

A Visualization Report: Weapons and Targets for Iraq Terrorist Attacks



Submitted by:

Nishtha Arora (32296622)

Master of Business Analytics, Monash
University, Clayton VIC 3800, Australia

Submitted to:

**Tutors Tam Vo and Minfeng Qi
(Tutorial 6)**



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INTRODUCTION

Terrorism poses a direct threat to the security of the citizens of the nation and knows no border, nationality, or religion. It hampers with the stability and prosperity of the individuals (Countering terrorism, 2021).

In today's world, terrorists can reach their targets more easily as they are exposed in more places. Today's terrorism has found more nuclear connections and can even be more lethal than the 1993 World Trade Center bombing (Pillar, 2021).

With headlines flooded with attacks all over the world since years now, it is surprising to see the lack of analytical attention given to it. Therefore I have carried out a narrative on the weapons and targets used in the country facing most no. of terror attacks (Iraq) for the year 2015-2019.

The narrative has been displayed with the help of R Shiny Web app.

Findings and Message:

- Firstly, cities in Iraq are identified that have faced more than 50 terror attacks within the years 2015-2019 (including 2015 and 2019). There are 19 such cities. The no. of attacks that took place are also displayed.
- The count for the kind of weapon used for attacks in these cities (single or multiple) for each year or multiple years (as per selection).
- The count for the target locations/targets for attacks in these cities (single or multiple) for each year or multiple years (as per selection).
- The order and name of most used weapons (top 5) overall (years 2015-2019) for all locations in Iraq.
- The order and name of most of the target locations/targets (top 5) overall (years 2015-2019) for all locations in Iraq.

Intended Audience:

The intended audience for the report is mainly professors, tutors and teaching staff of Monash University, Clayton VIC 3800, Australia. The age group for the same is 18+ and is not gender biased.



DESIGN PROCESS

Step 1: Interesting findings and variables are chosen from the Data Exploration (DE) project.

Background: In the Data Exploration project, it was discovered that most no. of terrorist attacks were in Iraq from 2015-2019. And one of the finding for that project was a display of weapons and target sub-types/sub-locations for the whole of Iraq.

As mentioned, in the DE project, '*weapon types*' and '*target sub-types/locations*' was considered, as '*target sub-types/locations*' provided more specific information. But for this Visualization project, a little alteration has been made i.e. '*main target location/types*' have been chosen instead of '*target sub-locations/types*' due to huge no. of sub-locations/sub-targets and to maintain symmetry in narrative and visualization.

The AIM of the process is to be able to create a visualization that is able to display independent and dependent attributes of a tabular data in the best way possible i.e. to be able to narrate the visualization for weapon types and target types/locations for specific cities (In Iraq) for specific years (2015, 2016, 2017, 2018, 2019).

Step 2: A Five design sheet (FDS) is created where :

- a) Ideas for plot were generated which are able to display all the required variables i.e. *City, Weapon types, Target locations/targets and Year using basic plots with interactions.*
- b) Best 3 ideas were shortlisted i.e. *Bar-plot, heatmap and circlepacking graph.* All these three plots were decided to be used with "plotly" and "highlighting".

Bar-plot:

- It is easier to read.
- It shows quantitative value (dependent attribute) for a key (factor-an independent attribute). Here we display 2 plots with weapons and target locations respectively vs count for each.

Heatmaps:

- This helps in displaying a single value attribute with 2 keys. Here, it was able to display both target locations and weapons vs count in one single plot.



Circlepacking map:

- These are like tree maps. They hierarchically organized the weapons and targets according to their count in different plots, making it the major focus. The size of the circles is according to the count of weapon type/target locations.
- c) Since most of the data consists of character variables, so from the above plots, a circlepacking graph was finalized for better visualization. This graph uses plotly and highlighting.

Step 3: As discussed in step2, c) part, **circlepacking plot** was the final design chosen but it had some **issues** like:

(Taking the case of weapon types)

- The weapons to be displayed were more than 200 (not unique) and initially all of them are displayed, without applying any filters or when very less filters are applied and since most of the names of weapon types contain more than 2 words, there is A LOT of overlapping and it's not readable (even after adjusting text size).

