United States COVID-19 Cases by Red & Blue States

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Datasets Used and Their Limitations

- Used 3 different datasets:
  - “US Covid-19 Cases & Deaths by State Over Time” from data.gov
  - “State Codes” from Kaggle
  - “State Population” from census.gov
- Cleaned, formatted & merged them to make two base dataframes
- Had some limitations in the dataset:
  - Dropped rows with missing values
  - Dropped columns that were irrelevant
  - Did not have data for all 50 states
  - Had to eliminate data for territories
  - Only have data for 2021

Null and Alternative Hypotheses

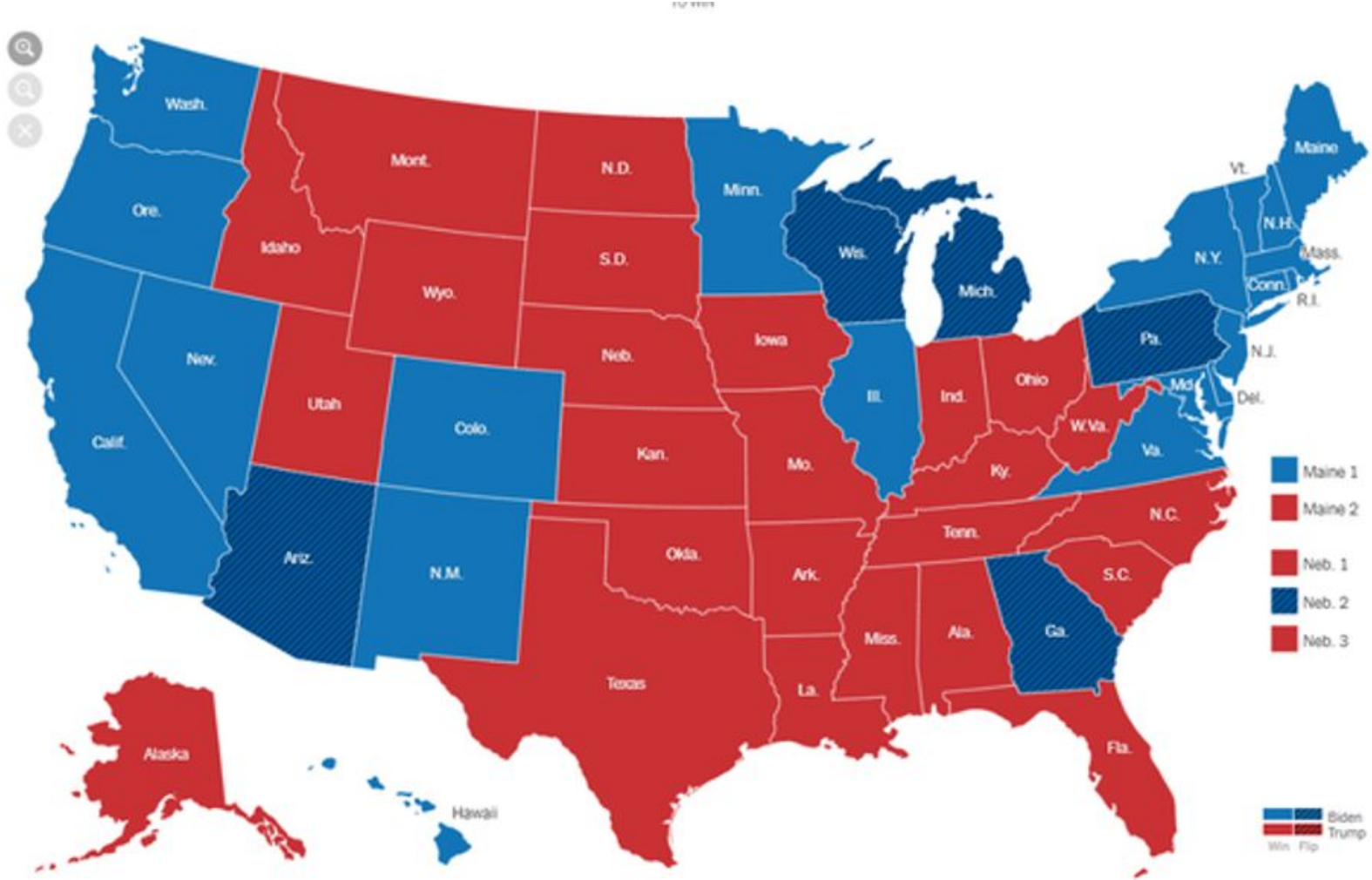
Null Hypothesis: The type of state government (red/Republican or blue/Democrat) has no impact on the number of COVID-19 cases.

