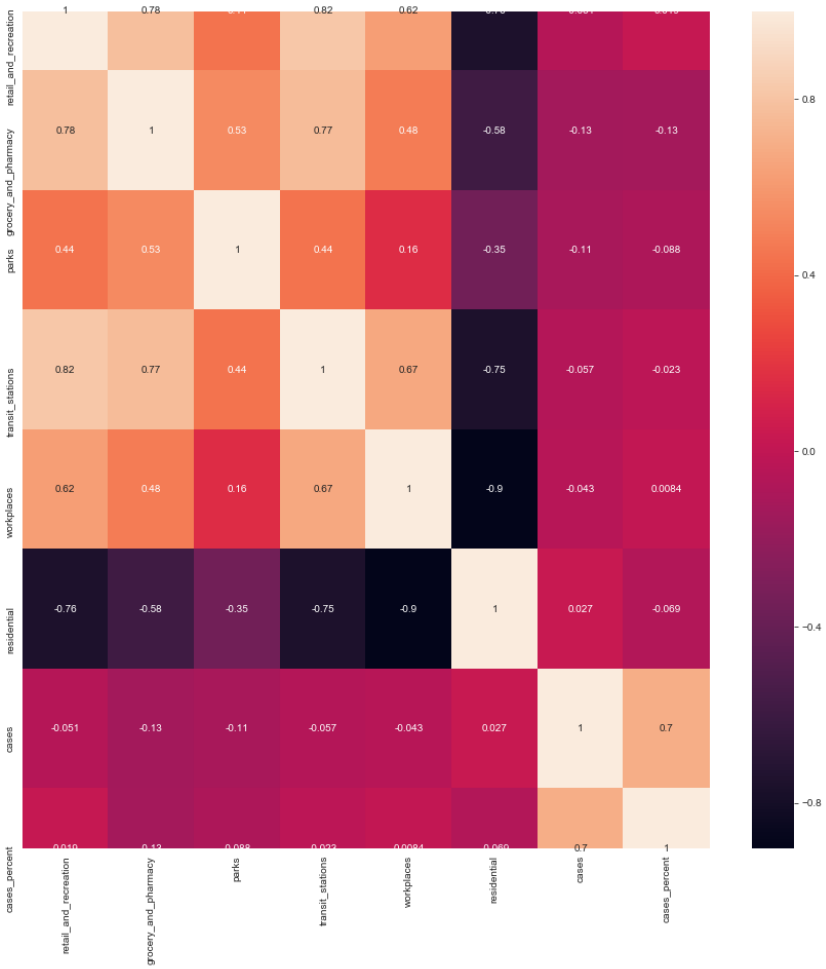
# Visualizations

Following are the some of the visualizations we had performed to show different variations and trends that are helpful for better understanding of our dataset we are working on.

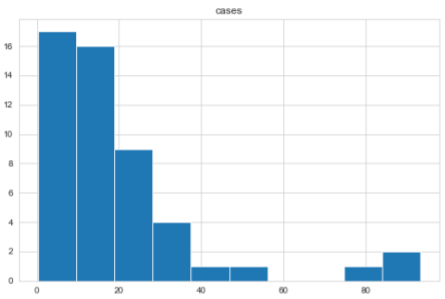
## Heat Maps:

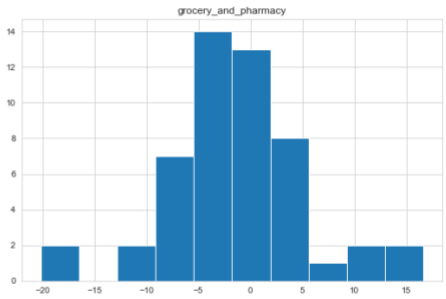
Heatmaps are used to show the correlation between different features such mobility in the six areas retail and recreation, grocery and pharmacy, parks, transit stations, workplaces, residential and the number of cases in all the 50 United States. Using correlation matrix, we get a better look at the variables with a strong and weak relationship with respect to the number of positive cases. From the below map we can observe that except in the residential places all other places show negative correlation meaning that as number of positive cases increases mobility in those public places decreases.

