

Capstone

Project

Car

Accident

Summary

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1. Introduction

The seaport city of Seattle is the largest city in the state of Washington, as well as the largest in the Pacific Northwest. As of the latest census, there were 713,700 people living in Seattle. Seattle residents get around by car, trolley, streetcar, public bus, bicycle, on foot, and by rail. With such bustling streets, it's no surprise that Seattle sees car accidents every day.

In 2015, a crash occurred in Washington every 4.5 minutes. Seattle recorded the highest number of car accidents in the state that year, at 14,508 (in second place was Tacoma with just 4,756). Although the city is taking steps to make the roadways safer for citizens, vehicle collisions are still a serious danger. Here are a few facts about traffic accidents in the Emerald City.

All around, the future looks bright for drivers and pedestrians in Seattle. However, people are still suffering serious injuries in hundreds of car accidents each year. Those who survive traffic accidents can face hefty medical bills, thousands of dollars in lost wages and property damage, pain and suffering, and lost quality of life. A collision could cause permanent disability, stripping the victim of the life he or she might have had. For compensation for all of these serious losses, car accident victims can turn to the Seattle civil court system.

Washington is a fault state when it comes to who will pay for victims' damages. This means that after a crash, claimants must determine who was at fault to know where to seek recovery. The at-fault party could be the other driver, the company in charge of the vehicle or driver, a vehicle manufacturer, or the city of Seattle for an unsafe roadway. Many crashes involve the fault of more than one party. Washington is a pure comparative negligence state, meaning that a party can share fault for a crash yet still be eligible for financial recovery.

2. Data

The data used for this study is provided by Coursera and can be found by clicking the following link: <https://s3.us.cloud-object-storage.appdomain.cloud/cf-courses-data/CognitiveClass/DP0701EN/version-2/Data-Collisions.csv>

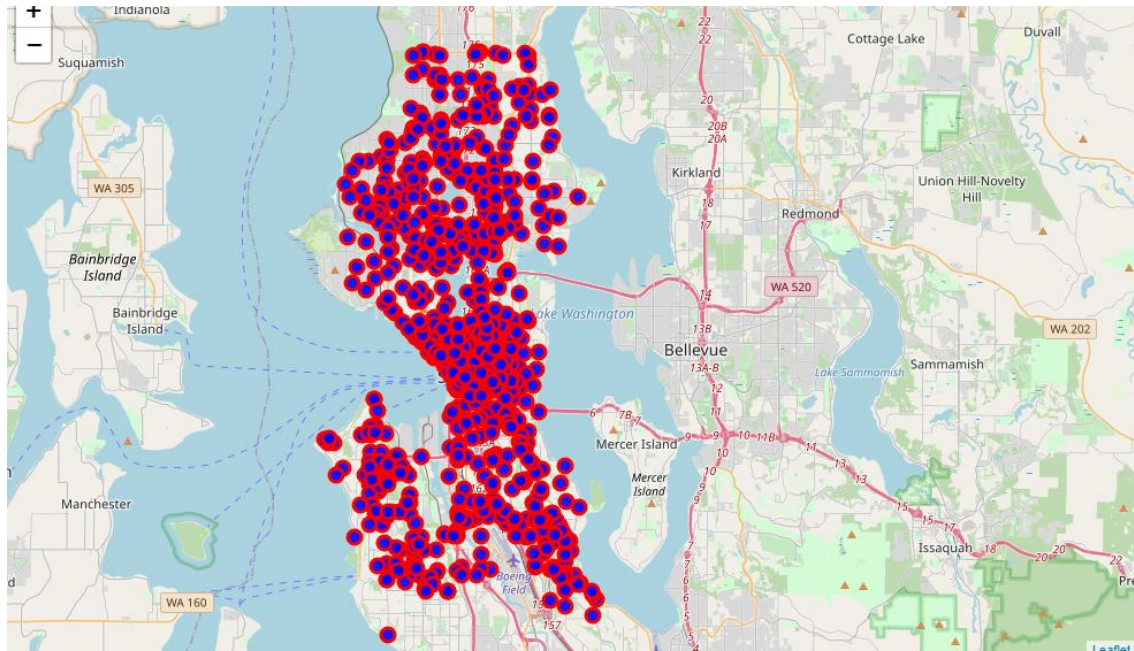
The features used will be: • SEVERITYCODE • ADDRTYPE • JUNCTIONTYPE • SDOT_COLDESC (Description of the collision) • WEATHER • LIGHTCOND

