Tech Saksham

Case Study Report

Data Analytics with Power BI

"Global Terrorism Dataset Analysis Using Power BI"

"SRI KUMARA GURUBARA SWAMIGAL ARTS AND SCIENCE COLLEGE"

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ABSTRACT

This research project delves into the Global Terrorism Dataset, employing Power BI for comprehensive analysis. By leveraging interactive visualizations and advanced analytics, we seek to elucidate intricate patterns and trends within the dataset. Our investigation aims to discern underlying drivers of global terrorism, offering actionable insights for decision-makers and researchers to inform strategic interventions and policy formulations

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CHAPTER 1

INTRODUCTION

"Power BI is a powerful tool for analyzing and visualizing data. Analyzing the Global Terrorism Dataset using Power BI can provide valuable insights into trends, patterns, and factors contributing to terrorism worldwide. In your introduction, you can outline the importance of studying terrorism data, the goals of your analysis, and how Power BI will be utilized to achieve those objectives. Additionally, you may want to briefly mention the scope of the dataset and any specific questions or hypotheses you aim to address through your analysis.

Problem Statement:

Geographic distribution of terrorist attacks.
Trends over time, including yearly and monthly patterns.
Types of attacks and their frequency.
Perpetrator groups involved in terrorist activities.
Casualty analysis, including fatalities and injuries.
Impact of terrorism on different regions or countries.
Any other relevant insights or correlations present in the data.
Your analysis should be presented in an informative and visually appealing manner using Power BI, with interactive dashboards and visualizations that allow stakeholders to explore the data and understand the findings effectively.

Proposed Solution:

Using Power BI for analyzing the Global Terrorism Dataset sounds like a robust solution. You could start by importing the dataset into Power BI, then create visualizations such as maps, charts, and graphs to analyze trends, patterns, and correlations within the data. Additionally, you can use Power BI's interactive features to drill down into specific regions, time periods, or types of terrorist incidents for deeper insights. Don't forget to utilize Power BI's built-in functionalities like filters, slicers, and measures to enhance your analysis and make it more dynamic. Finally, consider creating a dashboard to present your findings in a clear and concise manner.

Feature:

1. Real-Time Analysis: The Power BI dashboard will provide real-time analysis of terrorist attack data.

2. Attack Segmentation: It will segment terrorist attacks based on various parameters such as location, attack type, casualty count, etc.

3. Trend Analysis: The dashboard will identify and display trends in terrorist attack patterns over time.

4. Predictive Analysis: It will utilize historical data to predict potential future terrorist attack hotspots or trend

Advantages:

1. Data-Driven Decision Making: Governments and security agencies can make informed decisions based on real-time analysis of terrorism data, enhancing national security.
2. Proactive Counterterrorism Measures: Understanding terrorist attack patterns and trends can help authorities proactively implement counterterrorism strategies and allocate resources effectively.
3. Enhanced Public Safety: By identifying high-risk areas or potential targets, security measures can be strengthened to mitigate the threat of terrorism and ensure public safety.
4. International Collaboration: Sharing and analyzing terrorism data through Power BI can facilitate collaboration between countries and international organizations in combating terrorism on a global scale.

Scope:

The scope of this project encompasses comprehensive analysis of global terrorism incidents, aiming to provide actionable insights for policymakers, security agencies, and researchers. The project will leverage Power BI to explore trends, patterns, and hotspots in terrorism activities worldwide. Additionally, it c"an be extended to incorporate diverse data sources, including socio-economic indicators, conflict zones, and geopolitical factors, to enhance the understanding of terrorism dynamics. Advanced analytics techniques, such as predictive modeling and correlation analysis, will be employed to uncover hidden patterns and forecast future trends. Furthermore, the project has the potential to be adapted for other domains, such as national security, humanitarian aid, and conflict resolution, where insights into terrorism are essential. Ultimately, this project contributes to global efforts in counterterrorism, promoting data-driven decision-making, and enhancing security measures worldwide."

CHAPTER 2

SERVICES AND TOOLS REQUIRED

2.1 Services Used

- **Data Collection and Storage Services:** Ensure you have the Global Terrorism Dataset in a format compatible with Power BI. If it's stored in a storage service like Microsoft OneDrive, Google Drive, or Azure Blob Storage, make sure you have the necessary permissions to access it.

