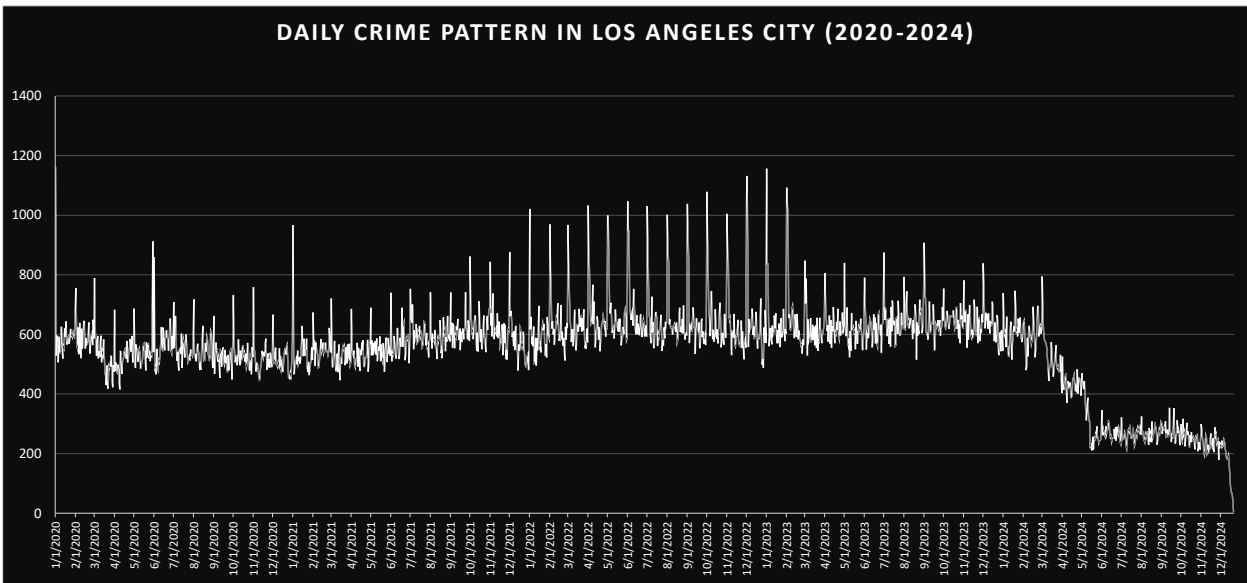


Chapter 2: Analysis Of Data and Answering Key Questions

Question 1: How did the crime rate change from 2020 to 2024 in Los Angeles City?

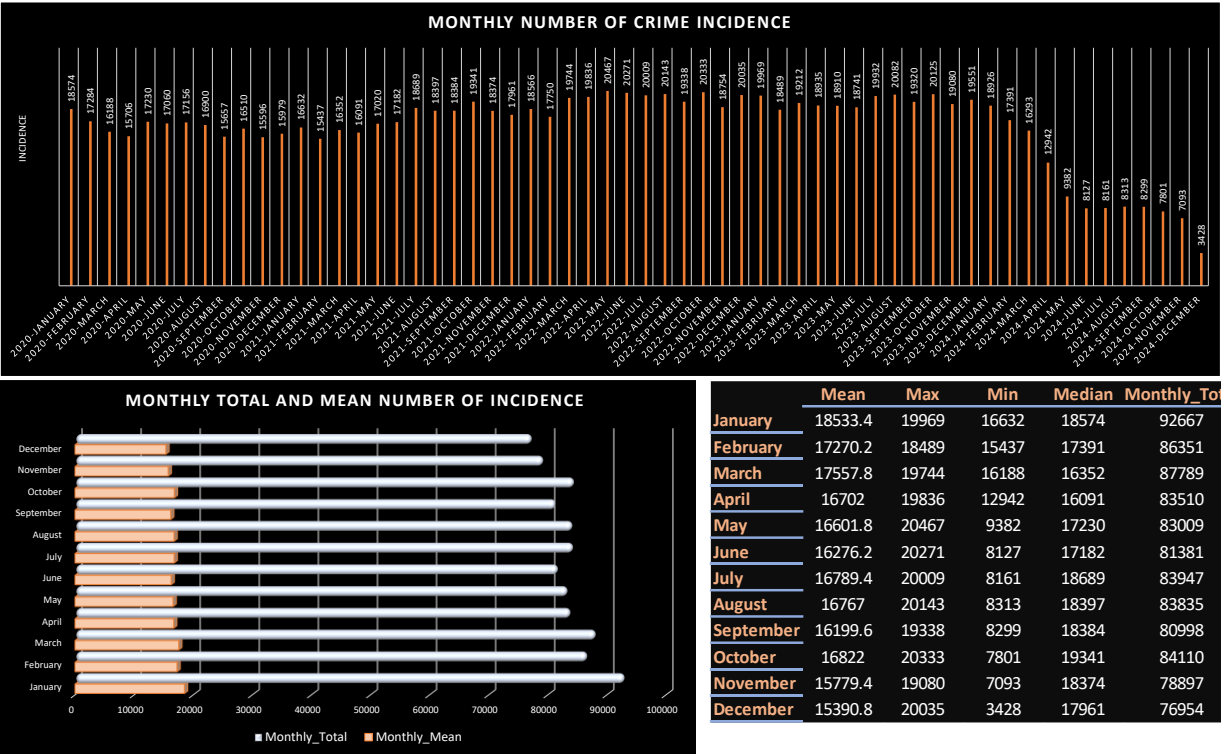
Overall, the crime rate increased from 2020 to 2022, then began to ease. The highest number of crime incidents occurred in 2022, with **235,246** cases. In contrast, 2024 recorded the lowest crime occurrence, with **126,156** incidents.

