Seattle Accidents Severity Prediction

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Predicting Weather impact on Severity & Visually locating High incident Loc

- Predicting the severity of an accident due to weather impact is useful for 911 dispatchers
- Useful in mobilizing additional resources to save lives, proactively.

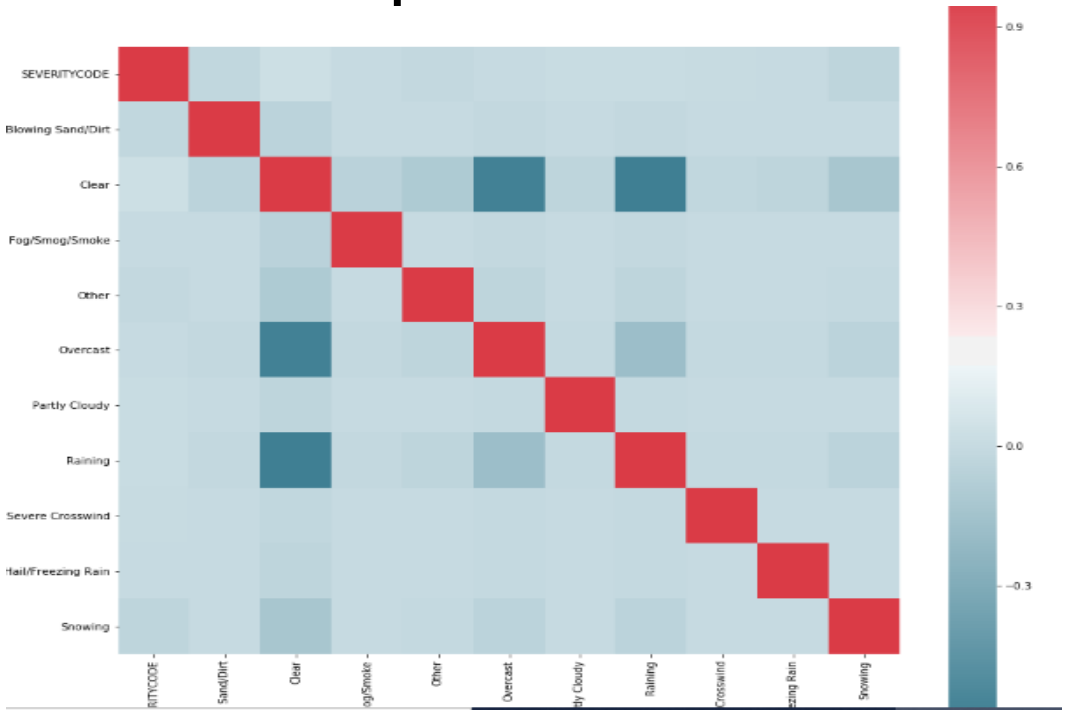
- Town Planners will be able to locate the high incidents zones for additional infrastructure consideration

Data Acquisition and cleaning

- Sample dataset provided for Seattle Car accidents with severity
- Total 194,673 rows and 38 features in the raw data set
- Only 2020, 2019 years data is selected for modeling
- After cleaning and dropping the not required features , 9896 rows and 14 features left in the dataset

