IS428: Visual Analytics for Business Intelligence

(User Guide for Shiny App)

Group: G1T10

Project: Global Terrorism Acts

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Table of Contents

1.0 Navigation Bar
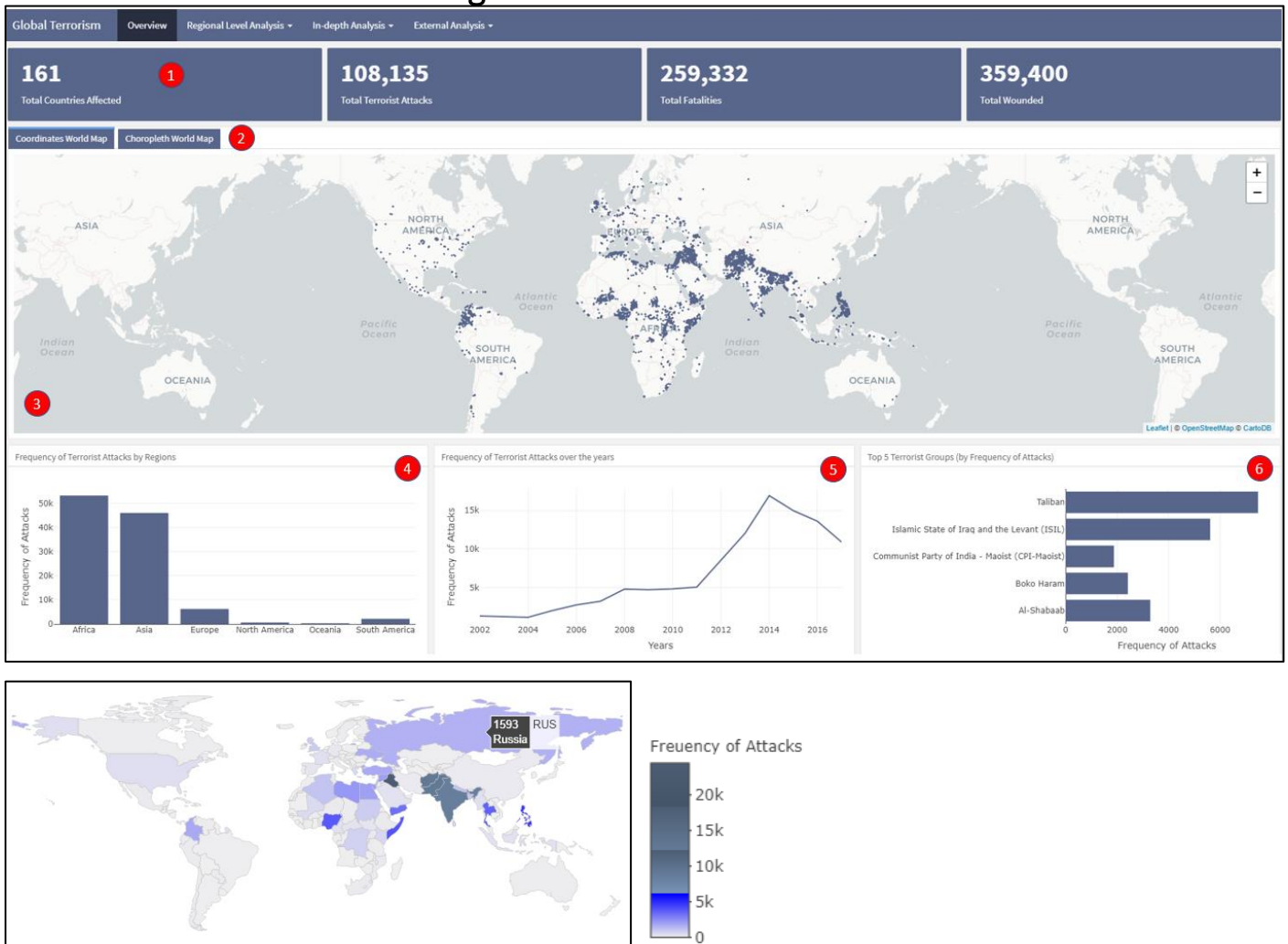

Our Shiny application comprises of **4 main tabs:**

1. **Overview** – This page aims to show users a high-level overview or summary of Global Terrorism Acts.