Year	2020	2021	2022	2023	2024	Total
Crime Occurrence	199840	209860	235246	232346	126156	1003448



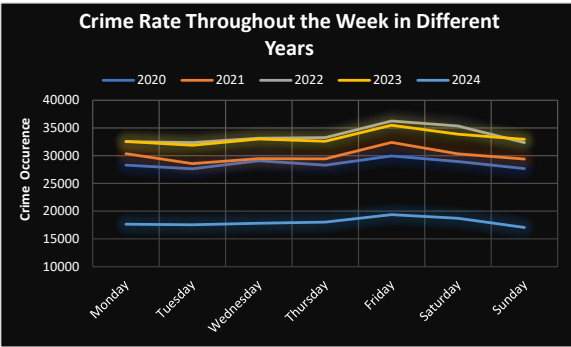
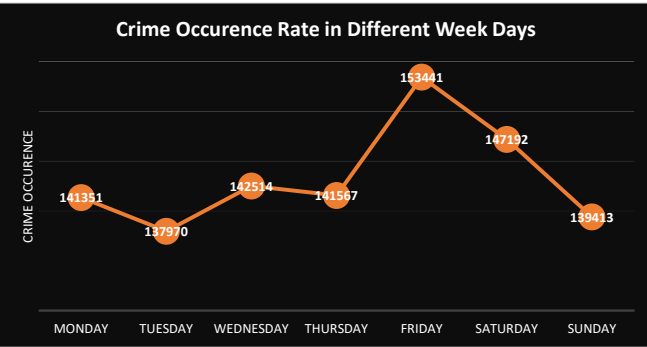
Question 2: What is the monthly pattern of crime incidents between 2020 and 2024? In which months do the highest and lowest crime rates occur?

The analysis reveals that most crimes occur in **January** (mean: **18,533.4**), followed by **July** and **August**. Over the five-year period, the highest number of crimes occurred in **May 2022** (with **20,467** incidents), while the lowest number was recorded in **November 2024** (with **7,093** incidents). I excluded **December 2024** from the analysis, as the data only covers up to December 21. Generally, the lowest number of crimes occurs in **December** (mean: **15,390.8**), followed by **November**.



Question 3: Do weekdays differ in terms of crime rate? On which day is Los Angeles City the safest place to live?

Yes, there are differences. Generally, **Friday** is the day with the highest crime rate, a trend observed across most years in this analysis. In contrast, **Tuesday** typically records the fewest crimes on average, though this can vary year by year. For instance, in **2024**, **Sunday** had the lowest number of crimes among weekdays, making it the safest day to spend time in the city.

