

Conflicts of Bangladesh

This project reflect the conflicts in Bangladesh according to the districts and geographic nature and category of the crime. A unique observation for this project is that it also includes the political groups of Bangladesh.

source:https://data.humdata.org/dataset/ucod-data-for-bangladesh?force_layout=desktop

Steps for this project

- 1.data cleaning
- 2.data analyzing
- 3.visualization

```
In [3]: import numpy as np
import pandas as pd
import folium
import math
from folium.plugins import MarkerCluster, HeatMap, CirclePattern, LocateControl, MiniMap, Draw, PolyLineOffset
import seaborn as sns
import plotly.graph_objects as go
import plotly.express as px
import datetime
from plotly.subplots import make_subplots
import matplotlib.pyplot as plt

In [4]: df = pd.read_csv('G:/PROJECTS/data_analyst_portfolio/conflict_data/conflict_data_bgd.csv')
df

Out[4]:
```

	id	year	active_year	start_year	end_year	type_of_violence	conflict_new_id	conflict_name	dyad_new_id	d
0	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	
1	71663.0	2013	2013	2013	2013	2.0	4591.0	Supporters of Awami League - Supporters of BNP	5201.0	
2	73855.0	1989	1989	1989	1989	3.0	512.0	JSS/BS - Civilians	979.0	
3	72633.0	1991	1991	1991	1991	2.0	4591.0	Supporters of Awami League - Supporters of BNP	5201.0	
4	73893.0	1992	1992	1992	1992	3.0	512.0	JSS/BS - Civilians	979.0	
...	
597	274922.0	2018	2018	2018	2018	2.0	4591.0	Supporters of Awami League - Supporters of BNP	5201.0	
598	276199.0	2018	2018	2018	2018	2.0	4591.0	Supporters of Awami League - Supporters of BNP	5201.0	
599	276202.0	2018	2018	2018	2018	2.0	4591.0	Supporters of Awami League - Supporters of BNP	5201.0	
600	276207.0	2018	2018	2018	2018	2.0	4591.0	Supporters of Awami League - Supporters of BNP	5201.0	
601	276209.0	2018	2018	2018	2018	2.0	4591.0	Supporters of Awami League - Supporters of BNP	5201.0	

602 rows × 11 columns

In [5]: df = df.drop([0])

Checking for Missing Value

```
In [6]: features_with_na=[features for feature in df.columns if df[feature].isnull().sum()>1]
## 2- step print the feature name and the percentage of missing values
for feature in features_with_na:
    print(feature, np.round(df[feature].isnull().mean(), 4), ' % missing values')

gwnoa 0.5075 % missing values
gwnob 1.0 % missing values
source_office 0.8087 % missing values
source_date 0.8087 % missing values
source_headline 0.8087 % missing values
source_original 0.371 % missing values
adm_1 0.0333 % missing values
adm_2 0.1098 % missing values

In [7]: df.reset_index(drop=True, inplace=True)

none of the missing values have any significance in data so removing the columns

In [8]: df.drop(columns=features_with_na)

Out[8]:
```

	id	year	active_year	start_year	end_year	type_of_violence	conflict_new_id	conflict_name	dyad_new_id	dyad_name	d
0	71663.0	2013	2013	2013	2013	2.0	4591.0	Supporters of Awami League - Supporters of BNP	5201.0	Supporters of Awami League - Supporters of BNP	
1	73855.0	1989	1989	1989	1989	3.0	512.0	JSS/BS - Civilians	979.0	JSS/BS - Civilians	
2	72633.0	1991	1991	1991	1991	2.0	4591.0	Supporters of Awami League - Supporters of BNP	5201.0	Supporters of Awami League - Supporters of BNP	
3	73893.0	1992	1992	1992	1992	3.0	512.0	JSS/BS - Civilians	979.0	JSS/BS - Civilians	
4	73807.0	1991	1991	1991	1991	3.0	731.0	Government of Bangladesh - Civilians	1198.0	Government of Bangladesh - Civilians	
...	
596	274922.0	2018	2018	2018	2018	2.0	4591.0	Supporters of Awami League - Supporters of BNP	5201.0	Supporters of Awami League - Supporters of BNP	
597	276199.0	2018	2018	2018	2018	2.0	4591.0	Supporters of Awami League - Supporters of BNP	5201.0	Supporters of Awami League - Supporters of BNP	
598	276205.0	2018	2018	2018	2018	2.0	4591.0	Supporters of Awami League - Supporters of BNP	5201.0	Supporters of Awami League - Supporters of BNP	
599	276207.0	2018	2018	2018	2018	2.0	4591.0	Supporters of Awami League - Supporters of BNP	5201.0	Supporters of Awami League - Supporters of BNP	
600	276209.0	2018	2018	2018	2018	2.0	4591.0	Supporters of Awami League - Supporters of BNP	5201.0	Supporters of Awami League - Supporters of BNP	

