

Predictive analysis of accident severity

Applied Data Science Capstone

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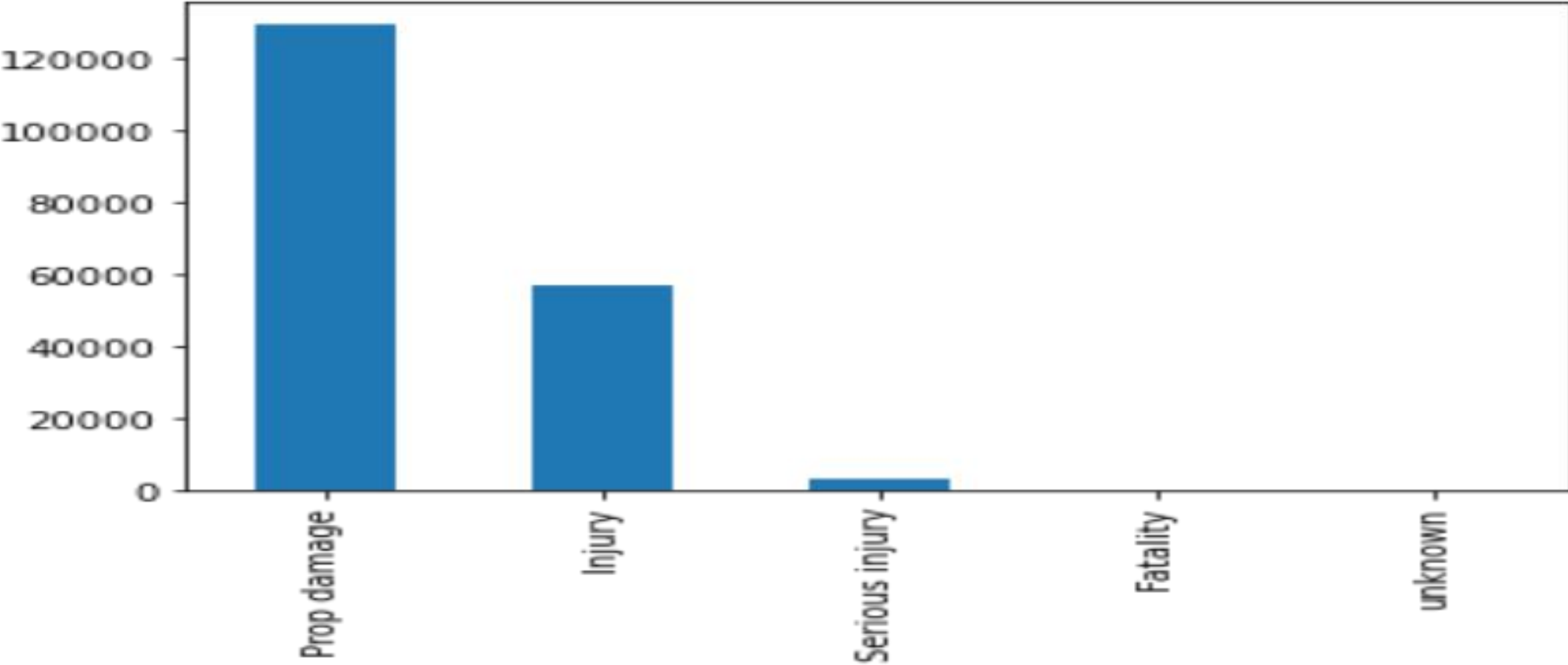
Introduction

- The Seattle government is concerned with the severity and number of accidents and wants to employ actions based on the analysis of historical data to alert drivers of the imminence of accidents.
- This study aims to predict the severity of an accident, given the locations, weather and road conservation. The analysis aims to determine a set of possible causes that contribute to the increase in the severity of accidents to allow preventive actions by road users.
- The targets audience of the project are drivers, rescue groups, police and insurance companys. It's expected to achieve a reduction in the number and severity of accidents to make drivers and passengers more secure.

