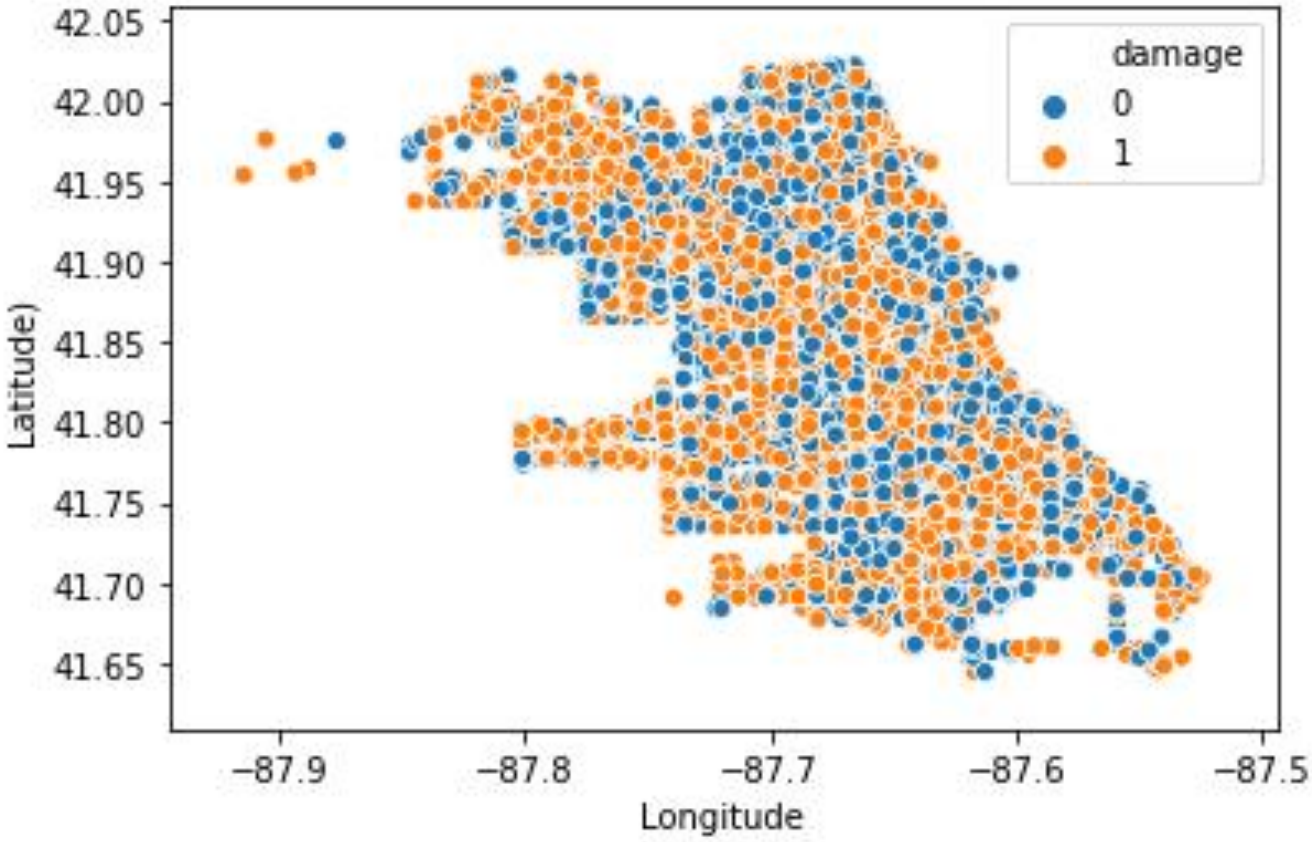
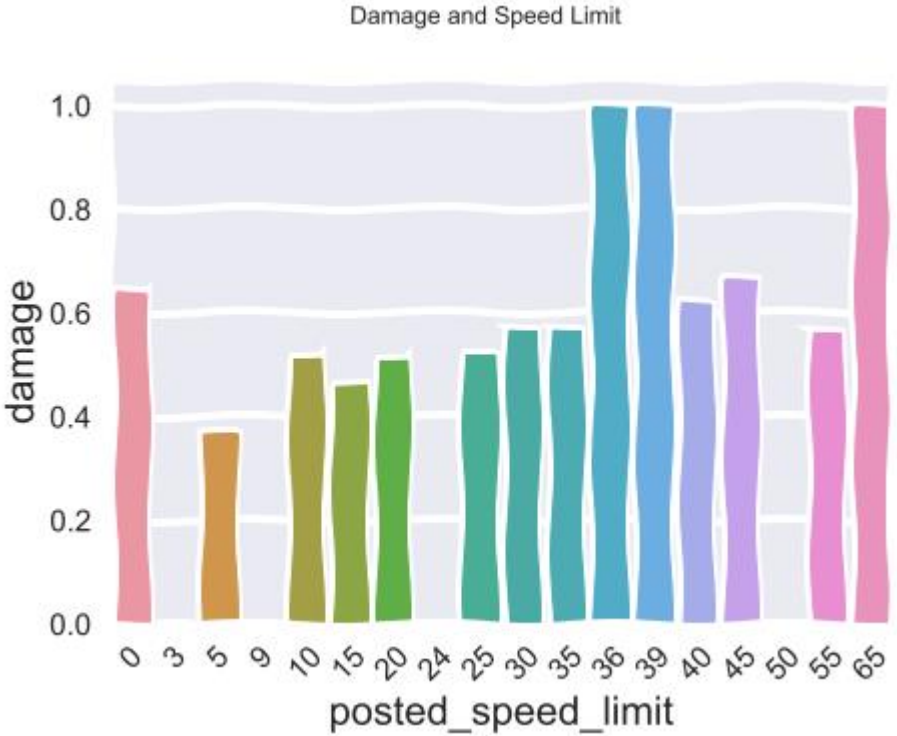
