# Midterm Project

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Terrorism is one of the major threats to the social harmony. Particularly in recent years, as the prevalence of social media as well as the drastic conflicts in politics and religions, it seems that the frequency of terrorist activities increases over years. Today we can easily hear from news that somewhere in the world are having terrorism activities, and easily learn about individual attacks, but it is hard for us to find a general view of the world terrorism activities. Hence, we want to have a rough idea of how the terrorism varies from place to place and from year to year. The visualization is created for those who are interested in finding out the recent world terrorism occurrence. In the project, we retrieved the dataset from the Global Terrorism Database, and filtered the data from 2007 to 2017 catering to our interests.

We intended to create a visualization which can assist us to answer the following analytics questions. What countries are mostly affected by terrorism in this decade? What countries are free from terrorism according to the database? How does the intensity shift over years? What is the most frequent attack types in the world?

On the website, we provides a world map along with two scatter plots and a table containing the original dataset at the bottom. The saturation of color on the map reflects the intensity of terrorist activities in the year of the selection of the specific attack type. We use color channel to present the numbers. The country with no data record is displayed in grey. The charts

on the right offers a visual comparison between the selected country and the world with a selection of attack types. The table at the bottom of the page is designed to provide a reference to the data we visualize through graphs. People are able to search the country that they desire to explore at the table session using the searching field and they can also filter and sort them meanwhile. There are 9 attack types listed in the database which are armed assault, assassination, explosion, facility attack, hijacking, barricade incident, kidnapping, unarmed assault, and unknown type respectively. Additional clarifications of attacks are provided. And there are 156 country options that people can select from. Upon selection, the country will be shown in bright yellow and the border of the country would be highlighted. People could easily find the geographic location of the country that they intended to look for. The country chart will show the detailed data through the years. In addition, there is also a range sider of the 11 years in the map area, which is designed for people to see the changes of the selected terrorism activity of the world throughout the years.
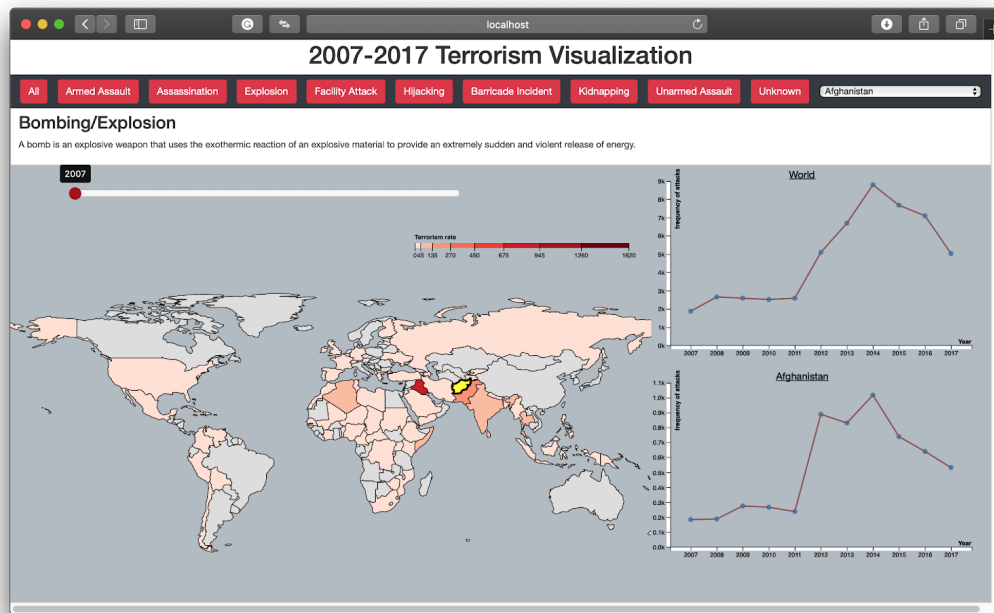
# 2007-2017 Terrorism Visualization

All | Armed Assault | Assassination | Explosion | Facility Attack | Hijacking | Barricade Incident | Kidnapping | Unarmed Assault | Unknown | Afghanistan

Bombing/Explosion

A bomb is an explosive weapon that uses the exothermic reaction of an explosive material to provide an extremely sudden and violent release of energy.

