Madhur Garg
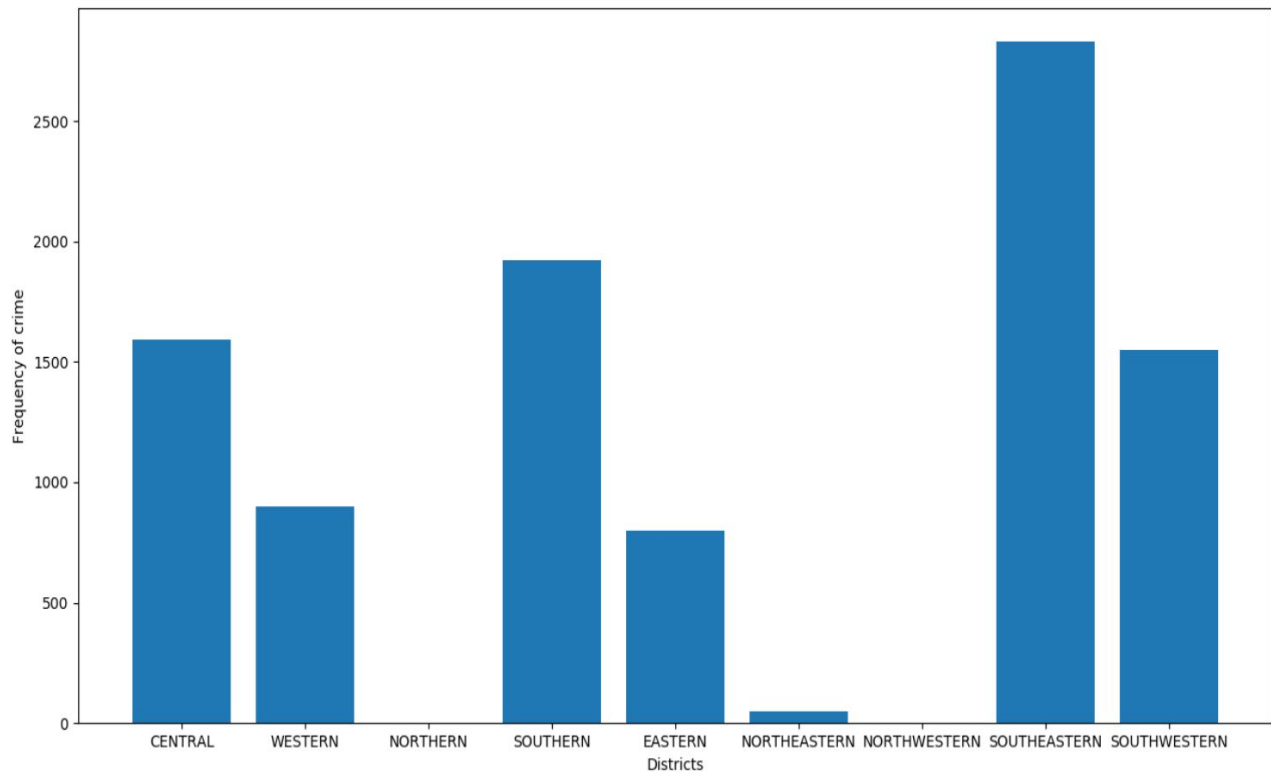**20161228**

Part 1 : Baltimore

## 1. Frequency of crime incidents across all districts

Number of crime happened in each district : {'CENTRAL': 1593, 'WESTERN': 898, 'NORTHERN': 0, 'SOUTHERN': 1920, 'EASTERN': 800, 'NORTHEASTERN': 51, 'NORTHWESTERN': 0, 'SOUTHEASTERN': 2828, 'SOUTHWESTERN': 1551}

Most number of incidents happened in "SouthEastern" district with the high of 2828 number of crimes.
While the least number of crime happened in "Northern" and "NorthWestern" districts i.e "0" and after that in "NorthEastern" i.e "51" crimes.

