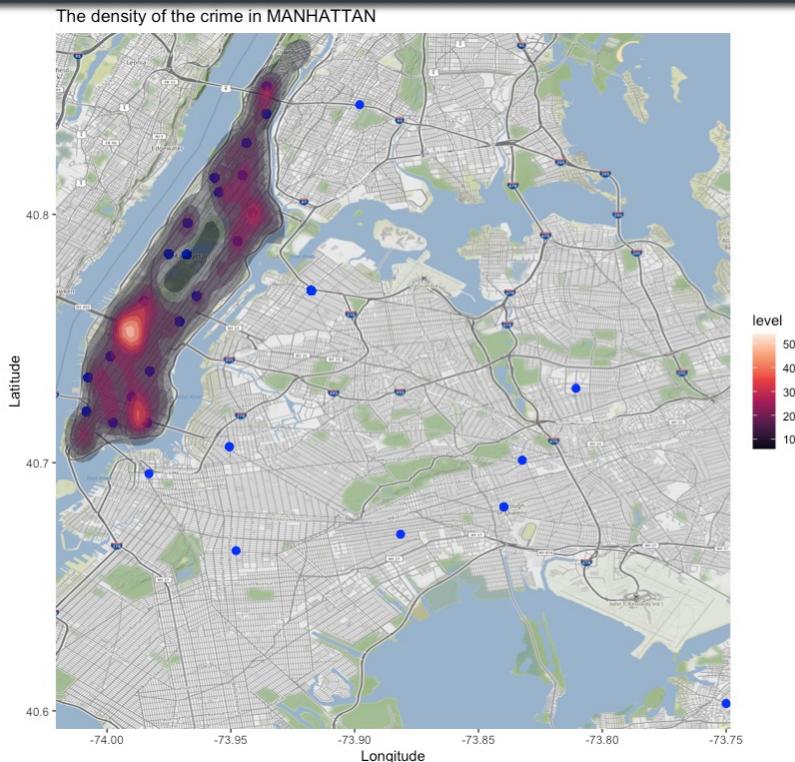


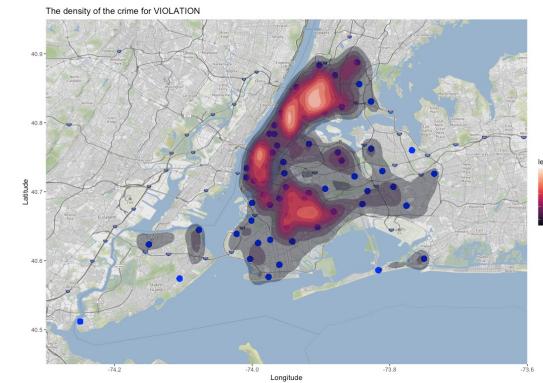
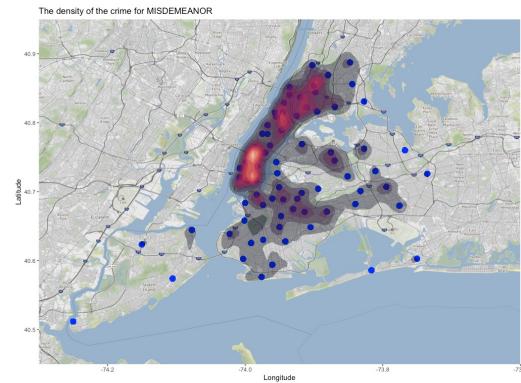
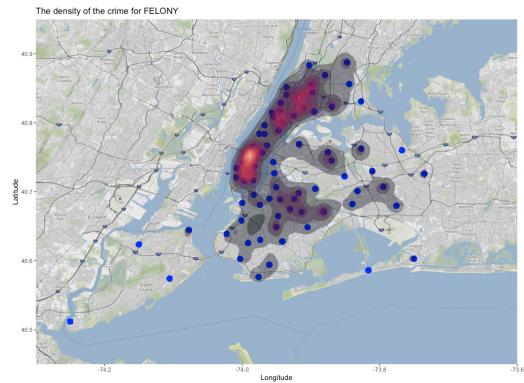
DENSITY OF CRIME VS TOWN OF OCCURRENCE (BRONX AND BROOKLYN)



DENSITY OF CRIME VS TOWN OF OCCURRENCE (STATEN ISLAND & QUEENS)

DENSITY OF CRIME VS TOWN OF OCCURRENCE (MANHATTAN)

