Introduction to #DataVisualization

Prerequisite: You have **basic understanding of Python programming** and/or you have successfully **completed the module 1: Python Fundamentals**.

Course environment:

- Zoom for the live classes
- Jupyter Notebook for coding
- Google Classroom for the HW/quiz submission
- GitHub for the course materials

Course objectives:

1. Matplotlib, a powerful Python data visualization library. Matplotlib provides the building blocks to create rich visualizations of many different kinds of datasets. You will learn how to create visualizations for different kinds of data and how to customize, automate, and share these visualizations.

2. Seaborn, for Statistical analysis and to create informative and attractive visualizations. You'll also learn about some of Seaborn's advantages as a statistical visualization tool.

3. Use of Numpy and Pandas for data analysis

4. Become a data storyteller

Course outline:

Lecture 1: Importance of Data visualization, example of Bad data visualization

Lecture 2: Pie Chart, Bar plot

Lecture 3: Time-series plot, Line plot, Scatter plot, Regression plot

Lecture 4: Statistical analysis- Box plot, Histogram, Cumulative distribution function

Lecture 5: Advanced data visualization- Pair plot, Heatmap

Lecture 6: Case study 1

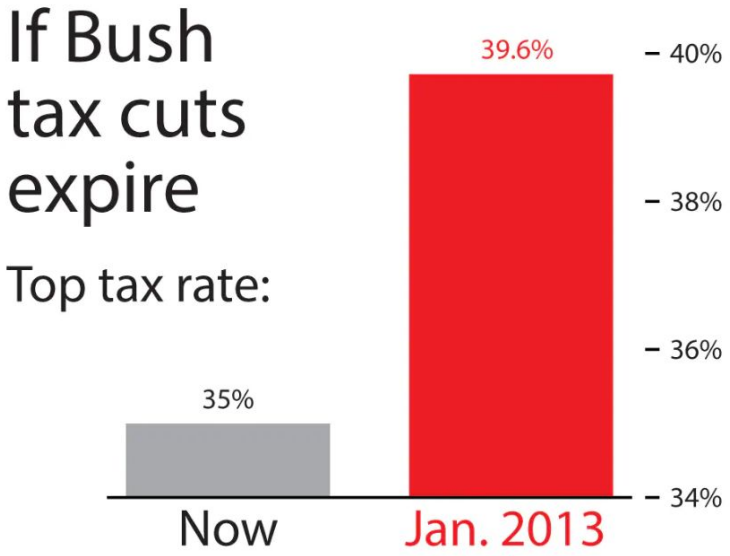
Lecture 7: Case study 2

Lecture 8: Data Visualization in Natural Language Processing (NLP) and Image Processing

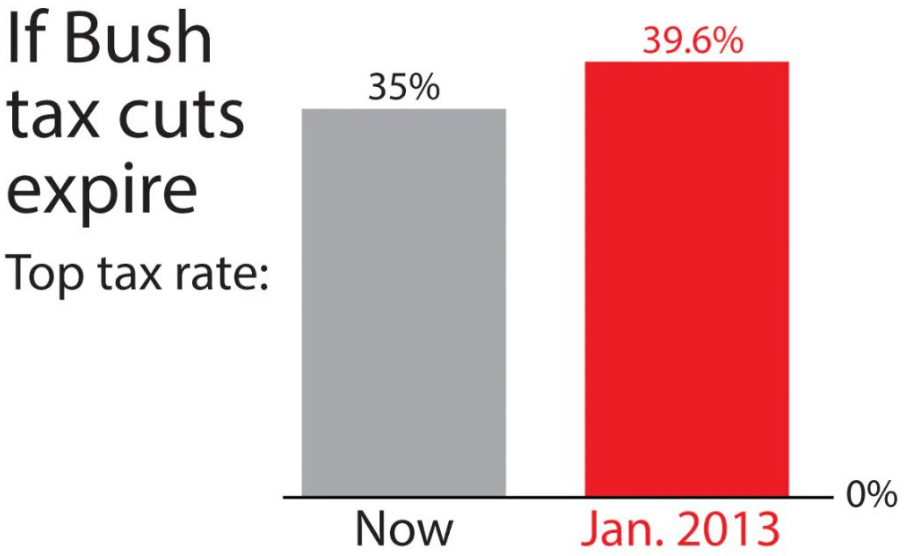
Contents may change based on the student's requirement or time constraint.

