Exercise: Small Multiples

This exercise uses:

- the `{ggplot2}` library
- Your knowledge from past in-class exercises, videos, homework, etc. and corresponding modules from the course site.

Writing Leads (alternative)

If you would instead prefer to organize the team report R Markdown file, you can use time to work on that goal. The associated files and report-directory structure are on the the course site under the Project tab.

You should already have `{tinytex}` installed. If you have not yet installed the library, do that and then ensure that you have pdf and LaTeX capability by running `tinytex::install_tinytex()` to install a tiny Tex distribution. I recommend you create the core report so that you know you can knit as a pdf. Then, practice with the team cleaning scripts and your plot scripts so that you are certain that the R Markdown file is reproducible by creating and updating all `.Rds` and `.png` files needed for the report. As mentioned previously, there can be no hard-coded elements of the report that would prevent updates with new and final data.

Consider also working with R in-line objects as we have in previous R Markdown exercises so that your values in the report will update with new data.

Overview

This exercises provides some practice creating visualizations to communicate small multiples, or facet plots, and evaluate their advantages or disadvantages of communicating data.

Data Set

Use either the `ggplot2::diamonds` data or your team-project data if it allows for practicing these plots.

Problem 1: A Plot with a Legend

Create a plot (e.g., bar, scatter, point-range, etc.) that communicate data for two dimensions plus a variable that you map to an aesthetic for a legend. For example an xy scatter plot with another variable mapped to z or a bar plot using two grouping variables and another grouping variable mapped to another aesthetic.

Problem 2: Small Multiples

1. Using the same variables, create a small-multiple alternative of the previous plot.
2. Compare the two plots on their effectiveness to communicate the data. What are they strengths and weaknesses of each plot type?

Problem 2: Ordered Small Multiples

1. Modify your code from Problem #2 so that you can order your small multiples in some way that would allow you to communicate another statistical element of your data.
2. Explain why you decided to order your data in this way. What was the advantage or disadvantage?