Final Project

The goal of the project is to apply what you are learning in this course to a real set of data of interest. The project is a substantial part of your grade, and will be the primary task for the second half of the course. There are both individual and group components to the project grade.

The project has two phases. Phase I starts with explorations of a real dataset, chosen to support a general set of interesting tasks and scenarios. The first milestones (P1-P3) are primarily visualizations produced from the data, using the principles learned from Few and in the Tableau labs. These designs will be critiqued by your instructors and some of your fellow classmates.

Phase II of the project expands on the insights gleaned from this exploration to design and simulate an interactive visualization system. By simulation, we mean a dynamic storyboard, which may be produced in Flash, PowerPoint, dynamic HTML, or some other suitable system. Students may also choose to implement their own custom system to generate selected panels of the storyboard dynamically from their dataset.

To design this system, the team will first brainstorm, then select and refine two alternative designs. After presenting the designs to the class (P4) and receiving feedback, one design will be refined, with the goal of presenting several dynamic scenarios to class during the last week of the course (P6). In the lab immediately prior to these presentations, there will be an opportunity to have your fellow students perform usability testing on the simulation. That is, they will act as potential users, and will provide feedback based on their experience (P5). The final report (P7) will summarize and evaluate the project.

Student feedback and evaluation: Students will be required to provide individual, written feedback to two projects other than their own at milestones P4 and P6. They will also participate in the usability lab (P5), providing verbal feedback during the lab. These evaluations will be graded for quality and effort.

Grading: Phase I is worth 120 points. Phase II is worth 415 points. P2 is individually graded, as are the project feedback assignments. All other grades are given equally to the group except in special circumstances.

Phase I: P1 (checkpoint), P2 (60 points), P3 (60 points)

Phase II: P4 (75 points), P5 (35 pts), P6 (100 points), P7 (85 points). PF for P4 and P6, 60 points each.

Detailed milestones

P1. Project Topic, Dataset(s) and Team Members (10/19)

- Teams are 3-4 people
- Topic should include a general description of the goals, users and tasks of interest.
- Data should support the project goals and be of sufficient size and richness that it requires overview+detail to visualize it effectively. You may want to explore several possible datasets to check their suitability or to consider combining them.
- Create a website that includes:
  Project description, team members, links to proposed dataset(s)
- Analyze data in lab, using Tableau. Lab report is P2 (see below)
- Grading: Appropriateness of topic, completeness of the elements. Feedback only, no points given.

P2. Individual Data Visualization (10/25)

- Goal: understand your data
- Using Tableau, create a set of visualizations from your data that present the primary characteristics of the data important for your project.
- Each visualization should be explained, including the user (may all be the same), task/message, and what makes it effective (in brief).
- Each team member individually creates and describes 3-5 visualizations. Work together to avoid duplication and to fully explore your data.
- All presentations are posted on the project website.
- Grading: Individual grade, based on quality of visualization and explanations. Uses Few's principles.

P3. Data & Task Visualization (10/30)

- Goal: Summarize your data and tasks
- The group together creates 5-7 visualizations that support the type of tasks you will want to address in your project (could be candidates for inclusion in the storyboard). Include at least one overview, one detail, one dashboard, one time-based if appropriate and one map-based if appropriate. They should be structured like a Few exercise: what information/insight is being presented and to whom.
- All presentations are posted on the project website
- Grading: Few's principles, breadth of exploration, effectiveness of designs included

P4. Project design presentation (11/9)

- Goal: Scenarios and Interaction
- This is an in-lab presentation. Each group will have a 20 minute slot to present and take questions. You are expected to make a detailed PPT presentation.
- Present 2 possible designs for a dynamic, interactive tool based on your data. It should be based on your data, but may include plausible extensions, which must be described

- One design should be an extension of your Tableau visualization, adding interactive features such as dynamic queries or brushing, plus visual features such as images, links to web pages, treemap visualizations, etc.
- The other design should be substantially different than Tableau, most likely reflecting one of the interactive visualization systems described in class (Name Voyager, EZChooser, TableLens, Many-Eyes, etc).
- Present two different scenarios that include a user and their questions. Step through how they would use each design to answer their questions. These step-throughs should include: what controls the user would manipulate and sketches of what they would see.
- The presentation should include a summary of the two designs and a discussion of their relative strengths and weaknesses.
- Grading: How effectively the designs support the stated goals and scenarios, breadth of exploration, quality of the presentation, creativity
- This presentation will be evaluated by a subset of your classmates, who will provide feedback on the quality and effectiveness of the design alternatives.