Example of Bad Data Visualization

Misleading



More accurate



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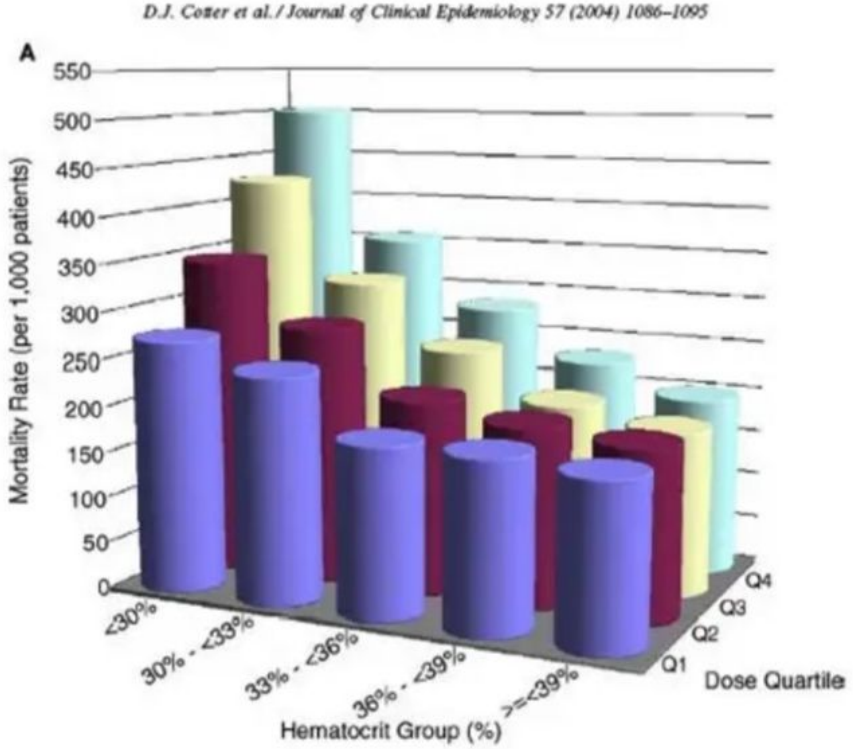

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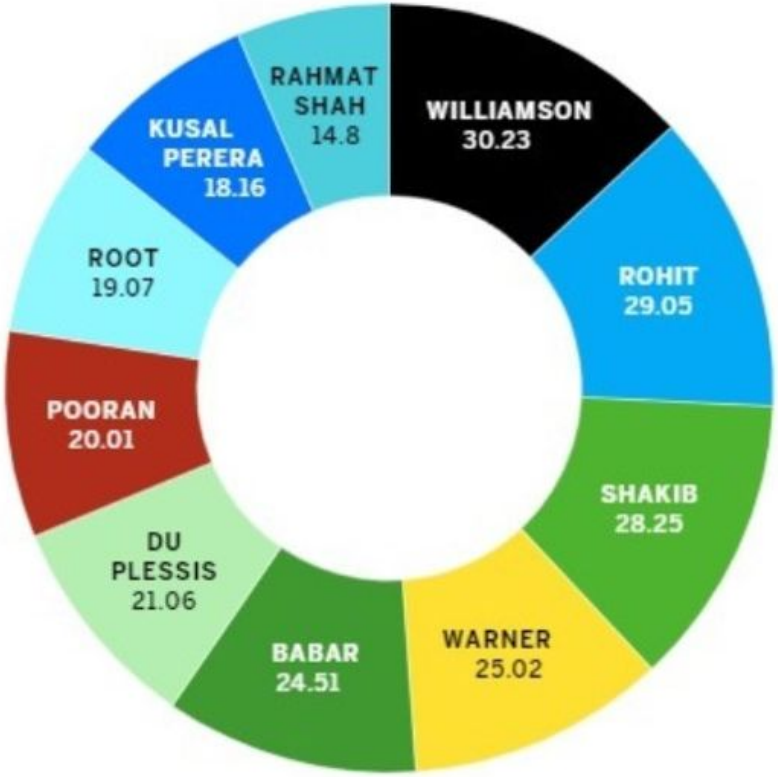

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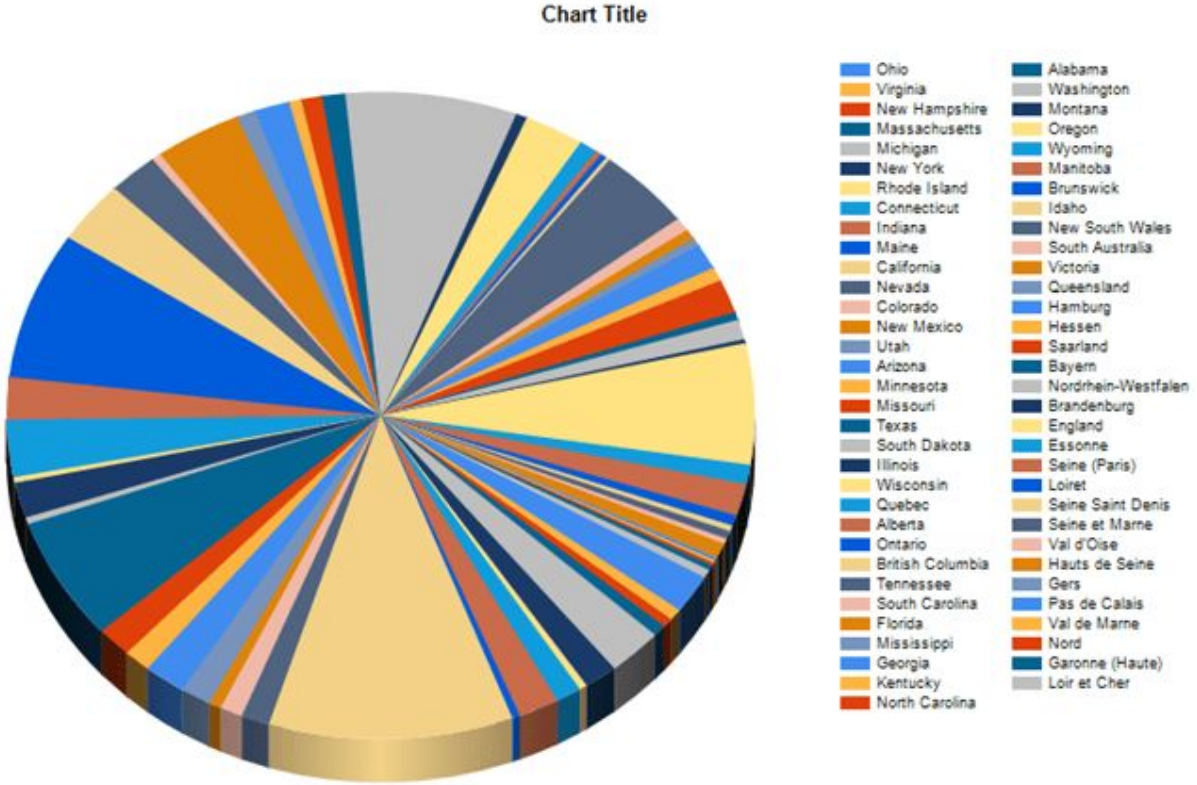

