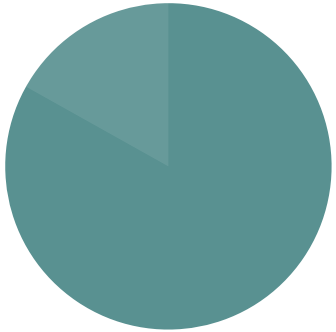
Good Cop, Bad Cop



An analysis of the demographics of the Minneapolis Police Use of Force and US Police Shootings

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Background/Motivation

- We believe that the rate at how police killings and violence in the US have become increasingly common is disturbing.
- Want to know whether certain demographics really make a difference on whether or not someone will experience police violence.

Goal: We hope to find some insight to this question based on several factors from a purely scientific background

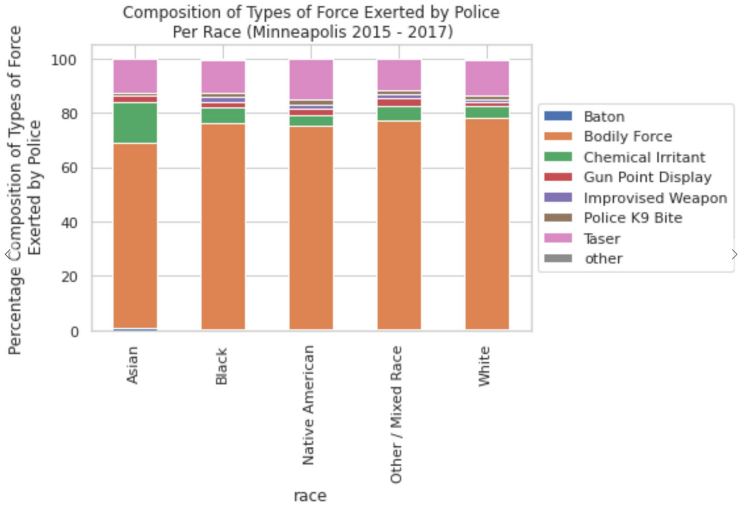
Steps

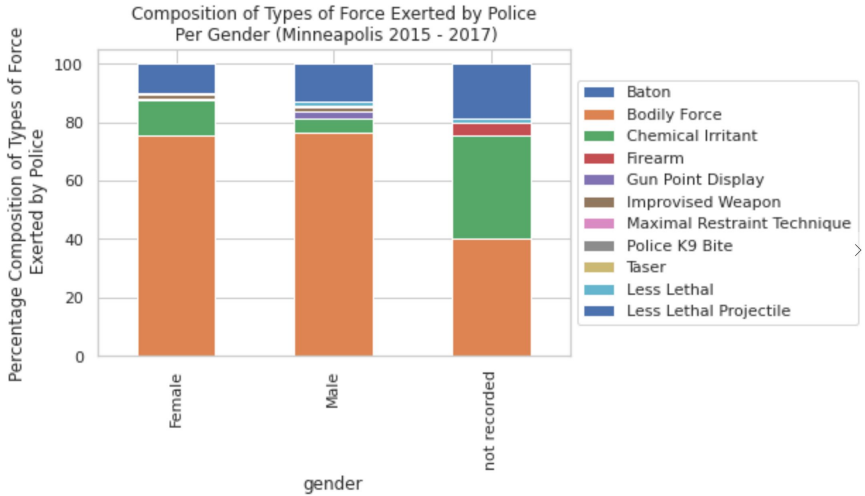
1. Chose datasets to focus on & cleaned the data
    a. US Police Killings (Kaggle)
    b. Minneapolis Police Stops and Police Violence (Kaggle)
2. Developed Preliminary charts to see if there were any key takeaways
3. Compare the differences and find connections in incidents for each demographic
4. Add context (i.e. population, regional crime rates, etc) to visuals
5. Develop a machine learning algorithm that can predict an outcome of a police incident (clustering or decision tree)

