

# Analysis Report on India's Reopening

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**Abstract:** Using the dataset from a survey taken by us on the same topic earlier, we predicted the respondents view on “Unlock” phase 1, by the government of India, using Data analysis and Machine Learning Models.

**Index Terms:** COVID19, Lockdown, Unlock, Containment Zone

## I. Introduction-

Lockdown has affected the population in many different ways, may it be financially or mentally. Opening the lockdown was an essential step as a lot of people were losing their jobs but that doesn't mean COVID19 has disappeared. People in different areas were hit with different intensities, like people in containment zone experienced things differently than people who were not in containment zone. So, we used the same attribute for the classification of our survey response dataset, to make it easier to predict their viewpoint. It also helps to know where people or the government is lacking is creating a safe environment, even when they are somewhat successful. Different Data Analysis strategies and Machine Learning models were used to predict the target. Our data set has more than 600 instances and approximately 31 questions in context of the experience of people during lockdown with respect to their observations about other people and government duties.

## II. Data Analysis Report-

Our survey was very diverse as it included everyone from students to retired citizens. It is very important to get the perspective of people of different backgrounds, cities, age groups and genders because that way our data becomes stronger and more genuine. Our survey was divided into various sections-

1. Observation of Safety Measures practices being followed around respondents
2. Containment zone situations
3. Government duties
4. Charity work
5. Lockdown experience

We used the containment zone factor to distribute our dataset. There nearly 170 hotspots in India. Hotspots are the biggest contributors of the rise of COVID19 cases in India, which is nearly 80%.<sup>[1]</sup> Because if we know the conditions of the containment zones then, we can predict the readiness of the country to fight COVID19 during “Unlock” Phases.

We divided our main dataset into 4 separate datasets-

1. Observation of people in containment zones about fulfilment of Government duties in their area
2. Observations of people not in containment zones about fulfilment of Government duties in their area
3. General lockdown experience of people in containment zones
4. General lockdown experience of people in not in containment zones

We then, on the basis of number of positive, categorized the final answer in three rankings – Below Average, Average, and Above Average. We used RapidMiner Studio to predict and check accuracy of various Machine Learning models for each of the dataset.

### II.A Observation of people in containment zones about fulfilment of Government duties in their area-

We had them answer a series of questions which were-

1. Were there government servants present 24/7 for people's safety?
2. Were essential services provided to you at ease?
3. Was proper medical support given to people?
4. Did you observe any kind of panic in your area?
5. Was there proper sanitization in your area?
6. Were you able to access emergency services issued by the government?
7. Did you notice people receiving vegetables/fruit packages issued by the government?
8. Did you find your area receiving essential cereals (rice, daal, sugar, flour, etc.) by the government?
9. Were there strict actions taken place for the people disobeying rules in your area?
10. Did you benefit from any government launched schemes?
11. Do you use the Arogye Setu application?



Figure 1: In this dataset, out of all the models, Support Vector Machine was the closest fit and had the best accuracy of 96.2% with a standard deviation of 5.2%.



Figure 2: Error rate in this model was of 3.8%, with a class precision of 94.12% for Above Average, 96.67% for Average and 100.00% for Below Average.

According to the responses, the answer to this question was “Average”, meaning people are somewhat satisfied by the government facilities provided in the containment zone.

**II.B Observation of people not in containment zones about fulfilment of Government duties in their area-**

The same set of questions (II.A) were asked to the people who were not in containment so that we can contrast between the conditions of both the groups.



Figure 3: In this dataset, out of all the models, Fast Large Margin was the closest fit and had the best accuracy of 94.7% with a standard deviation of 2.2%.



Figure 4: Error rate in this model was of 5.3%, with a class precision of 100.00% for Above Average, 98.31% for Average and 81.82% for Below Average

According to the responses, the answer to this question was “Average”, meaning people are somewhat satisfied by the government facilities provided in the containment zone.

**II.C General lockdown experience of people in containment zones-**

We had them answer a series of questions which were-

1. Did you observe the proper use of masks and social distancing being followed?
2. Did you observe proper workplace sanitization followed? (ex: Spraying sanitizers, checking body temperature, etc.)
3. Did you observe people following vehicle rules?
4. Did you observe people buying vegetables from other sources?
5. Did you donate to any kind of charity?
6. Did you volunteer for any welfare?
7. Was there proper cleanliness and safety measures taken at the place people volunteered?
8. Were there any panic moments you saw during volunteering?
9. Did people continue paying their domestic workers?
10. Did you panic when you showed a few symptoms of Corona, even when you didn't have it?
11. Did you follow the instructions given by Ayush Health Mantralaya to boost your immunity?
12. Did you receive any kind of false information about Covid-19 from any sources?
13. Do you think people will take corona measures seriously after lockdown?
14. Did you perform any kind of extra-curriculum activities during the lockdown period?



Figure 5: In this dataset, out of all the models, Support Vector Machine was the closest fit and had the best accuracy of 83.3% with a standard deviation of 7.2%.



