Project-Covid

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The Question

Which states have been distributed and vaccinated the most vaccines per hundred people, and how has it led to a decrease in COVID cases in those states?

Top 5 States for Covid Vaccination per 100 people on 1/12/21:

West Virginia	5.77
South Dakota	5.5
North Dakota	5.18
Alaska	4.9
Connecticut	4.25

Top 5 States for COVID Vaccine Distribution per 100 people on 1/12/21:

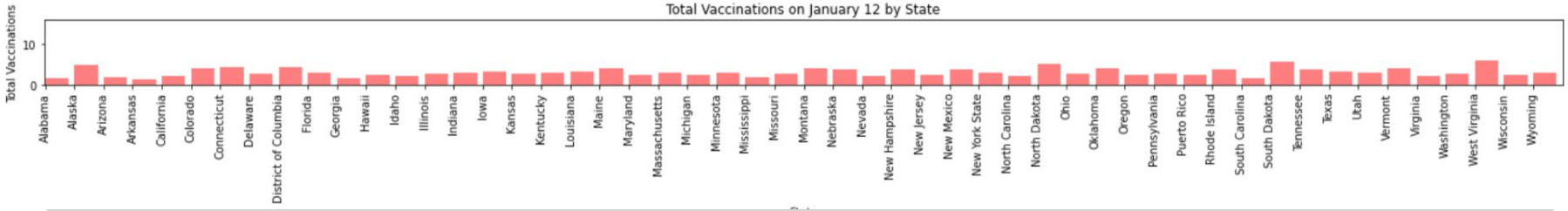
Alaska	19.36
Vermont	10.4
Hawaii	10.01
Maine	9.89
Oklahoma	9.64

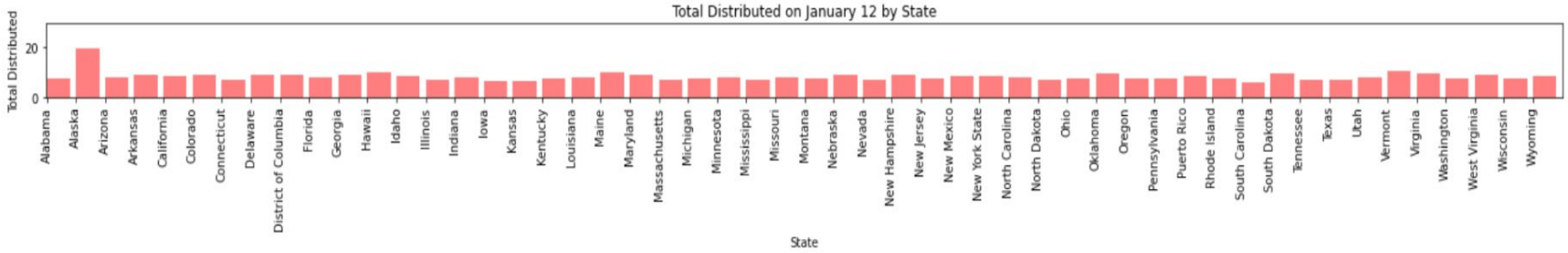
Top 5 States for Covid Vaccination per 100 people on 2/23/21:

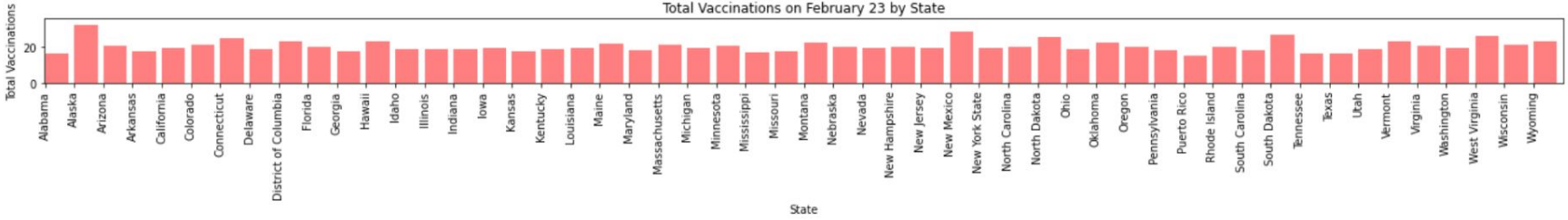
Alaska	32.8
New Mexico	29.21
South Dakota	26.82
West Virginia	26.26
North Dakota	25.8

