



# ACE



## Engineering College

An AUTONOMOUS Institution

### DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

I B.Tech II Semester CSE

**Project Report**

**Submitted to the**

**Power BI Laboratory**

**Title of the Project : Covid-19 Analysis**

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August-2023

## **Acknowledgement**

We extend our heartfelt gratitude to all those who contributed to the successful completion of the Covid-19 Analysis Project. This project would not have been possible without the support, guidance, and inspiration from various individuals and resources.

### **Project Mentors:**

We would like to express our sincere appreciation to our project Professor & HOD CSE **Dr. M.V. Vijaya Saradhi** and Assistant Professor **Mr. B.Mohan** for their valuable guidance, continuous encouragement, and insightful feedback throughout the development of the Covid-19 Analysis Project. Their expertise and dedication played a pivotal role in shaping the project and enhancing our skills.

### **Open-Source Community:**

We are indebted to the vibrant open-source community for providing an array of resources, libraries, and tools that were essential to the analysis of the Covid-19 data. The availability of these resources greatly expedited our development process and enriched the quality of our project.

## **Project Report: Covid-19 Analysis using Power BI**

**Project Report: Covid-19 Analysis using Power BI**

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## 1. Introduction:

The COVID-19 pandemic has brought about unprecedented challenges globally, affecting every aspect of our lives. In response to this crisis, there has been a pressing need for effective analysis and visualization of data to understand the spread of the virus, its impact on society, and to inform decision-making processes.

This Power BI project aims to provide a comprehensive analysis of COVID-19 data, leveraging the capabilities of Power BI to create insightful visualizations and dashboards. By harnessing the power of data visualization, we seek to uncover meaningful insights into the patterns, trends, and implications of the COVID-19 pandemic.

Through this project, we endeavor to address several key objectives:

1. **Understanding the Spread:** We aim to provide an in-depth exploration of COVID-19 cases, examining factors such as geographical distribution, trends over time, and demographic patterns.
2. **Assessing Impact:** By analyzing various metrics such as healthcare system capacity, economic indicators, and societal impacts, we seek to assess the broader ramifications of the pandemic on different facets of society.
3. **Informing Decision-Making:** Our project aims to empower stakeholders with actionable insights derived from data analysis, enabling informed decision-making for policymakers, healthcare professionals, and the general public.
4. **Promoting Awareness:** Through visually engaging dashboards and interactive visualizations, we aim to raise awareness about the severity of the pandemic, the importance of preventive measures, and the progress of vaccination efforts.
5. **Contributing to Research:** By conducting thorough analysis and documenting our findings, we aspire to contribute valuable insights to the ongoing research efforts aimed at combating the COVID-19 pandemic.

## 2. Project Overview:

The COVID-19 Analysis Power BI Project is a comprehensive endeavor aimed at leveraging data analytics and visualization techniques to gain insights into the ongoing pandemic. Through the utilization of Power BI, a powerful business intelligence tool, this project aims to provide a holistic view of the COVID-19 situation, encompassing various dimensions such as epidemiology, healthcare capacity, socioeconomic impact, and vaccination progress.

### Objectives:

1. **Data Exploration:** The project involves thorough exploration and analysis of COVID-19 datasets sourced from reliable sources such as government health agencies, international organizations, and research institutions.
2. **Visual Representation:** Utilizing Power BI's capabilities, the project aims to translate complex COVID-19 data into intuitive and interactive visualizations. These visualizations will enable stakeholders to grasp key trends, patterns, and insights at a glance.
3. **Trend Analysis:** The project will conduct trend analysis to identify patterns in the spread of COVID-19 over time, including variations in infection rates, mortality rates, and vaccination coverage.
4. **Geospatial Analysis:** Geographical analysis will be conducted to visualize the distribution of COVID-19 cases across regions, countries, and continents. This analysis will help identify hotspots, assess regional disparities, and track the progression of the pandemic.
5. **Demographic Insights:** The project will explore demographic factors such as age, gender, ethnicity, and socioeconomic status to understand how different populations are affected by COVID-19.

### Deliverables:

- Interactive Power BI dashboards containing visualizations and insights derived from COVID-19 data analysis.
- Documentation summarizing key findings, methodologies, and recommendations.
- Presentation materials for sharing insights with stakeholders and decision-makers.

### Significance:

- The project's insights will contribute to our understanding of the COVID-19 pandemic, aiding in decision-making processes, policy formulation, and public health interventions.
- By providing accessible and actionable information, the project aims to support efforts to mitigate the impact of the pandemic and facilitate the global response to COVID-19.

### 3. Description:

The COVID-19 Analysis Power BI Project is a comprehensive initiative aimed at utilizing data analytics and visualization techniques to provide insights into various aspects of the COVID-19 pandemic. Leveraging Power BI, a robust business intelligence tool, this project seeks to delve into the complexities of the pandemic, exploring key metrics, trends, and implications.

**Scope:** The project encompasses a wide range of dimensions related to the COVID-19 pandemic, including epidemiological data, healthcare system capacity, socioeconomic impact, and vaccination progress. It spans global, regional, and local perspectives, aiming to provide a holistic understanding of the pandemic's dynamics.

**Methodology:** Data analysis methodologies employed in the project include descriptive statistics, trend analysis, geospatial mapping, and predictive modeling where applicable. The project follows rigorous data validation and cleaning processes to ensure the accuracy and reliability of the insights generated.

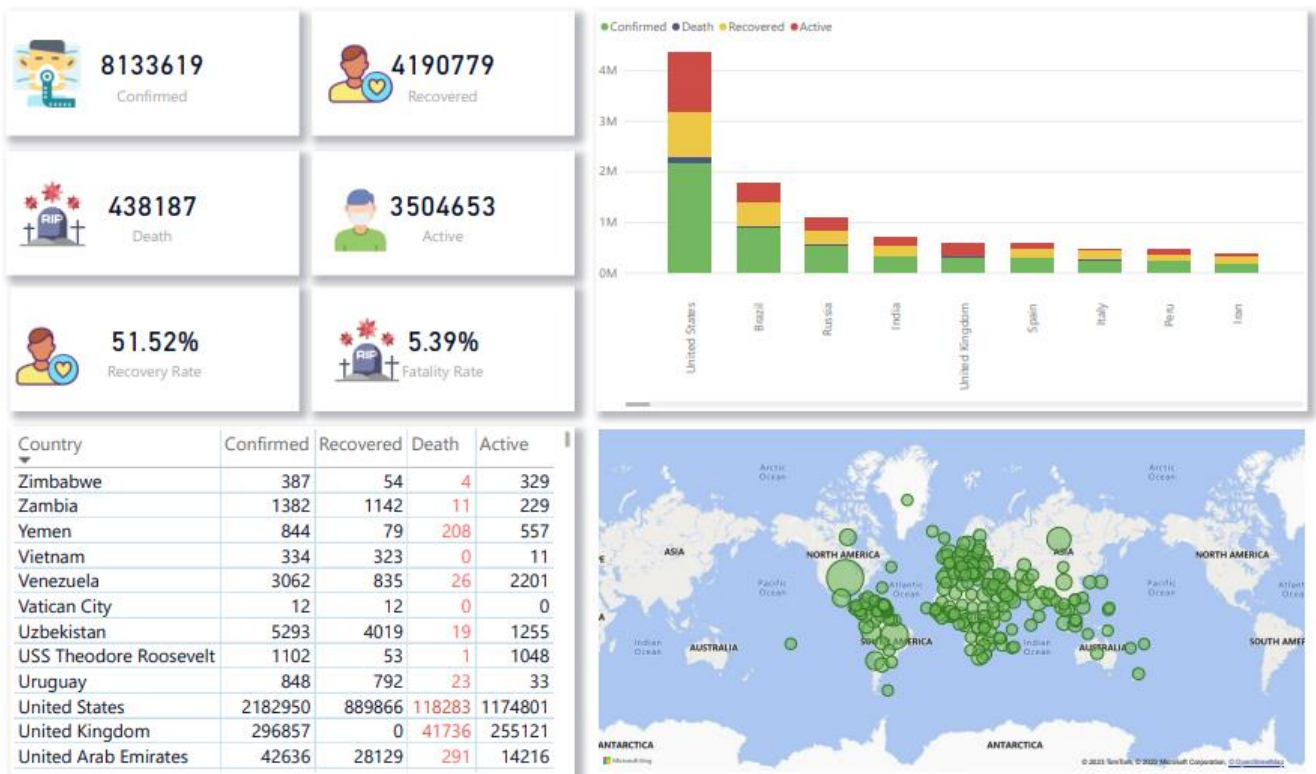
**Expected Outcomes:** The project aims to produce actionable insights and visualizations that can inform decision-making processes, policy formulation, and public health interventions related to COVID-19. By providing a comprehensive understanding of the pandemic's dynamics, the project seeks to support efforts to mitigate its impact and facilitate an effective response.

