Python 3.11.0 (main, Oct 24 2022, 18:26:48) [MSC v.1933 64 bit (AMD64)]  
Type 'copyright', 'credits' or 'license' for more information  
IPython 8.12.0 -- An enhanced Interactive Python. Type '?' for help.

In [ ]:

import pandas as pd

import numpy as np

import matplotlib.pyplot as plt

import seaborn as sns

import plotly.express as px

from plotly.subplots import make\_subplots

from datetime import datetime

In [ ]:

import numpy as np

import matplotlib.pyplot as plt

import seaborn as sns

import plotly.express as px

from plotly.subplots import make\_subplots

from datetime import datetime

In [ ]:

covid\_df = pd.read\_excel('C:/Users/HP/Desktop/Paul Unilag Project/Nigeria Covid-19 Data Analysis Project/Nigeria Covid-19 Data Analysis Project\_Statewise.xlsx')

In [ ]:

covid\_df.head(37)

Out[ ]:

|  | **ID** | **DATE** | **ISO\_3** | **COUNTRY** | **ID\_COUNTRY** | **STATE** | **ID\_STATE** | **INFECTED** | **DEAD** | **HEALED** | **INFECTED\_NON\_SPECIFIC\_GENDER** | **SOURCE** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **0** | 1 | 2/27/2020 - 2/2/2022 | NGA | Nigéria | 15 | Abia | 170 | 2152 | 34 | 2112 | 1254 | Nigeria Centre for Disease Control |
| **1** | 2 | 2/27/2020 - 2/2/2022 | NGA | Nigéria | 15 | Adamawa | 171 | 1203 | 32 | 1103 | 955 | Nigeria Centre for Disease Control |
| **2** | 3 | 2/27/2020 - 2/2/2022 | NGA | Nigéria | 15 | Akwa Ibom | 172 | 4625 | 44 | 4494 | 4330 | Nigeria Centre for Disease Control |
| **3** | 4 | 2/27/2020 - 2/2/2022 | NGA | Nigéria | 15 | Anambra | 173 | 2743 | 19 | 2678 | 2468 | Nigeria Centre for Disease Control |
| **4** | 5 | 2/27/2020 - 2/2/2022 | NGA | Nigéria | 15 | Bauchi | 174 | 1936 | 24 | 1878 | 1226 | Nigeria Centre for Disease Control |
| **5** | 6 | 2/27/2020 - 2/2/2022 | NGA | Nigéria | 15 | Bayelsa | 175 | 1305 | 28 | 1277 | 902 | Nigeria Centre for Disease Control |
| **6** | 7 | 2/27/2020 - 2/2/2022 | NGA | Nigéria | 15 | Benue | 176 | 2129 | 25 | 1764 | 1645 | Nigeria Centre for Disease Control |
| **7** | 8 | 2/27/2020 - 2/2/2022 | NGA | Nigéria | 15 | Borno | 177 | 1629 | 44 | 1580 | 884 | Nigeria Centre for Disease Control |
| **8** | 9 | 2/27/2020 - 2/2/2022 | NGA | Nigéria | 15 | Cross River | 178 | 778 | 25 | 746 | 691 | Nigeria Centre for Disease Control |
| **9** | 10 | 2/27/2020 - 2/2/2022 | NGA | Nigéria | 15 | Delta | 179 | 5328 | 111 | 5170 | 3516 | Nigeria Centre for Disease Control |
| **10** | 11 | 2/27/2020 - 2/2/2022 | NGA | Nigéria | 15 | Ebonyi | 180 | 2064 | 32 | 2004 | 1015 | Nigeria Centre for Disease Control |
| **11** | 12 | 2/27/2020 - 2/2/2022 | NGA | Nigéria | 15 | Edo | 181 | 7672 | 320 | 7335 | 5029 | Nigeria Centre for Disease Control |
| **12** | 13 | 2/27/2020 - 2/2/2022 | NGA | Nigéria | 15 | Ekiti | 182 | 1978 | 28 | 1919 | 1650 | Nigeria Centre for Disease Control |
| **13** | 14 | 2/27/2020 - 2/2/2022 | NGA | Nigéria | 15 | Enugu | 183 | 2952 | 29 | 2910 | 1639 | Nigeria Centre for Disease Control |
| **14** | 15 | 2/27/2020 - 2/2/2022 | NGA | Nigéria | 15 | Federal Capital Territory | 184 | 28187 | 247 | 27405 | 22277 | Nigeria Centre for Disease Control |
