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Project 1

# Design and Documentation

This project led to the creation of a map for London in 1854 during the cholera epidemic along with bar charts and a timeline to further detail the events that took place. For this project, the process began with a brainstorming phase, followed by implementation and ending with exploration and findings. This paper will attempt to illustrate the design decisions that were made as well as the findings from the visualizations by walking through each of these steps.

Before any visualizations were built, this project began by trying to understand how the data could be visualized and what the final product might look like. For the map, multiple ideas were considered, such as how the dots would be coded to indicate gender and age as well as what the pumps and street names should look like. For the bar charts, the main components that were considered was the color of the bars and how the sizing would work. In addition, for the timeline a line chart and a histogram style visualization were considered, with the histogram being the final choice. This project believes that the final product is a good representation of the data while also being aesthetically pleasing.

For the map, the color of the dots indicates what gender the death was (red = female, blue = male, gray = pump) and the size of the dots indicates age of the death (larger is higher age bracket). For each dot, a tooltip is attached when the mouse hovers over it, showing the age bracket specifically. For the pumps, hovering the mouse over the dot just indicates that it is a pump. The street names are also included, with the ability to enlarge the text by hovering over the object, making it easier to read. A legend was also included at the bottom to help viewers

understand what they are viewing. Finally, viewers can zoom and pan the map to get a better view of specific areas and investigate the data more fully.

For each bar chart, a steel blue color was chosen to fill the bars. The charts were split into three to show deaths by age, deaths by gender and the overall timeline. In each case, hovering over the bar will darken the bar (so viewers know which bar they are focusing on) and indicates the number of deaths for that category. In the case of the charts and the map, the visualizations are set up well for data exploration and discovery, as will be discussed in the following section.

In exploring the data visualizations, many interesting insights were found from both the map and the charts. In the map, the ability to see each death plotted in addition to landmarks and water pumps shows many interesting clusters. For instance, the great majority of deaths are centered around a single water pump. In addition, the brewery (probably a popular hangout spot) is close by, indicating people may have been socializing leading to greater spread of cholera.

The charts also show many interesting trends, such as the fact that the disease showed no gender bias (287 female, 284 male) but a large amount of age bias. For ages, most of the victims were either younger than 10 or older than 60. This makes sense as people in these age brackets often have weaker immune systems and would be less prepared to fight off the effects of cholera. The timeline shows a severe spike in the deaths right around the end of August and beginning of September, perhaps indicating that this was the peak of infections in the city before a solution was found (following this spike the deaths quickly tail off to 1 or 0 a day).

This project showed many interesting applications of d3 and allowed for the discovery of several interesting (and some expected) trends. More visualizations such as cumulative deaths or a breakdown of deaths by both age and gender could lead to even more insights and would be well worth a future study.