



Let's Fight it out

COVID-19 INDIA ANALYSIS

1.Introduction

1.1 Background

Coronavirus disease (COVID19) is an infectious disease caused by a new virus.

They are a large family of viruses that may cause illnesses in animals or humans. In humans, several coronaviruses are known to cause respiratory infections ranging from the common cold to more severe diseases such as Middle East Respiratory Syndrome (MERS) and Severe Acute Respiratory Syndrome (SARS).

1.2 Problem Statement

The number of new cases is increasing day by day around the world and it has caused an



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with this data, we will predict the new cases for the next 15 days.

2.Data

2.1DataSource:

The dataset is available as a zip file in the Kaggle and it has 7 CSV files.URL - <https://www.kaggle.com/sudalairajkumar/covid19-in-india>.

2.2 Files Description:

Following are the file description of the 7 files which will be used in this project.

1. covid_19_india.csv - COVID-19 cases at a daily level is present in this file

2. IndividualDetails.csv -Individual-level details are present in the file

and is obtained from this link(<http://portal.covid19india.org/>)

3. population_india_census2011.csv file - This file contains the list of Population at the state level.

4. ICMRTestingDetails.csv - Number of COVID-19 tests at a daily level.

5. HospitalBedsIndia.csv - number of hospital beds in each state in present in the


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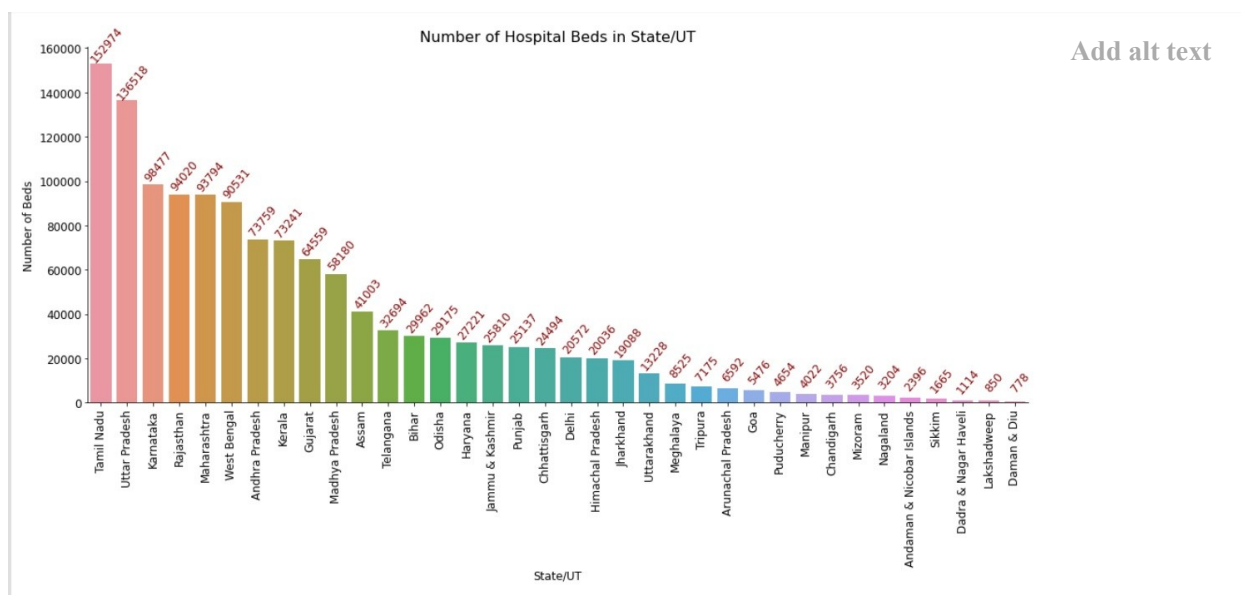
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6. ICMRTTestingLabs.csv - This file has a list of testing centers.

7. AgeGroupDetails.csv - COVID-19 cases age-wise.

3.EDA

3.1 Number of Beds Available in all State/UT



There are totally of **Twelve Lakh Ninety Thousand and Two Hundred beds(1298200)** available in India.

