

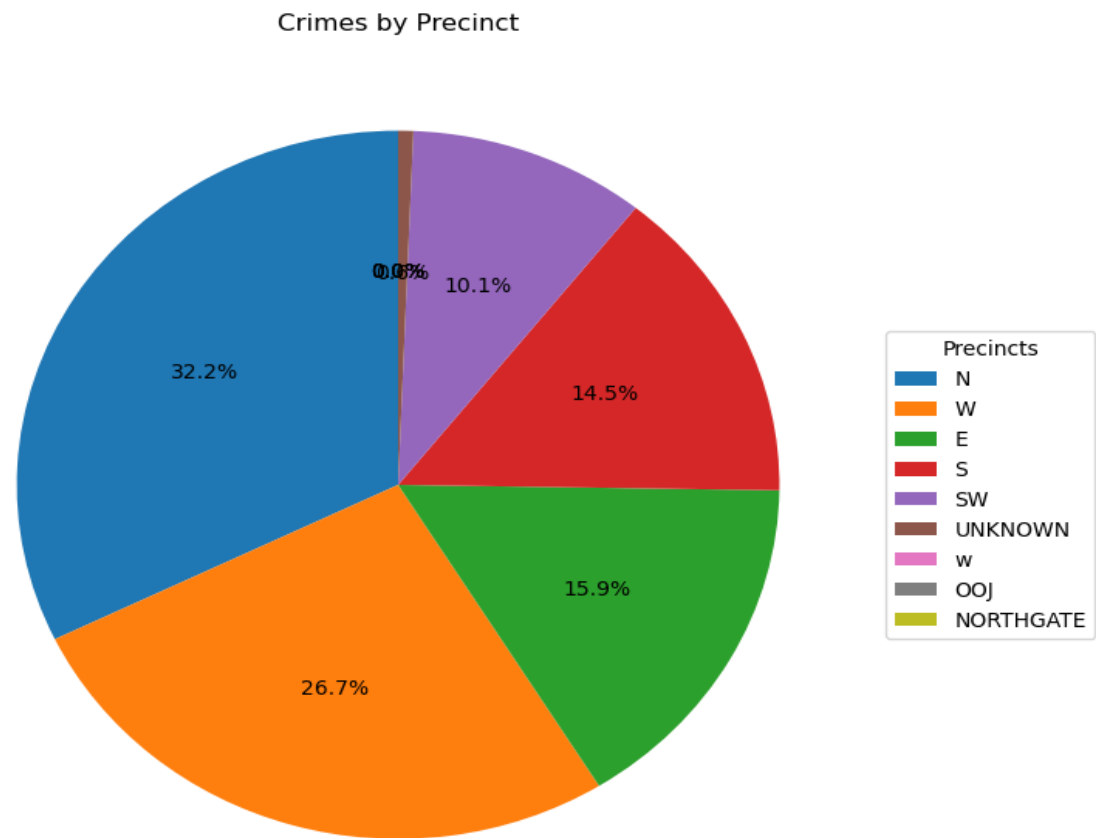
My Analysis Report: Crime Data Analysis of Seattle (Public Safety)

Dataset Description:

- **Dataset Name:** SPD Crime Data
- **Time Period:** 2008 to Present (17<sup>th</sup> Oct, 2024)
- **Total Records:** 1.15 million rows
- **Data Provider:** SPD (Seattle Police Department)
- **Columns:** 17, including fields such as report number, offense type, precinct, crime category, (e.g. sector, precinct).
- **Key Focus:** To analyse and visualize crime patterns based on different geographic and offense categories to answer specific research questions.

1. Crimes by Precinct (Pie Chart of 'Precinct')

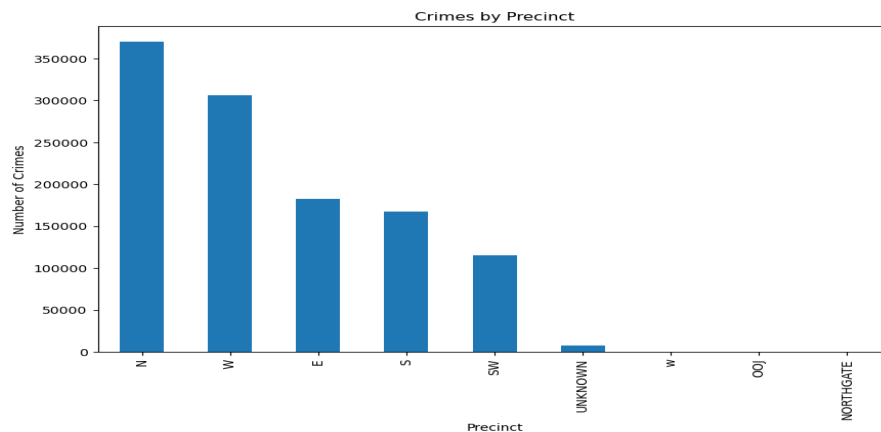
- **Research Question:** Which crimes distribute proportionally across precincts?



