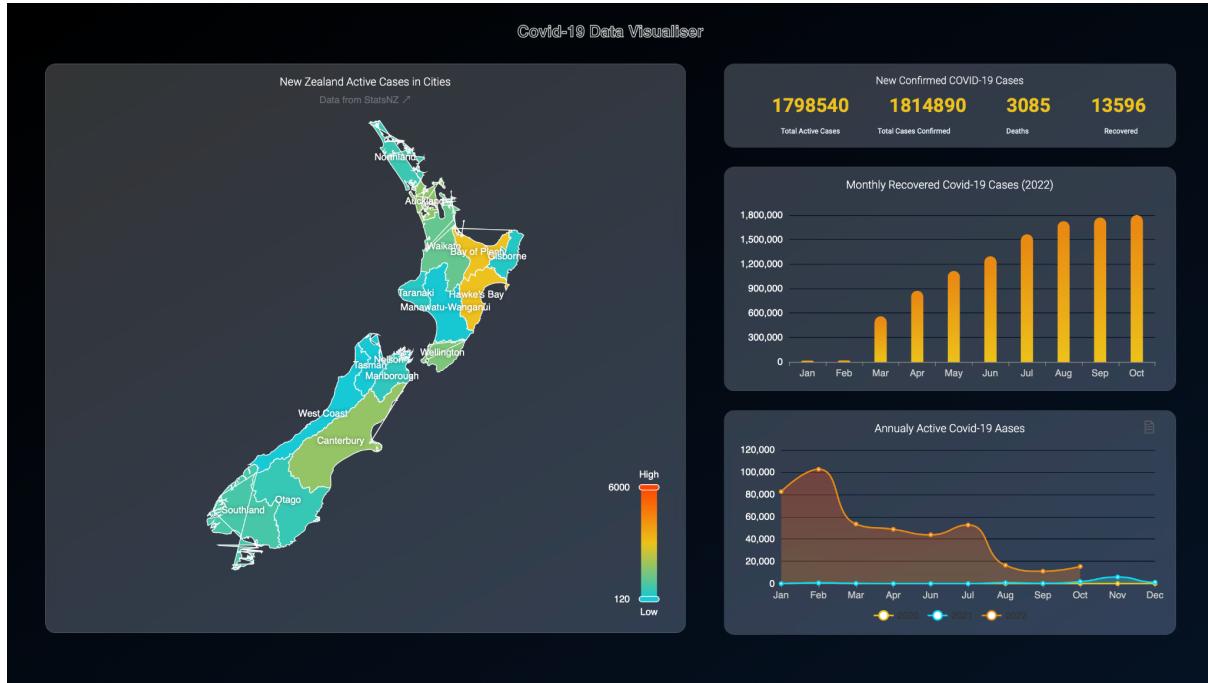


289212

**Web and Interactive Production
Assignment 2**

Covid-19 Data Visualiser

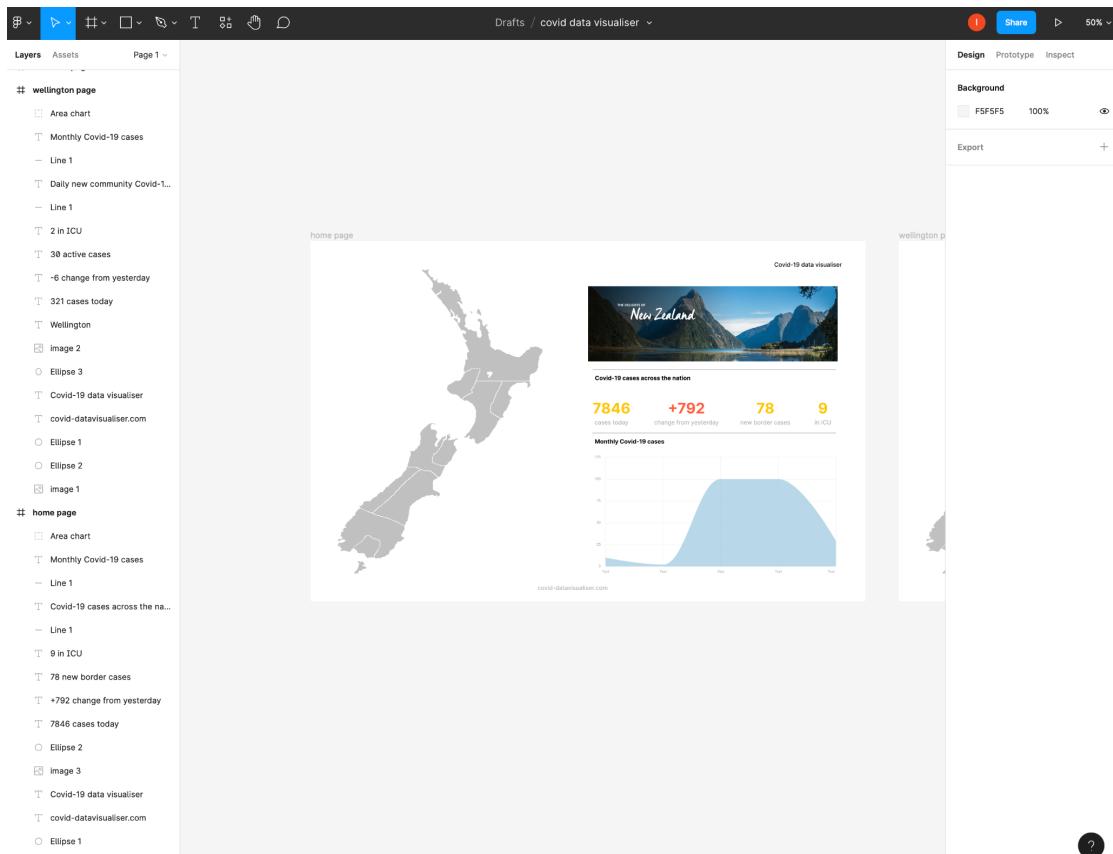
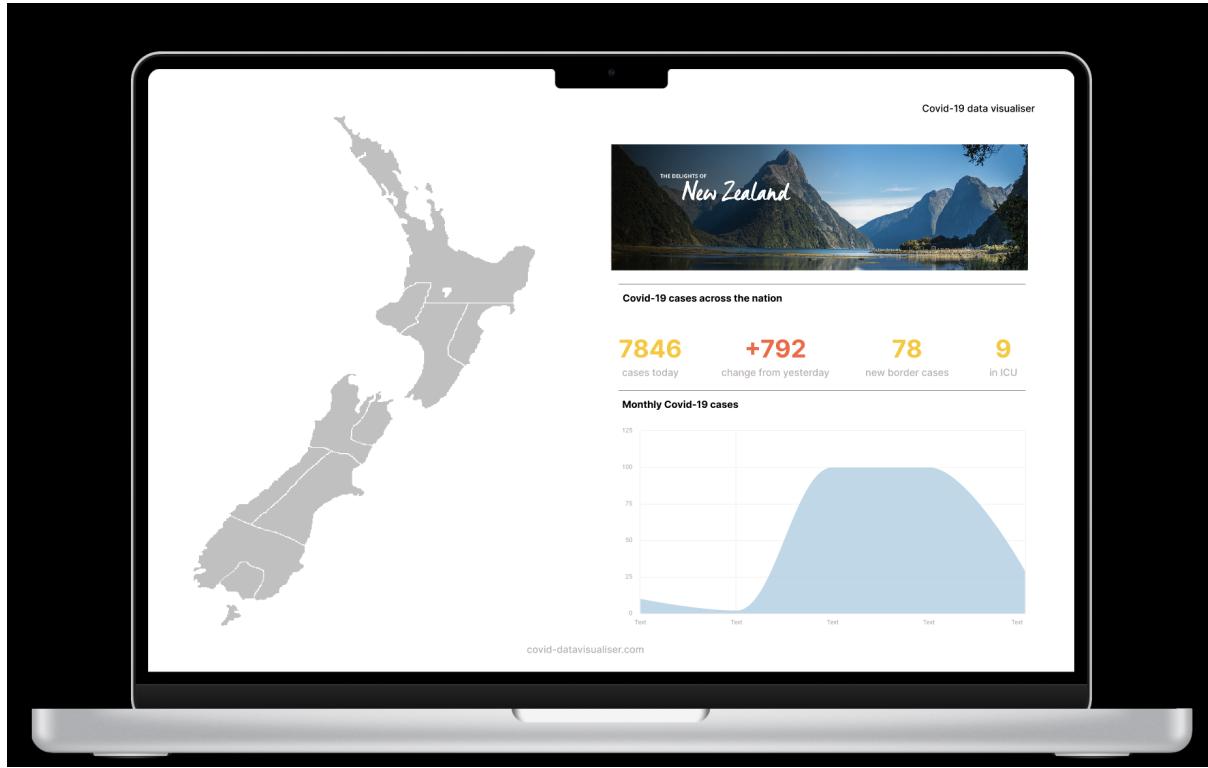


