



# Chicago Crime Analysis



2010-2024  
Chi-Town Coders



# Data Cleaning & Quality Concerns

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## **Observation:**

During our analysis, we observed discrepancies between the raw data and the calculated metrics, such as crime rates and arrest rates. Specifically, the numbers in the raw data did not always align with the trends and correlations identified. This inconsistency suggests that the data may be skewed or contain inaccuracies, which could potentially affect the reliability of our findings.

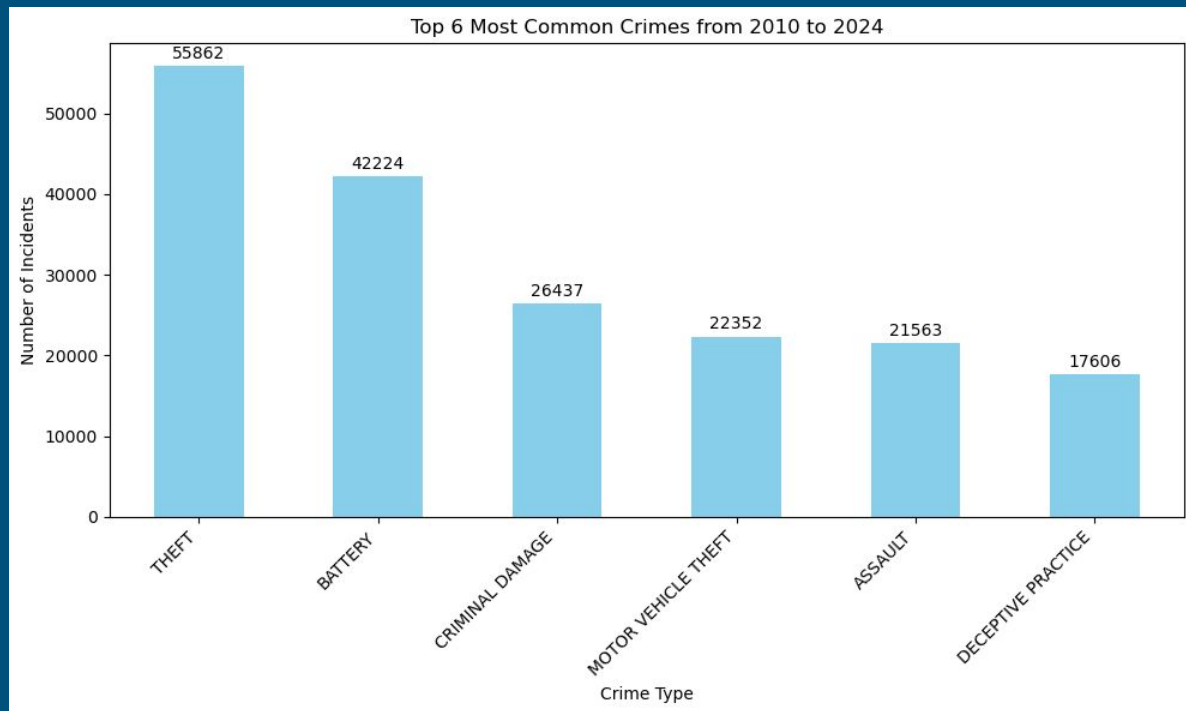
## **Implication:**

The potential skewness or inaccuracy in the data highlights the need for cautious interpretation of the results. Policymakers, law enforcement, and other stakeholders should consider these discrepancies when using the findings to inform decisions. It may also be necessary to further investigate the data sources and methodologies used in data collection to ensure accuracy. Future analyses might benefit from cross-referencing with additional data sources or conducting data validation checks to improve the robustness of the conclusions.

# What are the 6 most common crimes in Chicago from 2010-2024?

## Key Crime Categories:

- Assault
- Battery
- Criminal Damage
- Deceptive Practice
- Motor Vehicle Theft
- Theft



# Which wards are most and least affected by these crimes?

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The most affected wards by the top six crimes are