2. **Regional Level Analysis** – This page aims to show Global Terrorism Acts at a regional level (Asia, Africa, Europe, South/North America, Oceania.)
   a. **World Map:** Users can interact and view global terrorism acts on a world map
   b. **Time Series:** Users can interact and view global terrorism acts along the years.

3. **In-Depth Analysis** – This page aims to provide users an in-depth analysis of Global Terrorism Acts.
   a. **Terrorism by Country:** Users can visualize global terrorism acts pertaining to a specific country
   b. **Terrorist Groups:** Users can visualize global terrorism acts pertaining to a specific terrorist group

4. **External Analysis – GNI:** Users can visualize global terrorism act by the Gross National Index (GNI) of countries (Less Developed, Developing and Developed countries)
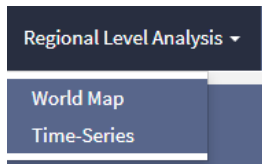
1.1 "Overview" Dashboard Page

In the **"Overview"** dashboard page, users are able to gain an overview insight about Terrorism on a whole across the world, with the various statistics visualizations.
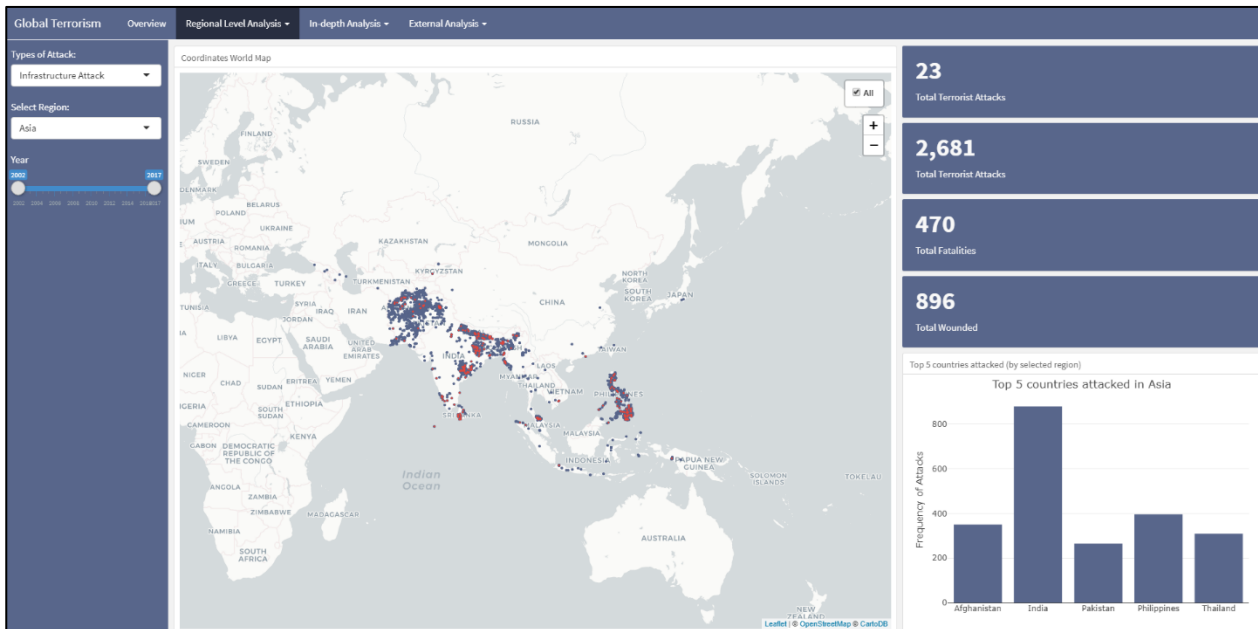
1. **Value Boxes:** The 4 value boxes show the aggregated sum of "Total Countries affected", "Total Terrorist Attacks", "Total Fatalities" and "Total Wounded" by terrorist attacks.
2. **World Map Tabs:** Users can choose between the Coordinates World Map Tab or Choropleth World Map tab to have a different map view.
3. **World Maps:** There are 2 world maps, the first (Coordinates World Map) displaying the spread and location of terrorist attacks throughout the world which are represented by data points on the map. The second map (Choropleth World Map), is an interactive map showing the number of attacks in that country in the tooltip when users hover over. The colour scale represents the frequency of terrorist attacks.
4. **Bar Chart:** Displays the frequency of terrorist attacks across the various regions. Users can hover over to see the exact numbers.
5. **Time Series:** Displays the frequency of terrorist attacks over the years (2002 – 2017). Users can hover over to see the exact numbers.
6. **Bar Chart (2):** Displays the top 5 terrorist groups based on frequency of attacks. Users can hover over to see the exact numbers.
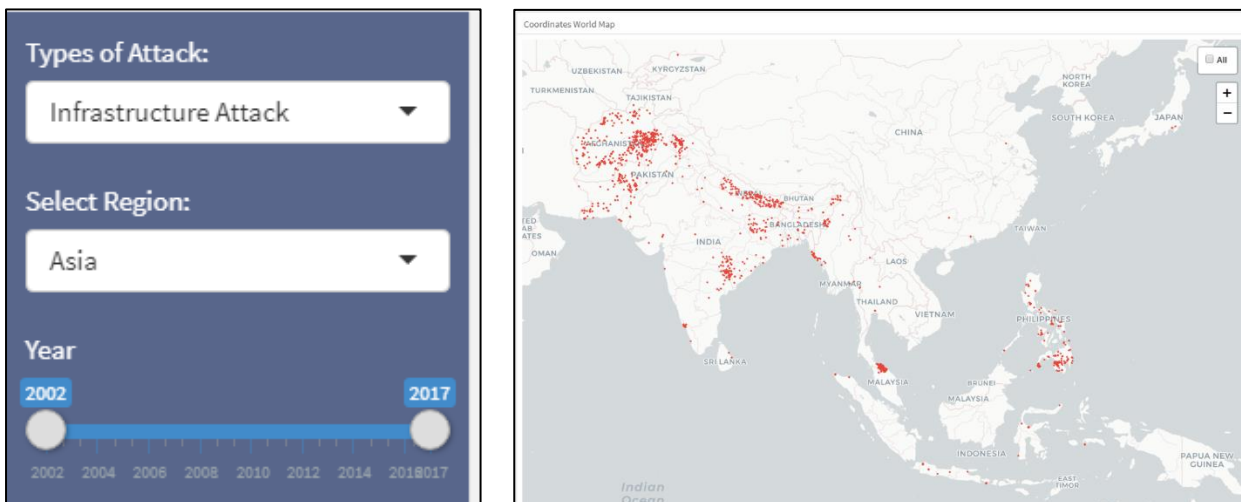
2.0 Regional Level Analysis