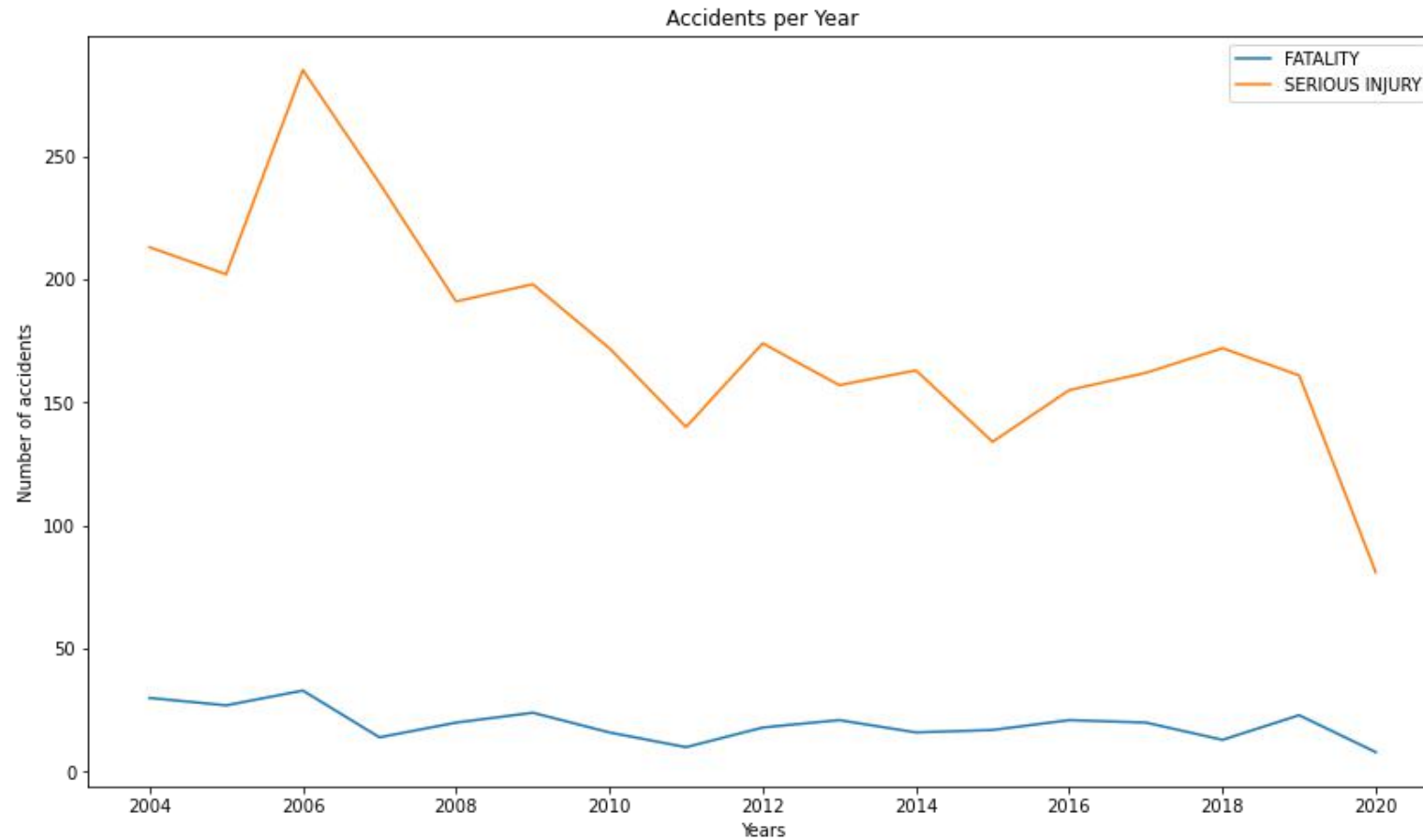
About dataset

Field	Description
OBJECTID	ESRI unique identifier
LATITUDE (X)	ESRI geometry field
LONGITUDE (Y)	ESRI geometry field
ADDRTYPE	Collision address type (Alley/Block/Intersection)
SEVERITYCODE	A code that corresponds to the severity of the collision (3 — fatality/2b — serious injury/2—injury/1 — prop damage/0 — unknown)
COLLISIONTYPE	Collision type
INCDTTM	The date and time of the incident
UNDERINFL	Whether or not a driver involved was under the influence of drugs or alcohol
WEATHER	A description of the weather conditions during the time of the collision
ROADCOND	The condition of the road during the collision
LIGHTCOND	The light conditions during the collision
SPEEDING	Whether or not speeding was a factor in the collision (Y/N)

