

COVID-19 DATA VISUALIZATION

California State University Los Angeles
Senior Design

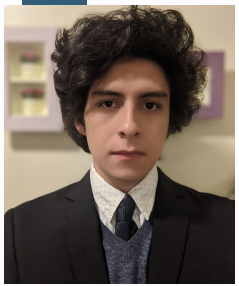
Isaac Villalva

TEAM MEMBERS



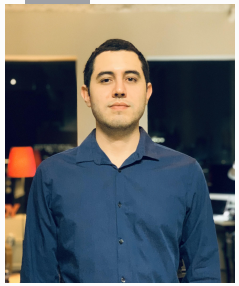
Isaac Villalva

Data Analysis Lead



Kevin Crespin

Data Visualization Lead



Jose Lopez

Web Application Lead



John Grover Rodriguez

Data Analysis



Abubakir Siedahmed

Data Analysis



Kiefer Giang

Data Visualization



Fredi Garcia

Data Visualization



Kennedy Nguyen

Web Application



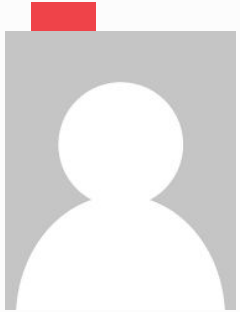
Leo Shapiro

Web Application



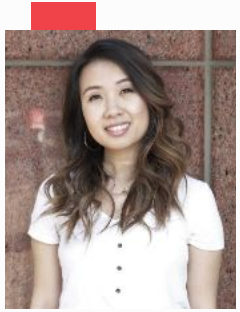
Dr. Navid Amini

Faculty Advisor



Haley Kirk

Liason



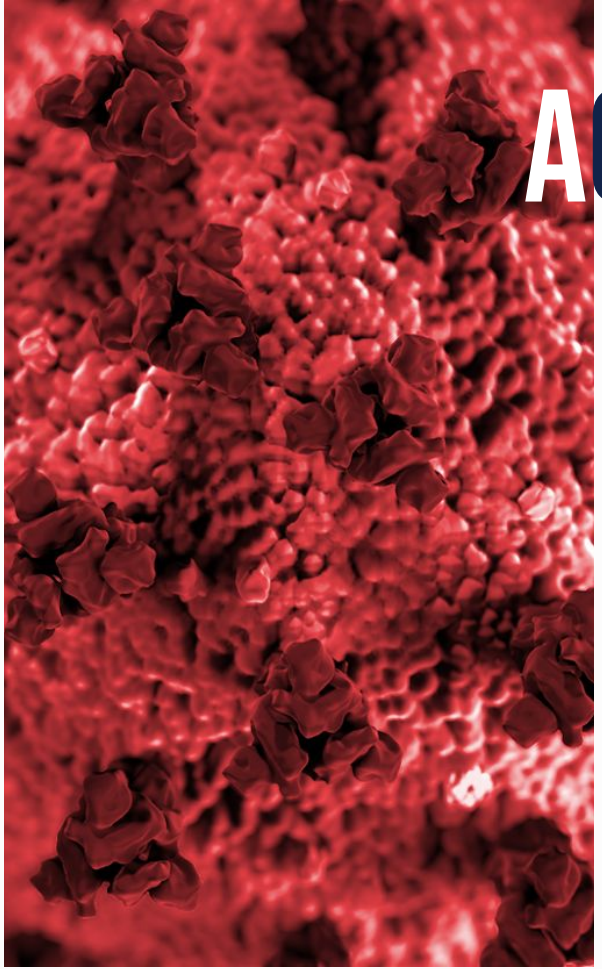
Theresa Nguyen

Liason

Vodafone

Sponsor

Isaac Villalva



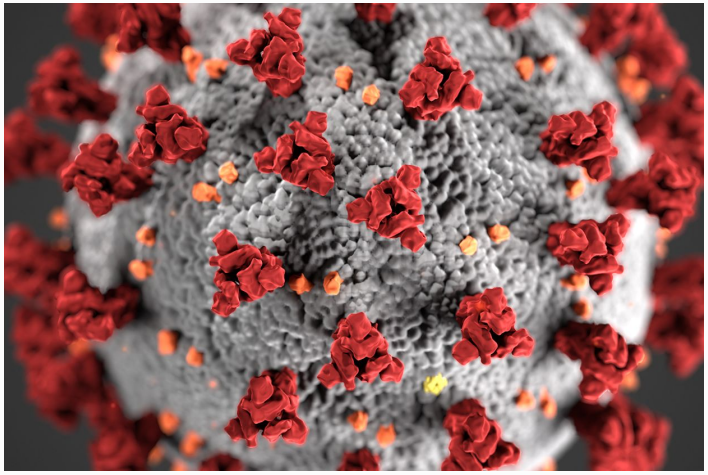
AGENDA

- What is COVID-19
- Dataset Visualizations
- Web Application
- The origin of COVID-19
- COVID-19 effect on the world
- Control Measures
- COVID-19 effect on the USA
- COVID-19 effect on California
- Conclusion

Isaac Villalva

WHAT IS COVID-19

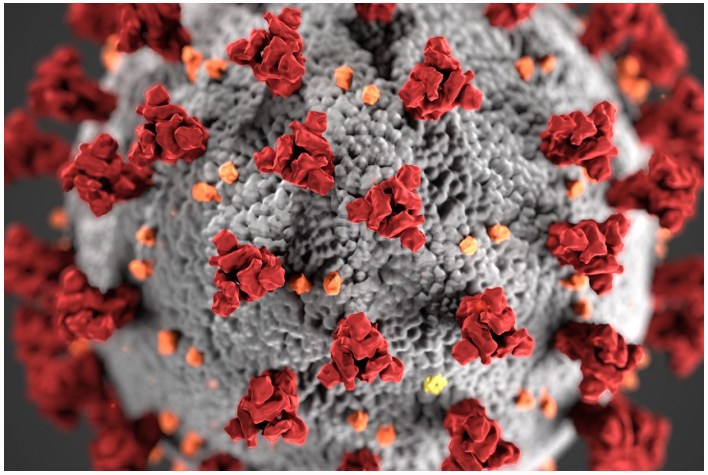
- Originated in Wuhan China
- Reported to the World Health Organization (WHO) on December 31, 2019
- Declared as a novel Coronavirus
- Identified as SARS-CoV-2



Isaac Villalva

WHAT IS COVID-19

- Virus spread via air
- Only travels a few feet from an individual when they sneeze or cough
- Why we have been told to wear face masks
- Not much evidence to support that a concentration of people in a specific area, such as population density is the cause of the virus spread



Isaac Villalva

DATASET DESCRIPTIONS



UNITED STATES DATASET

County Name,
Dynamic Date,
State,
Confirmed Cases,
CountyFIPS,
Number of Records,
County Population,
Total Confirmed Cases

(716,376 Entries)



WORLD DATASET

Country/Region,
Observation Date,
Province/State,
Confirmed Cases,
Deaths Cases,
Recovered Cases.

(93,059 Entries)



CHINA DATASET

Admission Date,
Confirmation Date,
Lives in Wuhan,
Province,
Sex,
Age,
Symptoms,
Symptoms Date,
Travel History,
Travel Date,
Outcome.

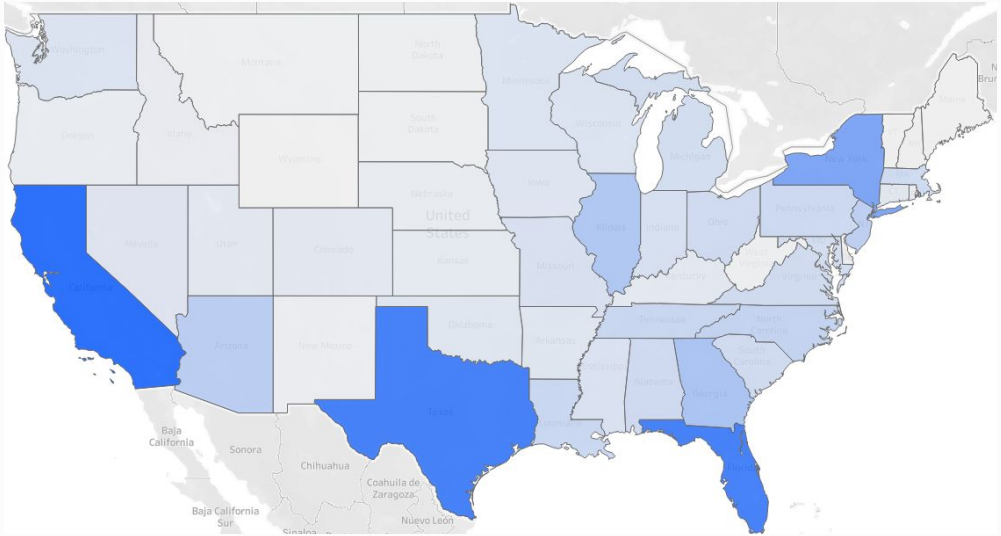
(14,127 Entries)

Kevin Crespin

TABLEAU

- Well-known Data Visualization tool
- Simple and easy to use software
- Pay software and may be slow for Web-Applications use

