
LAW & WEATHER

SPECIAL DATA UNIT

IST 718 Final Project

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A Growing Trend in Law Enforcement

The number of officers per capita nationally has fallen from 2.42 per 1,000 residents in 1997 to 2.17 officers per 1,000 in 2016.

The trend continues to show there is a shortage in police officers around the country.



What can the data tell us?

- Is there correlation between weather and crime?
- Are there seasonal patterns?
- What type of crime is most popular and when?
- Can we predict how many crimes will happen on a given day?



Data Sources

- NOAA National Climatic Data Center API: weather and climate data
- San Diego Regional Data Library: SD crime data
- NYC Open Data: NY crime data



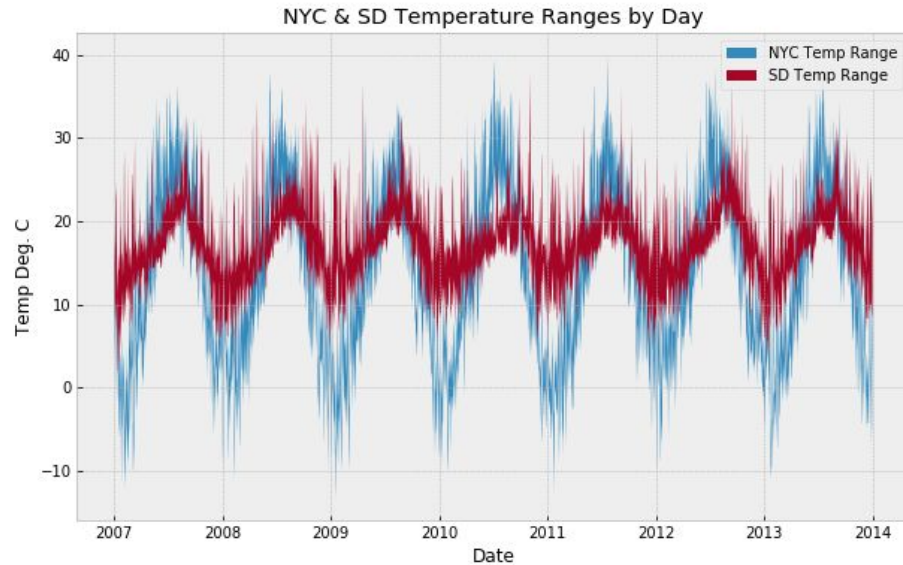
San Diego Regional
Data Library

NYC OpenData

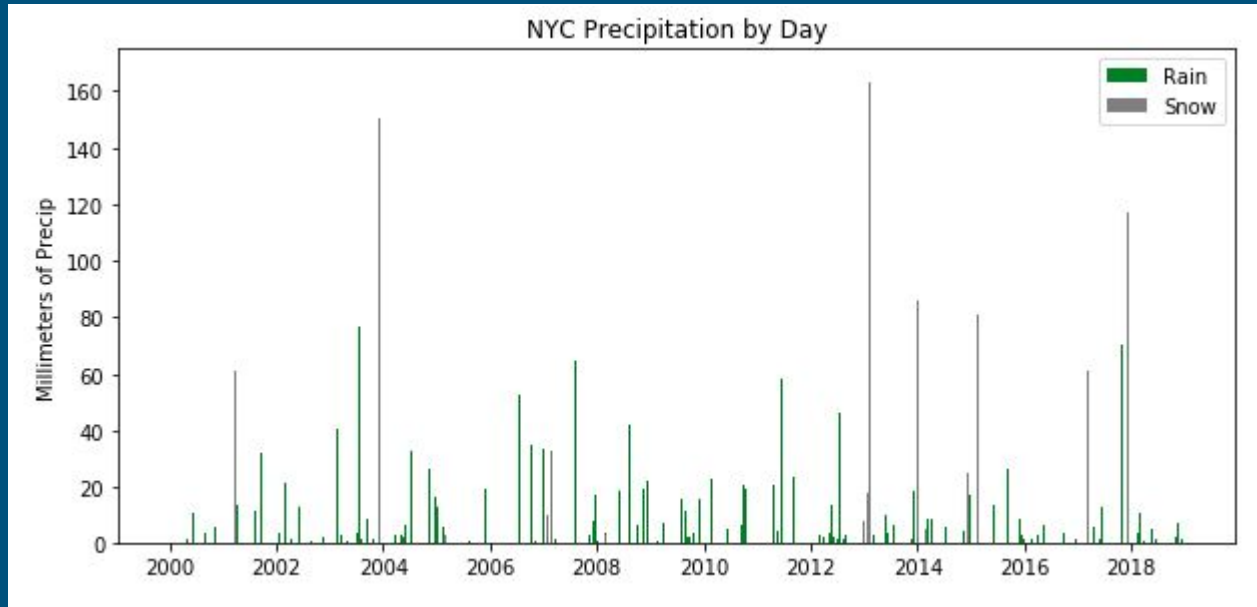
Data Summary

- San Diego Crime Reports: 797,978 (raw form)
- New York Crime Reports: 6,036,805 (raw form)
- Daily climate data for 2007 - 2013