Under this level of analysis, we have 2 pages – **World Map** and **Time Series**.

2.1 World Map

In the **"World Map"** Dashboard page, users are able to view the location and spread of terrorist attacks, similar to the Coordinates World Map from the Overview page, but with the ability to be fine-tuned to view these attacks by region, attack type and year.

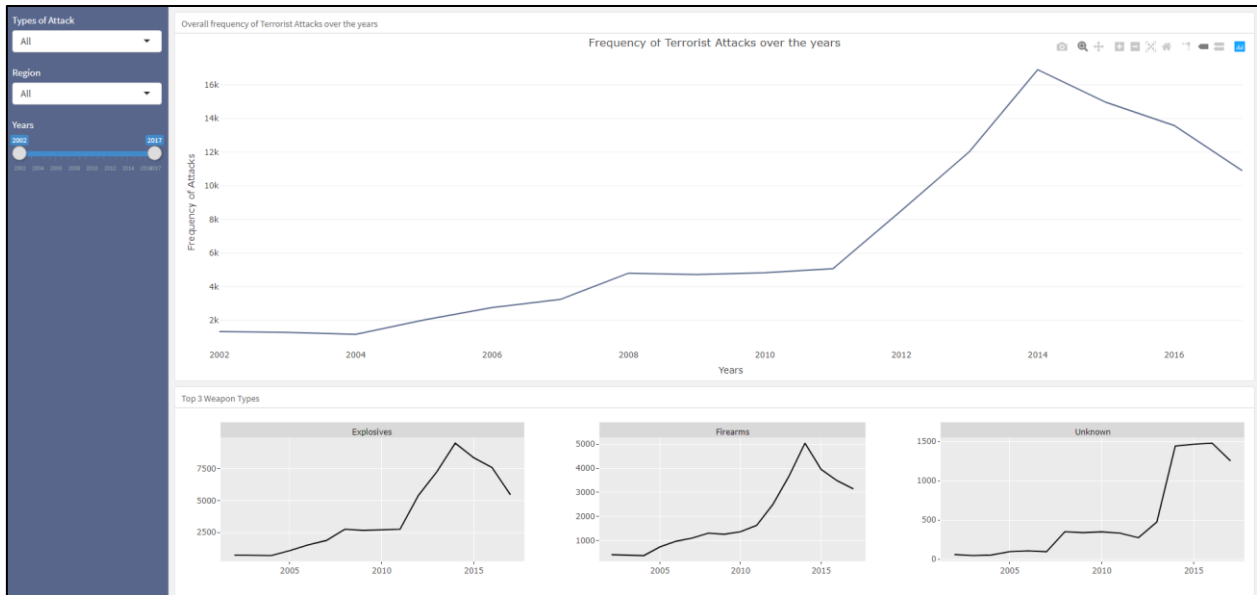Users are able to interact with the map with the 3 filters:

1. **Types of Attack:** Selection of attack type will generate a second layer of points plotted on the map, the red dots. An example of this can be seen in the above screenshot, where users are able to see the proportion of terrorist attacks in the world attributed to the selected attack type. On the top right-hand corner of the world map, there is an "All" checkbox, that allows for the base layer of all the attacks to be removed from the map plot, leaving only the plot with red dots (screenshot at the bottom of the page). This will allow the user to see the geographical spread of the attacks for this specific attack type.

2. Select Region: User is able to select the region of interest, and the map will refresh accordingly to reflect the data from the selected region.

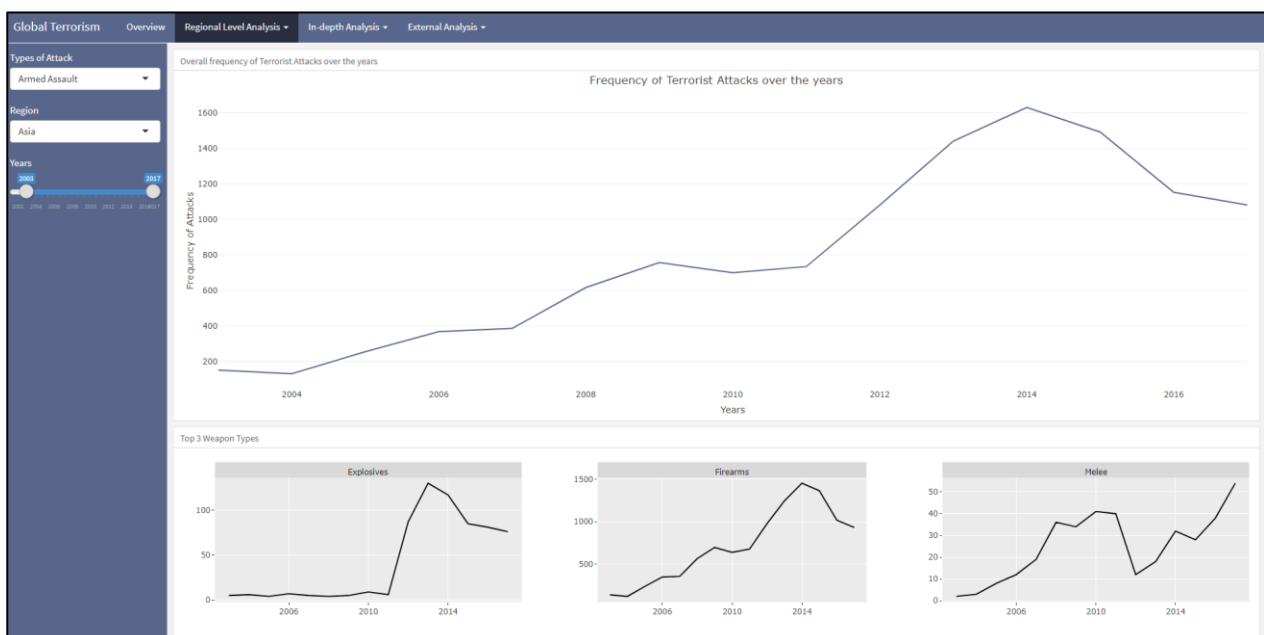**3. Year:** The time period of interest can be defined by the user with the slider at the bottom.