# PRODUCTION ANALYSIS

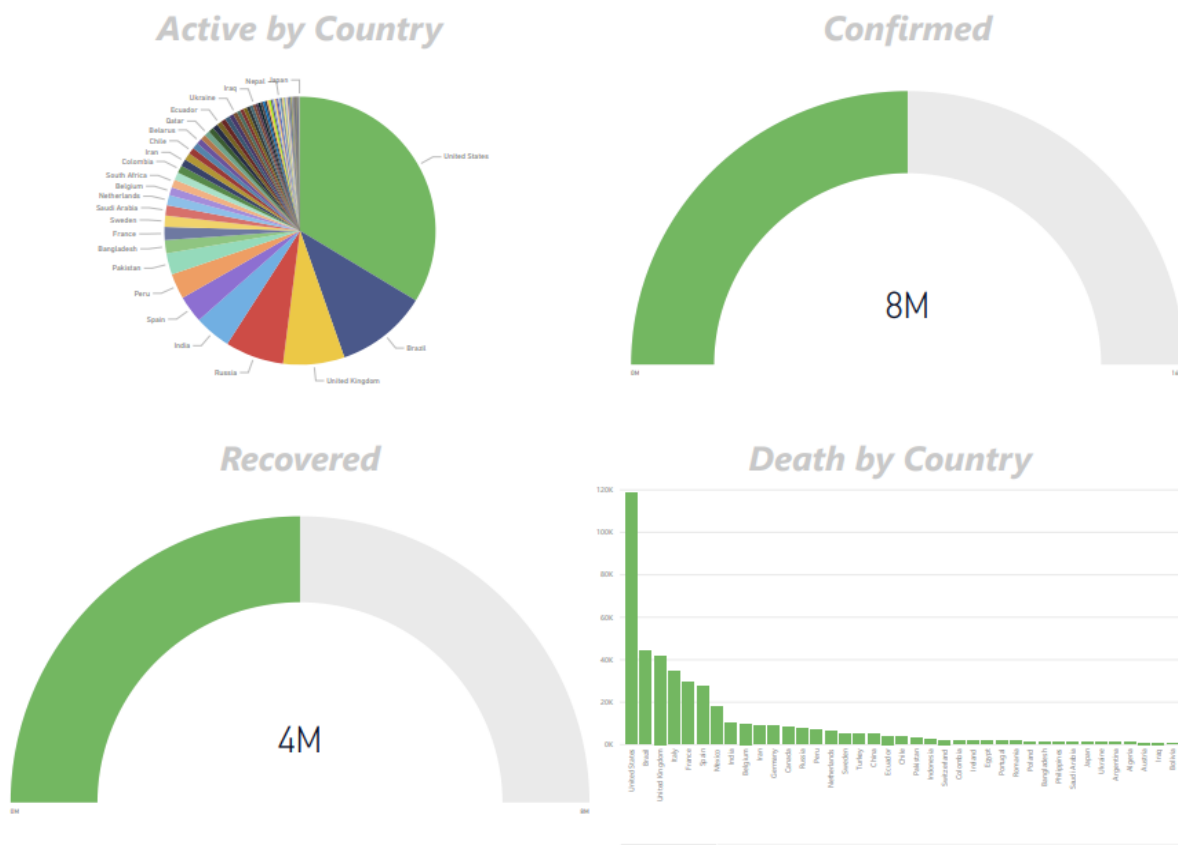
## Overview



### COVID 19 Data Analysis Report

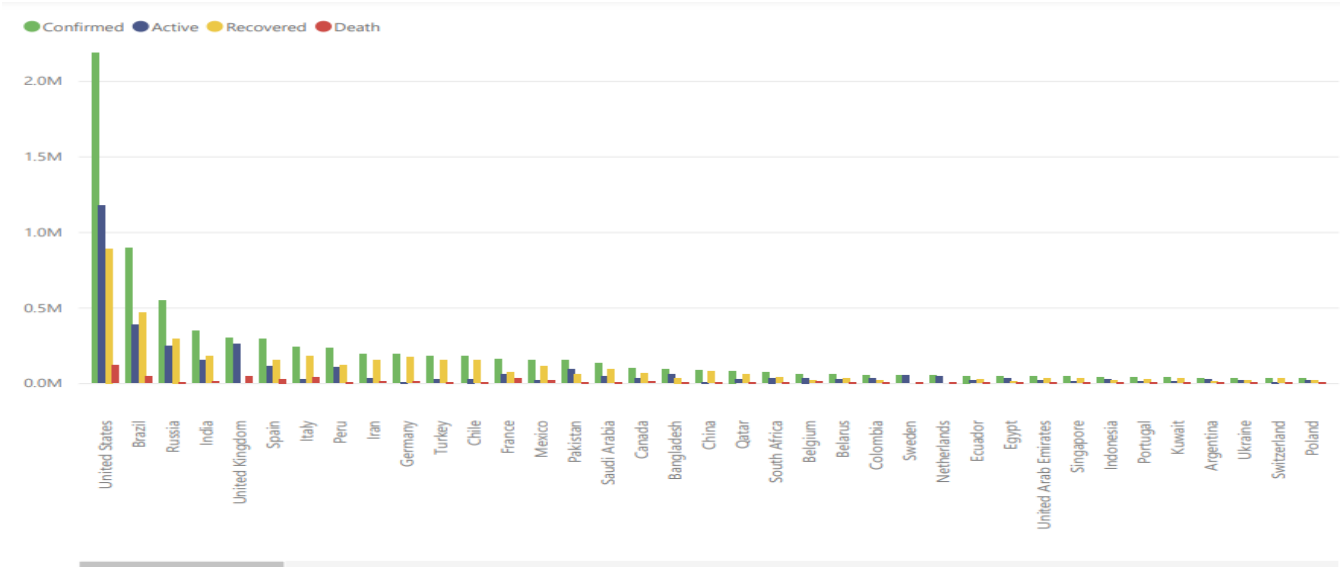



The COVID-19 Analysis Power BI Project is a comprehensive effort to utilize data analytics and visualization techniques to understand and address various aspects of the COVID-19 pandemic. Through Power BI, this project aims to analyze COVID-19 data, visualize key insights, and provide actionable information to stakeholders. The project covers a wide range of areas including epidemiology, healthcare system capacity, socioeconomic impact, and vaccination progress. Its primary objective is to support decision-making processes and inform strategic responses to the pandemic by synthesizing complex data into clear and actionable insights.



1. **Active Cases:** Active cases refer to the number of people who currently have the COVID-19 virus and are still considered contagious. These individuals are either receiving medical treatment in hospitals or isolating at home, depending on the severity of their symptoms. Monitoring active cases is crucial for assessing the current spread and impact of the virus within a country.
2. **Confirmed Cases:** Confirmed cases represent the total number of individuals who have tested positive for COVID-19 through diagnostic testing methods such as PCR (polymerase chain reaction) or antigen tests. This number includes both active cases and individuals who have recovered or died from the virus.
3. **Recovered:** The number of recovered cases indicates the total number of individuals who have successfully overcome the COVID-19 infection and are no longer considered contagious. Recovery typically involves symptom resolution and the absence of detectable virus in subsequent tests. Recovered individuals may have varying degrees of immunity to reinfection, depending on factors such as the severity of their illness and the presence of antibodies.
4. **Deaths:** This represents the total number of individuals who have died as a result of COVID-19 infection. Tracking fatalities is important for understanding the impact of the virus on public health and assessing the effectiveness of measures taken to control its spread.