- 27
- 28
- 6
- 42
- 4

The least affected wards by the top six crimes are

- 45
- 13
- 19
- 23
- 38

# Ward 27

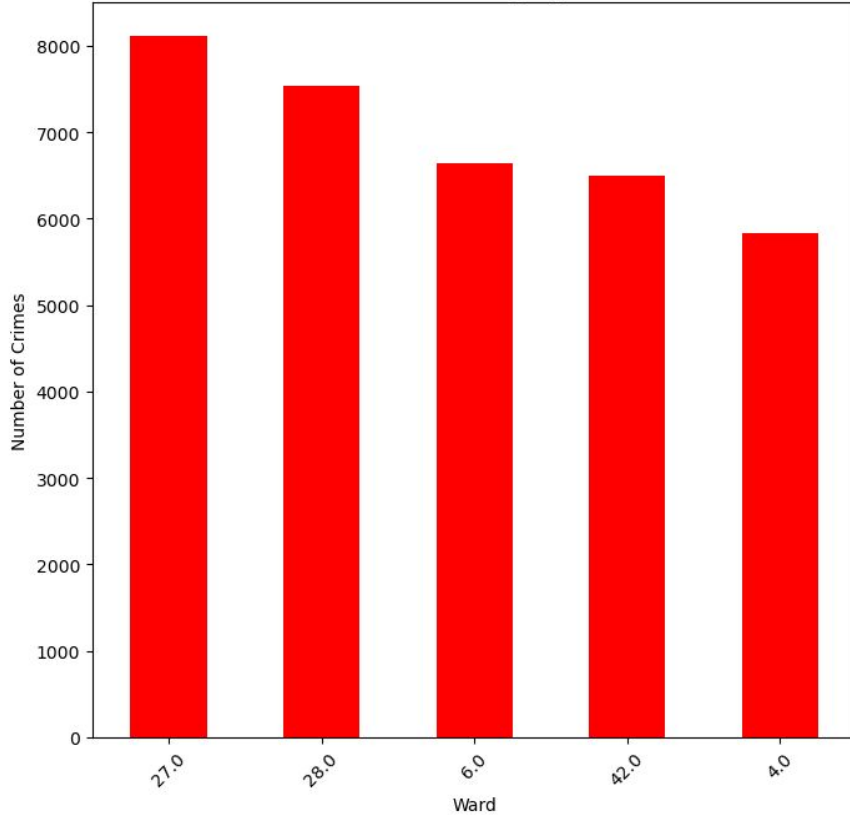
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Ward 27 includes the areas of the Near North Side, River West, West Loop, and Humboldt Park.

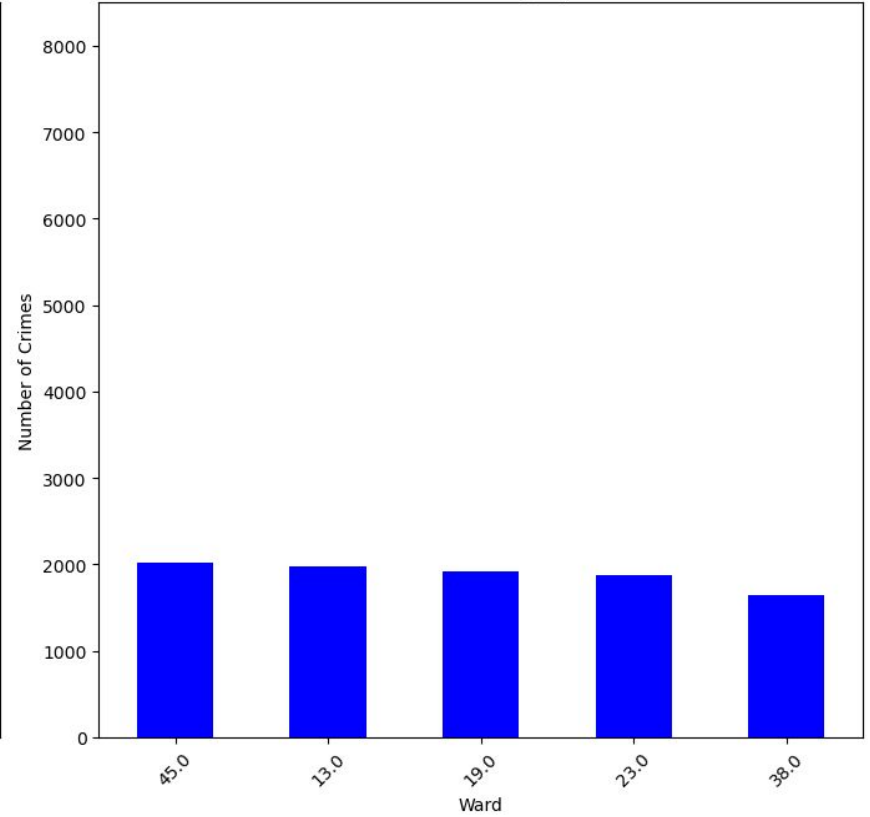
# Ward 38

Ward 38 is on the far Northwest side of Chicago and includes areas Portage Park, Dunning, Irving Woods, Belmont Terrace, and Belmont Heights.

