

MiniProject

March 22, 2022

```
[ ]: import pandas as pd
import seaborn as sb
```

```
[ ]: #source = https://www.kaggle.com/sudalairajkumar/covid19-in-india?
↪select=covid_vaccine_statewise.csv
data = pd.read_csv('covid_vaccine_statewise.csv')
```

```
[ ]: data.head()
```

```
[ ]: Updated On  State  Total Doses Administered  Sessions  Sites  \
0  16/01/2021  India          48276.0        3455.0   2957.0
1  17/01/2021  India          58604.0        8532.0   4954.0
2  18/01/2021  India          99449.0       13611.0   6583.0
3  19/01/2021  India         195525.0       17855.0   7951.0
4  20/01/2021  India         251280.0       25472.0  10504.0
```

```
First Dose Administered  Second Dose Administered  \
0          48276.0          0.0
1          58604.0          0.0
2          99449.0          0.0
3         195525.0          0.0
4         251280.0          0.0
```

```
Male (Doses Administered)  Female (Doses Administered)  \
0                NaN                NaN
1                NaN                NaN
2                NaN                NaN
3                NaN                NaN
4                NaN                NaN
```

```
Transgender (Doses Administered)  ...  18-44 Years (Doses Administered)  \
0                NaN  ...                NaN
1                NaN  ...                NaN
2                NaN  ...                NaN
3                NaN  ...                NaN
4                NaN  ...                NaN
```

	45-60 Years (Doses Administered)	60+ Years (Doses Administered)	\
0	NaN	NaN	
1	NaN	NaN	
2	NaN	NaN	
3	NaN	NaN	
4	NaN	NaN	

	18-44 Years(Individuals Vaccinated)	45-60 Years(Individuals Vaccinated)	\
0	NaN	NaN	
1	NaN	NaN	
2	NaN	NaN	
3	NaN	NaN	
4	NaN	NaN	

	60+ Years(Individuals Vaccinated)	Male(Individuals Vaccinated)	\
0	NaN	23757.0	
1	NaN	27348.0	
2	NaN	41361.0	
3	NaN	81901.0	
4	NaN	98111.0	

	Female(Individuals Vaccinated)	Transgender(Individuals Vaccinated)	\
0	24517.0	2.0	
1	31252.0	4.0	
2	58083.0	5.0	
3	113613.0	11.0	
4	153145.0	24.0	

	Total Individuals Vaccinated
0	48276.0
1	58604.0
2	99449.0
3	195525.0
4	251280.0

[5 rows x 24 columns]

```
[ ]: data.describe()
```

```
[ ]:      Total Doses Administered      Sessions      Sites  \
count      7.621000e+03  7.621000e+03  7621.000000
mean      9.188171e+06  4.792358e+05  2282.872064
std      3.746180e+07  1.911511e+06  7275.973730
min      7.000000e+00  0.000000e+00   0.000000
25%      1.356570e+05  6.004000e+03   69.000000
50%      8.182020e+05  4.547000e+04   597.000000
75%      6.625243e+06  3.428690e+05  1708.000000
```

max	5.132284e+08	3.501031e+07	73933.000000
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	First Dose Administered	Second Dose Administered	\
count	7.621000e+03	7.621000e+03	
mean	7.414415e+06	1.773755e+06	
std	2.995209e+07	7.570382e+06	
min	7.000000e+00	0.000000e+00	
25%	1.166320e+05	1.283100e+04	
50%	6.614590e+05	1.388180e+05	
75%	5.387805e+06	1.166434e+06	
max	4.001504e+08	1.130780e+08	

	Male (Doses Administered)	Female (Doses Administered)	\
count	7.461000e+03	7.461000e+03	
mean	3.620156e+06	3.168416e+06	
std	1.737938e+07	1.515310e+07	
min	0.000000e+00	2.000000e+00	
25%	5.655500e+04	5.210700e+04	
50%	3.897850e+05	3.342380e+05	
75%	2.735777e+06	2.561513e+06	
max	2.701636e+08	2.395186e+08	

