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CPSC 490: Senior Project
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Project Proposal:
Building Generous Interfaces for Next-Generation Digital Browsing

Background and Summary

In 2015, digital designer and professor Mitchell Whitelaw coined the phrase "generous interface" to describe a new kind of digital interface for cultural collectives, one that offers a museum-like browsing experience, where users may browse a site for fun, rather than for direct information retrieval. Forgoing the usual search box, which Whitelaw characterized as like going to the museum's front desk, handing the attendant a query, and being returned ten relevant paintings, the generous interface provides large-scale data at the tips of users' fingers, giving them the freedom to arrive without a goal — to wander and to find significance by themselves. This kind of non-transactional web-browsing experience departs from the traditional Google search bar starting point, marking a leap to next-generation digital browsing while also returning to the recreational roots of non-digital browsing.

At the same time, with the power of computing and data processing, digital browsing has the advantage of information retrieval at a click, with visualizations such as timelines, histograms, networks, and word clouds offering highly efficient ways for users to trace connections they notice. In Whitelaw's words, from his 2010 TED talk on this topic, "Humans are smart. Computers are dumb, but fast." Meanwhile, by asking users to be the ones finding meaningful relationships between objects, the generous interface encourages a spirit of discovery, which is crucial for real user engagement, and allows for otherwise overlooked data connections to reveal themselves.

This project aims to build such a generous interface for a Yale-based cultural collective. While generous interfaces are useful for a variety of browsing purposes, designing generous interfaces for cultural collectives has obvious advantages in:

1) A pre-existing recreational aspect in their non-digital analogs, making them a key use case of "browsing for fun."

2) Existing, well-maintained, and well-cataloged data reachable via API endpoints, minimizing technical difficulties in data scrubbing and organization.

3) Visual-forward data, making for a more engaging user interface, as well as unique opportunities for data groupings and visualizations.

4) Interesting data attributes, such as chronology, genre, movement, geography, and media, which lend well to a range of visualization idioms and pose a variety of design challenges.

Yale-based collectives that are promising candidates for this project include the Yale Center for British Art, the Yale Undergraduate Art Gallery, and the Peabody Museum. A decision will be made after further research into technical possibilities, and this project's scope may only allow for a few exhibitions to be demonstrated, rather than full collections.

Goals: Technical

As a continuation of my work in data visualization, this project will require deep focus on building front-end architecture. The technical work of this project will begin with prototyping of a site using **Figma**, following extensive design research and knowledge of the selected cultural collective's developer's tools. Then, I will work on building out a site using **node.js** and deploy an early version of it on **Heroku**. Finally, I will use **d3** and other visualization tools to build out the rest of my design schema. With the exception of Figma and d3, I am new to these tools and will need time to understand how the moving parts of this project work.

Goals: Design

There are several layers of data abstraction I must consider when designing a generous interface. Beside Shneiderman's mantra of "**overview first, zoom and filter, then details-on-demand**," there are also his principles of "**relate**" — depicting relationships between objects, which is crucial for cohesive museum browsing; "**history**" — keeping track of a user's path between objects, which must be put in place for orientation; and "**extract**" — allowing for the user to bookmark or save objects or views of significance. These seven features will form the core of the design decisions of this project.

Of the seven, the two most interesting design decisions for generous interfaces are "overview" and "relate." Especially for museum objects, "overview" involves creating what Whitelaw terms "information surrogates," which are "compact, browsable abstractions of primary content." With different visualization idioms, e.g. timelines, histograms, and networks, each will require a different information surrogate, all of which must be, as the the definition states, "compact" and yet also "browsable." Considering the (possibly) upwards of thousands of objects that must be represented in each idiom, this challenge is compounded.

While "overview" has many design considerations, "relate" involves more technical ones. Since I have only begun to explore animations and dynamic visualizations such as force networks through my previous data visualization experience, it is unclear whether d3 will suffice as a dynamic connection depiction tool.

Deliverables

- A Figma file with sample implementations of my design decisions.
- A node.js-based generous interface deployed via Heroku.

- A final research paper summarizing key research findings and explaining my design decisions.