US Coronavirus Cases Map Using TABLEAU

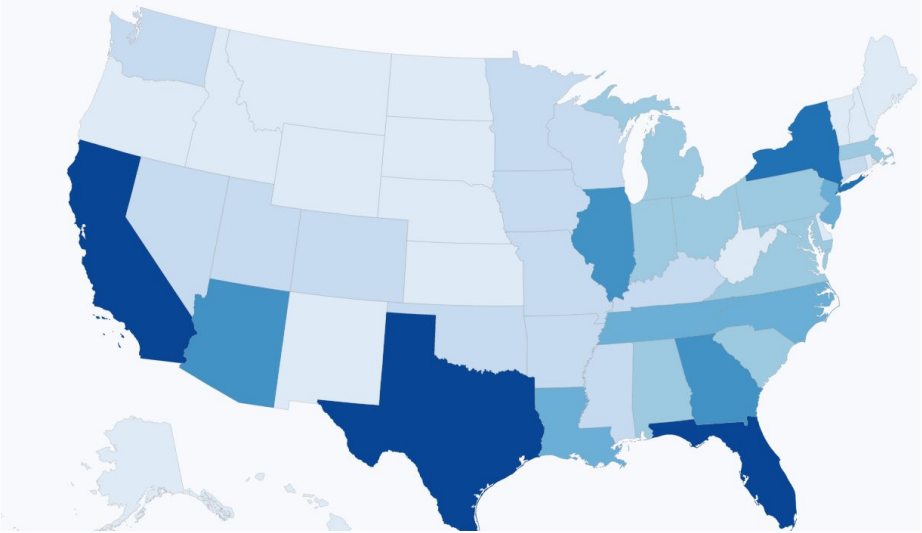


Kevin Crespin

D3.JS

- JavaScript Library for Data Visualization
- Limitless customization
- Web-Application based and free to use

US Coronavirus Cases Map Using D3.JS

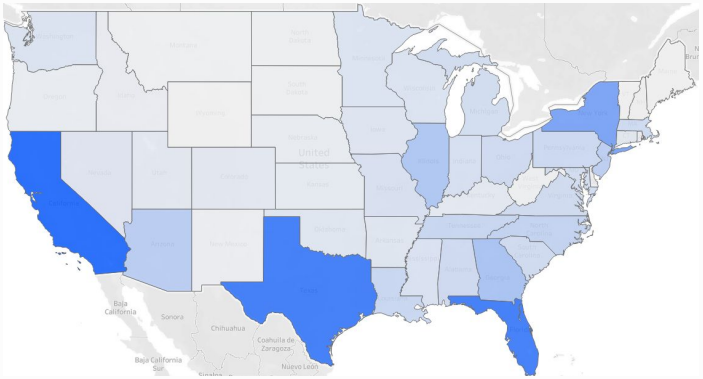


Kevin Crespin

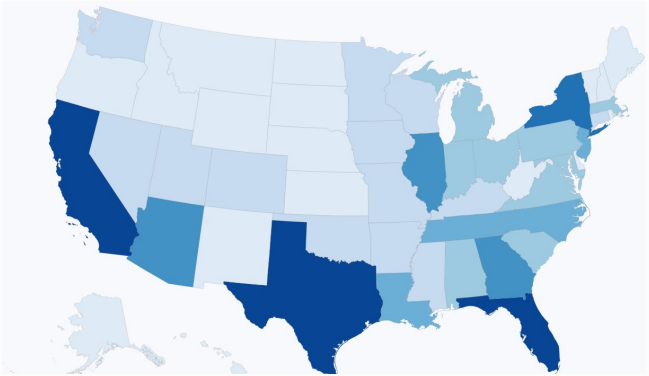
BEST OF BOTH WORLDS

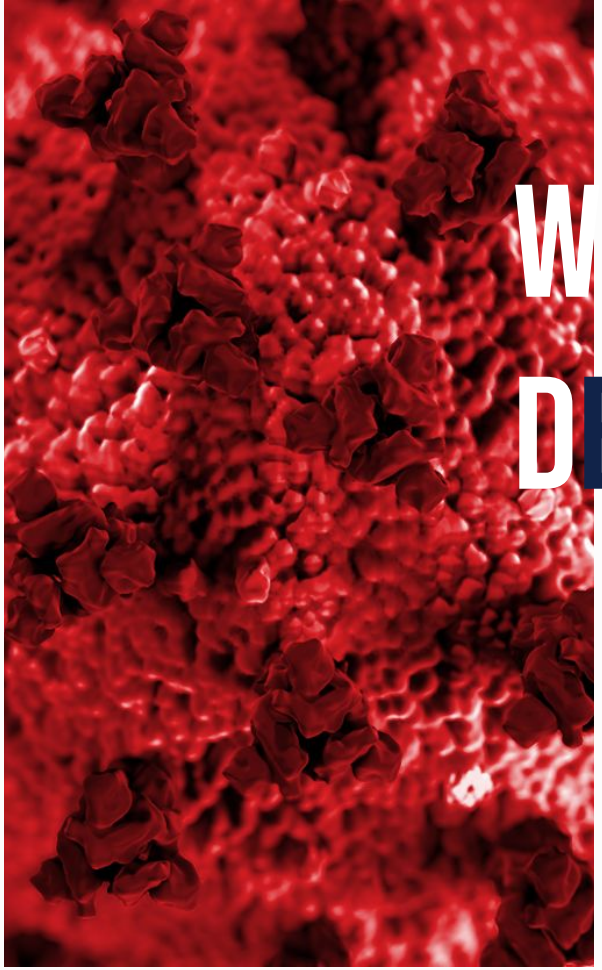
- Tableau excels on what D3.JS doesn't and vice versa