Figure 6: Error rate in this model was of 16.7%, with a class precision of 83.33% for Above Average, 82.98% for Average and 0.00% for Below Average

According to the responses, the answer to this question was “Average”, meaning people are somewhat satisfied by the government facilities provided in the containment zone.

**II.D General lockdown experience of people in not in containment zones-**

The same set of questions (II.C) were asked to the people who were not in containment so that we can contrast between the conditions of both the groups.



Figure 7: In this dataset, out of all the models, Fast Large Margin was the closest fit and had the best accuracy of 94.0% with a standard deviation of 3.2%.



Figure 8: Error rate in this model was of 6.0%, with a class precision of 96.15% for Above Average, 89.47% for Average and 77.78% for Below Average

According to the responses, the answer to this question was “Average”, meaning people are somewhat satisfied by the government facilities provided in the containment zone

Apart from the rankings, we also put these across age group, to get more clearer point of view of different people-

Blue: Above Average  
 Green: Average  
 Orange: Below Average

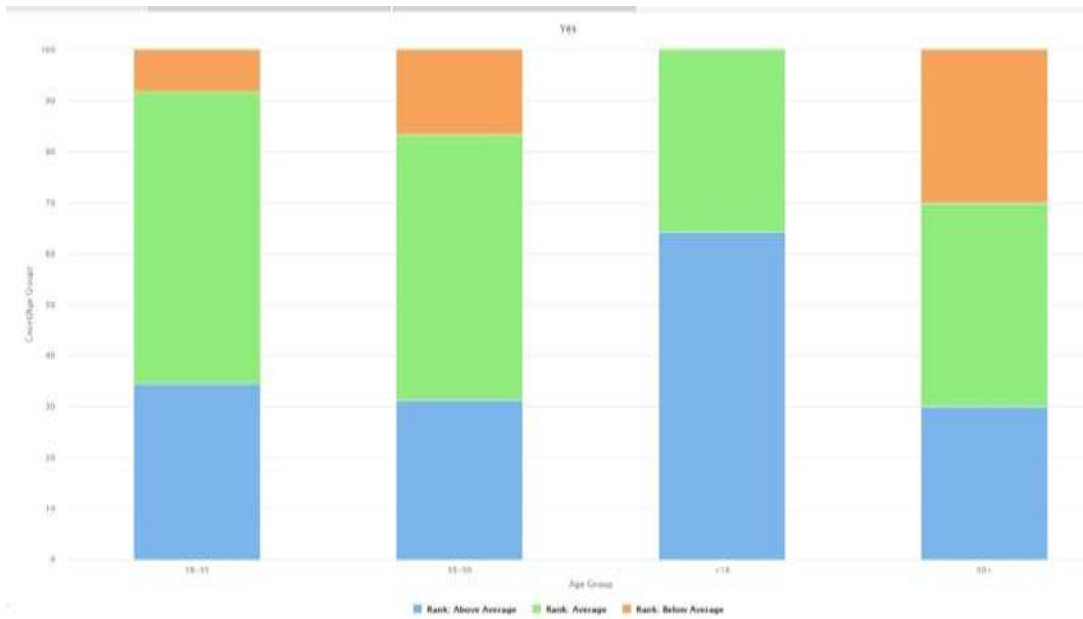


Figure 9: Observation of people in containment zones about fulfilment of Government duties in their area

Blue: Above Average  
 Green: Average  
 Orange: Below Average

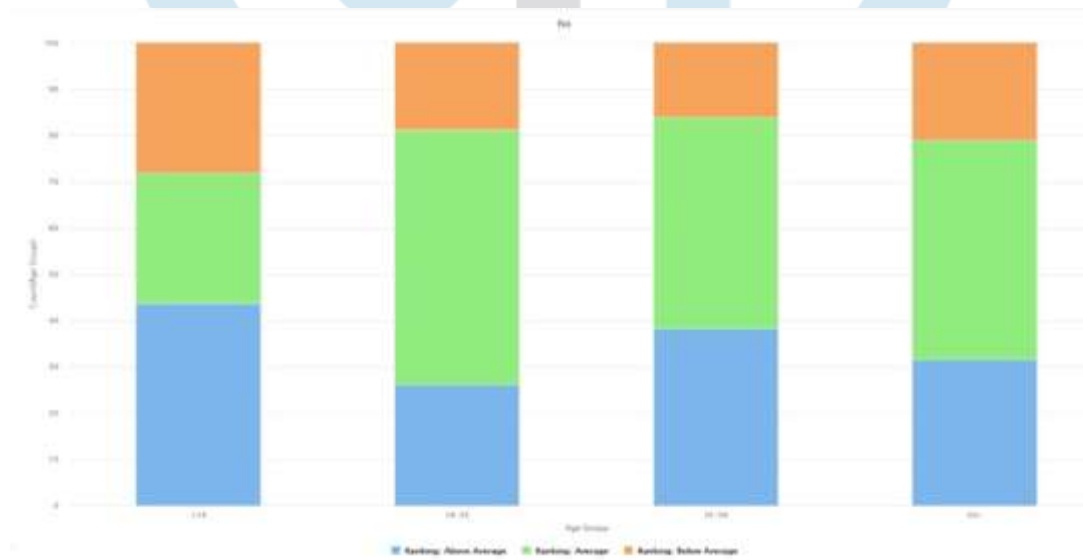


Figure 10: Observations of people not in containment zones about fulfilment of Government duties in their area

