Global Terrorism Analysis: Data Visualization Report

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Tool Used: Tableau & Power BI
Dataset: Global Terrorism Database (region_05.csv)

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1. Design Choices for Each Visualization

Tableau

1.1 Global Terrorism Heatmap

- **Design:** Used a filled map colored by incident count aggregated by country and year.
- **Why:** Geographical spread of terrorism is best visualized on a map to reveal hotspots.
- **Interactive Filter:** A year slider allows users to explore changes over time.

1.2 Top 10 Terrorist Groups Over Time

- **Design:** Stacked area chart of top 10 groups' activity by year.
- **Why:** Area chart highlights growth/decline of group activities over decades.
- **Interactive Filter:** Tooltip and color-coded areas identify each group.

1.3 Attack Types and Casualties (Scatter Plot)

- **Design:** nkill on X-axis, nwound on Y-axis, colored by attack type, sized by total casualties.
- **Why:** Scatter plot clearly shows severity and type of high-casualty events.

1.4 Monthly Trend Dashboard

- **Design:** Combined line chart (incidents over months), bar chart (top attack types), and a table (top 5 countries).
- **Why:** Offers a multi-dimensional view of trends and patterns.
- **Interactivity:** Cross-filtering allows slicing all elements together.

Power BI

2.1 Geospatial Analysis of Attacks

- **Design:** Bubble map using latitude and longitude; bubble size = total casualties.
- **Why:** Helps visualize intensity and location of attacks.
- **Interactivity:** Region and year slicers filter the map dynamically.

2.2 Terrorist Group Comparison

- **Design:** Multi-row cards displaying Total Attacks, Total Casualties, and Success Rate for top 5 groups.
- **Why:** Offers clear at-a-glance comparisons of group metrics.
- **Slicer:** Year timeline allows temporal comparison.

2.3 Weapon Type Analysis

- **Design:** Treemap using weapon types, colored by lethality (casualties), with drill-down to subtypes.
- **Why:** Treemap shows hierarchical structure and relative severity.

2.4 Target Analysis Dashboard

- **Design:** Donut chart (target type share), bar chart (casualties by target type), and table (top specific targets).
- **Why:** Multiple views support insight into what kinds of targets are attacked.
- **Bookmark:** Allows toggling between visual layouts.

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2. Key Insights

- **Terrorism is regionally concentrated**, especially in South Asia and the Middle East.
- **Groups like Taliban, ISIS, and Boko Haram** are responsible for the majority of high-casualty attacks.
- **Explosives and firearms** are the most lethal weapon types.
- **Civilians, military, and police** are the top targets.
- **Seasonality and spikes** in activity are observable during specific years or months (e.g., 2014).

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3. Challenges Faced & Solutions

Challenge	Solution
Missing values in nkill, nwound	Used COALESCE and ZN() to treat nulls as zero
Map visual not working in Power BI	Enabled it in Security Settings; used Azure Map as backup
Drill-down in Treemap	Created hierarchy and activated drill buttons

Challenge	Solution
Bookmark not toggling views	Used Selection pane + Bookmark pane with "Display" setting only

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4. How to Interact With the Visualizations

In Tableau

- **Heatmap:** Use the **year slider** to filter the map.
- **Area Chart:** Hover over stacked areas to view incident count per group per year.
- **Scatter Plot:** Hover on points to see attack type, casualties, and summary.
- **Dashboard:** Use line chart or bar chart to cross-filter the table.

In Power BI

- **Map:** Click on a region or use the **year/region slicers** to filter bubbles.
- **Card View:** Use **timeline slicer** to see group activity changes over time.
- **Treemap:** Click on a weapon type to **drill into subtypes**.
- **Target Dashboard:** Use **buttons** to toggle between Donut+Bar view and Table view using **Bookmarks**.

End of Report