

Data Visualization

Terrorism In United States of America



Maheshwari reddy Chowdarigari

INTRODUCTION

A terrorist attack or terrorist act is the threat or use of illegal force or violence by a non-state actor to achieve a political, economic, religious, or social objective through fear, coercion, or intimidation. Despite considerable discussion, the formation of an international convention against international terrorism has always been hampered by the absence of consensus on a definition of what international terrorism means. The most significant problem with terrorism is that it is difficult to distinguish from other forms of political violence and violent crime, such as state-based armed conflict, non-state conflict, one-sided violence, hate crimes, and

homicide. It is often difficult to draw a clear distinction between these forms of violence. We will describe standard criteria for what constitutes terrorism here, as well as how it differs from other forms of violence.

Basis for Terrorism

The action from the terrorism is categorised by perpetrator, victims, the purpose, and the methods of the attack that are used in the attacks. Here I considered the data from the Global Terrorism Database (GTD) which has detailed definitions of terrorism. The actions like political dissent, activism, and non-violent resistance does not come under terrorism. In some cases, like targeting non-combatant, neutral, or people who are not engaged in hostilities is necessary but not sufficient to condition to terrorism. Individuals or small groups of individuals intent on carrying out terrorist attacks must be motivated by some existent terrorist movement and its leaders (typically called ‘lone wolf’ attacks) as well as by an organization with a defined chain of command, or a conspiratorial cell structure (whose members wear no uniform or identifying insignia).

Differencing terrorism from other forms of violence:

1. Killings that are done by non-state actors against the civilians with no political, economic, or social goal, if not a form of terrorism.
2. Killings/Violence done by non-state actors against people/civilians by ethnicity, race, gender etc is considered as the hate crime
3. Violence by two armed forces and if one of them is the government armed forces then it is a state conflict and if either of them are involved then it is considered as non-state conflict.

The attack that happened on September 11, 2001, happened on the Twin Towers, the perpetrators were the members of one group (Al-Qaida), so it is considered as the terrorist attack as the US support to the Israel etc.

My analysis will help in getting some insights regarding the terrorism and the historical attacks, causes, weapons, and more that happened in the United States of America. From the Global Terrorism Database (GTD) there were up to 140 variables and the time span of the data available is from 1970-2017.

Questions that the analysis is focused on:

1. Which terrorist group has resulted in a greater number of terrorist deaths and terrorist attempts?
2. Who is the main target for the attack and the weapons they used?
3. Which city has affected the most fatalities?

METHODOLOGY

Global Terrorism Database

It has the Information of more than 200000 terrorist attacks and is the most comprehensive unclassified database attacks in the world. The National Consortium for the Study of Terrorism and Responses to Terrorism (START) makes the GTD accessible to everyone for research purposes. It has the data of domestic and international terrorist attacks around the world from 1970 which includes data, location, region, weapons used, etc.

RAND Database of Worldwide Terrorism Incidents

The RAND data base of worldwide Terrorism (RDWTI) is a compilation of the data from 1968 to 2009. It has the data by country, region, state and has the number of people that are injured from the attacks worldwide.

From the above sources I have considered the data for the United States of America and performed some visualisations considering the variables from both sources that helps in answering the questions. I am using Tableau for my visualisation as I feel more comfortable using it and the ability of tableau to manage the data from 1970 to 2017 and the integration of the two different data sources was easy. Using this I have visualised the data in the forms of Bar chart, Heat, Line, Map and created three dashboards with a dashboard menu that helps in navigating to different dashboards.

Some of the Important variables (Columns) that helps in resulting the above questions are:

1. **Iyear** - This field has the record of the year when the incident occurred.
2. **Imonth**- This field contains the number of the month in which the incident has occurred
3. **Iday**- It has the number of the day which the incident has occurred
4. **Country**- It has the location/country where the incident happened
5. **Region** – It has the region in which the incident occurred
6. **State**- It has record of the state the incident happened
7. **City**- It has the information of city, village, or town the incident occurred.
8. **Weaptype**- It has the information of the weapon type that is used in the incident
9. **Targtype**- The target/victim is attacked specifically because of the relation to particular person, the target type reflects that motive
10. **Motive**- It has the information for motive behind the incident
11. **Number of Fatalities**- It is the number of citizens who died as the result of the incident.
12. **Number of Incidents** – It has the number of incidents that happened.
13. **Group Name**- It has the information of names of the terrorist groups.
14. **Success**- It has the information whether the attack is successful or not
15. **Summary**- It has Information of what happened at the incident

