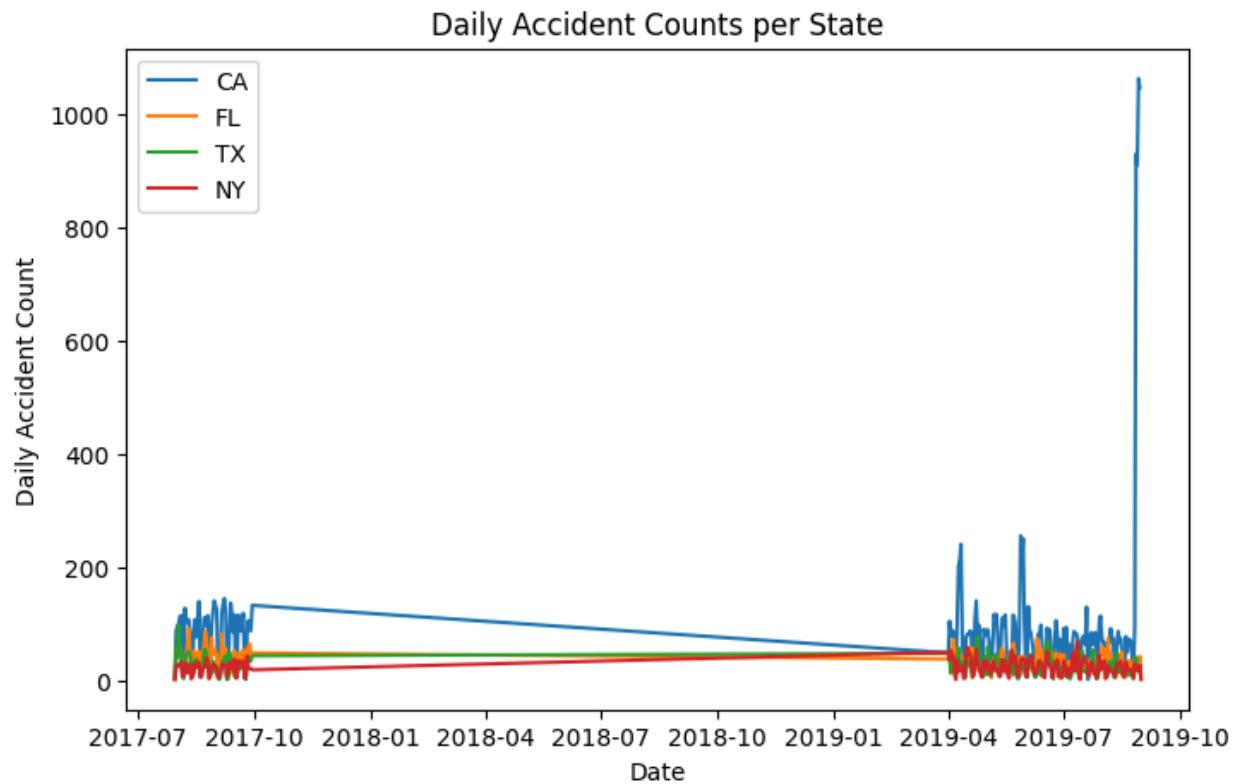


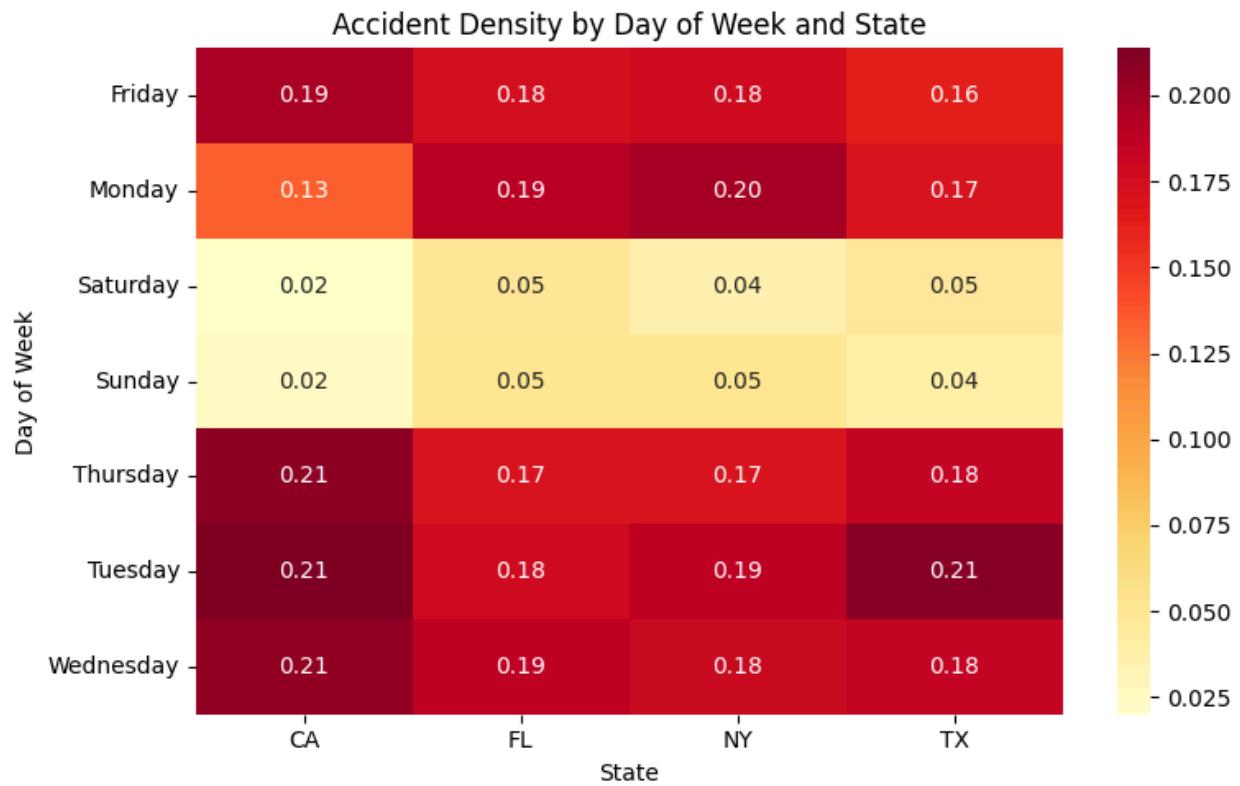
## Task 1 – Time-Series Analysis per State



### Analysis:

The time series plot illustrates daily accident counts for California, Florida, Texas, and New York between 2017 and 2019. California consistently records the highest number of accidents, while Florida, Texas, and New York follow similar but lower trends. Noticeable peaks occur around major holidays such as Thanksgiving and Christmas, suggesting increased travel activity. A visible gap between August 2018 and April 2019 represents missing or irregular records, which were intentionally left visible to preserve data integrity. Overall, California shows the highest accident volume, likely due to its larger population and extensive road network.

