REPORT

ON MACHINE LEARNING PROJECT:

‘Covid-19 Vaccination’

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OVERVIEW:

- This Project “Covid-19 Vaccination” is a Machine Learning made using Python Code is a simple Code designed for Tracking Covid-19 Vaccination progress.
- India began Administration of COVID-19 Vaccines on 16 January 2021(145 days ago). As of 9 June 2021, India has Administered 242,726,693 dose overall, Including First and Second dose of the Currently-Approved vaccines.

GOAL:

- Total Individuals Vaccinated
- First Dose Administered & Second Dose Administered
- Male (Individuals Vaccinated) & Female (IndividualsVaccinated)
- Total Covaxin Administered
- Total CoviShield Administered
- Vaccinated For 18-45 years (Age),45-60 years (Age),60+ years (Age)
- Total Doses Administered

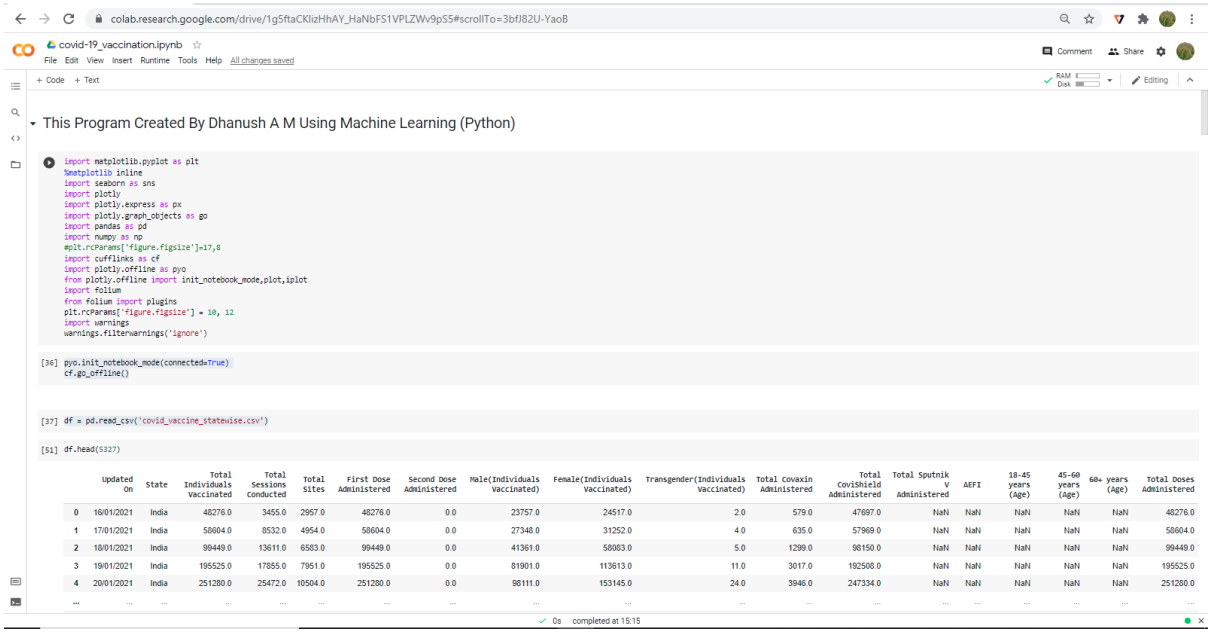
SPECIFICATIONS:

- This Python Code Provide details about the Covid-19 Vaccination Report in India. We display Some more Graph to Display Vaccination Progress.

Resource:

- GoogleColab this we are using Python as a Source code

SOURCE CODE WITH OUTPUT:



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covid-19_vaccination.ipynb

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This Program Created By Dhanush A M Using Machine Learning (Python)

```
import matplotlib.pyplot as plt
%matplotlib inline
import seaborn as sns
import plotly
import plotly.express as px
import plotly.graph_objects as go
import pandas as pd
import numpy as np
#plt.rcParams['figure.figsize']=17,8
import cufflinks as cf
import plotly.offline as pyo
from plotly.offline import init_notebook_mode,plot,iplot
import folium
from folium import plugins
plt.rcParams['figure.figsize'] = 10, 12
import warnings
warnings.filterwarnings('ignore')
```