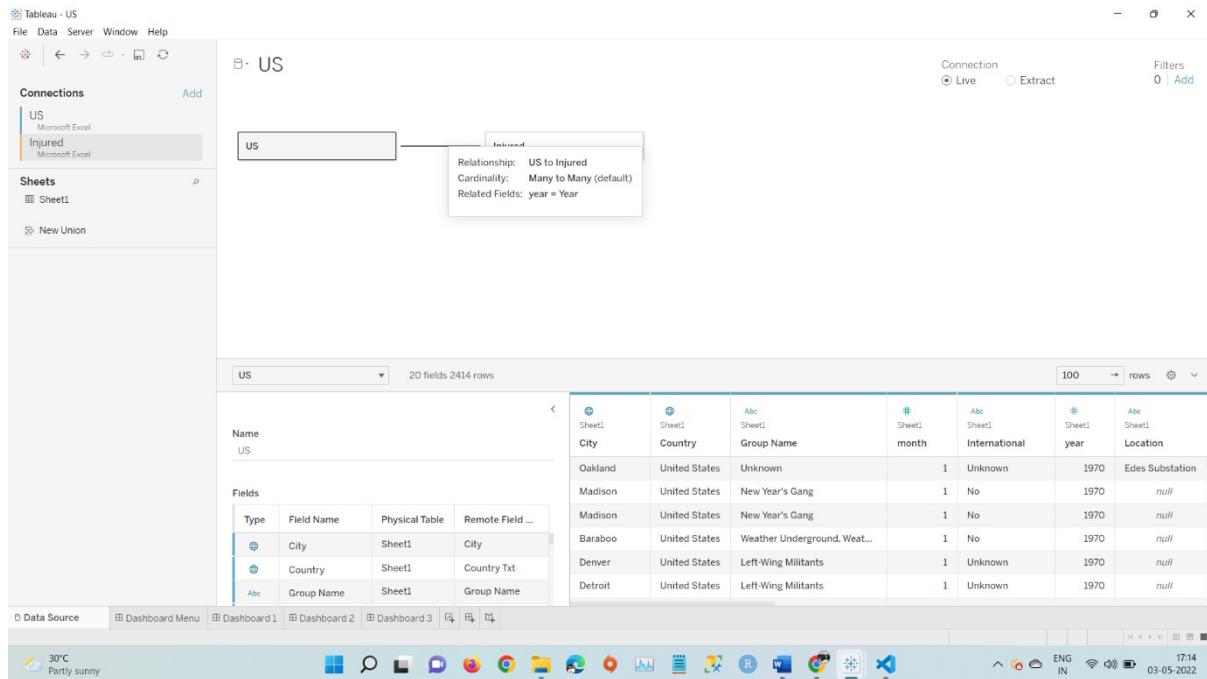
Top N – Parameter

Data type: Integer

I created this parameter and used to get the top values/information in the visualizations.

Relationship:

The below image shows the connection between US and Injured sheet. Where the common field used to join is the year. Through injured we got the relation of the number of injured people from the terrorist incidents happened.