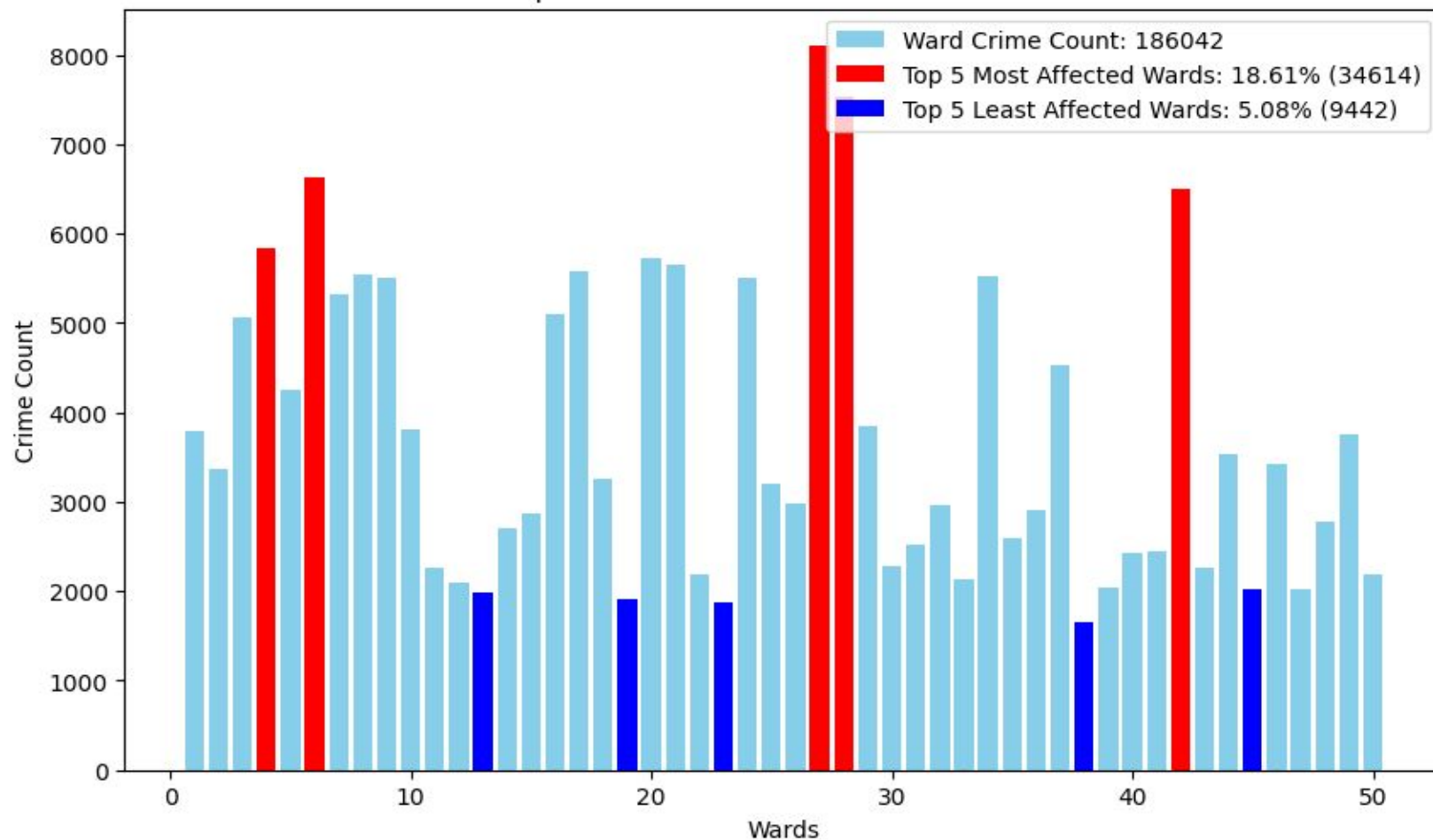
Wards Most Affected by Top 6 Crimes



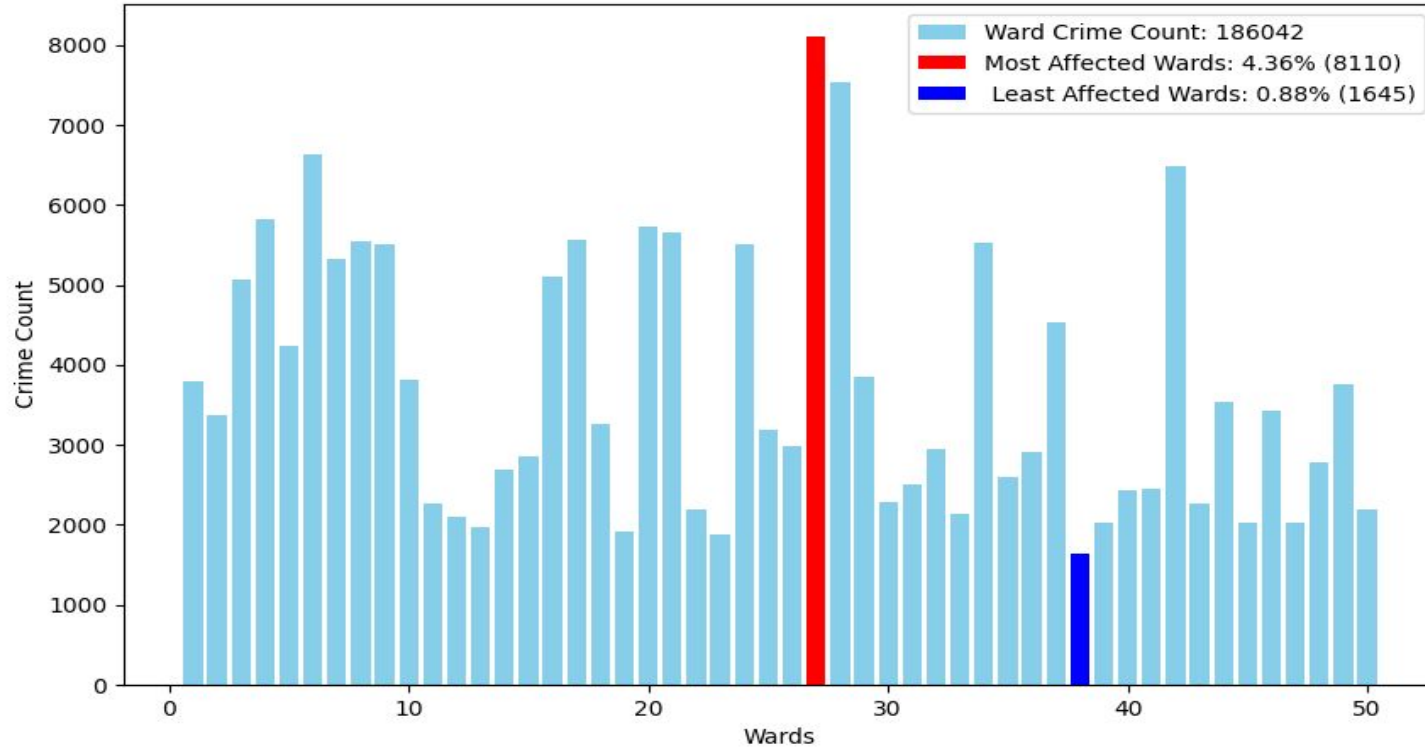
Wards Least Affected by Top 6 Crimes



Top Five Most And Least Affected wards



The Most And Least Affected wards

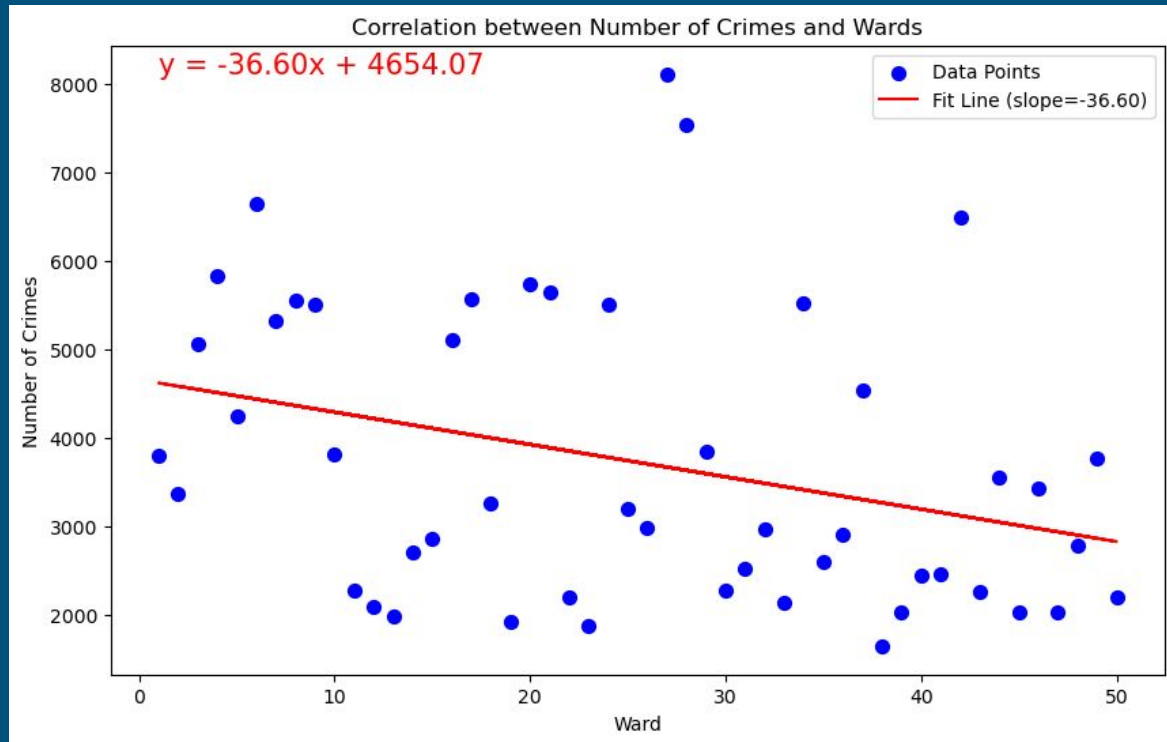




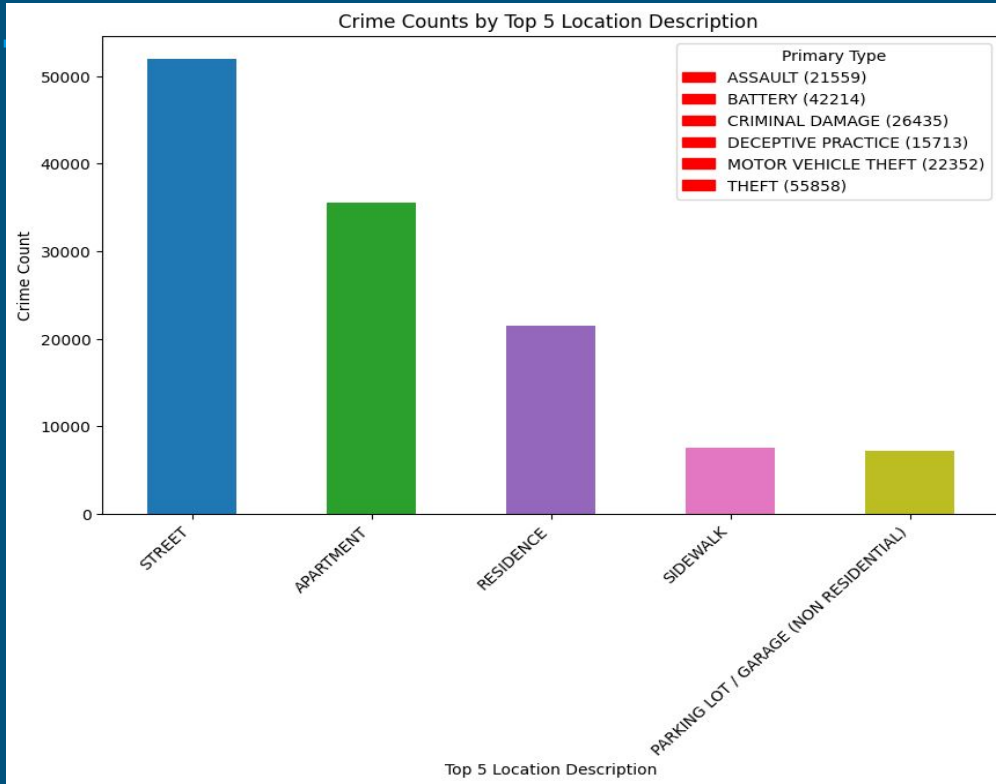
# Is there a correlation between instance of crime and ward?

With an  $R^2$  value of 0.1027, there is a weak correlation between the top 6 crimes and the wards

Chi-Square test results in p-value of 1. We have to reject the hypothesis that there is a correlation between ward and number of crimes.



