Safest Way Possible

Prevent Accidents Save Lives

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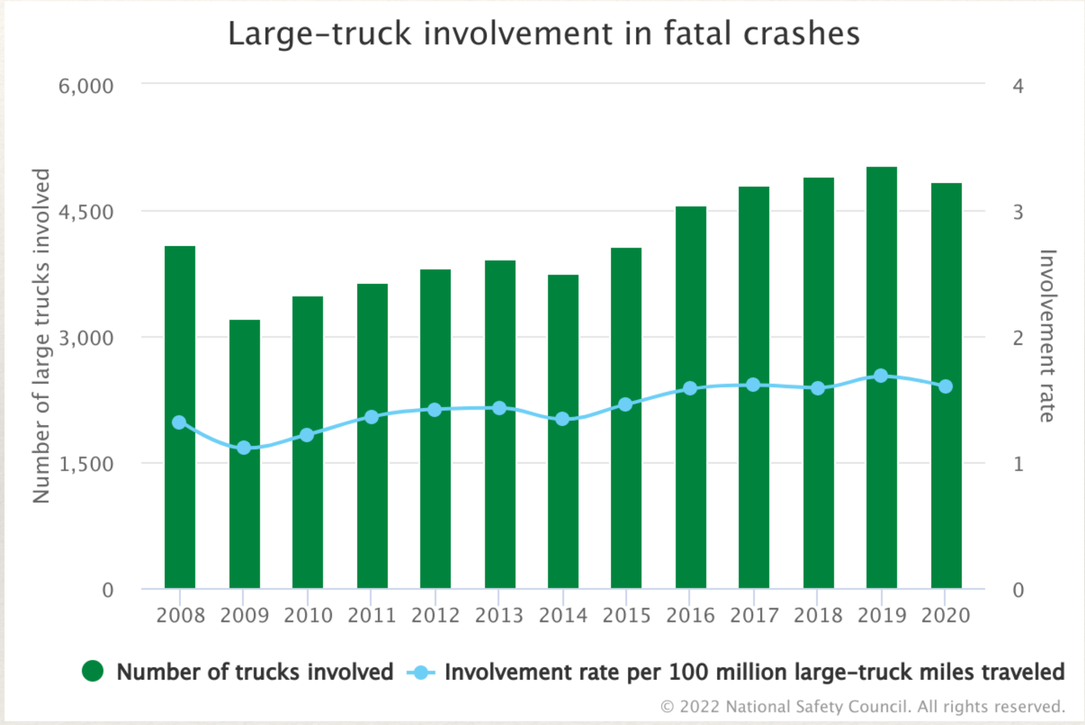
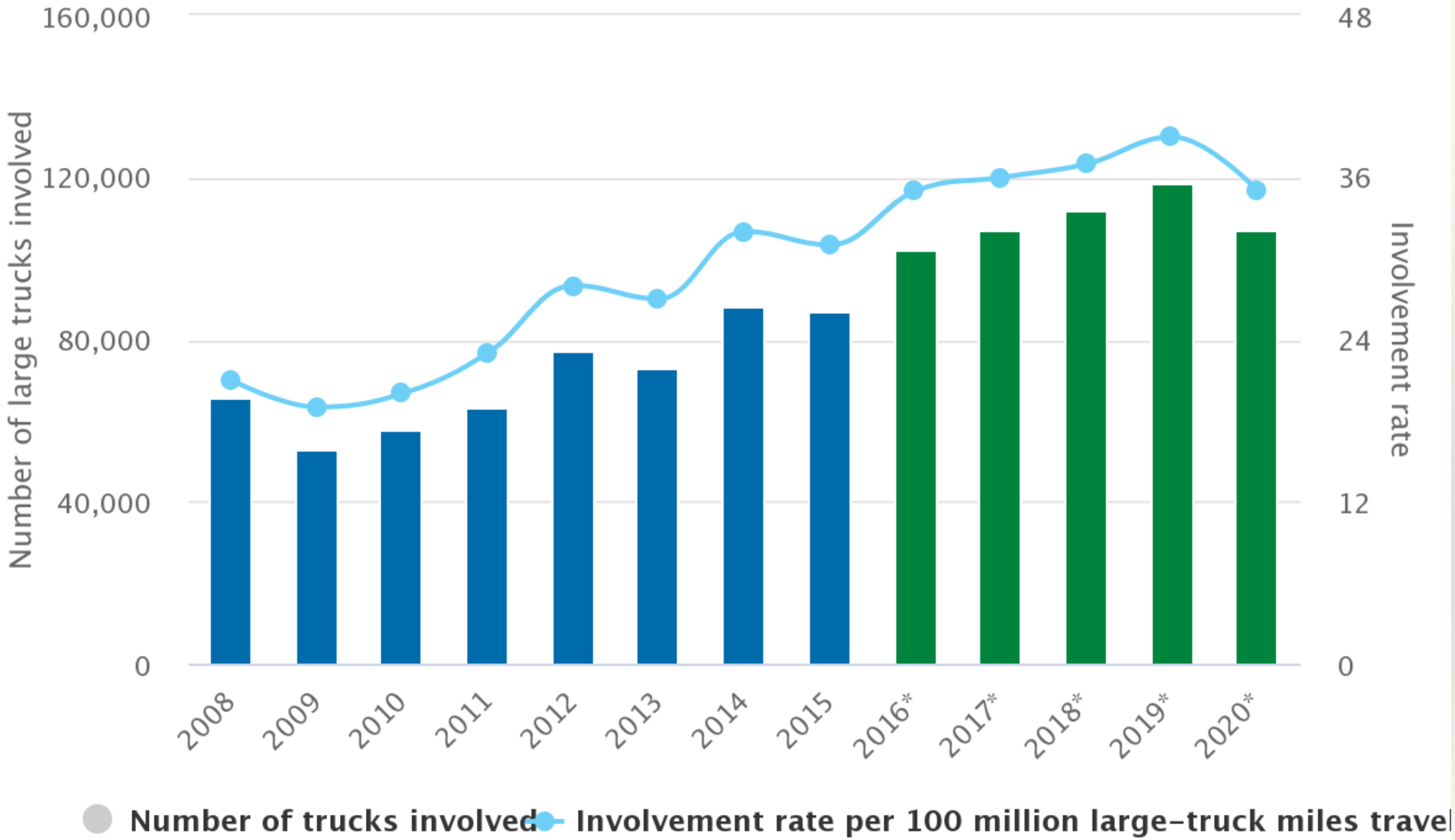
Traffic Accidents

