DATA SCIENCE PROJECT ANALYZING COVID-19 karnataka DATASET

```
In [6]:
         !pip install pandas
         !pip install numpy
         !pip install seaborn
        Requirement already satisfied: pandas in c:\users\invest 360\appdata\local\programs\python\python39-32\lib\site-packages (1.3.
        Requirement already satisfied: numpy>=1.17.3 in c:\users\invest 360\appdata\roaming\python\python39\site-packages (from pandas)
        (1.20.3)
        Requirement already satisfied: python-dateutil >= 2.7.3 in c:\users\invest 360\appdata\roaming\python\python39\site-packages (fro
        m pandas) (2.8.1)
        Requirement already satisfied: pytz>=2017.3 in c:\users\invest 360\appdata\local\programs\python\python39-32\lib\site-packages
        (from pandas) (2021.1)
        Requirement already satisfied: six>=1.5 in c:\users\invest 360\appdata\roaming\python\python39\site-packages (from python-dateu
        til>=2.7.3->pandas) (1.16.0)
        Requirement already satisfied: numpy in c:\users\invest 360\appdata\roaming\python\python39\site-packages (1.20.3)
        Requirement already satisfied: seaborn in c:\users\invest 360\appdata\local\programs\python\python39-32\lib\site-packages (0.1
        1.1)
        Requirement already satisfied: numpy>=1.15 in c:\users\invest 360\appdata\roaming\python\python39\site-packages (from seaborn)
        (1.20.3)
        Requirement already satisfied: matplotlib>=2.2 in c:\users\invest 360\appdata\roaming\python\python39\site-packages (from seabo
        rn) (3.4.2)
        Requirement already satisfied: pandas>=0.23 in c:\users\invest 360\appdata\local\programs\python\python39-32\lib\site-packages
        (from seaborn) (1.3.0)
        Requirement already satisfied: scipy>=1.0 in c:\users\invest 360\appdata\local\programs\python\python39-32\lib\site-packages (f
        rom seaborn) (1.7.0)
        Requirement already satisfied: kiwisolver>=1.0.1 in c:\users\invest 360\appdata\roaming\python\python39\site-packages (from mat
        plotlib>=2.2->seaborn) (1.3.1)
        Requirement already satisfied: pillow>=6.2.0 in c:\users\invest 360\appdata\local\programs\python\python39-32\lib\site-packages
        (from matplotlib>=2.2->seaborn) (8.2.0)
        Requirement already satisfied: pyparsing>=2.2.1 in c:\users\invest 360\appdata\roaming\python\python39\site-packages (from matp
        lotlib>=2.2->seaborn) (2.4.7)
        Requirement already satisfied: python-dateutil>=2.7 in c:\users\invest 360\appdata\roaming\python\python39\site-packages (from
        matplotlib>=2.2->seaborn) (2.8.1)
```

```
ib>=2.2->seaborn) (0.10.0)
          Requirement already satisfied: six in c:\users\invest 360\appdata\roaming\python\python39\site-packages (from cycler>=0.10->mat
          plotlib>=2.2->seaborn) (1.16.0)
          Requirement already satisfied: pytz>=2017.3 in c:\users\invest 360\appdata\local\programs\python\python39-32\lib\site-packages
          (from pandas>=0.23->seaborn) (2021.1)
 In [7]:
           import pandas as pd
           import numpy as np
           import matplotlib.pvplot as plt
           import seaborn as sns
           from pandas import read csv
 In [8]:
           data = pd.read csv('Karnataka data covid-19.csv')
 In [9]:
           data.head()
                Daily samples collected
                                     Daily samples reported as
                                                              Daily Samples Positive for
                                                                                             People in
                                                                                                             KIA-
                                                                                                                       Mangalore-
                                                                                                                                       Seaport M and K-
 Out[9]:
                          for Testing
                                                    negative
                                                                            COVID-19
                                                                                         Oberservation
                                                                                                      Passengers
                                                                                                                       Passengers
                                                                                                                                            passengers
          0
                                579
                                                        460
                                                                                   6
                                                                                                          72726.0
                                                                                                                          27172.0
                                                                                                                                                5394.0
                                                                                                 NaN
          1
                                 60
                                                         80
                                                                                   0
                                                                                               1345.0
                                                                                                           2728.0
                                                                                                                            615.0
                                                                                                                                                 NaN
          2
                                 92
                                                         50
                                                                                   0
                                                                                               1657.0
                                                                                                           3004.0
                                                                                                                            791.0
                                                                                                                                                5439.0
          3
                                                                                   0
                                131
                                                         19
                                                                                               1877.0
                                                                                                           2376.0
                                                                                                                            358.0
                                                                                                                                                5458.0
          4
                                 33
                                                         86
                                                                                               2221.0
                                                                                                           2025.0
                                                                                                                            748.0
                                                                                                                                                5505.0
                                                                                   1
In [10]:
           data.columns
          Index(['Daily samples collected for Testing',
Out[10]:
                  'Daily samples reported as negative',
                  'Daily Samples Positive for COVID-19', 'People in Oberservation',
                  'KIA-Passengers', 'Mangalore-Passengers',
                  'Seaport M and K- passengers'],
                 dtype='object')
In [11]:
           data.tail()
                 Daily samples collected
                                       Daily samples reported as
                                                               Daily Samples Positive for
                                                                                                             KIA-
                                                                                                                                       Seaport M and K-
Out[11]:
                                                                                             People in
                                                                                                                        Mangalore-
                            for Testing
                                                                             COVID-19
                                                                                         Oberservation Passengers
                                                     negative
                                                                                                                       Passengers
                                                                                                                                            passengers
          112
                                16210
                                                       14470
                                                                                 1502
                                                                                               44950.0
                                                                                                              0.0
                                                                                                                             NaN
                                                                                                                                                  NaN
```

