Stat 198 Final Project

Introduction and Data: Our group wanted to explore how the COVID-19 pandemic affected the tendencies in movement for people around the world. We wondered if people became more stationary and spent more time in their homes or if they became more exploratory and inclined to spend time more outside. Our team chose to focus on mobility trends around the world during the progression of COVID-19 pandemic. Our central research question was the following:

How did the progression of the COVID-19 pandemic affect mobility trends in different countries?

We used two datasets to conduct a statistical analysis to answer this overarching question, the first being the **time_series_covid19_confirmed_global.csv** file which contains COVID-19 epidemiological data from January 22, 2020 to July 24, 2020. This data was compiled by the Johns Hopkins University Center for Systems Science and Engineering from various sources including the World Health Organization, DXY.cn, BNO News, National Health Commission of the People's Republic of China, China CDC, Hong Kong Department of Health, Macau Government, Taiwan CDC, US CDC, Government of Canada, Australia Government Department of Health, European Centre for Disease Prevention and Control, Ministry of Health Singapore, and others. Each of these organizations collected the data in accordance with their country's data collection policies during the pandemic. The variables in this dataset are listed below with their corresponding description:

Province/state (value is name of province/state, blank if not applicable)

Country/region (value is name of country/region)

Lat (value is latitude number for location)

Long (value is longitude number for location)

1/22/20 (example of a date variable, columns exist for each date up until 7/24/20, and value is number of cases on specified date)

The second dataset used in this analysis was the **applemobilitytrends-2020-04-14-1.csv** file which contains information on the COVID-19 mobility trends in countries/regions/cities based on daily requests for directions in Apple Maps. The data shows a relative volume of directions requests per country/region/city compared to a baseline volume on January 13th, 2020. The dataset's timeline ranges from January 13th, 2020 to April 14th, 2020 and one day is defined as midnight-to-midnight, Pacific time. Data that is sent from users' devices to the Apple Maps service is associated with random, rotating identifiers, meaning Apple did not have a profile of an individuals' movements and searches. Additionally, Apple Maps has no demographic information about our users, meaning no statements can be made about the representativeness of usage against the overall population. The variables in this dataset are listed below with their corresponding description:

geo_type (value is either country/region or city)

region (value is name of country/region or city)

transportation_type (value is either driving, walking, or transit)

2020-01-13 (example of a date variable, columns exist for each date up until 2020-04-14, and value is mobility rate score relative to a baseline score of 100 on January 13th, 2020)