| **15** | 16 | 2/27/2020 - 2/2/2022 | NGA | Nigéria | 15 | Gombe | 185 | 3270 | 64 | 3103 | 2387 | Nigeria Centre for Disease Control |
| **16** | 17 | 2/27/2020 - 2/2/2022 | NGA | Nigéria | 15 | Imo | 186 | 2442 | 58 | 2268 | 1853 | Nigeria Centre for Disease Control |
| **17** | 18 | 2/27/2020 - 2/2/2022 | NGA | Nigéria | 15 | Jigawa | 187 | 664 | 18 | 642 | 339 | Nigeria Centre for Disease Control |
| **18** | 19 | 2/27/2020 - 2/2/2022 | NGA | Nigéria | 15 | Kaduna | 188 | 11185 | 89 | 11073 | 8635 | Nigeria Centre for Disease Control |
| **19** | 20 | 2/27/2020 - 2/2/2022 | NGA | Nigéria | 15 | Kano | 189 | 4919 | 126 | 4726 | 3178 | Nigeria Centre for Disease Control |
| **20** | 21 | 2/27/2020 - 2/2/2022 | NGA | Nigéria | 15 | Katsina | 190 | 2399 | 37 | 2339 | 1497 | Nigeria Centre for Disease Control |
| **21** | 22 | 2/27/2020 - 2/2/2022 | NGA | Nigéria | 15 | Kebbi | 191 | 480 | 16 | 454 | 387 | Nigeria Centre for Disease Control |
| **22** | 23 | 2/27/2020 - 2/2/2022 | NGA | Nigéria | 15 | Kogi | 192 | 5 | 2 | 3 | 0 | Nigeria Centre for Disease Control |
| **23** | 24 | 2/27/2020 - 2/2/2022 | NGA | Nigéria | 15 | Kwara | 193 | 4541 | 64 | 4175 | 3491 | Nigeria Centre for Disease Control |
| **24** | 25 | 2/27/2020 - 2/2/2022 | NGA | Nigéria | 15 | Lagos | 194 | 98366 | 769 | 80066 | 77821 | Nigeria Centre for Disease Control |
| **25** | 26 | 2/27/2020 - 2/2/2022 | NGA | Nigéria | 15 | Nasarawa | 195 | 2703 | 39 | 2345 | 2227 | Nigeria Centre for Disease Control |
| **26** | 27 | 2/27/2020 - 2/2/2022 | NGA | Nigéria | 15 | Niger | 196 | 1142 | 20 | 998 | 869 | Nigeria Centre for Disease Control |
| **27** | 28 | 2/27/2020 - 2/2/2022 | NGA | Nigéria | 15 | Ogun | 197 | 5798 | 82 | 5705 | 3820 | Nigeria Centre for Disease Control |
| **28** | 29 | 2/27/2020 - 2/2/2022 | NGA | Nigéria | 15 | Ondo | 199 | 5143 | 107 | 4673 | 3489 | Nigeria Centre for Disease Control |
| **29** | 30 | 2/27/2020 - 2/2/2022 | NGA | Nigéria | 15 | Osun | 198 | 3276 | 92 | 3127 | 2368 | Nigeria Centre for Disease Control |
| **30** | 31 | 2/27/2020 - 2/2/2022 | NGA | Nigéria | 15 | Oyo | 200 | 10196 | 201 | 9634 | 6787 | Nigeria Centre for Disease Control |
| **31** | 32 | 2/27/2020 - 2/2/2022 | NGA | Nigéria | 15 | Plateau | 201 | 0 | 75 | 10149 | 6647 | Nigeria Centre for Disease Control |
| **32** | 33 | 2/27/2020 - 2/2/2022 | NGA | Nigéria | 15 | Rivers | 202 | 16422 | 154 | 16148 | 13726 | Nigeria Centre for Disease Control |
| **33** | 34 | 2/27/2020 - 2/2/2022 | NGA | Nigéria | 15 | Sokoto | 203 | 811 | 28 | 783 | 649 | Nigeria Centre for Disease Control |
| **34** | 35 | 2/27/2020 - 2/2/2022 | NGA | Nigéria | 15 | Taraba | 204 | 1469 | 34 | 1377 | 1352 | Nigeria Centre for Disease Control |
| **35** | 36 | 2/27/2020 - 2/2/2022 | NGA | Nigéria | 15 | Yobe | 205 | 509 | 9 | 490 | 430 | Nigeria Centre for Disease Control |
| **36** | 37 | 2/27/2020 - 2/2/2022 | NGA | Nigéria | 15 | Zamfara | 206 | 375 | 9 | 366 | 296 | Nigeria Centre for Disease Control |