## 2. Heatmap of the crimes committed
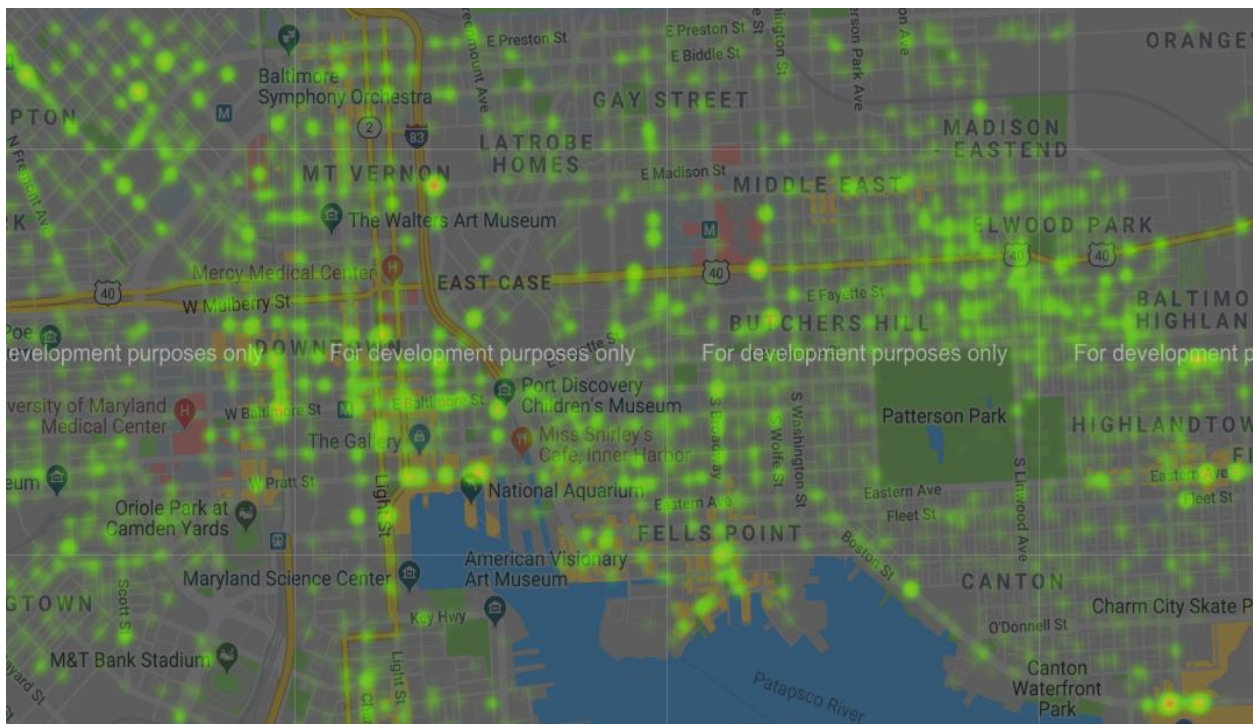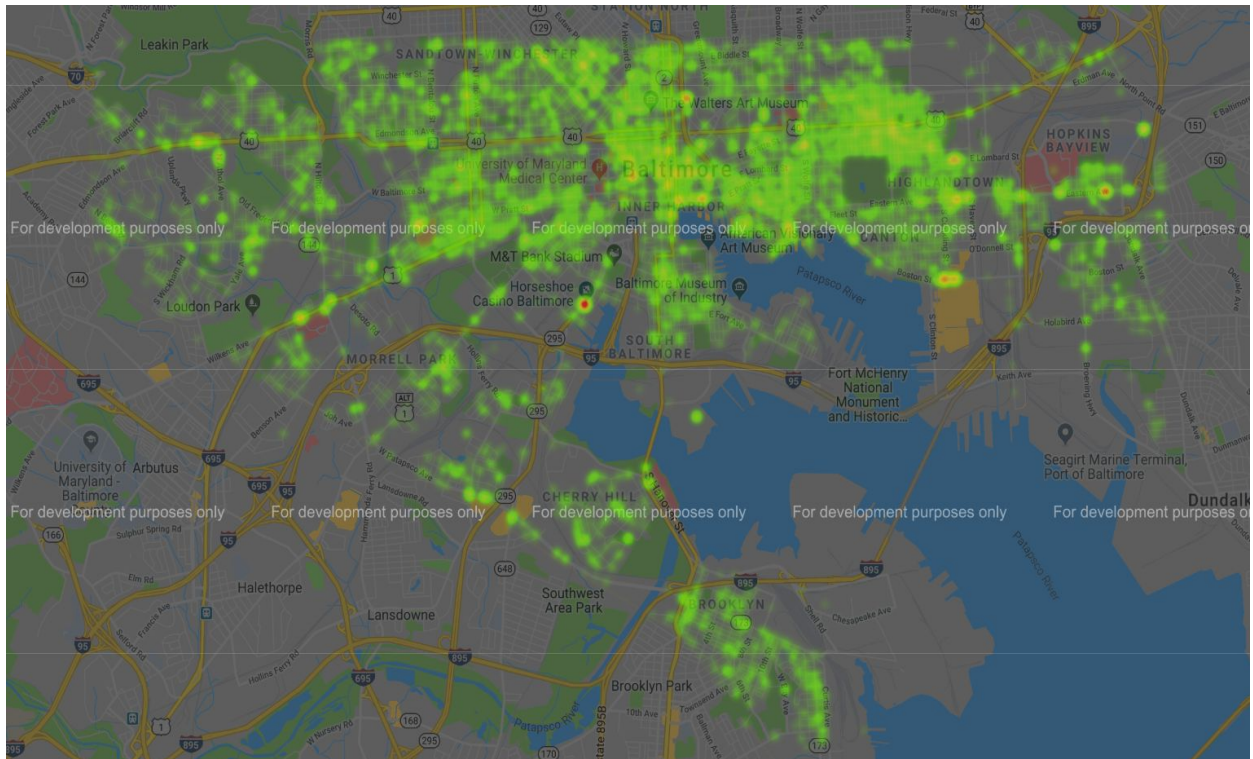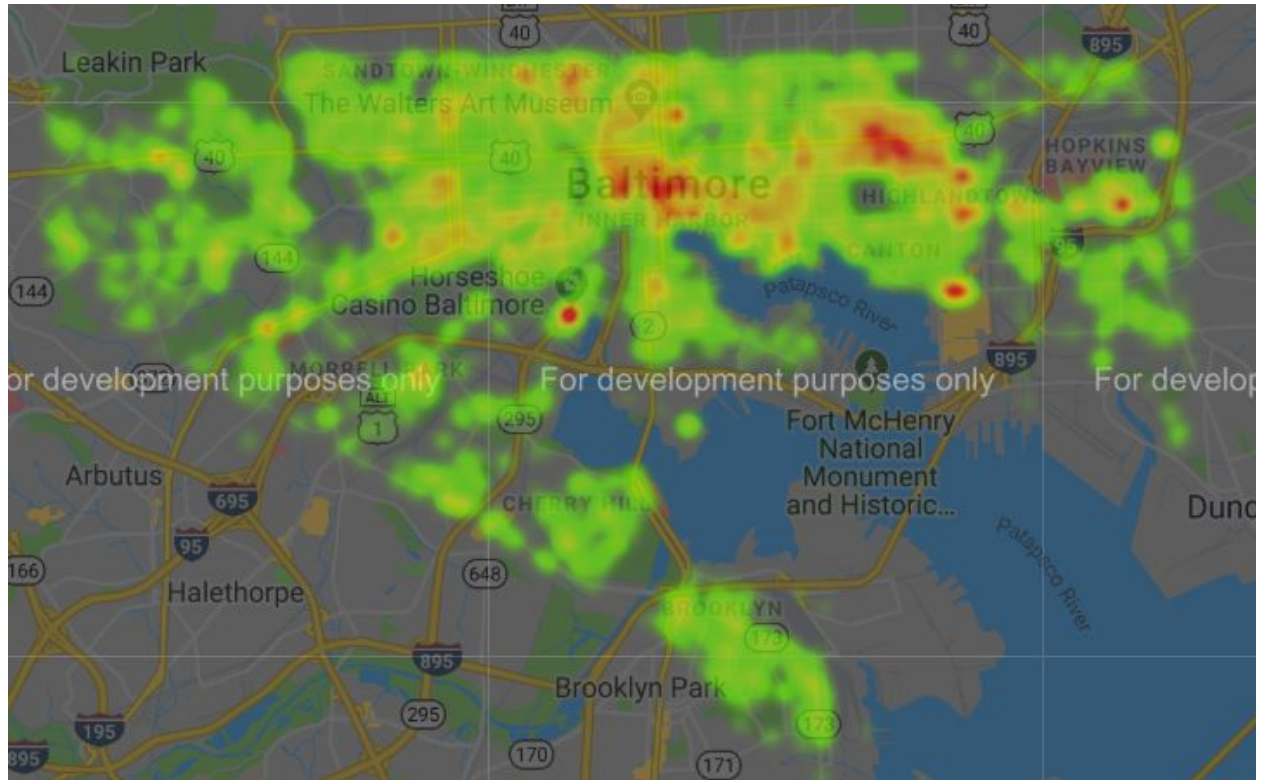
It can be inferred from the above heatmap that crimes are not evenly spread across the city.
The frequency of crime is definitely more near SouthEastern, Southern and Central districts.