	Transgender (Doses Administered)	Covaxin (Doses Administered)	\
count	7461.000000	7.621000e+03	
mean	1162.978019	1.044669e+06	
std	5931.353995	4.452259e+06	
min	0.000000	0.000000e+00	
25%	8.000000	0.000000e+00	
50%	113.000000	1.185100e+04	
75%	800.000000	7.579300e+05	
max	98275.000000	6.236742e+07	

	CoviShield (Doses Administered)	...	18-44 Years (Doses Administered)	\
count	7.621000e+03	...	1.702000e+03	
mean	8.126553e+06	...	8.773958e+06	
std	3.298414e+07	...	2.660829e+07	
min	7.000000e+00	...	2.662400e+04	
25%	1.331340e+05	...	4.344842e+05	
50%	7.567360e+05	...	3.095970e+06	
75%	6.007817e+06	...	7.366241e+06	
max	4.468251e+08	...	2.243304e+08	

	45-60 Years (Doses Administered)	60+ Years (Doses Administered)	\
count	1.702000e+03	1.702000e+03	
mean	7.442161e+06	5.641605e+06	
std	2.225999e+07	1.681650e+07	
min	1.681500e+04	9.994000e+03	

25%	2.326275e+05	1.285605e+05
50%	2.695938e+06	1.805696e+06
75%	6.969726e+06	5.294763e+06
max	1.667575e+08	1.186927e+08

	18-44 Years(Individuals Vaccinated) \
count	3.733000e+03
mean	1.395895e+06
std	5.501454e+06
min	1.059000e+03
25%	5.655400e+04
50%	2.947270e+05
75%	9.105160e+05
max	9.224315e+07

	45-60 Years(Individuals Vaccinated)	60+ Years(Individuals Vaccinated) \
count	3.734000e+03	3.734000e+03
mean	2.916515e+06	2.627444e+06
std	9.567607e+06	8.192225e+06
min	1.136000e+03	5.580000e+02
25%	9.248225e+04	5.615975e+04
50%	8.330395e+05	7.887425e+05
75%	2.499280e+06	2.337874e+06
max	9.096888e+07	6.731098e+07

	Male(Individuals Vaccinated)	Female(Individuals Vaccinated) \
count	1.600000e+02	1.600000e+02
mean	4.461687e+07	3.951018e+07
std	3.950749e+07	3.417684e+07
min	2.375700e+04	2.451700e+04
25%	5.739350e+06	5.023407e+06
50%	3.716590e+07	3.365402e+07
75%	7.441663e+07	6.685368e+07
max	1.349420e+08	1.156684e+08

	Transgender(Individuals Vaccinated)	Total Individuals Vaccinated
count	160.000000	5.919000e+03
mean	12370.543750	4.547842e+06
std	12485.026753	1.834182e+07
min	2.000000	7.000000e+00
25%	1278.750000	7.427550e+04
50%	8007.500000	4.022880e+05
75%	19851.000000	3.501562e+06
max	46462.000000	2.506569e+08

