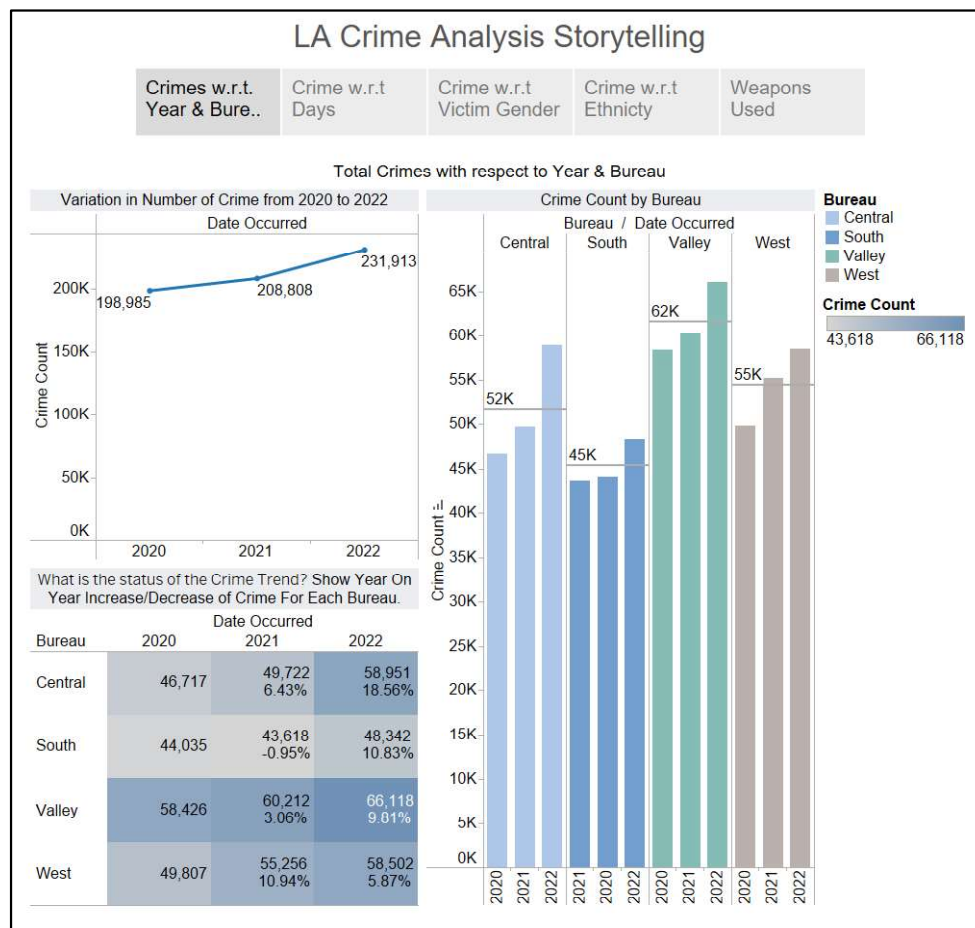# F. Story Telling

The story is to detail the analysis conducted on the LA crime dataset, which encompasses all the crimes reported between 2020 and the first two months of 2023. This dataset contains various pieces of information such as the date when the crime was reported, the date and time of the incident and the area where the crime occurred. It also includes details such as the crime code, description, and status (whether the criminal has been arrested or not), as well as the victim's demographic information like age, gender, and race, the crime location, and the latitude/longitude information. To properly analyze the data and create visualizations, additional categorization of crimes has been performed, such as grouping crime areas by the bureau and categorizing crimes by their type.

Insights into crime patterns by area and bureau are revealed through the generated visualizations shown above. A **line chart** exhibits the overall count of crimes across the years, with the least number of crimes recorded in 2020 (around 199K) and the highest in 2022 (approximately 232K). This evidently corroborates the notion that the occurrence of crimes has been on the rise each year.

The **bureau and yearly graphs** demonstrate the number of reported crimes per bureau per year and reveal fluctuations in crime rates. Average crime rates are used as reference lines to compare the crime rates of each bureau. Based on the analysis, it was found that the Valley Bureau had the highest crime rate in 2022, with an approximate average count of 62,000 for all three years. On the other hand, the South Bureau had the lowest average number of crimes.

