

Report: Analysis of Violent Crime Rate Change in Baltimore City (2019-2023)

Introduction:

The Baltimore City Police Department (BPD) has commissioned an analysis to examine the changes in violent crime rates between 2019 and 2023. The primary objective is to understand overall trends in violent crime and identify neighborhoods experiencing significant increases or decreases in crime rates. The analysis focuses on murders, shootings, and aggravated assaults.

Methods:

I conducted the analysis using Python programming language, leveraging the pandas library for data manipulation and analysis, and matplotlib for data visualization. The dataset used for analysis was obtained from the City of Baltimore's Open Baltimore portal.

Results:

Overall Crime Rate Change:

The total number of violent crimes in Baltimore City increased from 2019 to 2023. In 2019, there were **46609** violent crimes reported, while in 2023, this number rose to **50756**. This represents a **8.170462605406257%** increase in violent crime rate over the four-year period.

Top 5 Neighborhoods with Greatest Increase in Violent Crime:

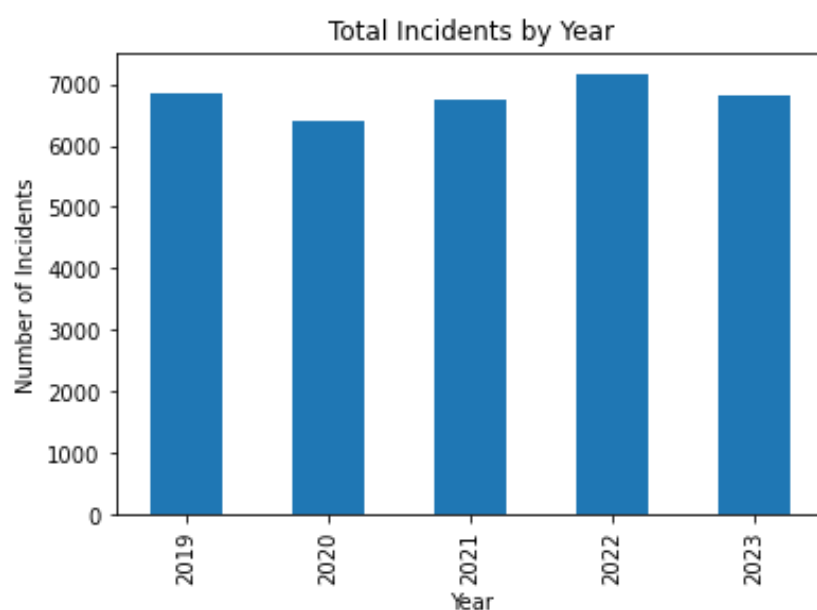
Year	2019	2020	2021	2022	2023	Change
Neighborhood						
BROOKLYN	163	139	129	169	218	55
CHARLES NORTH	43	42	47	62	71	28
BAYVIEW	7	18	13	17	34	27
FALLSTAFF	18	13	16	29	42	24
CHERRY HILL	98	90	121	129	120	22

Top 5 Neighborhoods with Greatest Decrease in Violent Crime:

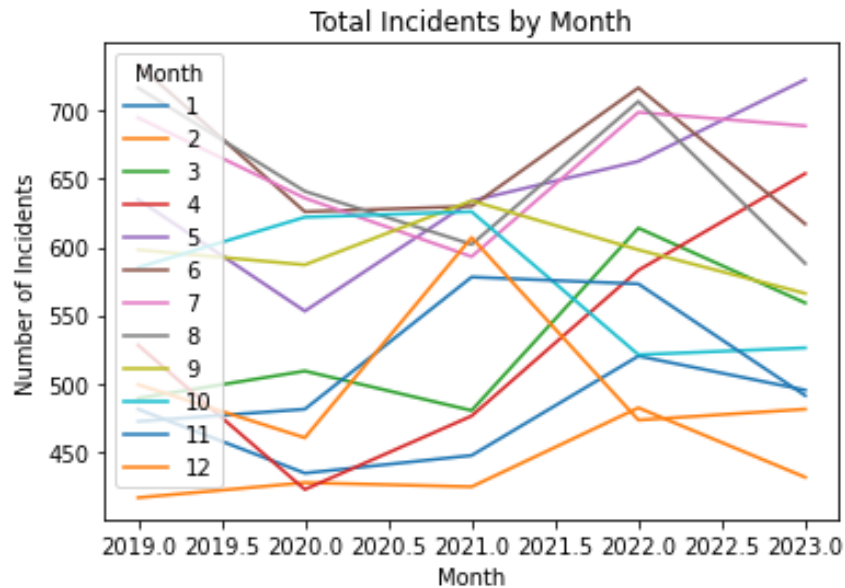
Year	2019	2020	2021	2022	2023	Change
Neighborhood						
EAST BALTIMORE MIDWAY	110	77	86	97	54	-56
CARROLLTON RIDGE	135	137	125	108	90	-45
BROADWAY EAST	111	91	151	84	66	-45
DUNBAR-BROADWAY	108	89	62	72	64	-44
BEREA	79	60	37	63	36	-43