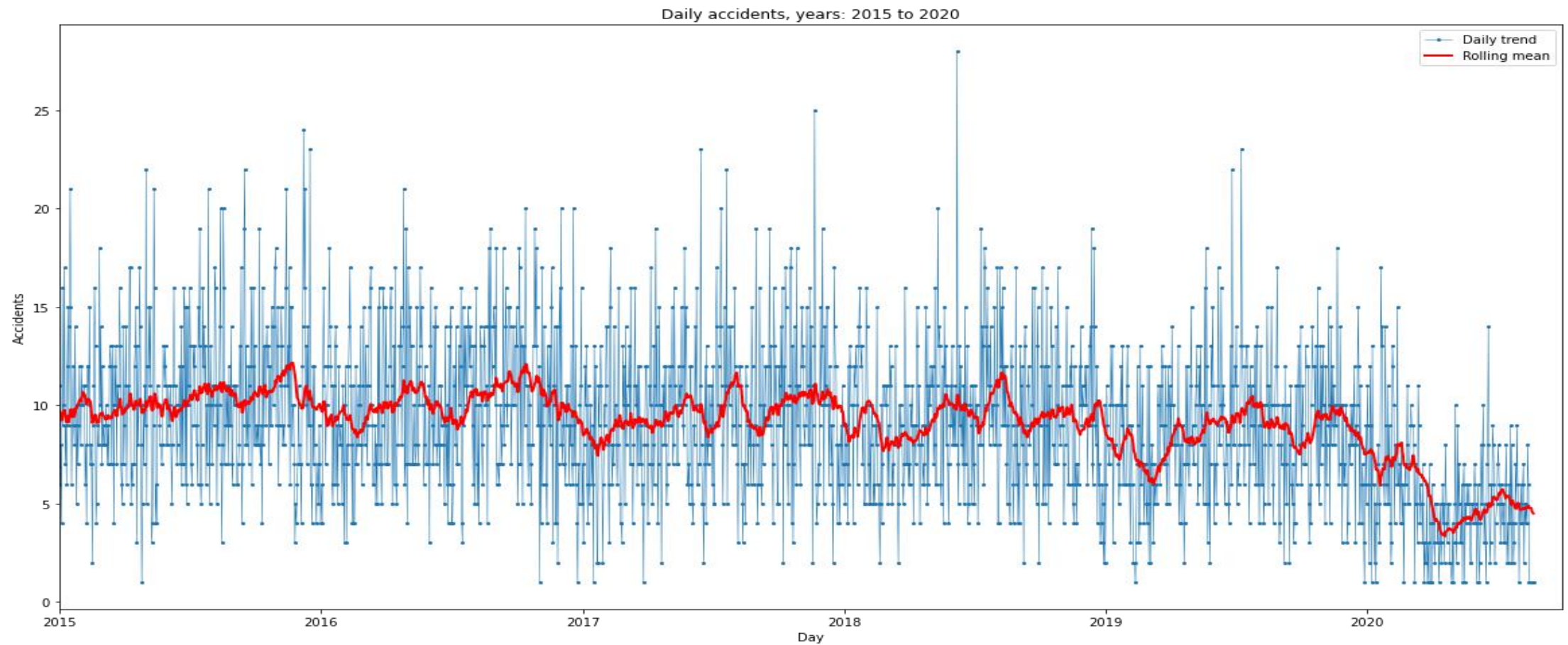
Accidents Severity



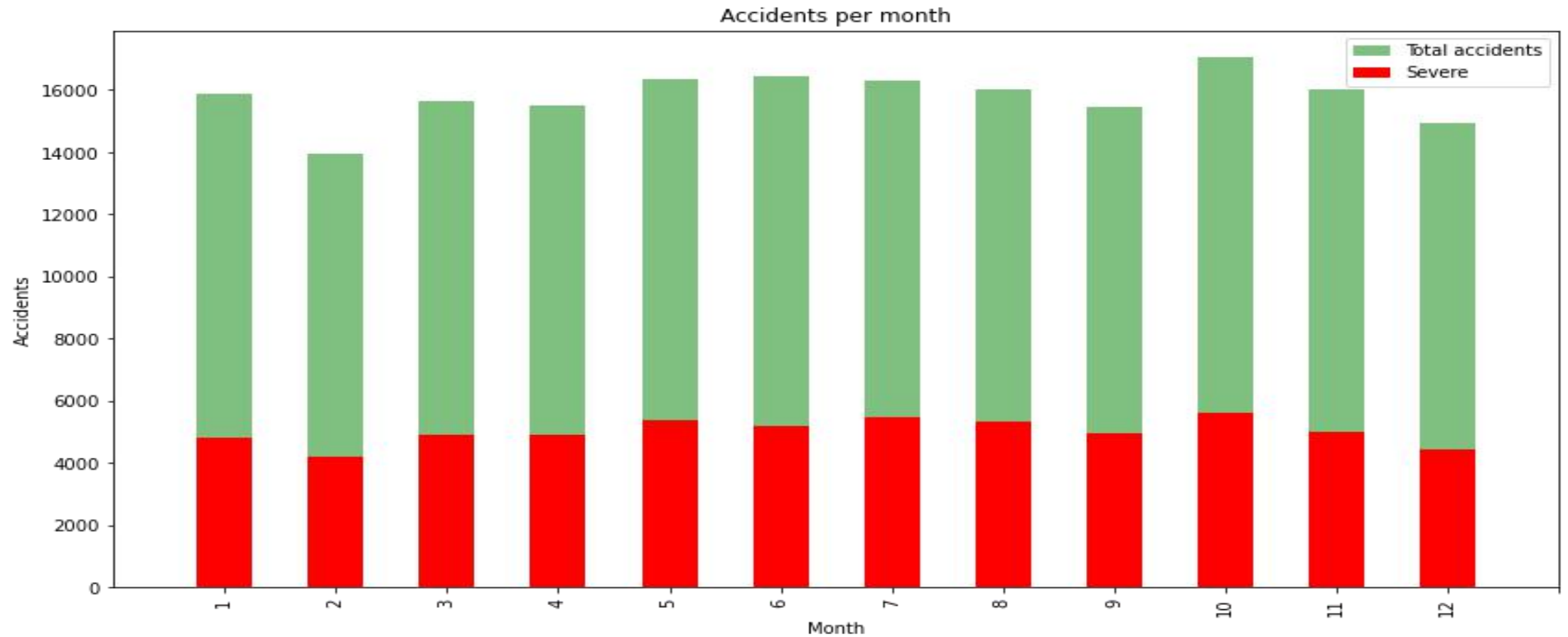
Fatality vs Serious injury



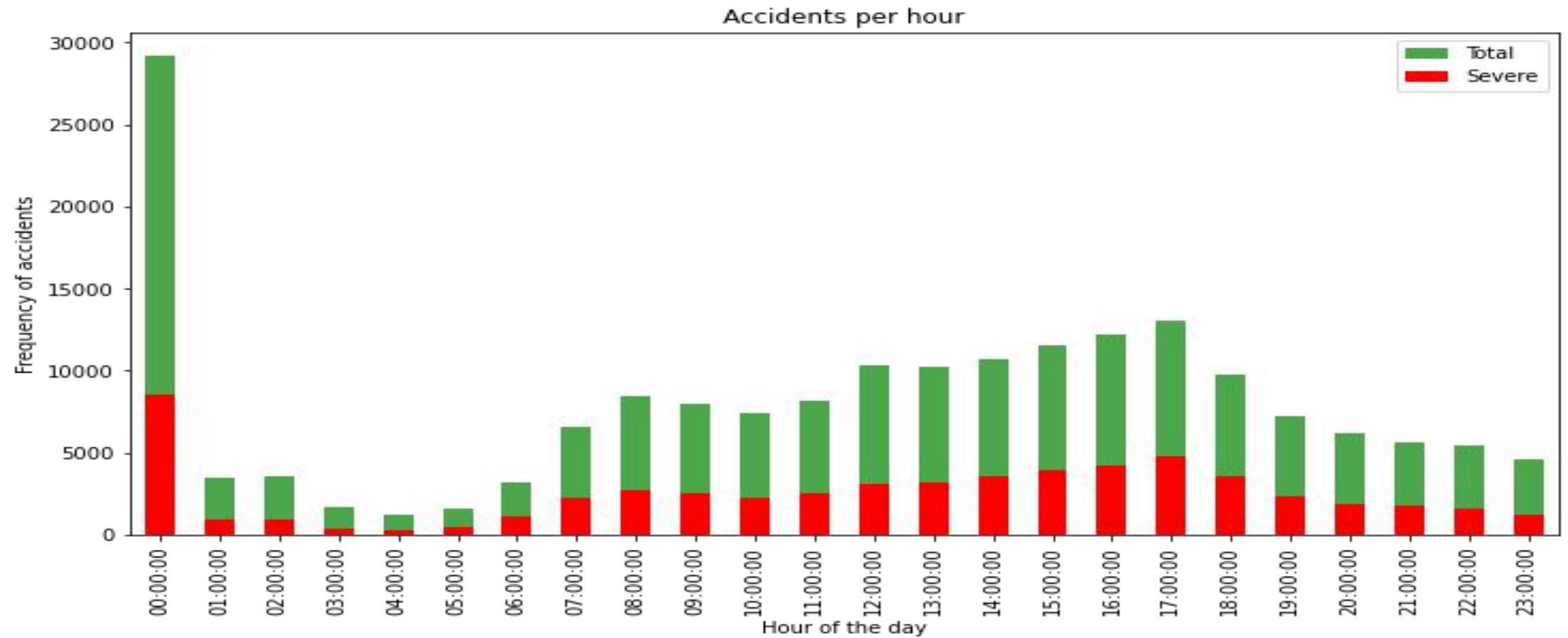
Accidents per Year