Temperature Seasonality

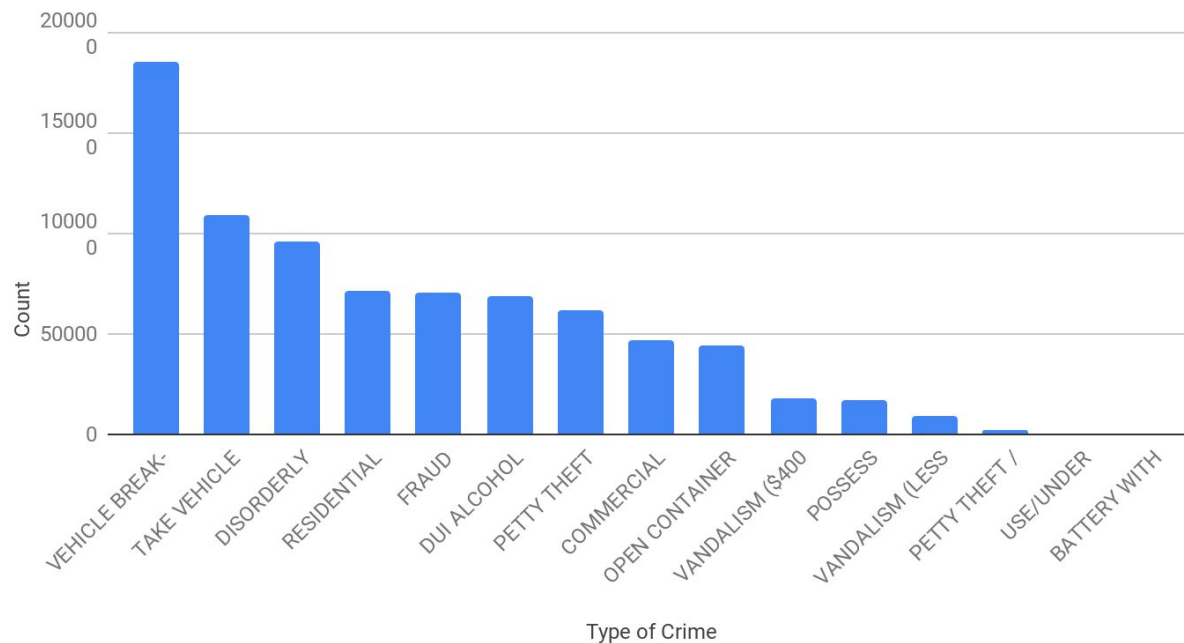


Climate Differences (Both)

