covidvaccineprediction

April 11, 2024

[1]:
```
!pip install kaggle
```

```
Requirement already satisfied: kaggle in /usr/local/lib/python3.10/dist-packages
(1.5.16)
Requirement already satisfied: six>=1.10 in /usr/local/lib/python3.10/dist-
packages (from kaggle) (1.16.0)
Requirement already satisfied: certifi in /usr/local/lib/python3.10/dist-
packages (from kaggle) (2024.2.2)
Requirement already satisfied: python-dateutil in
/usr/local/lib/python3.10/dist-packages (from kaggle) (2.8.2)
Requirement already satisfied: requests in /usr/local/lib/python3.10/dist-
packages (from kaggle) (2.31.0)
Requirement already satisfied: tqdm in /usr/local/lib/python3.10/dist-packages
(from kaggle) (4.66.2)
Requirement already satisfied: python-slugify in /usr/local/lib/python3.10/dist-
packages (from kaggle) (8.0.4)
Requirement already satisfied: urllib3 in /usr/local/lib/python3.10/dist-
packages (from kaggle) (2.0.7)
Requirement already satisfied: bleach in /usr/local/lib/python3.10/dist-packages
(from kaggle) (6.1.0)
Requirement already satisfied: webencodings in /usr/local/lib/python3.10/dist-
packages (from bleach->kaggle) (0.5.1)
Requirement already satisfied: text-unidecode>=1.3 in
/usr/local/lib/python3.10/dist-packages (from python-slugify->kaggle) (1.3)
Requirement already satisfied: charset-normalizer<4,>=2 in
/usr/local/lib/python3.10/dist-packages (from requests->kaggle) (3.3.2)
Requirement already satisfied: idna<4,>=2.5 in /usr/local/lib/python3.10/dist-
packages (from requests->kaggle) (3.6)
```

[2]:
```
!mkdir -p ~/.kaggle
!cp kaggle.json ~/.kaggle/
!chmod 600 ~/.kaggle/kaggle.json
```

[4]:
```
!kaggle datasets download -d sudalairajkumar/covid19-in-india
```

```
Downloading covid19-in-india.zip to /content
100% 758k/758k [00:00<00:00, 1.19MB/s]
100% 758k/758k [00:00<00:00, 1.19MB/s]
```

[6]:
```
from zipfile import ZipFile
dataset = '/content/covid19-in-india.zip'
with ZipFile(dataset, 'r') as zip:
  zip.extractall()
  print("The dataset is extracted")
```

```
The dataset is extracted
```

[8]:
```
import pandas as pd
df = pd.read_csv("/content/covid_vaccine_statewise.csv")
print(df.dtypes)
```

```
Updated On                              object
State                                   object
Total Doses Administered               float64
Sessions                               float64
 Sites                                 float64
First Dose Administered                float64
Second Dose Administered               float64
Male (Doses Administered)              float64
Female (Doses Administered)            float64
Transgender (Doses Administered)       float64
 Covaxin (Doses Administered)          float64
CoviShield (Doses Administered)        float64
Sputnik V (Doses Administered)         float64
AEFI                                   float64
18-44 Years (Doses Administered)       float64
45-60 Years (Doses Administered)       float64
60+ Years (Doses Administered)         float64
18-44 Years(Individuals Vaccinated)    float64
45-60 Years(Individuals Vaccinated)    float64
60+ Years(Individuals Vaccinated)      float64
Male(Individuals Vaccinated)           float64
Female(Individuals Vaccinated)         float64
Transgender(Individuals Vaccinated)    float64
Total Individuals Vaccinated           float64
dtype: object
```

[9]:
```
df.describe()
```

[9]:

	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]