In Highland Town, "ELWOOD PARK" is very prone for crimes.
Similarly, E and W Baltimore streets in "INNER HARBOUR" area are very prone.
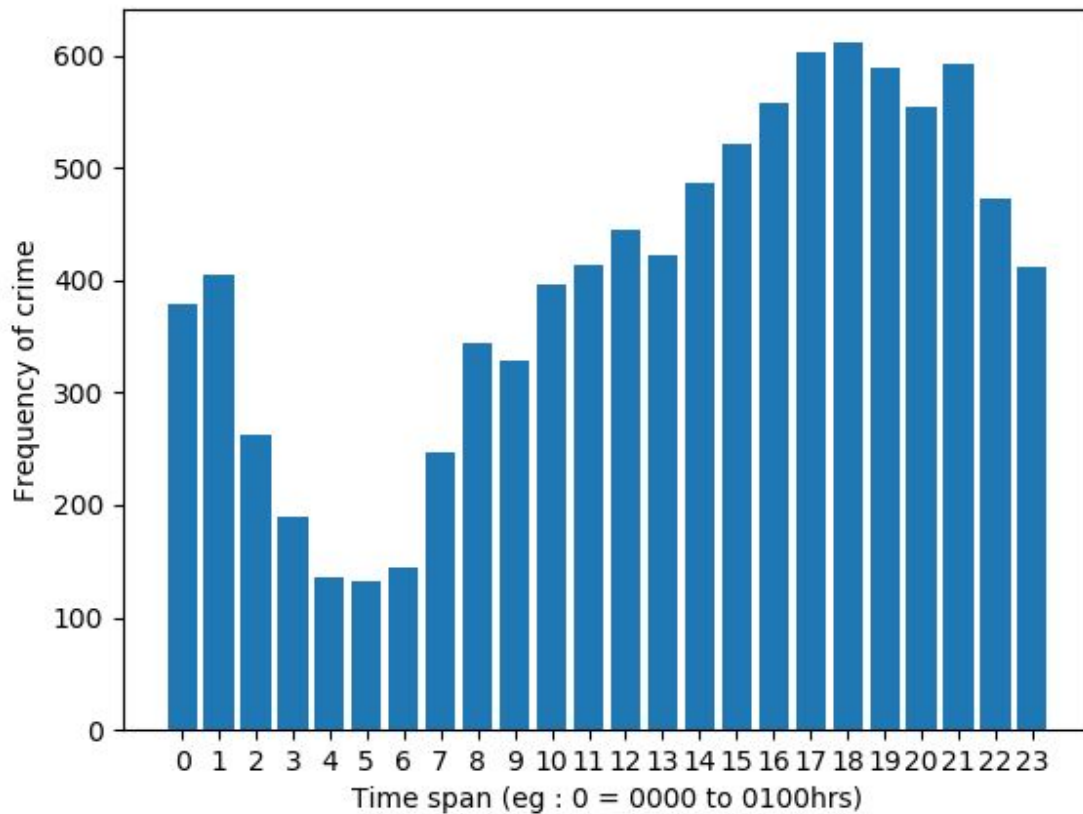
3. Frequency of crime vs day of the week, and frequency of crime vs time of day
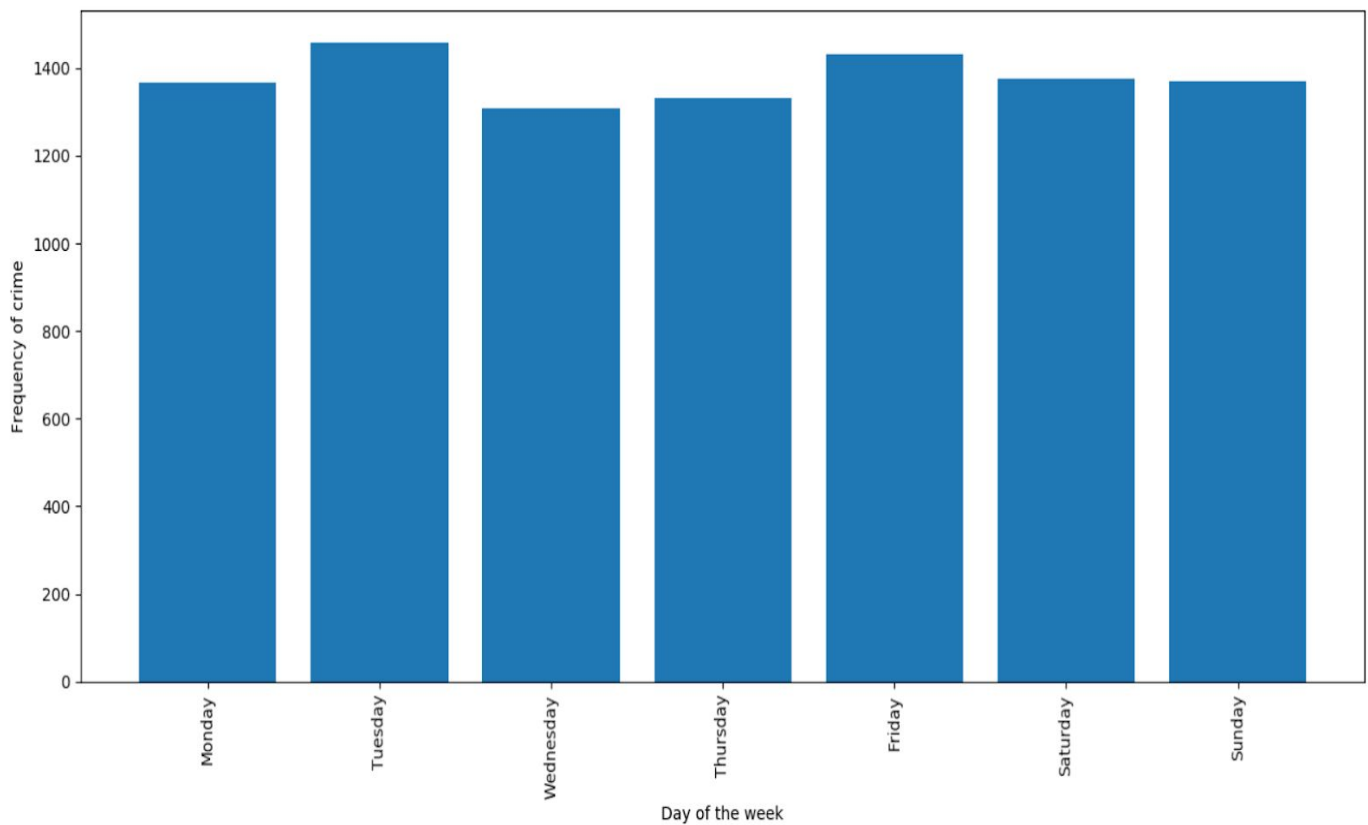
It can be seen that more frequent crime happened on Tuesday and Friday.

