



IS428 VISUAL ANALYTICS FOR BUSINESS INTELLIGENCE

Web Application User Guide



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This document details the steps required to explore the web visualization application

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Introduction

With the rise in terrorism threats, our aim is to allow respective policy makers, government or intelligence agencies identify the target victims of these terrorist attacks and establish correlations between the political climate of each country and the number of attacks that took place. Vigilante is an interactive visual analytics web application that aims to help policy makers, government or intelligence agencies visually discover interesting patterns that could help them in devising policies to reduce the occurrence of terrorist attacks.

With the rapid changes in the globalized world, the dataset that we extracted is within the year of 2000 to 2015 as we believed it will be more relevant and adequate to help analysts spot trends/patterns of terrorist activities.

Throughout this document, useful guides/tips are provided to help analysts navigate through the different filters and actions so that their analysis can be performed smoothly. Additionally, users should be able to perform the following analysis using our visualization application:

1. Identify the target victims of terrorist attacks across countries
2. Explore each country's existing political climate
3. Compare the political climate of each country
4. Establish possible correlations of a country's political climate with the number of terrorist attacks happening in a country

1. Pre-Requisites and Setup of Web Application

To run the web application, you will need to have the following installed on your machine:

- A Web Browser (suggested: Google Chrome)
 - Local Server (suggested: WAMP Server)
1. Unzip and place the packaged zip file (Codes/Team_Vigilante.zip) into the "www" folder where WAMP is installed (usually it can be found in the following directory: C:/wamp64/www)
 2. Run the local server.
 3. Open the web browser and navigate to the following URL: localhost/Team_Vigilante/web/index.html
 4. For the best experience, adjust your screen resolution to **1366x768** and note that this application is best viewed on **Google Chrome, full-screen mode**. You will then be able to view the homepage and begin the exploration.

Additional Help & Information – Across the visualization application, tooltips and information icons help to provide contextual knowledge and information on the selection and terms used in the charts. If required, click on these icons to get help on definitions of technical terms used. Also, the "About" page provides a good platform for one to understand more about the project information.

2. View of Homepage

The home page (Figure 1) introduces analysts to the topic of terrorism and the objectives of the visualization project.

1. Navigation Elements - Upon clicking “Explore” button, analysts will then begin their exploration process.

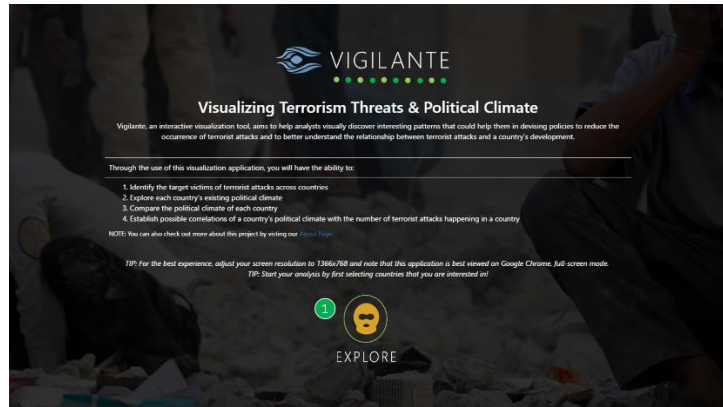


Figure 1 View of Homepage

3. View of Terrorist Attacks Geographically

In the second page, the choropleth map shows the geographical distribution of deaths caused by terrorist attacks based on different year and act as a main filter for analysts to select their countries of interest.

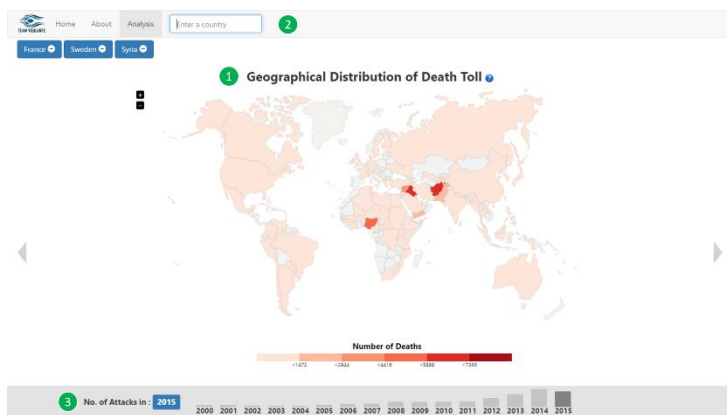


Figure 2 View of Terrorist Attacks Geographically

1. Selection of Countries Using Choropleth Map - Analysts can use the world map as a selection criterion to add countries of interest into a list to help them in their next phase of exploration. They can do so by clicking on the country.

2. Selection of Countries Using Auto-Complete Field - Alternatively, analysts can also use the auto-complete field located in the menu bar to add the choice of their countries into the list as well.