ANALYSIS AND VISUALIZATIONS

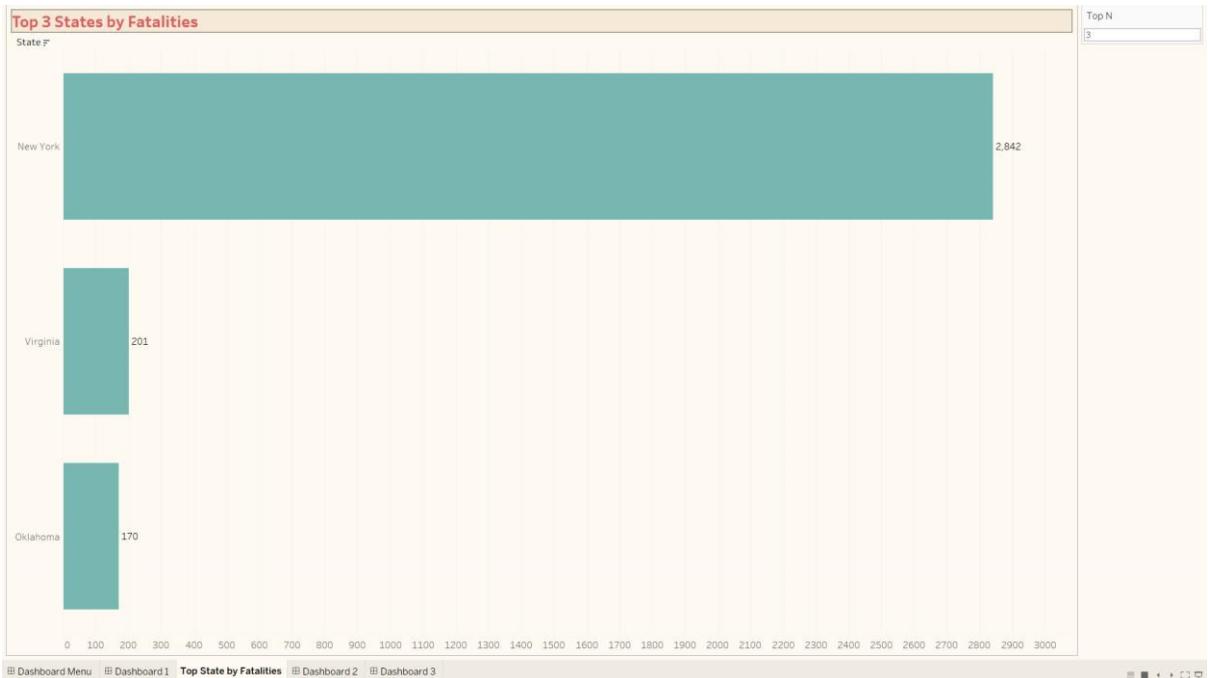
Stats and trends from the data sources

1. Highlight Table for top fatalities caused by Weapon and Target type



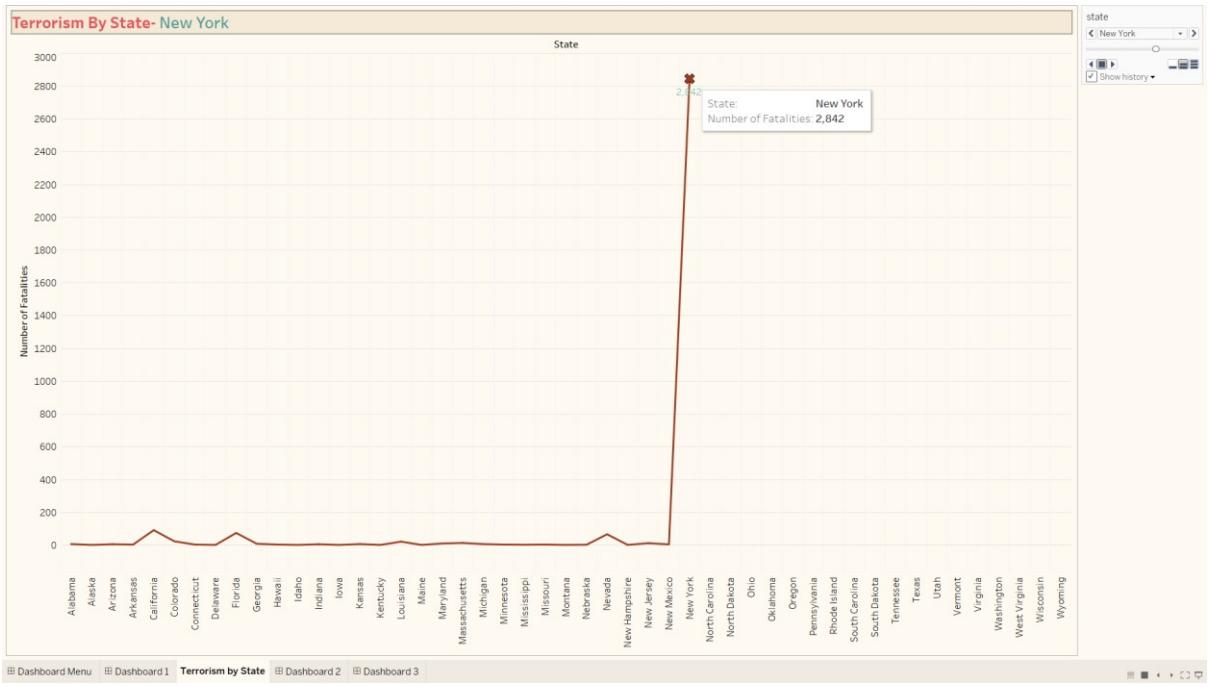
From the above visualisation we can say that for the weapon type Vehicles it has the greatest number of fatalities, and the target type was private citizens property with highest of **2812** fatalities and for the weapon type Firearms the greatest fatalities occurred in Business target type etc.

2. Horizontal Bar graph for getting Top 3 States by Number of Fatalities



New York has the highest number of fatalities amongst all other states in the US with the total of **2842** fatalities followed by Virginia and Oklahoma.