US Coronavirus Cases Map Using TABLEAU



US Coronavirus Cases Map Using D3.JS





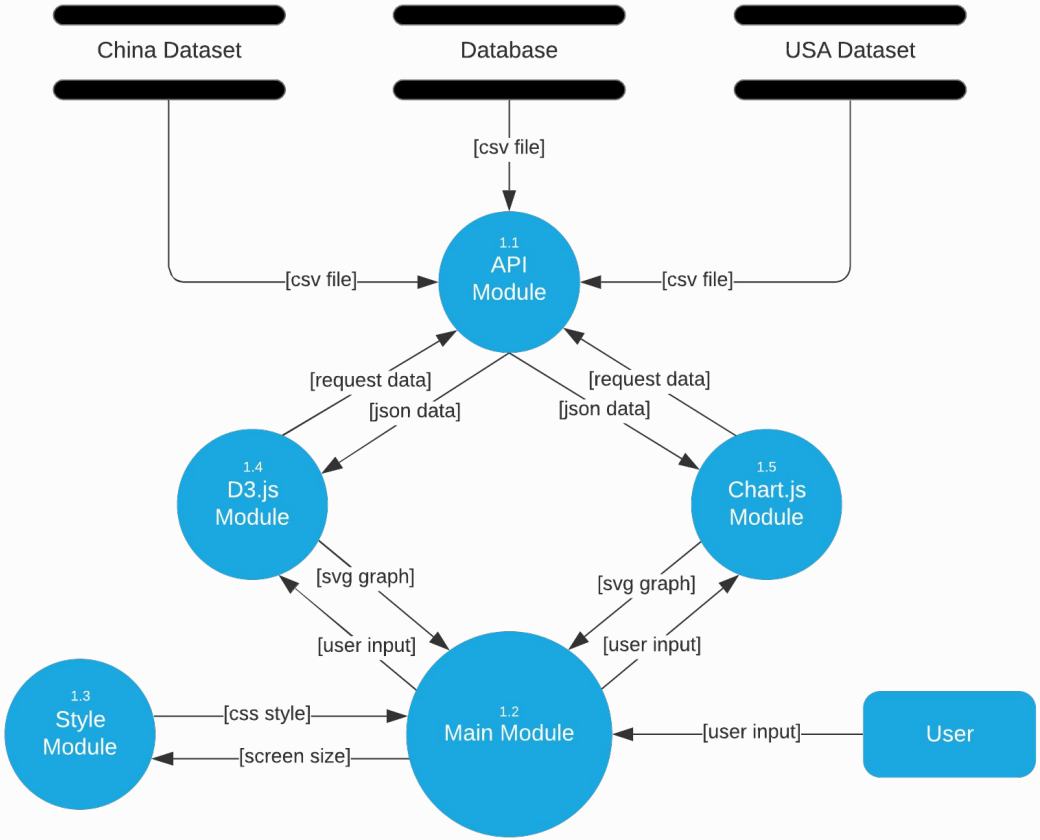
WEB DEVELOPMENT

HTML5 CSS JavaScript D3.JS CHART.JS

GitHub

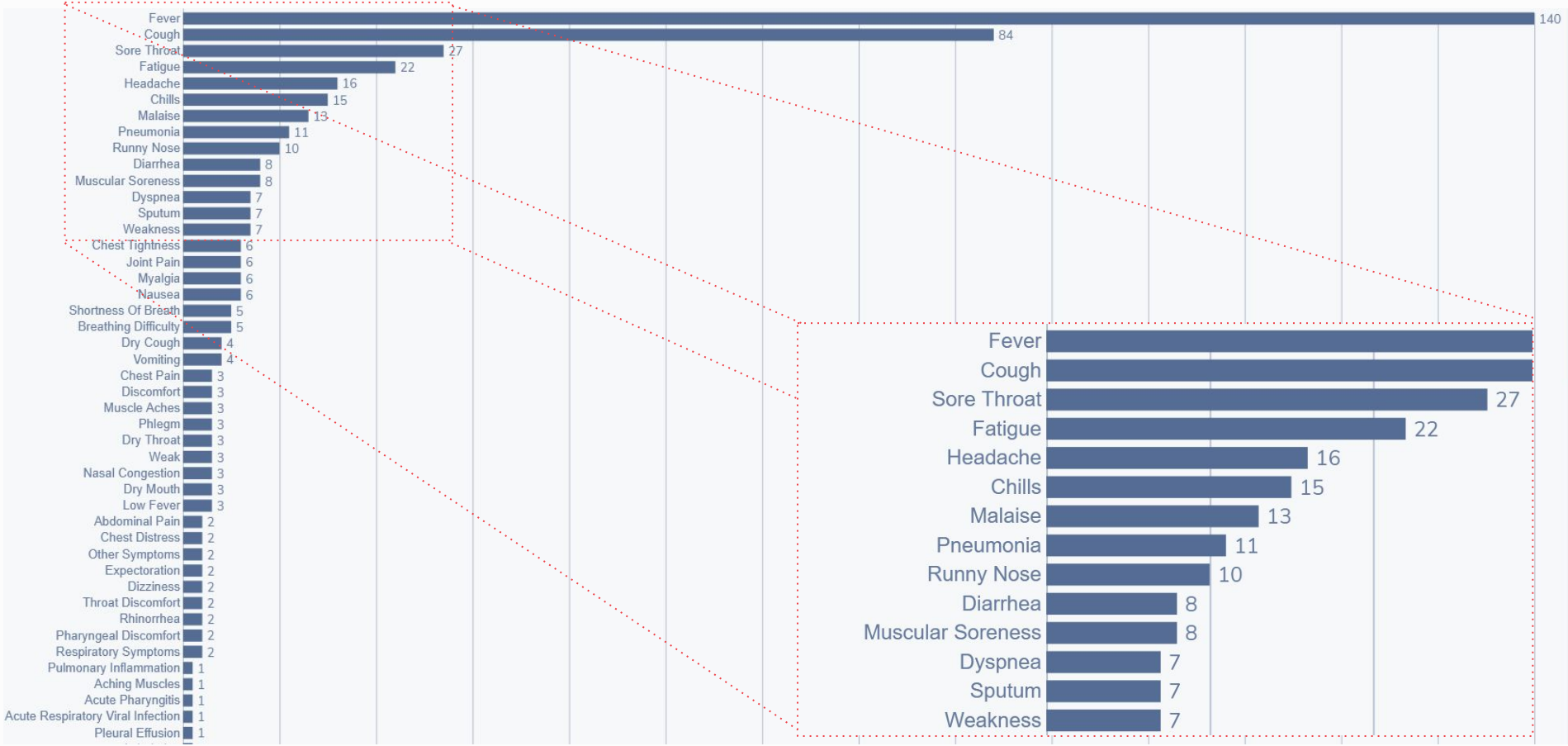
Jose Lopez

DFD 1



Jose Lopez

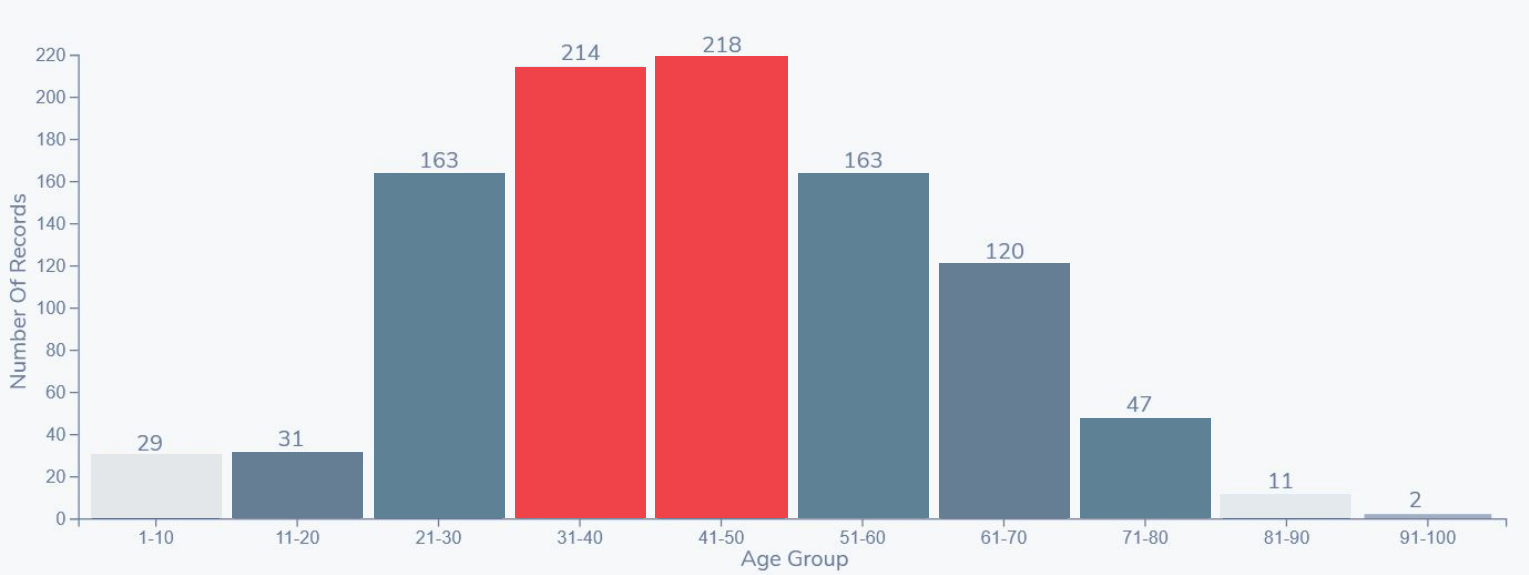
COVID-19 SYMPTOMS



Kiefer Giang

China confirmed cases from 01/04/2020 to 02/28/2020

COVID-19 EFFECT ON AGE
AVERAGE AGE GROUPS

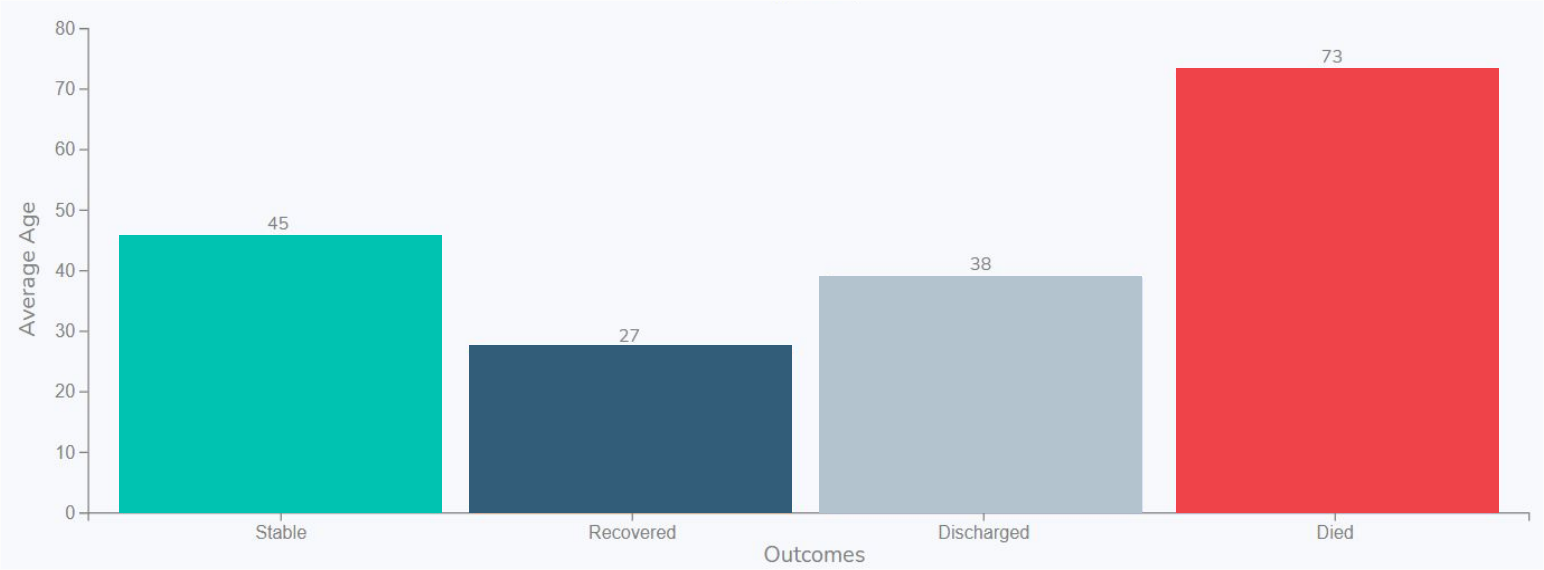


Kiefer Giang

China confirmed cases from 01/04/2020 to 02/28/2020

COVID-19 EFFECT ON AGE

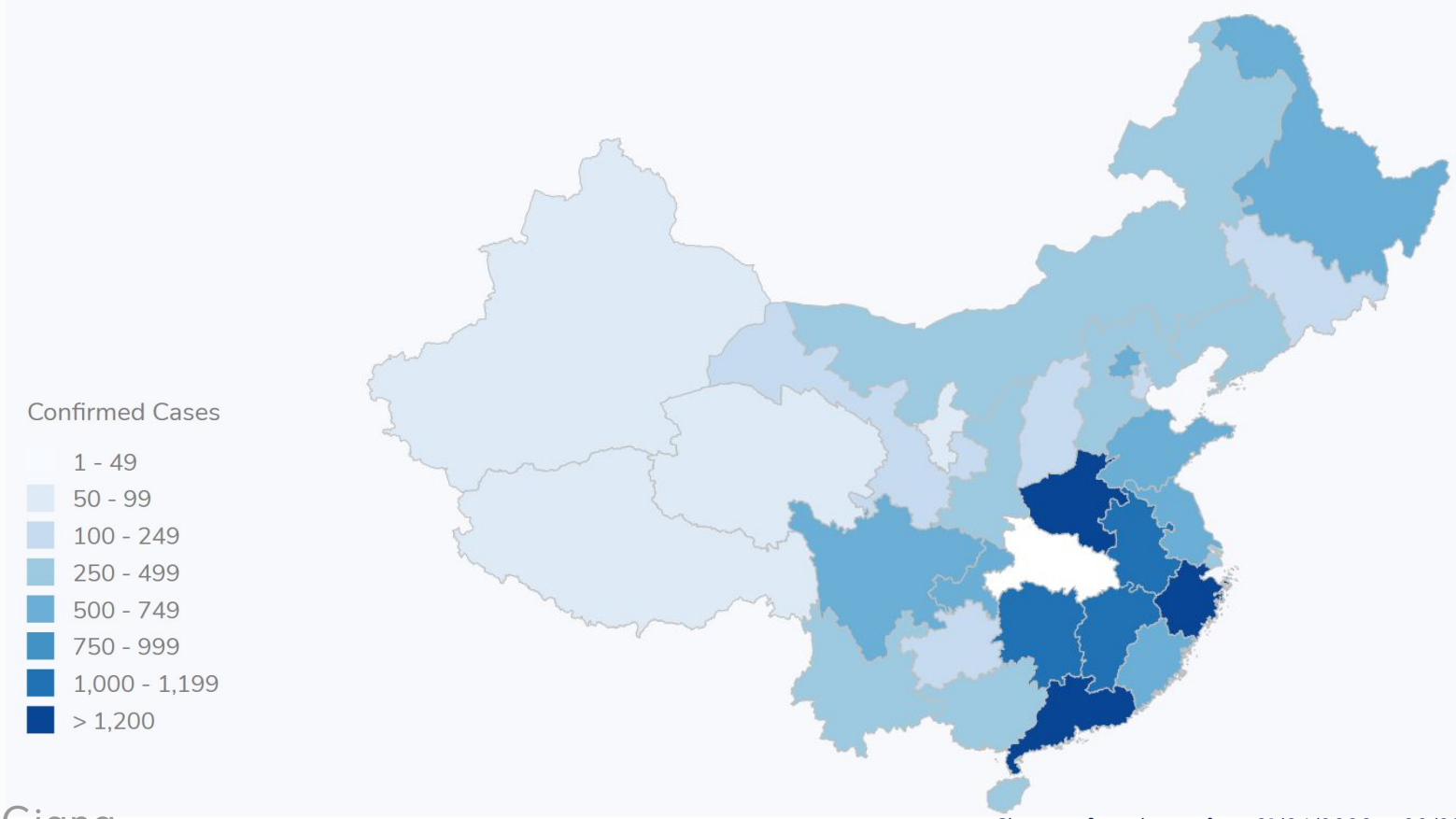
