COVID-19 INDIA

INTRODUCTION

The purpose of this Project aims to create an analysis and visualization to help provide information to local people who must be alerted to go out of the house from the distribution of the COVID-19 case in India within their specific states and union territories. Also, to better visualize the clustering of our neighbourhood, we will be creating a custom function that we call ‘regioncolors’ that will assign a colour to each area within a 500-meter radius of our proposed facility firmly signifying their safety. It also aims to provide information on the states or union territories that are most needed for a lot of mask distribution, according to population density and number of increasing cases in that area.

DATA ACQUISITION AND CLEANING

1. A few Identified factors that influence our decision are:

- Covid-19 cases per state or union territory.
- Total population in states or union territories.
- 10 most population cities per state or union territory.
- Hospitals and Nursing Homes for treatment of covid-19

2. The following data sources are needed to extract/generate the required information:

- Processed covid-19 positive case data collection.
- The distribution of mask sales based on the population in the India.
- The distribution of mask sales based on 5 states or union territories with the most densely populated populations.
- New datasets (to be created) that contains state or union territory, active cases, along with their latitudes and longitudes.

METHODOLOGY

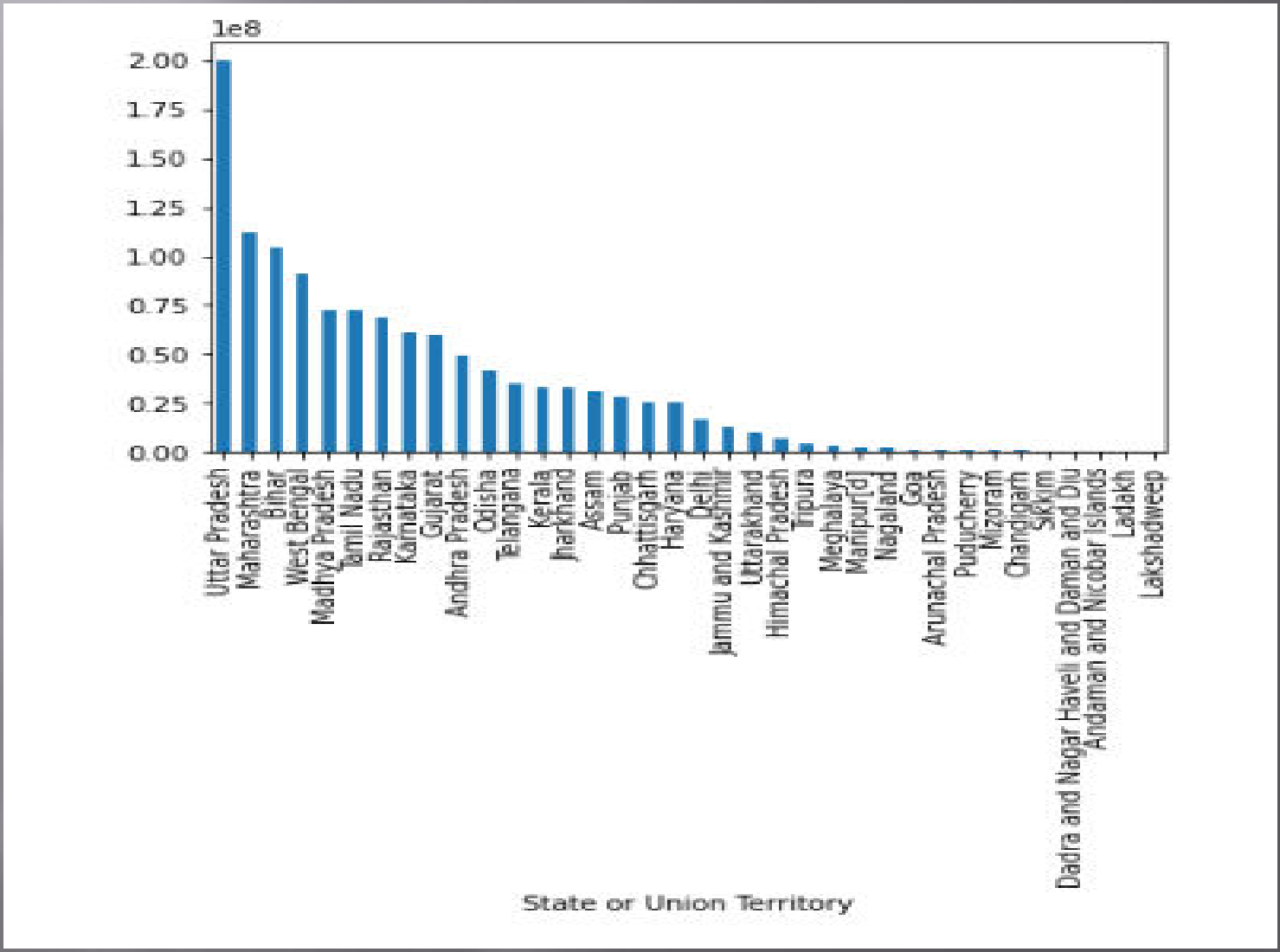
First, we create a new dataset of only cases from the Covid-19 Case table.