- **Data Processing Services:** Using Power BI for analyzing the Global Terrorism Dataset can provide insightful visualizations and trends. Are you looking for assistance with data processing services specifically tailored for Power BI integration?

2.2 Tools and Software used

Tools:

- **Power BI**: Install Power BI Desktop from the official Microsoft website if you haven't already.

- **Power Query**: Access to the Global Terrorism Dataset, which could be in various formats such as CSV, Excel, or a database. Power Query allows you to connect to different data sources.

Software Requirements:

- **Power BI Desktop**: If you haven't already, download and install Power BI Desktop from the official Microsoft website.

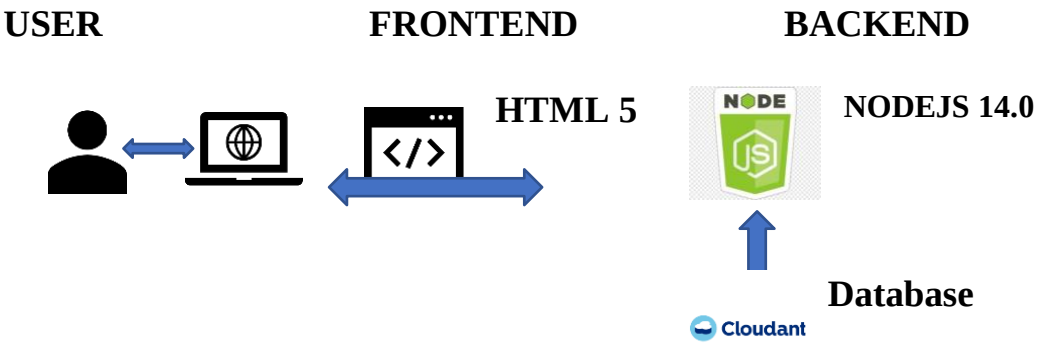
- **Power BI Service**: You'll need a Power BI service account to access reports from the Power BI cloud service. This is where your reports are hosted.

- **Power BI Mobile**: This is a mobile application that you can use to access your reports and dashboards on the go.

CHAPTER 3

PROJECT ARCHITECTURE

Architecture



1. *Data Collection:* The global terrorism dataset is collected from reputable sources such as the Global Terrorism Database (GTD) or governmental agencies. This data includes information on terrorist incidents, perpetrators, targets, and casualties, and is gathered through extensive research and reporting mechanisms.

2. *Data Preparation and Transformation:* Upon collection, the dataset undergoes rigorous preprocessing to address inconsistencies, missing values, and outliers. This ensures the data is clean and formatted correctly for analysis in Power BI. Transformation steps may include data normalization, feature engineering, and merging with supplementary datasets for enriched insights.

3. *Data Modeling:* The preprocessed dataset is imported into Power BI Desktop for further analysis. Data modeling techniques are employed to establish relationships between different tables within the dataset, enabling seamless navigation and exploration. Measures and calculated columns are defined to derive meaningful metrics and insights from the data.

4. *Data Analysis and Visualization:* Utilizing Power BI's suite of visualization tools, the global terrorism dataset is analyzed to uncover trends, patterns, and correlations. Visualizations such as heat maps, time series charts, and geospatial maps are employed to effectively communicate key findings. Interactive features such as filters and slicers enable users to drill down into specific regions, time periods, or attack types for deeper analysis.

