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Dr. Lex

CS 6630 Visualization for Data Science

21 October 2022

Group Project Proposal

Basic Info:

Project Title: *Influences of Renowned Artists*

Team Info:

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Project Repository Link: Github

Background and Motivation:

The motivation for this project stems from our interest in art which made us decide on this topic. Over the years while looking at artworks and getting to know about different artists, we noticed that there is no one place that has all the data in a collection being showcased on a visual platform. Almost all of the data is in text form and is usually centered around either artwork or an artist. There is no platform that showcases this data in a visual manner that can help infer various things like which artist came first, whose works inspired which artists, how art inspirations traveled across continents, and how the artists traveled during their life. To get this data we need to go through many books, museums, and websites including wiki pages, and articles from various regions.

Project Objectives:

Our visualization should be able to show information about various artists, including where and how they spent their lives, what kind of art they worked on, and their famous noted artworks. Our main objective is to show how the artworks of one artist influenced the others' artworks. They may not always be from the same medium but it is fascinating to see that the art styles have still been influenced by others over time. We intend to have a visual platform showcasing artists, their artworks, the artists who influenced them, and the artists who were influenced by their artworks. The interactivity we want to provide should help customize the details one wants to see. Some of the questions we would like to get answered are: which notable artists across the globe influenced others in different places, which era had the most influential artists, what the lives of these artists were like, and what their notable works were. Meanwhile, some of the benefits of our visualization are: all the required data about our artists can be found in one place in a digestible way, we can look at the overall density of artists in the world and tell where art flourished the most in our set, and we would have a visually pleasing museum-like explorable compendium of famous artists.

Data:

We created our own data set by curating information from many sources. The majority of our data is from books and Wikipedia. We have taken the individual artist information and the details about the artwork they created from Wikipedia. It includes details like name, place of birth, place of death, traveled places, and famous artworks. To find the influence of artists from across the world we read through multiple articles on the internet. We referred to *Art: The Definitive Visual Guide* and *Artists: Their Lives And Works*, which have data about the artists'

lives and how their artwork was influenced by the other artists around them or in different countries. One can see the Entity-Relationship diagram of our data with initial attributes and entities in figure 1.

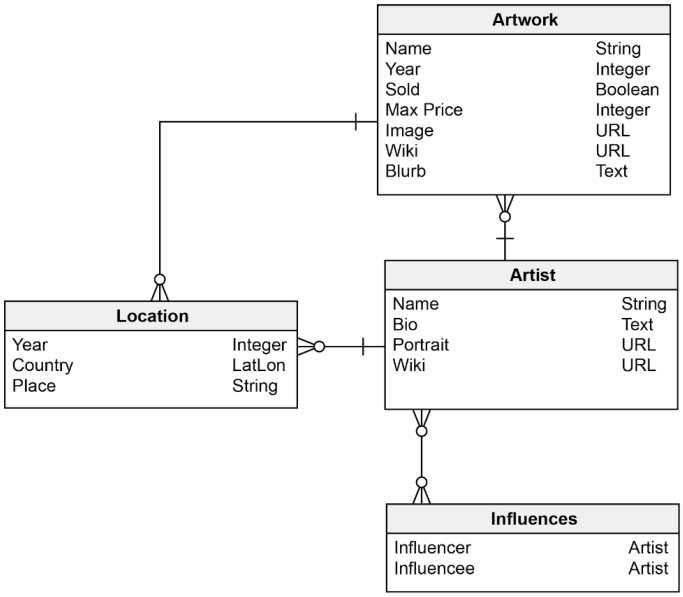

Figure 1. *The Entity-Relationship diagram of our database structure*

Data Processing:

As we are generating the dataset for our visualization, we won't need to perform any data cleanup. All the datasets will be stored as JSON files that will be loaded on startup. The name of the artists and artworks will be used as keys for querying the datasets using standard d3 methods. We won't derive any data beyond the generation of the lifespan histogram in one of our optional features.

Visualization Design:

Initially, there were a few visual aspects that we knew probably would not leave. Thus, these core aspects are present in one way or another in *all* of our sketches. These are a world

map, a timeline, connectivity arrows showing who influenced whom, and some text-based information on the artists and their notable works. With those in mind, we created three mockups and a single final design. These figures are on the following pages after this section. Our first mockup is our most simplistic (see fig. 2). The world map view uses 2D position as a visual encoding for the location of the artist that each marker indicates. The orientation of the arrows indicates the kind of influential relationship between any artist's markers. The timeline uses 1D length to encode the temporal range of our data. When an artist's marker is selected, the timeline transitions to one showing the artist's life and works. Each notable work has a tooltip giving some brief information. Under the timeline appears a portrait of the artist and information about them. This prototype was helpful for getting the ball rolling, but it has issues. The default timeline showing is ultimately useless. Also, if we display all of our data on the map at the same time, the connectivity arrows would be messy. We could also use more visual encodings to indicate selections. The positives include how dynamic the timeline is, and how well the visualization overall leverages both 1D and 2D encodings.