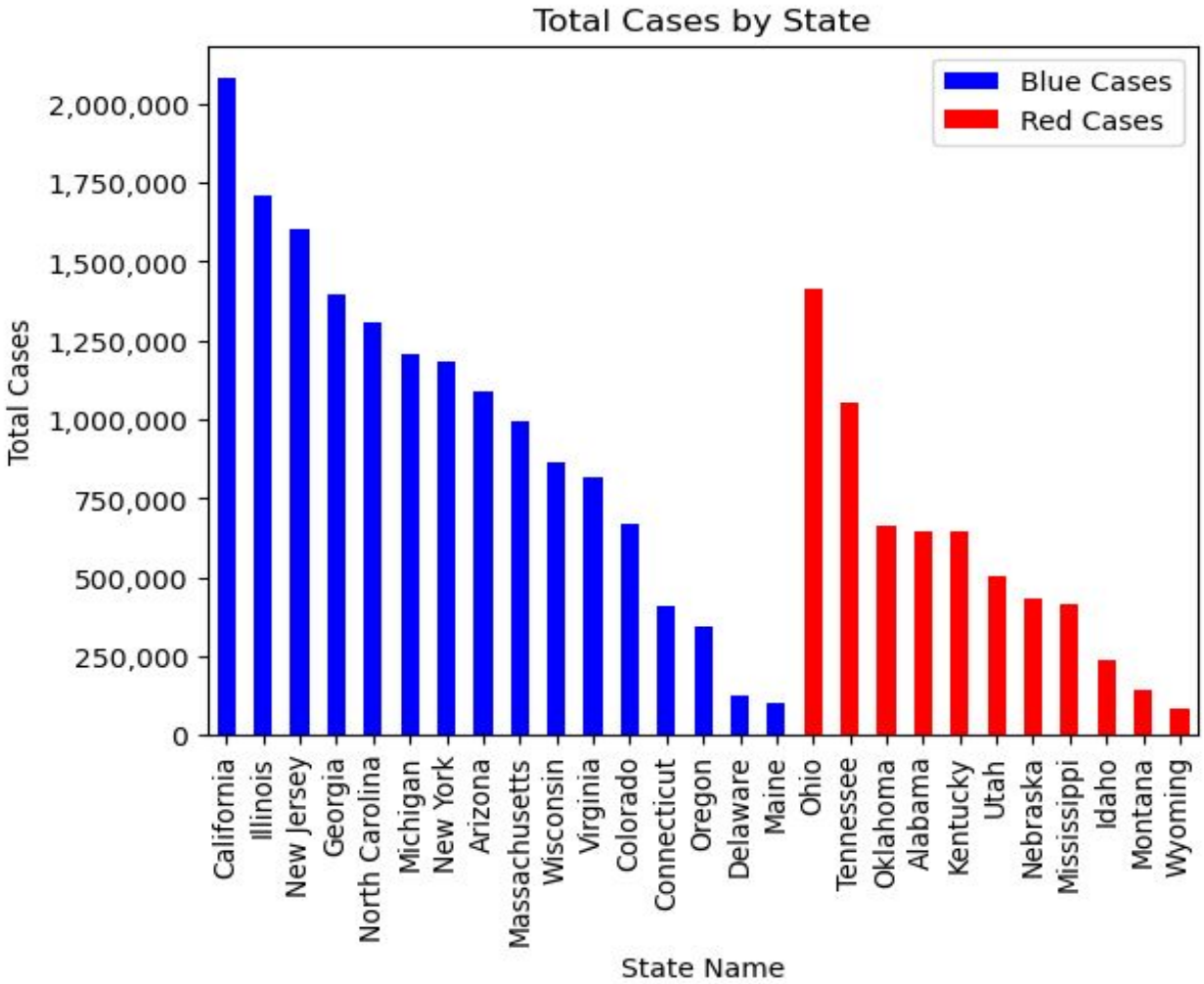
Alternative Hypothesis: The type of state government (red/Republican or blue/Democrat) has an impact on the number of COVID-19 cases.

