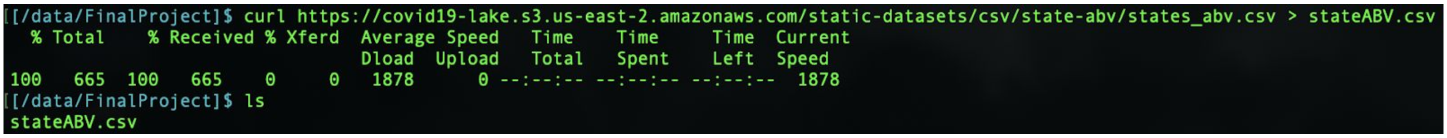
April 2020

Shefali Emmanuel Final Data Science Project:

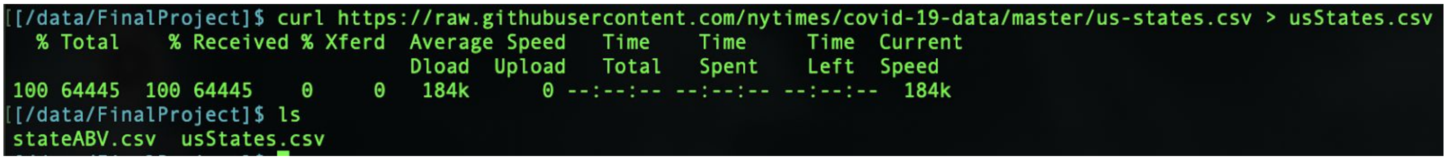
OBTAINING DATA

Source 1 - AWS US Covd19 DataSet https://dj2taa9i652rf.cloudfront.net



```
[[/data/FinalProject]$ curl https://covid19-lake.s3.us-east-2.amazonaws.com/static-datasets/csv/state-abv/states_abv.csv > stateABV.csv
  % Total    % Received % Xferd  Average Speed   Time    Time     Time  Current
                                 Dload  Upload   Total   Spent    Left  Speed
100   665  100   665    0     0   1878      0 --:--:-- --:--:-- --:--:--  1878
[[/data/FinalProject]$ ls
stateABV.csv
```

Source 2 - NY Times Github
https://github.com/nytimes/covid-19-data/blob/master/us-states.csv



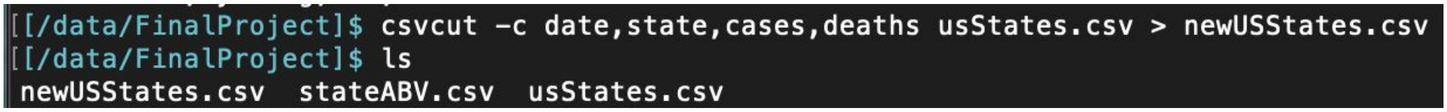
```
[[/data/FinalProject]$ curl https://raw.githubusercontent.com/nytimes/covid-19-data/master/us-states.csv > usStates.csv
  % Total    % Received % Xferd  Average Speed   Time    Time     Time  Current
                                 Dload  Upload   Total   Spent    Left  Speed
100 64445  100 64445    0     0   184k      0 --:--:-- --:--:-- --:--:--  184k
[[/data/FinalProject]$ ls
stateABV.csv  usStates.csv
```

April 2020

SCRUBBING DATA

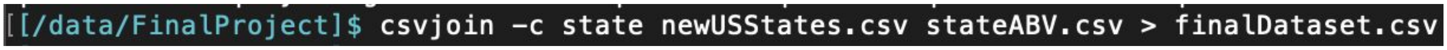
Technique 1: Deleting Uninteresting Columns

I removed the fips column as it has no use to me from the usStates.csv file.

