


# Car Accident Severity Analysis

-Seattle





# Analyze Past Accident Reports

- Road Accidents are major issue in any nation.
  - We can use past data to analyze the accident severities and probable cause for it.
  - Public Department and Police Department needs to take as many as measures to avoid accidents.
- 

# Data Acquisition and Cleaning

- Accident reports from 2004 is provided by public transport department of the Seattle city.
- More than 190,000 + entries over past 15 yrs are available in the data sheet.
- Many of variables has very few entries and not so much relevant info so dropped those variables.
- Normalized the remaining variables in data frame.
- Not available values were filled with Nan

# Machine Learning Models



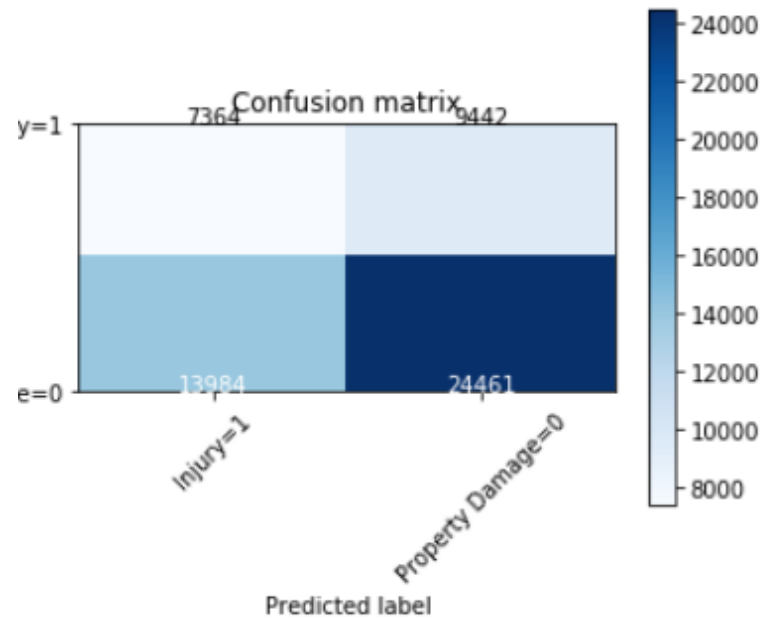
Our Aim is to predict the accident severity based on existing conditions (weather, light..etc)



Used Decision Tree, Logistic Regression as ML algorithm.

# Decision Tree Model

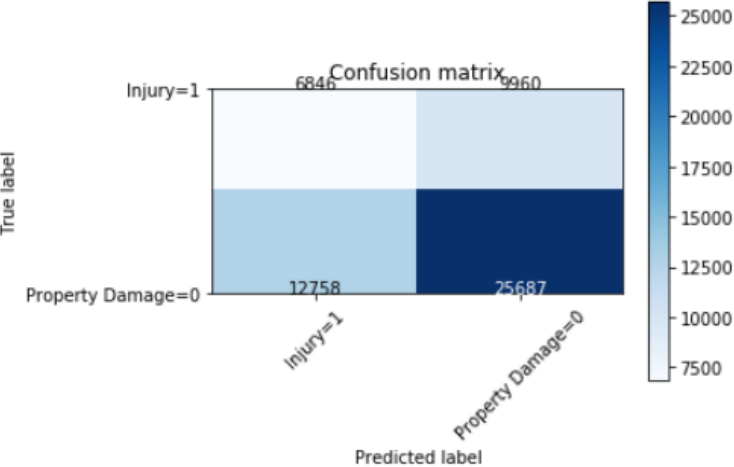
- Accuracy score for Decision Tree = 0.5760076740692476



	Precision	Recall	F1-score
0	0.64	0.72	0.68
1	0.44	0.34	0.39
Accuracy			<u>0.58</u>
Macro Avg	0.54	0.53	0.53
Weighted Avg	0.56	0.58	0.56

