CS 424 F2016
Visualization and Visual Analytics 1

Project 2 – Interactive Visualization Dashboard (due 11/1 at 3:30pm)

This project invites teams of 3 or 4 students to create a robust, sophisticated visual analytics platform, focused on two or more datasets of your choice. The project will give you the opportunity to: a) strengthen your research skills and practice finding and evaluating recent visualization techniques; b) explore how best to present and analyze patterns and trends within complex datasets; c) improve your Javascript and D3.js skills; and d) practice collaborating in group situations.

1. Choose datasets

Find two or more datasets that can be used provide insight into a specific domain. The datasets should be complementary, but each should include a different feature type that can be meaningfully explored in your dashboard. For example, one dataset might include network data, and another might include temporal data. Or, as another example, both datasets might include geospatial data, but one would focus on demographic information while the other focuses on environmental data.

2. Select visualization techniques

Select three interactive visualization techniques to represent different facets of your data. At least one of the techniques must be drawn from or inspired by a recent visualization paper. You should be able to convincingly explain why the techniques you've chosen are the best ones with which to facilitate your visual analytics tasks.

3. Create a visual analytics dashboard

Use Javascript and D3.js to create a robust, interactive visual analytics dashboard. The dashboard will incorporate three (or more) visualization techniques and enable a user to find patterns or trends within your selected datasets. You will use a public git repository (e.g., GitHub or BitBucket) to share your code with each other and with the class.

4. Document your work

- Provide clear instructions on how to install and use your software.
- Explain which visualization tasks your project supports.
- Give examples of interesting results that were found using your software.
- Include full citations to the articles that your project is based on or inspired by, along with a discussion of why particular visualization techniques were chosen.
- Create a short overview video highlighting the features of your project.
- List who was responsible for different parts of the project (this should also be clear from tracking the Git commits).

5. Present your work

One member of your team, selected at random, will present a short, 5-8 minute overview of your project in class on 11/1. You will arrive early to test your presentation on the CyberCommons video wall.

Grading for Project 2:

For a C grade: you will create a visualization dashboard using Javascript and D3.js that incorporates at least three different visualization techniques to explore the two (or more) integrated datasets you have chosen. The visualizations should be interactive and coordinated so that interacting with one will affect the other (see Muzner, chapter 12). At least one of the visualizations should be replicated or inspired from a technique described in a recent visualization paper.

Working code and clear instructions for getting the project to run on a local server should be hosted on GitHub. In the project "Readme", you will include a write-up that clearly describes details of your project, including: your motivation for choosing the datasets, an explanation of who the audience for your project is, examples of insights that your project makes possible and what questions can be answered using it, example images that demonstrate the visual elements of the project, a discussion of why your choices of visualization techniques is more effective than any other approach, and a proper citation of any visualization papers that your project is based off of or inspired by. Moreover, you will clearly delineate the work done by each of your team memebrs.

Finally, you must present a clear and concise overview of your project in class. I will choose one team member at random to present the project using the CyberCommons wall. The team member will be chosen the day of class, so all team members should be equally prepared to present the project.

For a B grade: you will fulfill all of the requirements of a C, plus:
- You will have chosen a more sophisticated visualization technique that is successfully incorporated into your project.
- Your project will support at least one visualization task beyond the search tasks (see Munzner, chapter 3; for example, it could support compare, summarize, derive, or discover tasks).
- You will provide multiple interactive techniques to manipulate your data in different ways (see Munzner, chapter 11).
- Your write-up will accurately contextualize your project in terms of Munzner's data abstraction and task abstraction taxonomies (see Munzner, chapters 2 and 3).
- You will additionally include a (short, 3 minutes max.) video overview of your project in the GitHub repo's Readme.

For an A grade: you will fulfill all of the requirements of a B, plus:
- Your project will support multiple visualization tasks, above and beyond the search tasks.
- Your project will feature at least one original visualization technique (or at least a highly modified version of an existing technique).
- Your project will demonstrate that it could be of value as a visual analytics tool for domain experts currently working with your data (or data similar to it). You will illustrate this with a thorough comparison to current visual analytics approaches.

Differences from original project goals (as listed in the W5Th.pdf):
- Project 2 no longer requires an evaluation component.
- You will use the Github Readme to document the project, rather than a more formal conference-style write-up.
- We'll cover evaluation and creating more formal documentation in Project 3.