OUTCOME AVERAGE AGE



Kiefer Giang

China confirmed cases from 01/04/2020 to 02/28/2020

COVID-19 EFFECT ON CHINA

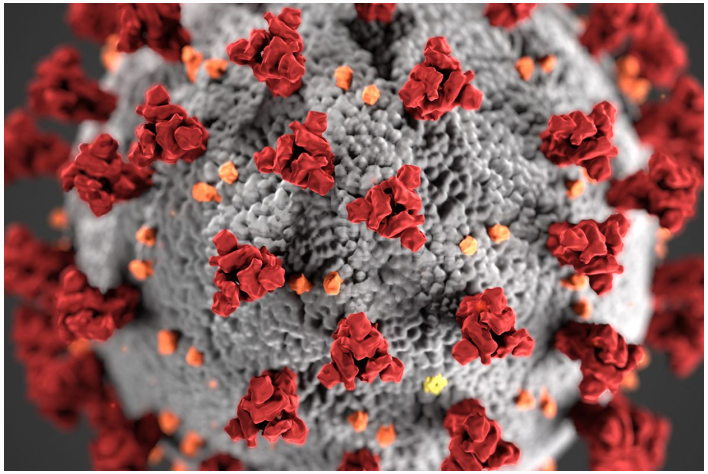


China confirmed cases from 01/04/2020 to 02/28/2020

Kiefer Giang

COVID-19 EFFECT ON THE WORLD

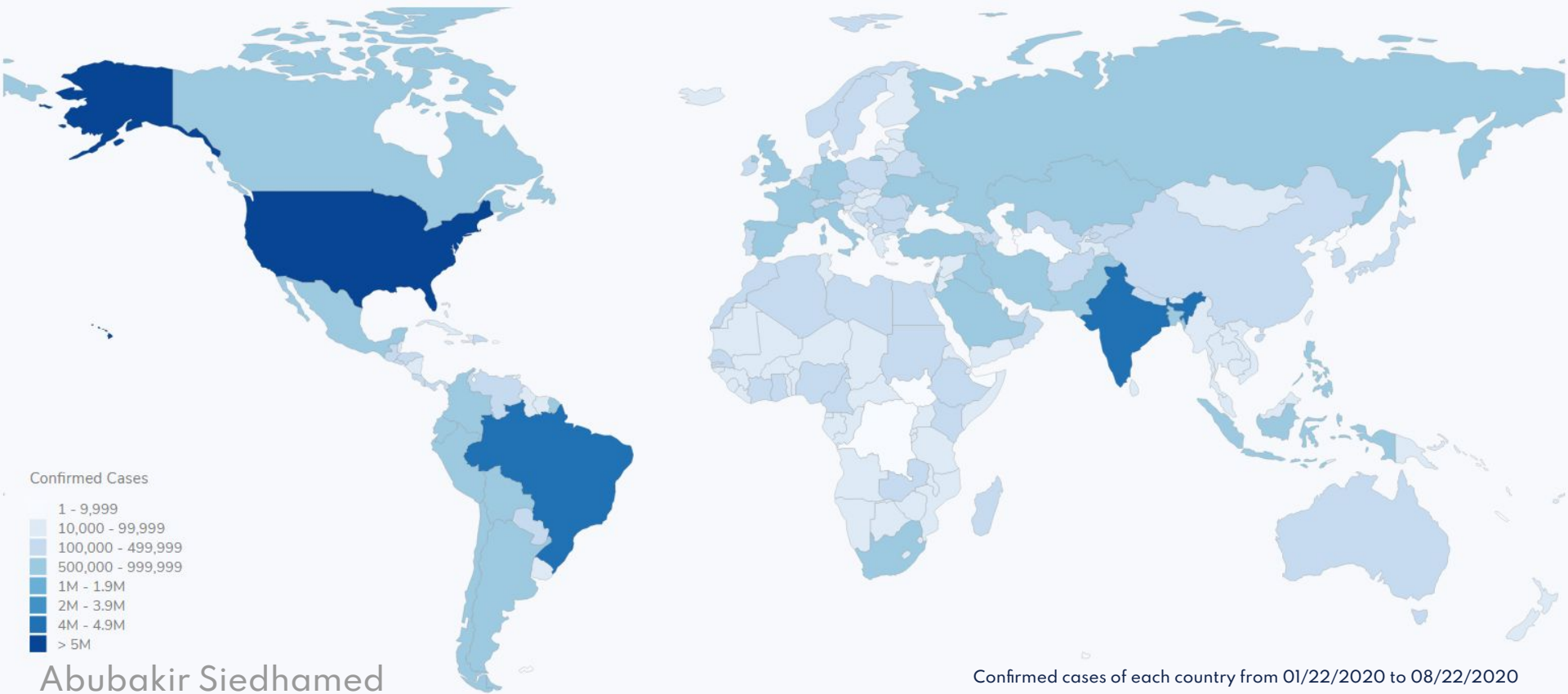
- Cases worldwide: 55.6 Million
- Recovered worldwide: 35.8 Million
- Deaths worldwide: 1.34 Million
- One third of the world practiced lock downs
- The United Nation said there may be more than $2 trillion fall in the global income, and a $220 billion hit to developing countries