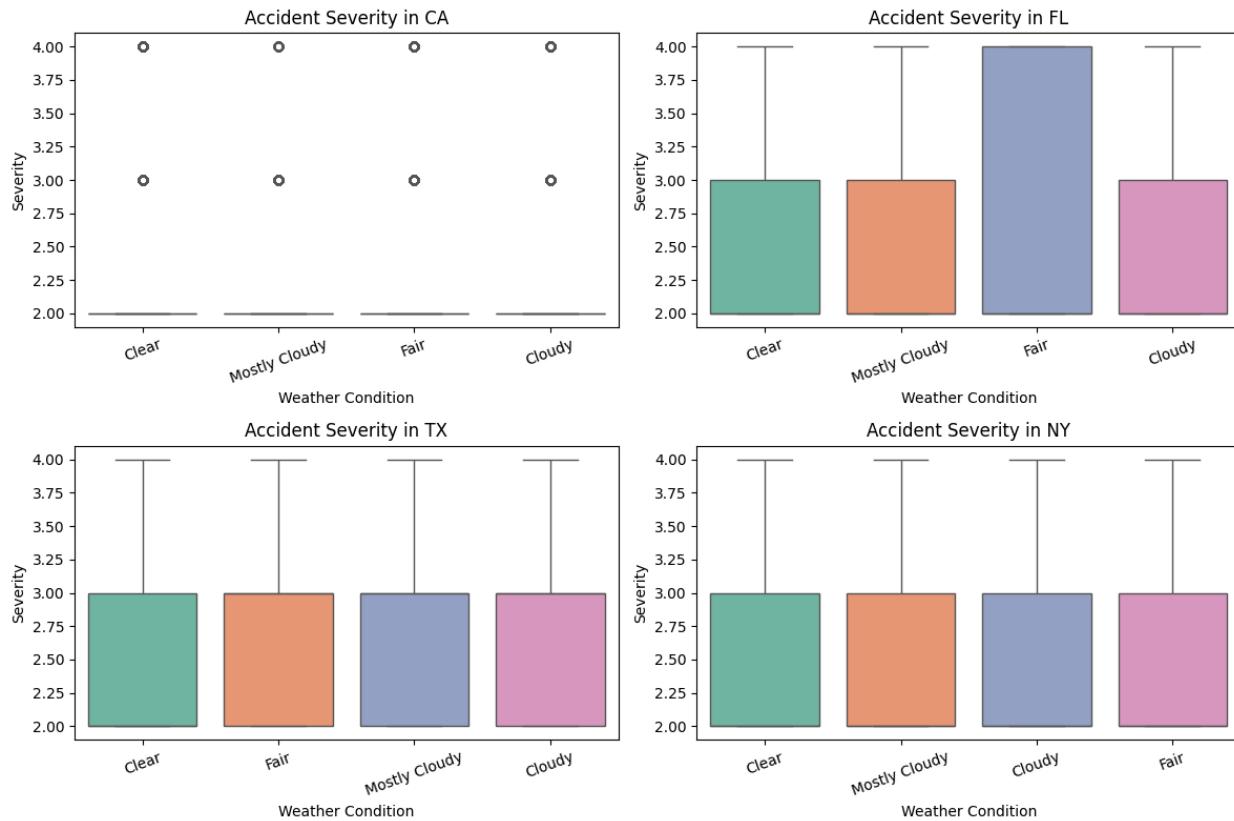
## Task 2 – Heatmap of Accident Density by Day of Week and State



### Analysis:

The heatmap compares the proportion of daily accidents across weekdays for the four states. All states show higher accident densities on weekdays, particularly between Tuesday and Friday, indicating commuter-related traffic patterns. California and Texas display the strongest weekday weekend contrast, while Florida and New York exhibit more balanced distributions. Weekend days (Saturday and Sunday) consistently have the lowest accident proportions. The results confirm that weekday travel contributes significantly to accident frequency, aligning with standard urban traffic behavior.

