

INFO4310: Final Project

There are several deadlines for this project, please refer to the milestones page for details.

In this final project, you will work in groups of 3-4 students to develop an interactive news article, guide, or editorial that incorporates visualizations and data. In this project you will combine individual visual/interactive elements together in order to inform readers about a current issue, provide a data-driven guide on a topic of interest, or make an argument. You are expected not only to create compelling visualizations, but also to compose supporting materials (e.g. text, images) that give context. Interactive components will help the reader to understand the data more deeply or place themselves within the context of the article. The ultimate goal in this assignment is to push groups to think more holistically about a visualization from start to finish and encourage good design practice from data selection all the way to final aesthetic choices.

The New York Times in particular has become known for data-driven articles (the creator of d3 worked there for a little bit of time). Here are a few examples:

- [How Unpredictable Is Your Subway Commute? We'll Show You](#)
- [The Great Flood of 2019](#)
- [The Internet Is Overrun With Images of Child Sexual Abuse.](#) (trigger warning)
- [A 3-D View of a Chart That Predicts The Economic Future: The Yield Curve](#)
- [Crystal Dunn Will Attack From Everywhere](#)
- [What the Tax Bill Would Look Like for 25,000 Middle-Class Families](#)
- [What Satellite Imagery Tells Us About the Amazon Rain Forest Fires](#)
- [Mapping the Shadows of New York City](#)
- [Why This Narrow Strait Next to Iran Is So Critical to the World's Oil Supply](#)
- [Nike's Fastest Shoes May Give Runners an Even Bigger Advantage Than We Thought](#)
- [Is It Better to Rent or Buy?](#)
- [The Conflicts Along 1,172 Miles of the Dakota Access Pipeline](#)

You should use this project as a chance to exercise some creativity. Make sure to pick a topic that a) provides enough data with which to work, and b) is interesting for every team member. Studies have shown strong intrinsic motivation plays a role in [social interactions](#) and [overall performance](#) in team projects, so choose something in which everyone is interested. Obviously, you will not be able to create as polished an article as those linked above - make sure that you scope your work so that you can create something that is effective in the time allotted.

You must use HTML, Javascript, and D3 to complete this assignment. While you may use any programming language you like to pre-process the data, your visualization must not make use of any other external libraries without instructor permission. **You are encouraged to make use of external libraries if you think they will improve your project - just check in first, please.**

Specific guidelines

The project should have a **topic, target audience, and intended message/goal**. For example:

- Explaining the growing American obesity crisis using data
- Demonstrating the negative impacts of Gerrymandering and introducing new strategies
- Arguing for vegetarianism by showing the negative impact of factory scale cattle farming
- Indexing the potential economic costs of global warming
- Helping users estimate the impact of new tax policies based on their family situation

The article should include **at least two separate, functionally-distinct interactive visualizations** that help to convey the intended message along with supporting text (and images). These elements should be substantial, encoding a lot of complex data; or numerous, encoding data through many views. Animations that automatically play, such as ones tied to page scrolling, can be effective but will require careful design in order to make usable and fluid. Make sure that you consider good viz design principles, and that every pixel of your design can be accounted for.

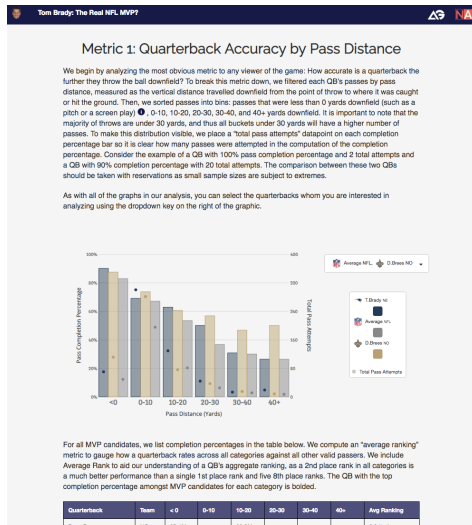
The visualizations must be **rendered when the article is loaded** and **each should offer at least 2 interaction affordances** that help readers understand the intended message. For example:

- A stacked demographic chart showing how varying the obesity rate in America adjusts life expectancy, insurance prices, and GDP
- A state map that lets users adjust its level of gerrymandering to explore pathological cases of biased districts
- A set of brushable linked charts that show the carbon impact of adjusting different rates of farming in the USA
- A map plotting how varying sea level increases will displace parts of the world