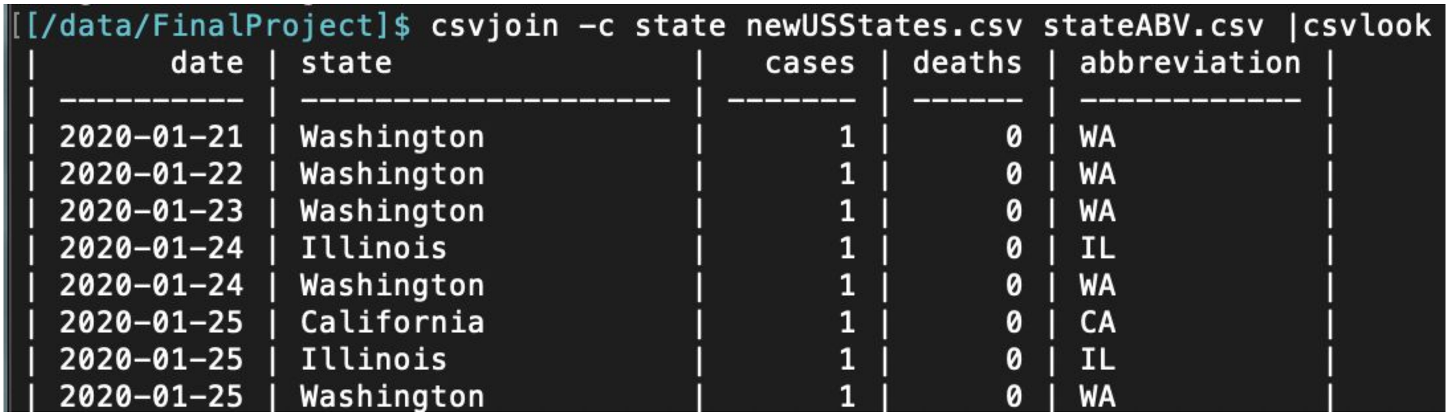


```
[[/data/FinalProject]$ csvcut -c date,state,cases,deaths usStates.csv > newUSStates.csv
[[/data/FinalProject]$ ls
newUSStates.csv  stateABV.csv  usStates.csv
```

Technique 2: Join Multiple CSV Files Horizontally on State Column



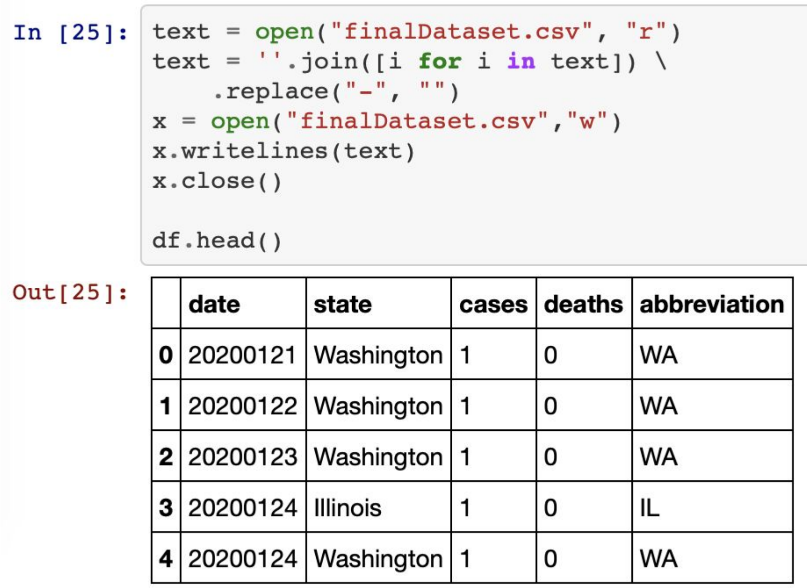
```
[[/data/FinalProject]$ csvjoin -c state newUSStates.csv stateABV.csv > finalDataset.csv
```



```
[[/data/FinalProject]$ csvjoin -c state newUSStates.csv stateABV.csv |csvlook
|       date | state                |    cases | deaths | abbreviation |
| ---------- | -------------------- | -------- | ------ | ------------ |
| 2020-01-21 | Washington           |        1 |      0 | WA           |
| 2020-01-22 | Washington           |        1 |      0 | WA           |
| 2020-01-23 | Washington           |        1 |      0 | WA           |
| 2020-01-24 | Illinois             |        1 |      0 | IL           |
| 2020-01-24 | Washington           |        1 |      0 | WA           |
| 2020-01-25 | California           |        1 |      0 | CA           |
| 2020-01-25 | Illinois             |        1 |      0 | IL           |
| 2020-01-25 | Washington           |        1 |      0 | WA           |
```

Technique 3: Remove all '-' from the date column

I did this inside of a Juypter notebook.