2. View and Filter Countries Based On Year - By default, 3 countries will be selected for analysts to begin their exploration. The bar chart at the bottom of the page shows the number of terrorist attacks that took place across all countries for the particular year. Analysts can click on the year to view the distribution of attacks for the selected countries.

To navigate to the next phase of analysis, analysts can click on the left arrow key on the keyboard or on the application interface.

4. View of Target Victims and Country's Political Climate

In the next phase of the exploration, data will be displayed based on the year and countries that analysts have selected previously. This web page allows users to identify the target victims of terrorist attacks and establish linkages between how well a country is governed and the attacks in a country.

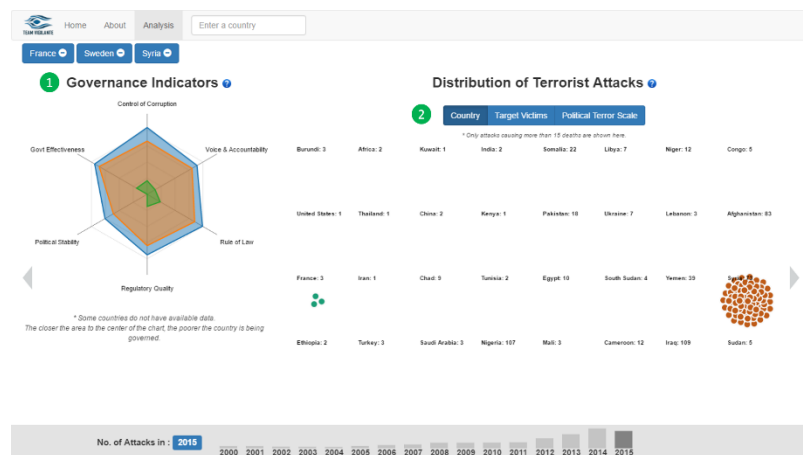


Figure 3 View of Target Victims and Country's Political Climate

1. **View Governance Level of Countries** – Analysts will be presented with a comparison of 6 different governance indicators (e.g. Control of Corruption, Government of Effectiveness, Political Stability, Regulatory quality, Rule of Law, and Voice and Accountability) that defines how well a country is governed. The closer the area is to the center of the chart, the less well governed the country is. Upon mouse-over of each area, one can also retrieve the exact numerical values of each governance indicator for detailed analysis. Refer to Appendix A for a detailed explanation of each governance indicator.

2. **Re-express Distribution of Terrorist Attacks** – Analysts will be presented with multiple bubbles to understand more information about terrorist attacks. Each bubble in the bubble plot represents an attack. Whenever the analyst hover over each bubble, they can see more information about each attack and this helps to bring context in their data exploration phase.

Moving forward, the 3 main attributes that analysts can explore are – **Country, Target Victims and Political Terror Scale.**

- I. By selecting the **Country**, the analyst can better visualize the attacks that took place in each country and contrast it with the data presented in the star chart.
- II. By selecting the **Target Victims**, the analyst can identify the most common targets of these terrorist attacks that had taken place. This will bring analysts further in the data exploration, especially if there is a large number of attacks targeting at certain groups of people.
- III. By selecting the **Political Terror Scale**, the analyst can look at the count of attacks in each scale, and contrast information with the star chart to identify interesting patterns. Refer to Appendix B, for the interpretation of the different level of political terror scale.

Similarly, to the previous page, the menu bar will allow analysts to add their countries of interest into the list and the bar chart at the bottom of the page will allow analysts to select the year to show the distribution of attacks that took place for all selected countries.

Finally, by looking at both charts, the analyst will then be able to compare and establish possible linkages between how well a country is governed and the number of terrorist attacks that took place in the country.

-- END OF USER GUIDE --

APPENDIXES

Appendix A – Explanation of Governance Indicators

Indicator	Explanation
Control of Corruption	Measures perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as "capture" of the state by elites and private interests.
Government Effectiveness	Measures perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies.
Political Stability	Measures perceptions of the likelihood of political instability and/or politically-motivated violence, including terrorism.
Rule of Law	Measures perceptions of the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence.
Regulatory Quality	Measures perceptions of the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development.
Voice and Accountability	Measures perceptions of the extent to which a country's citizens are able to participate in selecting their government, as well as freedom of expression, freedom of association, and a free media.

Appendix B - Political Terror Scale

Level	Explanation
1	Countries under a secure rule of law, people are not imprisoned for their views, and torture is rare or exceptional. Political murders are extremely rare.
2	There is a limited amount of imprisonment for nonviolent political activity. However, few persons are affected, torture and beatings are exceptional. Political murder is rare.
3	There is extensive political imprisonment, or a recent history of such imprisonment. Execution or other political murders and brutality may be common. Unlimited detention, with or without a trial, for political views is accepted.
4	Civil and political rights violations have expanded to large numbers of the population. Murders, disappearances, and torture are a common part of life. In spite of its generality, this level of terror affects those who interest themselves in politics or ideas.
5	Terror has expanded to the whole population. The leaders of these societies place no limits on the means or thoroughness with which they pursue personal or ideological goals.