CAPSTONE PROJECT- HOSPITAL EMERGENCY UNIT - RECOMMENDATION

BUSINESS PROBLEM

- Battle of Neighbourhood for helping group of hospitals to open up Emergency Units

- To help big chain of hospitals help identify the areas or locations to open new emergency care units

PROBLEM DESCRIPTION

- Data that contain the information about the vehicle collisions, the reasons and the number of time collisions occurred in the specific area can be used to find the areas which are more prone to accidents and the recommendation can be made to the chain of hospitals who are looking for opening new emergency units in the nearby locations.

DATA SOURCES

- Vehicle collision data will be cleaned and analysed to identify the locations with maximum number of accidents and the contributing reasons.
- The first important data source is the one which contains the details of vehicle collisions across various cities and is available in the link below: https://data.cityofnewyork.us/resource/qiz3-axqb.json
- The second data source contains the geo location information of NewYork and is available in the link below:
- https://geo.nyu.edu/catalog/nyu_2451_34572

FEATURE SELECTION AND DATA CLEANING AND EXPLORATION

- The data set contains various features important among them are accident date, accident time, borough, collision id, contributing factors, longitude, latitude, number of cyclists, motorists, pedestrians injured, killed, vehicle types. Many of the entries are NaN, in the first round, all such entries are cleaned up in multiple rounds and the below table displays the contents.

DATA DESCRIPTION

	accident_date	accident_time	borough	collision_id	contributing_factor_vehicle_1	contributing_factor_vehicle_2	contributing_factor_vehicle_3	contribu
0	2019-04-18T00:00:00.000	2019-11-29 20:57:00	BRONX	4117220	Traffic Control Disregarded	Unspecified	Unspecified	
1	2019-05-10T00:00:00.000	2019-11-29 08:58:00	MANHATTAN	4129801	Passing Too Closely	Unspecified	NaN	
2	2019-04-29T00:00:00.000	2019-11-29 18:30:00	BRONX	4123153	Unspecified	Unspecified	NaN	
	2019-05-	2019-11-29						

HIGHEST NO. OF VEHICLE COLLISIONS

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BROOKLYN          215
QUEENS            181
BRONX             120
MANHATTAN         118
STATEN ISLAND      13
Name: borough, dtype: int64
```

CONTRIBUTING FACTORS FOR VEHICLE COLLISION

	borough	contributing_factor_vehicle_1
0	BRONX	Traffic Control Disregarded
1	MANHATTAN	Passing Too Closely
2	BRONX	Unspecified
6	BROOKLYN	Driver Inattention/Distraction
7	MANHATTAN	Other Vehicular
8	BRONX	View Obstructed/Limited
9	BROOKLYN	Unspecified
10	BROOKLYN	Following Too Closely
11	BRONX	Unsafe Lane Changing
13	BROOKLYN	Driver Inattention/Distraction
14	MANHATTAN	Unspecified

REASONS FOR VEHICLE COLLISION

Driver Inattention/Distraction	238
Unspecified	222
Following Too Closely	94
Failure to Yield Right-of-Way	71
Passing Too Closely	49
Passing or Lane Usage Improper	47
Backing Unsafely	42
Other Vehicular	32
Reaction to Uninvolved Vehicle	29
Unsafe Lane Changing	28
Turning Improperly	26
Traffic Control Disregarded	22
Unsafe Speed	18
Driver Inexperience	17
Alcohol Involvement	10
Pavement Slippery	8

NEIGHBOURHOOD - BRONX

	Borough	Neighborhood	Latitude	Longitude
0	Bronx	Wakefield	40.894705	-73.847201
1	Bronx	Co-op City	40.874294	-73.829939
2	Bronx	Eastchester	40.887556	-73.827806
3	Bronx	Fieldston	40.895437	-73.905643
4	Bronx	Riverdale	40.890834	-73.912585

CONCLUSION

- In summary, this project is aimed to understand the vehicle collision data and geo location data to identify the areas with maximum number of vehicle collision occurrence, which can be used by group of hospitals for opening up their emergency units.