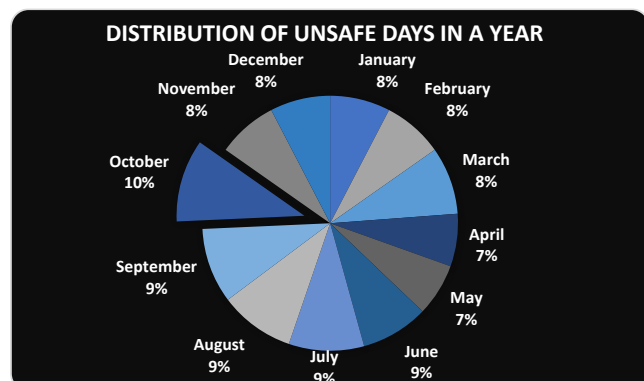
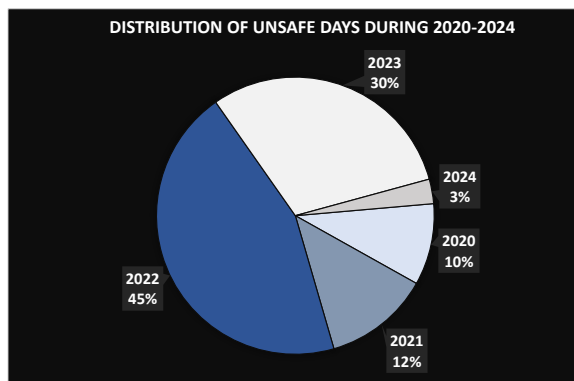


Question 4: What is the average number of crime occurrences in a day? On which day did the maximum number of crimes occur in Los Angeles from 2020 to 2024?

Between 2020 and 2024, an average of **552.3** crimes occurred per day in Los Angeles. Across the recorded **1,816 days**, the mode number of crime incidents was **542**. Interestingly, the highest crime incidence rates occurred on **January 1st** in **2022** and **2023**, suggesting potential bias in crime report loads on the first days of the year. To avoid this bias, I focused on the third and fourth highest crime rates, which were recorded on **December 2nd, 2022** and **February 1st, 2023**. A similar cautious approach was applied to the minimum values. The four lowest crime occurrences were recorded during the period from **December 18th to 21st, 2024**, the last days of the dataset.

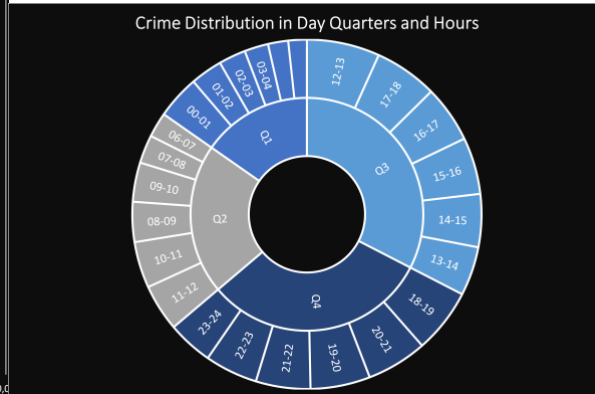
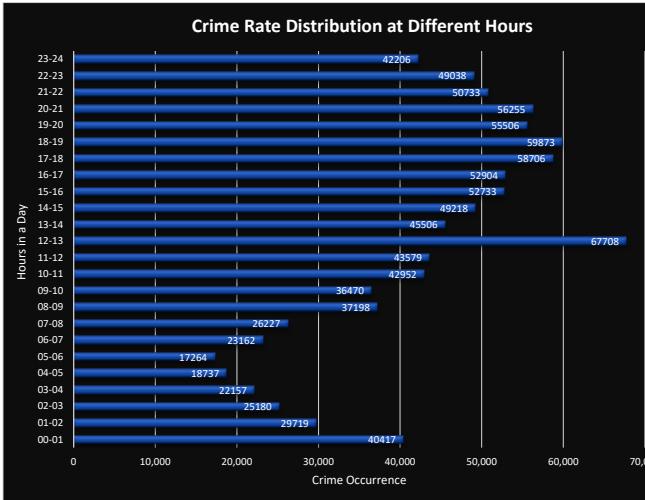
Question 5: Considering the average daily crime rate in Los Angeles, if we define a day with 700 or more crimes as an unsafe day, which year had the most unsafe days? How about the month?