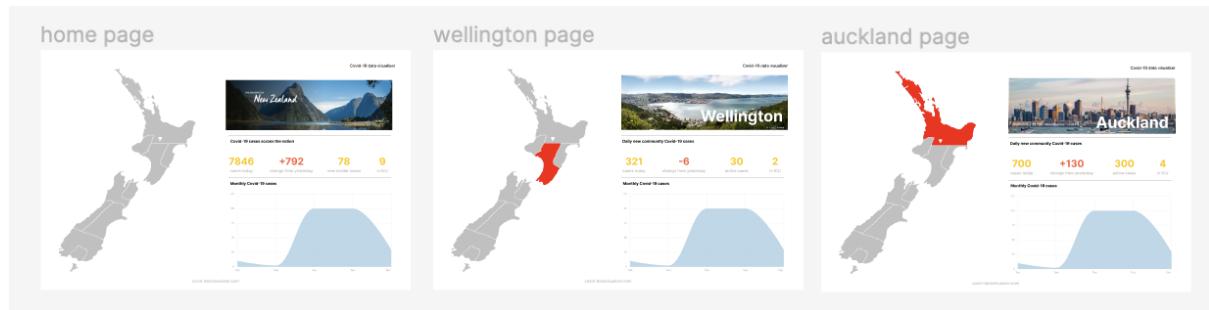
Rational

My project is an online Covid-19 data visualiser website that aims to track the latest Covid-19 data cases in New Zealand. The target audience of the website are the people from the local community who are concerned about the changes and spread of the covid epidemic situation. The visualiser provides a data bar, bar graph, map graph and line graph. Each of these graphs has a different purpose and data: the line graph provides the active data of every year and month since the outbreak in New Zealand; the map graph focuses on displaying the active data of every city; and the bar graph focuses on the recovered data of every month. The colors I intended using were red, yellow, and green, as it's the general perception of different situations(alert levels) of covid, for example: red = critical, yellow = alert, green = safe. I believe this set of colors provides a good visual response to users while they use the website. The graphs mainly used javascript and a js library - Echart . The basic layout of the website was built using html and css, and the data were extracted from the sqlite3 database using python.

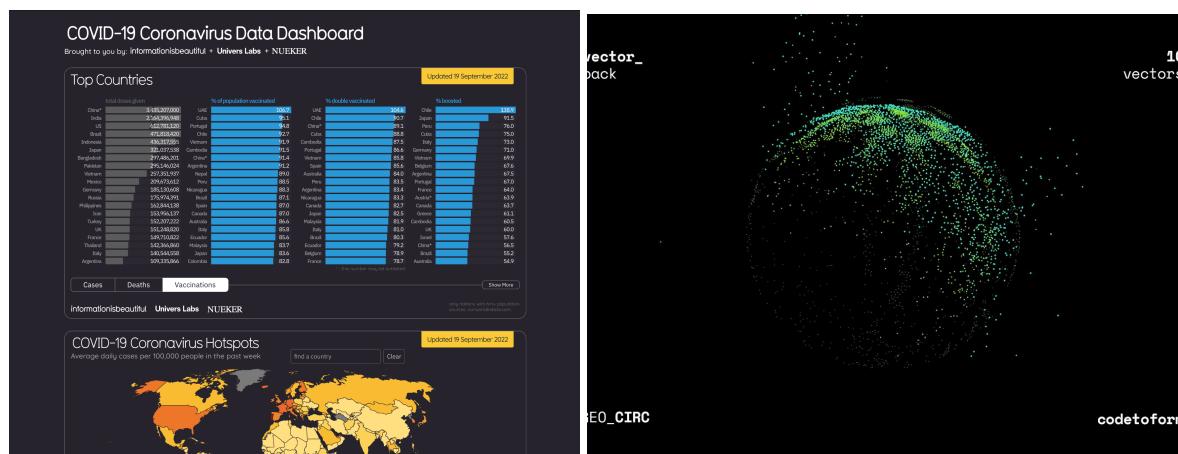
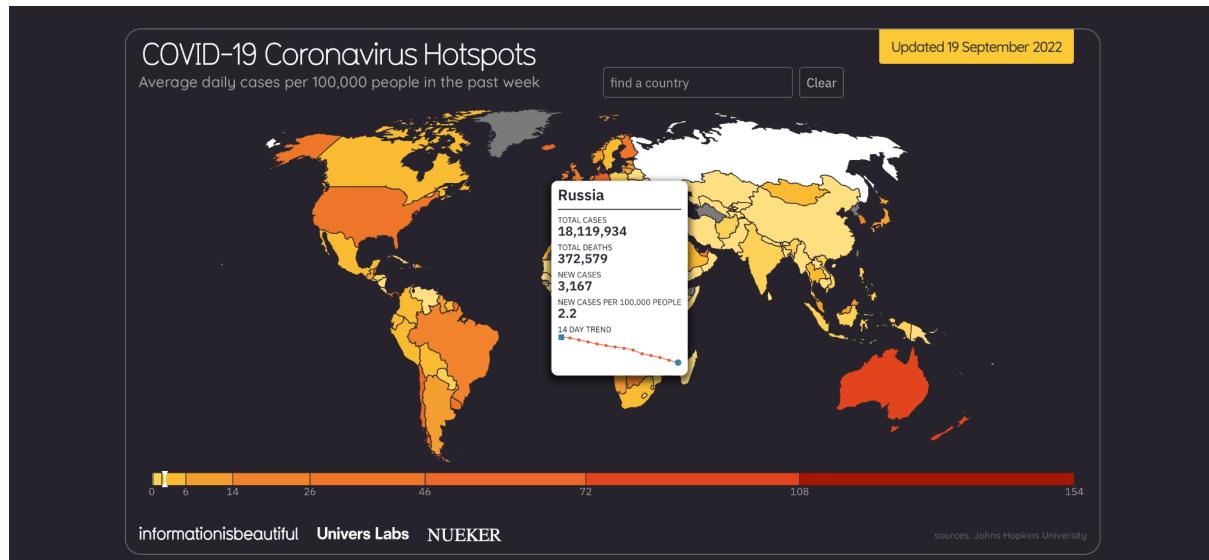
Figma prototype

