

# CSC/SDS 109: Communicating with Data

## 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 highly recommended that you read *all* milestone instructions before beginning so that you're aware of all parts of the project.

## 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 (you are not tied to these variables, the goal is to start thinking in concretes)? [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]

Be prepared to discuss your proposal with me in class on Proposal Check-Ins day.

## 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]
    - iii. Adhere to the visualization requirements listed in Milestone 4.
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]
4. Peer review (**in class** on Peer Review & Prototype Testing day)
  - a. Each person in your group should pick one person from another group to pair up with.
  - b. Using the attached review sheet as a guide, review your partner's persona, sketch, and prototype. Provide constructive feedback as well as a point score for each item.
  - c. Attach each group member's review sheets (the one you received and the one you wrote) to your Milestone 2 submission. Your grade will primarily reflect the quality of reviews you provide and the reviews you received.

### 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]
3. Peer review (**in class** on Peer Review & Advanced Tableau day)
  - a. Each person in your group should pick one person from another group to pair up with.
  - b. Using the attached review sheet as a guide, review your partner’s testing notes and revised visualization design. Provide constructive feedback as well as a point score for each item.
  - c. Attach each group member’s review sheets (the one you received and the one you wrote) to your Milestone 3 submission. Your grade will primarily reflect the quality of reviews you provide and the reviews you received.

#### Milestone 4: Final Product & Presentation- 30 points

You will demonstrate your visualization to the class during our last class period.

1. Requirements for the visualization:
  - a. Includes at least 3 *different* visual encodings. [3pts]
    - i. Each visual encoding must have:
      1. Appropriate data-visual mappings [3pt]
      2. Descriptive title [0.5pt]
      3. Readable axis titles and labels [1pts]
      4. A legend if necessary [0.5pt]
  - b. Includes at least 1 interactive feature. [2pts]
  - c. Includes a coordinated view. [5pts]
  - d. Posted to Tableau Public (submit the link for grading)
2. Requirements for demonstration
  - a. Be prepared to show off your visualization to your classmates [2.5pts]
  - b. Engage with your classmates' visualizations [2.5pts]

#### Submission

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

## CSC/SDS 109: Milestone 2 Peer Review

### User Persona

Item	Constructive Feedback	Possible Points	Assigned Points (half points allowed)
Name		2	
Person's education, lifestyle, interests, values, goals, needs, limitations, desires, attitudes, and patterns of behaviors		2	
Person's relationship to technology		2	
Why does this person use the visualization? Do they have a specific goal?		2	
How does this person interact with the visualization?		2	
What does this person gain from using the visualization?		2	
TOTAL		12	

### Visualization Sketch

Item	Constructive Feedback	Possible Points	Assigned Points (half points allowed)
Clear (and appropriate) data – visual channel mappings		2	
Notation where appropriate (Ex. To explain interaction or coordinated views)		2	
Adhere to the visualization requirements listed in Milestone 4.		0	
TOTAL		4	

### Prototype and Feedback

Item	Constructive Feedback	Possible Points	Assigned Points (half points allowed)
Low-fidelity paper prototype, or a medium-fidelity computer-based prototype of your visualization		2	
Two tasks for prototype testing		2	
TOTAL		4	

## CSC/SDS 109: Milestone 3 Peer Review

### Testing

Item	Constructive Feedback	Possible Points	Assigned Points (half points allowed)
Detailed notes on testing with group 1.		2	
Detailed notes on testing with group 2.		2	
Detailed notes on testing with group 3.		2	
Synthesis of common stumbling blocks/design issues noticed across the three tests.		2	
TOTAL		8	



## Redesign

Item	Constructive Feedback	Possible Points	Assigned Points (half points allowed)
Clear (and appropriate) data – visual channel mappings		2	
Notation where appropriate (Ex. To explain interaction or coordinated views)		2	
Notation of changes from the original design		2	
TOTAL		6	