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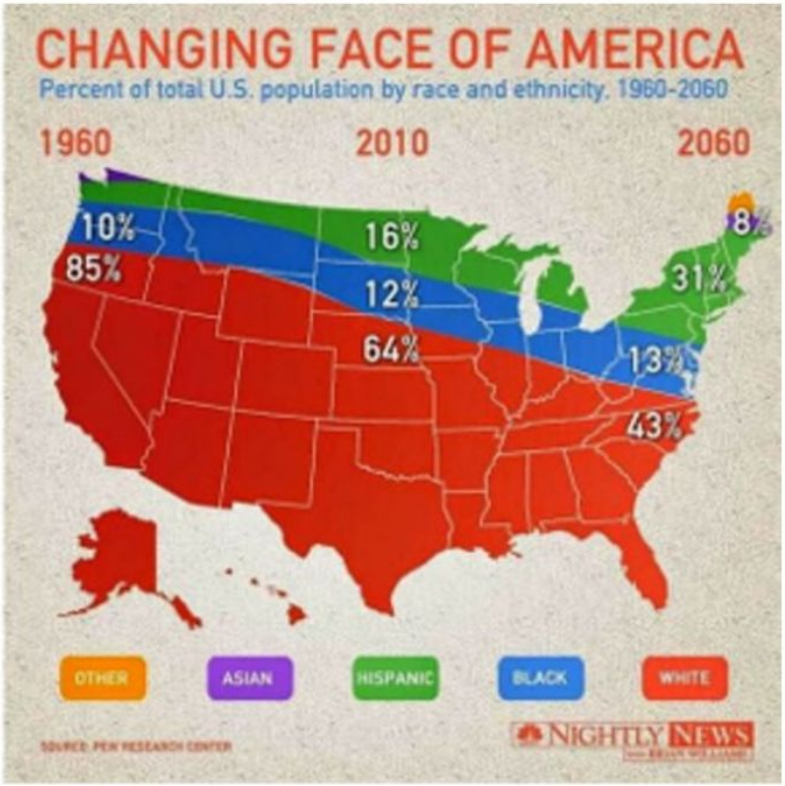

