

```
In [7]: import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
import seaborn as sns
import plotly.express as px
```

```
In [8]: covid_df=pd.read_csv("C:\\Users\\NAYAN DINKAR JAGTAP\\Desktop\\DSBDA MINI PROJECT\\archive\\covid_19_india.csv")
covid_df
```

```
Out[8]:
```

	Sno	Date	Time	State/UnionTerritory	ConfirmedIndianNational	ConfirmedForeignNational	Cured	Deaths	Confirmed
0	1	2020-01-30	6:00 PM	Kerala	1	0	0	0	1
1	2	2020-01-31	6:00 PM	Kerala	1	0	0	0	1
2	3	2020-02-01	6:00 PM	Kerala	2	0	0	0	2
3	4	2020-02-02	6:00 PM	Kerala	3	0	0	0	3
4	5	2020-02-03	6:00 PM	Kerala	3	0	0	0	3
...
18105	18106	2021-08-11	8:00 AM	Telangana	-	-	638410	3831	650353
18106	18107	2021-08-11	8:00 AM	Tripura	-	-	77811	773	80660
18107	18108	2021-08-11	8:00 AM	Uttarakhand	-	-	334650	7368	342462
18108	18109	2021-08-11	8:00 AM	Uttar Pradesh	-	-	1685492	22775	1708812
18109	18110	2021-08-11	8:00 AM	West Bengal	-	-	1506532	18252	1534999

18110 rows × 9 columns

```
In [9]: covid_df.head(10)
```

```
Out[9]:
```

	Sno	Date	Time	State/UnionTerritory	ConfirmedIndianNational	ConfirmedForeignNational	Cured	Deaths	Confirmed
0	1	2020-01-30	6:00 PM	Kerala	1	0	0	0	1

	Sno	Date	Time	State/UnionTerritory	ConfirmedIndianNational	ConfirmedForeignNational	Cured	Deaths	Confirmed
1	2	2020-01-31	6:00 PM	Kerala	1	0	0	0	1
2	3	2020-02-01	6:00 PM	Kerala	2	0	0	0	2
3	4	2020-02-02	6:00 PM	Kerala	3	0	0	0	3
4	5	2020-02-03	6:00 PM	Kerala	3	0	0	0	3
5	6	2020-02-04	6:00 PM	Kerala	3	0	0	0	3
6	7	2020-02-05	6:00 PM	Kerala	3	0	0	0	3
7	8	2020-02-06	6:00 PM	Kerala	3	0	0	0	3
8	9	2020-02-07	6:00 PM	Kerala	3	0	0	0	3
9	10	2020-02-08	6:00 PM	Kerala	3	0	0	0	3

In [10]: `covid_df.info()`

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 18110 entries, 0 to 18109
Data columns (total 9 columns):
#   Column                                Non-Null Count  Dtype
---  -
0   Sno                                    18110 non-null  int64
1   Date                                    18110 non-null  object
2   Time                                    18110 non-null  object
3   State/UnionTerritory                  18110 non-null  object
4   ConfirmedIndianNational               18110 non-null  object
5   ConfirmedForeignNational              18110 non-null  object
6   Cured                                 18110 non-null  int64
7   Deaths                                18110 non-null  int64
8   Confirmed                             18110 non-null  int64
dtypes: int64(4), object(5)
memory usage: 1.2+ MB
```

In [11]: `covid_df.describe()`