Analyzing the Data

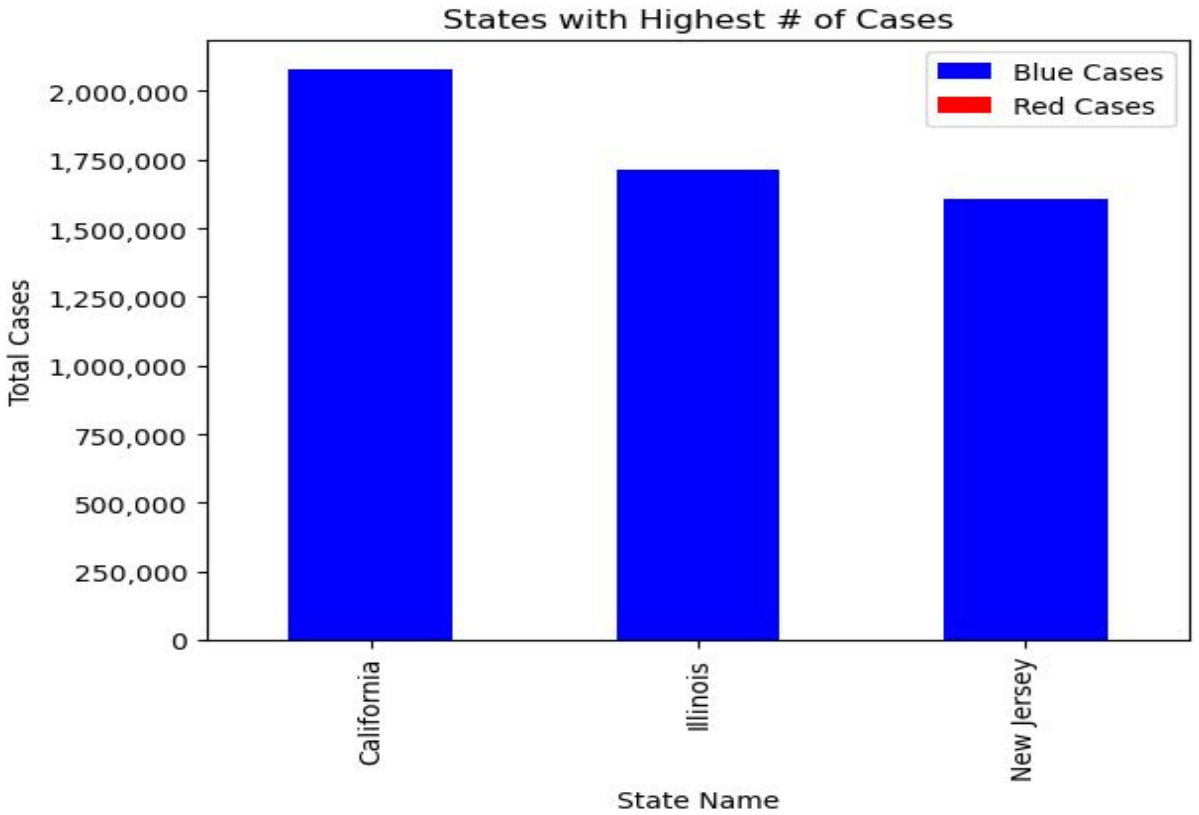
- Incorporating the data for the governing party for each state (Democrat or Republican)
- Determining state total averages
- Charting to see the distribution of cases by state and their respective governing party
- After analyzing the data according to Total Cases, we decided to re-examine according to Case Prevalence

State Name	State Color	Blue Cases	Red Cases	State Population	Case/Population Percentage
Wisconsin	Blue	522523	0	5880101	8.886293
Oregon	Blue	113909	0	4256301	2.676244
Illinois	Blue	963389	0	12686469	7.593831
Colorado	Blue	350126	0	5811297	6.024920
Michigan	Blue	591739	0	10037504	5.895280
...	...	...	...	...	...
New York	Blue	1562082	0	19857492	7.866462
assachusetts	Blue	1140614	0	6989690	16.318521
New Jersey	Blue	1564253	0	9267961	16.878071
Colorado	Blue	957696	0	5811297	16.479901
Illinois	Blue	2181009	0	12686469	17.191616