2022 was the most unsafe year during this period, with **47 unsafe days**. In contrast, **2024** emerged as the safest year in the last five years, both in terms of overall crime incidence and the number of unsafe days.



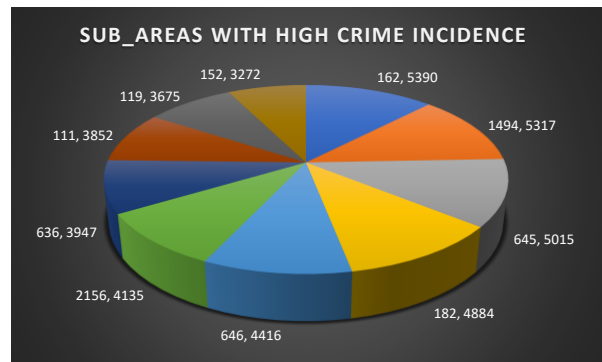
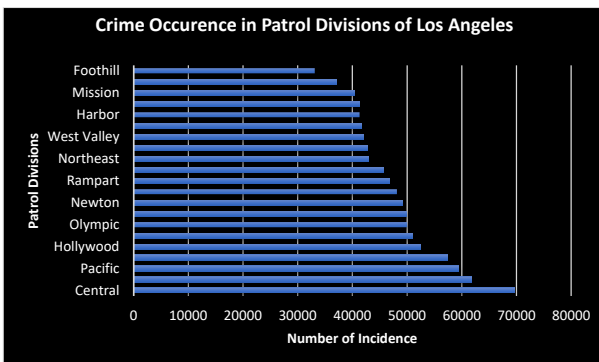
Question 6: Does this data support the public belief that most crimes occur at night? During which hours did most crimes occur over the last five years?

For this analysis, I divided the day into four time periods: **0-6**, **6-12**, **12-18**, and **18-24**. The findings revealed that the **12:00–13:00** hour was the most unsafe time in Los Angeles between 2020 and 2024. Interestingly, the next highest crime rates were observed between **17:00 and 21:00**. Overall, the **third quarter of the day (Q3)**, which spans from **12:00 to 18:00**, experienced the highest frequency of crimes in Los Angeles in recent years.



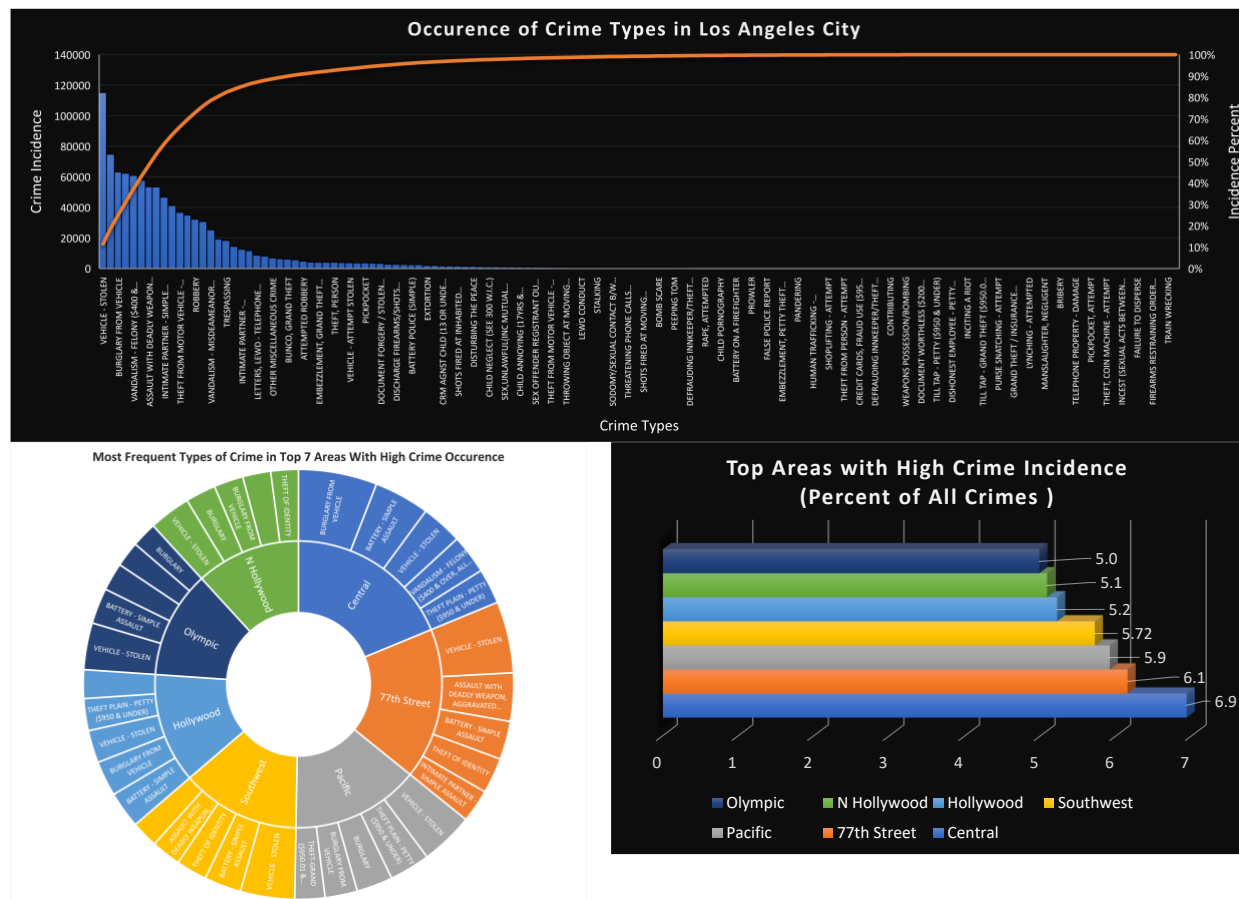
Question 7: Which police departments have been busier than others over the last five years in Los Angeles City? Which sub-areas show the highest crime rates?