- In 2020, 4828 large trucks were involved in a fatal crash, a 33% increase since 2011.
- 74% of fatal passenger vehicle cases include a large truck.
- 10 times more fatal crashes including motor couriers.



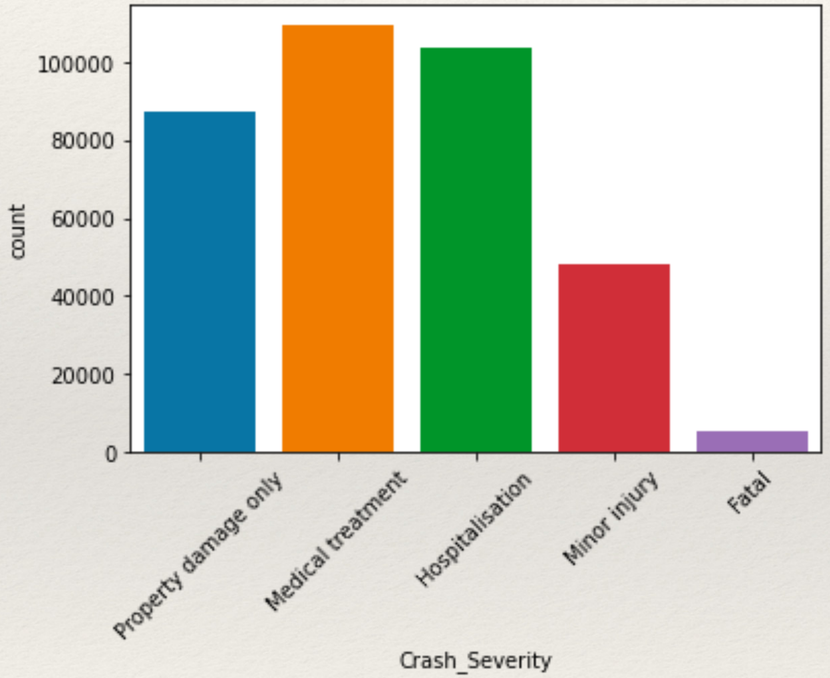
Large-truck involvement in injury crashes