Abubakir Siedhamed

COVID-19 EFFECT ON THE WORLD

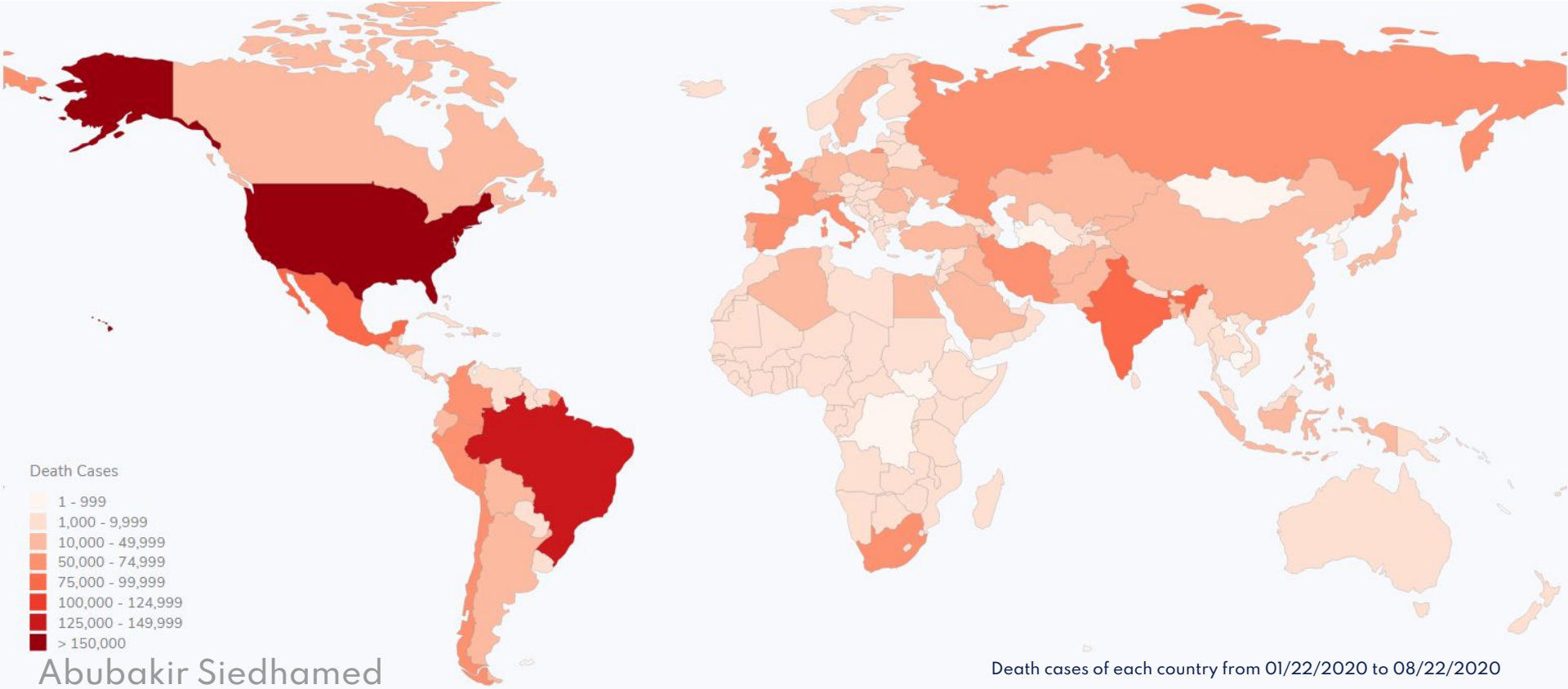
CONFIRMED CASES



Abubakir Siedhamed

Confirmed cases of each country from 01/22/2020 to 08/22/2020

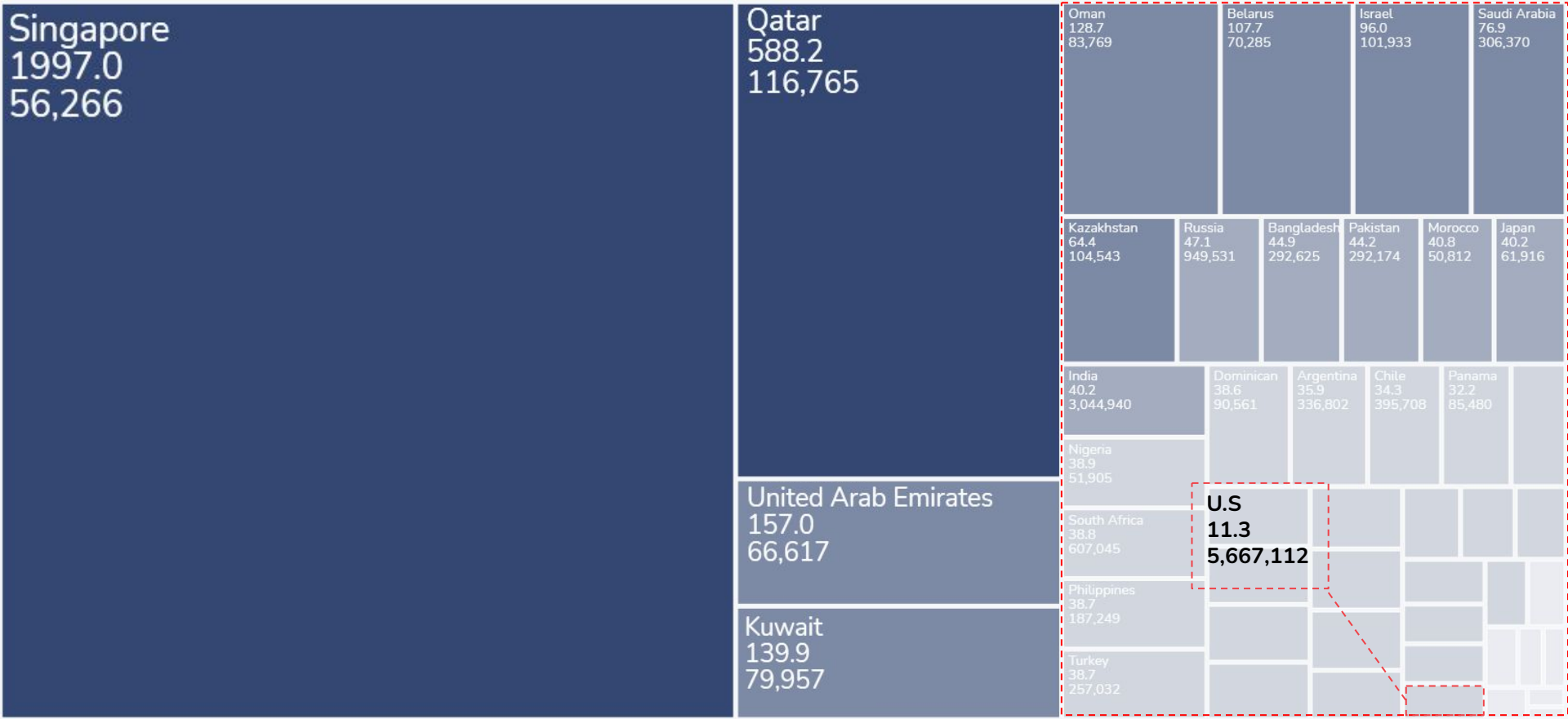
COVID-19 EFFECT ON THE WORLD
DEATHS



Abubakir Siedhamed

Death cases of each country from 01/22/2020 to 08/22/2020

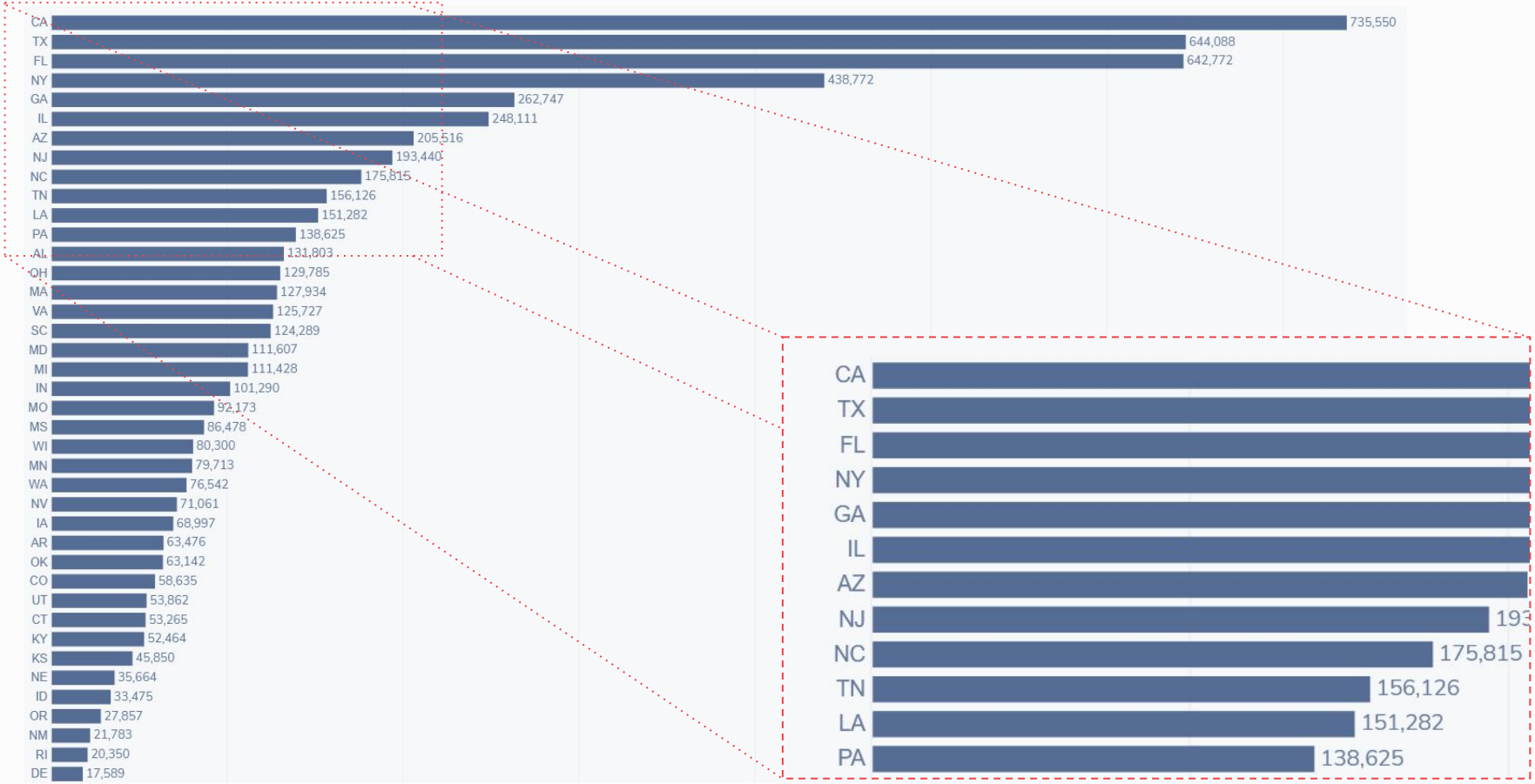
COUNTRIES CONTROL EFFICIENCY



Kennedy Nguyen

Confirmed cases divided by death cases of each country on 08/22/2020

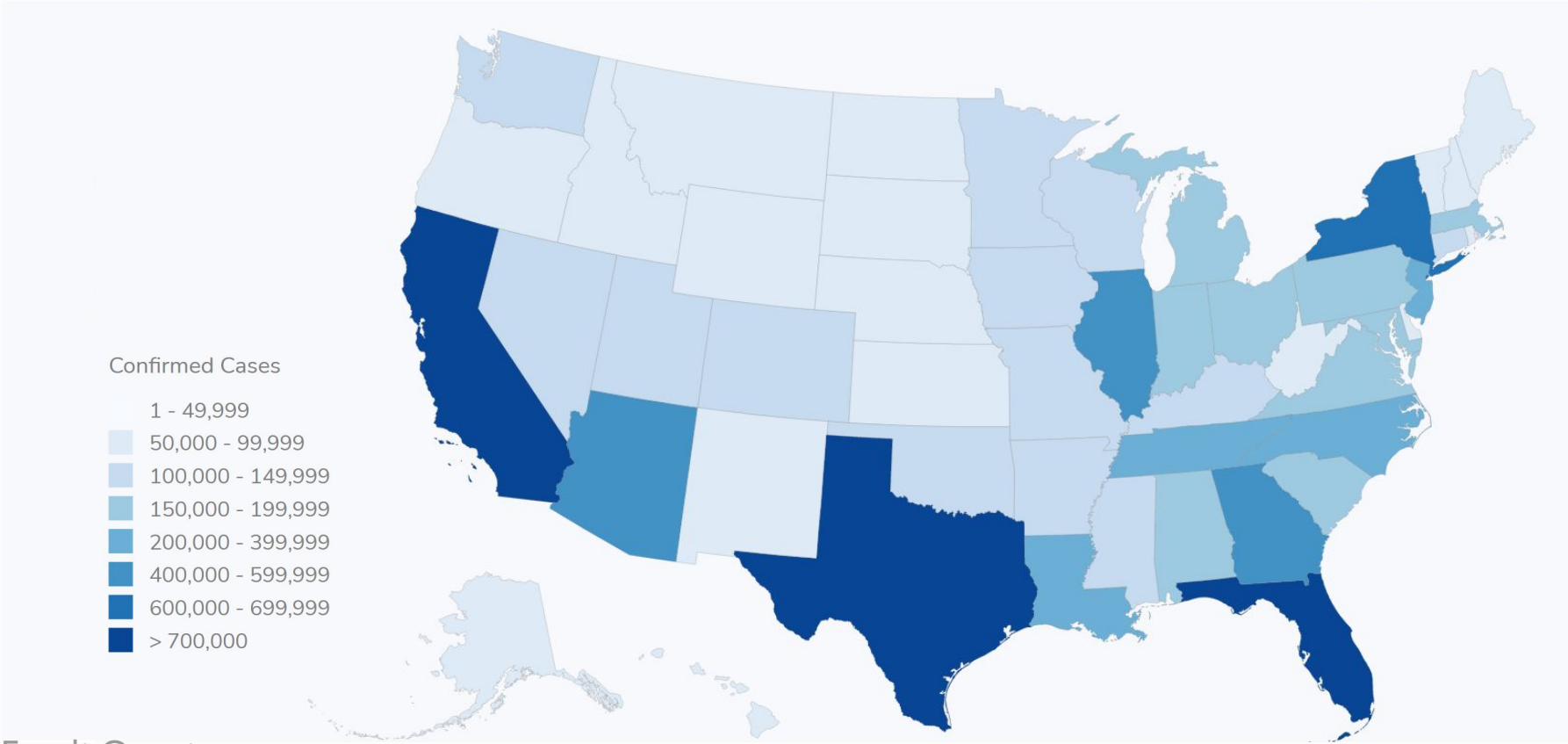
COVID-19 EFFECT ON THE U.S



Fredi Garcia

U.S confirmed cases from 01/04/2020 to 09/05/2020

