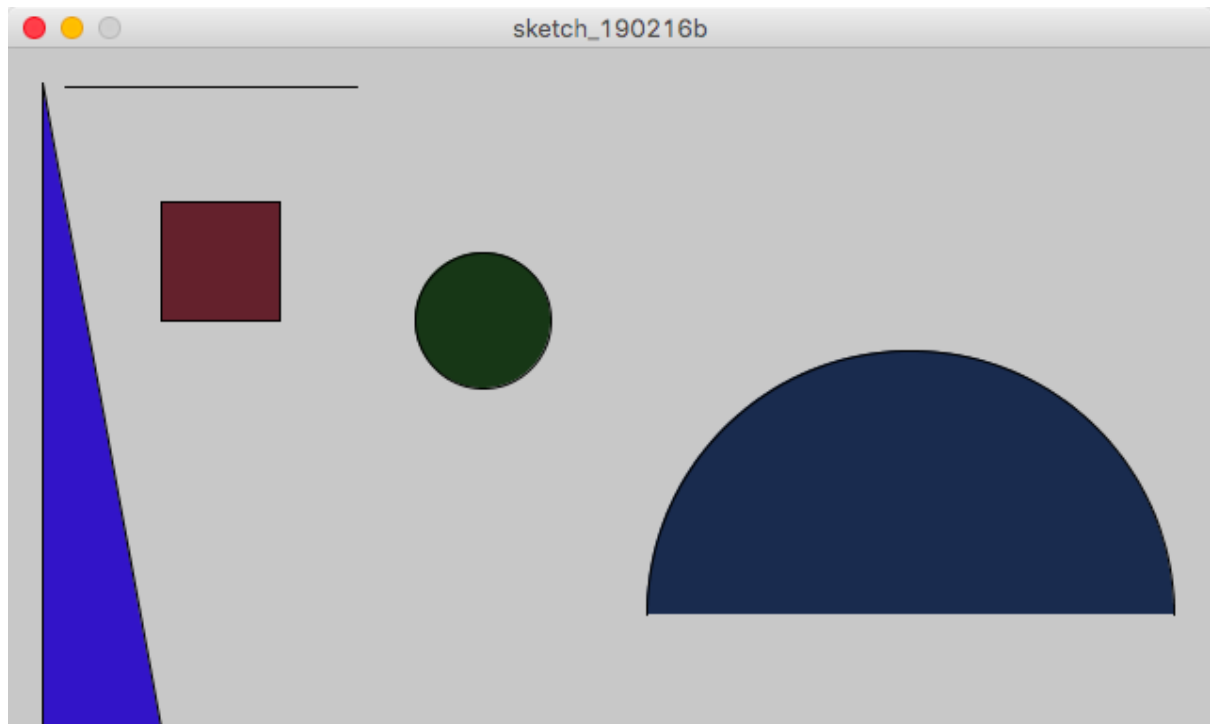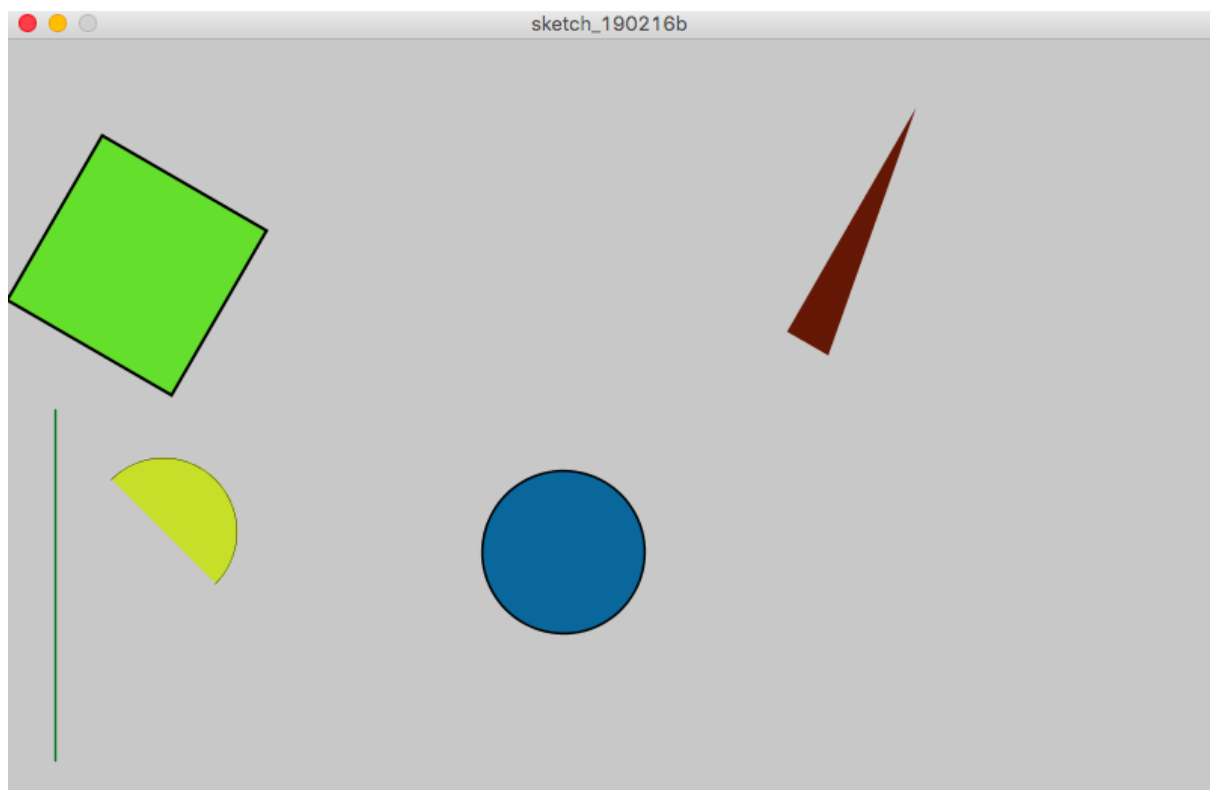# CS7DS4: DATA VISUALISATION ASSIGNMENT 2