[8 rows x 22 columns]

```
[ ]: data.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 7845 entries, 0 to 7844
Data columns (total 24 columns):
#   Column                                          Non-Null Count  Dtype
---  -
0   Updated On                                    7845 non-null   object
1   State                                          7845 non-null   object
2   Total Doses Administered                     7621 non-null   float64
3   Sessions                                     7621 non-null   float64
4   Sites                                         7621 non-null   float64
5   First Dose Administered                      7621 non-null   float64
6   Second Dose Administered                     7621 non-null   float64
7   Male (Doses Administered)                   7461 non-null   float64
8   Female (Doses Administered)                 7461 non-null   float64
9   Transgender (Doses Administered)            7461 non-null   float64
10  Covaxin (Doses Administered)                7621 non-null   float64
11  CoviShield (Doses Administered)             7621 non-null   float64
12  Sputnik V (Doses Administered)              2995 non-null   float64
13  AEFI                                          5438 non-null   float64
14  18-44 Years (Doses Administered)            1702 non-null   float64
15  45-60 Years (Doses Administered)            1702 non-null   float64
16  60+ Years (Doses Administered)              1702 non-null   float64
17  18-44 Years(Individuals Vaccinated)         3733 non-null   float64
18  45-60 Years(Individuals Vaccinated)         3734 non-null   float64
19  60+ Years(Individuals Vaccinated)           3734 non-null   float64
20  Male(Individuals Vaccinated)                 160 non-null    float64
21  Female(Individuals Vaccinated)               160 non-null    float64
22  Transgender(Individuals Vaccinated)          160 non-null    float64
23  Total Individuals Vaccinated                 5919 non-null   float64
dtypes: float64(22), object(2)
memory usage: 1.4+ MB
```

```
[ ]: data.groupby('State')['First Dose Administered'].sum()
```

```
[ ]: State
Andaman and Nicobar Islands    1.642585e+07
Andhra Pradesh                1.232861e+09
Arunachal Pradesh             4.900498e+07
Assam                         5.856002e+08
Bihar                         1.470503e+09
Chandigarh                    4.470310e+07
Chhattisgarh                  7.960029e+08
Dadra and Nagar Haveli and Daman and Diu  3.359506e+07
Delhi                         6.243395e+08
Goa                           7.599137e+07
```

Gujarat	2.131646e+09
Haryana	7.557984e+08
Himachal Pradesh	3.162940e+08
India	2.826214e+10
Jammu and Kashmir	4.101018e+08
Jharkhand	6.036737e+08
Karnataka	1.873330e+09
Kerala	1.193845e+09
Ladakh	1.780925e+07
Lakshadweep	4.363655e+06
Madhya Pradesh	1.796605e+09
Maharashtra	2.784364e+09
Manipur	6.740957e+07
Meghalaya	6.261597e+07
Mizoram	4.787308e+07
Nagaland	4.241077e+07
Odisha	1.032633e+09
Puducherry	4.134686e+07
Punjab	5.843466e+08
Rajasthan	2.201044e+09
Sikkim	3.698093e+07
Tamil Nadu	1.288533e+09
Telangana	8.803206e+08
Tripura	1.926897e+08
Uttar Pradesh	2.788411e+09
Uttarakhand	3.631914e+08
West Bengal	1.796450e+09

Name: First Dose Administered, dtype: float64

```
[ ]: data.groupby('State')['Second Dose Administered'].sum()
```

```
[ ]: State
```

Andaman and Nicobar Islands	4.118554e+06
Andhra Pradesh	3.588176e+08
Arunachal Pradesh	1.193232e+07
Assam	1.307888e+08
Bihar	2.707906e+08
Chandigarh	1.159374e+07
Chhattisgarh	1.721204e+08
Dadra and Nagar Haveli and Daman and Diu	4.594416e+06
Delhi	1.882189e+08
Goa	1.619817e+07
Gujarat	6.004184e+08
Haryana	1.586561e+08
Himachal Pradesh	7.383858e+07
India	6.759621e+09
Jammu and Kashmir	8.595165e+07

Jharkhand	1.221211e+08
Karnataka	4.271872e+08
Kerala	3.640488e+08
Ladakh	5.453762e+06
Lakshadweep	1.056446e+06
Madhya Pradesh	3.169330e+08
Maharashtra	7.128811e+08
Manipur	1.185815e+07
Meghalaya	1.216663e+07
Mizoram	9.998418e+06
Nagaland	9.204637e+06
Odisha	2.513028e+08
Puducherry	8.608859e+06
Punjab	1.211210e+08
Rajasthan	4.917030e+08
Sikkim	9.723640e+06
Tamil Nadu	2.906706e+08
Telangana	1.981529e+08
Tripura	6.527014e+07
Uttar Pradesh	5.544351e+08
Uttarakhand	1.000850e+08
West Bengal	5.861469e+08