[10]:
```
df[df["State"]=="India"]
```

[10]:

```
     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
..          …    …                         …        …       …
207  11/08/2021  India                       NaN       NaN      NaN
208  12/08/2021  India                       NaN       NaN      NaN
209  13/08/2021  India                       NaN       NaN      NaN
210  14/08/2021  India                       NaN       NaN      NaN
211  15/08/2021  India                       NaN       NaN      NaN

     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
..                       …                       …
207                     NaN                       NaN
208                     NaN                       NaN
209                     NaN                       NaN
210                     NaN                       NaN
211                     NaN                       NaN

     Male (Doses Administered)  Female (Doses Administered)  \
0                          NaN                         NaN
1                          NaN                         NaN
2                          NaN                         NaN
3                          NaN                         NaN
4                          NaN                         NaN
..                         …                           …
207                        NaN                         NaN
208                        NaN                         NaN
209                        NaN                         NaN
210                        NaN                         NaN
211                        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
```

```
..                                  …  …                                  …
207                                 NaN  …                                NaN
208                                 NaN  …                                NaN
209                                 NaN  …                                NaN
210                                 NaN  …                                NaN
211                                 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
..                                  …                               …
207                                 NaN                             NaN
208                                 NaN                             NaN
209                                 NaN                             NaN
210                                 NaN                             NaN
211                                 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
..                                   …                                    …
207                                  NaN                                  NaN
208                                  NaN                                  NaN
209                                  NaN                                  NaN
210                                  NaN                                  NaN
211                                  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
..                                 …                           …
207                                NaN                         NaN
208                                NaN                         NaN
209                                NaN                         NaN
210                                NaN                         NaN
211                                NaN                         NaN

     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
..                                 …                                   …
207                               NaN                                   NaN
208                               NaN                                   NaN
209                               NaN                                   NaN
210                               NaN                                   NaN
211                               NaN                                   NaN

     Total Individuals Vaccinated
0                          48276.0
1                          58604.0
2                          99449.0
3                         195525.0
4                         251280.0
..                             …
207                           NaN
208                           NaN
209                           NaN
210                           NaN
211                           NaN

[212 rows x 24 columns]
```

[11]:
```
import numpy as np
states = np.unique(df["State"])
mh = df[df["State"]=="Maharashtra"]
print(mh["First Dose Administered"].sum())
```

```
2784364331.0
```

[13]:
```
for state in states:
  temp = df[df["State"] == state]
  print(state, " --> ", temp["First Dose Administered"].sum())
```

```
Andaman and Nicobar Islands  -->  16425854.0
Andhra Pradesh  -->  1232860845.0
Arunachal Pradesh  -->  49004980.0
Assam  -->  585600226.0
Bihar  -->  1470502878.0
Chandigarh  -->  44703105.0
Chhattisgarh  -->  796002902.0
Dadra and Nagar Haveli and Daman and Diu  -->  33595063.0
Delhi  -->  624339473.0
Goa  -->  75991368.0
```

```
Gujarat  -->  2131646009.0
Haryana  -->  755798352.0
Himachal Pradesh  -->  316294004.0
India  -->  28262144791.0
Jammu and Kashmir  -->  410101777.0
Jharkhand  -->  603673726.0
Karnataka  -->  1873329968.0
Kerala  -->  1193845072.0
Ladakh  -->  17809249.0
Lakshadweep  -->  4363655.0
Madhya Pradesh  -->  1796604591.0
Maharashtra  -->  2784364331.0
Manipur  -->  67409568.0
Meghalaya  -->  62615974.0
Mizoram  -->  47873077.0
Nagaland  -->  42410766.0
Odisha  -->  1032633168.0
Puducherry  -->  41346858.0
Punjab  -->  584346582.0
Rajasthan  -->  2201044187.0
Sikkim  -->  36980929.0
Tamil Nadu  -->  1288532512.0
Telangana  -->  880320645.0
Tripura  -->  192689726.0
Uttar Pradesh  -->  2788411358.0
Uttarakhand  -->  363191446.0
West Bengal  -->  1796449989.0
```

[14]:
```
first_dose = df[df["Updated On"] == "09/08/2021"]
```

[15]:
```
first_dose[["State", "First Dose Administered"]]
```

[15]:

	State	First Dose Administered
205	India	400150406.0
417	Andaman and Nicobar Islands	216046.0
629	Andhra Pradesh	17628583.0
841	Arunachal Pradesh	692475.0
1053	Assam	10495293.0
1265	Bihar	23350171.0
1477	Chandigarh	700285.0
1689	Chhattisgarh	9181482.0
1901	Dadra and Nagar Haveli and Daman and Diu	584370.0
2113	Delhi	7835546.0
2326	Goa	1094392.0
2538	Gujarat	28101222.0
2750	Haryana	10086831.0
2962	Himachal Pradesh	4249849.0

```
3174                          Jammu and Kashmir                5318516.0
3386                                  Jharkhand                8382280.0
3598                                  Karnataka               25847691.0
3810                                     Kerala               15670747.0
4022                                     Ladakh                 188699.0
4234                                Lakshadweep                  51156.0
4446                             Madhya Pradesh               29723036.0
4658                                Maharashtra               35040812.0
4870                                    Manipur                1159424.0
5082                                  Meghalaya                 938572.0
5294                                    Mizoram                 654946.0
5506                                   Nagaland                 632120.0
5718                                     Odisha               13954592.0
5930                                 Puducherry                 601591.0
6142                                     Punjab                8005636.0
6354                                  Rajasthan               27008606.0
6566                                     Sikkim                 497851.0
6778                                  Tamil Nadu               20836674.0
6990                                  Telangana               11649268.0
7202                                    Tripura                2411195.0
7414                                Uttar Pradesh              45932488.0
7626                                  Uttarakhand                5070544.0
7838                                  West Bengal               23257417.0
```

[17]:
```
first_dose = df[(df["Updated On"] == "09/08/2021") & (df["State"] != "India")]
```

[18]:
```
x = first_dose[["State", "First Dose Administered"]]
x.to_csv("FirstDoseIndia.csv", index=False)
```

[23]:
```
Second_dose=df[(df['Updated On' ]=='09/08/2021') &(df['State'] != 'India')]
x=Second_dose[['State','Second Dose Administered' ]]
x.to_csv('SecondDoseIndia.csv',index=False)
```

[24]:
```
df2 = pd.read_csv("SecondDoseIndia.csv")
df2
```

[24]:

	State	Second Dose Administered
0	Andaman and Nicobar Islands	94597.0
1	Andhra Pradesh	6214312.0
2	Arunachal Pradesh	186619.0
3	Assam	2208577.0
4	Bihar	4484768.0
5	Chandigarh	223534.0
6	Chhattisgarh	2587695.0
7	Dadra and Nagar Haveli and Daman and Diu	80851.0
8	Delhi	3000536.0
9	Goa	302519.0

10	Gujarat	9051153.0
11	Haryana	2923550.0
12	Himachal Pradesh	1382592.0
13	Jammu and Kashmir	1489826.0
14	Jharkhand	1996014.0
15	Karnataka	7432852.0
16	Kerala	6426984.0
17	Ladakh	70337.0
18	Lakshadweep	17139.0
19	Madhya Pradesh	5733640.0
20	Maharashtra	12112554.0
21	Manipur	246694.0
22	Meghalaya	231982.0
23	Mizoram	206773.0
24	Nagaland	159388.0
25	Odisha	4200094.0
26	Puducherry	151771.0
27	Punjab	2285629.0
28	Rajasthan	8375056.0
29	Sikkim	151538.0
30	Tamil Nadu	4686034.0
31	Telangana	3965624.0
32	Tripura	804099.0
33	Uttar Pradesh	8515236.0
34	Uttarakhand	1596572.0
35	West Bengal	9132961.0

[25]:
```
males=df['Male(Individuals Vaccinated)']
print(males.max())
```

```
134941971.0
```

[26]:
```
females = df['Female(Individuals Vaccinated)']
females.max()
```

[26]:
```
115668447.0
```

[ ]:
```

```