Crime occurrence varies across different areas and patrol divisions in Los Angeles. **Central** and **77th Street** have been the riskiest areas in the city, with the highest crime incidence (**69,548** and **61,703** crimes, respectively). As a result, the police departments in these areas have been the busiest over the past five years. In contrast, the lowest number of crimes occurred in the **Hollenbeck** and **Foothill** areas, with **37,034** and **33,098** crimes, respectively. Among the sub-areas, **162** (in the Central Area) and **1494** (in the Pacific Area) are the most crime-prone sub-areas in the city.



Question 8: What are the most frequent crimes in Los Angeles City? Do areas differ in the types of frequent crimes?

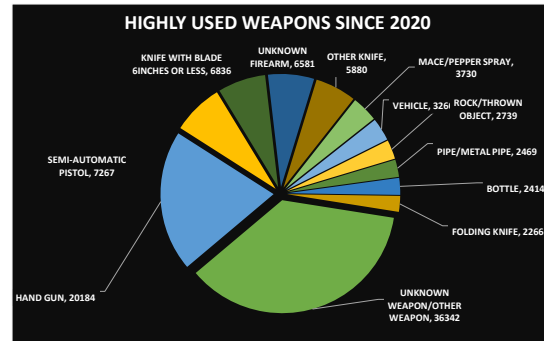
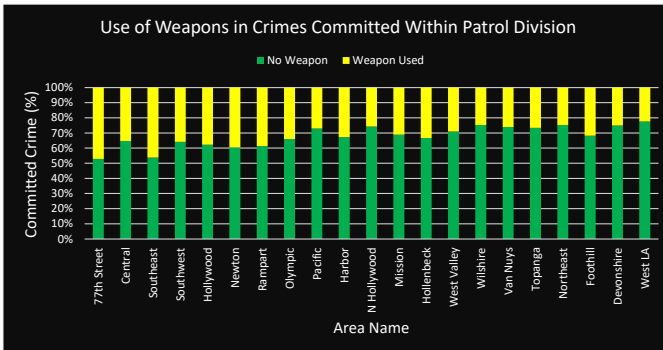
The most frequent type of crime in Los Angeles is “**VEHICLE-STOLEN**”, which accounts for **11.5%** of all crimes. This is followed by “**BATTERY-SIMPLE ASSAULT**” and “**BURGLARY FROM VEHICLE**”, which together make up **13.8%** of all crimes in the city. Interestingly, the top seven crime types account for nearly **50%** of all crime incidents since 2020 (as shown in the figure below). Crime types vary by area. For instance, in the **Central** area, which has the highest crime rates in the city, “**BURGLARY FROM VEHICLE**” is the most frequent crime. In contrast, in the **Hollywood** area, “**BATTERY-SIMPLE ASSAULT**” is most prevalent, while in **West LA**, “**BURGLARY**” dominates. In many other areas, “**VEHICLE-STOLEN**” remains the most common crime type.