3. Animated Visualisation for Terrorism by State (Considering no. of Fatalities)



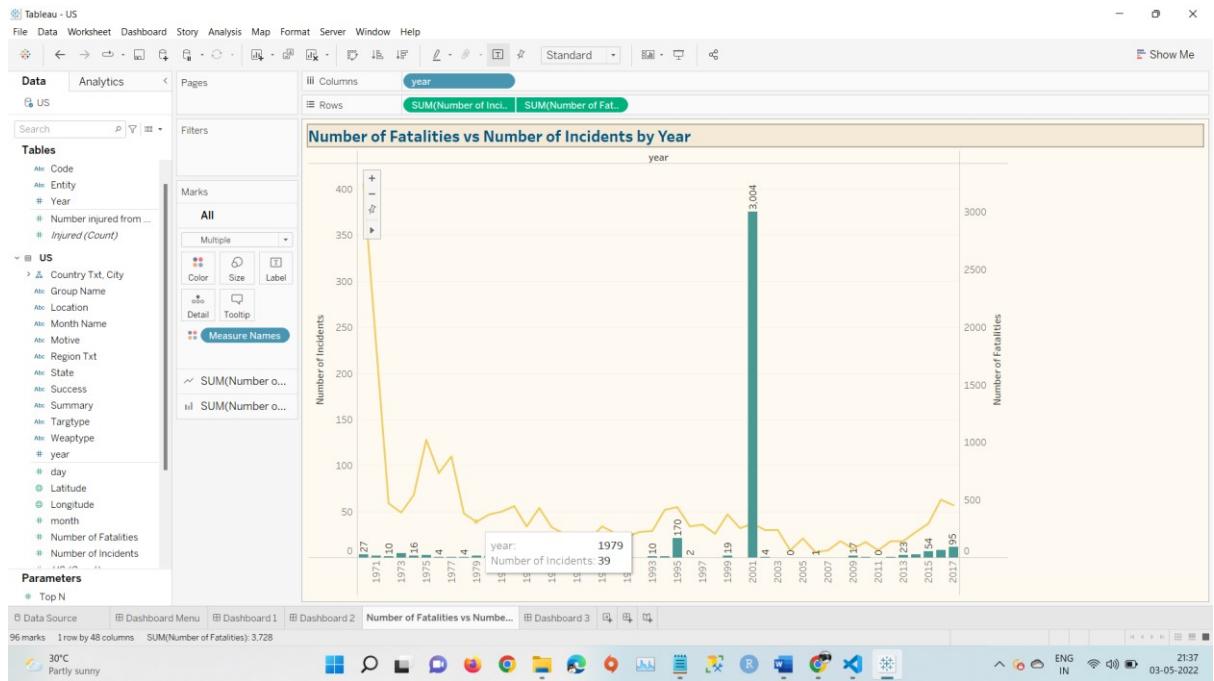
The Above visualisation represent the number of fatalities occurred in different states, the animation can be seen by clicking on the play button on the right side. It has the total 52 states from the US which is arranged alphabetically.

4. Bar Chart of Success/Failed Number of Incidents by Terrorist Group (top 3)



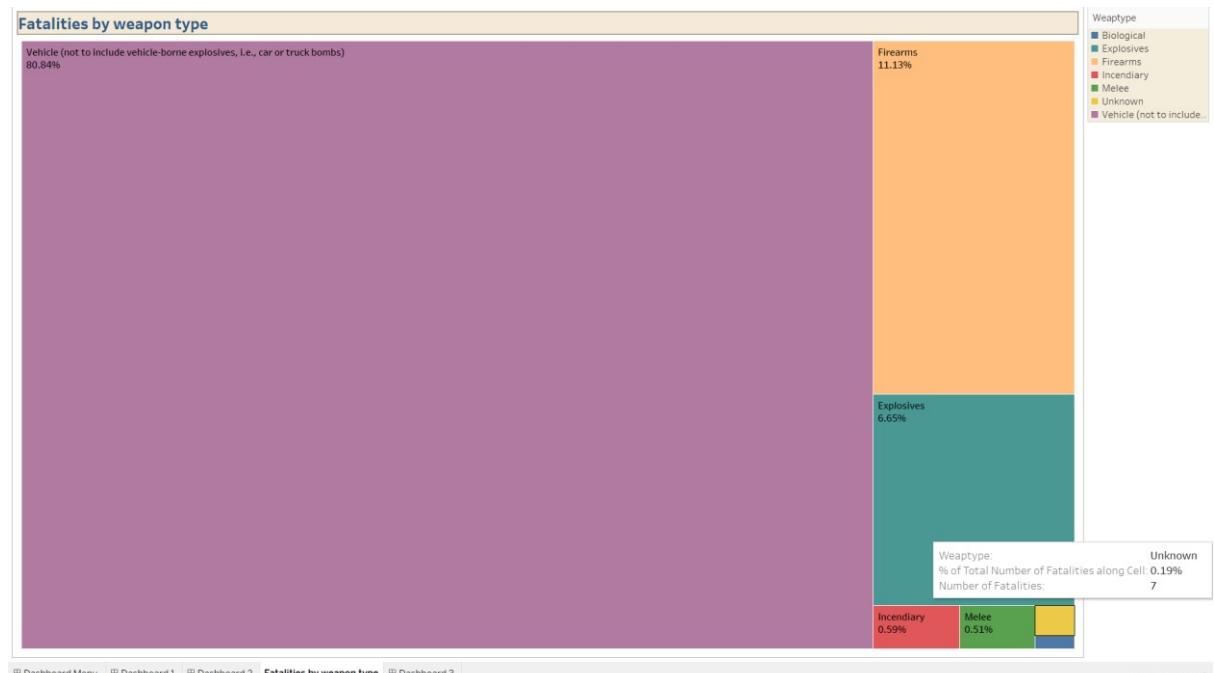
From the above chart we can interpret that the highest number of successful incidents is performed by Anti-Abortion extremists with **173** successful incidents and only **28** Failed Incidents, followed by left wing militants and New World Liberation Front (NWLF).