- **Terms to know - Precinct:** Designated police precinct boundary where offense(s) occurred. A district of a city or town as defined for police purposes.

- **My Analysis:**

- The pie chart provides a clear, visual representation of the proportion of total crimes committed in each precinct.
- Precinct '**N**' which is North with **32.2%**, can be seen where maximum of offense is taking place.
- Precinct '**SW**' which is South-West with **10.1%**, can be seen where lesser than other offense is taking place. (Some unclear data with '**unknown**' Precinct covering **0.06%**)
- **Insight:** A few precincts account for a larger proportion of total crimes, reaffirming the pattern seen in the bar chart. (refer below image)

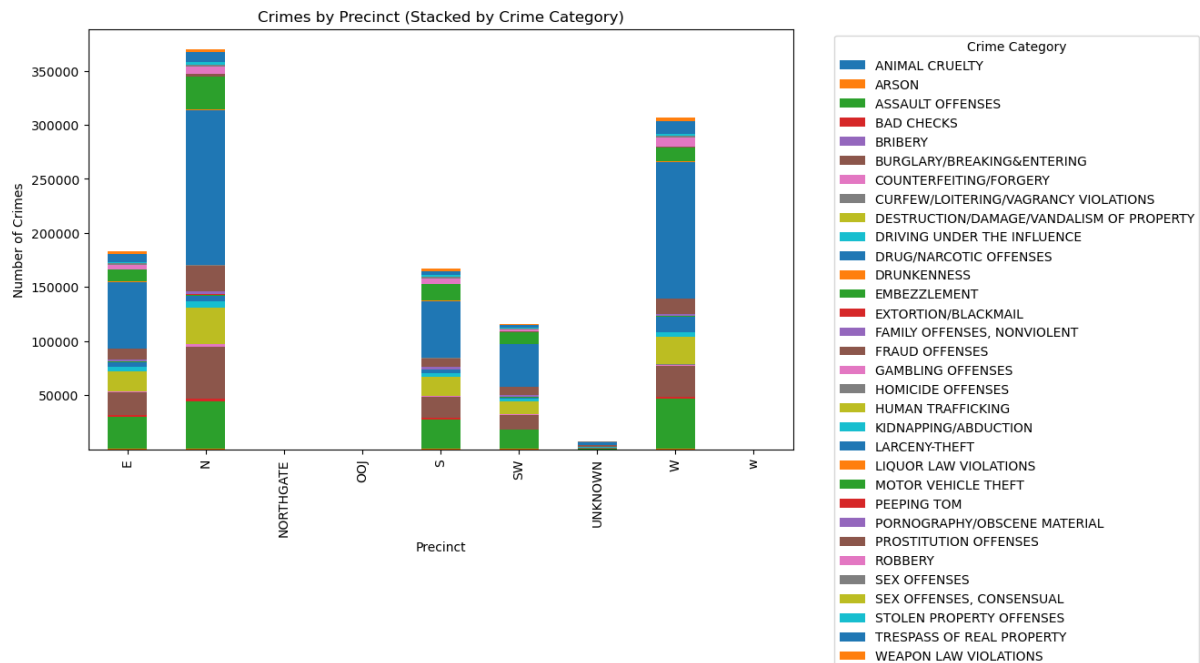


- **Drawbacks/Limitations:**
    - Pie charts are not comparing more than a few categories; precincts with smaller shares are harder to compare.
- Example of the same is for Unknown, W, Northgate, etc.
- Need to handle the not useful Precinct- which contain null details.
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## 2. Crimes by Precinct (Stacked Bar Chart of 'Precinct' vs 'Offense Parent Group')

- **Research Questions:**

- What are the most common crime categories within each precinct?
- Most and Least number of crimes reported in each precinct?

