**Social Data Analysis and Visualisation: Project Story**

**Overall Problem of Interest:** investigate how various government, social and economic indicators have influenced the government responses to the coronavirus pandemic.

* And to also evaluate the effectiveness of different government responses.

**Introduction:**

* *Worldwide Heat Map Movie:*
* Show the evolution of the coronavirus pandemic and the spread of the virus from Asia to Europe.
* *Summary Statistics Plot:*
* logarithmic and exponential curves of the number of confirmed, active, recovered and dead coronavirus patients.
* Show the overall spread of the virus over time.
* *Epidemic Curve:* (Bokeh) (either number of new cases on a given day or a number of active cases per day)
* Show epidemic curve for specific focus countries
* Shows where different countries are in terms of the stage of the pandemic.
* Histogram/bar plot showing the number of new confirmed cases each day.
* This plot will also be useful later when we can plot when government measures were introduced and the effect that these had on the epidemic curve.

**Factors that have influenced government responses and lockdown measures:**

* *Interactive Plot 1 Government Measures:*
* Before we can continue with the analysis, we must first look at the government measures that have been introduced and the timing of their introduction. After exploring the lockdown measures and the timing of their introduction, it is then interesting to begin to explore the reasoning behind these measures.
* Governments worldwide have introduced totalitarian social distancing and lockdown laws in order to curb the spread of the virus. Utilising the coronavirus data, it is interesting to visualisation the number of coronavirus cases and days since the confirmation of the first case before the government went into lockdown.
* This visualisation is designed to show audiences the variation in lockdown measures and the timing of their introduction. It is designed to show the variation of the government responses to provoke thought and lead on to further visualisations where the reasons for the government actions and timings are explored.
* *Healthcare Expenditure:*
* Depending on the wealth of each country, the healthcare expenditure will change. This is interesting to visualise as it shows the funds that each country spends on healthcare and can be considered an indication of how much healthcare each country can afford. When compared with the GDP and number of coronavirus cases, links can be drawn between the economic status of the country and the severity of the coronavirus pandemic experienced in that region.
* *Interactive Plot 2: Healthcare System*
* A crucial part of this investigation is exploring how the quality of the healthcare system has influenced the government measures. Questions like have some countries been quicker to put the country into lockdown because they don’t have the health system capacity, are interesting to explore. A bubble plot display the speed of lockdown introduction (i.e. number of days after the first case before the country went into lockdown) compared to the universal healthcare coverage index and the capacity of the healthcare system classified by the number of hospital beds. Other information, including the number of healthcare personnel will be provided adding an interactive element to the plot.
* The visualisation is designed to show how the capacity of the healthcare systems has influenced government decisions during the pandemic.
* *Political State:*
* A visualisation analysing the political system of each country and how this has affected the spread of the coronavirus is also interesting to explore. Measures including government effectiveness and political stability have been from the world bank’s data archives.
* This visualisation will show how the stability and effectiveness of the government has impacted the rate of the coronavirus spread.

**How the government responses and lockdown measures have influenced the spread of coronavirus:**

* *Epidemic Curve Plot:*
* show the pandemic curve but, also included a marker when the lockdown measure was introduced.
* We can then evaluate the effectiveness of different lockdown measures and the timing of their introduction.
* Comparison between countries
* *Deaths Plot:*
* it will be interesting to evaluate the different healthcare systems and the number of deaths.

**Summary:**

* Large plot showing overall results (interactive map with pop ups that show other graphs and more information)