

Capstone Project

On

EDA of Global Terrorism Dataset

By

Ashokanand Chaudhary

Objective

- **To Perform Exploratory Data Analysis**
- **Find the hot zone of Terrorism**
- **Security issue raised by EDA**
- **Data-Driven Solution**

Points for Discussion

- Summary of the dataset
- Data cleaning
- Word Cloud of City
- The Rise Of Terrorism
- Comparison of Wounded vs Killed per year
- Terrorist Activities by Region in each Year
- Top 20 Terrorism Attack Per Country and Region
- Top Attack Faced by the Country from the year 2000-2017
- Weapon used in Terrorism

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Points for Discussion

- Casualty Done by Different Attack
- Casualty on the different Targets
- Top 10 Terrorist Groups with the Most No. of Attacks & their preferred countries
- Rise of Terrorism in India
- Top 10 Cities affected in India
- The rise of Terrorism in Russia and Ukraine
- Terrorism in The SAARC
- Correlation Heatmap
- Challenges Faced
- Solution to the problem
- Conclusion

Global Terrorism Dataset

- It is a publicly available database that contains around 200,000 records of terrorist attacks
- It contains data from 1970 to 2017.
- It has 135 columns and 181691 rows.

Selected Columns

- Year
- Month
- Day
- City
- State
- Country
- Attack_type
- Target_type
- Target_subtype
- Gang_name
- Weapon_type
- Killed
- Wounded

Data Cleaning

Handling Null

Handling Inappropriate field

Column	Count
State	421
City	424
Target_subtype	9188
Killed	9116
Wounded	14854

Data Cleaning

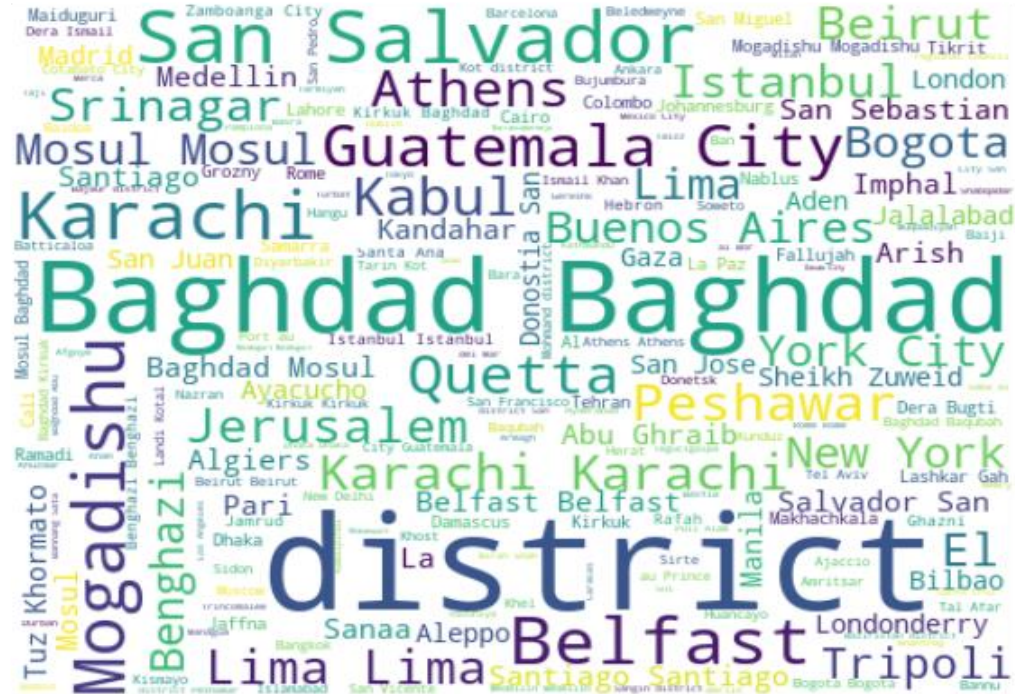
Handling Null

Handling Inappropriate field

- Month
- Day
- Country
- Attack_type
- Weapon

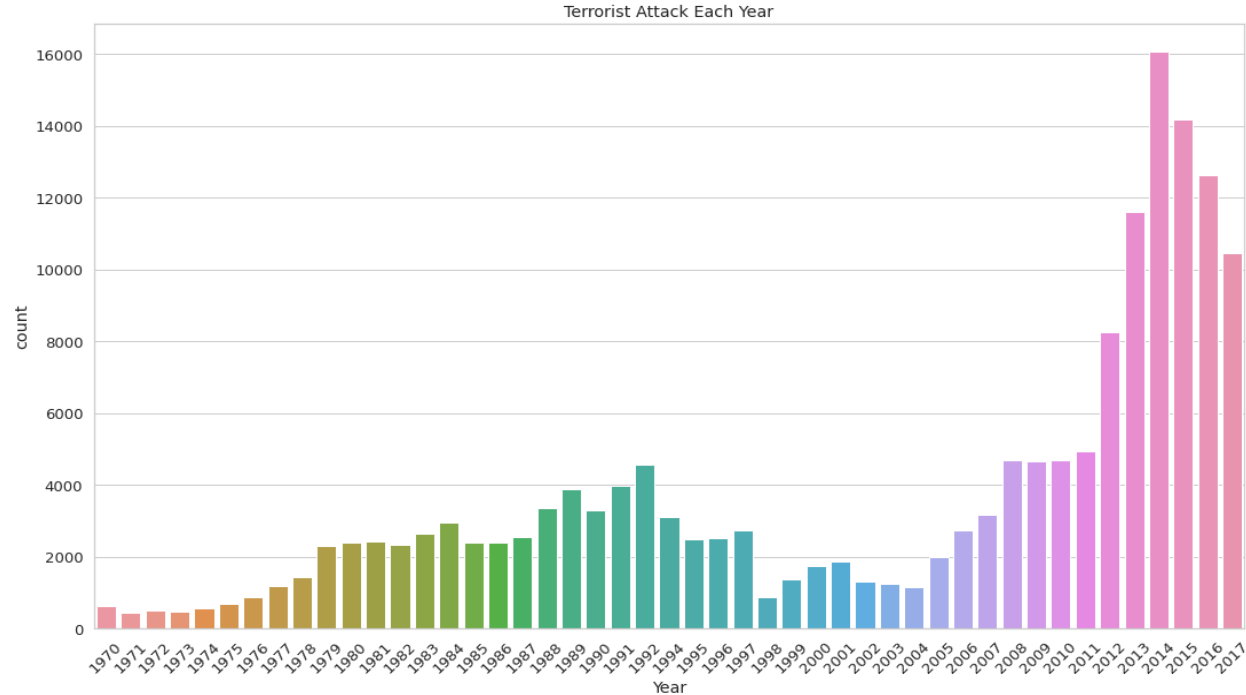
Word Cloud of City

- These cities have attacked more and remain the most dangerous city to live in.
- The bigger and Bold show the frequency of terrorism
- Baghdad, Karachi, Kabul, San Salvador, Mogadishu, Belfast etc. are more prone to terrorist attack



