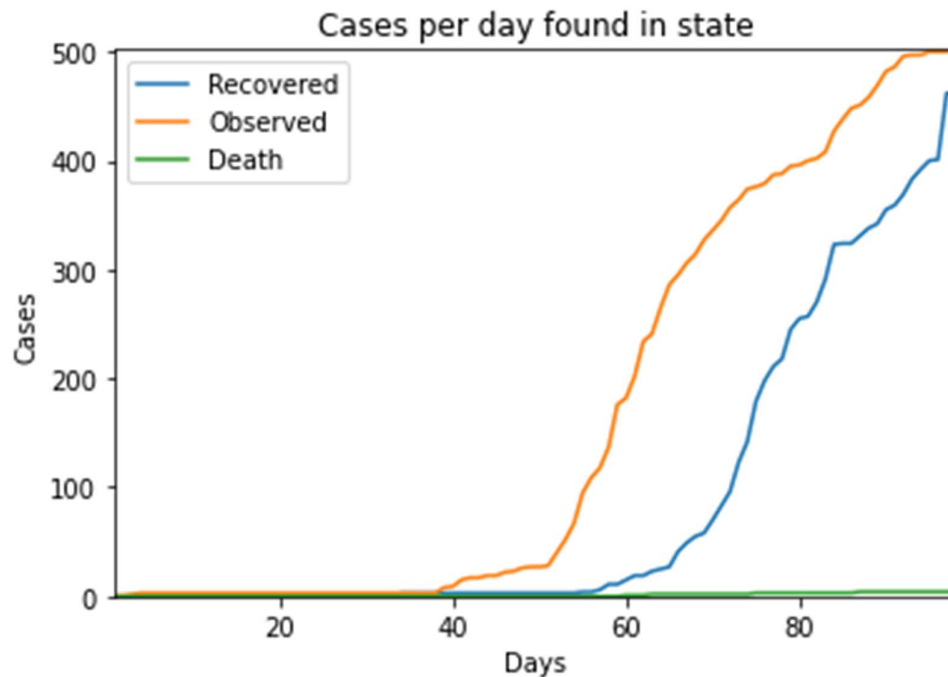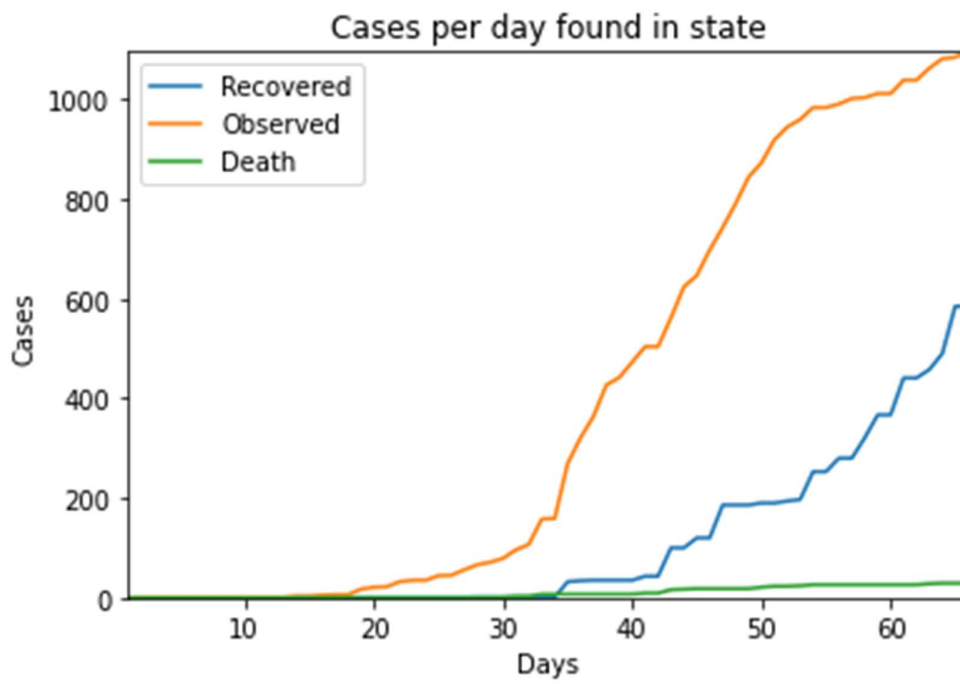Question 3:

Python is used for programming purpose.

1. From data given in AgeGroupDetails it is clear that the age group 20-29 is the most infected.

2. Assumption:

   a. New dataset is downloaded from Kaggle having data till 06 may.

   b. All the column of given data (covid_19_india) are in the type as expected but the column for ConfirmedForeignNational is in object type which should be in int type so converted in int.

   c. Column ConfirmedForeignNational has some value "-". So, deal with this situation the mean of the data for particular state is calculated and replaced.

   d. Column ConfirmedIndianNational has some value "-". So, deal with this situation data is filled by subtracting Column ConfirmedForeignNational from the column Confirmed.

   e. Observed cases is assumed to be the Confirmed column.

   f. The plot for state wise Vs per day are plotted assuming 31 Jan as first day.
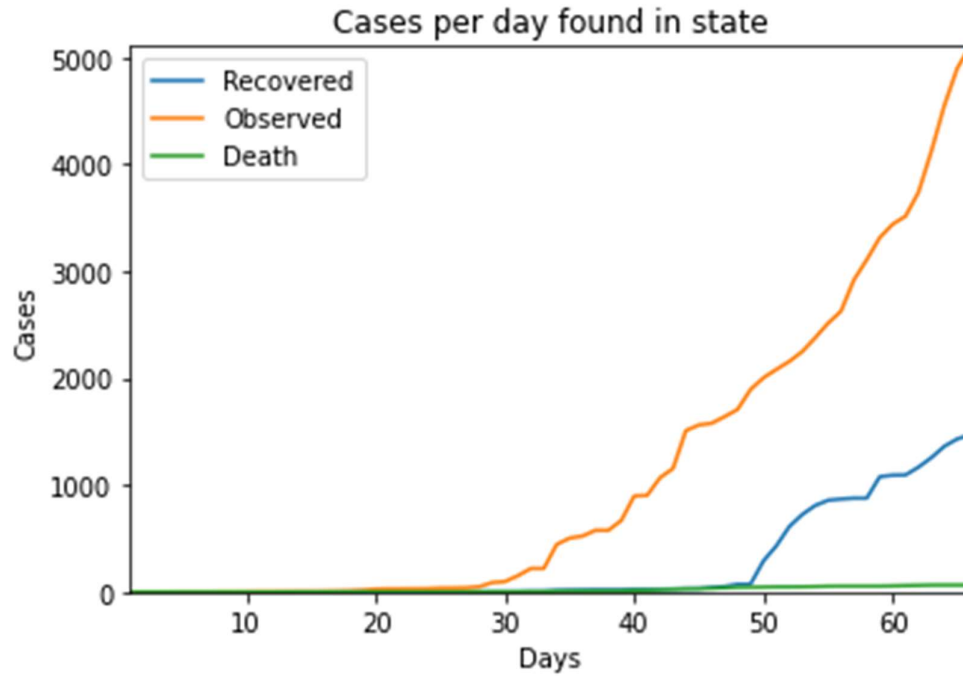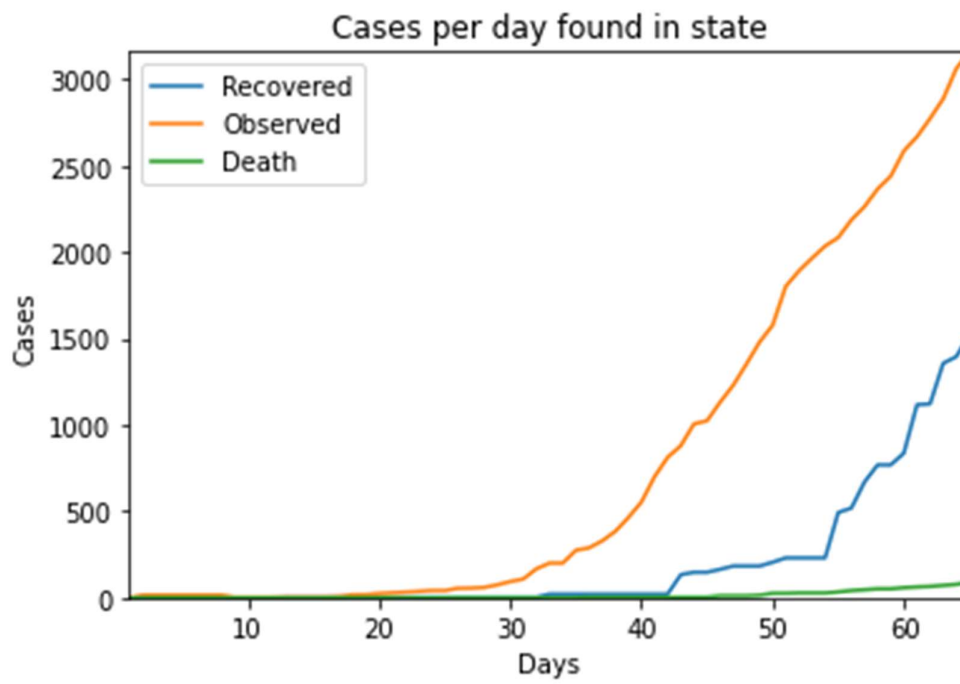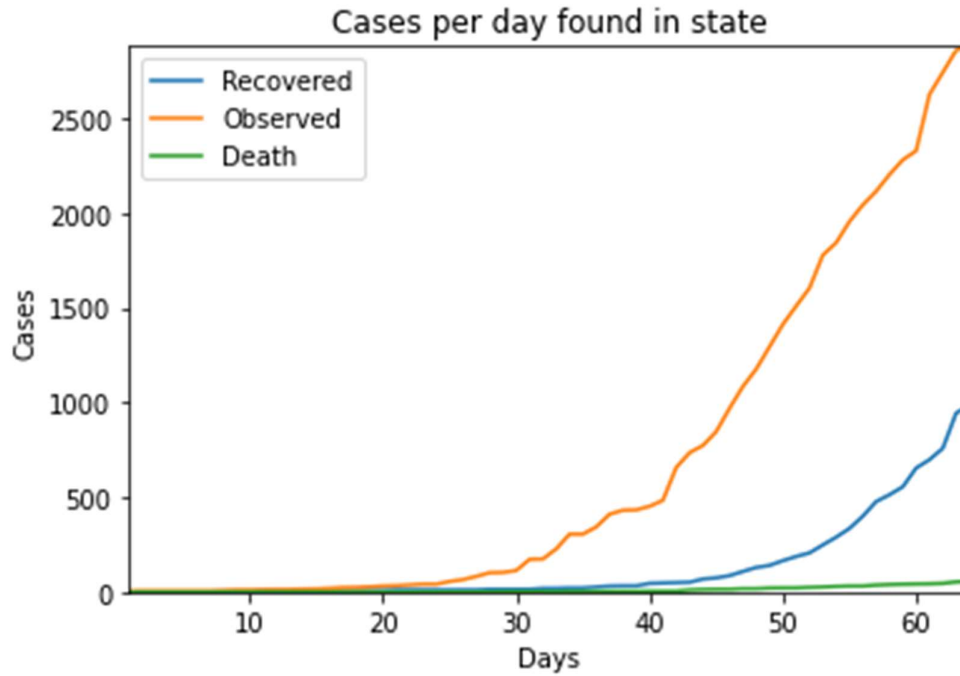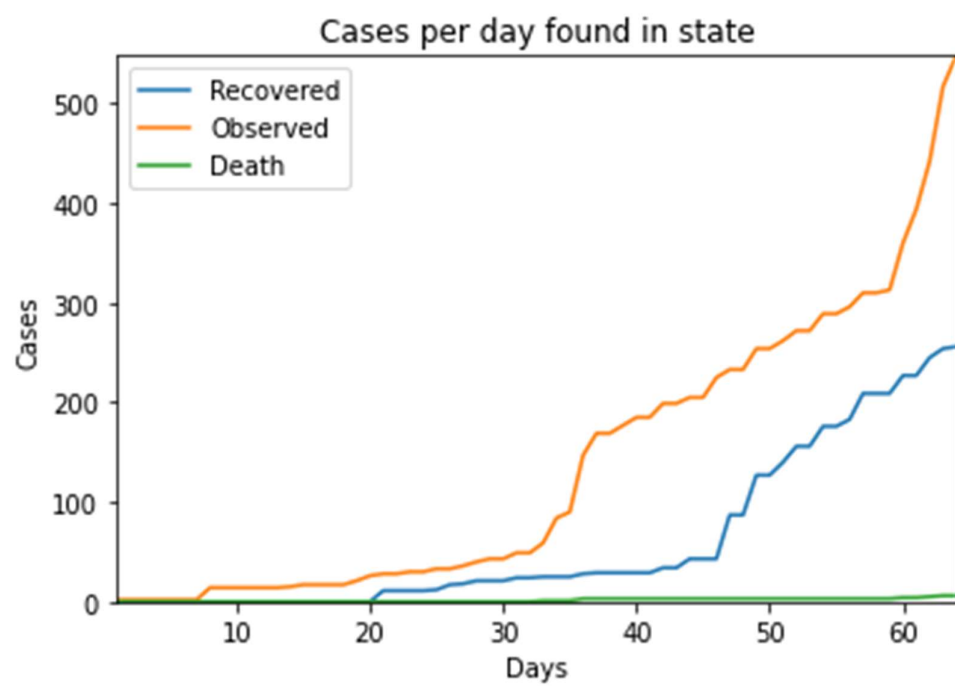
Kerala

