

# Piano Genealogy

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**Project Repository:** <https://github.com/jacobfloisand/dataviscourse-pr-pianogeneology>

## Background and Motivation

We all share a common interest in piano and are intrigued by the instrument. Two of us have studied piano for many years and find a lot of joy playing music. However, we all have a great appreciation for the instrument as a whole. We wanted to create a visualization that would be fun and informative about the history of the instrument we love so much. Further, the piano has become a popular instrument in Western culture. Yet, an early version of the piano, called the monochord, looked very different from the modern piano. We want to show some of how the piano has evolved into what it is now.

**Project Objectives: Questions we are trying to answer and what we would like to learn and accomplish.**

- How has the piano evolved over the centuries?
  - Design, intentions, sound, etc.
- How has the modern popularity of the piano changed?
  - Purchase history
- Create some exposure to different aspects of piano history.
  - Learn when different kinds of pianos emerged.
  - Learn how quickly piano-like instrument designs spread to people in general.
- One accomplishment will be to be able to quickly see piano sales trends over time.
- Viewers will be able to see the important steps in the piano's "evolutionary tree" so to speak, and then grow their knowledge by being presented with important events for each piano-like instrument.

## Data

The datasets we are using for the visualization are small and straightforward and do not require cleanup. They come from several different sources and we will be tying together all the sources to create a story. We will be using purchase history, pictures, text, and sound.

- <http://www.historyofpiano.net/piano-history/timeline-of-piano/>: historical data about the evolution of the piano, extracted into a csv file.
- <http://www.bluebookofpianos.com/us/piano.htm>: historical piano purchases by type of piano, extracted into a csv file.
- [https://www.yamaha.com/en/musical\\_instrument\\_guide/piano/structure/](https://www.yamaha.com/en/musical_instrument_guide/piano/structure/): lineage of different pianos across the years, recreated into a json file.
- <https://www.kaggle.com/arshadgeek/piano-notes-transcription>: soundbites for the different sounds on a keyboard

## Visualization Exploration and Evolution

We started out by brainstorming some ideas of what we would like to show about the history of the piano. We determined that we would like to show the evolution of the piano from its beginnings to the instrument we have today. We worked through several design options that included the story telling points. We also wanted to include some appropriate chart junk to make the visual more interesting since the data is simple (See Figures 2, 2.1, 2.2, 3, 4, 5, and 6 below). Our final design is in Figure 1, below. Here is a list of visual encodings and why we chose them:

- We chose a line chart with years on the x-axis to depict important timeline events (colored circles) and also the purchase history of pianos. The user can hover over the line to see an exact number of sales for a given year. Similarly, the user can click on one of the colored circles to see an important event. We wanted to make piano keys part of the visualization and chose to include them in the line chart. We played with the idea of how best to encode the purchase history within them and for the moment have decided to use them mainly as a background.
- Underneath the line chart we plan to make a box with event data. The user can participate in storytelling by clicking on the arrows at the bottom of the box or by clicking on another event marker. This will walk the user through all of the events for a particular piano-like instrument.
- We are including a tree diagram showing the evolution of piano-like instruments leading up to the modern piano of today. A user can click on one of the piano-like

instruments in the tree and the data in the line graph will be updated to reflect the data for that instrument. In addition to the selection, an event box will also be populated (see Figure 2.1) displaying more data (details, picture) for each instrument with interactivity to demonstrate its unique sound.

The formatting for the visual is very important because there are three different components that need to act as a whole. The user interaction between them needs to be intuitive. Because each piece is part of the whole, we want the visual to fit on the screen without the need for scrolling. Maximizing the screen space is proving to be more important than we originally thought.

We thought that sound bites for the keys on the piano might be really cool, but are completely unnecessary. They would only be of interest to someone who is already familiar with a piano. Rather, the optional feature of sound examples of the different instruments has started to feel more relevant with regards to the intent of the visual to educate the viewer. The sounds of the instruments is maybe the most interesting piece of information we could include.