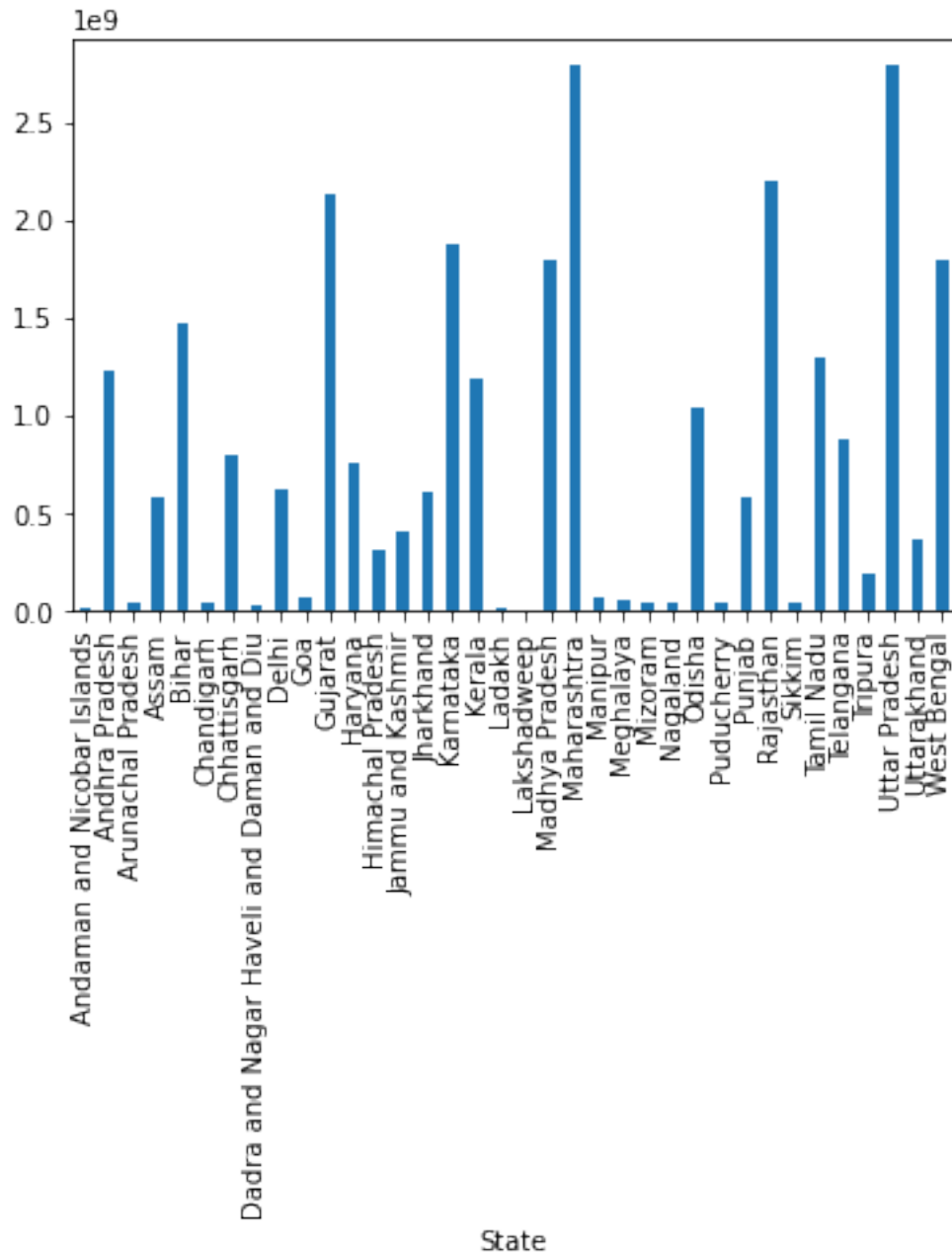
Name: Second Dose Administered, dtype: float64

```
[ ]: FirstDoseData = data.groupby('State')['First Dose Administered'].sum()
```

```
[ ]: FirstDoseData.drop('India', inplace=True)
```

```
[ ]: FirstDoseData.plot(kind='bar')
```

