In [33]:
```
LIST_1_Name_of_States_of_India=["Andaman and Nicobar",
"Andhra Pradesh",
"Arunachal Pradesh",
"Assam",
"Bihar",
"Chandigarh",
"Chhattisgarh",
"Dadra and Nagar Haveli",
"Dadra and Nagar Haveli",
"Delhi",
"Goa",
"Gujarat",
"Haryana",
"Himachal Pradesh",
"Jammu and Kashmir",
"Jharkhand",
"Karnataka",
"Kerala",
"Ladakh",
"Lakshadweep",
"Madhya Pradesh",
"Maharashtra",
"Manipur",
"Meghalaya",
"Mizoram",
"Nagaland",
"Odisha",
"Puducherry",
"Punjab",
"Rajasthan",
"Sikkim",
"Tamil Nadu",
"Telengana",
"Tripura",
"Uttar Pradesh",
"Uttarakhand",
```

```
"West Bengal",
]
```

In [34]:
```
LIST_1_Name_of_States_of_India[36]
```

Out[34]:
```
'West Bengal'
```

In [35]:
```
LIST_2_Number_of_infected_numbers_in_list_1=[100,
15252,
195,
8582,
10249,
446,
2940,
215,
215,
89802,
1387,
33232,
14941,
979,
7695,
2521,
16514,
4593,
990,
1,
13861,
180298,
1260,
52,
160,
459,
7316,
714,
5668,
18312,
101,
94049,
```

```
17357,
1396,
24056,
2947,
19170,
]
```

In [36]:
```
for i in range (0,37):
    print("{} has {} number of infected persons".format(LIST_1_Name_of_
States_of_India[i], LIST_2_Number_of_infected_numbers_in_list_1[i]))
```

```
Andaman and Nicobar has 100 number of infected persons
Andhra Pradesh has 15252 number of infected persons
Arunachal Pradesh has 195 number of infected persons
Assam has 8582 number of infected persons
Bihar has 10249 number of infected persons
Chandigarh has 446 number of infected persons
Chhattisgarh has 2940 number of infected persons
Dadra and Nagar Haveli has 215 number of infected persons
Dadra and Nagar Haveli has 215 number of infected persons
Delhi has 89802 number of infected persons
Goa has 1387 number of infected persons
Gujarat has 33232 number of infected persons
Haryana has 14941 number of infected persons
Himachal Pradesh has 979 number of infected persons
Jammu and Kashmir has 7695 number of infected persons
Jharkhand has 2521 number of infected persons
Karnataka has 16514 number of infected persons
Kerala has 4593 number of infected persons
Ladakh has 990 number of infected persons
Lakshadweep has 1 number of infected persons
Madhya Pradesh has 13861 number of infected persons
Maharashtra has 180298 number of infected persons
Manipur has 1260 number of infected persons
Meghalaya has 52 number of infected persons
Mizoram has 160 number of infected persons
Nagaland has 459 number of infected persons
Odisha has 7316 number of infected persons
Puducherry has 714 number of infected persons
```

```
Punjab has 5668 number of infected persons
Rajasthan has 18312 number of infected persons
Sikkim has 101 number of infected persons
Tamil Nadu has 94049 number of infected persons
Telengana has 17357 number of infected persons
Tripura has 1396 number of infected persons
Uttar Pradesh has 24056 number of infected persons
Uttarakhand has 2947 number of infected persons
West Bengal has 19170 number of infected persons
```

In [37]:

```
LIST_3_Numbers_in_Recovered=[50,
6988,
66,
5851,
7946,
367,
2303,
86,
86,
59992,
670,
24030,
10499,
614,
4856,
1931,
8063,
2439,
694,
0,
10655,
93154,
579,
42,
123,
168,
5353,
272,
3867,
```

```
14574,
53,
52926,
8082,
1093,
16629,
2317,
12528,
]
```