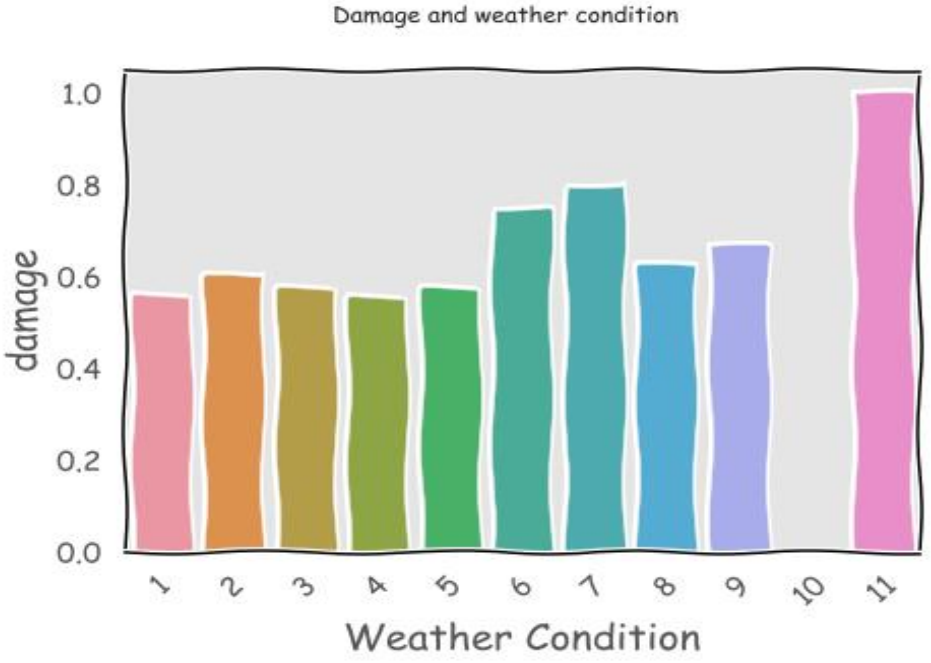
Chicago Car Crash & Damage Prediction



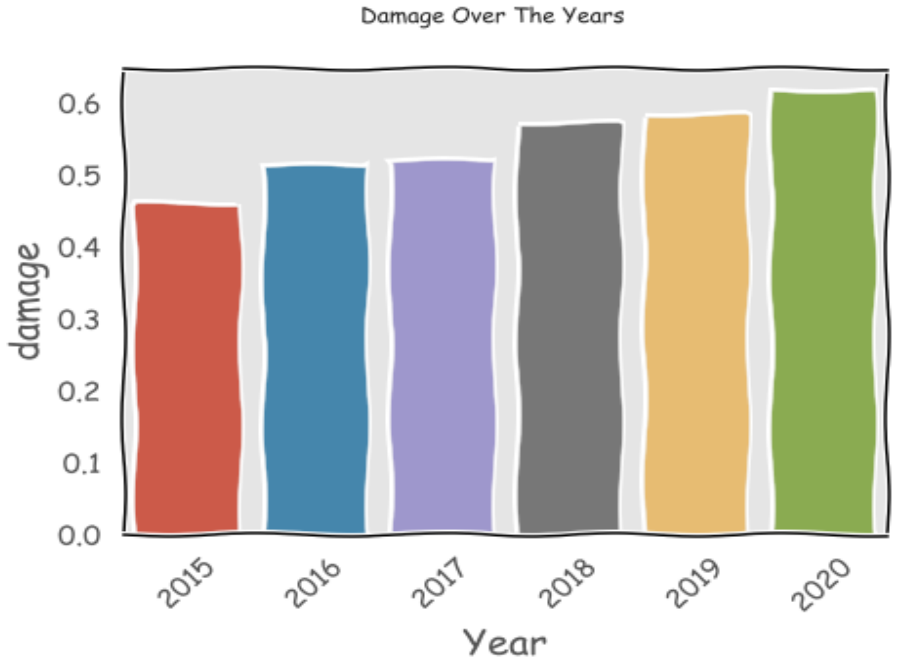
The Case

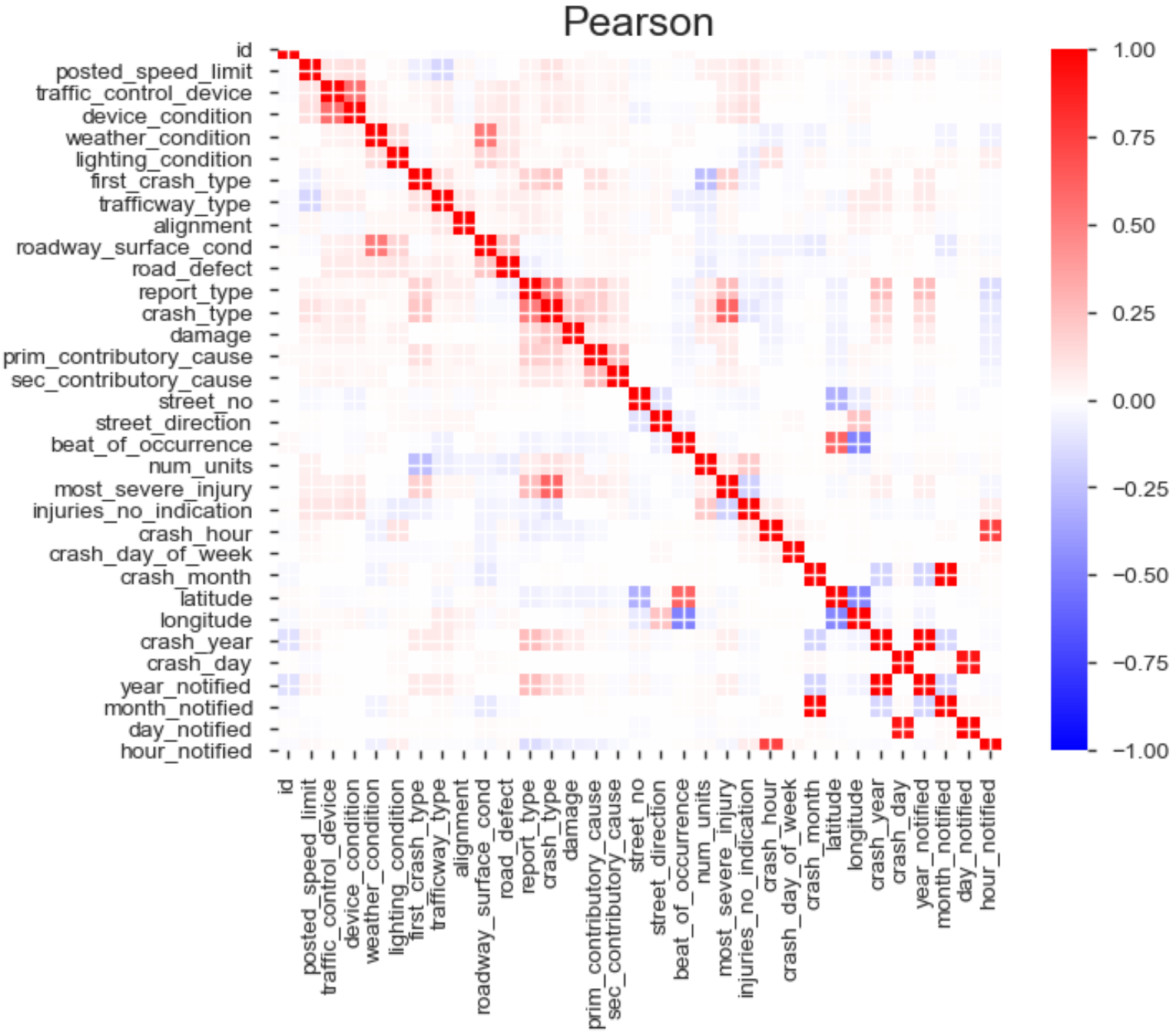
- **Build a classifier to predict the COST OF DAMAGE whenever a crash is recorded**
- **Above $1500 / Below $1500**
- **Data Base from 2015-2020**
- **Data Downloaded from the city of chicago data website**

