# COVID-19 ANALYSIS USING IBM COGNOS

## TEAM MEMBERS-


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# 1) Introduction

## 1.1 Overview-

Coronaviruses are a large family of viruses which may cause illness 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). The most recently discovered coronavirus causes coronavirus disease COVID-19 - World Health Organization.

The number of new cases are increasing day by day around the world. This dataset has information from the states and union territories of India at daily level.  As per this project we will be analyzing some important visualizations, creating a dashboard and story. By going through these we will get most of the insights of COVID 19 in India.

## 1.2 Purpose-

The purpose of COVID-19 analysis visualizations in India is to provide a clear and concise representation of the data related to the COVID-19 pandemic in the country. These visualizations help in understanding the spread, impact, and trends of the virus, and assist in making informed decisions regarding public health measures, resource allocation, and policy-making.

a) Monitoring the trends: Visualizations can present the progression of COVID-19 cases over time, showcasing the number of new cases, recoveries, and deaths. Trends can be analyzed to assess the effectiveness of interventions and predict future scenarios, helping authorities plan for healthcare infrastructure, testing, and vaccination requirements.

b) Comparative analysis: Visualizations allow for comparisons between different states, districts, or demographic groups within India. By examining variations in COVID-19 metrics across regions or population segments, policymakers can identify areas that need targeted interventions or assess the impact of specific measures.

# 2. Literature Survey

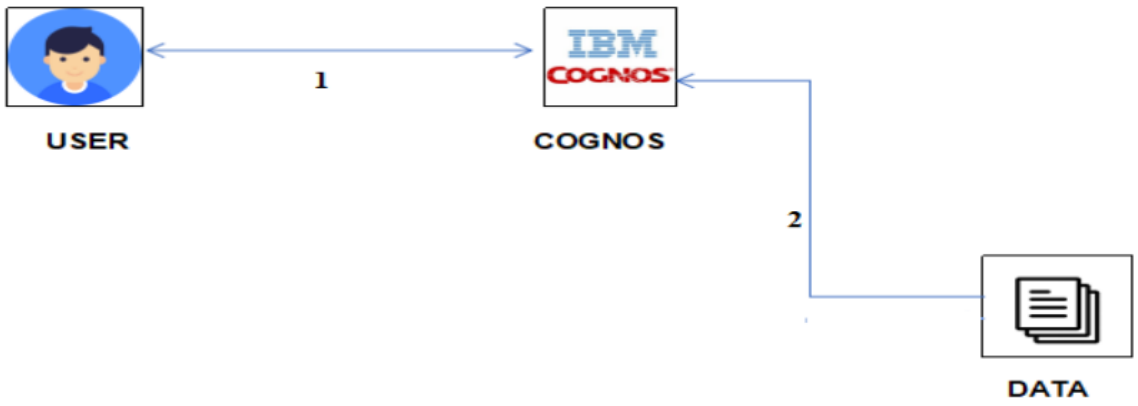
The COVID-19 pandemic has generated an enormous amount of data, and effective visualizations play a crucial role in understanding and communicating this data to support

decision-making and public health interventions. This literature survey explores the field of COVID-19 data analytics visualizations, aiming to provide an overview of the situation of various states of India . By examining the cured , deaths, confirmed cases this survey serves as a comprehensive resource for researchers, practitioners, and policymakers interested in leveraging data analytics visualizations for combating the COVID-19 pandemic.

By analyzing and summarizing existing literature in this survey, readers will gain insights into the state of COVID-19 data analytics visualizations, allowing them to make informed decisions and contribute to the ongoing efforts to combat the pandemic effectively.

# 3. Theoretical analysis

## 3.1 ) Block diagram/Architecture -




## 3.2 ) Hardware/Software-

- Hardware basic requirement of
    a) Laptop
    b) Internet connectivity
- Software requirements include
    a) Bootstrap
    b) Vs code
    c) IBM Cognos
    d) Chrome

# 4. Project Flow-

- Users create multiple analysis graphs/charts.
- Using the analyzed chart creation of Dashboard is done.
- Saving and Visualizing the final dashboard in the IBM Cognos Analytics.

To accomplish this, we have to complete all the activities and tasks listed below

- IBM Cloud Account
- Login to Cognos Analytics
- Working with the Dataset
    - Understand the Dataset

    - Loading the Dataset
- Data visualization charts
    a) Word Cloud graph of most affected states in India
    b) Percentage of Confirmed Cases of Top 10 Affected States(Pie chart)
    c) Day wise graph of cured, death and confirmed cases(Line chart)
    d) Stacked column graph showing count of cured and deaths of top 10 states
    e) Comparison of total cured and deaths through KPI chart.
- Dashboard Creation
- Exporting the Analytics

# 5. Working with Dataset-

This project is based on understanding COVID 19 in India.
It has 1,025 data points (rows) and 8 features (columns) describing the results of Covid (confirmed cases, cured cases, death cases etc..) related details

1. Date- gives us the dates on which case analysis(deaths, cured, confirmed) are seen in every state
2. Time- represents at which time the information is updated
3. State/ Union Territory- the states in India
4. Confirmed Indian National- Cases Confirmed in India
5. Confirmed Foreign National- Cases Confirmed Apart From India(Foreign)
6. Cured- No: of Cured Cases (Cumulative field)
7. Deaths- No: of Deaths (Cumulative field)
8. Confirmed- No: of Confirmed Cases (Cumulative field)

# 6. Experimental Investigations-

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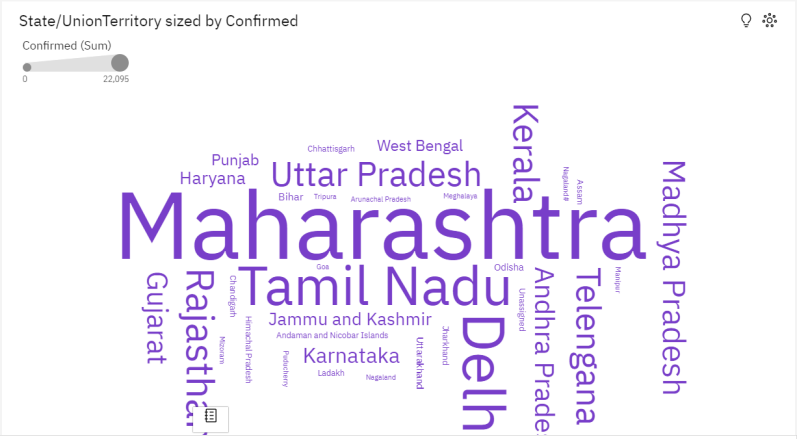
# Scene 1: Visualisation of most affected states in India

- In a very short amount of time, coronavirus has spread globally. It has had an enormous impact on people's lives, economy, and societies all around the world, affecting every country.The virus has altered our way of life in many ways, including its effects on our health and our economy. Speedy and agile efforts were taken to address the COVID-19 pandemic by India's national and state governments.
- Governments started testing on large scale in order to determine number of patients.
- This , wordcloud visualization shows us the intensity of confirmed cases statewise.
- Maharashtra had most number of confirmed cases ,followed by Tamil Nadu,

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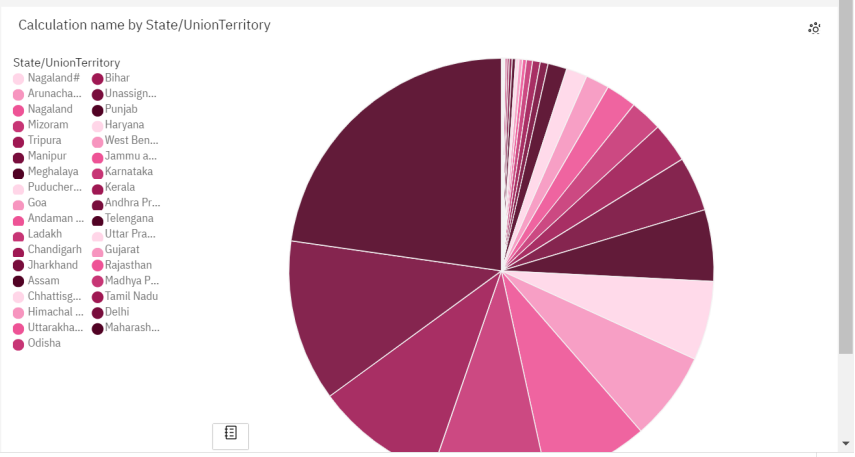
# Scene 2: Visualisation of States & Union territory by percentage of confirmed cases

- In this Pie Chart visualization we had concentrating on the percentage of no.of confirmed cases in top most states

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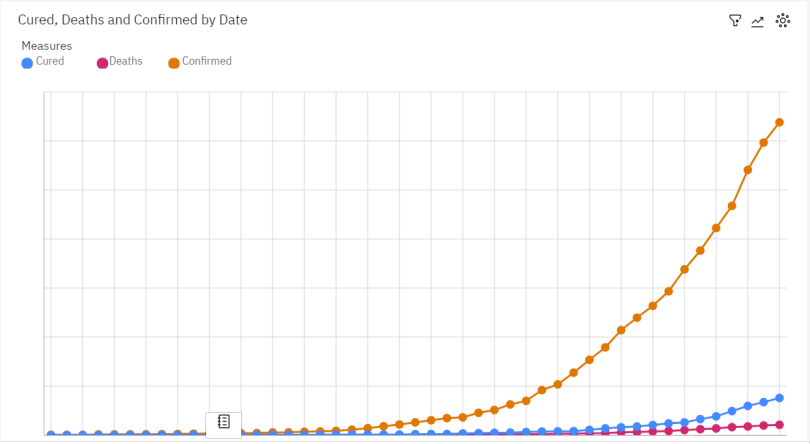
# Scene 3: Day wise visualisation of Cured , Death and Confirmed cases

- This Line Chart depicts the trend of spread of covid-19 accross the country.
- Here, clearly we can observe that peak had reached during April 2020.

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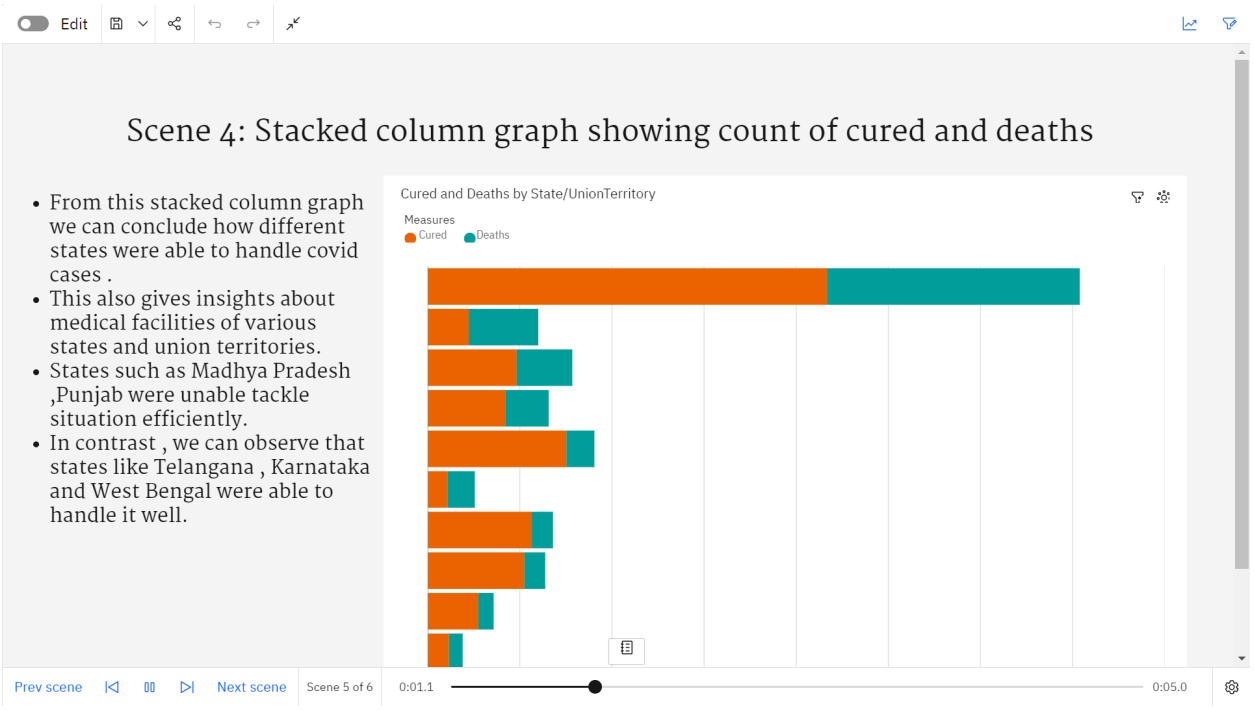