Submitted To: Mr John Dingliana

Submitted By: Kavin Gupta
17317505

Q.1 Draw some basic shapes using vector graphic components and transform them i.e. translate, rotate and resize?
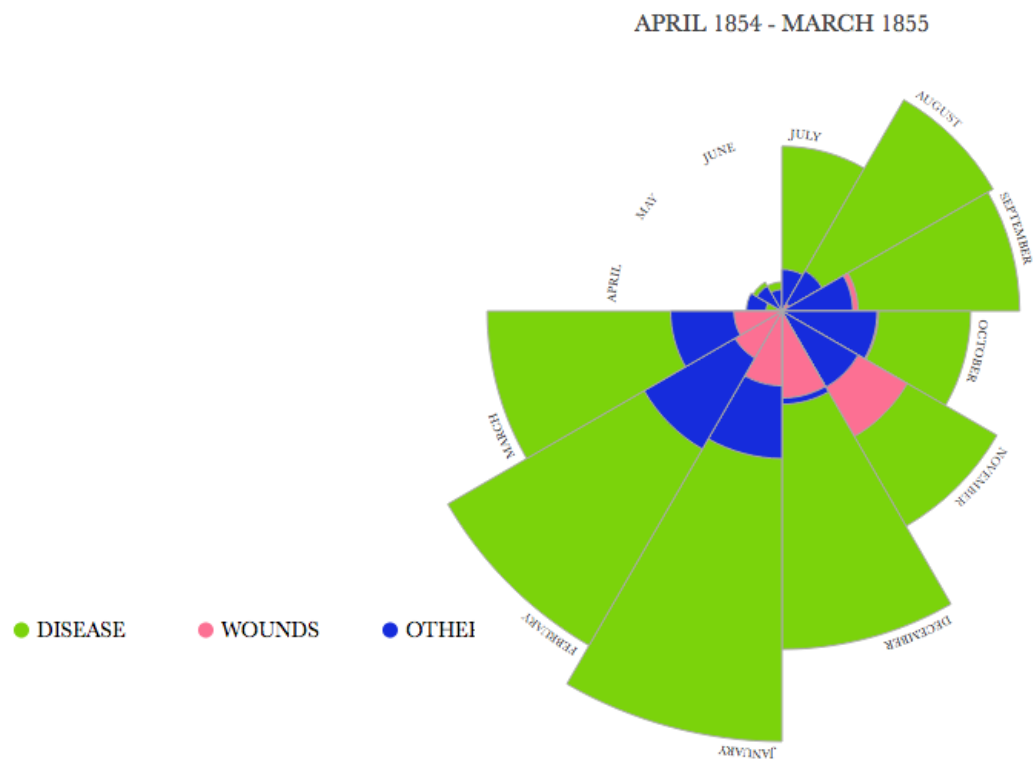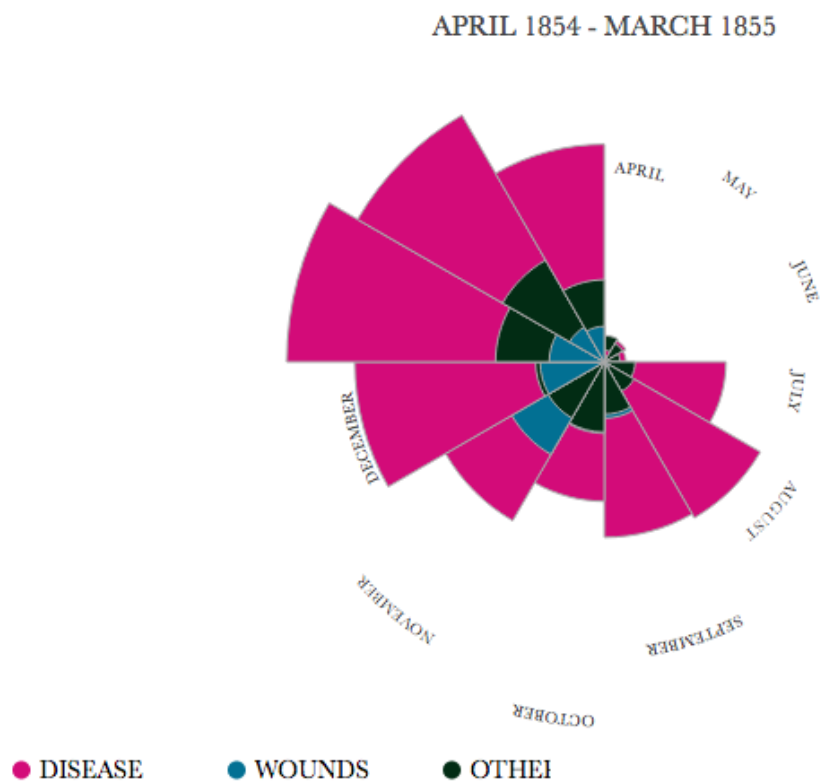

Figure 1: Some basic shapes.

Figure 2: Transformed Basic Shapes

Q.2 Visualize the Florence Nightingale's mortality data as a Coxcomb, rose chart or polar chart area?