# Location types show the highest rate of crime



1.Street

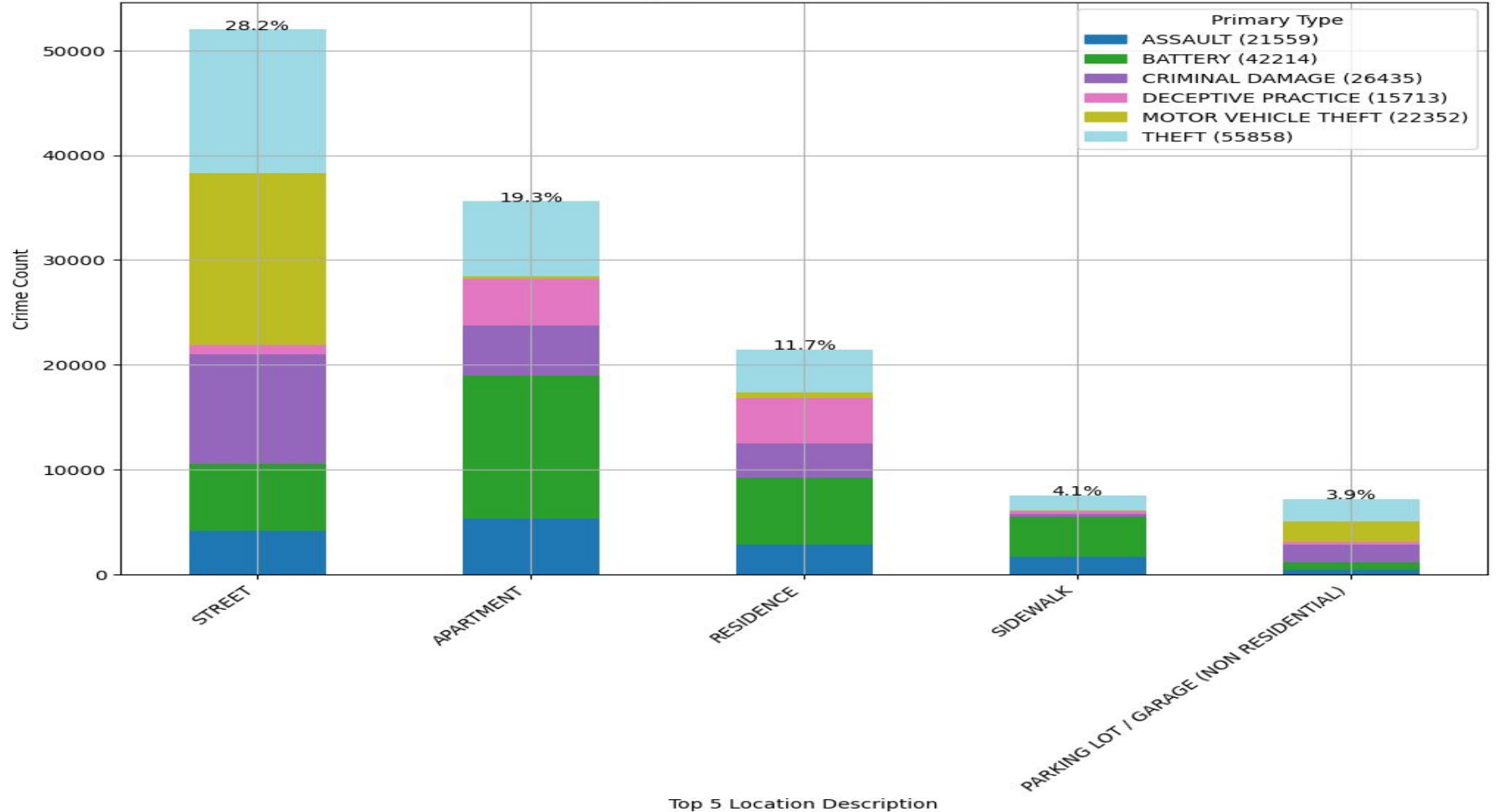
2.Apartment

3.Residence

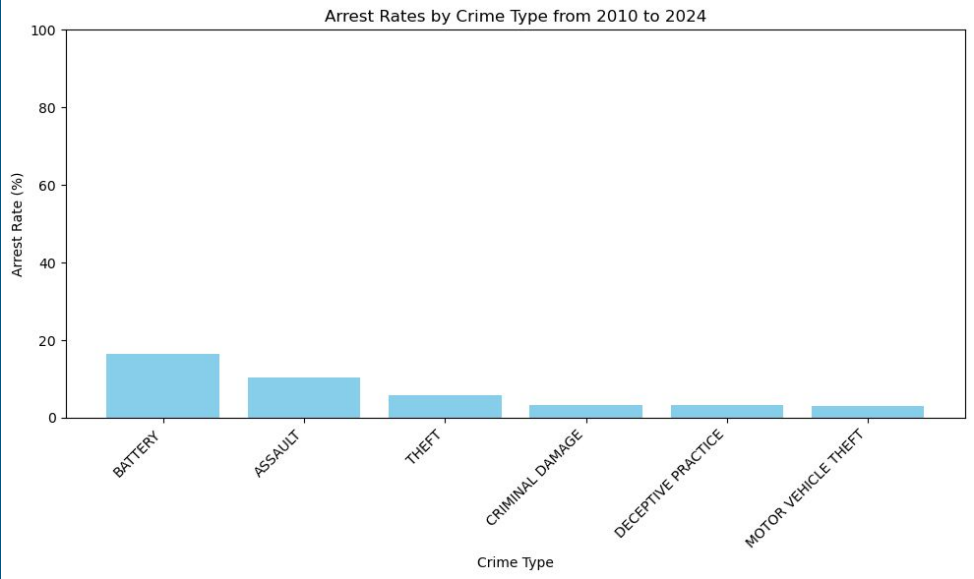