```
Out[11]:
```

	Sno	Cured	Deaths	Confirmed
count	18110.000000	1.811000e+04	18110.000000	1.811000e+04

	Sno	Cured	Deaths	Confirmed
mean	9055.500000	2.786375e+05	4052.402264	3.010314e+05
std	5228.051023	6.148909e+05	10919.076411	6.561489e+05
min	1.000000	0.000000e+00	0.000000	0.000000e+00
25%	4528.250000	3.360250e+03	32.000000	4.376750e+03
50%	9055.500000	3.336400e+04	588.000000	3.977350e+04
75%	13582.750000	2.788698e+05	3643.750000	3.001498e+05
max	18110.000000	6.159676e+06	134201.000000	6.363442e+06

In [12]: `vaccine_df=pd.read_csv("C:\\Users\\NAYAN DINKAR JAGTAP\\Desktop\\DSBDA MINI PROJECT\\archive\\covid_vaccine_statewise.csv")`
`vaccine_df`

Out[12]:

	Updated On	State	Total Doses Administered	Sessions	Sites	First Dose Administered	Second Dose Administered	Male (Doses Administered)	Female (Doses Administered)	Transgender (Doses Administered)	...	18-44 Years (Doses Administered)
0	16/01/2021	India	48276.0	3455.0	2957.0	48276.0	0.0	NaN	NaN	NaN	...	NaN
1	17/01/2021	India	58604.0	8532.0	4954.0	58604.0	0.0	NaN	NaN	NaN	...	NaN
2	18/01/2021	India	99449.0	13611.0	6583.0	99449.0	0.0	NaN	NaN	NaN	...	NaN
3	19/01/2021	India	195525.0	17855.0	7951.0	195525.0	0.0	NaN	NaN	NaN	...	NaN
4	20/01/2021	India	251280.0	25472.0	10504.0	251280.0	0.0	NaN	NaN	NaN	...	NaN
...
7840	11/08/2021	West Bengal	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	...	NaN
7841	12/08/2021	West Bengal	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	...	NaN
7842	13/08/2021	West Bengal	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	...	NaN

	Updated On	State	Total Doses Administered	Sessions	Sites	First Dose Administered	Second Dose Administered	Male (Doses Administered)	Female (Doses Administered)	Transgender (Doses Administered)	...	18-44 Years (Doses Administered)
7843	14/08/2021	West Bengal	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	...	NaN
7844	15/08/2021	West Bengal	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	...	NaN

7845 rows × 24 columns

◀		▶
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In [13]:

vaccine_df.head(10)

Out[13]:

	Updated On	State	Total Doses Administered	Sessions	Sites	First Dose Administered	Second Dose Administered	Male (Doses Administered)	Female (Doses Administered)	Transgender (Doses Administered)	...	18-44 Years (Doses Administered)	45 Adm
0	16/01/2021	India	48276.0	3455.0	2957.0	48276.0	0.0	NaN	NaN	NaN	...	NaN	
1	17/01/2021	India	58604.0	8532.0	4954.0	58604.0	0.0	NaN	NaN	NaN	...	NaN	
2	18/01/2021	India	99449.0	13611.0	6583.0	99449.0	0.0	NaN	NaN	NaN	...	NaN	
3	19/01/2021	India	195525.0	17855.0	7951.0	195525.0	0.0	NaN	NaN	NaN	...	NaN	
4	20/01/2021	India	251280.0	25472.0	10504.0	251280.0	0.0	NaN	NaN	NaN	...	NaN	
5	21/01/2021	India	365965.0	32226.0	12600.0	365965.0	0.0	NaN	NaN	NaN	...	NaN	
6	22/01/2021	India	549381.0	36988.0	14115.0	549381.0	0.0	NaN	NaN	NaN	...	NaN	
7	23/01/2021	India	759008.0	43076.0	15605.0	759008.0	0.0	NaN	NaN	NaN	...	NaN	
8	24/01/2021	India	835058.0	49851.0	18111.0	835058.0	0.0	NaN	NaN	NaN	...	NaN	
9	25/01/2021	India	1277104.0	55151.0	19682.0	1277104.0	0.0	NaN	NaN	NaN	...	NaN	

10 rows × 24 columns

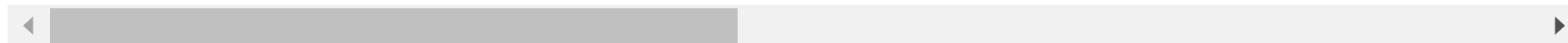
◀		▶
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In [14]: `vaccine_df.describe()`

Out[14]:

	Total Doses Administered	Sessions	Sites	First Dose Administered	Second Dose Administered	Male (Doses Administered)	Female (Doses Administered)	Transgender (Doses Administered)	Covaxin (Doses Administered)	CoviShield (Doses Administered)
count	7.621000e+03	7.621000e+03	7621.000000	7.621000e+03	7.621000e+03	7.461000e+03	7.461000e+03	7461.000000	7.621000e+03	7.621000e+03
mean	9.188171e+06	4.792358e+05	2282.872064	7.414415e+06	1.773755e+06	3.620156e+06	3.168416e+06	1162.978019	1.044669e+06	8.126553e+06
std	3.746180e+07	1.911511e+06	7275.973730	2.995209e+07	7.570382e+06	1.737938e+07	1.515310e+07	5931.353995	4.452259e+06	3.298414e+07
min	7.000000e+00	0.000000e+00	0.000000	7.000000e+00	0.000000e+00	0.000000e+00	2.000000e+00	0.000000	0.000000e+00	7.000000e+00
25%	1.356570e+05	6.004000e+03	69.000000	1.166320e+05	1.283100e+04	5.655500e+04	5.210700e+04	8.000000	0.000000e+00	1.331340e+05
50%	8.182020e+05	4.547000e+04	597.000000	6.614590e+05	1.388180e+05	3.897850e+05	3.342380e+05	113.000000	1.185100e+04	7.567360e+05
75%	6.625243e+06	3.428690e+05	1708.000000	5.387805e+06	1.166434e+06	2.735777e+06	2.561513e+06	800.000000	7.579300e+05	6.007817e+06
max	5.132284e+08	3.501031e+07	73933.000000	4.001504e+08	1.130780e+08	2.701636e+08	2.395186e+08	98275.000000	6.236742e+07	4.468251e+08

8 rows × 22 columns



In [15]: `vaccine_df.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