APRIL 1854 - MARCH 1855

Figure 3: Coxcomb of Nightingale's Data

APRIL 1854 - MARCH 1855

Figure 4: Transformed Coxcomb of Nightingale's Data

Q.3 Recreate Minard's Map of Napoleon's Russian campaign?
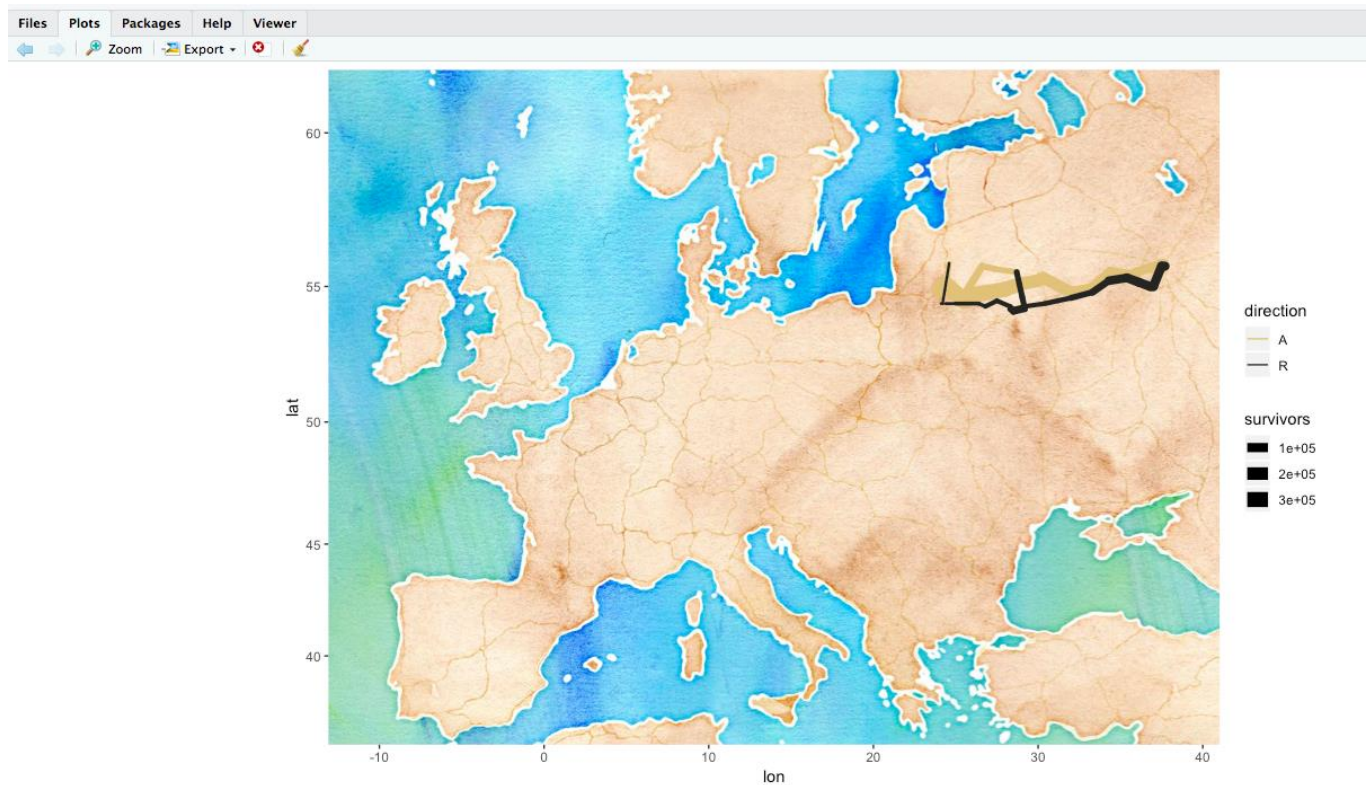

