

# Analyzing Serious Crime Trends in Louisville

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This project aims to analyze and model serious crimes in the city of Louisville, Kentucky, utilizing a diverse dataset comprising crime incident reports, police division data, and weather information. The primary objectives of this study are to define and classify serious and violent crimes, isolate a specific police district for comparative analysis, and employ linear regression techniques to identify key factors influencing crime rates. Additionally, temperature data from the Louisville area will be integrated into the analysis to investigate its impact on crime patterns. Furthermore, the study seeks to introduce a novel feature related to holidays and assess its correlation with crime occurrences. The research acknowledges the challenge of comparing crime reporting methodologies before and after 2022, as well as changes in offense codes in 2023. The dataset includes essential attributes such as incident number, dates, offense classification, location details, and police division information, facilitating a comprehensive examination of crime trends and contributing to enhanced crime prevention strategies in Louisville. This project aligns with the broader goal of improving law enforcement and public safety efforts within the Louisville Metro Police Department.

## Data Sources:

- Crime Incident Reports: Detailed records of reported incidents, including incident numbers, dates, locations, and offense classifications, Information about LMPD divisions, beats, and organizational structure([Link to Dataset](#))
- Weather Data: Temperature data obtained from the Visual Crossing Weather Data Services website([Link to Dataset](#))
- Holiday Feature: Incorporation of holidays as a new feature in crime analysis.

By combining these datasets and conducting advanced statistical analysis, this research seeks to provide valuable insights into the dynamics of serious crime in Louisville, offering a foundation for evidence-based policy decisions and community safety initiatives.