Coursera Capstone Project : Predicting car accident severity

With increase in population we can also see the increase in number of road travel from which the following common problems can be stated as below.

Business Problem:

1. Many people lose their lives while driving either by four wheelers or two wheelers just because they dont take precautions or don't have information about the weather condition or the road condition or any external factors.
2. In some cases the hospitals are not always ready for sudden new patients, so using this predictions we can make the hospitals be prepared for such cases.
3. Another problem is traffic officers or any other security services can be alarmed to monitor the locations where more accidents are likely to occur.
4. Often people get confused when more number of options are avaliable to travle from source to destinations and in many cases they choose the one with short distance which may not be the safest way to travle.
5. Better if insrance is covered for the vehicle used to travel.

Hence this project will be predicting the severity of the accidents that are likely to happen which aims help the target audiance who are

- People likely to travel in strange weathers.
- Police,governments,traffic officers
- Hospitals
- Vehicle insurance companies

and to solve the above mentioned common problems.

Data:

The data source for this project : https://s3.us.cloud-object-storage.appdomain.cloud/cf-courses-data/CognitiveClass/DP0701EN/version-2/Data-Collisions.csv

The data in initial stage contains 37 features out of which we will be using only the effective 13 features.

The following factors are used to solve this problem:-

LOCATION : Description of the general location of the collision

SEVERITYCODE :1 – Prop Damage , 2 – Injury

COLLISIONTYPE :Collision type

PERSONCOUNT :Total number of people involved in the collision

PEDCOUNT :Total number of pedestrians involved in the collision

PEDCYLCOUNT :Total number of bicycles involved in the collision

VEHCOUNT :Total number of vehicles involved in the collision

WEATHER :Weather conditions

ROADCOND :Road Conditions

LIGHTCOND :Light Conditions

SPEEDING :Wheather speeding was cause for accident

JUNCTIONTYPE :Type of Junction where accident occured.

UNDERINFL :Either driver was under drug or alcohol influence.

Examle data:

	SEVERITYCODE	COLLISIONTYPE	PERSONCOUNT	PEDCOUNT	PEDCYLCOUNT	VEHCOUNT	WEATHER	ROADCOND	LIGHTCOND	JUNCTIONTYPE	SPEEDING	L
0	2	Angles	2	0	0	2	Overcast	Wet	Daylight	At Intersection (intersection related)	NaN	
1	1	Sideswipe	2	0	0	2	Raining	Wet	Dark - Street Lights On	Mid-Block (not related to intersection)	NaN	
2	1	Parked Car	4	0	0	3	Overcast	Dry	Daylight	Mid-Block (not related to intersection)	NaN	
3	1	Other	3	0	0	3	Clear	Dry	Daylight	Mid-Block (not related to intersection)	NaN	
4	2	Angles	2	0	0	2	Raining	Wet	Daylight	At Intersection (intersection related)	NaN	

Explanation how data can help the prediction:

1. Starting with the main factors which are weeather condition,road condition,light condition all three can be considered we effective features for the predicting the severity.
2. Collision type and junction type describes which type of collision are more likely cause severity
3. Vehicle,bicycles,pedestrian count aslo affects prediction as more traffic can cause high probability for accidents.
4. Information about whether the driver was under drug or alcohol consumption while driving can warn the other drivers before their travel.
5. Location data can give alternate travel route if their prefered route is more likely to get into accidents.