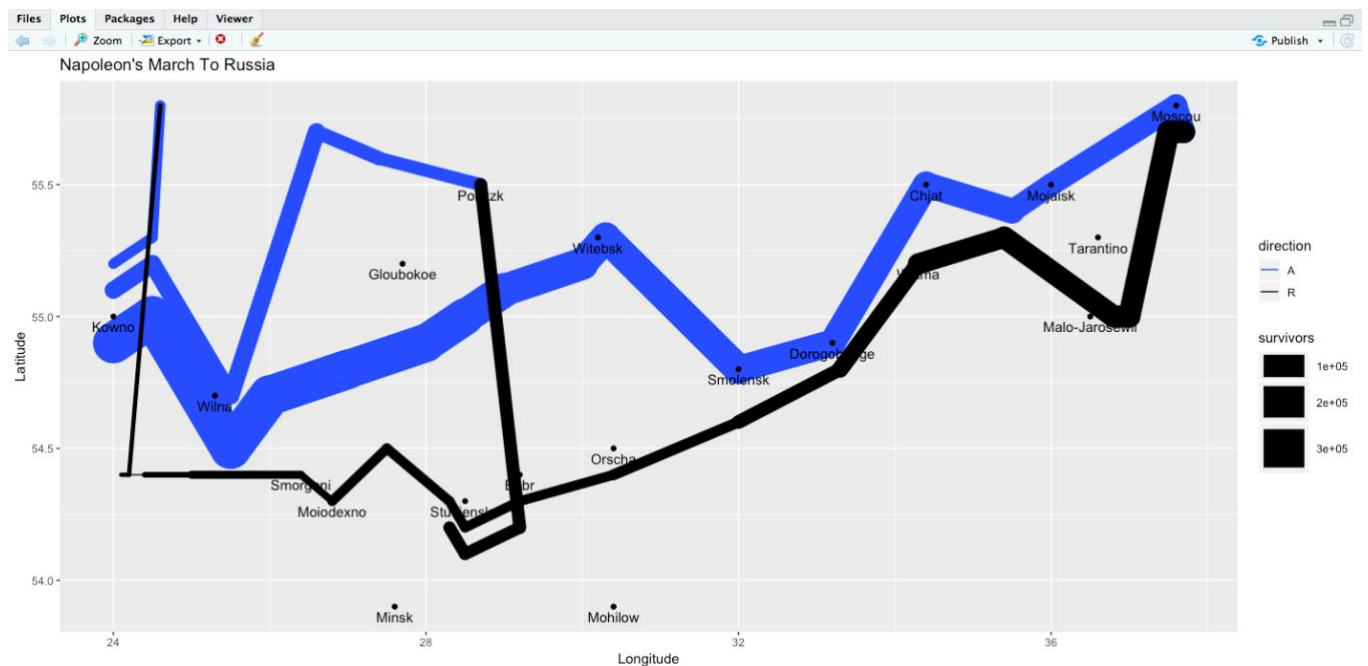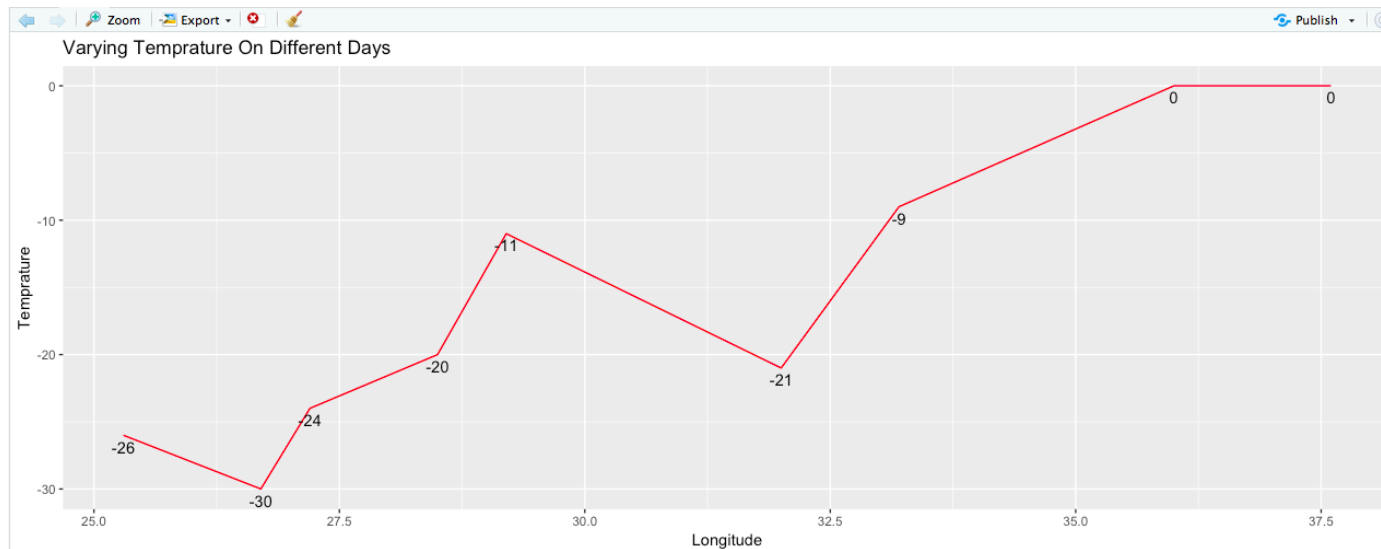