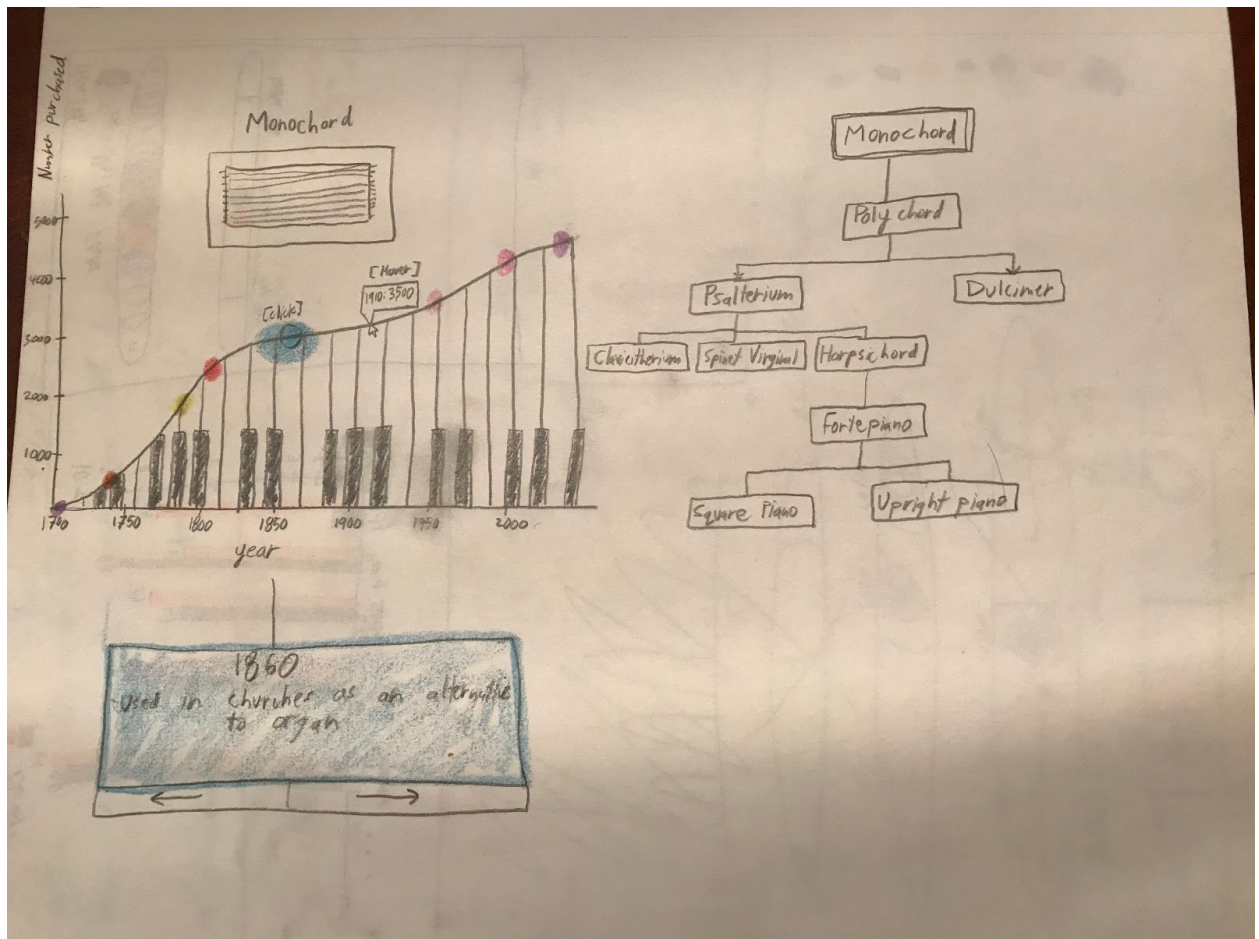


Figure 1 - Finalized Visualization



