731 Project Proposal

Name: Anti-Rona Task Force

Members: Clay Beabout, Brandon Pramann, Benjamin Wyss, Jon Volden, Bailey Srimoungchanh

OVERVIEW

The COVID-19 epidemic continues to have an unprecedented negative effect on our economy and communities. For this project, we will be focusing on COVID-19 related data sets to analyze and diagnose total cases, total deaths, survival rates, state success stories and anomalies in infection numbers.. The goal of our project is to provide analytical insight into the chaos of COVID.

We will achieve the above tasks by utilizing

- Time Series and Forecasting algorithms to predict total cases and total deaths by U.S. county per day.
- Clustering analysis to determine state by state COVID-19 response and cluster states together by similar response performance.
- Anomaly Detection techniques to find anomalies in COVID-19 infection and death rates so that they can be investigated and explained to confirm the validity of COVID-19 infections in U.S. counties.

DATA SETS

US County Populations Data Set

Census COVID-19 Data Hub, covid19.census.gov/datasets/21843f238cbb46b08615fc53e19e0daf/data?geometry=136.810,28.795,-136.179,67.148.

US COVID Cases By County Data Set

New York Times. "Nytimes/Covid-19-Data." GitHub, github.com/nytimes/covid-19-data/tree/master/live.

US COVID Mask Use by County Data Set

New York Times. "Nytimes/Covid-19-Data." GitHub, https://github.com/nytimes/covid-19-data/tree/master/mask-use

PROBLEM AREAS

[Time Series / Forecasting] Total Cases and Total Deaths By State
Explain future trends of cases based on historical data. Is forecasting alone enough to predict total cases and total deaths? Then compare to data where mask wearing is more prevalent.

[Clustering] State COVID-19 Response Performance
Is the overall rate of infection based on state response? Determine if the state response affected and continues to affect infection rate.
Comparing state infection rates and mask use data can indicate which states responded better to increases in COVID cases.

[Anomaly Detection] Detecting Anomalies in COVID-19 Infection Numbers and Investigating the Cause of Detected Anomalies
Large spikes in states and counties occurred over the entire course of COVID infections. Is there a way to determine if these are anomalies or actual cases.