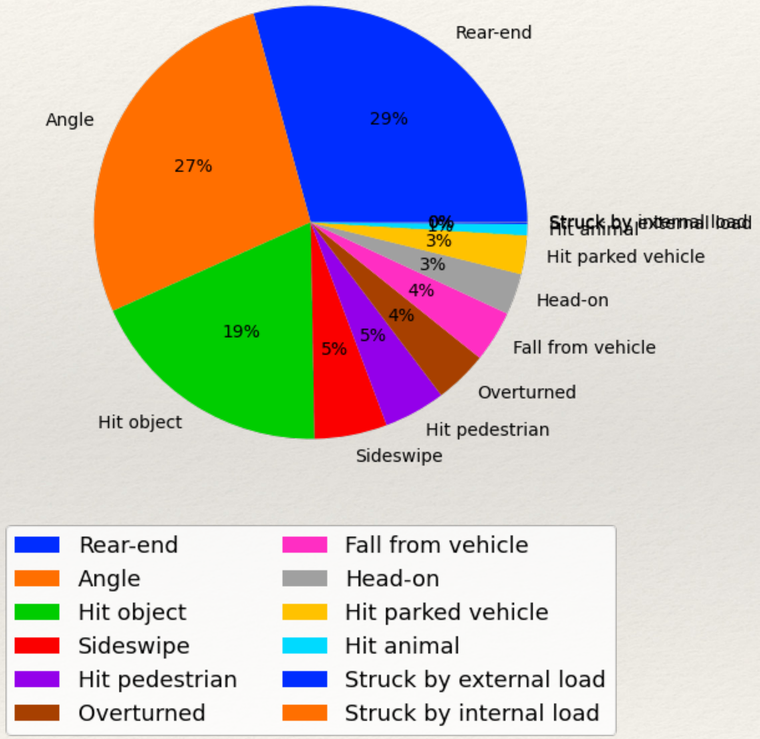


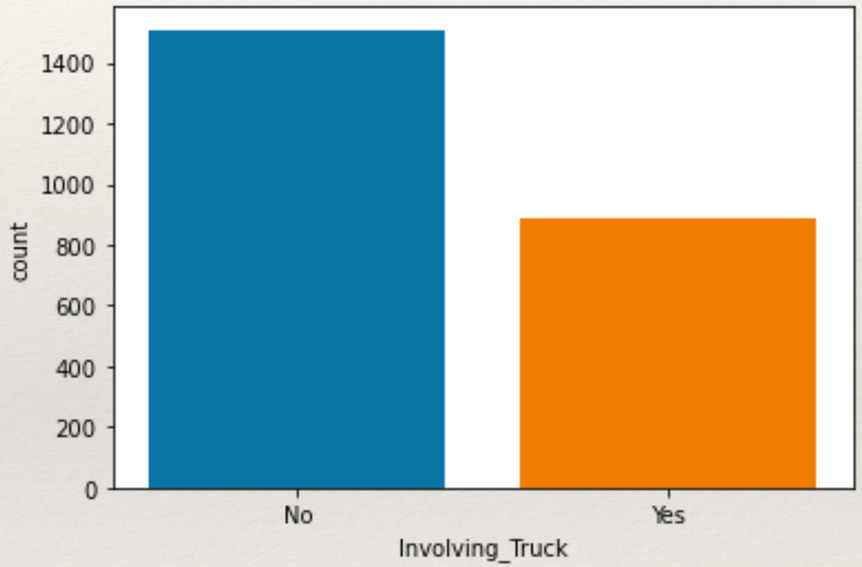
Our Motivation

- Preventing even one accident has a big impact
- Raise awareness in companies about traffic incidents
- Economic side of those risks of companies (crucial for both small and big companies)
- Minimizing the risk and potential costs