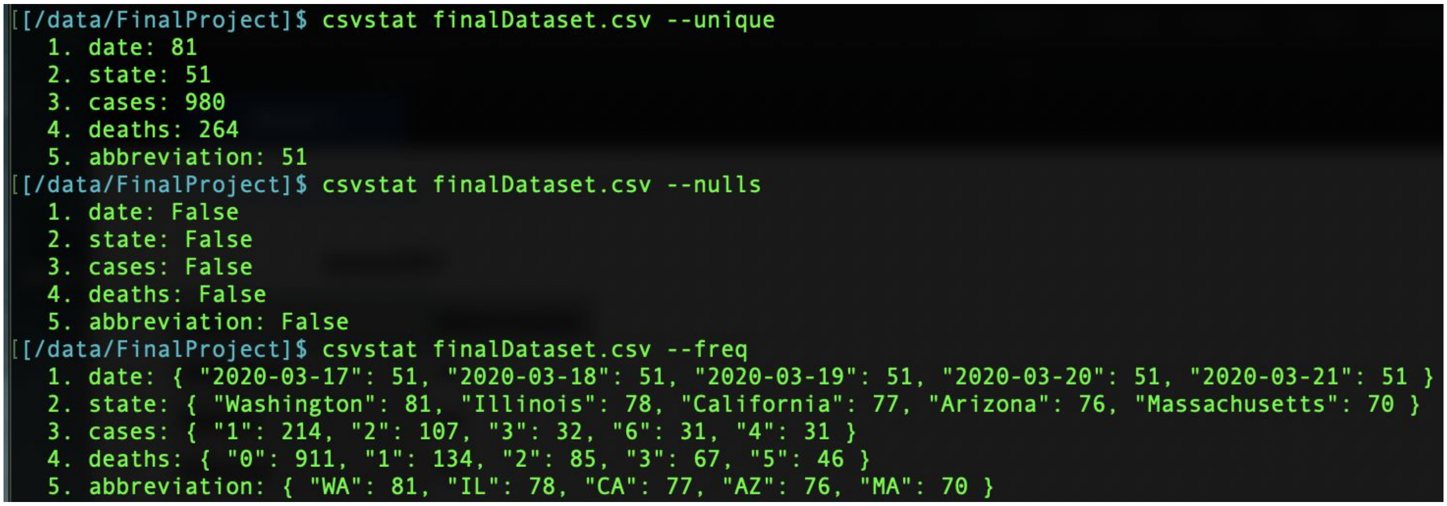
```
In [25]: text = open("finalDataset.csv", "r")
         text = ''.join([i for i in text]) \
             .replace("-", "")
         x = open("finalDataset.csv","w")
         x.writelines(text)
         x.close()

         df.head()
```

Out[25]:

	date	state	cases	deaths	abbreviation
0	20200121	Washington	1	0	WA
1	20200122	Washington	1	0	WA
2	20200123	Washington	1	0	WA
3	20200124	Illinois	1	0	IL
4	20200124	Washington	1	0	WA