The dataset has information gathered on the road traffic accidents of Seattle City. The initial dataset consists of 38 columns (features/attributes) and 194673 rows. Python packages will be used to conduct this study. The dataset will be cleaned according to the requirements of this project. Missing data information will either be substituted using valid means or dropped, considering the amount of missing data and the description of individual elements. In the table below we see some parameters analyzed;

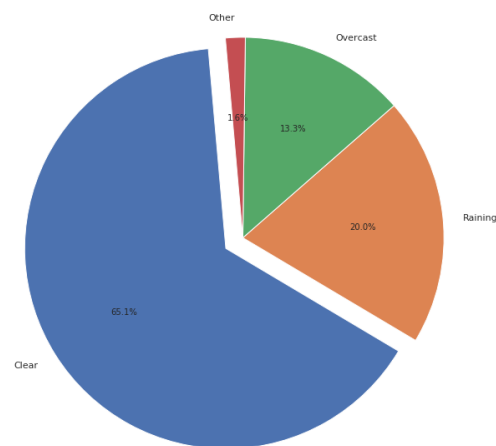
	SEVERITYCODE	WEATHER	ROADCOND	LIGHTCOND
0	2	Overcast	Wet	Daylight
1	1	Raining	Wet	Dark - Street Lights On
2	1	Overcast	Dry	Daylight
3	1	Clear	Dry	Daylight
4	2	Raining	Wet	Daylight