[36]
```
pyo.init_notebook_mode(connected=True)
cf.go_offline()
```

[37]
```
df = pd.read_csv('covid_vaccine_statewise.csv')
```

[51]
```
df.head(5327)
```

	Updated On	State	Total Individuals Vaccinated	Total Sessions Conducted	Total Sites	First Dose Administered	Second Dose Administered	Male(Individuals Vaccinated)	Female(Individuals Vaccinated)	Transgender(Individuals Vaccinated)	Total Covaxin Administered	Total CoviShield Administered	Total Sputnik V Administered	AEFI	18-45 years (Age)	45-60 years (Age)	60+ years (Age)	Total Doses Administered
0	16/01/2021	India	48276.0	3455.0	2957.0	48276.0	0.0	23757.0	24517.0	2.0	579.0	47697.0	NaN	NaN	NaN	NaN	NaN	48276.0
1	17/01/2021	India	58604.0	8532.0	4954.0	58604.0	0.0	27348.0	31252.0	4.0	635.0	57969.0	NaN	NaN	NaN	NaN	NaN	58604.0
2	18/01/2021	India	99449.0	13611.0	6583.0	99449.0	0.0	41361.0	58083.0	5.0	1299.0	98150.0	NaN	NaN	NaN	NaN	NaN	99449.0
3	19/01/2021	India	195525.0	17855.0	7951.0	195525.0	0.0	81901.0	113613.0	11.0	3017.0	192508.0	NaN	NaN	NaN	NaN	NaN	195525.0
4	20/01/2021	India	251280.0	25472.0	10504.0	251280.0	0.0	98111.0	153145.0	24.0	3946.0	247334.0	NaN	NaN	NaN	NaN	NaN	251280.0
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...

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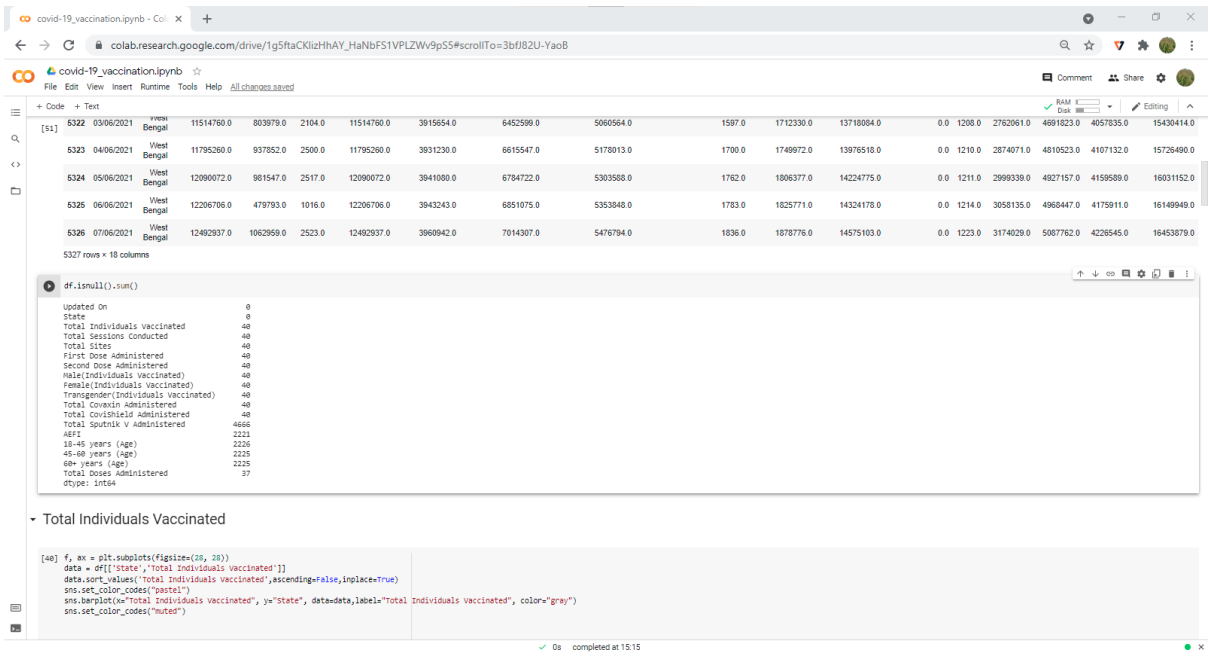