In this case, even if the ‘text’ is removed from in-between the circles, a legend or a tooltip would not display the weapon type, as the datasets to be used for displaying a legend or a tooltip should be the one from which the main plot is created. And here, the plot is finally created from ‘geom_polygon’ which further has been created by using ‘circleLayoutVertices’ function and only contains values to create a circle i.e. x, y and an id for these values.

- Another factor was the interaction aspect in this plot. As mentioned above, tooltip display was not satisfactory as city, Though the plot showed a visualization with filter of city, year and category but it could not display them on a tooltip due to the reason mentioned above. Hence, not satisfactory.
- Another interaction issue was ‘the highlight key’. Again, since the main data is not being used to make a circlepacking plot, but a data set with x,y,id values which were over 200, it was difficult to identify the highlight key and hence a highlight here was not becoming possible.

Hence, this plot was rejected to display the main analysis part! But due to its aesthetic display anyway, this was kept as a part of the project (conclusion).



To overcome these issues, two ideas came into picture :

- a) Map (sheet1)- Leaflet map was chosen for the same because:
 - It is simple to utilize
 - Interactive (popups, zoom options available)
 - Has interesting map background options
 - It is a compatible map with 'latitude' and 'longitude' variables. (The data contains these variables)

- b) Bar plot (sheet2): A simple bar-plot was chosen because:
 - It describes the analysis perfectly.
 - It is compatible with the filters i.e. no overlapping of text (clear axis displaying names).
 - It is easy to read.
 - It works perfectly with plotly (satisfactory display) and highlighting.

Comparing a) Map and b) Bar-plot for final Analysis:

The Map was not used to display these cities with the count of *weapons/targets* as there were multiple *weapons/targets* used/present for one city at different times, so even if the count of *weapons/targets* were displayed with the city name, the identification of *weapon types* and *target locations/targets* would require a separate *table/plot*. Hence, map was used as an introduction and Bar plot was finalized given its advantages above.

FINAL DESIGN DISCUSSION

Plots

Finally due to the reasons mentioned above, 2 additions were made along with the sheet 5 design i.e. **Leaflet map and Bar-plot along with the circlepacking plot**. The advantages and disadvantages for all these plots have been discussed above.

Plot Interactions:

These have been similar to what has been discussed in the sheet 5 of FDS. But the kind and level of interaction is different for all these 3 plots according to their respective compatibilities with interactive tools. E.g.

- Leaflet (Introduction) : This plot was a part of sheet 1. This contains location of cities for which the further analysis would be carried out. It also shows the count of attacks in that city. This uses pop-ups (tooltip). This is used in the introduction tab.



- Bar-Plot (Analysis): This contains the weapon and target (use filters to change) names in these cities for the years 2015-2019 (use filters). As in sheet 2, this uses a dropdown for city selection, slider for year and radio buttons for categories instead of toggle button. This has been done purely due to symmetric visualization reasons on the side bar.

Also like in sheet 2, this uses plotly (tooltip) and highlighting. This plot is the MAIN visualization for the analysis.

- Circlepacking (Conclusion): This contains an overall top 5 weapons and targets irrespective of cities or year. Category (weapons or targets) can be changed using filters. Most of the interactions displayed for this plot in sheet 5 could not be implemented due to reasons mentioned above. Hence, this is a part of conclusion and not the main analysis. A tooltip displays rank of weapons.

Narration Genre:

- The project follows similar narrative to **Linear Narrative genre style**.
 - a) The project is displayed in such a way that it displays a story to the viewer. So first, a background was given i.e. the country/cities for which the weapons and targets would be visualized. This information is available on the main tab and the map tab.
 - b) Second was the analysis for these chosen countries and years.
 - c) And third, a plot is displayed to conclude the project.

This narration flow was followed so that it is easier for the viewer to understand the project and feels connected to the story being displayed by the analysis plot.

- For the narration, the theme ‘darkly’ is used for the Shiny app as viewing a darker colour on the screen reduces eye strain as it reduces blue light exposure (emitted from screen devices). Also, it made the maps and plots look more vibrant and pleasing to the eyes. White colour and font:25px was used for most of the writing.
- The background for plots is larger, therefore, the backgrounds are given low saturation lighter colours and contrasting colours are given to the plot shapes. The plots are not given bright red or green colours as they are the most problematic for people fighting colour blindness.