In [38]:
```
print("(Name_of_States_of_India, Numbers_in_Recovered)")
for i in range(0,37):
    LIST_4_Numbers_in_Recovered_In_Each_State=[(LIST_1_Name_of_States_of_India[i],LIST_3_Numbers_in_Recovered[i])]
    for i in LIST_4_Numbers_in_Recovered_In_Each_State:
        print(i)
```

```
(Name_of_States_of_India, Numbers_in_Recovered)
('Andaman and Nicobar', 50)
('Andhra Pradesh', 6988)
('Arunachal Pradesh', 66)
('Assam', 5851)
('Bihar', 7946)
('Chandigarh', 367)
('Chhattisgarh', 2303)
('Dadra and Nagar Haveli', 86)
('Dadra and Nagar Haveli', 86)
('Delhi', 59992)
('Goa', 670)
('Gujarat', 24030)
('Haryana', 10499)
('Himachal Pradesh', 614)
('Jammu and Kashmir', 4856)
('Jharkhand', 1931)
('Karnataka', 8063)
('Kerala', 2439)
('Ladakh', 694)
('Lakshadweep', 0)
('Madhya Pradesh', 10655)
```

```
('Maharashtra', 93154)
('Manipur', 579)
('Meghalaya', 42)
('Mizoram', 123)
('Nagaland', 168)
('Odisha', 5353)
('Puducherry', 272)
('Punjab', 3867)
('Rajasthan', 14574)
('Sikkim', 53)
('Tamil Nadu', 52926)
('Telengana', 8082)
('Tripura', 1093)
('Uttar Pradesh', 16629)
('Uttarakhand', 2317)
('West Bengal', 12528)
```

In [39]:
```
for i in range(0,37):
    STATE_INFECTED = {LIST_1_Name_of_States_of_India[i]:LIST_2_Number_of_infected_numbers_in_list_1[i]}
    for item in STATE_INFECTED:
        print(item)
        STATE_INFECTED.items()
```

```
Andaman and Nicobar
Andhra Pradesh
Arunachal Pradesh
Assam
Bihar
Chandigarh
Chhattisgarh
Dadra and Nagar Haveli
Dadra and Nagar Haveli
Delhi
Goa
Gujarat
Haryana
Himachal Pradesh
Jammu and Kashmir
```

```
Jharkhand
Karnataka
Kerala
Ladakh
Lakshadweep
Madhya Pradesh
Maharashtra
Manipur
Meghalaya
Mizoram
Nagaland
Odisha
Puducherry
Punjab
Rajasthan
Sikkim
Tamil Nadu
Telengana
Tripura
Uttar Pradesh
Uttarakhand
West Bengal
```

In [40]:
```
STATE_INFECTED.items()
```

Out[40]:
```
dict_items([('West Bengal', 19170)])
```

In [41]:
```
for k,v in STATE_INFECTED.items():
    print(k,v)
```

```
West Bengal 19170
```

In [42]:
```
#Why for loop is not working for dictionary, only the last value is pri
nted.LI
```

In [43]:
```
STATE_INFECTED_DICTIONARY={'Andaman and Nicobar':100,
'Andhra Pradesh':15252,
'Arunachal Pradesh':195,
```

```
'Assam':8582,
'Bihar':10249,
'Chandigarh':446,
'Chhattisgarh':2940,
'Dadra and Nagar Haveli':215,
'Dadra and Nagar Haveli':215,
'Delhi':89802,
'Goa':1387,
'Gujarat':33232,
'Haryana':14941,
'Himachal Pradesh':979,
'Jammu and Kashmir':7695,
'Jharkhand':2521,
'Karnataka':16514,
'Kerala':4593,
'Ladakh':990,
'Lakshadweep':1,
'Madhya Pradesh':13861,
'Maharashtra':180298,
'Manipur':1260,
'Meghalaya':52,
'Mizoram':160,
'Nagaland':459,
'Odisha':7316,
'Puducherry':714,
'Punjab':5668,
'Rajasthan':18312,
'Sikkim':101,
'Tamil Nadu':94049,
'Telengana':17357,
'Tripura':1396,
'Uttar Pradesh':24056,
'Uttarakhand':2947,
'West Bengal':19170,
}
```