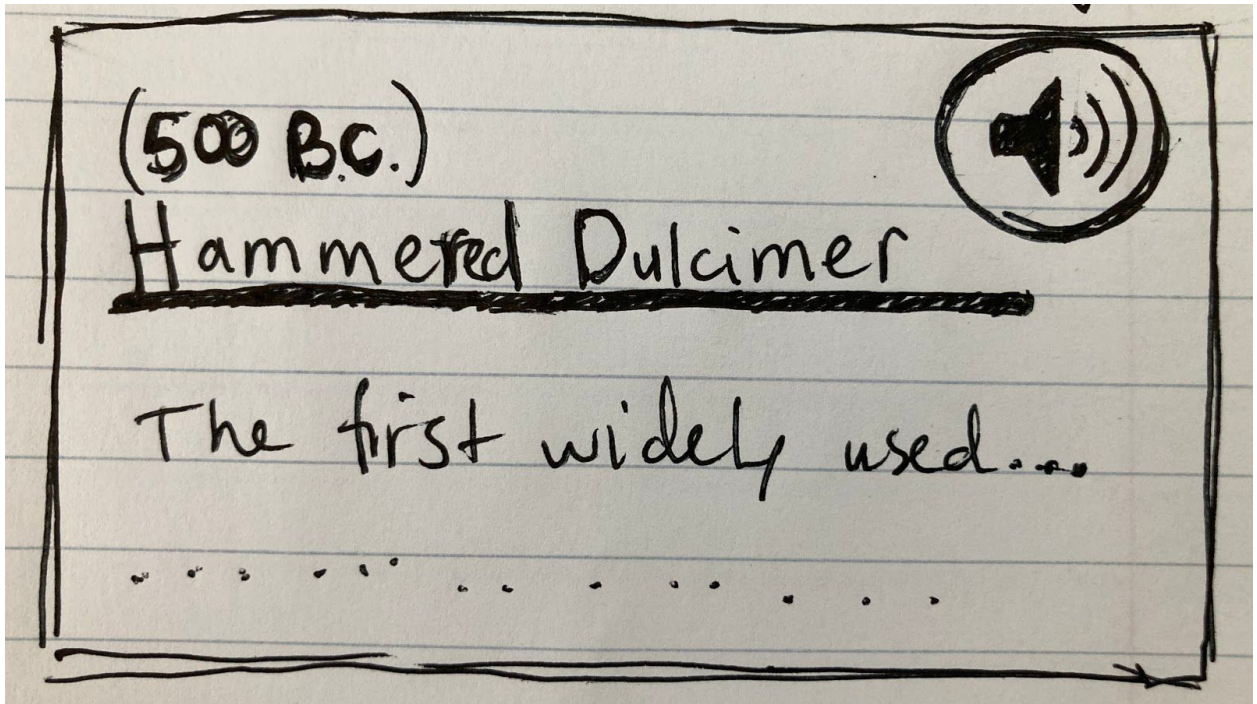


Figure 2 - Brainstorm idea(Instrument Sound - Optional Feature)