Colour Scheme:

- The colours chosen are different for each tab/each plot.
- The Map used ‘Esri.NatGeoWorldMap’ as base map which is more impactful with boldly city/country names in English, making it easier to read.
- For the plots (bar and circlepacking), the backgrounds have a lighter shade as the shiny app is black. Also, the panel backgrounds have a lighter shade too so that the colours in the plot shapes are visible properly.
- Since the visualizations used are in 2D for both these plots i.e. view of each point on the plot would be from the same angle, the colours in the plot are of distinct colours (colour hue) , keeping in mind their spatial frequency and orientation as well.
- For bar plot specifically, palette of 18 colours was made manually by choosing subtle colours that are soothing to the viewers eye. The colours in the plots are set in such a way that there is a good amount of contrast between the bars/circles and their respective backgrounds.
This is because, the bars are thin without shape borders and automatic R colours are a little bright, making it difficult to spot the difference between colours.
- For circlepacking plot specifically, the colours chosen manually were not used, instead automatic colours were used as the circles are large with a border. These automatic colours here looked vibrant, bold and impactful.
- In the summary section, hyperlinks are provided for ease and the information regarding the data set origin has a yellowish background to separate it from the rest of the summary content.



IMPLEMENTATION

Libraries Used: The extra libraries used are:

library(packcircles): This has been used for the display of circlepacking visualization.
library(shinythemes): This has been used for the main theme of shiny app i.e., 'darkly'
library(leaflet): This is used to create the leaflet map.
library(maps): This is used for the base map used in creating the leaflet map.
library(plotly): This is used for interaction in plots i.e., tooltips, sparklines, highlighting and zoom options.
library(glue): This is used to create a tooltip in plots created by ggplot.

R Shiny templates were used to pick out some elements used in the creation of Visualization project from the R Shiny Gallery (<https://shiny.rstudio.com/gallery/>).

Template 1: <https://shiny.rstudio.com/gallery/tabssets.html>- Used as basic template.

Template 2: <https://shiny.rstudio.com/gallery/ncaa-swim-team-finder.html>- Used mainly for adding helptext in shiny (all tabs) and side panel titles.

Template 3: <https://shiny.rstudio.com/gallery/didacting-modeling.html>- Used mainly for highlighting text on the summary tab.

Five Design sheet (Sheet 5) design vs Final design on R shiny:

The Sheet 5 displays a circlepacking plot with plotly and highlight with a drop down, slider and a toggle button. However, in the project, a bar plot and map are displayed in addition to the circlepacking plot.

Difference in Plots:

The process/reasons for rejecting circlepacking plot for the main analysis and using it in conclusion as well as the reasons/process for selecting map as part of introduction and using bar-plot as main analysis **are same as mentioned in Step 3 of DESIGN PROCESS. - Page 4-5.**

Difference in Interactions:

- In sheet 5, the final interactions are a drop-down for city selection, slider for year and radio buttons for categories instead of toggle button. This has been done purely due to symmetric visualization reasons on the side bar.



- In sheet 5, the interactions displayed are for the final plot which now is the bar-plot (as discussed above). Hence these interactions of dropdown, radio buttons and slider were given to bar-plot. The plot uses plotly and highlighting (as displayed in sheet 5, no change there)
- As far as the 2 other plots are concerned (map for introduction and circlepacking for conclusion): interactions for both are different. i.e. map uses a slider for count, pop-up for city name and count and a zoom option. And the circlepacking uses radio buttons and plotly to display rank.

Challenging features/ Challenges faced:

- **Data Wrangling:** The data set used for this project was initially very large i.e., contained data from the year 1970-2019 for the cities/regions/districts that faced a terror attack for all the countries of the world. It contained 201184 rows and 135 columns. So, as per the analysis in the DE project, the country that faced the maximum no. of terrorist attacks was Iraq and hence, the data was filtered for the city Iraq only. Still, the data remained large as the cities/regions in Iraq that faced attacks were above 1000 and it became problematic to display it on the map and other plots as well. So finally, the data was filtered to only those countries that experienced more than 50 attacks. There were 19 such cities.
- **Advanced Shiny usage:** A lot of features were tried for the first time while doing this project like:
 - a) using a main page and 3 tabs separately by using *tabset* and *tabpanel* command which has a *sidebar* too.
 - b) Having *helptexts* throughout in shiny at different locations. The texts are accompanied with text features like *font size alteration*, *highlighting text with colour*, *justifying* all text in shiny, using '*strong*' to *bold the text* and *hyperlinking the text*.
 - c) *shinythemes* was used to display dark background.
 - d) Each tab heading is given a *unique icon* that clearly describes what the tab is about.