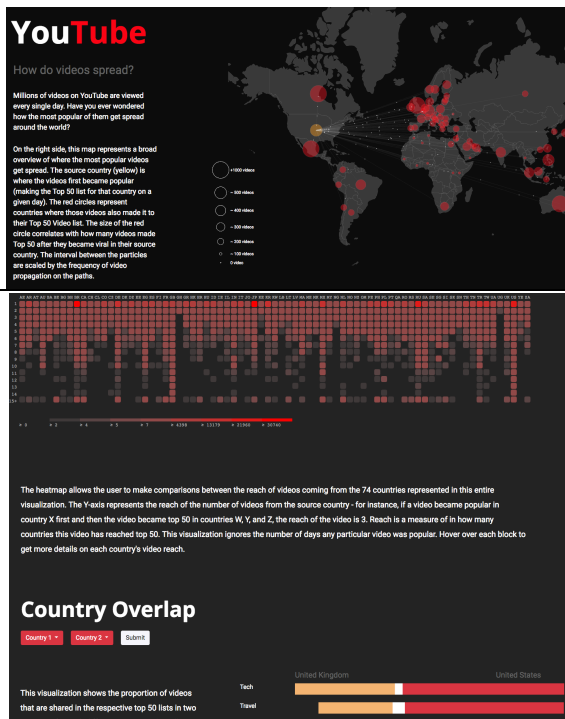
Data sources should be cited properly and come from a reliable, authoritative source. There is no requirement on the number of datasets or amount of points. Rather, focus on gathering what data you need in order to create your intended visualizations. Be sure to consider loading times and bandwidth when developing. Create intermediate or post-processed datasets when possible to make your page more efficient. Be sure to include any data processing code in your submission. **We will observe a moratorium on COVID-19 visualizations.** Otherwise, there aren't limits on the kind of data you choose, as long as they are appropriate for general audiences. Do not scrape, obtain data, or hotlink in a manner that violates terms of service or would harmfully impact another organization's web presence.

Examples of successful past FP submissions

Perhaps reacting to the professor's tragic loyalty to the Cleveland Browns, this team created an interactive article that explored Tom Brady's game performance across a number of metrics. A series of interactive charts allowed users to customize based on specific players and teams. Annotations and info boxes helped football novices make sense of the narrative text in the article.



This team used a data-driven simulation to show YouTube video dissemination. Following charts unpacked data numerically and let users compare between countries.



This team created an interactive exploration of San Francisco dating site data. Users were introduced to the data through a series of transforming charts which showed descriptive statistics using different metaphors. Following this, users could use interactions to further explore profiles and textual data



This team showed data about satellites through a paginated view that used a scatterplot and then through scrollable details panels following the introduction.



Project Milestones

1. **Project Description** (due at 12:00PM on 13-Apr) - Upload a 0.5 to 1 page text file outlining your choice of project, the topic you are exploring, what visualizations you intend to create, from where you are sourcing your data, and how the visualizations will be made interactive. Think of this as a sketch of your overall project. Focus on the big picture rather than small implementation details. This is not a commitment. Rather, it's a forcing function to get you thinking about project materials. **We will discuss each group's project ideas in class on 14-Apr.**
2. **Project Prototype / Design Doc** (due at 12:00PM on 27-Apr) - Upload a 2-4 page document outlining your project idea. Describe your project goals and motivation, your intended use case, your data source, and what your final intended design will be. Include any interaction storyboards or supporting sketches you'd like. If ready, include a link to a publicly accessible prototype. While this will be graded on a completion credit basis, think of it as a chance to get useful feedback before your final submission. **Do as much or as little as you'd like - just expect a comparable amount of feedback in return. We will discuss each group's design in class on 28-Apr.**
3. **Project Demo Days** (held during class time 5-May & 8-May) - Sign up for a slot to demo your project to the whole class. **Attendance on these days is compulsory for all groups.** You will have **7 minutes to demo your project** to the class. Following the demo, the class will give a **final critique for about 3 minutes**. While you do not need to present the absolute final version of your project (completion credit once again), **this is the last chance to get feedback prior to final submission**. Focus on substance rather than polish so that you can get the most useful critique.
4. **Final Deliverable** (due at 4:30PM on 15-May) - You will turn in a final deliverable via CMS. In addition to all code and associated data files and scripts, **you will also turn in a final project report**. Reports should be a 5-10-page PDF (including figures). Your report should:
 - Describe your **project goals and motivation**
 - Describe your **intended audience** and provide **use cases**
 - Outline any **related materials that inspired you** or directly connect to your project
 - Identify your **data source** and the process you used to find it. Explain how you **scraped, cleaned, and manipulated your data** so that it would work in the project.
 - Give several **different possible designs you considered** during the development of the project. Don't just give the final design. Rather, **describe the process** you used to arrive at your final design and what **dead ends or discoveries** you made along the way.
 - Describe your **final design in more detail**. How did the feedback you received help you arrive at this design? What **trade-offs** are there in the design you chose? Provide specific information about both the visual channels/metaphors you used as well as the interactions you picked.
 - Provide some **information on how you implemented your final design**. Be sure to include many images; this is a visualization project after all.
 - Identify very specifically **how each team member contributed** to the final project.

Grading

1. **Project Description** - 5% - completion credit for CMS upload
2. **Project Prototype / Design Doc** - 5% - completion credit for CMS upload
3. **Project Demo** - 10% - completion credit for conducting a presentation
(all group members do not need to present to receive credit)
4. **Project Demo Day Attendance** - 2.5% for each day of demos attended (total 5%)
5. **Final Deliverable** - 75% of final grade

The rubric for the final project will be very similar to HW2 and HW3 rubrics.

Final code and design will compose 70% of deliverable sub-grade.

Final report will compose 30% of deliverable sub-grade.

BE MINDFUL OF POTENTIAL ACADEMIC INTEGRITY VIOLATIONS

You are encouraged to find data and inspiration from other sites. Make sure you acknowledge these in comments and in your written description. Any code that you did not write yourself should go in a separate .js file. While it is acceptable to link to the web repositories for d3.js and topoJSON, all other libraries must be bundled in your archive. Unacknowledged code or concept reuse will be handled with standard academic integrity procedures. The professor knows what his own code looks like and will be evaluating final project submissions for uncredited minor uses of course code and all major instances of duplicating course materials.