[INFO 4310] HW 3

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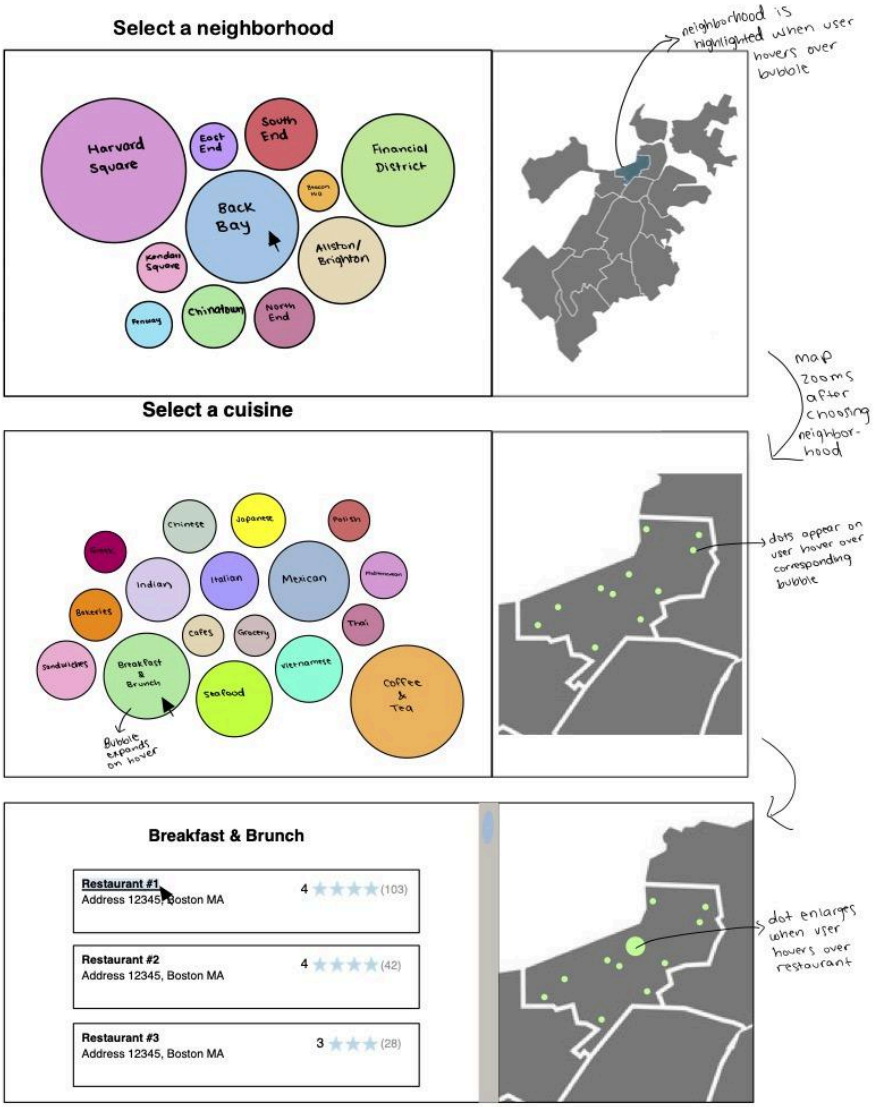
Introduction