Telangana

Cases per day found in state

Delhi

Cases per day found in state

Rajasthan

Cases per day found in state

Uttar Pradesh

Cases per day found in state

Haryana

Cases per day found in state

Ladakh

Cases per day found in state

Tamil Nadu

Cases per day found in state

Karnataka

Cases per day found in state

Maharashtra

Cases per day found in state

Punjab

Cases per day found in state
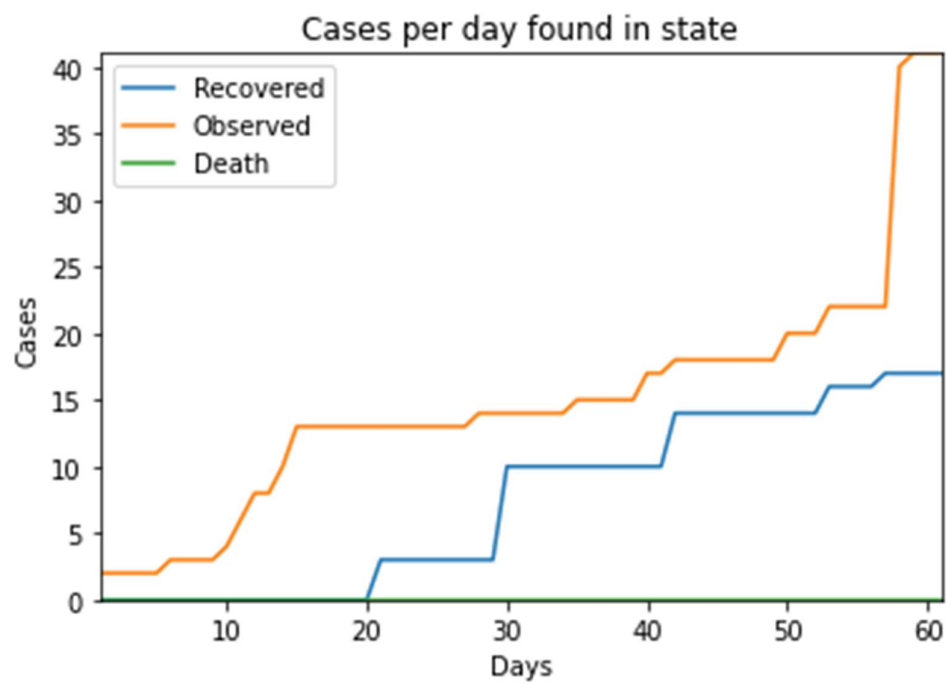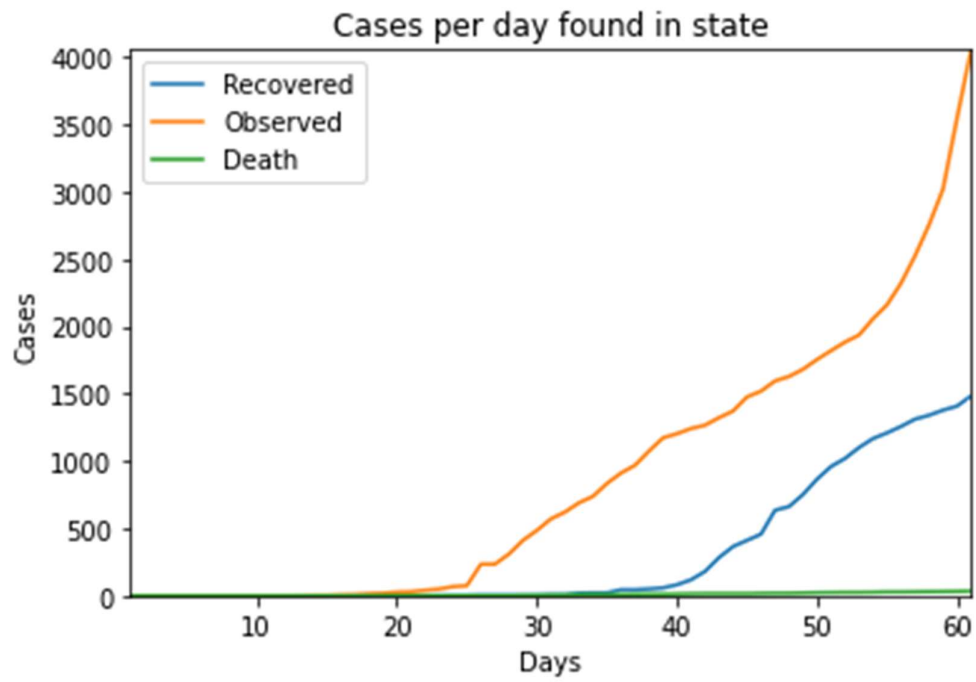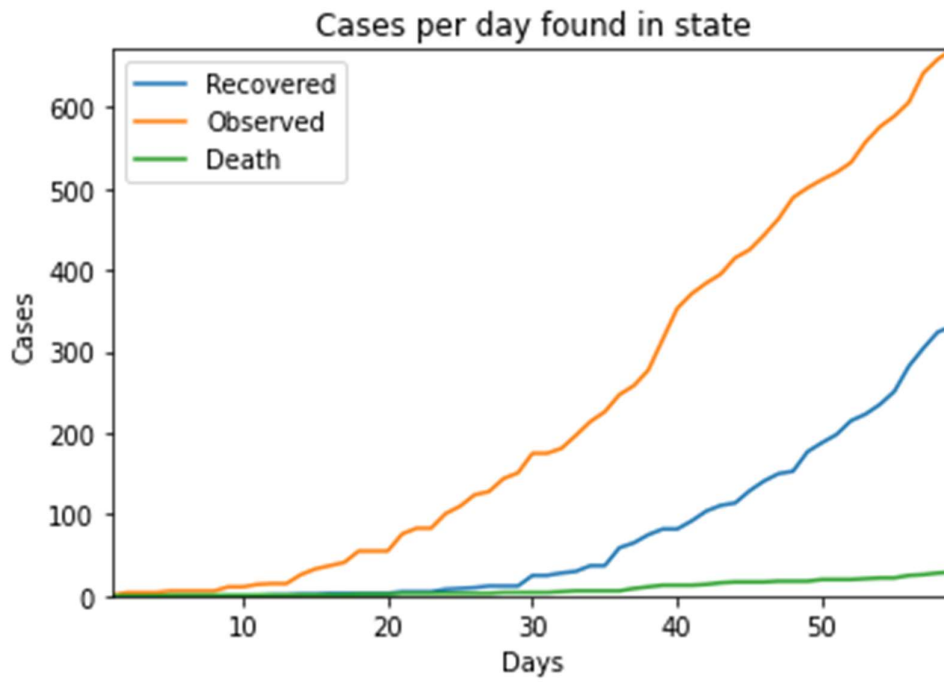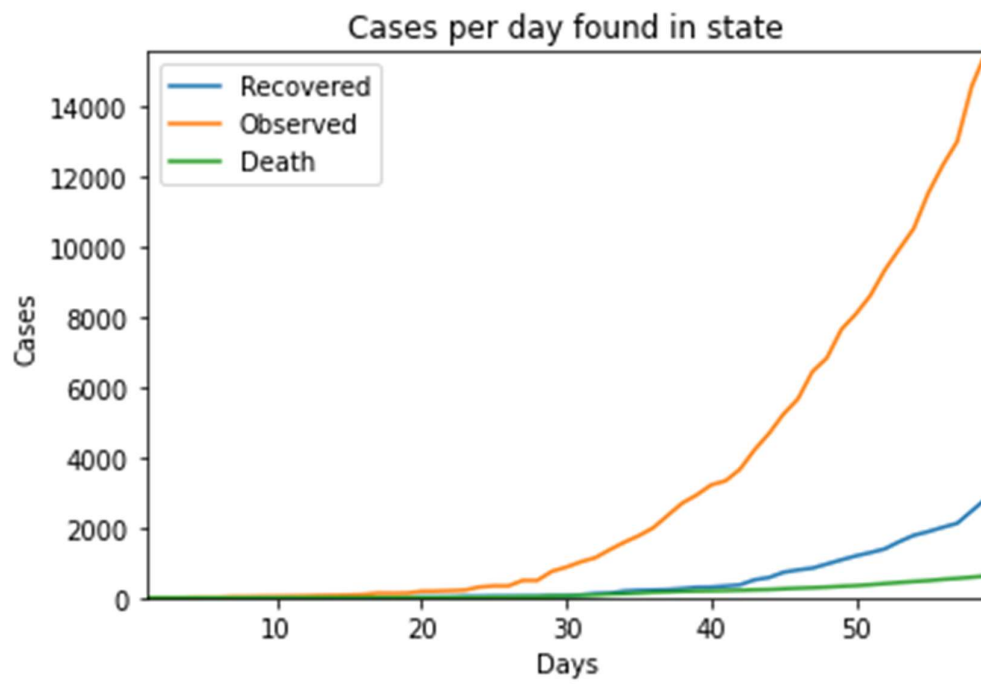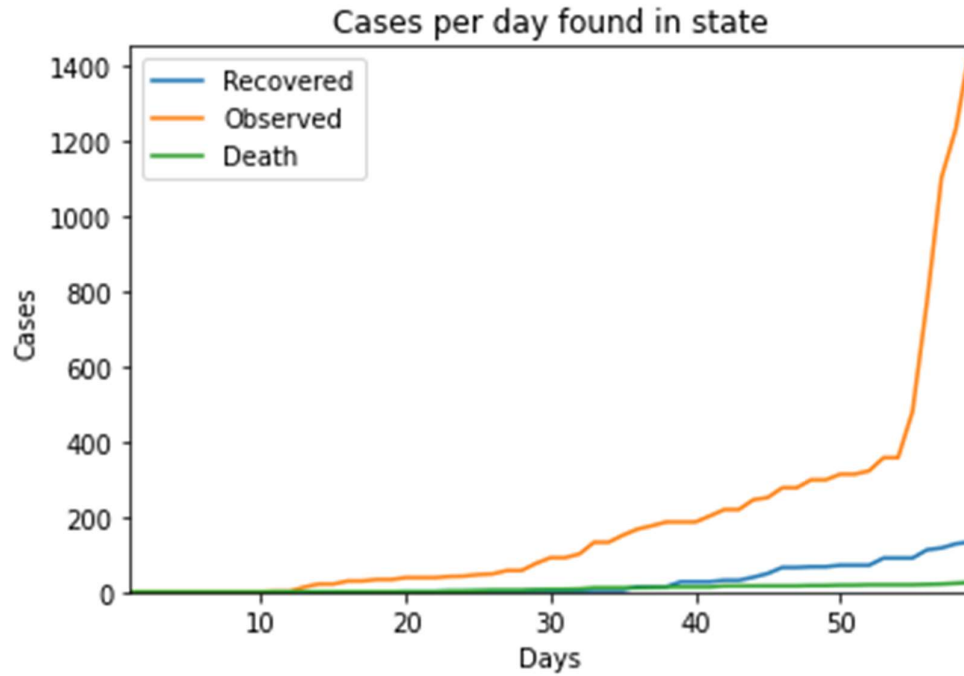
Jammu and Kashmir
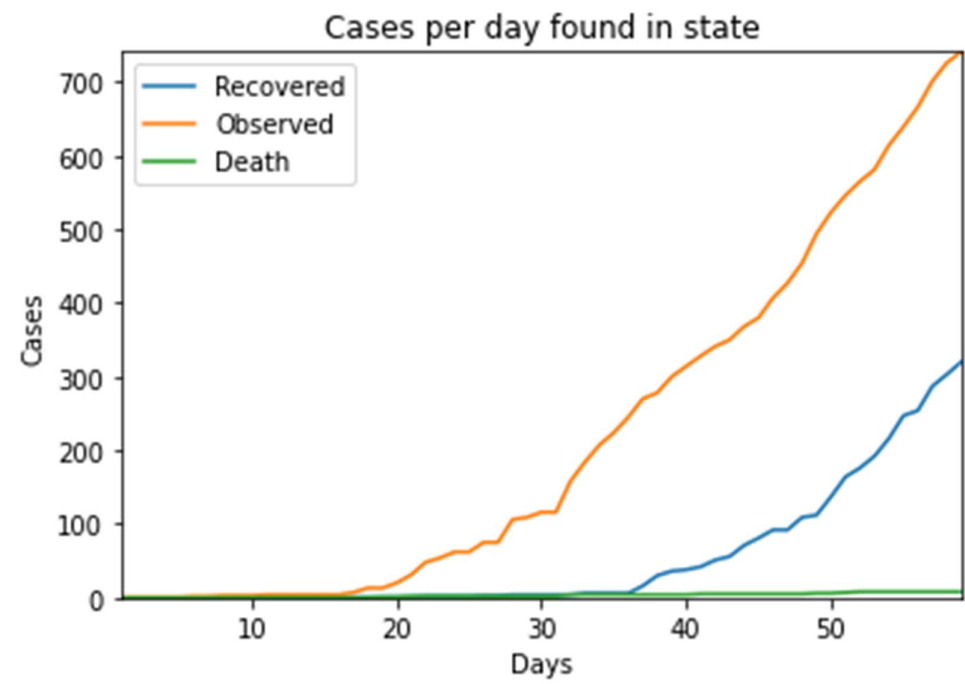
Andhra Pradesh
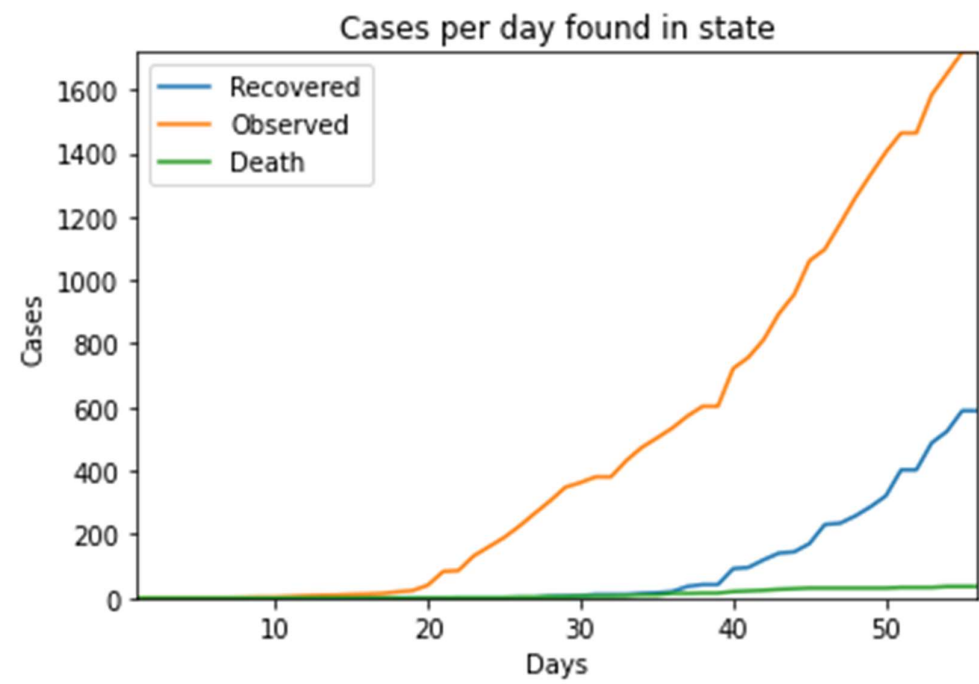
Uttarakhand
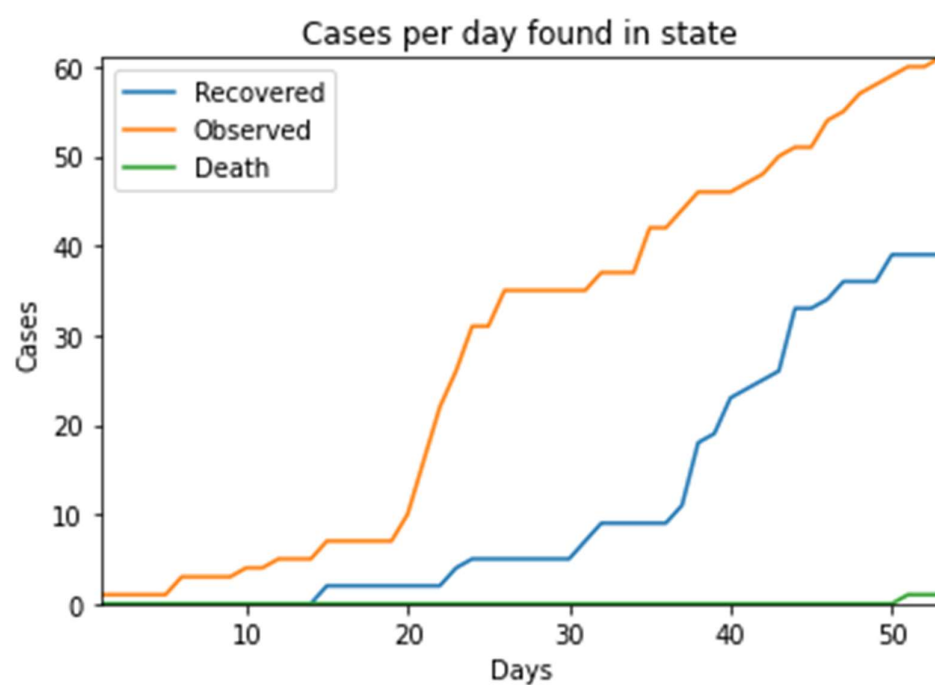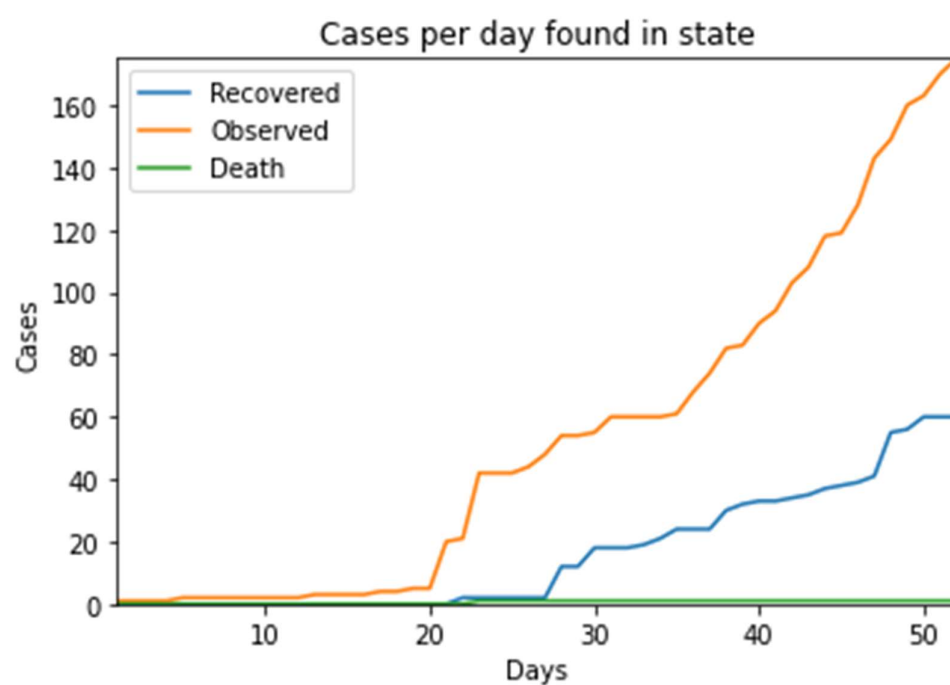
Cases per day found in state