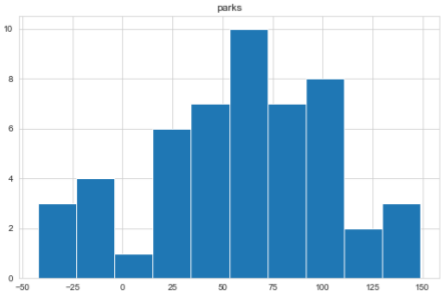


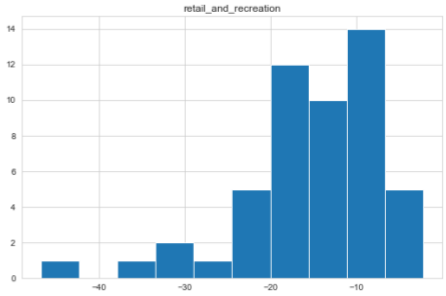
**Histograms**

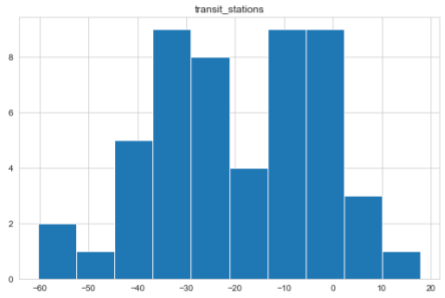
Histogram is a chart that plots the distribution of a numeric variable's values as a series of bars. Each bar typically covers a range of numeric values called a bin or class; a bar's height indicates the frequency of data points with a value within the corresponding bin. From the following histogram it shows the trend of the mobility in different public places.

