

STAT-515 Mid-Term Redesign Project

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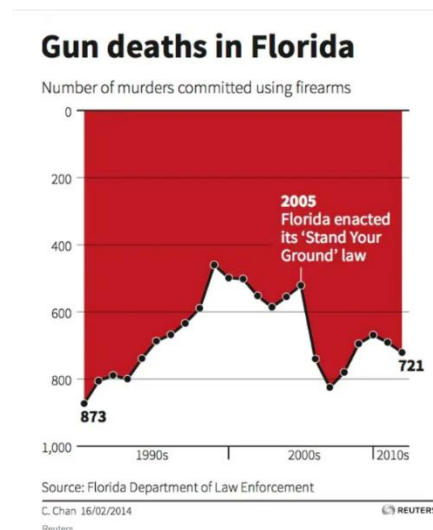
Introduction

There are four design guidelines to consider a graph to be good. Graphs should enable accurate comparisons, simply appearance, provide enough context for interpretation and engage the audience. Any graph that fails to do so is a bad graph. A little modification to the original graph can make a bad graph, a good graph.

In this report, there is a collection of bad graphs that can be interpreted easily with some modifications.

Gun deaths in Florida

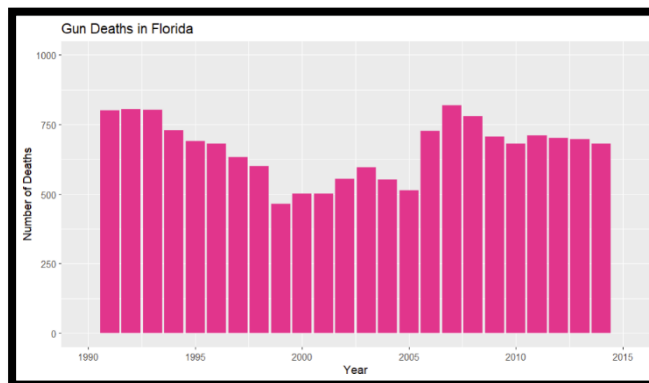
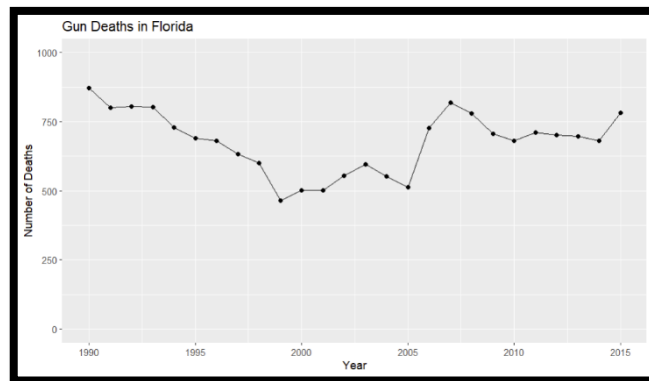
In 2005, the state of Florida enacted the 'Stand Your Ground' law. Reuters, a news channel has analysed the number of gun deaths before and after the law was enacted.



Initially the statistics look like the enactment of law has helped reduce the number of gun deaths. But upon further analysis, it is observed that the y-axis is flipped. The original graph depicts that the number of deaths has reduced after 2005 but, it is a misinterpretation of the original data. The deaths have risen after the enactment of the law. Before the enactment of the law, i.e., in 2005, the number of deaths were 512. In 2006, according to the bad graph, it looks like it is less than 500. But it is 728. This can be clearly observed in the redesigned graph.

The redesigned graphs clearly show the fall and rise in deaths before and after the enactment of the law in 2005. The line graph and the bar graph with proper x and y axes show the exact number of deaths without any misinterpretation.

Good Graphs:



Average Maximum Temperature

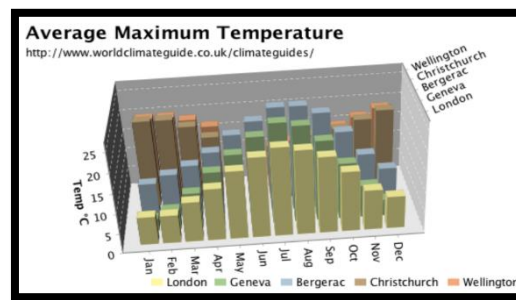
The average maximum temperatures of some cities in each month have been compared by a climate guide website. The visualisation of that is a 3D bar chart comparing the temperatures of five cities throughout the year.

The main issue with this graph is, at a certain point, the bars seems to overlap and as a reader, interpreting analysing this data would be difficult.

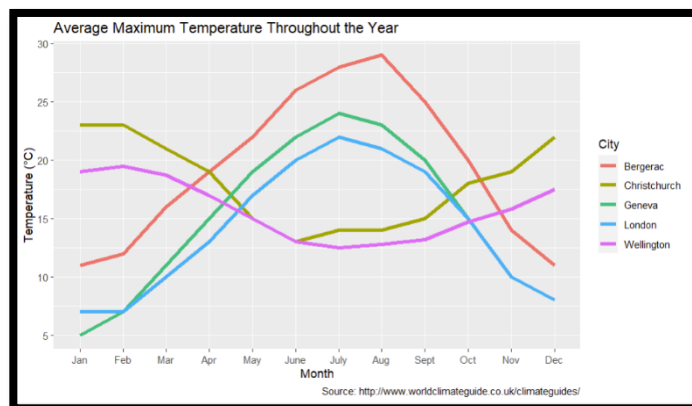
A graph that shows the variations clearly will give a clear picture of the climate in those cities.

The redesigned graph eliminates the overlapping of data that was observed in the original graph and makes the interpretation easy. Now, it is easy for an individual to analyse the temperature of Christchurch and Wellington in the middle of the year.

