**Global terrorism Analysis**

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**Abstract:**

The Dataset of Global Terrorism that we have currently for this analysis is raw, uncleaned, and also unclassified which has information on the widespread terrorist activities taking place across the globe between 1970 and 2017. For each event, widespread information is available, including the date and location of the incident, the weapons used, the nature of the target, etc. The Objective for us is to perform an EDA (Exploratory Data Analysis) on this dataset and bring out some useful insights, patterns, and trends and visualize them in a graph and charts to interpret them easily.

***Keywords:*** ***Exploratory Data Analysis, Global Terrorism***

**1. Problem Statement:**

Violent actions are usually categorized according to the perpetrator, the victim, the method, and the purpose. Different definitions emphasize different characteristics, depending on the priorities of the agency involved. In our coverage of terrorism, we rely strongly on data from the Global Terrorism Database (GTD), which defines terrorism as “acts of violence by non-state actors, perpetrated against civilian populations, intended to cause fear, in order to achieve a political objective. Its definition excludes violence initiated by governments (state terrorism) and open combat between opposing armed forces, even if they’re non-state actors. Terrorist actions must be also conducted either by an organization with an identifiable chain of command or conspiratorial cell structure (whose members wear no uniform or identifying insignia) or by individuals or a small collection of individuals directly influenced by the logical aims or example of some existent terrorist movement and its leaders (typically referred to as a ‘lone wolf’ attack) and so our Objectives of this project are :

1. **Performing EDA analysis on the dataset “Global Terrorism”**
2. **To study and analyze different terrorism acts that have taken place in different parts of the world, in different years.**
3. **To find the hot zones of Terrorism.**
4. **Distribution of terrorism attacks.**
5. **Casualties from these attacks.**

**2. Introduction**

As incidents of terrorism have increased in the past decade, the phenomenon of terrorism has become of concern to governments and of increasing interest to scholars. The term "terrorism" has no precise or widely-accepted definition. The problem of defining terrorism is compounded by the fact that terrorism has recently become a fad word often applied to a variety of acts of violence that are not strictly terrorism. The paper defines terrorism and cites examples of international terrorist events. Problems discussed include deciding whether to consider activities of separatist groups, violence carried out by terrorists operating within their own country, individual hijackings, and bombings as instances of terrorism.

**There are 8 signs of terrorism**

### **1. Surveillance**

Terrorists will likely observe a chosen target during the planning phase of an operation. They do this to determine the strengths, weaknesses, and number of emergency personnel that may respond to an incident. Suspicious actions during this phase may include someone recording or monitoring activities, drawing diagrams or making notes on maps, using vision-enhancing devices, or having possession of floor plans or blueprints of places such as high-tech firms, financial institutions, or government facilities, including military installations. Routes to and from the target are also usually established during the surveillance phase.

### **2. Inquiries**

A second sign, inquiries, entails attempting to gain information about a place, person, or operation pertaining to the target. Terrorists may attempt to elicit information about a critical infrastructure such as a power plant, water reservoir, maritime port, military base, bridge, or tunnel by making unusual inquiries. They may inquire about usage and operations. Additionally, they may attempt to place people in legitimate employment at key locations to monitor day-to-day activities and gather detailed knowledge in order to make their mission or scheme more effective.

### **3. Tests of Security**

Terrorists may also test a target’s security to gather data. To do this, they may drive by the target, move into sensitive areas and observe security or law enforcement response. They are likely assessing how long before personnel respond to a security breach or the routes responders take to a specific location. Terrorists may also attempt to penetrate physical security barriers or procedures in order to assess strengths and weaknesses.

### **4. Fundraising**

Although this is a tough sign to pick up on, it is one of the most important. Without funding, terrorist activity will come to a dramatic halt. Terrorists are very creative in raising, transferring, and spending money they come in contact with. Some scenarios to look for include: (1) credit card fraud, (2) defrauding the elderly, (3) people asking for donations to legitimate organizations but in peculiar ways, and (4) very large amounts of cash used in business transactions.

### **5. Acquiring Supplies**

Terrorists may purchase or steal explosives, weapons, ammunition, or attempt to store harmful chemical equipment. In order to gain easier entrance to a secured area, they may also try to acquire uniforms, equipment, or identification of first responders, including military personnel. Other items they may try to obtain include flight passes, flight manuals, passports, or other pieces of identification. If they are unable to steal these types of things, they may attempt to create counterfeit copies.

### **6. Suspicious/Out-Of-Place Behavior**

Profiling individuals is wrong, however, profiling behaviours may indicate suspicious behaviour. Sometimes suspicious people just “don’t belong” or behaviour seems out of place. This may include a person in a workplace, building, neighbourhood, or business establishment that does not fit in because of demeanour, language usage, or unusual questions they ask.