4.Sidewalk

5.Parking lot/Garage (Non Residential)

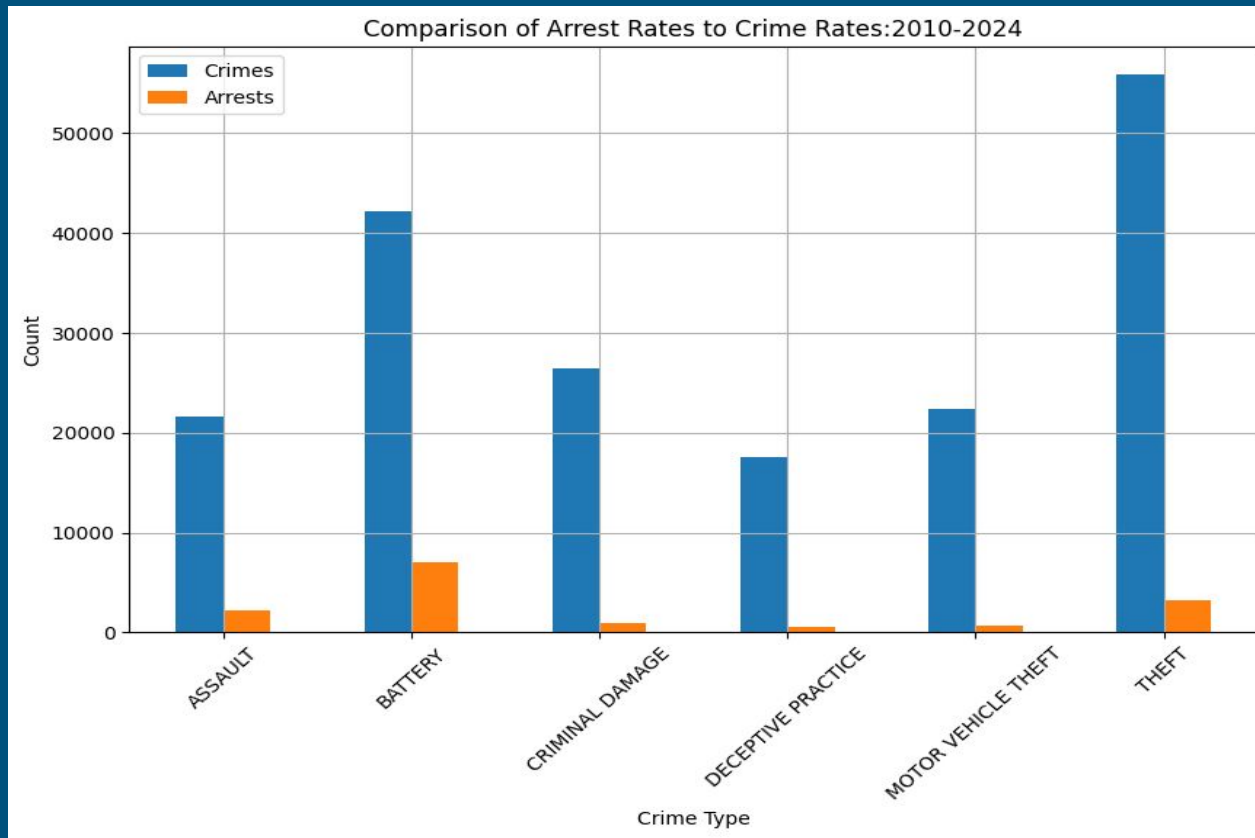
Crime Counts by Top 5 Location Description -2010-2024