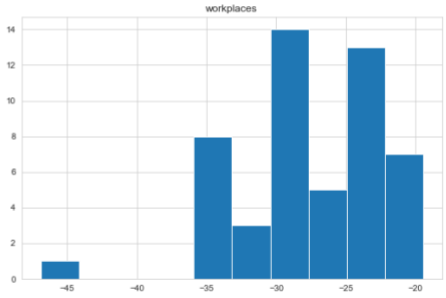


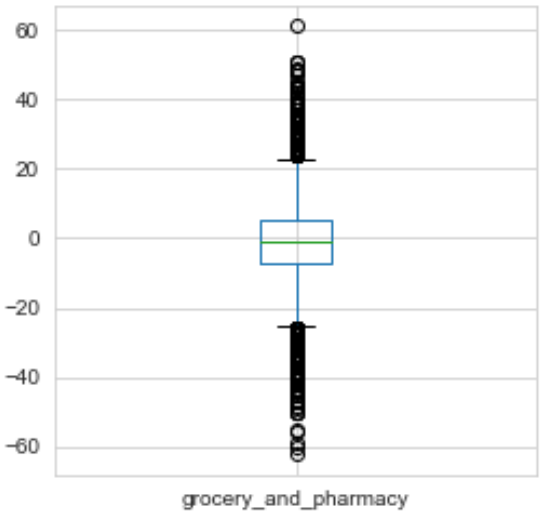



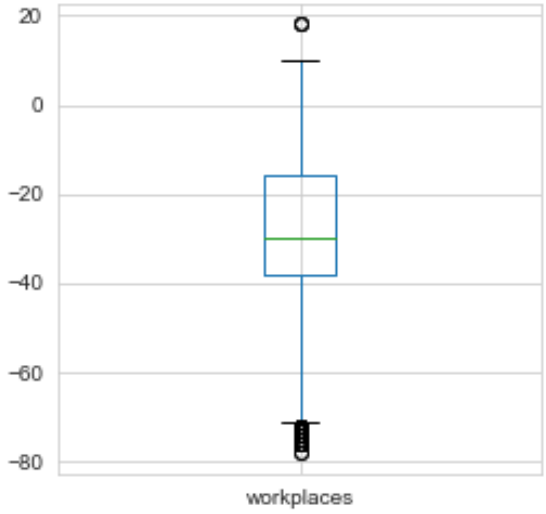



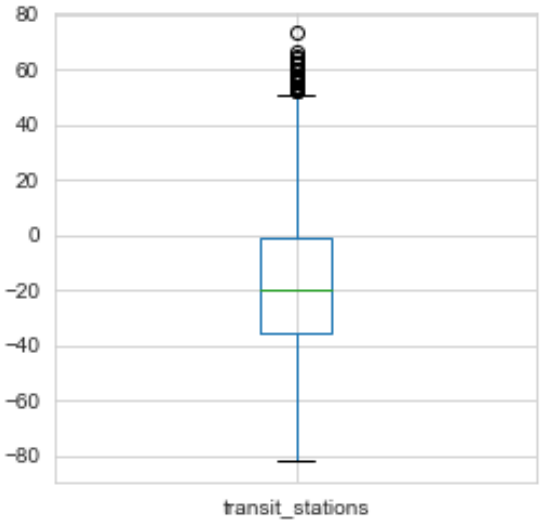



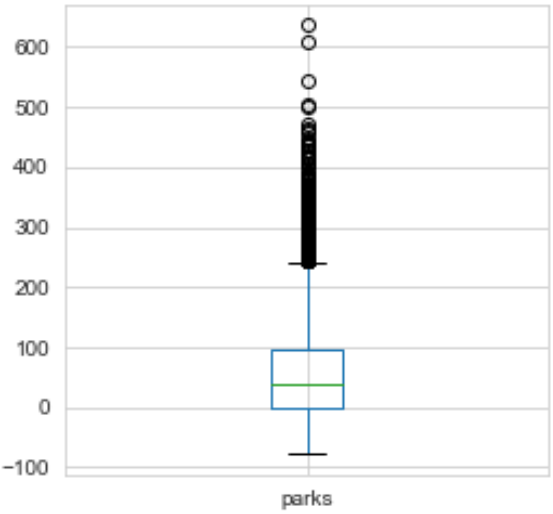



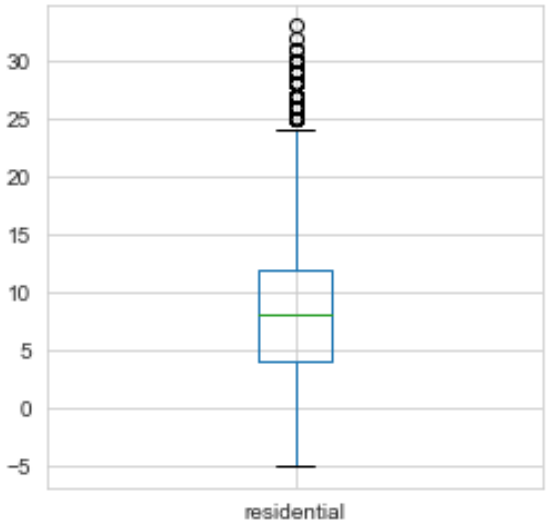
**Finding outliers:** An outlier is an observation that lies an abnormal distance from other values in the sample of population. This outlier doesn't show actual trend in the dataset. In order to identify these outliers, we use boxplots on different features of our dataset. When reviewing a box plot, an outlier is defined as a data point that is located outside the whiskers of the box plot. From the boxplots below we can observe the outliers are present in almost all feature categories. Among all outliers are more evident for grocery and pharmacy category from this we can understand as these places are essential places there are more outliers.

