4741 Project Proposal: Chicago Crime Scene Investigation

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1 Background

Chicago, also known as the city of winds, has made various headlines for notorious crime cases consistently since the 19th century. It has been grounds for many notorious perpetrators, such as H.H. Holmes, who is one of the country's first known serial killers in the late 19th century, and the notorious Al Capone, who began his criminal activity in the early 20th century when he joined a Chicago-based gang. In recent years, the homicide rate has significantly gone up, especially in 2016 and during COVID-19 years (2020 - 2022), compared to the years prior (Max, 2023).

Although Chicago ranks 31st for crimes out of all the cities in the nation , it is significantly higher compared to the cities of Illinois' neighboring states and the violent crime rate is higher than the US average (Fieldstadt, 2020). Moreover, its historical precedent with crime has exhibited an existing relationship between crime and violence in the city. Given that Chicago is home to 2.7 million people, it is imperative to analyze the crimes to help set preventative measures moving forward.

Lastly, it has been established by many studies that there is "evidence to support a positive, linear association between temperature and rates of violent crimes" (Corcoran, 2022). As Chicago is known for its hot summers and cold winters, it would be worthwhile to look into the weather's impact on crime rates.

2 Question

We believe that the following question will help analyse insightful information regarding crimes in Chicago:

Is there a way to predict types of crimes made given the neighbourhood and the weather?

3 Datasets

The Crimes in Chicago dataset reflects reported crime incidents (except murders where data exists for each victim) that occurred in the City of Chicago from 2001 to March 2023. Data is extracted from the Chicago Police Department's CLEAR (Citizen Law Enforcement Analysis and Reporting) system. This dataset contains information such as location and type of crime, combining to 7,755,580 records which gives us enough data to be able to conduct Machine Learning and data analytic procedures and draw relevant conclusions. Moreover, we will use the Climate dataset in conjunction with the dataset mentioned above to predict the types of crimes to be made given the neighborhood and the weather.

4 Importance

The citizens of Chicago have been long suffering from the lack of safety in their city. Being able to predict certain crimes that may occur based on location and weather can help reduce present crime rates and stop crimes from occurring in the future. This can allow police to be better prepared for incidents and increase patrol around certain areas based on the prediction made from the data collected. The abundance of data that we have also increases the reliability of our research goals, particularly with its correlation to historical trends. Moreover, there have been previous research publications suggesting correlative relationships between variables such as Weather and crime. Thus, our research proposal should provide us with substantial results that can help Chicago combat crime more efficiently.

5 Citations

Corcoran, J., Zahnow, R. (2022). Weather and crime: A systematic review of the empirical literature. Crime Science, 11, Article16. https://doi.org/10.1186/s40163-022-00179-8

Fieldstadt, E. (2020, November 9). The most dangerous cities in America, ranked. CBS News. Retrieved March 19, 2023, from https://www.cbsnews.com/pictures/the-most-dangerous-cities-in-america/2/

Max, H. (2023, February 21). CHICAGO CRIME SPIKES IN 2022, BUT FIRST DROP IN MURDER SINCE PANDEMIC. Illinois Policy. Retrieved March 19, 2023, from https://www.illinoispolicy.org/chicago-crime-spikes-in-2022-but-first-drop-in-murder-since-pandemic/