- For each assignment, you may choose to use either R or Python. Please ensure consistency within each homework.
- You are not restricted to the matplotlib library.
- Submit your report as a PDF, incorporating your code either as an appendix or directly within the text as inline code.
- Before submission, critically assess your own plots using the McCandless method and the Trifecta Checkup framework (this evaluation does not need to be included in your report).
- Attention to visual form details is crucial for an effective and visually appealing presentation. This includes the effective use of color, as well as the proper configuration of axes characteristics (such as labels, ticks, font size, and limits), title, and legend (if necessary).
- Your creativity in formulating an intriguing question, selecting an engaging plot type, and the complexity of your visualization will also be taken into consideration.
- This assignment can be completed individually or with up to two partners.

1- (36 points): Make yourself familiarized with the Ph.D. publication data set, and then compose three interesting questions and use bar plots (simple, grouped, and stacked), and their alternatives like heatmaps, and dot plot to answer these questions. One plot for each question and preferably different types.

2- (36 points): Now, switch to the Diamond data set, and repeat the procedure of problem 1, except for this problem, focus on visualizing distributions. Compose three interesting questions and answer the questions with different types of plots we learned in class. Avoid using a single type for all three questions.

3- (491 only- 28 points): Revisit recent news, your preferred blog, or similar sources and identify one plot focusing on amounts and another on distributions. Critique them based on the Trifecta Checkup framework, concentrating on the data and visual form to assess if the chosen plot type effectively addresses the question posed. Pay careful attention to the color map, scales, and aesthetics used. Evaluate the plot's categorization within the Trifecta framework (single, double, or triple) and suggest improvements.

4- (591 only- 28 points): Choose plots from your recent or past publications or reports, or from a paper featuring open-source data, specifically one showcasing amounts and another depicting distributions. Aim to recreate and refine these plots by incorporating insights from discussions over the past three weeks, focusing on selecting the appropriate plot type, color map, coordinate system, and aesthetics. For each visualization, write a brief analysis detailing the shortcomings of the original version and explaining how the current version delivers the message of the plot more effectively.