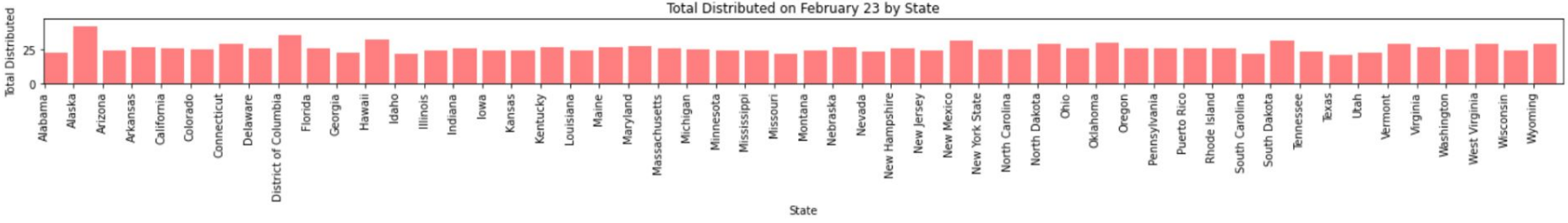
Top 5 States for COVID Vaccine Distribution per 100 people on 2/23/21:

Alaska	41.68
Hawaii	31.54
New Mexico	31.5
South Dakota	31.5
Oklahoma	29.65


Total Vaccinations on January 12 by State
Total Vaccinations
0
10
Alabama
Alaska
Arizona
Arkansas
California
Colorado
Connecticut
Delaware
District of Columbia
Florida
Georgia
Hawaii
Idaho
Illinois
Indiana
Iowa
Kansas
Kentucky
Louisiana
Maine
Maryland
Massachusetts
Michigan
Minnesota
Mississippi
Missouri
Montana
Nebraska
Nevada
New Hampshire
New Jersey
New Mexico
New York State
North Carolina
North Dakota
Ohio
Oklahoma
Oregon
Pennsylvania
Puerto Rico
Rhode Island
South Carolina
South Dakota
Tennessee
Texas
Utah
Vermont
Virginia
Washington
West Virginia
Wisconsin
Wyoming


Total Distributed on January 12 by State
Total Distributed
0
20
Alabama
Alaska
Arizona
Arkansas
California
Colorado
Connecticut
Delaware
District of Columbia
Florida
Georgia
Hawaii
Idaho
Illinois
Indiana
Iowa
Kansas
Kentucky
Louisiana
Maine
Maryland
Massachusetts
Michigan
Minnesota
Mississippi
Missouri
Montana
Nebraska
Nevada
New Hampshire
New Jersey
New Mexico
New York State
North Carolina
North Dakota
Ohio
Oklahoma
Oregon
Pennsylvania
Puerto Rico
Rhode Island
South Carolina
South Dakota
Tennessee
Texas
Utah
Vermont
Virginia
Washington
West Virginia
Wisconsin
Wyoming
State


Total Vaccinations on February 23 by State
Total Vaccinations
0
20
Alabama
Alaska
Arizona
Arkansas
California
Colorado
Connecticut
Delaware
District of Columbia
Florida
Georgia
Hawaii
Idaho
Illinois
Indiana
Iowa
Kansas
Kentucky
Louisiana
Maine
Maryland
Massachusetts
Michigan
Minnesota
Mississippi
Missouri
Montana
Nebraska
Nevada
New Hampshire
New Jersey
New Mexico
New York State
North Carolina
North Dakota
Ohio
Oklahoma
Oregon
Pennsylvania
Puerto Rico
Rhode Island
South Carolina
South Dakota
Tennessee
Texas
Utah
Vermont
Virginia
Washington
West Virginia
Wisconsin
Wyoming
State


Total Distributed on February 23 by State
Total Distributed
0
25
Alabama
Alaska
Arizona
Arkansas
California
Colorado
Connecticut
Delaware
District of Columbia
Florida
Georgia
Hawaii
Idaho
Illinois
Indiana
Iowa
Kansas
Kentucky
Louisiana
Maine
Maryland
Massachusetts
Michigan
Minnesota
Mississippi
Missouri
Montana
Nebraska
Nevada
New Hampshire
New Jersey
New Mexico
New York State
North Carolina
North Dakota
Ohio
Oklahoma
Oregon
Pennsylvania
Puerto Rico
Rhode Island
South Carolina
South Dakota
Tennessee
Texas
Utah
Vermont
Virginia
Washington
West Virginia
Wisconsin
Wyoming
State

