UNITED STATES COVID-19 DATA ANALYSIS

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Abstract

Visualization techniques have been making a great impact on communicating the stats around covid-19 to policy makers, scientists, and healthcare providers. Tools like MDS, maps, PCP, pie charts, etc. can help visualise and analyse the covid data.

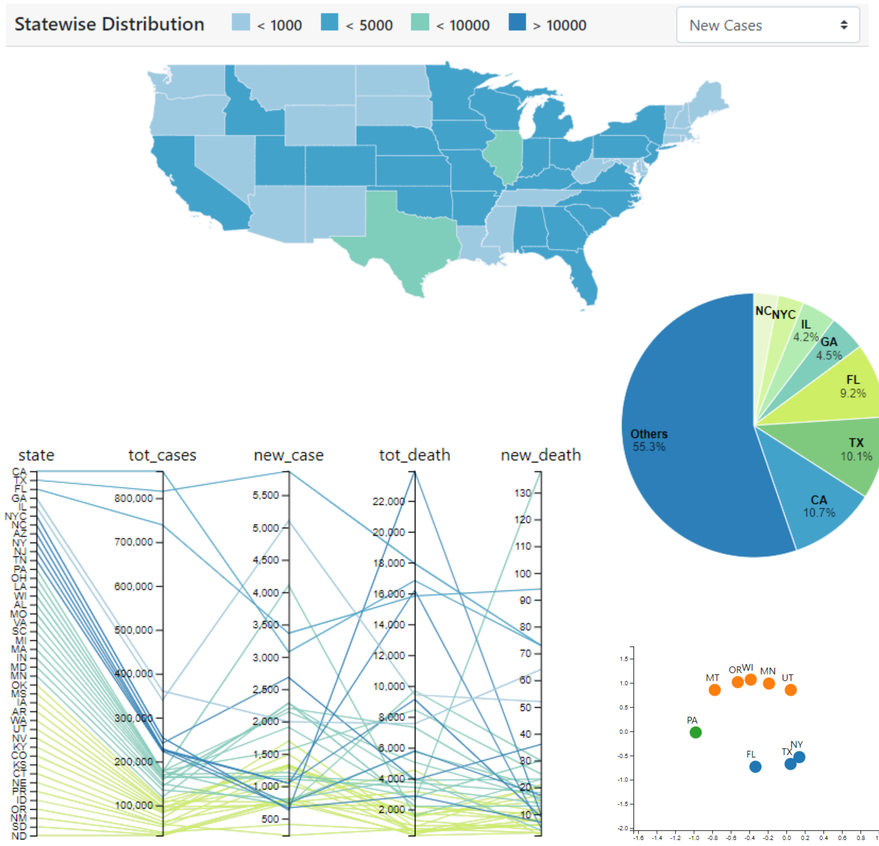
Introduction

The COVID 19 Dashboard utilises strengths of visualization by implementing charts like Map, Pie Chart, etc. With this dashboard, we aim to provide a clearer analysis of covid data of United States obtained from the official CDC website which could benefit the government of US as wells other countries.
The implementation of below charts in our dashboard helps us obtain analysis that could alter the way coronavirus policies are being made across the world.

1. Choropleth map
2. Line Chart
3. Pie Chart
4. Parallel Coordinates Plot
5. Multidimensional Scaling

Resources

Python, d3.js , KMeans clustering, MDS.manifold
Data Source : CDC official website



Impact of Government Policies on Covid

Positive Impact

1. Michigan governor Gretchen Whitmer announced her state-wide executive order to stay-at-home at 11:00 am for all non-essential businesses effective 24 March until 28 May.
2. FDA Signs Off on EUA for Moderna's COVID-19 Vaccine on Dec 18, 2020

Negative Impact

1. May 25, California allowed places of worship and retail stores to let people in.
2. On November 2, 2020, Massachusetts governor Charlie Baker issued a night-time stay-at-home advisory and business curfew effective 6 November 2020.

Results

Detect the Expected, Discover the Unexpected!

Expected

- With an increase of number of cases, death counts should also increase.
  PCP plot validates this correlation.
- Highly populated states should be worst hit because Covid cases are directly proportional to number of interactions.
  Pie chart validates this expectation.
- As per expectation, The curve for Covid cases also followed a normal distribution.
- Vaccination should help us to control Covid cases.
  Line chart validates both these expectations.

Unexpected

- Some states are very much related to each other. So it can help government make similar policies for highly correlated states.
  MDS plot validates this expectation.
- Some states are scarcely populated but count of cases are way more than expected.
- Statewise Distribution helps detect severity of cases.
- Line chart helped us to detect which events, positively and negatively, effected the number of cases count.

Conclusion

- Vaccination is effective and is helping us control the rise of cases.
- We can expect further drop in total number of cases.
- US election can be the reason of sudden surge of coronavirus cases which led to the second wave
- Similar elections are being conducted in many countries. Other countries should learn from the deadly effects elections can cause on the mass population and plan to avoid or find the rmethods for conducting rallies and other election activities.