Minneapolis Police Stops and Violence - breakdown by race

race	responseDate	problem	personSearch	vehicleSearch	gender	policePrecinct	neighborhood	PrimaryOffense	SubjectInjury	ForceType	ForceTypeAction	EventAge	TypeOfResistance
Asian	2274	2274	1986	1986	2274	2248	2248	288	288	288	288	288	288
Black	63504	63504	51423	51423	63504	63090	63090	12081	12081	12081	12081	12081	12081
East African	7461	7461	7461	7461	7461	7406	7406	0	0	0	0	0	0
Latino	5823	5823	5823	5823	5823	5781	5781	0	0	0	0	0	0
Native American	5371	5371	4306	4306	5371	5322	5322	1065	1065	1065	1065	1065	1065
Other	3697	3697	3697	3697	3697	3651	3651	0	0	0	0	0	0
Other / Mixed Race	795	795	0	0	795	795	795	795	795	795	795	795	795
Pacific Islander	2	2	0	0	2	2	2	2	2	2	2	2	2
Unknown	37403	37403	37198	37198	37403	37240	37240	205	205	205	205	205	205
White	40301	40301	35632	35632	40301	39950	39950	4669	4669	4669	4669	4669	4669
not recorded	157	157	0	0	157	157	157	157	157	157	157	157	157