Number of crimes happened on each day : {'Monday': 1366, 'Tuesday': 1459, 'Wednesday': 1308, 'Thursday': 1331, 'Friday': 1433, 'Saturday': 1375, 'Sunday': 1369}

So, a maximum of 1459 crimes happened on Tuesday.

Here, most of the crime happened during 1600 to 2100 hrs.

Number of crimes happening in the span of each hour : (eg : 0 indicates crimes between 0000 to 0100 hrs) : {'0': 378, '1': 405, '2': 263, '3': 190, '4': 136, '5': 132, '6': 144, '7': 247, '8': 344, '9': 329, '10': 396, '11': 413, '12': 444, '13': 422, '14': 487, '15': 521, '16': 558, '17': 603, '18': 611, '19': 588, '20': 554, '21': 593, '22': 472, '23': 411}
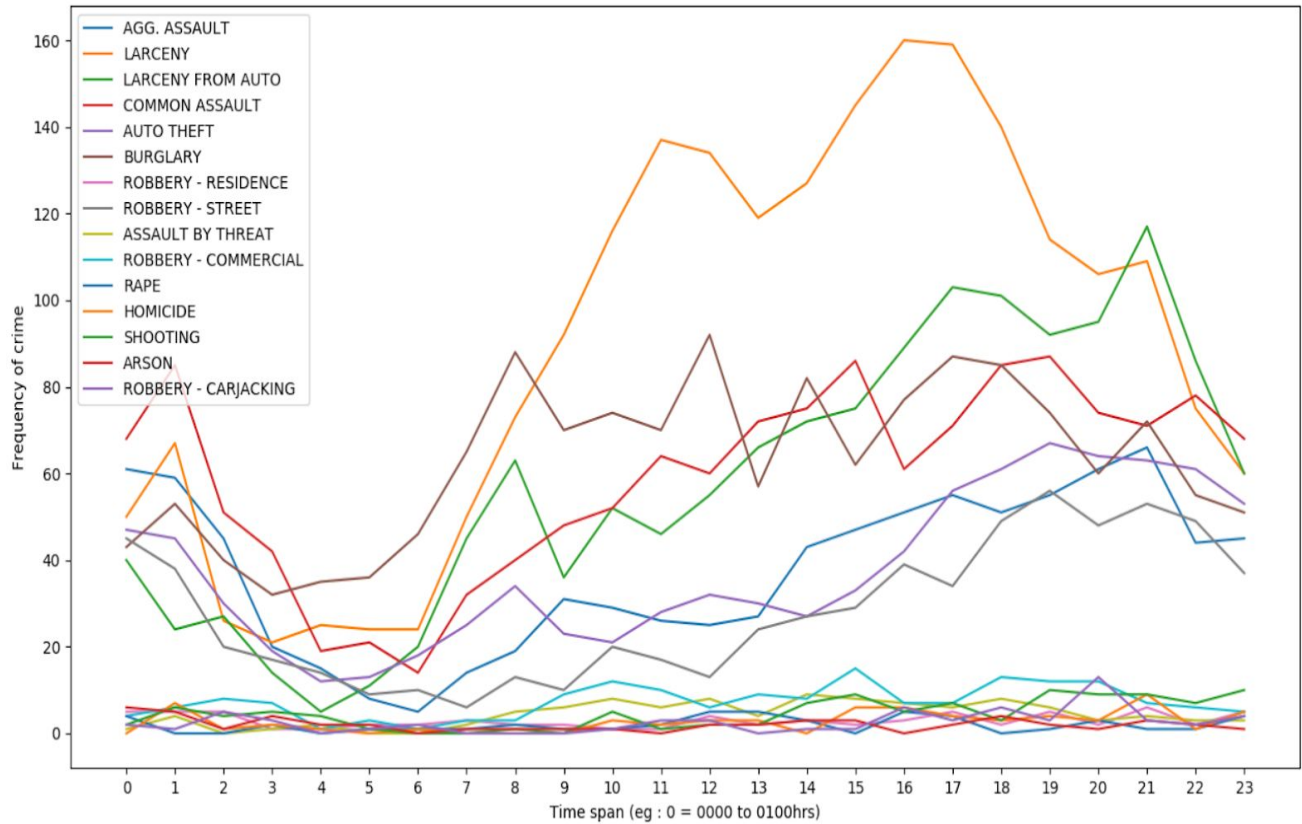
It can be seen that "LARCENY" ,"ASSAULT"and "ROBBERY" are most likely to occur between 2000 to 2359 Hrs.