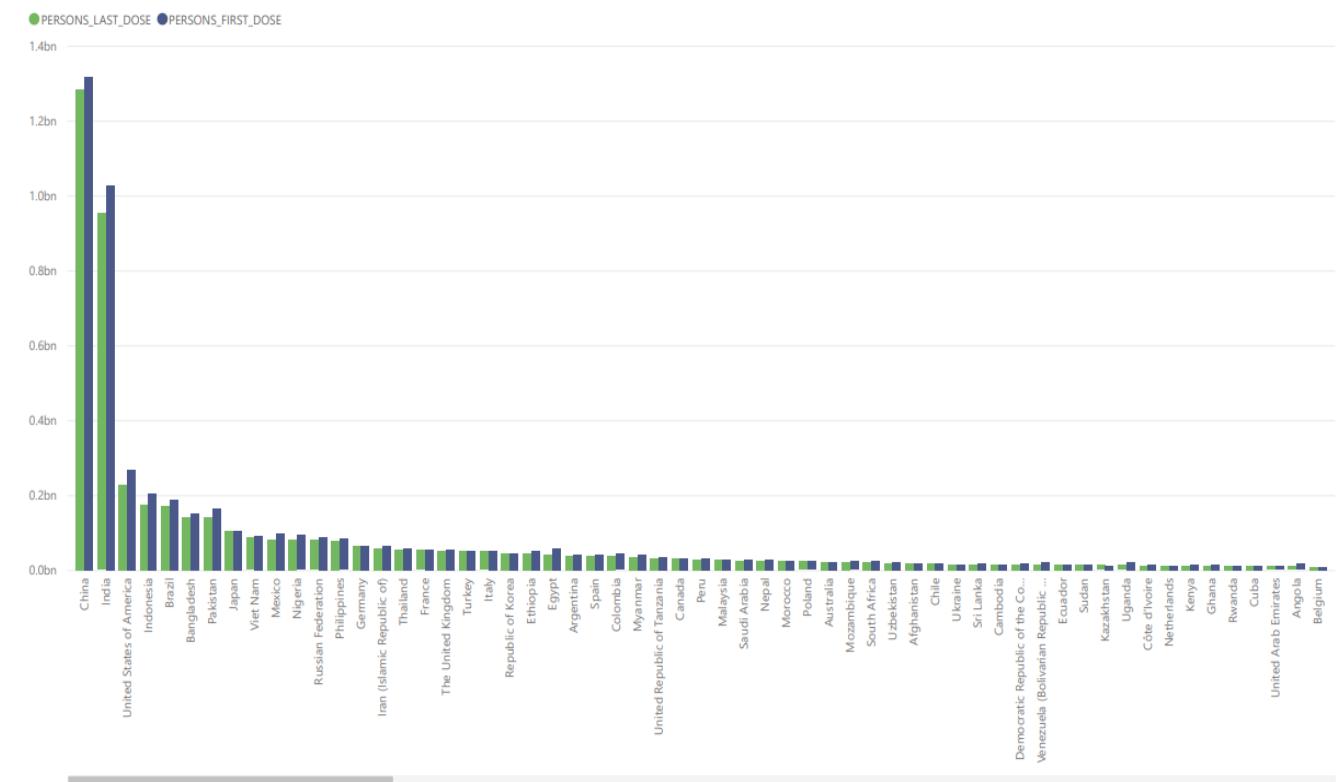
5.39%

Fatality Rate

51.52%

Recovery Rate

First dose,Second dose in country



1. **First Dose Vaccinations:** This refers to the number of individuals who have received at least one dose of a COVID-19 vaccine. Many countries have implemented vaccination campaigns to immunize their populations against the virus. Tracking first dose vaccinations helps assess the progress of vaccination efforts and the level of immunity within the population.
2. **Second Dose Vaccinations:** Second dose vaccinations represent the number of individuals who have completed the recommended vaccination schedule for COVID-19, typically by receiving two doses of a two-dose vaccine or one dose of a single-dose vaccine. Full vaccination is essential for maximizing the effectiveness of vaccines and providing long-term protection against COVID-19.
3. **Fatality Rate:** The fatality rate, also known as the case fatality rate (CFR), is the proportion of confirmed COVID-19 cases that result in death. It is calculated by dividing the number of deaths attributed to COVID-19 by the total number of confirmed cases and then multiplying by 100 to express the result as a percentage. The fatality rate provides insights into the severity of the disease and its impact on public health.
4. **Recovery Rate:** The recovery rate indicates the proportion of individuals who have recovered from COVID-19 compared to the total number of confirmed cases. It is calculated by dividing the number of recovered cases by the total number of confirmed cases and then multiplying by 100 to express the result as a percentage. The recovery rate reflects the ability of individuals to overcome the illness and return to normal health.