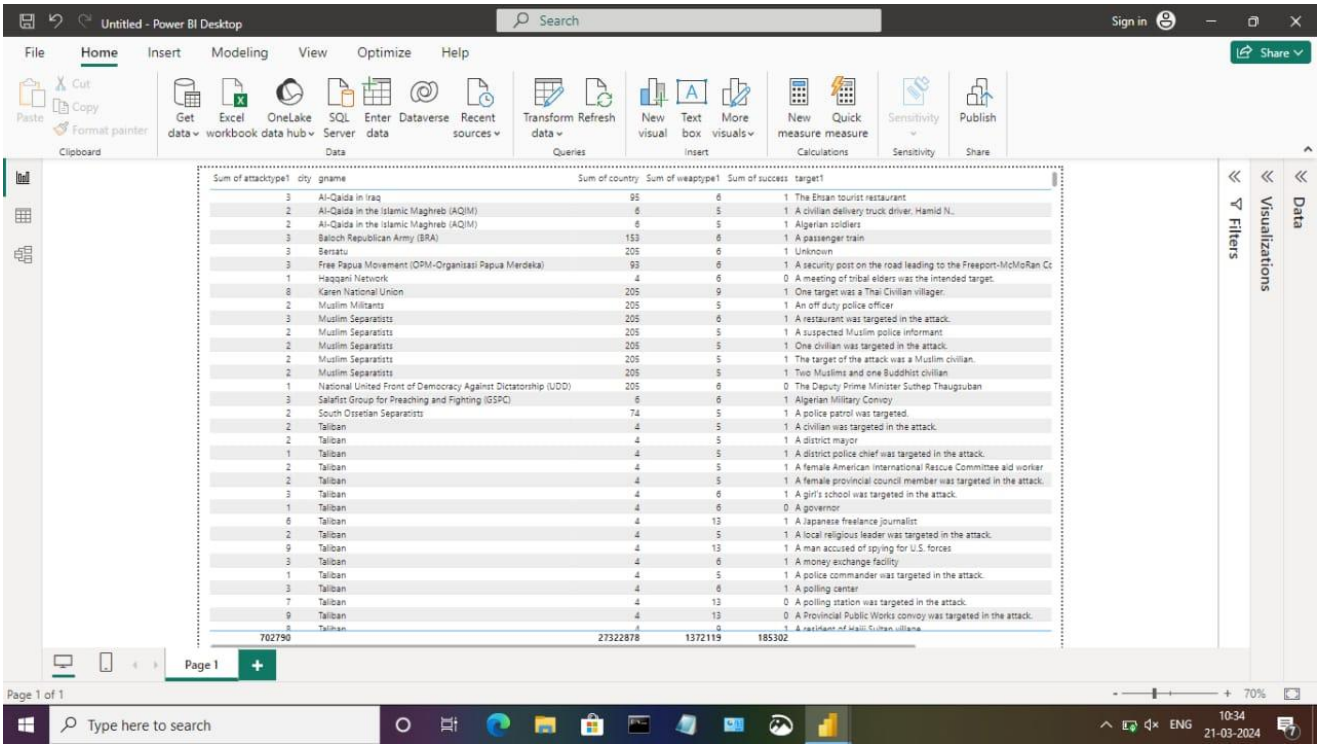
5. *Advanced Analytics (Optional):* For enhanced insights, advanced analytics techniques such as clustering, sentiment analysis, or time series forecasting may be applied within Power BI. Integration with external tools or programming languages like R or Python allows for custom analytics and machine learning models to be incorporated into the analysis pipeline.

6. *Deployment and Sharing:* The finalized dashboards and reports are published to the Power BI service for online access. Stakeholders and decision-makers can securely access the analysis from any device using Power BI Desktop, Power BI Service, or Power BI Mobile app. Granular access controls ensure that sensitive information is protected and only accessible to authorized users.

This architecture provides a robust framework for analyzing the global terrorism dataset using Power BI, enabling stakeholders to gain valuable insights into terrorist activities worldwide. However, it's essential to adapt the architecture to specific project requirements, existing infrastructure, and compliance with relevant data privacy and security regulations.