In [44]:
```
STATE_INFECTED_DICTIONARY.items()
```

Out[44]:
```
dict_items([('Andaman and Nicobar', 100), ('Andhra Pradesh', 15252),
```

```
('Arunachal Pradesh', 195), ('Assam', 8582), ('Bihar', 10249), ('Chandi
garh', 446), ('Chhattisgarh', 2940), ('Dadra and Nagar Haveli', 215),
('Delhi', 89802), ('Goa', 1387), ('Gujarat', 33232), ('Haryana', 1494
1), ('Himachal Pradesh', 979), ('Jammu and Kashmir', 7695), ('Jharkhan
d', 2521), ('Karnataka', 16514), ('Kerala', 4593), ('Ladakh', 990), ('L
akshadweep', 1), ('Madhya Pradesh', 13861), ('Maharashtra', 180298),
('Manipur', 1260), ('Meghalaya', 52), ('Mizoram', 160), ('Nagaland', 45
9), ('Odisha', 7316), ('Puducherry', 714), ('Punjab', 5668), ('Rajastha
n', 18312), ('Sikkim', 101), ('Tamil Nadu', 94049), ('Telengana', 1735
7), ('Tripura', 1396), ('Uttar Pradesh', 24056), ('Uttarakhand', 2947),
('West Bengal', 19170)])
```

In [45]:
```
for k,v in STATE_INFECTED_DICTIONARY.items():
    print(k,v)
```

```
Andaman and Nicobar 100
Andhra Pradesh 15252
Arunachal Pradesh 195
Assam 8582
Bihar 10249
Chandigarh 446
Chhattisgarh 2940
Dadra and Nagar Haveli 215
Delhi 89802
Goa 1387
Gujarat 33232
Haryana 14941
Himachal Pradesh 979
Jammu and Kashmir 7695
Jharkhand 2521
Karnataka 16514
Kerala 4593
Ladakh 990
Lakshadweep 1
Madhya Pradesh 13861
Maharashtra 180298
Manipur 1260
Meghalaya 52
Mizoram 160
```

```
Nagaland 459
Odisha 7316
Puducherry 714
Punjab 5668
Rajasthan 18312
Sikkim 101
Tamil Nadu 94049
Telengana 17357
Tripura 1396
Uttar Pradesh 24056
Uttarakhand 2947
West Bengal 19170
```

In [46]:

```
LIST_5_NUMBER_OF_DEATHS=[0,
193,
1,
12,
70,
6,
14,
0,
0,
2803,
4,
1867,
240,
10,
105,
15,
253,
24,
1,
0,
581,
8053,
0,
1,
0,
0,
```

```
25,
12,
149,
421,
0,
1264,
267,
1,
718,
41,
683,
]
```