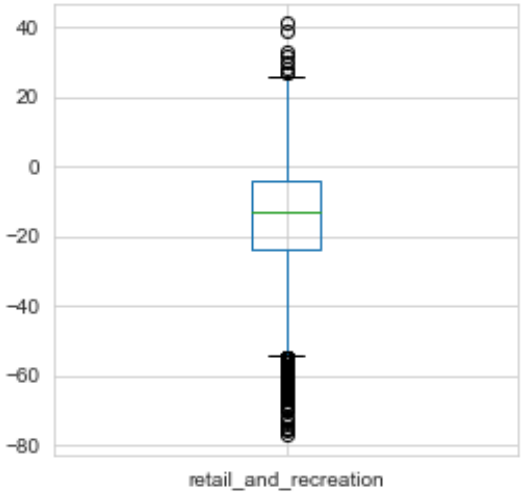


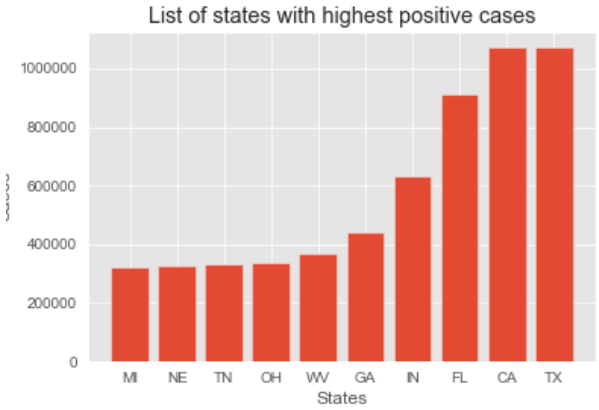



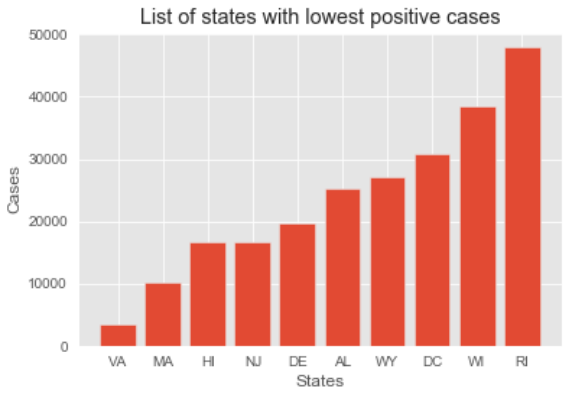


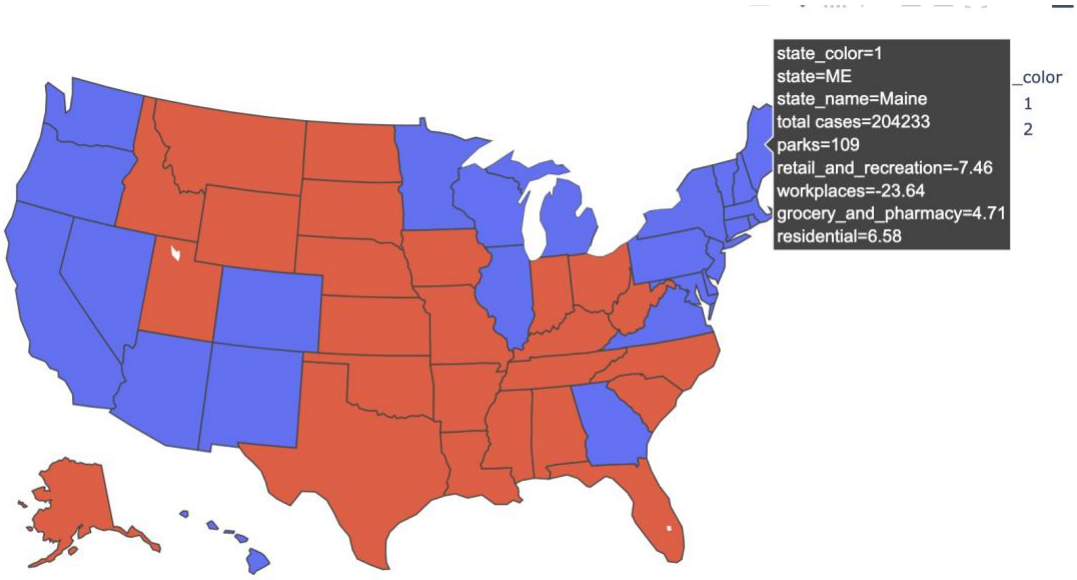