# How do arrest rates compare to crime rates?

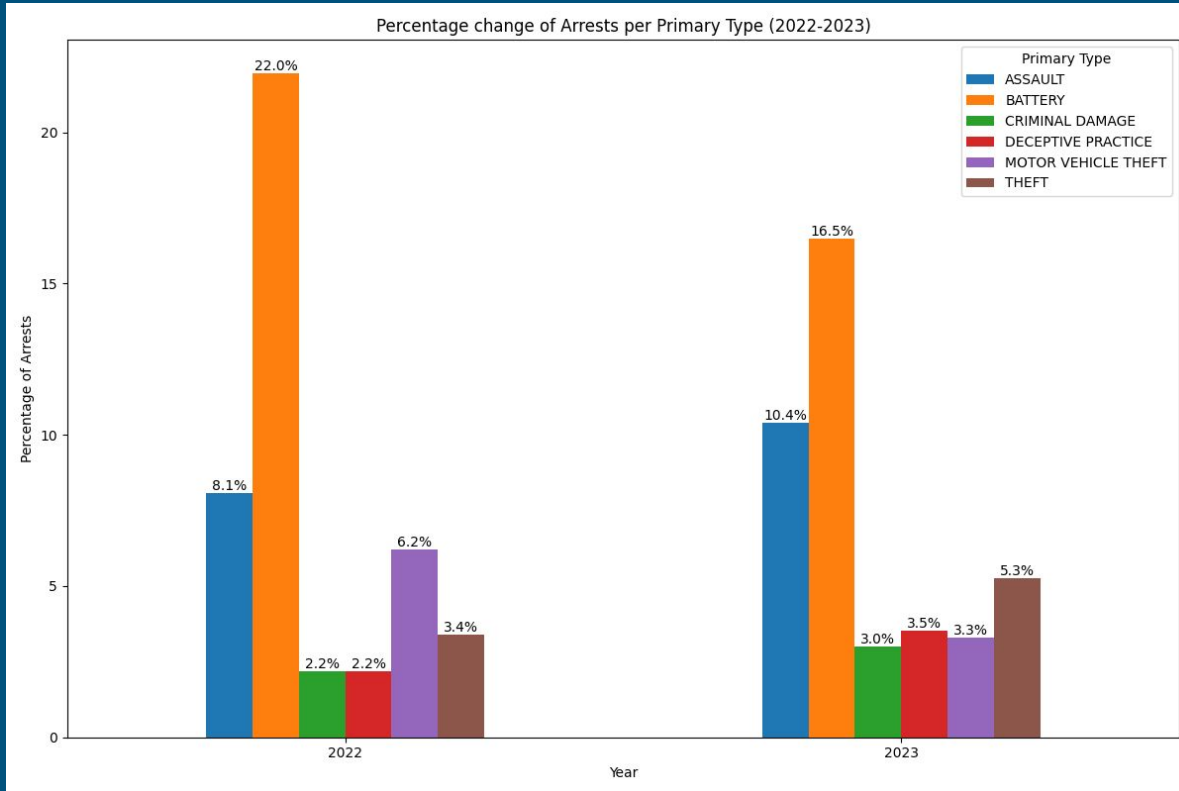


Arrest Rates for Top 6 Crimes (as percentages):			
Primary Type	Total Crimes	Total Arrests	Arrest Rate
BATTERY	42224	6970	16.51
ASSAULT	21563	2218	10.29
THEFT	55862	3265	5.84
CRIMINAL DAMAGE	26437	870	3.29
DECEPTIVE PRACTICE	17606	558	3.17
MOTOR VEHICLE THEFT	22352	701	3.14



**Arrest Rate Analysis:** The arrest rate for each of the top 6 crimes shows variation from the crime prevalence. This may point to greater ease of arrest for certain types of crime, or could be due to overwhelming crime counts making higher arrest rates more difficult for some types of crime. This could also point to how arrest urgency is prioritized for different types of crime.