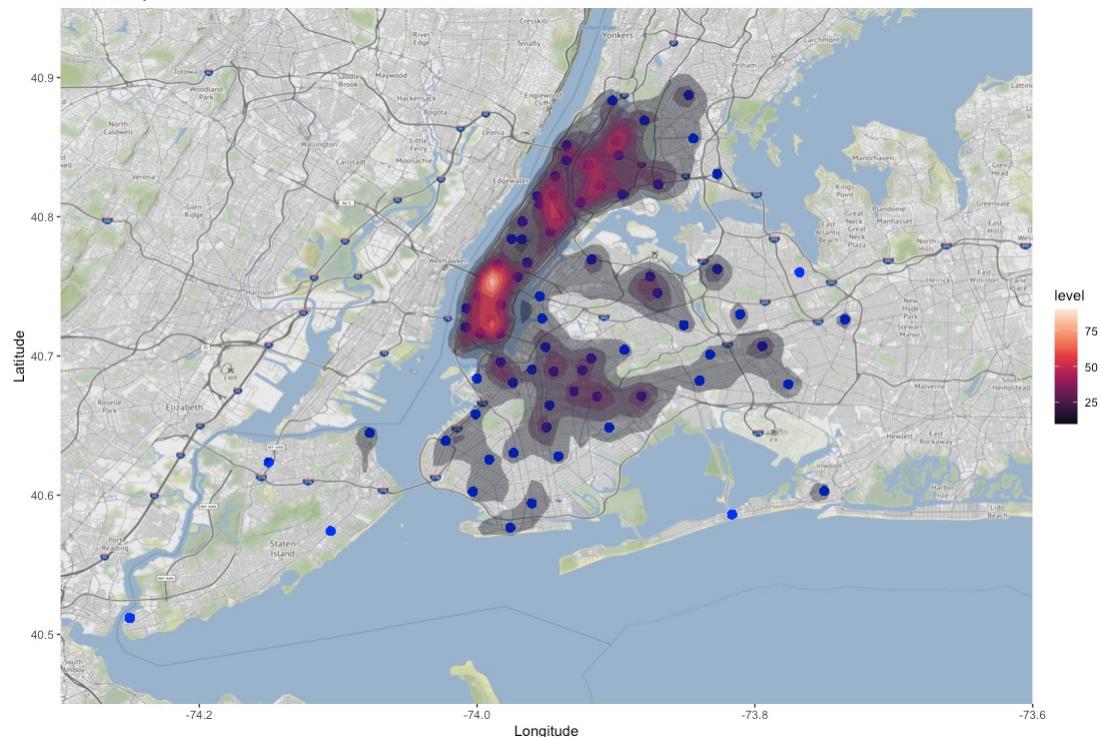




DENSITY OF CRIME VS CRIME TYPE

DENSITY OF CRIME IN NEW YORK

The density of the crime in New York



CONCLUSION

- THE GEOSPATIAL VISUALIZATION INDICATED IN LARGE SCALE, PROXIMITY TO A PRECINCT AND THE NUMBER OF CRIMES DO NOT HAVE A CLEAR CORRELATION. HOWEVER, DETAILED ANALYSIS SHOWS THAT THERE IS A CORRELATION IN A SENSE THAT THE NEARER TO A POLICE STATION THE LESS CRIME HAPPENS.

REFERENCES

- *BLESSE, S., & DIEGMANN, A. (2022). THE PLACE-BASED EFFECTS OF POLICE STATIONS ON CRIME: EVIDENCE FROM STATION CLOSURES. JOURNAL OF PUBLIC ECONOMICS, 207, 104605. [HTTPS://DOI.ORG/10.1016/J.JPUBECO.2022.104605](https://doi.org/10.1016/j.jpubeco.2022.104605)*
- *ALESINA, A., FAVERO, C., & GIAVAZZI, F. (2019). AUSTERITY: WHEN IT WORKS AND WHEN IT DOESN'T (ILLUSTRATED). PRINCETON UNIVERSITY PRESS.*
- *NYPD COMPLAINT DATA CURRENT (YEAR TO DATE). (N.D.). NYC OPEN DATA. [HTTPS://DATA.CITYOFNEWYORK.US/PUBLIC-SAFETY/NYPD-COMPLAINT-DATA-CURRENT-YEAR-TO-DATE-/5UAC-W243/DATA](https://data.cityofnewyork.us/Public-Safety/NYPD-Complaint-Data-Current-Year-to-Date-/5uac-w243/data)*
- *PRECINCTS - NYPD. (N.D.). [HTTPS://WWW.NYC.GOV/SITE/NYPD/BUREAUS/PATROL/PRECINCTS-LANDING.PAGE](https://www.nyc.gov/site/nypd/bureaus/patrol/precincts-landing.page)*