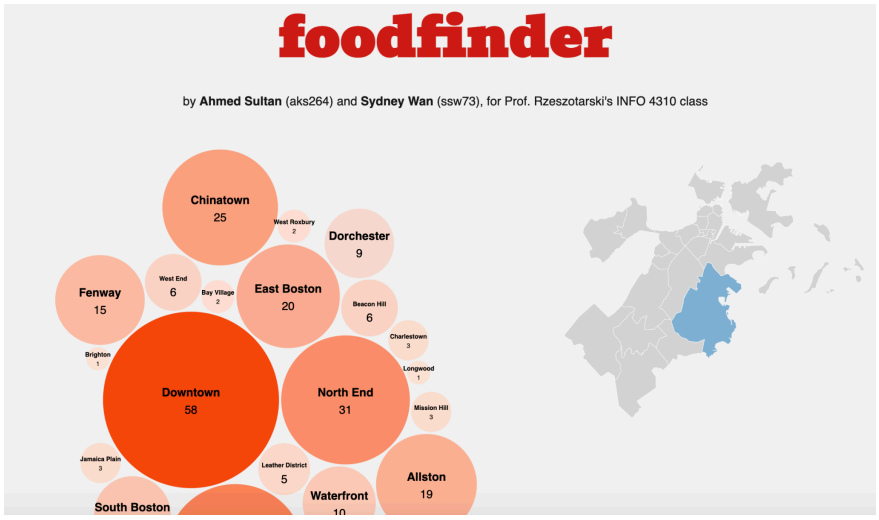
For this project, we decided to focus on the Yelp Boston dataset provided in the assignment. More specifically, we wanted to create a visualization that could help users narrow down the list of restaurants by neighborhood and cuisine type. In doing so, we implement the techniques of expand on demand and overview+detail. We have implemented this visualization from the perspective of a user who is either unfamiliar with the Boston area or wants to learn more about what restaurants make up each neighborhood. In order to provide further insight in the visualization, we have also incorporated an external dataset that includes the shape file for the Boston neighborhoods.