Visualizations:

1.Bar chart showing the total number of incidents for each year



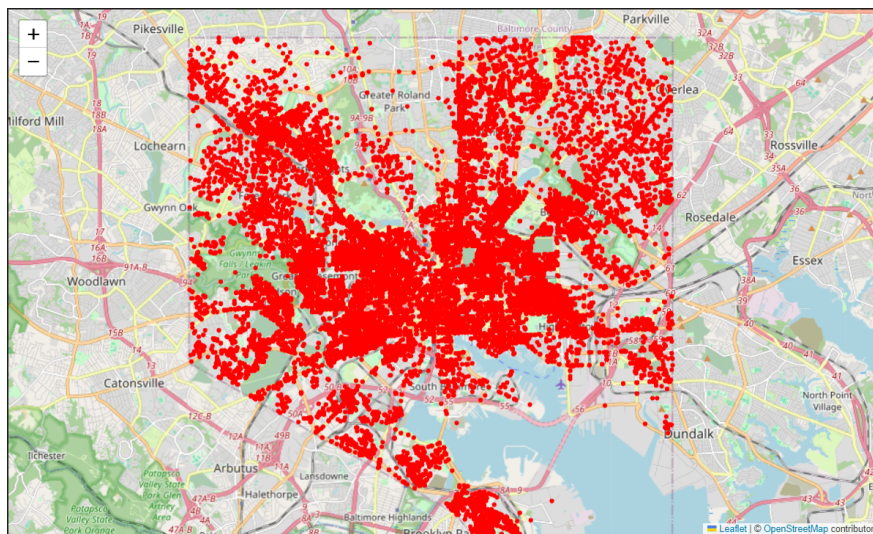
2.Line graph for calculate the total number of incidents for each month in each year



Observations:

- December is the month where least number of crimes are detected.
- June month has highest number of crimes for most of the years.