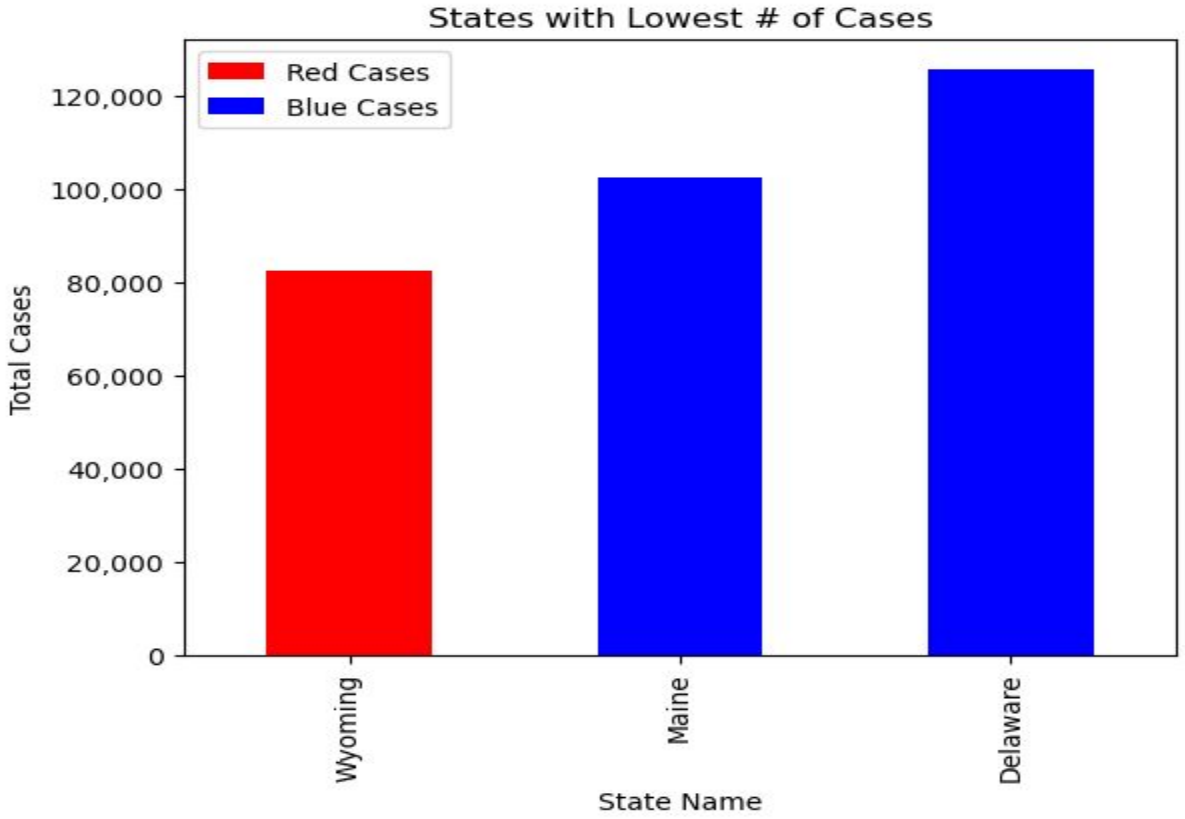

Wash.
Ore.
Calif.
Idaho
Nev.
Mont.
Wyo.
Utah
Ariz.
Colo.
N.M.
N.D.
S.D.
Neb.
Kan.
Okla.
Texas
Minn.
Iowa
Mo.
Ark.
La.
Wis.
Ill.
Mich.
Ind.
Ohio
Ky.
Tenn.
Miss.
Ala.
Ga.
Fla.
S.C.
N.C.
W.Va.
Va.
Pa.
N.Y.
Vt.
Maine
N.H.
Mass.
Conn.
R.I.
N.J.
Md.
Del.
Alaska
Hawaii
Maine 1
Maine 2
Neb. 1
Neb. 2
Neb. 3
Biden
Trump
Win Flip


Total Cases by State
Blue Cases
Red Cases
Total Cases
2,000,000
1,750,000
1,500,000
1,250,000
1,000,000
750,000
500,000
250,000
0
California
Illinois
New Jersey
Georgia
North Carolina
Michigan
New York
Arizona
Massachusetts
Wisconsin
Virginia
Colorado
Connecticut
Oregon
Delaware
Maine
Ohio
Tennessee
Oklahoma
Alabama
Kentucky
Utah
Nebraska
Mississippi
Idaho
Montana
Wyoming
State Name

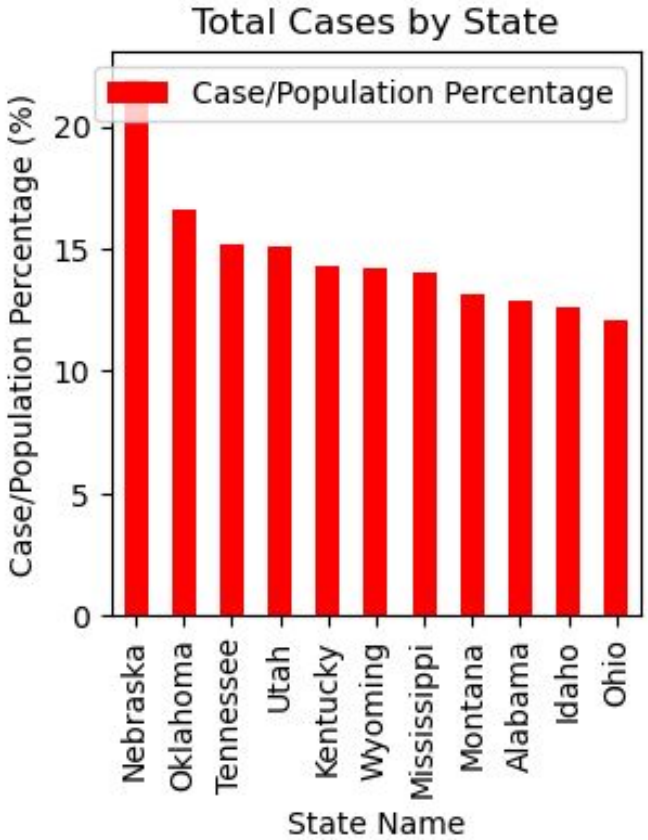
The three highest number of cases by state