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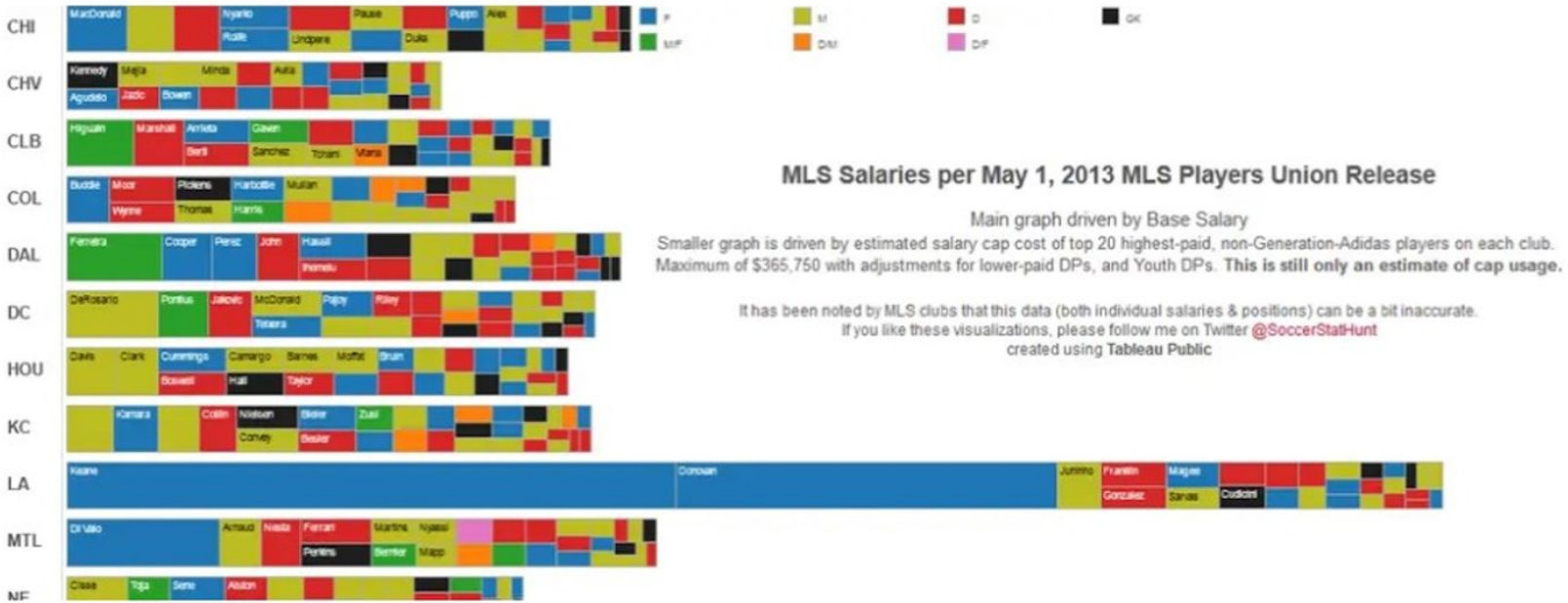

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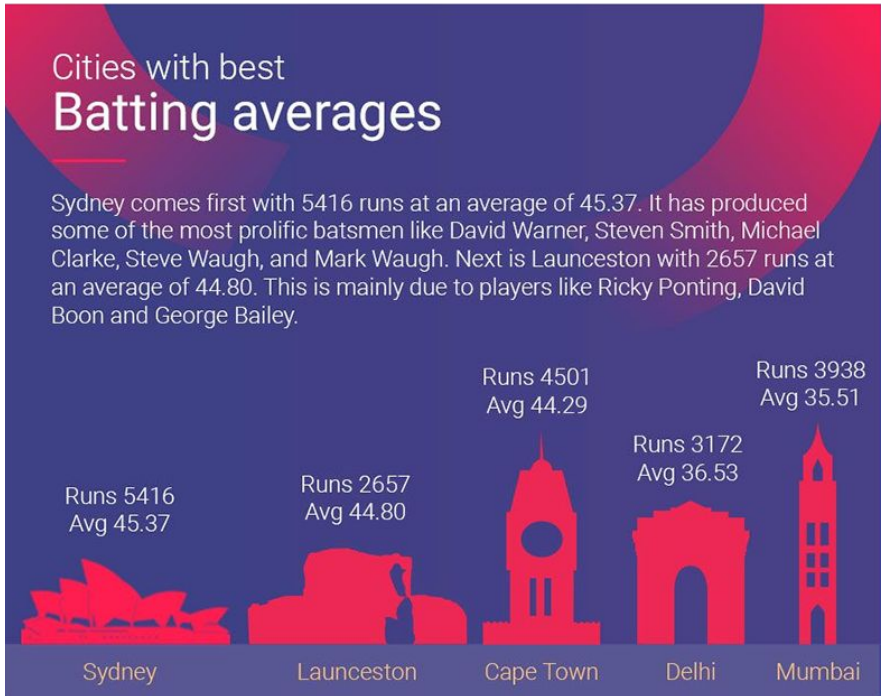

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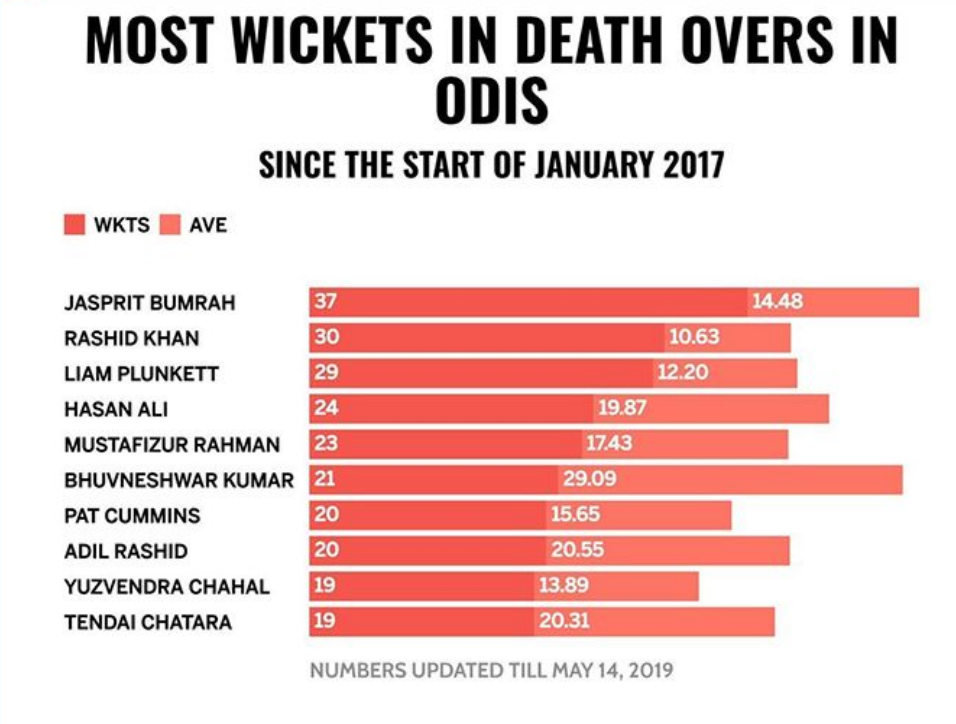

