

A decorative graphic on the left side of the slide consisting of two overlapping parallelograms. The front one is blue and the back one is light green. They are positioned diagonally, with the blue one partially covering the green one.

Capstone Project - Car accident severity

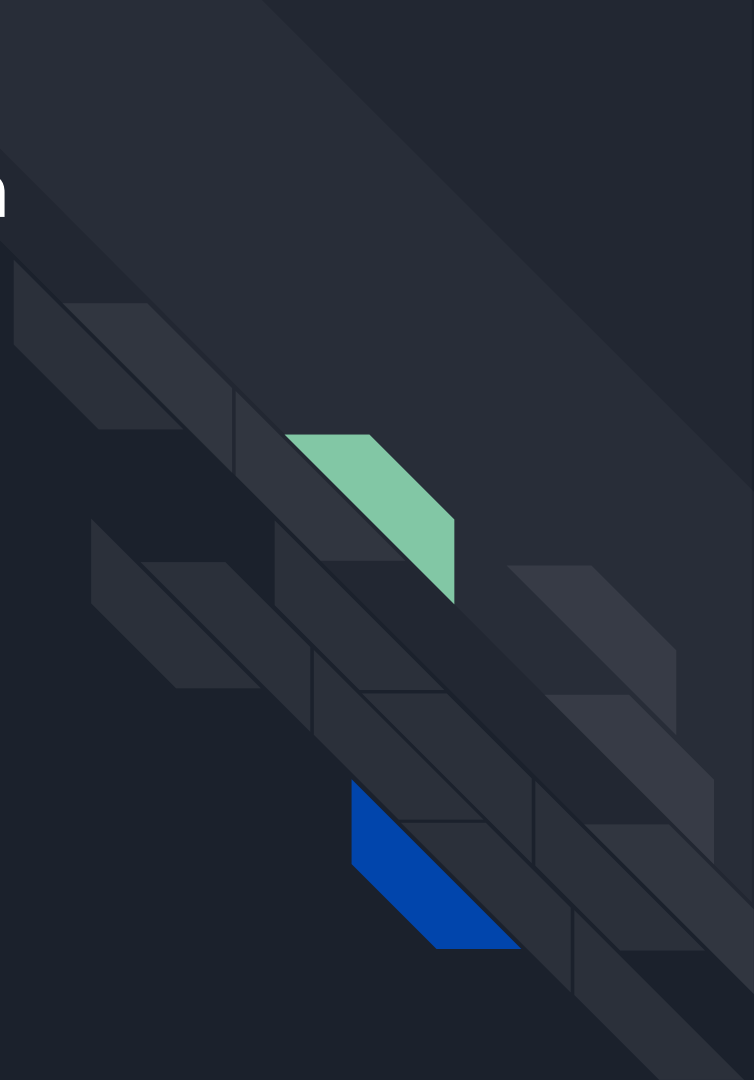


Introduction Business Problem ¶

With traffic accidents that claim more than 40,000 lives per year in the United States, **It is necessary to investigate the causes that generate, focusing on finding a solution that we can take to avoid accidents or reduce their severity by analyzing data from the Seattle Department of Transportation.**

The data used for this study was obtained from the Seattle Department of Transportation.

The data used is from Seattle's Collision GIS (Geographic Information System), a computer system used for capturing, storing and displaying data related to positions on Earth's surface. The data is from 2004 to the present and contains various features such as location, the severity of the collision, number of vehicles/cyclists/pedestrians involved, date/time of incident, weather, road conditions and more. There are almost 200,000 collisions in the dataset and 38 features.





