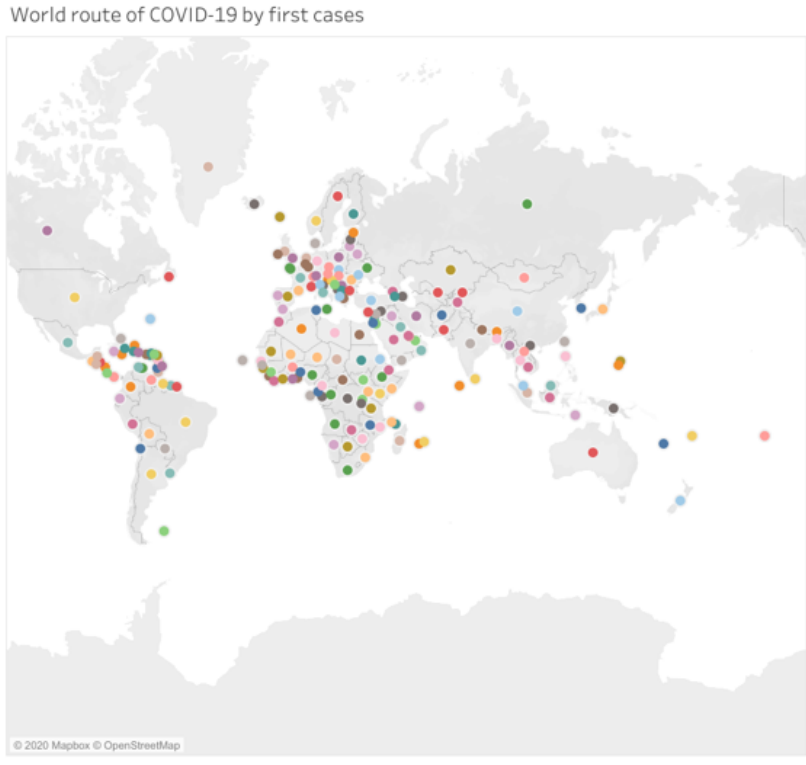


Part 2. Design and Discussion [35 marks total]

a.

Case Amount of COVID-19																			
Design	<div>Case amount of COVID-19</div> <table border="1"><thead><tr><th>Month</th><th>Confirmed</th><th>Deaths</th></tr></thead><tbody><tr><td>1</td><td>100K</td><td>5K</td></tr><tr><td>2</td><td>200K</td><td>10K</td></tr><tr><td>3</td><td>600K</td><td>40K</td></tr><tr><td>4</td><td>1800K</td><td>170K</td></tr><tr><td>5</td><td>800K</td><td>60K</td></tr></tbody></table>	Month	Confirmed	Deaths	1	100K	5K	2	200K	10K	3	600K	40K	4	1800K	170K	5	800K	60K
Month	Confirmed	Deaths																	
1	100K	5K																	
2	200K	10K																	
3	600K	40K																	
4	1800K	170K																	
5	800K	60K																	
Propose	<p>In the first chart, I want to confirm the trend of death and confirmed case are similar, which can avoid outliers of death rate.</p>																		
Monthly Death Rate of COVID-19																			
Design	<div>Country Name All</div> <table border="1"><thead><tr><th>Month</th><th>Death Rate</th></tr></thead><tbody><tr><td>1</td><td>0.1</td></tr><tr><td>2</td><td>0.8</td></tr><tr><td>3</td><td>5.5</td></tr><tr><td>4</td><td>11.5</td></tr><tr><td>5</td><td>14.0</td></tr></tbody></table>	Month	Death Rate	1	0.1	2	0.8	3	5.5	4	11.5	5	14.0						
Month	Death Rate																		
1	0.1																		
2	0.8																		
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Propose	<p>In the second chart, I focus on the most difficulties period of COVID-19 in each country, such as which month has the highest average death rate, and which country's death rate is flattening.</p>																		

World Route of COVID-19	
Design	
Propose	<p>In final plot, I want to realize the path of COVID-19. With the date of the first case happen in each country, we could surmise the route of this virus.</p>

b.

Case Amount of COVID-19
<p>The data source of this part is “WHO-COVID-19-global-data.csv”. The attributes of this part are “Deaths”, “Confirmed” and “Month”.</p> <p>In type selection part, I choose double line chart, because I want to display the trend of cases. With two lines, it also could demonstrate not only one quantitative attribute and one categorical attribute, but the two quantitative attributes with one categorical attribute in the same chart.</p> <p>With x-axis, I set month data, which include 5 different items (January-May). The reason that I choose month rather than year or day is because around 90% cases happen in 2020, it would be meaningless and would generate a dot instead of line. If using day, although it may be more accurate, the x-axis labels would look more complicated and unclear.</p>

With y-axis, there are 2 attributes, “deaths” and “confirms”. The range of death case is [0, 50030], and the range of confirmed case is [0, 863334]. Values of death cases is on the right y-axis, and values of confirms cases is on the left side.

For colour decision, I choose red for death cases and grey for confirmed cases. Making sure users would not confused, moreover these two colours may correspond to user’s emotion when they read this plot.

On the upper right corner, there is a legend. It could show line colours of each attribute.

Monthly Death Rate of COVID-19

The data source of this part is “WHO-COVID-19-global-data.csv”. After calculation of death rate, the attributes of this part are “Death Rate”, “Month” and “Country”.

In type selection part, because I want to display the trend of monthly death rate. With a quantitative attribute and a categorical attribute, line chart is the first choice.

Same as last plot, I set month data as x-axis, which include 5 different items (January-May). With y-axis, there is death rate. The range of death rate is [0, 1].

For colour decision, I choose red for death rate line, since the same colour of death case in last plot.

On the upper right corner, there is a drop-down menu, which could let users to select a country. With drop-down menu, users could realise which country has weaker ability for curing COVID-19.

World Route of COVID-19

The data source of this part is “WHO-COVID-19-global-data.csv” and “COVID-19-geographic-disbtribution-worldwide.csv”.

In data processing part, since different abbreviation of country name. First of all, I use python to find out the different names between these 2 files, then modify then to the same name. The most special part is that there is Taiwan in “COVID-19-geographic-disbtribution-worldwide.csv”, but not “WHO-COVID-19-global-data.csv”. Therefore, I use Taiwan’s data from “COVID-19-geographic-disbtribution-worldwide.csv”.

Since period of “COVID-19-geographic-disbtribution-worldwide.csv” is from 31/12/2019 to 15/04/2020 and period of “WHO-COVID-19-global-data.csv” is from 11/01/2020 to 10/05/2020, I select the earliest date in these 2 files.

In type selection part, I use map and point out countries by their latitude and longitude. As movement of time bar, users could see how COVID-19 spread to the world.

With x-axis and y-axis, I put latitude and longitude. I mark out countries in different color, in case some countries are too close to display clearly.

On the upper right corner, there is a single value slider. Users could take a look of the date of COVID-19 outbreak by sliding. Also, it can show the trend of first case happen.