Visualization Checklist

First, make sure you've chosen an appropriate graphic. The table below has suggestions. Sometimes other graphics may be more appropriate.

First Feature	Second Feature	Plot
categorical		bar, dot
categorical	categorial	bar, dot, mosaic, heatmap
numerical		box, density, histogram
numerical	categorical	box, density
numerical	numerical	line, scatter,

Next, go through this checklist with each graphic you plan to use:

Content

- ☐ Data Visual is clear and concise.
    - Does the graphic convey important information? Don't include graphics that are uninformative or redundant.
- ☐ Data Visual is audience-centric.
    - Deliver information that is relevant to reader
- ☐ Data selected carefully
    - Avoid too many graphics of unimportant information as they dilute the power of visualization.

Color

- ☐ Intentional color scheme, not random
- ☐ Color is used to highlight key patterns.
    - Action colors should guide the viewer to key parts of the display
    - Less important or supporting data should be a muted color.

Labels & Lines

- ☐ Title? Make sure the title explains what the graphic shows.

- [ ] Axis labels? Label the axes in plain language (no variable names!).
- [ ] Axis units? Label the axes with units (inches, dollars, etc).
- [ ] Legend? Any graphic that shows two or more categories coded by style or color must include a legend.
- [ ] Appropriate scales and limits? Make sure the scales and limits of the axes do not lead people to incorrect conclusions. For side-by-side graphics or graphics that viewers will compare, use identical scales and limits.
- [ ] No overplotting? Scatter plots where many plot points overlap hide the actual patterns in the data. Make the points smaller or use a two-dimensional density plot (a smooth scatter plot) instead.
- [ ] No more than 5 lines? Line plots with more than 5 lines risk becoming hard-to-read “spaghetti” plots. Generally a line plot with more than 5 lines should be split into multiple plots with fewer lines. If the x-axis is discrete, consider using a heat map instead.
- [ ] Should it be a dot plot? Pie plots are hard to read and bar plots don’t use space efficiently (Cleveland and McGill 1990; Heer and Bostock 2010). Generally a dot plot is a better choice.