CHAPTER 4

MODELING AND RESULT



Sum of attacktype1	city	gname	Sum of country	Sum of weaptype1	Sum of success	target1
3		Al-Qaida in Iraq	95	6	1	The Ehsan tourist restaurant
2		Al-Qaida in the Islamic Maghreb (AQIM)	6	5	1	A civilian delivery truck driver, Hamid N..
2		Al-Qaida in the Islamic Maghreb (AQIM)	6	5	1	Algerian soldiers
3		Baloch Republican Army (BRA)	153	6	1	A passenger train
3		Bersatu	205	6	1	Unknown
3		Free Papua Movement (OPM-Organisasi Papua Merdeka)	93	6	1	A security post on the road leading to the Freeport-McMoRan Cc
1		Haqqani Network	4	6	0	A meeting of tribal elders was the intended target.
8		Karen National Union	205	9	1	One target was a Thai Civilian villager.
2		Muslim Militants	205	5	1	An off duty police officer
3		Muslim Separatists	205	6	1	A restaurant was targeted in the attack.
2		Muslim Separatists	205	5	1	A suspected Muslim police informant
2		Muslim Separatists	205	5	1	One civilian was targeted in the attack.
2		Muslim Separatists	205	5	1	The target of the attack was a Muslim civilian.
2		Muslim Separatists	205	5	1	Two Muslims and one Buddhist civilian
1		National United Front of Democracy Against Dictatorship (UDD)	205	6	0	The Deputy Prime Minister Suthep Thaugsuban
3		Salafist Group for Preaching and Fighting (GSPC)	6	6	1	Algerian Military Convoy
