The first part of this assignment was constructed using the nightingale dataset, supplied on blackboard. It is divided into 3 parts to represent 3 different uses of shapes in relation the data.

The first chart is a simple line graph with x and y axes to display the size of the army during each month provided in the data set. Using html, JavaScript and the d3 library, and SVG was appended to the html page, a width and height as well as an edge margin were supplied at the beginning to keep the charts neat. The chart range on the x-axis was done with the d3.scaleTime command and it was parsed as (%b %Y), meaning it read an abbreviated month name, i.e. JAN, and a full four digit year number, i.e. 1985. The y axis was scaled linearly from the height of the SVG excluding the margin to 0. The line was defined as well before the data was read where the x coordinate was set to the Month datum of each object, and the Y coordinate was set to the army size datum.

At this point the data was read in from a csv file which was converted from the excel spreadsheet. And the domain of the x and y axis were set. The x-axis used the extent of the months provided while the y axis used the domain from 0 to the maximum value for the size of the army provided. The line was styled to be 4 pixels in width and the colour was set to purple. It was then drawn and the axes were appended.

The second chart was a stacked bar chart displaying the number of people killed by different causes, in this case zymotic diseases, wounds and injuries and then all other causes. The point of making it a stacked bar chart was to show how many people died each month to each cause. The x axis was scaled ordinally so that at 0, 1/6, ½, 5/6 and 1 whole width of the page were used as increments. There was no indicator at 0 and the width, but there were indicators at the 3 middle increments, these values are evenly spaced out. The y axis uses the domain from 0 to the sum of all values in deaths due to zymotic diseases. This is because it was the largest killer and would fill up the height of the graph. After the data was read in 3 arrays were created to define the end height of each bar which would be stacked on the bar before it. The bars were stacked and colour coded using an array of colours. A key was appended to the graph to demonstrate this feature.

The final chart from the first part is simply 3 circles displaying the average number of people killed per 1000 due to each cause per annum. The circles are multi coloured but are not scaled to match the data

Part 2 is a recreation of Minard's data set representing the size of napoleons army as he marched on Moscow and subsequently on the return journey. The data set provides latitudes and longitudes for each city along the way as well as the positions of each division of his army. Like the line graph in part one, the x and y axes were scaled from 0 to height and width, and then the domain was extracted as the extent of the data of the latitudes and longitudes. Considering not each row contained data for latitudes and longitudes, the minimum data had to be entered manually for each for the domain or else it would return a 0, but not the maximum as it was correctly extracted. Using the scales we derived for the x and y axis of the SVG it was simple to append text labels for the position of each city.

A for loop then cycled through each data object and checked which division it belonged to and if it was part of the away trip or return trip. A line was drawn from the last latitude and longitude to the current latitude and longitude. The line was made as wide as the army, divided by 10,000 to fit the page, and was coloured orange for away and lilac for return. The for loop contained if statements to check for each division so as when the path of the next division was to be drawn it was not connected to the end of the last divisions journey