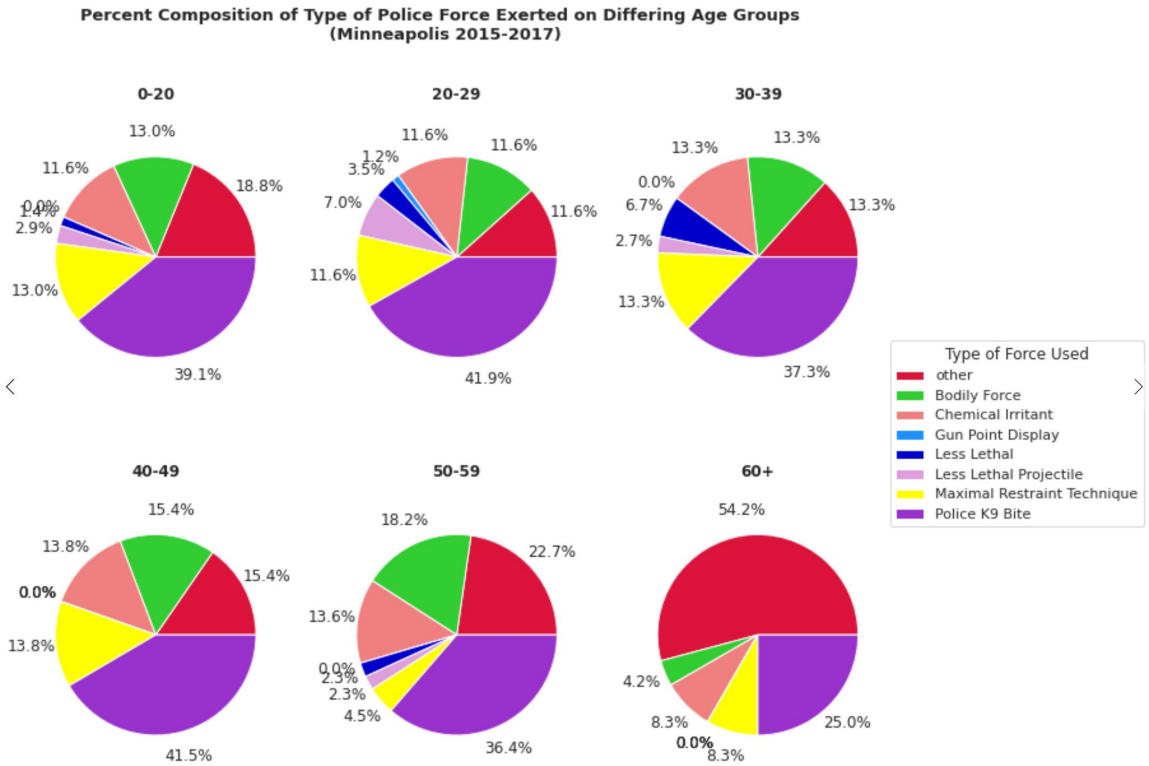
Findings - Force Exerted



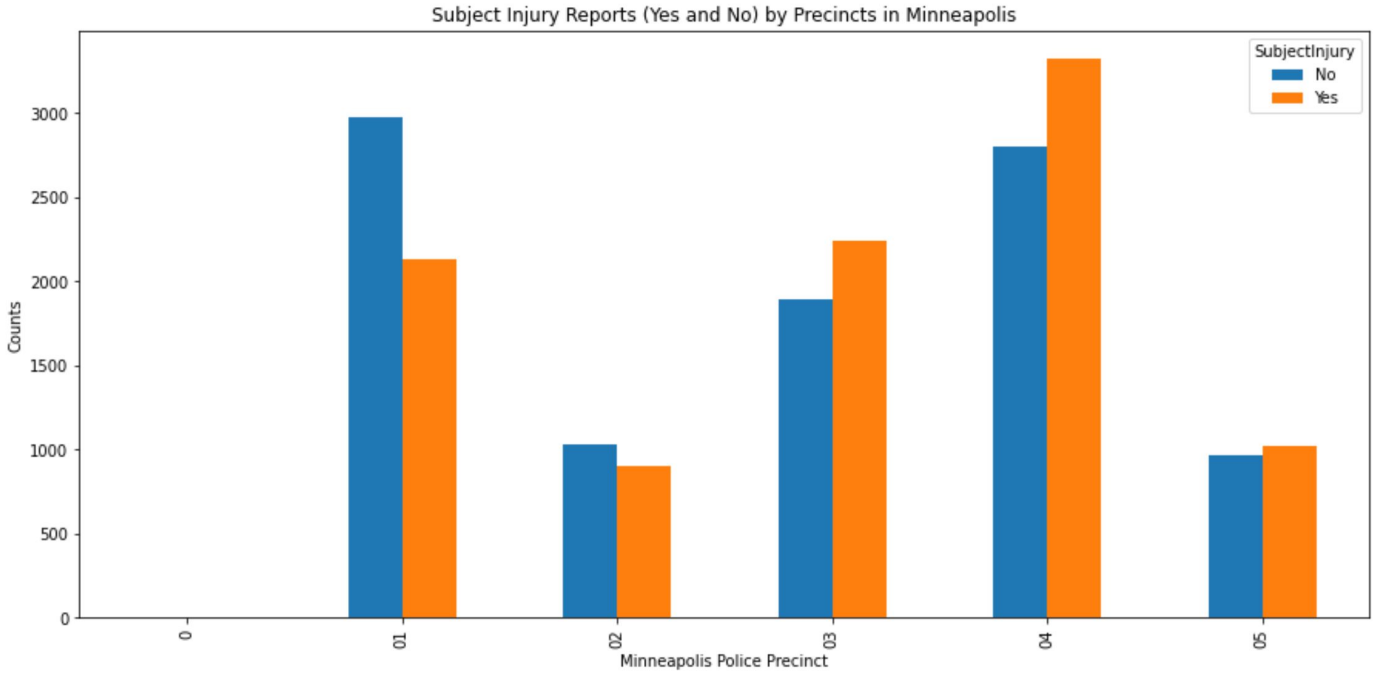


Findings - Force Exerted (cont.)

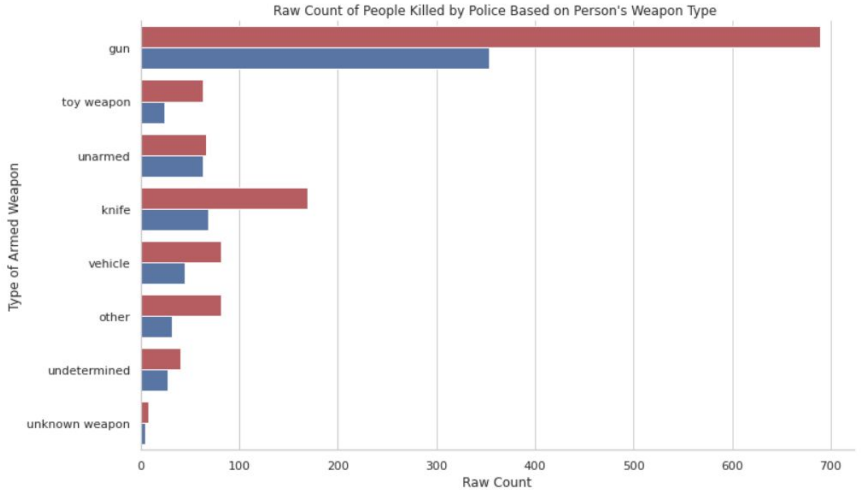
- Older people are more likely to encounter other uses of indirect forces since they are weaker
- Bodily force increases as age increases and drastically drops for the same reason