The crime analysis also includes assessing the **percentage change** in crime rates compared to previous years, to identify any upward or downward trends in crime rates within each bureau. The analysis reveals that the year 2022 had the highest increase in crime rates, with a rise of approximately 12% in all bureaus. On the other hand, the year 2021 showed a decrease in crime rates, particularly in the South bureau, with a decline of 0.95% in the crime count.
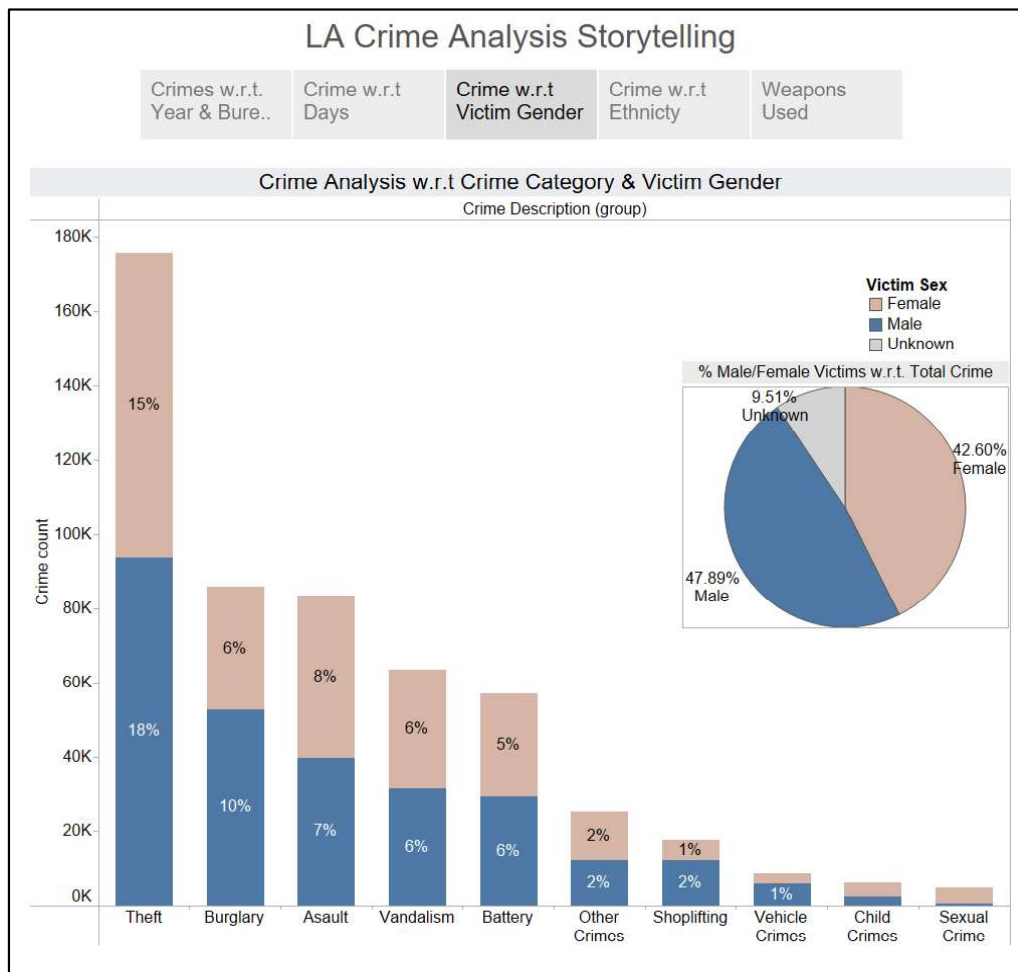
Furthermore, as per the March 20th publication of USA Today, it has been reported that the crime rate in Los Angeles rose by 11% in 2022, with 60 reported crimes per 1,000 residents as opposed to 54 per 1,000 residents in 2019.*[5]*

The preliminary information provides an understanding of crime trends based on location and department, while a **Tree map** is utilized to analyze data and present crime occurrences across different days of the week from 2020 until now. To focus on the specific days of the week, a filter is applied to exclude the other dimensions and only display data for the days of the week. According to the analysis, weekends are trouble! Friday accumulated the most number of crimes around 102,703, followed by Saturday with approximately 98,346 cases. In contrast, the lowest number of crimes occurred on Tuesday, with about 92,413 cases. An article "LAPD Launches 24-Hour Crime Analysis Center *"[6]* talks about how useful it is to know the crimes that occurred on the days of the week. This visualization is helpful in identifying patterns in crime occurrences based on the days of the week. It can be advantageous for law enforcement agencies and policymakers to allocate resources and implement measures to enhance public safety on the identified days.

After identifying the days of the week with the highest occurrence of crimes, let's shift our focus to the most common crime types based on victim demographics. Specifically, we conducted an