```
In [16]: vaccine_df.columns
```

```

Out[16]: Index(['Updated On', 'State', 'Total Doses Administered', 'Sessions',
               'Sites ', 'First Dose Administered', 'Second Dose Administered',
               'Male (Doses Administered)', 'Female (Doses Administered)',
               'Transgender (Doses Administered)', 'Covaxin (Doses Administered)',
               'CoviShield (Doses Administered)', 'Sputnik V (Doses Administered)',
               'AEFI', '18-44 Years (Doses Administered)',
               '45-60 Years (Doses Administered)', '60+ Years (Doses Administered)',
               '18-44 Years(Individuals Vaccinated)',
               '45-60 Years(Individuals Vaccinated)',
               '60+ Years(Individuals Vaccinated)', 'Male(Individuals Vaccinated)',
               'Female(Individuals Vaccinated)', 'Transgender(Individuals Vaccinated)',
               'Total Individuals Vaccinated'],
              dtype='object')

```

```
In [17]: vaccine_df[['State', 'First Dose Administered']]
```

```

Out[17]:
   State  First Dose Administered
0  India          48276.0
1  India          58604.0
2  India          99449.0
3  India         195525.0
4  India         251280.0

```

	State	First Dose Administered
...
7840	West Bengal	NaN
7841	West Bengal	NaN
7842	West Bengal	NaN
7843	West Bengal	NaN
7844	West Bengal	NaN

7845 rows × 2 columns

In [18]: `vaccine_df[['State', 'Second Dose Administered']]`

Out[18]:

	State	Second Dose Administered
0	India	0.0
1	India	0.0
2	India	0.0
3	India	0.0
4	India	0.0
...
7840	West Bengal	NaN
7841	West Bengal	NaN
7842	West Bengal	NaN
7843	West Bengal	NaN
7844	West Bengal	NaN

7845 rows × 2 columns

```
In [19]: df2 = vaccine_df.groupby(['State']).sum()
df2['First Dose Administered']
```

```
Out[19]: 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 [20]: df2 = vaccine_df.groupby(['State']).sum()
df2['Second Dose Administered']
```