Requirement already satisfied: cycler>=0.10 in c:\users\invest 360\appdata\roaming\python\python39\site-packages (from matplot1

113	18307	16290	1696	82082.0	0.0	NaN	NaN
114	17592	15294	1839	56341.0	0.0	NaN	NaN
115	16899	14649	1925	53803.0	0.0	NaN	NaN
116	15880	13742	1843	56927.0	0.0	NaN	NaN

```
In [12]: data.describe()
```

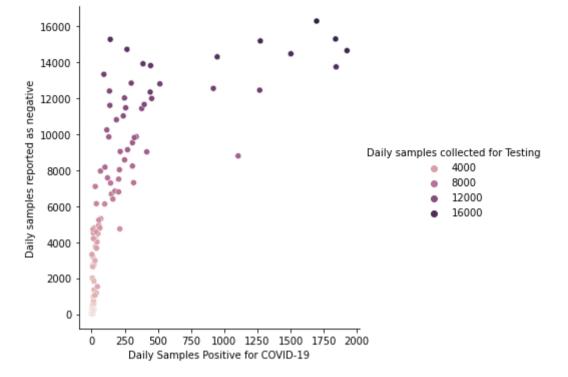
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]:		Daily samples collected for Testing	Daily samples reported as negative	Daily Samples Positive for COVID-19	People in Oberservation	KIA- Passengers	Mangalore- Passengers	Seaport M and K- passengers
	count	117.000000	117.000000	117.000000	116.000000	57.000000	11.000000	12.000000
	mean	6207.897436	5733.068376	216.393162	26875.879310	1794.929825	2957.454545	5186.416667
	std	5340.258431	4978.231949	408.136386	13363.960008	9593.477499	8032.555687	1630.926422
	min	10.000000	19.000000	0.000000	1345.000000	0.000000	271.000000	46.000000
	25%	585.000000	558.000000	11.000000	19217.250000	0.000000	441.000000	5453.250000
	50%	4892.000000	4717.000000	36.000000	25549.500000	231.000000	566.000000	5587.500000
	75%	10177.000000	9813.000000	239.000000	35611.750000	531.000000	681.500000	5775.750000
	max	18307.000000	16290.000000	1925.000000	82082.000000	72726.000000	27172.000000	6022.000000

Relating the variable with scatterplots

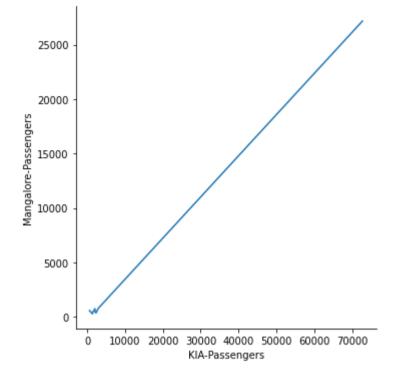
```
In [14]: sns.relplot(x="Daily Samples Positive for COVID-19" , y="Daily samples reported as negative" ,hue='Daily samples collected for
```