- User Interaction

Map Specific: This was the most challenging part of the project. The project contains 3 plots because the sheet 5 plot (initial final plot) had interaction issues and the map couldn't show a satisfactory tooltip. The details are as follows:



- a) Introduction Tab: Here a map has been created using leaflet. To show the locations clearly, the data set size was reduced to show just 15 locations. Here a slider was added, and the position was adjusted so that the values are visible. The base map was changed from the basic base map, pop-ups were added, and markers of the locations have been changed to circles with the radius of the circle depicting the count of attacks.
- b) Analysis Tab: Here a bar-plot is added. Plotly was used here to generate tooltip and highlighting. The tooltip can show city, year, weapon/target and count clearly without any issue.
- c) Conclusion tab: Here a circlepacking plot is used. Here directly using ‘plotly’ was not possible as the plot was created using geom_polygon and ggplot. Therefore, the command ggplotly was used to generate an interactive plot. Still the interaction created was not satisfactory i.e., the tooltip could only display the rank/order of the weapons/targets with respect to their count. It could not display a city, year or count as the dataset that could be used for a tooltip only had coordinates and their id for the circles that are created. And this is the reason that highlighting was not compatible too. All these are also the reason way this plot was not used as the main analysis plot. But overall, this map was the most challenging to tackle, given its advanced code for the plot creation itself.

Shiny Interface Specific: This was the 2nd most challenging aspect of the report, i.e., linking of the filter (interface interaction tools) with the plots for a perfect display and results.

- a) Interface and Bar-plot: The bar-plot will give results of weapon types and targets, and this can be adjusted by selecting the city or cities from the drop-down menu, selecting a year or a range of year from the slider. The plot can switch from weapons to targets and vice versa by radio buttons. All these features are displayed on the main panel itself under the ‘Filters’ sidebar.
- b) Interface and circlepacking-plot: This plot is connected to the same radio-buttons as above available on the main panel and the plot can be switched between weapons and targets. This plot is overall for all cities and years and since the data set used to construct this plot doesn’t have city or year variables, so this has been disconnected from the drop down and slider on the main panel.



USER GUIDE

After running the App from R studio, please give 60-120 seconds for the maps and other plots load properly. In case the map (first tab) it still does not load, please hover, and select on different tabs and return to the first tab.

First Tab

1. For viewing the features of the map, please zoom in and out from the '+' and '-' sign available on the left side of the map.
2. Select on the circle on the maps to view a tooltip that gives information of the city name and the count of attacks. To view the tooltip, just click on the circle and to get rid of it, click at the same point.
3. The map can also filter our locations according to the no. of attacks and this can be adjusted from the slider present on the top left boundary of the map.

Second Tab

1. Two bar-plots can be viewed on this tab (but not together). This is done by using the radiobuttons. There are two radiobuttons and will give plots for weapons and targets respectively.
2. Both these plots are linked with the drop-down menu which is a part of the main panel of Shiny. The plots would be adjusted according to the city selection from the drop down. More than one city can be selected at once.
3. Both these plots are also linked with the slider which is also a part of the main panel. The plots can be adjusted for a time range or for a specific year.
4. Hover on the bars of both these plots to view the content on the tooltip.
5. These tool tips are visible as the bar is highlighted after hovering on it. The bar is highlighted a little above the original bar location. Double click on the bar to get rid of the highlighted bar.
6. Move the cursor over the plot area for more features on the top right of the plot surface, like zoom options and sparkline. To use zoom feature, click on the '+' or '-' directly or click on 'zoom' option and select the region to be zoomed in or out. Double click in plot area to go back to normal view.
7. From above options, to use 'toggle spark line' option, select the option and hover on the bars. Double click on the plot area to get rid of the sparkline.



Third Tab

1. Two circlepacking-plots can be viewed on this tab (but not together). This is done by using the radiobuttons. There are two radiobuttons and will give plots for weapons and targets respectively.
2. Hover on both these plots to view tooltip. Hovering on the text inside the circles, will give a tooltip with text display and hovering elsewhere inside the circles will give a tooltip displaying rank of that weapon/target. Higher the rank means most used weapon or most targeted location/mostly targeted.
3. Move the cursor over the graph area for more features on the top right of the graph surface, like zoom options and sparkline. To use zoom feature, click on the '+' or '-' directly or click on 'zoom' option and select the region to be zoomed in or out. Double click in graph area to go back to normal view.

Fourth Tab

1. Click on the green text in yellow box as those are hyperlinks for the website used to extract the world terrorism dataset.



CONCLUSION

Summary and achievements (results) from the visualizations:

Firstly, the cities that experienced more than 50 terror attacks in Iraq (2015-2019) were visualized using a map. These were 19 cities. The further analysis was carried out for these 19 cities using a bar-plot. In the analysis, we were able to discover the weapon types used and the target locations for each of the cities or cities combined for the selected years. This was then concluded by displaying (using a circlepacking plot) an overall count for Weapons and Targets for all countries and years. It was observed that most used weapon was “Explosives” and “Private citizens and properties were targeted the most.

Learnings:

- The project has made my narrative skills better as it helped me think outside the box while selecting a particular finding from DE project and how to create a new project based on those findings.
- Brainstorming ideas for a visualization while trying to implement Five Design Sheet, has given me a better understanding of the plots and their usage e.g., which plot to be used for which specific variables.
- The project helped me understand the complex features of shiny interface e.g., sidebar tools, text features etc.
- The project has helped me understand interaction tools much better and their linkage with the plots. I am able to understand how to make a certain plot interactive and what all alterations are to be done in the dataset to extract a perfect result from that plot.

In hindsight, I would've paid more attention towards maps and plotly usage in ggplots.

- For maps, I would've tried to make a map that would connect all the locations with a line according to the date of the attack in that particular location.
- For plotly, I would've learnt if it is possible to get a good tooltip (as in bar-plot) in circlepacking plot. If this was possible, then there would've been no need of adding a bar-plot in the project and the results could've been visible in circlepacking itself.

I am interested in creating different kinds of map visualizations so, **in the future**, I would like to work on a project which includes map creations as this will broaden my horizons in this domain and would be a step towards gaining proficiency in this arena.



BIBLIOGRAPHY

- [1] NATO.(2021),*Countering terrorism*. [online] URL:
https://www.nato.int/cps/en/natohq/topics_77646.htm [Accessed on 09.08.2021].
- [2] Pillar, P. (2021), *Terrorism Goes Global: Extremist Groups Extend Their Reach Worldwide*. [online] URL: <https://www.brookings.edu/articles/terrorism-goes-global-extremist-groups-extend-their-reach-worldwide/> [Accessed on 09.08.2021]
- [3] Start.umd.edu. 2021. *GTD / Global Terrorism Database*. [online] URL:
<https://www.start.umd.edu/gtd/> [Accessed 31 October 2021].
- [4] Start.umd.edu. 2021. *START.umd.edu /*. [online] URL: <https://www.start.umd.edu> [Accessed 31 October 2021].
- [5] Rstudio.github.io. 2021. *Leaflet for R - Using Basemaps*. [online] URL:
<https://rstudio.github.io/leaflet/basemaps.html> [Accessed 31 October 2021].
- [6] Holtz, Y., 2021. *Basic circle packing with one level*. [online] R-graph-gallery.com. URL:
<https://www.r-graph-gallery.com/305-basic-circle-packing-with-one-level.html> [Accessed 31 October 2021].
- [7] Plotly.com. 2021. *Getting Started with Plotly*. [online] URL:
<https://plotly.com/ggplot2/getting-started/> [Accessed 31 October 2021].
- [9] Shiny.rstudio.com. 2021. *Shiny - Tabsets*. [online] URL:
<https://shiny.rstudio.com/gallery/tabs.html> [Accessed 31 October 2021].
- [10] Shiny.rstudio.com. 2021. *Shiny - Didactic modeling process: Linear regression*. [online] URL: <https://shiny.rstudio.com/gallery/didacting-modeling.html> [Accessed 31 October 2021].
- [11] Shiny.rstudio.com. 2021. *Shiny - NCAA Swimming Team Finder for Incoming College Athletes*. URL: <https://shiny.rstudio.com/gallery/ncaa-swim-team-finder.html> [Accessed 31 October 2021].