Question 9: In which areas are weapons more commonly used in crimes over the last five years?

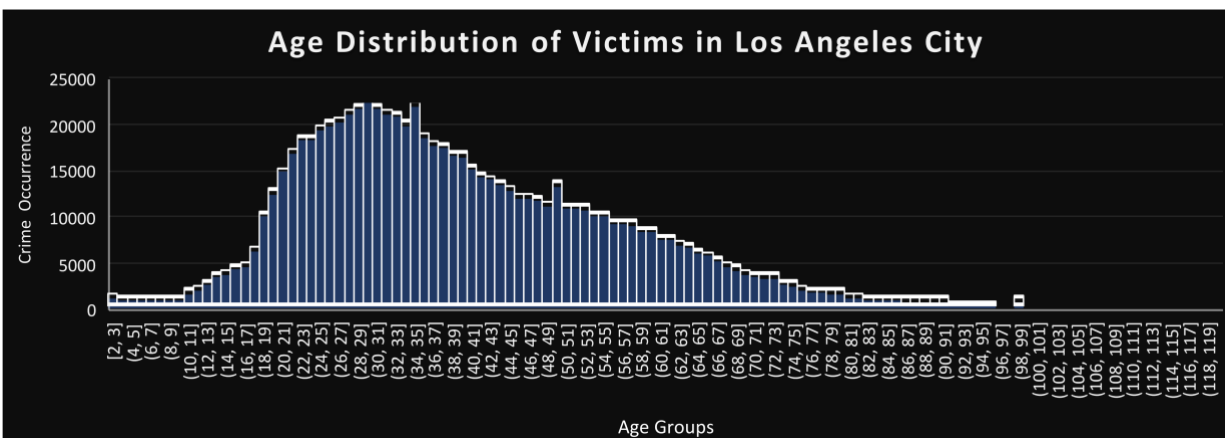
Weapons have been used in approximately **33%** of crimes committed in Los Angeles since 2020. The **Southeast** and **77th Street** areas have the highest within-area weapon usage rates, with **47.13%** and **46.19%**, respectively. In contrast, only **22.38%** of crimes in **West LA** involved weapons. It’s important to note that the definition of "weapon" in this dataset is broad, including

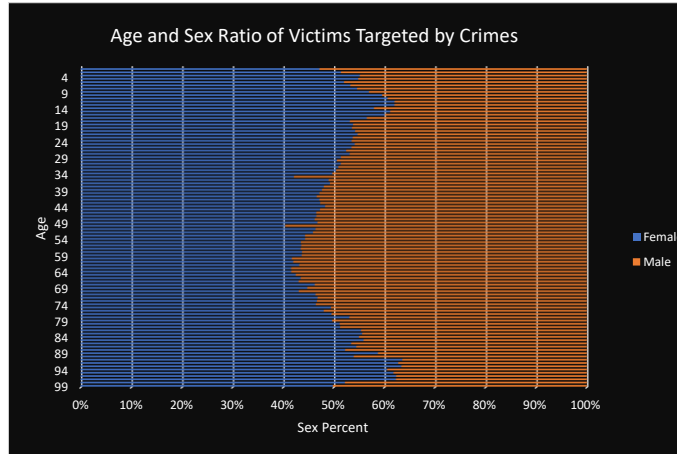
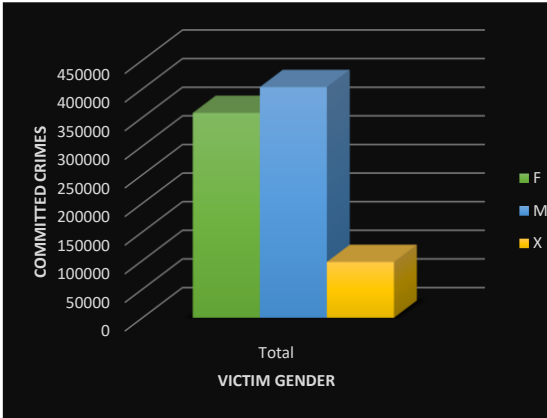
categories like “**STRONG ARM**” and “**VERBAL THREAT**”. To provide a more realistic representation of weapon usage, I filtered out these categories. After this adjustment, **77th Street** and the **Central** area rank highest for weapon usage, with **handguns** being the most commonly used weapon in crimes.