COVID-19 EFFECT ON THE U.S

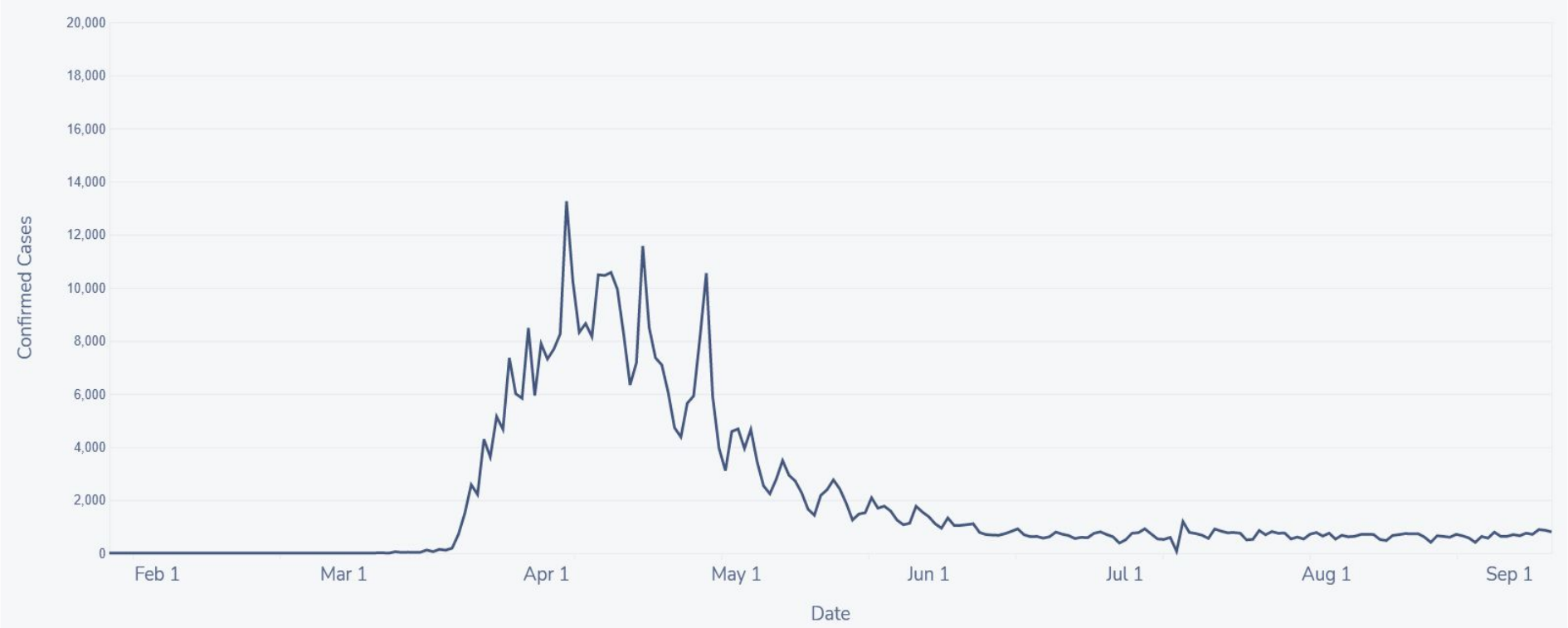


Fredi Garcia

U.S confirmed cases from 01/04/2020 to 09/05/2020

COVID-19 EFFECT ON THE U.S

NEW YORK

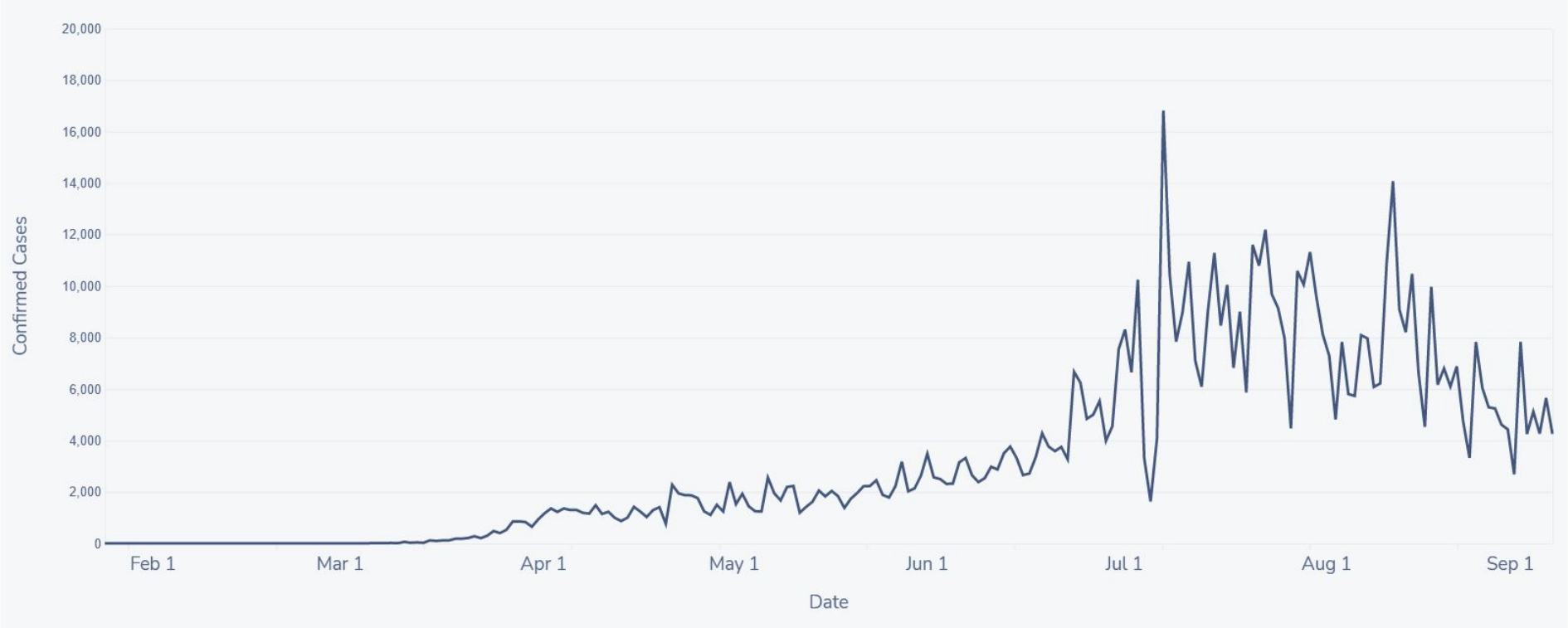


Fredi Garcia

NY confirmed cases from 01/04/2020 to 09/05/2020

COVID-19 EFFECT ON THE U.S

CALIFORNIA



Fredi Garcia

CA confirmed cases from 01/04/2020 to 09/05/2020

COVID-19 EFFECT ON THE U.S

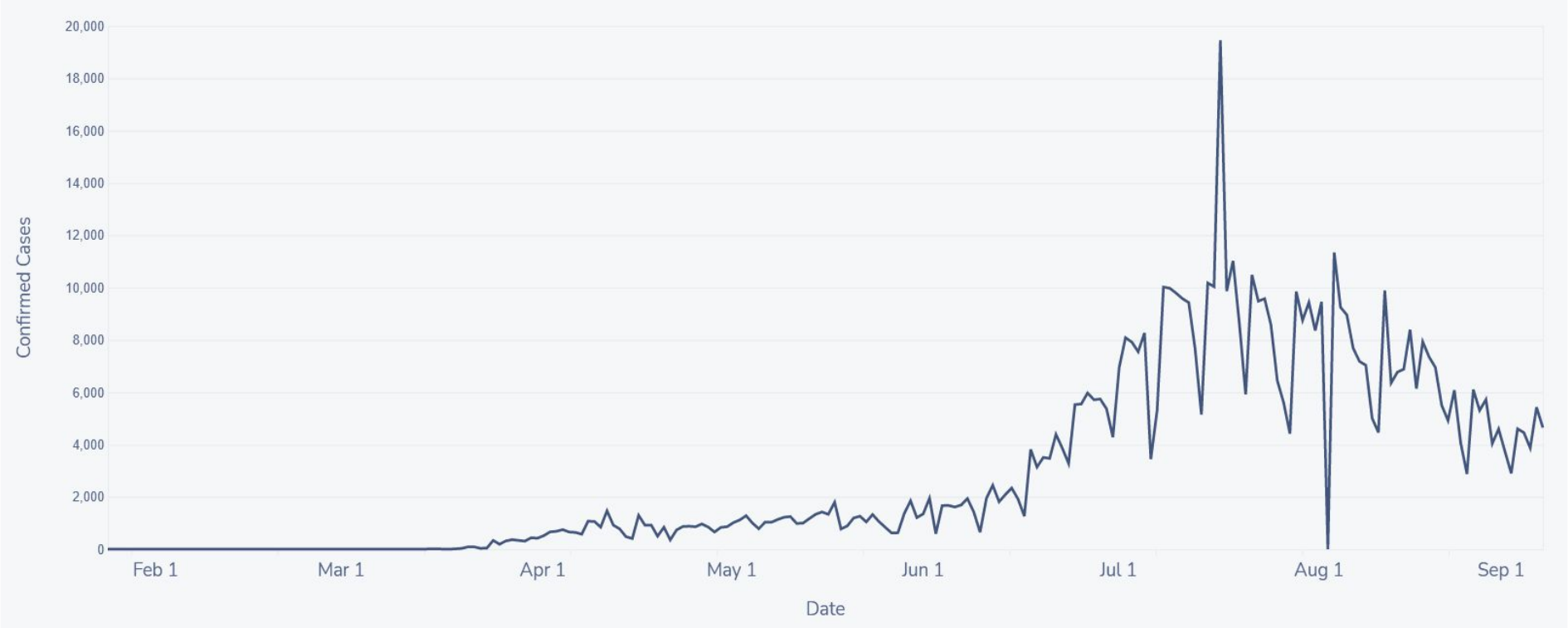
FLORIDA



Fredi Garcia

FL confirmed cases from 01/04/2020 to 09/05/2020

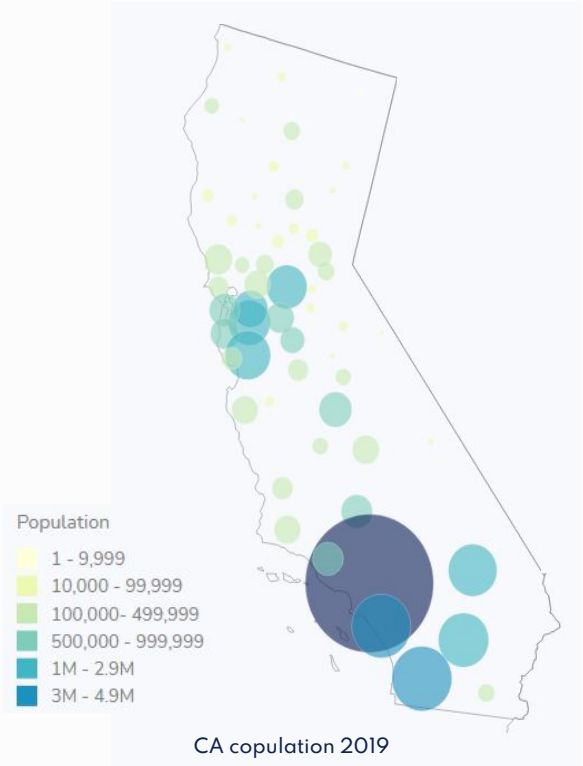
COVID-19 EFFECT ON THE U.S
TEXAS



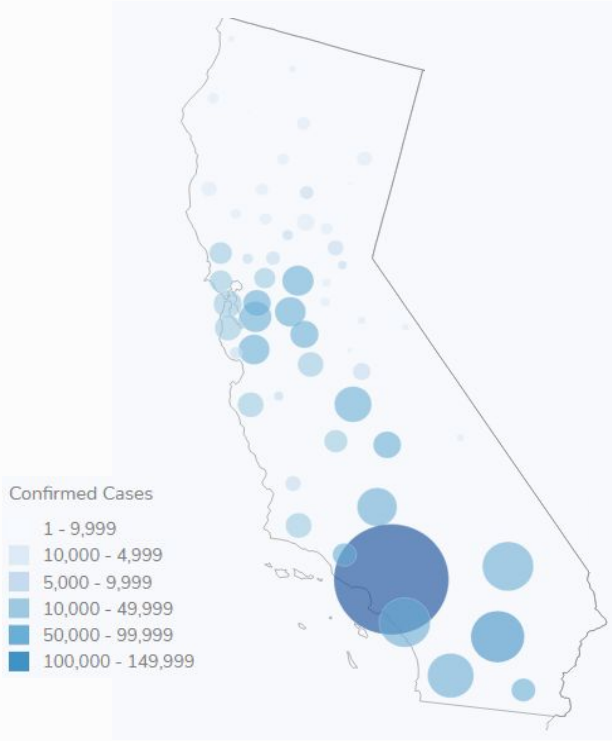
Fredi Garcia

