



Considering that the consumers tend to have little to no understanding about the dataset they are searching, the visualization needs to be tailored to what the general public wants. Specifically, in a restaurant finder, I believe the most important is the location. It is essential that the users can see where the most restaurants are located as well as the approximate location of where they will be relative to the restaurants in Pittsburgh. Based on this consideration, I wanted to create a map with d3 hexabins showing the density of where restaurants are using different sized hexagons. However, once implemented, I realized that there are not enough data points to create a hexabins graph since the hexagons would be scattered around where one hexagon only corresponds to one restaurant. To solve this problem, I realized the best solution would be to keep the restaurants as points in the map. In this case, for the points to be more visible, I decrease the opacity such that the top layer points do not block the bottom layer. Overall, this achieves the overview part of the “overview + detail” principle.

Furthermore, since regions with many restaurants have points that will overlap in the far view of the map, the ability to zoom into different parts could act as an important feature of the map. This was implemented by using various transformations that correspond to the users’ gesture on the plot. At the same time, this gesture should not interfere with the interaction from clicking at each point. Moreover, to intuitively guide the users into the map interaction, the cursor will change into a grab gesture to indicate the ability to drag around when the mouse is hovering over places on the map that is

not a point. On the other hand, once it hovers over a point, it changes into a pointer cursor to indicate the ability to click and view more information.

Second to the importance of location in finding restaurants is the type of restaurant. Therefore, the next feature I implemented was a dynamic query that will enable users to filter by the type of places that they would like to search deeper into. In addition, since opinions and popularity also go into the decision of selecting a perfect place, there are range sliders for that purpose. This was implemented through allowing the users to choose their minimum requirement for rating and number of reviews. In this case, there exists a trade-off in which the users will not be able to filter the number of reviews to a step size of less than 1000 in order to make the slider seem incremental instead of continuous. Furthermore, just like previous, to guide the users with the interactions, the cursor will switch form as it hovers over the type selection and slider bar. Overall, by combining these three filters, the users can effectively select from their places that fit their needs.

While all the buttons can be selected and deselected, the sliders can always be moved, and the map can be zoomed in and out, there also exists a reset button such that resetting to the original view can be fast for the users. Since there are not a lot of restaurants in the dataset, the default of the map includes all the types of places and all the ratings. This default is considered the most comprehensive view of the city with the top overview of the locations and category distribution of the restaurants.

Lastly, to complete the second part of the “overview + detail” principle, the users can click on the points to display all the information about the place. In doing so, the users can view the comments and other data that may not make sense to add to the filters. This was implemented through changing the object into a key value pair and using data join to complete the display of a table.