	State or Union Territory	Confirmed	Recovered	Deaths	Active
0	Total	2332908	1640362	46216	645857
1	Maharashtra	535601	368435	18306	148553
2	Tamil Nadu	308649	250680	5159	52810
3	Delhi	147391	132384	4139	10868
4	Karnataka	188611	105599	3398	79605
5	Andhra Pradesh	244549	154749	2203	87597
6	Uttar Pradesh	131763	80589	2176	48998
7	Gujarat	73238	56516	2695	14027
8	West Bengal	101390	73395	2149	25846
9	Telangana	84544	61294	654	22596
10	Rajasthan	55482	40558	821	14103
11	Bihar	86812	57039	465	29307
12	Haryana	43227	36082	500	6645
13	Assam	64407	45074	155	19175
14	Madhya Pradesh	40734	30596	1033	9105
15	Odisha	50672	34806	358	15508
16	Jammu and Kashmir	25931	17979	490	7462

Show the total population data in India.

	State or Union Territory	Population
0	Uttar Pradesh	199812341
1	Maharashtra	112374333
2	Bihar	104099452
3	West Bengal	91276115
4	Madhya Pradesh	72626809
5	Tamil Nadu	72147030
6	Rajasthan	68548437
7	Karnataka	61095297
8	Gujarat	60439692
9	Andhra Pradesh	49577103
10	Odisha	41974219
11	Telangana	35003674
12	Kerala	33406061
13	Jharkhand	32988134
14	Assam	31205576
15	Punjab	27743338
16	Chhattisgarh	25545198
17	Haryana	25351462
18	Delhi	16787941
19	Jammu and Kashmir	12267032
20	Uttarakhand	10086292