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covid-19_vaccination.ipynb

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[51]

5322	03/06/2021	West Bengal	11514760.0	803979.0	2104.0	11514760.0	3915654.0	6452599.0	5060564.0	1597.0	1712330.0	13718084.0	0.0	1208.0	2762061.0	4691823.0	4057835.0	15430414.0
5323	04/06/2021	West Bengal	11795260.0	937852.0	2500.0	11795260.0	3931230.0	6615547.0	5178013.0	1700.0	1749972.0	13976518.0	0.0	1210.0	2874071.0	4810523.0	4107132.0	15726490.0
5324	05/06/2021	West Bengal	12090072.0	981547.0	2517.0	12090072.0	3941080.0	6784722.0	5303588.0	1762.0	1806377.0	14224775.0	0.0	1211.0	2999339.0	4927157.0	4159589.0	16031152.0
5325	06/06/2021	West Bengal	12206706.0	479793.0	1016.0	12206706.0	3943243.0	6851075.0	5353848.0	1783.0	1825771.0	14324178.0	0.0	1214.0	3058135.0	4968447.0	4175911.0	16149949.0
5326	07/06/2021	West Bengal	12492937.0	1062959.0	2523.0	12492937.0	3960942.0	7014307.0	5476794.0	1836.0	1878776.0	14575103.0	0.0	1223.0	3174029.0	5087762.0	4226545.0	16453879.0

5327 rows × 18 columns

```
df.isnull().sum()
```

```
Updated On                          0
State                               0
Total Individuals Vaccinated       40
Total Sessions Conducted           40
Total Sites                        40
First Dose Administered            40
Second Dose Administered           40
Male(Individuals Vaccinated)       40
Female(Individuals Vaccinated)     40
Transgender(Individuals Vaccinated) 40
Total Covaxin Administered         40
Total CoviShield Administered      40
Total Sputnik V Administered     4666
AEFI                             2221
18-45 years (Age)                2226
45-60 years (Age)                2225
60+ years (Age)                  2225
Total Doses Administered           37
dtype: int64
```

Total Individuals Vaccinated

[40]
```
f, ax = plt.subplots(figsize=(28, 28))
data = df[['State','Total Individuals Vaccinated']]
data.sort_values('Total Individuals Vaccinated',ascending=False,inplace=True)
sns.set_color_codes("pastel")
sns.barplot(x="Total Individuals Vaccinated", y="State", data=data,label="Total Individuals Vaccinated", color="gray")
sns.set_color_codes("muted")
```

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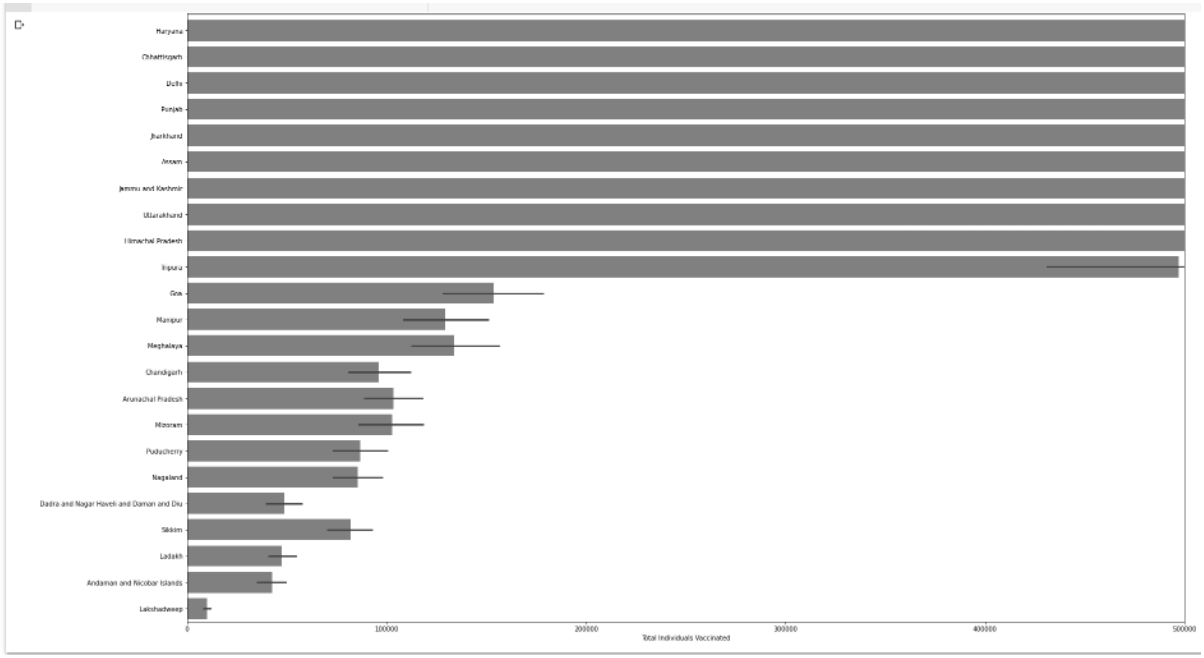
Total Individuals Vaccinated