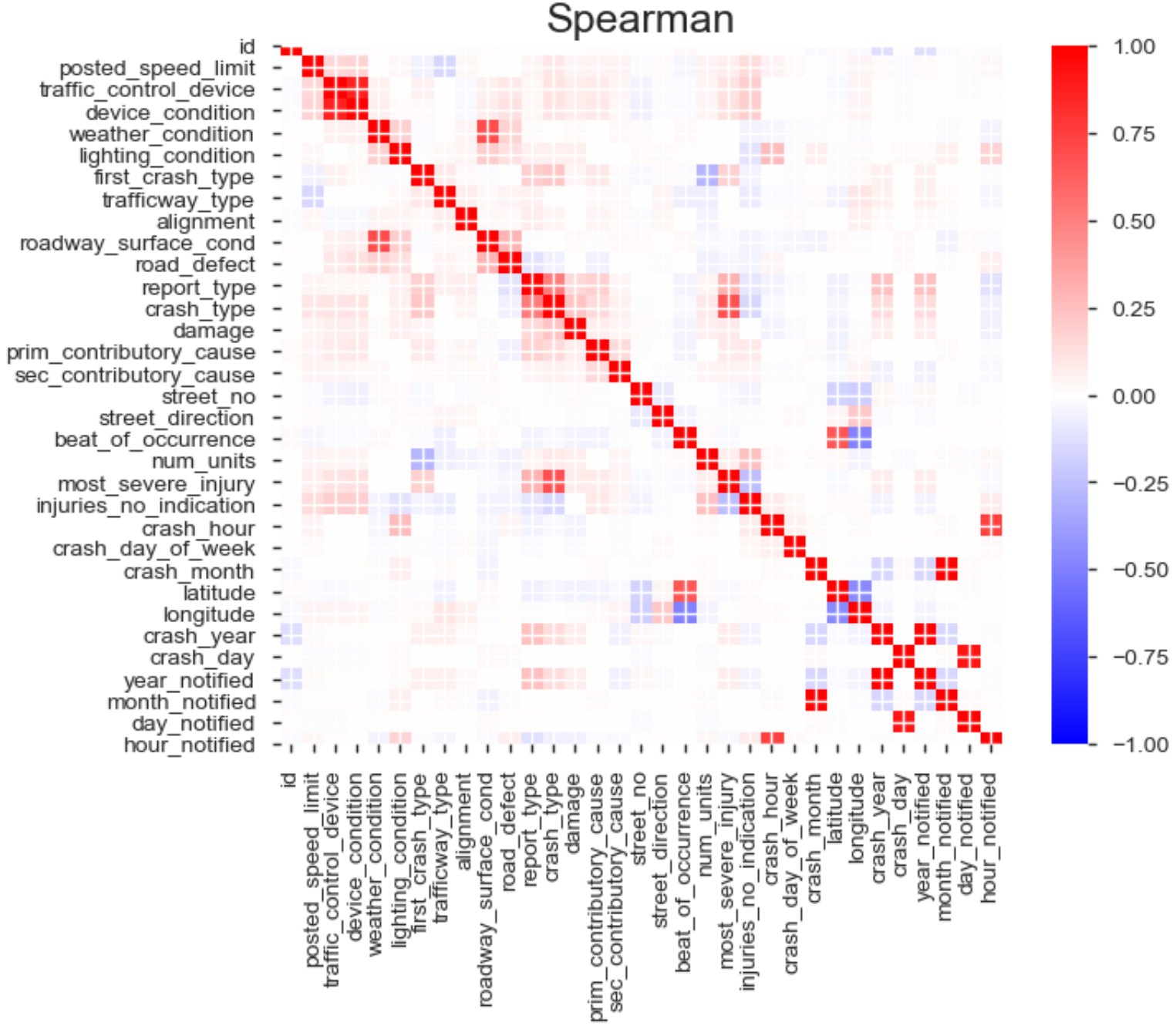

Damage and Speed Limit
damage
1.0
0.8
0.6
0.4
0.2
0.0
0 3 5 9 10 15 20 24 25 30 35 36 39 40 45 50 55 65
posted_speed_limit


Damage and weather condition
damage
1.0
0.8
0.6
0.4
0.2
0.0
1 2 3 4 5 6 7 8 9 10 11
Weather Condition


Damage and Street Direction
damage
0.6
0.5
0.4
0.3
0.2
0.1
0.0
W S N E
street_direction