Top Five States/UT with the highest number of beds:

Tamilnadu has more number of beds in India - **152974**

Uttar Prades - **136518**

Karnataka - **98477**



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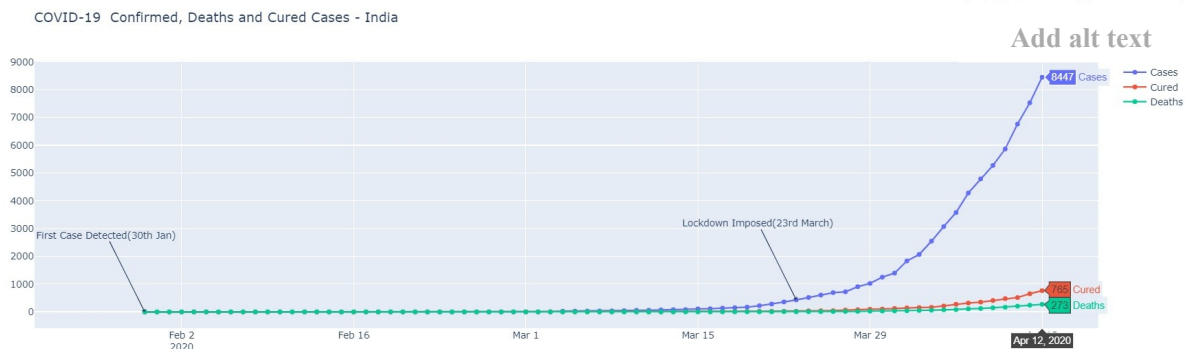
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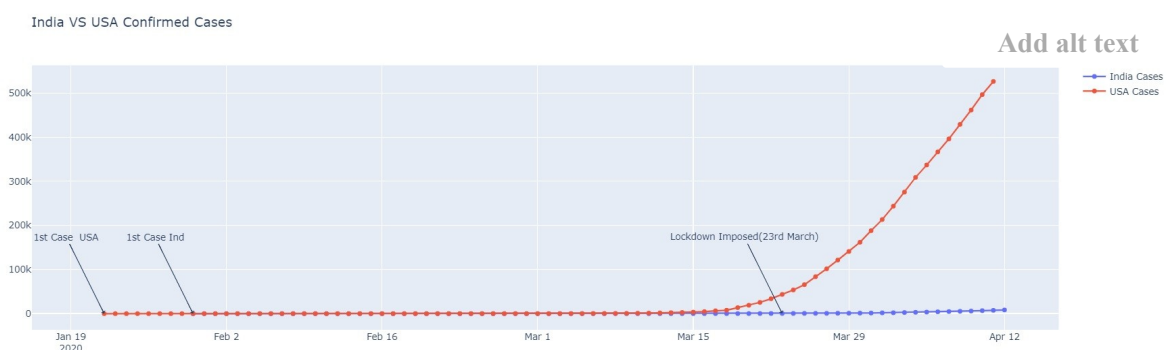
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3.2 COVID-19 India Current Status



The first case was diagnosed on Jan 30th and after 52 days lockdown was imposed with confirmed Cases, Deaths standing on 433 and 24 respectively. After 22 days of lockdown, there are 8447 confirmed cases, 273 deaths, and 765 recovered cases.

3.2 Comparison of India and USA Cases



The first case for the USA and India was diagnosed on Jan 22nd and Jan 30th respectively. So, India was 8 days behind the USA which is a notable difference given the nature of the virus. When India imposed lockdown(March 23rd), the USA had almost 43K cases versus 433 in India. This huge difference is could be because of the following reasons



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3. Testing rate is low compared to the most affected countries

4. Climate Conditions ????

3.3 India Without Lockdown



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By using the average growth rate of the USA, I calculated the

projections of India cases post-March 23rd considering the lockdown was not imposed. And the numbers are a little scary considering the current statistics. So, we can safely say social distancing, quarantine, isolation has helped us a lot in slowing down the curve. As far as the log scale is considered, the curve doesn't seem like normalizing, which is not a good sign.



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3.4 State/UT Wise Breakdown of Cases and Beds Available