TX confirmed cases from 01/04/2020 to 09/05/2020

COVID-19 EFFECT ON CALIFORNIA (OVERCROWDED)



CA copulation 2019



CA confirmed cases from 01/04/2020 to 08/22/2020

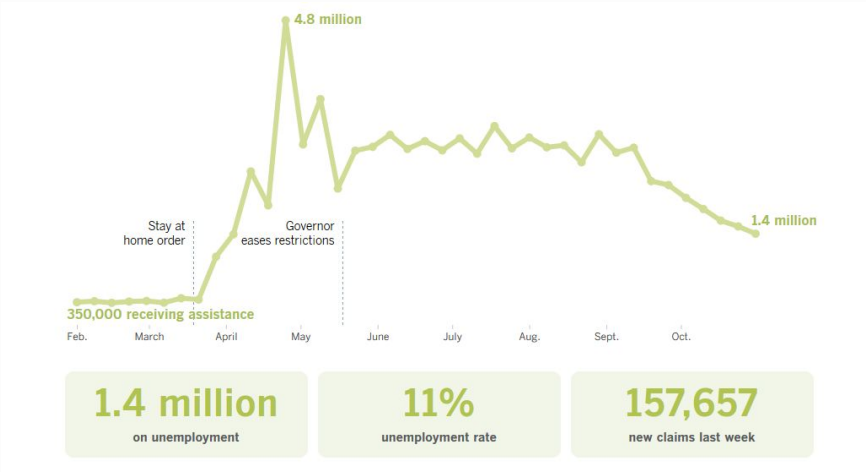
John Grover

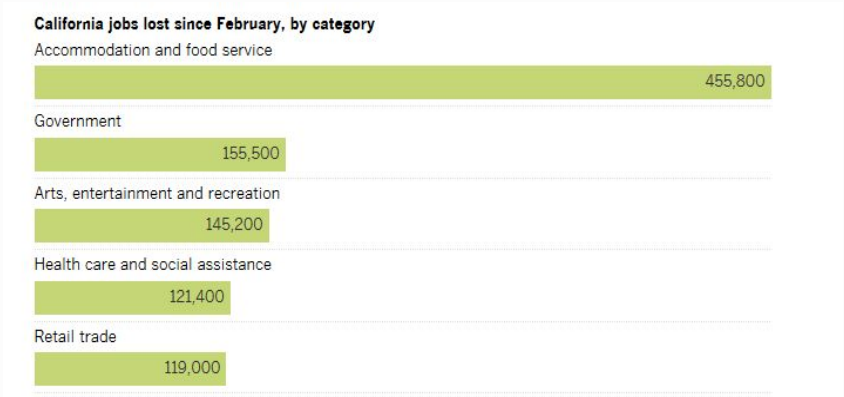
COVID-19 EFFECT ON CALIFORNIA

- Current death toll ~18,500 as of November 17th, 2020
- Total confirmed Case ~1 million
- Covid-19 has had these other “Second Hand” factors, factors not affecting only one’s own health:
    - Unemployment rates increasing
    - Increasing covid-19 risk in overcrowded “housing”

Source:https://covid19.ca.gov/state-dashboard/

COVID-19 EFFECT ON CALIFORNIA (UNEMPLOYMENT)



