

```
In [1]: import geopandas as gpd # for mapping
       from shapely.geometry import Point, Polygon # for mapping
       import pandas as pd # for panda package
       import matplotlib.pyplot as plt # for plots
       import datetime as dt # TimeSeries
       import os
```

```
In [2]: url = "https://data.cityofnewyork.us/api/views/qiz3-axqb/rows.csv?accessType=DOWNLOAD&bom=true&query=select+*"
```

```
In [3]: NYPD = pd.read_csv(url) #Load the data
```

```
C:\Users\Eugene\Anaconda3\lib\site-packages\IPython\core\interactiveshell.py:3020: DtypeWarning: Columns (3) have mixed types. Specify dtype option on import or set low_memory=False.
    interactivity=interactivity, compiler=compiler, result=result)
```

In [4]: NYPD

Out[4]:

	DATE	TIME	BOROUGH	ZIP CODE	LATITUDE	LONGITUDE	LOCATION	ON STREET NAME	CROSS STREET NAME	OFF S
0	05/11/2019	5:30		Nan	NaN	40.662140	-73.982240	(40.66214, -73.98224)	8 AVENUE	NaN
1	05/11/2019	12:00	BROOKLYN	11207	40.658577	-73.890630	(40.658577, -73.89063)	PENNSYLVANIA AVENUE	LINDEN BOULEVARD	
2	05/11/2019	22:20	QUEENS	11413	40.668800	-73.742805	(40.6688, -73.742805)	231 STREET	139 AVENUE	
3	05/11/2019	20:10	BROOKLYN	11207	40.670593	-73.886970	(40.670593, -73.88697)	BARBEY STREET	SUTTER AVENUE	
4	05/11/2019	10:45		Nan	NaN	40.818016	-73.960430	(40.818016, -73.96043)	WEST 125 STREET	NaN
5	05/11/2019	15:30	MANHATTAN	10065	40.768646	-73.969830	(40.768646, -73.96983)	EAST 66 STREET	5 AVENUE	
6	05/11/2019	13:24		Nan	NaN	NaN	NaN	NaN	HENRY HUDSON PARKWAY	NaN
7	05/11/2019	22:00		Nan	NaN	40.888596	-73.890680	(40.888596, -73.89068)	MAJOR DEEGAN EXPRESSWAY	NaN
8	05/11/2019	14:05	MANHATTAN	10075	40.774967	-73.956800	(40.774967, -73.9568)	EAST 80 STREET	3 AVENUE	
9	05/11/2019	10:18	MANHATTAN	10036	40.758890	-73.985790	(40.75889, -73.98579)	NaN	NaN	205 W
10	05/11/2019	17:39		Nan	NaN	40.835690	-73.868570	(40.83569, -73.86857)	CROSS BRONX EXPY	NaN
11	05/11/2019	12:30		Nan	NaN	NaN	NaN	NaN	HORACE HARDING EXPRESSWAY	MARATHON PARKWAY

		DATE	TIME	BOROUGH	ZIP CODE	LATITUDE	LONGITUDE	LOCATION	ON STREET NAME	CROSS STREET NAME	OFF S
12	05/11/2019	11:14		BRONX	10469	40.861187	-73.838040	(40.861187, -73.83804)		NaN	NaN 2408 TII A
13	05/11/2019	17:40			Nan	Nan	40.843994	-73.897520	(40.843994, -73.89752)	CROSS BRONX EXPRESSWAY	3 AVENUE
14	05/11/2019	16:22	MANHATTAN		10013	40.725193	-74.007675	(40.725193, -74.007675)		HUDSON STREET	DOMINICK STREET
15	05/11/2019	14:20	QUEENS		11357	40.780087	-73.817154	(40.780087, -73.817154)	149 STREET	21 AVENUE	
16	05/11/2019	16:55		BRONX	10454	40.809050	-73.913710	(40.80905, -73.91371)		NaN	NaN 355 BE A
17	05/11/2019	12:00	QUEENS		11358	40.756104	-73.800804	(40.756104, -73.800804)	166 STREET	45 AVENUE	
18	05/11/2019	22:00		BRONX	10463	40.873394	-73.906710	(40.873394, -73.90671)	EXTERIOR STREET	WEST 225 STREET	
19	05/11/2019	4:03	QUEENS		11101	40.749714	-73.936170	(40.749714, -73.93617)	NORTHERN BOULEVARD	41 AVENUE	
20	05/11/2019	14:00		BRONX	10451	40.816147	-73.919750	(40.816147, -73.91975)		NaN	NaN COURT A
21	05/11/2019	2:20			Nan	Nan	40.643005	-74.005330	(40.643005, -74.00533)	49 STREET	NaN
22	05/11/2019	0:01			Nan	Nan	Nan	Nan	Nan	TRIBOROUGH BRIDGE	NaN
23	05/11/2019	21:45			Nan	Nan	Nan	Nan	Nan	G.C.P. / L.I.E (CDR)	NaN

		DATE	TIME	BOROUGH	ZIP CODE	LATITUDE	LONGITUDE	LOCATION	ON STREET NAME	CROSS STREET NAME	OFF S
24	05/11/2019	0:20		NaN	NaN	40.681572	-73.925790	(40.681572, -73.92579)	PATCHEN AVENUE	NaN	
25	05/11/2019	14:41		BRONX	10475	40.862820	-73.826000	(40.86282, -73.826)	HUTCHINSON RIVER PARKWAY EAST	BOLLER AVENUE	
26	05/11/2019	16:09		BROOKLYN	11210	40.625730	-73.956400	(40.62573, -73.9564)	OCEAN AVENUE	AVENUE J	
27	05/11/2019	0:30		BROOKLYN	11228	40.615463	-74.026054	(40.615463, -74.026054)	NaN	NaN	173 DAH
28	05/11/2019	23:50		BROOKLYN	11214	40.610947	-73.996560	(40.610947, -73.99656)	NaN	NaN	S
29	05/11/2019	16:30		BROOKLYN	11249	40.720974	-73.955380	(40.720974, -73.95538)	NaN	NaN	162 NO S
...	...	...	...	...	...	...	...	...	...	...	...
1494112	07/01/2012	2:30		STATEN ISLAND	10304	40.617295	-74.080479	(40.6172954, -74.0804791)	OSGOOD AVENUE	PARK HILL AVENUE	
1494113	07/01/2012	20:12		STATEN ISLAND	10303	40.621564	-74.168483	(40.6215643, -74.1684829)	SOUTH AVENUE	GOETHALS ROAD NORTH	
1494114	07/01/2012	10:15		QUEENS	11365	40.730589	-73.798714	(40.7305892, -73.7987143)	71 AVENUE	171 STREET	
1494115	07/01/2012	11:40		QUEENS	11375	40.715310	-73.826381	(40.7153102, -73.8263815)	UNION TURNPIKE	132 STREET	

	DATE	TIME	BOROUGH	ZIP CODE	LATITUDE	LONGITUDE	LOCATION	ON STREET NAME	CROSS STREET NAME	OFF S
1494116	07/01/2012	10:00	QUEENS	11358	40.762849	-73.805374	(40.7628488, -73.8053745)	NaN	NaN	NOR
1494117	07/01/2012	0:30	NaN	NaN	NaN	NaN	NaN	NaN	NaN	PARKIN OF H HA
1494118	07/01/2012	8:43	NaN	NaN	NaN	NaN	NaN	HORACE HARDING EXPRESSWAY	UTOPIA PARKWAY	
1494119	07/01/2012	14:58	QUEENS	11365	40.733596	-73.794624	(40.7335957, -73.7946243)	68 AVENUE	FRESH MEADOW LANE	
1494120	07/01/2012	16:00	NaN	NaN	NaN	NaN	NaN	NaN	NaN	P/L OF 43 D
1494121	07/01/2012	16:15	QUEENS	11367	40.733800	-73.814801	(40.7338001, -73.8148012)	KISSENA BOULEVARD	MELBOURNE AVENUE	
1494122	07/01/2012	19:30	NaN	NaN	NaN	NaN	NaN	172 STREET	GRAND CENTRAL PARKWAY	
1494123	07/01/2012	19:00	STATEN ISLAND	10314	40.579400	-74.169482	(40.5793999, -74.1694817)	RICHMOND AVENUE	PLATINUM AVENUE	
1494124	07/01/2012	10:40	QUEENS	11355	40.743866	-73.825679	(40.7438656, -73.8256791)	MAIN STREET	59 AVENUE	
1494125	07/01/2012	17:55	QUEENS	11432	40.712343	-73.788597	(40.712343, -73.7885973)	HILLSIDE AVENUE	WEXFORD TERRACE	
1494126	07/01/2012	19:21	QUEENS	11367	40.725287	-73.813558	(40.7252866, -73.8135585)	75 ROAD	153 STREET	

	DATE	TIME	BOROUGH	ZIP CODE	LATITUDE	LONGITUDE	LOCATION	ON STREET NAME	CROSS STREET NAME	OFF S
1494127	07/01/2012	9:40	QUEENS	11354	40.764455	-73.831773	(40.7644548, -73.831773)	35 AVENUE	FARRINGTON STREET	
1494128	07/01/2012	15:35	QUEENS	11419	40.691359	-73.837536	(40.6913591, -73.8375359)	ATLANTIC AVENUE	108 STREET	
1494129	07/01/2012	13:20	QUEENS	11354	40.765355	-73.817324	(40.7653551, -73.8173235)	149 STREET	NORTHERN BOULEVARD	
1494130	07/01/2012	16:15	STATEN ISLAND	10314	40.620548	-74.169186	(40.6205477, -74.1691863)	SOUTH AVENUE	FAHY AVENUE	
1494131	07/01/2012	11:31	QUEENS	11357	40.777661	-73.795016	(40.7776607, -73.7950155)	21 ROAD	169 STREET	
1494132	07/01/2012	11:30		NaN	NaN	NaN	NaN	NaN	NaN	NaN
1494133	07/01/2012	13:20		NaN	NaN	NaN	NaN	NaN	NaN	PARKIN 36-30 CC P
1494134	07/01/2012	14:15	QUEENS	11355	40.754211	-73.810474	(40.7542113, -73.8104745)	156 STREET	46 AVENUE	
1494135	07/01/2012	19:30	QUEENS	11367	40.742005	-73.827874	(40.7420052, -73.8278745)	138 STREET	61 ROAD	
1494136	07/01/2012	22:15	QUEENS	11354	40.767754	-73.831924	(40.7677542, -73.8319235)	LINDEN PLACE	32 AVENUE	PARKIN
1494137	07/01/2012	13:00		NaN	NaN	NaN	NaN	NaN	NaN	METROP
1494138	07/01/2012	16:10	QUEENS	11357	40.776862	-73.821672	(40.7768624, -73.8216716)	WILLETS POINT BOULEVARD	146 STREET	

	DATE	TIME	BOROUGH	ZIP CODE	LATITUDE	LONGITUDE	LOCATION	ON STREET NAME	CROSS STREET NAME	OFF S
1494139	07/01/2012	15:30	QUEENS	11355	40.747217	-73.815374	(40.7472174, -73.8153738)	POPLAR AVENUE	KISSENA BOULEVARD	
1494140	07/01/2012	21:30	QUEENS	11358	40.758895	-73.806072	(40.7588947, -73.8060719)	43 AVENUE	160 STREET	
1494141	07/01/2012	14:55	QUEENS	11354	40.764711	-73.830686	(40.7647112, -73.8306857)	35 AVENUE	LINDEN PLACE	

1494142 rows × 34 columns

```
In [5]: NYPD["Total_Death"] = NYPD["NUMBER OF PERSONS KILLED"] + NYPD["NUMBER OF PEDESTRIANS KILLED"] + NYPD["NUMBER OF CYCLIST KILLED"]+NYPD["NUMBER OF MOTORIST KILLED"]
# Making a column in the Dataframe(NYPD) call Total_Death
```

```
In [6]: NYPD["Total_Injured"] = NYPD["NUMBER OF PERSONS INJURED"] + NYPD["NUMBER OF PEDESTRIANS INJURED"] + NYPD["NUMBER OF CYCLIST INJURED"]+NYPD["NUMBER OF MOTORIST INJURED"]
# Making a column in the Dataframe(NYPD) call Total_Injured
```

In [7]: NYPD

Out[7]:

	DATE	TIME	BOROUGH	ZIP CODE	LATITUDE	LONGITUDE	LOCATION	ON STREET NAME	CROSS STREET NAME	OFF S
0	05/11/2019	5:30		NaN	NaN	40.662140	-73.982240	(40.66214, -73.98224)	8 AVENUE	NaN
1	05/11/2019	12:00	BROOKLYN	11207	40.658577	-73.890630	(40.658577, -73.89063)	PENNSYLVANIA AVENUE	LINDEN BOULEVARD	
2	05/11/2019	22:20	QUEENS	11413	40.668800	-73.742805	(40.6688, -73.742805)	231 STREET	139 AVENUE	
3	05/11/2019	20:10	BROOKLYN	11207	40.670593	-73.886970	(40.670593, -73.88697)	BARBEY STREET	SUTTER AVENUE	
4	05/11/2019	10:45		NaN	NaN	40.818016	-73.960430	(40.818016, -73.96043)	WEST 125 STREET	NaN
5	05/11/2019	15:30	MANHATTAN	10065	40.768646	-73.969830	(40.768646, -73.96983)	EAST 66 STREET	5 AVENUE	
6	05/11/2019	13:24		NaN	NaN	NaN	NaN	NaN	HENRY HUDSON PARKWAY	NaN
7	05/11/2019	22:00		NaN	NaN	40.888596	-73.890680	(40.888596, -73.89068)	MAJOR DEEGAN EXPRESSWAY	NaN
8	05/11/2019	14:05	MANHATTAN	10075	40.774967	-73.956800	(40.774967, -73.9568)	EAST 80 STREET	3 AVENUE	
9	05/11/2019	10:18	MANHATTAN	10036	40.758890	-73.985790	(40.75889, -73.98579)	NaN	NaN	205 W S
10	05/11/2019	17:39		NaN	NaN	40.835690	-73.868570	(40.83569, -73.86857)	CROSS BRONX EXPY	NaN
11	05/11/2019	12:30		NaN	NaN	NaN	NaN	NaN	HORACE HARDING EXPRESSWAY	MARATHON PARKWAY
12	05/11/2019	11:14	BRONX	10469	40.861187	-73.838040	(40.861187, -73.83804)	NaN	NaN	2408 TII A
13	05/11/2019	17:40		NaN	NaN	40.843994	-73.897520	(40.843994, -73.89752)	CROSS BRONX EXPRESSWAY	3 AVENUE