The Rise of Terrorism

- the '70s and '80s are quite peaceful when compared with other decades.
- 2014 is the most vulnerable year.
- From 1998 -2004 seems to be less attacked
- From 2014 terrorist attack seems to be decreased



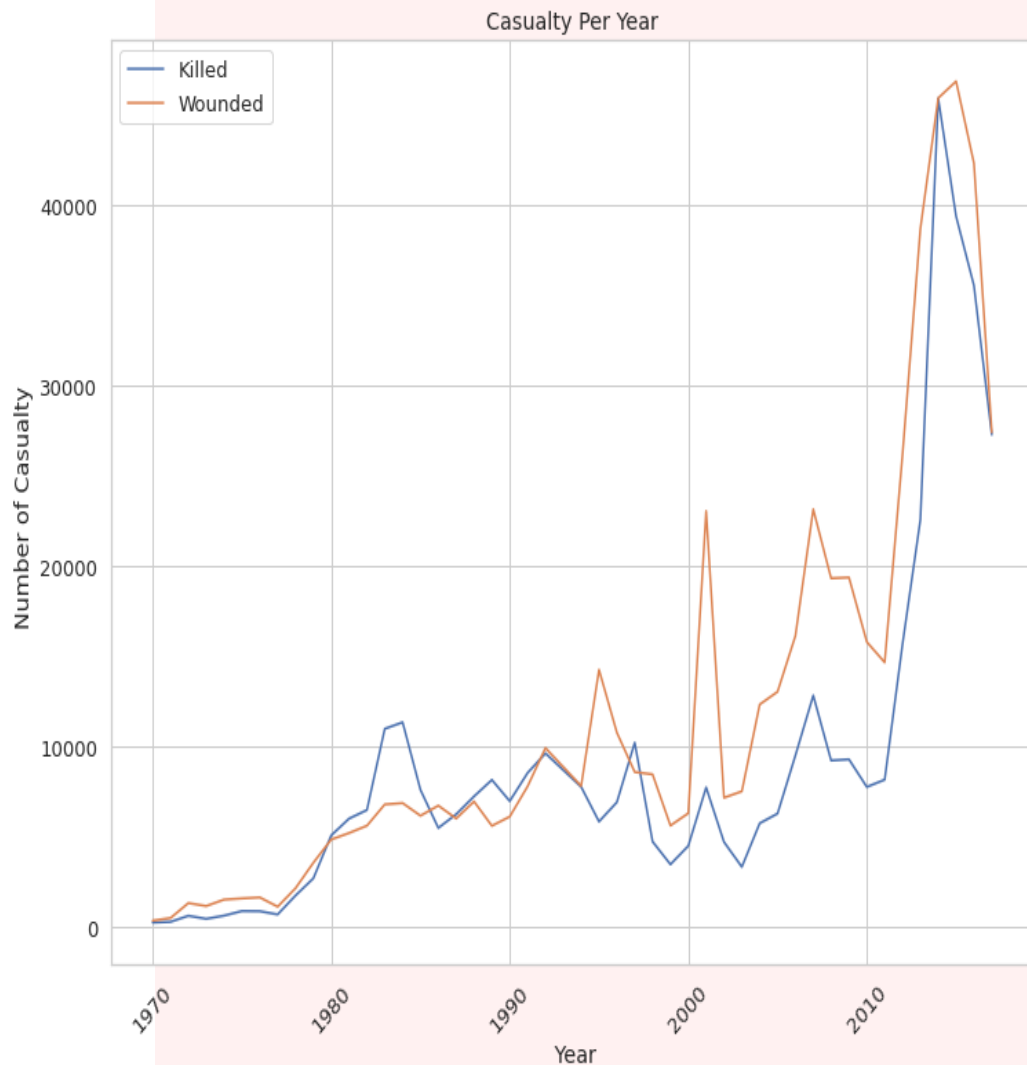
