Pittsburgh Home Finder

Our team chose to work on the Pittsburgh homes dataset, which provides a list of properties throughout the city along with several helpful features, including price, area, location, number of bathrooms, etc. The user that we imagined interacting with our project was a person looking for a house in the area--we aimed to enable broad exploration of the spectrum of available properties as well as a detailed examination of one or two specific properties that would be particularly appropriate for the user.

One feature we identified early on was the importance of the "neighborhood" concept to Pittsburgh city culture. To elaborate, the city of Pittsburgh is split into many smaller neighborhoods, with clearly defined boundaries and cultural identities. We wanted to ensure that our interface would clearly communicate this information to the user, who might either be particularly interested in which neighborhood each property was in, or might not be familiar with the neighborhood concept, in which case our tool should provide at least a cursory introduction to it. For this reason, we chose to use a map as the central navigation tool for the app and enabled a primary interaction with the map that allows users to zoom in and examine each neighborhood at a time. In addition to this, we provided several rich filtering tools that allow the user to specify their constraints and see how this affects the availability of homes throughout the area. Of course, these filters can be combined to further narrow down the visible data.

Some trade-offs were made in the design process, but we generally prioritized usability over information density at most of these junctures. One major (and perhaps slightly unconventional) decision we made was to limit the number of features provided by the home markers directly on the map. All the markers are uniform—often, there would be an additional visual channel used to communicate a feature, such as bubble size to represent square footage. We decided against this for two reasons—first, the choice of feature to represent would ultimately be arbitrary, because no single feature is obviously the most important for the user to visually parse. Second, the uniform dot size makes the display clearer, and helps the user prioritize the information that we judged to be most important: home location.

We started by building the mapping tool, because it seemed like the most salient way to navigate the data. We then built functionality around it to enhance the mapping interactions and provide additional tools to the user. In a sense, this mirrors how we expect users to navigate the interface—the first thing they should do is explore the map, then begin to apply filters to specify their restrictions, then to analyze individual homes and decide how appropriate they might be.

Julia put in the most time building mapping interactions in the early stages of the project. Around the map, Sam added the filtering functionality, with histogram brushes, and live map updating behavior. Generally, Julia took the lead on macro design choices (e.g. overall layout),

while Sam did formatting and bug-fixing on smaller design elements, like individual filter layouts. The most time-consuming single element was the mapping behavior, due to the complexity of the neighborhood zooming animations and map interactions. Building parametric filters was the next largest task, with styling and formatting those tools adding significant overhead, followed by the hover-detail interaction.