



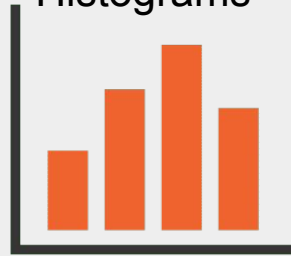
# Data Visualization

Zoie Telkamp  
Astronomy 8500

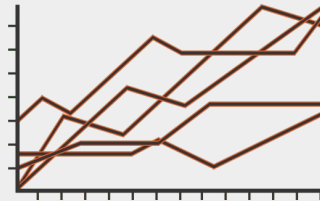
# Choosing the right type of visualization

- Bar charts
- Histograms
- Scatter plot
- Line graphs
- Maps
- Pie Charts

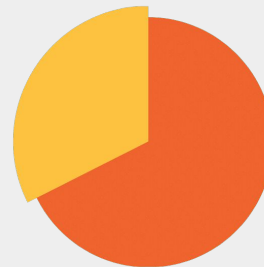
Bar Charts /  
Histograms



Line Graphs



Pie charts



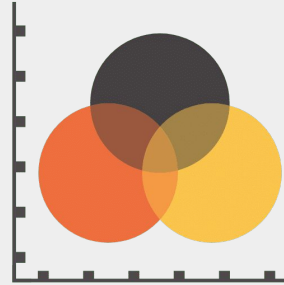
# Choosing the right type of visualization

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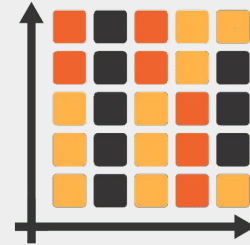
Bar Charts /  
Histograms