Our second sketch keeps the same encodings, but the timeline is more dynamic (see fig. 3). The timeline shows the full range, and the user can drag a selector on it. This filters the map to show only artists that were alive during the selected year. It also graphs a line to show how many artists in our data were alive over time. We also leverage color and 3D positioning in this design. When a user clicks on an artist marker, the map becomes darker to de-emphasize it, and a window showing information about the person appears higher on the Z axis. Here, one can see information on the artist and their works. A work gets an indication of its selected status by a colored outline, which is another encoding of shape and color. As for the influence map, rather than displaying it on the world map, we made an isolated node graph that uses 2D position as its

encoding in this new window. The strengths of this sketch are its digestibility and increase of simplistic encodings. The issue is that the influence map has no geographical context now.

The third sketch is drastically different from the others. We showed the artworks instead of the artists (see fig. 4). We did this to emphasize a fascinating part of our data: the whereabouts of a work of art. Their map markers translate to their location during the year selected on the timeline, but what if the work is lost? We use a panel at the bottom with all of the works from our data set that were lost by the year selected that utilizes 1D positions. The influence map returns, but it shows influences between works now. Lastly, we experimented with having the textual information appear to the side of the map instead of above it to avoid obscuring any information on the screen. Overall, the weakness of this design is that our data set has influences between artists, not their works. However, we like the return of the influence arrows on the map with timeline filtering, and the textual information not obscuring the map has potential.

Our final design takes the best aspects from the others (see fig. 5). The timeline filters the map again, but how that filtered information appears is different. When a marker gets clicked, there is a popup that shows the person's name and two buttons. The first button, Influence Map, transitions the map view to show only the influence map of the selected artist across all time. Here, the timeline is replaced with a subtitle and a button to go back to the main map in its last state. The second button, Info, shows the textual information for the person to the side of the map. These information panels will have clickable artworks and stories about them appearing. We also included subtle visual encodings, like an emphasized outline around the selected marker on the map. While we may tweak some things, we are pleased with this final version.

Visualization Mockup Figures:

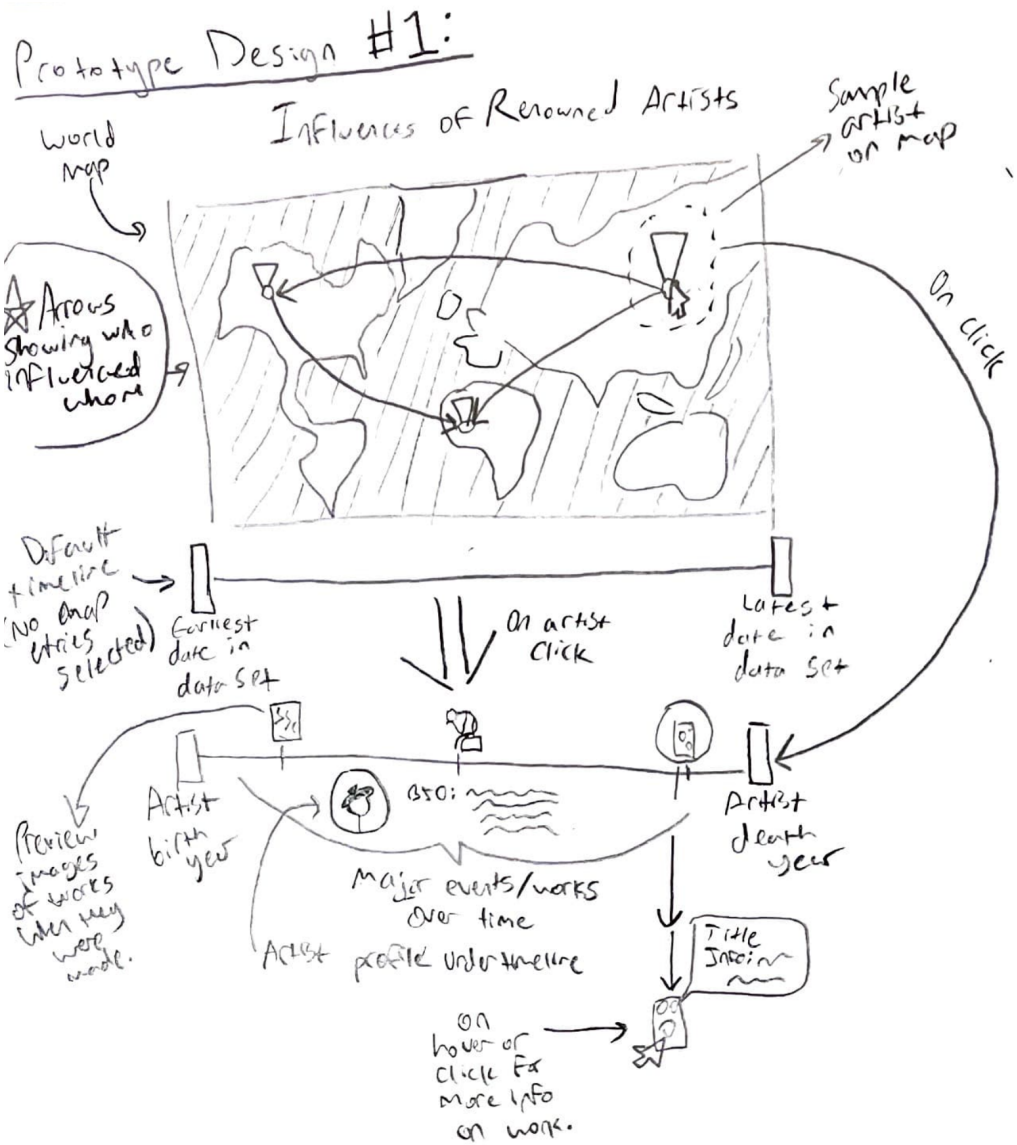

Figure 2. *Mockup design sketch number one.*

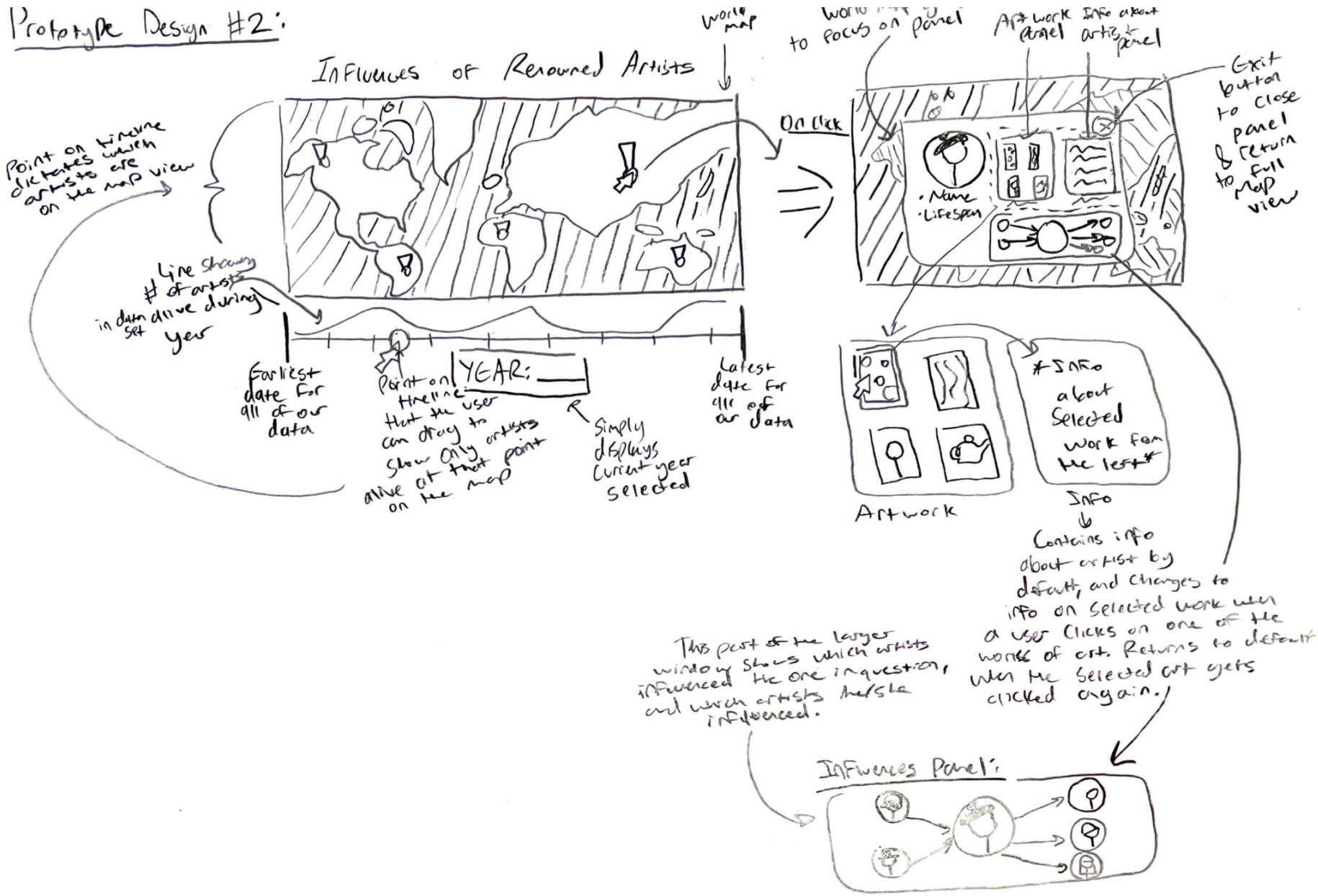