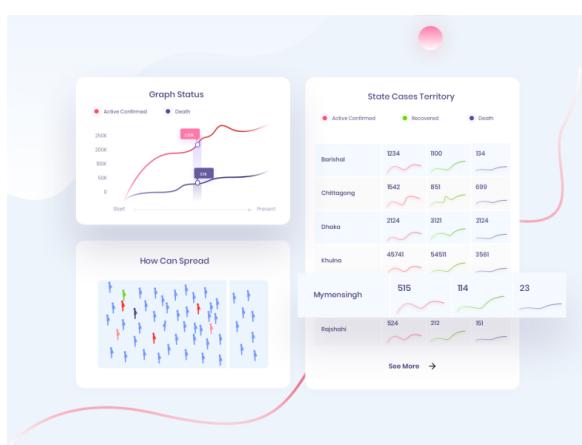
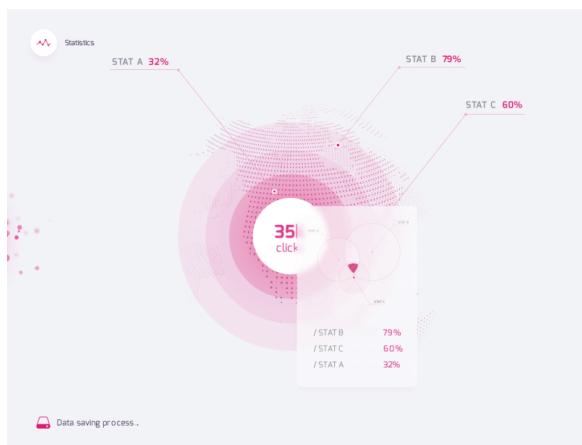
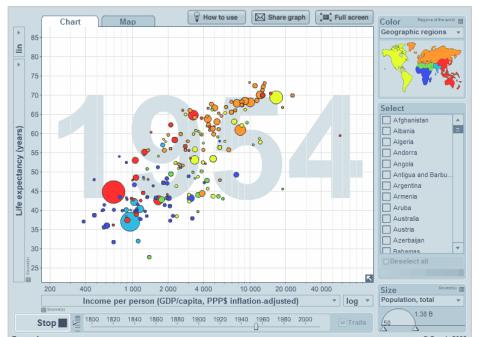
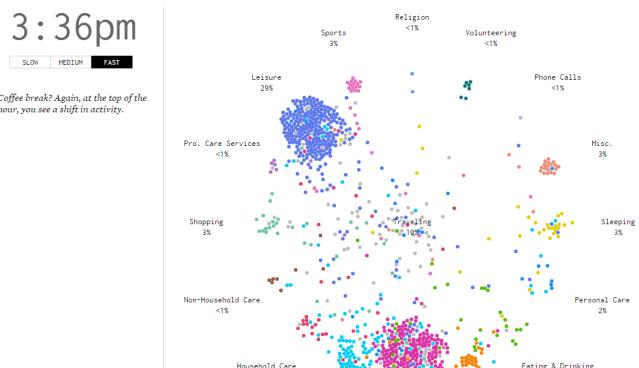
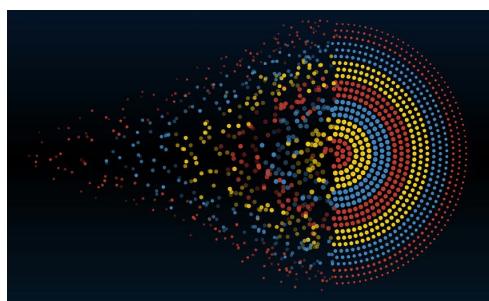
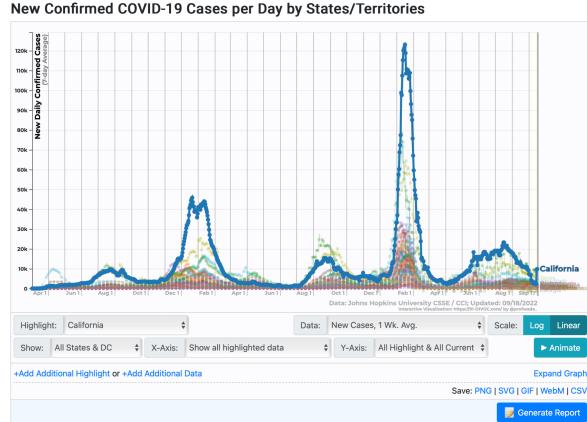
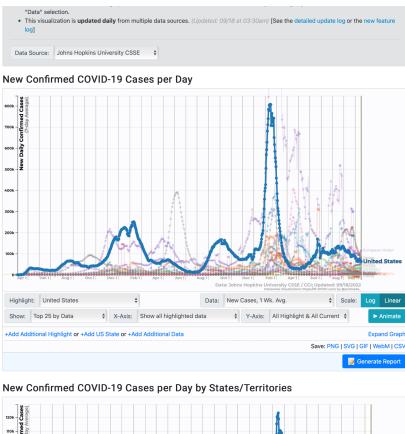
<https://www.figma.com/proto/WmTSixVnu2RhYdyJDbkbm2/covid-data-visualiser?node-id=1%3A2&scaling=scale-down&page-id=0%3A1&starting-point-node-id=1%3A2>