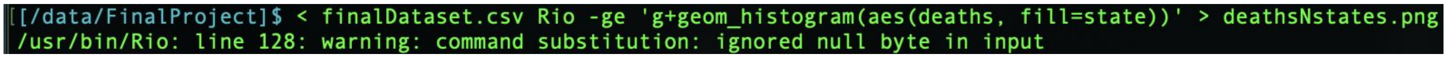
EXPLORING DATA

Technique 1: Derive statistics from the data by utilizing CSVSTAT

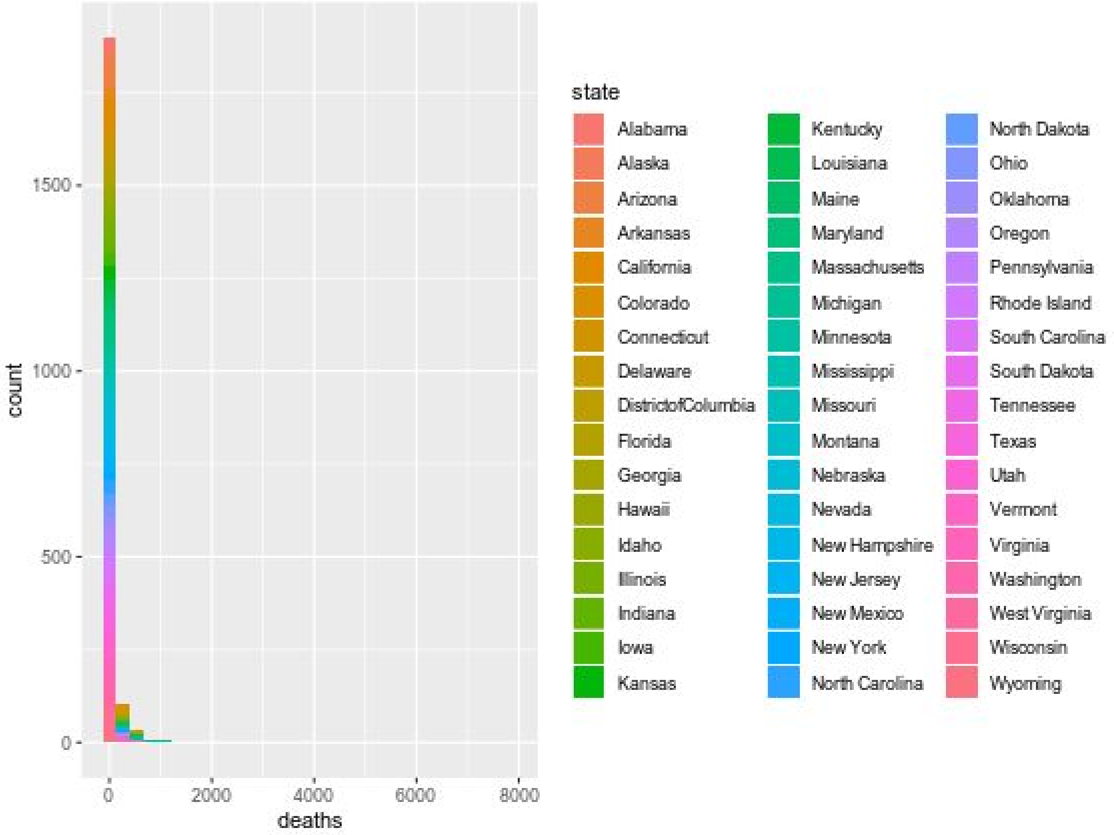


```
[[/data/FinalProject]$ csvstat finalDataset.csv --unique
  1. date: 81
  2. state: 51
  3. cases: 980
  4. deaths: 264
  5. abbreviation: 51
[[/data/FinalProject]$ csvstat finalDataset.csv --nulls
  1. date: False
  2. state: False
  3. cases: False
  4. deaths: False
  5. abbreviation: False
[[/data/FinalProject]$ csvstat finalDataset.csv --freq
  1. date: { "2020-03-17": 51, "2020-03-18": 51, "2020-03-19": 51, "2020-03-20": 51, "2020-03-21": 51 }
  2. state: { "Washington": 81, "Illinois": 78, "California": 77, "Arizona": 76, "Massachusetts": 70 }
  3. cases: { "1": 214, "2": 107, "3": 32, "6": 31, "4": 31 }
  4. deaths: { "0": 911, "1": 134, "2": 85, "3": 67, "5": 46 }
  5. abbreviation: { "WA": 81, "IL": 78, "CA": 77, "AZ": 76, "MA": 70 }
```

Technique 2: Create interesting visualization



```
[[/data/FinalProject]$ < finalDataset.csv Rio -ge 'g+geom_histogram(aes(deaths, fill=state))' > deathsNstates.png
/usr/bin/Rio: line 128: warning: command substitution: ignored null byte in input
```


count
deaths
state
Alabama
Alaska
Arizona
Arkansas
California
Colorado
Connecticut
Delaware
DistrictofColumbia
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
North Carolina
North Dakota
Ohio
Oklahoma
Oregon
Pennsylvania
Rhode Island
South Carolina
South Dakota
Tennessee
Texas
Utah
Vermont
Virginia
Washington
West Virginia
Wisconsin
Wyoming