**IFT 533: Data Visualization and Reporting for IT**

**Prof Dr. Asmaa**

**Project - Phase II: Decision Making**

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**Section 1: Used Visualization Tools (1 point)**

Tableau is a widely adopted and highly effective data visualization tool for a variety of reasons. Its user-friendly interface and drag-and-drop functionality make it accessible to both technical and non-technical users, allowing for efficient and intuitive creation of compelling visualizations. Tableau supports a wide range of data sources, enabling users to seamlessly connect to various datasets and analyse them in real-time. The tool offers a diverse set of visualization options, from simple bar charts to intricate dashboards, empowering users to convey complex insights in a visually appealing and easily understandable manner. Furthermore, Tableau's interactive features enable users to explore data dynamically, fostering a more exploratory and insightful data analysis process. The tool's ability to handle large datasets and its robust integration capabilities make it an asset for organizations seeking to derive meaningful insights and make data-driven decisions. Overall, Tableau stands out as a powerful and versatile data visualization tool that enhances data analysis and communication.

**Section 2: Explanation of Required Data Pre-processing, if any (2 points)**

No pre-processing of the data is required for the chosen dataset.

**Section 3: List of Final Sets of Questions (20 points)**

1. What are the locations of events that have happened in a particular region?
2. Which set of regions which have the most civilian violences in the 21st Century?
3. What is the trend of occurrences of protests and riots before and after COVID-19 across the globe?
4. What are the events and fatalities caused by different militant organizations in various countries?
5. Which actors are involved in North America region?
6. What is your analysis of the events and the fatalities that took place in a various region?
7. What are the safest countries to travel to in Southeast Asia?
8. How has the number of conflict events changed over time?
9. What is the distribution of events by event type?
10. What is the frequency of militant group-induced explosions in Europe?

**Section 4: Dashboard Plots (10 points)**

1. I've utilized latitude and longitude coordinates to map the locations of events within a specific region, filtering the data by region and counting occurrences (CNT) on Sheet1. The visual representation is based on marks corresponding to different event types.

The map employs geographic coordinates to pinpoint event locations, with latitude and longitude serving as the spatial axes. The color and shape of the marks signify distinct event types. This spatial visualization effectively conveys the distribution and types of events within the specified region, providing a comprehensive view of the geographical patterns of occurrences.

A map of africa with red and blue dots

Description automatically generated

1. I've created a geographical visualization to identify the safety levels of countries in Southeast Asia. The average longitude and latitude are plotted on the columns and rows, respectively, with the region serving as a filter. The marks on the map are represented by the sum of fatalities and the count of event types for each country.

This visual representation allows for a spatial assessment of safety, with color and size of the marks indicating the severity of events. By associating the geographic coordinates with the cumulative fatalities and event counts, this visualization offers insights into the safety landscape across Southeast Asian countries.

A screenshot of a computer

Description automatically generated

1. I've designed a visualization to pinpoint the regions with the highest incidence of civilian violence in the 21st century. The regions and the sum of fatalities are plotted, with event type filtered specifically for violence. The year serves as an additional filter, allowing for a dynamic exploration of the data over time.

This visual representation provides a clear overview of the regions that have experienced the most civilian violence, highlighting the severity of incidents through the cumulative fatalities. The event type filter ensures a focused analysis on violence, contributing to a more nuanced understanding of the patterns and trends over the years.

A screenshot of a computer

Description automatically generated

1. I've constructed a visual narrative to depict the trends in occurrences of protests and riots globally before and after COVID-19. In the first sheet covering the years 1997-2018, the columns and rows represent the count (CNT) of event types, specifically protests, and riots. The filters applied include event type and year, focusing on the period before the pandemic.

In the second sheet spanning 2019-2023, the visualization is structured similarly, allowing for a direct comparison with the earlier period. The same event type and year filters are applied to capture the trends post-COVID-19.