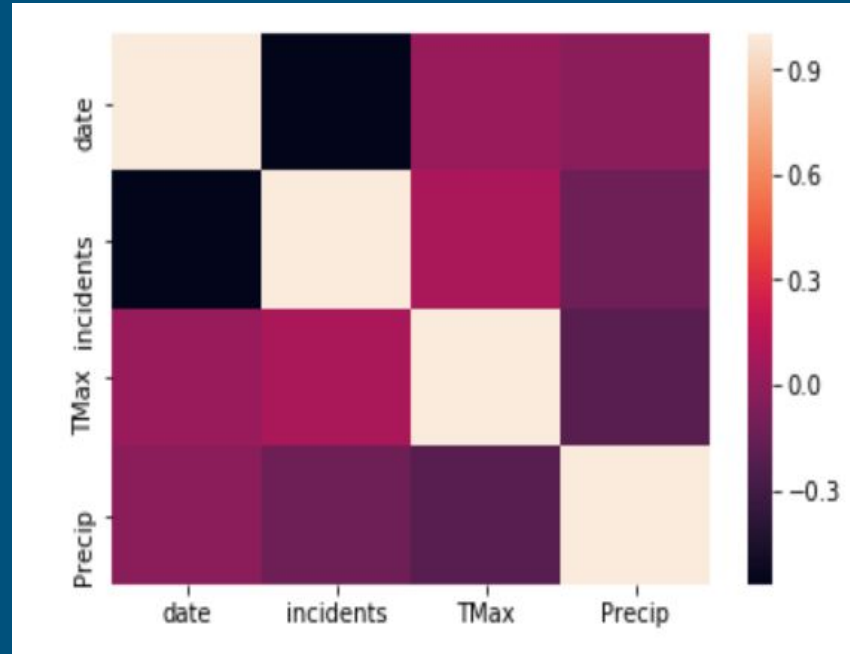


San Diego Crimescape

Top 15 Crime Categories in San Diego, CA

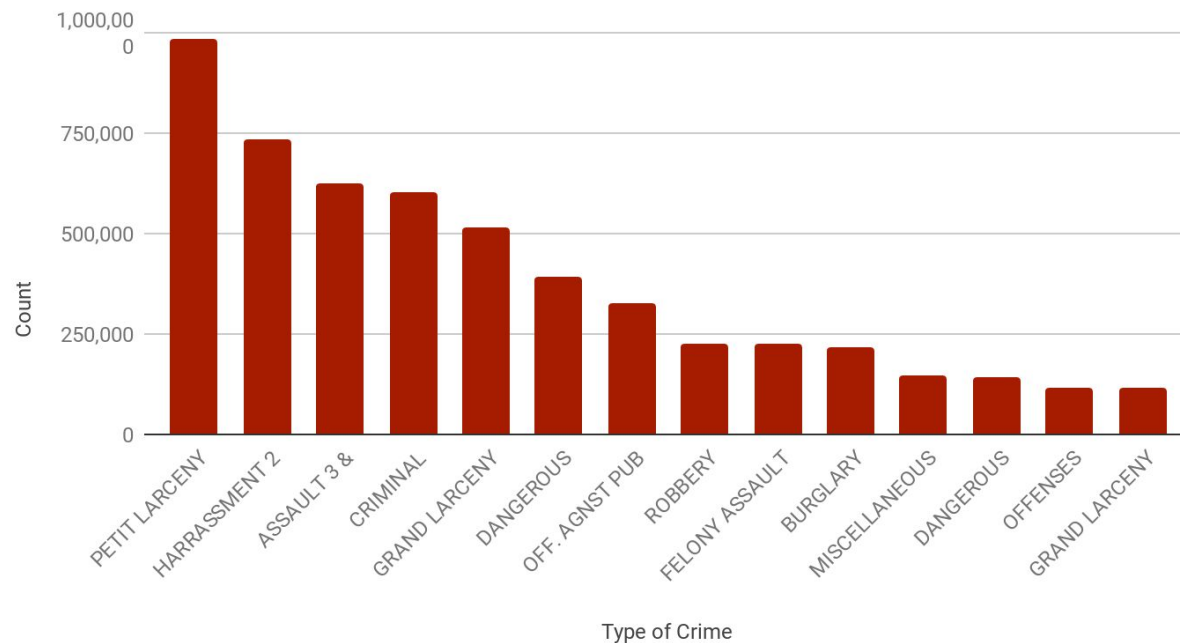


Crime/Climate Correlations - SD

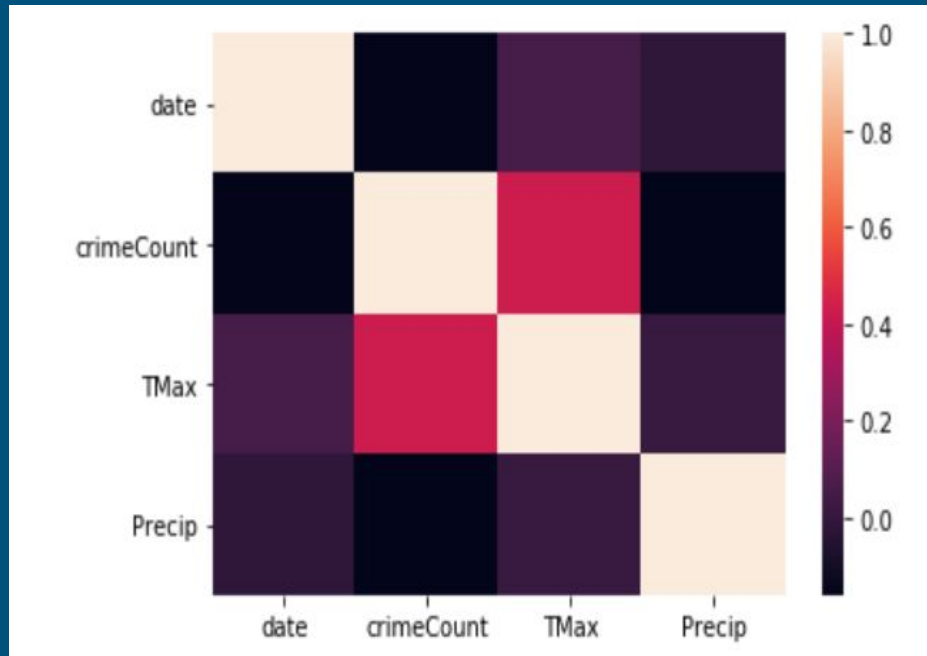


New York Crimescape

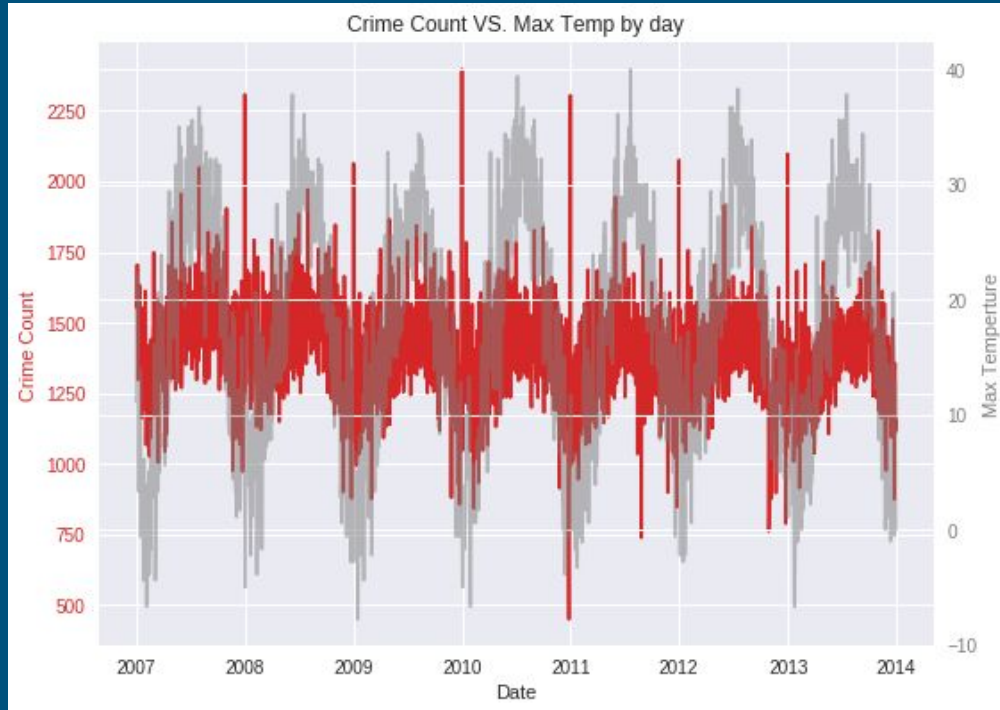
