H517 -- Visualization Design, Analysis, and Evaluation

Created by: Vijay Mittal
Advisor: Prof. Khairi Reda

Project 1

Documentation & Design process

Dr. John Snow's map of London's 1854 cholera epidemic remains one of the most remarkable and insightful visualizations ever created which established a link between contaminated water and cholera spread in London.

The Goal of the project is to recreate the visualization using the modern-day tools like D3 and also create a interactive version of the map. I have created the visualization using the web tools mainly d3, HTML, and CSS. This visualization will provide a deeper understanding of the map with visual insights and interaction regarding the cholera epidemic spread in London during epidemic time frame.

Datasets used

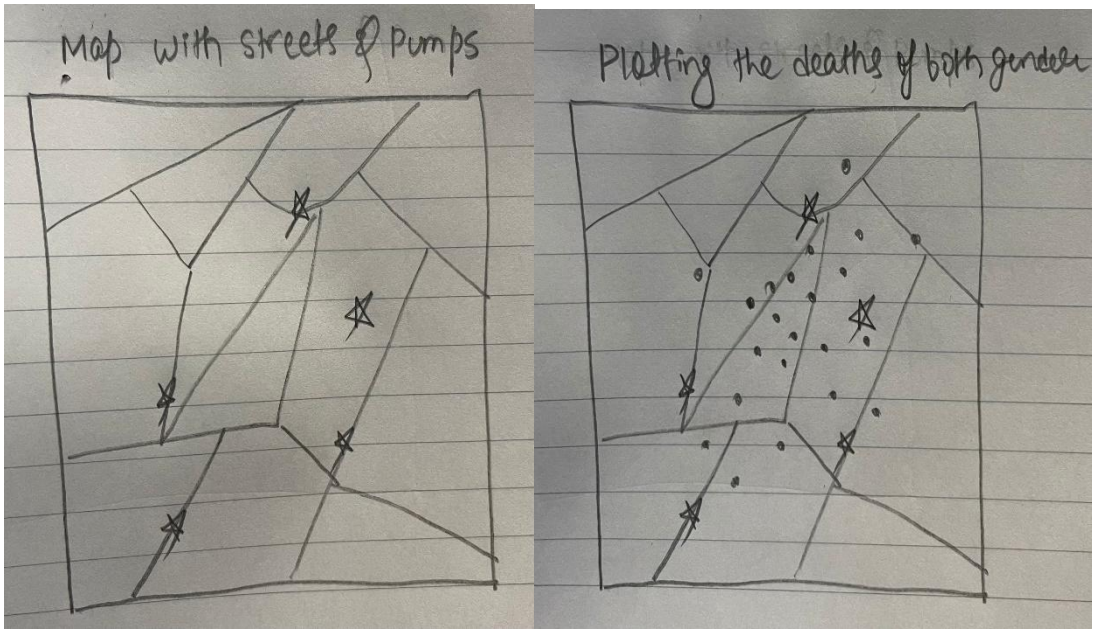
1) `streets.json` – This was used to plot the streets on the map .It gives the coordinates of the streets as a series of line segments. The file is formatted as a JSON array or arrays; The higher-level array is essentially a list of all street segments. Each street segment is, in turn, an array containing X, Y tuples representing vertices of the segment.
2) `pumps.csv` - This was used to plot the pumps on the map. It gives the locations of the 13 nearby pumps
3) `deathdays.csv` – This gives the number of deaths for each day of the outbreak
4) `deaths_age_sex.csv` - This was used to plot the deaths as per location and plot them .The file gives the location of each death in the death days file, in order, plus information on the age and sex of the victim.

Designing the visualization

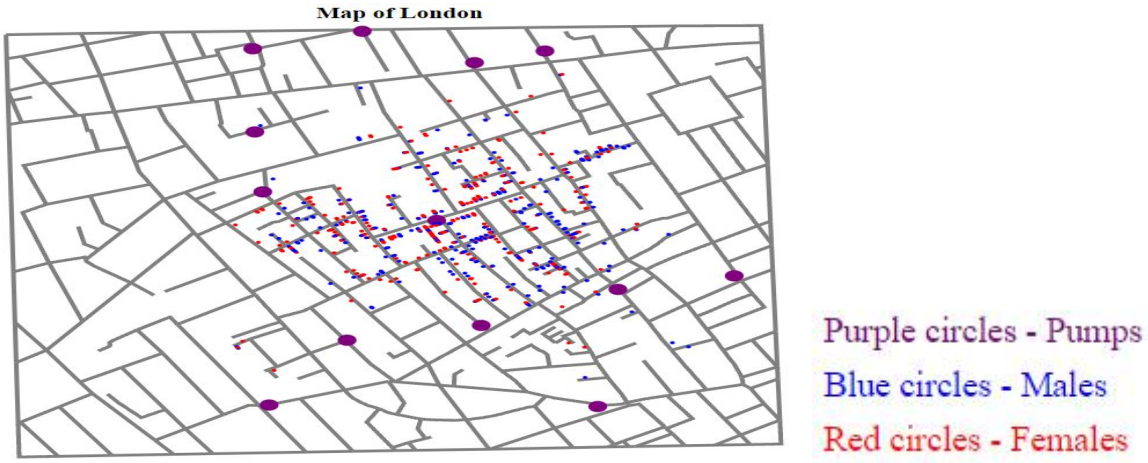
The initial process started with creating a map using the streets.json file provided to see if the coordinates align together to form a proper map resembling the original.