This dual-sheet approach facilitates a comprehensive exploration of how the frequency of protests and riots has evolved over time, providing insights into any notable shifts or patterns before and after the emergence of COVID-19.

A screenshot of a computer

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A screenshot of a computer

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1. I have created a comprehensive visualization to examine events and fatalities caused by various militant organizations across different countries. The columns represent different militant groups under the "Actor1" category, and the rows depict the sum of fatalities. The data is filtered by country, and the marks are distinguished by event type.

This visual representation offers a detailed overview of the impact of different militant organizations, presenting both the number of events and the associated fatalities. By organizing the data in this way and filtering it by country, the visualization allows for a nuanced exploration of the activities of distinct militant groups and their consequences across various nations.

A screenshot of a computer

Description automatically generated

1. I've designed a visualization to identify the actors involved in North America, considering the count of events (CNT) with region as both columns and rows. The data is filtered using the aggregate max filter, focusing on the maximum value. The marks on the visualization represent Actor1.

This visual representation allows for a clear identification of actors involved in events within the North America region, providing insights into the diversity and frequency of these actors in the specified geographical area. The aggregate max filter enhances the visualization by highlighting the maximum values for a more focused analysis.

A screenshot of a computer

Description automatically generated

1. I have created a comprehensive visual analysis to explore events and fatalities across various regions. The columns represent the count of events (CNT) and the sum of fatalities, with the rows mirroring the same information. The data is filtered by disorder type, allowing for a more specific exploration of events and fatalities based on the nature of the disorder.

This visual representation facilitates an in-depth analysis of the relationships between the count of events, fatalities, and the types of disorders across different regions. The filtering by disorder type provides a nuanced view, allowing for targeted insights into the patterns and trends associated with various types of events in each region.

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1. I have made use of a line graph to visually represent the changes in the number of conflict events over time. The dataset attributes include Year (Ordinal) and Event Type (Categorical). The X-axis is organized by years, and the Y-axis depicts the number of occurrences for each event type. By employing pre-attentive attributes like length and colour, the graph provides a clear and concise overview of the trends. The legend associate’s colors with specific event types, enhancing the interpretability of the visualization.

A screenshot of a computer

Description automatically generated

1. I used a bar chart to depict the distribution of events by event type, utilizing "Event Type" as a categorical variable and its count as a ratio. The X-axis represents event types, while the Y-axis shows the number of occurrences. The bar chart employs length and colour for clear differentiation, providing a concise and effective visualization of event distribution.

A screenshot of a computer

Description automatically generated

1. I've used a choropleth map to illustrate the frequency of militant group-induced explosions in Europe, employing attributes like Event Type, count of events, Region, Country, and geographical coordinates (Latitude and Longitude). The map utilizes colour intensity and position to highlight variations, with Latitude on the X-axis and Longitude on the Y-axis for a concise, geospatial representation of the data.

A screenshot of a computer

Description automatically generated

**Section 5: Dashboard Interactivity (4 points)**

Interactivity: The third chart features a legend that assigns distinct colors to specific event types; for instance, Explosions/Remote Violence is denoted in blue. Additionally, on the same sheet, a dropdown menu for country selection has been incorporated, allowing users to filter the data dynamically. This interactive feature empowers users to choose single or multiple countries, facilitating a focused exploration of the data and providing a more tailored and insightful analysis.

The line graph with a coloured legend is used to depict temporal trends and relationships among different event types. It is not directly connected to other plots. The choropleth map, with a colour intensity filter, displays the geographical distribution of explosions. The filter, loaded from the count of events attribute, allows interactive exploration of explosion quantities across regions.

**Section 6: References (3 points to each student)**

* Dataset Link: [Armed Conflict Location & Event Data Project (ACLED)](https://acleddata.com/)
* Team's Mural Link: [Team Mural](https://app.mural.co/t/ift533dv7772/m/ift533dv7772/1699476534844/50dd7e2dc7d0ed3e735ecd922c6964c71cee347a?sender=u3335f695051373ad535c3764)