Odisha

Cases per day found in state

Puducherry

Cases per day found in state

West Bengal

Cases per day found in state

Chhattisgarh

Cases per day found in state

Chandigarh

Cases per day found in state

Gujarat

Cases per day found in state

Himachal Pradesh

Cases per day found in state
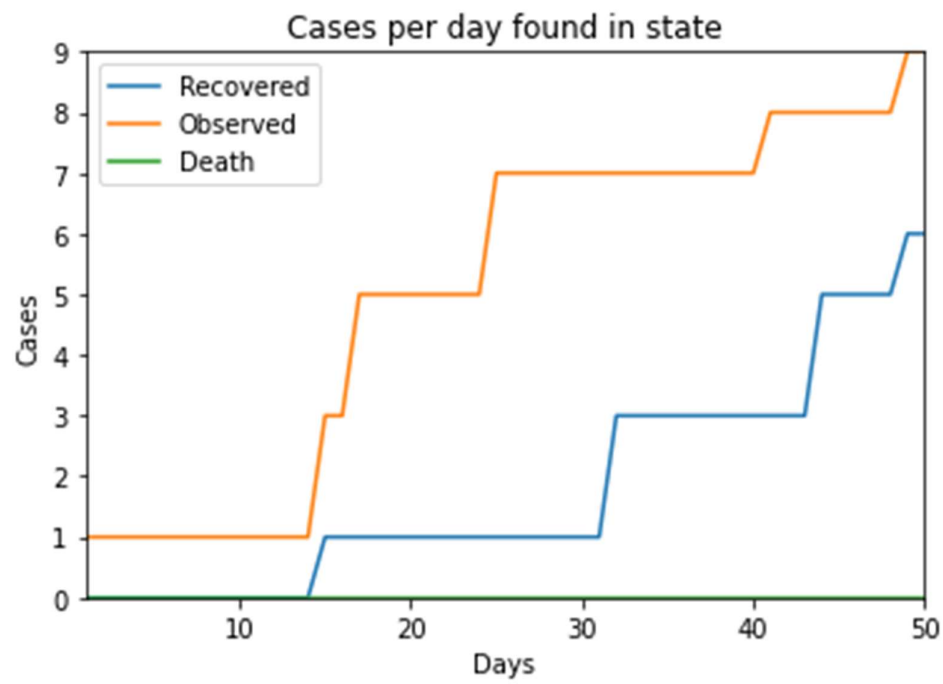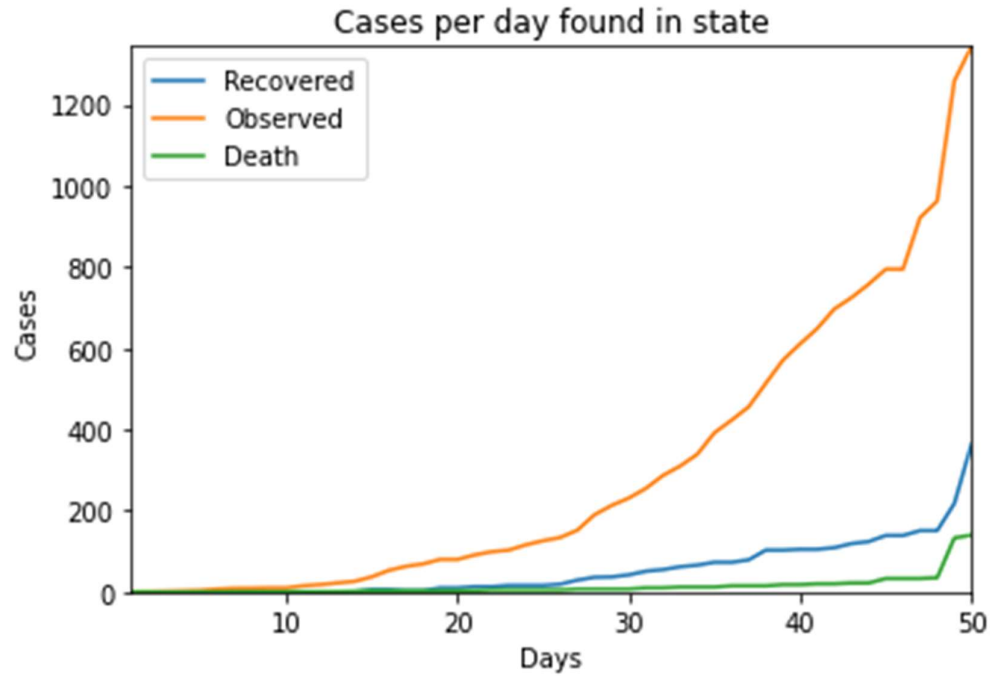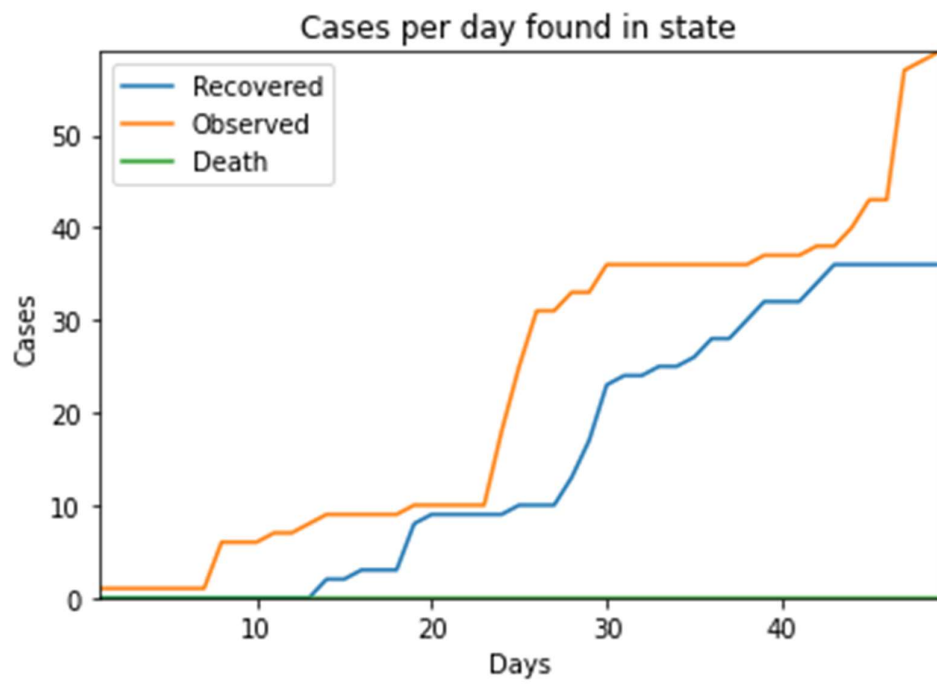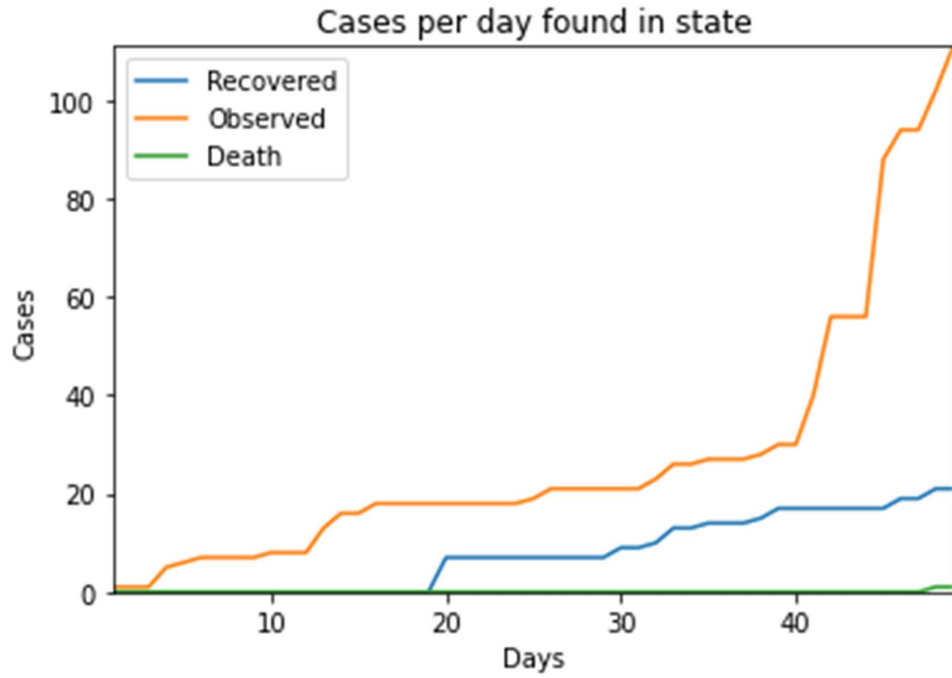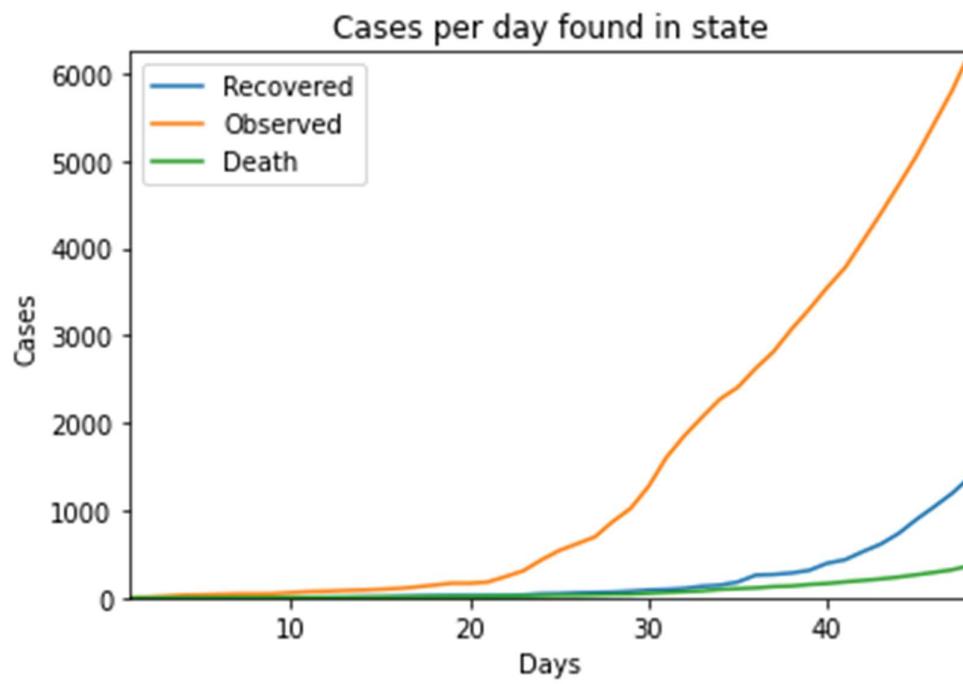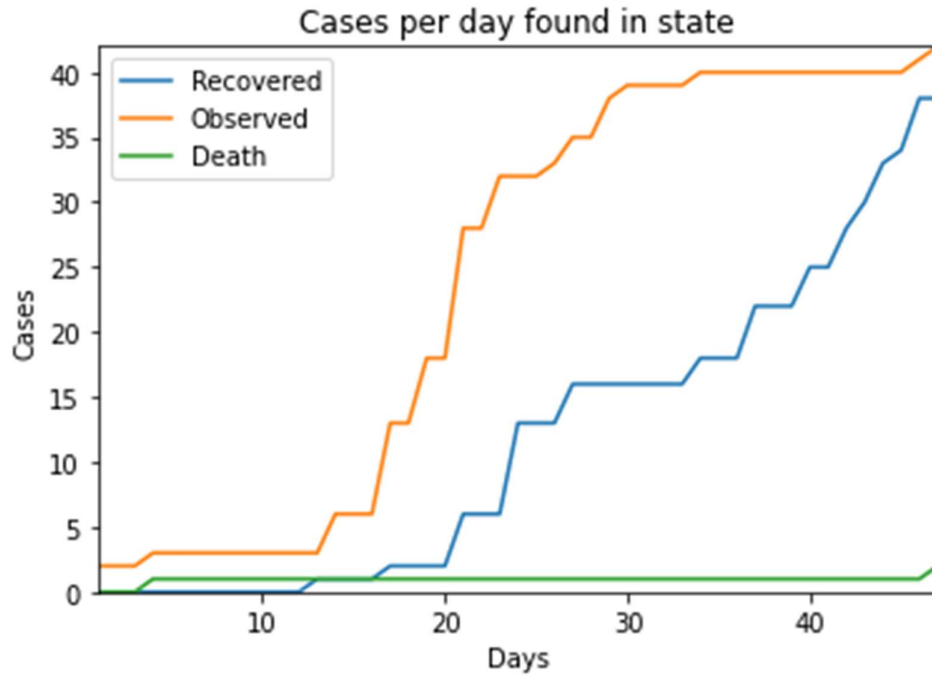
Madhya Pradesh