Wounded vs Killed

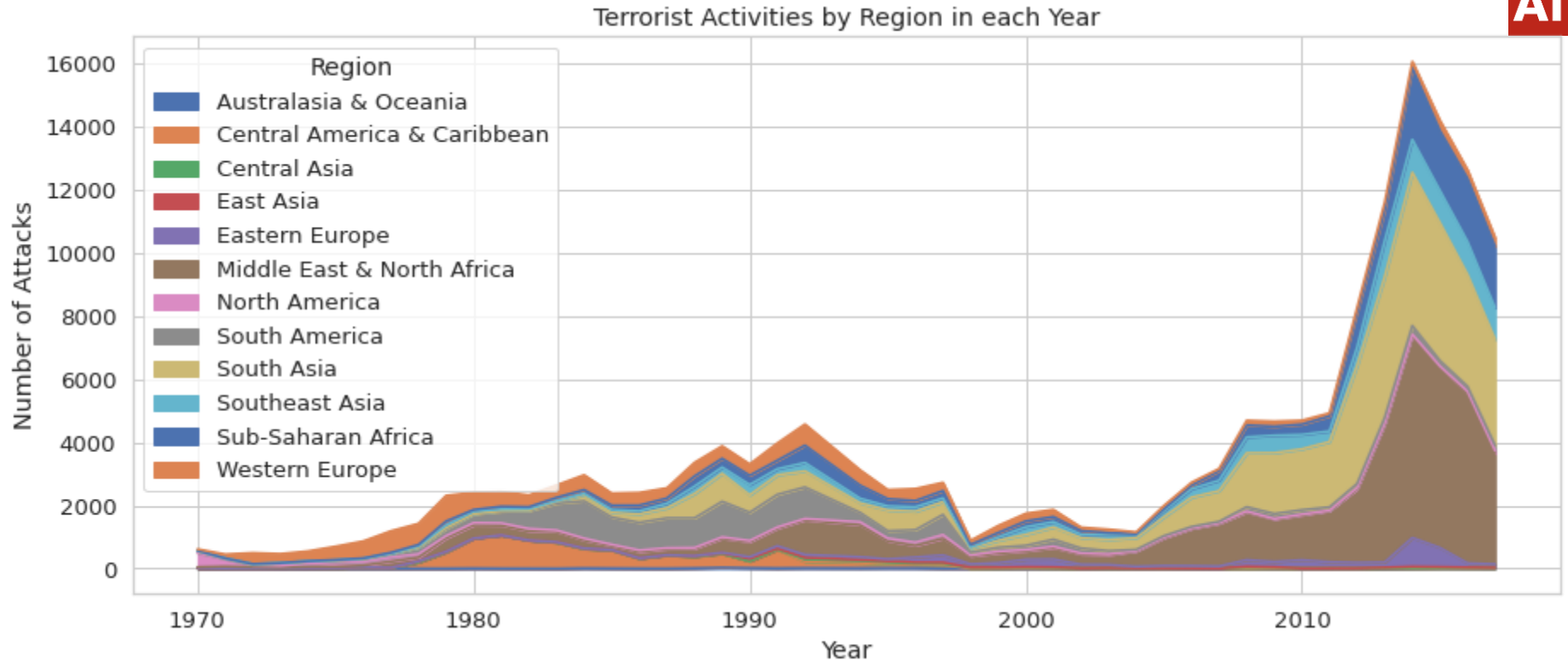
Both lines are almost moving together

The most wounded is in 2015

Terrorism killed most in 2014

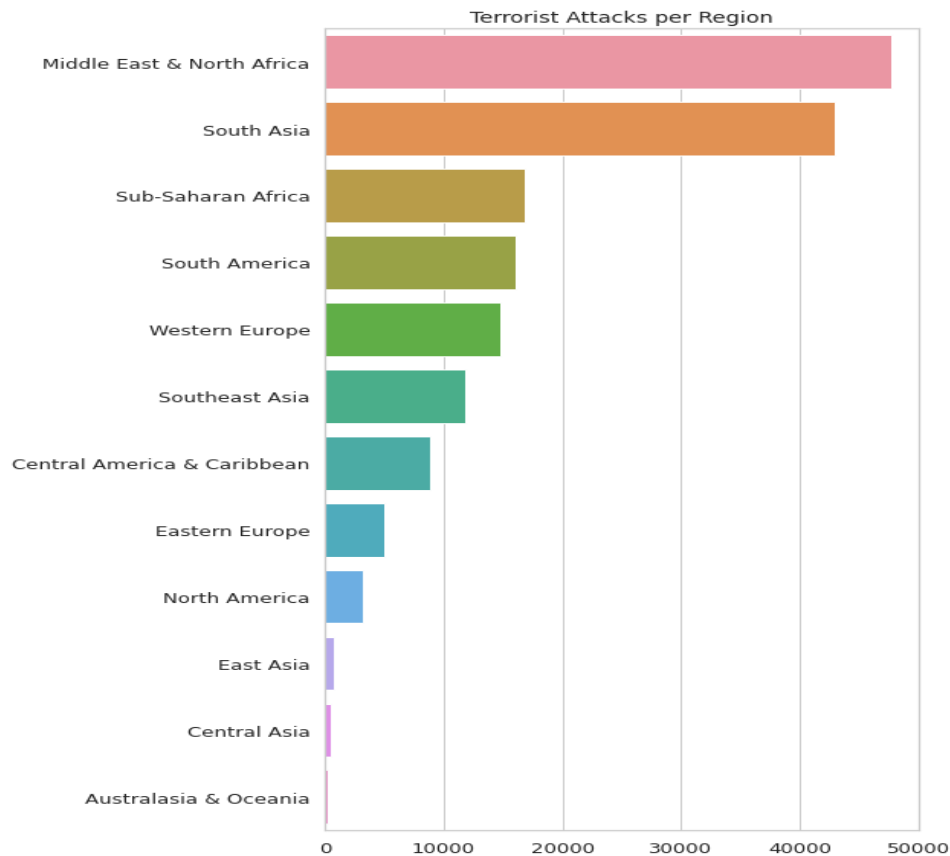
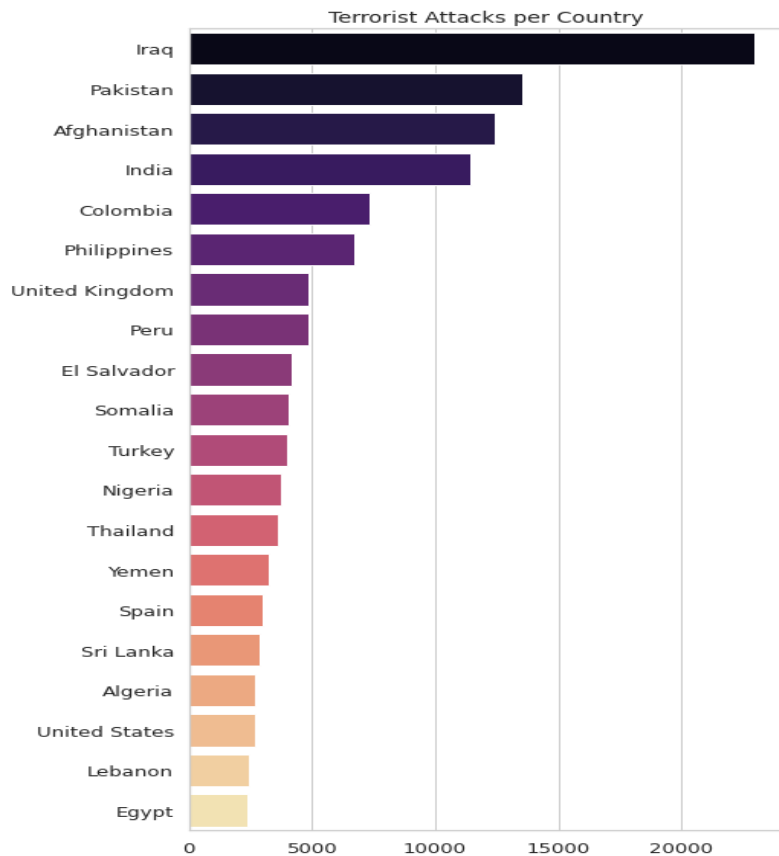
It increases as time elapsed.