In [ ]:

covid\_df.info()

<class 'pandas.core.frame.DataFrame'>

RangeIndex: 37 entries, 0 to 36

Data columns (total 12 columns):

# Column Non-Null Count Dtype

--- ------ -------------- -----

0 ID 37 non-null int64

1 DATE 37 non-null object

2 ISO\_3 37 non-null object

3 COUNTRY 37 non-null object

4 ID\_COUNTRY 37 non-null int64

5 STATE 37 non-null object

6 ID\_STATE 37 non-null int64

7 INFECTED 37 non-null int64

8 DEAD 37 non-null int64

9 HEALED 37 non-null int64

10 INFECTED\_NON\_SPECIFIC\_GENDER 37 non-null int64

11 SOURCE 37 non-null object

dtypes: int64(7), object(5)

memory usage: 3.6+ KB

In [ ]:

covid\_df.describe()

Out[ ]:

|  | **ID** | **ID\_COUNTRY** | **ID\_STATE** | **INFECTED** | **DEAD** | **HEALED** | **INFECTED\_NON\_SPECIFIC\_GENDER** |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **count** | 37.000000 | 37.0 | 37.000000 | 37.000000 | 37.000000 | 37.000000 | 37.000000 |
| **mean** | 19.000000 | 15.0 | 188.000000 | 6562.054054 | 84.729730 | 6189.702703 | 5181.864865 |
| **std** | 10.824355 | 0.0 | 10.824355 | 16396.795180 | 134.458099 | 13538.481038 | 12978.938739 |
| **min** | 1.000000 | 15.0 | 170.000000 | 0.000000 | 2.000000 | 3.000000 | 0.000000 |
| **25%** | 10.000000 | 15.0 | 179.000000 | 1203.000000 | 25.000000 | 1277.000000 | 902.000000 |
| **50%** | 19.000000 | 15.0 | 188.000000 | 2399.000000 | 37.000000 | 2339.000000 | 1650.000000 |
| **75%** | 28.000000 | 15.0 | 197.000000 | 4919.000000 | 89.000000 | 4726.000000 | 3516.000000 |
| **max** | 37.000000 | 15.0 | 206.000000 | 98366.000000 | 769.000000 | 80066.000000 | 77821.000000 |

In [ ]:

region\_df = pd.read\_excel('C:/Users/HP/Desktop/Paul Unilag Project/Nigeria Covid-19 Data Analysis Project/Nigeria Covid-19 Data Analysis Project\_Regions.xlsx')

In [ ]:

region\_df.head(7)

Out[ ]:

|  | **ID** | **DATE** | **ISO\_3** | **COUNTRY** | **ID\_COUNTRY** | **REGION** | **\nINFECTED** | **\nDEAD** | **\nHEALED** | **\nINFECTED\_NON\_SPECIFIC\_GENDER** | **ACTIVE** | **SOURCE** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **0** | 1.0 | 2/27/2020 - 2/2/2022 | NGA | Nigéria | 15 | SOUTH-WEST (SW) | 129298 | 1343 | 109299 | 99426 | 18656 | Nigeria Centre for Disease Control |
| **1** | NaN | 2/27/2020 - 2/2/2022 | NGA | Nigéria | 15 | SOUTH-EAST (SE) | 12353 | 172 | 11972 | 8229 | 209 | Nigeria Centre for Disease Control |
| **2** | NaN | 2/27/2020 - 2/2/2022 | NGA | Nigéria | 15 | SOUTH-SOUTH (SS) | 36047 | 680 | 35127 | 28194 | 240 | Nigeria Centre for Disease Control |
| **3** | NaN | 2/27/2020 - 2/2/2023 | NGA | Nigéria | 15 | NORTH-WEST (NW) | 20833 | 323 | 20383 | 14981 | 127 | Nigeria Centre for Disease Control |
| **4** | NaN | 2/27/2020 - 2/2/2024 | NGA | Nigéria | 15 | NORTH-EAST (NE) | 10016 | 207 | 9531 | 7234 | 278 | Nigeria Centre for Disease Control |
| **5** | NaN | 2/27/2020 - 2/2/2025 | NGA | Nigéria | 15 | MIDDLE BELT | 48934 | 472 | 46839 | 37156 | 1623 | Nigeria Centre for Disease Control |

In [ ]:

region\_df.info()

<class 'pandas.core.frame.DataFrame'>

RangeIndex: 6 entries, 0 to 5

Data columns (total 12 columns):

# Column Non-Null Count Dtype

--- ------ -------------- -----

0 ID 1 non-null float64

1 DATE 6 non-null object

2 ISO\_3 6 non-null object

3 COUNTRY 6 non-null object

4 ID\_COUNTRY 6 non-null int64

5 REGION 6 non-null object

6

INFECTED 6 non-null int64

7

DEAD 6 non-null int64

8

HEALED 6 non-null int64

9

INFECTED\_NON\_SPECIFIC\_GENDER 6 non-null int64

10 ACTIVE 6 non-null int64

11 SOURCE 6 non-null object

dtypes: float64(1), int64(6), object(5)

memory usage: 704.0+ bytes

In [ ]:

region\_df.describe()

Out[ ]:

|  | **ID** | **ID\_COUNTRY** | **\nINFECTED** | **\nDEAD** | **\nHEALED** | **\nINFECTED\_NON\_SPECIFIC\_GENDER** | **ACTIVE** |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **count** | 1.0 | 6.0 | 6.000000 | 6.000000 | 6.000000 | 6.000000 | 6.000000 |
| **mean** | 1.0 | 15.0 | 42913.500000 | 532.833333 | 38858.500000 | 32536.666667 | 3522.166667 |
| **std** | NaN | 0.0 | 44831.719194 | 438.663159 | 37319.717983 | 34795.600122 | 7435.606375 |
| **min** | 1.0 | 15.0 | 10016.000000 | 172.000000 | 9531.000000 | 7234.000000 | 127.000000 |
| **25%** | 1.0 | 15.0 | 14473.000000 | 236.000000 | 14074.750000 | 9917.000000 | 216.750000 |
| **50%** | 1.0 | 15.0 | 28440.000000 | 397.500000 | 27755.000000 | 21587.500000 | 259.000000 |
| **75%** | 1.0 | 15.0 | 45712.250000 | 628.000000 | 43911.000000 | 34915.500000 | 1286.750000 |
| **max** | 1.0 | 15.0 | 129298.000000 | 1343.000000 | 109299.000000 | 99426.000000 | 18656.000000 |

In [ ]:

covid\_df.head()