5. Number of Fatalities vs Number of Incidents by Year



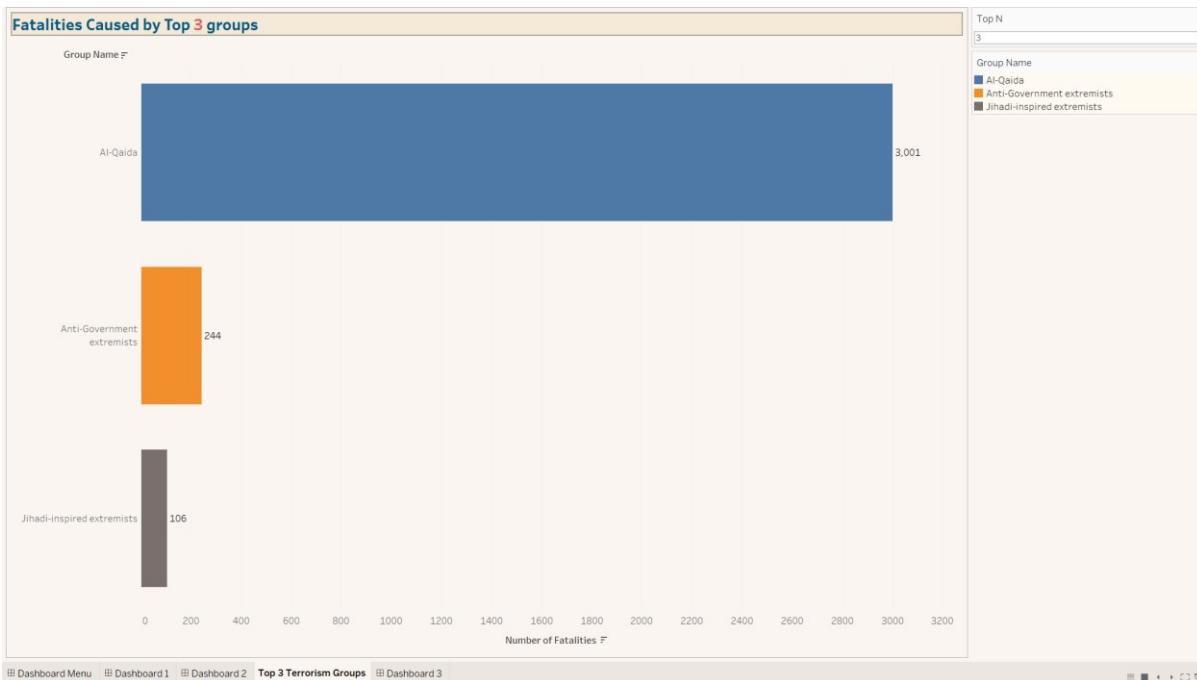
From the above visualization we can see that the for the year 1970 it has the highest number of incidents **407** with **27** fatalities and for the year 2001 it has highest number of fatalities **3004** with only **37** Incidents. The visualisation has both line and bar charts which are combined through dual axis.