The chart below show the population density in India

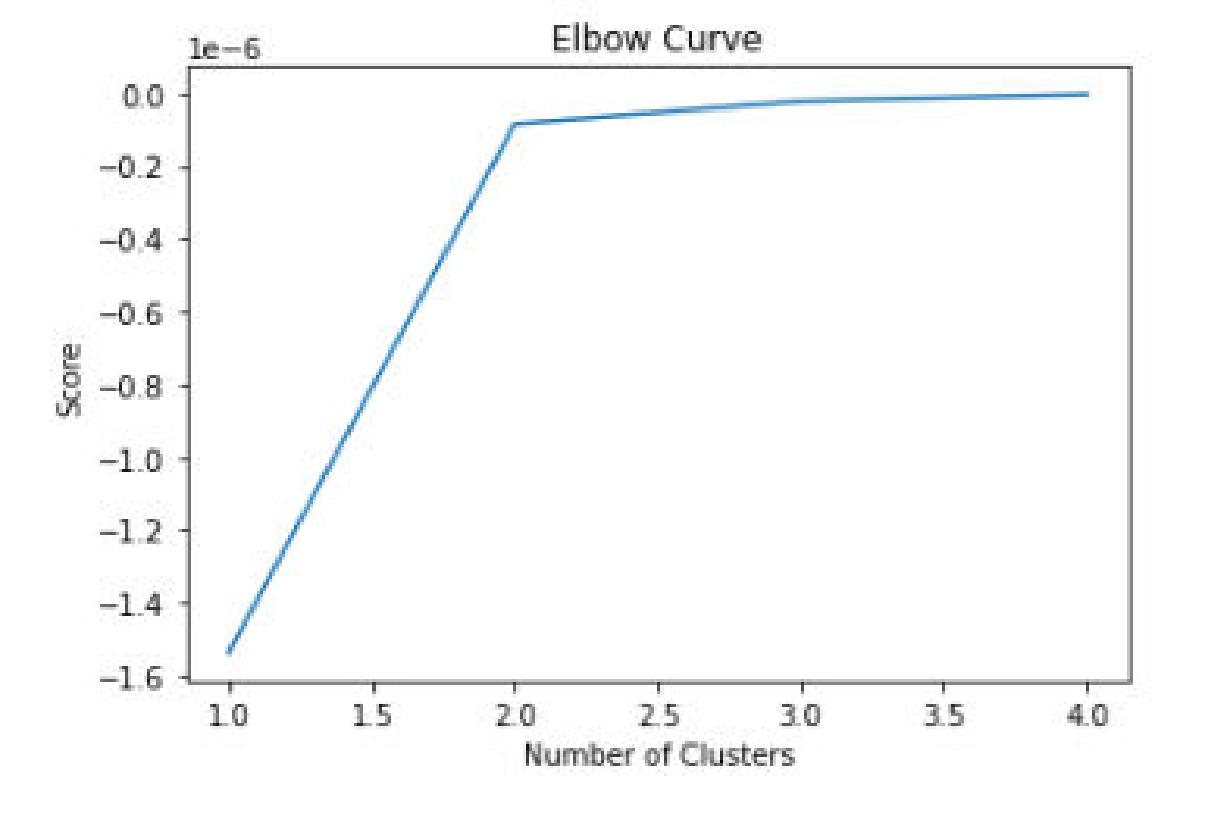


Get the latitude and longitude:

	State or Union Territory	Latitude	Longitude	Active
0	Andhra Pradesh	14.750429	78.570026	87597
1	Arunachal Pradesh	27.100399	93.616601	690
2	Assam	26.749981	94.216667	19175
3	Bihar	25.785414	87.479973	29307
4	Chhattisgarh	22.090420	82.159987	3642
5	Delhi	28.669993	77.230004	10868
6	Gujarat	22.309425	72.136230	14027
7	Himachal Pradesh	31.100025	77.166597	1179
8	Jharkhand	23.800393	86.419986	8720
9	Karnataka	12.570381	76.919997	79605
10	Kerala	8.900373	76.569993	12721

We have downloaded all the required dependencies earlier, and now we are ready to use the FOLIUM API service as follows:

To start, we need to decide the best K-value for our analysis.



Based on the results generated by the FOURSQUARE API, we can locate the business site around AIIMS Hospital and identify affected business locations in the red zone.

	name	categories	lat	lng	cluster_label	color
0	AIIMS Metro Station	Light Rail Station	28.568243	77.207946	2	red
1	Tanishq South Ex	Jewelry Store	28.569292	77.208228	2	red
2	Hazoorilal Legacy	Jewelry Store	28.568438	77.210653	1	orange
3	Jet Airways Lounge	Airport Food Court	28.569645	77.206465	0	green
4	Strength Gym	Gym	28.569383	77.204601	0	green

Next, we can then visualize our clustering analysis to a Folium map to see how all of these venues are geographically distributed within the 500-meter radius that we specified surrounding the proposed facility.

CONCLUSION AND FUTURE DIRECTIONS

This project helps mask sellers to understand potential distribution areas according to population density in different states or union territories of India. It also helps the distribution of medical devices for corona care to hospitals that are estimated to have a large number of patients or even helps analyzing which hospitals need additional medical personnel (doctors and nurses).

It will also provide awareness to help business owners who run businesses surrounding the adjacent clusters to be better informed, with the density of people within the business neighbourhood.