

DATA ANALYTICS WITH POWER BI

GLOBAL TERRORISM DATASET DIAGNOSIS USING POWER BI

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ABSTRACT

In today's volatile geopolitical landscape, understanding global terrorism trends is crucial for policy makers, analysts, and security professionals. This abstract presents an analysis of global terrorism using a dataset visualized through Microsoft power BI. The dataset encompasses a comprehensive range of variables, including geographical locations, attack types weapons used and casualties, spanning multiple years. This analysis aims to provide insights into the patterns, trends and underlying factors driving terrorists worldwide.

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CHAPTER 1

INTRODUCTION

PROBLEM STATEMENT:

The Global Terrorism Database is an open source database including information on terrorist events around world from 1970 through 2020. Unlike many other event databases, the GTD includes systematic on domestic as well as international terrorist incidents that have occurred during this time period and now includes more than 200,000 cases.

PROPOSED SOLUTION

Some general findings derived from the GTD involve the nature and distribution of terrorist attacks. Like about half of all terrorists attacks in the GTD are non lethal and although appromately one perfect of attacks involves 25 or more

fatalities, these highly lethal attacks killed more than 140,000 people in total between 1970 and 2018. The attacks in GTD are attributed to more than 2000 named perpetrator organizations and more than 700 additional generic groupings such as “Tamil separatists”.

FEATURES:

- **Real-Time Analysis:** The dashboard will provide real-time analysis of customer data.
- **Customer Segmentation:** It will segment customers based on various parameters like age, income, transaction behaviour, etc.
- **Trend Analysis:** The dashboard will identify and display trends in customer behavior.
- **Predictive:** It will use historical data to predict future customer behavior.

ADVANTAGES:

- 1. Interactive visualizations:** Power BI provides interactive and customizable visualizations that allow users to explore the data dynamically.
- 2. Comprehensive Analysis:** With power BI, users can analyze a wide range of variables such as geographical locations.
- 3. Integration with other tools:** Power BI seamlessly integrates with other Microsoft tools such as excel, azure and SQL server enabling users to leverage existing data infrastructure and enhance their analysis capabilities.

CHAPTER 2

SERVICES AND TOOLS REQUIRED

SERVICES USED:

- ❖ **Data collection and storage services:** Banks need to collect and store customer data in real time. This could be achieved through services like Azure Data Factory, Azure Event Hubs or AWS Kinesis for real time data collection, and Azure SQL data base or AWS RDS for data storage.
- ❖ **Data Processing Services:** Services like Azure Stream Analytics or AWS Kinesis Data analytics can be used to process the real time data.
- ❖ **Machine Learning Services:** Azure Machine Learning or AWS Sage Maker can be used to build predictive models based on historical data.

TOOLS AND SOFTWARE'S USED

TOOLS:

- ✚ **Power BI:** The main tool for this project is PowerBI, which will be used to create interactive dashboards for real time data visualization.
- ✚ **Power Query:** This is a data connection technology that enables you to discover, connect, combine and refine data across a wide variety of sources.

SOFTWARE REQUIREMENTS:

- ✓ **PowerBI Desktop:** This is a Windows application that you can use to create reports and publish them to PowerBI.
- ✓ **PowerBI Service:** This is an online SaaS service that you use to publish reports, create new dashboards and share insights.

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

CHAPTER 3

PROJECT ARCHITECTURE

1. Data Collection: collect data from reliable sources such as the Global Terrorism Database, government reports and academic studies.

2. Data Preparation: Transform the dataset as needed, including feature engineering, creating calculated columns and aggregating data to the desired granularity.

3. Data Modeling: Design a data model in PowerBI Desktop that establishes relationships between different tables in the dataset.

4. Security and Governance: Establishes governance policies for data access, sharing and refresh schedules.

5. User Training and Support: Provide training sessions or documentation to familiarize users with navigating and interpreting the reports.

CHAPTER 4

MODELING AND RESULTING

Manage relationship:

The “disp” file will be used as the main connector as it contains most key identifier which can be use to relates the 8 data files together. The “district “file is use to link the client profile geographically with “district id”