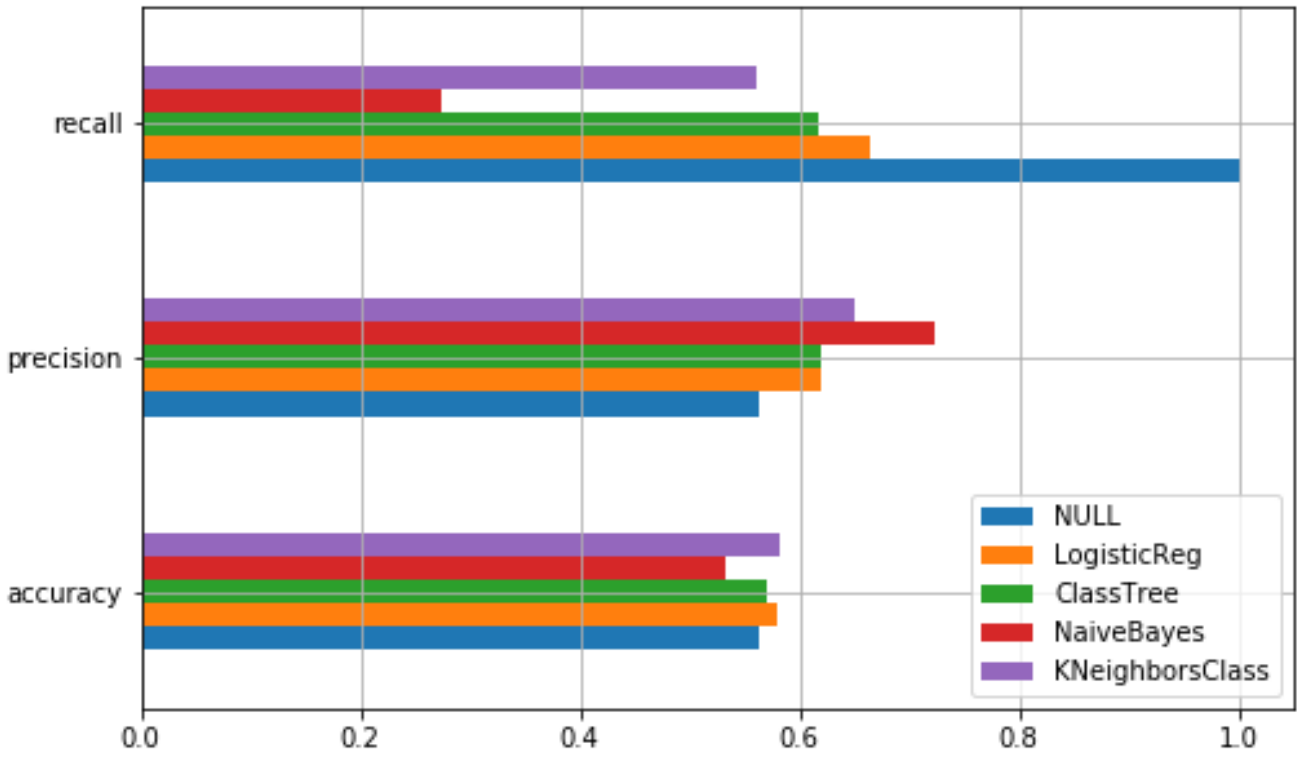

Damage Over The Years
damage
0.6
0.5
0.4
0.3
0.2
0.1
0.0
2015 2016 2017 2018 2019 2020
Year


Pearson
id
posted_speed_limit
traffic_control_device
device_condition
weather_condition
lighting_condition
first_crash_type
trafficway_type
alignment
roadway_surface_cond
road_defect
report_type
crash_type
damage
prim_contributory_cause
sec_contributory_cause
street_no
street_direction
beat_of_occurrence
num_units
most_severe_injury
injuries_no_indication
crash_hour
crash_day_of_week
crash_month
latitude
longitude
crash_year
crash_day
year_notified
month_notified
day_notified
hour_notified
1.00
0.75
0.50
0.25
0.00
−0.25
−0.50
−0.75
−1.00


Spearman
id
posted_speed_limit
traffic_control_device
device_condition
weather_condition
lighting_condition
first_crash_type
trafficway_type
alignment
roadway_surface_cond
road_defect
report_type
crash_type
damage
prim_contributory_cause
sec_contributory_cause
street_no
street_direction
beat_of_occurrence
num_units
most_severe_injury
injuries_no_indication
crash_hour
crash_day_of_week
crash_month
latitude
longitude
crash_year
crash_day
year_notified
month_notified
day_notified
hour_notified
1.00
0.75
0.50
0.25
0.00
−0.25
−0.50
−0.75
−1.00

Algorithm

- A.Logistic Regression
- B.Classification Trees / Decision Trees
- C.Naive Bayes Classifier
- D.KNN Classifier



	NULL	LogisticReg	ClassTree	NaiveBayes	KNeighbors Class
accuracy	56.4156	58.026	56.9351	53.1429	58.1299
precision	56.4156	61.9416	61.8652	72.3301	64.9573
recall	100	66.3904	61.6943	27.4401	55.9853

Next step :

Work on the Larger Data

Predict Crash based on time

Thank you

- Github project link :
- https://github.com/ksis1st/Chicago_Car_Crash_Prediction
- Linkedin :
- https://www.linkedin.com/in/kishor-shankaranarayan-bab2a311/