Note : I have solved this part of the question in "baltimore_4.py" file.

4. Frequency vs crime plot, most_frequent_crime vs time plot, heatmap of the most popular crime
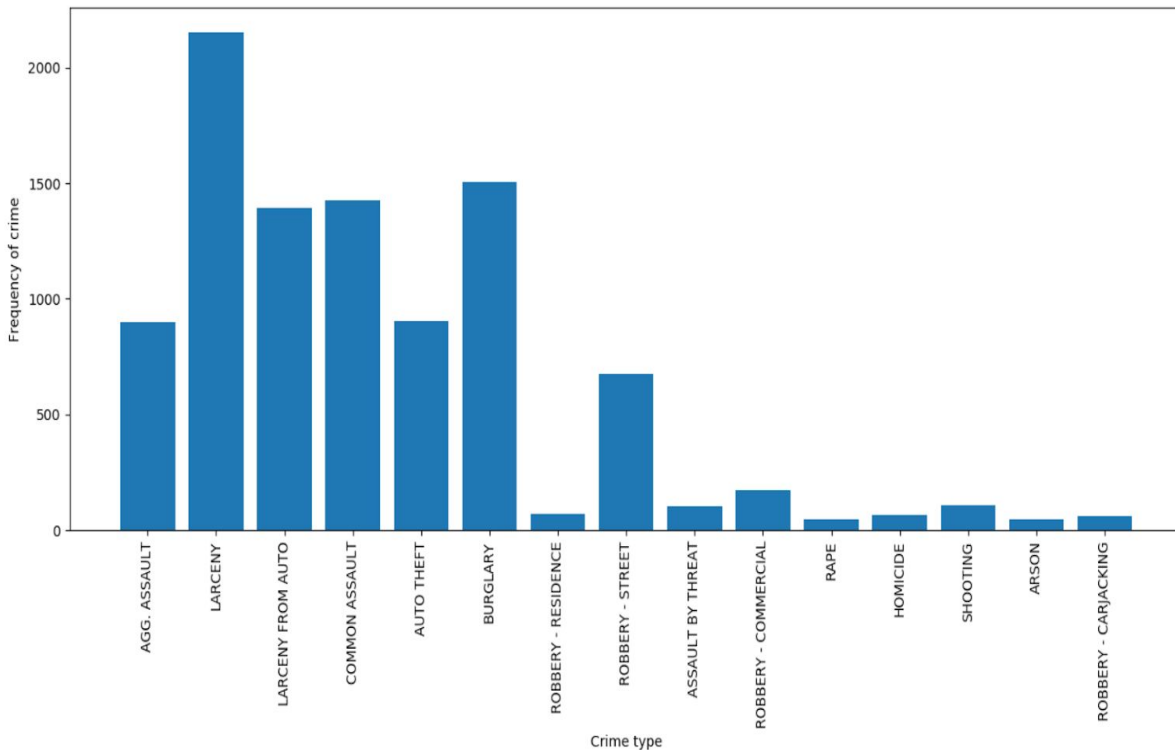

It can be seen that "LARCENY" is the most frequent crime amongst all crimes.

Frequency of each crime : {'AGG. ASSAULT': 902, 'LARCENY': 2153, 'LARCENY FROM AUTO': 1394, 'COMMON ASSAULT': 1424, 'AUTO THEFT': 904, 'BURGLARY': 1506, 'ROBBERY - RESIDENCE': 71, 'ROBBERY - STREET': 677, 'ASSAULT BY THREAT': 104, 'ROBBERY - COMMERCIAL': 174, 'RAPE': 47, 'HOMICIDE': 64, 'SHOOTING': 109, 'ARSON': 49, 'ROBBERY - CARJACKING': 63}
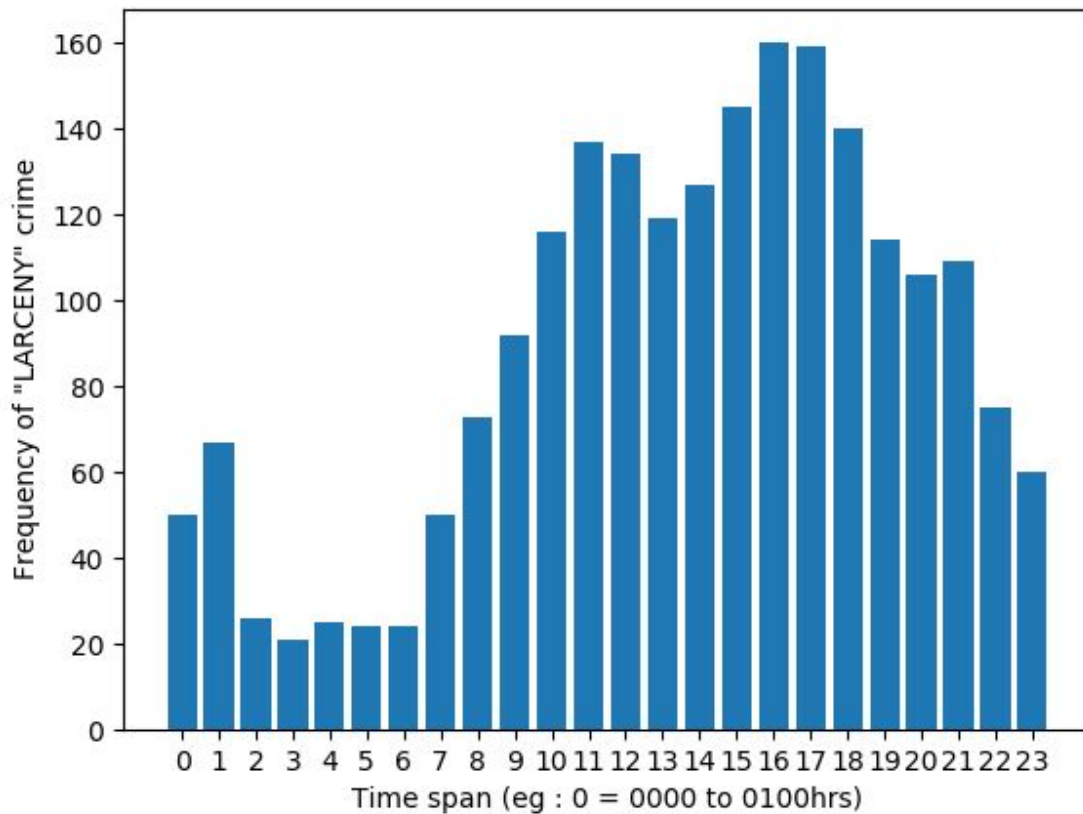
Here, during 1600 to 1800 Hrs the frequency of "LARCENY" crime is maximum.