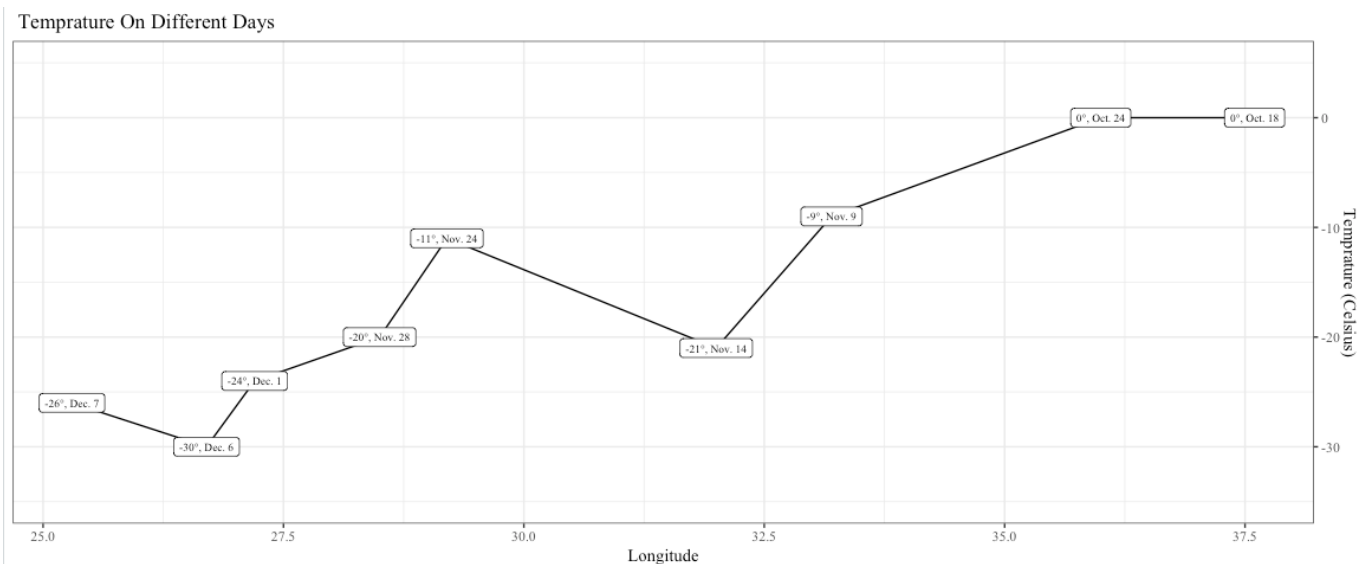**Figure 5:** Napoleon's March on Europe's Map

