Lab 3: Interactive Data Visualization

Interaction, applied correctly, significantly improves the effectiveness of data visualizations. In this lab we're going to cover selected interaction taxonomies, identify some interaction "gaps" in your simulation project, and realize them via implementation or prototyping.

You may work together on this project, but your code must be your own and you must submit individually. For example, watching someone else use your visualization is a great way to identify interaction gaps.

There are many possible visualizations for a given dataset, and for every visualization there are many possible interactions available. Interactions can change the visual encodings, e.g. by switching from a line chart to an area chart, by changing how items are colored, or by revealing an element's details on a mouseover. Interactions can also change the data being displayed, e.g. by adding data through a user-specified query, or by applying a transform to the data. When you encounter visualizations, think of how the data and the main visualization techniques used provide opportunities for interaction.

Too much interaction can be problematic, however. We have all encountered interfaces that have many interactions available but no good place to put them (e.g. Blackboard). The same is true in visualization. Each interaction you add presents the user with another way to explore the data. But while "new ways to explore data" sounds good on the surface, if these explorations do not lead the user to a useful insight, they are essentially worthless. Your role in designing effective visualizations is to think deeply about what types of patterns and findings interactions can uncover.

With this in mind and the interaction taxonomy handout for this assignment, you're ready to analyze your simulation visualization for interaction opportunities.

Requirements

Your README.md should contain:

- A list of interactions your simulation currently supports, and why they support (or don't support) user understanding.
- Three (or more) interaction opportunities you identified from your analysis, this lab, and the handout. Tell me:
 - Describe what the user needs to be able to see/do.
 - How you identified these problems.
 - What interaction technique(s) can fill them.

From your interaction opportunities list, choose one of the interaction "gaps" and add it to your simulation or prototype it.

• Submit the resulting prototype (images) or implementation (code) along with the README.md.

Turning in the project

Either:

- (preferred) Submit a link to your repo on myWPI.
- Zip your README.md, code, and other materials and upload to myWPI.

Grading

This lab is graded on a 100 point scale. Points will be deducted for either a) choosing interactions with no clear analytical goal, or b) missing parts of the requirements. To be clear: the interactions you choose can be simple if they have a well-crafted analytical goal behind them.