Grade Item	Points	Weight Achieved	Grade	Comments and Assessments
Assignment 01	95 / 90	9.5 / 9	105.56 %	Overall Feedback Visualization 2: -- (no penalty) Why did you cut-and-paste scores.js into plot2.js -- the array is already available since you included scores.js in index.html Visualization 3: -- You defined a scale for position, and then opted not to use this in your plotting, as a result your axes and positions are not consistent (-4 points) Extra Credit in Visualization 1: -- Axes, tickmarks, and labels included, but they are not accurately scaled (+3 points) Extra Credit in Visualization 2: -- Axes, tickmarks, and labels included (+6 points) Extra Credit in Visualization 3: -- Axes, tickmarks, and labels included, but they are not accurately scaled due to ignoring the scales when plotting the data (+0 points) Overall Feedback: The class (in general) did quite well on this assignment. As a generic feedback -- please make sure you add comments in README.md if you have implemented something for extra credit. I did not require this for receiving extra credit this time, but the vast majority of the class who attempted extra credit did not signal it in your README. For future assignments,

					this will be required (esp. since it's easy for me to miss a feature when testing interactive visualizations). Late submissions received a 10% penalty per day. I apply this multiplicatively, e.g. 2 days late means that your final grade is computed by taking your total achieved points and multiplying the grade by 80% (rather than just subtracting a flat 20% of the maximum points). For students who turn a "perfect" assignment late, this is equivalent, whereas for students who turn a partially completed assignment this multiplicative scheme is somewhat beneficial to you. My rubric for allocated extra credit was based on the number and difficult of providing features. Generally, adding annotations such as axes, tickmarks, labels, and titles to graphs were each worth 1-2 points. A few students attempted color legends which also received additional points. For Visualization 3, these worth worth less than Vis 1 or Vis 2, as those annotations are much easier to make using d3 to generate the axes for you. If you have additional questions please reach out to me with a private message via email or Piazza. The syllabus outlines a specific policy for grade disputes.
	Assignment 02	88 / 90	8.8 / 9	97.78 %	Overall Feedback (+2 Extra credit) Color was used WITH a color legend for iris category. (-1 Brushing) Brush is actually much larger than the scatterplot, allowing you to make selections "out of bounds" (-3 Written Question 2) I don't see how species can be ordinal in this case. Can you tell me why setosa > virginica?
	Assignment 03	75 / 90	7.5 / 9	83.33 %	Overall Feedback (-3 Click/Swapping) it looks like your swap does not properly handle swapping of brushes (-2 Click/Swapping) Selected data is reset on the swap. (-0 Written #1) No penalty here, but I did want to point out your "actions" aren't the sorts of things I was looking for in general, they were describe what the interaction was, not what the action was. (you later say things like "look for, patterns" which are action, target pairs. (-0 Written #2) What is the justification for switching these per variable? While it was interesting to see a different color scale for each varible, without any kind of context cue / legend, this is a possible point of confusion I'd say. I wasn't asking you to change the color scheme per variable, the assignment spec was asking you to update the

					domain of the color scale to reflect the change in axis. (-5 Written #2) Your answer here seems focused on why you changed the color scale in each plot. I was asking for you to desribe why a particular color scale was relevant (e.g., why a sequential yellow-blue) (-5 Written #3) I don't see why in parallel coordinates it's any more/less confusing for variables of different ranges. In a parallel coordinates plot, just like a scatterplot matrix, all variables are plotted on their scales.
	Assignment 04	75 / 90	7.5 / 9	83.33 %	Overall Feedback (-10 Squarify) Squarify algorithm not implemented correctly (-5 Written #3) I specifically asked about the situation where the data was a hierarchy, visualized with either a treemap or a node-like diagram. The social network example you suggest is likely not a hierarchy, and items like clusters/communities would not appear in the way you described
	Assignment 05	70 / 90	7 / 9	77.78 %	Overall Feedback (-1 Specifying colorTF) You set the categorical flag to "true" for both your sequential and diverging map. (-5 Specifying colorTF) Specifying colorTF) Your color maps are not sampled in a way that matches what you show the user. For example, you only use 7 colors to specify your categorical map, aligning with your 7 control points for the opacity TF, but there are 12 different colors in it. As a result, VTK will not produce a volume rendering with all of these missing colors. In fact, the x values for the opacityTF and the colorTF do not have to be identical. (-1 Specifying opacityTF) There is a tiny bug here; when you drag two points to have the same x-value, you produce two equi-valued points in your opacityTF. This can lead to weird behavior in VTK so you need to nudge the second value a tiny bit to the right. (-5 W1) Data being highly variable is not a consideration here. See L08 for information about the effectiveness principle. (-5 W2) Your answer does not accurately explain (-3) the ambiguous case (2 corners being above, 2 opposite corners being below). Adding noise here will not fix (-2) this case. (-3 W3) While your answer is correct in the general case; I was looking for a response that evaluated their utility in the setting of volume rendering rather than just in general.