Top 5 States for Covid Vaccination 1/12/21: Difference in Cases Confirmed vs Deaths Pre Vaccine vs Post:

West Virginia	59	vs	837
South Dakota	58	vs	11071
North Dakota	64	vs	809
Alaska	33	vs	132
Connecticut	113	vs	1315

Top 5 States for COVID Vaccination 2/23/21: Cases Confirmed and Deaths as of Feb 2020

West Virginia	127	vs	669
South Dakota	9	vs	278
North Dakota	4	vs	108
Alaska	45	vs	222
Connecticut	72	vs	1146

Top 5 States for Covid Vaccination 1/12/21: Cases Confirmed vs Deaths as of Oct 2020:

West Virginia	22k	vs	426
South Dakota	39k	vs	375
North Dakota	38k	vs	461
Alaska	13k	vs	68
Connecticut	68k	vs	4589

Top 5 States for COVID Vaccination 1/12/21: Cases Confirmed and Deaths as of Dec 2020

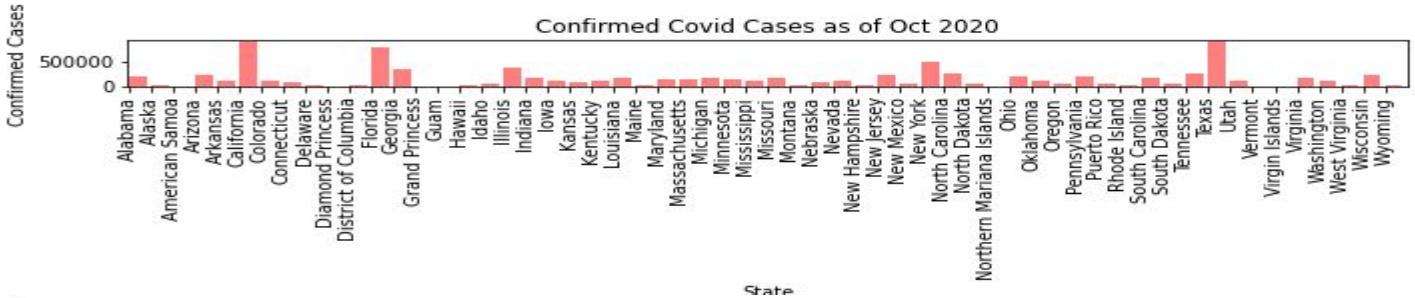
West Virginia	81k	vs	1263
South Dakota	97k	vs	1446
North Dakota	92k	vs	1270
Alaska	46k	vs	200
Connecticut	181k	vs	5904

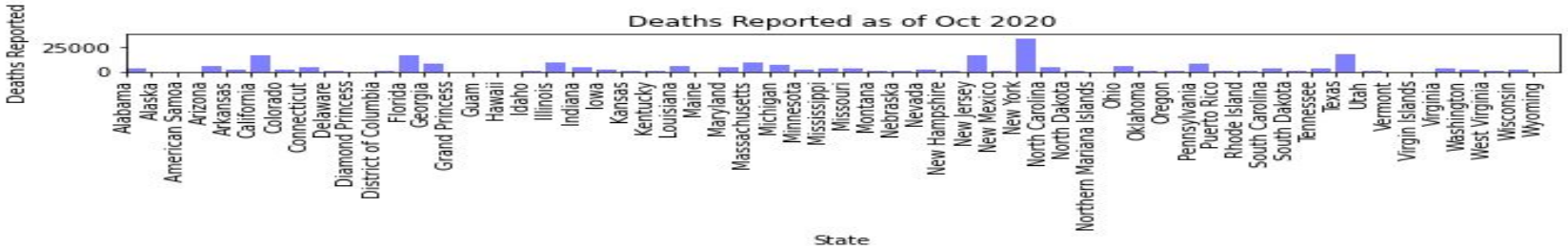
Top 5 States for Covid Vaccination 1/12/21: Cases Confirmed vs Deaths as of Jan 2020:

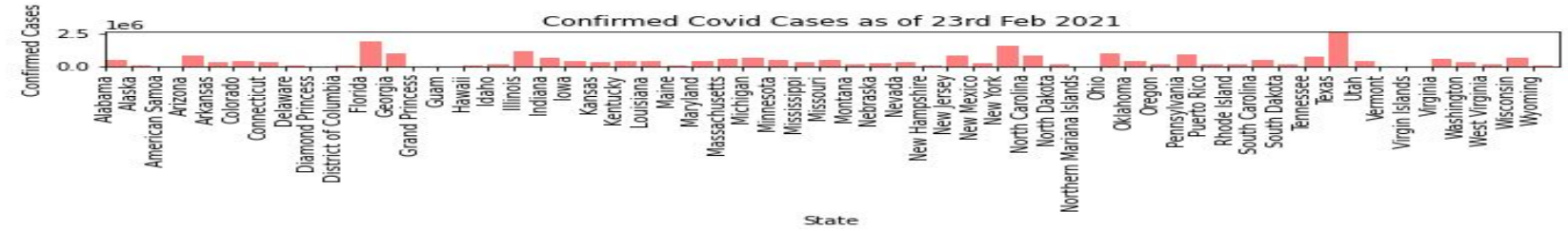
West Virginia	102k	vs	1594
South Dakota	104k	vs	1585
North Dakota	95k	vs	1360
Alaska	13k	vs	68
Connecticut	203k	vs	6416

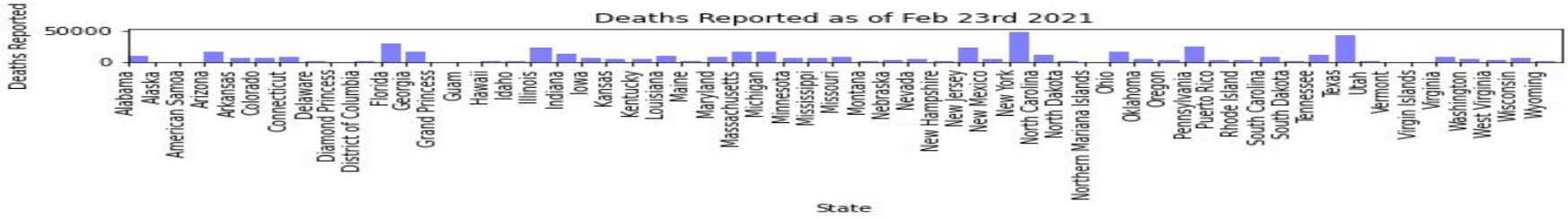
Top 5 States for COVID Vaccination 2/23/21: Cases Confirmed and Deaths as of Feb 2020

West Virginia	129k	vs	2263
South Dakota	112k	vs	1863
North Dakota	99k	vs	1468
Alaska	58k	vs	290
Connecticut	275k	vs	7562


Confirmed Covid Cases as of Oct 2020
Confirmed Cases
500000
0
Alabama
Alaska
American Samoa
Arizona
Arkansas
California
Colorado
Connecticut
Delaware
Diamond Princess
District of Columbia
Florida
Georgia
Grand Princess
Guam
Hawaii
Idaho
Illinois
Indiana
Iowa
Kansas
Kentucky
Louisiana
Maine
Maryland
Massachusetts
Michigan
Minnesota
Mississippi
Missouri
Montana
Nebraska
Nevada
New Hampshire
New Jersey
New Mexico
New York
North Carolina
North Dakota
Northern Mariana Islands
Ohio
Oklahoma
Oregon
Pennsylvania
Puerto Rico
Rhode Island
South Carolina
South Dakota
Tennessee
Texas
Utah
Vermont
Virgin Islands
Virginia
Washington
West Virginia
Wisconsin
Wyoming
State