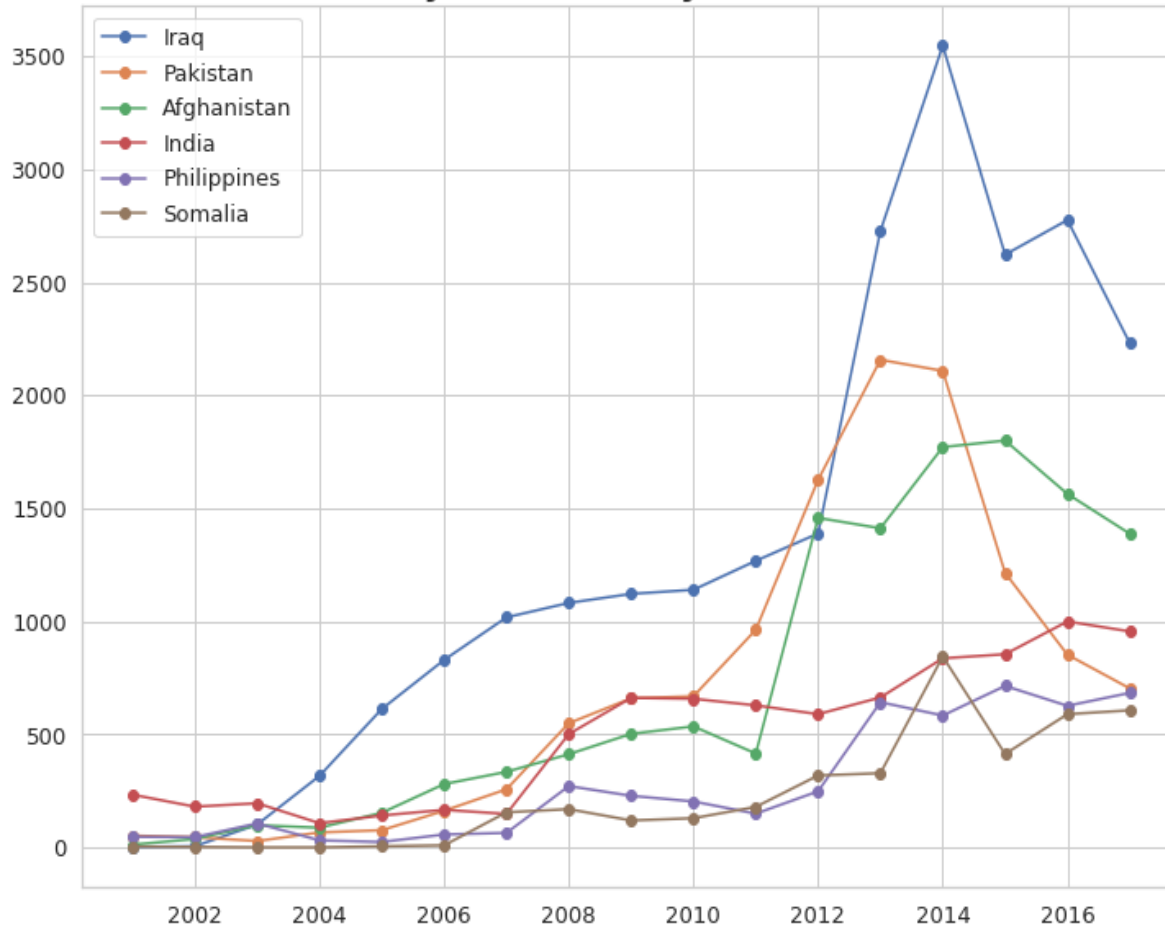


- In 70's North America and Central America and the Caribbean region seem to have more terrorist attack
- From 1990 Middle East and North Africa started to increase and goes to the peak from 2010
- There is a rapid increase in terrorism in twenty century

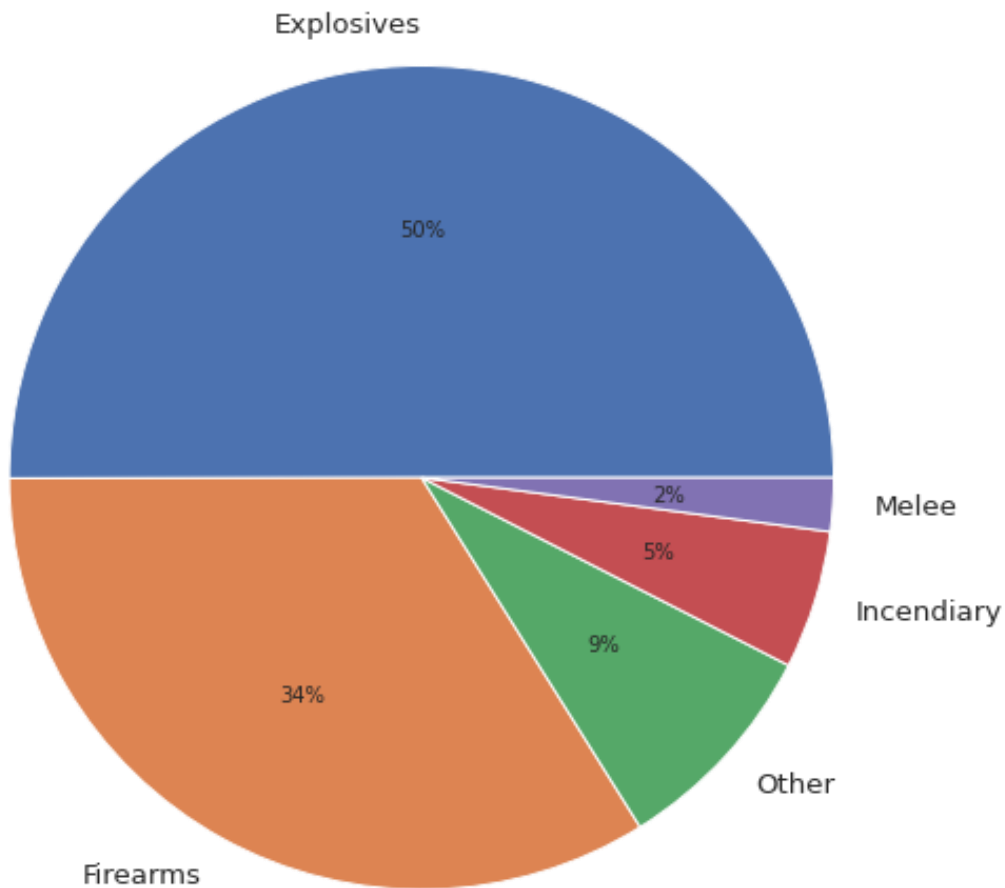
Top 20 Terrorism Attack Per Country and Region