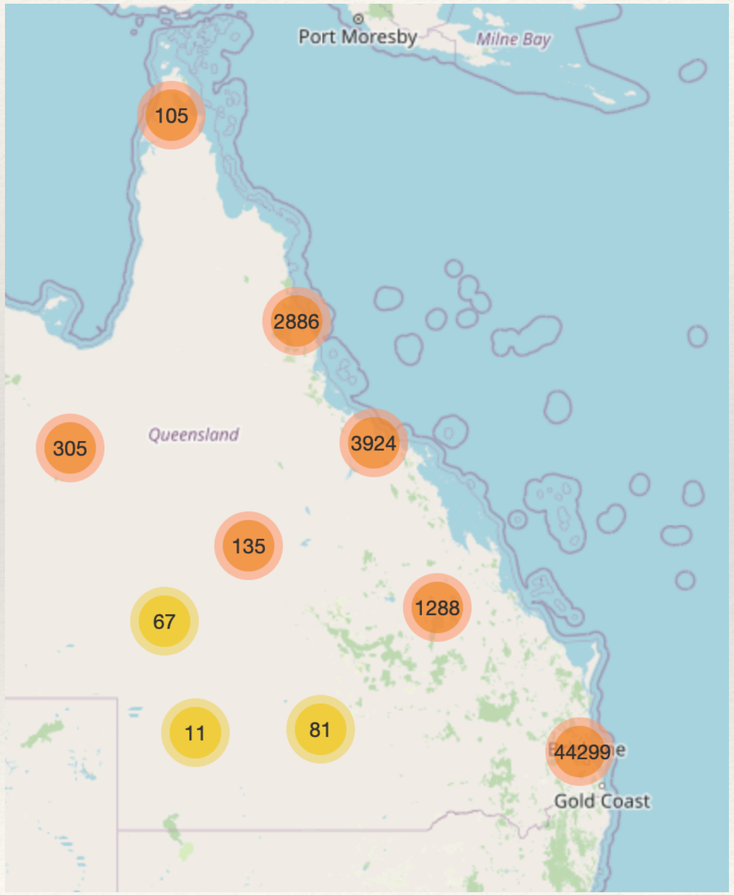
Queensland Traffic Data

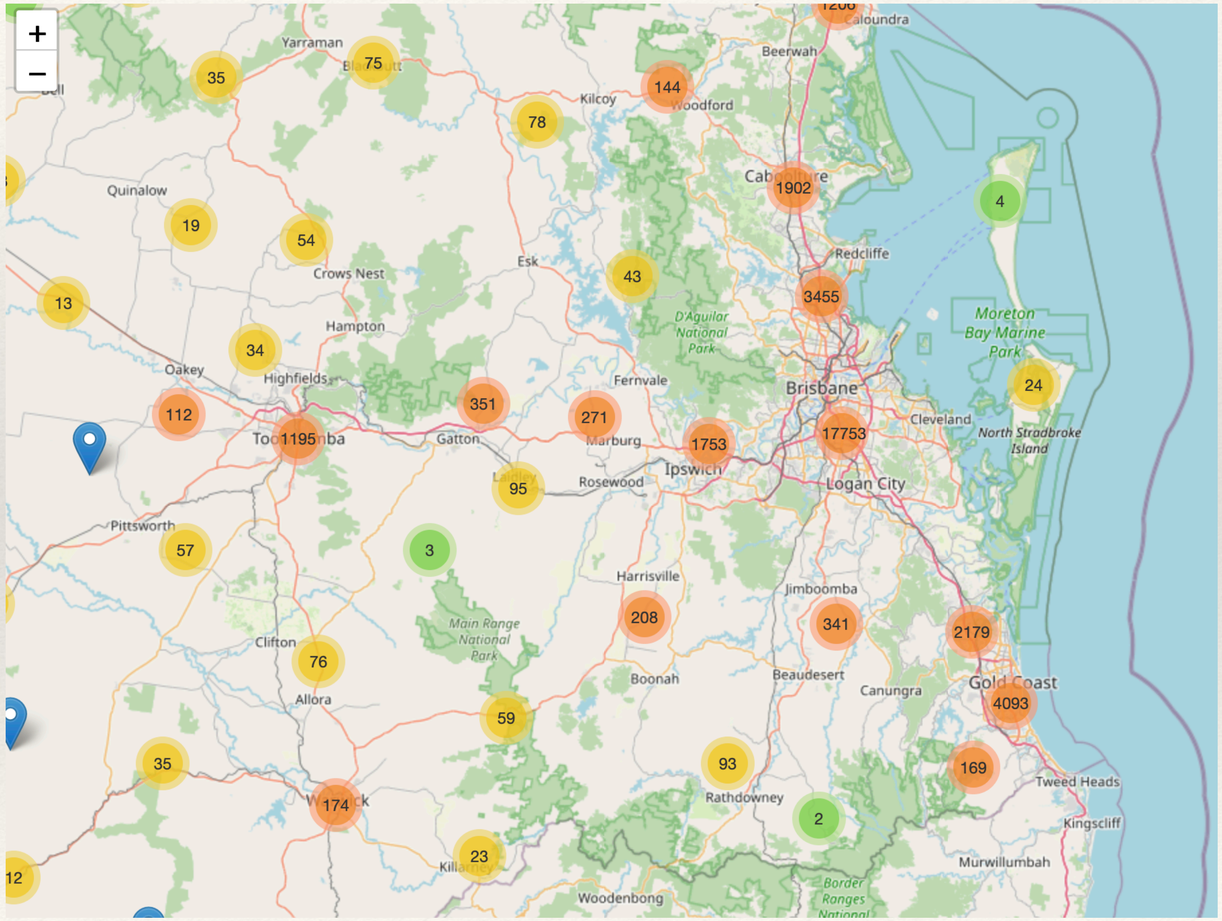






Exploratory Data Analysis





Our Model

- Only Crash Data!
- Rare Events
- Stochastic Poisson Process
- Road Characteristics / Clustering

- Initial Relative Observations:

street	rain	clear
<chr>	<dbl>	<dbl>
Bruce Hwy	303	2148
Pacific Hwy	164	1755
Gateway Arteri…	41	492
Gold Coast Hwy	37	490
Anzac Ave	33	461
Gympie Rd	39	441

	street	rain	clear
	<chr>	<dbl>	<dbl>
1	Bruce Hwy	1.39	0.980
2	Pacific Hwy	0.915	0.972
3	Gateway Arteri…	0.829	0.988
4	Gold Coast Hwy	0.766	1.01
5	Anzac Ave	0.726	1.01
6	Gympie Rd	0.915	1.03

- Initial Predictions:

Bruce Highway will be affected by rain a lot compared to other roads

Very Brief Summary of Our Product

- **Inputs:** Origin, Destination, Date, Some other details about car and the driver.
- **Services:** Google Maps API, Weather Forecasts API
- **Model Features:** Date/Hour(Season/Day-time), Weather, Road Surface Condition, Traffic Control, Exact Location/Street, Lightning
- **Output:** Possible Routes with estimated risks and travel-time/distance with descriptive statistics.

Prototype

- Softwares:
- Python, Flask, HTML, CSS, JS, R

Conclusion

- Accidents are preventable with statistical learning
- Avoiding even one accident is priceless
- Also reducing costs are possible
- Implementation, Development and Growth is within our vision

Future Work

- **Driver:**
  - Sentiment (Fatigue) analysis using cameras
  - Social Media Data
  - General Information (Age/Driving History etc.)
- **Vehicle:**
  - Sensor Data
  - General Information (Age/Brand/Model etc.)
- **Generalising Our Model to Other Regions:**
  - New Data
  - Clustering
  - Negative Sampling
- **Regulative Purposes:**
  - New laws and regulations to prevent accidents

Thanks for Listening