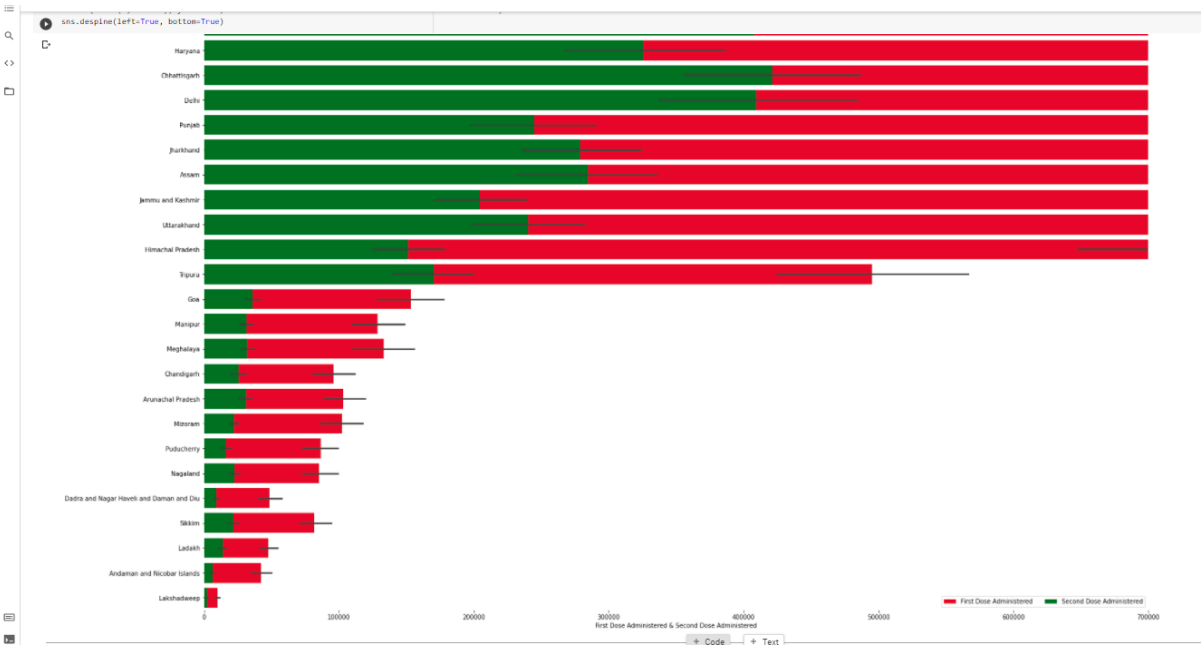
```
f, ax = plt.subplots(figsize=(28, 28))
data = df[['State','Total Individuals Vaccinated']]
data.sort_values('Total Individuals Vaccinated',ascending=False,inplace=True)
sns.set_color_codes("pastel")
sns.barplot(x="Total Individuals Vaccinated", y="State", data=data,label="Total Individuals Vaccinated", color="gray")
sns.set_color_codes("muted")

ax.set(xlim=(0, 500000), ylabel="",xlabel="Total Individuals Vaccinated")
```