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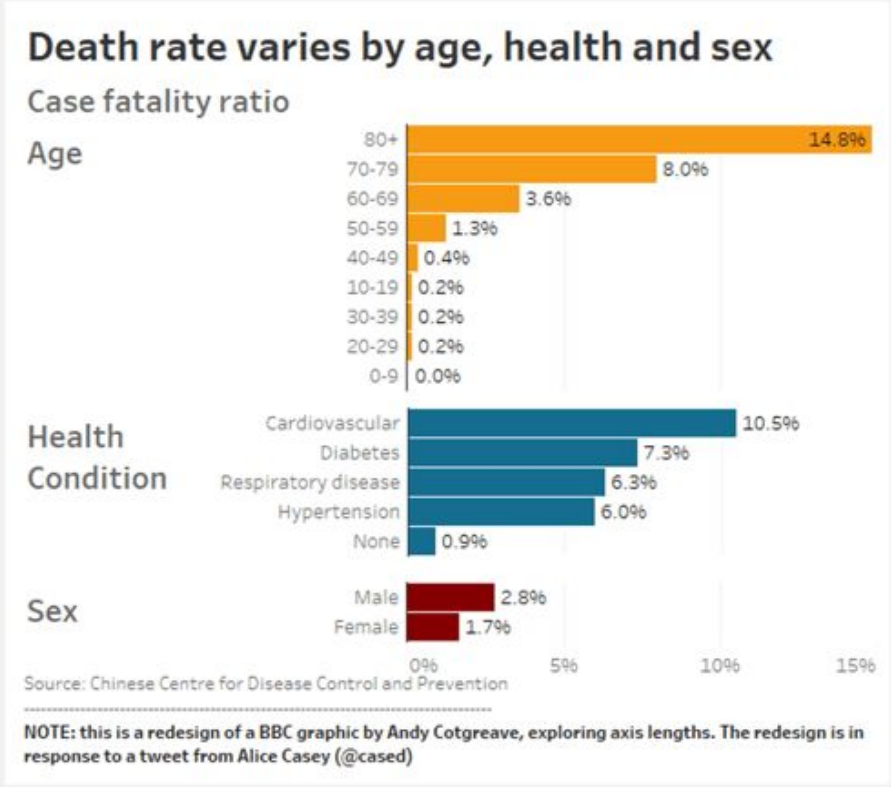