In addition, **the value boxes** ("Total Countries affected", "Total Terrorists Attacks", "Total Fatalities", "Total Wounded") and the **bar chart** (displaying the top 5 countries with most terrorist attacks) will change accordingly to the 3 filters.
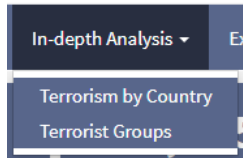
2.2 Time Series

Under the **"Time Series"** page, the app displays the frequency of terrorist attacks across time. The user is able to select the same 3 inputs as the World Map Page: The Type of Attack, Region, and the Time Period of Interest.

The line graph at the top displays the overall number of attacks caused by the selected type of attack, in the specified region of interest, during the specified time period. **The faceted graphs** below show the top 3 weapon types used in these attacks. An example of this is in the screenshot below, where the plots show Armed Assaults in Asia, from the period 2003 to 2017.
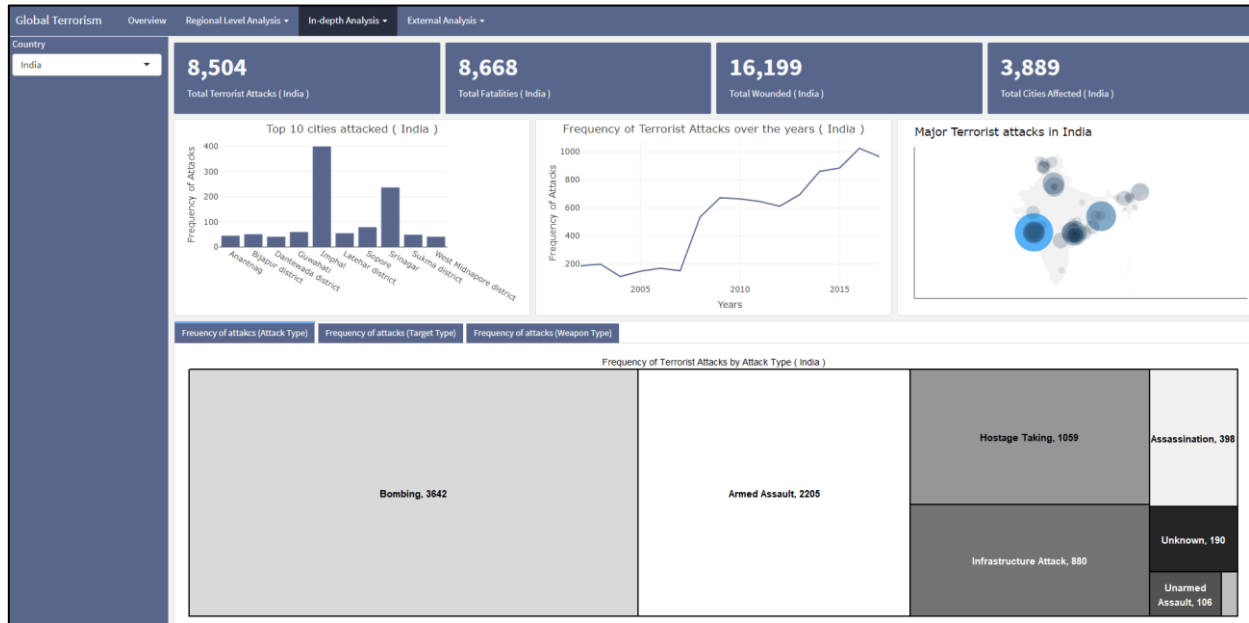
3.0 In-depth Analysis

Under this level of analysis, we have 2 pages – Terrorism by Country and Terrorist Groups.
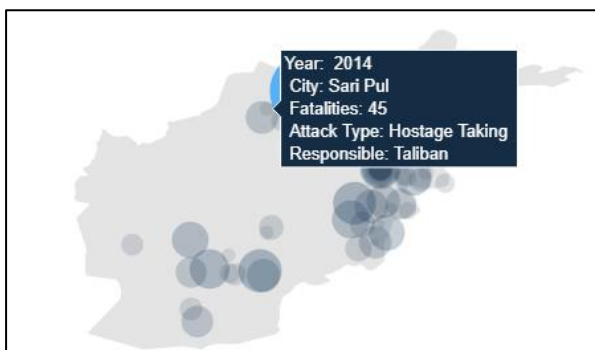

3.1 Terrorism by Country

Under the "Terrorism by Country" dashboard page, users will be able to see a more in-depth analysis and visualization of terrorist acts for a selected country.