### **7. Dry Runs**

Before executing the final operation or plan, terrorists may engage in a practice session, or “dry run,” to work out flaws or unanticipated problems. Although they normally conduct multiple practice sessions at or near the target area, a “dry run” may be the heart of the planning stage of a terrorist act. During a “dry run,” terrorists may monitor police radio frequencies and record emergency response times.

### **8. Deploying Assets/Getting Into Position**

The deploying assets or getting into position stage is an individual’s last chance to alert authorities before the terrorist act occurs.

If any of these above-mentioned signs are identified then the nation or the society is at threat of an attack and the data that we have in our hand consist of such gruesome acts of violence. The Global Terrorism Database(GTD) has info on such incidents from the year 1970 to 2017. Exploratory Data Analysis refers to the critical process of performing initial investigations on data so as to discover patterns, to spot anomalies, test hypotheses, and check assumptions with help of summary statistics and graphical representation.

**3. Steps Involved:**

**Importing Libraries:**

Libraries used in this analysis are:

1. **Numpy:** Numpy is a python library used here in this analysis for working with arrays

2. **Pandas:** This library is imported and used to perform high-level data manipulation on our data

3. **Matplot:** Matplotlib is an amazing visualization library in python for plotting arrays in 2D.

4. **Seaborn:** Seaborn is similar to matplot despite the fact it provides more functionalities for making statistical graphics in python.

**Importing Dataset:**

Dataset has been imported from google drive and read as a dataset using read\_csv function in pandas.

**Null value treatment:**

We have our dataset in hand which is raw and uncleaned. As this step completely involves cleaning our data first by eliminating the columns which have maximum null values. We have around 181691 rows × 135 columns in our dataset after neglecting those with null values we currently have around 18 columns with meaningful data that we could work for this analysis.

**Heat Map creation :**

We have created a heatmap that shows the correlation between columns in which we can understand whether the columns are negatively correlating or positively correlating. This map helped us proceed with the analysis for finding frequently attacked cities, countries and regions in the following years using the value counts method in pandas.

**Performing Analysis to find out the most attacked countries, regional areas, type of attack, and weapon type:**

In this step also we have used the value counts method to find out the most attacked countries and regional areas from 1970 to 2017.

**4. Observations :**

1. **Attacks over years**: The year 2014 had the most number of terrorist attacks i.e 16903 attacks and the lowest number of attacks happened in the year 1971 i.e 471 attacks.
2. **Terrorist groups**: Unknown group is the one which has done the most number of attacks 82728 with the Taliban in the 2nd place with 7478 attacks.
3. **Countries attacked**: Iraq has been the country with the most number of attacks i.e 24636 and the least number of attacks held in 10 plus countries.
4. **Region-wishes killing and wounds**: Middle east and north Africa is the regions with the most kills (137642) and most wounds (214308).
5. **Year-wishes killing and wounds**: 2014 has been the year with the most kills i.e 44490 kills and 2015 has the most wounds occurred and remains at the top i.e 44043 wounds.
6. **Weapon types of terrorists**: Explosives are the most frequently used weapon 92426 times and Radiological weapons are the least used i.e 14 times.
7. **Target types of terrorists**: Private Citizens & Property are the most targetted i.e 43511 times and another unknown target type is the least targetted 137 times.
8. **Region-wise attacks**: The most targeted region for terrorist attacks is the Middle East & North Africa with 50474 attacks (27.8%) and the least targeted region is Australasia & Oceania with 282 attacks (0.2%).
9. **City-wise attacks** : Baghdad is the most attacked city with 7589 attacks and Benghazi is the least attacked city with 840 attacks.
10. **Attack types**: The most frequently used attack type is Bombing/Explosion with 88255 times and the lowest used type is Hijacking with 659 times.
11. **Suicides**: 6633 suicides happened during the terrorist attacks.
12. **Successful attacks**: Total successful attacks are 161632 attacks and the attacks that went unsuccessful are 20059 attacks of the total attacks held.
13. **Year 2014 attacks (Most number of attacks)**: (i). Country: number of attacks is 3933 in “Iraq” (ii). Regions: number of attacks is 6939 in “The Middle East & North Africa” (iii). Attack types: 8799 attacks by Bombing /Explosion is the most (iv) Target types: 4331 attacks over Private Citizens & Property (v) weapon type: 9521 Explosives are used (vi) City: The most attacked city is Baghdad with 898 attacks.

**6. Conclusion :**

Finally, we conclude that the Terrorist attacks were at their peak in **2014** which eventually got plummeted after that and the organizations that were responsible to carry out most of these gruesome attacks were the **Taliban** and **Iraq** is the most attacked country among all, the death rates were spiked in these places. The most common forms of attacking were **Bombing/Explosion and firearms**. The regions with the most attacks were the **middle east and north Africa**. People who got affected by this were the general **public & private citizens**.