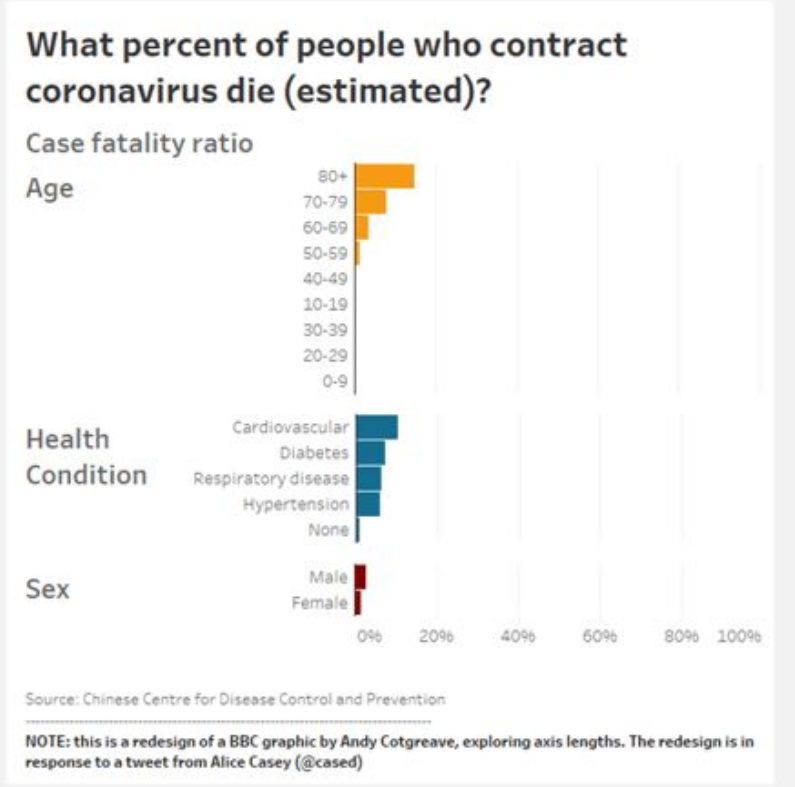

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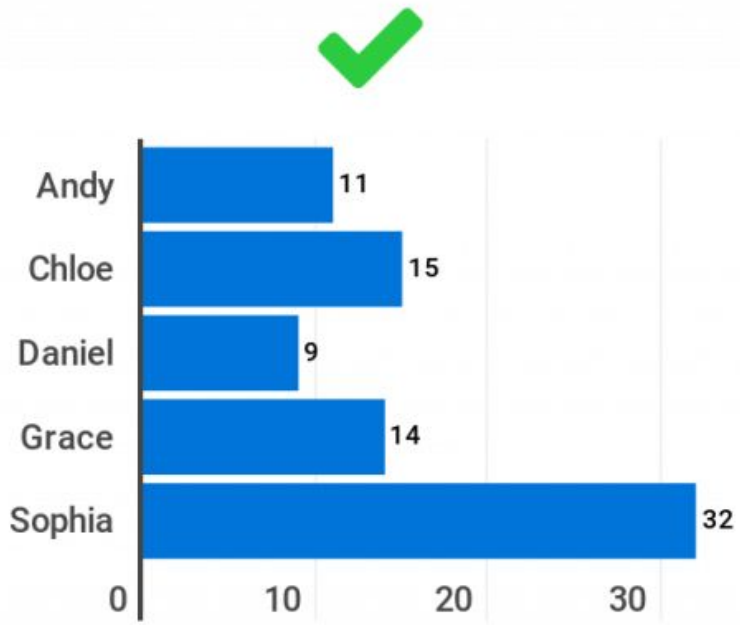

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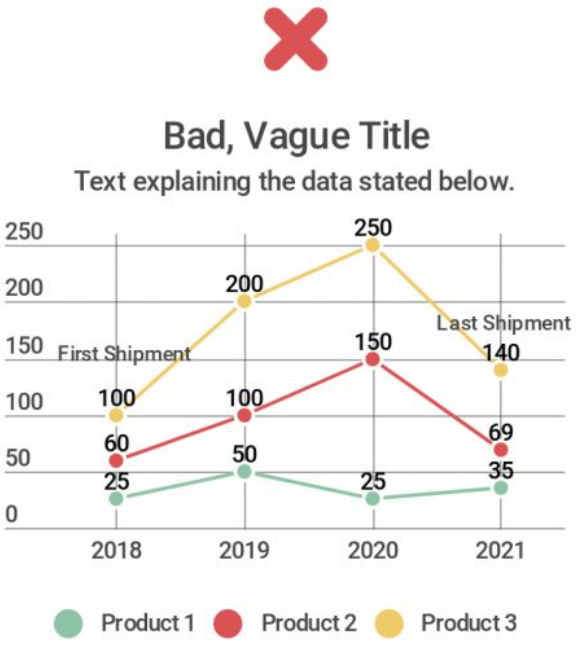

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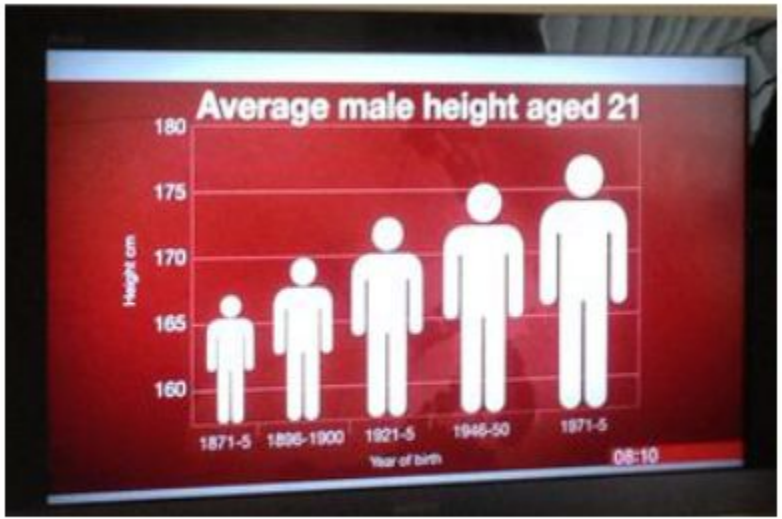