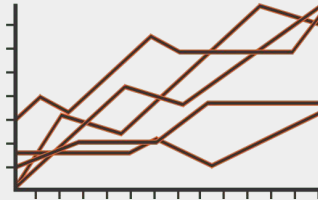
Bubble Charts



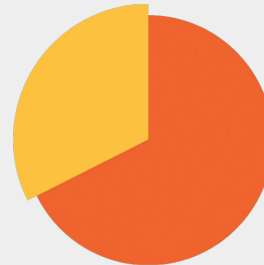
Mekko Charts



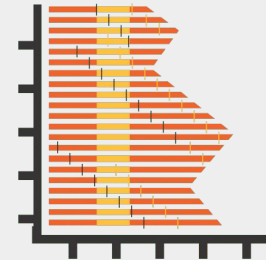
Line Graphs



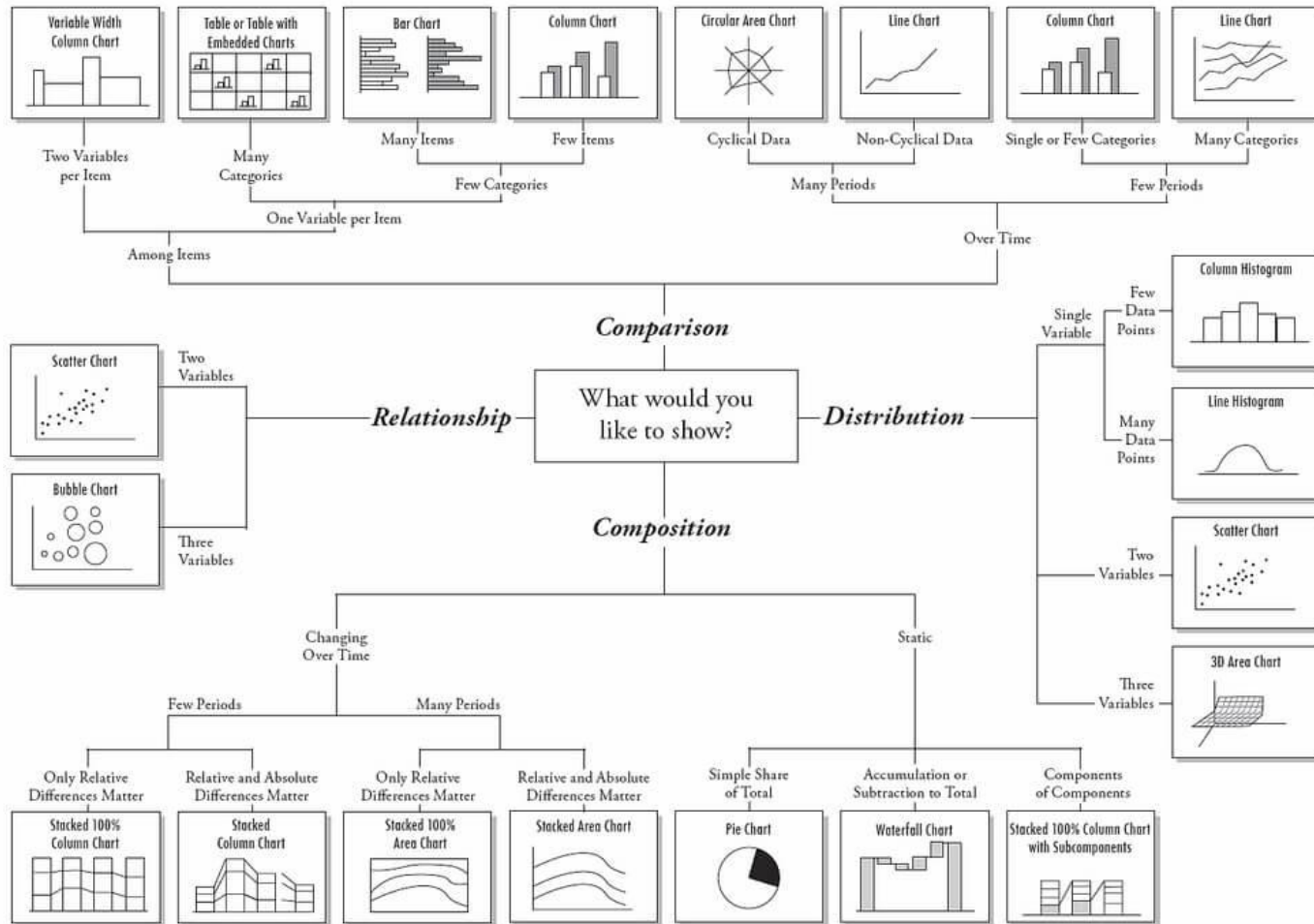
Pie charts



Bullet Graphs



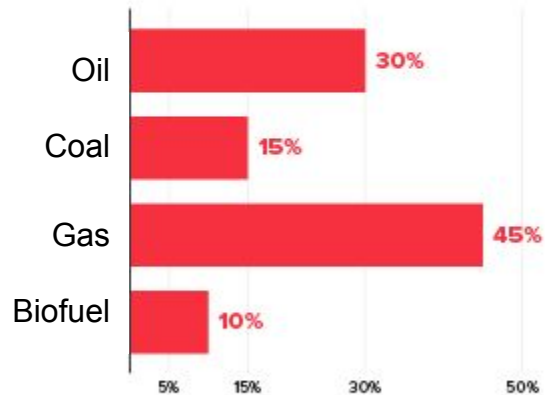
# Chart Suggestions—A Thought-Starter



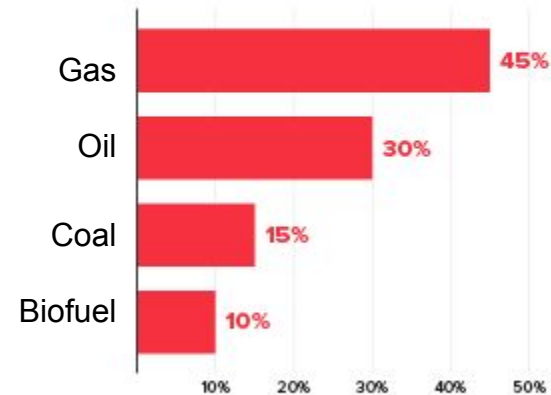
# Use predictable patterns or layouts



INCORRECT



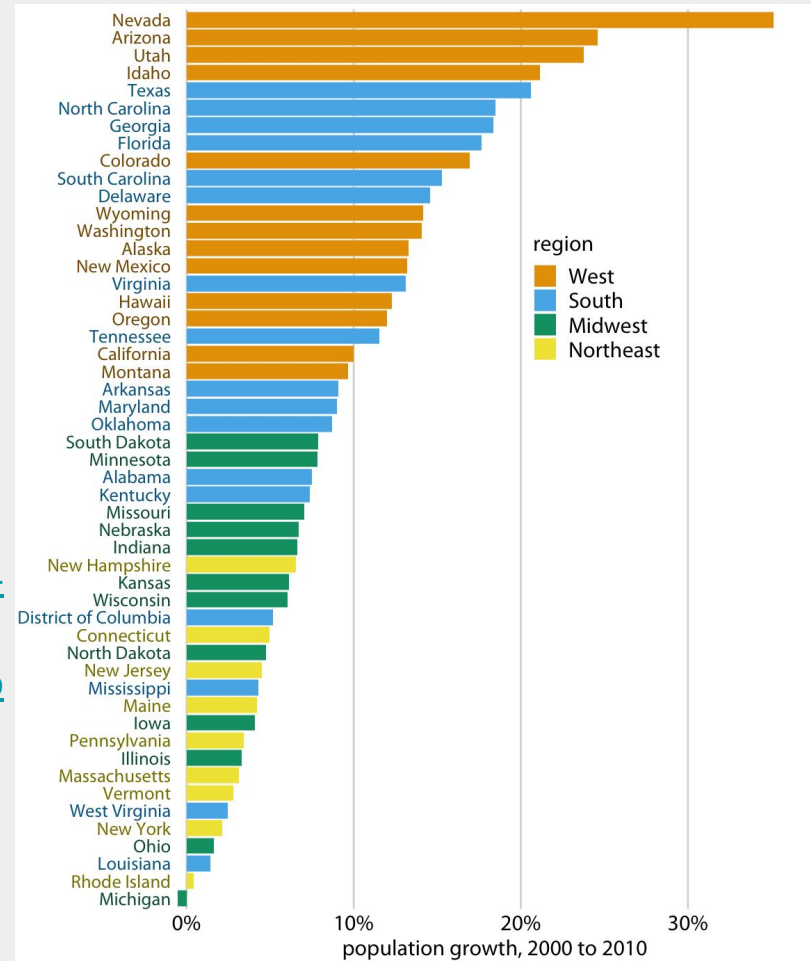
CORRECT