		DATE	TIME	BOROUGH	ZIP CODE	LATITUDE	LONGITUDE	LOCATION	ON STREET NAME	CROSS STREET NAME	OFF S
14	05/11/2019	16:22	MANHATTAN	10013	40.725193	-74.007675	(40.725193, -74.007675)	HUDSON STREET	DOMINICK STREET		
15	05/11/2019	14:20	QUEENS	11357	40.780087	-73.817154	(40.780087, -73.817154)	149 STREET	21 AVENUE		
16	05/11/2019	16:55	BRONX	10454	40.809050	-73.913710	(40.80905, -73.91371)		NaN	NaN	355 BE A
17	05/11/2019	12:00	QUEENS	11358	40.756104	-73.800804	(40.756104, -73.800804)	166 STREET	45 AVENUE		
18	05/11/2019	22:00	BRONX	10463	40.873394	-73.906710	(40.873394, -73.90671)	EXTERIOR STREET	WEST 225 STREET		
19	05/11/2019	4:03	QUEENS	11101	40.749714	-73.936170	(40.749714, -73.93617)	NORTHERN BOULEVARD	41 AVENUE		
20	05/11/2019	14:00	BRONX	10451	40.816147	-73.919750	(40.816147, -73.91975)		NaN	NaN	COURT A
21	05/11/2019	2:20		NaN	NaN	40.643005	-74.005330	(40.643005, -74.00533)	49 STREET		NaN
22	05/11/2019	0:01		NaN	NaN	NaN		NaN	TRIBOROUGH BRIDGE		NaN
23	05/11/2019	21:45		NaN	NaN	NaN		NaN	G.C.P. / L.I.E (CDR)		NaN
24	05/11/2019	0:20		NaN	NaN	40.681572	-73.925790	(40.681572, -73.92579)	PATCHEN AVENUE		NaN
25	05/11/2019	14:41	BRONX	10475	40.862820	-73.826000	(40.86282, -73.826)	HUTCHINSON RIVER PARKWAY EAST	BOLLER AVENUE		
26	05/11/2019	16:09	BROOKLYN	11210	40.625730	-73.956400	(40.62573, -73.9564)	OCEAN AVENUE	AVENUE J		
27	05/11/2019	0:30	BROOKLYN	11228	40.615463	-74.026054	(40.615463, -74.026054)		NaN	NaN	173 DAH
28	05/11/2019	23:50	BROOKLYN	11214	40.610947	-73.996560	(40.610947, -73.99656)		NaN	NaN	S

		DATE	TIME	BOROUGH	ZIP CODE	LATITUDE	LONGITUDE	LOCATION	ON STREET NAME	CROSS STREET NAME	OFF S
29	05/11/2019	16:30		BROOKLYN	11249	40.720974	-73.955380	(40.720974, -73.95538)		NaN	NaN 162 NO S
...	...	...	...	...	...	...	...	...	...	...	...
1494112	07/01/2012	2:30		STATEN ISLAND	10304	40.617295	-74.080479	(40.6172954, -74.0804791)	OSGOOD AVENUE	PARK HILL AVENUE	
1494113	07/01/2012	20:12		STATEN ISLAND	10303	40.621564	-74.168483	(40.6215643, -74.1684829)	SOUTH AVENUE	GOETHALS ROAD NORTH	
1494114	07/01/2012	10:15		QUEENS	11365	40.730589	-73.798714	(40.7305892, -73.7987143)	71 AVENUE	171 STREET	
1494115	07/01/2012	11:40		QUEENS	11375	40.715310	-73.826381	(40.7153102, -73.8263815)	UNION TURNPIKE	132 STREET	
1494116	07/01/2012	10:00		QUEENS	11358	40.762849	-73.805374	(40.7628488, -73.8053745)		NaN	NaN NOR
1494117	07/01/2012	0:30			NaN	NaN	NaN			NaN	PARKIN OF HA
1494118	07/01/2012	8:43			NaN	NaN	NaN		HORACE HARDING EXPRESSWAY	UTOPIA PARKWAY	
1494119	07/01/2012	14:58		QUEENS	11365	40.733596	-73.794624	(40.7335957, -73.7946243)	68 AVENUE	FRESH MEADOW LANE	
1494120	07/01/2012	16:00			NaN	NaN	NaN			NaN	P/L OF 43 D
1494121	07/01/2012	16:15		QUEENS	11367	40.733800	-73.814801	(40.7338001, -73.8148012)	KISSENA BOULEVARD	MELBOURNE AVENUE	
1494122	07/01/2012	19:30			NaN	NaN	NaN		172 STREET	GRAND CENTRAL PARKWAY	

	DATE	TIME	BOROUGH	ZIP CODE	LATITUDE	LONGITUDE	LOCATION	ON STREET NAME	CROSS STREET NAME	OFF S
1494123	07/01/2012	19:00	STATEN ISLAND	10314	40.579400	-74.169482	(40.5793999, -74.1694817)	RICHMOND AVENUE	PLATINUM AVENUE	
1494124	07/01/2012	10:40	QUEENS	11355	40.743866	-73.825679	(40.7438656, -73.8256791)	MAIN STREET	59 AVENUE	
1494125	07/01/2012	17:55	QUEENS	11432	40.712343	-73.788597	(40.712343, -73.7885973)	HILLSIDE AVENUE	WEXFORD TERRACE	
1494126	07/01/2012	19:21	QUEENS	11367	40.725287	-73.813558	(40.7252866, -73.8135585)	75 ROAD	153 STREET	
1494127	07/01/2012	9:40	QUEENS	11354	40.764455	-73.831773	(40.7644548, -73.831773)	35 AVENUE	FARRINGTON STREET	
1494128	07/01/2012	15:35	QUEENS	11419	40.691359	-73.837536	(40.6913591, -73.8375359)	ATLANTIC AVENUE	108 STREET	
1494129	07/01/2012	13:20	QUEENS	11354	40.765355	-73.817324	(40.7653551, -73.8173235)	149 STREET	NORTHERN BOULEVARD	
1494130	07/01/2012	16:15	STATEN ISLAND	10314	40.620548	-74.169186	(40.6205477, -74.1691863)	SOUTH AVENUE	FAHY AVENUE	
1494131	07/01/2012	11:31	QUEENS	11357	40.777661	-73.795016	(40.7776607, -73.7950155)	21 ROAD	169 STREET	
1494132	07/01/2012	11:30		NaN	NaN	NaN	NaN	NaN	NaN	PARKIN
1494133	07/01/2012	13:20		NaN	NaN	NaN	NaN	NaN	NaN	36-30 CC P
1494134	07/01/2012	14:15	QUEENS	11355	40.754211	-73.810474	(40.7542113, -73.8104745)	156 STREET	46 AVENUE	
1494135	07/01/2012	19:30	QUEENS	11367	40.742005	-73.827874	(40.7420052, -73.8278745)	138 STREET	61 ROAD	
1494136	07/01/2012	22:15	QUEENS	11354	40.767754	-73.831924	(40.7677542, -73.8319235)	LINDEN PLACE	32 AVENUE	PARKIN
1494137	07/01/2012	13:00		NaN	NaN	NaN	NaN	NaN	NaN	METROP

	DATE	TIME	BOROUGH	ZIP CODE	LATITUDE	LONGITUDE	LOCATION	ON STREET NAME	CROSS STREET NAME	OFF S
1494138	07/01/2012	16:10	QUEENS	11357	40.776862	-73.821672	(40.7768624, -73.8216716)	WILLETS POINT BOULEVARD	146 STREET	
1494139	07/01/2012	15:30	QUEENS	11355	40.747217	-73.815374	(40.7472174, -73.8153738)	POPLAR AVENUE	KISSENA BOULEVARD	
1494140	07/01/2012	21:30	QUEENS	11358	40.758895	-73.806072	(40.7588947, -73.8060719)	43 AVENUE	160 STREET	
1494141	07/01/2012	14:55	QUEENS	11354	40.764711	-73.830686	(40.7647112, -73.8306857)	35 AVENUE	LINDEN PLACE	

1494142 rows × 36 columns

```
In [8]: Injured_Death = NYPD[["DATE", "Total_Death", "Total_Injured"]] # New Dataframe with only the number of Killed and Injured
```

```
In [9]: Injured_Death['DATE'] = pd.to_datetime(Injured_Death.DATE) # Change the order of dates so Pandas can read them
```

```
C:\Users\Eugene\Anaconda3\lib\site-packages\ipykernel_launcher.py:1: SettingWithCopyWarning:
A value is trying to be set on a copy of a slice from a DataFrame.
Try using .loc[row_indexer,col_indexer] = value instead
```

See the caveats in the documentation: <http://pandas.pydata.org/pandas-docs/stable/indexing.html#indexing-view-versus-copy>

"""Entry point for launching an IPython kernel.

In [10]: Injured\_Death

Out[10]:

	DATE	Total_Death	Total_Injured
0	2019-05-11	0.0	0.0
1	2019-05-11	0.0	0.0
2	2019-05-11	0.0	0.0
3	2019-05-11	0.0	0.0
4	2019-05-11	0.0	0.0
5	2019-05-11	0.0	2.0
6	2019-05-11	0.0	0.0
7	2019-05-11	0.0	10.0
8	2019-05-11	0.0	0.0
9	2019-05-11	0.0	0.0
10	2019-05-11	0.0	0.0
11	2019-05-11	0.0	0.0
12	2019-05-11	0.0	0.0
13	2019-05-11	0.0	0.0
14	2019-05-11	0.0	2.0
15	2019-05-11	0.0	0.0
16	2019-05-11	0.0	2.0
17	2019-05-11	0.0	0.0
18	2019-05-11	0.0	2.0
19	2019-05-11	0.0	2.0
20	2019-05-11	0.0	0.0
21	2019-05-11	0.0	0.0
22	2019-05-11	0.0	4.0
23	2019-05-11	0.0	0.0
24	2019-05-11	0.0	0.0

	DATE	Total_Death	Total_Injured
25	2019-05-11	0.0	2.0
26	2019-05-11	0.0	2.0
27	2019-05-11	0.0	0.0
28	2019-05-11	0.0	0.0
29	2019-05-11	0.0	0.0
...	...	...	...
1494112	2012-07-01	0.0	2.0
1494113	2012-07-01	0.0	0.0
1494114	2012-07-01	0.0	2.0
1494115	2012-07-01	0.0	0.0
1494116	2012-07-01	0.0	0.0
1494117	2012-07-01	0.0	0.0
1494118	2012-07-01	0.0	0.0
1494119	2012-07-01	0.0	0.0
1494120	2012-07-01	0.0	0.0
1494121	2012-07-01	0.0	2.0
1494122	2012-07-01	0.0	2.0
1494123	2012-07-01	0.0	0.0
1494124	2012-07-01	0.0	2.0
1494125	2012-07-01	0.0	2.0
1494126	2012-07-01	0.0	0.0
1494127	2012-07-01	0.0	0.0
1494128	2012-07-01	0.0	0.0
1494129	2012-07-01	0.0	0.0
1494130	2012-07-01	0.0	4.0
1494131	2012-07-01	0.0	0.0

	DATE	Total_Death	Total_Injured
1494132	2012-07-01	0.0	0.0
1494133	2012-07-01	0.0	0.0
1494134	2012-07-01	0.0	0.0
1494135	2012-07-01	0.0	0.0
1494136	2012-07-01	0.0	2.0
1494137	2012-07-01	0.0	0.0
1494138	2012-07-01	0.0	6.0
1494139	2012-07-01	0.0	0.0
1494140	2012-07-01	0.0	0.0
1494141	2012-07-01	0.0	0.0

1494142 rows × 3 columns

```
In [11]: Years = Injured_Death.groupby([Injured_Death['DATE'].dt.year.rename('year')]).agg({'sum'})  
# Group Killed and Injured people by year and sum them
```

In [12]: Years

Out[12]:

	Total_Death	Total_Injured
	sum	sum
year		
2012	274.0	54898.0
2013	594.0	110248.0
2014	524.0	102427.0
2015	486.0	102716.0
2016	489.0	120882.0
2017	515.0	121312.0
2018	454.0	123817.0
2019	148.0	39778.0

In [13]: Years = Years.reset\_index() # reset index to make it easy to plot

In [14]: Years

Out[14]:

	year	Total_Death	Total_Injured
		sum	sum
0	2012	274.0	54898.0
1	2013	594.0	110248.0
2	2014	524.0	102427.0
3	2015	486.0	102716.0
4	2016	489.0	120882.0
5	2017	515.0	121312.0
6	2018	454.0	123817.0
7	2019	148.0	39778.0