In [47]:
```
print("(Name_of_States_of_India, Numbers_in_Recovered, Number_of_death
s)")
for i in range(0,37):
    LIST_6_STATE_RECOVRED_DEATHS=[(LIST_1_Name_of_States_of_India[i],LI
ST_3_Numbers_in_Recovered[i],LIST_5_NUMBER_OF_DEATHS[i])]
    for i in (LIST_6_STATE_RECOVRED_DEATHS):
        print(i)
```

```
(Name_of_States_of_India, Numbers_in_Recovered, Number_of_deaths)
('Andaman and Nicobar', 50, 0)
('Andhra Pradesh', 6988, 193)
('Arunachal Pradesh', 66, 1)
('Assam', 5851, 12)
('Bihar', 7946, 70)
('Chandigarh', 367, 6)
('Chhattisgarh', 2303, 14)
('Dadra and Nagar Haveli', 86, 0)
('Dadra and Nagar Haveli', 86, 0)
('Delhi', 59992, 2803)
('Goa', 670, 4)
('Gujarat', 24030, 1867)
('Haryana', 10499, 240)
('Himachal Pradesh', 614, 10)
('Jammu and Kashmir', 4856, 105)
('Jharkhand', 1931, 15)
('Karnataka', 8063, 253)
('Kerala', 2439, 24)
```

```
('Ladakh', 694, 1)
('Lakshadweep', 0, 0)
('Madhya Pradesh', 10655, 581)
('Maharashtra', 93154, 8053)
('Manipur', 579, 0)
('Meghalaya', 42, 1)
('Mizoram', 123, 0)
('Nagaland', 168, 0)
('Odisha', 5353, 25)
('Puducherry', 272, 12)
('Punjab', 3867, 149)
('Rajasthan', 14574, 421)
('Sikkim', 53, 0)
('Tamil Nadu', 52926, 1264)
('Telengana', 8082, 267)
('Tripura', 1093, 1)
('Uttar Pradesh', 16629, 718)
('Uttarakhand', 2317, 41)
('West Bengal', 12528, 683)
```

In [48]:
```
def ifr(infected,deaths):
    ifr=(deaths/infected)*100
    print("The IFR ={}%".format(ifr))
```

In [49]:
```
for i in range (0,37):
    print(LIST_1_Name_of_States_of_India[i])
    ifr(LIST_2_Number_of_infected_numbers_in_list_1[i],LIST_5_NUMBER_OF
_DEATHS[i])
```

```
Andaman and Nicobar
The IFR =0.0%
Andhra Pradesh
The IFR =1.2654078153684762%
Arunachal Pradesh
The IFR =0.5128205128205128%
Assam
The IFR =0.13982754602656725%
Bihar
```

```
The IFR =0.6829934627768564%
Chandigarh
The IFR =1.345291479820628%
Chhattisgarh
The IFR =0.4761904761904762%
Dadra and Nagar Haveli
The IFR =0.0%
Dadra and Nagar Haveli
The IFR =0.0%
Delhi
The IFR =3.1213113293690564%
Goa
The IFR =0.2883922134102379%
Gujarat
The IFR =5.618078960038518%
Haryana
The IFR =1.6063181848604513%
Himachal Pradesh
The IFR =1.0214504596527068%
Jammu and Kashmir
The IFR =1.364522417153996%
Jharkhand
The IFR =0.5950019833399445%
Karnataka
The IFR =1.532033426183844%
Kerala
The IFR =0.5225342913128674%
Ladakh
The IFR =0.10101010101010101%
Lakshadweep
The IFR =0.0%
Madhya Pradesh
The IFR =4.191616766467066%
Maharashtra
The IFR =4.466494359338428%
Manipur
The IFR =0.0%
Meghalaya
The IFR =1.9230769230769231%
Mizoram
```

```
The IFR =0.0%
Nagaland
The IFR =0.0%
Odisha
The IFR =0.3417167851284855%
Puducherry
The IFR =1.680672268907563%
Punjab
The IFR =2.6287932251235007%
Rajasthan
The IFR =2.299038881607689%
Sikkim
The IFR =0.0%
Tamil Nadu
The IFR =1.3439802656062265%
Telengana
The IFR =1.538284265714121%
Tripura
The IFR =0.07163323782234957%
Uttar Pradesh
The IFR =2.9847023611572996%
Uttarakhand
The IFR =1.3912453342382083%
West Bengal
The IFR =3.5628586332811683%
```