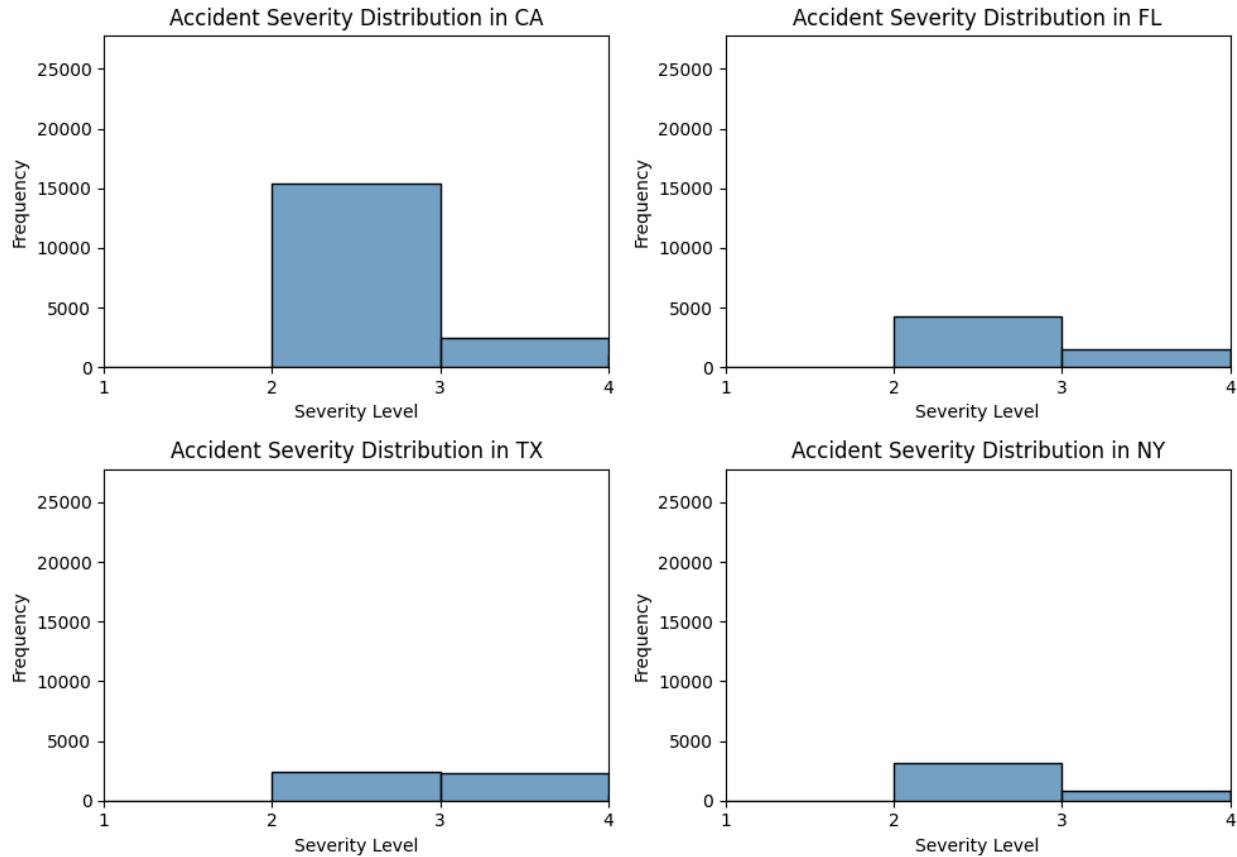
## Task 3 – Accident Severity vs Weather Category



### **Analysis:**

The four boxplots illustrate how accident severity changes under different weather conditions for California, Florida, Texas, and New York. Severity levels are concentrated between 2 and 4 in all states, showing that most reported accidents are of moderate seriousness. Fair and Clear conditions still account for many moderate-severity crashes, likely because traffic is heavier during good weather. Cloudy and Mostly Cloudy days occasionally show slightly higher upper-range severity, possibly due to reduced visibility or wet roads. California exhibits more visible outliers at severity 4, suggesting sporadic severe incidents even under normal conditions. Texas and New York display fairly uniform distributions, while Florida shows slightly higher median severity on Fair days, hinting that congestion and tourist activity may play a role.