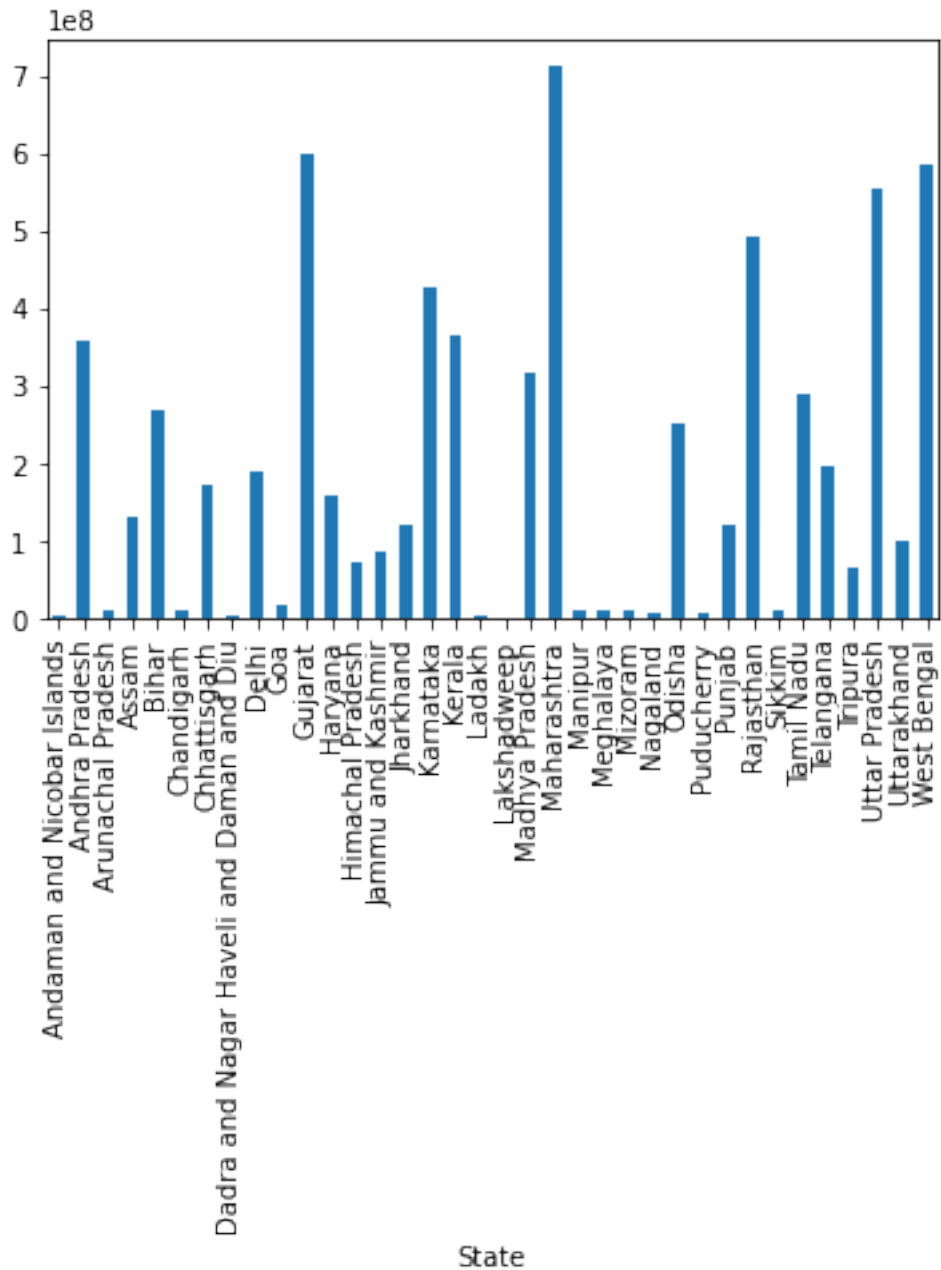
```
[ ]: <AxesSubplot:xlabel='State'>
```



```
[ ]: SecondDoseData = data.groupby('State')['Second Dose Administered'].sum()
```

```
[ ]: SecondDoseData.drop('India', inplace=True)
SecondDoseData.plot(kind='bar')
```

```
[ ]: <AxesSubplot:xlabel='State'>
```

```
[ ]: MalesVaccinated = data[['State', 'Male (Doses Administered)']].groupby('State').
    ↪sum()
```

```
[ ]: MalesVaccinated
```

```
[ ]:
State      Male (Doses Administered)
Andaman and Nicobar Islands      1.045375e+07
```