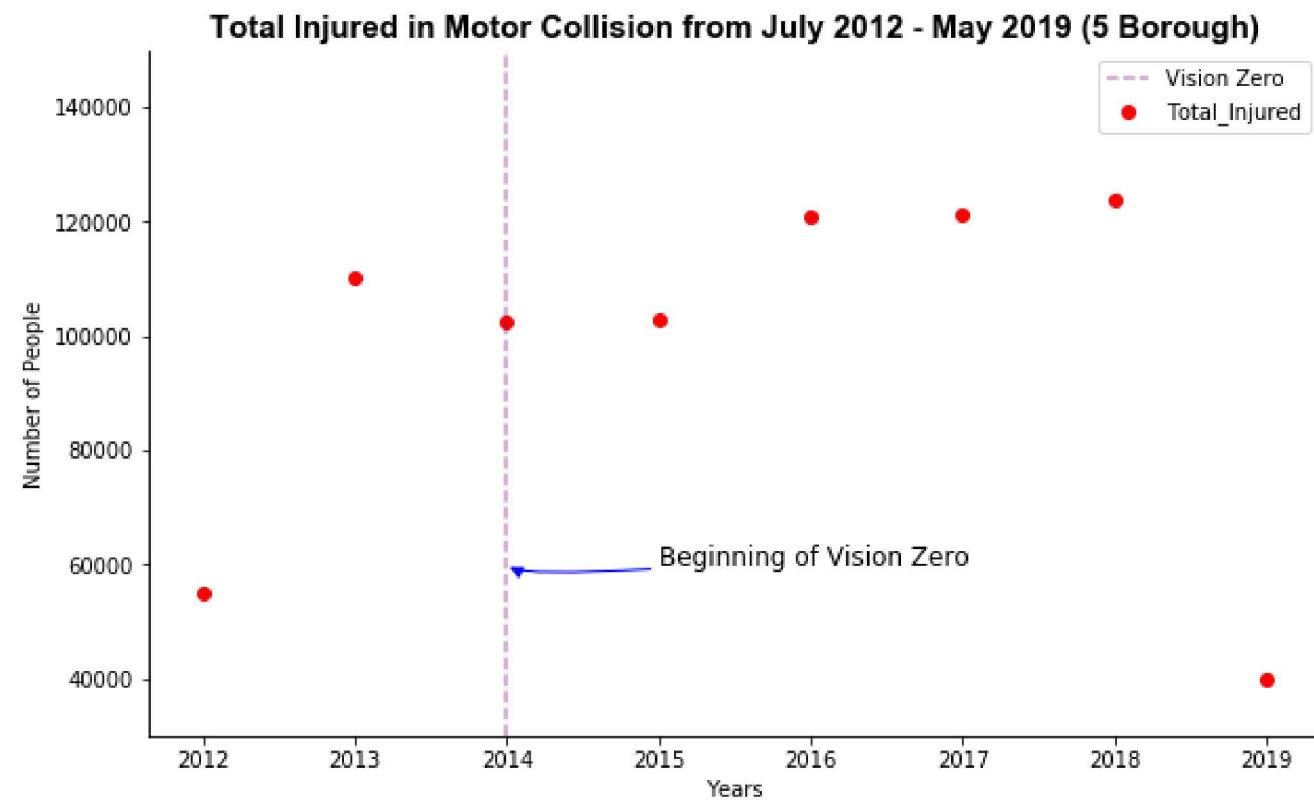
```
In [15]: def PeopleHurt(df,condition): # a function that take the Dataframe(Years) and the condition which is either Total_Death or Total_Injured
    fig, ax = plt.subplots(figsize = (10,6))
    plt.scatter(df.year,df[condition], color='r', label = condition) # Scatter plot
    ax.spines["right"].set_visible(False)
    ax.spines["top"].set_visible(False)
    ax.set_ylabel("Number of People") # Labeling
    ax.set_xlabel("Years")
    ax.axvline(2014,c="purple", alpha= 0.4,linestyle = '--', label = "Vision Zero") # a vertical line showing Vision Zero
    ax.legend() # Show Legend

    if condition == "Total_Injured": # for Total_Injured
        ax.set_ylim(30000,150000) # y axis
        ax.set_title( "Total Injured in Motor Collision from July 2012 - May 2019 (5 Borough)", fontsize = 15, fontweight = "bold", fontname="Arial")
        ax.annotate(
            'Beginning of Vision Zero',
            xy=(2014, 60000),
            xycoords="data",
            xytext=(2015, 60000),
            horizontalalignment="left",
            arrowprops={
                "arrowstyle": "-|>",
                "connectionstyle": "angle3,angleA=5,angleB=110",
                "color": "blue"
            },
            fontsize=12,
        )

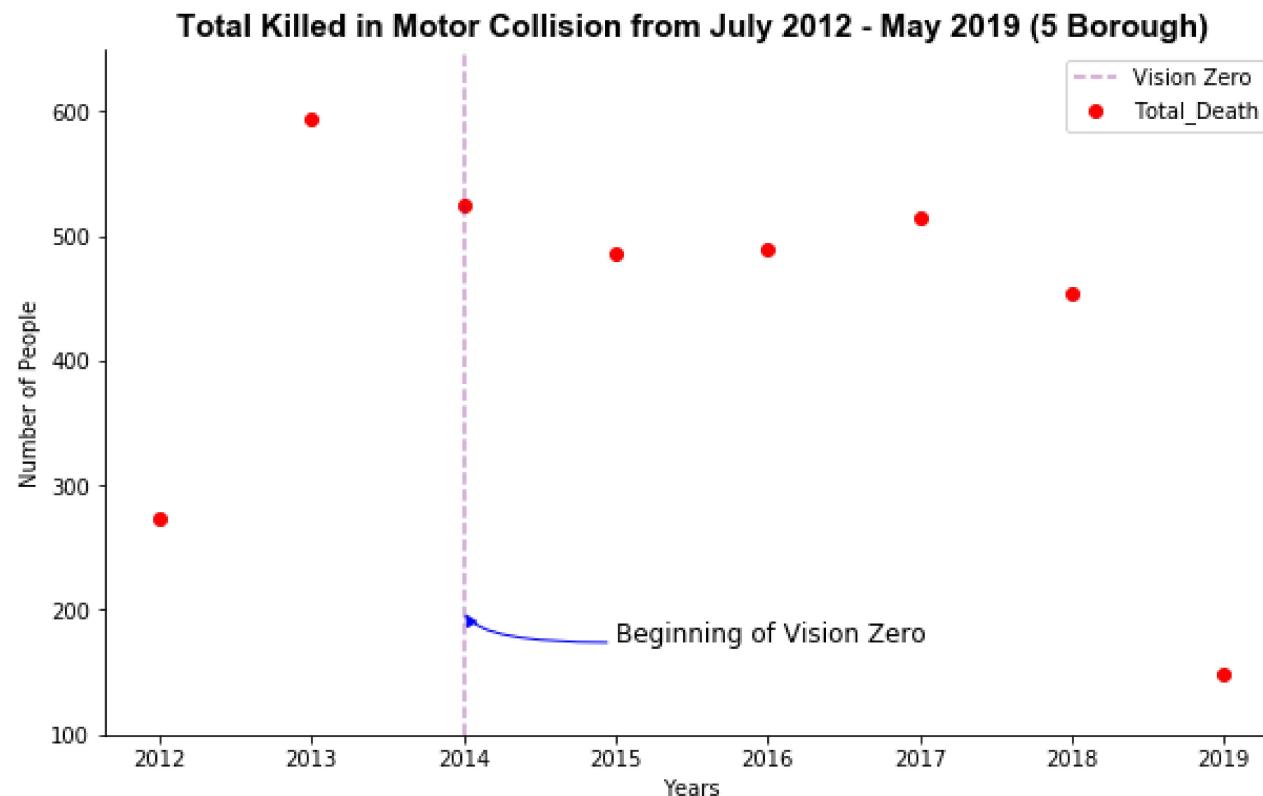
    else: # for Total_Death
        ax.set_ylim(100,650)
        ax.set_title( "Total Killed in Motor Collision from July 2012 - May 2019 (5 Borough)", fontsize = 15, fontweight = "bold", fontname="Arial")
        ax.annotate(
            'Beginning of Vision Zero',
            xy=(2014, 200),
            xycoords="data",
            xytext=(2015, 175),
            horizontalalignment="left",
```

```
arrowprops={  
    "arrowstyle": "-|>",  
    "connectionstyle": "angle3,angleA=5,angleB=110",  
    "color": "blue"  
},  
fontsize=12,  
)  
  
plt.show()
```

In [16]: PeopleHurt(Years, "Total\_Injured")



```
In [17]: PeopleHurt(Years, "Total_Death")
```



In the scatter plot above, we can clearly see that Vision Zero has helped decrease the number of deaths in NYC. In 2018, the number of deaths in NYC is only 454 people which is low compare to that of other years. Vision Zero is mainly focused on preventing deaths in NYC, thus it did not prevent injuries across five Borough. There are myriad factors that contributed to the increase of injuries in NYC such as self-driving cars, crowded streets, distraction of phones etc. In conclusion, it can be safe to say that Mayor Bill de Blasio did the right thing by creating Vision Zero in 2014.

```
In [18]: grp= NYPD.groupby( "BOROUGH" ) # Group by Borough
```

```
In [19]: grp.groups
```

```
Out[19]: {'BRONX': Int64Index([ 12, 16, 18, 20, 25, 32, 37,
                               53, 64, 70,
                               ...
                               1493818, 1493838, 1493858, 1493944, 1493976, 1493986, 1493988,
                               1493996, 1494002, 1494010],
                               dtype='int64', length=144140),
          'BROOKLYN': Int64Index([ 1, 3, 26, 27, 28, 29, 35,
                                   36, 46, 48,
                                   ...
                                   1494075, 1494076, 1494079, 1494080, 1494081, 1494084, 1494086,
                                   1494087, 1494088, 1494091],
                                   dtype='int64', length=323982),
          'MANHATTAN': Int64Index([ 5, 8, 9, 14, 39, 42, 47,
                                   51, 92, 102,
                                   ...
                                   1493922, 1493926, 1493983, 1493987, 1493989, 1494016, 1494037,
                                   1494047, 1494051, 1494059],
                                   dtype='int64', length=254681),
          'QUEENS': Int64Index([ 2, 15, 17, 19, 30, 34, 41,
                                 44, 49, 50,
                                 ...
                                 1494128, 1494129, 1494131, 1494134, 1494135, 1494136, 1494138,
                                 1494139, 1494140, 1494141],
                                 dtype='int64', length=276928),
          'STATEN ISLAND': Int64Index([ 247, 281, 356, 439, 588, 591, 834,
                                         1041, 1148, 1210,
                                         ...
                                         1494104, 1494106, 1494107, 1494108, 1494109, 1494110, 1494112,
                                         1494113, 1494123, 1494130],
                                         dtype='int64', length=46853)}
```

```
In [20]: grp_week = grp.agg(["sum"])
```

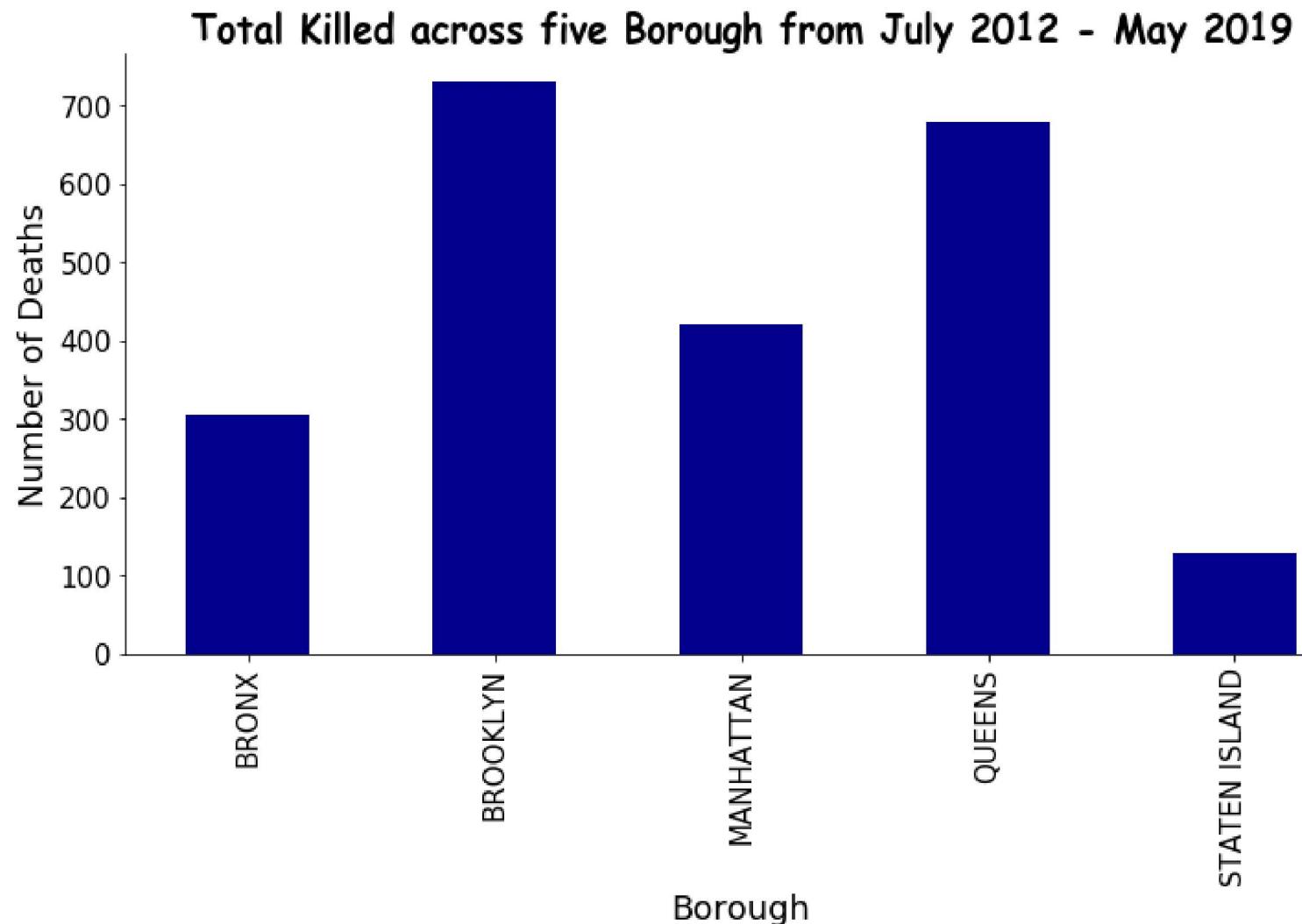
```
In [21]: grp_week= grp_week[["Total_Death","Total_Injured"]]
```

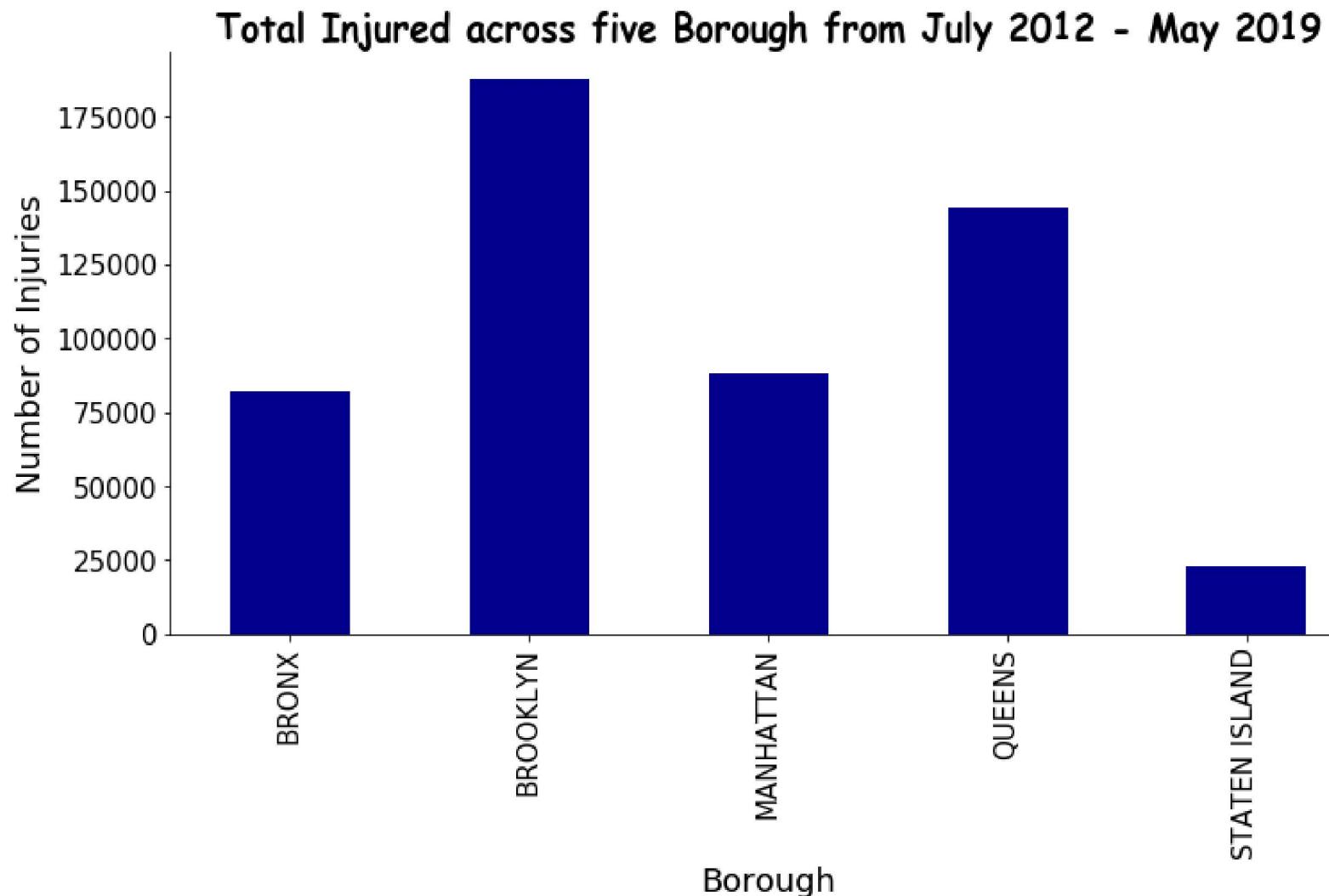
In [22]: grp\_week

Out[22]:

BOROUGH	Total_Death	Total_Injured
	sum	sum
BRONX	306.0	81812.0
BROOKLYN	731.0	187635.0
MANHATTAN	422.0	87935.0
QUEENS	680.0	144246.0
STATEN ISLAND	128.0	22663.0

```
In [23]: Anaylze = ["Total_Death", "Total_Injured"]
for items in Anaylze: # plot the total killed and injured across 5 Borough using a bar diagram
    ax = grp_week[[items]].plot(kind='bar', figsize=(12, 6), fontsize=15, label = "Death", color = "darkblue") # bar plot
    ax.spines["right"].set_visible(False)
    ax.spines["top"].set_visible(False)
    ax.get_legend().remove()
    if items == "Total_Death": # setting conditions
        ax.set_title ("Total Killed across five Borough from July 2012 - May 2019", fontsize = 20, fontweight = "bold", fontname="Comic Sans MS")
        ax.set_ylabel("Number of Deaths", fontsize = 18) #Labeling
        ax.set_xlabel("Borough", fontsize = 18)
        plt.show()
    else:
        ax.set_title ("Total Injured across five Borough from July 2012 - May 2019", fontsize = 20, fontweight = "bold", fontname="Comic Sans MS")
        ax.set_ylabel("Number of Injuries", fontsize = 18)
        ax.set_xlabel("Borough", fontsize = 18)
        plt.show()
```





In the bar diagram above, it illustrates the fact that Brooklyn is the most dangerous borough in NYC with the most deaths and the most injuries. The results should be obvious since Brooklyn is the most populated borough followed by Queens. The safest borough is Staten Island with the least killed and injured. One main reason that Staten Island is the safest borough is that it has the least amount of people living there.

```
In [24]: Factors=["CONTRIBUTING FACTOR VEHICLE 1","CONTRIBUTING FACTOR VEHICLE 2","CONTRIBUTING FACTOR VEHICLE 3","CONTRIBUTING FACTOR VEHICLE 4","CONTRIBUTING FACTOR VEHICLE 5"]
Events= [] # Empty list
for items in Factors:
    Counts = NYPD[items].value_counts() # counting from most to least
    Cause= Events.append(Counts) # Append to empty list
```

In [25]: Events

Out[25]: [Unspecified	564403
Driver Inattention/Distraction	269139
Failure to Yield Right-of-Way	83841
Following Too Closely	69621
Backing Unsafely	56331
Other Vehicular	47742
Fatigued/Drowsy	46753
Turning Improperly	38647
Passing or Lane Usage Improper	32917
Passing Too Closely	29989
Unsafe Lane Changing	27125
Traffic Control Disregarded	22705
Driver Inexperience	21768
Lost Consciousness	19503
Pavement Slippery	15391
Prescription Medication	15346
Alcohol Involvement	14125
Reaction to Uninvolved Vehicle	12040
Unsafe Speed	11888
Outside Car Distraction	11551
Oversized Vehicle	9755
Physical Disability	9138
View Obstructed/Limited	8730
Passenger Distraction	6495
Aggressive Driving/Road Rage	5644
Pedestrian/Bicyclist/Other Pedestrian Error/Confusion	4793
Brakes Defective	4641
Fell Asleep	3410
Glare	3166
Obstruction/Debris	3091
...	
Other Electronic Device	2283
Illness	2158
Pavement Defective	1811
Steering Failure	1679
Tire Failure/Inadequate	1607
Reaction to Other Uninvolved Vehicle	1337
Animals Action	1024
Illnes	790
Lane Marking Improper/Inadequate	763

Accelerator Defective	718
Driverless/Runaway Vehicle	713
Traffic Control Device Improper/Non-Working	629
Drugs (Illegal)	419
Drugs (illegal)	410
Cell Phone (hand-Held)	295
Cell Phone (hands-free)	241
Tow Hitch Defective	150
Other Lighting Defects	132
80	101
Using On Board Navigation Device	88
Headlights Defective	86
Cell Phone (hand-held)	79
Eating or Drinking	72
Tinted Windows	72
Vehicle Vandalism	70
Shoulders Defective/Improper	68
Windshield Inadequate	66
Texting	33
Listening/Using Headphones	14
1	10
Name: CONTRIBUTING FACTOR VEHICLE 1, Length: 61, dtype: int64,	
Unspecified	1089742
Driver Inattention/Distraction	66442
Other Vehicular	25246
Failure to Yield Right-of-Way	13031
Following Too Closely	11894
Fatigued/Drowsy	10820
Passing or Lane Usage Improper	8276
Turning Improperly	7430
Backing Unsafely	6588
Passing Too Closely	5784
Lost Consciousness	5221
Driver Inexperience	5176
Traffic Control Disregarded	4991
Unsafe Lane Changing	4693
Pavement Slippery	3392
Prescription Medication	3017
Unsafe Speed	2552
Outside Car Distraction	2397
Reaction to Uninvolved Vehicle	2214

Physical Disability	2188
View Obstructed/Limited	2054
Oversized Vehicle	1775
Passenger Distraction	1306
Aggressive Driving/Road Rage	1186
Alcohol Involved	1181
Pedestrian/Bicyclist/Other Pedestrian Error/Confusion	1104
Other Electronic Device	621
Failure to Keep Right	539
Obstruction/Debris	519
Fell Asleep	465
...	
Illness	436
Glare	409
Reaction to Other Uninvolved Vehicle	377
Traffic Control Device Improper/Non-Working	369
Brakes Defective	316
Pavement Defective	154
Drugs (Illegal)	116
Tire Failure/Inadequate	85
Steering Failure	79
Animals Action	63
Accelerator Defective	59
Driverless/Runaway Vehicle	53
Cell Phone (hands-free)	44
Headlights Defective	42
Cell Phone (hand-Held)	37
Other Lighting Defects	34
Illness	29
Drugs (illegal)	26
80	22
Cell Phone (hand-held)	22
Tinted Windows	17
Tow Hitch Defective	15
Shoulders Defective/Improper	11
Using On Board Navigation Device	8
Windshield Inadequate	7
Eating or Drinking	6
1	5
Vehicle Vandalism	4
Listening/Using Headphones	3

Texting	3
Name: CONTRIBUTING FACTOR VEHICLE 2, Length: 61, dtype: int64,	
Unspecified	89399
Other Vehicular	1783
Driver Inattention/Distraction	1264
Following Too Closely	1101
Fatigued/Drowsy	853
Pavement Slippery	283
Outside Car Distraction	147
Driver Inexperience	139
Traffic Control Disregarded	135
Reaction to Uninvolved Vehicle	122
Failure to Yield Right-of-Way	117
Backing Unsafely	85
Alcohol Involvement	76
Turning Improperly	67
Unsafe Speed	66
Passing or Lane Usage Improper	64
Fell Asleep	53
Unsafe Lane Changing	40
Obstruction/Debris	39
Other Electronic Device	37
Lost Consciousness	35
Aggressive Driving/Road Rage	28
Failure to Keep Right	26
Brakes Defective	25
Passing Too Closely	25
Physical Disability	23
View Obstructed/Limited	21
Prescription Medication	21
Pedestrian/Bicyclist/Other Pedestrian Error/Confusion	17
Passenger Distraction	12
Glare	11
Pavement Defective	11
Traffic Control Device Improper/Non-Working	10
Oversized Vehicle	9
Illness	7
Tire Failure/Inadequate	6
Drugs (Illegal)	6
Driverless/Runaway Vehicle	5
Animals Action	4

Accelerator Defective	4
Lane Marking Improper/Inadequate	3
80	3
Drugs (illegal)	2
Reaction to Other Uninvolved Vehicle	2
Steering Failure	2
Illnes	1
Cell Phone (hands-free)	1
Tinted Windows	1
1	1
Cell Phone (hand-Held)	1
Name: CONTRIBUTING FACTOR VEHICLE 3, dtype: int64,	
Unspecified	18835
Other Vehicular	325
Following Too Closely	202
Fatigued/Drowsy	170
Driver Inattention/Distraction	154
Pavement Slippery	72
Traffic Control Disregarded	21
Driver Inexperience	20
Outside Car Distraction	20
Reaction to Uninvolved Vehicle	20
Fell Asleep	18
Unsafe Speed	15
Failure to Yield Right-of-Way	15
Obstruction/Debris	14
Alcohol Involvement	14
Other Electronic Device	9
Backing Unsafely	8
Failure to Keep Right	7
Passing or Lane Usage Improper	7
Turning Improperly	4
Brakes Defective	4
Unsafe Lane Changing	4
Physical Disability	3
Prescription Medication	3
View Obstructed/Limited	2
Traffic Control Device Improper/Non-Working	2
Drugs (illegal)	2
Drugs (Illegal)	2
Passing Too Closely	2

Driverless/Runaway Vehicle	2
Illness	2
Lost Consciousness	2
Aggressive Driving/Road Rage	2
Accelerator Defective	1
Steering Failure	1
Pavement Defective	1
Windshield Inadequate	1
Animals Action	1
Glare	1
Name: CONTRIBUTING FACTOR VEHICLE 4, dtype: int64,	
Unspecified	4802
Other Vehicular	81
Following Too Closely	43
Fatigued/Drowsy	41
Driver Inattention/Distraction	37
Pavement Slippery	28
Driver Inexperience	8
Alcohol Invovement	8
Reaction to Uninvolved Vehicle	8
Obstruction/Debris	4
Failure to Yield Right-of-Way	4
Traffic Control Disregarded	3
Fell Asleep	3
Outside Car Distraction	3
Other Electronic Device	2
Failure to Keep Right	2
Drugs (illegal)	2
Aggressive Driving/Road Rage	1
Tire Failure/Inadequate	1
Backing Unsafely	1
Illness	1
Glare	1
Brakes Defective	1
Passing or Lane Usage Improper	1
Traffic Control Device Improper/Non-Working	1
Unsafe Speed	1
Steering Failure	1
Name: CONTRIBUTING FACTOR VEHICLE 5, dtype: int64]	

In [26]: `Events = pd.DataFrame(Events) # Convert List to Dataframe`

In [27]: `Events`

Out[27]:

	Unspecified	Inattention/Distraction	Driver Failure to Yield Right-of-Way	Following Too Closely	Backing Unsafely	Other Vehicular	Fatigued/Drowsy	Turning Improperly	Pas- or L- Us- Impre-
<b>CONTRIBUTING FACTOR VEHICLE 1</b>	564403.0	269139.0	83841.0	69621.0	56331.0	47742.0	46753.0	38647.0	329
<b>CONTRIBUTING FACTOR VEHICLE 2</b>	1089742.0	66442.0	13031.0	11894.0	6588.0	25246.0	10820.0	7430.0	82
<b>CONTRIBUTING FACTOR VEHICLE 3</b>	89399.0	1264.0	117.0	1101.0	85.0	1783.0	853.0	67.0	
<b>CONTRIBUTING FACTOR VEHICLE 4</b>	18835.0	154.0	15.0	202.0	8.0	325.0	170.0	4.0	
<b>CONTRIBUTING FACTOR VEHICLE 5</b>	4802.0	37.0	4.0	43.0	1.0	81.0	41.0	NaN	

5 rows × 61 columns

In [28]: `Events['Driver Inattention/Distraction'].sum() # Add the total number of Driver Inattention/Distraction together from the Dataframe`

Out[28]: 337036.0

In [29]: `Events["Failure to Yield Right-of-Way"].sum() # Add the total number of Failure to Yield Right-of-Way together from the Dataframe`

Out[29]: 97008.0

```
In [30]: Events["Following Too Closely"].sum() # Add the total number of Following Too Closely together from the Dataframe
```

```
Out[30]: 82861.0
```

```
In [31]: Events["Backing Unsafely"].sum() # Add the total number of Backing Unsafely together from the Dataframe
```

```
Out[31]: 63013.0
```

```
In [32]: Events["Other Vehicular"].sum() # Add the total number of Backing Unsafely together from the Dataframe
```

```
Out[32]: 75177.0
```

The top 5 cause of accidents in NYC from 2012 to 2019 are:

1. Driver Inattention/Distraction (337036 incidents)
2. Failure to Yield Right-of-Way (97008 incidents)
3. Following Too Closely (82861 incidents)
4. Other Vehicular (75177 incidents)
5. Backing Unsafely (63013 incidents)

```
In [33]: cwd = os.getcwd()
```

```
In [34]: shape_file = cwd + "\\Shapefile\\ZIP_CODE_040114.shx"
```

```
In [35]: nyc_map = gpd.read_file(shape_file) #Load shape file
```

```
In [36]: NYPD = NYPD.dropna(axis=0, subset=['ZIP CODE']) # drop all rows with Zipcodes that contain "NaN" in Dat aframe
```

In [37]: NYPD

Out[37]:

	DATE	TIME	BOROUGH	ZIP CODE	LATITUDE	LONGITUDE	LOCATION	ON STREET NAME	CROSS STREET NAME	OFF S
1	05/11/2019	12:00	BROOKLYN	11207	40.658577	-73.890630	(40.658577, -73.89063)	PENNSYLVANIA AVENUE	LINDEN BOULEVARD	
2	05/11/2019	22:20	QUEENS	11413	40.668800	-73.742805	(40.6688, -73.742805)	231 STREET	139 AVENUE	
3	05/11/2019	20:10	BROOKLYN	11207	40.670593	-73.886970	(40.670593, -73.88697)	BARBEY STREET	SUTTER AVENUE	
5	05/11/2019	15:30	MANHATTAN	10065	40.768646	-73.969830	(40.768646, -73.96983)	EAST 66 STREET	5 AVENUE	
8	05/11/2019	14:05	MANHATTAN	10075	40.774967	-73.956800	(40.774967, -73.9568)	EAST 80 STREET	3 AVENUE	
9	05/11/2019	10:18	MANHATTAN	10036	40.758890	-73.985790	(40.75889, -73.98579)	NaN	NaN	205 W S
12	05/11/2019	11:14	BRONX	10469	40.861187	-73.838040	(40.861187, -73.83804)	NaN	NaN	2408 TIE A\
14	05/11/2019	16:22	MANHATTAN	10013	40.725193	-74.007675	(40.725193, -74.007675)	HUDSON STREET	DOMINICK STREET	
15	05/11/2019	14:20	QUEENS	11357	40.780087	-73.817154	(40.780087, -73.817154)	149 STREET	21 AVENUE	
16	05/11/2019	16:55	BRONX	10454	40.809050	-73.913710	(40.80905, -73.91371)	NaN	NaN	355 BEE A\
17	05/11/2019	12:00	QUEENS	11358	40.756104	-73.800804	(40.756104, -73.800804)	166 STREET	45 AVENUE	
18	05/11/2019	22:00	BRONX	10463	40.873394	-73.906710	(40.873394, -73.90671)	EXTERIOR STREET	WEST 225 STREET	
19	05/11/2019	4:03	QUEENS	11101	40.749714	-73.936170	(40.749714, -73.93617)	NORTHERN BOULEVARD	41 AVENUE	
20	05/11/2019	14:00	BRONX	10451	40.816147	-73.919750	(40.816147, -73.91975)	NaN	NaN	COURT A\