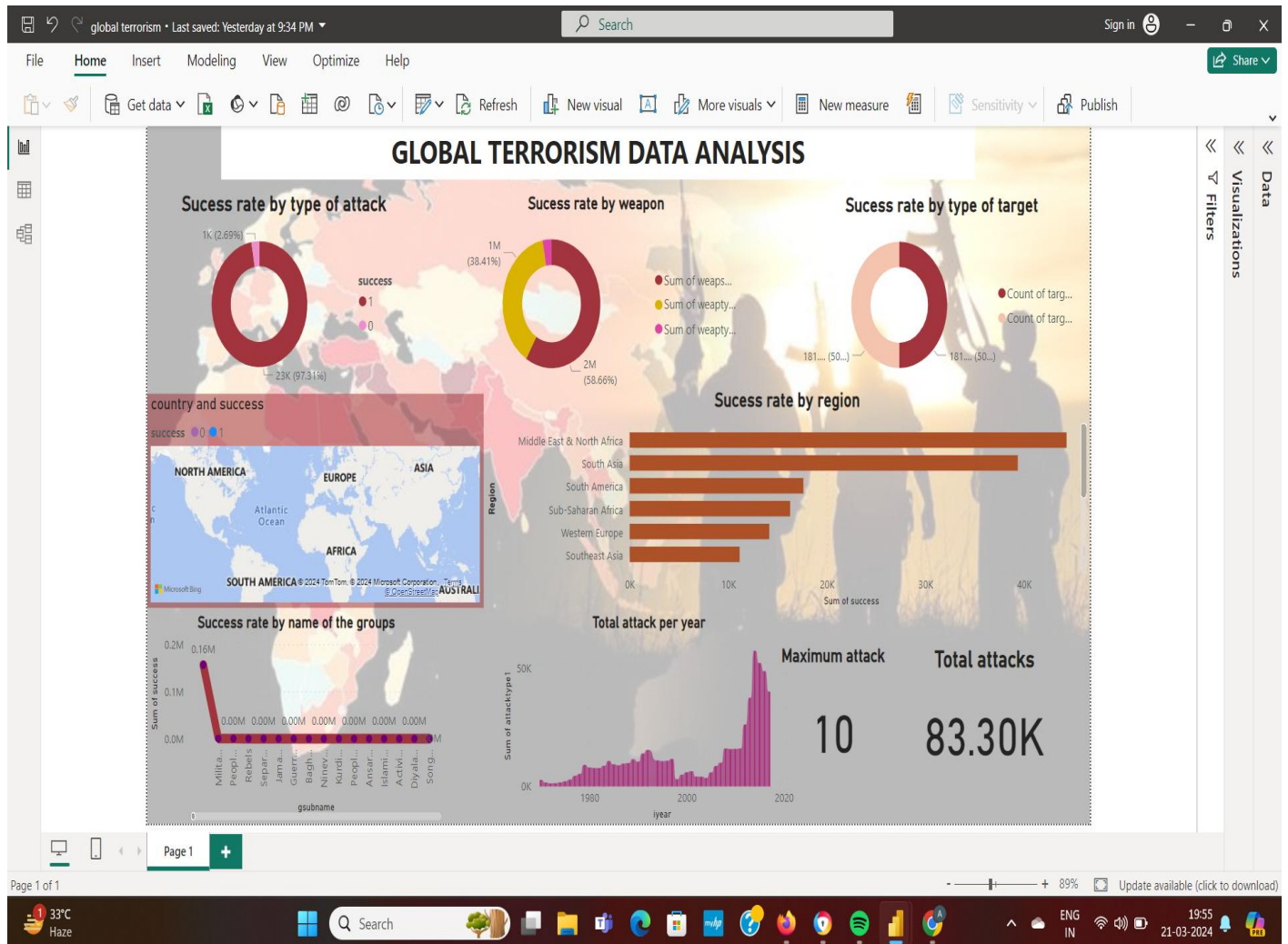
DATA SET:

eventid	year	imonth	iday	approxdate	extended	resolution	country	country_txt	region	region_txt	provstate	city	latitude	longitude	spec
197007070004	1970	7	7		0		217	United States	1	North America	New York	New York City	40.697132	-73.931351	
197007280002	1970	7	28		0		217	United States	1	North America	Texas	Houston	29.813822	-95.365295	
197009040001	1970	9	4		0		217	United States	1	North America	Minnesota	St. Paul	44.943829	-93.093326	
197010190001	1970	10	19		0		217	United States	1	North America	California	Irvine	33.683734	-117.794609	
197010200001	1970	10	20		0		11	Argentina	3	South America	Buenos Aires	Buenos Aires	-34.61768	-58.444435	
197011220001	1970	11	22		0		160	Philippines	5	Southeast Asia	Metropolitan Manila	Manila	14.596051	120.978666	
197102270001	1971	2	27		0		217	United States	1	North America	California	Berkeley	37.874043	-122.280022	
197103080004	1971	3	8		0		217	United States	1	North America	Missouri	St. Louis	38.62774	-90.199514	
197103090001	1971	3	9		0		217	United States	1	North America	Colorado	Fort Lupton	40.079609	-104.812912	
197103270002	1971	3	27		0		217	United States	1	North America	Maryland	Baltimore	39.308342	-76.616104	
197105110002	1971	5	11		0		217	United States	1	North America	California	Los Angeles	34.097866	-118.407379	
197106260001	1971	6	26		0		217	United States	1	North America	California	Los Angeles	34.097866	-118.407379	
197201170004	1972	1	17		0		209	Turkey	10	Middle East & N	Ankara	Ankara	39.930771	32.76754	
197204040001	1972	4	4		0		38	Canada	1	North America	Ontario	Ottawa	45.42153	-75.697193	
197204230001	1972	4	23		0		362	West Germany (F	8	Western Europe	Berlin	West Berlin	52.50153	13.401851	
197205040002	1972	5	4		0		362	West Germany (F	8	Western Europe	Berlin	West Berlin	52.50153	13.401851	
197205250004	1972	5	25		0		69	France	8	Western Europe	Paris	Paris	48.856644	2.34233	
197205310006	1972	5	31		0		94	Iran	10	Middle East & N	Tehran	Tehran	35.724533	51.40519	
197206100001	1972	6	10		0		96	Ireland	8	Western Europe	Dublin	Dublin	53.361675	-6.245485	
197207140001	1972	7	14		0		160	Philippines	5	Southeast Asia	Metropolitan Manila	Quezon City	14.67428	121.057495	
197208140001	1972	8	14		0		94	Iran	10	Middle East & N	Tehran	Tehran	35.724533	51.40519	
197208230001	1972	8	23		0		94	Iran	10	Middle East & N	Khuzestan	Abadan	30.345997	48.287136	
197212230001	1972	12	23		0		69	France	8	Western Europe	Paris	Paris	48.856644	2.34233	
197304240001	1973	4	24		0		217	United States	1	North America	Puerto Rico	San Juan	18.386932	-66.061127	
197304240002	1973	4	24		0		217	United States	1	North America	Puerto Rico	San Juan	18.386932	-66.061127	
197305050001	1973	5	5		0		136	Morocco	10	Middle East & N	Casablanca	Casablanca	33.59	-7.61	
197307250002	1973	7	25		0		43	Chile	3	South America	Santiago Metropolita	Santiago	-33.366238	-70.505302	
197308120001	1973	8	12		0		59	Ecuador	3	South America	Guayas	Guayaquil	-2.170832	-79.922359	
197308150001	1973	8	15		0		43	Chile	3	South America	Santiago Metropolita	Santiago	-33.366238	-70.505302	

DATA MODELLING:

The screenshot displays the Microsoft Power BI Desktop application. The top ribbon includes 'File', 'Home', and 'Help' tabs. The 'Home' tab is selected, showing icons for data manipulation. A search bar is located in the top right corner. The main workspace area is empty. On the right side, the 'Properties' pane is open, showing settings for 'Cards'. The 'Data' pane is also visible, showing a search bar and a list of tables. A context menu is open over the workspace, listing fields like 'addnotes', 'alternative', 'alternative_txt', 'approxdate', 'attacktype1', 'attacktype1_txt', 'attacktype2', 'attacktype2_txt', and 'attacktype3'. The bottom status bar shows 'All tables' and a zoom level of 100%.

DASH BOARD:



CONCLUSION:

Based on the Global Terrorism dataset

Diagnosis using Power BI, the conclusion could involve identifying trends, hotspots, and patterns in terrorist activities. This could include insights on geographical regions most affected, types of attacks prevalent, perpetrators involved, and the effectiveness of counter-terrorism measures. Recommendations could be made based on the analysis to enhance security measures, allocate resources efficiently, and develop strategies to combat terrorism effectively.

FUTURE SCOPE:

The future scope of global terrorism dataset diagnosis using Power BI is quite promising. With the growing concern over terrorism globally, there is an

increasing need to analyze and understand the patterns and trends of these terrorist activities. This is where Power BI can be very helpful. By leveraging its advanced data visualization and analysis tools, Power BI can help in identifying patterns, trends, and relationships between different variables that can provide insights into terrorist activities. For instance, using Power BI, it is possible to analyze the frequency of terrorist attacks over time, study the geographical distribution of these activities, and identify the most vulnerable targets, among other things. Furthermore, the use of interactive dashboards and reports with drill-down capabilities can facilitate faster and easier analysis of the complex datasets involved in understanding global terrorism.

REFERENCE:

<https://www.kaggle.com/datasets/START-UMD/gtd>

LINK:



