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# Covid-19 Visualizer

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Abstract: Corona Virus Pandemic has to date spared India from a massive onslaught of death and destruction, similar to what we see in China, Europe, and the United States of America. As on date, India has reported COVID-19 74,925 cases and 2,436 deaths. The Government of India (GOI) has taken many proactive steps to control the epidemic, including the total lockdown of the nation to flatten the epidemic curve and reduce the case fatality rate. India has chosen a strategy of large-scale quarantine and limited testing and not extensive testing and limited quarantine. This is because we have a large population of 1.3 billion, and many states in India have the comparatively limited testing capacity to deal with a large-scale epidemic. The timeline that we get by flattening the curve should be urgently utilized to plan and implement interventions that help preventing further spread of the disease.
The aim here is to understand how visualization helps to derive informative insights of India Covid-19 cases through Interactive visual map and in tabular form from data sources.

## I. INTRODUCTION

Novel Coronavirus infection mediated pandemic started in China in December 2019 and is still killing 1000s of people throughout the world. The second most populous country, India too is fighting against this infectious disease. The country is taking effective measures to curb the pandemic by exerting extensive campaigning on sanitation and strict social distancing measures to quell the explosion of the infection rate.

The Covid-19 Visualizer would provide an important tool for avoiding exposure and tracking the virus' spread. The tool would offer public health officials the ability to see how COVID-19 progresses over time locally and regionally, and enable leaders to identify areas as potential hot spots.

COVID-19 India Visualizer helps to view the live update of cases of Corona virus outbreak across the country.

This project aims to visualize the rising case of corona virus in an Interactive visual map which makes it easier for the users to understand data which otherwise is in raw form and difficult to understand.

The Corona virus cases can be visualized in Tabular form and Interactive Visual Map .

It illustrates the state wise Corona virus cases with the help of Interactive India's Map.

It also shows the district wise cases of Corona virus outbreak.

It displays the current status of India in terms of confirmed , active and death toll interactive graphs.

It is a Dashboard for COVID-19 outbreak for India which is user friendly and highly interactive.

It also provides helpful links which has details about Pm care funds so that interested can you use it to donate.
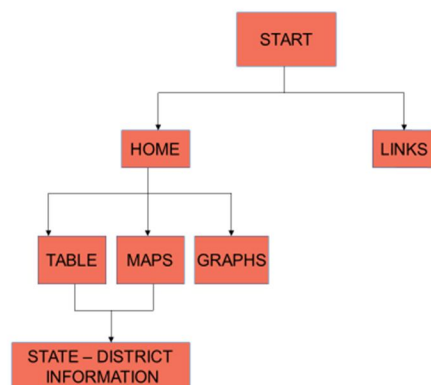


Fig. 1: System Design

International Journal for Research in Applied Science & Engineering Technology (IJRASET)
*ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 7.429*
*Volume 8 Issue V May 2020- Available at www.ijraset.com*

As on date, India has reported COVID-19 74,925 cases and 2,436 deaths. The Government of India (GOI) has taken many proactive steps to control the epidemic, including the total lockdown of the nation to flatten the epidemic curve and reduce the case fatality rate. India has chosen a strategy of large-scale quarantine and limited testing and not extensive testing and limited quarantine.

We get data from an Api and the Api source of data is from twitter and ICMR. Indian Council of Medical Research. Provides the Covid-19 cases in the form of pdf for state and district level which is converted to json format and used by the application to populate the data. The Api gets updated dynamically every hour.

We can view the Interactive Visual Map, Tabular form, Graphical representation in a single page so that you can compare and visualize in a better way. It even highlights which state has the highest number of Covid-19 cases with the help of a colour range.
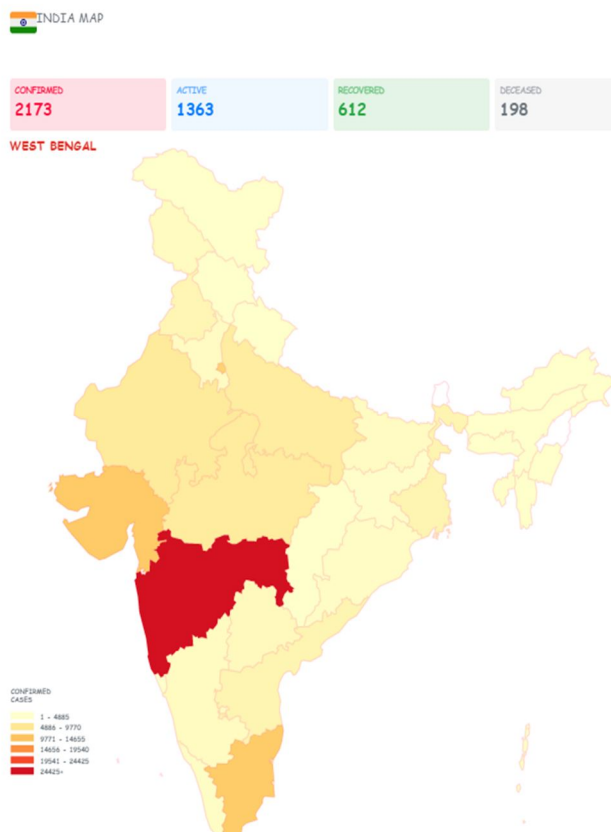


Figure 1 India Map

## II. RELATED STUDY

React js, Api for State, Api for district ,Map Plotting using Geographical location are needed to plot the Covid-19 Positive cases State and district wise in Interactive Map, Tabular format and Graphical representation.

The whole application is developed in React js and deployed to our localhost. All the data is accessed with the help of an Api which has data in json format and hence easily plotted to our Map, Table, Graphs.

The Api's get data from Twitter tweets and Indian Council of Medical Research in a pdf form which is converted to Json format and then the data is utilized for representation of the Map, Tabular, Graphs.

We get the Confirmed, Active, Deceased Patients in the state and district level of our Country.

The information is updated faster compared to our traditional apps as they get updated every 24 hours .The Api here gets dynamically updated very one hour.

We have an Interactive India Map which is plotted with the help of the geographical location and the assigned with state names with the help of a json file which contains all the state and its associated district. The Map even highlights about the state with most to least number of positive cases with a colour range.

Graphical Representation which show the plot of cases against the months .This is helpful to understand the statistics in our country as whole.

## III. LITERATURE SURVEY

There are several work has been done related to Covid-19 occurrence in India and visualization helps to derive informative insights of India Covid-19 cases .

### A. COVID-19: Impact on health of people & wealth of nations, Prakash Tandon

This paper is a survey of the current research on COVID-19 pandemic ,the occurrence of it and to the delayed response to it.It also says about the impact of it on wealth of the nations.

### B. Novel Coronavirus (COVID-19) in India, Noble K Kurian

In this paper, author has highlighted about the origin
of Covid-19 in Wuhan , how it came to India and the impact and situation of the country . He has also briefed the current status with the help of statistics.

### C. Severe acute respiratory illness surveillance for coronavirus disease 2019, India, 2020 ICMR COVID Team

This paper addressed about the acute respiratory surveillance for coronavirus disease in India 2020.
It highlights about the rapid growth and measures to be taken to prevent it.

### D. Healthcare impact of COVID-19 epidemic in India: A stochastic mathematical model,Chatterjee, Kaustuv; Chatterjee, Kaushik; Kumar, Arun; Shankar, Subramanian:

The goal of their research is to highlight about the impact of Covid-19 in India with the help of stochastic mathematical model.

### E. Data visualizer allows user to track Covid-19 spread, Jessica Kent

The main aim of Covid-19 Visualizer could provide an important tool for avoiding exposure and tracking the virus' spread. The tool could offer public health officials the ability to see how COVID-19 progresses over time locally and regionally, and enable leaders to identify areas as potential hot spots.

### F. Novel Coronavirus in India:Current Situation, Varsha Kachroo

It generalizes about how Covid-19, was foreign to our country and now spreading its routes well in India. Starting with one case and now with 74000+ confirmed cases, the virus is trending right now in almost every part of the country. The irony is not much is known about this novel virus, hence mortality and morbidity across the globe is on a peak. The Ministry of Health and Family Welfare, Government of India and ICMR (Indian Council of Medical Research) has formulated guidelines and even provides the state and district level data in the pdf form which is utilized in our project to fetch data.

## IV. SCOPE

Covid-19, was foreign to our country and now spreading its routes well in India. Starting with one case and now with 74000+ confirmed cases, the virus is trending right now in almost every part of the country. So,it is necessary to create awareness about the wide-spread of the disease .

The Covid-19 Visualizer would provide an important tool for avoiding exposure and tracking the virus' spread. The tool will offer public health officials the ability to see how COVID-19 progresses over time locally and regionally, and enable leaders to identify areas as potential hot spots. Those regions can be under strict lockdown so as to reduce the effect of it in the district of the state. We have Tabular, Interactive Map, Graphs in a single page which help in better visualization of the pandemic. It also has another tab which has all the helpful links. We can donate money to Pm Care funds with the provided link in helpful links tabs. It even gives all the helpline numbers associated to states .

## V. PROBLEM DEFINITION

The outbreak of the COVID-19 in India has created chaos among the citizens. The current status of the outbreak was accessed either through news channels or newspaper or other media.
There is no proper dashboard designed by anyone to understand and be aware of the situation at every place.
Hence, we proposed an application to design an interactive dashboard for citizens of India.
This application also displays helpful links for users to access for more information along with awareness messages.

The Covid-19 Visualizer would provide an important tool for avoiding exposure and tracking the virus' spread.

The tool would offer public health officials the ability to see how COVID-19 progresses over time locally and regionally, and enable leaders to identify areas as potential hot spots.

## VI.     MODULE DESCRIPTION

This COVID-19 Visualizer consists of two parts:
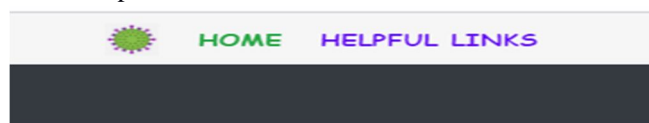


Figure 1 Two Tabs

*A.   Home*

This Module contains following components:

1)   *Map:* A Visual representation of Covid-19 cases in each state and district.
2)   *Table:* A tabular representation of Covid-19 cases.
3)   *Graph:* A graphical representation of Covid-19 cases which is used to compare the number of confirmed cases vs number of recovered cases vs number of deaths.
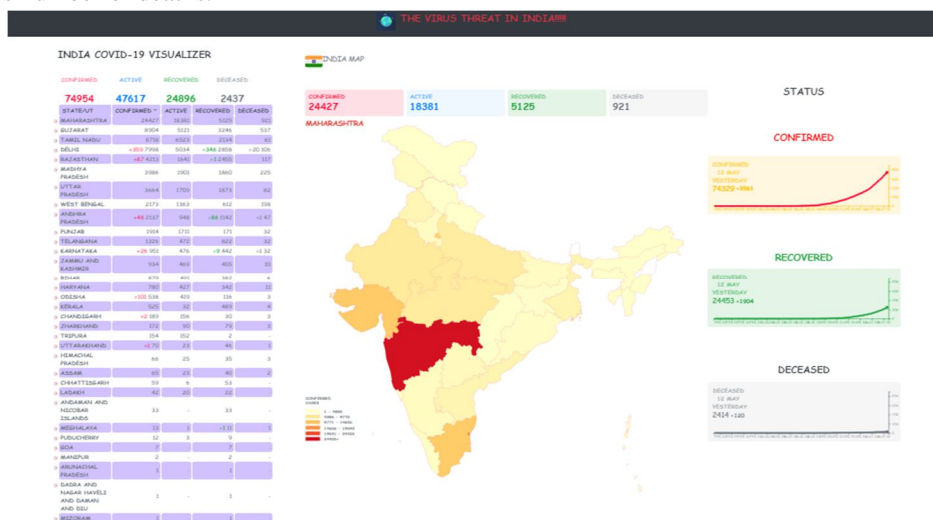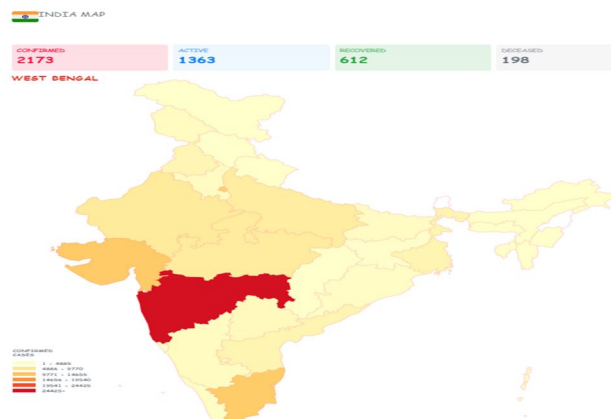


Figure 2 Home Page



Figure 3 India Map

This the interactive Map which highlights each state and the most to least cases using a colour range.
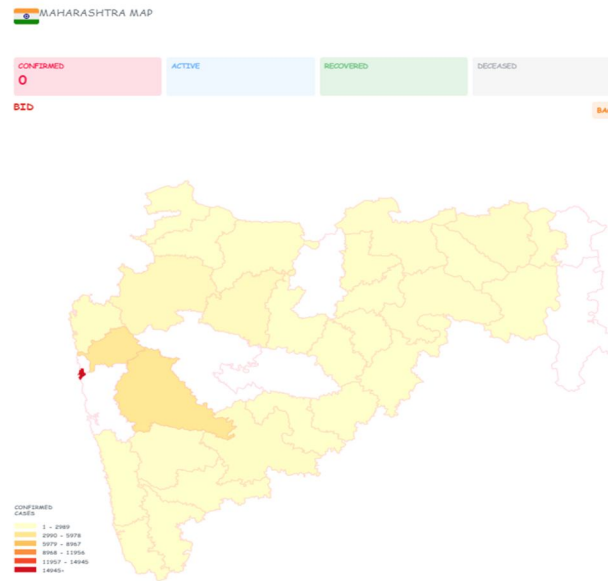
Figure 4 District Map



Figure 5 Graphs

Graphical representation of  months against cases in India. It has Confirmed , Recovered , Deceased cases.

## INDIA COVID-19 VISUALIZER

| | CONFIRMED | ACTIVE | RECOVERED | DECEASED |
|---|---|---|---|---|
| | 74954 | 47617 | 24896 | 2437 |

| STATE/UT | CONFIRMED ▾ | ACTIVE | RECOVERED | DECEASED |
|---|---|---|---|---|
| MAHARASHTRA | 24427 | 18381 | 5125 | 921 |
| GUJARAT | 8904 | 5121 | 3246 | 537 |
| TAMIL NADU | 8718 | 6523 | 2134 | 61 |
| DELHI | ↑359 7998 | 5034 | ↑346 2858 | ↑20 106 |
| RAJASTHAN | ↑87 4213 | 1641 | ↑12 2455 | 117 |
| MADHYA PRADESH | 3986 | 1901 | 1860 | 225 |
| UTTAR PRADESH | 3664 | 1709 | 1873 | 82 |
| WEST BENGAL | 2173 | 1363 | 612 | 198 |
| ANDHRA PRADESH | ↑48 2137 | 948 | ↑86 1142 | ↑1 47 |
| PUNJAB | 1914 | 1711 | 171 | 32 |
| TELANGANA | 1326 | 472 | 822 | 32 |
| KARNATAKA | ↑26 951 | 476 | ↑9 442 | ↑1 32 |
| JAMMU AND KASHMIR | 934 | 469 | 455 | 10 |
| BIHAR | 879 | 491 | 382 | 6 |
| HARYANA | 780 | 427 | 342 | 11 |
| ODISHA | ↑101 538 | 419 | 116 | 3 |
| KERALA | 525 | 32 | 489 | 4 |
| CHANDIGARH | ↑2 189 | 156 | 30 | 3 |
| JHARKHAND | 172 | 90 | 79 | 3 |
| TRIPURA | 154 | 152 | 2 | - |
| UTTARAKHAND | ↑1 70 | 23 | 46 | 1 |
| HIMACHAL PRADESH | 66 | 25 | 35 | 3 |
| ASSAM | 65 | 23 | 40 | 2 |
| CHHATTISGARH | 59 | 6 | 53 | - |
| LADAKH | 42 | 20 | 22 | |
| ANDAMAN AND NICOBAR ISLANDS | 33 | - | 33 | - |
| MEGHALAYA | 13 | 1 | ↑1 11 | 1 |
| PUDUCHERRY | 12 | 3 | 9 | - |
| GOA | 7 | - | 7 | - |

Figure 6 Tabular Data

The above figure shows the graphical representation of data extracted from Api .

| | 74954 | 47617 | 24896 | 2437 |
|---|---|---|---|---|
| STATE/UT | CONFIRMED ▾ | ACTIVE | RECOVERED | DECEASED |
| MAHARASHTRA | 24427 | 18381 | 5125 | 921 |

| DISTRICT | CONFIRMED ▲ |
|---|---|
| GADCHIROLI | 0 |
| MUMBAI SUBURBAN | 0 |
| BEED | 1 |
| BHANDARA | 1 |
| GONDIA | 1 |
| WARDHA | 1 |
| PARBHANI | 2 |
| WASHIM | 2 |
| CHANDRAPUR | 4 |
| OSMANABAD | 4 |
| SINDHUDURG | 6 |
| JALNA | 16 |
| KOLHAPUR | 19 |
| NANDURBAR | 22 |
| BULDHANA | 25 |
| LATUR | 31 |
| SANGLI | 38 |
| OTHER STATE | 41 |
| NANDED | 46 |
| RATNAGIRI | 55 |
| HINGOLI | 61 |
| DHULE | 63 |
| AHMEDNAGAR | 64 |
| AMRAVATI | 89 |
| YAVATMAL | 98 |
| SATARA | 123 |
| AKOLA | 169 |
| JALGAON | 192 |
| NAGPUR | 268 |
| RAIGAD | 275 |
| PALGHAR | 301 |
| SOLAPUR | 317 |
| AURANGABAD | 653 |
| NASHIK | 741 |
| THANE | 2814 |
| PUNE | 2937 |
| MUMBAI | 14947 |

Figure 7 District Level Tabular Data

It give the district level data of the state in tabular form.

International Journal for Research in Applied Science & Engineering Technology (IJRASET)
ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 7.429
Volume 8 Issue V May 2020- Available at www.ijraset.com

*B.  Helpul Links*
1)  This module consists of links which can be useful for an individual visiting the website.
2)  This module also consists of Images or Posters which creates awareness amongst the visitors.



Figure 8 Helpful links.



Figure 9 Links available in helpful links tabs

## VII.    CONCLUSION AND FUTURE ENHANCEMENT

This paper tried to highlight the following:

The project aimed  to provide a user-friendly dashboard which gives real time Information about COVID-19 outbreak in India.

This Project provides information in Tabular format and Visual Interactive Map and current status information in the form of interactive graphs.

This Project also provides information about Important links which could be useful to the visitor.

The awareness is also created amongst the visitors using the messages displayed in the web page.

We can in future implement with location feature to identify which zone we lie and to find the nearest positive case.

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