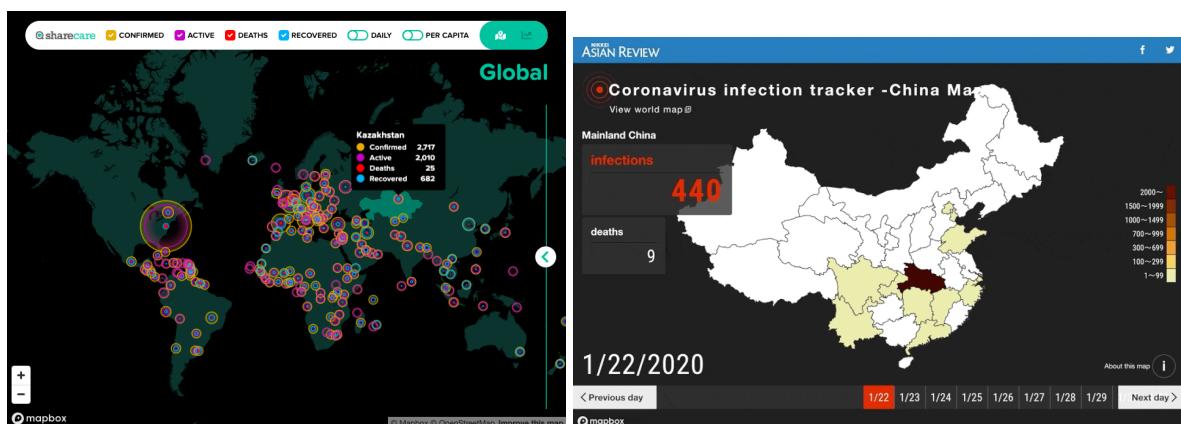
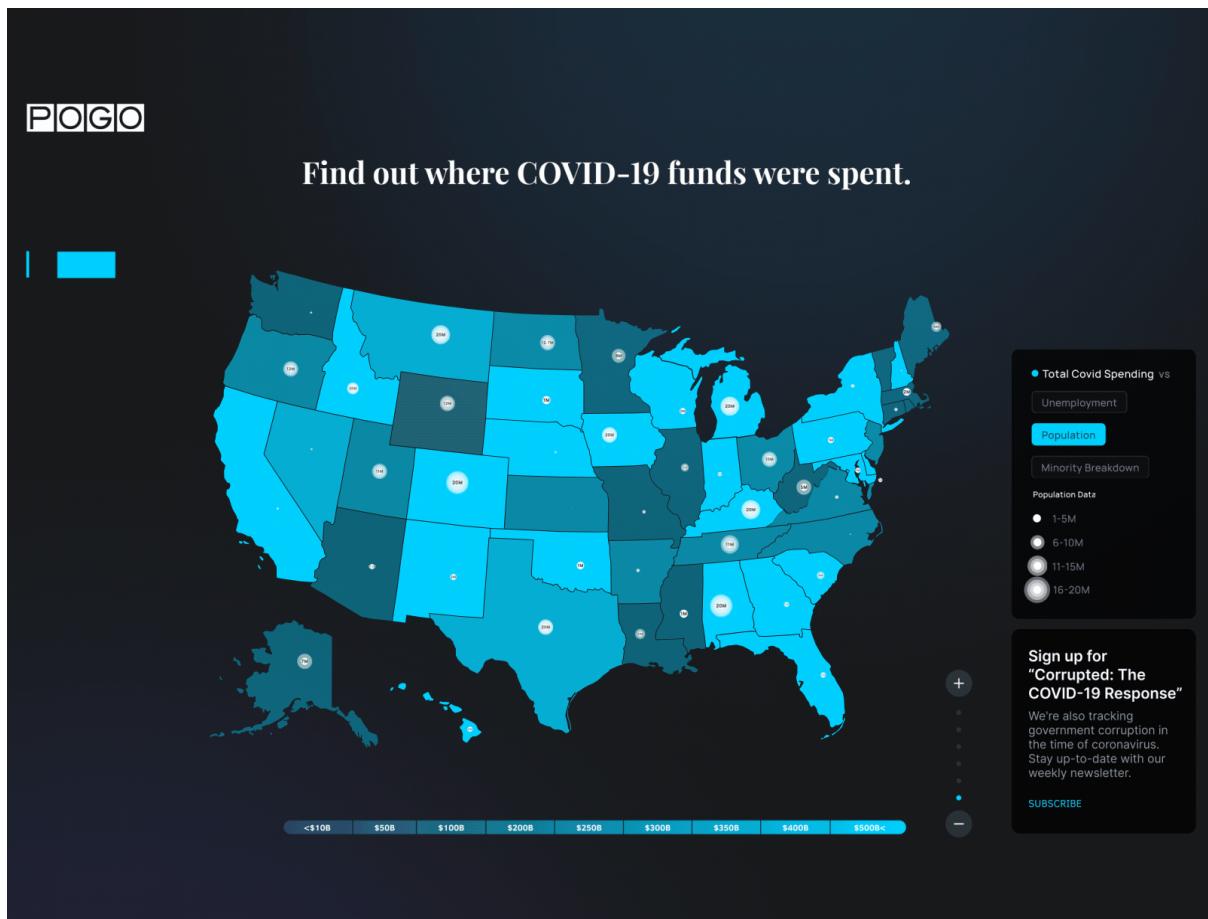




Research to other covid-19 data visualiser tools:

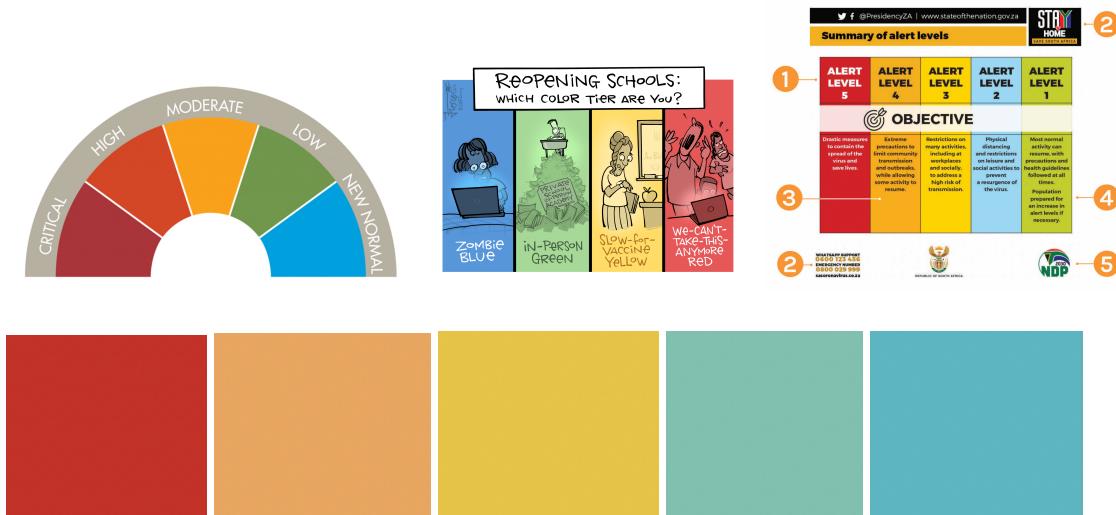






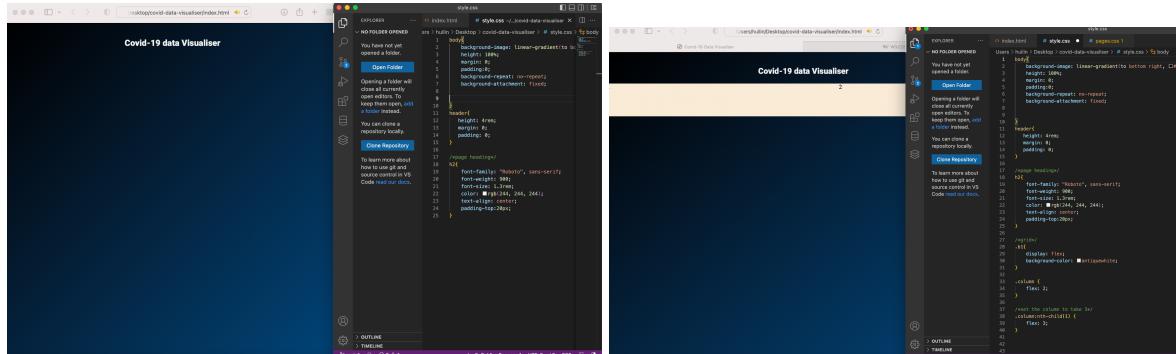
- <https://dribbble.com/shots/17713866-Map-Data-Visualization-x-FUI>
- <https://dribbble.com/shots/14739119-Spending-Tracker-Covid-19-Funds>
- <https://dribbble.com/shots/3580182--Smoothly-animated-data-visualization>
- <https://dribbble.com/shots/10829392/attachments/2481439?mode=media>
- <https://medium.com/@EvanSinar/use-animation-to-supercharge-data-visualization-cd905a882ad4>
- <https://91-divoc.com/pages/covid-visualization/>
- <https://informationisbeautiful.net/visualizations/covid-19-coronavirus-infographic-data-pack/>