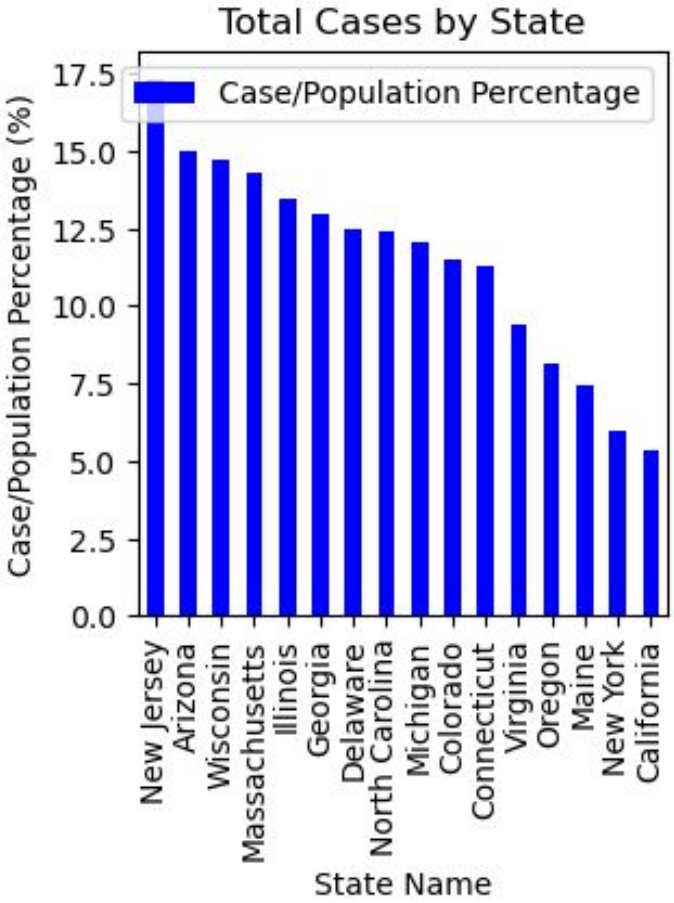


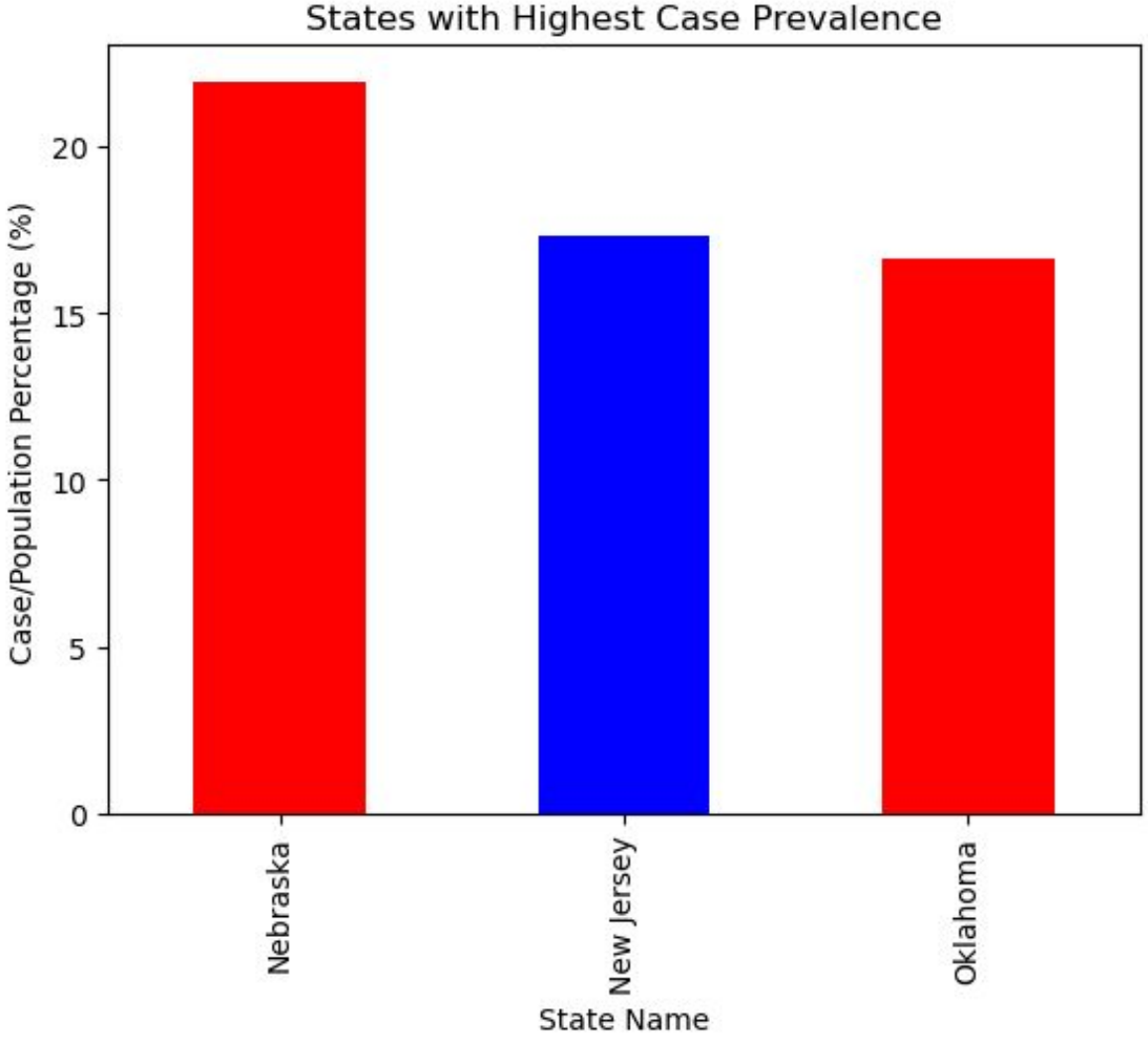
The three lowest number of cases by state