Frequency of most frequent crime with time : {'0': 50, '1': 67, '2': 26, '3': 21, '4': 25, '5': 24, '6': 24, '7': 50, '8': 73, '9': 92, '10': 116, '11': 137, '12': 134, '13': 119, '14': 127, '15': 145, '16': 160, '17': 159, '18': 140, '19': 114, '20': 106, '21': 109, '22': 75, '23': 60}
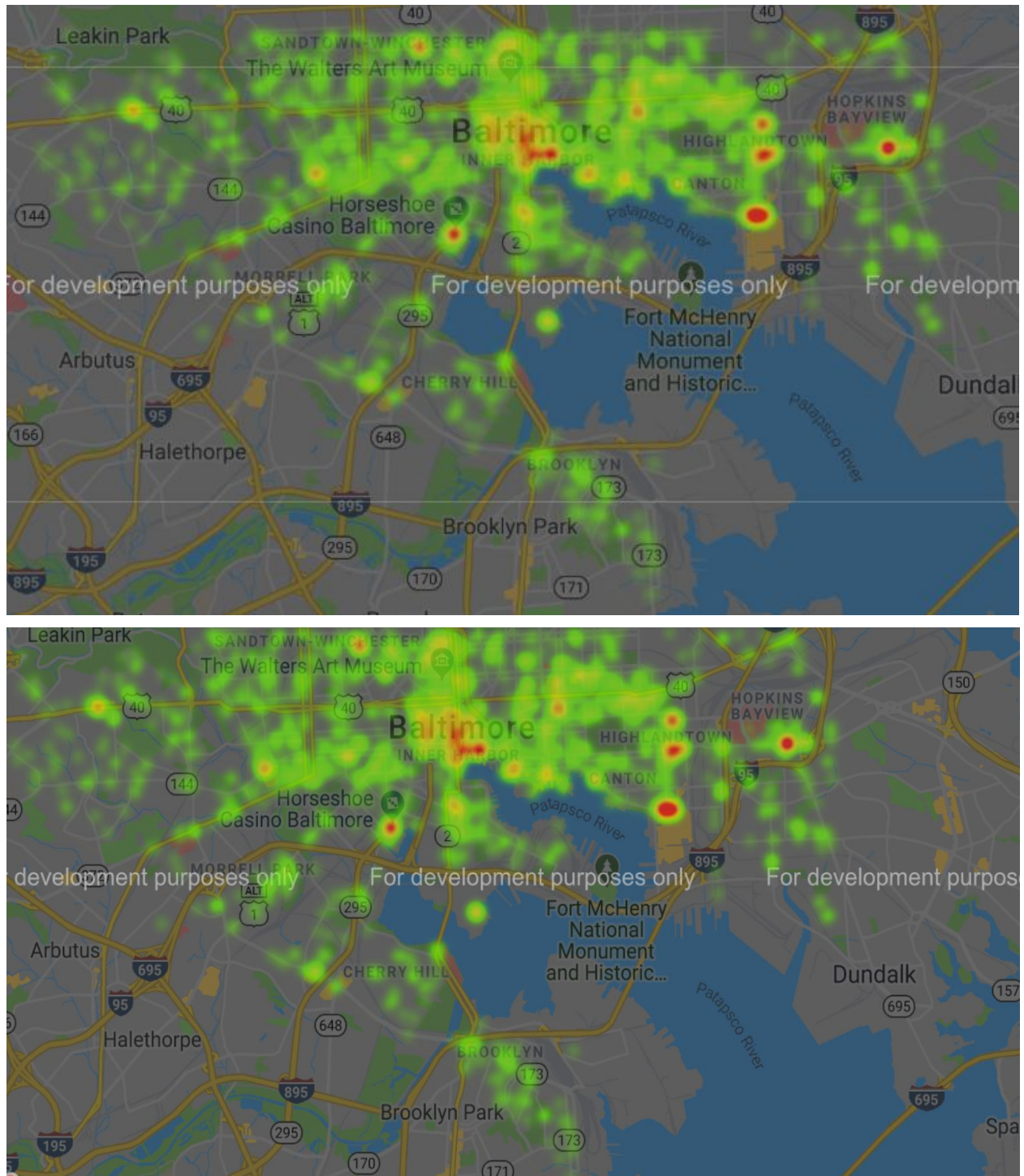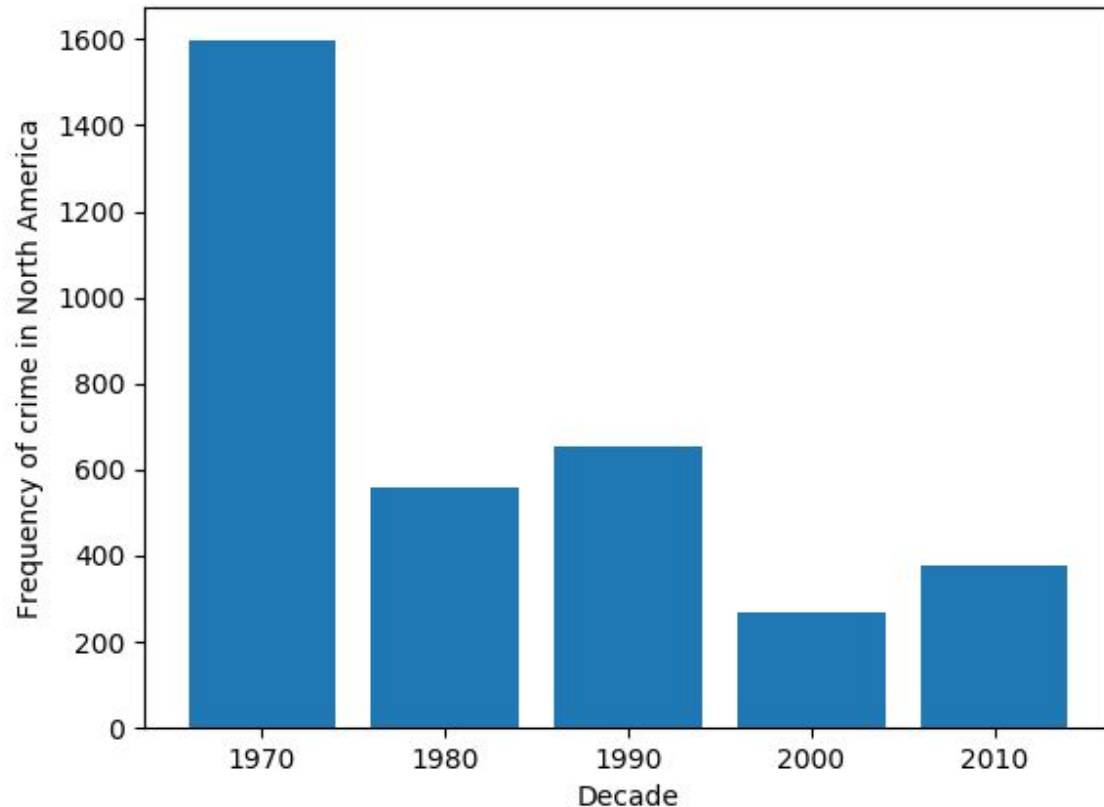
No, it is not evenly spread across the city.
Crime is high near : "INNER HARBOR", "CANTON", "HOPKINS BAYVIEW" and "HIGHLANDTOWN"