6. Tree Maps Showing the Fatalities by weapon type



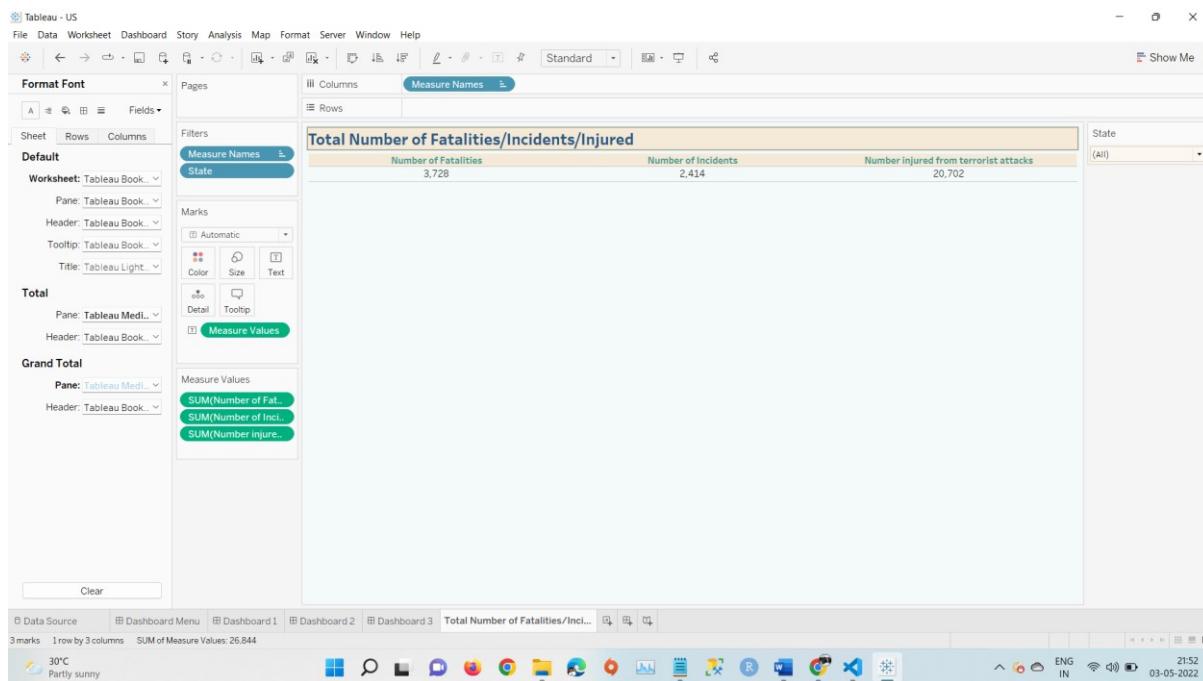
It is clear that the Vehicle weapon type has the highest number of fatalities (**3013**) with **80.84%** of the total fatalities caused by weapons. Followed by firearms, Explosives etc.

7. Horizontal maps showing Fatalities caused by Top 3 Groups



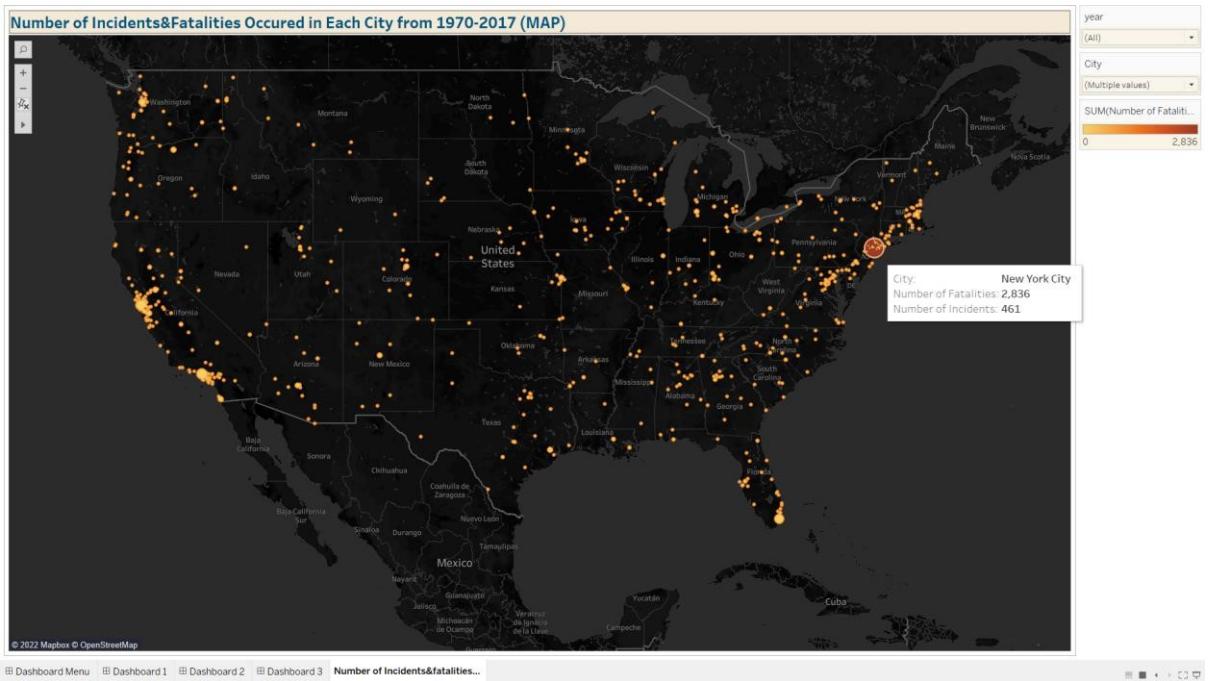
Al-Qaida group has resulted in highest number of deaths with **3001** fatalities followed by Anti-Government extremists and Jihadi-ins extremists with **244** and **106** fatalities.

