

CHICAGO CRIME RATE

ANALYSIS, PREDICTION & DETECTION

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WHY CHICAGO CRIME RATE??

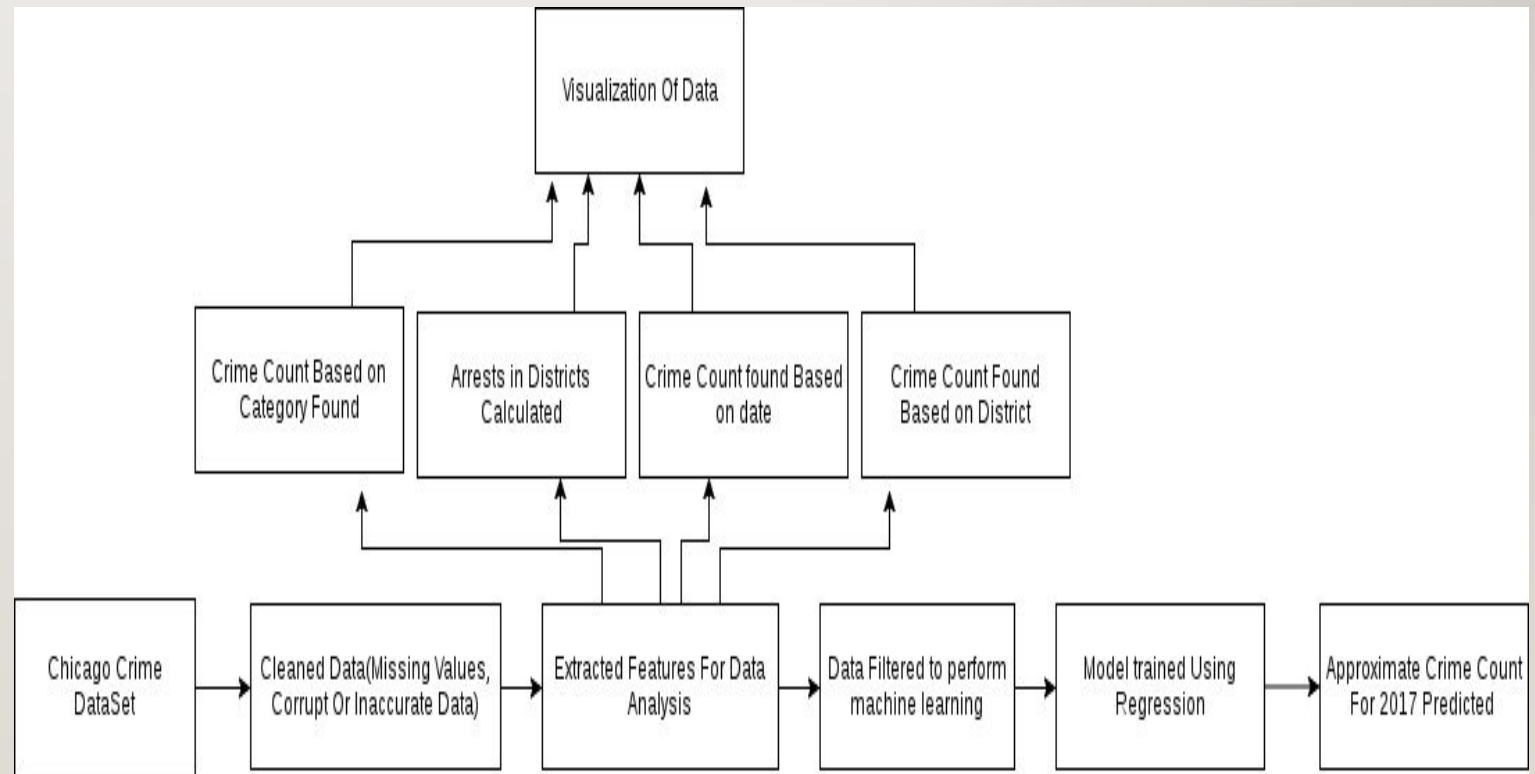
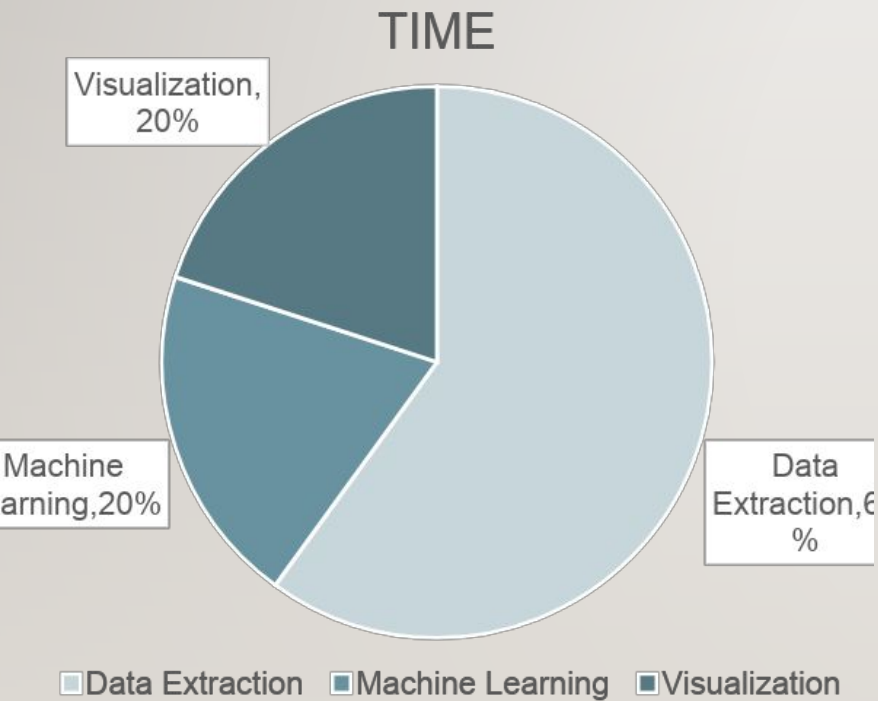
- Chicago's rising murder rate has been in the news last year it was 200% more than any other city in the US
- There is a very comprehensive dataset that lists all Chicago crimes by area.
- There is a need for residents and visitors to remain safe in the city.
- There isn't an app for it... yet.