Out[14]: <seaborn.axisgrid.FacetGrid at 0x5854d18>



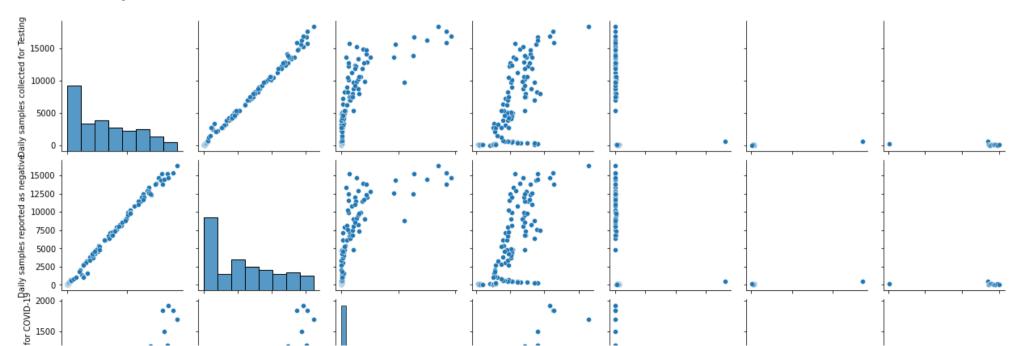
```
In [15]: sns.relplot(x="KIA-Passengers" , y="Mangalore-Passengers", kind='line' , data=data)
```

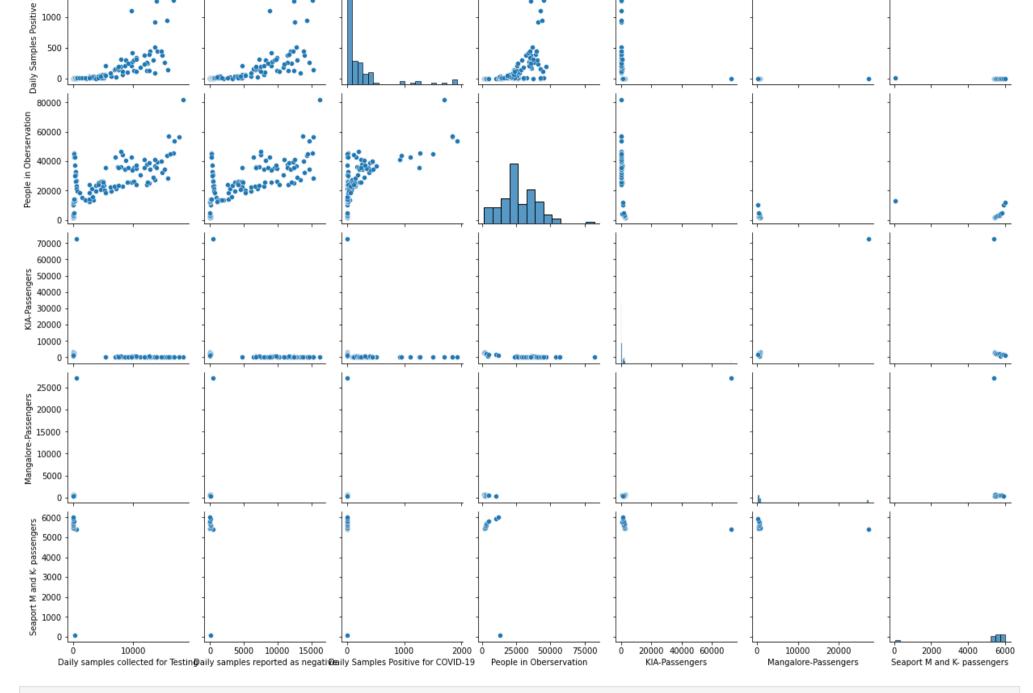
Out[15]: <seaborn.axisgrid.FacetGrid at 0x1403c0b8>



In [16]: sns.pairplot(data)

