

Coursera

# IBM Professional Data Science Certificate Capstone Project Presentation

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[https://github.com/CHackert/Coursera\\_Capstone](https://github.com/CHackert/Coursera_Capstone)

# Problem

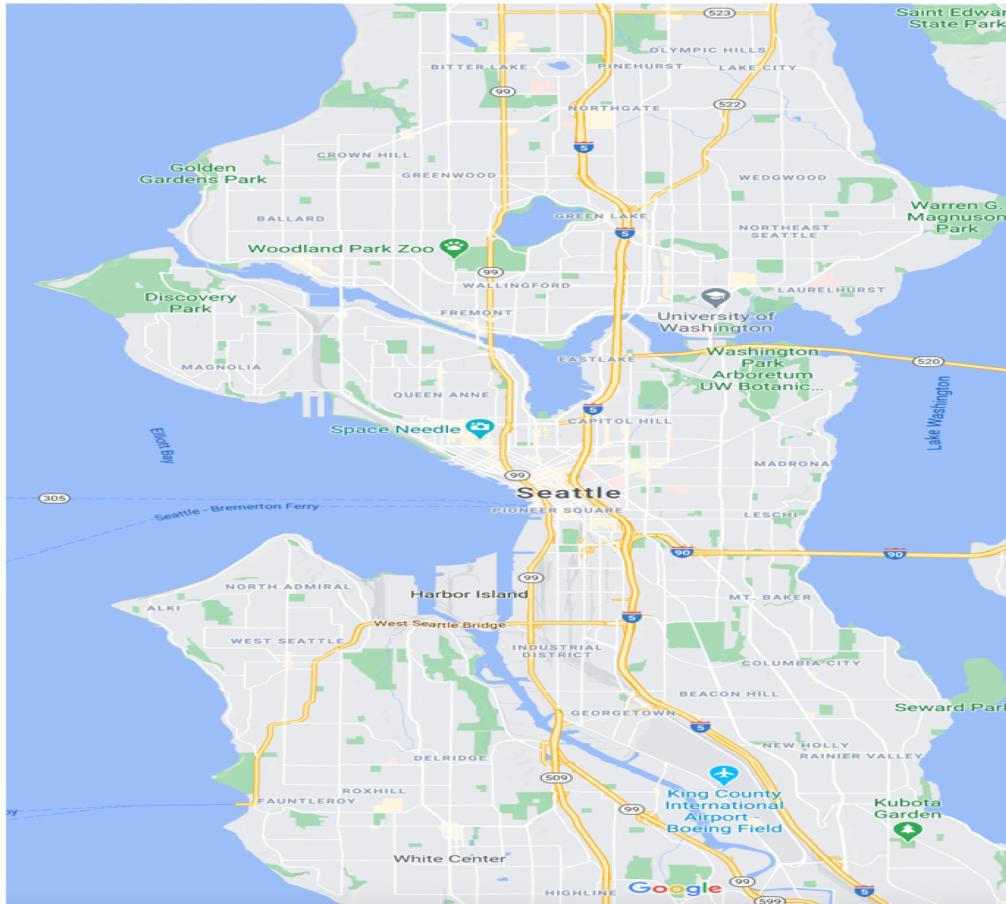
- Helping drivers and pedestrians be more informed of the most likely factors leading to an accident before travelling should substantially reduce these numbers and provide for safer and less stressful motor-vehicle travel experience.
- City Government can use the results of this project to identify and correct high accident controllable infrastructure factors and impose laws directly related to traffic safety.