Color palette

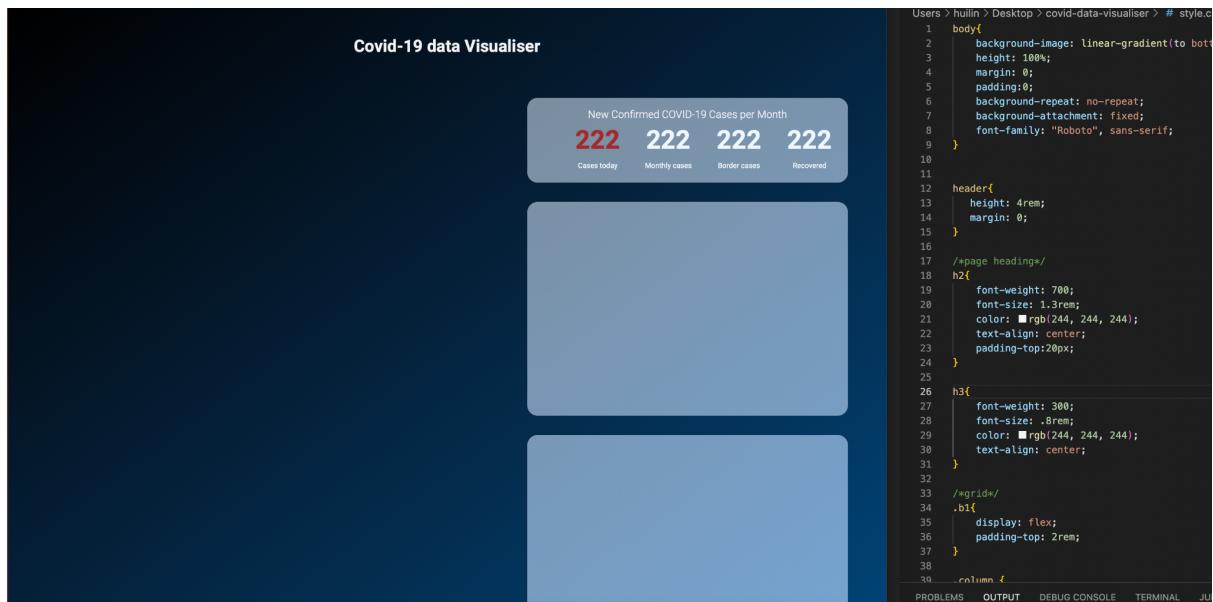


Development process

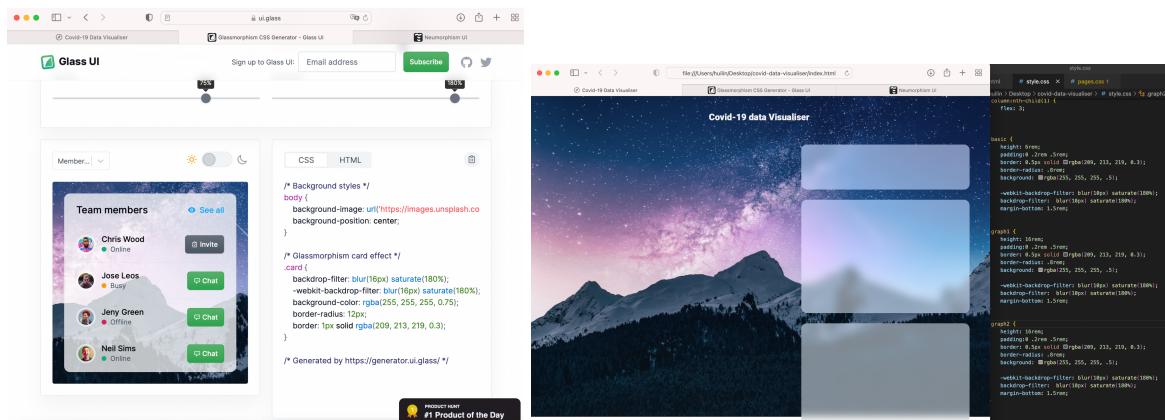
(started building the layout of the website using html and css)



(added containers to store the graphs)



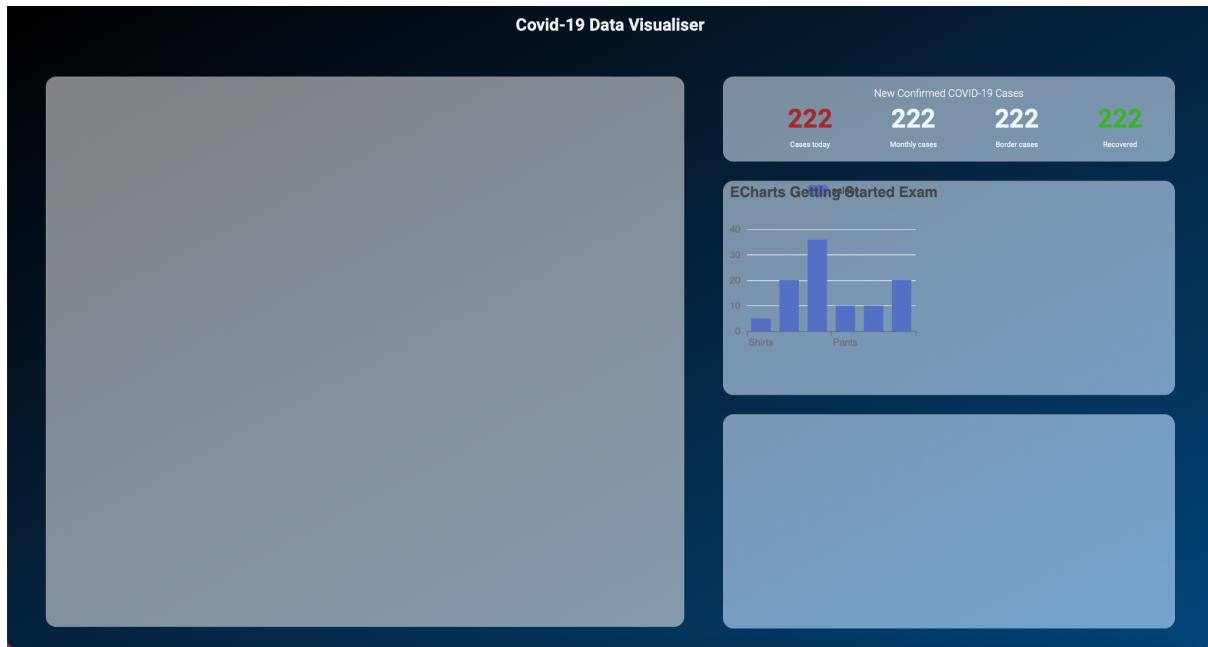
(I was trying to apply this Glass Morphism effect to my containers and planning to add a background underneath to make it look prettier, but I didn't end up finding a good background)



(started import graph from echarts)

The process of importing the map was a bit confusing as I was not familiar with echart and how it operates. After going through the documentation and videos I discovered that to import an Echart map you need to connect to a corresponding geojson map file and a jquery resource package.

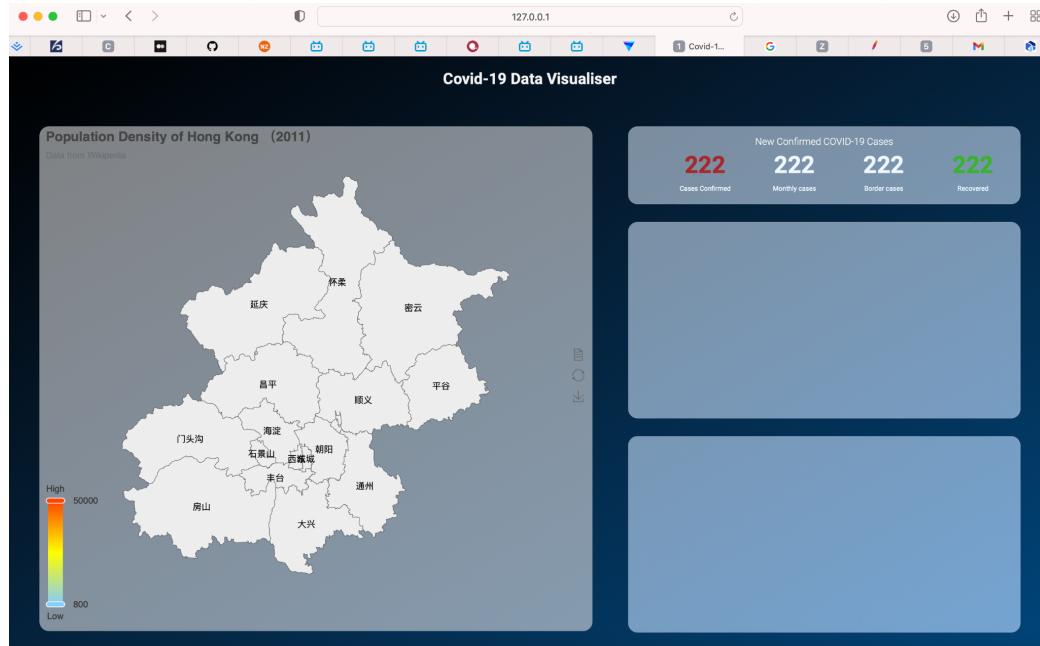
https://blog.csdn.net/sinat_41904410/article/details/103968160