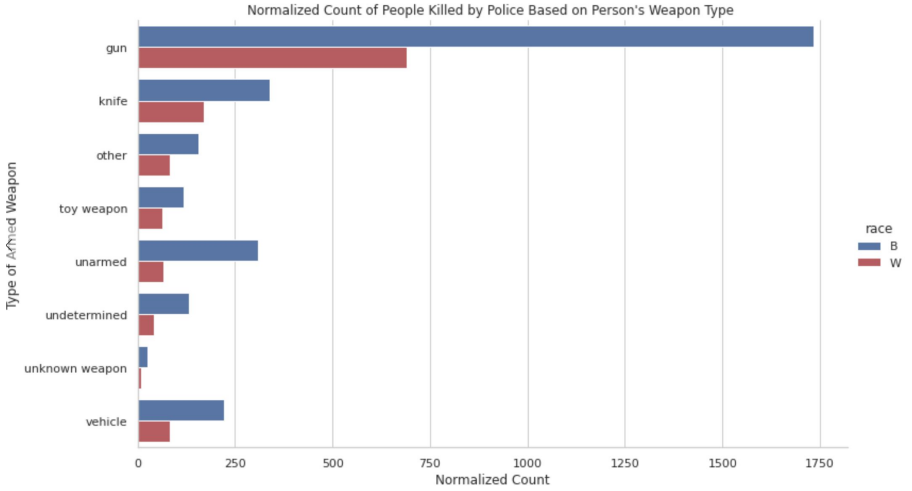


Findings – Subject Injuries by Police Precinct



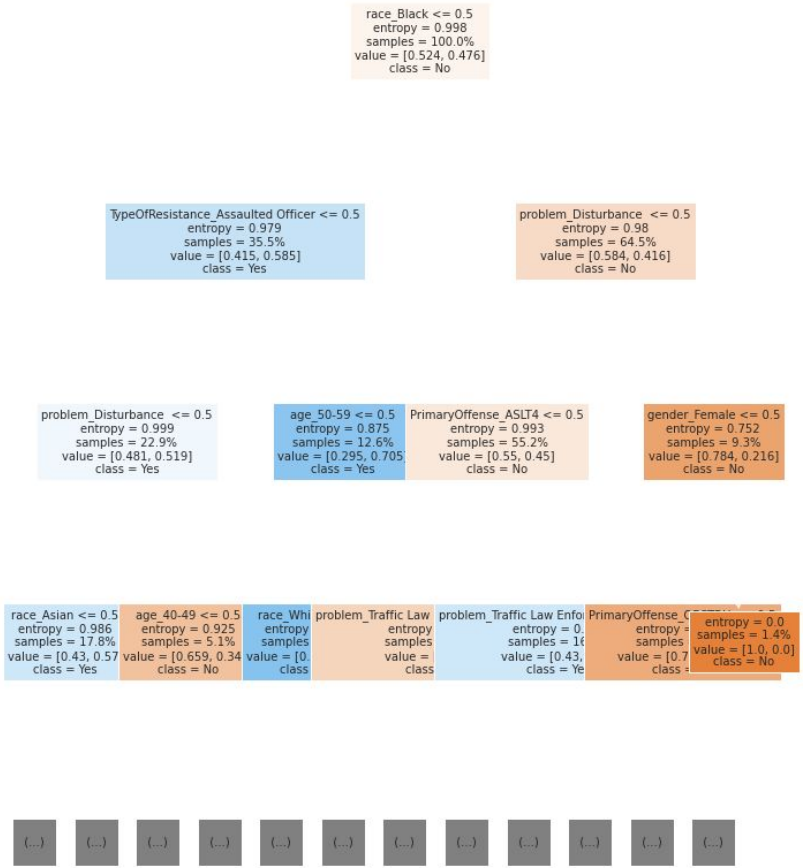
Findings - US Fatal Police Encounters by Weapon Before and after normalization of data





Findings - Classification Tree

- Used One-hot-encoder to preprocess categorical data
- [['race','gender', 'Age', 'PrimaryOffense', 'problem', 'TypeOfResistance', 'SubjectInjury']]
- Problem examples: Suspicious Person, Fight Disturbance ,Domestic Abuse-In Progress
- **Accuracy: 75.19%**
- Increase performance



Impact

- By studying this we hope to bring awareness to any bias related to demographics in hopes to reduce violent police interactions
- Data has potential to discover how different defining characteristics of individuals impact the likelihood of them experiencing violence by police

Next Steps - What now?

If more time allowed, we would ideally continue our research by:

- Modifying and optimizing decision tree performance
- Studying how these deaths and demographics compare to other first world countries
- Include population data to compare trends from city to city
- Look into how officers are trained (on average) across the US and different countries
- Compare the data, draw conclusions on why the trends occur, and create a plan on how to reduce police killings in the US
- Find more quantitative data to use towards clustering and regression