Attack faced By Each Country From Year 2000-2017



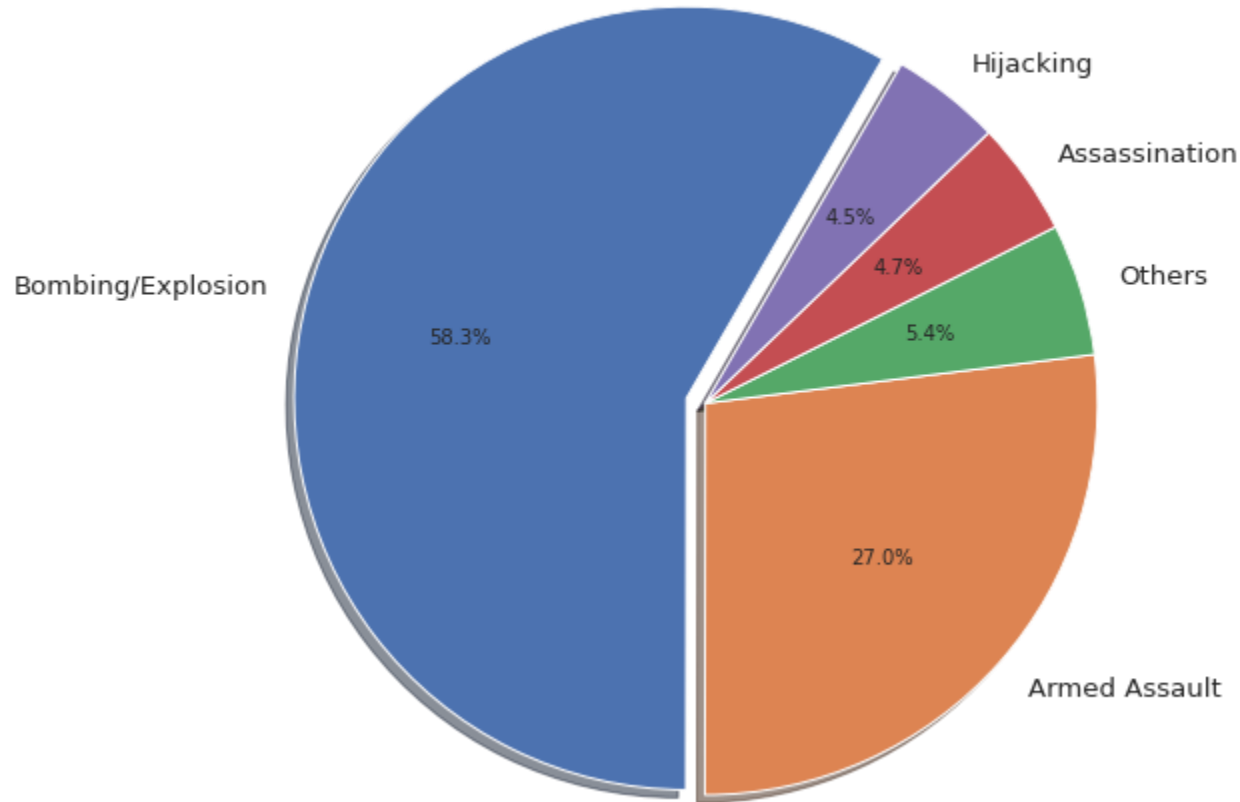
- Terrorism in Iran started to increase rapidly from 2002
- In 2014 attack was at the peak
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- From 2014, attacks started to decline
- Attacks in Pakistan shoot up from 2010 and declined from 2014
- Attacks in India rise rapidly from 2011 and started to fall from 2015



Weapon used in Terrorism

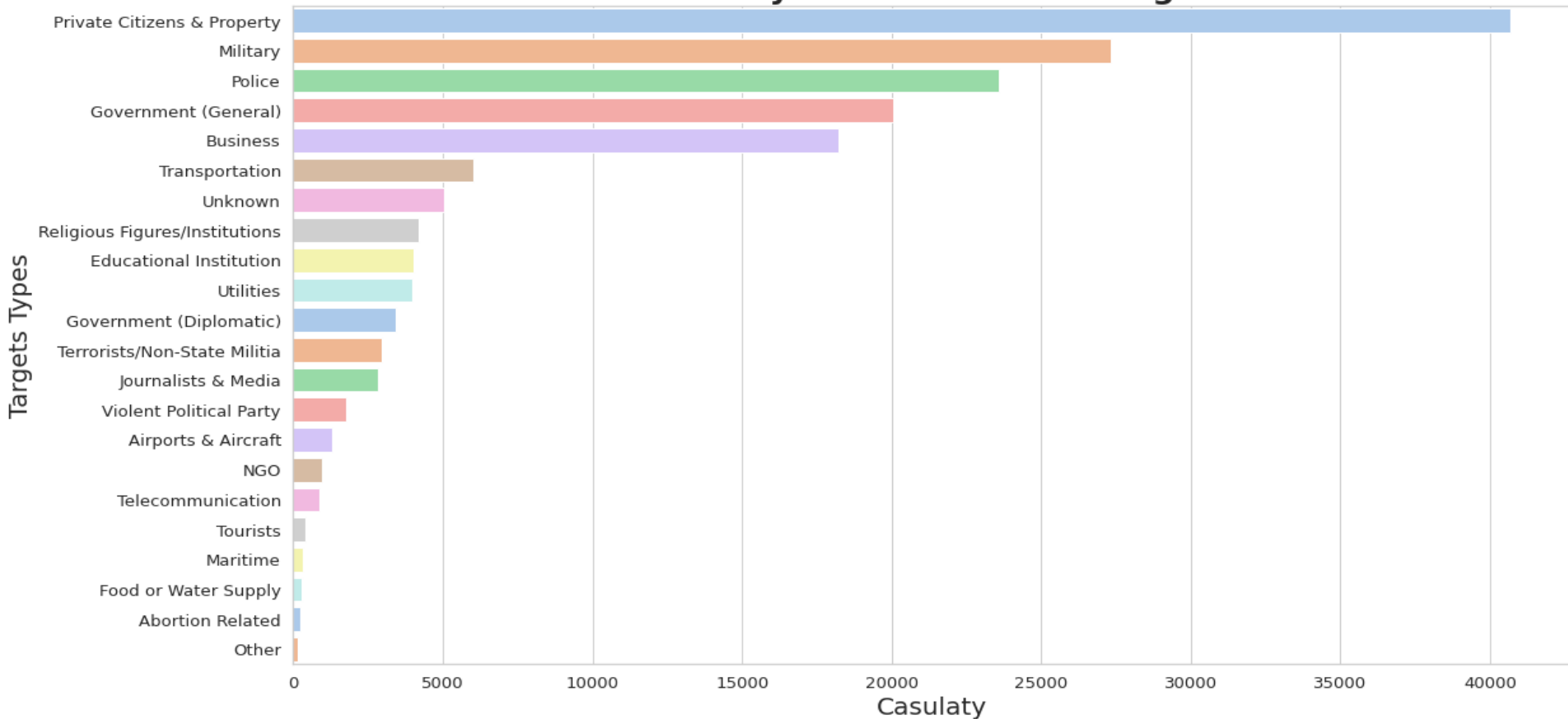
- **Most used Weapon is Explosive**
- **Second used Weapon is Firearms**
- **Melee and Incendiary least used weapons around 7%**