Out[ ]:

|  | **ID** | **DATE** | **ISO\_3** | **COUNTRY** | **ID\_COUNTRY** | **STATE** | **ID\_STATE** | **INFECTED** | **DEAD** | **HEALED** | **INFECTED\_NON\_SPECIFIC\_GENDER** | **SOURCE** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **0** | 1 | 2/27/2020 - 2/2/2022 | NGA | Nigéria | 15 | Abia | 170 | 2152 | 34 | 2112 | 1254 | Nigeria Centre for Disease Control |
| **1** | 2 | 2/27/2020 - 2/2/2022 | NGA | Nigéria | 15 | Adamawa | 171 | 1203 | 32 | 1103 | 955 | Nigeria Centre for Disease Control |
| **2** | 3 | 2/27/2020 - 2/2/2022 | NGA | Nigéria | 15 | Akwa Ibom | 172 | 4625 | 44 | 4494 | 4330 | Nigeria Centre for Disease Control |
| **3** | 4 | 2/27/2020 - 2/2/2022 | NGA | Nigéria | 15 | Anambra | 173 | 2743 | 19 | 2678 | 2468 | Nigeria Centre for Disease Control |
| **4** | 5 | 2/27/2020 - 2/2/2022 | NGA | Nigéria | 15 | Bauchi | 174 | 1936 | 24 | 1878 | 1226 | Nigeria Centre for Disease Control |

In [ ]:

region\_df.head(8)

Out[ ]:

|  | **ID** | **DATE** | **ISO\_3** | **COUNTRY** | **ID\_COUNTRY** | **REGION** | **\nINFECTED** | **\nDEAD** | **\nHEALED** | **\nINFECTED\_NON\_SPECIFIC\_GENDER** | **ACTIVE** | **SOURCE** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **0** | 1.0 | 2/27/2020 - 2/2/2022 | NGA | Nigéria | 15 | SOUTH-WEST (SW) | 129298 | 1343 | 109299 | 99426 | 18656 | Nigeria Centre for Disease Control |
| **1** | NaN | 2/27/2020 - 2/2/2022 | NGA | Nigéria | 15 | SOUTH-EAST (SE) | 12353 | 172 | 11972 | 8229 | 209 | Nigeria Centre for Disease Control |
| **2** | NaN | 2/27/2020 - 2/2/2022 | NGA | Nigéria | 15 | SOUTH-SOUTH (SS) | 36047 | 680 | 35127 | 28194 | 240 | Nigeria Centre for Disease Control |
| **3** | NaN | 2/27/2020 - 2/2/2023 | NGA | Nigéria | 15 | NORTH-WEST (NW) | 20833 | 323 | 20383 | 14981 | 127 | Nigeria Centre for Disease Control |
| **4** | NaN | 2/27/2020 - 2/2/2024 | NGA | Nigéria | 15 | NORTH-EAST (NE) | 10016 | 207 | 9531 | 7234 | 278 | Nigeria Centre for Disease Control |
| **5** | NaN | 2/27/2020 - 2/2/2025 | NGA | Nigéria | 15 | MIDDLE BELT | 48934 | 472 | 46839 | 37156 | 1623 | Nigeria Centre for Disease Control |

In [ ]:

# Calculate Active Cases

covid\_df['ACTIVE'] = covid\_df['INFECTED'] - (covid\_df['HEALED'] + covid\_df['DEAD'])

covid\_df.tail()

---------------------------------------------------------------------------

KeyError Traceback (most recent call last)

File c:\Python311\Lib\site-packages\pandas\core\indexes\base.py:3652, in Index.get\_loc(self, key)

<a href='file:///c%3A/Python311/Lib/site-packages/pandas/core/indexes/base.py?line=3650'>3651</a> try:

-> <a href='file:///c%3A/Python311/Lib/site-packages/pandas/core/indexes/base.py?line=3651'>3652</a> return self.\_engine.get\_loc(casted\_key)

<a href='file:///c%3A/Python311/Lib/site-packages/pandas/core/indexes/base.py?line=3652'>3653</a> except KeyError as err:

File c:\Python311\Lib\site-packages\pandas\\_libs\index.pyx:147, in pandas.\_libs.index.IndexEngine.get\_loc()

File c:\Python311\Lib\site-packages\pandas\\_libs\index.pyx:176, in pandas.\_libs.index.IndexEngine.get\_loc()

File pandas\\_libs\hashtable\_class\_helper.pxi:7080, in pandas.\_libs.hashtable.PyObjectHashTable.get\_item()

File pandas\\_libs\hashtable\_class\_helper.pxi:7088, in pandas.\_libs.hashtable.PyObjectHashTable.get\_item()

KeyError: 'HEALED'

The above exception was the direct cause of the following exception:

KeyError Traceback (most recent call last)

Cell In[13], line 2

1 # Calculate Active Cases

----> 2 covid\_df['ACTIVE'] = covid\_df['INFECTED'] - (covid\_df['HEALED'] + covid\_df['DEAD'])

3 covid\_df.tail()

File c:\Python311\Lib\site-packages\pandas\core\frame.py:3761, in DataFrame.\_\_getitem\_\_(self, key)

<a href='file:///c%3A/Python311/Lib/site-packages/pandas/core/frame.py?line=3758'>3759</a> if self.columns.nlevels > 1:

<a href='file:///c%3A/Python311/Lib/site-packages/pandas/core/frame.py?line=3759'>3760</a> return self.\_getitem\_multilevel(key)