3. Methodology

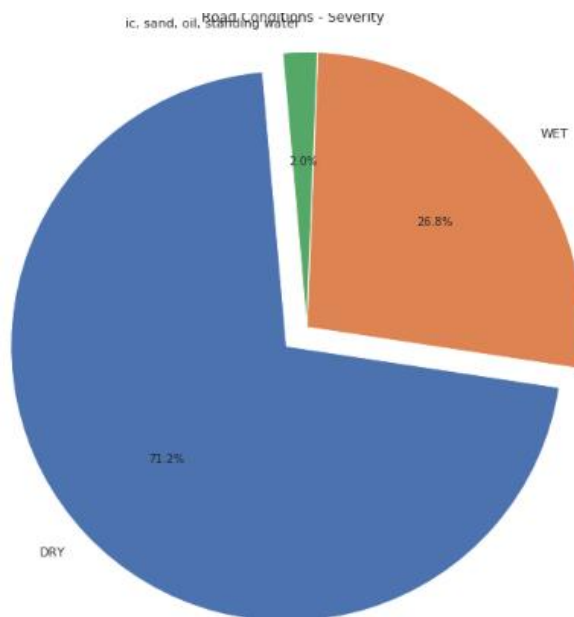
Mapping about accident locantion's



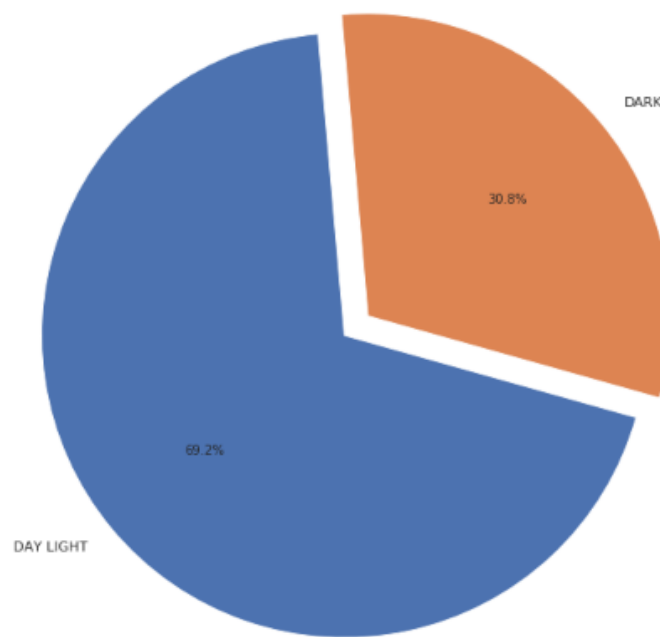
Weather Conditions



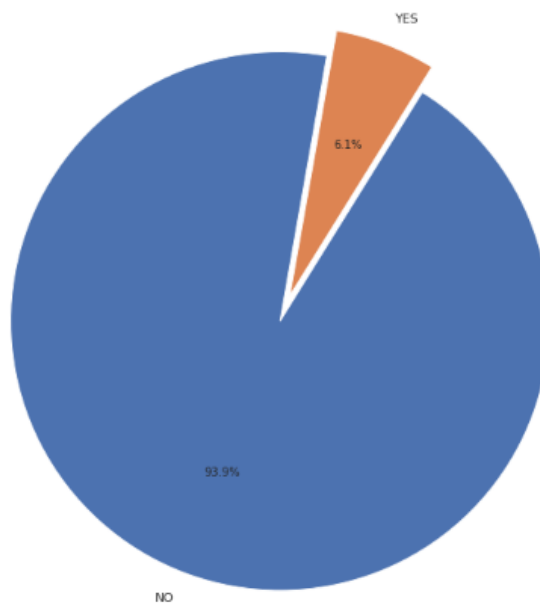
Road Conditions



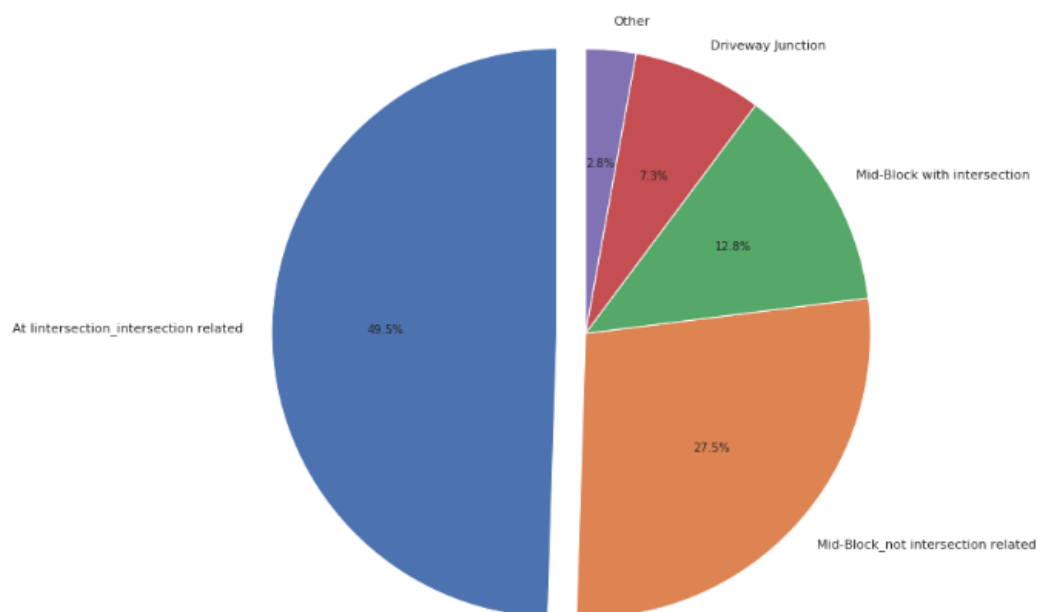
Light Conditions



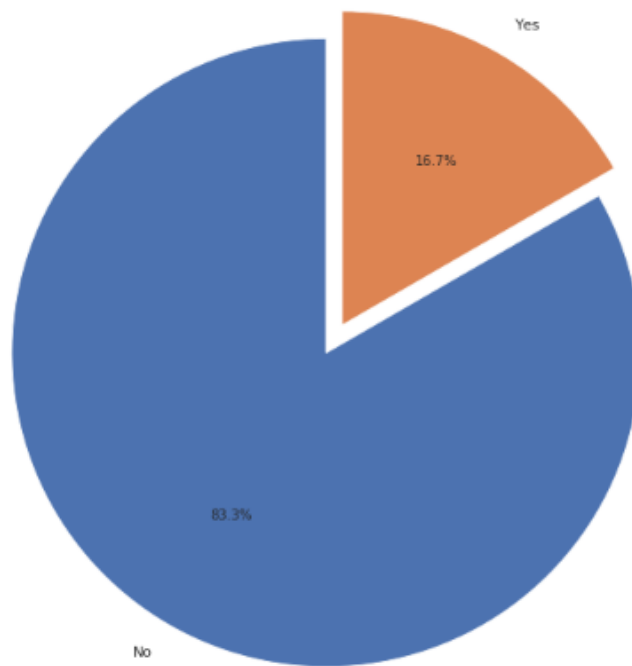
Speed Severity