2007

Terrorism rate
045 135 270 450 675 945 1260 1600

World

Afghanistan

Terrorism Dataset

Search:

| country	year	Armed Assault	Assassination	Bombing/Explosion	Facility/Infrastructure Attack	Hijacking	Hostage Taking (Barricade Incident)	Hostage Taking (Kidnapping)	Unarmed Assault	Unknown	total
Iraq	2007	217	37	737	3	0	1	48	0	4	1047
Thailand	2007	127	13	118	35	0	0	0	0	0	293
Afghanistan	2007	94	17	184	13	0	0	26	0	7	341
Somalia	2007	48	14	88	3	1	0	2	0	0	156
India	2007	45	7	86	2	0	0	7	0	2	149
Pakistan	2007	41	10	178	7	0	2	22	0	0	260
West Bank and Gaza Strip	2007	40	3	26	3	0	0	16	0	0	88
Sri Lanka	2007	33	6	87	1	0	0	3	0	2	132
Russia	2007	31	1	15	3	0	0	0	0	1	51
Nepal	2007	26	2	16	8	0	0	35	0	3	90
Algeria	2007	20	9	91	1	0	0	1	0	2	124
Philippines	2007	20	4	31	2	0	0	7	0	1	65
Nigeria	2007	16	4	4	4	0	1	32	0	0	61
Sudan	2007	11	1	3	0	2	0	2	0	4	23
Democratic Republic of the Congo	2007	9	0	0	0	0	0	1	0	1	11
Mexico	2007	7	1	1	1	0	0	0	0	0	10
Colombia	2007	7	3	16	1	0	0	3	0	0	30
Kenya	2007	6	1	1	1	0	0	1	1	1	12
Turkey	2007	5	1	17	1	1	0	3	1	0	29
Chad	2007	4	0	0	0	1	0	1	0	1	7
Israel	2007	4	0	48	0	0	0	1	0	0	53
Mali	2007	3	0	1	0	0	0	1	0	0	5
Peru	2007	3	0	1	0	0	0	0	0	0	4
Yemen	2007	3	0	3	0	0	0	0	0	1	7
United Kingdom	2007	3	0	14	2	0	0	0	1	0	20
Venezuela	2007	2	0	0	0	0	0	0	0	0	2
Ethiopia	2007	2	0	2	0	0	0	1	0	0	5

Showing 1 to 991 of 991 entries

To answer the questions from our proposal, we start off with finding the trend of terrorist activities in world scale. We find that the number of terrorist attacks slightly increases from 2007

to 2011, and then shoots up after 2011 and reaches to its highest in the year of 2014 in which the

quantity is about 6 times of that in the year of 2007. The total number of all types of attack in

2014 is 16903. Thereafter, the number of terrorist activities gradually decreases, but as of 2017,

it has yet to return back to the same level as the year of 2007.
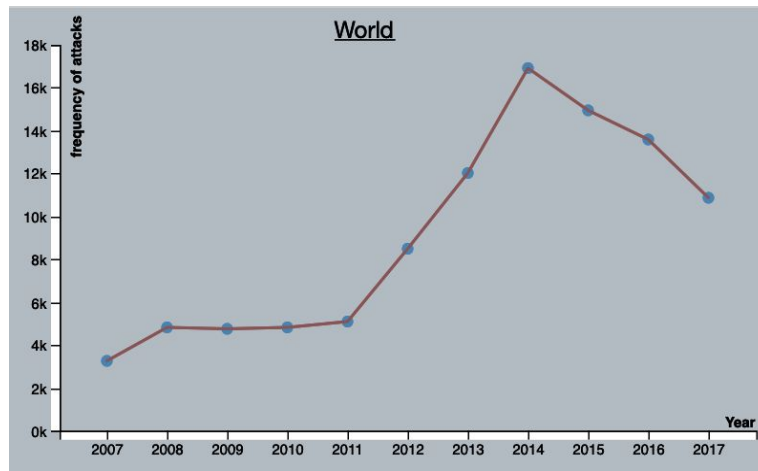