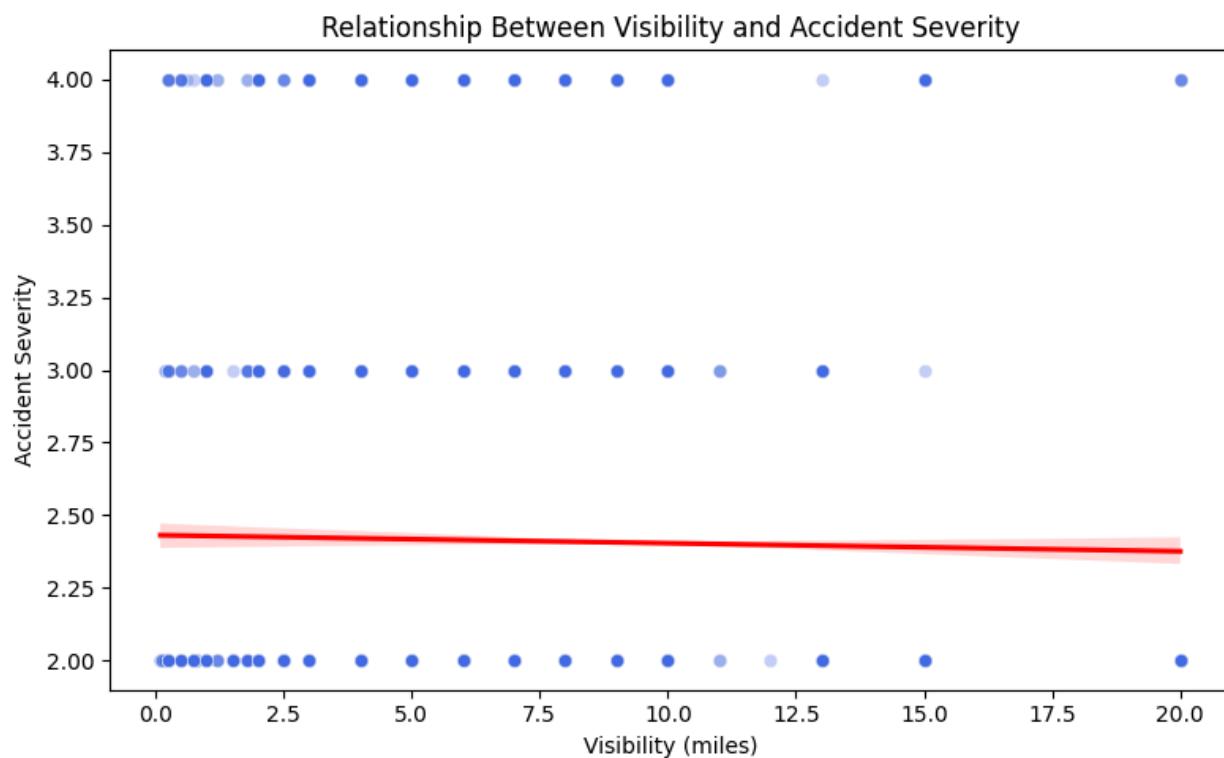
#### Task 4 – Histogram of Accident Severity



#### Analysis:

The histograms display how accident severity is distributed across California, Florida, Texas, and New York. All four states show a strong left-skewed pattern, with the majority of cases concentrated at Severity 2, indicating that most accidents are minor to moderate. A noticeable spike at Severity 2 is followed by a sharp decline at higher levels, reflecting that severe accidents are relatively rare. California has the highest overall frequency and a slightly heavier tail extending into Severity 3 and 4, suggesting a greater share of severe incidents. Florida, Texas, and New York exhibit similar distributions dominated by low-severity crashes. Very few records appear at Severity 1, implying that the least serious incidents may not have been reported.

## Task 5 – Open-Ended Exploration



### Analysis:

The scatterplot explores the relationship between visibility (in miles) and accident severity. A slight downward trend in the regression line indicates that accidents tend to be slightly more severe when visibility is reduced, though the effect is weak. Most accidents occur at moderate severity levels (2–3) even when visibility ranges between 5 and 10 miles, suggesting that visibility alone is not a strong predictor of severity. Overall, reduced visibility appears to contribute marginally to more severe accidents, but other factors such as road design, traffic volume, and driver behavior likely play larger roles.