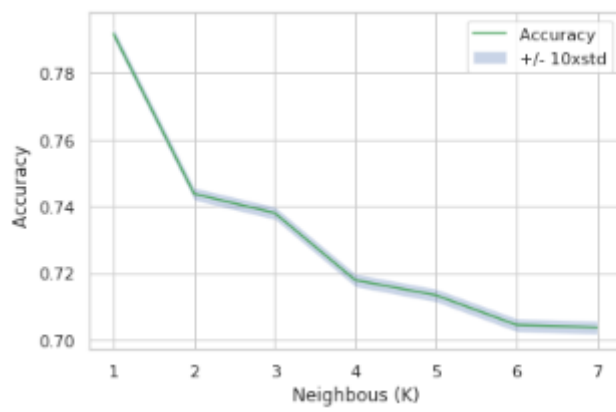
Junction Type Severity



Innattention – Severity

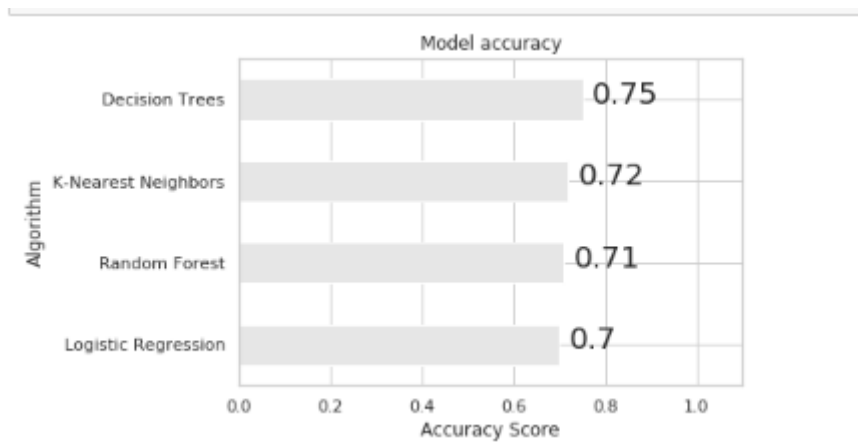


Accuracy vs Neighbours



4. Results

Model Accuracy



5. Conclusion

Some parameters have not been calculated, which may present data failure, which would be necessary for future analysis. the best model is the decision trees