APPENDIX

IDEAS

- ① Scatterplot
- ② Heatmap
- ③ Circle Packing Chart
- ④ Bar Plot
- ⑤ Word Cloud
- ⑥ Lollipop
- ⑦ Line plot
- ⑧ BM Map
- ⑨ Pie chart

CATEGORIZE

①, ④ | ②, ③ | ⑤, ⑥ | ⑦ | ⑧

COMBINE AND REFINER

④ & ⑦ can be combined for a detailed visualization.

⑥ and ③ are similar kinds and can be combined to form just 1 plot.

FILTER

⑦ Not convenient as weapon names and target names won't be specified. [Line plot]

PIE CHART

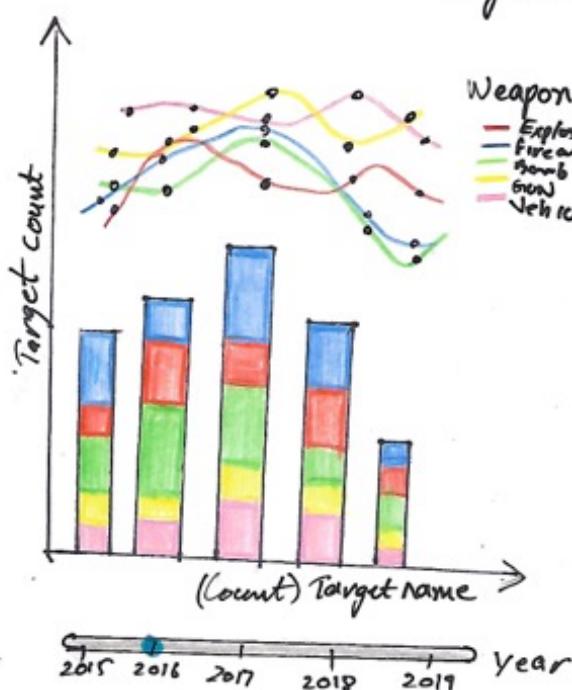
This chart is not the best way to display count of weapons and targets since it is difficult to read the proportion when there are more than types.

QUESTIONS

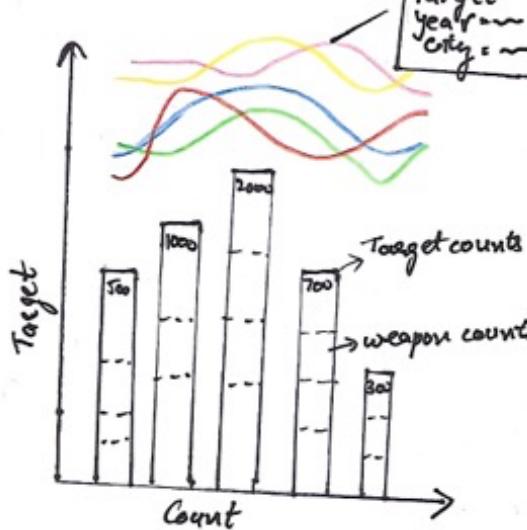
1. Can users filter data to city specific?
2. Can users change display for specific year?
3. Is relationship b/w weapons & targets visible?



Layout



Focus



The bar plot combined with line shows 4 values i.e weapon name, target type, city name and year. These are displayed on a tooltip when hovered or selected over the lines.

INFO

Title: Weapons & Targets for Iraq Attacks: An Analysis

Author: Nishtha Avora

Date: 10.10.2021

Sheet: 2

Task: To compare weapon and target for Iraq cities.

OPERATIONS

- Use the slider to adjust year for the plot of the year.
- Use the city dropdown to select cities of Iraq.
- Hovering on the lines will give (display) weapon type, target kind, year of attack and city of attack.
- Weapon names are displayed for each target type for each year and each city.

DISCUSSION

Positive:

- Shows clear count for weapon and target.
- Hovering or selecting line graph shows detailed information.
- Comparison b/w weapons and targets can be easily displayed.