```
Out[20]: 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 [22]: male=vaccination["Male(Individuals Vaccinated)"].sum()
print(male)
```

```
7138698858.0
```

```
In [23]:
```

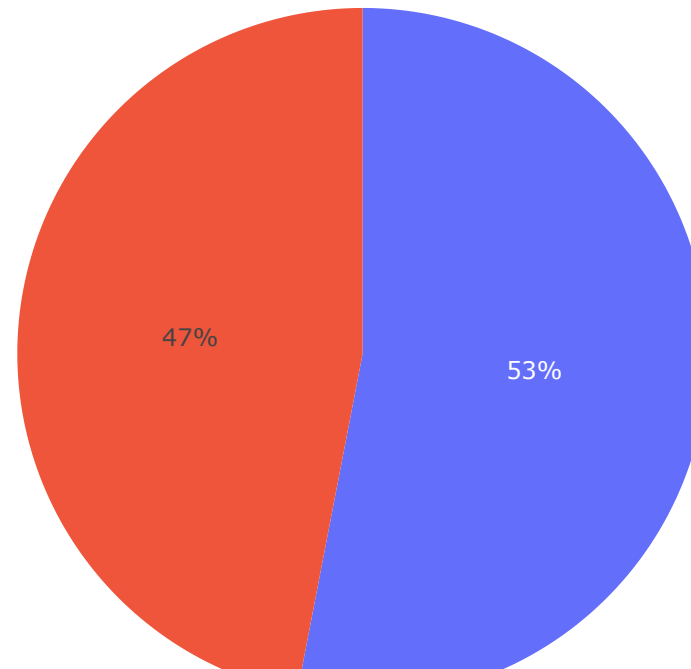
```
female=vaccination["Female(Individuals Vaccinated)"].sum()  
print(female)
```

6321628736.0

In [24]:

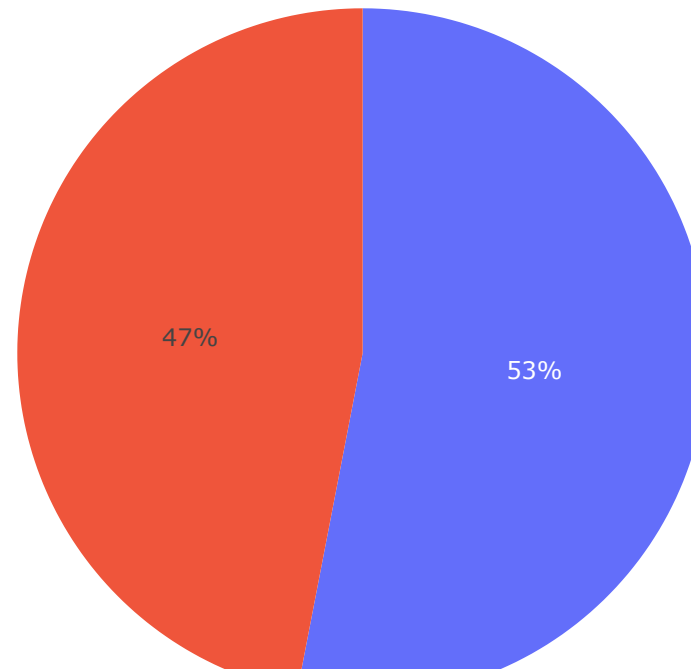
```
male=vaccination["Male(Individuals Vaccinated)"].sum()  
female=vaccination["Female(Individuals Vaccinated)"].sum()  
px.pie(names=["Male", "Female"], values=[male, female], title="Male and Female Vaccination")
```

Male and Female Vaccination



```
In [25]: male=vaccination["Male(Individuals Vaccinated)"].sum()  
female=vaccination["Female(Individuals Vaccinated)"].sum()  
px.pie(names=["Male", "Female"], values=[male, female], title="Male and Female Vaccination" )
```

Male and Female Vaccination



```
In [ ]:
```