**Bar Graphs:**

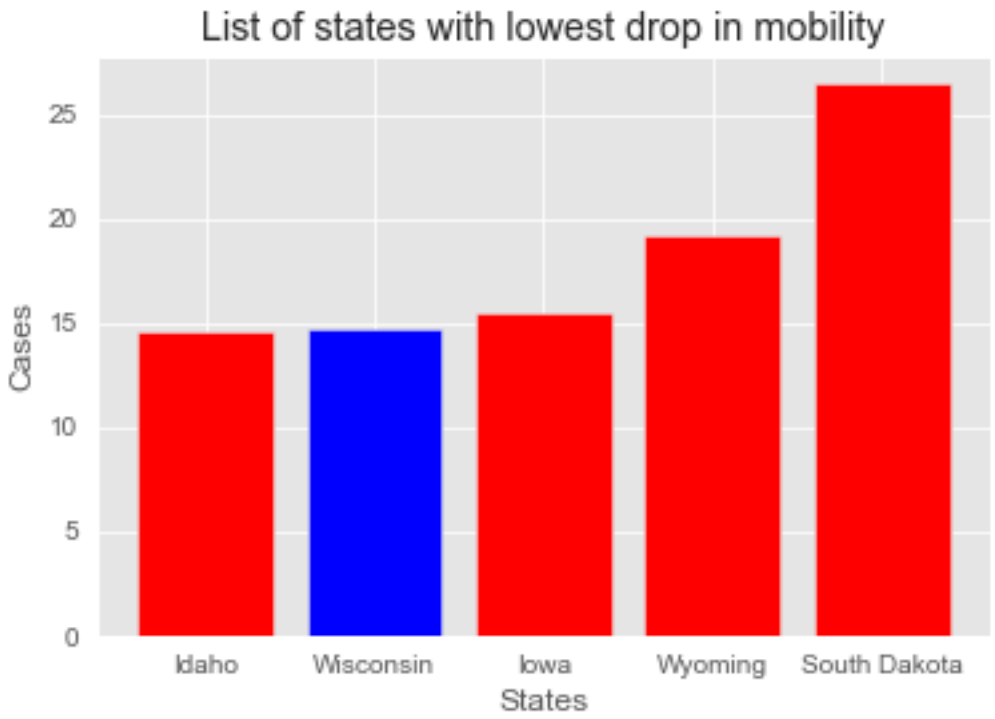
We are using bar graphs to show the states with highest and lowest number of positive covid cases