P5. Usability feedback (in lab on Friday 11/30)

- Goal: Feedback on the effectiveness of your system
- Prepare two exercises that support the two scenarios you will present in P6. These should include a description of the user and their problem or goal, plus a list of tasks to perform, like the NameVoyager exercise used in the first lab.
- The testing will be performed like a paper prototype, but your "pages" will be fairly polished, digital versions of your storyboard. Each action by the user creates a new "page" or screen arrangement.
- The lab will be divided into four 25 minute testing slots (4 slots x 5 projects = 20 total trials). Each person in the class will act as a test participant during one of these slots (Marilyn will fill the remaining slots).
- For each slot, one project member will be absent being a participant for a different project. The remaining project members will drive the storyboard and observe their participant. After the tasks are completed, plan questions that will gather verbal feedback from the participant on their satisfaction and/or suggestions.
- Improvements can be made to your system design between participants to react to issues that arise during testing. (You may wish to do this only for serious issues.) Record all changes for potential discussion in P6 and P7.
- Post your participant materials (two test exercises with user description, goal and tasks, and follow-up questions) on your project website.
- Grading: Effectiveness of participant materials for assessing your system, level of preparation for the trials

P6. Storyboard presentation and discussion (in class, Tuesday & Thursday 12/4 & 6)

- Goal: Problem, Scenarios, Solutions.
- This is a formal, in-class PowerPoint presentation. Three groups will present on 12/4, and two will present on 12/6. Each group will have 25 minutes, including questions. Each group member must participate in the presentation.
- Your presentation should take no more than 20 minutes and include:

    - A brief introduction to your data and your goals (1-2 minutes)
    - Your simulation/storyboard of your final system. This should include 2 scenarios, fully detailed, with branching. This can be in PowerPoint, or in some other digital form. However, it must be viewable after the presentation. (8-10 minutes)
    - A discussion of your design process that highlights the key factors, challenges, inspirations, ideas and insights, from your data exploration forward, that influenced your design. Include a discussion of the P5 evaluation feedback and any resulting changes you made here. (3-5 minutes)
    - An evaluation of your system. Include extensions or improvements that you think would make it more effective. (3-5 minutes)
- Post your presentation and storyboard on the project website.
- Grading: Effectiveness of the system with respect to the stated tasks and goals; quality of the simulated visualizations, quality of the interaction, effectiveness of the presentation.
- This presentation will be evaluated by a subset of your classmates, who will provide feedback on the quality and effectiveness of your proposed system.

P7. Final report (Wednesday 12/12)

- Goal: Summarize, evaluate
- Written report: The goal is to be concise and insightful. 4-6 double-spaced pages long, with additional pages for figures as needed. Include all figures needed for to make your point, but assume we can see the P5 and P6 versions of the storyboards on your website.
- Summarize project: Project goals, design process, final system. Same information as in P6, but in report form. Be concise. Pick only 2-4 highlights from your storyboard to include, but be sure a version of the entire storyboard is accessible from the web.
    - Project evaluation: Given the feedback you received from P5 and P6, assess your final system design in light of your goals, target users and tasks. Assess the effectiveness of overview and detail views, including encodings, presentation choices, and support for interaction.
    - Assess the effectiveness of the interaction techniques and other system features in supporting the users and their tasks. Relate these to Shneiderman's infovis tasks (overview, zoom, filter, details-on-demand, relate, history, extract). If any of these were excluded, please justify.
- Individual reflection on the project; on your particular contributions, on the team (separate evaluations from each individual). What did you learn, what worked well, and what would you do differently if you could start over? You may format these on a separate page and hand them in privately if you prefer. A separate dropbox will be provided.
- Grading: Completeness of the report, insights shown from the evaluation.

Project Overview & Schedule

Phase I: Data & Static Vis	10/19	P1 Topic, Team & Data	checkpoint
120 points	*10/25*	*P2 Data Exploration Vis (indiv)*	*60 points*
	10/30	P3 Static Data & Task Vis	60 points
Phase II: Interactive Vis	11/9	P4 Interactive Design Presentation	75 points
415 points	*11/13*	*PF Feedback for P4 (indiv)*	*60 points*
	11/30	P5 Usability Feedback Lab	35 points
	12/4,6	P6 Interactive Project Presentation	100 points
	12/10	*PF Feedback for P6 (indiv)*	*60 points*
	12/12	P7 Final Report	85 points
Total: 535 points		Team: 355 points *Indiv: 180 points*	

Calendar view:

http://courses.washington.edu/info424/Lectures/Assignment%20Calendar.pdf