WHY IS IT CHALLENGING?

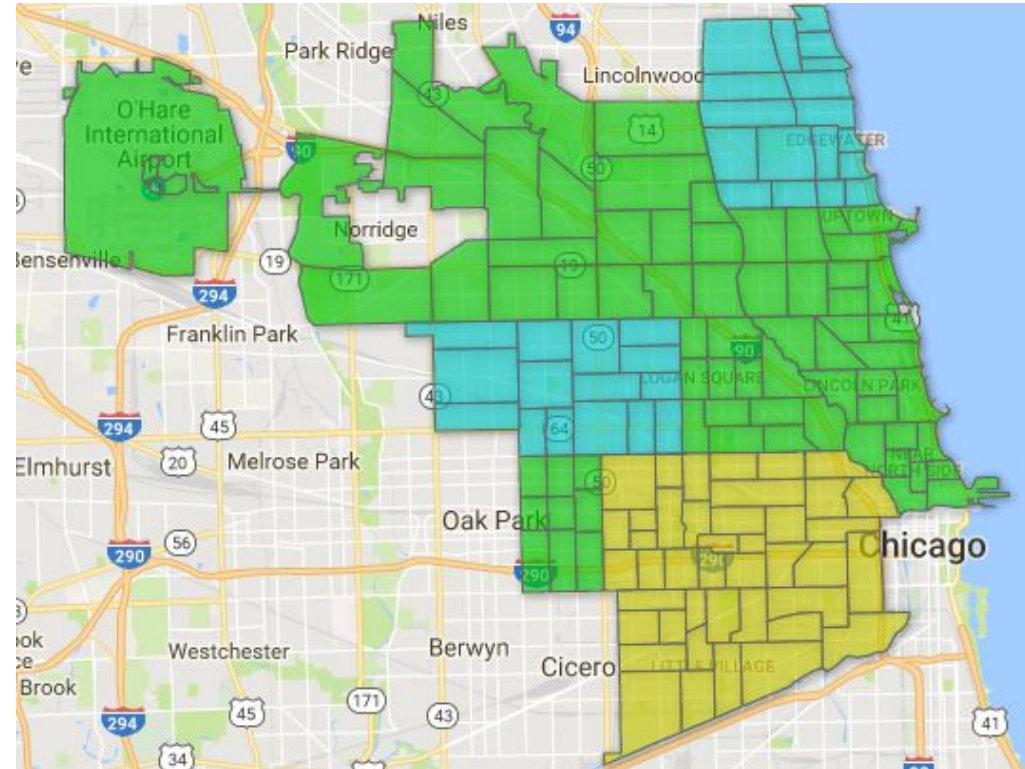
- Extracting relevant data from such a large dataset and formatting it into a vector to train a ML algorithm is not straightforward
- Since crime is a very politically sensitive subject, we have to make sure our analysis represents the data.