Blue: Above Average  
 Green: Average  
 Orange: Below Average

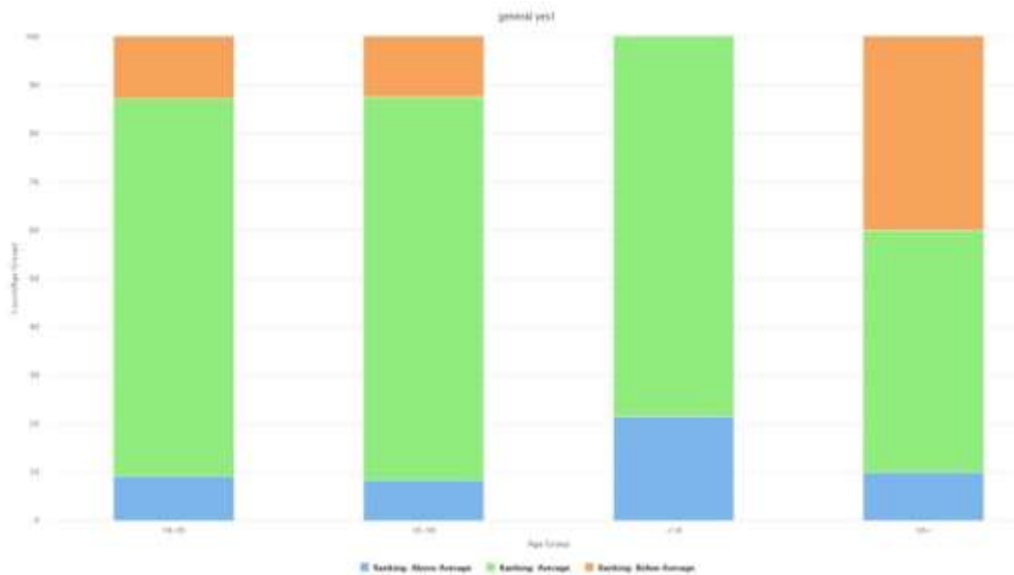


Figure 11: General lockdown experience of people in containment zones

Blue: Average

Green: Below Average

Orange: Above Average

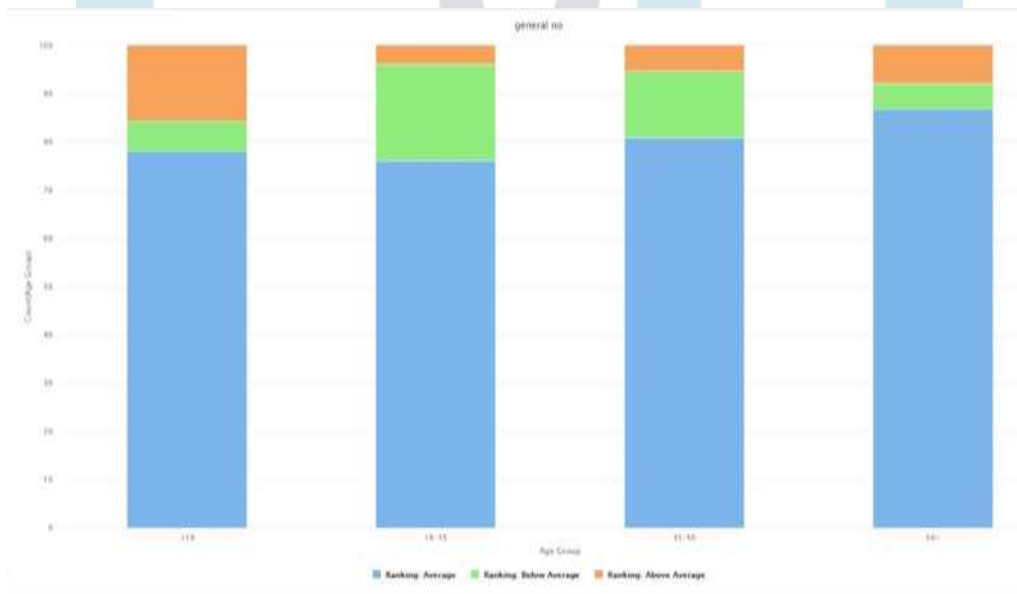


Figure 12: General lockdown experience of people in not in containment zones

**Conclusion**

By looking at the graphical data, it is clear that, the citizens of India have given India’s reopening an average ranking, which means that although people are satisfied with India’s reopening, but there is a lot of work still pending to put on not just by the authorities but also by themselves. Because only lockdown is waived off, not COVID19.

**References**

[1] ET Online, Economic Times