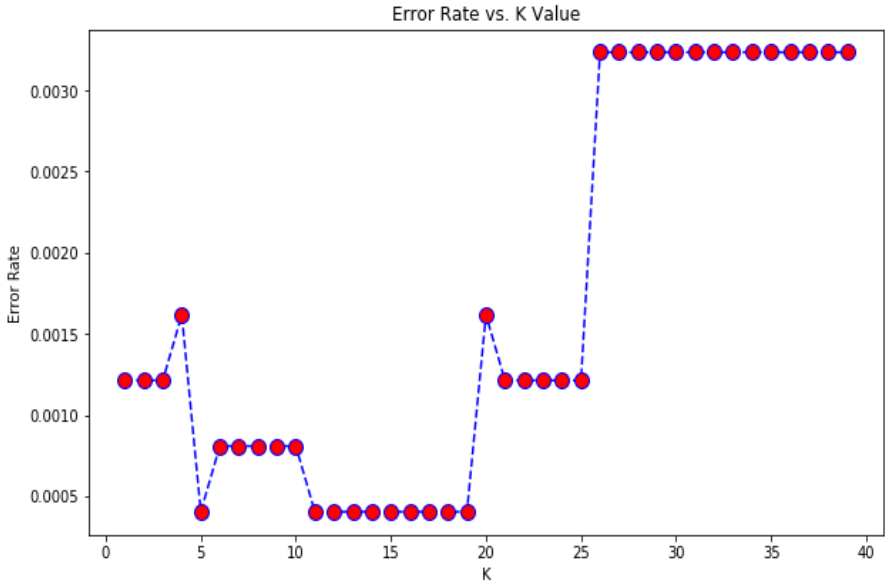
Data Modeling Selection

- Weather feature was used to create a further features using one hot encoding
- Correlation Heat map was created



Modeling algorithms and summary Results

- KNN
- Decision Tree
- SVM
- Logistics Regression

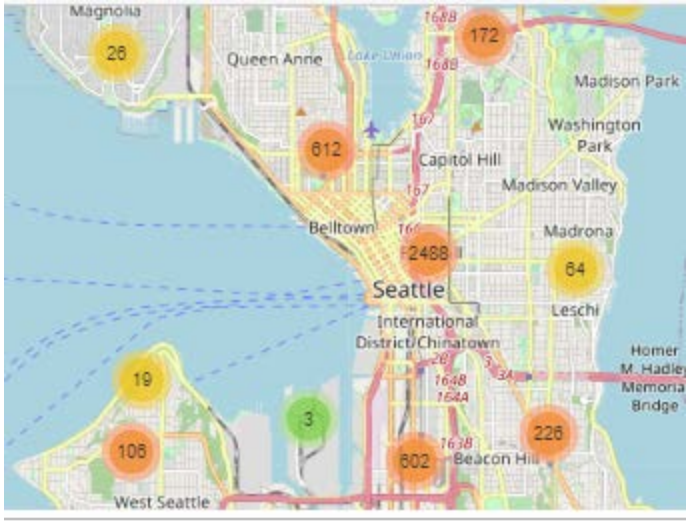


Algorithm	Jaccard	F1-score	LogLoss
KNN	0.99838	0.99838	NA
Decision Tree	1.00000	1.00000	NA
SVM	0.99797	0.99798	NA
LogisticRegression	1.00000	1.00000	0.04323

Weather Severity Conclusion

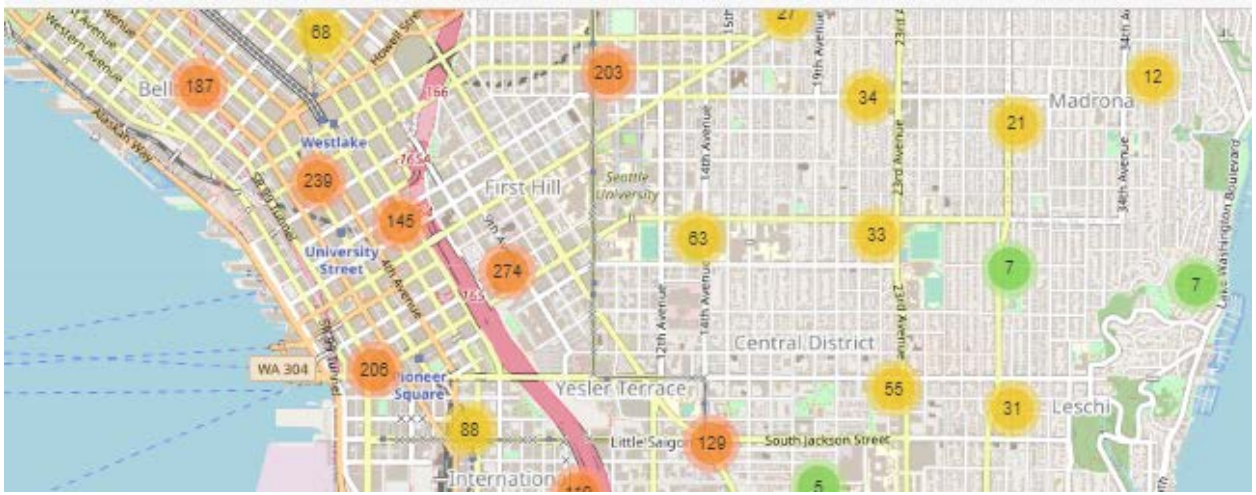
- With high degree KNN, SVM Logistic regression can be used for prediction
- Following conditions have impact on severity
  - Overcast
  - Rain
  - Snow