Country Dropdown: In the sidebar on the left, the user is able to select a country for analysis. Based on the selected country, the app will display the statistics visualizations for:
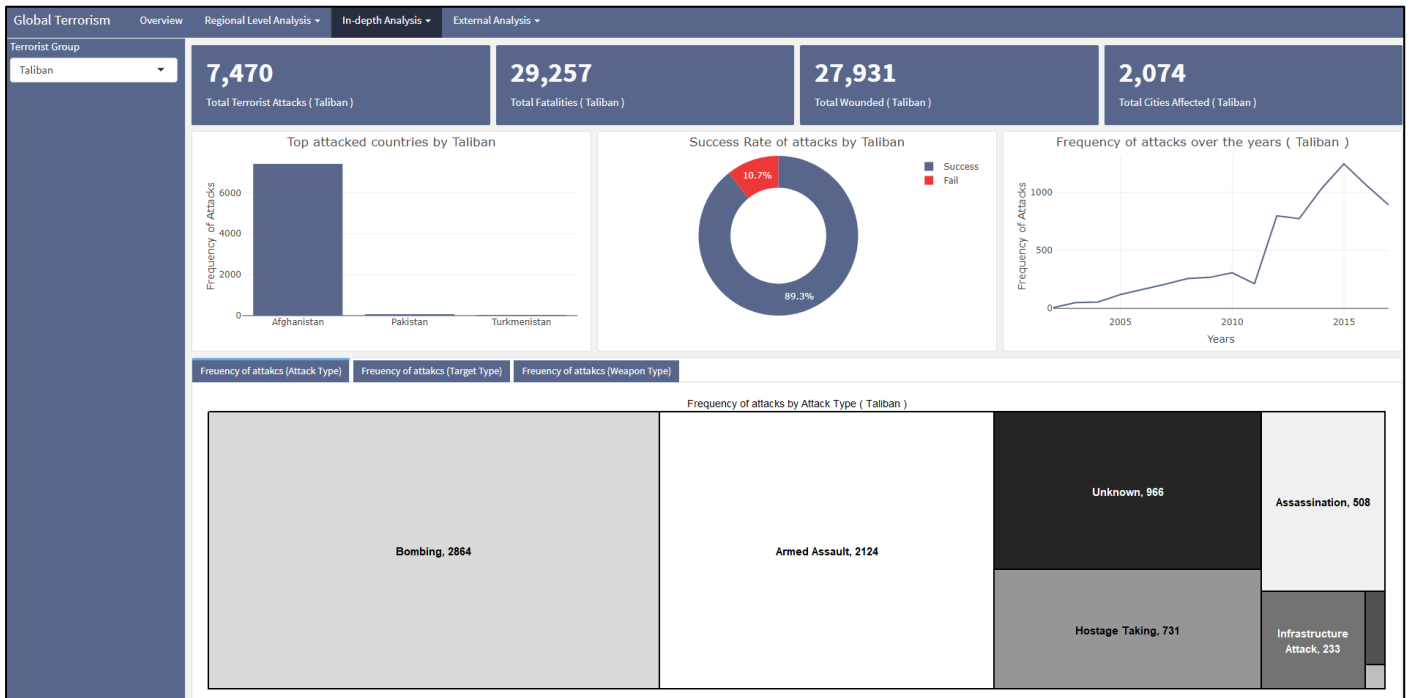
1. **Value boxes:** The total terrorist attacks of that country from 2002 to 2017the total fatalities and wounded, and the total number of cities affected.
2. **Bar chart:** The top 10 cities with the highest terrorist attack for the selected country.
3. **Time series:** The frequency of terrorist attacks over the years.
4. **Geographical country map:**

This map displays the major terrorist attacks plotted as bubbles. The tooltip would show the year, city in which the attack occurred, the total number of fatalities, the attack type, and the terrorist group responsible. The size of the bubbles are proportionate to the number of fatalities of the attacks.