Figure 6: Zoomed Napoleon's March to Russia ('Blue(A)'= Towards the attack, 'Black(R)'= Return journey)

Figure 7: Temperature in Celsius for days V/S Longitude

Figure 8: Temperature with month and year V/S Longitude

Napoleon's March to Russia

- This is the time of 1812 when Napoleon has most of the Europe under himself, but to conquer the left-out parts he invaded them forcing European countries to stop trading with the left-outs to weaken them. But he didn't know then, how his decision would turn out be a disaster.

- He started his march to attack Russia from France as seen in *Figure 5* in June 1812 with 400,000 soldiers but we have the data from 18th October with 340,000 soldiers. The thickness in *Figure 6* shows the number of survivors towards the attack and returning. Clearly, the number of survivors were wearing down as Napoleon's army were heading to Russia. However, the fall in the number was not too steep.

- While Russian troops were not as big as Napoleon's, they had a plan. As Napoleon's soldiers keep marching forward, taking over everything. Eventually when they entered Russia, they suffered major losses due to starvation.

- The Russians fought with their guerrilla tactics, while Grand army pursued them relentlessly. Napoleon then knew he has to retreat as winter was coming to Europe as visualized from *Figure 7* and *Figure 8* to prevent this army to wore down completely. The temperature was dropping day by day and food and water was getting scarce.

- He went back to France but suffered major losses due to weather conditions, diseases and lack of food. During this return, the survivors suffered a lot and their number fall drastically as visualized from *Figure 6*. Halfway through the return the number of survivors were even less than 100,000.

- He finally was back in France with approximately 6000 survivors. However, from our figures we can only visualize the latitude and longitudes of their march, but the name of countries was researched on world maps.

- What we visualize from our figures keeping them side by side (especially Figure 6 and Figure 7) is the whole campaign of Napoleon in 1812 to Russian and back. The day to day variations in movements, survivors, temperature can be conceptualized.