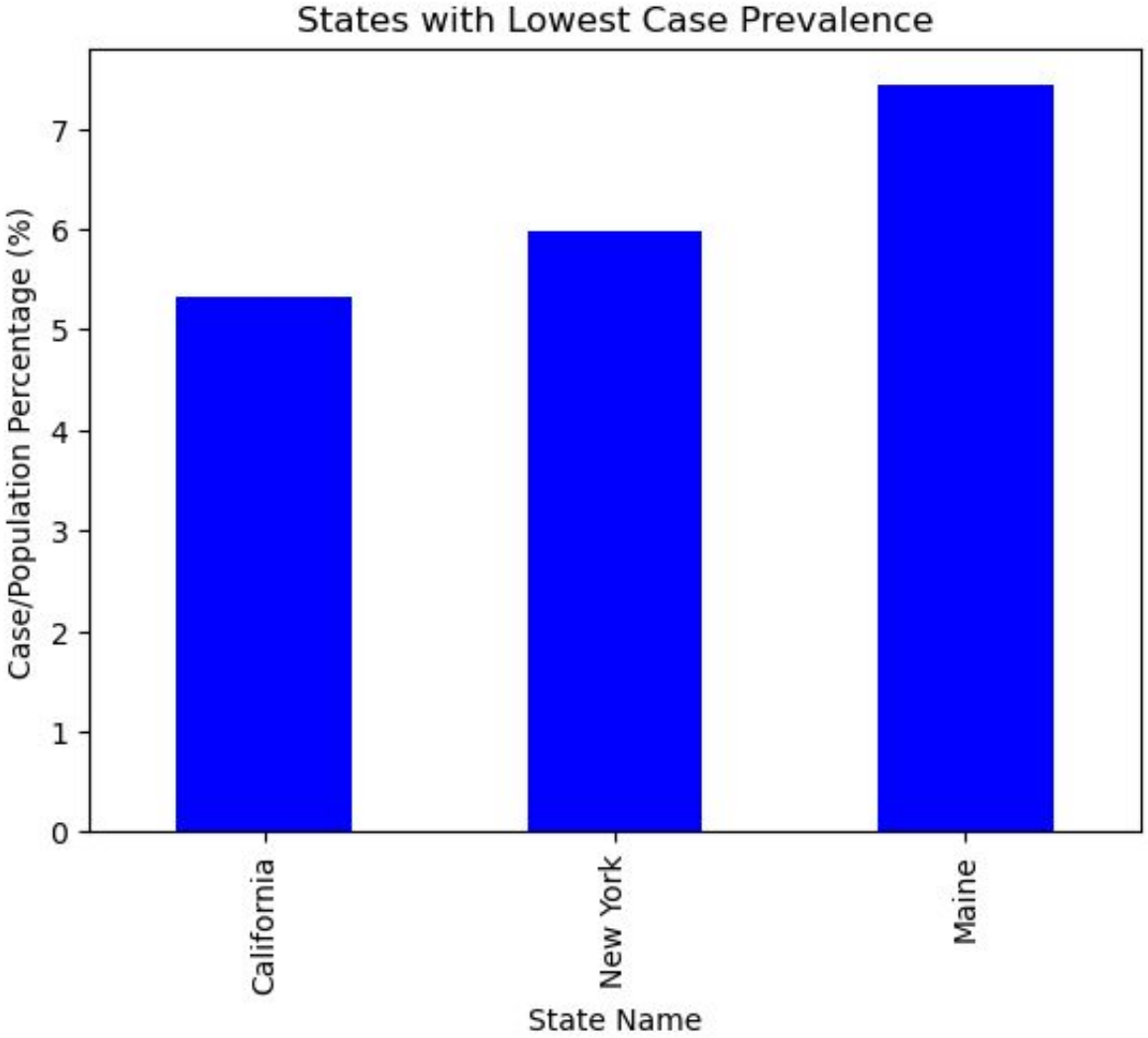


Case Prevalence by Red/Blue States



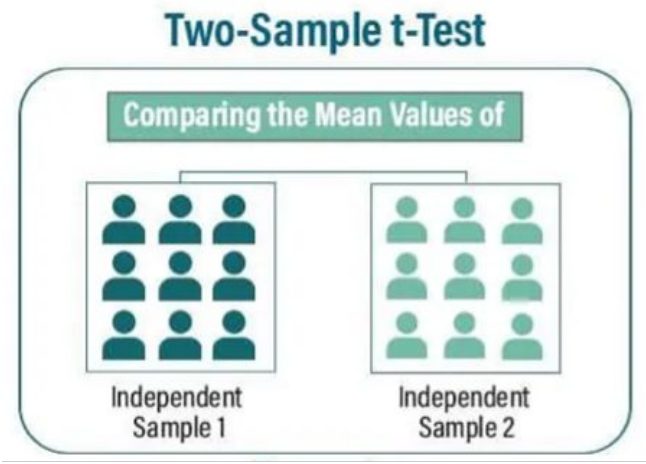



States with Highest Case Prevalence
Case/Population Percentage (%)
0
5
10
15
20
Nebraska
New Jersey
Oklahoma
State Name


States with Lowest Case Prevalence
Case/Population Percentage (%)
0
1
2
3
4
5
6
7
California
New York
Maine
State Name