Figure 3. *Mockup design sketch number two.*

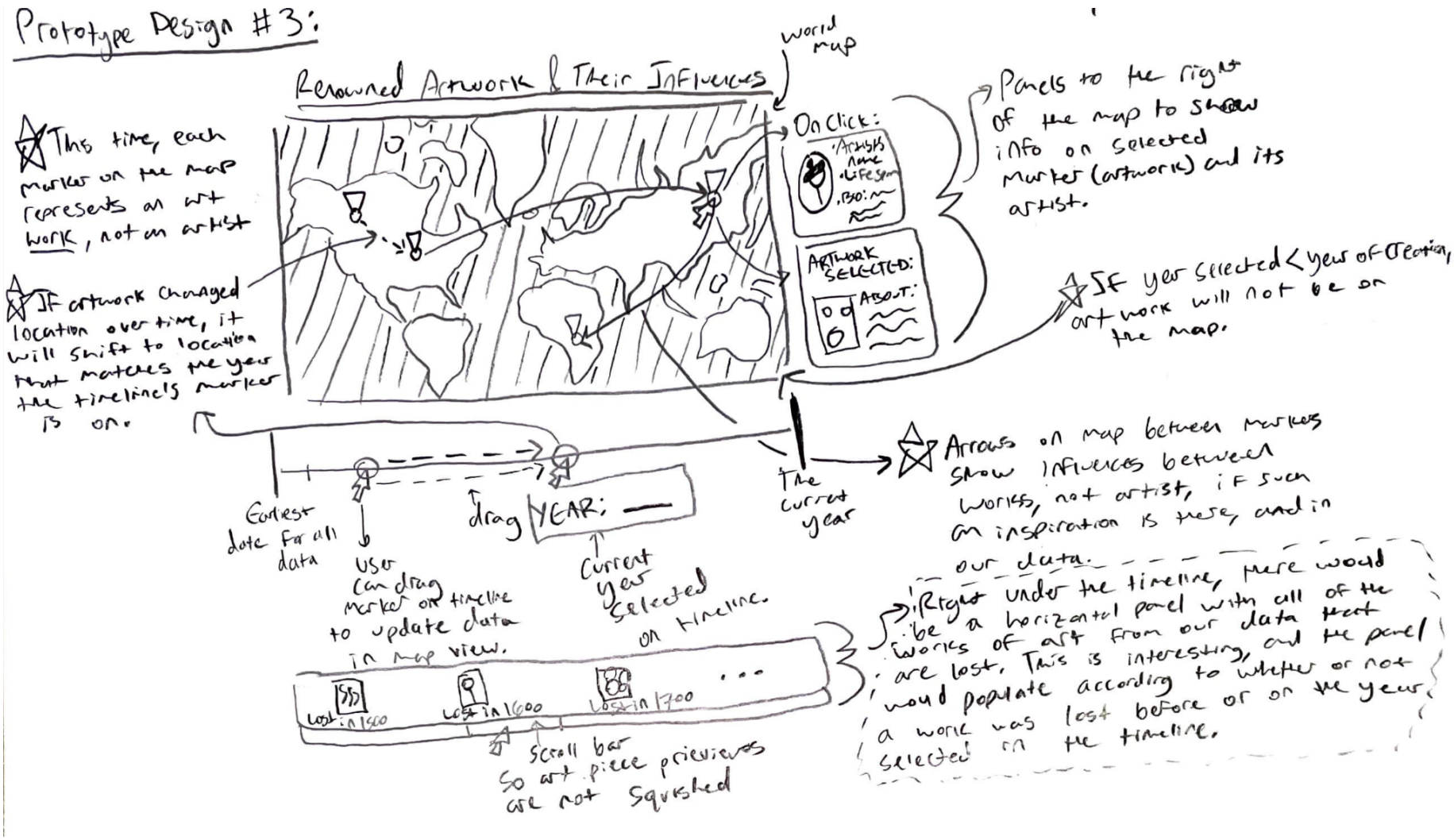

Figure 4. *Mockup design