In [50]:
```
TOTAL_POPULATION_PER_STATE=[417036,
53903393,
1570458,
35607039,
124799926,
1158473,
29436231,
615724,
615724,
18710922,
1586250,
63872399,
```

```
28204692,
7451955,
1371360350,
13606320,
38593948,
67562686,
35699443,
289023,
73183,
85358965,
123144223,
3091545,
3366710,
1239244,
2249695,
46356334,
1413542,
30141373,
81032689,
690251,
77841267,
39362732,
4169794,
237882725,
11250858,
99609303,
]
```

In [51]:
```
def CMR(deaths,total_poppulation):
    CMR=(deaths/total_poppulation)*1000
    print("The Crude Mortality Rate ={}%".format(CMR))
```

In [52]:
```
for i in range (0,37):
    print(LIST_1_Name_of_States_of_India[i])
    CMR(LIST_5_NUMBER_OF_DEATHS[i],TOTAL_POPULATION_PER_STATE[i])
```

```
Andaman and Nicobar
The Crude Mortality Rate =0.0%
Andhra Pradesh
```

```
The Crude Mortality Rate =0.00358047961841659 93%
Arunachal Pradesh
The Crude Mortality Rate =0.0006367569205925915%
Assam
The Crude Mortality Rate =0.0003370120160791803%
Bihar
The Crude Mortality Rate =0.0005608977684810486%
Chandigarh
The Crude Mortality Rate =0.00517923162646 0004%
Chhattisgarh
The Crude Mortality Rate =0.00047560436660 5222%
Dadra and Nagar Haveli
The Crude Mortality Rate =0.0%
Dadra and Nagar Haveli
The Crude Mortality Rate =0.0%
Delhi
The Crude Mortality Rate =0.14980555207274127%
Goa
The Crude Mortality Rate =0.00252167060677699%
Gujarat
The Crude Mortality Rate =0.02923015307441325%
Haryana
The Crude Mortality Rate =0.00850922250808 4826%
Himachal Pradesh
The Crude Mortality Rate =0.00134192973521 71343%
Jammu and Kashmir
The Crude Mortality Rate =7.65663087750787e-05%
Jharkhand
The Crude Mortality Rate =0.00110242887128 92245%
Karnataka
The Crude Mortality Rate =0.00655543195528 9985%
Kerala
The Crude Mortality Rate =0.00035522566405 95964%
Ladakh
The Crude Mortality Rate =2.801164152617171e-05%
Lakshadweep
The Crude Mortality Rate =0.0%
Madhya Pradesh
The Crude Mortality Rate =7.939002227293223%
```

```
Maharashtra
The Crude Mortality Rate =0.09434275591321896%
Manipur
The Crude Mortality Rate =0.0%
Meghalaya
The Crude Mortality Rate =0.00032346286403723705%
Mizoram
The Crude Mortality Rate =0.0%
Nagaland
The Crude Mortality Rate =0.0%
Odisha
The Crude Mortality Rate =0.01111261748814839 3%
Puducherry
The Crude Mortality Rate =0.00025886430104675 67%
Punjab
The Crude Mortality Rate =0.10540896556310318%
Rajasthan
The Crude Mortality Rate =0.01396751236249257 9%
Sikkim
The Crude Mortality Rate =0.0%
Tamil Nadu
The Crude Mortality Rate =1.8312179192786393%
Telengana
The Crude Mortality Rate =0.00343005722144784 73%
Tripura
The Crude Mortality Rate =2.540474070753016e-05%
Uttar Pradesh
The Crude Mortality Rate =0.17219076050279702%
Uttarakhand
The Crude Mortality Rate =0.00017235383527744607%
West Bengal
The Crude Mortality Rate =0.06070648123014263%
```

In [53]:
```
TOTAL_POPULATION_OF_INDIA=1371360350
TOTAL_DEATHS_COVID_19=17836
print("INDIA_COVID_19")
CMR(TOTAL_DEATHS_COVID_19,TOTAL_POPULATION_OF_INDIA)
```

```
INDIA_COVID_19
```

```
The Crude Mortality Rate =0.013006063650593369%
```