<https://www.columnfivemedia.com/25-tips-to-upgrade-your-data-visualization-design/>

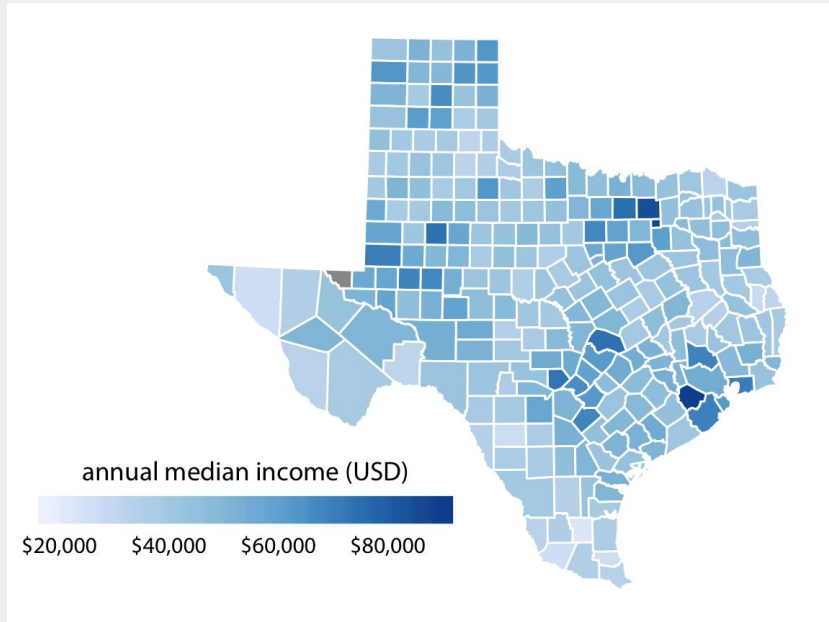
# Use Color to Encode Qualitative Information

- Can help distinguish qualitative information
- Use colors that are maximally distinctive
- Use accessible color schemes
  - <https://www.color-blindness.com/coblis-color-blindness-simulator/>
  - <https://uxdesign.cc/data-visualization-for-color-accessibility-8a30ce25d90b>



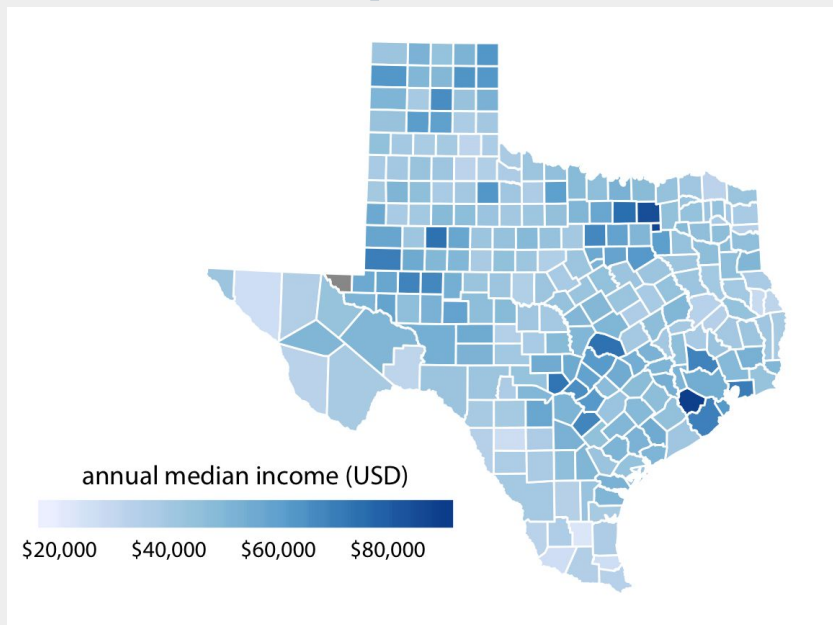
# Use Color to Encode Quantitative Information