Out[16]: <seaborn.axisgrid.PairGrid at 0x143749b8>



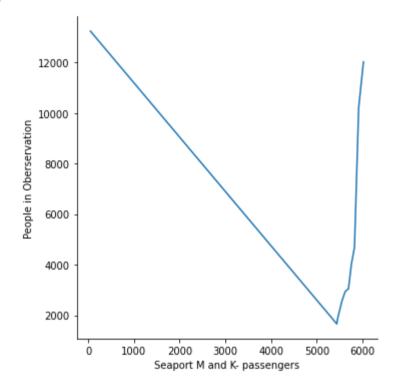


'Daily Samples Positive for COVID-19', 'People in Oberservation',

```
dtype='object')

In [18]: sns.relplot(x="Seaport M and K- passengers" , y="People in Oberservation" ,kind ='line', data=data)
```

Out[18]: <seaborn.axisgrid.FacetGrid at 0x154bed48>

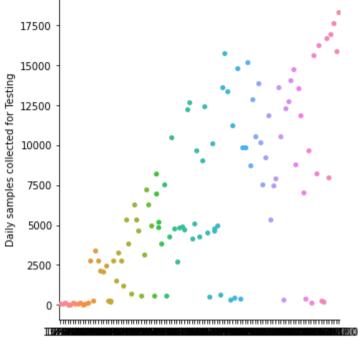


'KIA-Passengers', 'Mangalore-Passengers',

'Seaport M and K- passengers'],

In [19]: sns.catplot(x="People in Oberservation",y="Daily samples collected for Testing",data=data)

Out[19]: <seaborn.axisgrid.FacetGrid at 0x15501550>



People in Oberservation

```
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
import seaborn as sns
from pandas import read_csv
```

In [21]: data = pd.read_csv('Karnataka_covid-19.csv')

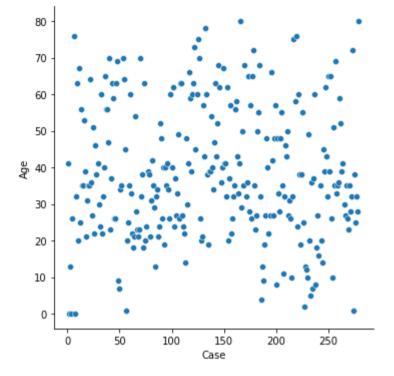
In [22]: data.head()

Out[22]:		Case	Date	Age	Sex	City	State	Cluster	Reason	Nationality	RD	Р	С	RE
0		1	09-Mar	41.0	Male	Bangalore-Urban	Karnataka	From USA	Texas US	India	С	0	1	NaN
		2	10-Mar	0.0	Female	Bangalore-Urban	Karnataka	From USA	Spouse	India	С	1	0	NaN
_	2	3	10-Mar	13.0	Female	Bangalore-Urban	Karnataka	From USA	Daughter	India	С	1	0	NaN
	3	4	NaN	0.0	NaN	Bangalore-Urban	Karnataka	From United Kingdom	London	India	С	0	1	NaN
	4	5	13-Mar	26.0	Male	Bangalore-Urban	Karnataka	From the rest of Europe	Greece	India	С	0	0	NaN

```
Out[23]:
                Case
                       Date Age
                                     Sex
                                                    City
                                                             State
                                                                                                     Cluster Reason Nationality RD
                                                                                                                                      P C
                                                                                                                                            RE
                                               Vijayapura Karnataka
           274
                 275
                     15-Apr 38.0
                                  Female
                                                                               Severe Acute Respiratory Infection
                                                                                                                NaN
                                                                                                                          India
                                                                                                                                 C 221 0 NaN
                                               Vijayapura Karnataka
                 276 15-Apr 25.0
                                     Male
                                                                                                                                 C 221 0 NaN
           275
                                                                               Severe Acute Respiratory Infection
                                                                                                                NaN
                                                                                                                          India
                 277 15-Apr 32.0 Female Bangalore-Urban Karnataka
           276
                                                                                                                                 C 252
                                                                                                                                        0 NaN
                                                                               Severe Acute Respiratory Infection
                                                                                                                NaN
                                                                                                                          India
                                               Vijayapura Karnataka
                 278 15-Apr 28.0 Female
                                                                                                                                 C 221 0 NaN
           277
                                                                               Severe Acute Respiratory Infection
                                                                                                                NaN
                                                                                                                          India
           278
                 279 15-Apr 80.0 Female
                                                  Belgavi Karnataka TJ Congregation from 13th to 18th March in Delhi
                                                                                                                NaN
                                                                                                                          India
                                                                                                                                 D 224 0 NaN
In [24]:
           data.describe()
                                                           С
Out[24]:
                                                Ρ
                       Case
                                   Age
           count 279.000000 279.000000 279.000000 279.000000
           mean 140.000000
                              38.354122
                                         45.329749
                                                     0.272401
                  80.684571
                              18.154102
                                         70.055468
                                                      0.445995
             std
                   1.000000
                               0.000000
                                          0.000000
                                                      0.000000
            min
            25%
                  70.500000
                              26.000000
                                          0.000000
                                                      0.000000
            50% 140.000000
                              35.000000
                                          0.000000
                                                      0.000000
            75% 209.500000
                              52.000000
                                         88.000000
                                                     1.000000
            max 279.000000
                              80.000000 252.000000
                                                     1.000000
In [29]:
           data.columns
          Index(['Case', 'Date', 'Age', 'Sex', 'City', 'State', 'Cluster', 'Reason',
Out[29]:
                   'Nationality', 'RD', 'P', 'C', 'RE'],
                 dtvpe='object')
In [25]:
           sns.relplot(x="Case" , y="Age", data=data)
          <seaborn.axisgrid.FacetGrid at 0x1551fd48>
```

