Final Project Guidelines

The goal of the project is to design and implement an interactive visualization that allows you to answer questions you have about some topic of your own choosing. You will acquire the data, design your visualization, implement it using any visualization package of your choice, and evaluate the results.

Project Team

You will work on this project in a **2-person project team**. You can come up with your own teams or use Piazza to find prospective team members. If you can't find a partner we will team you up with someone in class. In general, we do not anticipate that the grades for each group member will be different. *However*, we reserve the right to assign different grades to each group member based on peer assessments (see below).

Project Steps

There are a few actions you have to do for your final project. It is critical to note that **no extensions will be given** for any of these dates for any reason. **For due dates see the schedule on the course webpage.** Projects submitted after the final due date will not be graded. These steps are:

- **Project proposals** & announcing your project repository
- **Revised proposal, Related Work, and Website**
- **Alpha release – an interactive visualization that loads in your data**
- **Beta release - a Functional project prototype**
- **Final project presentation**
- **Final project submission (including screen-cast) & peer evaluations**

Proposal (4/17)

You start your project by forming your groups and letting us know what topic you are interested in exploring by submitting project proposal. **Each team will only need to**

submit one proposal. The proposal document must address the following points. Use these points as headers in your document.

- **Basic Info.** The project title, your names, e-mail addresses, a link to the project repository on github.
- **Background and Motivation.** Discuss your motivations and reasons for choosing this project, especially any background or research interests that may have influenced your decision.
- **Project Objectives.** Provide the primary questions you are trying to answer with your visualization. What would a user learn and accomplish? Identify about 3/4 objectives and then address how these objectives are being met in the Features sections below.
- **Data.** From where and how are you collecting your data? If appropriate, provide a link to your data sources.
- **Data Processing.** Do you expect to do substantial data cleanup? What quantities do you plan to derive from your data? How will data processing be implemented?
- **Visualization Design.** How will you display your data? Provide some general ideas that you have for the visualization design. Consider developing **three alternative prototype designs for your visualization**. Create **one final design in the form of a sketch (hand-drawn/software-drawn) that incorporates the best of your three designs**. Describe your designs and justify your choices of visual encodings. We recommend you use the Five Design Sheet Methodology (http://fds.design/)
- **Must-Have Features.** List the features without which you would consider your project to be a failure.
- **Optional Features.** List the features which you consider to be nice to have, but not critical.
- **Project Schedule.** Make sure that you plan your work so that you can avoid a big rush right before the final project deadline, and delegate different modules and responsibilities among your team members. Write this in terms of weekly deadlines.

This proposal is the first part of your project. As an approximate number: your proposal should contain about 3-4 pages of text, plus 3-4 pages of hand-drawn/software-drawn sketches.

Project Website (4/19)

You will create a public website for your project using GitHub Pages or any other web hosting service of your choice. The web site should contain your interactive visualization, summarize the main results of the project, and tell a story. Consider your

audience (the site is public) and keep the level of discussion at the appropriate level. Your data should be linked from the web site as well. Also embed your interactive visualization and your screen-cast in your website. If you are not able to publish your work (e.g., due to confidential data) please let us know in your project proposal.

Alpha Release (4/21)

For your **Alpha Release** Milestone you should have completed your data acquisition, or at least have a **significant** sample of your data. For example, if you plan to collect 1000 data records, but only have 200, that's fine. If you are missing one of two datasets you want to use, you will lose points since you have to have the whole structure. You must submit at least one visualization that you have created using the data that you have collected. It must be in the form of a report or a Python Notebook.

Beta Release (4/26)

For the Beta Release Milestone, you must have a working visualization prototype. You may not have **all** your views up and running, and it must not be completely interactive, but the direction and the content must be clear and close to being done.

Project Presentation (5/8 or 5/10)

Each team will create a **10-minute presentation** showing a demo of your visualization and/or some slides. We will strictly enforce the 10 minutes time limit, so please make sure you practice multiple times as a team. Use principles of good storytelling and presentations to get your key points across. Focus the majority of your presentation on your main contributions rather than on technical details. What do you feel is the best part of your project? What insights did you gain? What is the single most important thing you would like your audience to take away? Make sure it is front and center rather than at the end.

Final Project Submission (5/16)

For your final project submission you must hand in the following items.

Code

Your web-based visualization can be implemented using any API or programming language you would like as long as it runs in modern browsers. We expect you to write high-quality and readable code. You should strive for doing things the right way and think about aspects such as reusability, error handling, etc. We also expect you to document your code.

Peer Assessment

It is important to provide positive feedback to people who truly worked hard for the good of the team and to also make suggestions to those you perceived not to be working as effectively on team tasks. We ask you to provide an honest assessment of the contributions of the members of your team, including yourself. The feedback you provide should reflect your judgment of each team member's:

- Preparation – were they prepared during team meetings?
- Contribution – did they contribute productively to the team discussion and work?
- Respect for others' ideas – did they encourage others to contribute their ideas?
- Flexibility – were they flexible when disagreements occurred?

Your teammate's assessment of your contributions and the accuracy of your self-assessment will be considered as part of your overall project score.

Submission Instructions

Submission will be handled through Canvas. All teams must use a single shared github repository. *If we cannot access your work because these directions are not followed correctly, we will not grade your work.*

Make sure to specify your project URL in the project proposal. Store the following in your github repository:

- Code - All web site files and libraries assuming they are not too big to include
- Data - Include all the data that you used in your project. If the data is too large for github store it on a cloud storage provider, such as Google Drive, Dropbox or Yousendit.
- Presentation Slides
- Updated Website
- README - The README file must give an overview of what you are handing in: which parts are your code, which parts are libraries, and so on. The README must contain URLs to your project websites and presentation slides videos. The README must also explain any non-obvious features of your interface.

Grading Criteria

- Solution - Is your visualization effective in answering your intended questions? Was it designed following visualization principles?
- Implementation - What is the quality of your implementation? Is it appropriately polished, robust, and reliable?
- Presentation – Is your web site and slides clear, engaging, and effective?

Your individual project score will also be influenced by your peer evaluations.