(map graph example)

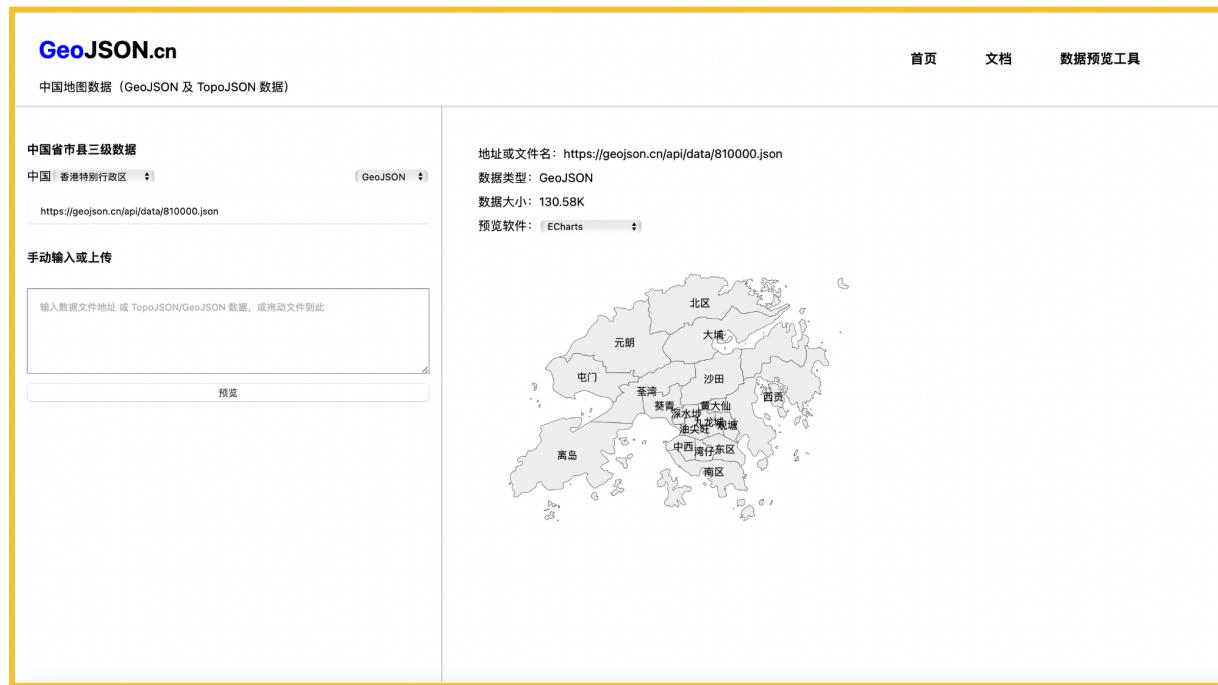
the json file link of this map - <https://echarts.apache.org/examples/data/asset/geo/HK.json>

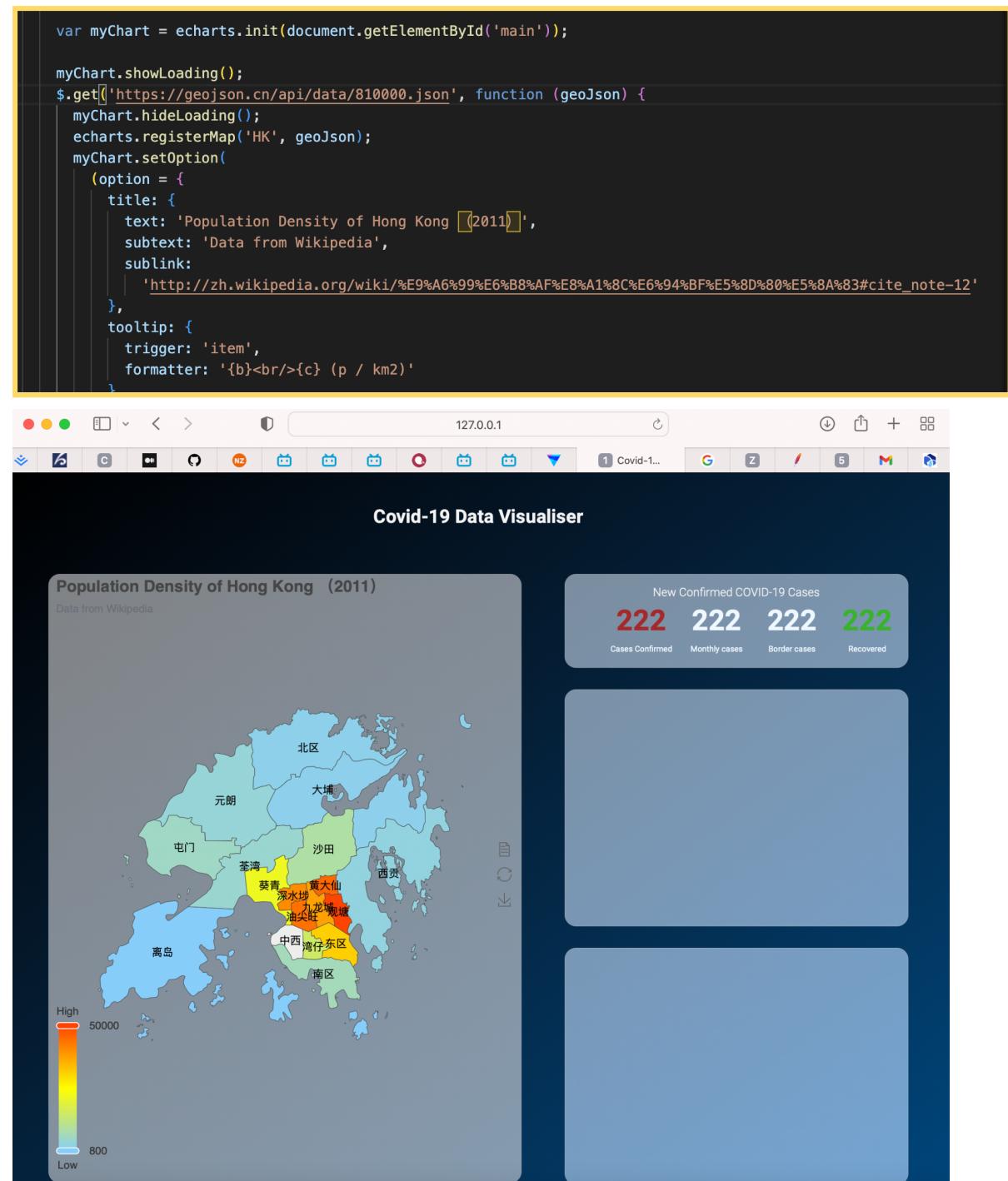
```
var ROOT_PATH = 'https://echarts.apache.org/examples';  
  
var chartDom = document.getElementById('main');  
var myChart = echarts.init(chartDom);  
var option;  
  
myChart.showLoading();  
$.get(ROOT_PATH + '/data/asset/geo/HK.json', function (geoJson)  
    myChart.hideLoading();  
    echarts.registerMap('HK', geoJson);
```