-> <a href='file:///c%3A/Python311/Lib/site-packages/pandas/core/frame.py?line=3760'>3761</a> indexer = self.columns.get\_loc(key)

<a href='file:///c%3A/Python311/Lib/site-packages/pandas/core/frame.py?line=3761'>3762</a> if is\_integer(indexer):

<a href='file:///c%3A/Python311/Lib/site-packages/pandas/core/frame.py?line=3762'>3763</a> indexer = [indexer]

File c:\Python311\Lib\site-packages\pandas\core\indexes\base.py:3654, in Index.get\_loc(self, key)

<a href='file:///c%3A/Python311/Lib/site-packages/pandas/core/indexes/base.py?line=3651'>3652</a> return self.\_engine.get\_loc(casted\_key)

<a href='file:///c%3A/Python311/Lib/site-packages/pandas/core/indexes/base.py?line=3652'>3653</a> except KeyError as err:

-> <a href='file:///c%3A/Python311/Lib/site-packages/pandas/core/indexes/base.py?line=3653'>3654</a> raise KeyError(key) from err

<a href='file:///c%3A/Python311/Lib/site-packages/pandas/core/indexes/base.py?line=3654'>3655</a> except TypeError:

<a href='file:///c%3A/Python311/Lib/site-packages/pandas/core/indexes/base.py?line=3655'>3656</a> # If we have a listlike key, \_check\_indexing\_error will raise

<a href='file:///c%3A/Python311/Lib/site-packages/pandas/core/indexes/base.py?line=3656'>3657</a> # InvalidIndexError. Otherwise we fall through and re-raise

<a href='file:///c%3A/Python311/Lib/site-packages/pandas/core/indexes/base.py?line=3657'>3658</a> # the TypeError.

<a href='file:///c%3A/Python311/Lib/site-packages/pandas/core/indexes/base.py?line=3658'>3659</a> self.\_check\_indexing\_error(key)

KeyError: 'HEALED'

In [ ]:

# Calculate Active Cases

covid\_df['ACTIVE'] = covid\_df['\nINFECTED'] - (covid\_df['\nHEALED'] + covid\_df['\nDEAD'])

covid\_df.tail()

---------------------------------------------------------------------------

KeyError Traceback (most recent call last)

File c:\Python311\Lib\site-packages\pandas\core\indexes\base.py:3652, in Index.get\_loc(self, key)

<a href='file:///c%3A/Python311/Lib/site-packages/pandas/core/indexes/base.py?line=3650'>3651</a> try:

-> <a href='file:///c%3A/Python311/Lib/site-packages/pandas/core/indexes/base.py?line=3651'>3652</a> return self.\_engine.get\_loc(casted\_key)

<a href='file:///c%3A/Python311/Lib/site-packages/pandas/core/indexes/base.py?line=3652'>3653</a> except KeyError as err:

File c:\Python311\Lib\site-packages\pandas\\_libs\index.pyx:147, in pandas.\_libs.index.IndexEngine.get\_loc()

File c:\Python311\Lib\site-packages\pandas\\_libs\index.pyx:176, in pandas.\_libs.index.IndexEngine.get\_loc()

File pandas\\_libs\hashtable\_class\_helper.pxi:7080, in pandas.\_libs.hashtable.PyObjectHashTable.get\_item()

File pandas\\_libs\hashtable\_class\_helper.pxi:7088, in pandas.\_libs.hashtable.PyObjectHashTable.get\_item()

KeyError: '\nINFECTED'

The above exception was the direct cause of the following exception:

KeyError Traceback (most recent call last)

Cell In[14], line 3

1 # Calculate Active Cases

----> 3 covid\_df['ACTIVE'] = covid\_df['\nINFECTED'] - (covid\_df['\nHEALED'] + covid\_df['\nDEAD'])

4 covid\_df.tail()

File c:\Python311\Lib\site-packages\pandas\core\frame.py:3761, in DataFrame.\_\_getitem\_\_(self, key)

<a href='file:///c%3A/Python311/Lib/site-packages/pandas/core/frame.py?line=3758'>3759</a> if self.columns.nlevels > 1:

<a href='file:///c%3A/Python311/Lib/site-packages/pandas/core/frame.py?line=3759'>3760</a> return self.\_getitem\_multilevel(key)

-> <a href='file:///c%3A/Python311/Lib/site-packages/pandas/core/frame.py?line=3760'>3761</a> indexer = self.columns.get\_loc(key)

<a href='file:///c%3A/Python311/Lib/site-packages/pandas/core/frame.py?line=3761'>3762</a> if is\_integer(indexer):

<a href='file:///c%3A/Python311/Lib/site-packages/pandas/core/frame.py?line=3762'>3763</a> indexer = [indexer]

File c:\Python311\Lib\site-packages\pandas\core\indexes\base.py:3654, in Index.get\_loc(self, key)

<a href='file:///c%3A/Python311/Lib/site-packages/pandas/core/indexes/base.py?line=3651'>3652</a> return self.\_engine.get\_loc(casted\_key)

<a href='file:///c%3A/Python311/Lib/site-packages/pandas/core/indexes/base.py?line=3652'>3653</a> except KeyError as err:

-> <a href='file:///c%3A/Python311/Lib/site-packages/pandas/core/indexes/base.py?line=3653'>3654</a> raise KeyError(key) from err

<a href='file:///c%3A/Python311/Lib/site-packages/pandas/core/indexes/base.py?line=3654'>3655</a> except TypeError:

<a href='file:///c%3A/Python311/Lib/site-packages/pandas/core/indexes/base.py?line=3655'>3656</a> # If we have a listlike key, \_check\_indexing\_error will raise

<a href='file:///c%3A/Python311/Lib/site-packages/pandas/core/indexes/base.py?line=3656'>3657</a> # InvalidIndexError. Otherwise we fall through and re-raise

<a href='file:///c%3A/Python311/Lib/site-packages/pandas/core/indexes/base.py?line=3657'>3658</a> # the TypeError.