Bihar

Manipur

Cases per day found in state

Mizoram

Cases per day found in state

Andaman and Nicobar Islands

Cases per day found in state

Goa

Cases per day found in state

Assam

Cases per day found in state

Jharkhand

Cases per day found in state
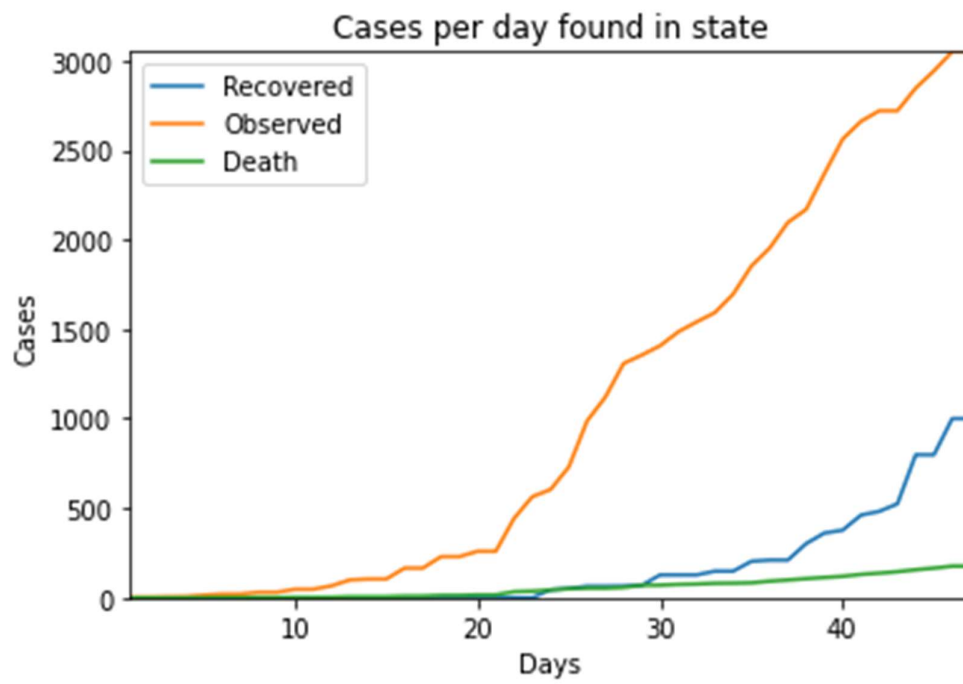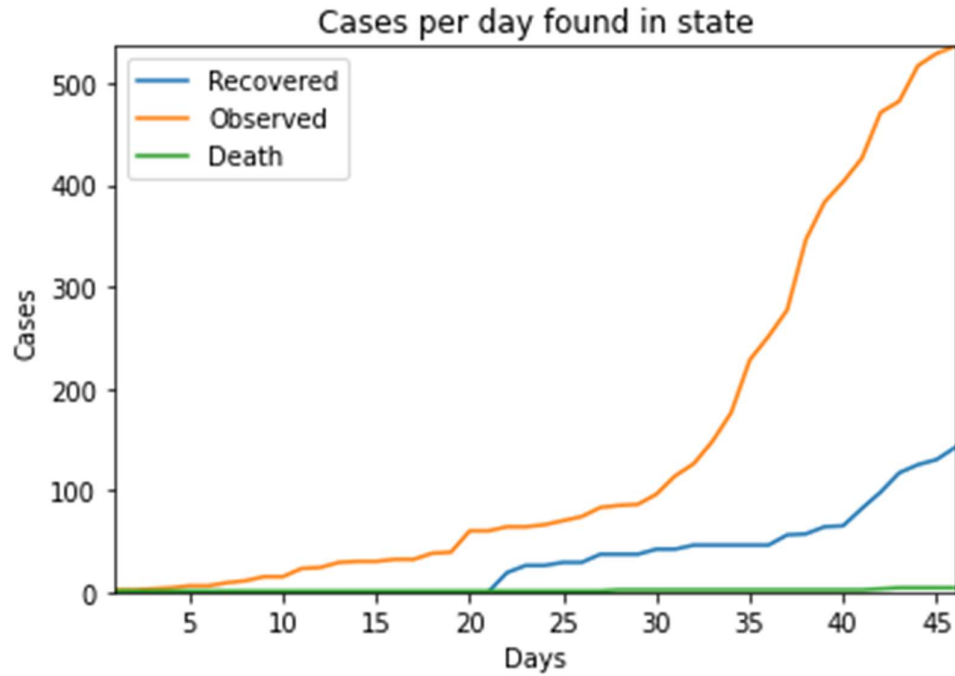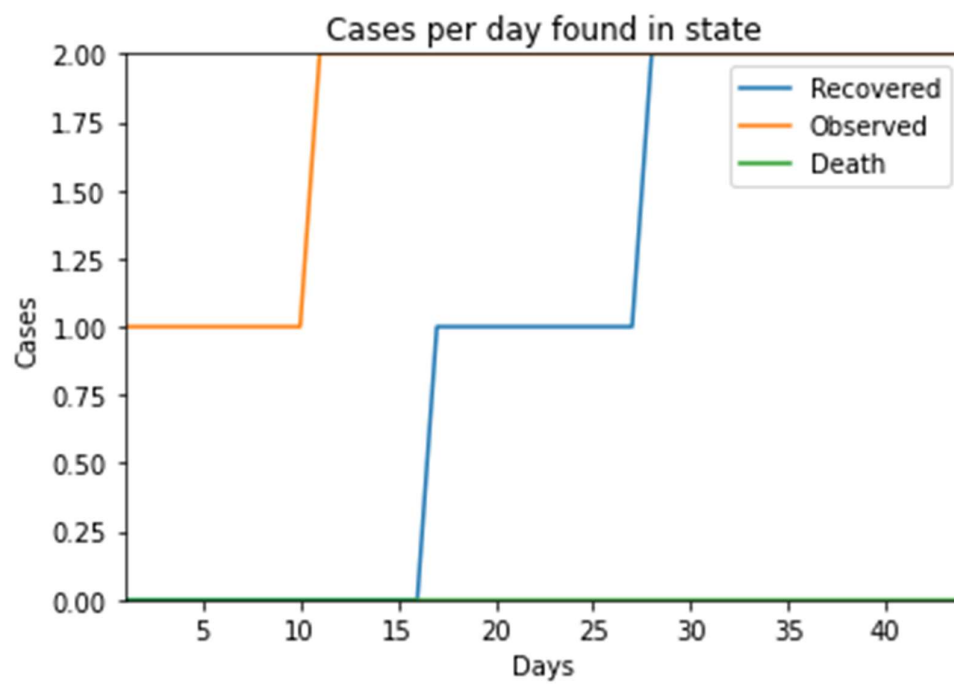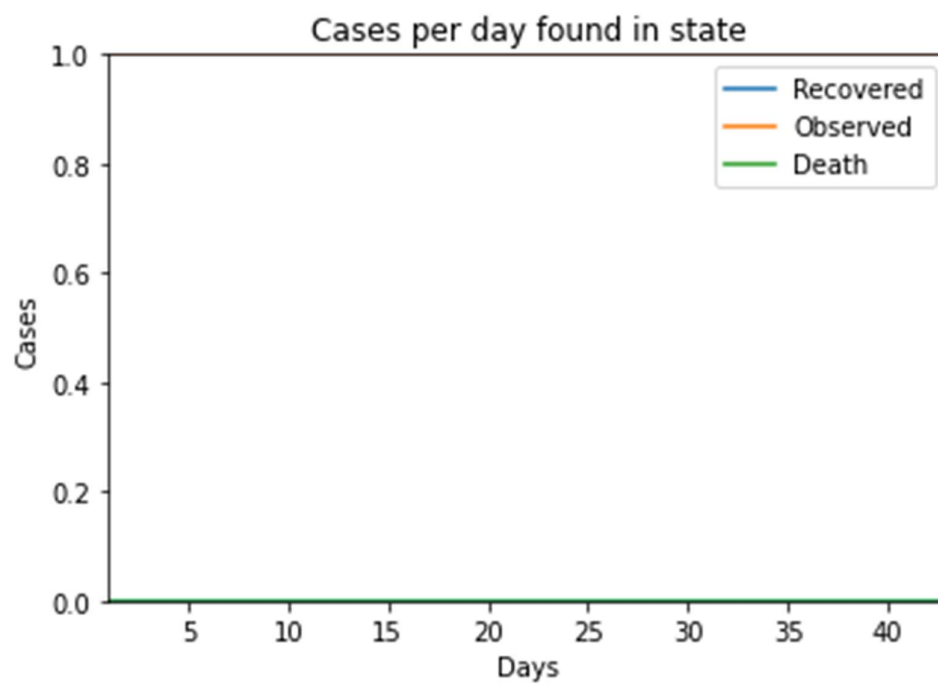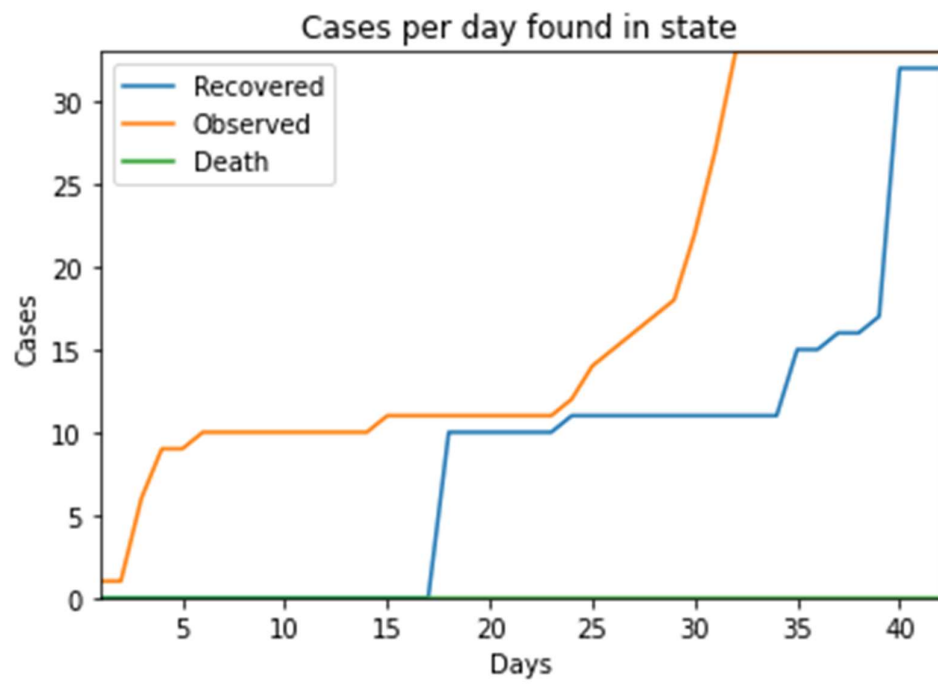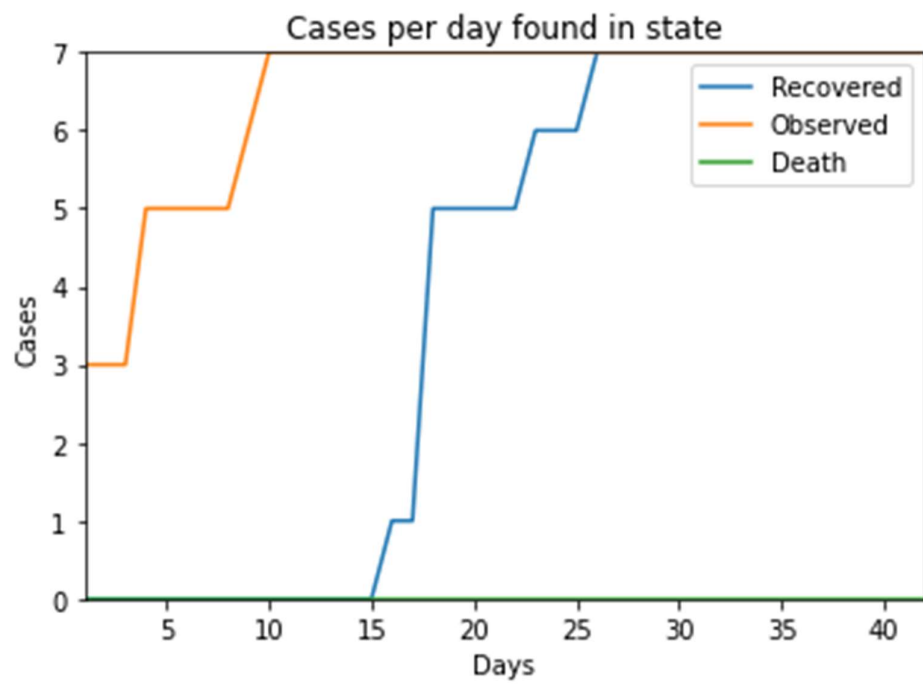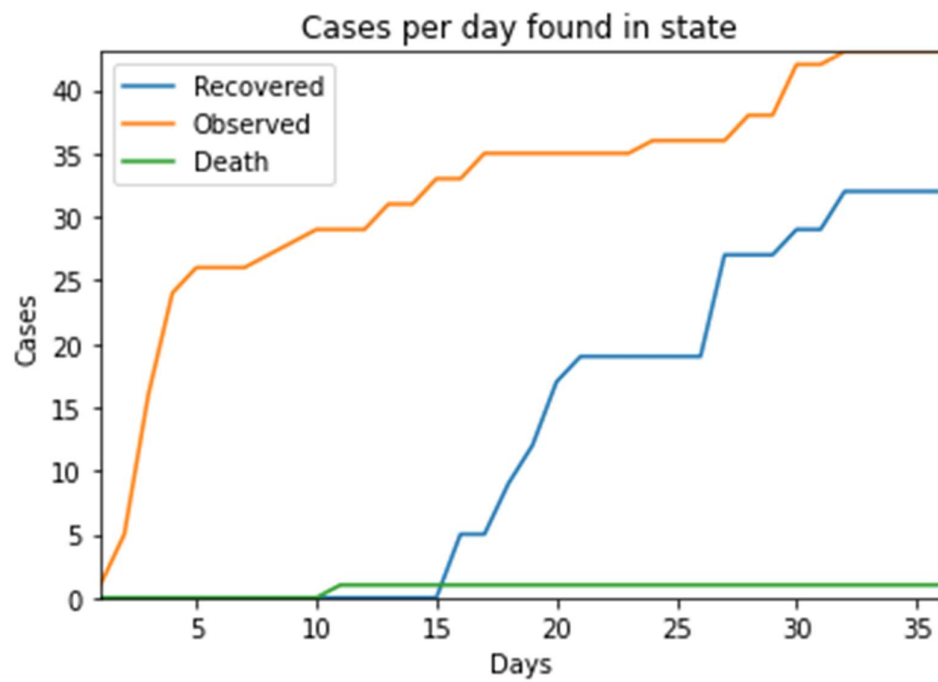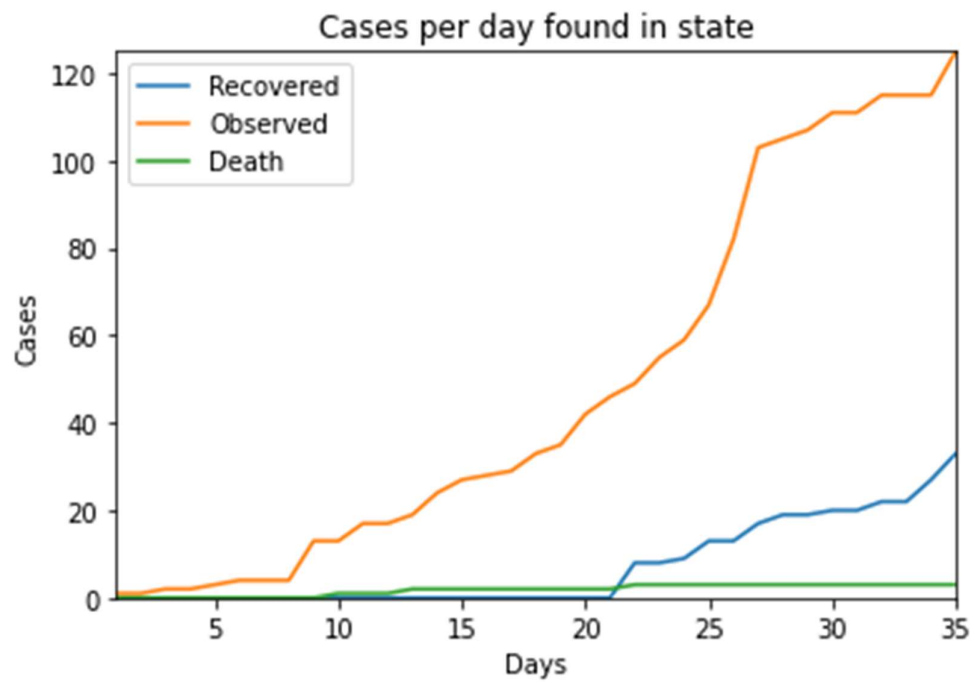
Tripura