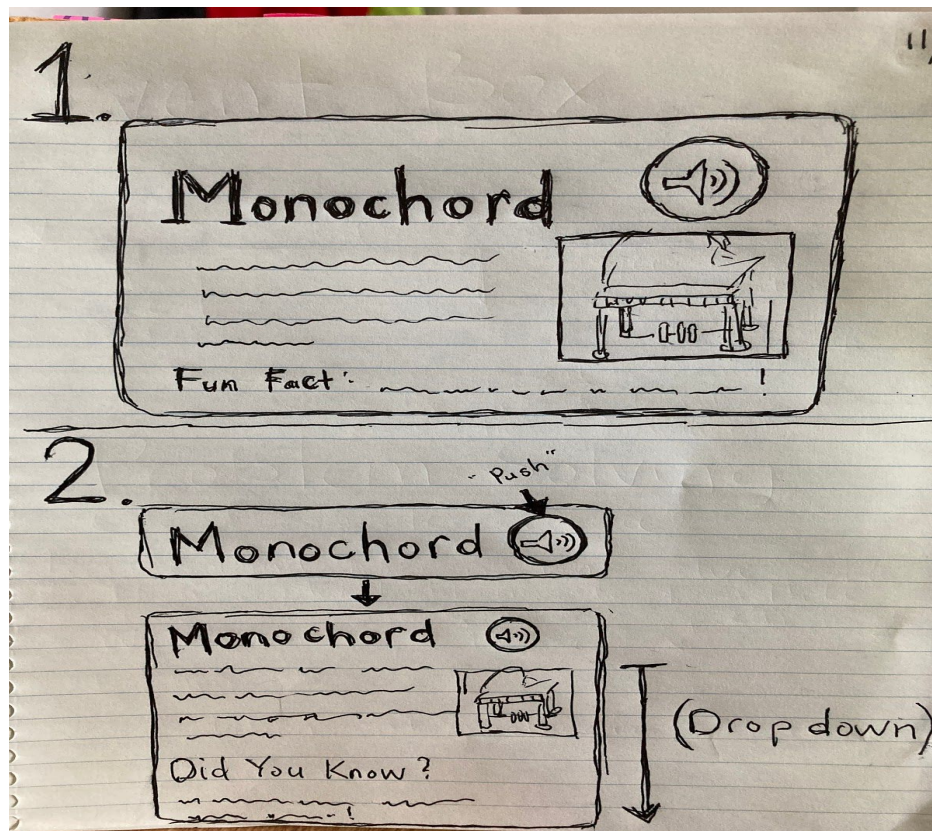


Figure 2.1 - Event Box Design Option 1

Figure 2.2 - Event Box Design Option 2

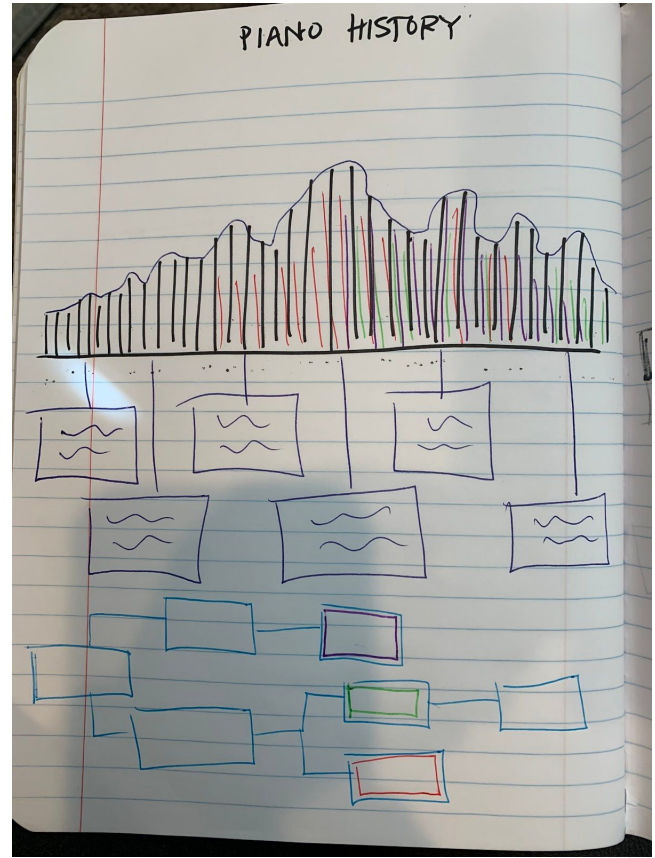
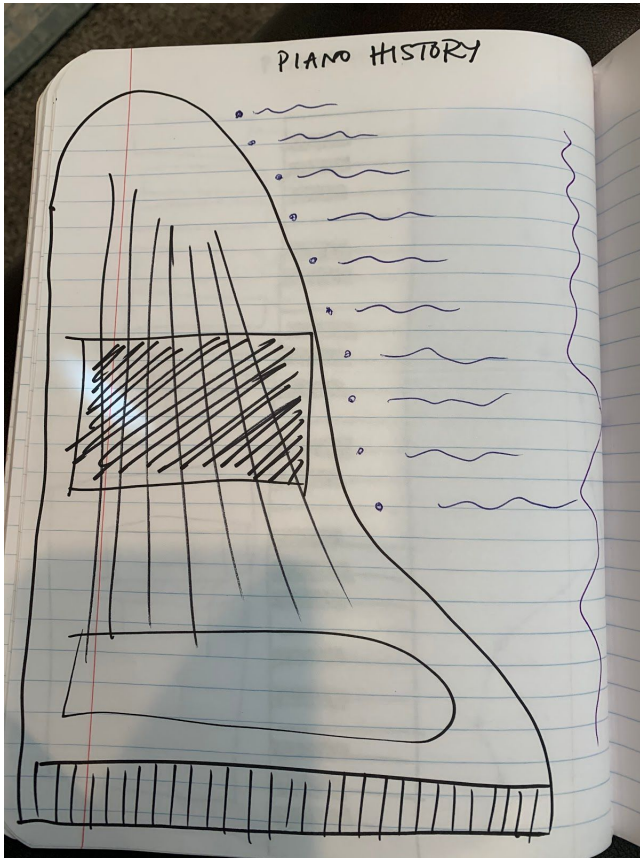