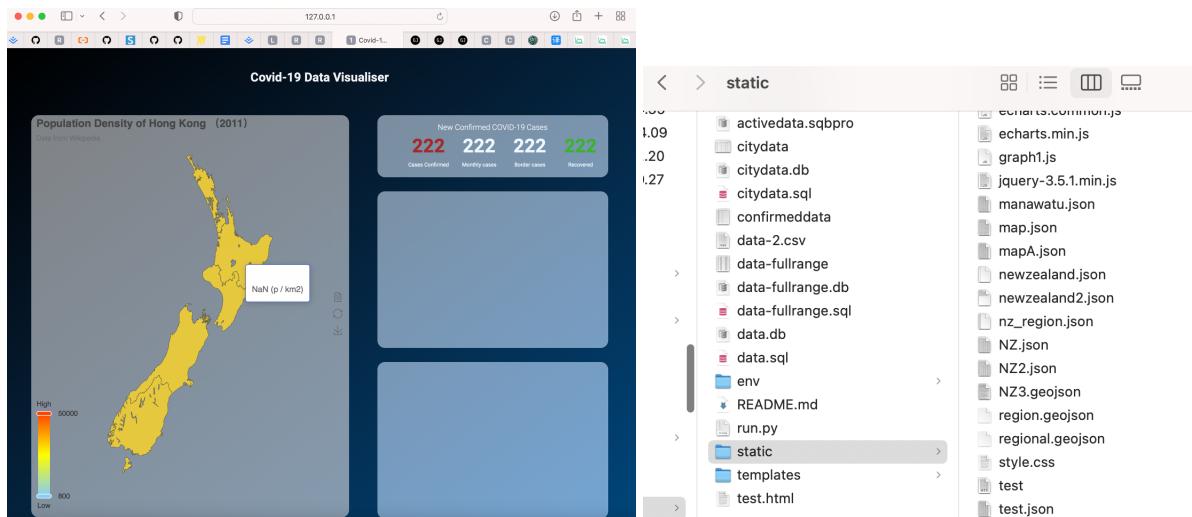
(I also discovered a website that provides a json api link of different cities. Unfortunately, it only included the links of cities in China.)

<https://geojson.cn>





(Finding a usable nz json map file has taken me a while. Most of what I could find was a complete map file of New Zealand rather than one covering the cities. The maps that I tested mostly have coordinate data that is combined in a data array, so when you click on it you only hover over a whole map.



(Later I then went back and looked at the json file format of the Echarts sample, and by separating the data for different cities in arrays I was able to achieve the effect of clicking on different cities.)

```
nz_region.json / [ ] features
{"type": "FeatureCollection", "features": []}

[{"type": "Feature", "id": "05", "properties": {"name": "Marlborough"}, "geometry": {"type": "Polygon", "coordinates": [[[174.0488, -41.9681]]]}}, 

{"type": "Feature", "id": "06", "properties": {"name": "Nelson"}, "geometry": {"type": "Polygon", "coordinates": [[[174.0488, -41.9681]]]}}, 

{"type": "Feature", "id": "13", "properties": {"name": "Otago"}, "geometry": {"type": "Polygon", "coordinates": [[[169.6993, -43.9635]]]}}, 

{"type": "Feature", "id": "14", "properties": {"name": "Southland"}, "geometry": {"type": "Polygon", "coordinates": [[[169.6993, -43.9635]]]}}, 

{"type": "Feature", "id": "15", "properties": {"name": "Tasman"}, "geometry": {"type": "Polygon", "coordinates": [[[169.6993, -43.9635]]]}}, 

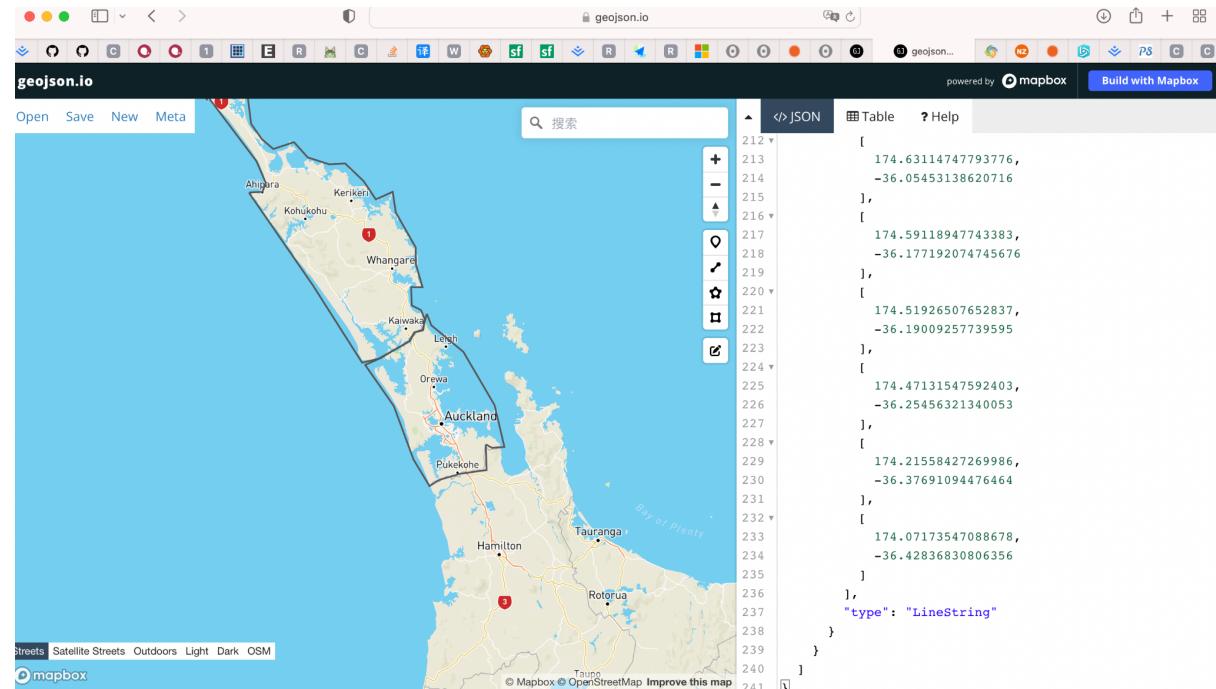
{"type": "Feature", "id": "17", "properties": {"name": "Northland"}, "geometry": {"type": "Polygon", "coordinates": [[[169.6993, -43.9635]]]}}, 

{"type": "Feature", "id": "18", "properties": {"name": "Waikato"}, "geometry": {"type": "Polygon", "coordinates": [[[169.6993, -43.9635]]]}}, 
```