Casualty Done by Different Attack

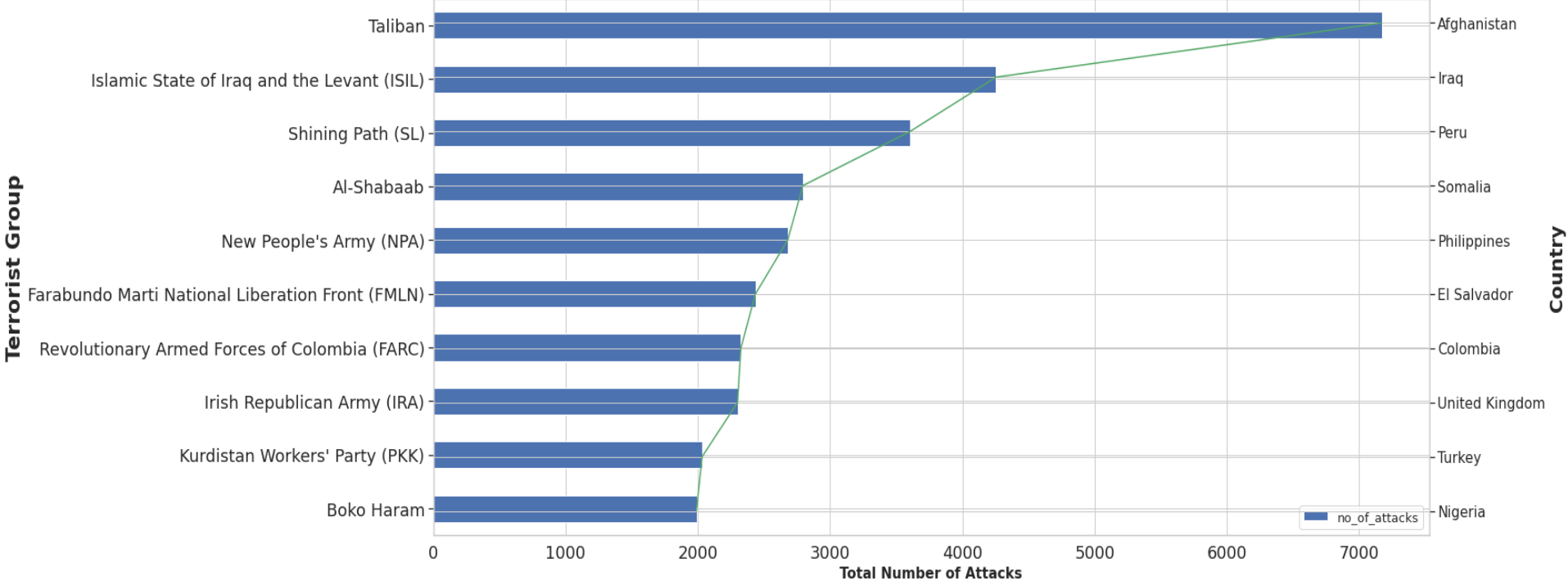


- **58.3 % of the casualty is done by Bombing/Explosion**
- **Hijacking and Assassination seem to caused less casualty**
- **Armed Assault contributes 27 % to the casualty done by Different Attack**

Casualty on the different Targets



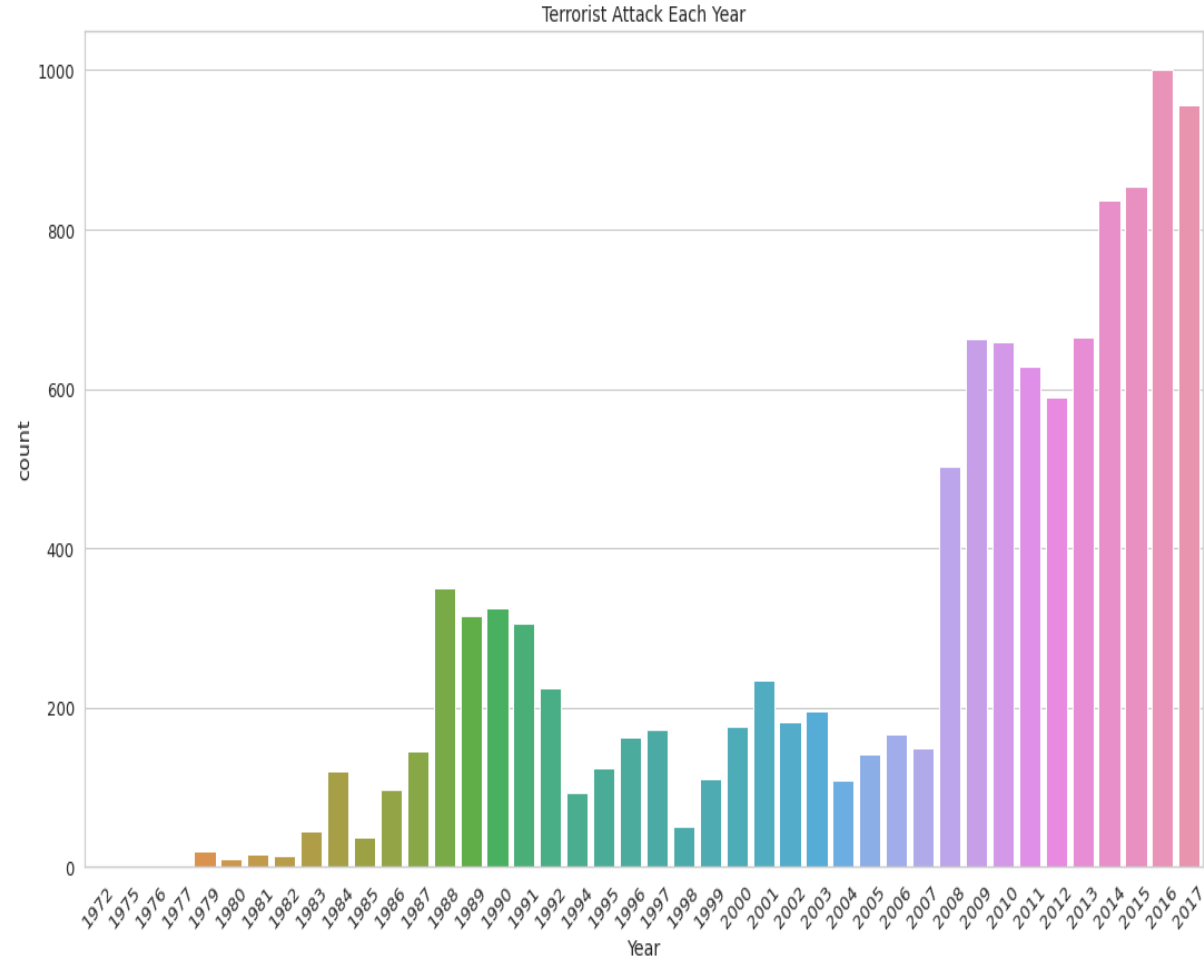
Top 10 Terrorist Groups With Most No. of Attacks And The Countries They Preferred