## Sequential



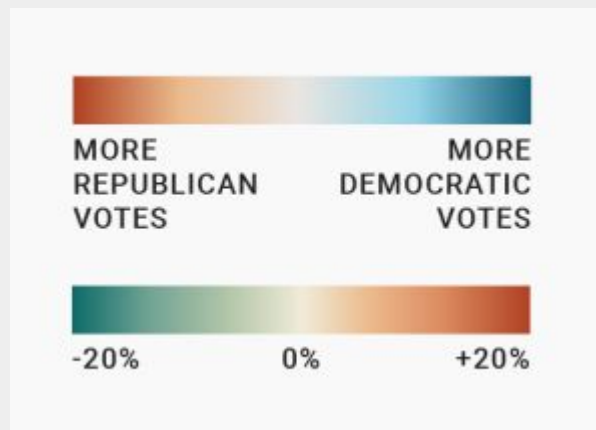
# Use Color to Encode Quantitative Information

## Sequential



<https://clauswilke.com/dataviz/color-basics.html>

## Diverging



<https://blog.datawrapper.de/diverging-vs-sequential-color-scales/>



Number of data classes: 3

Nature of your data:  
 sequential  diverging  qualitative

Pick a color scheme:



Only show:  
 colorblind safe  
 print friendly  
 photocopy safe

Context:  
 roads  
 cities  
 borders

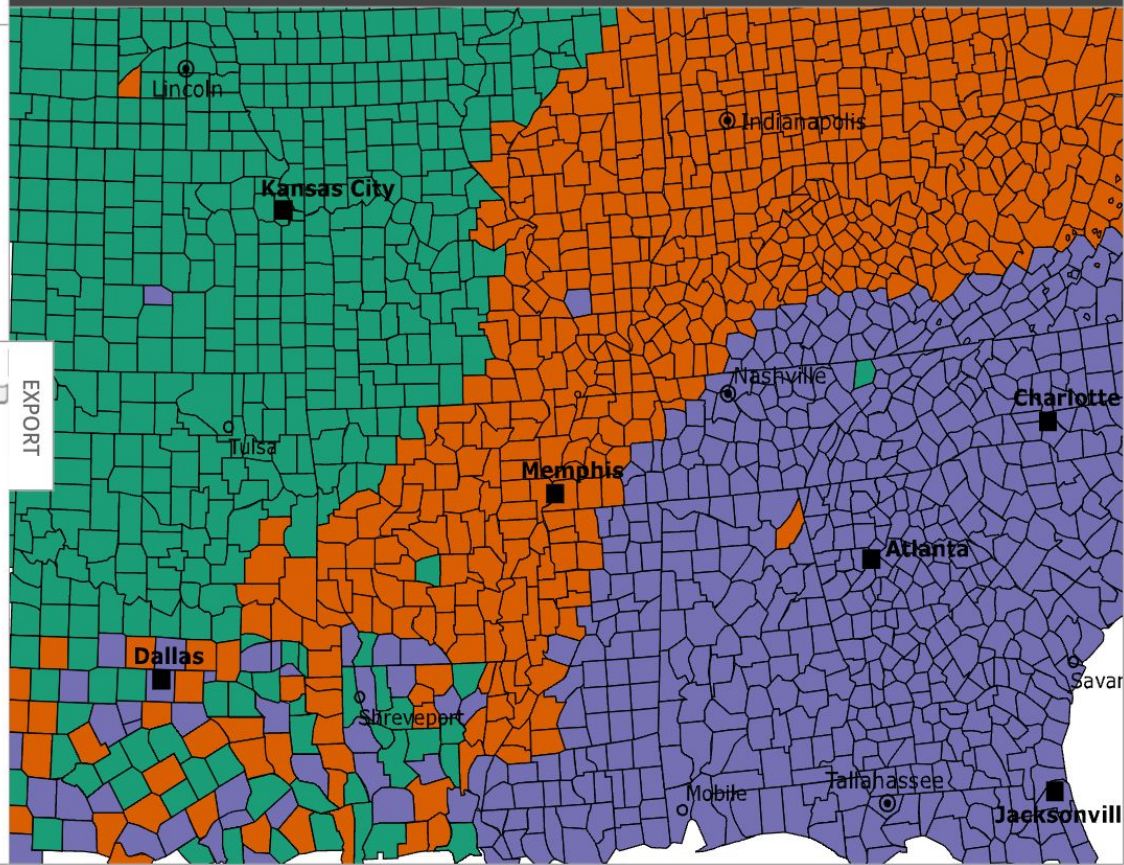
Background:  
 solid color  
 terrain  
color transparency