Top 15 Crime Categories in New York, NY



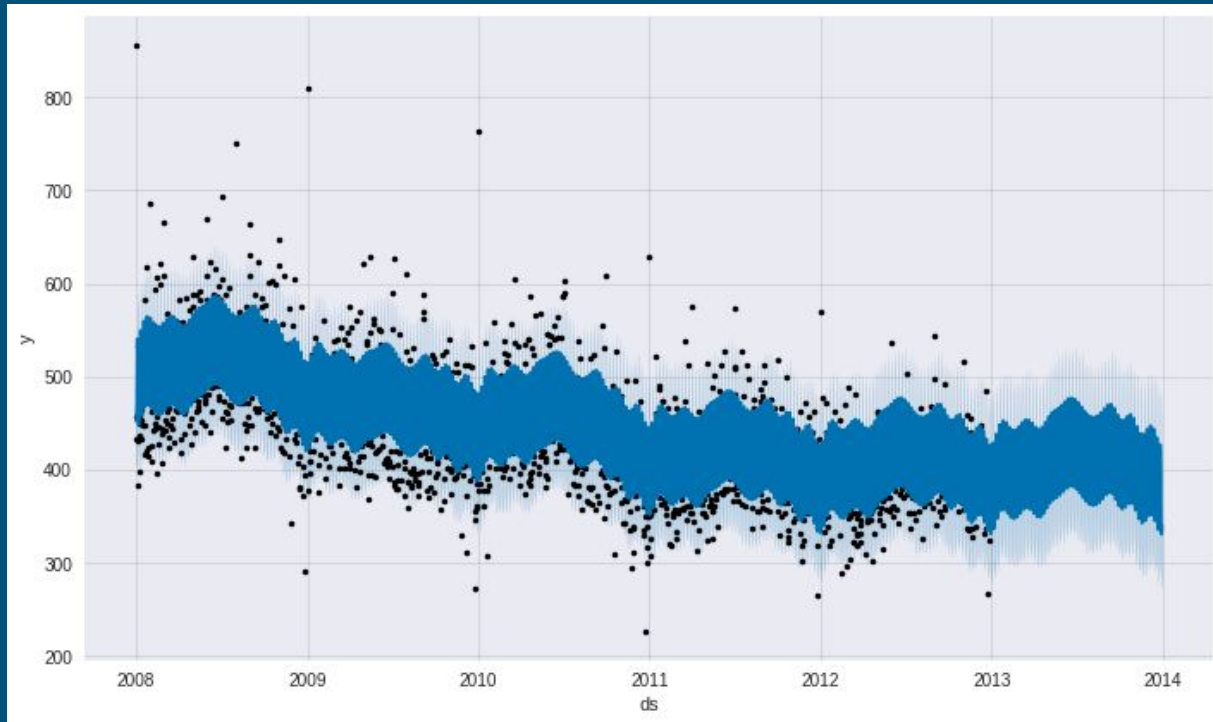
Crime/Climate Correlations - NY



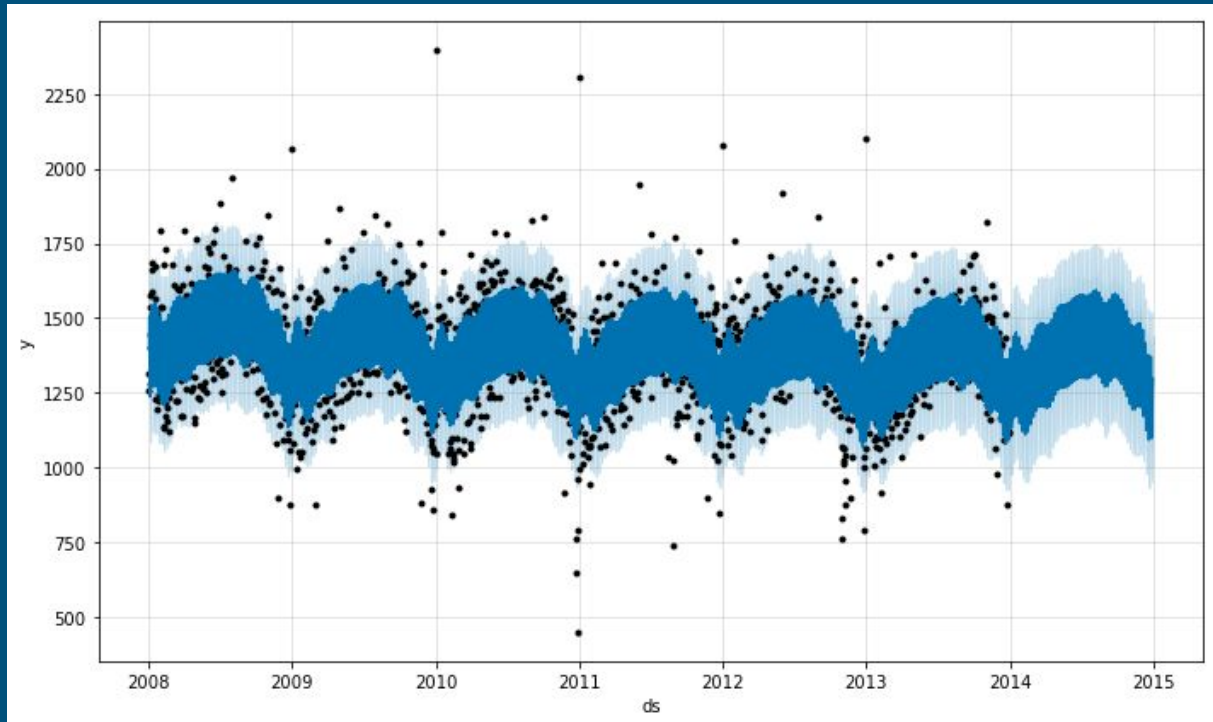
Crime Frequency vs Temperature - NY



Crime Forecast - SD

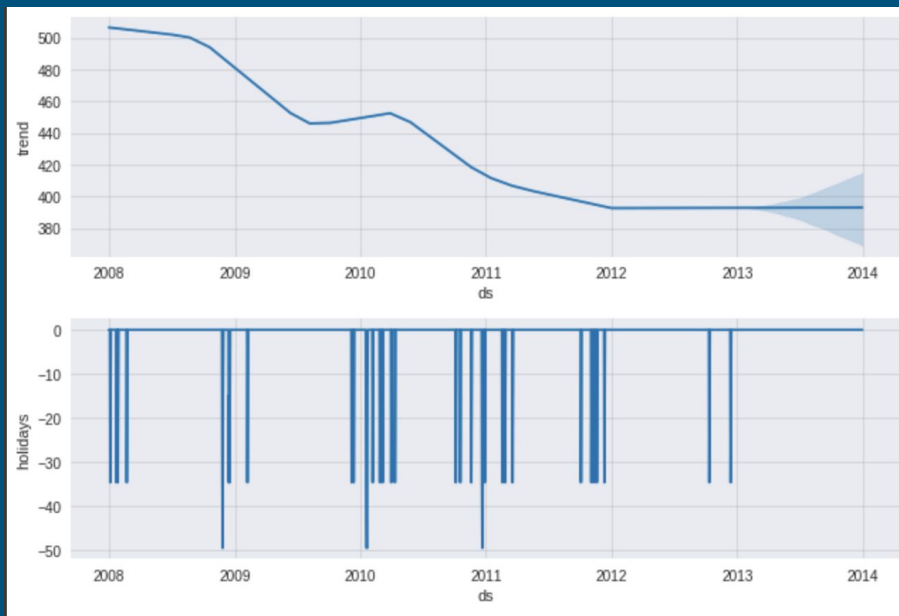


Crime Forecast - NY

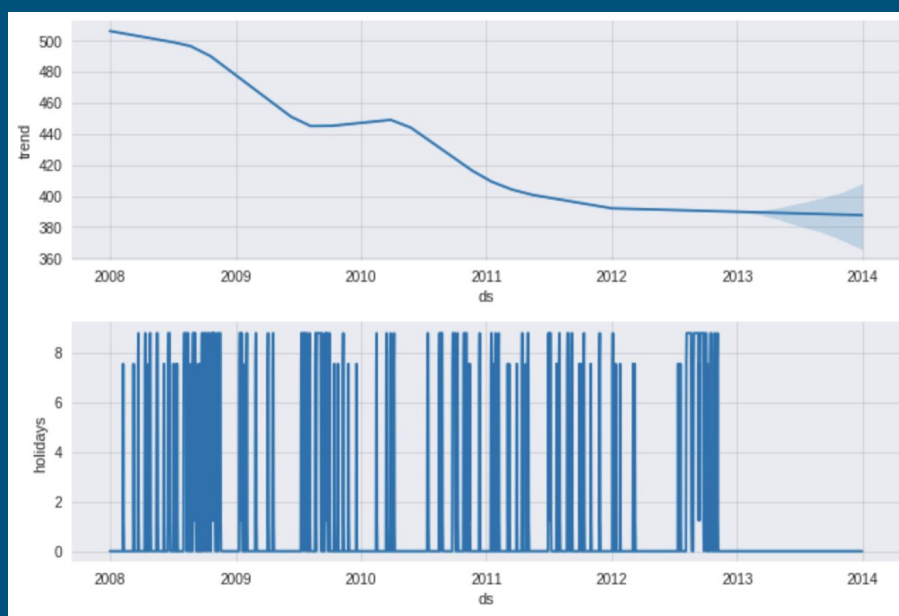


