CSE564 — A visual analysis on the pandemic

Group#6
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Dashboard walkthrough: https://youtu.be/74Vmsx5vmxo

MediumBlog:-
https://medium.com/allaboutvisualizations/cse564-a-visual-analysis-on-the-pandemic-52c45c9c061

INTRODUCTION:

A novel CoronaVirus was identified in Wuhan, China in December 2019 and it quickly spread throughout the world in a span of 2–3 months. The coronavirus is hitting different parts of the world in different ways, making the crisis harder to predict, control, or understand.

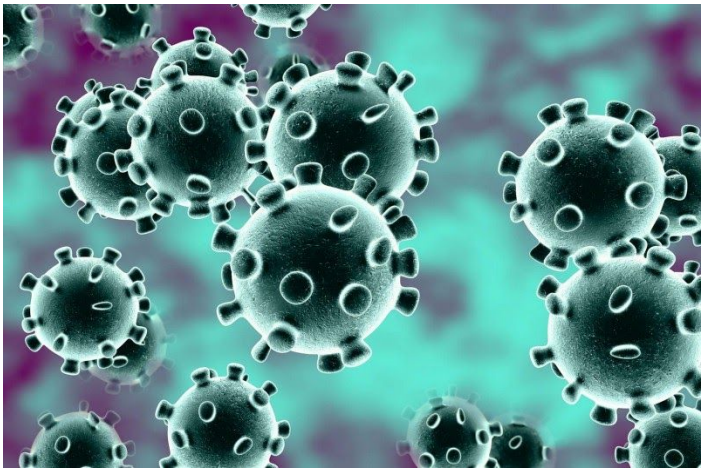

Fig1:- The Virus (not our visualization)

We have analysed the outbreak and its spread on countries and continents over a span of 5 months: January — May which is when the pandemic swallowed the whole world.

The dashboard is created with python's flask library as the backend and d3 javascript as the frontend.

With our dashboard, we wish to visualise the nationwide impact of the deadly pandemic on the whole world. We have presented this using non-standard plots such as Parallel Coordinates,

heat diagrams (intensity plots) using Mercator Projection of World-Map besides using the few barebone conventional plots for Donut and Bar charts.

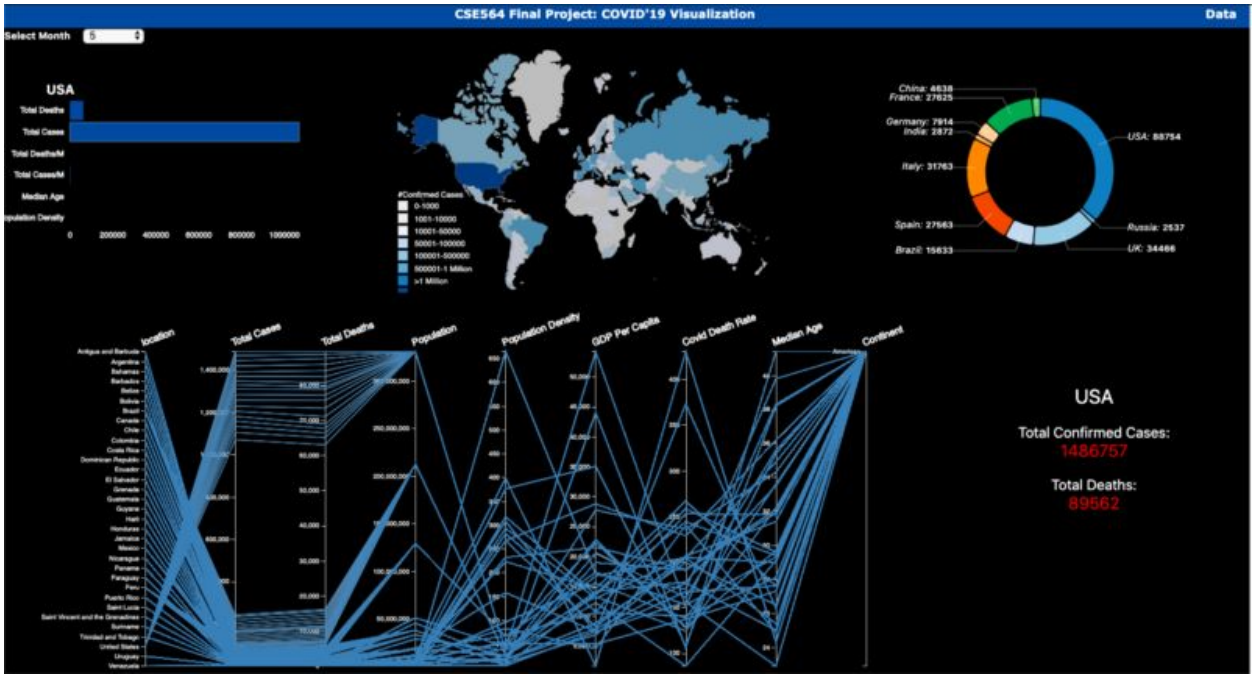

Fig2:- Dashboard

METHODS:

For visualising the impact and effects, we have chosen a chloropleth map as the primary chart/selection to control other visualisations.