	DATE	TIME	BOROUGH	ZIP CODE	LATITUDE	LONGITUDE	LOCATION	ON STREET NAME	CROSS STREET NAME	OFF S
25	05/11/2019	14:41	BRONX	10475	40.862820	-73.826000	(40.86282, -73.826)	HUTCHINSON RIVER PARKWAY EAST	BOLLER AVENUE	
26	05/11/2019	16:09	BROOKLYN	11210	40.625730	-73.956400	(40.62573, -73.9564)	OCEAN AVENUE	AVENUE J	
27	05/11/2019	0:30	BROOKLYN	11228	40.615463	-74.026054	(40.615463, -74.026054)	NaN	NaN	173 DAHL
28	05/11/2019	23:50	BROOKLYN	11214	40.610947	-73.996560	(40.610947, -73.99656)	NaN	NaN	1 S
29	05/11/2019	16:30	BROOKLYN	11249	40.720974	-73.955380	(40.720974, -73.95538)	NaN	NaN	162 NOF S
30	05/11/2019	17:00	QUEENS	11422	40.675460	-73.733850	(40.67546, -73.73385)	LAURELTON PARKWAY	133 AVENUE	
32	05/11/2019	0:00	BRONX	10475	40.869335	-73.825500	(40.869335, -73.8255)	NaN	NaN	2100 BA A\
34	05/11/2019	0:45	QUEENS	11373	40.741840	-73.881010	(40.74184, -73.88101)	45 AVENUE	BROADWAY	
35	05/11/2019	12:35	BROOKLYN	11210	40.627410	-73.941920	(40.62741, -73.94192)	NaN	NaN	FLA A\
36	05/11/2019	20:25	BROOKLYN	11207	40.657215	-73.889620	(40.657215, -73.88962)	NaN	NaN	PENNSYI A\
37	05/11/2019	8:30	BRONX	10460	40.833004	-73.885110	(40.833004, -73.88511)	NaN	NaN	1544 E A\
39	05/11/2019	21:45	MANHATTAN	10036	40.757340	-73.987940	(40.75734, -73.98794)	NaN	NaN	253 WI S
41	05/11/2019	0:35	QUEENS	11421	40.684742	-73.860810	(40.684742, -73.86081)	ATLANTIC AVENUE	ROCKAWAY BOULEVARD	
42	05/11/2019	5:00	MANHATTAN	10037	40.809500	-73.935830	(40.8095, -73.93583)	EAST 132 STREET	PARK AVENUE	

		DATE	TIME	BOROUGH	ZIP CODE	LATITUDE	LONGITUDE	LOCATION	ON STREET NAME	CROSS STREET NAME	OFF S
44	05/11/2019	15:40		QUEENS	11379	40.725750	-73.877560	(40.72575, -73.87756)	ELIOT AVENUE	82 STREET	
46	05/11/2019	12:30		BROOKLYN	11214	40.597797	-74.004500	(40.597797, -74.0045)		NaN	NaN
...	...	...	...	...	...	...	...	...	...	...	...
1494103	07/01/2012	7:05		STATEN ISLAND	10314	40.597096	-74.182047	(40.5970957, -74.1820469)	VICTORY BOULEVARD	BARON BOULEVARD	
1494104	07/01/2012	3:00		STATEN ISLAND	10303	40.635877	-74.167507	(40.6358771, -74.1675066)	ARLINGTON PLACE	ARLINGTON AVENUE	
1494106	07/01/2012	12:40		STATEN ISLAND	10301	40.646664	-74.088932	(40.6466639, -74.0889325)	RICHMOND TERRACE	JERSEY STREET	
1494107	07/01/2012	9:15		STATEN ISLAND	10310	40.634748	-74.112253	(40.6347476, -74.1122528)	CASTLETON AVENUE	BEMENT AVENUE	
1494108	07/01/2012	19:07		STATEN ISLAND	10314	40.605811	-74.129109	(40.6058107, -74.1291089)	LIVINGSTON AVENUE	WESTWOOD AVENUE	
1494109	07/01/2012	3:15		STATEN ISLAND	10305	40.598935	-74.063759	(40.598935, -74.0637592)	MCCLEAN AVENUE	LILY POND AVENUE	
1494110	07/01/2012	17:26		STATEN ISLAND	10301	40.642120	-74.075237	(40.6421201, -74.0752374)	BAY STREET	RICHMOND TERRACE	
1494112	07/01/2012	2:30		STATEN ISLAND	10304	40.617295	-74.080479	(40.6172954, -74.0804791)	OSGOOD AVENUE	PARK HILL AVENUE	
1494113	07/01/2012	20:12		STATEN ISLAND	10303	40.621564	-74.168483	(40.6215643, -74.1684829)	SOUTH AVENUE	GOETHALS ROAD NORTH	
1494114	07/01/2012	10:15		QUEENS	11365	40.730589	-73.798714	(40.7305892, -73.7987143)	71 AVENUE	171 STREET	
1494115	07/01/2012	11:40		QUEENS	11375	40.715310	-73.826381	(40.7153102, -73.8263815)	UNION TURNPIKE	132 STREET	
1494116	07/01/2012	10:00		QUEENS	11358	40.762849	-73.805374	(40.7628488, -73.8053745)		NaN	NOR

	DATE	TIME	BOROUGH	ZIP CODE	LATITUDE	LONGITUDE	LOCATION	ON STREET NAME	CROSS STREET NAME	OFF S
1494119	07/01/2012	14:58	QUEENS	11365	40.733596	-73.794624	(40.7335957, -73.7946243)	68 AVENUE	FRESH MEADOW LANE	
1494121	07/01/2012	16:15	QUEENS	11367	40.733800	-73.814801	(40.7338001, -73.8148012)	KISSENA BOULEVARD	MELBOURNE AVENUE	
1494123	07/01/2012	19:00	STATEN ISLAND	10314	40.579400	-74.169482	(40.5793999, -74.1694817)	RICHMOND AVENUE	PLATINUM AVENUE	
1494124	07/01/2012	10:40	QUEENS	11355	40.743866	-73.825679	(40.7438656, -73.8256791)	MAIN STREET	59 AVENUE	
1494125	07/01/2012	17:55	QUEENS	11432	40.712343	-73.788597	(40.712343, -73.7885973)	HILLSIDE AVENUE	WEXFORD TERRACE	
1494126	07/01/2012	19:21	QUEENS	11367	40.725287	-73.813558	(40.7252866, -73.8135585)	75 ROAD	153 STREET	
1494127	07/01/2012	9:40	QUEENS	11354	40.764455	-73.831773	(40.7644548, -73.831773)	35 AVENUE	FARRINGTON STREET	
1494128	07/01/2012	15:35	QUEENS	11419	40.691359	-73.837536	(40.6913591, -73.8375359)	ATLANTIC AVENUE	108 STREET	
1494129	07/01/2012	13:20	QUEENS	11354	40.765355	-73.817324	(40.7653551, -73.8173235)	149 STREET	NORTHERN BOULEVARD	
1494130	07/01/2012	16:15	STATEN ISLAND	10314	40.620548	-74.169186	(40.6205477, -74.1691863)	SOUTH AVENUE	FAHY AVENUE	
1494131	07/01/2012	11:31	QUEENS	11357	40.777661	-73.795016	(40.7776607, -73.7950155)	21 ROAD	169 STREET	
1494134	07/01/2012	14:15	QUEENS	11355	40.754211	-73.810474	(40.7542113, -73.8104745)	156 STREET	46 AVENUE	
1494135	07/01/2012	19:30	QUEENS	11367	40.742005	-73.827874	(40.7420052, -73.8278745)	138 STREET	61 ROAD	
1494136	07/01/2012	22:15	QUEENS	11354	40.767754	-73.831924	(40.7677542, -73.8319235)	LINDEN PLACE	32 AVENUE	
1494138	07/01/2012	16:10	QUEENS	11357	40.776862	-73.821672	(40.7768624, -73.8216716)	WILLETS POINT BOULEVARD	146 STREET	

	DATE	TIME	BOROUGH	ZIP CODE	LATITUDE	LONGITUDE	LOCATION	ON STREET NAME	CROSS STREET NAME	OFF S
1494139	07/01/2012	15:30	QUEENS	11355	40.747217	-73.815374	(40.7472174, -73.8153738)	POPLAR AVENUE	KISSENA BOULEVARD	
1494140	07/01/2012	21:30	QUEENS	11358	40.758895	-73.806072	(40.7588947, -73.8060719)	43 AVENUE	160 STREET	
1494141	07/01/2012	14:55	QUEENS	11354	40.764711	-73.830686	(40.7647112, -73.8306857)	35 AVENUE	LINDEN PLACE	

1046406 rows × 36 columns

```
In [38]: NYPD['ZIPCODE']=NYPD['ZIP CODE'] # rename column
```

```
C:\Users\Eugene\Anaconda3\lib\site-packages\ipykernel_launcher.py:1: SettingWithCopyWarning:
A value is trying to be set on a copy of a slice from a DataFrame.
Try using .loc[row_indexer,col_indexer] = value instead
```

See the caveats in the documentation: <http://pandas.pydata.org/pandas-docs/stable/indexing.html#indexing-view-versus-copy>

"""Entry point for launching an IPython kernel.

In [39]: NYPD

Out[39]:

	DATE	TIME	BOROUGH	ZIP CODE	LATITUDE	LONGITUDE	LOCATION	ON STREET NAME	CROSS STREET NAME	OFF ST
1	05/11/2019	12:00	BROOKLYN	11207	40.658577	-73.890630	(40.658577, -73.89063)	PENNSYLVANIA AVENUE	LINDEN BOULEVARD	
2	05/11/2019	22:20	QUEENS	11413	40.668800	-73.742805	(40.6688, -73.742805)	231 STREET	139 AVENUE	
3	05/11/2019	20:10	BROOKLYN	11207	40.670593	-73.886970	(40.670593, -73.88697)	BARBEY STREET	SUTTER AVENUE	
5	05/11/2019	15:30	MANHATTAN	10065	40.768646	-73.969830	(40.768646, -73.96983)	EAST 66 STREET	5 AVENUE	
8	05/11/2019	14:05	MANHATTAN	10075	40.774967	-73.956800	(40.774967, -73.9568)	EAST 80 STREET	3 AVENUE	
9	05/11/2019	10:18	MANHATTAN	10036	40.758890	-73.985790	(40.75889, -73.98579)	NaN	NaN	205 W S
12	05/11/2019	11:14	BRONX	10469	40.861187	-73.838040	(40.861187, -73.83804)	NaN	NaN	2408 TIE A\
14	05/11/2019	16:22	MANHATTAN	10013	40.725193	-74.007675	(40.725193, -74.007675)	HUDSON STREET	DOMINICK STREET	
15	05/11/2019	14:20	QUEENS	11357	40.780087	-73.817154	(40.780087, -73.817154)	149 STREET	21 AVENUE	
16	05/11/2019	16:55	BRONX	10454	40.809050	-73.913710	(40.80905, -73.91371)	NaN	NaN	355 BEE A\
17	05/11/2019	12:00	QUEENS	11358	40.756104	-73.800804	(40.756104, -73.800804)	166 STREET	45 AVENUE	
18	05/11/2019	22:00	BRONX	10463	40.873394	-73.906710	(40.873394, -73.90671)	EXTERIOR STREET	WEST 225 STREET	
19	05/11/2019	4:03	QUEENS	11101	40.749714	-73.936170	(40.749714, -73.93617)	NORTHERN BOULEVARD	41 AVENUE	
20	05/11/2019	14:00	BRONX	10451	40.816147	-73.919750	(40.816147, -73.91975)	NaN	NaN	COURT A\

	DATE	TIME	BOROUGH	ZIP CODE	LATITUDE	LONGITUDE	LOCATION	ON STREET NAME	CROSS STREET NAME	OFF S
25	05/11/2019	14:41	BRONX	10475	40.862820	-73.826000	(40.86282, -73.826)	HUTCHINSON RIVER PARKWAY EAST	BOLLER AVENUE	
26	05/11/2019	16:09	BROOKLYN	11210	40.625730	-73.956400	(40.62573, -73.9564)	OCEAN AVENUE	AVENUE J	
27	05/11/2019	0:30	BROOKLYN	11228	40.615463	-74.026054	(40.615463, -74.026054)	NaN	NaN	173 DAHL
28	05/11/2019	23:50	BROOKLYN	11214	40.610947	-73.996560	(40.610947, -73.99656)	NaN	NaN	1 S
29	05/11/2019	16:30	BROOKLYN	11249	40.720974	-73.955380	(40.720974, -73.95538)	NaN	NaN	162 NOF S
30	05/11/2019	17:00	QUEENS	11422	40.675460	-73.733850	(40.67546, -73.73385)	LAURELTON PARKWAY	133 AVENUE	
32	05/11/2019	0:00	BRONX	10475	40.869335	-73.825500	(40.869335, -73.8255)	NaN	NaN	2100 BA A\
34	05/11/2019	0:45	QUEENS	11373	40.741840	-73.881010	(40.74184, -73.88101)	45 AVENUE	BROADWAY	
35	05/11/2019	12:35	BROOKLYN	11210	40.627410	-73.941920	(40.62741, -73.94192)	NaN	NaN	FLA A\
36	05/11/2019	20:25	BROOKLYN	11207	40.657215	-73.889620	(40.657215, -73.88962)	NaN	NaN	PENNSYI A\
37	05/11/2019	8:30	BRONX	10460	40.833004	-73.885110	(40.833004, -73.88511)	NaN	NaN	1544 E A\
39	05/11/2019	21:45	MANHATTAN	10036	40.757340	-73.987940	(40.75734, -73.98794)	NaN	NaN	253 WI S
41	05/11/2019	0:35	QUEENS	11421	40.684742	-73.860810	(40.684742, -73.86081)	ATLANTIC AVENUE	ROCKAWAY BOULEVARD	
42	05/11/2019	5:00	MANHATTAN	10037	40.809500	-73.935830	(40.8095, -73.93583)	EAST 132 STREET	PARK AVENUE	

		DATE	TIME	BOROUGH	ZIP CODE	LATITUDE	LONGITUDE	LOCATION	ON STREET NAME	CROSS STREET NAME	OFF S
	44	05/11/2019	15:40	QUEENS	11379	40.725750	-73.877560	(40.72575, -73.87756)	ELIOT AVENUE	82 STREET	
	46	05/11/2019	12:30	BROOKLYN	11214	40.597797	-74.004500	(40.597797, -74.0045)	NaN	NaN	1491 S PAF
	...	...	...	...	...	...	...	...	...	...	...
1494103	07/01/2012	7:05		STATEN ISLAND	10314	40.597096	-74.182047	(40.5970957, -74.1820469)	VICTORY BOULEVARD	BARON BOULEVARD	
1494104	07/01/2012	3:00		STATEN ISLAND	10303	40.635877	-74.167507	(40.6358771, -74.1675066)	ARLINGTON PLACE	ARLINGTON AVENUE	
1494106	07/01/2012	12:40		STATEN ISLAND	10301	40.646664	-74.088932	(40.6466639, -74.0889325)	RICHMOND TERRACE	JERSEY STREET	
1494107	07/01/2012	9:15		STATEN ISLAND	10310	40.634748	-74.112253	(40.6347476, -74.1122528)	CASTLETON AVENUE	BEMENT AVENUE	
1494108	07/01/2012	19:07		STATEN ISLAND	10314	40.605811	-74.129109	(40.6058107, -74.1291089)	LIVINGSTON AVENUE	WESTWOOD AVENUE	
1494109	07/01/2012	3:15		STATEN ISLAND	10305	40.598935	-74.063759	(40.598935, -74.0637592)	MCCLEAN AVENUE	LILY POND AVENUE	
1494110	07/01/2012	17:26		STATEN ISLAND	10301	40.642120	-74.075237	(40.6421201, -74.0752374)	BAY STREET	RICHMOND TERRACE	
1494112	07/01/2012	2:30		STATEN ISLAND	10304	40.617295	-74.080479	(40.6172954, -74.0804791)	OSGOOD AVENUE	PARK HILL AVENUE	
1494113	07/01/2012	20:12		STATEN ISLAND	10303	40.621564	-74.168483	(40.6215643, -74.1684829)	SOUTH AVENUE	GOETHALS ROAD NORTH	
1494114	07/01/2012	10:15		QUEENS	11365	40.730589	-73.798714	(40.7305892, -73.7987143)	71 AVENUE	171 STREET	
1494115	07/01/2012	11:40		QUEENS	11375	40.715310	-73.826381	(40.7153102, -73.8263815)	UNION TURNPIKE	132 STREET	
1494116	07/01/2012	10:00		QUEENS	11358	40.762849	-73.805374	(40.7628488, -73.8053745)	NaN	NaN	NOR