Crime Forecast - SD

Rainy Days

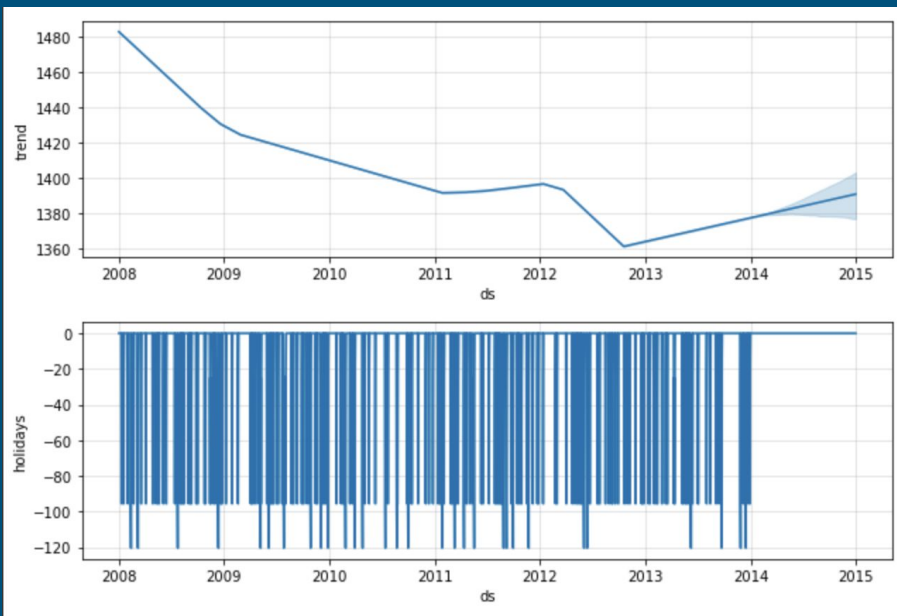


Hottest Days

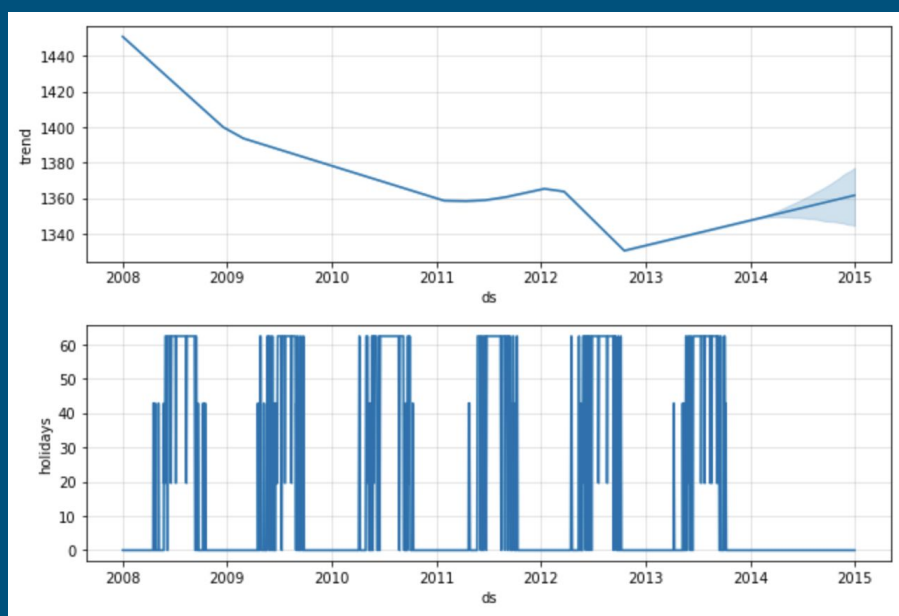


Crime Forecast - NY

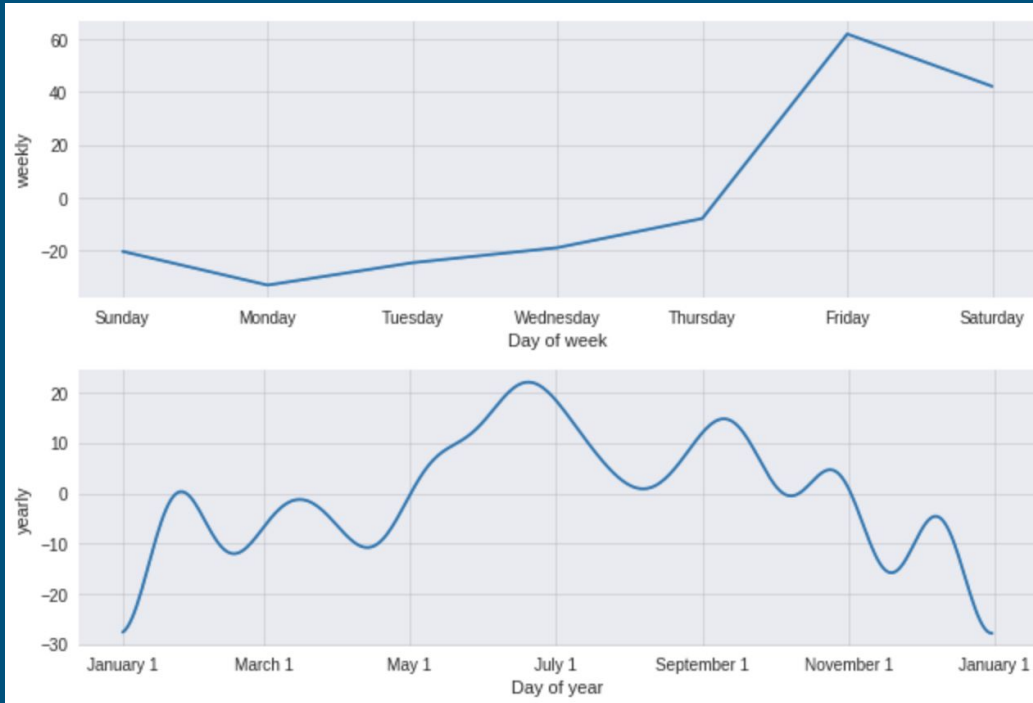
Rainy Days



Hottest Days

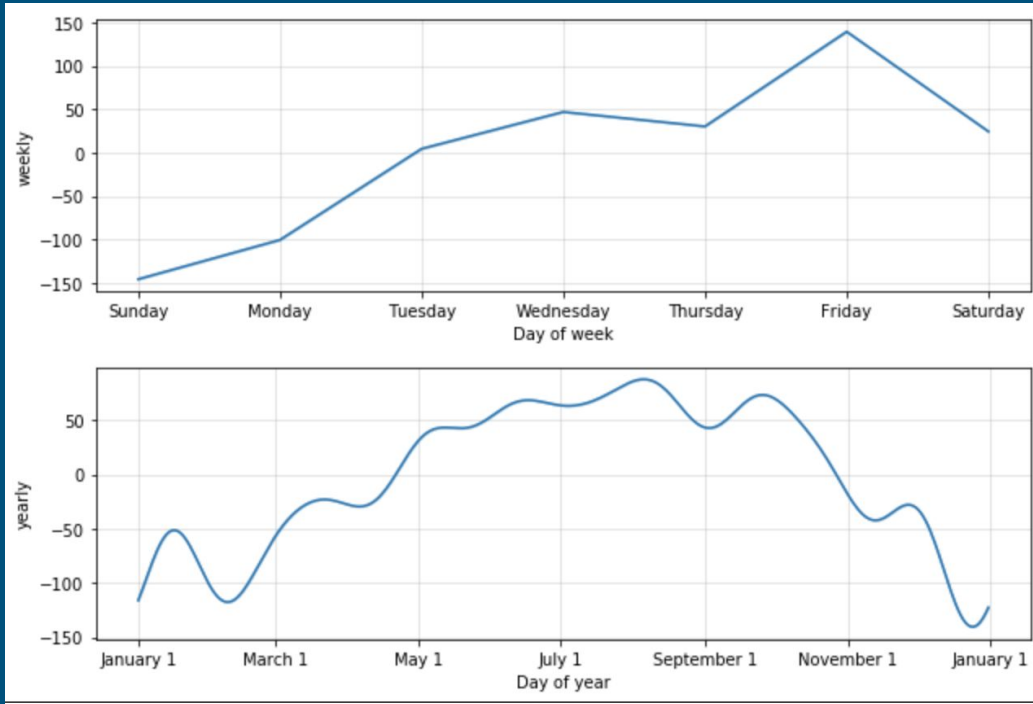


Crime Forecast - SD