- **Taliban is the most Dangerous group & they do attack mostly in Afghanistan**
- **ISIL has attacked Iraq mostly.**

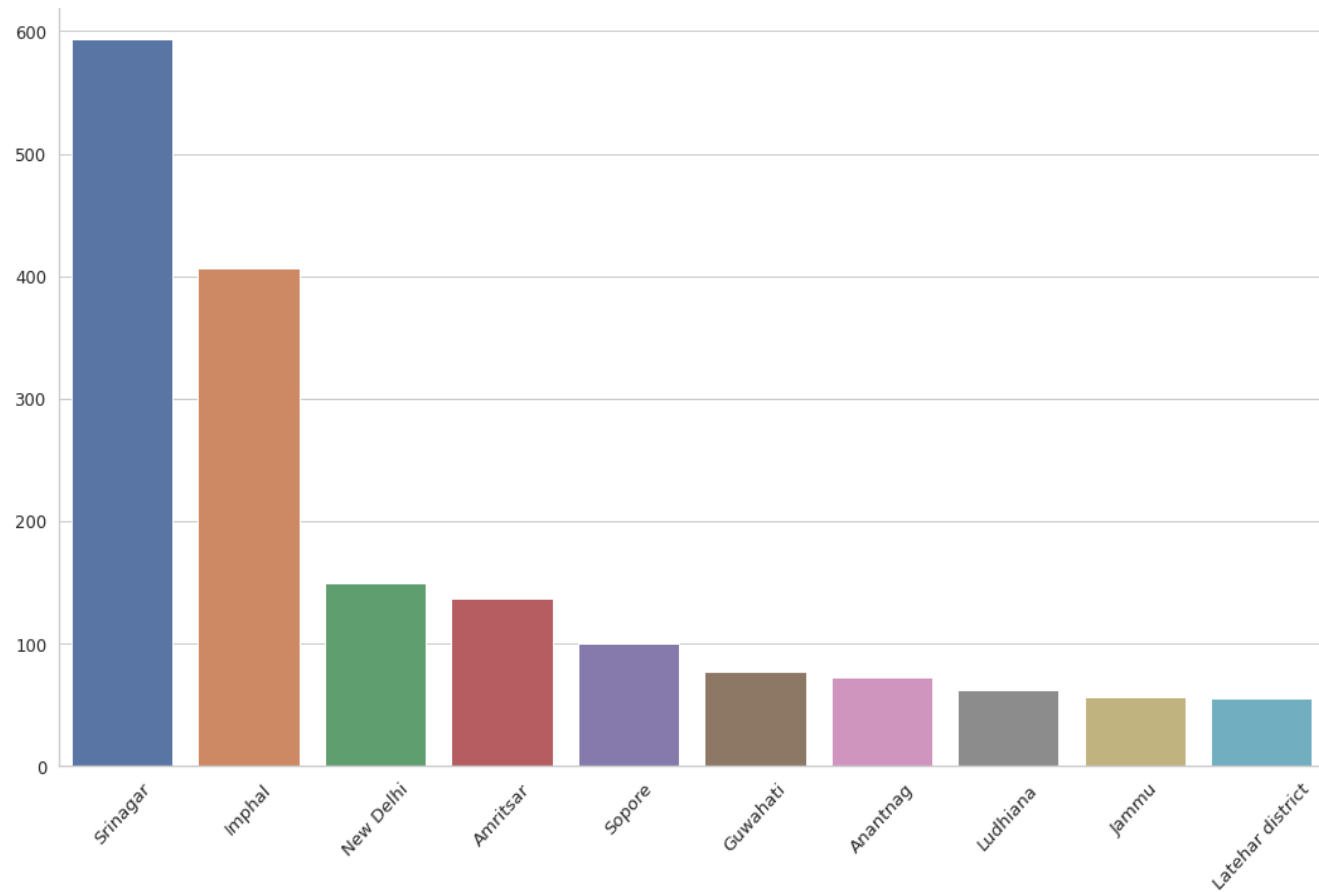
Rise of Terrorism in India

- Terrorism started from 1977
- It keeps on increasing expect in the period 1994 to 2007
- 2016 is the peak year of terrorism



