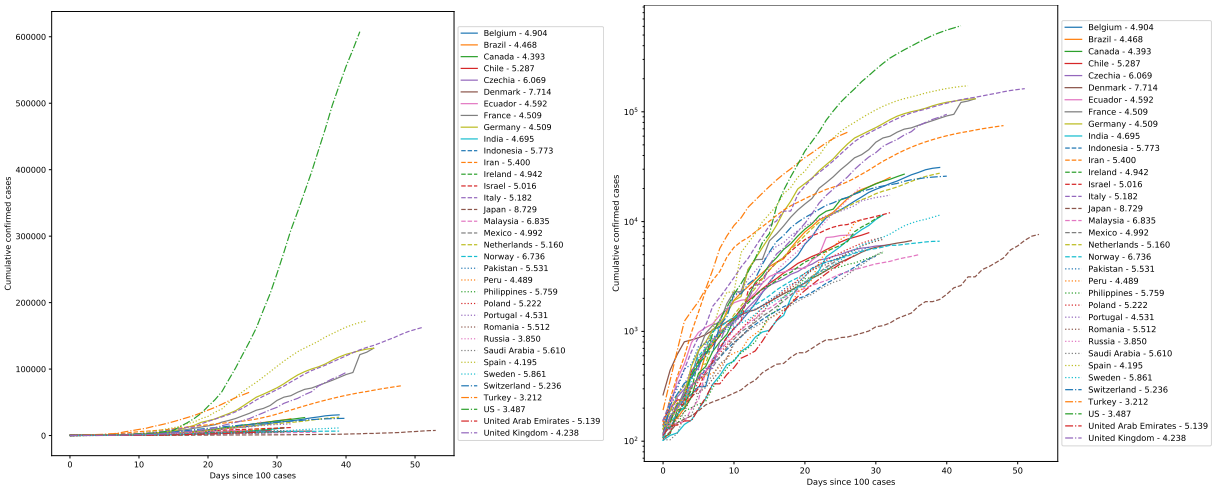


(a) Linear scale

(b) Log scale

Figure 1: Doubling and cumulative cases for selected countries

To analyse the spread of Covid-19, we looked at the stasticial significance of the doubling time between different countries. To accomplish this, we used the dataset from John Hopkins, which included cumulative cases for different cities in different regions. We accumulated the data by region, before remapping the data to consider the number of days since the country first had 100 confirmed cases. This allows a better inter country comparison. We then filtered out countries for which had less than 5000 cases, to ensure that enough of the trend could be seen to derive some conclusions from, as well as countries who's reported cases did not increase more than 1% between the two most recent days.

This resulted in AA countries, of which the minimum time frame was BB. To calculate the doubling time for each country, we compared the number of days between the first day of 100 cases and the current day, and the number of doubling between the two dates. The resulting countries, cumulative cases, and doublings can be seen in Figure 1.

Treating each country as a separate sample, we performed a confidence interval on the expected doubling time, as well as plotting a histogram and box plot, and normality analysis. We determined that the sample mean was AAA, with a confidence interval from AAA to BBB with $\alpha = 0.05$. This is comparable to the results seen in paper AAA, where they reference papers with confidence intervals AAA to BBB, and CCC to DDD, where our results fall between these intervals. We do note that our data uses much more recent data (up until AAA), and considers all data reported, where the papers only consider data up to BBB. Through a normality consideration, we see that we get a p-value of AAA, indicating that we can reject the hypothesis that the data is normal with $\alpha = 0.05$. However, we observe in the box plot that there are two outliers.

By repeating the analysis with the two outliers removed (Japan, Denmark, N=N), we find a new confidence interval AAA to BBB. The new plot can be seen in Figure 3, where a normality p-value of AAA, indicating that the data does in fact follow a normal distribution.

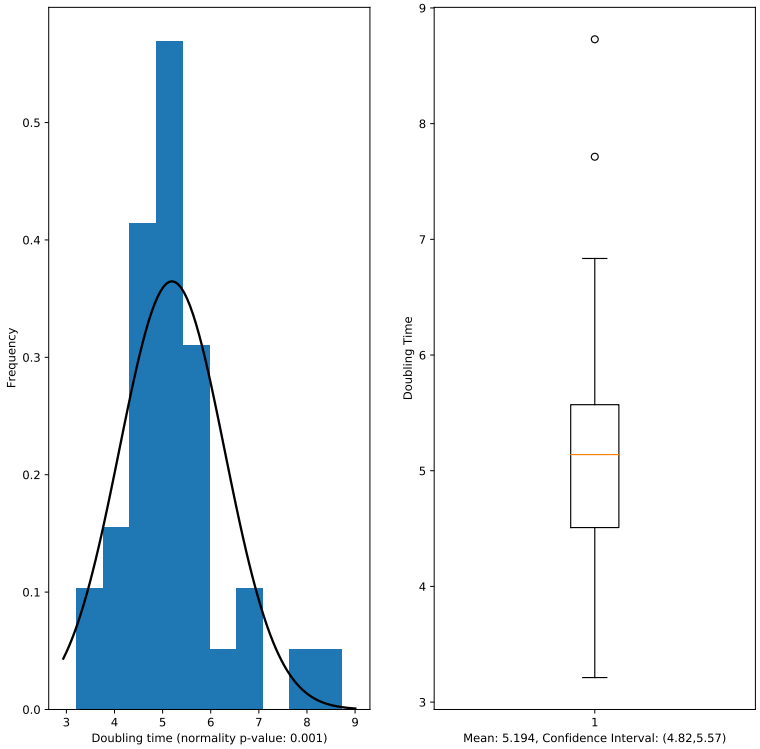


Figure 2: Histogram and box plot, including outliers

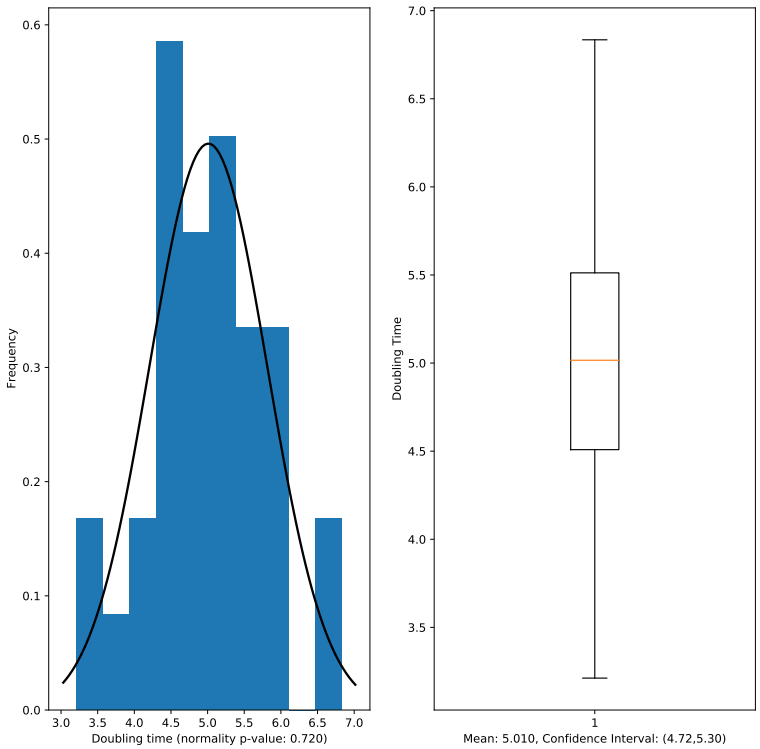


Figure 3: Histogram and box plot, filtering out outliers