sketch number three*

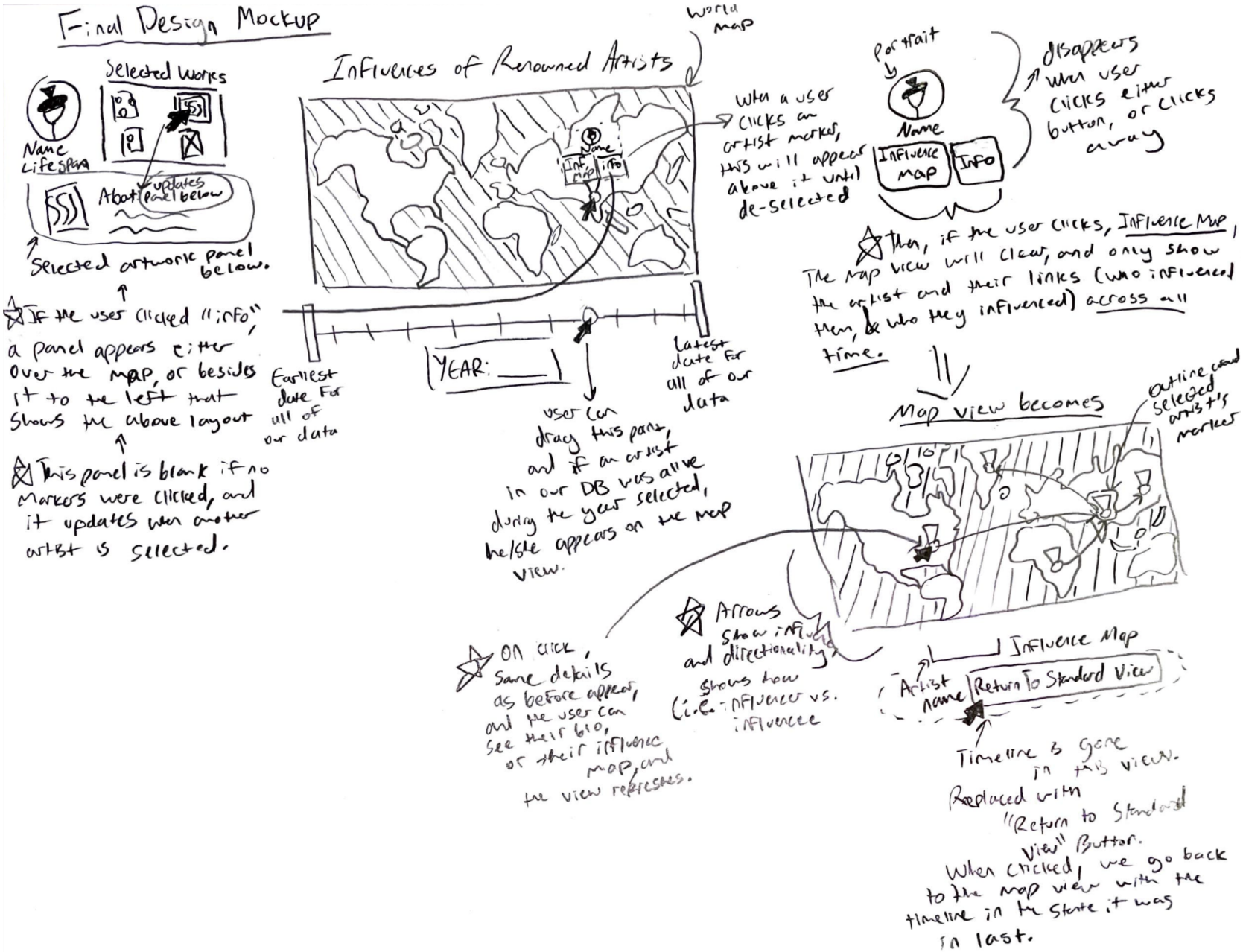

Figure 5. *Final design sketch*

Must-Have Features:

Firstly, a world map is essential. Part of the joy of learning about art is imagining yourself in the place where its artist created it, and because of the global scope of our data, we think a world map view is a great way to contextualize each artist. Another key component is a timeline. We want to emphasize what we are showing (geographically and temporally) because it is an easy way to establish more context. The timeline must function as a filter for the map as well. Also, the influence map is perhaps the most invaluable part of our design. To convey who influenced whom among our data set, we want to use arrows between artists in our data. Finally, we need to display succinct but interesting information about an artist when the user wants to. This part would heavily rely on text, but this should not be an issue given our educational tone. How the user influences these components, and how they fit together should largely match our final prototype sketch. Although we imagine that minor changes are to be expected.

Optional Features:

There are only a handful of stretch goals. Firstly, it would be nice to have a histogram-like line above our timeline like the one in our second prototype sketch (see fig. 2). This indicates how many artists were alive across time, and gives the user a preview of interesting eras to explore. The second optional feature would be a custom world map. Initially, we may rely on the world map path that this course provided for us on a previous assignment, but we want to make a more stylized map ourselves. We think we can accomplish this using Adobe Illustrator, but we have not yet worked out all of the intricacies of that. We also contemplate a translation feature for the artist markers on our map view that remains in sync with the dynamic timeline's selected year. This requires some extra data corresponding to where the

artists were for key spans of their lives, but the feature itself would be trivial. Similarly, we may implement some type of visual representation of where each art piece resided over time.

Project Schedule:

One can see a chart representation of our schedule in figure 7. We split it up into major tasks, and the tasks that have their work separated across multiple weeks cannot be fully completed until we complete another task that depends on them. We also placed assignment deadlines in relation to this project with gray diamonds.

References:

Figure 6. *Books used for references*

(L: Art: The Definitive Visual Guide, R: Artists: Their Lives And Works)

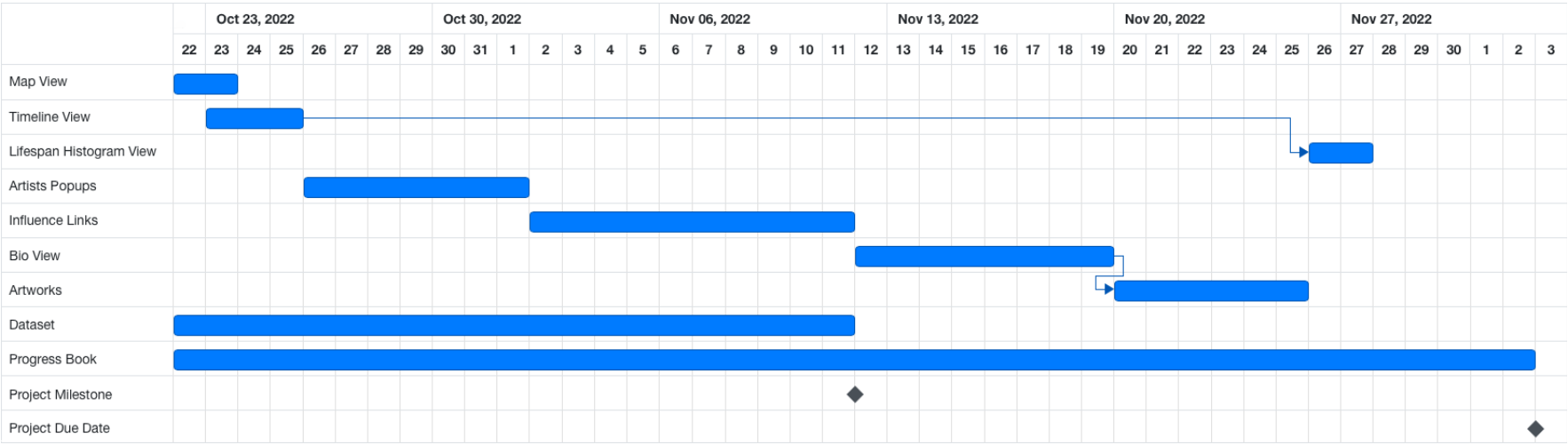

Figure 7. *Our current schedule for the remaining work for this project*