Part 2 : Global Terrorism

1. Frequency of terrorist attacks in North America vs decade

During 1970 to 1980, North America experienced maximum number of terror attacks.

Frequency of terror attacks in North America in each decade (eg : 1970 represents 10 years between 1970 and 1980) : {'1970': 1596, '1980': 558, '1990': 654, '2000': 270, '2010': 378}

2. Frequency of terrorist attacks from 1970 to 2017
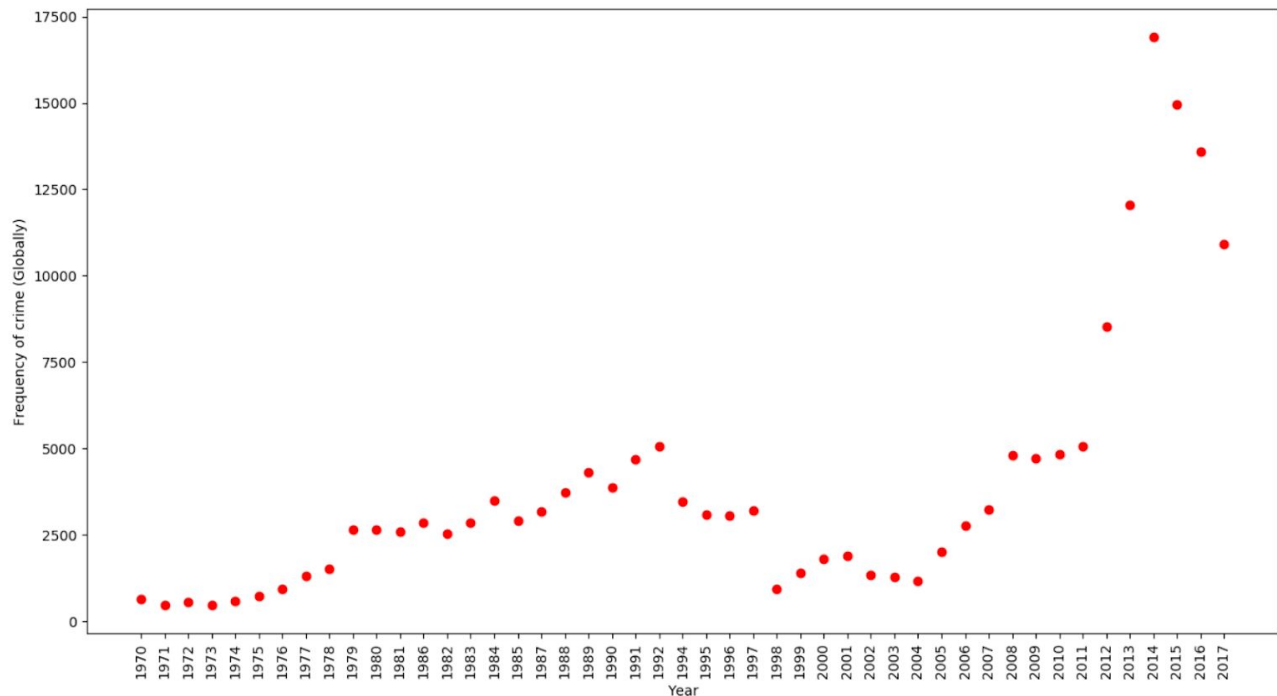
Year 2014 had the maximum number of terrorist attacks.