- Spike in crime on Fridays
- Boost in crime in the summer, especially July

Crime Forecast - NY

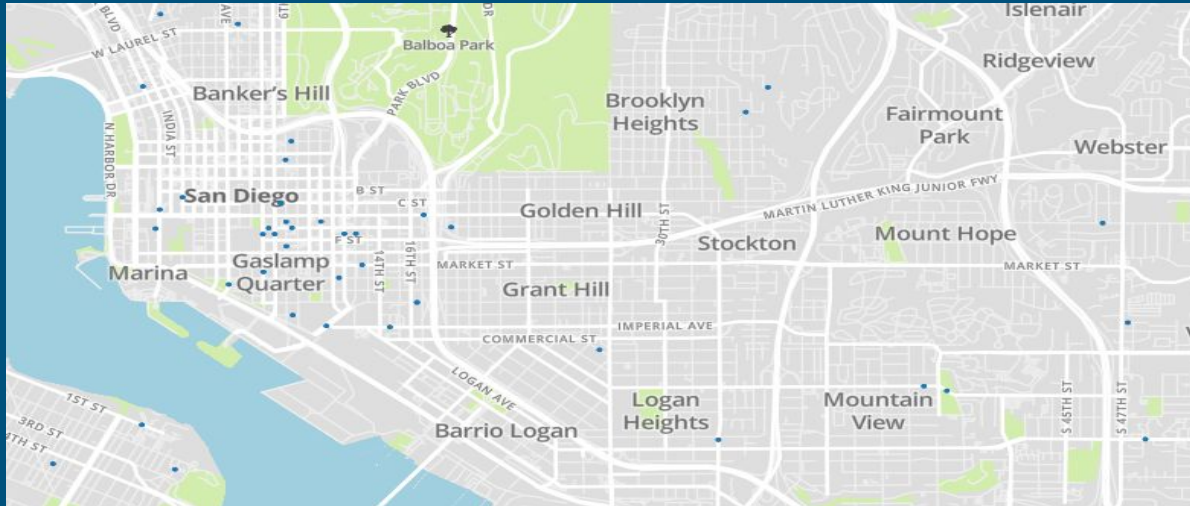


- Spikes in crimes on Fridays
- Warmer months particularly active for criminals, peaking in August

Interactive Crime Map - SD

<https://plot.ly/~bjniskal/18> (hottest day: 2012-09-15)