# How have arrest rates changed from 2022 to 2023?



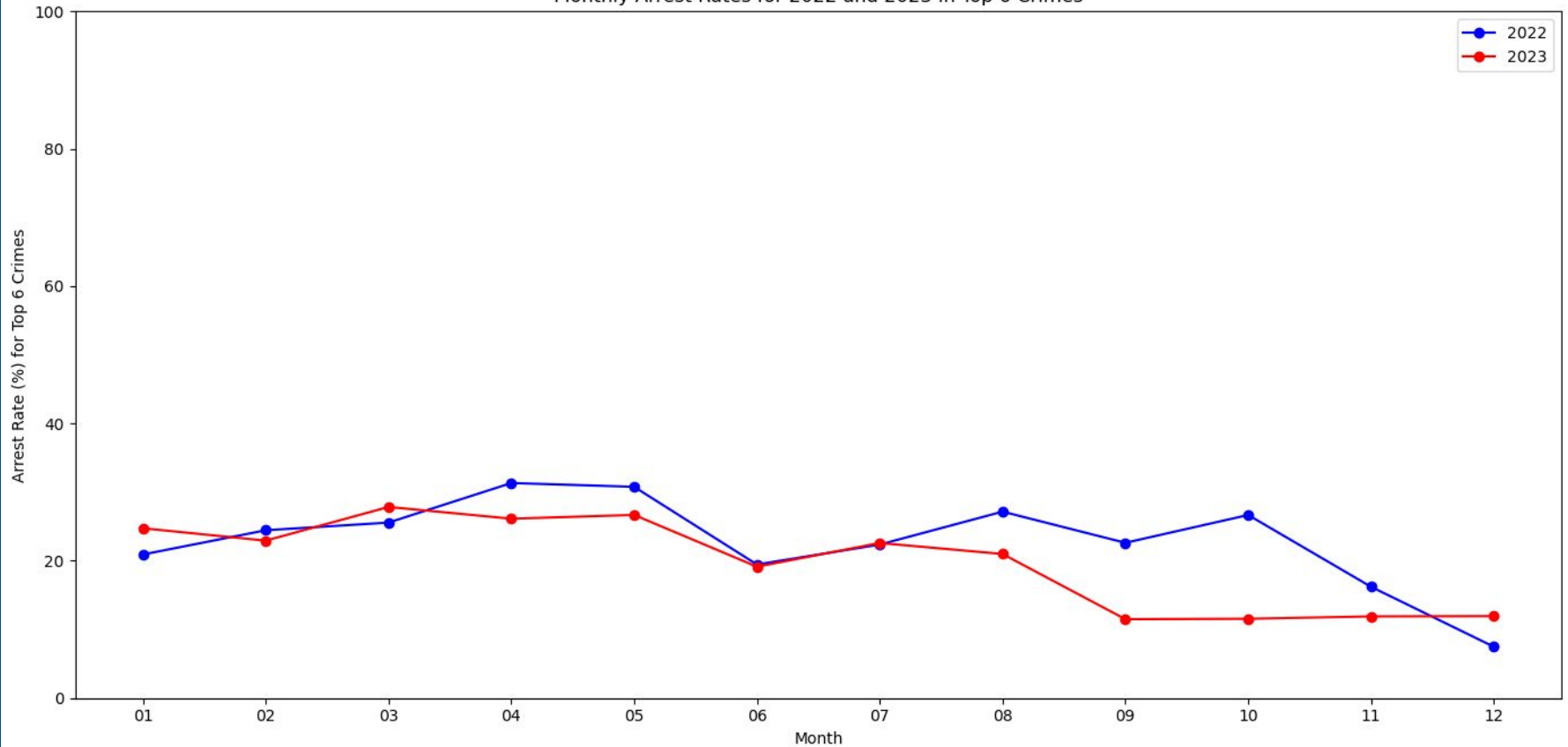
## Decreases in Arrests:

- **Battery:** Decreased by 5.5% in 2023, Down to 16.5% from 22.0%.
- **Motor Vehicle Theft:** Decreased by 2.9%. Down to 3.3% from 6.2%.

## Increases in Arrests:

- **Assault:** Increased by 2.3% in 2023, up to 10.4%.
- **Criminal Damage:** Increased by .8% in 2023, up to 3.0%.
- **Deceptive Practice:** Increased by 1.3% in 2023, up to 3.5%.
- **Theft:** Increased by 1.9% in 2023, up to 5.3%

Monthly Arrest Rates for 2022 and 2023 in Top 6 Crimes



Comparing arrest rates by month gives additional context to the overall change in rates across 2022 and 2023.



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2010-2024