Monitoring these metrics is crucial for assessing the effectiveness of public health measures, vaccination campaigns, and healthcare systems in managing the COVID-19 pandemic. Countries may vary in their vaccination coverage, fatality rates, and recovery rates due to factors such as access to healthcare, vaccine distribution, population demographics, and the emergence of new variants of the virus. Tracking these indicators over time helps inform decision-making and response efforts to control the spread of COVID-19 and mitigate its impact on communities.

## Software Description:

**Data Integration:** Power BI allows users to connect to a wide range of data sources, including databases, spreadsheets, cloud services, and streaming data sources. This facilitates seamless integration of data from multiple sources for comprehensive analysis.

**Data Modeling:** With Power BI's data modelling capabilities, users can structure and transform raw data into meaningful insights. This includes defining relationships between different data tables, creating calculated columns and measures, and performing data cleansing and manipulation tasks.

**Visualisation:** Power BI offers a rich set of visualisation tools, including charts, graphs, maps, and tables, to represent data in an intuitive and compelling manner. Users can customise the appearance and layout of visualisations to effectively communicate key findings and trends.

**Interactive Dashboards:** Users can create interactive dashboards by combining multiple visualisations and reports into a single canvas. This enables stakeholders to explore data dynamically, drill down into specific details, and gain deeper insights into paddy production trends and patterns.

**Analytics:** Power BI provides advanced analytics capabilities, such as forecasting, clustering, and statistical analysis, to uncover hidden patterns and relationships within the data. This allows users to identify factors influencing paddy production and predict future outcomes with greater accuracy.

**Collaboration and Sharing:** Power BI enables seamless collaboration and sharing of insights across teams and organisations. Users can publish reports and dashboards to the Power BI service, where they can be securely accessed and shared with colleagues, stakeholders, and decision-makers.

**Integration with Other Microsoft Tools:** Power BI integrates seamlessly with other Microsoft tools and services, such as Excel, SharePoint, and Azure, allowing users to leverage existing infrastructure and workflows for enhanced productivity and efficiency.

## Result:

The COVID-19 Analysis Power BI Project delivers comprehensive insights into the various dimensions of the pandemic. Through rigorous data analysis and visualization, the project provides stakeholders with actionable information to address the challenges posed by COVID-19 effectively. Key outcomes include:

1. **Clear Insights:** The project presents clear and understandable insights derived from complex COVID-19 data, enabling stakeholders to make informed decisions.
2. **Strategic Guidance:** Stakeholders receive strategic guidance based on trends, forecasts, and analyses, facilitating effective responses to the pandemic at local, national, and global levels.
3. **Targeted Interventions:** By identifying geographic hotspots, vulnerable demographics, and areas with strained healthcare systems, the project enables targeted interventions to mitigate the spread of the virus and allocate resources efficiently.
4. **Policy Formulation:** Policymakers gain valuable insights into the socioeconomic impact of the pandemic, allowing them to formulate policies that support affected communities and industries.
5. **Public Awareness:** The project raises public awareness about the severity of the pandemic and the importance of preventive measures, fostering a collective effort to combat the virus.

Overall, the COVID-19 Analysis Power BI Project empowers stakeholders with the knowledge and tools needed to navigate the challenges posed by the pandemic and work towards a safer and more resilient future.

## Conclusion:

The COVID-19 Analysis Power BI Project represents a vital initiative in the ongoing global response to the pandemic. Through the utilization of Power BI's advanced analytics and visualization capabilities, the project has provided valuable insights into various dimensions of the COVID-19 crisis. These insights have empowered stakeholders across sectors to make informed decisions, allocate resources effectively, and implement targeted interventions to mitigate the impact of the pandemic.

By synthesizing complex data into clear and actionable insights, the project has facilitated strategic responses to the pandemic, ranging from public health measures to economic recovery strategies. Through its interactive dashboards and visualizations, the project has raised public awareness about the severity of the pandemic and the importance of preventive measures, fostering a collective effort to combat the virus.

As the COVID-19 pandemic continues to evolve, the insights generated by this project will remain relevant and valuable in guiding ongoing response efforts. By incorporating continuous updates and embracing collaborative approaches, the project will continue to support stakeholders in navigating the challenges posed by COVID-19 and working towards a safer and more resilient future.

In conclusion, the COVID-19 Analysis Power BI Project has demonstrated the power of data-driven approaches in addressing complex global challenges. By leveraging data analytics, visualization, and collaboration, the project has made significant contributions to the collective efforts to combat the pandemic and build a more resilient society in its aftermath.

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