All Attack Types

In term of all attacks, in 2007, the position of Iraq on the map has the darkest color,

indicating that it has the highest frequency of attacks with a number over 1260.
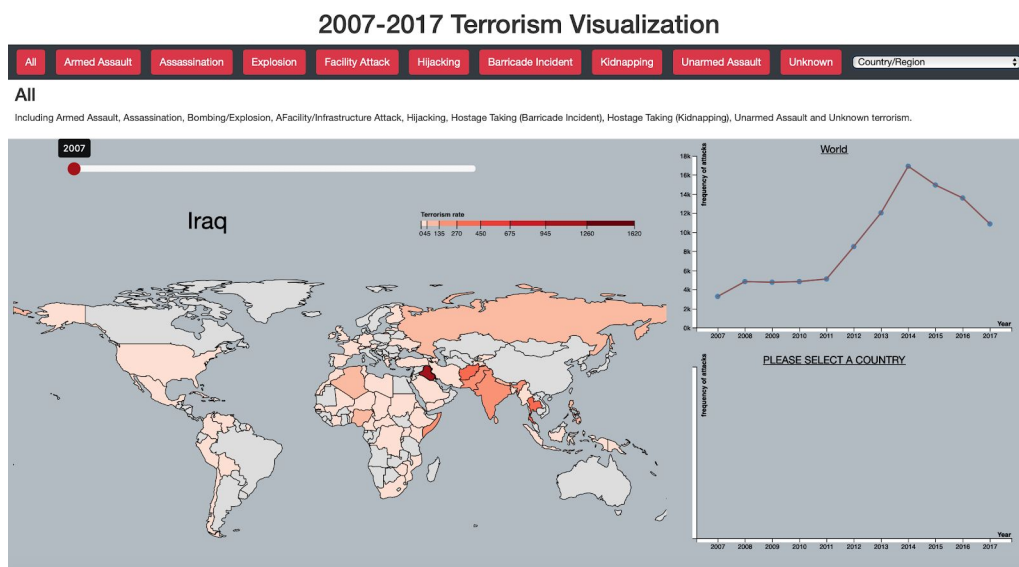
As year changes, the terrorist activities spread out in the Middle East, West and South

Asian, and Africa. Among these attacks, armed attacks, assassination, explosion, and kidnapping

agree with the trend of world in total. All of the attacks show a growth trend after 2011. In

addition, explosion is the most frequent attack type. The range of explosion attacks is from 2,000

to 9,000. Hence, we can conclude that among these terrorist activities, explosion is the major

threat posing on the society. It is reasonable for governments to conduct a thorough investigation

on explosive materials in public.
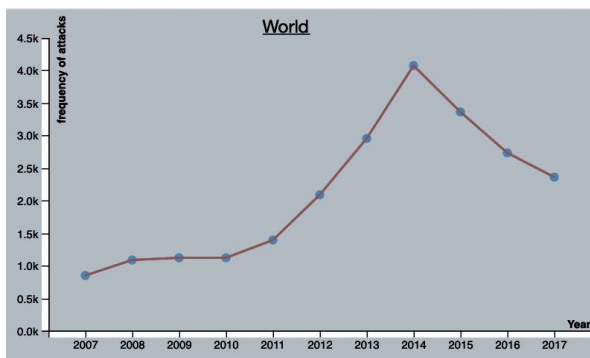
armed assault
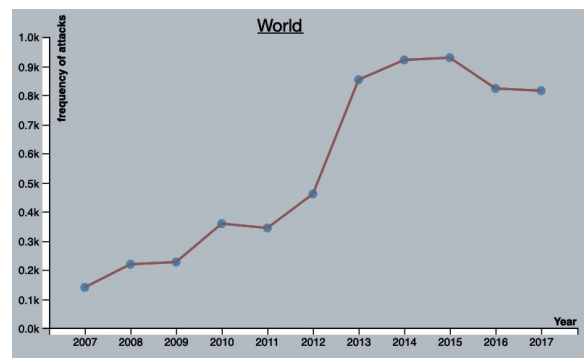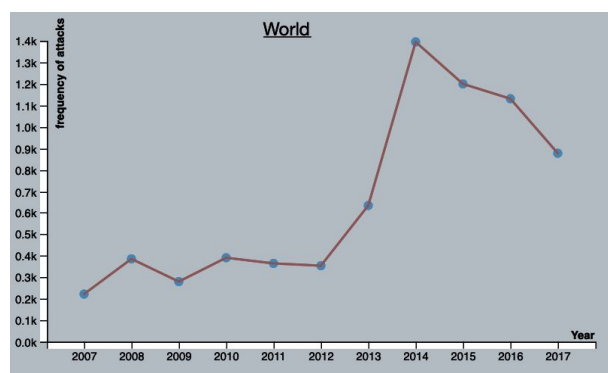