<a href='file:///c%3A/Python311/Lib/site-packages/pandas/core/indexes/base.py?line=3658'>3659</a> self.\_check\_indexing\_error(key)

KeyError: '\nINFECTED'

In [ ]:

# Calculate Active Cases

covid\_df['ACTIVE'] = covid\_df[' \nINFECTED'] - (covid\_df['\nHEALED'] + covid\_df['\nDEAD'])

covid\_df.tail()

---------------------------------------------------------------------------

KeyError Traceback (most recent call last)

File c:\Python311\Lib\site-packages\pandas\core\indexes\base.py:3652, in Index.get\_loc(self, key)

<a href='file:///c%3A/Python311/Lib/site-packages/pandas/core/indexes/base.py?line=3650'>3651</a> try:

-> <a href='file:///c%3A/Python311/Lib/site-packages/pandas/core/indexes/base.py?line=3651'>3652</a> return self.\_engine.get\_loc(casted\_key)

<a href='file:///c%3A/Python311/Lib/site-packages/pandas/core/indexes/base.py?line=3652'>3653</a> except KeyError as err:

File c:\Python311\Lib\site-packages\pandas\\_libs\index.pyx:147, in pandas.\_libs.index.IndexEngine.get\_loc()

File c:\Python311\Lib\site-packages\pandas\\_libs\index.pyx:176, in pandas.\_libs.index.IndexEngine.get\_loc()

File pandas\\_libs\hashtable\_class\_helper.pxi:7080, in pandas.\_libs.hashtable.PyObjectHashTable.get\_item()

File pandas\\_libs\hashtable\_class\_helper.pxi:7088, in pandas.\_libs.hashtable.PyObjectHashTable.get\_item()

KeyError: ' \nINFECTED'

The above exception was the direct cause of the following exception:

KeyError Traceback (most recent call last)

Cell In[15], line 3

1 # Calculate Active Cases

----> 3 covid\_df['ACTIVE'] = covid\_df[' \nINFECTED'] - (covid\_df['\nHEALED'] + covid\_df['\nDEAD'])

4 covid\_df.tail()

File c:\Python311\Lib\site-packages\pandas\core\frame.py:3761, in DataFrame.\_\_getitem\_\_(self, key)

<a href='file:///c%3A/Python311/Lib/site-packages/pandas/core/frame.py?line=3758'>3759</a> if self.columns.nlevels > 1:

<a href='file:///c%3A/Python311/Lib/site-packages/pandas/core/frame.py?line=3759'>3760</a> return self.\_getitem\_multilevel(key)

-> <a href='file:///c%3A/Python311/Lib/site-packages/pandas/core/frame.py?line=3760'>3761</a> indexer = self.columns.get\_loc(key)

<a href='file:///c%3A/Python311/Lib/site-packages/pandas/core/frame.py?line=3761'>3762</a> if is\_integer(indexer):

<a href='file:///c%3A/Python311/Lib/site-packages/pandas/core/frame.py?line=3762'>3763</a> indexer = [indexer]

File c:\Python311\Lib\site-packages\pandas\core\indexes\base.py:3654, in Index.get\_loc(self, key)

<a href='file:///c%3A/Python311/Lib/site-packages/pandas/core/indexes/base.py?line=3651'>3652</a> return self.\_engine.get\_loc(casted\_key)

<a href='file:///c%3A/Python311/Lib/site-packages/pandas/core/indexes/base.py?line=3652'>3653</a> except KeyError as err:

-> <a href='file:///c%3A/Python311/Lib/site-packages/pandas/core/indexes/base.py?line=3653'>3654</a> raise KeyError(key) from err

<a href='file:///c%3A/Python311/Lib/site-packages/pandas/core/indexes/base.py?line=3654'>3655</a> except TypeError:

<a href='file:///c%3A/Python311/Lib/site-packages/pandas/core/indexes/base.py?line=3655'>3656</a> # If we have a listlike key, \_check\_indexing\_error will raise

<a href='file:///c%3A/Python311/Lib/site-packages/pandas/core/indexes/base.py?line=3656'>3657</a> # InvalidIndexError. Otherwise we fall through and re-raise

<a href='file:///c%3A/Python311/Lib/site-packages/pandas/core/indexes/base.py?line=3657'>3658</a> # the TypeError.