5. **Tree Map:** At the bottom of the page, there are 3 tabs showing tree maps. The tree maps help visualise the breakdown of the terrorist attacks, and are crafted based on attack type, target type, and weapon type.
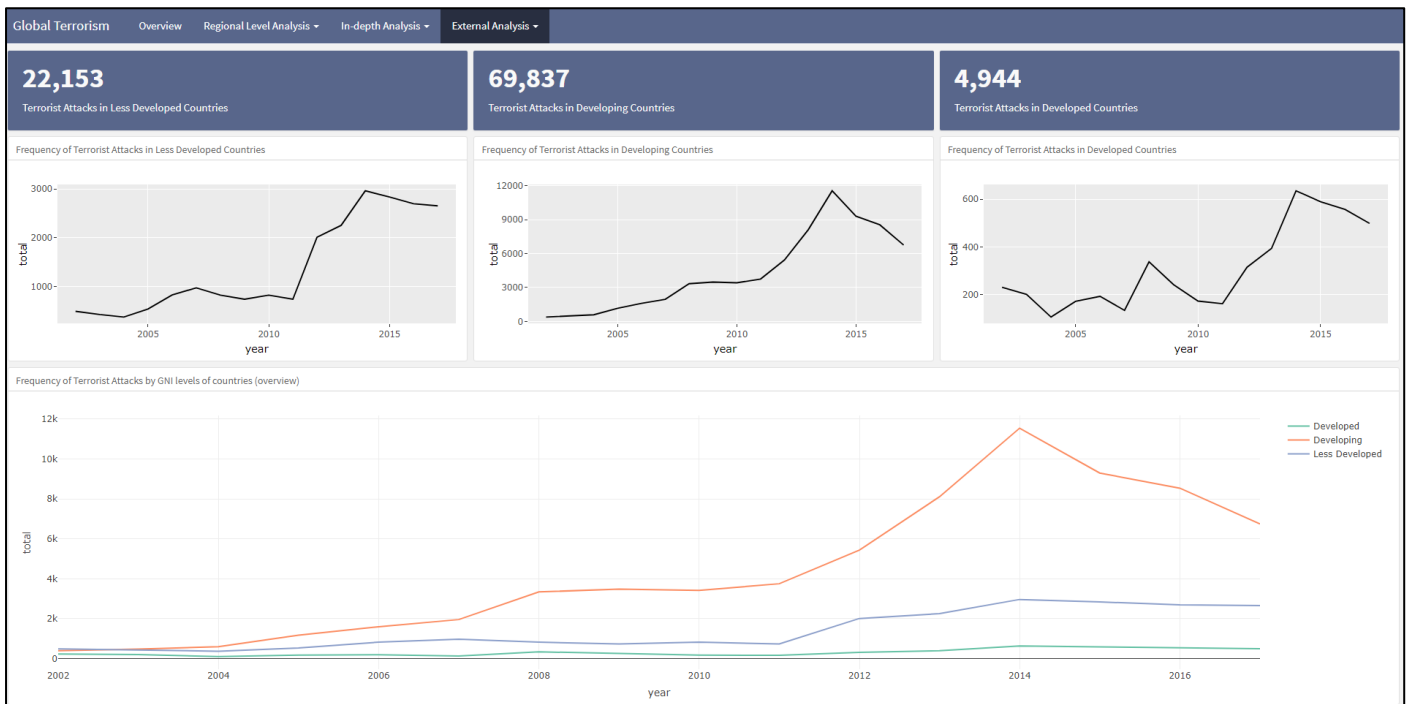
3.2 Terrorist Groups

Similar to the Terrorism by Country page, the **"Terrorist Group"** dashboard page offers similar insights, except that the focus is now on specific terrorist groups than on countries.

Upon selection of a terrorist group, the app displays: statistics visualization:

1. **Value boxes:** The total number of terrorist attacks attributed to this terrorist group, the total fatalities and wounded from attacks caused by the group, and also the total number of affected cities by these attacks.
2. **Bar Chart:** the top attacked countries by the selected terrorist group
3. **Pie Chart:** The success rate of the attacks by the terrorist group
4. **Time series:** The frequency of the attacks over the years.
5. **Tree maps:** Breakdowns by attack type, target type, and weapon type of the terrorist attacks.

4.0 External Analysis

In the **"External Analysis – GNI"** dashboard page, we look at Gross National Index (GNI) to try to explain the occurrence of terrorist attacks. Looking at the **facted line charts**, where each line charts represents less developed, developing and developed countries, users will be able to see the relation between GNI and terrorist attacks, where terrorism is much more prevalent in developing countries, as compared to developed countries and less developed countries. In addition, an overview **multi line chart** is being plotted at the bottom of the page for easier comparison.