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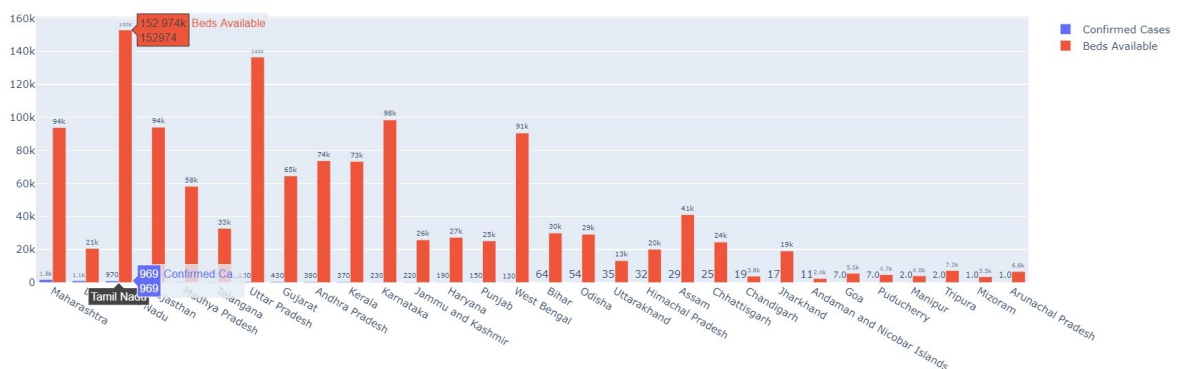
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4	Madhya Pradesh	564	36	0	6.380000	58180
5	Telangana	504	9	43	1.790000	32694
6	Uttar Pradesh	452	5	45	1.110000	136518
7	Gujarat	432	22	44	5.090000	64559
8	Andhra Pradesh	381	6	11	1.570000	73759
9	Kerala	374	2	142	0.530000	73241
10	Karnataka	226	6	37	2.650000	98477
11	Jammu and Kashmir	224	4	6	1.790000	25810
12	Haryana	185	3	29	1.620000	27221
13	Punjab	151	11	5	7.280000	25137
14	West Bengal	134	5	19	3.730000	90531
15	Bihar	64	1	19	1.560000	29962
16	Odisha	54	1	12	1.850000	29175
17	Uttarakhand	35	0	5	0.000000	13228
18	Himachal Pradesh	32	1	6	3.120000	20036
19	Assam	29	1	0	3.450000	41003
20	Chhattisgarh	25	0	10	0.000000	24494
21	Chandigarh	19	0	7	0.000000	3756
22	Jharkhand	17	1	0	5.880000	19088
23	Andaman and Nicobar Islands	11	0	10	0.000000	2396
24	Goa	7	0	5	0.000000	5476
25	Puducherry	7	0	1	0.000000	4654
26	Manipur	2	0	1	0.000000	4022
27	Tripura	2	0	0	0.000000	7175
28	Mizoram	1	0	0	0.000000	3520
29	Arunachal Pradesh	1	0	0	0.000000	6592

3.5

State/UT breakdown of Confirmed Cases and Number of Beds available

State/UT breakdown of Confirmed Cases and Number of Beds available





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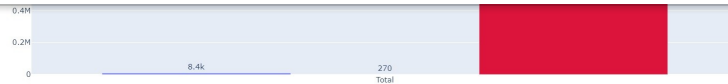
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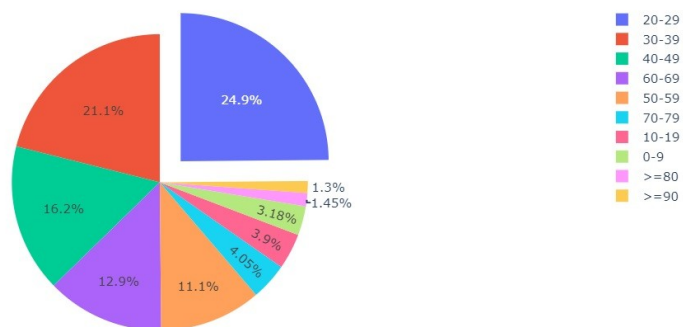
doesn't include
military and
railway facilities.



3.6 AgeWise Breakdown of COVID-19 Cases in India

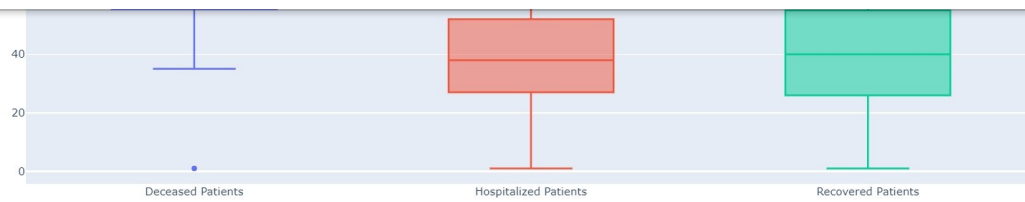
Age Wise Spread of COVID-19 Cases in India