Chloropleth Map:

The Chloropleth map is further color-coded based on #Confirmed Cases. The criteria that has been used to represent countries can be seen in the below plot image, with different color shades of Blue:

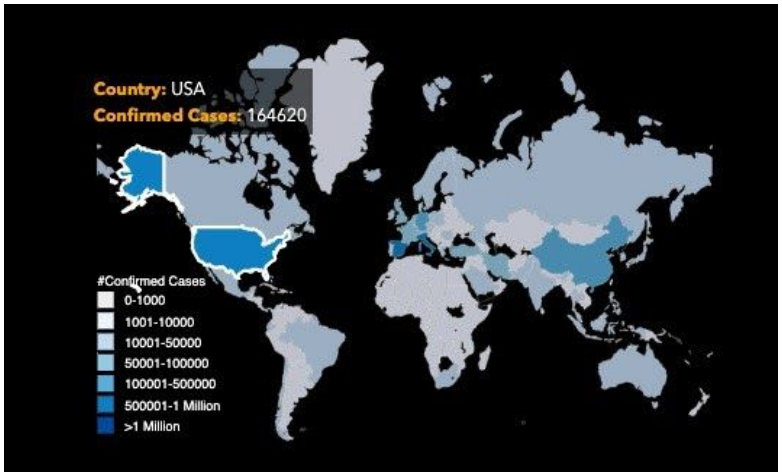

Fig3:- Chloropleth Map (showing #cases for USA for month of March)

On hovering over any geography, we can see the Cases# for that particular location. To add to this, we also have an on-click interaction, which further loads the Parallel coordinates as well as the Bar plot with a Stats ticker towards the lower right corner of the screen.

Parallel Co-ordinates:

With the PC infographics , we have analysed the demographics such as the Total casualties, #cases, #deaths, median age of the population affected, population density. And through the monthly analysis, we plan to track the cumulative increase in each of these metrics.

For PC, The countries under scanner are the ones belonging to the same continent, once the country is selected from the Chloropleth map.

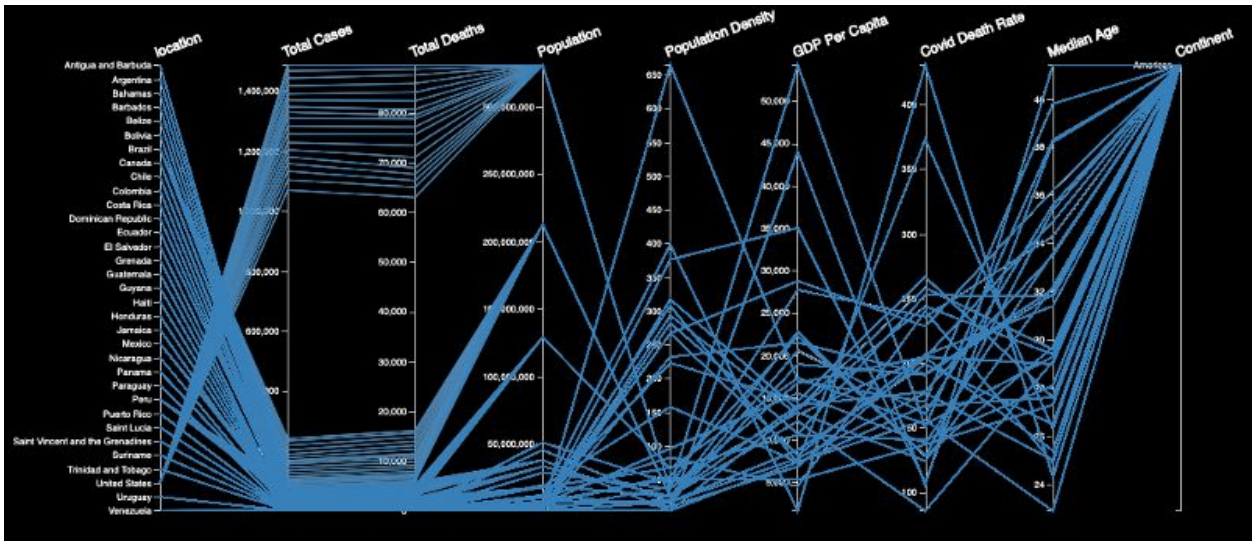

Fig4:- Parallel Coordinate Visualisation for Americas Continent.