Andhra Pradesh	6.776694e+08
Arunachal Pradesh	3.061580e+07
Assam	3.557939e+08
Bihar	8.693946e+08
Chandigarh	2.920781e+07
Chhattisgarh	4.381651e+08
Dadra and Nagar Haveli and Daman and Diu	2.378859e+07
Delhi	4.239074e+08
Goa	4.484737e+07
Gujarat	1.326683e+09
Haryana	4.635441e+08
Himachal Pradesh	1.783223e+08
India	9.937298e+09
Jammu and Kashmir	2.712608e+08
Jharkhand	3.627754e+08
Karnataka	1.061167e+09
Kerala	6.668392e+08
Ladakh	1.142961e+07
Lakshadweep	2.762047e+06
Madhya Pradesh	1.088844e+09
Maharashtra	1.728077e+09
Manipur	4.128041e+07
Meghalaya	3.624802e+07
Mizoram	2.739356e+07
Nagaland	2.776194e+07
Odisha	6.252842e+08
Puducherry	2.348317e+07
Punjab	3.706496e+08
Rajasthan	1.297273e+09
Sikkim	2.308142e+07
Tamil Nadu	7.595978e+08
Telangana	5.185786e+08
Tripura	1.160976e+08
Uttar Pradesh	1.757450e+09
Uttarakhand	2.151377e+08
West Bengal	1.167820e+09

```
[ ]: FemalesVaccinated = data[['State', 'Female (Doses Administered)']].
    ↳groupby('State').sum()
```