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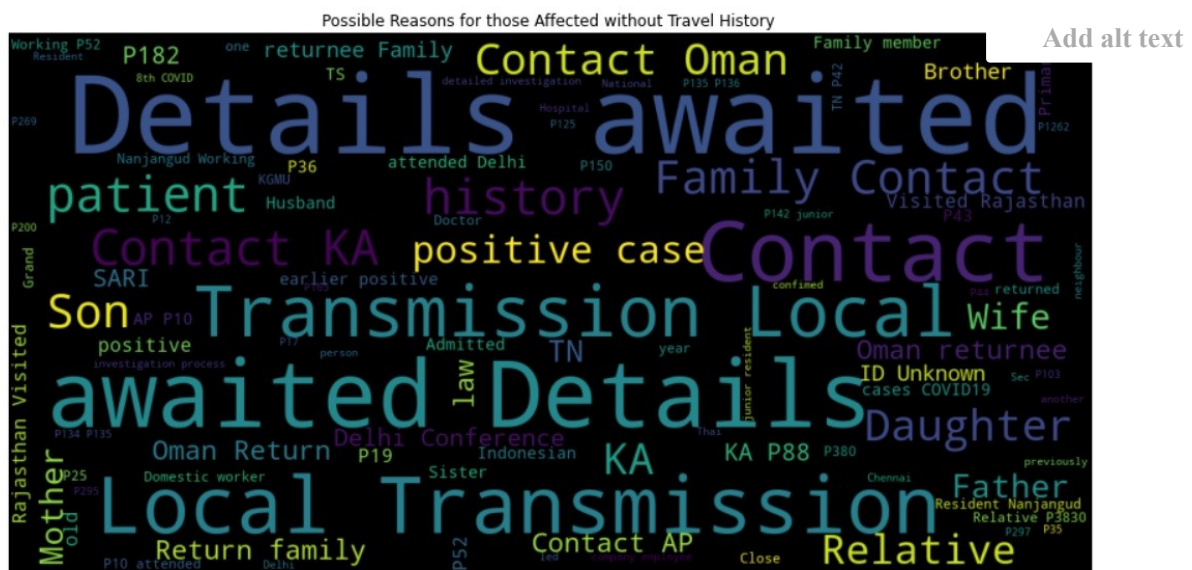
As per the above pie chart, the most affected age group belongs to (20-29) and it is followed by (30-39). Altogether, 40% of the cases fall under age less than 40 which is expected since there would be more working people here. And this is being said, elderly people have more chances of getting affected. So, it's everyone's responsibility to make sure elders don't go out.

3.7 COVID-19 Patients Outcome Age-Wise



The outcome follows the global trend where 50% of recovered patients are below 40.

3.8 Possible Reasons for those Affected without Travel History



The main reasons for those affected without travel history are

- Contact with the infected who has travel history
- Local Transmission

3.9 Day Wise Testing and Diagnosed Status



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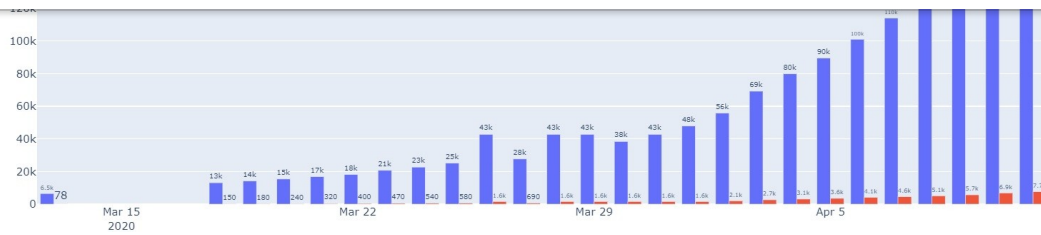
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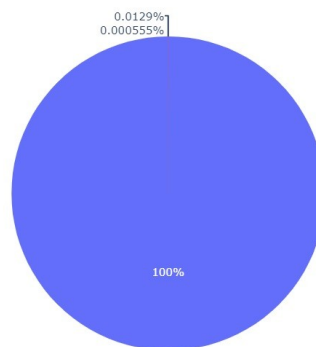
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The Testing rate
has increased
recently, but still
the percentage is
very low at .012%.