2		South Ossetian Separatists	74	5	1	A police patrol was targeted.
2		Taliban	4	5	1	A civilian was targeted in the attack.
2		Taliban	4	5	1	A district mayor
1		Taliban	4	5	1	A district police chief was targeted in the attack.
2		Taliban	4	5	1	A female American International Rescue Committee aid worker
2		Taliban	4	5	1	A female provincial council member was targeted in the attack.
3		Taliban	4	6	1	A girl's school was targeted in the attack.
1		Taliban	4	6	0	A governor
6		Taliban	4	13	1	A Japanese freelance journalist
2		Taliban	4	5	1	A local religious leader was targeted in the attack.
9		Taliban	4	13	1	A man accused of spying for U.S. forces
3		Taliban	4	6	1	A money exchange facility
1		Taliban	4	5	1	A police commander was targeted in the attack.
3		Taliban	4	6	1	A polling center
7		Taliban	4	13	0	A polling station was targeted in the attack.
9		Taliban	4	13	0	A Provincial Public Works convoy was targeted in the attack.
8		Taliban	4	9	1	A resident of Haji Sultan village
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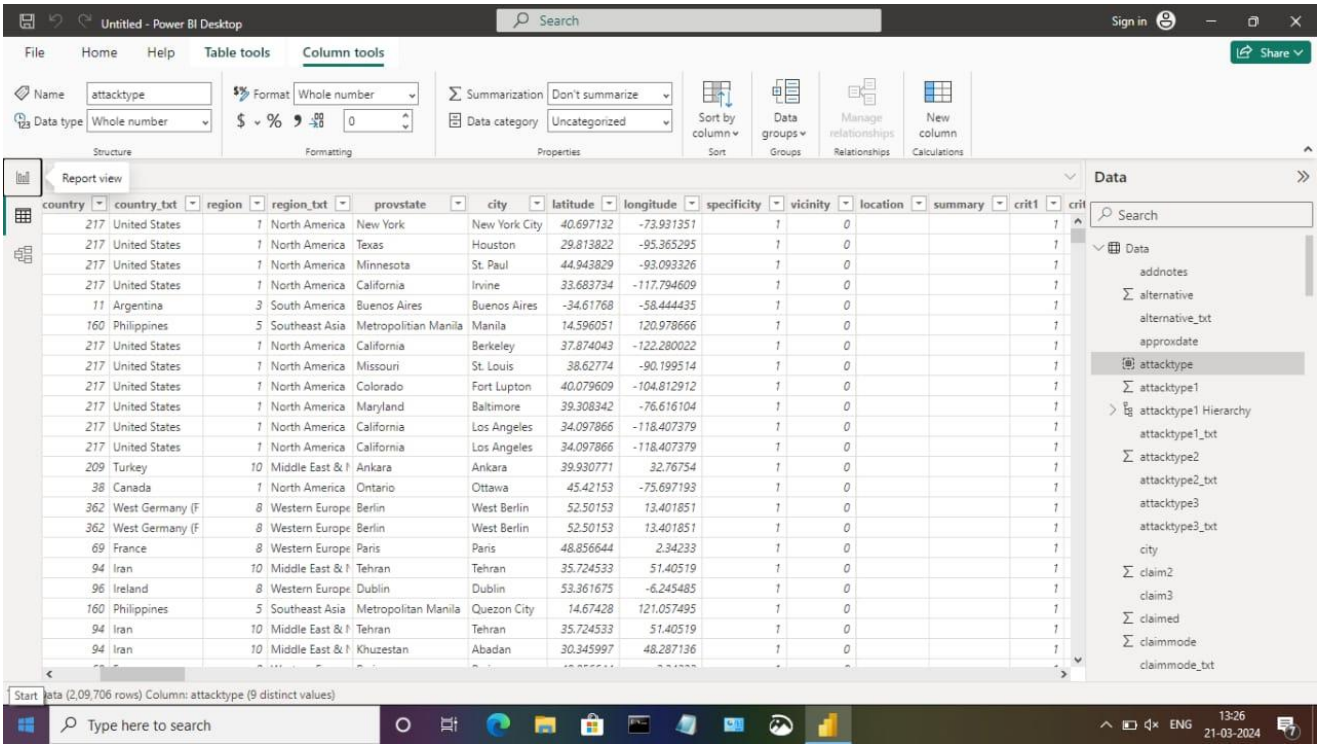
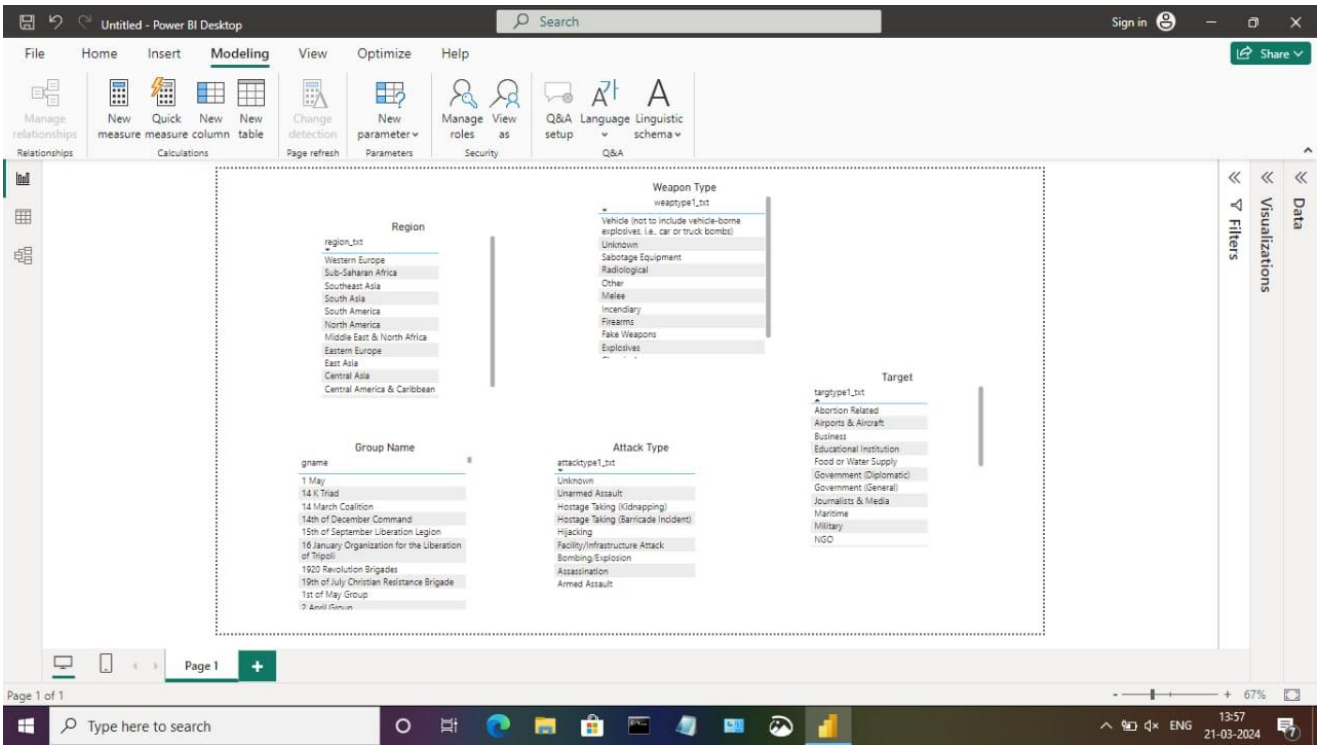
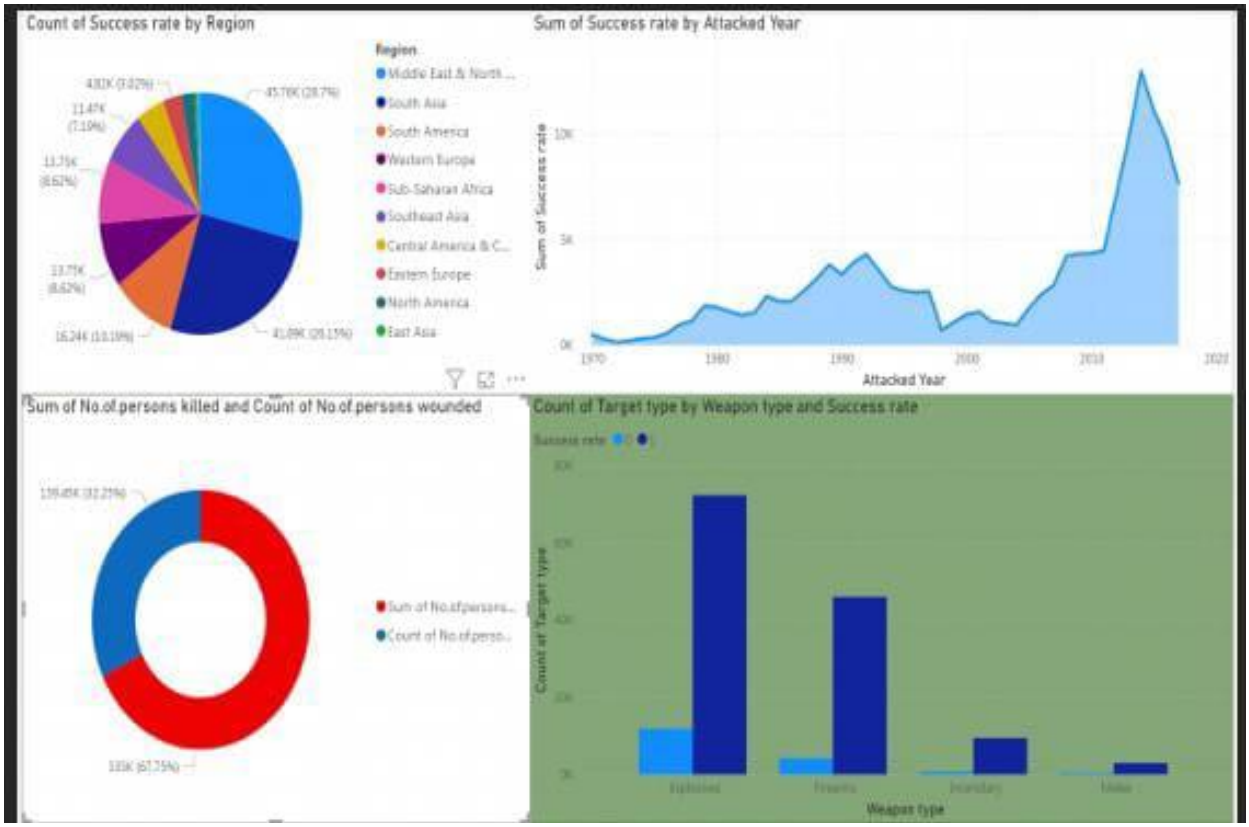




Dash board



CONCLUSION

"In conclusion, the analysis of the Global Terrorism Dataset using Power BI has provided valuable insights into patterns, trends, and hotspots of terrorism worldwide. This analysis can inform policymakers, security agencies, and researchers in making informed decisions and strategies to combat terrorism effectively. Additionally, it underscores the importance of leveraging data visualization tools like Power BI to understand complex phenomena such as terrorism comprehensively.

FUTURE SCOPE

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"Data import and transformation: Importing the dataset into Power BI and performing necessary data cleaning and shaping operations.

Visualization: Creating interactive visualizations like maps, charts, and graphs to represent trends, patterns, and relationships in the data.
Geographic analysis: Utilizing maps to visualize the geographical distribution of terrorist incidents.
Time-series analysis: Examining trends over time to identify temporal patterns in terrorist activities.
Descriptive statistics: Calculating summary statistics to understand the characteristics of terrorist incidents, such as frequency, severity, and duration.

REFERENCES

1. **https://www.youtube.com/live/kbe61N-qQ-s?si=sKebIm3unvQEsnkd**

2. **https://www.start.umd.edu/gtd/**

LINK

https://github.com/Saravanan-1906/Power-BI-Global-Terrorism-Dataset-Analysis-.git