analysis of the gender of the victim, as this demographic category is considered the most vulnerable. This analysis was conducted for each year between 2020 and 2023.
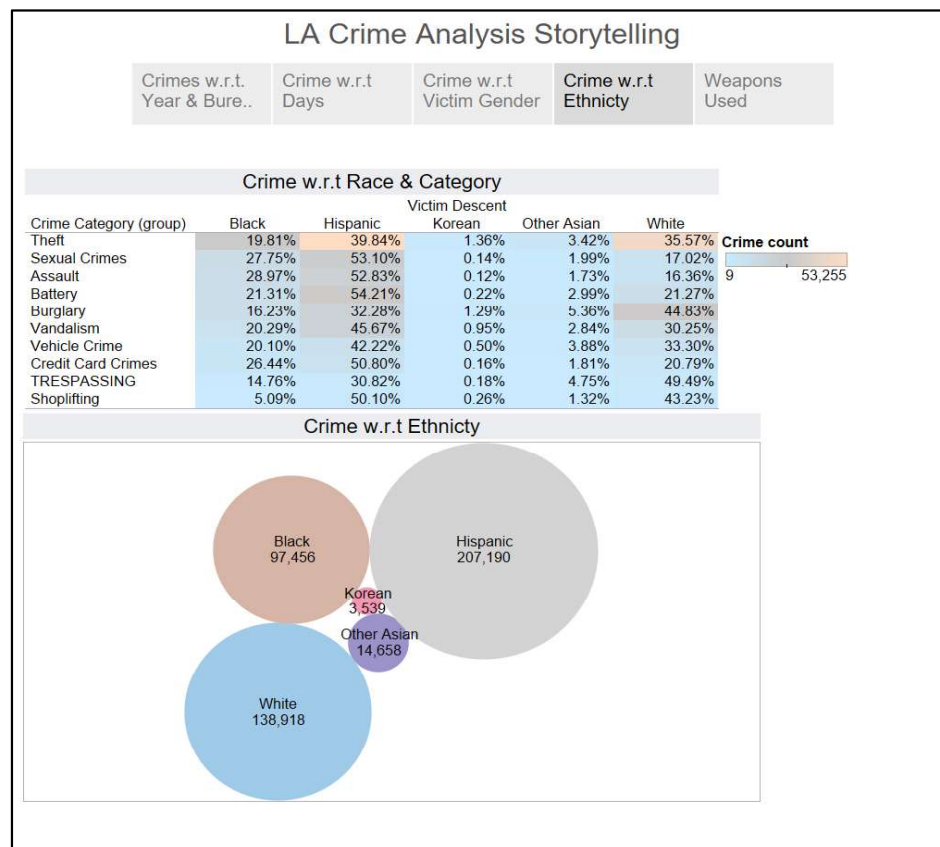

According to our analysis, there was nearly no difference between the number of male and female victims of crime. Out of all the reported crimes, approximately 49% of the victims were male and 43% were female.

The analysis of crimes against male and female victims revealed that "Theft" was the most frequent crime, comprising 18% of all reported male victim cases. Burglary (10%) was the next most common crime, followed by Assault (7%). Similarly, for female victims, the most prevalent crime

was "Theft," accounting for 15% of all reported crimes. "Assault" was the second most common crime (8%), followed by burglary (6%).

In general, our examination of LA's crime statistics concerning victim gender indicates that crime affects both males and females, with Theft being the most prevalent crime type for both. Moreover, Assault is also a noteworthy problem that affects both genders. This knowledge could assist law enforcement organizations in comprehending crime patterns and allocating their resources and efforts to lessen crime rates in the city.

Moving on, to gain a better understanding of victimization patterns, we conducted an analysis based on ethnicity in Los Angeles, which has a diverse population. Previous analysis has already revealed the risk of victimization based on gender and age. However, ethnic differences within gender groups are more intricate.

Analysis of crime data reveals disparities in victimization among the ethnic group. We have used a **bubble chart** to display the Victim descent and used simple highlight tables to categories the crime group based on their descent. By Filtering the top 10 avoid cluttering visualization with too much information.

According to the data, Hispanics, Blacks, and White are the **most affected victims by crime** in terms of number of incidents reported. 39.84% of all theft victims were Hispanics which is a little high compared to white victims who has the percentage of 35.57%. White descent faced the highest Burglary percentage of 44.83% compared to all other races. Assault crime category was the highest crime happened to Black descent Individuals when compared to all other crime types. Hispanics were highly victimized with a percentage of 54.21% under the category of Battery. Korean was the least affected victim with the highest 1.39% faced for theft. Other Asian were highly victimized for Burglary crime. This Analysis also reveals the disparities in the victimization rates for different ethnicities within specific crime type. *[7]*

To further understand the nature of criminal activity, it is crucial to analyze the weapons used in crimes. Delving into the types of weapons used can help identify patterns and trends that could assist in preventing future incidents and keeping communities safe.

LA Crime Analysis Storytelling

Weapons can come in various forms, ranging from high-powered machine guns to the use of mere physical force. Anything that causes physical or mental harm to humans can be considered a weapon, and it is crucial to identify the weapons used in crimes to understand the nature of criminal activity. To conduct our analysis, we utilized the **Word Cloud technique**, which enables us to identify the most common weapons used by criminals. The larger the text, the higher the likelihood of it being used as a weapon. Our analysis indicates that the most used weapon by criminals is bodily force, followed closely by verbal threats and guns. The visual representation of this analysis provides a clear understanding of the weapons commonly used in criminal activity, which can aid law enforcement organizations in devising efficient approaches to avert such occurrences and ensure the safety of communities.

Overall, our analysis of crime data in Los Angeles has revealed important insights into crime patterns and victimization. The central region of LA has several high crime areas, while lighter

areas have lower crime rates. The Foothill area has a lower frequency of criminal incidents compared to other areas. The number of reported crimes increased from approximately 199,000 in 2020 to roughly 232,000 by 2022. Weekends, particularly Friday and Saturday, have the highest number of crimes, while Tuesday has the lowest. Crime affects both genders with theft being the most common crime type, followed by assault. The age group of 25-40 has the highest number of victims affected by crime. Hispanics, Blacks, and Whites are the most affected victims by crime based on reported incidents. Bodily force was the most used weapon, followed by verbal threats and guns.