601 rows × 11 columns

In [9]: df.dtypes

```
Out[9]:
```

	id	year	active_year	start_year	end_year	type_of_violence	conflict_new_id	conflict_name	dyad_new_id	dyad_name	d
0	71663.0	2013	2013	2013	2013	2.0	4591.0	Supporters of Awami League - Supporters of BNP	5201.0	Supporters of Awami League - Supporters of BNP	
1	73855.0	1989	1989	1989	1989	3.0	512.0	JSS/BS - Civilians	979.0	JSS/BS - Civilians	
2	72633.0	1991	1991	1991	1991	2.0	4591.0	Supporters of Awami League - Supporters of BNP	5201.0	Supporters of Awami League - Supporters of BNP	
3	73893.0	1992	1992	1992	1992	3.0	512.0	JSS/BS - Civilians	979.0	JSS/BS - Civilians	
4	73807.0	1991	1991	1991	1991	3.0	731.0	Government of Bangladesh - Civilians	1198.0	Government of Bangladesh - Civilians	
...	
596	274922.0	2018	2018	2018	2018	2.0	4591.0	Supporters of Awami League - Supporters of BNP	5201.0	Supporters of Awami League - Supporters of BNP	
597	276199.0	2018	2018	2018	2018	2.0	4591.0	Supporters of Awami League - Supporters of BNP	5201.0	Supporters of Awami League - Supporters of BNP	
598	276205.0	2018	2018	2018	2018	2.0	4591.0	Supporters of Awami League - Supporters of BNP	5201.0	Supporters of Awami League - Supporters of BNP	
599	276207.0	2018	2018	2018	2018	2.0	4591.0	Supporters of Awami League - Supporters of BNP	5201.0	Supporters of Awami League - Supporters of BNP	
600	276209.0	2018	2018	2018	2018	2.0	4591.0	Supporters of Awami League - Supporters of BNP	5201.0	Supporters of Awami League - Supporters of BNP	

601 rows × 11 columns

In [10]: df.dtypes

```
Out[10]:
```

	id	year	active_year	start_year	end_year	type_of_violence	conflict_new_id	conflict_name	dyad_new_id	dyad_name	d
0	71663.0	2013	2013	2013	2013	2.0	4591.0	Supporters of Awami League - Supporters of BNP	5201.0	Supporters of Awami League - Supporters of BNP	
1	73855.0	1989	1989	1989	1989	3.0	512.0	JSS/BS - Civilians	979.0	JSS/BS - Civilians	
2	72633.0	1991	1991	1991	1991	2.0	4591.0	Supporters of Awami League - Supporters of BNP	5201.0	Supporters of Awami League - Supporters of BNP	
3	73893.0	1992	1992	1992	1992	3.0	512.0	JSS/BS - Civilians	979.0	JSS/BS - Civilians	
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596	274922.0	2018	2018	2018	2018	2.0	4591.0	Supporters of Awami League - Supporters of BNP	5201.0	Supporters of Awami League - Supporters of BNP	
597	276199.0	2018	2018	2018	2018	2.0	4591.0	Supporters of Awami League - Supporters of BNP	5201.0	Supporters of Awami League - Supporters of BNP	
598	276205.0	2018	2018	2018	2018	2.0	4591.0	Supporters of Awami League - Supporters of BNP	5201.0	Supporters of Awami League - Supporters of BNP	
599	276207.0	2018	2018	2018	2018	2.0	4591.0	Supporters of Awami League - Supporters of BNP	5201.0	Supporters of Awami League - Supporters of BNP	
600	276209.0	2018	2018	2018	2018	2.0	4591.0	Supporters of Awami League - Supporters of BNP	5201.0	Supporters of Awami League - Supporters of BNP	