assassination
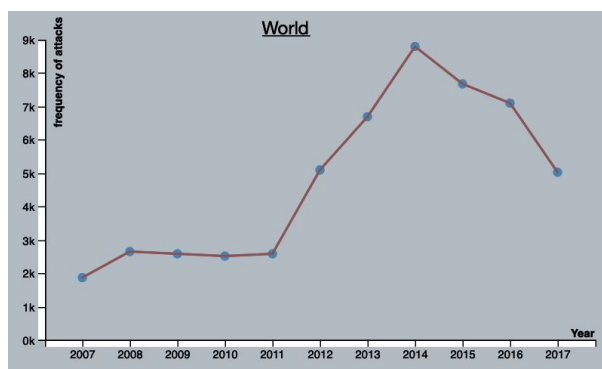
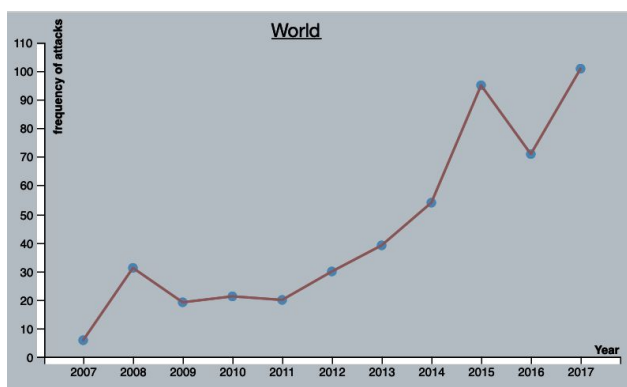explosion
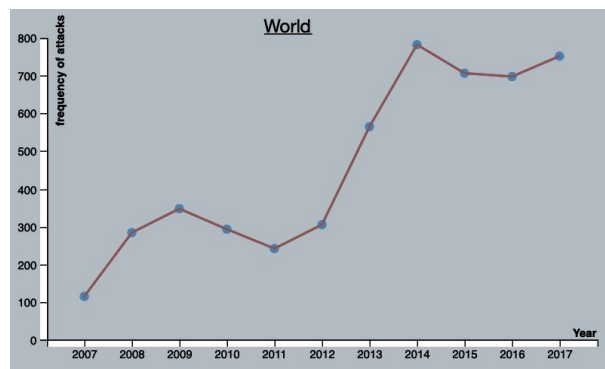
facility attack
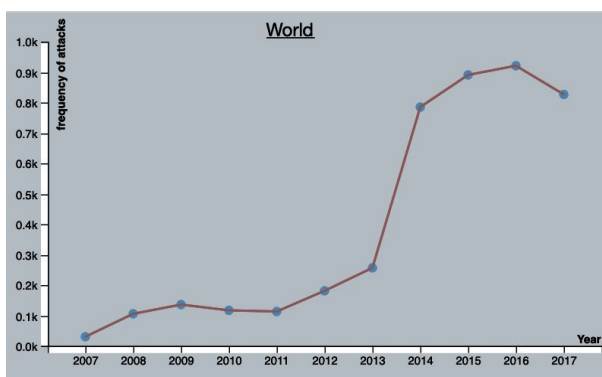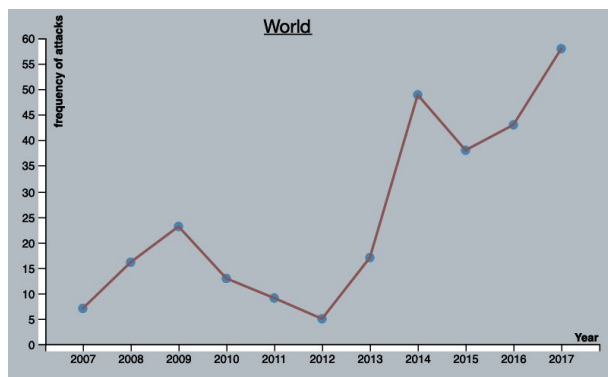
hijacking

