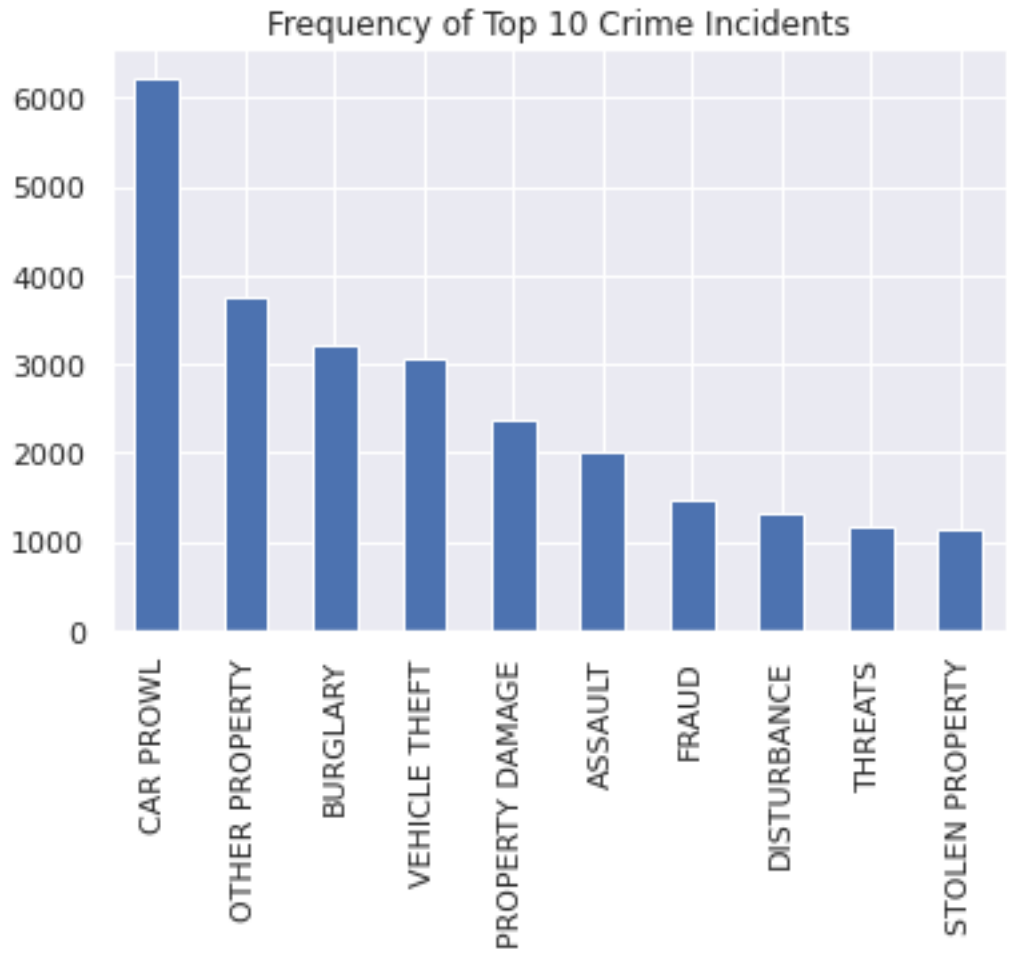
Vehicle Theft Decreases in Seattle and Theft Increases in San Francisco as Summer Progresses

In this article, we will try to analyze if there is any correlation between different crime incidents with Summer Months of 2014 in Seattle and San Francisco (SFO).