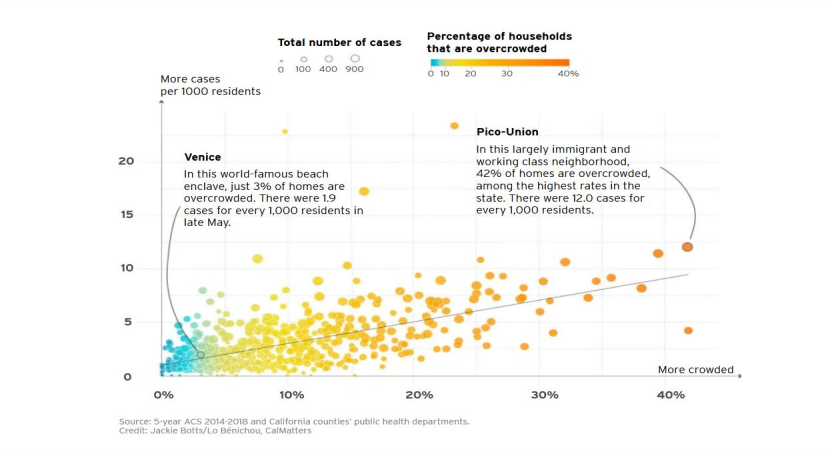


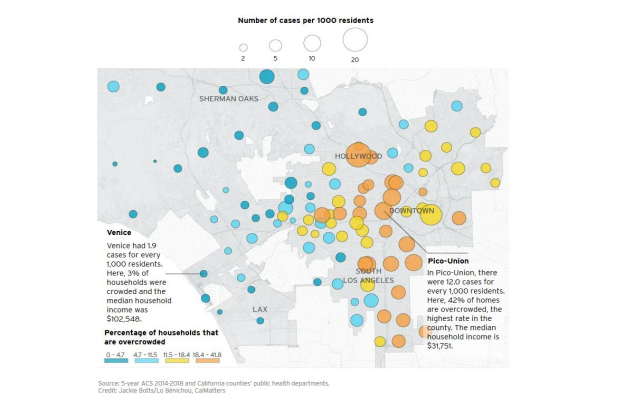
- Chart above depicts the number of people unemployed since the beginning of the year to present(as of November 17th 2020)
- The highest peak being mid-April with 4.8 million
- As of November 17th 2020, we are around 1.4 still unemployed

- So what jobs were hurt by this "stay at home order"
- These are the top 5 most affected but every sector was affected by the stay at home order

John Grover

COVID-19 EFFECT ON CALIFORNIA [OVERCROWDED HOUSING]

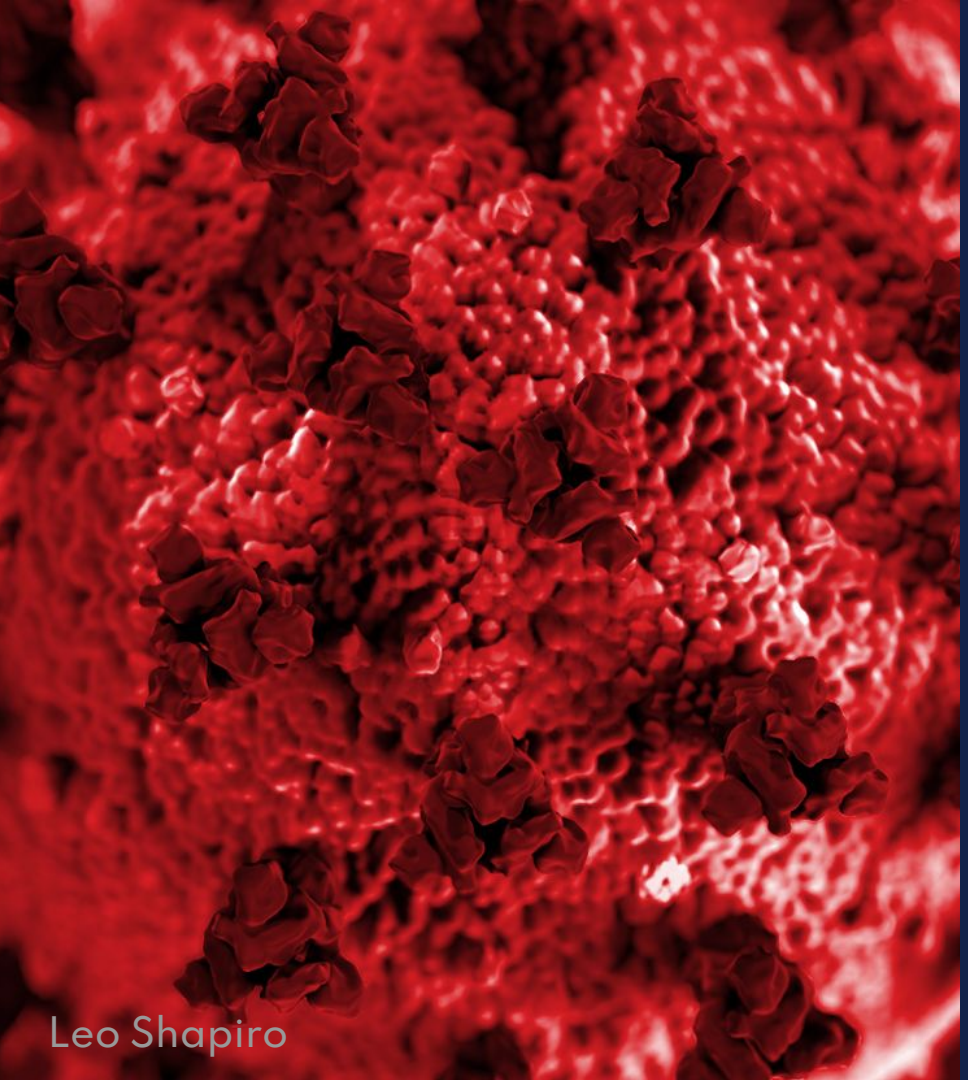




- These overcrowded housing complexes have a higher chance of spreading the virus:
  - Studies done in these homes found that there is a 3.7 times more likely chance of contracting the virus

- The chart above demonstrates ares in which there is a higher chance of contracting covid-19 based on housing situations
- Areas such as:
  - Pico-union, 42% homes impacted
  - Venice, 3% homes impacted

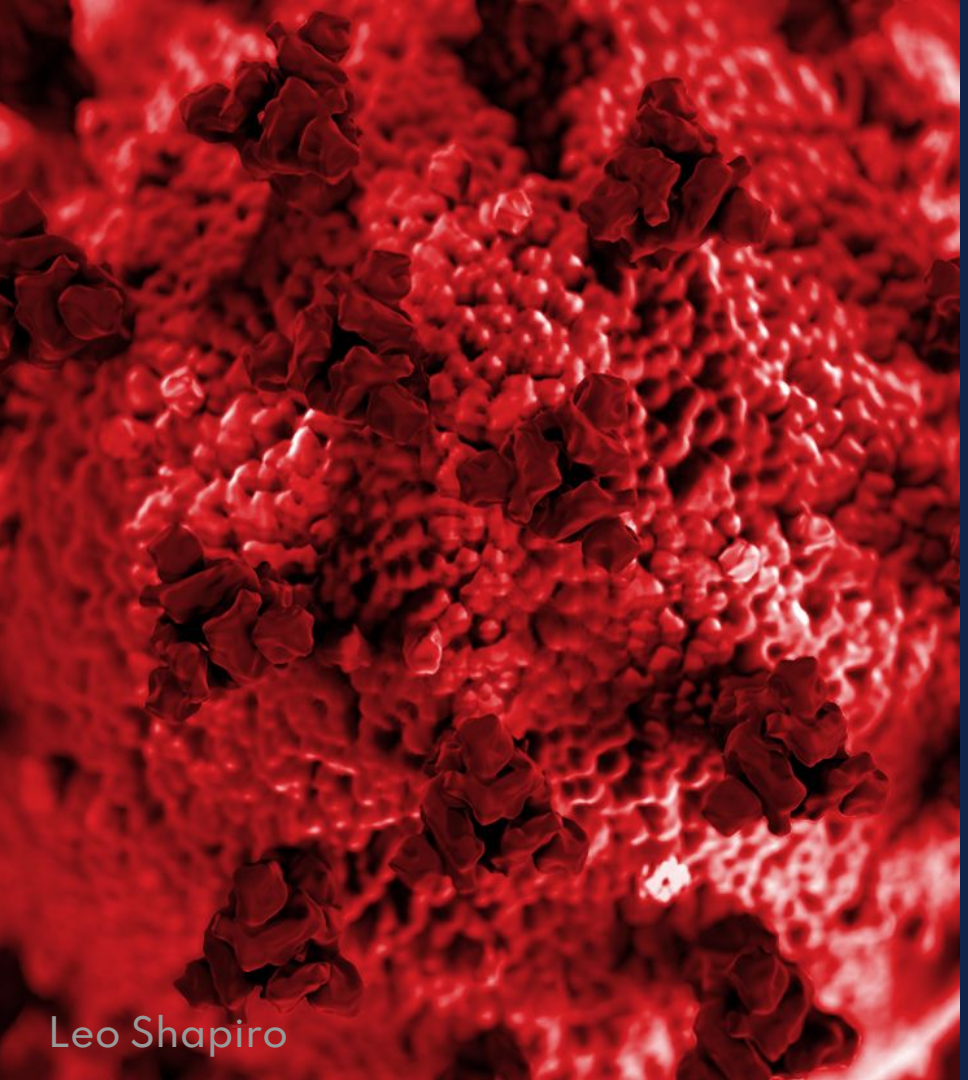
John Grover



Leo Shapiro

CONCLUSIONS

- COVID-19 is deadly and highly contagious
- U.S has abnormally high amount of cases
- Elderly are most susceptible to severe reactions
- Areas with high population density requires strong COVID-19 preventative measures



Leo Shapiro

FUTURE GOALS

- Add more data visualization content to Web-Application
- Improve graph interactivity and visuals
- Look at uncommon factors about Covid-19
- Use Python and Tableau in Analytics
- Use Logistic Regression in modeling probability.

Thank you


Q. A