# Logistic Regression

- Accuracy score for Decision Tree = 0.5888219217751715

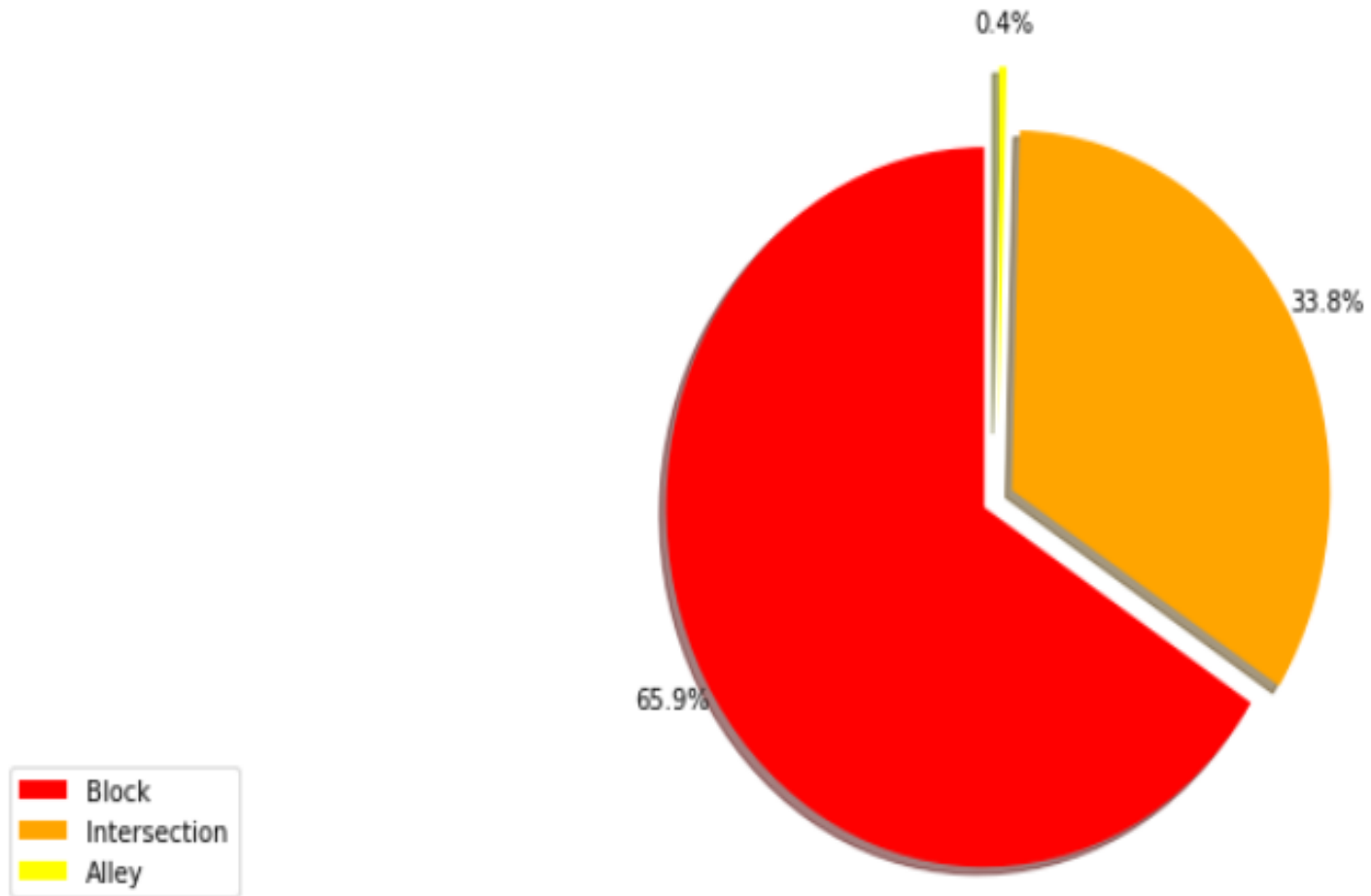


	Precision	Recall	F1-score
0	0.72	0.67	0.69
1	0.35	0.41	0.38
Accuracy	<u>0.59</u>		
Macro Avg	0.61	0.59	0.60
Weighted Avg	0.68		

# Model Accuracy

Algorithm	Avg f1-score	Property Damage (0) vs Injury(1)	Precision	Recall
Decision Tree	0.56	0	0.64	0.72
		1	0.44	0.34
Logistic Regression	0.60	0	0.72	0.67
		1	0.35	0.41

## Area of accident - Seattle, Washington





## Conclusion and Recommendations

- By comparing f1-scores, precision and recall, both the models have same performance.
- Most of the accidents occurred on junctions and blocks.
- Seattle Public Department can make necessary steps to monitor accident prone areas at junctions, blocks....etc
- During adverse weather conditions may be can reduce traffic that goes in junctions, block areas.