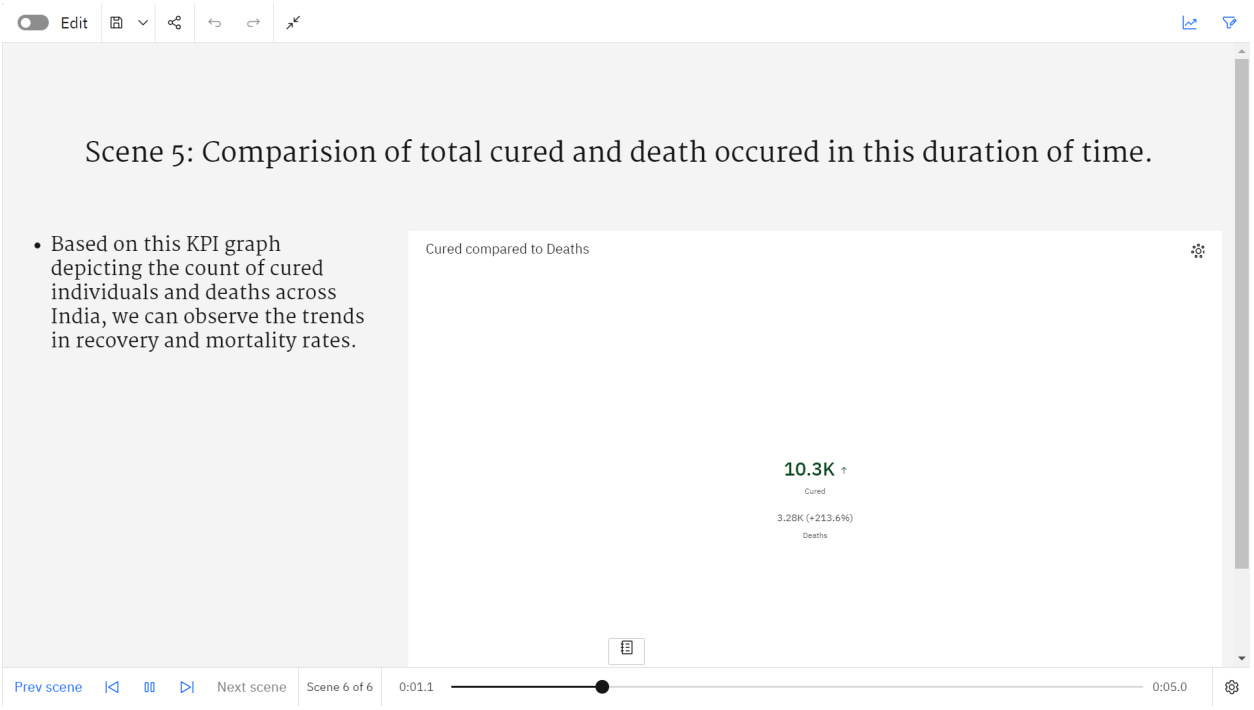


# 7. Advantage&Disadvantage-

**Advantages-** COVID-19 data analysis offers several advantages that contribute to better understanding and management of the pandemic. Here are some key advantages:

a) Identification of trends and patterns: Data analysis allows for the identification of trends and patterns in COVID-19 cases, such as the rate of infection, geographical

hotspots, and demographic factors. This helps in understanding how the virus is spreading, who is most affected, and where interventions may be most effective.

b) Early detection of outbreaks: By analyzing COVID-19 data in real-time, data analysis can help in the early detection of outbreaks or surges in cases. This enables public health officials to respond swiftly, implement targeted interventions, and allocate resources to prevent further spread.
c) Monitoring the effectiveness of interventions: Data analysis provides insights into the impact of public health interventions, such as social distancing measures, mask mandates, and vaccination campaigns. By analyzing the data, it is possible to evaluate the effectiveness of these measures in controlling the spread of the virus and reducing the burden on healthcare systems.

**Disadvantages-** While COVID-19 data analytics offers numerous benefits, there are also potential disadvantages that need to be considered. Here are some possible disadvantages of COVID-19 data analytics:

a) Data quality and reliability: One of the main challenges in data analytics is ensuring the quality and reliability of the data. COVID-19 data from different sources may have inconsistencies, inaccuracies, or missing values, which can affect the accuracy and validity of the analysis. Incomplete or unreliable data can lead to incorrect conclusions and flawed decision-making.

b) Data privacy and security: COVID-19 data often contains sensitive information, including personal health data and location details. Maintaining privacy and ensuring the security of this data is crucial. Inadequate data protection measures can result in breaches, unauthorized access, or misuse of personal information, leading to privacy concerns and loss of public trust.

c) Limited data coverage and accessibility: The availability and coverage of COVID-19 data can vary across regions and countries. Some areas may have limited testing capabilities or underreporting, leading to incomplete datasets. Additionally, accessibility to data may be restricted due to privacy regulations or data-sharing agreements, hindering comprehensive analysis and potentially introducing biases.

# 8. Future Scope-

As the COVID-19 pandemic evolves, the project's findings and recommendations serve as a foundation for future research and application development. Further advancements can be made in refining existing visualization techniques, exploring the potential of emerging technologies such as artificial intelligence and machine learning, and enhancing collaboration among researchers, policymakers, and public health authorities.

the future scope of COVID-19 analytics projects is vast and multifaceted. By leveraging advanced analytics techniques, integrating data sources, and addressing emerging challenges, future projects can contribute to ongoing efforts in combating the pandemic, improving public health strategies, and building resilience for future outbreaks.

# 9. Conclusion-

The COVID-19 data analytics project has provided valuable insights and contributed to our understanding of the pandemic. Through the utilization of data analytics techniques and visualization tools, researchers and practitioners have been able to analyze and interpret vast amounts of COVID-19 data, enabling informed decision-making and effective public health interventions.The project has demonstrated the importance of interactive dashboards, geospatial visualizations, temporal analysis, and network analysis in presenting COVID-19 data in a clear and accessible manner. These visualizations have facilitated the identification of trends, hotspots, and patterns, allowing for targeted interventions and resource allocation.In conclusion, the COVID-19 data analytics project has been instrumental in harnessing the power of data to understand and combat the pandemic. By leveraging sophisticated visualization techniques and analytical methodologies, valuable insights have been generated, contributing to evidence-based decision-making and public health strategies. The project's findings provide a valuable resource for ongoing efforts to mitigate the impact of COVID-19 and future pandemics.

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