# Data

- Collected between Jan 2004 and May 2020
- Collected by Seattle Police Department and distributed by the Seattle Department of Transport
- 194673 reports

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
1	SEVERITYCODE	LONG	LAT	ADDRTYPE	COLLISIONTYPE	PERSONCOUNT	PEDCOUNT	PEDCYLCOUNT	VEHCOUNT	INCDATE	INCDTTM	INATTENTIONIND	UNDERINFL	WEATHER	ROADCOND	LIGHTCOND	PEDROWNOTGRNT	SPEEDING	HITPARKEDCAR
2	1	-122.323148	47.7031403	Intersection	Angles	2	0	0	2	2013/03/27 00:00:00+00	3/27/2013 2:54:00 PM	0	0	Overcast	Wet	Daylight	0	0 N	
3	0	-122.347294	47.6471725	Block	Sideswipe	2	0	0	2	2006/12/20 00:00:00+00	12/20/2006 6:55:00 PM	0	0	Raining	Wet	Dark - Street Lights On	0	0 N	
4	0	-122.33454	47.6078714	Block	Parked Car	4	0	0	3	2004/11/18 00:00:00+00	11/18/2004 10:20:00 AM	0	0	Overcast	Dry	Daylight	0	0 N	
5	0	-122.334803	47.6048029	Block	Other	3	0	0	3	2013/03/29 00:00:00+00	3/29/2013 9:26:00 AM	0	0	Clear	Dry	Daylight	0	0 N	
6	1	-122.306426	47.5457395	Intersection	Angles	2	0	0	2	2004/01/28 00:00:00+00	1/28/2004 8:04:00 AM	0	0	Raining	Wet	Daylight	0	0 N	
7	0	-122.387598	47.6905755	Intersection	Angles	2	0	0	2	2019/04/20 00:00:00+00	4/20/2019 5:42:00 PM	0	0	Clear	Dry	Daylight	0	0 N	
8	0	-122.338485	47.6185343	Intersection	Angles	2	0	0	2	2008/12/09 00:00:00+00	12/9/2008	0	0	Raining	Wet	Daylight	0	0 N	
9	1	-122.32078	47.6140757	Intersection	Cycles	3	0	1	1	2020/04/15 00:00:00+00	4/15/2020 5:47:00 PM	0	0	Clear	Dry	Daylight	0	0 N	
10	0	-122.33593	47.6119035	Block	Parked Car	2	0	0	2	2006/06/15 00:00:00+00	6/15/2006 1:00:00 PM	0	0	Clear	Dry	Daylight	0	0 N	
11	1	-122.3847	47.5284754	Intersection	Angles	2	0	0	2	2006/03/20 00:00:00+00	3/20/2006 3:49:00 PM	0	0	Clear	Dry	Daylight	0	0 N	
12	0	-122.333831	47.5473711	Intersection	Angles	2	0	0	2	2005/08/11 00:00:00+00	8/11/2005 5:30:00 PM	0	0	Clear	Dry	Daylight	0	0 N	
13	0	-122.356273	47.5713752	Block	Rear Ended	0	0	0	2	2006/05/17 00:00:00+00	5/17/2006 12:51:00 PM	0	0	Raining	Wet	Dark - Street Lights On	0	0 N	
14	0	-122.323966	47.6063744	Block	Parked Car	2	0	0	2	2005/12/22 00:00:00+00	12/22/2005 5:13:00 PM	0	0	Raining	Wet	Dark - No Street Lights	0	0 N	
15	1	-122.317414	47.6640275	Block	Head On	2	0	0	2	2013/03/31 00:00:00+00	3/31/2013 2:09:00 AM	0	0	Clear	Dry	Dark - Street Lights On	0	0 N	

# Location of Accidents



# Severity of Accidents

- Post data cleaning count of Injury and Property Damage Only motor-vehicle accidents is:
- Injury = 56000
- Property Damage only = 128146

# Conclusions

- The majority of both Injury and Property Damage motor-vehicle accidents occur in the areas where there is greater vehicle traffic. The City of Seattle core and the surrounding major roadways account for the majority of accidents.
- The majority of severe (Injury) motor-vehicle accident occur during the daytime under dry road conditions and clear visibility.
- Predictive modeling based on K-Nearest Neighbour, Decision Tree and Logistic Regression algorithms yielded three useful models.