**Goals:**

1. Design a bar/column chart to represent:
2. attack type – by both counts of attacks and number of deaths
3. weapon type – by both counts of attacks and number of deaths
4. region – by counts of attacks and number of deaths
5. target type
6. Counts of attacks that qualify as “international”
7. Investigate ways to represent attacks by location - GIS:

(Starting at a high level of granularity)

1. By region – by both counts of attacks and number of deaths
2. By Country – by both counts of attacks and number of deaths
3. Use latitude and longitude to generate maps
4. Investigate ways to represent the temporal element of data:
5. number of deaths by year
6. number of attack by year
7. must highlight the problem associated with the temporal data
8. Literature review – review 2 pieces of literature that relate to data presentation methods:
9. General investigation
10. The one mentioned in the project proposal

**Goal 1: Bar/Column Chart for attack type 03/04/2015:**

Considerations:

1. Bar vs. Column:

A Bar chart records the count of the levels of each factor with the factor levels on the vertical access

**whereas**

A Column Chart records the count of the levels of each factor with the factor levels on the horizontal access.

Source: <http://blog.fusioncharts.com/2013/06/bar-charts-or-column-charts/>

1. Attack type has 9 potential levels – some with a very low count. For clarity in illustration purposes it may be useful to combine levels with a low count into one level known as “other” etc.

Source: <http://stackoverflow.com/questions/9604001/grouping-2-levels-of-a-factor-in-r>

**Update:** After plotting the counts of incidences by attack type it is acceptable to keep all 9 levels at this stage. It was necessary to rename some of the categories so they would fit on the axes. Two categories, both including the word “kidnap”, have emerged as being quite similar so it be necessary to merge these. If this is the case it would be best to merge the existing categories into an “other” category as the counts would look more accurate.

**2nd Update:** Significant time was used trying to group the total number of people killed by attack type. This was solved by using the **aggregate** function which returns a dataframe containing the sum of the continuous variable “grouped by” attack type.

Useful link: <http://www.slideshare.net/jeffreybreen/grouping-summarizing-data-in-r>

This was then passed to a bar plot function in the basic package which produced a bar plot of number of people killed by attack type.

1. The next stage is to graph number of instances by attack type by:

1: region

2: target

3: weapon type

This can be achieved using stacked barcharts.

1. It will be necessary to draw dotcharts as an alternative to barcharts as both are equally valid for expressing counts/frequencies of instances.

**05/04/2015:**

1. Stacked and Group barcharts
2. Useful links:

<http://www.r-bloggers.com/summarising-data-using-bar-charts/>

<http://www.statmethods.net/graphs/bar.html>

<http://www.cookbook-r.com/Graphs/Bar_and_line_graphs_(ggplot2)/>