Thereafter followed by plotting the location of the pumps and deaths using the data files provided.

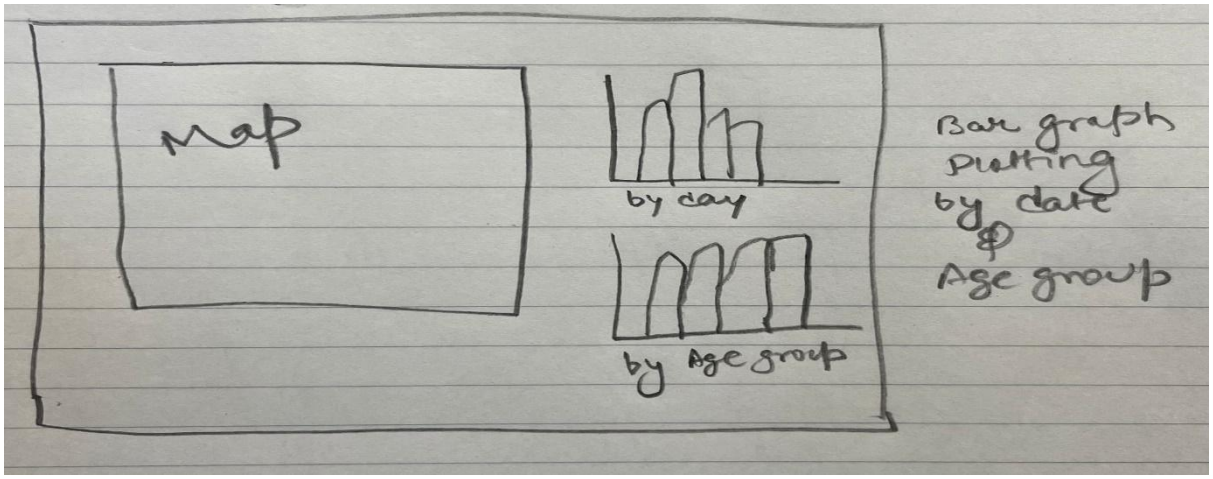
Initial design snippets :



One the rough sketch of the map was ready, I added colour and style to the elements in the map with proper labelling and legends.



The next step was to create 2 bar graphs; one with total deaths as per dates and the second with totals death as per age groups

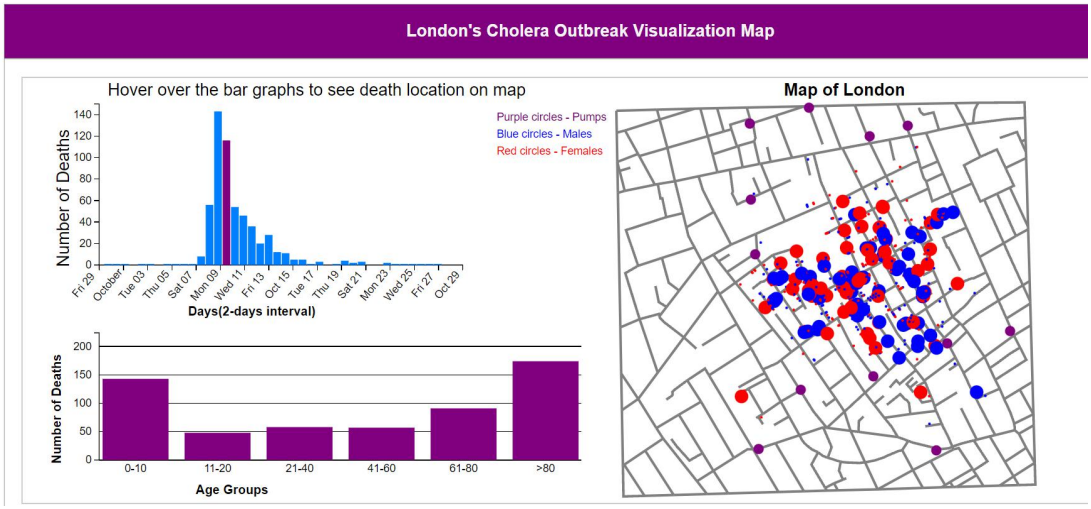


Furthermore to the bar graph was adding interaction with the map, which was achieved used the mouseover and mouseout functionality provided in svg using d3.

I have used purple colour theme as it looked quite appealing to me in terms of visual perception.

So when hovering over the bar graph, we can see that the plotted deaths on the map zooms in to show the deaths on that particular day or of that particular age group.

Snippet :



At last I added at the bottom of the web page, the links to the documentation and the YouTube video demonstrating the visualization

Conclusion

Looking at the final visualization, I can say that it provides a better insight to understand the spread cholera epidemic spread in London and the effect of various factors like date, age and location related to the deaths

References:

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