<a href='file:///c%3A/Python311/Lib/site-packages/pandas/core/indexes/base.py?line=3658'>3659</a> self.\_check\_indexing\_error(key)

KeyError: ' \nINFECTED'

In [ ]:

print(covid\_df.info())

<class 'pandas.core.frame.DataFrame'>

RangeIndex: 37 entries, 0 to 36

Data columns (total 12 columns):

# Column Non-Null Count Dtype

--- ------ -------------- -----

0 ID 37 non-null int64

1 DATE 37 non-null object

2 ISO\_3 37 non-null object

3 COUNTRY 37 non-null object

4 ID\_COUNTRY 37 non-null int64

5 STATE 37 non-null object

6 ID\_STATE 37 non-null int64

7 INFECTED 37 non-null int64

8 DEAD 37 non-null int64

9 HEALED 37 non-null int64

10 INFECTED\_NON\_SPECIFIC\_GENDER 37 non-null int64

11 SOURCE 37 non-null object

dtypes: int64(7), object(5)

memory usage: 3.6+ KB

None

In [ ]:

covid\_df.info()

<class 'pandas.core.frame.DataFrame'>

RangeIndex: 37 entries, 0 to 36

Data columns (total 12 columns):

# Column Non-Null Count Dtype

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1 DATE 37 non-null object

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7 INFECTED 37 non-null int64

8 DEAD 37 non-null int64

9 HEALED 37 non-null int64

10 INFECTED\_NON\_SPECIFIC\_GENDER 37 non-null int64

11 SOURCE 37 non-null object

dtypes: int64(7), object(5)

memory usage: 3.6+ KB

In [ ]:

print(covid\_df.info())

<class 'pandas.core.frame.DataFrame'>

RangeIndex: 37 entries, 0 to 36

Data columns (total 12 columns):

# Column Non-Null Count Dtype

--- ------ -------------- -----

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1 DATE 37 non-null object

2 ISO\_3 37 non-null object

3 COUNTRY 37 non-null object

4 ID\_COUNTRY 37 non-null int64

5 STATE 37 non-null object

6 ID\_STATE 37 non-null int64

7 INFECTED 37 non-null int64

8 DEAD 37 non-null int64

9 HEALED 37 non-null int64

10 INFECTED\_NON\_SPECIFIC\_GENDER 37 non-null int64

11 SOURCE 37 non-null object

dtypes: int64(7), object(5)

memory usage: 3.6+ KB

None

In [ ]:

covid\_df.head(8)

Out[ ]:

|  | **ID** | **DATE** | **ISO\_3** | **COUNTRY** | **ID\_COUNTRY** | **STATE** | **ID\_STATE** | **INFECTED** | **DEAD** | **HEALED** | **INFECTED\_NON\_SPECIFIC\_GENDER** | **SOURCE** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **0** | 1 | 2/27/2020 - 2/2/2022 | NGA | Nigéria | 15 | Abia | 170 | 2152 | 34 | 2112 | 1254 | Nigeria Centre for Disease Control |
| **1** | 2 | 2/27/2020 - 2/2/2022 | NGA | Nigéria | 15 | Adamawa | 171 | 1203 | 32 | 1103 | 955 | Nigeria Centre for Disease Control |
| **2** | 3 | 2/27/2020 - 2/2/2022 | NGA | Nigéria | 15 | Akwa Ibom | 172 | 4625 | 44 | 4494 | 4330 | Nigeria Centre for Disease Control |
| **3** | 4 | 2/27/2020 - 2/2/2022 | NGA | Nigéria | 15 | Anambra | 173 | 2743 | 19 | 2678 | 2468 | Nigeria Centre for Disease Control |
| **4** | 5 | 2/27/2020 - 2/2/2022 | NGA | Nigéria | 15 | Bauchi | 174 | 1936 | 24 | 1878 | 1226 | Nigeria Centre for Disease Control |
| **5** | 6 | 2/27/2020 - 2/2/2022 | NGA | Nigéria | 15 | Bayelsa | 175 | 1305 | 28 | 1277 | 902 | Nigeria Centre for Disease Control |
| **6** | 7 | 2/27/2020 - 2/2/2022 | NGA | Nigéria | 15 | Benue | 176 | 2129 | 25 | 1764 | 1645 | Nigeria Centre for Disease Control |
| **7** | 8 | 2/27/2020 - 2/2/2022 | NGA | Nigéria | 15 | Borno | 177 | 1629 | 44 | 1580 | 884 | Nigeria Centre for Disease Control |

In [ ]:

print(covid\_df.columns)

Index(['ID', 'DATE ', 'ISO\_3', 'COUNTRY', 'ID\_COUNTRY', 'STATE', 'ID\_STATE',

'INFECTED', 'DEAD', ' HEALED', 'INFECTED\_NON\_SPECIFIC\_GENDER',

'SOURCE'],

dtype='object')

# To calculate Active Cases

In [ ]:

covid\_df['ACTIVE'] = covid\_df['INFECTED'] - (covid\_df[' HEALED'] + covid\_df['DEAD'])

covid\_df.tail()