3-class Dark2

HEX

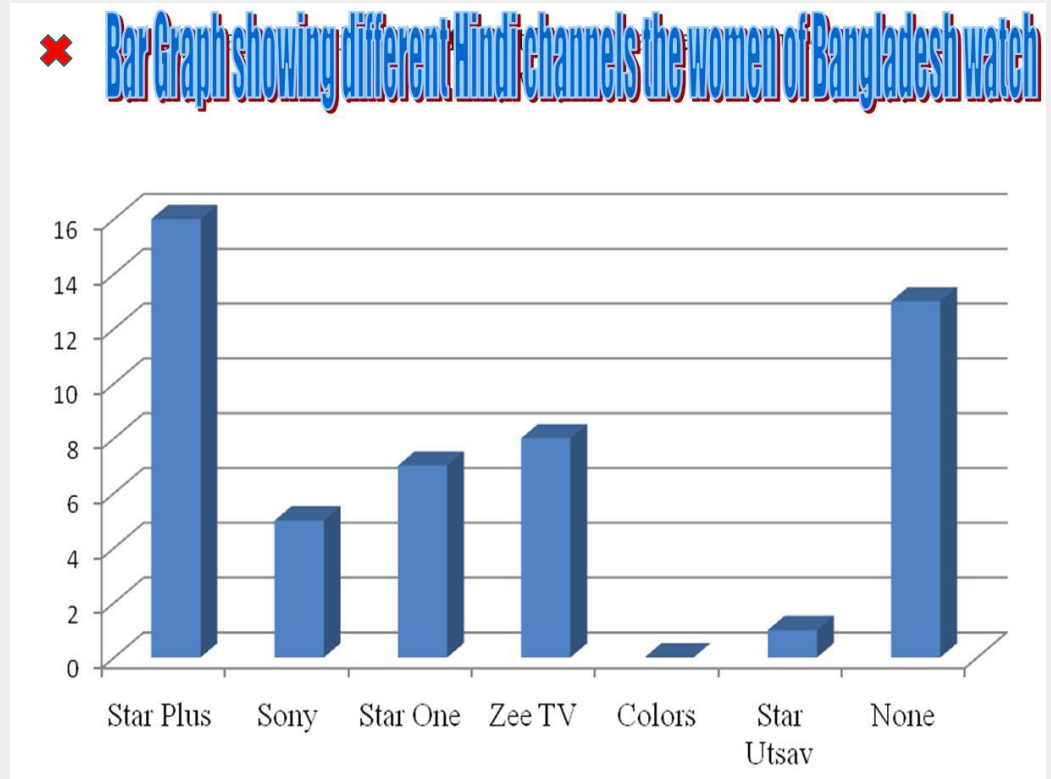
- #1b9e77
- #d95f02
- #7570b3

EXPORT



# Keep Visualizations Simple

- Avoid unnecessary elements such as...
  - Gridlines
  - Redundant Axes
  - Shadows
  - Patterns



# Avoid Misrepresenting the Data

- Avoid...
  - Omitting baselines
  - Excluding data
  - Hiding data
  - Going against convention



<https://twitter.com/tEconomics/status/1035089817518964736>

# Summary

- Choose the right chart or graph to most effectively communicate the information
- Use color to convey qualitative or quantitative information
- Keep visualizations simple
- Avoid misrepresenting the data

## References

- <https://clauswilke.com/dataviz/color-basics.html>
- <https://paldhous.github.io/ucb/2016/dataviz/week2.html>
- <https://blog.datawrapper.de/diverging-vs-sequential-color-scales/>
- <https://www.columnfivemedia.com/25-tips-to-upgrade-your-data-visualization-design/>
- <https://www.tableau.com/learn/articles/data-visualization-tips>