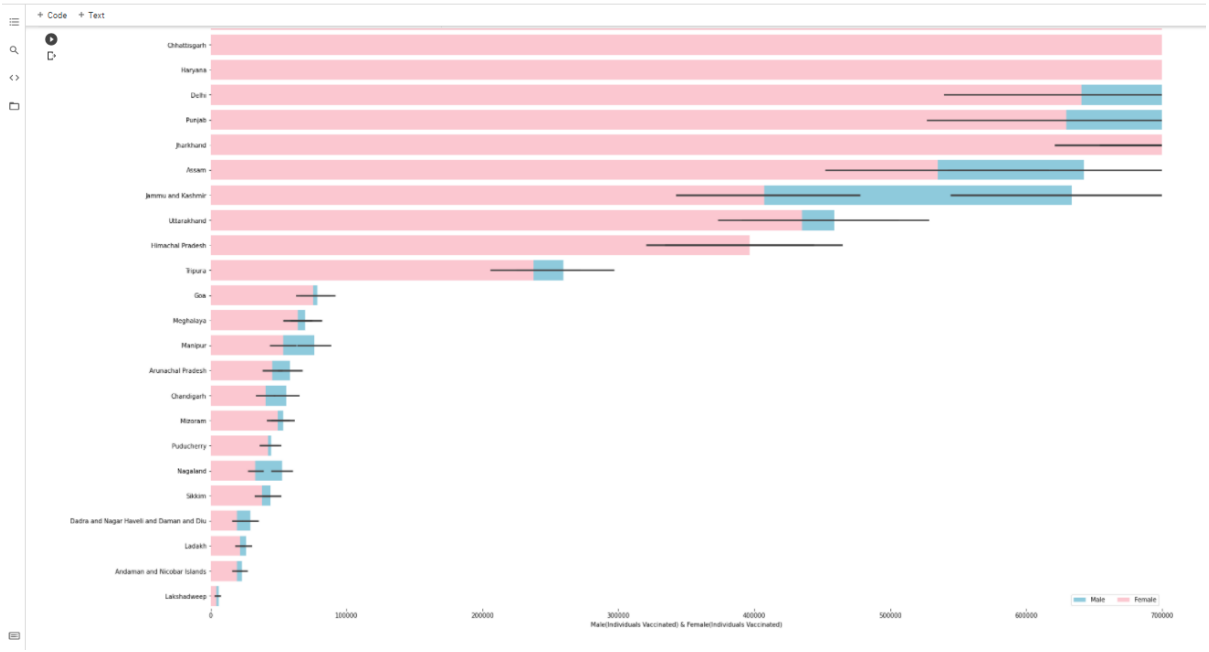
First Dose Administered & Second Dose Administered

```
[ ]  f, ax = plt.subplots(figsize=(28, 28))
     data = df[['State','First Dose Administered','Second Dose Administered']]
     data.sort_values('First Dose Administered',ascending=False,inplace=True)
     sns.set_color_codes("pastel")
     sns.barplot(x="First Dose Administered", y="State", data=data,label="First Dose Administered", color="red")
     sns.set_color_codes("muted")
     sns.barplot(x="Second Dose Administered", y="State", data=data, label="Second Dose Administered", color="green")
     ax.legend(ncol=2, loc="lower right", frameon=True)
     ax.set(xlim=(0, 700000), ylabel="",xlabel="First Dose Administered & Second Dose Administered")
     sns.despine(left=True, bottom=True)
```



Male(Individuals Vaccinated) & Female(Individuals Vaccinated)

```
f, ax = plt.subplots(figsize=(28, 28))
data = df[['State','Male(Individuals Vaccinated)','Female(Individuals Vaccinated)']]
data.sort_values('Female(Individuals Vaccinated)',ascending=False,inplace=True)
sns.set_color_codes("pastel")
sns.barplot(x="Male(Individuals Vaccinated)", y="State", data=data,label="Male", color="skyblue")
sns.set_color_codes("muted")
sns.barplot(x="Female(Individuals Vaccinated)", y="State", data=data, label="Female", color="pink")
ax.legend(ncol=2, loc="lower right", frameon=True)
ax.set(xlim=(0, 700000), ylabel="",xlabel="Male(Individuals Vaccinated) & Female(Individuals Vaccinated)")
sns.despine(left=True, bottom=True)
```



