

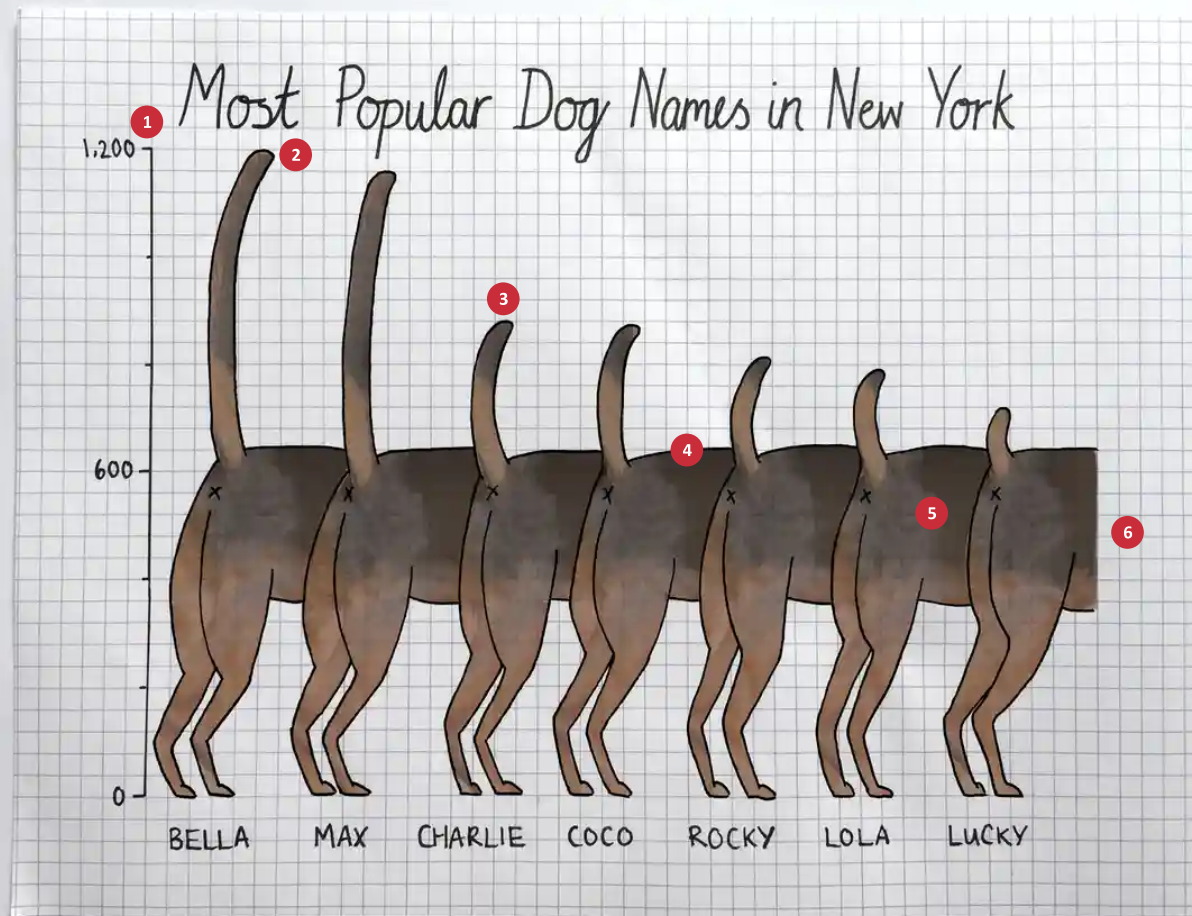


# Week 3 Assignment: Applying Data Visualization Principles

Information Visualization Theory and Techniques (2022)

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## Flaws which impair cognition

- 1 The combination of graph paper and scale numbers creates awkward increments of 200, and sub-increments of 40. Increments of no more than 100 are preferable (Wong, 2013).
- 2 Uneven shapes and curved tops make it difficult to identify the exact value of each bar (Wong, 2013).
- 3 The ends of each tail create the visual illusion of a line graph, even though this is a bar chart, due to the gestalt principle of connection (Knaflitz, 2015).
- 4 The gestalt principle of continuity creates the illusion of a false X axis along the backs of the overlapping dogs (Knaflitz, 2015).
- 5 While the tail length is quantitatively perceived easily, adding the additional shape attributes of the legs and dog behinds inhibits that perception (Few, 2012). Additional cognitive load is required to determine if those shapes have an effect on the data.
- 6 Truncating a vehicle or living being is visually disturbing, and not recommended (Wong, 2013).

## Description and overall analysis

This bar chart, by Mona Chalabi for The Guardian (2017), tells the story of which dog names were most popular New York in 2017. The tone of the visualization is fun and lighthearted, and with regards to that, Shaun Bray (2020) notes that “sometimes, the analyst’s goal is to inform the audience about a particular topic and have them come up with their own conclusions... There may be a loss of detail in the data because of the focus on more engaging visuals.” The hand-drawn effect works well for creating this tone, as well as drawing a thematic connection between data and dogs. Several other good data principles are in practice. Smart use of the gestalt principle of continuity allows Chalabi to remove an unnecessary line for the x-axis, and ordering bars from highest to lowest value makes it clear which names were most to least popular. However, I found this chart difficult to interpret for a number of reasons, listed to the right. Below flaws, I list recommendations which would preserve the fun and lighthearted tone while improving the readability of the chart.

## Recommendations

A simple way to resolve most issues in this bar chart, while keeping the lighthearted tone and thematic connection, is to use a simpler shape for each bar, such as a flattened dog collar. A flat dog collar is rectangular, and can be drawn with flat ends. This creates thicker, easier to compare bars, removes the false x-axis and line chart illusions, and removes the need for truncation. The remaining issue with scaling would then easily be remedied by using increments of 20 and 100 and removing the graph paper lines.

## References

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