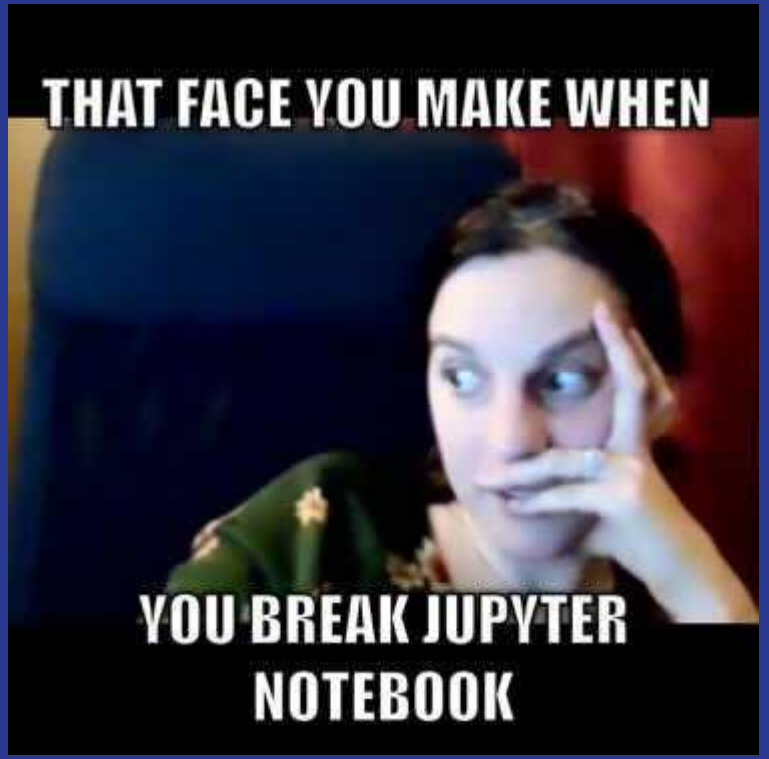

Deaths Reported as of Oct 2020
Deaths Reported
25000
0
Alabama
Alaska
American Samoa
Arizona
Arkansas
California
Colorado
Connecticut
Delaware
Diamond Princess
District of Columbia
Florida
Georgia
Grand Princess
Guam
Hawaii
Idaho
Illinois
Indiana
Iowa
Kansas
Kentucky
Louisiana
Maine
Maryland
Massachusetts
Michigan
Minnesota
Mississippi
Missouri
Montana
Nebraska
Nevada
New Hampshire
New Jersey
New Mexico
New York
North Carolina
North Dakota
Northern Mariana Islands
Ohio
Oklahoma
Oregon
Pennsylvania
Puerto Rico
Rhode Island
South Carolina
South Dakota
Tennessee
Texas
Utah
Vermont
Virgin Islands
Virginia
Washington
West Virginia
Wisconsin
Wyoming
State


Confirmed Covid Cases as of 23rd Feb 2021
Confirmed Cases
1e6
2.5
0.0
Alabama
Alaska
American Samoa
Arizona
Arkansas
Colorado
Connecticut
Delaware
Diamond Princess
District of Columbia
Florida
Georgia
Grand Princess
Guam
Hawaii
Idaho
Illinois
Indiana
Iowa
Kansas
Kentucky
Louisiana
Maine
Maryland
Massachusetts
Michigan
Minnesota
Mississippi
Missouri
Montana
Nebraska
Nevada
New Hampshire
New Jersey
New Mexico
New York
North Carolina
North Dakota
Northern Mariana Islands
Ohio
Oklahoma
Oregon
Pennsylvania
Puerto Rico
Rhode Island
South Carolina
South Dakota
Tennessee
Texas
Utah
Vermont
Virgin Islands
Virginia
Washington
West Virginia
Wisconsin
Wyoming
State


Deaths Reported as of Feb 23rd 2021
Deaths Reported
50000
0
Alabama
Alaska
American Samoa
Arizona
Arkansas
Colorado
Connecticut
Delaware
Diamond Princess
District of Columbia
Florida
Georgia
Grand Princess
Guam
Hawaii
Idaho
Illinois
Indiana
Iowa
Kansas
Kentucky
Louisiana
Maine
Maryland
Massachusetts
Michigan
Minnesota
Mississippi
Missouri
Montana
Nebraska
Nevada
New Hampshire
New Jersey
New Mexico
New York
North Carolina
North Dakota
Northern Mariana Islands
Ohio
Oklahoma
Oregon
Pennsylvania
Puerto Rico
Rhode Island
South Carolina
South Dakota
Tennessee
Texas
Utah
Vermont
Virgin Islands
Virginia
Washington
West Virginia
Wisconsin
Wyoming
State

Project Challenges

Kate broke Jupyter Notebook, but Nelson saved us!



Other Challenges

- We had one Data set that was extremely large, and gave us some challenges. We settled for a smaller data set.
- Last night we realized our comparisons would be more accurate if we looked at per one hundred numbers instead of totals.
- Not enough time to explore all of the things we originally planned on, so we shortened our project drastically.
- One set of data we were using stopped reporting the number of people tested per state in October.