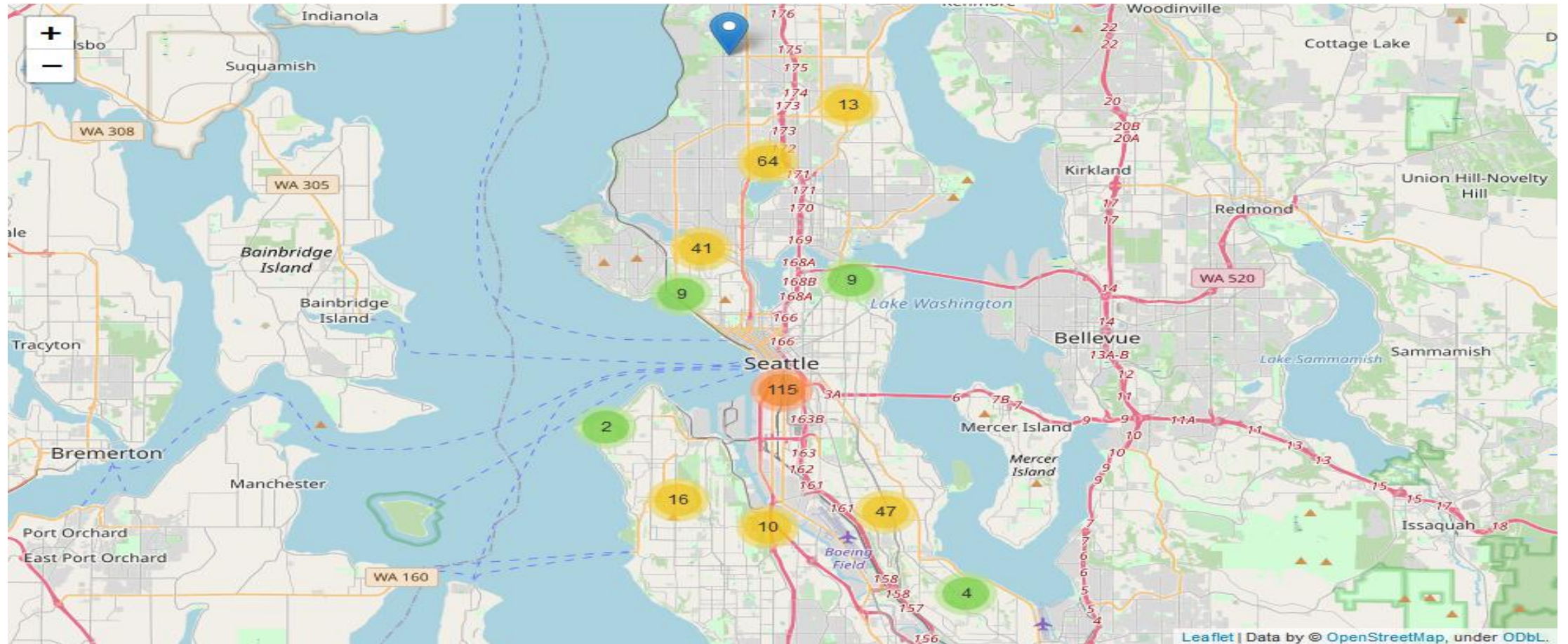
Accidents per month



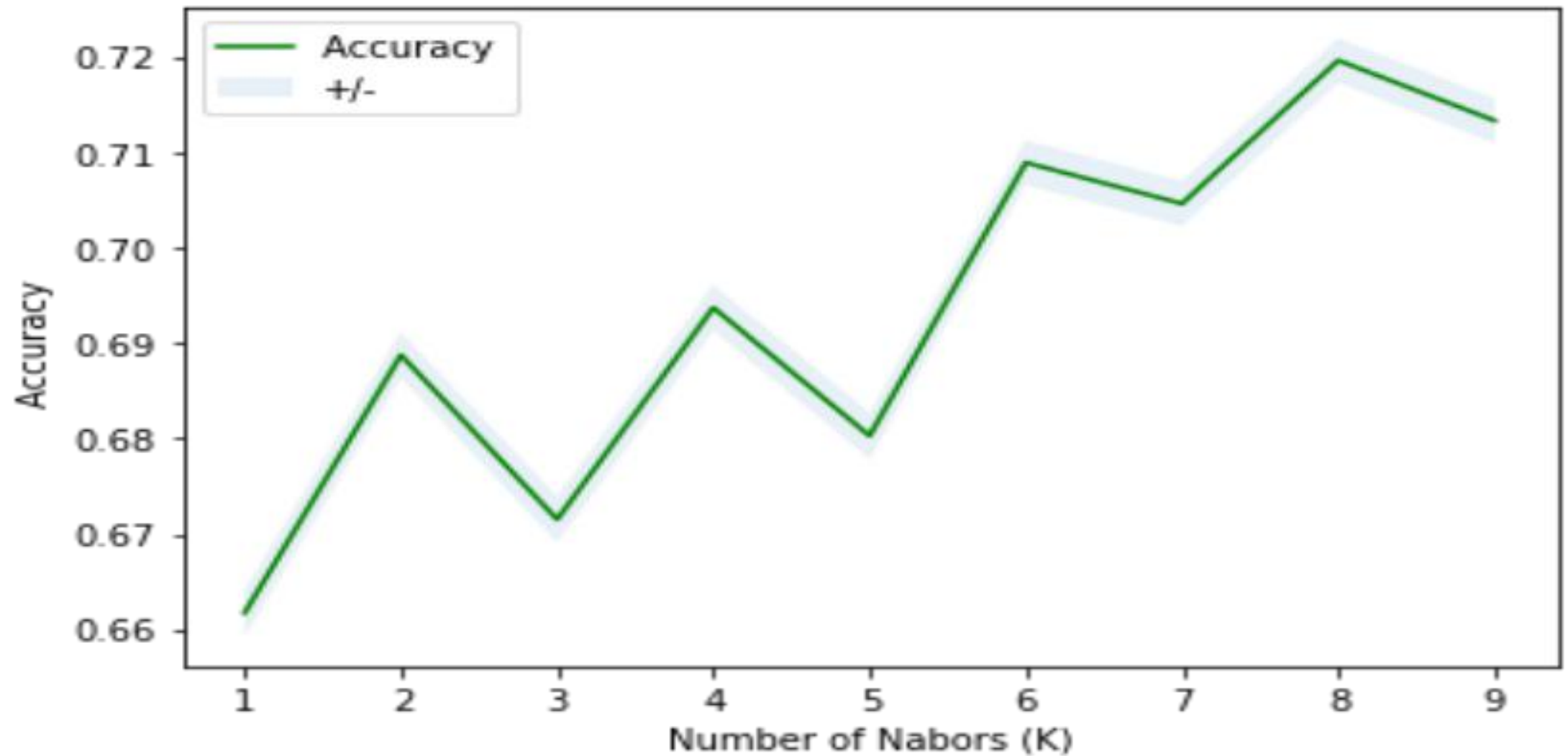
Accident time



Accidents Location



The best accuracy



Accuracy evaluation

- Train set Accuracy: 0.7268015404093691
- Test set Accuracy: 0.7195948619207132



Conclusion

- From the analysis of the information obtained from the Seattle Department of Transportation Traffic Management Division we can conclude that the weather conditions, the state of conservation of roads, the lighting and the speed of traffic can have an aggravating impact in the case of automobile accidents.