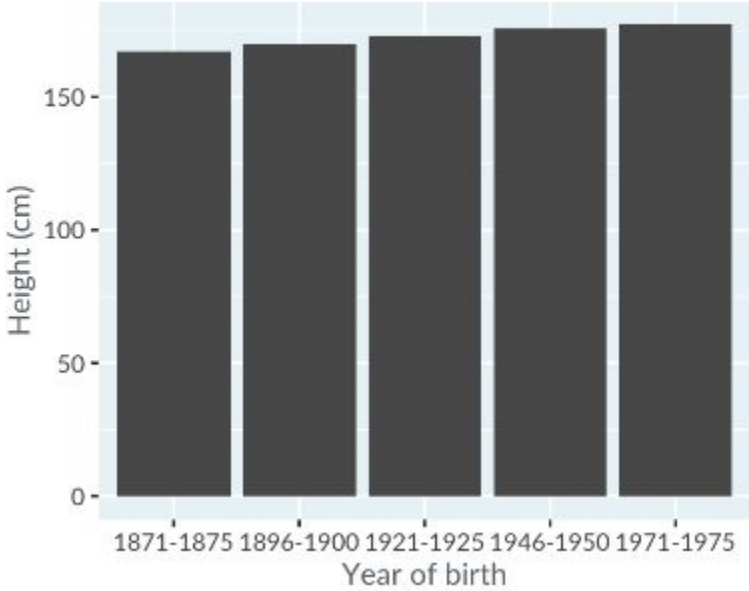

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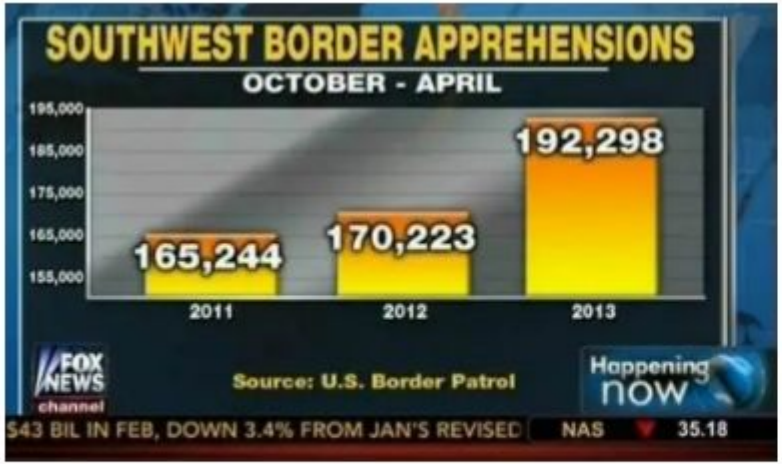

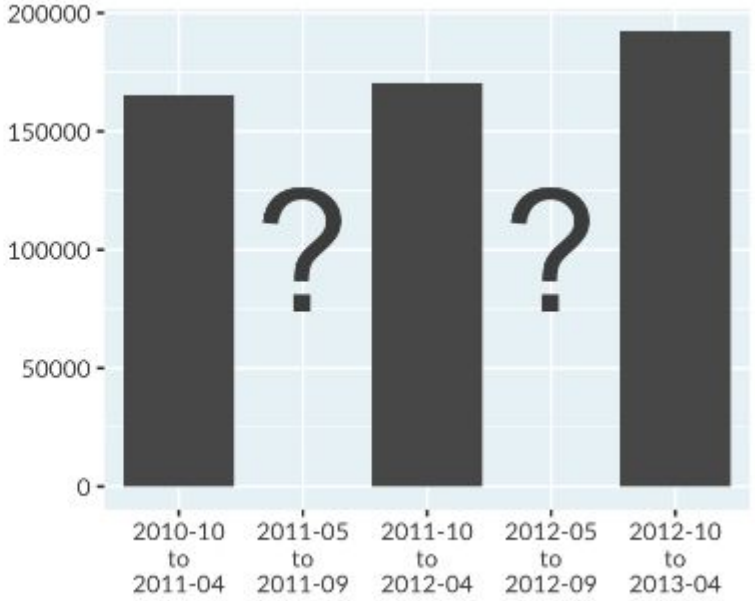

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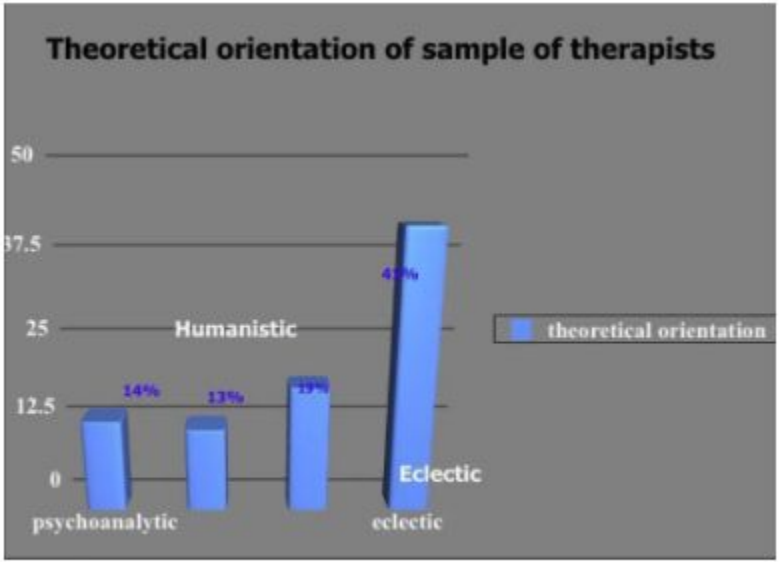