Figure 3(Left) and Figure 4(Right) - Brainstorm Ideas



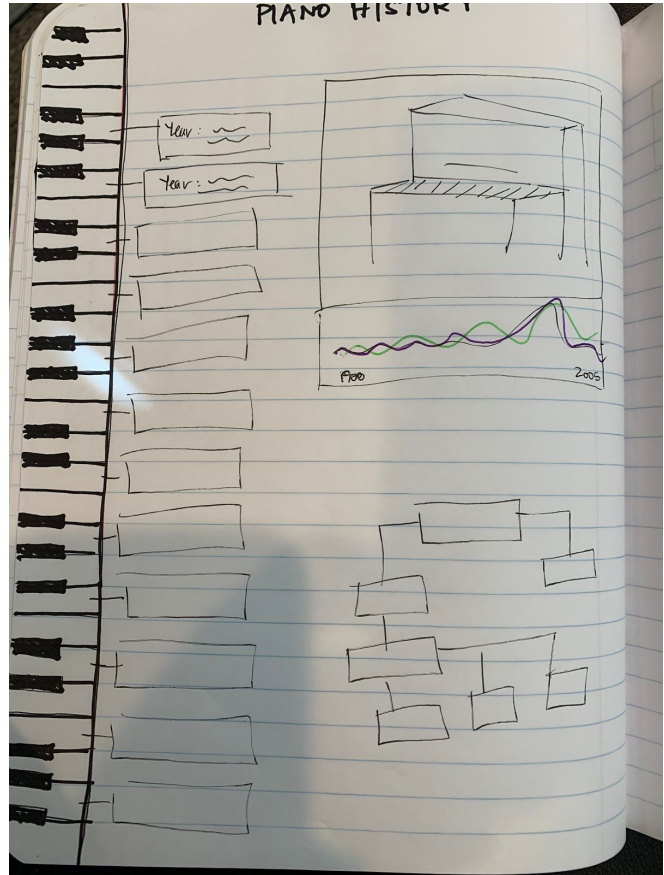
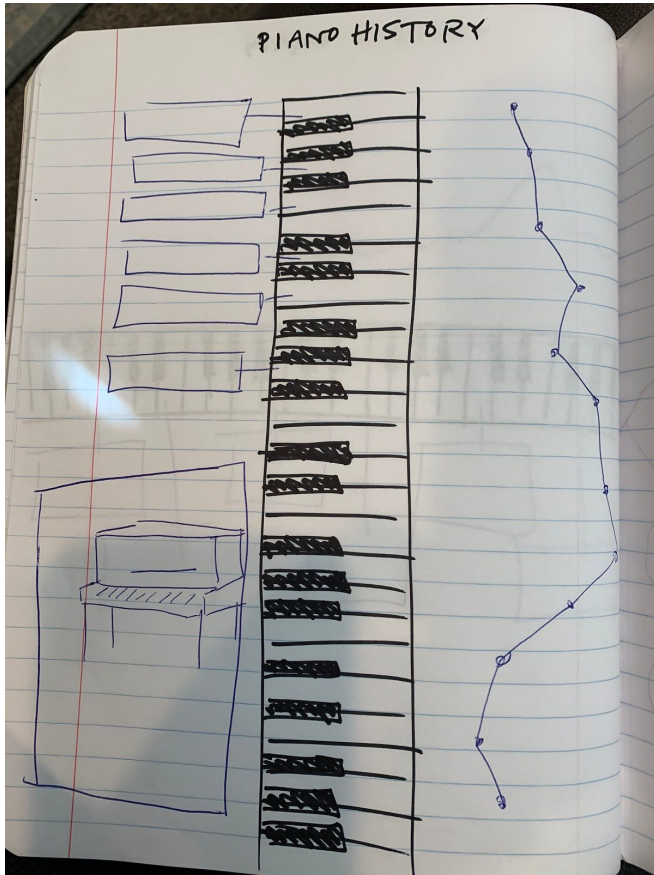


Figure 5(Left) and Figure 6(Right) - Brainstorm Ideas