Total Covaxin Administered

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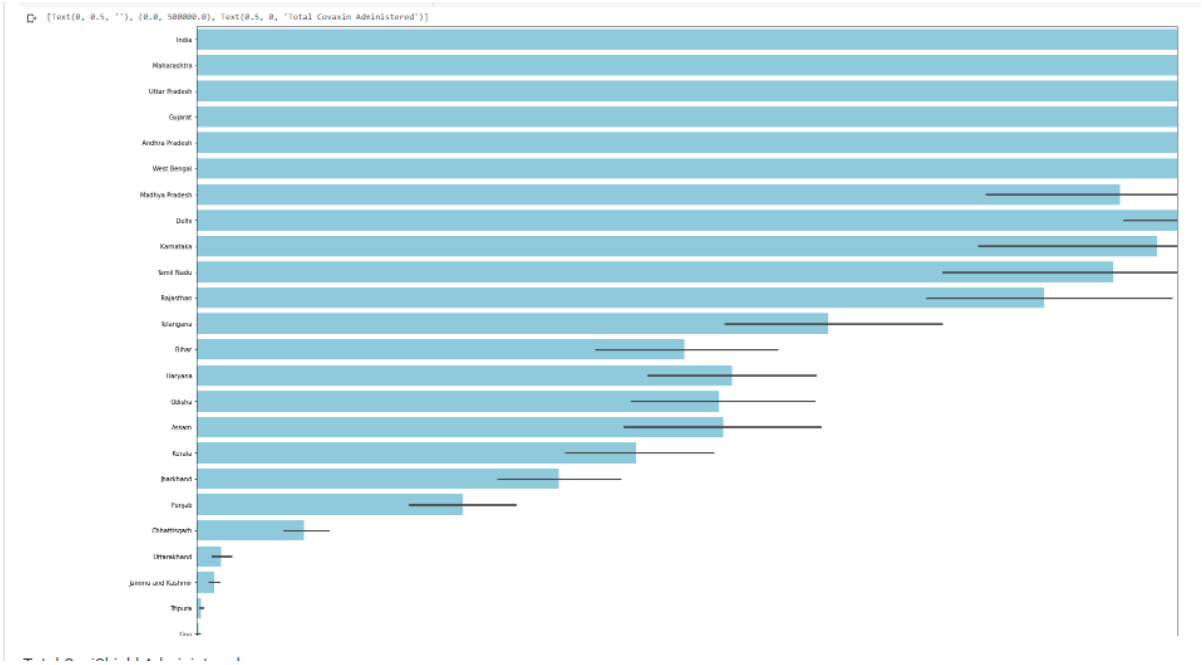
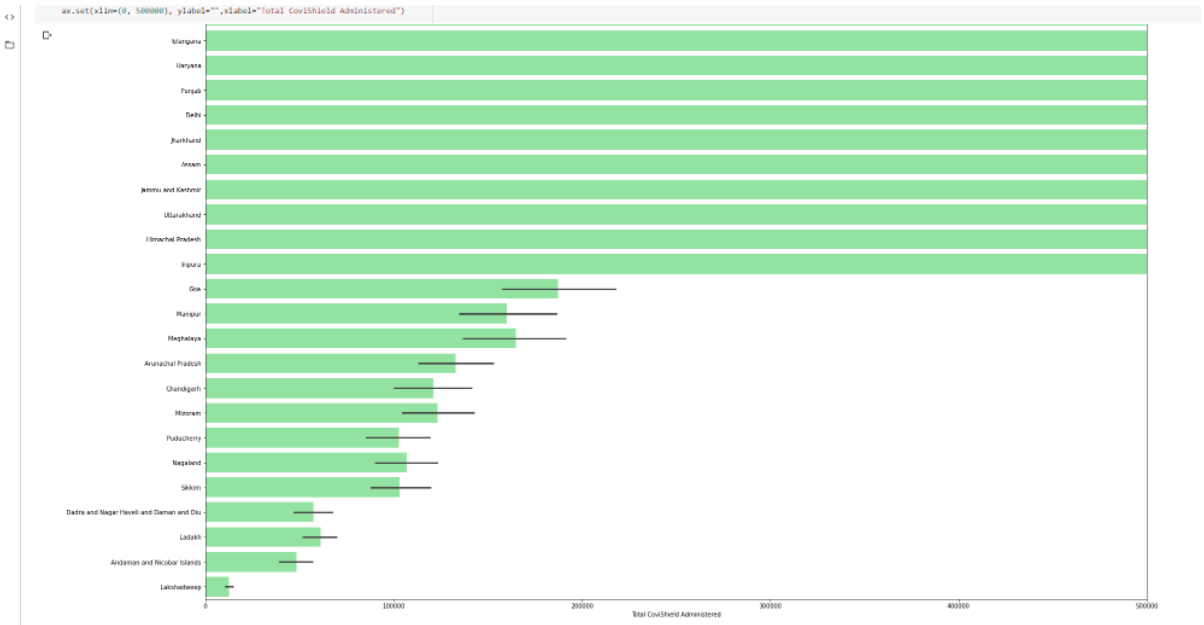
```
[ ]  f, ax = plt.subplots(figsize=(28, 28))
     data = df[['State','Total Covaxin Administered']]
     data.sort_values('Total Covaxin Administered',ascending=False,inplace=True)
     sns.set_color_codes("pastel")
     sns.barplot(x="Total Covaxin Administered", y="State", data=data,label="Total Covaxin Administered", color="skyblue")
     sns.set_color_codes("muted")

     ax.set(xlim=(0, 500000), ylabel="",xlabel="Total Covaxin Administered")
```