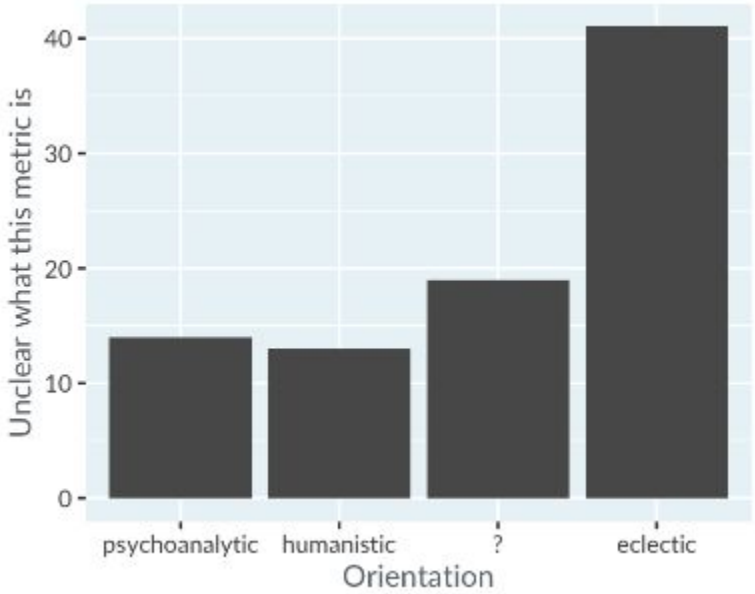

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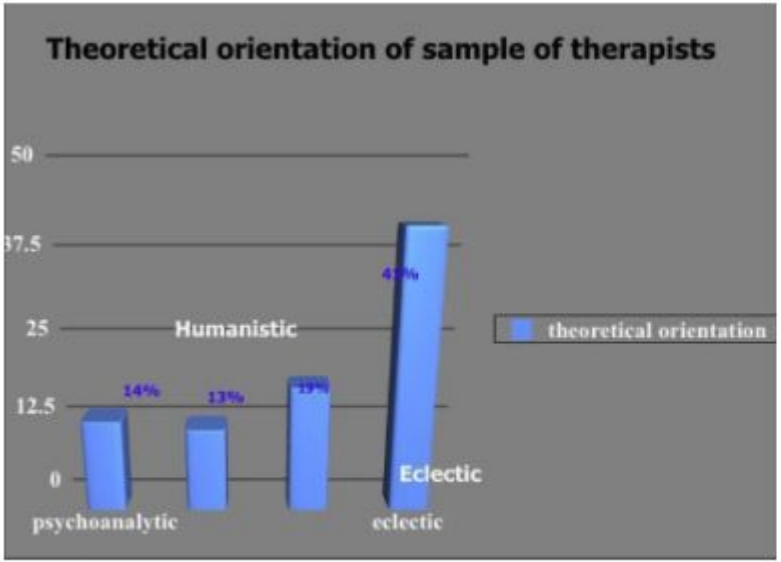

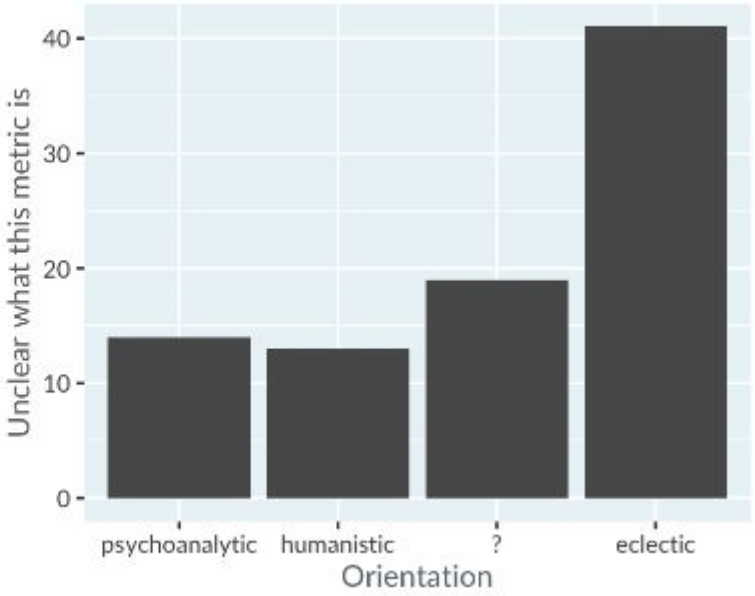

References

[1] https://www.jotform.com/blog/bad-data-visualization/

[2] https://medium.com/nightingale/bad-data-visualization-in-the-time-of-covid-19-5a9f8198ce3e

[3] https://www.espncricinfo.com/story/which-top-cricket-city-would-win-the-world-cup-1196522

[4] https://www.tableau.com/about/blog/2020/3/covid-19-resources-data-viz-best-practices

[5] https://infogram.com/blog/do-this-not-that-data-visualization-before-and-after-examples/

[6] https://www.washingtonpost.com/business/2019/10/14/youve-been-reading-charts-wrong-heres-how-pro-does-it/

[7] https://junkcharts.typepad.com/

[8] https://www.reddit.com/r/dataisugly/comments/dh6yra/an_actual_graph_presented_in_my_psychology/