8. Total Number of Fatalities/Incidents/Injured



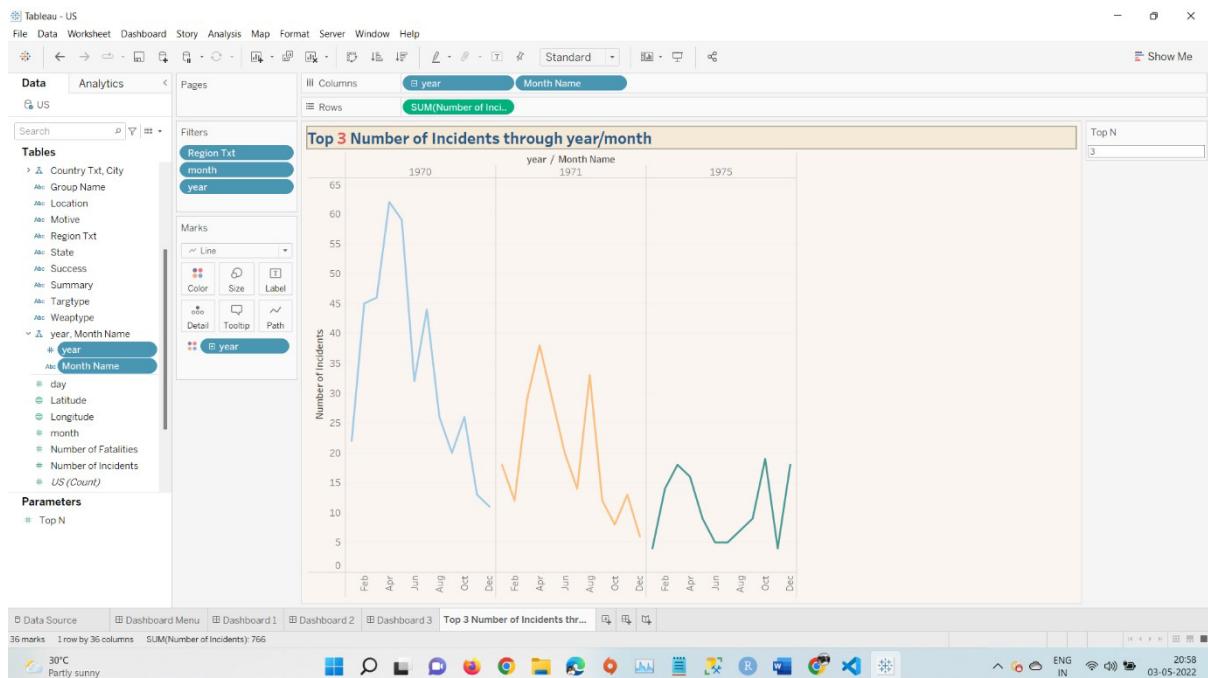
It is the simple data where it has the Total Number of Fatalities, Total Number of Incidents, Total Number of Injured from the Terrorist Attack.

9. Map data Number of Incidents/Fatalities Occurred in Each City from 1970-2017



Above Map shows the Total Number of Incidents and Total Number of Fatalities occurred in each city from 1970-2017. I included City and Year in the filter to check the data for that particular fields.

10. Drilldown of Top 3 Number of Incidents through Year/Month



The above visualisation shows the Total Number of Incidents happened in each year and in each month and it shows in the order of highest number of incidents. We can see that the year **1970** has the highest number of terrorist incidents in the month of **April** followed by years **1971** has highest incidents in **April** and **1975** has highest incidents in **October**.

Dashboard Menu:

Terrorism in United States of America



[Dashboard-1](#)

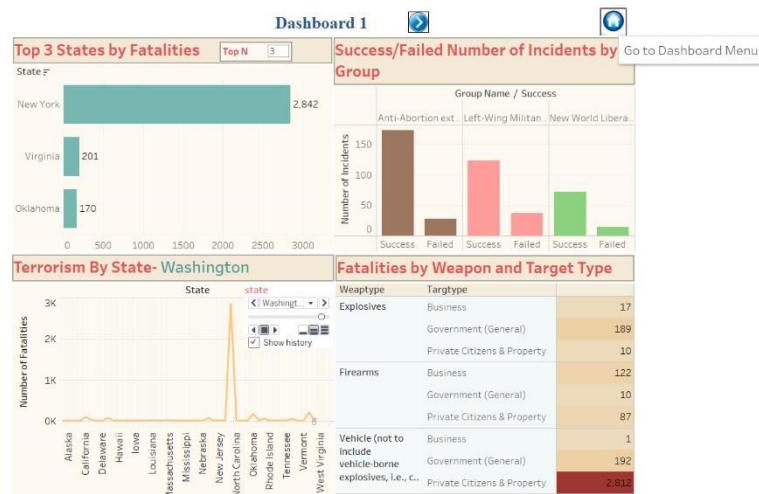
[Dashboard-2](#)

[Dashboard-3](#)