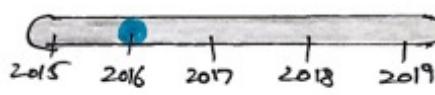
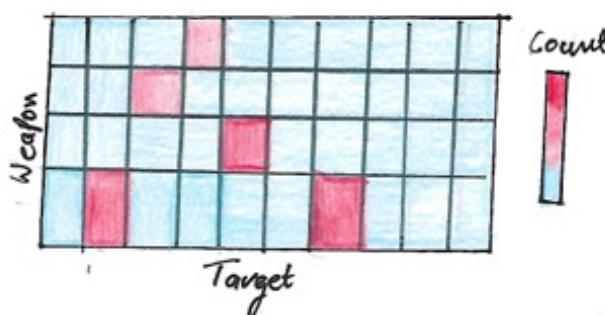
Negative:

- Exact count for specific weapons needs to be calculated and is not seen directly.
- Target counts with respect to weapon is not viewed.
- The graph is not aesthetically viewable.



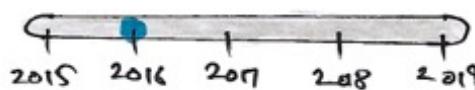
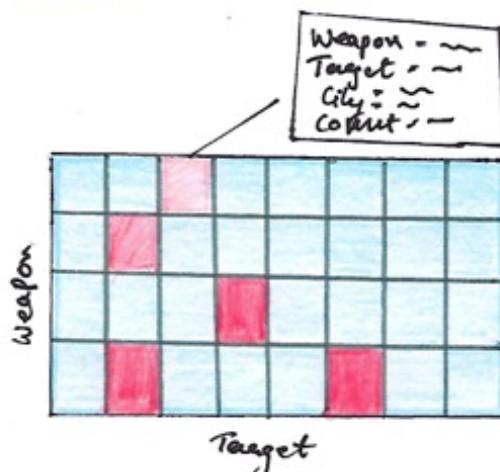
AYOUT

City All



FOCUS

City All



The boxes are coloured on the basis of count, i.e. more no. of specific weapons used for specific targets in Iraq from 2015-2019.

INFO

Title: Weapons and Targets for Iraq attacks : An Analysis

Author: Nishtha Arora

Date: 10.10.2021

Sheet: 3

Task: To compare weapon name and target type for cities of Iraq.

OPERATIONS

- The plot can be adjusted for every year by using the slider.
- Plots for specific cities can be seen by using dropdown.
- Hovering or selecting over the plot displays a tooltip mentioning weapon name, target name, city and count of targets for specific weapon type.

DISCUSSION

Positive:

- A proper comparison is seen for specific target kind with weapon type.
- plots can be displayed for specific cities of Iraq.
- A good way to display count for weapons and targets.

Negative:

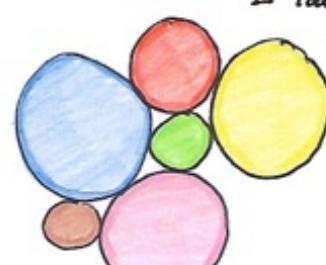
- Does not give individual counts for weapons and targets
- Little difficult to read plot.



Layout

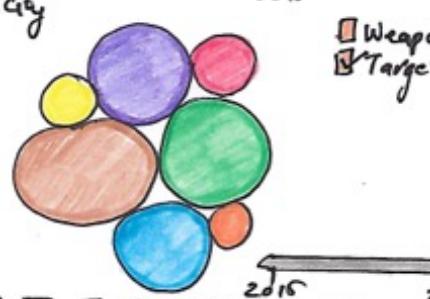
NAM City

Weapon
 Target



NAM City

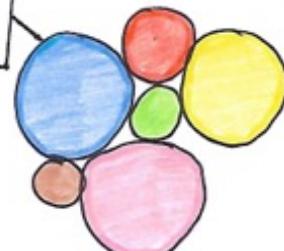
Weapon
 Target



Focus

Weapon = ~
City = ~
Count = ~
Year = ~

Weapon
 Target



Weapon
 Target

Target = ~
City = ~
Count = ~
Year = ~



INFO

Title: Weapons and Targets for Iraq attacks: An Analysis

Author: Nishtha Arora

Date: 10.10.2021

Sheet: 8

TASK: Comparing weapon name with target types for cities of Iraq.

OPERATIONS

- Use radio buttons to view plots of weapon and target names and count.
- City specific charts can be seen by using dropdown.
- year specific graphs can be viewed by using slider
- Hovering or selecting on the circles will give information of weapon/target, city, count, year.