	DATE	TIME	BOROUGH	ZIP CODE	LATITUDE	LONGITUDE	LOCATION	ON STREET NAME	CROSS STREET NAME	OFF S
1494119	07/01/2012	14:58	QUEENS	11365	40.733596	-73.794624	(40.7335957, -73.7946243)	68 AVENUE	FRESH MEADOW LANE	
1494121	07/01/2012	16:15	QUEENS	11367	40.733800	-73.814801	(40.7338001, -73.8148012)	KISSENA BOULEVARD	MELBOURNE AVENUE	
1494123	07/01/2012	19:00	STATEN ISLAND	10314	40.579400	-74.169482	(40.5793999, -74.1694817)	RICHMOND AVENUE	PLATINUM AVENUE	
1494124	07/01/2012	10:40	QUEENS	11355	40.743866	-73.825679	(40.7438656, -73.8256791)	MAIN STREET	59 AVENUE	
1494125	07/01/2012	17:55	QUEENS	11432	40.712343	-73.788597	(40.712343, -73.7885973)	HILLSIDE AVENUE	WEXFORD TERRACE	
1494126	07/01/2012	19:21	QUEENS	11367	40.725287	-73.813558	(40.7252866, -73.8135585)	75 ROAD	153 STREET	
1494127	07/01/2012	9:40	QUEENS	11354	40.764455	-73.831773	(40.7644548, -73.831773)	35 AVENUE	FARRINGTON STREET	
1494128	07/01/2012	15:35	QUEENS	11419	40.691359	-73.837536	(40.6913591, -73.8375359)	ATLANTIC AVENUE	108 STREET	
1494129	07/01/2012	13:20	QUEENS	11354	40.765355	-73.817324	(40.7653551, -73.8173235)	149 STREET	NORTHERN BOULEVARD	
1494130	07/01/2012	16:15	STATEN ISLAND	10314	40.620548	-74.169186	(40.6205477, -74.1691863)	SOUTH AVENUE	FAHY AVENUE	
1494131	07/01/2012	11:31	QUEENS	11357	40.777661	-73.795016	(40.7776607, -73.7950155)	21 ROAD	169 STREET	
1494134	07/01/2012	14:15	QUEENS	11355	40.754211	-73.810474	(40.7542113, -73.8104745)	156 STREET	46 AVENUE	
1494135	07/01/2012	19:30	QUEENS	11367	40.742005	-73.827874	(40.7420052, -73.8278745)	138 STREET	61 ROAD	
1494136	07/01/2012	22:15	QUEENS	11354	40.767754	-73.831924	(40.7677542, -73.8319235)	LINDEN PLACE	32 AVENUE	
1494138	07/01/2012	16:10	QUEENS	11357	40.776862	-73.821672	(40.7768624, -73.8216716)	WILLETS POINT BOULEVARD	146 STREET	

	DATE	TIME	BOROUGH	ZIP CODE	LATITUDE	LONGITUDE	LOCATION	ON STREET NAME	CROSS STREET NAME	OFF S
1494139	07/01/2012	15:30	QUEENS	11355	40.747217	-73.815374	(40.7472174, -73.8153738)	POPLAR AVENUE	KISSENA BOULEVARD	
1494140	07/01/2012	21:30	QUEENS	11358	40.758895	-73.806072	(40.7588947, -73.8060719)	43 AVENUE	160 STREET	
1494141	07/01/2012	14:55	QUEENS	11354	40.764711	-73.830686	(40.7647112, -73.8306857)	35 AVENUE	LINDEN PLACE	

1046406 rows × 37 columns

In [40]: nyc\_map

Out[40]:

	ZIPCODE	BLDGZIP	PO_NAME	POPULATION	AREA	STATE	COUNTY	ST_FIPS	CTY_FIPS	URL
0	11436	0	Jamaica	18681.0	2.269930e+07	NY	Queens	36	081	<a href="http://www.usps.com/">http://www.usps.com/</a>
1	11213	0	Brooklyn	62426.0	2.963100e+07	NY	Kings	36	047	<a href="http://www.usps.com/">http://www.usps.com/</a>
2	11212	0	Brooklyn	83866.0	4.197210e+07	NY	Kings	36	047	<a href="http://www.usps.com/">http://www.usps.com/</a>
3	11225	0	Brooklyn	56527.0	2.369863e+07	NY	Kings	36	047	<a href="http://www.usps.com/">http://www.usps.com/</a>
4	11218	0	Brooklyn	72280.0	3.686880e+07	NY	Kings	36	047	<a href="http://www.usps.com/">http://www.usps.com/</a>
5	11226	0	Brooklyn	106132.0	3.940860e+07	NY	Kings	36	047	<a href="http://www.usps.com/">http://www.usps.com/</a>
6	11219	0	Brooklyn	92561.0	4.200274e+07	NY	Kings	36	047	<a href="http://www.usps.com/">http://www.usps.com/</a>
7	11210	0	Brooklyn	67067.0	4.788702e+07	NY	Kings	36	047	<a href="http://www.usps.com/">http://www.usps.com/</a>
8	11230	0	Brooklyn	80857.0	4.992670e+07	NY	Kings	36	047	<a href="http://www.usps.com/">http://www.usps.com/</a>
9	11204	0	Brooklyn	77354.0	4.355518e+07	NY	Kings	36	047	<a href="http://www.usps.com/">http://www.usps.com/</a>
10	10471	0	Bronx	23477.0	8.965141e+07	NY	Bronx	36	005	<a href="http://www.usps.com/">http://www.usps.com/</a>
11	10470	0	Bronx	14740.0	2.154346e+07	NY	Bronx	36	005	<a href="http://www.usps.com/">http://www.usps.com/</a>

	ZIPCODE	BLDGZIP	PO_NAME	POPULATION	AREA	STATE	COUNTY	ST_FIPS	CTY_FIPS	URL
12	10466	0	Bronx	68942.0	5.526249e+07	NY	Bronx	36	005	<a href="http://www.usps.com/">http://www.usps.com/</a>
13	10467	0	Bronx	97932.0	6.933617e+07	NY	Bronx	36	005	<a href="http://www.usps.com/">http://www.usps.com/</a>
14	10463	0	Bronx	70641.0	3.670338e+07	NY	Bronx	36	005	<a href="http://www.usps.com/">http://www.usps.com/</a>
15	10475	0	Bronx	40931.0	3.863330e+07	NY	Bronx	36	005	<a href="http://www.usps.com/">http://www.usps.com/</a>
16	10464	0	Bronx	4438.0	7.625748e+07	NY	Bronx	36	005	<a href="http://www.usps.com/">http://www.usps.com/</a>
17	10469	0	Bronx	65101.0	6.804089e+07	NY	Bronx	36	005	<a href="http://www.usps.com/">http://www.usps.com/</a>
18	10468	0	Bronx	72877.0	3.444760e+07	NY	Bronx	36	005	<a href="http://www.usps.com/">http://www.usps.com/</a>
19	10463	0	Bronx	70641.0	3.119702e+06	NY	New York	36	061	<a href="http://www.usps.com/">http://www.usps.com/</a>
20	10458	0	Bronx	79362.0	3.596881e+07	NY	Bronx	36	005	<a href="http://www.usps.com/">http://www.usps.com/</a>
21	10034	0	New York	39149.0	2.450389e+07	NY	New York	36	061	<a href="http://www.usps.com/">http://www.usps.com/</a>
22	10033	0	New York	54284.0	1.615605e+07	NY	New York	36	061	<a href="http://www.usps.com/">http://www.usps.com/</a>
23	10462	0	Bronx	75674.0	5.302251e+07	NY	Bronx	36	005	<a href="http://www.usps.com/">http://www.usps.com/</a>

	ZIPCODE	BLDGZIP	PO_NAME	POPULATION	AREA	STATE	COUNTY	ST_FIPS	CTY_FIPS	URL
24	10040	0	New York	41033.0	1.634074e+07	NY	New York	36	061	<a href="http://www.usps.com/">http://www.usps.com/</a>
25	10453	0	Bronx	77576.0	2.574851e+07	NY	Bronx	36	005	<a href="http://www.usps.com/">http://www.usps.com/</a>
26	10465	0	Bronx	42012.0	1.084237e+08	NY	Bronx	36	005	<a href="http://www.usps.com/">http://www.usps.com/</a>
27	10464	0	Bronx	4438.0	4.512531e+06	NY	Bronx	36	005	<a href="http://www.usps.com/">http://www.usps.com/</a>
28	10464	0	Bronx	4438.0	1.158795e+07	NY	Bronx	36	005	<a href="http://www.usps.com/">http://www.usps.com/</a>
29	10461	0	Bronx	50549.0	6.282406e+07	NY	Bronx	36	005	<a href="http://www.usps.com/">http://www.usps.com/</a>
...	...	...	...	...	...	...	...	...	...	...
233	10120	1	New York	0.0	3.517927e+04	NY	New York	36	061	<a href="http://www.usps.com/">http://www.usps.com/</a>
234	10278	1	New York	0.0	2.067060e+05	NY	New York	36	061	<a href="http://www.usps.com/">http://www.usps.com/</a>
235	10155	1	New York	0.0	2.478469e+04	NY	New York	36	061	<a href="http://www.usps.com/">http://www.usps.com/</a>
236	10043	1	New York	0.0	3.826236e+04	NY	New York	36	061	<a href="http://www.usps.com/">http://www.usps.com/</a>
237	10081	1	New York	0.0	3.024051e+04	NY	New York	36	061	<a href="http://www.usps.com/">http://www.usps.com/</a>

	ZIPCODE	BLDGZIP	PO_NAME	POPULATION	AREA	STATE	COUNTY	ST_FIPS	CTY_FIPS	URL
238	10096	1	New York	0.0 4.210611e+04	NY	New York		36	061	<a href="http://www.usps.com/">http://www.usps.com/</a>
239	10097	1	New York	0.0 6.582618e+04	NY	New York		36	061	<a href="http://www.usps.com/">http://www.usps.com/</a>
240	10196	1	New York	0.0 3.250244e+04	NY	New York		36	061	<a href="http://www.usps.com/">http://www.usps.com/</a>
241	10196	1	New York	0.0 3.154825e+03	NY	New York		36	061	<a href="http://www.usps.com/">http://www.usps.com/</a>
242	10275	1	New York	0.0 4.828042e+04	NY	New York		36	061	<a href="http://www.usps.com/">http://www.usps.com/</a>
243	10265	1	New York	0.0 1.722915e+04	NY	New York		36	061	<a href="http://www.usps.com/">http://www.usps.com/</a>
244	10045	1	New York	0.0 4.780899e+04	NY	New York		36	061	<a href="http://www.usps.com/">http://www.usps.com/</a>
245	10047	1	New York	0.0 1.014978e+04	NY	New York		36	061	<a href="http://www.usps.com/">http://www.usps.com/</a>
246	10047	1	New York	0.0 1.014978e+04	NY	New York		36	061	<a href="http://www.usps.com/">http://www.usps.com/</a>
247	10080	1	New York	0.0 7.711145e+04	NY	New York		36	061	<a href="http://www.usps.com/">http://www.usps.com/</a>
248	10203	1	New York	0.0 3.722688e+04	NY	New York		36	061	<a href="http://www.usps.com/">http://www.usps.com/</a>
249	10259	1	New York	0.0 2.106431e+04	NY	New York		36	061	<a href="http://www.usps.com/">http://www.usps.com/</a>

	ZIPCODE	BLDGZIP	PO_NAME	POPULATION	AREA	STATE	COUNTY	ST_FIPS	CTY_FIPS	URL
250	10260	1	New York	0.0	5.251474e+04	NY	New York	36	061	<a href="http://www.usps.com/">http://www.usps.com/</a>
251	10285	1	New York	0.0	6.735039e+04	NY	New York	36	061	<a href="http://www.usps.com/">http://www.usps.com/</a>
252	10286	1	New York	0.0	1.126441e+04	NY	New York	36	061	<a href="http://www.usps.com/">http://www.usps.com/</a>
253	10035	0	New York	34884.0	2.349487e+07	NY	New York	36	061	<a href="http://www.usps.com/">http://www.usps.com/</a>
254	11371	0	Flushing	0.0	3.055847e+07	NY	Queens	36	081	<a href="http://www.usps.com/">http://www.usps.com/</a>
255	11361	0	Bayside	28496.0	5.016352e+07	NY	Queens	36	081	<a href="http://www.usps.com/">http://www.usps.com/</a>
256	10036	0	New York	23543.0	1.139511e+07	NY	New York	36	061	<a href="http://www.usps.com/">http://www.usps.com/</a>
257	11414	0	Howard Beach	26148.0	6.392882e+07	NY	Queens	36	081	<a href="http://www.usps.com/">http://www.usps.com/</a>
258	10310	0	Staten Island	25003.0	5.346328e+07	NY	Richmond	36	085	<a href="http://www.usps.com/">http://www.usps.com/</a>
259	11693	0	Far Rockaway	11052.0	3.497516e+06	NY	Kings	36	047	<a href="http://www.usps.com/">http://www.usps.com/</a>
260	11249	0	Brooklyn	28481.0	1.777221e+07	NY	Kings	36	047	<a href="http://www.usps.com/">http://www.usps.com/</a>
261	10162	1	New York	0.0	2.103489e+04	NY	New York	36	061	<a href="http://www.usps.com/">http://www.usps.com/</a>

ZIPCODE	BLDGZIP	PO_NAME	POPULATION	AREA	STATE	COUNTY	ST_FIPS	CTY_FIPS	URL
262	10119	1	New York	0.0	1.263930e+05	NY	New York	36	061 <a href="http://www.usps.com/">http://www.usps.com/</a>

263 rows × 13 columns

In [41]: NYPD.dtypes

Out[41]:

DATE	object
TIME	object
BOROUGH	object
ZIP CODE	object
LATITUDE	float64
LONGITUDE	float64
LOCATION	object
ON STREET NAME	object
CROSS STREET NAME	object
OFF STREET NAME	object
NUMBER OF PERSONS INJURED	float64
NUMBER OF PERSONS KILLED	float64
NUMBER OF PEDESTRIANS INJURED	int64
NUMBER OF PEDESTRIANS KILLED	int64
NUMBER OF CYCLIST INJURED	int64
NUMBER OF CYCLIST KILLED	int64
NUMBER OF MOTORIST INJURED	int64
NUMBER OF MOTORIST KILLED	int64
CONTRIBUTING FACTOR VEHICLE 1	object
CONTRIBUTING FACTOR VEHICLE 2	object
CONTRIBUTING FACTOR VEHICLE 3	object
CONTRIBUTING FACTOR VEHICLE 4	object
CONTRIBUTING FACTOR VEHICLE 5	object
UNIQUE KEY	int64
VEHICLE TYPE CODE 1	object
VEHICLE TYPE CODE 2	object
VEHICLE TYPE CODE 3	object
VEHICLE TYPE CODE 4	object
VEHICLE TYPE CODE 5	object
Zip Codes	float64
Borough Boundaries	float64
City Council Districts	float64
Community Districts	float64
Police Precincts	float64
Total_Death	float64
Total_Injured	float64
ZIPCODE	object
dtype:	object

```
In [42]: nyc_map.dtypes
```

```
Out[42]: ZIPCODE      object
BLDGZIP       object
PO_NAME        object
POPULATION    float64
AREA          float64
STATE          object
COUNTY         object
ST_FIPS        object
CTY_FIPS       object
URL            object
SHAPE_AREA    float64
SHAPE_LEN     float64
geometry       object
dtype: object
```

```
In [43]: grp= NYPD.groupby("ZIPCODE") # group by zipcode
```

```
In [44]: grp_week = grp.agg(["sum"])
```

```
In [45]: grp_week= grp_week[["Total_Death","Total_Injured"]]
```

In [46]: grp\_week # contain a Dataframe with total number of killed and injured and their corresponding Zipcodes

Out[46]:

ZIPCODE	Total_Death	Total_Injured
	sum	sum
10000.0	0.0	172.0
10001.0	8.0	2368.0
10002.0	22.0	3579.0
10003.0	14.0	2211.0
10004.0	2.0	329.0
10005.0	0.0	224.0
10006.0	0.0	272.0
10007.0	2.0	907.0
10009.0	4.0	1435.0
10010.0	4.0	1910.0
10011.0	6.0	1804.0
10012.0	0.0	1486.0
10013.0	12.0	2189.0
10014.0	16.0	954.0
10016.0	14.0	3514.0
10017.0	2.0	1851.0
10018.0	8.0	1591.0
10019.0	6.0	2545.0
10020.0	0.0	65.0
10021.0	8.0	940.0
10022.0	12.0	2421.0
10023.0	8.0	1218.0
10024.0	0.0	1096.0

	Total_Death	Total_Injured
	sum	sum
ZIPCODE		
<b>10025.0</b>	20.0	1500.0
<b>10026.0</b>	2.0	1146.0
<b>10027.0</b>	12.0	2257.0
<b>10028.0</b>	6.0	788.0
<b>10029.0</b>	6.0	2142.0
<b>10030.0</b>	0.0	1038.0
<b>10031.0</b>	4.0	1052.0
...	...	...
<b>11385</b>	8.0	1376.0
<b>11411</b>	6.0	544.0
<b>11412</b>	2.0	1088.0
<b>11413</b>	8.0	1200.0
<b>11414</b>	4.0	540.0
<b>11415</b>	2.0	232.0
<b>11416</b>	4.0	552.0
<b>11417</b>	0.0	896.0
<b>11418</b>	12.0	580.0
<b>11419</b>	2.0	1026.0
<b>11420</b>	2.0	1112.0
<b>11421</b>	6.0	602.0
<b>11422</b>	4.0	1102.0
<b>11423</b>	0.0	652.0
<b>11426</b>	2.0	230.0
<b>11427</b>	4.0	454.0

	Total_Death	Total_Injured
	sum	sum
ZIPCODE		
11428	2.0	492.0
11429	2.0	484.0
11430	0.0	12.0
11432	6.0	1074.0
11433	4.0	938.0
11434	16.0	1838.0
11435	4.0	978.0
11436	2.0	376.0
11691	8.0	874.0
11692	0.0	224.0
11693	0.0	170.0
11694	2.0	194.0
11695	0.0	8.0
11697	0.0	32.0

421 rows × 2 columns

In [47]: `Map = nyc_map.merge(grp_week, on='ZIPCODE', how = "left") # Merge 2 Dataframe together by Zipcodes`

```
C:\Users\Eugene\Anaconda3\lib\site-packages\pandas\core\reshape\merge.py:544: UserWarning: merging between different levels can give an unintended result (1 levels on the left, 2 on the right)
warnings.warn(msg, UserWarning)
```

In [48]: Map

Out[48]:

	ZIPCODE	BLDGZIP	PO_NAME	POPULATION	AREA	STATE	COUNTY	ST_FIPS	CTY_FIPS	URL
0	11436	0	Jamaica	18681.0	2.269930e+07	NY	Queens	36	081	<a href="http://www.usps.com/">http://www.usps.com/</a>
1	11213	0	Brooklyn	62426.0	2.963100e+07	NY	Kings	36	047	<a href="http://www.usps.com/">http://www.usps.com/</a>
2	11212	0	Brooklyn	83866.0	4.197210e+07	NY	Kings	36	047	<a href="http://www.usps.com/">http://www.usps.com/</a>
3	11225	0	Brooklyn	56527.0	2.369863e+07	NY	Kings	36	047	<a href="http://www.usps.com/">http://www.usps.com/</a>
4	11218	0	Brooklyn	72280.0	3.686880e+07	NY	Kings	36	047	<a href="http://www.usps.com/">http://www.usps.com/</a>
5	11226	0	Brooklyn	106132.0	3.940860e+07	NY	Kings	36	047	<a href="http://www.usps.com/">http://www.usps.com/</a>
6	11219	0	Brooklyn	92561.0	4.200274e+07	NY	Kings	36	047	<a href="http://www.usps.com/">http://www.usps.com/</a>
7	11210	0	Brooklyn	67067.0	4.788702e+07	NY	Kings	36	047	<a href="http://www.usps.com/">http://www.usps.com/</a>
8	11230	0	Brooklyn	80857.0	4.992670e+07	NY	Kings	36	047	<a href="http://www.usps.com/">http://www.usps.com/</a>
9	11204	0	Brooklyn	77354.0	4.355518e+07	NY	Kings	36	047	<a href="http://www.usps.com/">http://www.usps.com/</a>
10	10471	0	Bronx	23477.0	8.965141e+07	NY	Bronx	36	005	<a href="http://www.usps.com/">http://www.usps.com/</a>

	ZIPCODE	BLDGZIP	PO_NAME	POPULATION	AREA	STATE	COUNTY	ST_FIPS	CTY_FIPS	URL
11	10470	0	Bronx	14740.0	2.154346e+07	NY	Bronx	36	005	<a href="http://www.usps.com/">http://www.usps.com/</a>
12	10466	0	Bronx	68942.0	5.526249e+07	NY	Bronx	36	005	<a href="http://www.usps.com/">http://www.usps.com/</a>
13	10467	0	Bronx	97932.0	6.933617e+07	NY	Bronx	36	005	<a href="http://www.usps.com/">http://www.usps.com/</a>
14	10463	0	Bronx	70641.0	3.670338e+07	NY	Bronx	36	005	<a href="http://www.usps.com/">http://www.usps.com/</a>
15	10475	0	Bronx	40931.0	3.863330e+07	NY	Bronx	36	005	<a href="http://www.usps.com/">http://www.usps.com/</a>
16	10464	0	Bronx	4438.0	7.625748e+07	NY	Bronx	36	005	<a href="http://www.usps.com/">http://www.usps.com/</a>
17	10469	0	Bronx	65101.0	6.804089e+07	NY	Bronx	36	005	<a href="http://www.usps.com/">http://www.usps.com/</a>
18	10468	0	Bronx	72877.0	3.444760e+07	NY	Bronx	36	005	<a href="http://www.usps.com/">http://www.usps.com/</a>
19	10463	0	Bronx	70641.0	3.119702e+06	NY	New York	36	061	<a href="http://www.usps.com/">http://www.usps.com/</a>
20	10458	0	Bronx	79362.0	3.596881e+07	NY	Bronx	36	005	<a href="http://www.usps.com/">http://www.usps.com/</a>
21	10034	0	New York	39149.0	2.450389e+07	NY	New York	36	061	<a href="http://www.usps.com/">http://www.usps.com/</a>

	ZIPCODE	BLDGZIP	PO_NAME	POPULATION	AREA	STATE	COUNTY	ST_FIPS	CTY_FIPS	URL
22	10033	0	New York	54284.0	1.615605e+07	NY	New York	36	061	<a href="http://www.usps.com/">http://www.usps.com/</a>
23	10462	0	Bronx	75674.0	5.302251e+07	NY	Bronx	36	005	<a href="http://www.usps.com/">http://www.usps.com/</a>
24	10040	0	New York	41033.0	1.634074e+07	NY	New York	36	061	<a href="http://www.usps.com/">http://www.usps.com/</a>
25	10453	0	Bronx	77576.0	2.574851e+07	NY	Bronx	36	005	<a href="http://www.usps.com/">http://www.usps.com/</a>
26	10465	0	Bronx	42012.0	1.084237e+08	NY	Bronx	36	005	<a href="http://www.usps.com/">http://www.usps.com/</a>
27	10464	0	Bronx	4438.0	4.512531e+06	NY	Bronx	36	005	<a href="http://www.usps.com/">http://www.usps.com/</a>
28	10464	0	Bronx	4438.0	1.158795e+07	NY	Bronx	36	005	<a href="http://www.usps.com/">http://www.usps.com/</a>
29	10461	0	Bronx	50549.0	6.282406e+07	NY	Bronx	36	005	<a href="http://www.usps.com/">http://www.usps.com/</a>
...	...	...	...	...	...	...	...	...	...	...
233	10120	1	New York	0.0	3.517927e+04	NY	New York	36	061	<a href="http://www.usps.com/">http://www.usps.com/</a>
234	10278	1	New York	0.0	2.067060e+05	NY	New York	36	061	<a href="http://www.usps.com/">http://www.usps.com/</a>
235	10155	1	New York	0.0	2.478469e+04	NY	New York	36	061	<a href="http://www.usps.com/">http://www.usps.com/</a>

	ZIPCODE	BLDGZIP	PO_NAME	POPULATION	AREA	STATE	COUNTY	ST_FIPS	CTY_FIPS	URL
236	10043	1	New York	0.0 3.826236e+04	NY	New York		36	061	<a href="http://www.usps.com/">http://www.usps.com/</a>
237	10081	1	New York	0.0 3.024051e+04	NY	New York		36	061	<a href="http://www.usps.com/">http://www.usps.com/</a>
238	10096	1	New York	0.0 4.210611e+04	NY	New York		36	061	<a href="http://www.usps.com/">http://www.usps.com/</a>
239	10097	1	New York	0.0 6.582618e+04	NY	New York		36	061	<a href="http://www.usps.com/">http://www.usps.com/</a>
240	10196	1	New York	0.0 3.250244e+04	NY	New York		36	061	<a href="http://www.usps.com/">http://www.usps.com/</a>
241	10196	1	New York	0.0 3.154825e+03	NY	New York		36	061	<a href="http://www.usps.com/">http://www.usps.com/</a>
242	10275	1	New York	0.0 4.828042e+04	NY	New York		36	061	<a href="http://www.usps.com/">http://www.usps.com/</a>
243	10265	1	New York	0.0 1.722915e+04	NY	New York		36	061	<a href="http://www.usps.com/">http://www.usps.com/</a>
244	10045	1	New York	0.0 4.780899e+04	NY	New York		36	061	<a href="http://www.usps.com/">http://www.usps.com/</a>
245	10047	1	New York	0.0 1.014978e+04	NY	New York		36	061	<a href="http://www.usps.com/">http://www.usps.com/</a>
246	10047	1	New York	0.0 1.014978e+04	NY	New York		36	061	<a href="http://www.usps.com/">http://www.usps.com/</a>

	ZIPCODE	BLDGZIP	PO_NAME	POPULATION	AREA	STATE	COUNTY	ST_FIPS	CTY_FIPS	URL
247	10080	1	New York	0.0	7.711145e+04	NY	New York	36	061	<a href="http://www.usps.com/">http://www.usps.com/</a>
248	10203	1	New York	0.0	3.722688e+04	NY	New York	36	061	<a href="http://www.usps.com/">http://www.usps.com/</a>
249	10259	1	New York	0.0	2.106431e+04	NY	New York	36	061	<a href="http://www.usps.com/">http://www.usps.com/</a>
250	10260	1	New York	0.0	5.251474e+04	NY	New York	36	061	<a href="http://www.usps.com/">http://www.usps.com/</a>
251	10285	1	New York	0.0	6.735039e+04	NY	New York	36	061	<a href="http://www.usps.com/">http://www.usps.com/</a>
252	10286	1	New York	0.0	1.126441e+04	NY	New York	36	061	<a href="http://www.usps.com/">http://www.usps.com/</a>
253	10035	0	New York	34884.0	2.349487e+07	NY	New York	36	061	<a href="http://www.usps.com/">http://www.usps.com/</a>
254	11371	0	Flushing	0.0	3.055847e+07	NY	Queens	36	081	<a href="http://www.usps.com/">http://www.usps.com/</a>
255	11361	0	Bayside	28496.0	5.016352e+07	NY	Queens	36	081	<a href="http://www.usps.com/">http://www.usps.com/</a>
256	10036	0	New York	23543.0	1.139511e+07	NY	New York	36	061	<a href="http://www.usps.com/">http://www.usps.com/</a>
257	11414	0	Howard Beach	26148.0	6.392882e+07	NY	Queens	36	081	<a href="http://www.usps.com/">http://www.usps.com/</a>
258	10310	0	Staten Island	25003.0	5.346328e+07	NY	Richmond	36	085	<a href="http://www.usps.com/">http://www.usps.com/</a>

	ZIPCODE	BLDGZIP	PO_NAME	POPULATION	AREA	STATE	COUNTY	ST_FIPS	CTY_FIPS	URL
259	11693	0	Far Rockaway	11052.0	3.497516e+06	NY	Kings	36	047	<a href="http://www.usps.com/">http://www.usps.com/</a>
260	11249	0	Brooklyn	28481.0	1.777221e+07	NY	Kings	36	047	<a href="http://www.usps.com/">http://www.usps.com/</a>
261	10162	1	New York	0.0	2.103489e+04	NY	New York	36	061	<a href="http://www.usps.com/">http://www.usps.com/</a>
262	10119	1	New York	0.0	1.263930e+05	NY	New York	36	061	<a href="http://www.usps.com/">http://www.usps.com/</a>

263 rows × 15 columns

In [49]: `Map.columns.tolist() # Show all columns in Map`

Out[49]: `[ 'ZIPCODE',
 'BLDGZIP',
 'PO_NAME',
 'POPULATION',
 'AREA',
 'STATE',
 'COUNTY',
 'ST_FIPS',
 'CTY_FIPS',
 'URL',
 'SHAPE_AREA',
 'SHAPE_LEN',
 'geometry',
 ('Total_Death', 'sum'),
 ('Total_Injured', 'sum')]`

```
In [50]: Map.columns = ['ZIPCODE', 'BLDGZIP', 'PO_NAME','POPULATION','AREA','STATE','COUNTY','ST_FIPS','CTY_FIP  
S','URL','SHAPE_AREA','SHAPE_LEN','geometry','Total_Death',"Total_Injured"]  
# rename columns to make it professional
```

In [51]: Map

Out[51]:

	ZIPCODE	BLDGZIP	PO_NAME	POPULATION	AREA	STATE	COUNTY	ST_FIPS	CTY_FIPS	URL
0	11436	0	Jamaica	18681.0	2.269930e+07	NY	Queens	36	081	<a href="http://www.usps.com/">http://www.usps.com/</a>
1	11213	0	Brooklyn	62426.0	2.963100e+07	NY	Kings	36	047	<a href="http://www.usps.com/">http://www.usps.com/</a>
2	11212	0	Brooklyn	83866.0	4.197210e+07	NY	Kings	36	047	<a href="http://www.usps.com/">http://www.usps.com/</a>
3	11225	0	Brooklyn	56527.0	2.369863e+07	NY	Kings	36	047	<a href="http://www.usps.com/">http://www.usps.com/</a>
4	11218	0	Brooklyn	72280.0	3.686880e+07	NY	Kings	36	047	<a href="http://www.usps.com/">http://www.usps.com/</a>
5	11226	0	Brooklyn	106132.0	3.940860e+07	NY	Kings	36	047	<a href="http://www.usps.com/">http://www.usps.com/</a>
6	11219	0	Brooklyn	92561.0	4.200274e+07	NY	Kings	36	047	<a href="http://www.usps.com/">http://www.usps.com/</a>
7	11210	0	Brooklyn	67067.0	4.788702e+07	NY	Kings	36	047	<a href="http://www.usps.com/">http://www.usps.com/</a>
8	11230	0	Brooklyn	80857.0	4.992670e+07	NY	Kings	36	047	<a href="http://www.usps.com/">http://www.usps.com/</a>
9	11204	0	Brooklyn	77354.0	4.355518e+07	NY	Kings	36	047	<a href="http://www.usps.com/">http://www.usps.com/</a>
10	10471	0	Bronx	23477.0	8.965141e+07	NY	Bronx	36	005	<a href="http://www.usps.com/">http://www.usps.com/</a>
11	10470	0	Bronx	14740.0	2.154346e+07	NY	Bronx	36	005	<a href="http://www.usps.com/">http://www.usps.com/</a>

	ZIPCODE	BLDGZIP	PO_NAME	POPULATION	AREA	STATE	COUNTY	ST_FIPS	CTY_FIPS	URL
12	10466	0	Bronx	68942.0	5.526249e+07	NY	Bronx	36	005	<a href="http://www.usps.com/">http://www.usps.com/</a>
13	10467	0	Bronx	97932.0	6.933617e+07	NY	Bronx	36	005	<a href="http://www.usps.com/">http://www.usps.com/</a>
14	10463	0	Bronx	70641.0	3.670338e+07	NY	Bronx	36	005	<a href="http://www.usps.com/">http://www.usps.com/</a>
15	10475	0	Bronx	40931.0	3.863330e+07	NY	Bronx	36	005	<a href="http://www.usps.com/">http://www.usps.com/</a>
16	10464	0	Bronx	4438.0	7.625748e+07	NY	Bronx	36	005	<a href="http://www.usps.com/">http://www.usps.com/</a>
17	10469	0	Bronx	65101.0	6.804089e+07	NY	Bronx	36	005	<a href="http://www.usps.com/">http://www.usps.com/</a>
18	10468	0	Bronx	72877.0	3.444760e+07	NY	Bronx	36	005	<a href="http://www.usps.com/">http://www.usps.com/</a>
19	10463	0	Bronx	70641.0	3.119702e+06	NY	New York	36	061	<a href="http://www.usps.com/">http://www.usps.com/</a>
20	10458	0	Bronx	79362.0	3.596881e+07	NY	Bronx	36	005	<a href="http://www.usps.com/">http://www.usps.com/</a>
21	10034	0	New York	39149.0	2.450389e+07	NY	New York	36	061	<a href="http://www.usps.com/">http://www.usps.com/</a>
22	10033	0	New York	54284.0	1.615605e+07	NY	New York	36	061	<a href="http://www.usps.com/">http://www.usps.com/</a>
23	10462	0	Bronx	75674.0	5.302251e+07	NY	Bronx	36	005	<a href="http://www.usps.com/">http://www.usps.com/</a>

	ZIPCODE	BLDGZIP	PO_NAME	POPULATION	AREA	STATE	COUNTY	ST_FIPS	CTY_FIPS	URL
24	10040	0	New York	41033.0	1.634074e+07	NY	New York	36	061	<a href="http://www.usps.com/">http://www.usps.com/</a>
25	10453	0	Bronx	77576.0	2.574851e+07	NY	Bronx	36	005	<a href="http://www.usps.com/">http://www.usps.com/</a>
26	10465	0	Bronx	42012.0	1.084237e+08	NY	Bronx	36	005	<a href="http://www.usps.com/">http://www.usps.com/</a>
27	10464	0	Bronx	4438.0	4.512531e+06	NY	Bronx	36	005	<a href="http://www.usps.com/">http://www.usps.com/</a>
28	10464	0	Bronx	4438.0	1.158795e+07	NY	Bronx	36	005	<a href="http://www.usps.com/">http://www.usps.com/</a>
29	10461	0	Bronx	50549.0	6.282406e+07	NY	Bronx	36	005	<a href="http://www.usps.com/">http://www.usps.com/</a>
...	...	...	...	...	...	...	...	...	...	...
233	10120	1	New York	0.0	3.517927e+04	NY	New York	36	061	<a href="http://www.usps.com/">http://www.usps.com/</a>
234	10278	1	New York	0.0	2.067060e+05	NY	New York	36	061	<a href="http://www.usps.com/">http://www.usps.com/</a>
235	10155	1	New York	0.0	2.478469e+04	NY	New York	36	061	<a href="http://www.usps.com/">http://www.usps.com/</a>
236	10043	1	New York	0.0	3.826236e+04	NY	New York	36	061	<a href="http://www.usps.com/">http://www.usps.com/</a>
237	10081	1	New York	0.0	3.024051e+04	NY	New York	36	061	<a href="http://www.usps.com/">http://www.usps.com/</a>

	ZIPCODE	BLDGZIP	PO_NAME	POPULATION	AREA	STATE	COUNTY	ST_FIPS	CTY_FIPS	URL
238	10096	1	New York	0.0 4.210611e+04	NY	New York		36	061	<a href="http://www.usps.com/">http://www.usps.com/</a>
239	10097	1	New York	0.0 6.582618e+04	NY	New York		36	061	<a href="http://www.usps.com/">http://www.usps.com/</a>
240	10196	1	New York	0.0 3.250244e+04	NY	New York		36	061	<a href="http://www.usps.com/">http://www.usps.com/</a>
241	10196	1	New York	0.0 3.154825e+03	NY	New York		36	061	<a href="http://www.usps.com/">http://www.usps.com/</a>
242	10275	1	New York	0.0 4.828042e+04	NY	New York		36	061	<a href="http://www.usps.com/">http://www.usps.com/</a>
243	10265	1	New York	0.0 1.722915e+04	NY	New York		36	061	<a href="http://www.usps.com/">http://www.usps.com/</a>
244	10045	1	New York	0.0 4.780899e+04	NY	New York		36	061	<a href="http://www.usps.com/">http://www.usps.com/</a>
245	10047	1	New York	0.0 1.014978e+04	NY	New York		36	061	<a href="http://www.usps.com/">http://www.usps.com/</a>
246	10047	1	New York	0.0 1.014978e+04	NY	New York		36	061	<a href="http://www.usps.com/">http://www.usps.com/</a>
247	10080	1	New York	0.0 7.711145e+04	NY	New York		36	061	<a href="http://www.usps.com/">http://www.usps.com/</a>
248	10203	1	New York	0.0 3.722688e+04	NY	New York		36	061	<a href="http://www.usps.com/">http://www.usps.com/</a>
249	10259	1	New York	0.0 2.106431e+04	NY	New York		36	061	<a href="http://www.usps.com/">http://www.usps.com/</a>

	ZIPCODE	BLDGZIP	PO_NAME	POPULATION	AREA	STATE	COUNTY	ST_FIPS	CTY_FIPS	URL
250	10260	1	New York	0.0	5.251474e+04	NY	New York	36	061	<a href="http://www.usps.com/">http://www.usps.com/</a>
251	10285	1	New York	0.0	6.735039e+04	NY	New York	36	061	<a href="http://www.usps.com/">http://www.usps.com/</a>
252	10286	1	New York	0.0	1.126441e+04	NY	New York	36	061	<a href="http://www.usps.com/">http://www.usps.com/</a>
253	10035	0	New York	34884.0	2.349487e+07	NY	New York	36	061	<a href="http://www.usps.com/">http://www.usps.com/</a>
254	11371	0	Flushing	0.0	3.055847e+07	NY	Queens	36	081	<a href="http://www.usps.com/">http://www.usps.com/</a>
255	11361	0	Bayside	28496.0	5.016352e+07	NY	Queens	36	081	<a href="http://www.usps.com/">http://www.usps.com/</a>
256	10036	0	New York	23543.0	1.139511e+07	NY	New York	36	061	<a href="http://www.usps.com/">http://www.usps.com/</a>
257	11414	0	Howard Beach	26148.0	6.392882e+07	NY	Queens	36	081	<a href="http://www.usps.com/">http://www.usps.com/</a>
258	10310	0	Staten Island	25003.0	5.346328e+07	NY	Richmond	36	085	<a href="http://www.usps.com/">http://www.usps.com/</a>
259	11693	0	Far Rockaway	11052.0	3.497516e+06	NY	Kings	36	047	<a href="http://www.usps.com/">http://www.usps.com/</a>
260	11249	0	Brooklyn	28481.0	1.777221e+07	NY	Kings	36	047	<a href="http://www.usps.com/">http://www.usps.com/</a>
261	10162	1	New York	0.0	2.103489e+04	NY	New York	36	061	<a href="http://www.usps.com/">http://www.usps.com/</a>

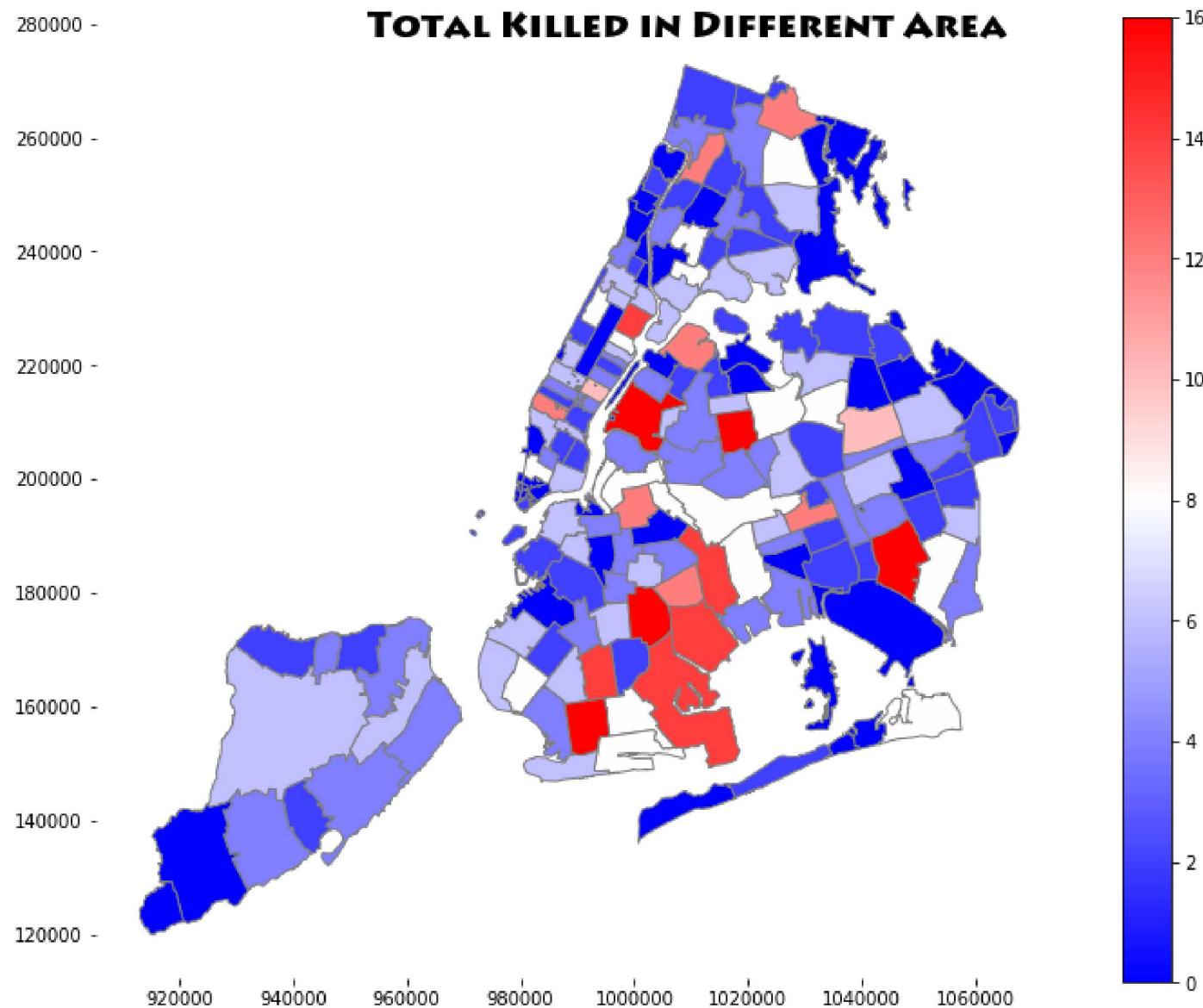
ZIPCODE	BLDGZIP	PO_NAME	POPULATION	AREA	STATE	COUNTY	ST_FIPS	CTY_FIPS	URL
262	10119	1	New York	0.0	1.263930e+05	NY	New York	36	061 <a href="http://www.usps.com/">http://www.usps.com/</a>

263 rows × 15 columns

```
In [52]: fig, ax = plt.subplots(figsize = (10,8)) # plot a heatmap on number of deaths in NYC
plt.tight_layout()
Map.plot(ax = ax,
          column = "Total_Death",
          edgecolor = 'tab:grey',
          cmap="bwr", # color code for this map
          vmin=0, vmax=Map.Total_Death.max(), legend=True)
ax.spines["right"].set_visible(False)
ax.spines["top"].set_visible(False)
ax.spines["left"].set_visible(False)
ax.spines["bottom"].set_visible(False)
fig.suptitle("Total Killed in Different Area", fontsize = 20, fontweight = "bold", fontname = "Lithos Pro")
```

```
C:\Users\Eugene\Anaconda3\lib\site-packages\matplotlib\colors.py:512: RuntimeWarning: invalid value encountered in less  
xa[xa < 0] = -1
```

Out[52]: Text(0.5, 0.98, 'Total Killed in Different Area')



```
In [53]: fig,ax = plt.subplots(figsize = (10,10)) # plot a heatmap on number of injuries in NYC
Map.plot(ax = ax,
          column = "Total_Injured",
          edgecolor = 'k',
          cmap="Accent", # color code for this map
          vmin=0, vmax=Map.Total_Injured.max(), legend=True)
ax.spines["right"].set_visible(False)
ax.spines["top"].set_visible(False)
ax.spines["left"].set_visible(False)
ax.spines["bottom"].set_visible(False)
fig.suptitle("Total Injured in Different Area", fontsize = 20,fontweight = "bold", fontname = "Lithos Pro")
```

Out[53]: Text(0.5, 0.98, 'Total Injured in Different Area')