	Assignment 06	85 / 90	8.5 / 9	94.44 %	Overall Feedback (-5 W3) I don't understand why texture-based techniques are "less accurate" -- they'll have the same level of accuracy as geometric techniques because both integrate the flow. Also, they are much more expensive to compute than geometric textures (you said geometric techniques were more expensive).
Project			32.08 / 35	91.67 %	
	Project Milestone 01 (Proposal)	50 / 60	14.58 / 17.5	83.33 %	Overall Feedback This project is approved to begin. I'm looking forward to seeing how your visualization dashboard for pollution comes together. That said, your proposal needs quite a lot of work from a writing perspective. In what follows I've mixed together a couple of places where I've applied some penalties with overall feedback on the project. (-5 Introduction) Both your introduction, and abstract, set goals that are unclear and poorly scoped, and I'm penalizing -5 points for it. Generally speaking, the point here is to be concrete on what you will do, not to try to sell or market the work. In your project update, I'll be looking for you to narrow the claims here to something that you will actually do, rather than trying to impress the reader. For example, you claim that a wide range of stakeholders ("researchers, policymakers, and citizens") will benefit. Are you actually intending to demonstrate this in your research? If so, how will you? Saying that something *could* be applicable to a wide range is very different than saying something *will* be applicable. Generally, you need to pick a project that is feasible, both to do accomplish and to demonstrate you've accomplished it. Another important catch-all phrase that people like to use, but is almost impossible to demonstrate, is that something is "user friendly" or "easy to use". Precisely what makes something user friendly? Is it just by nature of it being a visualization that it is more friendly than alternatives? As we've already talked about in class, visualizations can be quite complex! Instead, I'm looking for you to pin down the kinds of tasks you want this visualization tool to accomplish (think in terms of the task modeling lecture we had). You say "identify trends and patterns" -- what *kinds* of trends and patterns? I highly doubt "make informed decisions" and even less so "take proactive measures" can be shown here (to me, this means you will study the downstream consequences of a deployment of your tool, which you have not described in this proposal)

Your background section here is solid. I like the informal description of the types of data you have. A gap in your related work section is you've not really referred to visualization literature from vis conferences or journals though. There is a lot of research on geospatial visualization in IEEE VIS and TVCG, and so in your update I'll expect you to look into this. This will make for a much stronger project. Right now, you are naming lots of different graph types, and you're not doing them in a way that makes it clear which you will use. I'm not lookng for your proposal to show me that you know all the variations of different plots, I'm looking for this section to show me why certain charts are best for this data.

(-5 Research) Your research plan does a good job of hinting at what you will implement (of course, I appreciate this is a moving target). That said, your evaluation section is really not complete here, and I'm penalizing -5 points because of it. I suspect this is a byproduct of how you framed your goals in the introduction. To demonstrate success, you need a well-defined plan that is mapped into what you are claiming. Right now, your plan suggests too many different possible straights. For example, you mention collecting data from users, their feedback, usage, etc. I'm not sure this is necessary, nor do you leave room for it in your milestones. If you have a dashboard up by April 19...is 10 days sufficient to utilize it?

Instead, I think you might be better off evaluating the work in terms of specific tasks that it can achieve, and then thinking carefully about how your design ultimately achieves that. You can then experiment with your tool and record your own viewpoint on that (with examples in the final report.)

Another concern I have with your research plan is the scheduling itself. Right now, you're allocated 4 weeks (Mar 1-29) to collect data, but then it sounds like you're not actually finished cleaning the data until into April (you say on March 29 you "aim to begin cleaning..."). I think you probably need to do two things for this project to be feasible. The first is: data needs to be acquired much faster, and preliminary versions of it need to be cleaned and ready to go. Second: you need to develop prototypes of the visualization in parallel, ideally having a partial visualization ready by the first project milestone. This will give you the time to refine and evaluate the visualization during April.

Related: there are 3 of you on this project, so I think it's important to think about how each of you will contribute to the work. The proposal did not require a detailed description here, but it might be helpful to have that coordination written down so that you can keep each other in sync and have a detailed plan with more fine-grained milestones.

Another point of clarification is that I still am not sure precisely what data you plan to use. At first, I thought it was just going to be pollution data and

				commuter data. Later, your proposal mentions "social and economic factors" and then states "income". You've not described a data source for this data. That said, I really do think this is an interesting project -- I'm looking forward to seeing where your project goes between now and next month!
	Project Milestone 02 (Update)	60 / 60	17.5 / 17.5	100 %	Overall Feedback Thanks for the update. It looks like your group is on track for completing your implementation and at the stage where you can really hone in on your "Advanced visualization" milestones. This document greatly improves the evaluation section, which I think will help steer your implementations as well. Unfortunately, I couldn't give my feedback on your basic design. The included screenshot is much too low res, and nothing much can be discerned when zooming in. For your final report, I recommend capturing these at a higher resolution, or capturing portions of the interface as zoomed views to better describe your implementation. I was, however, able to get your code to run so I could see the basics there.
	Project Milestone 03 (Presentation)	- / 80	- / -	-%	
	Project Milestone 04 (Final)	- / 150	- / -	-%	
Design Critiques		5 / 5	5 / 5	100 %	