Total CoviShield Administered

```
f, ax = plt.subplots(figsize=(28, 28))
data = df[['State','Total CoviShield Administered']]
data.sort_values('Total CoviShield Administered',ascending=False,inplace=True)
sns.set_color_codes("pastel")
sns.barplot(x="Total CoviShield Administered", y="State", data=data,label="Total CoviShield Administered", color="lightgreen")
sns.set_color_codes("muted")

ax.set(xlim=(0, 500000), ylabel="",xlabel="Total CoviShield Administered")
```



Vaccinated For 18-45 years (Age),45-60 years (Age),60+ years (Age)

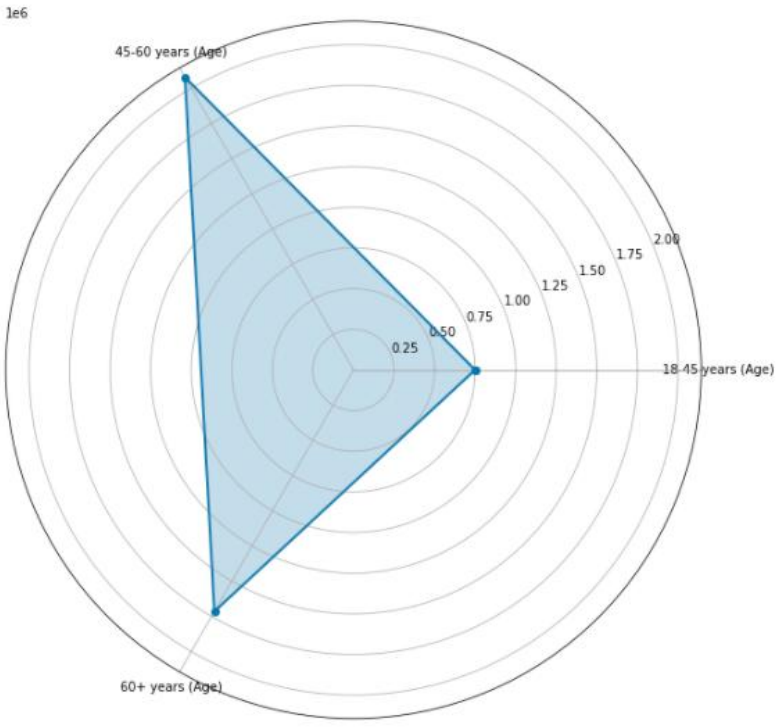
```
[ ] labels=np.array(['18-45 years (Age)', '45-60 years (Age)', '60+ years (Age)'])
    stats=df.loc[386,labels].values
```

```
[ ] angles=np.linspace(0, 2*np.pi, len(labels), endpoint=False)
    stats=np.concatenate((stats,[stats[0]]))
    angles=np.concatenate((angles,[angles[0]]))
```

```
[ ]
```

```
fig=plt.figure()
ax = fig.add_subplot(111, polar=True)
ax.plot(angles, stats, 'o-', linewidth=2)
ax.fill(angles, stats, alpha=0.25)
ax.set_thetagrids(angles * 180/np.pi, labels)

ax.grid(True)
```