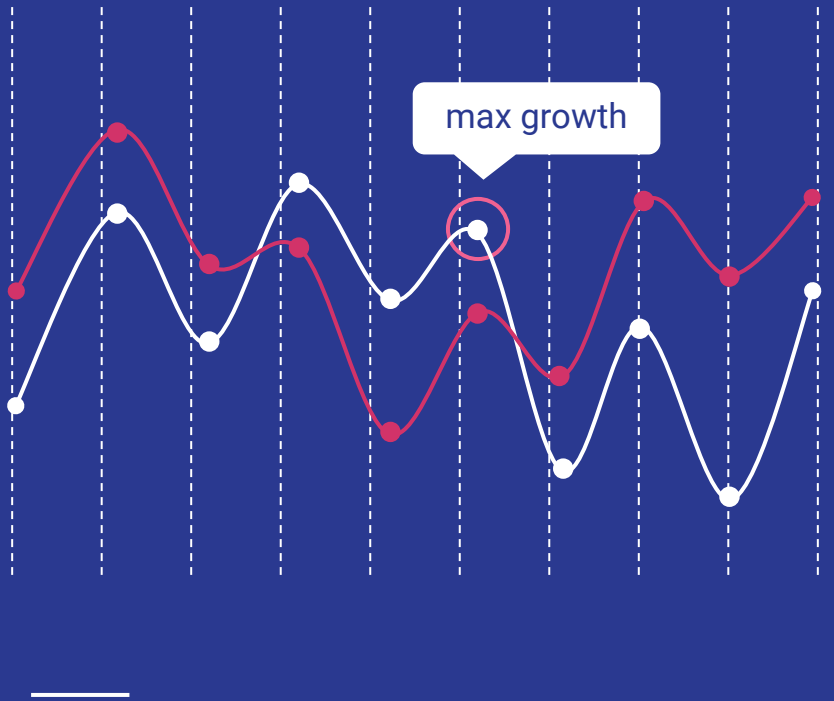
```
#states = {}
#organized_data_df_ir = organized_data_df.iterrows()
#for index, row in organized_data_df_ir:
#    s = row['Province_State']
#   l = row['Last_Update']
#     if s not in states:
#         states[s] = {
#             'Confirmed' : 0,
#             'Deaths' : 0,
#             'Recovered' : 0,
#             'Active' : 0,
#             'People_Tested' : 0
#         }
#     else:
#         states[s]['Confirmed'] += float(row['Confirmed'])
#         states[s]['Deaths'] += float(row['Deaths'])
#         states[s]['Recovered'] += float(row['Recovered'])
#         states[s]['Active'] += float(row['Active'])
#         states[s]['People_Tested'] += float(row['People_Tested'])
#     if (int(l.split(' ')[0][-2:]) > 6):
#         break

# dated_states = {}
# dated_states[l] = states
# dated_states
# #start with 7
# states[row['Pr']]

# for index, row in organized_data_df_ir:
#     s = row['Province_State']
#     l = row['Last_Update']
#     if s not in states:
#         states[s] = {
#             'Confirmed' : 0,
#             'Deaths' : 0,
#             'Recovered' : 0,
#             'Active' : 0,
#             'People_Tested' : 0
#         }
#     else:
#         states[s]['Confirmed'] += float(row['Confirmed'])
#         states[s]['Deaths'] += float(row['Deaths'])
#         states[s]['Recovered'] += float(row['Recovered'])
#         states[s]['Active'] += float(row['Active'])
#         states[s]['People_Tested'] += float(row['People_Tested'])
#     if
```

In our case data we had a challenge of day by day Cases Data vs the Vaccination Data which reported weekly. We needed to group the data by days into weekly amounts based upon the Vaccination.

Then we discovered the data is cumulative.

Thanks Nelson, it was fun but we didn't it.

Conclusions



- Of the 5 states that led in vaccinating on 01/12/21, 4 of them remained in the top 5 on 2/23/21 for most people per one hundred vaccinated.
- Alaska consistently held in the top 5 for most vaccinations distributed and people vaccinated.
- By 2/23/21, 3 out of top 5 states in the distributed category matched with the top 5 states in the vaccinated category.

- Of the top 5 states the number of confirmed cases pre vaccination and deaths have decreased
- The data confirms the number of Covid Cases in decreasing with the distribution of the vaccinations