unknown
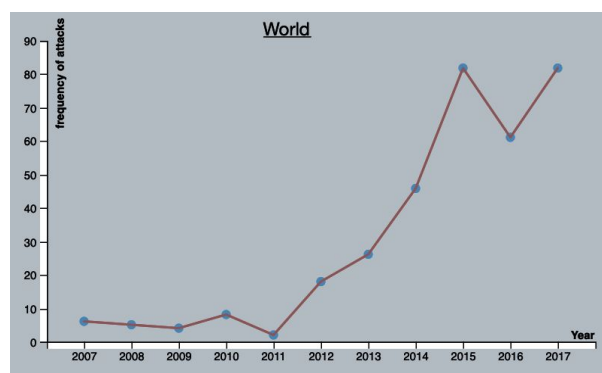
kidnapping

barricade incident

unarmed assault

In these ten years, Iraq, Pakistan, Afghanistan, India, Somalia are the five countries that have highest frequency of attacks. Then, the Middle East is the region severely suffering from terrorism. As we sorted the table by total attacks in a non-increasing order, Iraq hits the top five positions. The number of total attacks roughly remains round 1000 from 2007 to 2012, then it reaches to the highest in 2014. After 2014, the frequency of attacks vacillates but possesses a decreasing trend overall. We can see from the table that explosion is the major attack type that contributes to the terrorist activities in Iraq.


Table sorted by total in non-increasing order

In the recent five years, Iraq has the highest occurrence of total attacks. In 2013 and 2014, Pakistan has the second highest frequency of total attacks. From 2014, Afghanistan has the second highest number of total attacks. Looking across the five-year maps, the center of terrorist activity does not change much. They all concentrate on the Middle-East area due to the

long-existed religious and political conflicts. For Pakistan, the terrorist activities increases from 2007 to 2013 and decreases thereafter. In Afghanistan, the attack number drastically changed between 2011 and 2012. However, the scale of attacks shifts from hundreds to thousands. The attack frequency of India remains around 500 in this decade. The terrorist activities has the highest in 2014.
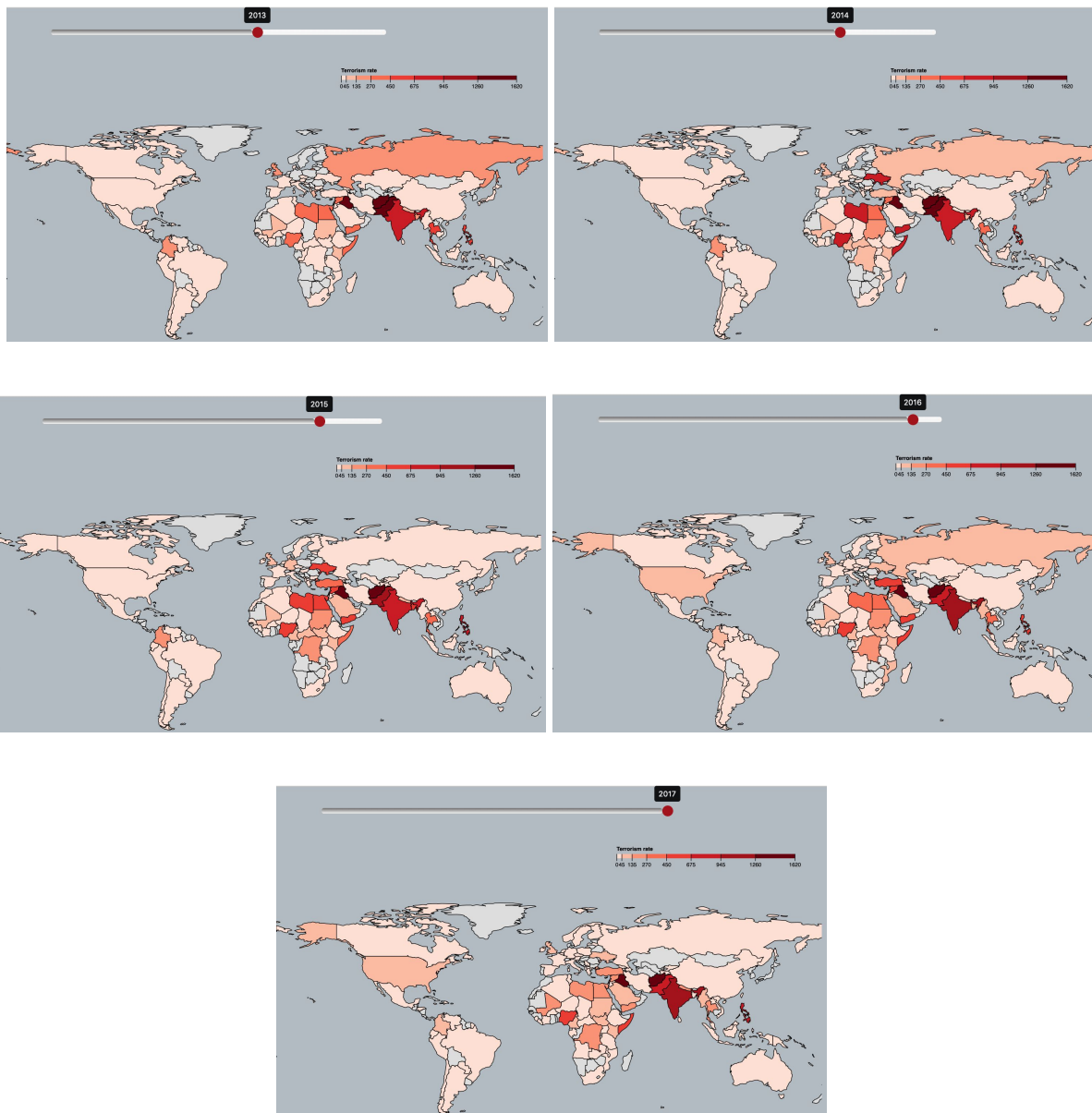
From the table, among the countries recorded by the Global Terrorism Database, the annual lowest number of total terrorist activities happening is 1. The lower rate is potentially caused by missing data. Hence, except the countries that we do not have data, none of the countries are free of terrorism. Therefore, terrorism is a global issue.