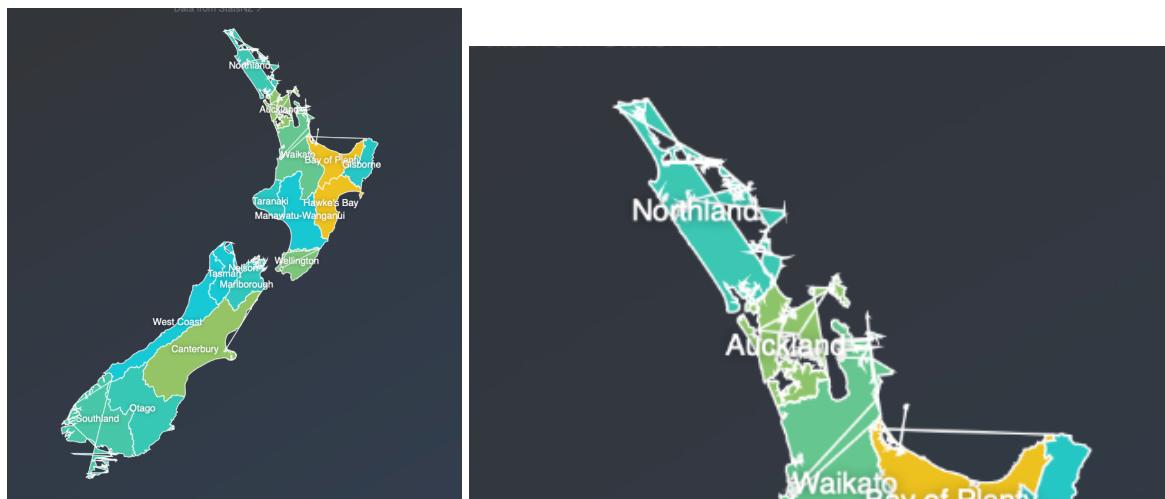
```
{
  "type": "FeatureCollection",
  "features": [
    {
      "type": "Feature",
      "properties": {
        "name": "Central and Western",
        "ID_0": 102,
        "ID_1": 1,
        "ISO": "HKG",
        "geometry": {
          "type": "MultiPolygon",
          "coordinates": [
            [
              [
                [
                  [
                    [
                      [
                        [
                          [
                            [
                              [
                                [
                                  [
                                    [
                                      [
                                        [
                                          [
                                            [
                                              [
                                                [
                                                  [
                                                    [
                                                      [
                                                        [
                                                          [
                                                            [
                                                              [
                                                                [
                                                                  [
                                                                    [
                                                                      [
                                                                        [
                                                                          [
                                                                            [
                                                                              [
                                                                                [
                                                                                  [
                                                                                    [
                                                                                      [
                                                                                      [
                                                                                      [
                                                                                      [
                                                                                      [
                                                                                      [
                                                                                      [
................................................................

```

<https://geojson.io/#map=2/0/20>

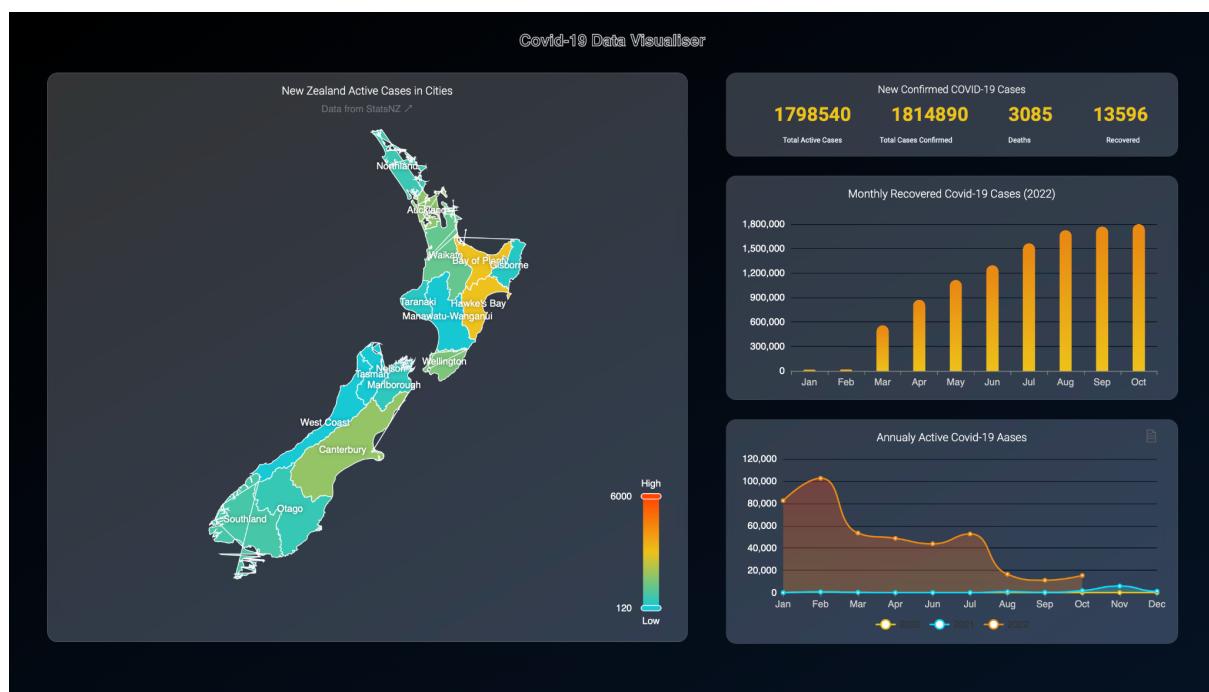


(The map edges looked a bit messy was probably due to the re-patching of the map data.)



(Retrieve data from sq13 database, at first the data outputted in [] brackets so the js graph wasn't able to recognize it. Fixed this by define the output as a string)





Resources

Glass Morphism effect

<https://demo.themesberg.com/neumorphism-ui/>

<https://ui.glass/generator/>

Echart library

<https://github.com/apache/echarts/tree/5.4.0/dist>

Echart demo

map graph

<https://echarts.apache.org/examples/en/editor.html?c=map-HK>

bar graph

<https://echarts.apache.org/examples/zh/editor.html?c=bar-simple>

line graph

<https://echarts.apache.org/examples/en/editor.html?c=area-stack>

data convertor

<https://products.aspose.app/cells/zh/conversion/numbers-to-sql>

Data - (for the active cases data on my site, what I was originally planning to use were confirmed cases(since that's the data which most people want, but I wasn't able to find a full range data of that so I used the active cases instead.)

<https://www.stats.govt.nz/experimental/covid-19-data-portal/>

<https://www.health.govt.nz/covid-19-novel-coronavirus/covid-19-data-and-statistics/covid-19-source-cases-2020-and-2021>

NZ map api json file

New Zealand map with regions - <https://exploratory.io/map>

map tool that i used to modify the json map file

<https://geojson.cn>

Jquery file

<https://jquery.com/download/>

Remove brackets from outputting data in python using sql3

https://blog.csdn.net/rs_gis/article/details/116088889?spm=1001.2101.3001.6650.2&utm_medium=distribute.pc_relevant.none-task-blog-2%7Edefault%7ECTRLIST%7ERate-2-116088889-blog-108446912.pc_relevant_multi_platform_whitelistv3&depth_1-utm_source=distribute.pc_relevant.none-task-blog-2%7Edefault%7ECTRLIST%7ERate-2-116088889-blog-108446912.pc_relevant_multi_platform_whitelistv3&utm_relevant_index=3

Other sources

echart settings

<https://echarts.apache.org/en/option.html#tooltip>

<https://echarts.apache.org/en/option.html#visualMap>

<https://www.cnblogs.com/qianduan-lucky/p/15619434.html>

Sql references

<https://www.runoob.com/sqlite/sqlite-and-or-clauses.html>

<https://database.guide/how-to-get-the-last-day-of-the-month-in-sql%EF%BF%BC/>