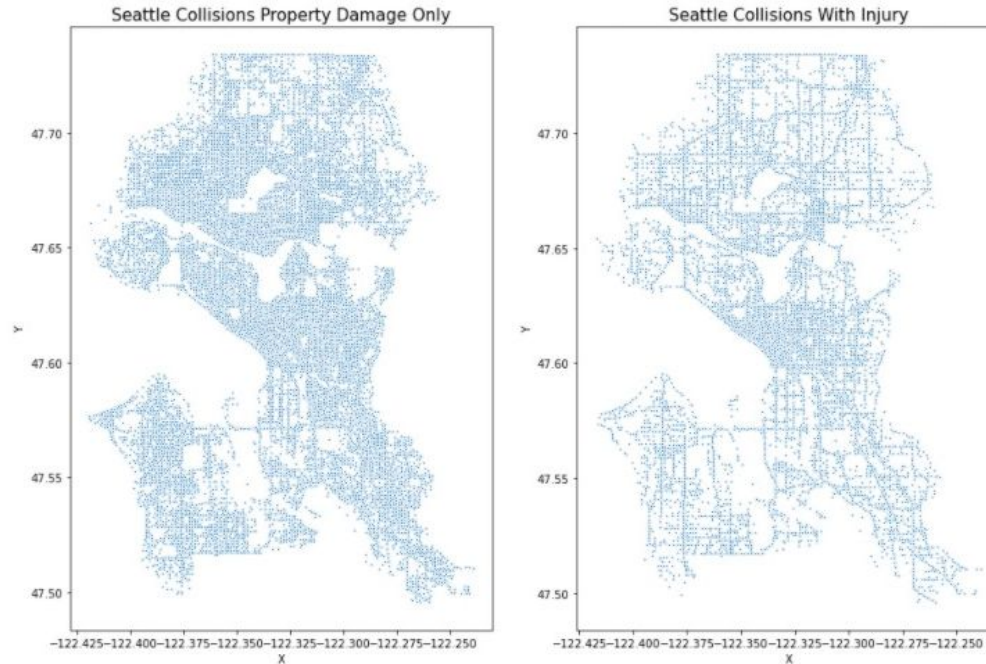
Metodology

Jupyter Notebooks was used to perform the analysis and all the necessary Python libraries such as Pandas, Numpy, Matplotlib and Seaborn will be imported. The data was mostly categorical, therefore most variables are plotted in graphs to see the correlation between various variables.

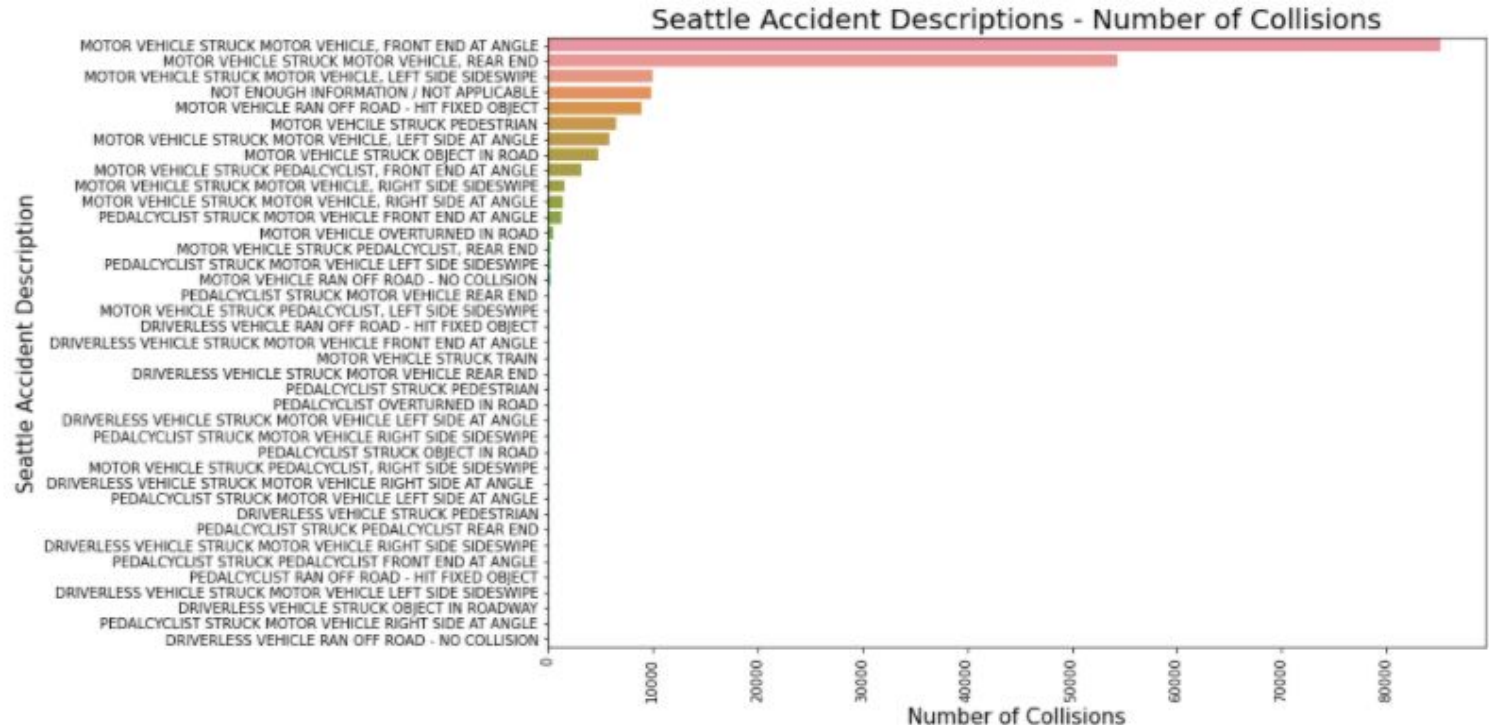
The csv file was imported and I prepare the data, I dropped the columns that we do not need from the dataset, that is, columns that have no values or where the values are unknown.