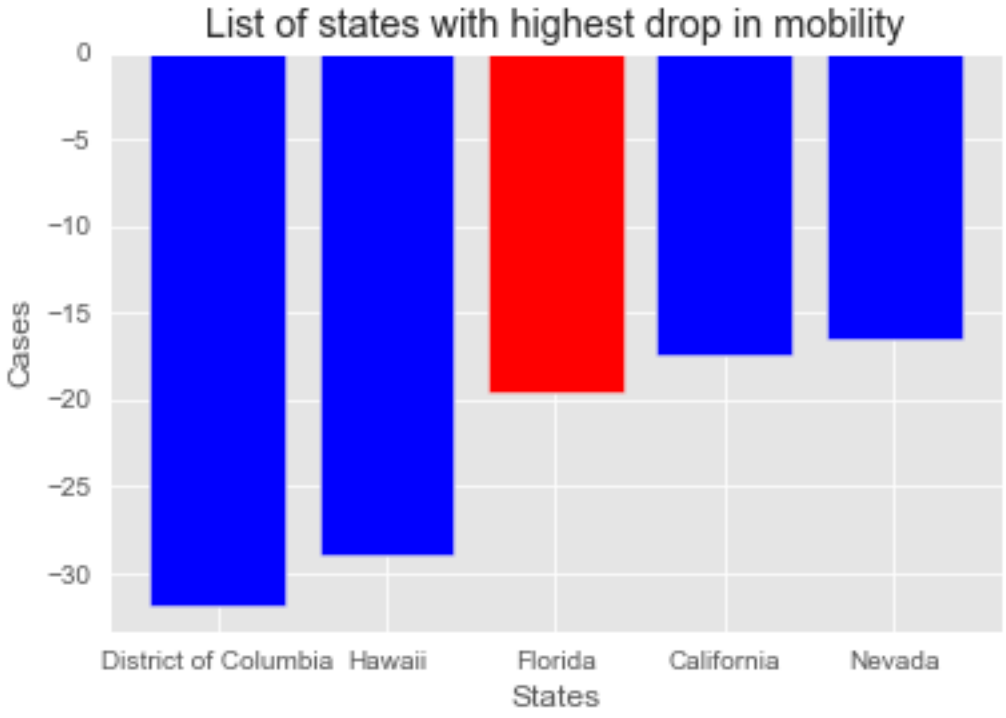


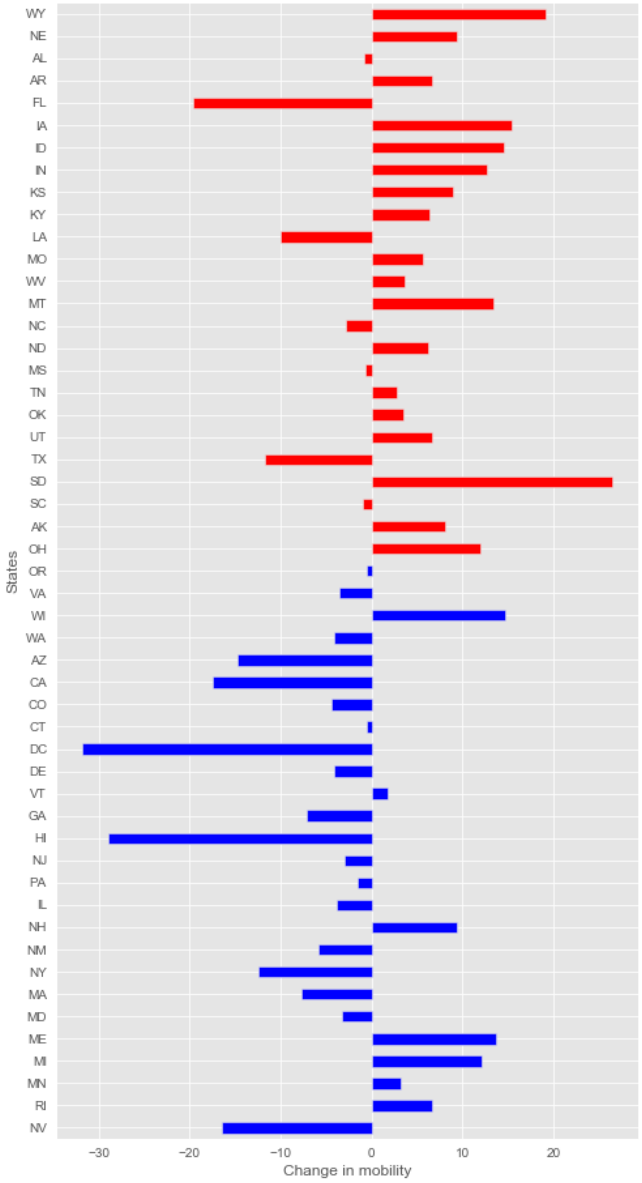






Graph showing Red and Blue states along with all the mobility trends.




List of states with highest drop in mobility
0
−5
−10
−15
−20
−25
−30
Cases
District of Columbia
Hawaii
Florida
California
Nevada
States




Mobility Trend in Red Blue states