DISCUSSION

Positive:-

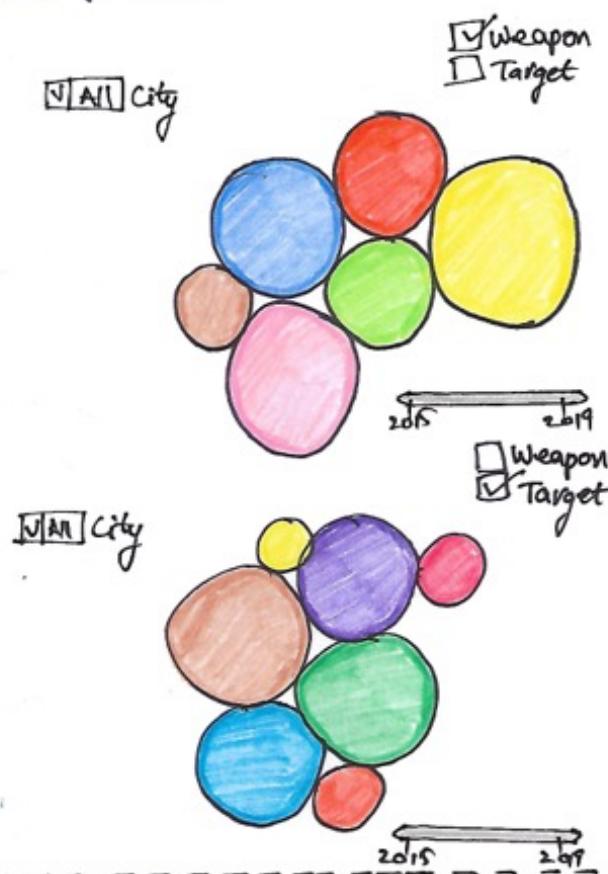
- The visualization is a good display of information and easy to read.
- The count for weapon and target is displayed clearly.
- Data can be filtered based on year

Negative:

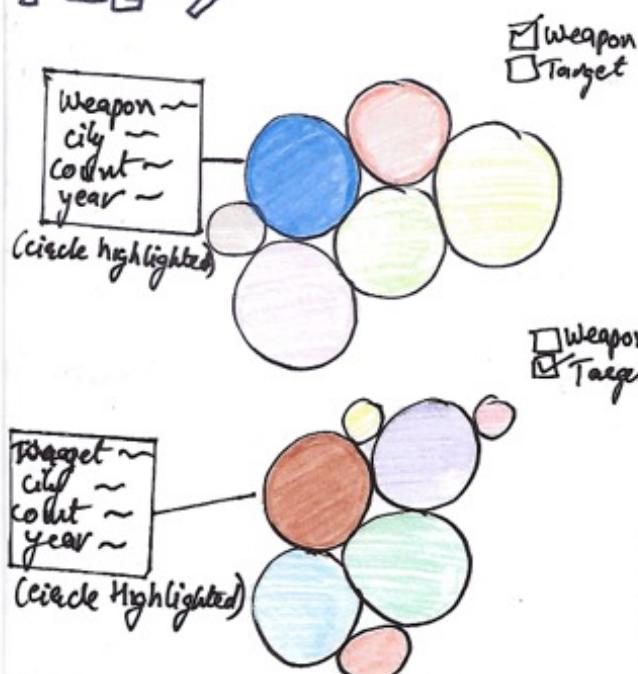
- Comparison b/w weapon and target count is not clearly possible.



Layout



Focus



INFO

Title: Weapons and Targets for Iraq attacks: An Analysis
Author: Nishtha Arora
Date: 10.10.2021
Sheet: 5
Task: Comparing weapons and targets for cities of Iraq.

OPERATIONS

- Use radio buttons to view plots of weapon and target names.
- City specific charts can be seen using drop down.
- year specific graphs can be seen using slider.
- Hovering or selecting circles, highlights the circle and displays weapon/target, city, count, year.

DETAIL

Dataset:
It is a dataset of weapon name, target types and city names for countries of the world. It is filtered for country Iraq and year 2015-2019.

Dependencies:

Shiny

Estimate:

Cost: NIL

15/10/2021: Basic plot creation

16/10/2021: Alter with year

19/10/2021: Add city and radio button

20/10/2021: check interactions

25/10/2021: final dashboard setup