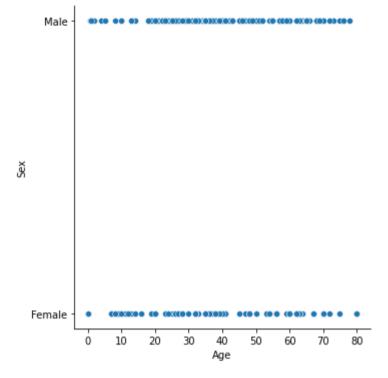
In [23]:

data.tail()



```
In [26]: sns.relplot(x="Age" , y="Sex", data=data)
```

Out[26]: <seaborn.axisgrid.FacetGrid at 0x16067238>



```
In [27]: sns.relplot(x="Case" , y="Age", hue='City' ,data=data)
```

Out[27]: <seaborn.axisgrid.FacetGrid at 0x1609ff88>

- Bangalore-Urban
- Kalburgi
- Madikeri in Kodagu
- Chikballarpur
- Mysore
- Dharwad
- Gowribidanur in Chikballarpur
- Mangalore but resident of Uttara-Kannada
- Bangalore-Urban but resident of Kerala
- Bangalore-Urban but resident of Kannur
- Mangalore but resident of Kasargodu
- Karwar in Uttara-Kannada District
- Davangere although resident of Chitradurga
- Udupi
- Bangalore-Urban but resident of Chikballarpur
- Bangalore-Rural but resident of Anantapura
- Mangalore in Dakshin-Kannada
- Tumkur
- Davangere
- Chikballarpur but resident of Hindupur in AP
- Chikballarpur
- Nanjangud
- Hospet Bellary
- Gowribidanur Taluk in Chikballarpur
- Bhatkal in Uttarakannada
- Mysore but resident of Bangalore
- Bellary
- Bidar
- Basavakalyan in Bidar
- Bidar although resident of Paheli Chouki in Hyderabad
- Bagalkote
- Belgavi
- Bangalore-Urban but resident of Cochin
- Hospet
- Raibagh in Belgavi
- Bangalore-Rural
- Mudhol in Bagalkote
- Bagalkote
- Gadag
- Mandya
- Karwar in Uttara-Kannada
- Vijayapura
- Hubballi in Dharwad
- Malavalli in Mandya
- Bangalore-Urban although resident of Chikballarpur
- Bhatkal in Uttara-Kannada
- Bangalore-Urban although resident of Ananthpur
- Jamakandi in Bagalkote

80

70

60

50

ğ 40

30

20

10

0

50

100

150

Case

200

250

```
<seaborn.axisgrid.FacetGrid at 0x154e8418>
Out[28]:
                                        Influenza like illness
                            Severe Acute Respiratory Infection
               TJ Congregation from 13th to 18th March in Delhi
                                                     Others
                                    From the Southern States
                       Pharmaceutical Company in Nanjangud
             Cluster
                                         From South America
                                                  Unknown
                                           From Middle East
                                      From the rest of Europe
                                       From United Kingdom -
                                                  From USA
                                                               Karnataka
                                                                 State
```

sns.catplot(x="State" , y="Cluster", data=data)

```
In [30]: sns.catplot(x="Age" , y="Sex", hue='RD', data=data)
```

Out[30]: <seaborn.axisgrid.FacetGrid at 0x12f769a0>