Bad Graph:



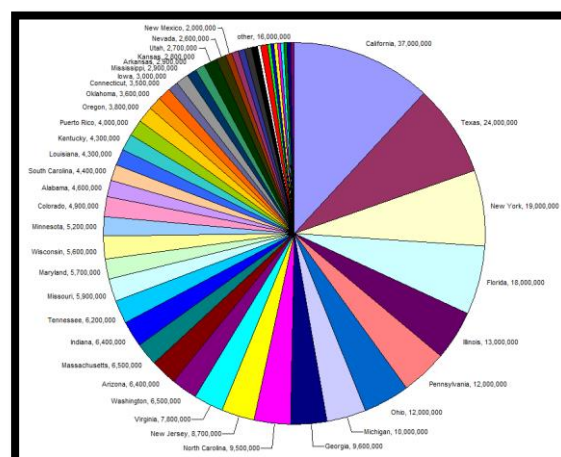
Good Graph:



Population of the United States of America

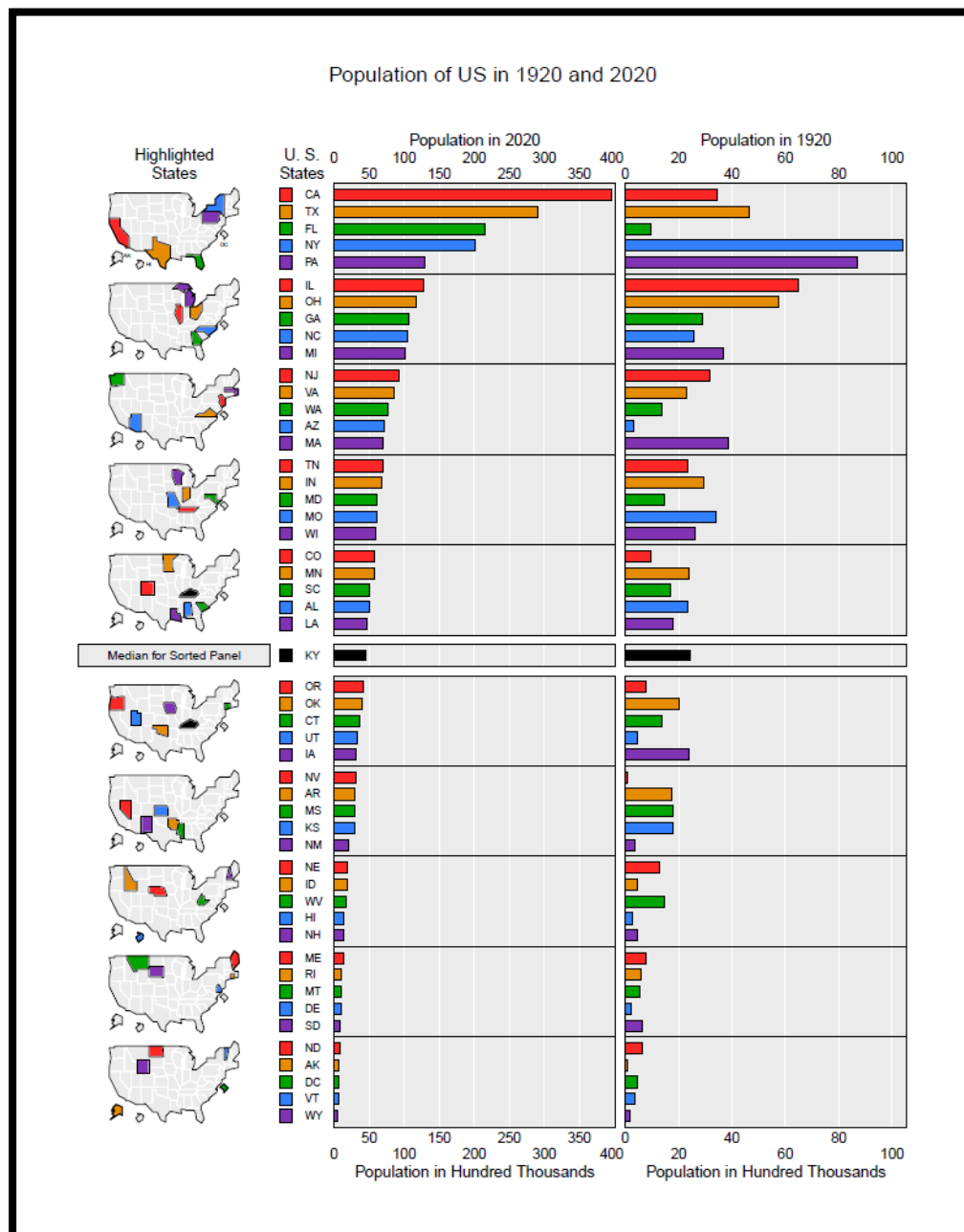
Population of the United States of America was summarised in a pie chart. The issue with this chart is, there is no clear understanding of the populations. The information of some states is also missing.

Bad Graph:



The same data can be depicted using micromaps. In the redesigned graph, the population data of all the states is shown along with the margins of the state. The states, along with its location can be visually depicted. It gives the reader an idea about the population density as well. For further analysis, the population of states from 1920 has been taken to compare it with the population data from 2020. Micromaps enable easy analysis of this data. The graph on the left shows the data in 2020. For example, in the year 1920, the population of California (CA) was around 37 hundred thousand whereas in 2020, it is almost close to 400 hundred thousand.

Good Graph:



Conclusion

Bad graphs are graphs that are mostly one step away from being a good graph. From the above graphs, redesigning a graph gives clearer conclusions, avoids misinterpretation, and also leaves room for further analysis.

References

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