CAPSTONE KAROLINA NIKOLAJEW

**“A Curious Case of Crime: Does the Death Penalty Deter Lethal Crimes? An Exploratory Look at Six U.S. Cities and Statewide Socioeconomic Review”**

**Executive Summary**

*This project explores whether the presence of the death penalty at the state level influences the rates of lethal crimes—including justifiable homicide, voluntary and involuntary manslaughter, and potential homicide cases. The primary analysis centers on six major U.S. cities: Chicago (IL), Houston (TX), Phoenix (AZ), Minneapolis (MN), Milwaukee (WI), and San Francisco (CA).*

*These cities were chosen to represent a diverse mix of states with and without the death penalty. The project compares lethal crime patterns across these cities to assess if capital punishment policies correlate with lower rates of violent deaths.*

*As a secondary focus, statewide data on education levels, poverty, and unemployment will be incorporated to explore how broader socioeconomic conditions may also influence lethal crime rates across the U.S., providing important context for evaluating the effectiveness of the death penalty.*

*Additionally, the project will examine the impact of COVID-19 on crime rates, as the pandemic may have disrupted social, economic, and law enforcement dynamics, potentially influencing crime patterns during this period.*

**Motivation**

*The question of whether the death penalty deters crime has long been debated in both legal and public policy circles. This project contributes to the conversation by investigating whether cities in states that enforce the death penalty experience lower rates of lethal crimes.*

*However, crime rarely stems from a single cause. Broader conditions like poverty, education, and job opportunities play critical roles in shaping violent outcomes. By incorporating these socioeconomic indicators, this project aims to deliver a more comprehensive understanding of what drives lethal crime—and whether capital punishment makes a measurable difference.*

**Data Question**

*Does the presence of the death penalty in a state correlate with lower rates of lethal crimes in major cities within those states?*

*What are the trends in lethal crimes (2020–2024) in Chicago, Houston, Phoenix, Minneapolis, Milwaukee, and San Francisco?*

*Do cities in death penalty states show different patterns compared to those in non-death penalty states?*

*How do poverty rates, education attainment, and unemployment levels correlate with state-level lethal crime rates?*

**Minimum Viable Product (MVP)**

*This project will involve cleaning and analyzing homicide data from 2020–2024 for the six selected cities using Python, comparing patterns across states with and without the death penalty.* *At the city level, homicide trends will be paired with poverty and education statistics to explore local socioeconomic influences. At the state level, homicide data will be examined alongside unemployment rates to identify broader economic patterns. All findings will be visualized in an interactive Power BI dashboard, including city and state comparisons, death penalty status, and correlations with poverty, education, and unemployment.*

**Schedule (through <date of demo day>)**

1. Get the Data (03/29/2025)
2. Clean & Explore the Data (04/11/2025)
3. Create Presentation of your Analysis (04/18/2025)

* Should be a presentation, but could include a Jupyter Notebook or dashboard in Excel, Tableau, or PowerBI

1. Internal demos (<04/18/2025)
2. Demo Day!! <04/25/2025

**Data Sources**

<https://www.houstontx.gov/police/cs/Monthly_Crime_Data_by_Street_and_Police_Beat.htm> - houston dataset (needs to be cleaned up )

<https://data.cityofchicago.org/Public-Safety/Crimes-2001-to-Present/ijzp-q8t2/about_data> - chicago dataset (needs to be cleaned up)

<https://opendata.minneapolismn.gov/datasets/cityoflakes::crime-data/about> - Minneapolis dataset (needs to be cleaned up)

<https://data.milwaukee.gov/dataset/wibrarchive/resource/395db729-a30a-4e53-ab66-faeb5e1899c8> - Milwaukee dataset (needs to be cleaned up)

<https://data.sfgov.org/Public-Safety/Police-Department-Incident-Reports-2018-to-Present/wg3w-h783/about_data> - San Francisco dataset (needs to be cleaned up)

<https://www.phoenixopendata.com/dataset/crime-data> - Phoenix dataset (needs to be cleaned up)

<https://data.census.gov/> - population and poverty/education levels dataset

<https://www.kaggle.com/datasets/justin2028/unemployment-in-america-per-us-state?utm_source=chatgpt.com> – unemployment data (clean, need to merge)

<https://corgis-edu.github.io//corgis/csv/state_crime/> - crimes per state (clean already)

**Known Issues and Challenges**

*Several challenges are anticipated during the project:*

1. ***Categorizing Data:*** *All 6 city crime datasets contain many categories that will need to be simplified into broader, meaningful groups for analysis.*
2. ***Data Cleaning and Merging:*** *The datasets from 6 cities will require extensive cleaning, including renaming columns for consistency, and merging them into a single, unified dataset. Additionally, I will need to clean up and format the unemployment data for integration with the crime data.*
3. ***ZIP Code to County Mapping:*** *Since the datasets contain ZIP codes but not county information, I will need to map ZIP codes to their respective counties to enable county-level visualizations in Power BI.*
4. ***Time Extraction:*** *Extracting time of day, hour, year and month from the date columns will be necessary to analyze crime patterns by time.*
5. ***Visualization Complexity:*** *Ensuring that the data visualizations in Power BI are clear and effectively represent the relationships between crime rates, the death penalty, and unemployment across multiple dimensions will be a challenge, especially with a large dataset.*
6. ***Crime Rates per Capita:*** *I have chosen six cities—Chicago, Houston, Phoenix, Minneapolis, Milwaukee, and San Francisco—for this analysis. These cities have been selected to represent a mix of states with and without the death penalty. To present crime data accurately, I will adjust for population size, as crime numbers alone may not provide a clear picture. Each city will be matched with another city on the same slide—one from a state with the death penalty and one from a state without it. To do this, I will add a new table with population data*

*for each city, ensuring that comparisons are made on a per capita basis. This will help illustrate crime rates relative to the population and provide a clearer understanding of crime trends in each city. to calculate crime rates per capita (e.g., crimes per 100,000 people) to ensure the data is presented in a meaningful way.*

*Additionally, I will calculate the percentage change in crime for each city per year to identify trends over time, allowing for a clearer understanding of how crime rates are evolving and whether changes align with the presence or absence of the death penalty.*

*03/29/2025,*

*Karolina Nikolajew*