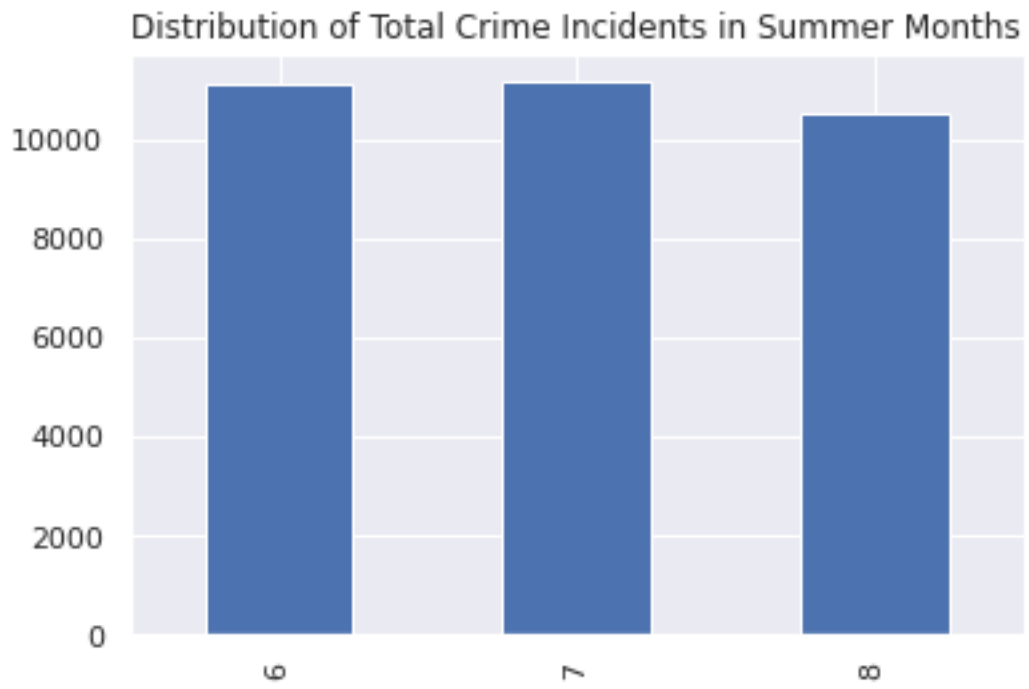
Seattle:

We have a reduced dataset, given in the assignment, which contains several columns, such as the crime types along with the location, time, and the months of the occurrence. First, we check the frequency of top 10 most occurring incidents. The crime incident type is a categorical variable (more specifically it is a nominal data type). We have run the value_counts() command for the column “Summarized Offense Description”, and then plotted it.

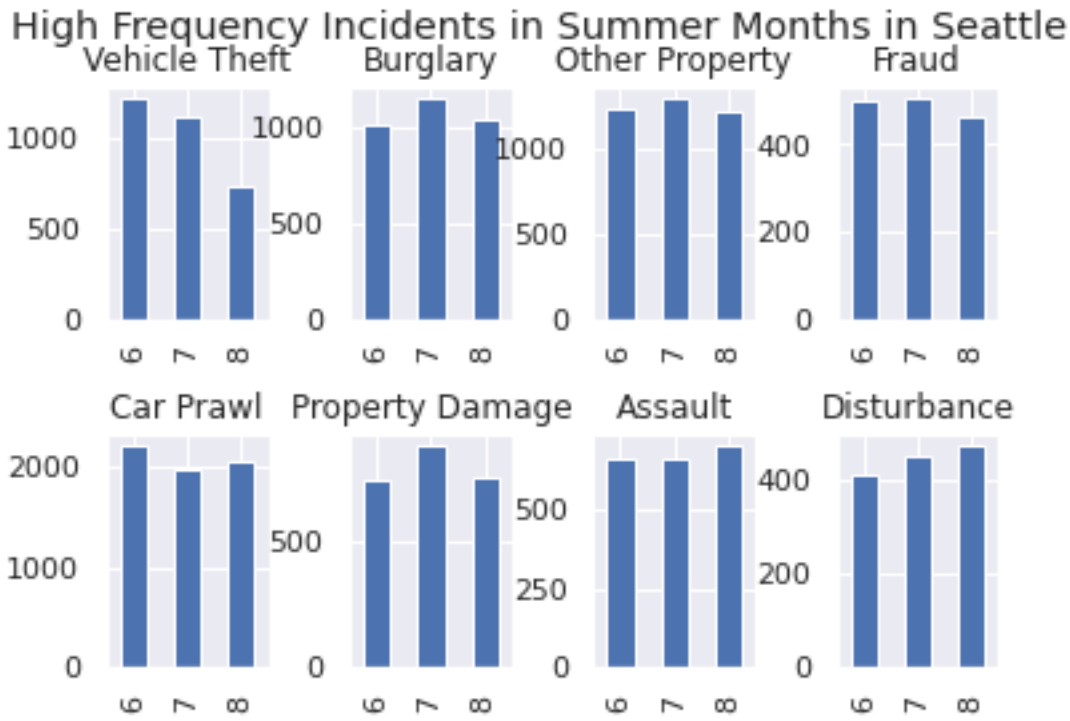


We observe that “Car Prowl” is the most occurring crime incidents among all, followed by “Other Property”, “Burglary”, “Vehicle Theft” etc.