Question 10: Which age group has had the highest number of crime incidents over the last five years? How about by sex?

In the original dataset, **age zero** accounts for **26%** of the age column, which likely represents cases where the victim's age is unknown. Replacing these zeros with the average of the column (28 with zeros and 50 without) could lead to unrealistic conclusions. Therefore, I decided to remove the zeros, along with any negative values and outliers. The analysis revealed that individuals aged **28-35** are most frequently targeted by crime in Los Angeles. This is likely reflective of the demographic distribution in the city, which shows that the **25-35** age group is the most dominant ([source](#)). In terms of sex, **males** (46.9%) have been more frequently targeted by crime than **females** (41.69%) since 2020. This slightly differs from the nearly **50-50** sex ratio in Los Angeles' general population. Interestingly, females are more likely to be targeted at both younger and older ages, while males are more frequently targeted in middle age groups.

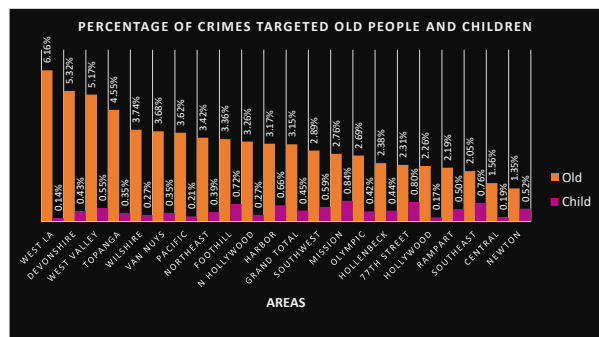
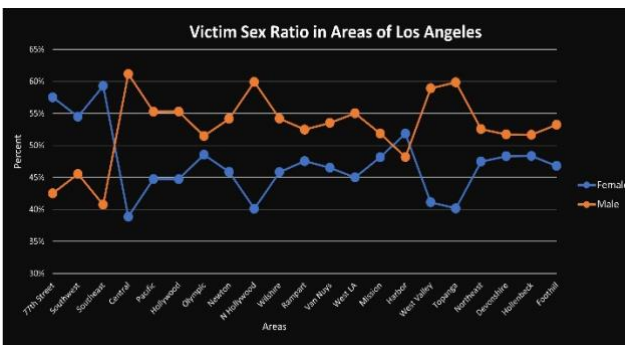




Question 11: Which areas in L.A. are riskier for children and older adults? How about females?

The analysis of victim ratios by area revealed that in locations such as **77th Street**, **Southwest**, **Southeast**, and to a lesser extent **Harbor**, females are more frequently targeted by crime than males.

If we define children as those under the age of 10 and older adults as those over the age of 70, areas like **West Valley**, **West LA**, and **Devonshire** have been particularly unsafe, with **5.2-6.2%** of crimes involving victims in these age groups since 2020. These areas, especially, pose a greater risk to older adults. Although **children** represent less than **1%** of crime victims overall, the **Mission** and **77th Street** areas are particularly risky for children, based on the percentage of crimes occurring in these areas involving child victims.



Question 12: Which ethnic groups have been at greater risk in L.A. since 2020?

The data indicates that people of **Hispanic origin** are more frequently targeted by crimes in Los Angeles (**39.33%**), which may reflect the demographic dominance of the Hispanic community in the city (according to available data from [DataUSA](#)). Following Hispanic individuals, **White** and **Black** communities are the next most targeted ethnic groups, with **26.73%** and **18.02%** of crime victims, respectively. Further analysis, which examined both sex and ethnicity, reveals that **Hispanic men and women** are equally vulnerable to crime. However, **White men** and **Black women** have been more affected by crime since 2020.