Bar Chart:

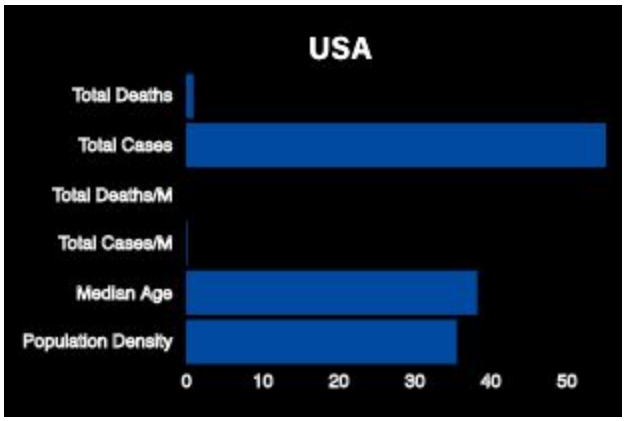

Fig5:- Bar Chart for USA (March)

We have visualized country-specific infographics using simple bar charts showcasing counts for different categorical features such as #Casualties,#Deaths , Count of deaths and cases per million , population-density ,etc.

On hover we can also see a tool tip, indicating the correct count for the category selected.

Donut Chart:

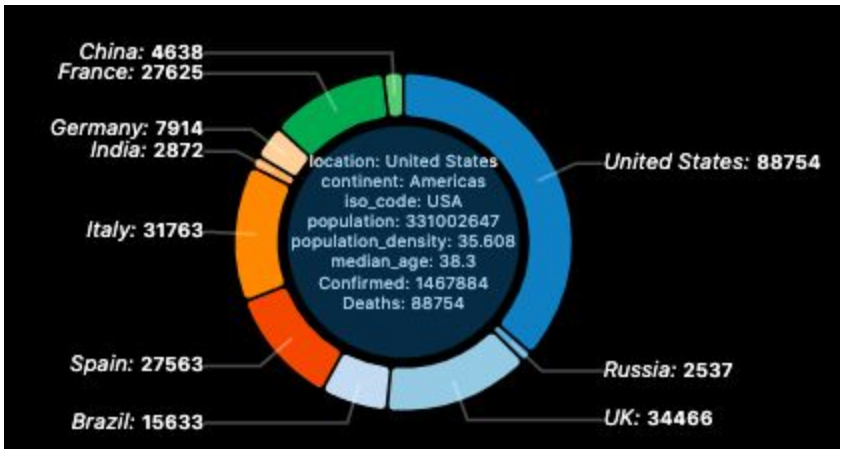

Fig6:- Donut Chart (USA — demographics in between)

The donut chart acts as an overview for the top 10 affected countries and their demographics. When hovered over a specific country, it displays the current stats of the country namely -the continent in which it belongs, the population and population density, median age of affected people, number of confirmed cases and the total current deaths in that country ever since the pandemic began.

FINDINGS:

The graphs with demographics gives us a good idea about the median age of the people affected, the population of the country etc.

An interesting inference that we can draw from this is how different the affected age group is than what was assumed in earlier days of the pandemic, (that it affected older people (age > 60–65)). The median age of people affected in most countries (as shown by the donut chart) is 35–40.

Another interesting insight that we can visualize from our dashboard is how the more populous countries have still controlled the severity of the pandemic with better management and preventive measures, including India, where in the death rate is 3 deaths/M compared to 285 deaths/M for the United States. This is a good measure to check for the effectiveness of the ‘shelter in-place/lockdown’ restrictions which is in effect all across the world but was made mandate later in USA as compared to India. (one example being domestic flights still in operation in some parts of the US)

CONCLUSION:

With this project, we have tried to demonstrate casualties to human lives of a continent and country through conventional bar and donut charts and non-conventional parallel coordinates chart, with the world displayed on the map.

Of all the threats we know, the COVID-19 pandemic is like a very rapid version of climate change — global in its scope, erratic in its unfolding, and unequal in its distribution. Our choices are to remake society or let it be remade, to smooth the patchworks old and new, or let them fray even further.

All we can do for now is wait or as a student Visualise and Gain Meaningful Insights :D