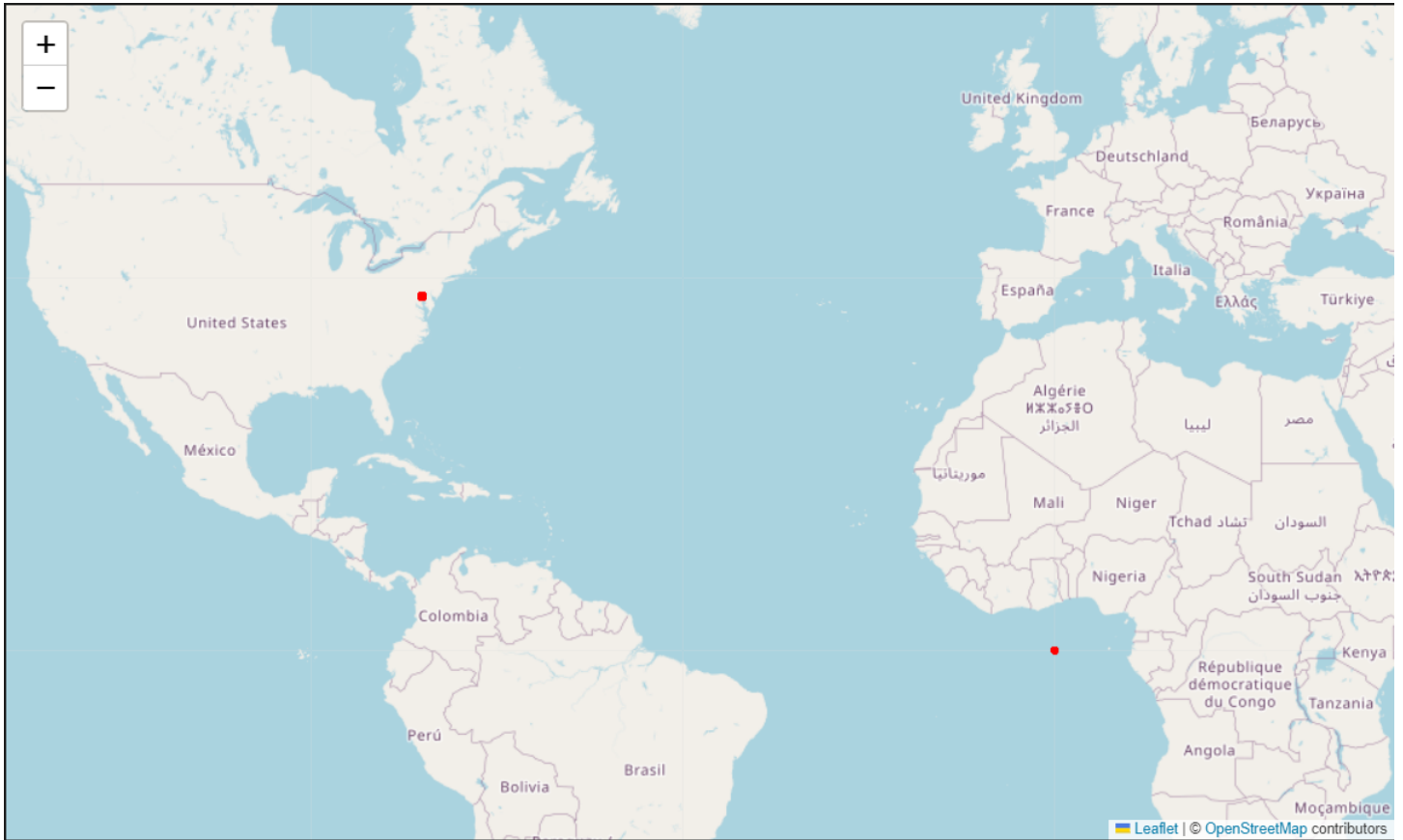
3. Create a map centered on Baltimore



This is one of the best visualization to know where the crime is happened.

while I am going through the detailed analysis I have found that there are some crimes in the ocean under Nigeria.

So I we have some wrong locations in our dataset.



Conclusion:

The analysis reveals a concerning trend of increasing violent crime rates in Baltimore City between 2019 and 2023. While some neighborhoods experienced significant decreases in crime, others saw substantial increases. The BPD should focus its resources on addressing the underlying factors contributing to these trends and implementing targeted interventions to reduce violent crime rates in the most affected areas.

Recommendations:

- Increase community policing efforts in neighborhoods experiencing the greatest increases in violent crime.
- Enhance collaboration with local organizations and community leaders to implement violence prevention programs.
- Allocate resources for targeted enforcement strategies in high-crime areas.
- Invest in initiatives aimed at addressing socioeconomic disparities and improving access to education, employment, and social services.

Limitations:

- The analysis is based on reported crime data, which may not fully capture all incidents of violent crime.
- Changes in crime reporting practices or data collection methods over time could affect the comparability of crime rates between years.

- Other factors such as population changes, economic conditions, and policing strategies may also influence violent crime rates.

Code:

The Python code used for data analysis and visualization is available upon request.

References:

City of Baltimore Open Baltimore portal

Contact Information:

For inquiries or further assistance, please contact **410-949-9977**.

This report provides a comprehensive analysis of violent crime rate change in Baltimore City between 2019 and 2023, addressing the objectives outlined by the Baltimore City Police Department. The findings and recommendations presented aim to inform strategic decision-making and resource allocation efforts aimed at reducing violent crime and improving public safety in the city.