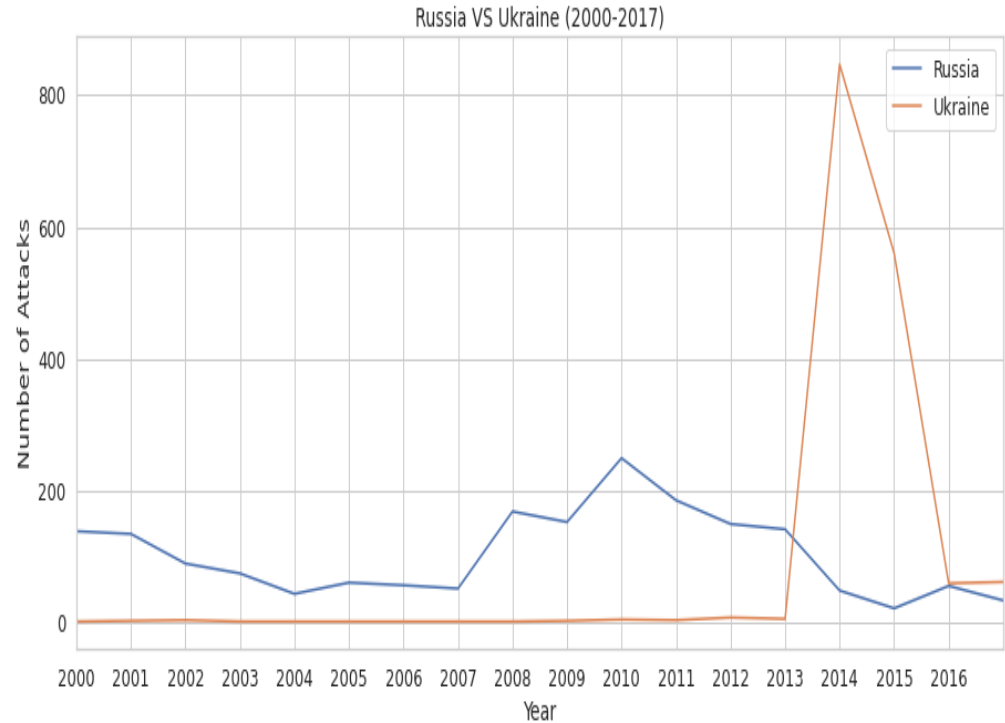
Top 10 Most Affected Cities of India

- Srinagar is a hot zone in India
- Capital of India (New Delhi) is also affected



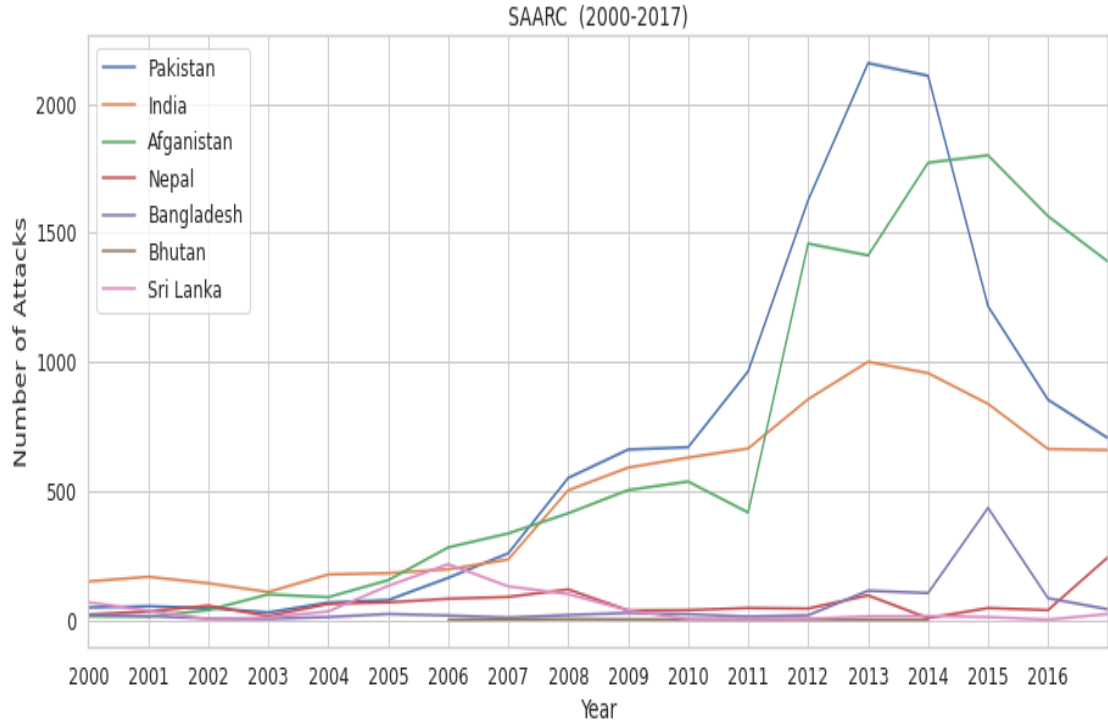
The rise of Terrorism in Russia and Ukraine

- Russia has fluctuation in the terrorism
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- Ukraine line seems to be flat till 2013
- Ukraine terrorism drastically increased to a peak in 2014 and decrease significantly from 2015.



Terrorism in The SAARC

- Pakistan is the worst affected country in the SAARC.
- Afghanistan also seems to be affected after Pakistan
- Afghanistan surpasses Pakistan after 2014 and became the worst-ranked countries
- India ranked 3rd in the terrorism countries.
- Countries like Nepal, Bangladesh, Bhutan and Sri Lanka seem to be less attacked



Correlation Heatmap

All the variables seem to be loosely correlated with each other

Wounded and Killed slightly correlated with each other i.e. 0.44



Challenges Faced

- Handling huge dataset
- Handling a huge number of unique value
- Handling of the Nan values and Inappropriate values
- Selection of the specific column as most of the columns are not correlated with each other
- Decoding the 'Unknown' field' was challenging as we don't have a subject matter expert.

Data-Driven Solution...

- Explosives and Arms need to be controlled & Monitored
- Explosive and gun detection systems need to be implemented
- Bunker should be made in public areas
- Most affected countries need to adopt modern technology
- Should make a strong network of the spy to monitor and try to stop the future attacks

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Solution obtained from EDA...

- Implementation of more military personnel and security in the most affected cities
- Defense Department should invest more in modern defence technology like bulletproof vests, better barricades, military vehicles and so on
- Needs cooperation from neighbouring and developed countries.
- Need to conduct the bilateral Talk with the Terrorist gangs

Conclusion

- Iraq is the most affected country by terrorism
- Middle East & North Africa is the most affected region in the world
- Baghdad city and state is a hot zone of terrorism with the most number of casualties and attacks.
- Total Number of Kills due to the Terrorist Attacks is 424013
- Total Number of people wounded due to the Terrorist attack is 561104
- Terrorism peaked in 2014 with the most number of kills
- Terrorism in Ukraine skyrocketed in 2014 and in 2016 they have taken a huge dip.

Conclusion

- Year with the most attacks: 2014
- The most attacked month and day are May 15.
- Taliban is the most active and dangerous group
- Bombing/Explosion is the most preferred type of weapon which has killed around 58% of the total kill
- But in countries like the Philippines and El Salvador main used weapon is Arm Assaults
- Terrorism seems to decrease slightly after reaching a peak in 2014
- The worst year up to date is 2014 and 2015 when casualties reached maximum

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Conclusion

- The worst year up to date is 2014 and 2015 when casualties reached maximum
- •Most people affected by terrorism are normal civilians.
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- •In India most vulnerable state is Jammu & Kashmir
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- •In SAARC Pakistan and Afghanistan is the hot zone for Terrorism
- •Balochistan is the most affected state in SAARC
- •Karachi is the hot zone of terrorism in SAARC city
- •Most affected targets are Private citizen's property
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Thank you