Out[ ]:

|  | **ID** | **DATE** | **ISO\_3** | **COUNTRY** | **ID\_COUNTRY** | **STATE** | **ID\_STATE** | **INFECTED** | **DEAD** | **HEALED** | **INFECTED\_NON\_SPECIFIC\_GENDER** | **SOURCE** | **ACTIVE** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **32** | 33 | 2/27/2020 - 2/2/2022 | NGA | Nigéria | 15 | Rivers | 202 | 16422 | 154 | 16148 | 13726 | Nigeria Centre for Disease Control | 120 |
| **33** | 34 | 2/27/2020 - 2/2/2022 | NGA | Nigéria | 15 | Sokoto | 203 | 811 | 28 | 783 | 649 | Nigeria Centre for Disease Control | 0 |
| **34** | 35 | 2/27/2020 - 2/2/2022 | NGA | Nigéria | 15 | Taraba | 204 | 1469 | 34 | 1377 | 1352 | Nigeria Centre for Disease Control | 58 |
| **35** | 36 | 2/27/2020 - 2/2/2022 | NGA | Nigéria | 15 | Yobe | 205 | 509 | 9 | 490 | 430 | Nigeria Centre for Disease Control | 10 |
| **36** | 37 | 2/27/2020 - 2/2/2022 | NGA | Nigéria | 15 | Zamfara | 206 | 375 | 9 | 366 | 296 | Nigeria Centre for Disease Control | 0 |

In [ ]:

statewise = pd.pivot\_table(covid\_df, values = ["INFECTED"," HEALED", "DEAD"], index = "STATE", aggfunc = max)

In [ ]:

statewise["Recovery Rate"] = statewise[" HEALED"]\*100/statewise["INFECTED"]

In [ ]:

statewise["Mortality Rate"] = statewise["DEAD"]\*100/statewise["INFECTED"]

In [ ]:

statewise = statewise.sort\_values(by = "INFECTED", ascending = False)

In [ ]:

statewise.style.background\_gradient(cmap = "cubehelix")

c:\Python311\Lib\site-packages\pandas\io\formats\style.py:3622: RuntimeWarning: invalid value encountered in scalar multiply

norm = \_matplotlib.colors.Normalize(smin - (rng \* low), smax + (rng \* high))

Out[ ]:

|  | **HEALED** | **DEAD** | **INFECTED** | **Recovery Rate** | **Mortality Rate** |
| --- | --- | --- | --- | --- | --- |
| **STATE** |  |  |  |  |  |
| **Lagos** | 80066 | 769 | 98366 | 81.396011 | 0.781774 |
| **Federal Capital Territory** | 27405 | 247 | 28187 | 97.225671 | 0.876290 |
| **Rivers** | 16148 | 154 | 16422 | 98.331507 | 0.937766 |
| **Kaduna** | 11073 | 89 | 11185 | 98.998659 | 0.795709 |
| **Oyo** | 9634 | 201 | 10196 | 94.488035 | 1.971361 |
| **Edo** | 7335 | 320 | 7672 | 95.607404 | 4.171011 |
| **Ogun** | 5705 | 82 | 5798 | 98.395999 | 1.414281 |
| **Delta** | 5170 | 111 | 5328 | 97.034535 | 2.083333 |
| **Ondo** | 4673 | 107 | 5143 | 90.861365 | 2.080498 |
| **Kano** | 4726 | 126 | 4919 | 96.076438 | 2.561496 |
| **Akwa Ibom** | 4494 | 44 | 4625 | 97.167568 | 0.951351 |
| **Kwara** | 4175 | 64 | 4541 | 91.940101 | 1.409381 |
| **Osun** | 3127 | 92 | 3276 | 95.451770 | 2.808303 |
| **Gombe** | 3103 | 64 | 3270 | 94.892966 | 1.957187 |
| **Enugu** | 2910 | 29 | 2952 | 98.577236 | 0.982385 |
| **Anambra** | 2678 | 19 | 2743 | 97.630332 | 0.692672 |
| **Nasarawa** | 2345 | 39 | 2703 | 86.755457 | 1.442841 |
| **Imo** | 2268 | 58 | 2442 | 92.874693 | 2.375102 |
| **Katsina** | 2339 | 37 | 2399 | 97.498958 | 1.542309 |
| **Abia** | 2112 | 34 | 2152 | 98.141264 | 1.579926 |
| **Benue** | 1764 | 25 | 2129 | 82.855801 | 1.174260 |
| **Ebonyi** | 2004 | 32 | 2064 | 97.093023 | 1.550388 |
| **Ekiti** | 1919 | 28 | 1978 | 97.017189 | 1.415571 |
| **Bauchi** | 1878 | 24 | 1936 | 97.004132 | 1.239669 |
| **Borno** | 1580 | 44 | 1629 | 96.992020 | 2.701044 |
| **Taraba** | 1377 | 34 | 1469 | 93.737236 | 2.314500 |
| **Bayelsa** | 1277 | 28 | 1305 | 97.854406 | 2.145594 |
| **Adamawa** | 1103 | 32 | 1203 | 91.687448 | 2.660017 |
| **Niger** | 998 | 20 | 1142 | 87.390543 | 1.751313 |
| **Sokoto** | 783 | 28 | 811 | 96.547472 | 3.452528 |
| **Cross River** | 746 | 25 | 778 | 95.886889 | 3.213368 |
| **Jigawa** | 642 | 18 | 664 | 96.686747 | 2.710843 |
| **Yobe** | 490 | 9 | 509 | 96.267191 | 1.768173 |
| **Kebbi** | 454 | 16 | 480 | 94.583333 | 3.333333 |
| **Zamfara** | 366 | 9 | 375 | 97.600000 | 2.400000 |
| **Kogi** | 3 | 2 | 5 | 60.000000 | 40.000000 |
| **Plateau** | 10149 | 75 | 0 |  |  |