Data Visualization Final Projects

A key part of many branches of science is the analysis and communication of data. As scientists, these are basic skills that you should take away from CS 710. Thus, the final project seeks to assess your ability to analyze and communicate data.

For the final project, you will be assessed on your ability to create and communicate a unique set of visualizations of a data set of your choosing. You will present these visualizations during the final exam period. You will also be required to explain and defend your choice of visualization techniques based on the information that you've learned in the course. You will also be expected to participate in everyone else's presentations by providing critical analysis of other's works using the assessment tool that we will develop in class.

The Visualization

The data sets can be from your research, the internet at large, or from another research group. There are no restrictions on the type or amount of data that can be processed to create the visualization. **However, it is critical that your visualization answer some question about the data set that is relevant and interesting.** Simply looking for trends or differences is not sufficient without a question to guide the story of your visualizations!

Other guidelines on the visualization:

- The visualization must stand on its own. Include any explanatory text on the image. You will not get a chance to add any context to the visualization during the presentation.

- Your visualization can be in any format you wish. Feel free to be creative. The only catch is that you must be able to upload it in advance on Canvas as an assignment and it must be accessible via any standard computer.

- Your visualization can have as much text and as many figures as you wish.

- Your visualization can be more than one page, if you wish. Do not exceed 3 pages.

- You must provide the code to reproduce any data-driven figures in the visualization. (If the data are restricted, let me know.)

- The visualization can be created using any language, although open-source languages and systems are preferred.

Presentation Format

We will be conducting our final exam remotely on Zoom. All students are expected to attend the final exam for the duration of the period.

There are two aspects to your final project: your presentation and your participation in reviewing others' work.

Presentation

Since we have limited time for a slide-show type presentation, you will be required to upload your visualization project two days prior to the final exam period in order to give your classmates a change to review your work. Upload your work onto the Canvas Assignment created for the Final project visualization. **The deadline for uploading your final visualization is Thursday May 20 at 12:00 pm.**

During the presentation, you will have a chance to project your visualization as a slideshow. Your visualization may have more than one slide, although do not exceed 3 slides with visualizations. If you wish, you may prepare a few additional slides explaining the process of coming up with the visualizations, drafts of earlier visualizations, or other supportive material. You will be given a brief (3 minutes) period of justifying your choices for the visualization before fielding question from the audience. (Note: this time should **not** be used to explain the visualization itself!)

Peer Review

Your visualization and presentation will be scored by your classmates and the instructor. These scores will be averaged to give you the final presentation score. The assessment tool will be developed by us as a class and distributed before the first-draft presentations. Scores for the Final Presentation will consist of the assessment scores of three students and the score of the instructor (each weighted equally at 25%).

The final exam will occur Friday May 21 8:00 − 10:30 am.

Grading Scheme for Final Projects (with Deadlines)

Each assignment/deadline within the final project series is weighted as follows:

- Mon March 29, during class: have an "elevator pitch" ready for the data set you think you'll use for the final project.
- Fri April 2, 5 pm: Data set approval (5%)
- Mon April 19 – Fri April 23 : Individual progress conferences (5%)
- Mon May 3 – Wed May 12: Present a draft of your presentation in class (10%)
- Fri May 21, final exam time: Participation in presentations (20%)
- Fri May 21, final exam time: Presentation Score (60%)

Note: because of the disruption caused by COVID-19, all deadlines are soft. They must be completed by 5 pm on Wednesday May 12th for credit (except final exam). You must still attend and participate in the final exam for credit.

Methods of Assessment:

- Many of these are milestones which will be graded based on meeting the milestone in by the deadline listed (full credit or no credit). (Examples: data set approval, presenting first drafts)

- Some will be participation based, which typically will be all or nothing based on participating in the event (full credit or no credit). (Examples: Individual progress conferences, final project participation)

- The final presentation will be based on an assessment tools we develop in class and will be assessed by both the instructor and other students.