

**San Francisco Police Department Incidents Analysis**

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**Introduction:**

In this Tableau visualization project, we have analyzed San Francisco Police Department incidents reported between 2018 and 2022, with a focus on larceny theft, the most frequently reported incident. Our visualizations showcase different levels and types of larceny theft, changes in the number of incidents over the years, and the police district where the most larceny thefts were reported. Our project offers a comprehensive view of crime patterns in San Francisco and is designed to be informative for anyone interested in understanding the trends of crime in the city.

**Analysis:**

1. **What is the most frequent Incident Category reported from 2018 to 2022?**

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**Variables Used:**

* The variables used for this visualization are - Count of all rows and Incident Category.

**Findings:**

* By observing the above graph, we can see that Larceny Theft was the most frequently reported incident in the data.
* The total number of incidents reported for Larceny Theft are 177,749.

**Design Decision:**

* Since the variable at comparison is Incident Category, which is a discrete variable, a bar graph would be a better choice as the number of incidents reported can be compared easily. We have sorted the graph so that it would be easier to read.
* To reduce the cognitive load, we have opted to highlight the Larceny theft in blue color and grayed out the other incident categories.
* We have also removed the grid lines in the chart and added labels to show how many incidents of each incident category were reported.
* We have used horizontal bar graph so that the Incident Categories are easier to read and the by sorting the list in descending order, we can show the top incident category at the top.

1. **How many Larceny theft Incidents were reported from 2018 to 2022?**

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**Variables Used:**

* The variables used for this KPI are - Count of all rows. We have added a filter to the Incident Category and set it to ‘Larceny Theft’ incidents.

**Findings:**

* This KPI shows us how many incidents of incident category ‘Larceny Theft’ were reported.

**Design Decisions:**

* As we have designed our Dashboards and Story around Larceny Theft, we wanted to show the impact of Larceny Theft incidents in this data. So, we decided to have a KPI representing the number of incidents that were reported.
* We have decided is to position this KPI on the upper left-hand side of the screen, as that is the area where most of the audience tends to direct their attention when they initially view the dashboard.

1. **What are the theft levels (in terms of money) of Larceny Thefts?**

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**Variables Used:**

* We have created a new calculated field by using the function Regex\_Replace() function to extract the numbers from string. We have changed this unformatted number to 4 levels.

Table

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* We have used this Theft Level Variable with count of all rows to get the above visualization.

**Findings:**

* From the above visualization, we can see that most of the incidents were of theft level 4 which means that in all of those incidents, the civilians have lost more than $950, which makes Larceny Theft a very serious problem in San Francisco.

**Design Decisions:**

* By using a Bar chart instead of Piechart, we can see how significantly high number of incidents are with theft level 4.
* Also, we can compare the other theft levels properly in Bar chart, which would be difficult in a pie chart.
* To further reduce the cognitive load, we have removed the grid lines and opted for a color palette which highlights the highest frequency theft level with darker color.

1. **What are the Incident Types for Larceny Theft?**

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**Variables Used:**

* We have created a new calculated field to extract the Incident Types from the Incident Description. We have used the split() function to split the string into multiple strings and extracted the string in 2nd place.
* We have used this Incident Type and count of all rows to understand which Incident Type has the greatest number of incidents reported.

**Findings:**

* From observing the above plot, we can see that most of the Larceny Theft cases were having ‘From Locked Vehicles’ in the Incident Description.
* The number of incidents reported by civilians with ‘From Locked Vehicles’ in the description are 87,788.

**Design Decision:**

* We have opted for a bar graph for this visualization as bar graph can easily point out the difference in the number of incidents.
* We have highlighted the most frequent Incident Type with Blue color and grayed out the others, to reduce the cognitive load.
* We have removed the grid lines and added labels to show how many incidents each incident type has.

1. **How has Larceny Thefts changed Over the period from 2018 to 2022?**

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**Variables Used:**

* We have used Incident Date variable which is of Date type and count of all rows for this graph.
* We have added a filter for Incident Category as ‘Larceny Theft’.
* As the data had incidents only till May,2022. It wouldn’t be correct to compare year wise number of incidents. So we compared quarterly incidents which gave us better idea on how the incidents have changed over the above quarters.

**Findings:**

* From the above graph, we can see that from 2018Q2 to 2019Q2, there is a upwards and downwards trend in the number of incidents.
* But, in 2019Q2 the number of incidents have increased and peaked at 2019Q3 with number of incidents = 13,696 which is the highest out of all quarters.
* We can see the incidents have declined slowly till 2019Q4 after which there is sudden decline till 2020 Q2 where the number of incidents have decreased by about 50%.
* In total, there is a declining trend in the number of incidents through the years.

**Design Decisions:**

* When comparing number of incidents over the period of years, a line chart was the perfect chart.
* If we had used a bar chart, there would have been a cognitive load on the audience as they have to compare all the bars, but a line chart shows the exact declining or inclining trends in the data.
* We have decided to point out 2 observations in this chart which we felt were of much importance as throughout the chart these 2 points have the highest change in the number of incidents.

1. **What are the Top Police Districts where Larceny Theft Incidents are reported?  
     
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**Variables Used:**

* We have used Police District and count of all rows to get the above visualization.
* We have sorted the list in descending order to show the police district with the greatest number of incidents on the top.

**Findings:**

* In the above bar chart, we can see ‘Central’ police district has the highest number of cases with 37,246 Larceny Theft cases reported.
* The second highest number of cases were reported by ‘Northern’ police district with 32,507 followed by ‘Southern’ police district with 20,487 incidents.

**Design Decision:**

* We have once again used Bar chart for this visualization instead of a pie chart because when we have different police districts with very less difference in the number of cases, it will be very confusing in Pie chart to understand which police district has higher incidents than the other.
* Also, in horizontal bar chart with items sorted in descending order, it will be very easy to spot the first police district or the fifth police district with the exact value of how many incidents were reported.
* By using a horizontal Bar chart in place of vertical, we can read the Police districts easily and also keep the graph in a concise manner.

**Conclusion:**

In conclusion, our analysis of Larceny Theft incidents reported by SFPD from 2018 to 2022 reveals that these incidents are primarily characterized by a loss of more than $950 and frequently involve theft from locked vehicles. The declining trend over the years suggests that current preventive measures are somewhat effective, but more efforts could be made to address the root causes of these incidents. We recommend that the SFPD focus on increasing patrol and surveillance in the Central district, which has the highest number of incidents reported. Additionally, raising awareness among the public about the importance of safeguarding their belongings, especially in parked vehicles, could significantly reduce the occurrence of these incidents. Our visualization in blue color has made it easier to distinguish Larceny Thefts from other types of incidents, making it a useful tool for data analysis and communication.

**References:**

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