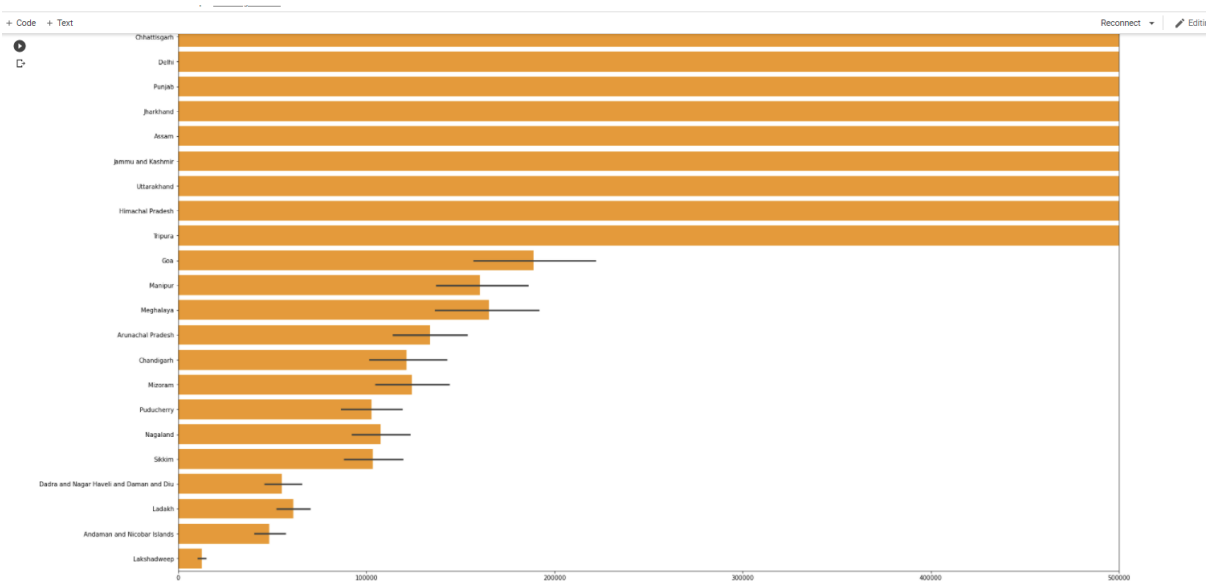
```
ax.grid(True)
```



18-45 years (Age) 45-60 years (Age) 60+ years (Age)

Total Doses Administered

```
f, ax = plt.subplots(figsize=(28, 28))
data = df[['State','Total Doses Administered']]
data.sort_values('Total Doses Administered',ascending=False,inplace=True)
sns.set_color_codes("pastel")
sns.barplot(x="Total Doses Administered", y="State", data=data,label="Total Doses Administered", color="orange")
sns.set_color_codes("muted")

ax.set(xlim=(0, 500000), ylabel="",xlabel="Total Doses Administered")
```



SOURCE CODE:

This Git hub project will be created on 10th June with the Help of 11th June Data so The Updated is not present in the Project. I tried to add live data in the Python Code but its very difficult to me so I added the present data of the coding time.

GIT HUB: https://github.com/DhanushAM/Covid-19_Vaccination.git

REFERENCES:

- https://geographicinsights.iq.harvard.edu/IndiaVaccine
- https://www.kaggle.com/monalisapanda94/covid-20-second-wave-details-and-vaccination
- https://en.wikipedia.org/wiki/COVID-19_vaccination_in_India