Nagaland

Meghalaya

Cases per day found in state

Nagaland

Cases per day found in state

Jharkhand

Cases per day found in state

Dadar Nagar Haveli

Cases per day found in state
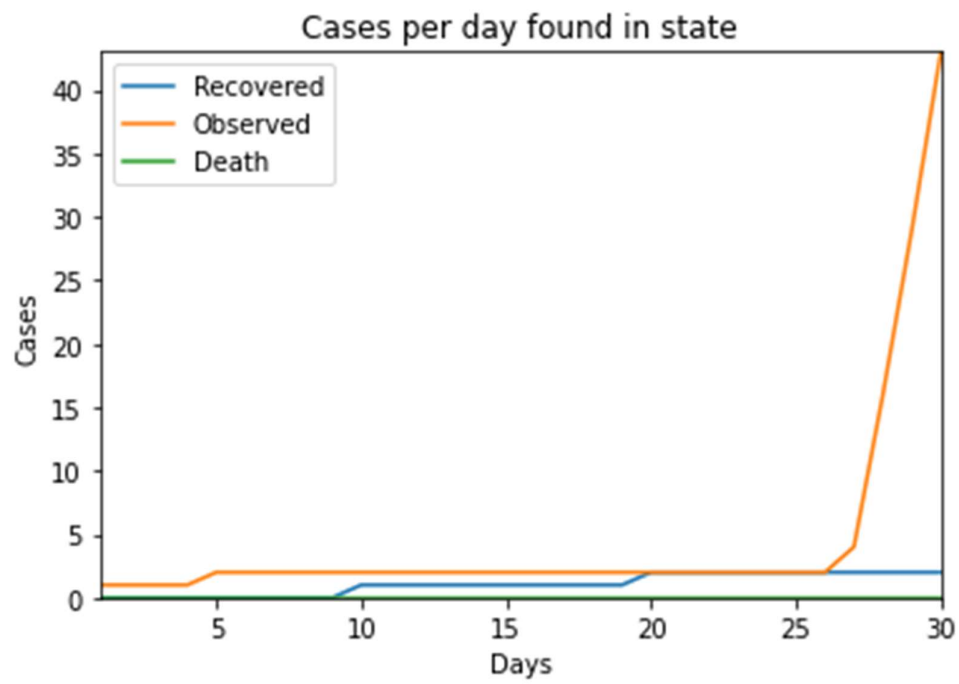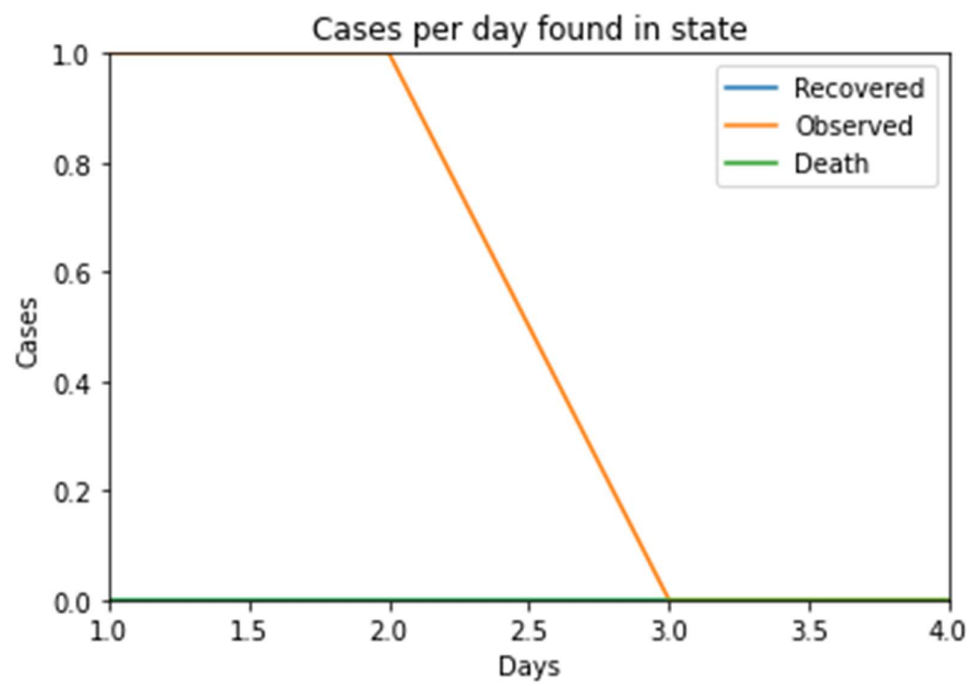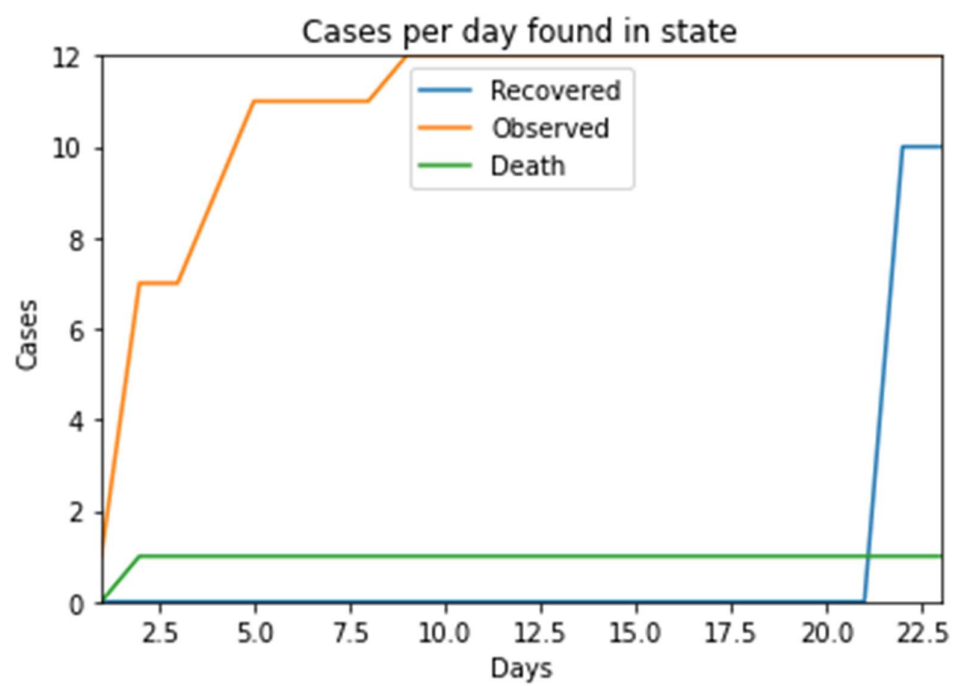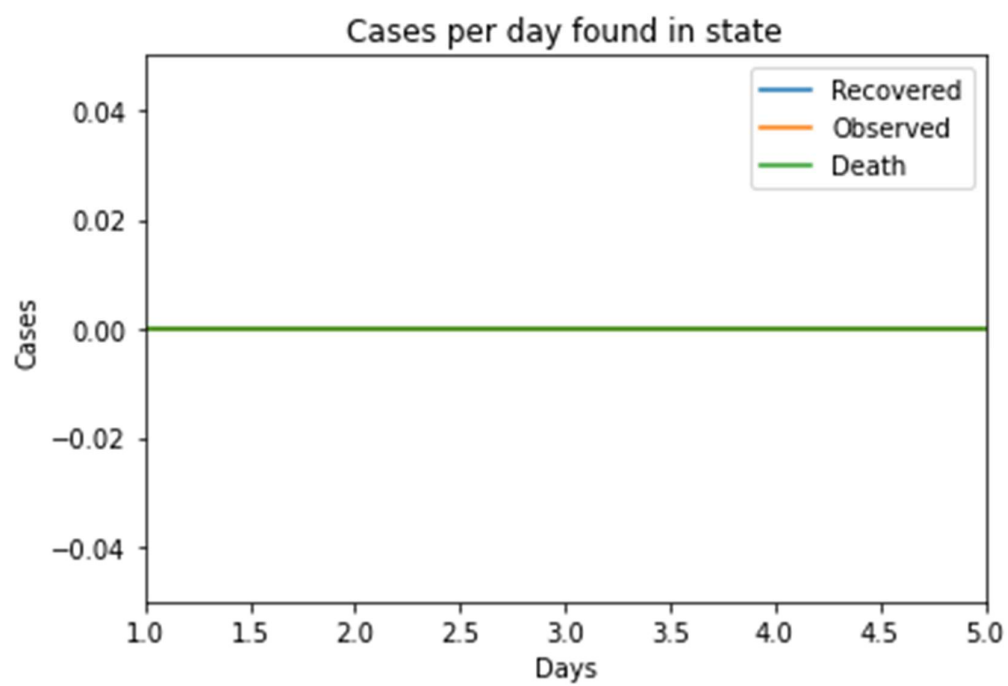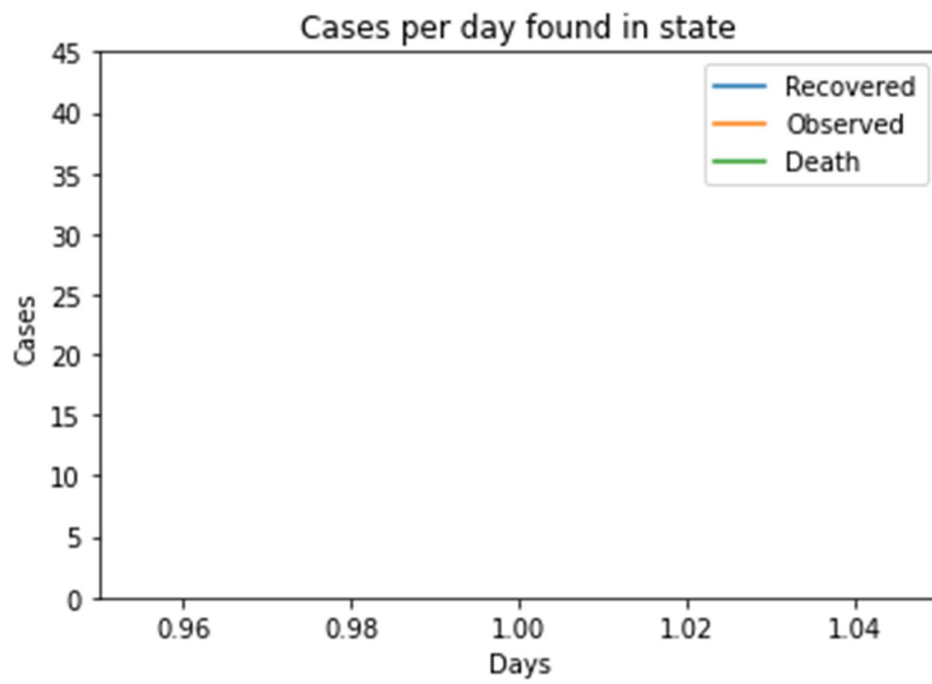
The plot for the cases country wise

A very random plot is obtained below because there is no pattern how many cases can be found a day.

Here if see the bar plot for individual cases it is easy to understand

Observed cases:

Cured cases:

Deaths:

3. Positive cases and intensity

Assumptions:

    a. For the positive cases in a state data StatewiseTestingDetails is taken.
    b. For the population density in the particular state data population_india_census2011 is taken.
    c. The blank data is filled with "0".
    d. Intensity is limited till two decimal point