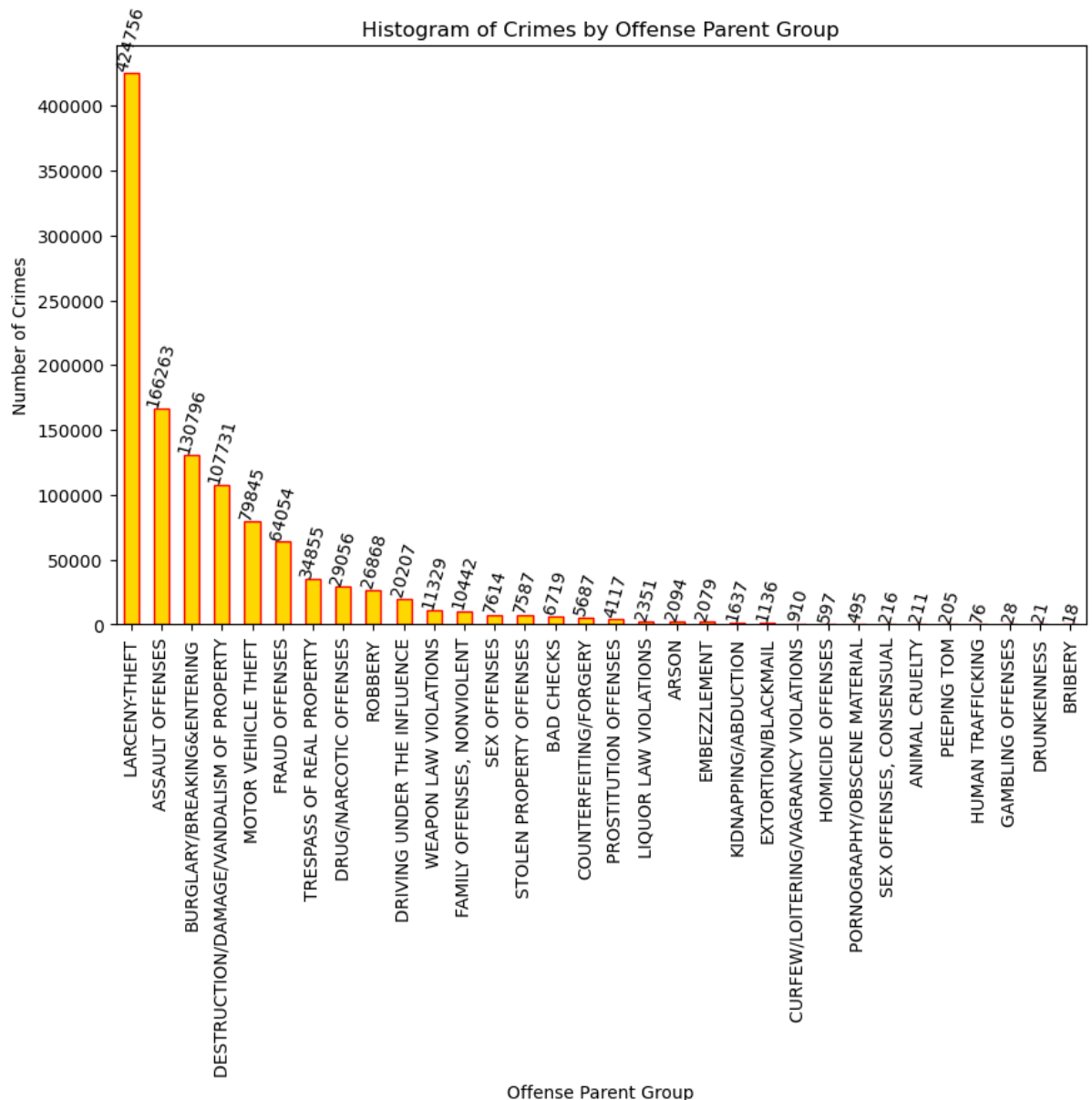


- **My Analysis:**

- The stacked bar chart shows how offenses are distributed by category across precincts.
- Each precinct will have different distributions of crime types, with certain precincts more prone to specific crimes.
- **'N'** - North Precinct has reported most number of crimes.
- **'SW'** - South-West Precinct has reported least number of crimes.
- Most crime category are reported in **'Larceny-Theft'**.
- **Insight:** Some precincts have a higher volume of certain crime categories (e.g., property crimes – Larceny Theft). This helps identify the nature of crime hotspots and the area which is more proactive in **'N'** precinct.
- **Drawbacks/Limitations:**
  - The visualization is mixing up and a getting cluttered as there are too many categories, making it harder to read.

### 3. Histogram of Crimes by Offense Parent Group

- **Research Question:** Which types of crimes are most prevalent in the dataset?



- **Hypothesis:** Crimes against property or society are the most common.
- **My Analysis:**
  - The histogram displays the frequency of each offense category.
  - Individual values are being displayed above every category which gives overall number of crimes for every Offense Parent Group.
  - **Insight:** Some crime types, such as property crimes, are much more common than others.

- **'Larceny-theft'** with value of **'424756'** is the type of crimes category which is most prevalent in this dataset. So, the greatest number of crimes have been reported for the same.
  - **'Bribery'** with value of **'18'** is the type of crimes category which is least prevalent in this dataset. So, a smaller number of crimes have been reported for the same.
  - **Drawback/Limitations:** No such drawbacks for this dataset, all the values for every 'Offense Parent Group' are visible above respective 'Offense Parent Group'.
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#### **Conclusion for the Dataset:**

- **Crime Trends:** Crime has fluctuated over the years, with some years experiencing a sharp rise in incidents.
- **Geographic Crime Distribution:** Certain precincts and sectors are clear crime hotspots, particularly for property-related offenses.
- **Crime Categories:** Property crimes are by far the most common, with fewer instances of crimes against individuals or society.eg. **Larceny-theft.**

#### **Limitations of the Dataset:**

1. **Missing Context:** The dataset does not include population or economic data for precincts/sectors.
2. **Missing Data on Crime Outcomes:** The dataset doesn't include information on crime resolutions (e.g., arrests, convictions),

This limiting the depth of crime analysis. So, that a flow can be created with different correlation.

These insights can help inform better-targeted crime prevention and resource allocation for law enforcement agencies.