601 rows × 11 columns

```
In [11]: df["geo_points"] = ""

In [12]: for f in df.index:
    df["geo_points"][f] = (df['latitude'][f], df['longitude'][f])

<ipython-input-12-ec600e8f477>:2: SettingWithCopyWarning:
A value is trying to be set on a copy of a slice from a DataFrame
See the caveats in the documentation: https://pandas.pydata.org/pandas-docs/stable/user_guide/indexin
g.html#returning-a-view-versus-a-copy
df["geo_points"][f] = (df['latitude'][f], df['longitude'][f])

In [13]: df["geo_points"]

Out[13]:
```

	id	year	active_year	start_year	end_year	type_of_violence	conflict_new_id	conflict_name	dyad_new_id	dyad_name	d
0	71663.0	2013	2013	2013	2013	2.0	4591.0	Supporters of Awami League - Supporters of BNP	5201.0	Supporters of Awami League - Supporters of BNP	
1	73855.0	1989	1989	1989	1989	3.0	512.0	JSS/BS - Civilians	979.0	JSS/BS - Civilians	
2	72633.0	1991	1991	1991	1991	2.0	4591.0	Supporters of Awami League - Supporters of BNP	5201.0	Supporters of Awami League - Supporters of BNP	
3	73893.0	1992	1992	1992	1992	3.0	512.0	JSS/BS - Civilians	979.0	JSS/BS - Civilians	
4	73807.0	1991	1991	1991	1991	3.0	731.0	Government of Bangladesh - Civilians	1198.0	Government of Bangladesh - Civilians	
...	
596	274922.0	2018	2018	2018	2018	2.0	4591.0	Supporters of Awami League - Supporters of BNP	5201.0	Supporters of Awami League - Supporters of BNP	
597	276199.0	2018	2018	2018	2018	2.0	4591.0	Supporters of Awami League - Supporters of BNP	5201.0	Supporters of Awami League - Supporters of BNP	
598	276205.0	2018	2018	2018	2018	2.0	4591.0	Supporters of Awami League - Supporters of BNP	5201.0	Supporters of Awami League - Supporters of BNP	
599	276207.0	2018	2018	2018	2018	2.0	4591.0	Supporters of Awami League - Supporters of BNP	5201.0	Supporters of Awami League - Supporters of BNP	
600	276209.0	2018	2018	2018	2018	2.0	4591.0	Supporters of Awami League - Supporters of BNP	5201.0	Supporters of Awami League - Supporters of BNP	

601 rows × 11 columns

```
In [14]: df.columns

Out[14]:
```

	id	year	active_year	start_year	end_year	type_of_violence	conflict_new_id	conflict_name	dyad_new_id	dyad_name	d
0	71663.0	2013	2013	2013	2013	2.0	4591.0	Supporters of Awami League - Supporters of BNP	5201.0	Supporters of Awami League - Supporters of BNP	
1	73855.0	1989	1989	1989	1989	3.0	512.0	JSS/BS - Civilians	979.0	JSS/BS - Civilians	
2	72633.0	1991	1991	1991	1991	2.0	4591.0	Supporters of Awami League - Supporters of BNP	5201.0	Supporters of Awami League - Supporters of BNP	
3	73893.0	1992	1992	1992	1992	3.0	512.0	JSS/BS - Civilians	979.0	JSS/BS - Civilians	
4	73807.0	1991	1991	1991	1991	3.0	731.0	Government of Bangladesh - Civilians	1198.0	Government of Bangladesh - Civilians	
...	
596	274922.0	2018	2018	2018	2018	2.0	4591.0	Supporters of Awami League - Supporters of BNP	5201.0	Supporters of Awami League - Supporters of BNP	
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598	276205.0	2018	2018	2018	2018	2.0	4591.0	Supporters of Awami League - Supporters of BNP	5201.0	Supporters of Awami League - Supporters of BNP	
599	276207.0	2018	2018	2018	2018	2.0	4591.0	Supporters of Awami League - Supporters of BNP	5201.0	Supporters of Awami League - Supporters of BNP	
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601 rows × 11 columns

```
In [15]: for f in df.index:
    df["geo_points"][f] = (df['latitude'][f], df['longitude'][f])

<ipython-input-12-ec600e8f477>:2: SettingWithCopyWarning:
A value is trying to be set on a copy of a slice from a DataFrame
See the caveats in the documentation: https://pandas.pydata.org/pandas-docs/stable/user_guide/indexin
g.html#returning-a-view-versus-a-copy
df["geo_points"][f] = (df['latitude'][f], df['longitude'][f])

In [16]: df["geo_points"]

Out[16]:
```