Frequency of terror attacks in each year : {'1970': 651, '1971': 471, '1972': 568, '1973': 473, '1974': 581, '1975': 740, '1976': 923, '1977': 1319, '1978': 1526, '1979': 2662, '1980': 2662, '1981': 2586, '1986': 2860, '1982': 2544, '1983': 2870, '1984': 3495, '1985': 2915, '1987': 3183, '1988': 3721, '1989': 4324, '1990': 3887, '1991': 4683, '1992': 5071, '1994': 3456, '1995': 3081, '1996': 3058, '1997': 3197, '1998': 934, '1999': 1395, '2000': 1814, '2001': 1906, '2002': 1333, '2003': 1278, '2004': 1166, '2005': 2017, '2006': 2758, '2007': 3242, '2008': 4805, '2009': 4721, '2010': 4826, '2011': 5076, '2012': 8522, '2013': 12036, '2014': 16903, '2015': 14965, '2016': 13587, '2017': 10900}
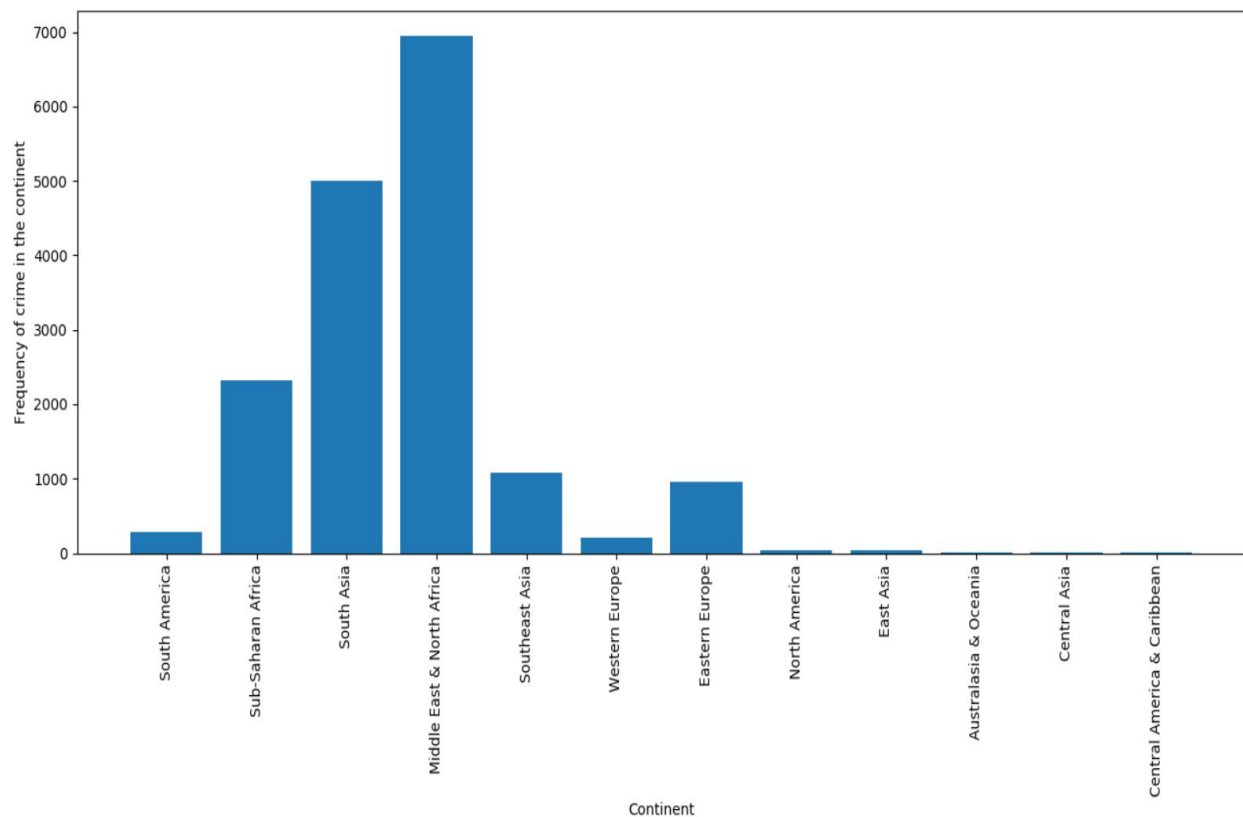
Here it can be seen that "Middle East & North Africa" region experienced the most number of attacks.
So, we can say that "Africa" continent experienced the most number of attacks.

Frequency of crime in each continent : {'South America': 283, 'Sub-Saharan Africa': 2321, 'South Asia': 4998, 'Middle East & North Africa': 6939, 'Southeast Asia': 1082, 'Western Europe': 215, 'Eastern Europe': 962, 'North America': 37, 'East Asia': 43, 'Australasia & Oceania': 9, 'Central Asia': 9, 'Central America & Caribbean': 5}

3. Word Clouds (for summary and motive)

It can be seen here that words like "Claimed", "Responsibility", "Group", "Incident" are highlighted.
One meaning which can be made with this is that the claimed groups responsible for the attacks agreed that they were responsible for the event.
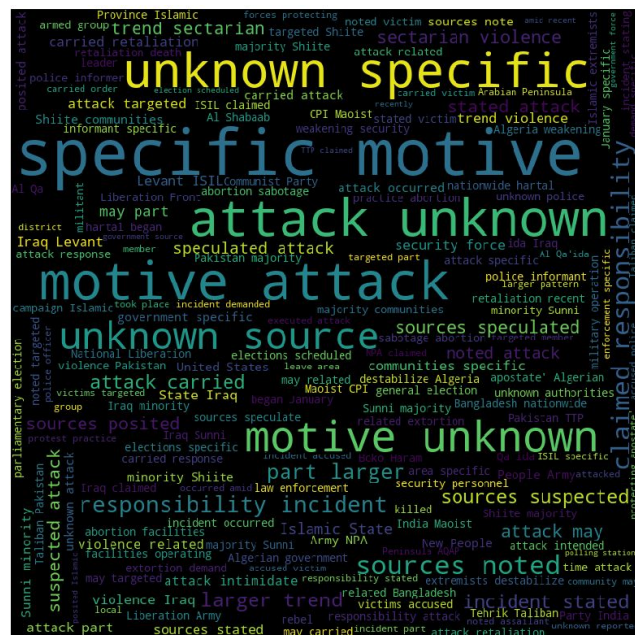
Here words like "Unknown", "Specific", "Motive", "Attack", "Iraq" are highlighted.
So, this could mean that the attacks of Iraq were done with some specific motive.

4. Undirected graph