Next, we plotted the distribution of the total number of incidents in the three months of the summer, and we observed the total number crime incidents in each month are almost similar as shown in the next Figure.



Then we plotted the distribution of top frequent 8 crime incidents in the summer months to check any non-uniformity of the incidents across the summer months.



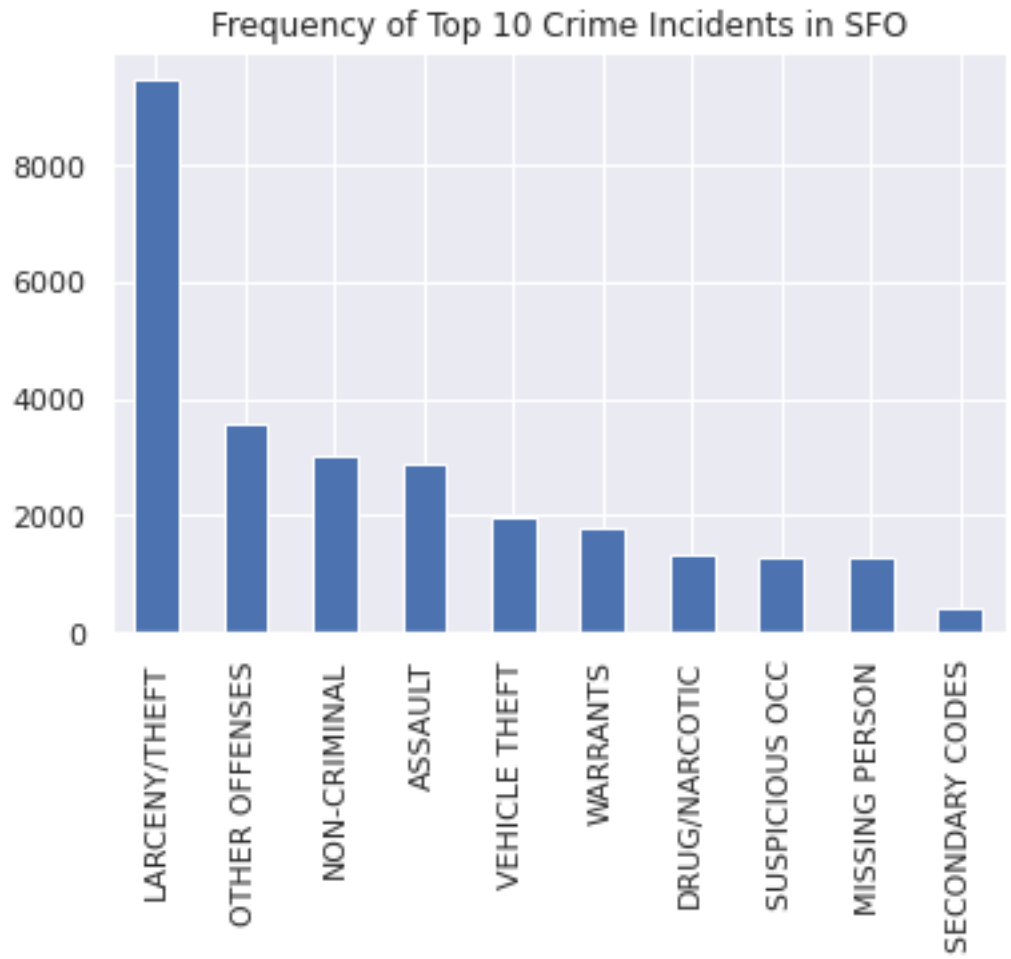
As per this plot, most of the crime incidents are uniformly distributed in the summer months. “Burglary” and “Property Damage” peak in the mid-summer month. However, the incident of “Vehicle theft” monotonically decreases as the summer progresses. The incidence of vehicle theft in August is almost halved in comparison to that in June.

The Jupyter Notebook link:

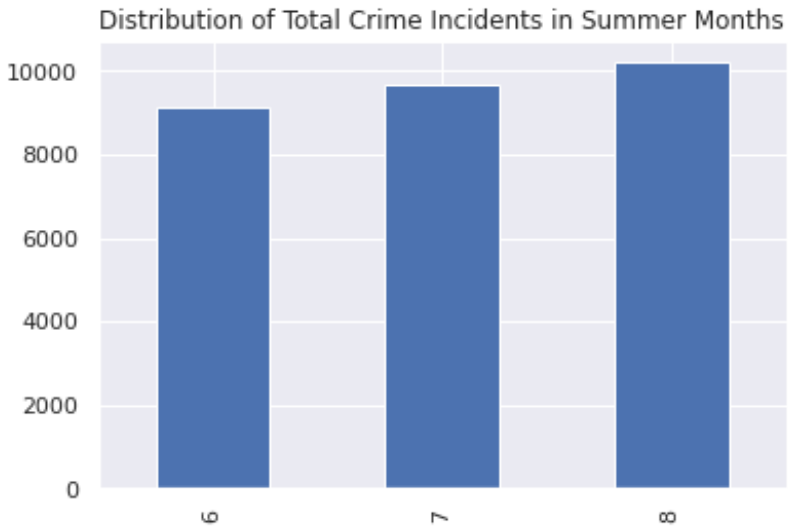
https://colab.research.google.com/drive/1VkJK2gE8uWNVuRmAOa-aWgPyqPL9l1zk?usp=sharing

San Francisco:

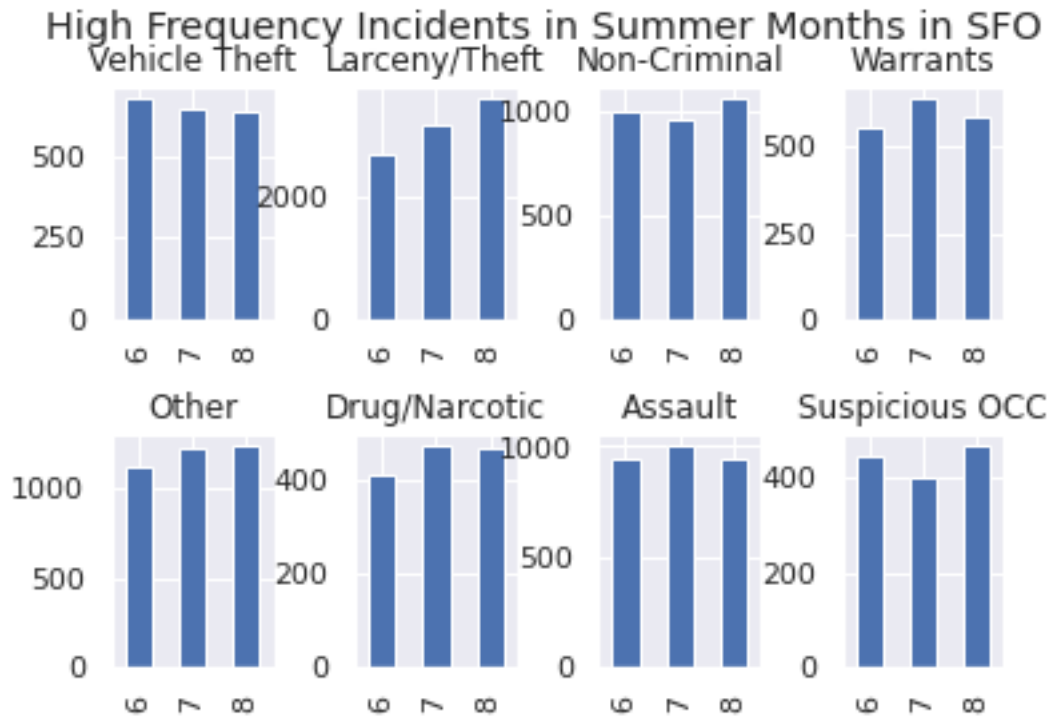
We did a similar analysis for San Francisco (SFO). In this dataset, a column named “Date” is there and we extract the month from it, and created a new column in panda dataframe which reads the CSV file. We plot the occurrences of top 10 frequent crime incidents, and found that Theft/Larceny is the most occurring crime incident in SFO in the summer of 2014.



Next, we plot the distribution of the total crime incidents in the summer months, and observed that as summer progresses, the number of incidents increases.



Finally, we plot the distribution of the frequency of the individual crime incidents in the summer months.



The observation is that the most occurring incident types (Larceny/Theft) increases as summer progresses, which is causing overall number of incidents to increase as summer progresses.

The Jupyter Notebook Link:

https://colab.research.google.com/drive/13tyGiYYVzwLeR0E9GTbDJ216Gfomwyfp?usp=sharing

Summary of the findings:

In Seattle, the crime incidents are mostly uniformly distributed in the summer months. However, the incidence of vehicle theft significantly decreases as the summer progresses. On the contrary, the total number of crime incidents increase as summer progresses in SFO, and the reason is that the most occurring incident type of Theft/Larceny is following the same trend.