CSC/SDS 109: Communicating with Data

Fall 2024

Final Project: Visualization for Social Good

This is a group assignment, work in groups of 3-5. Groups of different sizes must be approved.

Goals:

- Apply the visualization theories from the semester to a topic of interest to you
- Design a visualization through the lens of social good

Instructions

For your final project you will work with classmates to design and create a visualization for social good focused on an area of interest to you. Your final product might be a series of visualizations, a dashboard, or maybe even a video. The final format is up to you and your group. Your final product should communicate data and impact society in a positive way. You can interpret that prompt as you see fit. Maybe you build a visualization that you imagine showing policy makers that highlights housing discrimination in Northampton. Or maybe you build a visualization showcasing the personalities of different Smith houses for future Smithies to explore when deciding where to live. Be creative and choose something important to you!

This project is a large portion of your final grade, and is broken up into milestones, described below. Be sure to submit each milestone and to put your best effort into all pieces. Your final project grade will combine all milestone grades. Milestones are due as listed on the course website. Be aware that some are due before class instead of 11:59pm. It is recommended that you read all instructions before beginning.

Milestone 1: Proposal- 26 points

For your project proposal you will identify your project group, a plan for working together, a topic, a dataset, and an understanding of your data. Type up a document that answers the following questions.

1. Group
   a. With whom do you plan to work? Groups must be 3 – 5 members (you must speak with me if you would like to work with a different size group). [2pts]
   b. Talk about your schedules. Detail a plan for coordinating your work throughout the project. [2pts]
2. Topic
   a. What topic area will you work with? Why is this area important/interesting? [2pts]
   b. What is the broader impact of your visualization? I.e. Who would use it and what would they gain? [2pts]
3. Data
   a. Find the data that you will visualize. You may need to combine multiple datasets, so having more than one is okay. Provide a link to your data source(s). [2pts]
   b. If you plan to use more than one data source, how will you combine your datasets? What is/are the common identifiers across datasets on which you can link them? [2pts]
   c. Investigate the source of your data.
      • Who collected it? [2pts]
      • Who provided the funds for data collection? [2pts]
      • Why was the data collected? [2pts]
      • What possible data biases do the answers to these questions highlight? [2pts]
   d. Which variables in your data will you visualize? How does visualizing those variables relate to your answer to 2.b above? [2pts]
4. Roadblocks
   a. What roadblocks do you anticipate hitting as you complete this project? Name at least three. [2pts]
   b. Detail your plan for dealing with these roadblocks. How will you overcome them, or if you cannot, how will you pivot your project? [2pts]

Milestone 2: Design & Prototype- 20 points

You will design your visualization and produce a low-to-medium-fidelity prototype to bring to class for testing/feedback.

1. User Persona
   a. Revisit the broader impact / purpose of your visualization. Who is the target audience for your visualization?
   b. Write a user persona for your visualization that includes:
      i. A name [2pts]

      ii.   The person's education, lifestyle, interests, values, goals, needs, limitations, desires, attitudes, and patterns of behaviors [2pts]

     iii.   Their relationship to technology [2pts]

   c.   Detail a scenario in which your persona uses your visualization. The scenario must include answers to these questions:

      i.   Why do they use the visualization? Do they have a specific goal? [2pts]

     ii.   How do they interact with the visualization? [2pts]

    iii.   What do they gain from using the visualization? [2pts]

2. Visualization Sketch

   a.   Sketch out your visualization in detail. Your sketch must include:

      i.   Clear (and appropriate) data – visual channel mappings [2pts]

     ii.   Notation where appropriate (Ex. To explain interaction or coordinated views) [2pts]

3. Prototype and Feedback

   a.   Create a low-fidelity paper prototype, or a medium-fidelity computer-based prototype of your visualization. [2pts]

   b.   You will bring your prototype to class for testing and feedback as listed on the course schedule. Identify 2 tasks you will ask a tester to perform with your prototype to help assess your design. [2pts]

Milestone 3: Redesign- 14 points

You will pair up with 3 other groups to test your prototype in class. The goal is to identify any parts of your design that are unintuitive, or confusing to an end user.

1. Testing

   a.   In class, find another group to pair up with. Ask one person in that group to complete each of the testing tasks you identified for milestone 2. Do not provide any feedback, help, or cues while they complete the tasks, but do ask them to "think aloud" and take notes on what you observe. [2pts]

   b.   Repeat the step above with another group. [2pts]

   c.   Repeat the step above with another group. [2pts]

   d.   Review the notes you have from your three tests. Synthesize common stumbling blocks/design issues you noticed across the three tests. [2pts]

2. Redesign

   a.   Based on the results of your testing, redesign your visualization sketch. Include:

      i.   Clear (and appropriate) data – visual channel mappings [2pts]

     ii.   Notation where appropriate (Ex. To explain interaction or coordinated views) [2pts]

    iii.   Notation of changes from the original design [2pts]

You will demonstrate your final product to the class during one of our last two class periods. **You must upload your submission to Gradescope before class on the first day of presentations.**

1. Visualization
   a. Includes at least 3 *different* visual encodings. [3pts]
   b. Includes at least 1 interactive feature. [1pt]
   c. Includes at least 2 coordinated views. [1pt]
   d. All visual encodings are labeled appropriately. [2pts]
   e. All visual encodings are titled appropriately. [2pts]
   f. All data-visual mappings are appropriate. [1pt]
2. Presentation
   a. An introduction to your visualization, including the motivation behind it. [1pt]
   b. A brief overview of the context for your data. [1pt]
   c. Your original visualization sketch, and the design rationale behind it. [2pts]
   d. Your revised visualization sketch, and how your design changed in response to your prototype testing. [2pts]
   e. A demonstration of your visualization. To demonstrate, show us the completion of two tasks you would expect an end user to perform with the visualization. [2pts]
   f. A conclusion. Share something you learned through this project, or something you would like to change or improve upon in your visualization. [1pt]
   g. Time for Q&A. In total, your presentation should be ~10 minutes. [1pt]

Submission

Submit your milestones on Gradescope as a group (https://guides.gradescope.com/hc/en-us/articles/21863861823373-Adding-Group-Members-to-a-Submission).