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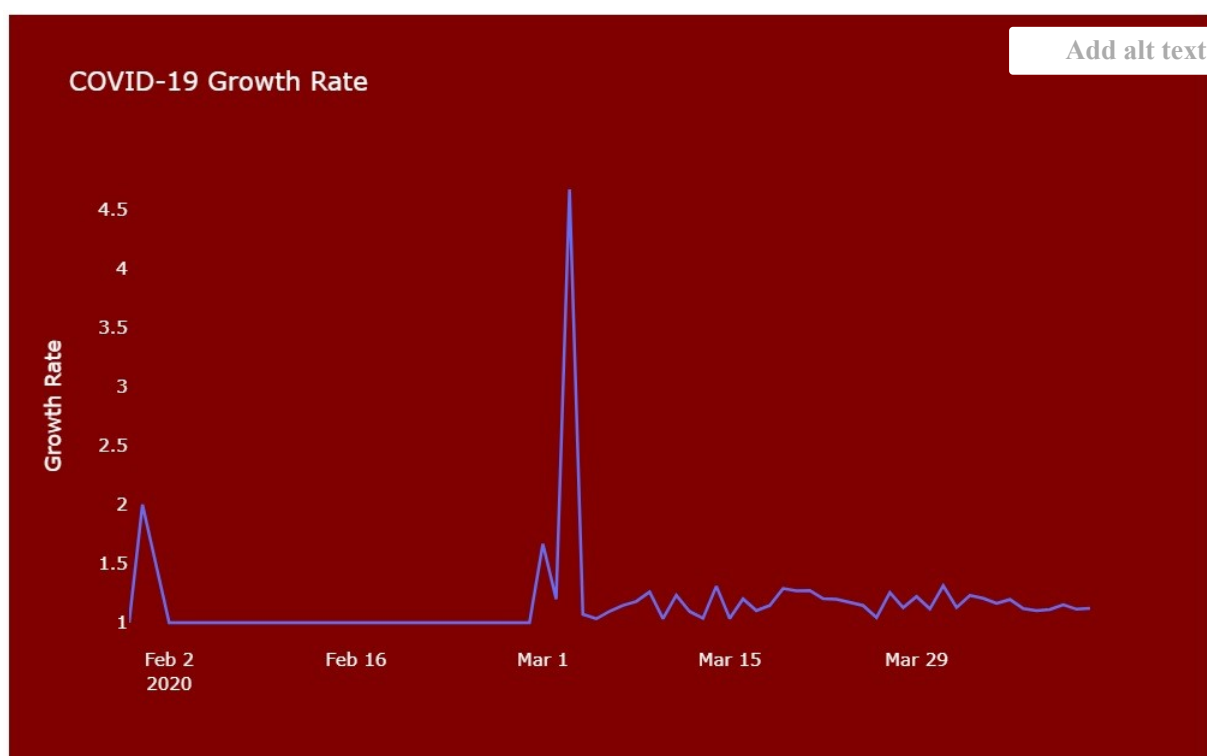
■ India Population
■ Total Samples Tested
■ Total Confirmed Cases

Total Sample Tested	Total Positive to Test Ratio	Tests Per
0	195748.0	4.25

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16.17

3.10 COVID-19 India Growth Rate



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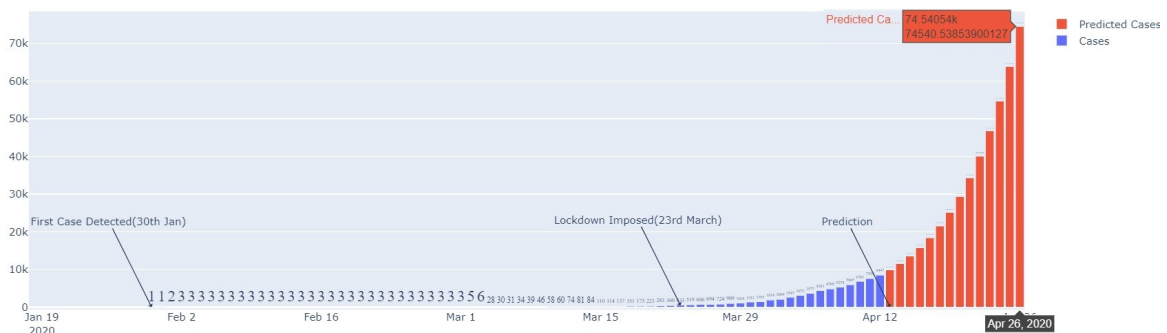
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COVID-19 Current and Predicted Confirmed Cases

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By using the average growth rate, I have predicted approximately the cases could reach **74K** by April 26th.

4. Conclusion

We are in Stage2 at the moment, not very far behind the next stage if we don't act right. Reaching the inflection point will be the end game to this pandemic but not without the support of every one of you. So what we do????

It's so simple. Stay Home! Stay Healthy! We can together defeat it.



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Respect to all the health workers, support workers, police personnel, and whoever out there their risking their lives to keep us safe.