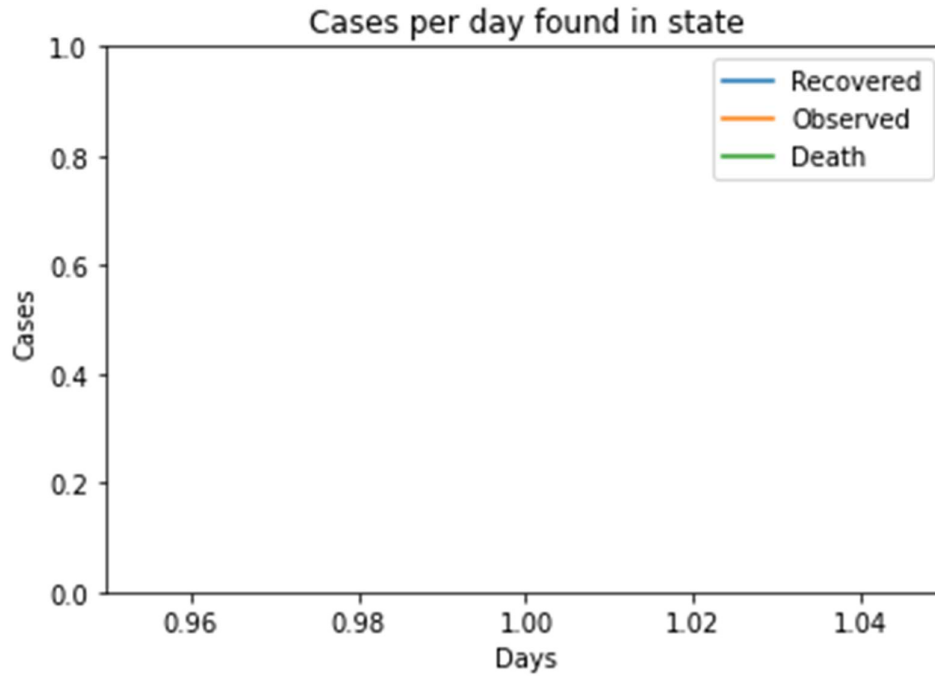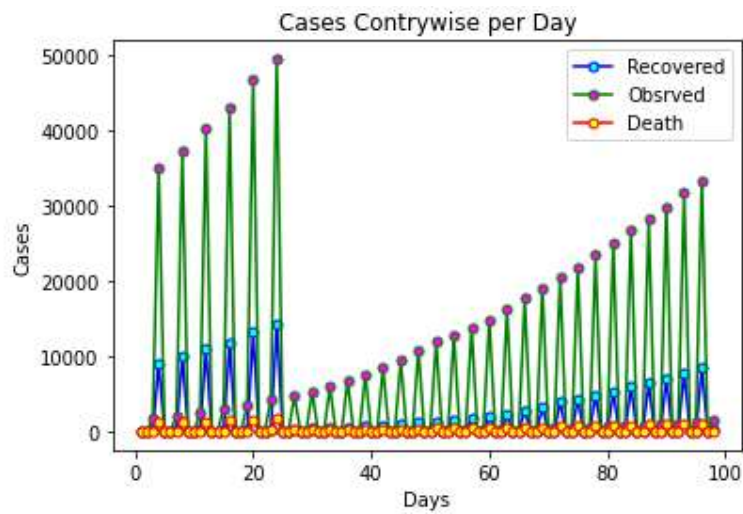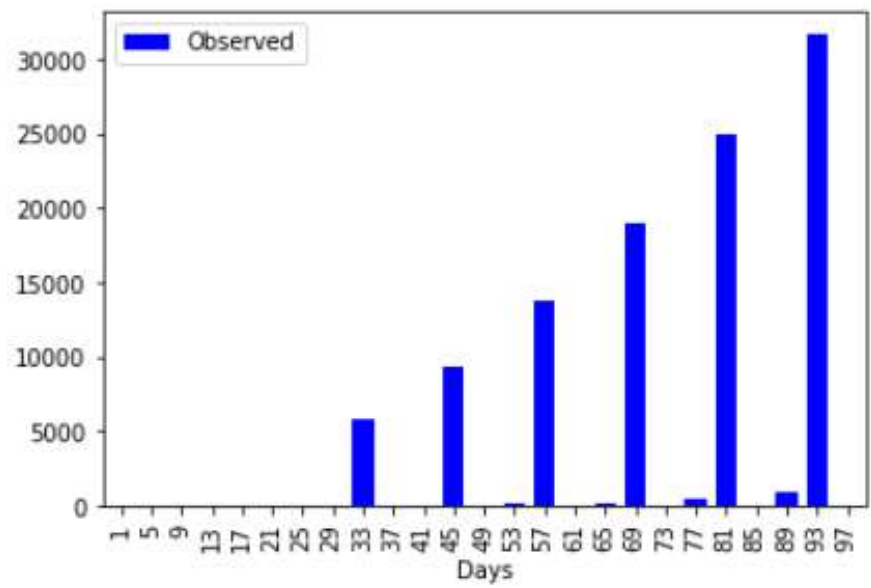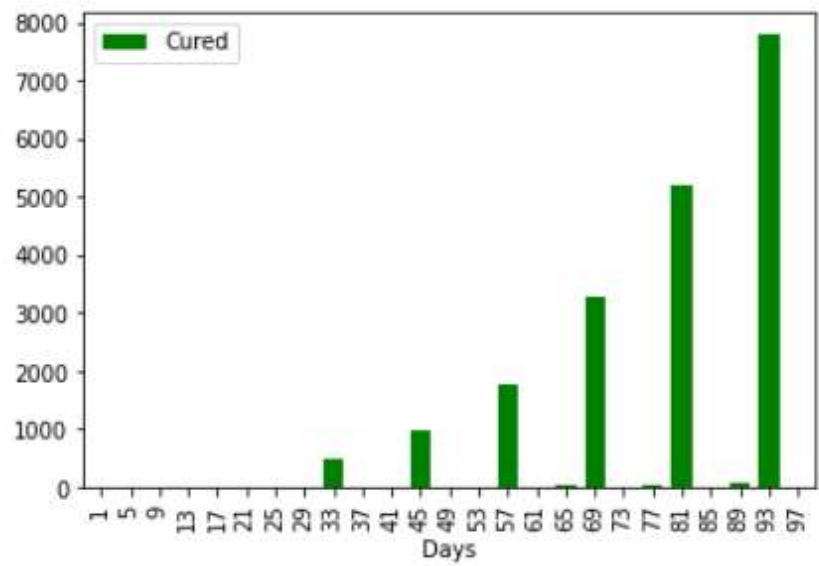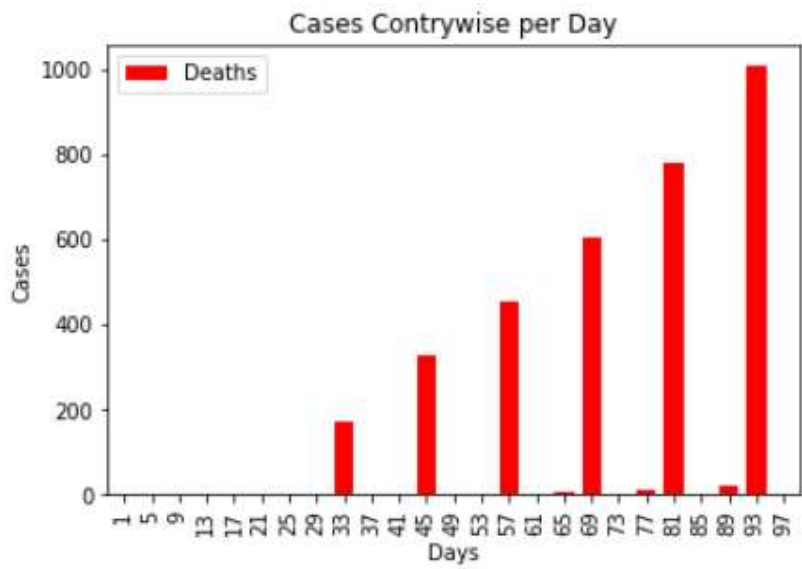|	State	cases	Density	Intensity
0	Andaman and Nicobar Islands	105.0	46.0	2.28
1	Andhra Pradesh	24431.0	303.0	80.63
2	Arunachal Pradesh	26.0	17.0	1.53
3	Assam	631.0	397.0	1.59
4	Bihar	5966.0	1102.0	5.41
5	Chandigarh	1059.0	9252.0	0.11
6	Chhattisgarh	821.0	189.0	4.34
7	Delhi	56661.0	11297.0	5.02
8	Goa	159.0	394.0	0.40
9	Gujarat	63780.0	308.0	207.08
10	Haryana	7319.0	573.0	12.77
11	Himachal Pradesh	938.0	123.0	7.63
12	Jammu and Kashmir	11054.0	98.0	112.80
13	Jharkhand	1432.0	414.0	3.46
14	Karnataka	12007.0	319.0	37.64
15	Kerala	13995.0	859.0	16.29
16	Ladakh	277.0	2.8	98.93
17	Madhya Pradesh	43564.0	236.0	184.59
18	Maharashtra	165736.0	365.0	454.07
19	Meghalaya	181.0	132.0	1.37
20	Mizoram	24.0	52.0	0.46
21	Nagaland	0.0	119.0	0.00

|				
22	Odisha	2668.0	269.0	9.92
23	Puducherry	142.0	2598.0	0.05
24	Punjab	10817.0	550.0	19.67
25	Rajasthan	49075.0	201.0	244.15
26	Sikkim	0.0	86.0	0.00
27	Tamil Nadu	46173.0	555.0	83.19
28	Telangana	2883.0	312.0	9.24
29	Tripura	40.0	350.0	0.11
30	Uttar Pradesh	37294.0	828.0	45.04
31	Uttarakhand	1291.0	189.0	6.83
32	West Bengal	11046.0	1029.0	10.73

8. 1ˢᵗ March – 10 April

Flattening the curve: The term was introduced during lockdown which means increasing the time spam to get the peak of cases.
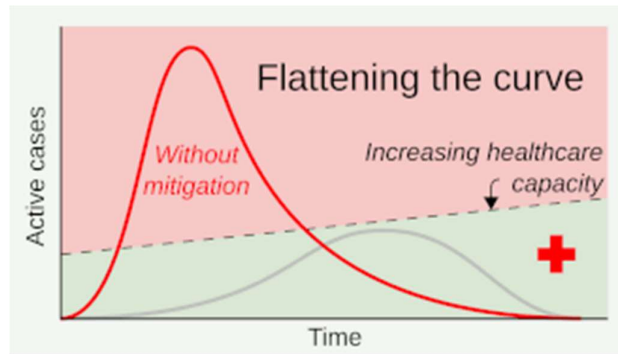
If we see on the above graph the peak is found in gray curve latter comparing with the red one, and this called flattening of curve.

This case of flattening only means increasing the time spam which can be see in below graph generated by the data from 1ˢᵗ march to 10 April.
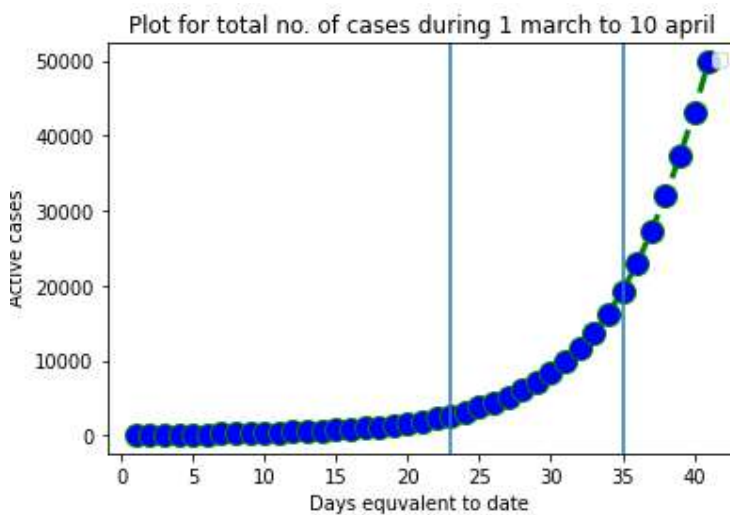
Period between to sky blue line shows the case of flattening which was mainly during lockdown.

9. Lockdown Period:

The graph below is plotted for every day rate of increasing the cases for 21 days before and after lockdown and it is clear that the increasing rate is negative for lockdown period.

$$Increasing\ rate\ = \frac{case\ found\ at\ particular\ day}{Total\ cases\ till\ that\ day}$$