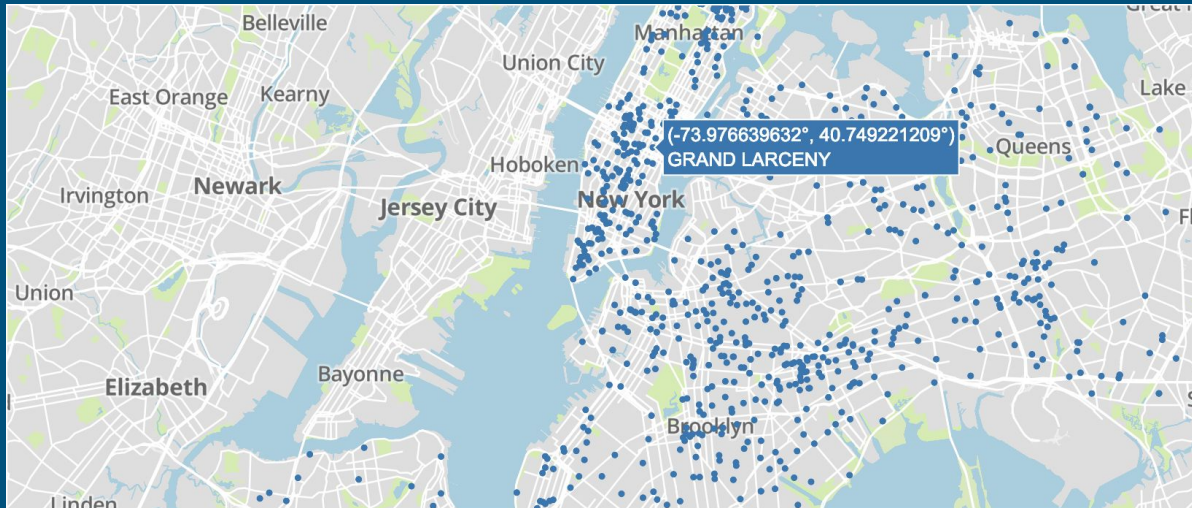
<https://plot.ly/~bjniskal/20> (coldest day: 2011-12-13)



Interactive Crime Map - NY

<https://plot.ly/~bjniskal/12> (hottest day: 2011-07-22)

<https://plot.ly/~bjniskal/14> (coldest day: 2009-01-16)



Recommendations

- Increase budget for policemen in the summer
 - Increase staffing on Fridays/Saturdays
- Offer VTO for officers on rainy days
- Safety Education Campaign:
 - Be more aware of your surroundings on nicer days
 - Make sure to lock doors and window when you leave the house, especially in the summertime

End- Thank you