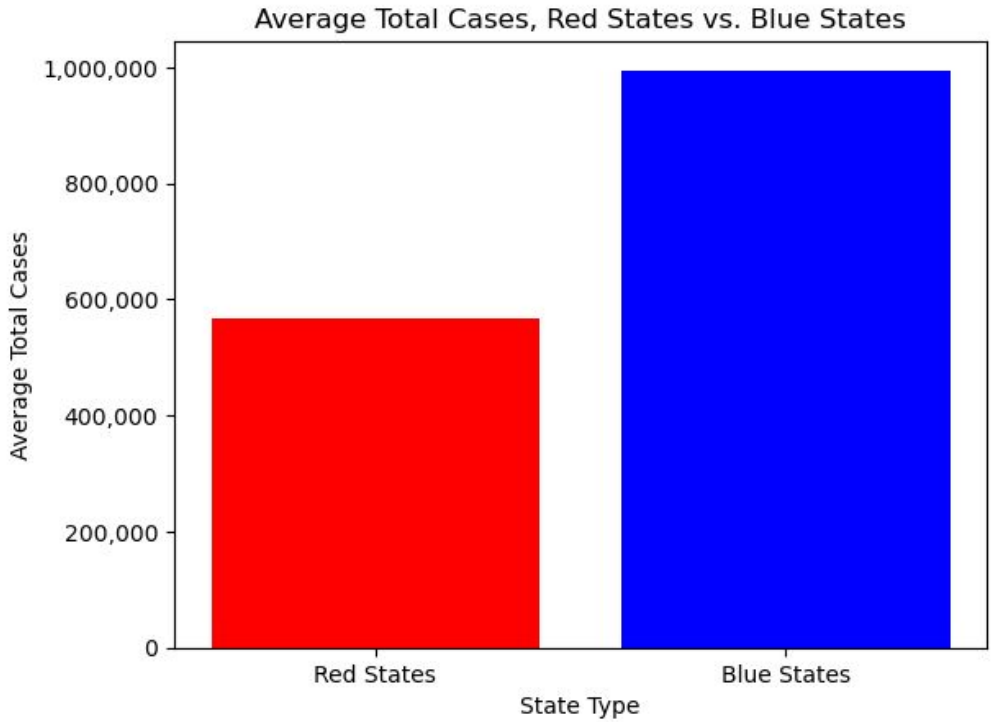
Statistical Test: t-test

- Based on the data, independent t-test was most appropriate to test the hypotheses
- Did 2 t-tests:
  - Using total number of cases per state by color
  - Using total number of cases by population percentage per state by color
- Results:
  - Total Cases:
    - t-statistic: 33.592271324857755
    - p-value: 8.142141668872524e-242
  - Case Prevalence
    - t-statistic: -22.420479534465183
    - p-value: 3.330387755169245e-110



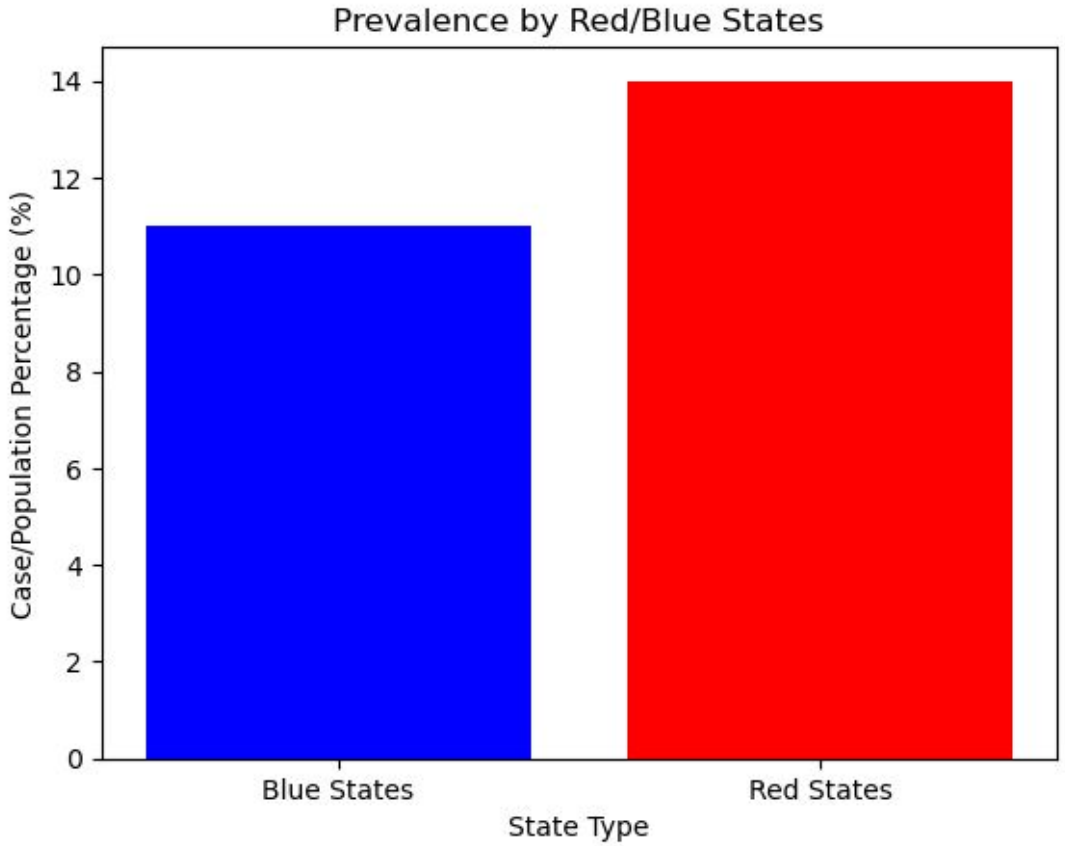
P-value

- P-value is less than 0.05 in both tests
- Can reject the null hypothesis
- Can accept the alternate hypothesis that the type of state government (red/Republican or blue/Democrat) has an impact on the number of COVID-19 cases.



Blue States:

- Larger populations, tend to be clustered around either coastline
- Larger cities/business hubs (i.e. LA, NYC, Chicago, Atlanta)
- Greater access to large airports
- Higher populations = higher number of cases



Red States:

- Smaller populations, tend to be located in the middle of the country (more isolated)
- Republican legislation more relaxed about vaccination and masking
- Although less unique individuals were diagnosed with COVID-19, a greater majority of the population got sick


RE-OPEN NOW!
LIBERATE US
QUARANTINE THE SICK NOT THE HEALTHY
I NEED A TATTOO NOW!
THE PANDEMIC IS A HOAX!
I WANNA GIT MY HAIR DONE!


SEE YOU SOON