	id	year	active_year	start_year	end_year	type_of_violence	conflict_new_id	conflict_name	dyad_new_id	dyad_name	d
0	71663.0	2013	2013	2013	2013	2.0	4591.0	Supporters of Awami League - Supporters of BNP	5201.0	Supporters of Awami League - Supporters of BNP	
1	73855.0	1989	1989	1989	1989	3.0	512.0	JSS/BS - Civilians	979.0	JSS/BS - Civilians	
2	72633.0	1991	1991	1991	1991	2.0	4591.0	Supporters of Awami League - Supporters of BNP	5201.0	Supporters of Awami League - Supporters of BNP	
3	73893.0	1992	1992	1992	1992	3.0	512.0	JSS/BS - Civilians	979.0	JSS/BS - Civilians	
4	73807.0	1991	1991	1991	1991	3.0	731.0	Government of Bangladesh - Civilians	1198.0	Government of Bangladesh - Civilians	
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596	274922.0	2018	2018	2018	2018	2.0	4591.0	Supporters of Awami League - Supporters of BNP	5201.0	Supporters of Awami League - Supporters of BNP	
597	276199.0	2018	2018	2018	2018	2.0	4591.0	Supporters of Awami League - Supporters of BNP	5201.0	Supporters of Awami League - Supporters of BNP	
598	276205.0	2018	2018	2018	2018	2.0	4591.0	Supporters of Awami League - Supporters of BNP	5201.0	Supporters of Awami League - Supporters of BNP	
599	276207.0	2018	2018	2018	2018	2.0	4591.0	Supporters of Awami League - Supporters of BNP	5201.0	Supporters of Awami League - Supporters of BNP	
600	276209.0	2018	2018	2018	2018	2.0	4591.0	Supporters of Awami League - Supporters of BNP	5201.0	Supporters of Awami League - Supporters of BNP	

601 rows × 11 columns

The map here shows the location of the incidents and the specific location of the crime scene in the popup

```
In [16]: for idx, row in df.iterrows():
    if not math.isnan(row['longitude']) and not math.isnan(row['latitude']):
        mc.add_child(folium.Marker([row['latitude'], row['longitude']], popup=row['where_coordinates']
    ])

m.add_child(mc)
m = folium.Map(location=(row['latitude'], row['longitude']), zoom_start=12)
m = MarkerCluster()

In [17]: df.dtypes

Out[17]:
```

	id	year	active_year	start_year	end_year	type_of_violence	conflict_new_id	conflict_name	dyad_new_id	dyad_name	d
0	71663.0	2013	2013	2013	2013	2.0	4591.0	Supporters of Awami League - Supporters of BNP	5201.0	Supporters of Awami League - Supporters of BNP	
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2	72633.0	1991	1991	1991	1991	2.0	4591.0	Supporters of Awami League - Supporters of BNP	5201.0	Supporters of Awami League - Supporters of BNP	
3	73893.0	1992	1992	1992	1992	3.0	512.0	JSS/BS - Civilians	979.0	JSS/BS - Civilians	
4	73807.0	1991	1991	1991	1991	3.0	731.0	Government of Bangladesh - Civilians	1198.0	Government of Bangladesh - Civilians	
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596	274922.0	2018	2018	2018	2018	2.0	4591.0	Supporters of Awami League - Supporters of BNP	5201.0	Supporters of Awami League - Supporters of BNP	
597	276199.0	2018	2018	2018	2018	2.0	4591.0	Supporters of Awami League - Supporters of BNP	5201.0	Supporters of Awami League - Supporters of BNP	
598	276205.0	2018	2018	2018	2018	2.0	4591.0	Supporters of Awami League - Supporters of BNP	5201.0	Supporters of Awami League - Supporters of BNP	
599	276207.0	2018	2018	2018							