Terrorism Dataset

Search:

country	year	Armed Assault	Assassination	Bombing/Explosion	Facility/Infrastructure Attack	Hijacking	Hostage Taking (Barricade Incident)	Hostage Taking (Kidnapping)	Unarmed Assault	Unknown	total
Albania	2009	0	0	1	0	0	0	0	0	0	1
Albania	2013	0	0	1	0	0	0	0	0	0	1
Albania	2017	0	0	1	0	0	0	0	0	0	1
Angola	2009	1	0	0	0	0	0	0	0	0	1
Argentina	2009	0	0	1	0	0	0	0	0	0	1
Argentina	2011	0	0	1	0	0	0	0	0	0	1
Argentina	2014	0	0	0	1	0	0	0	0	0	1
Argentina	2015	0	0	1	0	0	0	0	0	0	1
Armenia	2007	0	0	1	0	0	0	0	0	0	1
Armenia	2009	0	1	0	0	0	0	0	0	0	1
Armenia	2013	0	1	0	0	0	0	0	0	0	1
Australia	2009	0	0	1	0	0	0	0	0	0	1
Australia	2010	1	0	0	0	0	0	0	0	0	1
Australia	2013	0	0	0	1	0	0	0	0	0	1
Austria	2007	0	0	0	1	0	0	0	0	0	1
Austria	2011	0	0	0	1	0	0	0	0	0	1
Austria	2013	0	0	0	1	0	0	0	0	0	1
Austria	2017	1	0	0	0	0	0	0	0	0	1
Azerbaijan	2007	0	0	0	1	0	0	0	0	0	1
Bahamas	2013	0	0	1	0	0	0	0	0	0	1
Bahrain	2008	0	0	1	0	0	0	0	0	0	1
Bahrain	2011	0	0	1	0	0	0	0	0	0	1
Belarus	2008	0	0	1	0	0	0	0	0	0	1
Belarus	2011	0	0	1	0	0	0	0	0	0	1
Belgium	2007	0	0	1	0	0	0	0	0	0	1
Belgium	2009	0	0	0	1	0	0	0	0	0	1
Belgium	2012	0	0	0	1	0	0	0	0	0	1

Showing 1 to 991 of 991 entries

Screenshot

We extracted country, year, and the number of 9 different attacks type from the original dataset from 2007 to 2017. Since we are limited to the 2-D graphic visualization, we focus on analyzing the frequency of terrorist attacks over years in a country. In the process of exploration, we found that there is a issue of data missing in the data set. Some countries are not included in the database such as North Korea. In addition, some countries do not have a complete record from 2007 to 2017, for example, Albania does not have arm assault data in the year of 2010, 2011, and 2012. Furthermore, some countries do not have the records for some attack types. In our data table, we filled these missing data with zero. Therefore, it is a limitation in displaying the table visualization for some countries. In conclusion, we can tell from the visualization that

the terrorist activity level is increasing over years and this issue is drastic and not neglectable.

After all, we hope everyone on the earth can live safe and sound.