Dashboard Menu Dashboard 1 Dashboard 2 Dashboard 3

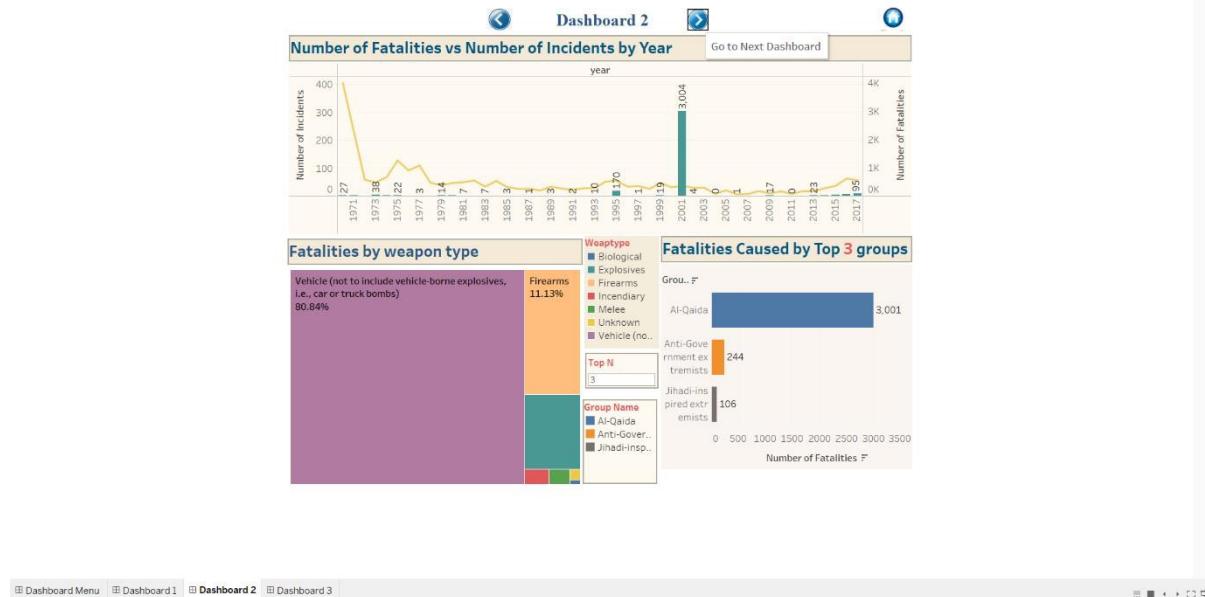
The Above Dashboard shows the title and has the buttons which helps in navigating to other dashboards. When you click the Dashboard 1 button it navigates to 1st Dashboard and same with the other buttons.

D1:



Dashboard Menu Dashboard 1 Dashboard 2 Dashboard 3

D2:



D3:



It has the some of the sheets included in it and there is an icons side to heading of the dashboard which helps in navigating to next or previous dashboard and home button helps in navigating to dashboard menu.

The below are the actions used to navigate to dashboards.

Actions

Actions let you create interactive relationships between data, dashboard objects, other worksheets, and the web.

Show actions for

This workbook This sheet

Name	Run On	Source	Fields
GoToD1	Select	Dashboard Menu (Icon)	
GoToD3	Select	Dashboard 2 (Icon 4)	
GoToD2	Select	Dashboard Menu (Icon 3)	
GoTo prev D1	Select	Dashboard 2 (Icon 5)	
GoToD3	Select	Dashboard Menu (Icon 6)	

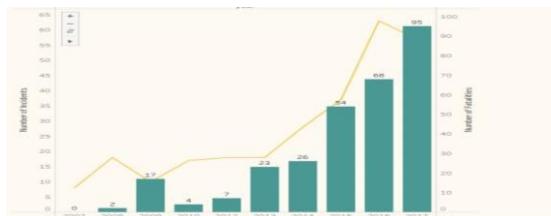
Add Action ▾ Edit Remove

Cancel OK

Conclusion

From the above visualisations, based on the results we can clearly say that the greatest number of the fatalities has occurred in the New York State and in the year 2001 and the terrorist group that is involved in the attack was Al-Qaida. Considering the questions

1. From the below graph 2007-2017, the number of terrorist incidents and number of fatalities are potentially increasing through years.



2. Al-Qaida is the Top terrorist group that has resulted in highest number of Fatalities and Anti-abortion Extremists has resulted in the greatest number of terrorist incidents.
3. The most used weapon for terror attack is by vehicle and the most targeted are the private citizens.
4. Undoubtedly, New York city has most effected by the terrorist as it has the greatest number of deaths.

Data Sources:

Global Terrorism Database, [GTD](https://www.start.umd.edu/gtd/) (<https://www.start.umd.edu/gtd/>)

Terrorism, [Ourworldindata](https://ourworldindata.org/terrorism#counting-worldconflict-deaths-why-do-sources-differ) (<https://ourworldindata.org/terrorism#counting-worldconflict-deaths-why-do-sources-differ>)