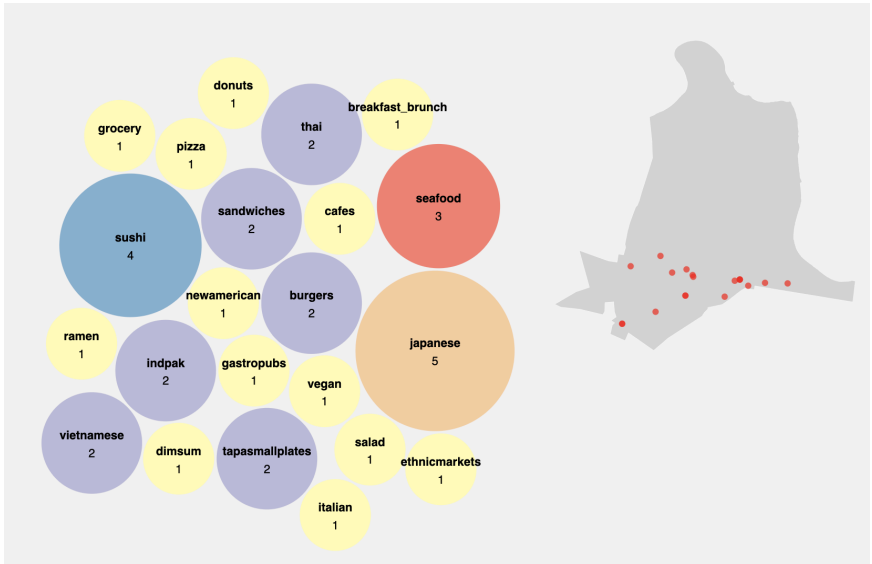
Storyboard

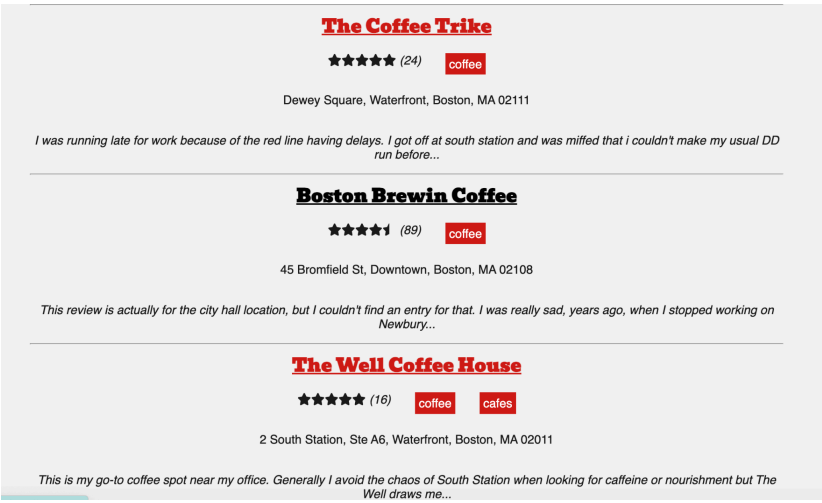


In our storyboard planning, we imagined 3 pairs of visualizations that become increasingly more detailed as the user progresses. We thought of having the page move to a new visualization after a user clicks on a bubble so that it expands on demand in terms of the level of detail. There are a lot of data points in the dataset, and including all of the information all at once would likely be ineffective. Similarly, the clicking on bubbles feature allows for users to play around with filtering even if they aren't quite sure what they are looking for. In the first map, the neighborhood becomes a different color when the user hovers over the corresponding bubble so that it is easily apparent where each neighborhood is located for those unfamiliar with Boston. Upon clicking on a neighborhood bubble, the next charts populate with a bubble chart of the cuisines of restaurants in that neighborhood and a zoomed in version of the neighborhood map. This seemed like a logical progression of events and retains a similar appearance as the first pair of visualizations to provide continuity. When the user hovers over a specific cuisine, dots populate on the neighborhood map of the corresponding restaurants. Lastly, when a user clicks on a cuisine bubble, the page scrolls to the last pair of visualizations which is a list of restaurants with more detail that match the given cuisine. It also has the same map of the given neighborhood.

Final Visualization







Our final visualization closely represents our initial storyboard. Just as described in the storyboard, the first bubble chart has each neighborhood, and the map highlights the neighborhood when a user hovers over the corresponding bubble. We also included a number of restaurant counts below the neighborhood name. In the second image, we see a second bubble chart populates after a user clicks on a neighborhood, with the breakdown of cuisines and restaurant counts for each category. There is also a zoomed in map of the selected neighborhood with points plotted for each restaurant. When a user clicks on a cuisine bubble, the page scrolls down to a list of each restaurant in that category. The list contains the average rating and count of ratings, Yelp URL, restaurant tags, address, and review snippet. If a user scrolls back up to an earlier chart and changes which bubble is selected, the following chart/list will update accordingly.

Trade Offs

Between storyboarding and implementation, we didn't have to make too many tradeoffs as our final visual closely represents our storyboard. One aspect we chose not to implement was including a third map to accompany the list of restaurants. We felt that having 3 maps of relatively the same area was redundant and would not provide the user with much more insight. Additionally, once the user selects a specific neighborhood, they will know that all of the restaurants are relatively close to each other. In the storyboard, we initially proposed having the bubble expand when the user hovers over it. Ultimately, we decided to scrap that idea and just have the bubble change opacity on hover. This achieved the same effect to let the user know which bubble was selected, and was much easier to implement given the time constraints because we did not need to incorporate movement into the bubble chart. We changed the color scale in the final visualization to appear more cohesive. The initial color scale of the bubbles in the storyboard was completely arbitrary. We also removed the black stroke on each individual chart/map as depicted in the storyboard to create more unity amongst the various charts and allow for a smoother flow between charts.

Work Breakdown

Ahmed did all of the data cleaning on the Yelp Boston dataset. This took the most amount of time, as we needed to remap the neighborhood attribute to our map geoJSON file and destringify the restaurant tags. Ahmed also created the final list of the restaurants that show up when you select a neighborhood and cuisine. He plotted the restaurant points on the individual neighborhood maps and adjusted the color scales. He also reformatted the fonts and overall style of the page to appear more visually appealing. He spent about 10 hours on the project over the course of the week.

Sydney implemented the code that creates the bubble charts using the data. Most of the work spent on the project was focused on figuring out what format the data needed to be in to create the bubbles. She also created the storyboard and wrote the final writeup. Sydney also implemented the Boston neighborhood map that lights up according to which bubble is being hovered on. She also plotted the shape outline for the individual neighborhood map that appears when a user clicks on a specific neighborhood bubble. She spent about 10 hours on this project over the course of the week.