ANALYSIS, PREDICTION & VISUALIZATION OF CHICAGO CRIME



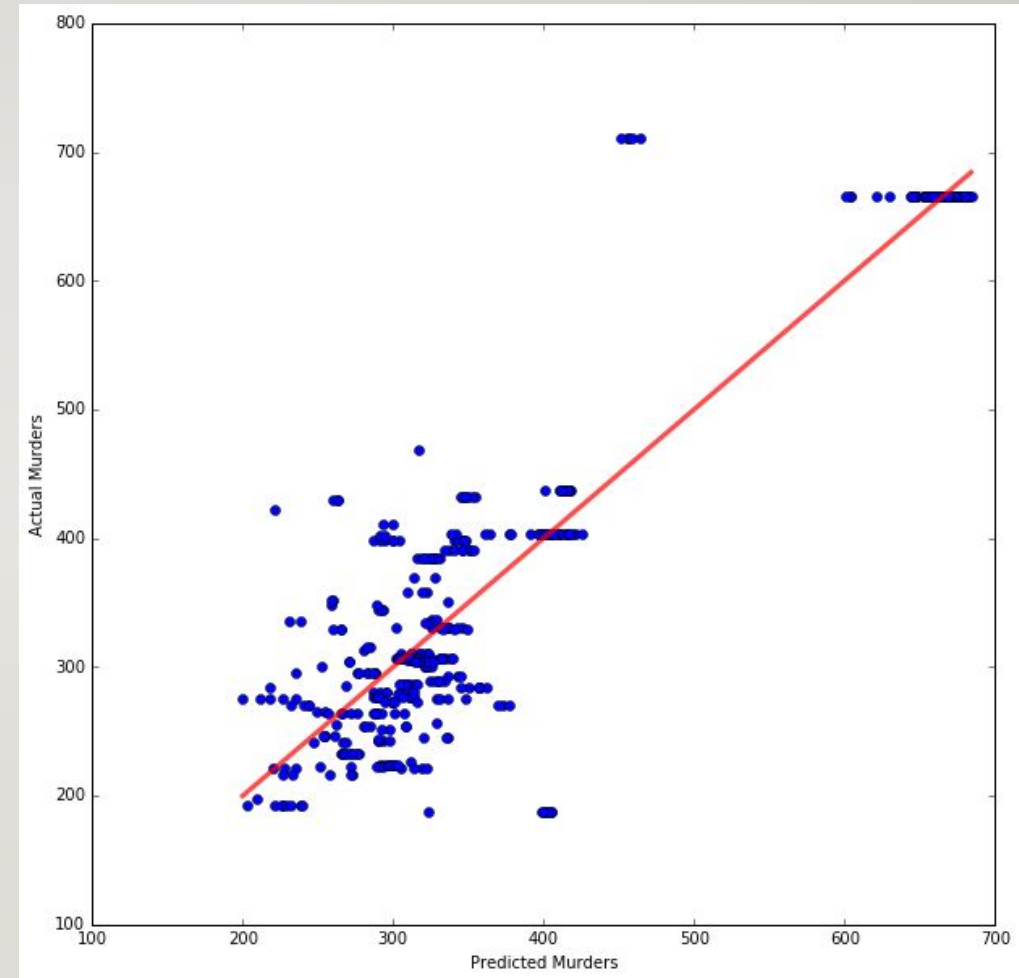
ALGORITHMS & SOFTWARE

- Map Reduce – Data Extraction, Linear Regression
- Apache Spark – Logistic regression
- Google API – Visualization
- JAVA SWING – GUI



DISCUSSION

- Linear regression – Model was trained on the data considering crimes in 2016 as target, predicting the total number of crimes per area for 2017.
- Alert ratio – the expected danger for that area relative to all other areas in Chicago. Will find the most crime prone area.
- Top5 crimes in each area.



CONCLUSION

- We predicted the number of crimes for each month for each area in the year 2017
- We came up with an alert ratio that ranked all of the 78 areas
- This could become a website in the future that helps Chicago residents and visitors avoid crime prone areas.
- This technique could be applied to any city, and is a powerful example of how machine learning and big data can be applied to improve society

THANK YOU!