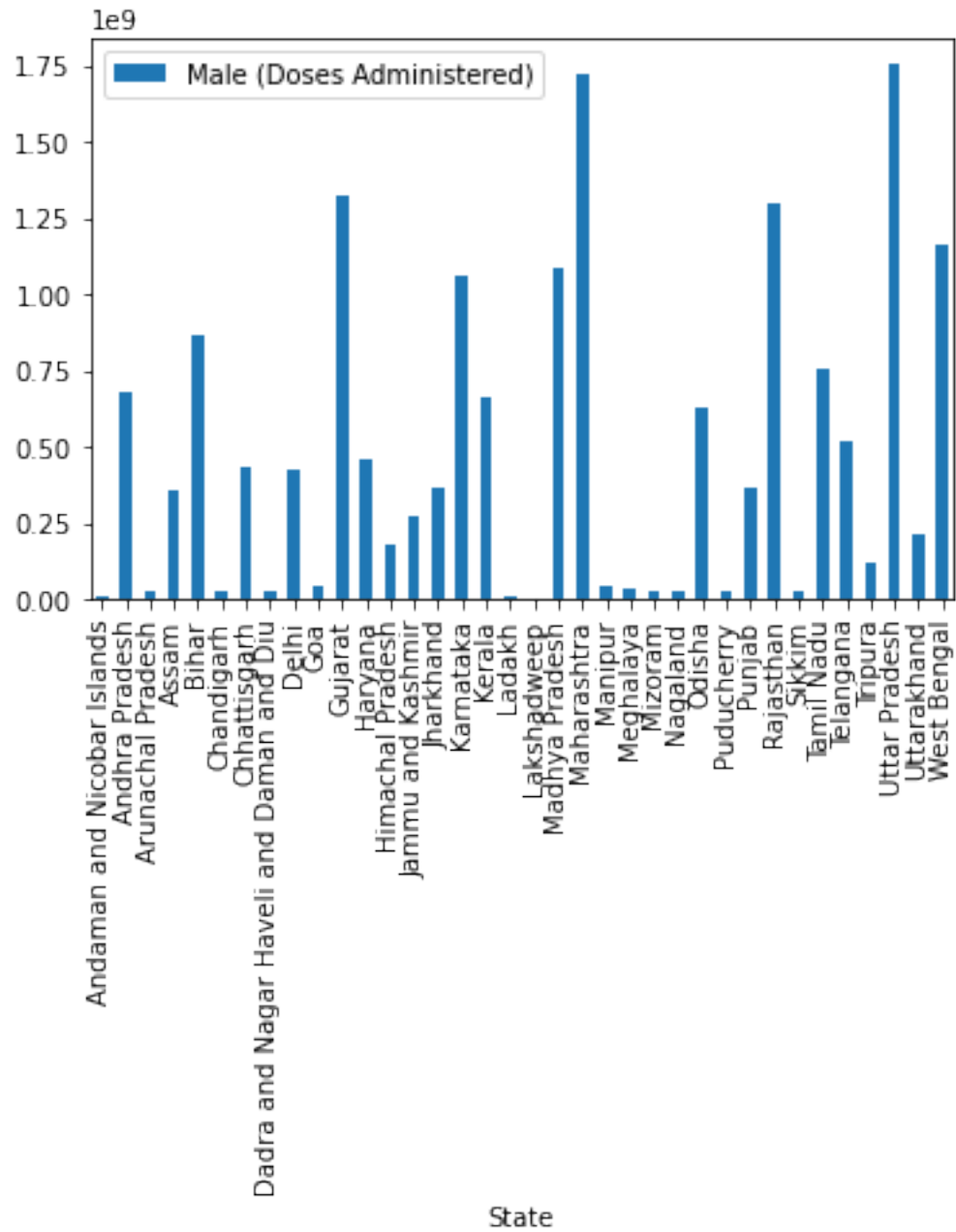
```
[ ]: FemalesVaccinated
```

```
[ ]:                                     Female (Doses Administered)
State
Andaman and Nicobar Islands            8.964974e+06
Andhra Pradesh                         7.550539e+08
Arunachal Pradesh                      2.463594e+07
```

Assam	3.035113e+08
Bihar	7.472145e+08
Chandigarh	2.216730e+07
Chhattisgarh	4.507674e+08
Dadra and Nagar Haveli and Daman and Diu	1.263831e+07
Delhi	3.051522e+08
Goa	4.060736e+07
Gujarat	1.127534e+09
Haryana	3.859696e+08
Himachal Pradesh	1.830803e+08
India	8.660417e+09
Jammu and Kashmir	1.857529e+08
Jharkhand	3.094526e+08
Karnataka	1.059022e+09
Kerala	7.480674e+08
Ladakh	9.239169e+06
Lakshadweep	2.179428e+06
Madhya Pradesh	8.958841e+08
Maharashtra	1.470241e+09
Manipur	3.228720e+07
Meghalaya	3.275265e+07
Mizoram	2.650217e+07
Nagaland	1.978228e+07
Odisha	5.523907e+08
Puducherry	2.321824e+07
Punjab	2.859032e+08
Rajasthan	1.171015e+09
Sikkim	1.954897e+07
Tamil Nadu	6.883262e+08
Telangana	4.795398e+08
Tripura	1.088415e+08
Uttar Pradesh	1.329731e+09
Uttarakhand	2.020295e+08
West Bengal	9.601327e+08

```
[ ]: MalesVaccinated.drop('India', inplace=True)
     MalesVaccinated.plot(kind='bar')
```

```
[ ]: <AxesSubplot:xlabel='State'>
```



```
[ ]: FemalesVaccinated.drop('India', inplace=True)
FemalesVaccinated.plot(kind='bar')
```

```
[ ]: <AxesSubplot:xlabel='State'>
```