High Incident Location – Visual

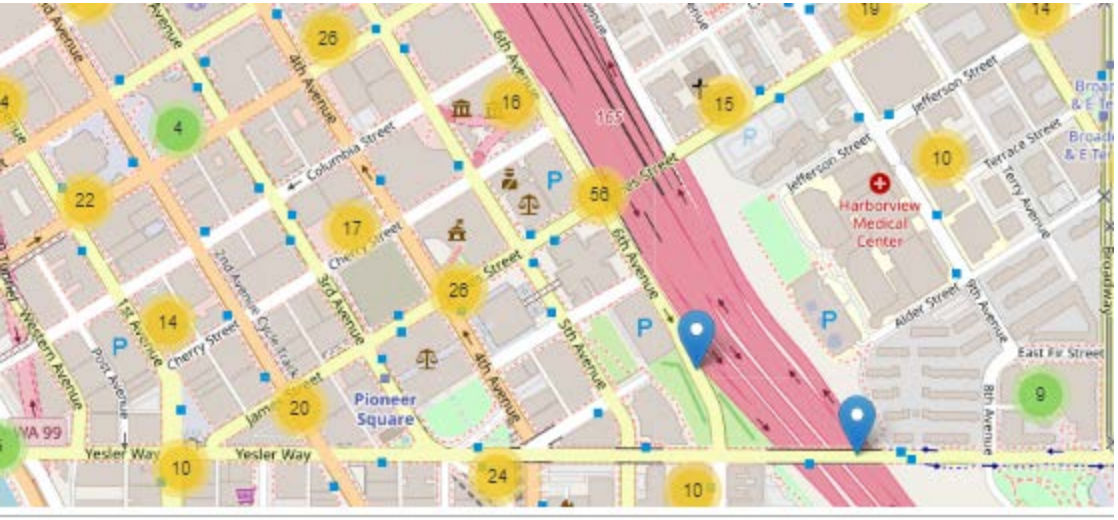


- Used Folium Library
- Marker Cluster Plug in

On zooming high number cluster



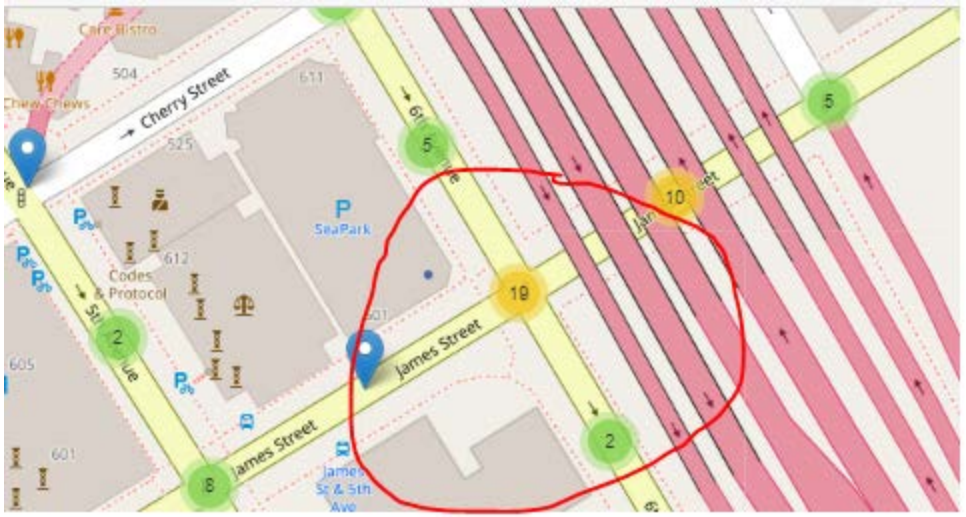
High Incident Location – Conclusion



- one of the high incident intersection

James street/6th Avenue

Zoom to High incident intersection



Interactive zoom video

- You can play the video of interactive from the Github location.
- VisualMapAnalysis.mp4

Future directions

- To make the tool more useful

- Build the interactive graphic model
- Build classification algorithm on the graphic model cluster
- Provide the predictive tool to 911 dispatchers