Accident Analysis by Type of Severity

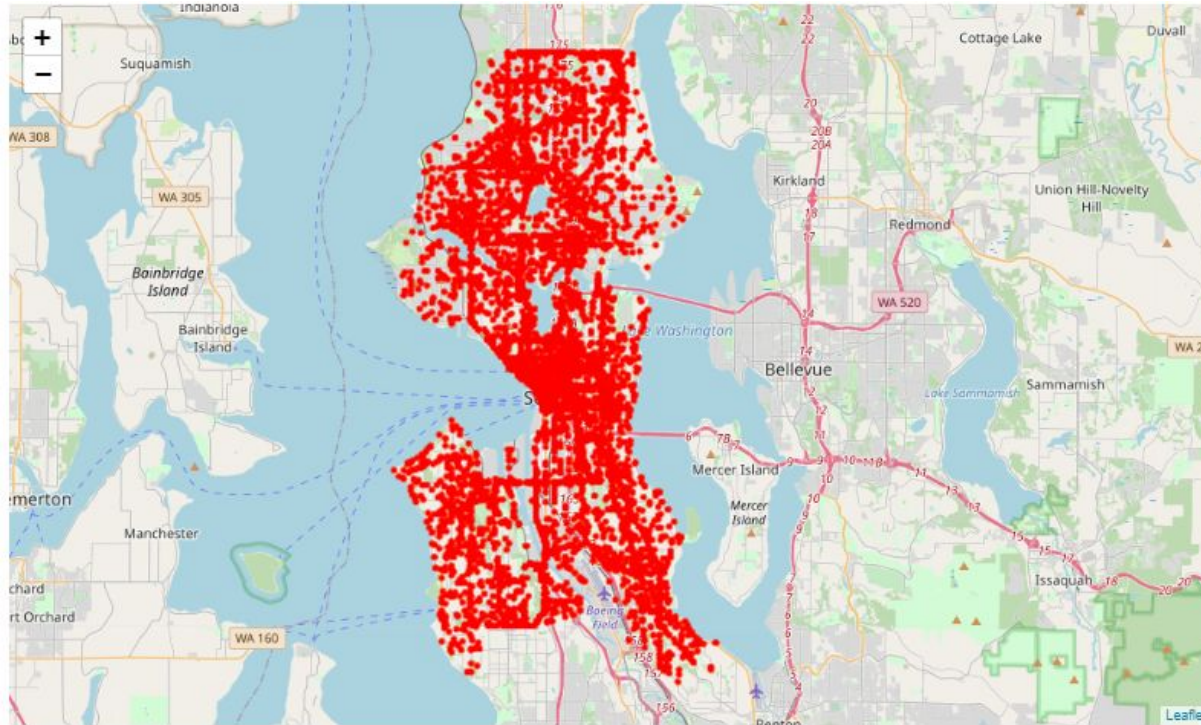
Collisions With and Without Injury



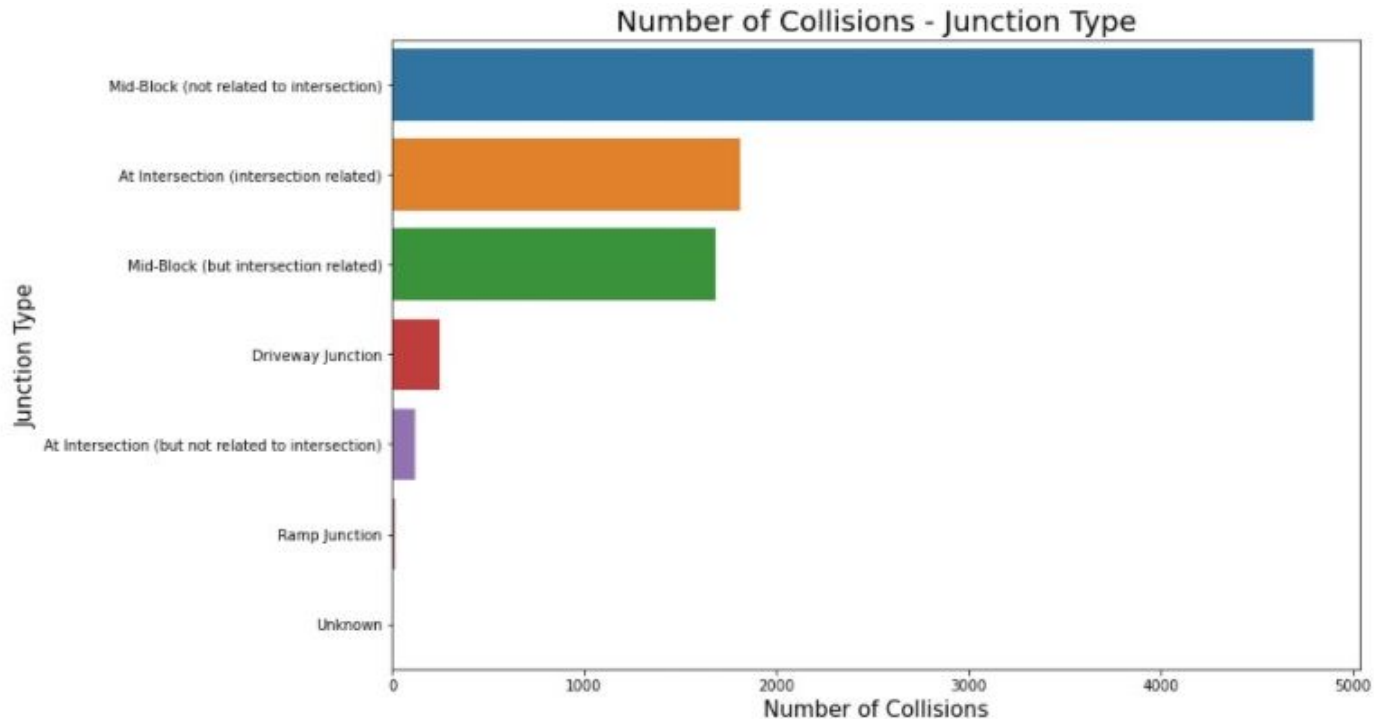
Accident Analysis Accident Descriptions



Accident Analysis high Speeding period (2004-2020) aprox 8800 accident.



Accident Analysis high Speeding





Result and Discussion

After conducting the first quick analysis on the data set that we obtained from a sample of accidents in Seattle, it is detailed.

1. There are many more collisions that involve only property damage versus injuries.
2. Collisions involving injuries tend to occur in and around the city center and major roads, while collisions without injuries are evenly distributed.
3. Collisions occur more frequently in blocks than in intersections, very low accident rate in others.
4. Most types of collisions are with parked cars. Rear angles and collisions are also common.
5. The most frequent number of people involved in collisions is 2.
6. Almost no pedestrians or bicyclists are involved in accidents.
7. Most collisions involve 2 vehicles.
8. Although the number of collisions has fluctuated over the past 16 years, it appears to be trending downward. The recession between 2007-2009 and the growth that followed may have had an impact.
9. The number of collisions tends to increase slightly in October and decrease slightly in February.
10. The number of collisions tends to go up slightly on Fridays and down slightly on Sundays.
11. Most collisions do not involve alcohol or drugs.
12. Most collisions occur when the weather is clear, the roads are dry, and it is daytime.
13. The "parked car hit" function contradicts the "collision type" function.
14. Speeding collisions occur mostly in the middle of the street and not at intersections.



Conclusion

The data is consistent with each other. Many of the accidents occur under ideal driving conditions. This allows me to give my first opinion that the reasons for the accidents are due to carelessness or poor traffic infrastructure.

As the first improvement proposal is to limit the maximum speeds in the central streets, since this would drastically reduce collisions.

Seattle appears to be making progress toward its Vision Zero plan, but it has a long way to go. Some of the most relevant characteristics for predicting the severity of a collision can be the location, the type of direction and the type of collision. Additionally, since most days in Seattle are marked with cloudy skies, good weather and dry conditions can also be good characteristics for predicting the severity of the collision.