```
In [1]: #a. Describe the Dataset

        import pandas as pd
        data = pd.read_csv("C:/Users/APEKSHA  PRATIKSHA/Downloads/covid_vaccine_statewis
```

```
In [2]: print(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
None
```

```
In [3]: print(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


        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]
```

In [4]:
```python
#b. Number of Persons State-wise Vaccinated for First Dose in India

first_dose_vaccinated = data.groupby('State')['First Dose Administered'].sum()
print(first_dose_vaccinated)
```

```
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
```

In [5]:
```python
#c. Number of Persons State-wise Vaccinated for Second Dose in India

second_dose_vaccinated = data.groupby('State')['Second Dose Administered'].sum()
print(second_dose_vaccinated)
```

```
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
```

In [6]:
```python
#d. Number of Males Vaccinated

total_males_vaccinated = data['Male(Individuals Vaccinated)'].sum()
print(total_males_vaccinated)
```

```
7138698858.0
```

In [7]:
```python
#e. Number of Females Vaccinated

total_females_vaccinated = data['Female(Individuals Vaccinated)'].sum()
print(total_females_vaccinated)
```

```
6321628736.0
```

In [ ]: