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# Covid-19 Future Forecasting Using Supervised Machine Learning Models

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**ABSTRACT:** The coronavirus affects everyone on the planet, either directly or indirectly. Someone is directly affected when the virus strikes them, while others are indirectly harmed due to the closure of their enterprises, job, and daily activities. The global economy is currently slowing down day by day.Machine learning (ML)-based forecasting techniques have demonstrated their use in predicting perioperative outcomes and improving decision-making about future actions. Many application fields that required the identification and prioritization of adverse aspects for a threat have long used machine learning models.

**KEYWORDS:** COVID-19, Machine Learning (ML);

## I. INTRODUCTION

Our effort will use current coronavirus data from throughout the world to analyses the future report. To do so, we employ the concept of ML, which you will get familiar with as you continue reading. In addition, India is conducting a vaccination campaign; our goal is to use the graphic model to highlight which states are doing vaccinations and the percentage of people who have been vaccinated. Over the last decade, ML has established itself as a significant field of research by tackling numerous challenging and sophisticated real-world issues.
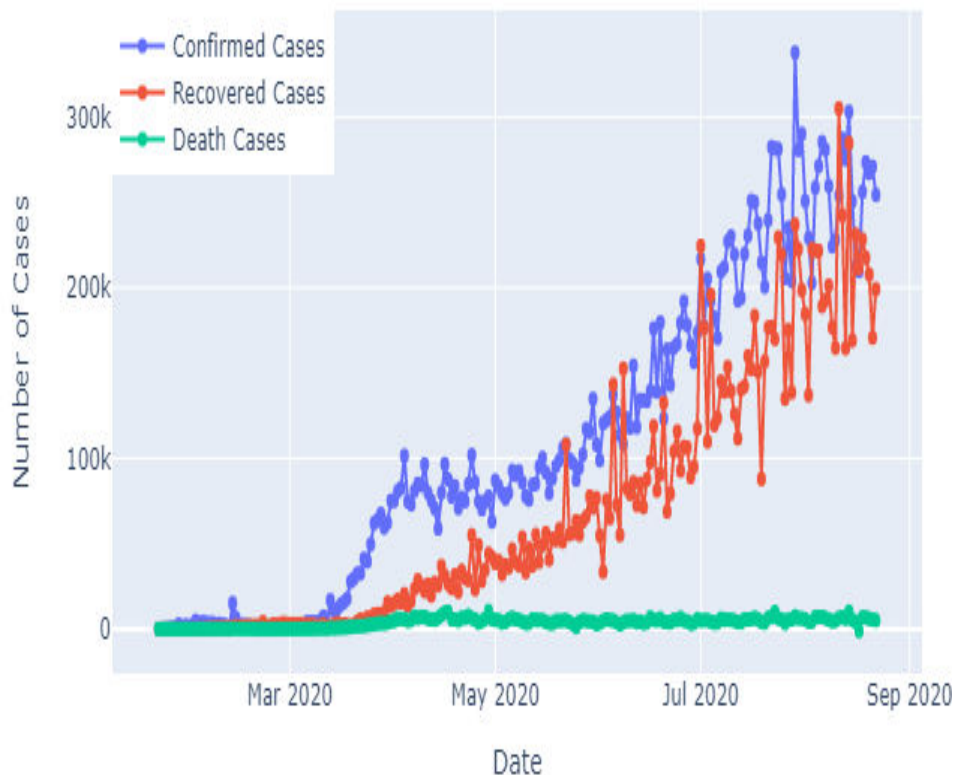


**Figure 1.1: Covid-19 Daily Increase Cases [7]**

They used the perception time, region/state, nation/locale, last perception date, affirmed cases, recovered cases, and passing cases in our informational index. With these data, we calculated the daily increase in confirmed, recovered, and death cases using Python on a Jupyter notebook. The x-axis shows the date (observation) and the y-axis shows the number of cases (confirmed, recovered, and deaths). Figure 1.1 depicts the daily growth in various types of instances.

## II. LITERATURE SURVEY

FURQAN RUSTAM et.al [1] The study's findings show that using these strategies in the current COVID-19 pandemic scenario is a promising mechanism. The results show that the ES outperforms all other models, followed by LR and LASSO, which excel at forecasting new confirmed cases, death rates, and recovery rates, respectively, while SVM performs badly in all prediction scenarios given the provided information.

Mujeeb Ur Rehman et.al [2] Several symptoms, such as flu symptoms, throat pain, immunity status, diarrhoea, voice type, body temperature, joint pain, dry cough, vomiting, breathing issues, headache, and chest discomfort, are taken into account by the proposed diagnosis technique. Our suggested method can predict the likelihood of infection with the COVID-19 virus based on these symptoms, which are modeled as ML characteristics. Different experimental analytic criteria, including as accuracy, precision, recall, and F1-score, are used to evaluate this procedure. The acquired experimental findings suggest that the proposed technique can accurately predict the presence of COVID-19 by more than 97 percent.[5][13]

Yanping Zhang, zhangyp et.al [3] The 2019 new corona virus diseases (COVID-19) outbreak that began in Wuhan, Hubei Province, China, has quickly expanded across the country. The findings of a descriptive, exploratory analysis of all instances diagnosed as of February 11, 2020 are presented below. The Chinese Infectious Disease Information System was used to collect all COVID-19 cases reported through February 11, 2020. The following were among the analyses: 1) patient demographics; 2) age distributions and sex ratios; 3) case fatality and mortality rates; 4) geo-temporal study of viral propagation; 5) epidemiological curve development; and 6) subgroup analysis.

Dr. Vakula Rani J &, Aishwarya Jakka2 [4] The COVID-19 pandemic has disrupted everyone's emotional, bodily, and financial well-being, affecting the economy and changing the human way of life. The severity and contagiousness of the epidemic have put a strain on several of the world's fastest-growing economies. Because of the growing diversity of cases and the accompanying impact on healthcare providers and the government, forecasting the number of infected COVID-19 cases could be useful in determining future hospital resource requirements. In their paper, the authors focused on using different learning models, such as Sigmoid modelling, ARIMA, SEIR model, and LSTM, for protective measures, such as social isolation or COVID-19 lockout, to estimate the number of COVID-19 confirmed cases in the country and their implications in the future.

Saksham Gera et.al [6] The COVID – 19 (Novel Corona Virus) Pandemic has swept the globe, wreaking havoc on people's lives. In India, the study looks at the current pattern or trend in COVID – 19 transmissions. Furthermore, a ML-based forecasting system has demonstrated its value in improving management skills in the future course of action. This study illustrates the capacity of various ML models to predict the number of patients who would be afflicted by nCov, a global threat.

Ovi Sarkar et.al [7] SARS-CoV-2 (n-corona virus) is a worldwide pandemic that has claimed the lives of millions of people. This research looked at the current state of the corona virus pandemic in the world and in Bangladesh, as well as its effects and future prospects. To reproduce the confirmed, recovered, and passing situations, the author used several data representations and ML computations. The study's authors hope that it will aid scientists, researchers, and ordinary people in predicting and analyzing the pandemic's impact. Finally, our visualization and prediction performance was demonstrated through the comparison and analysis of various models and algorithms.

Shreyansh Chordia & Yogini Pawar et.al [8] India is one of the world's most severely afflicted countries. As a result, it's critical to examine India's tendencies and apply what we've learned to estimate the future course of events. Along with an overall trend analysis in India, this report focuses on the country's five most afflicted states: Maharashtra, Andhra Pradesh, Tamil Nadu, Karnataka, and Uttar Pradesh.

Narayana Darapaneni et.al [9] In their work, the authors examine the COVID-19 spread in India and the three most impacted Indian states as of August 29, 2020, and construct a prediction model to estimate COVID-19 spread in the

coming months. They analyzed time series data for India to predict the peak infective and peak infective date for India and the three most impacted states using the Susceptible-Infectious-Removed (SIR) model and the Fb Prophet model. They also conducted a comparison analysis of the prediction results from the SIR and Fb Prophet Models in this paper.

Ashish U Mandayam1 et.al [10] Predictive analysis has become a critical component for future prediction as the science of ML has progressed. As the authors deal with the COVID-19 pandemic, it would be beneficial to forecast the number of positive cases in the future in order to improve measures and control. Using the COVID-19 time-series dataset, they used two supervised learning models to forecast the future. A comparison of LR vs. SVR is used to investigate prediction performance. Because the data was almost linear, they employed these two models.

Senthilkumar Mohan et.al [11] The Covid-19 epidemic has emerged as one of the most concerning global public health catastrophes of the twenty-first century, highlighting the critical need for robust forecasting approaches for disease identification, alleviation, and prevention, among other things.

.AbdelkaderDairiet.al[12] The impact of ML, a key component of artificial intelligence, on previous epidemics provides a new avenue for combating the unique Coronavirus pandemic. Accurate short-term forecasting of COVID-19 spread is critical for bettering the management of the overcrowding problem in hospitals and allowing proper resource optimization.[15]

G.PRATHIBA PRIYADARSHIN et.al [14] ML-based forecasting techniques have demonstrated their use in predicting perioperative outcomes and improving decision-making about future actions. Many application domains that required the detection and prioritization of adverse aspects for a threat have long used ML models. To deal with forecasting challenges, a variety of prediction approaches are widely utilized. This research illustrates the ability of ML models to predict the number of patients who would be afflicted by COVID-19, which is now regarded as a possible threat to humanity.

### III. PROBLEM STATEMENT

The aim of this study is the future forecasting of COVID-19 spread focusing on the number of new positive cases, the number of deaths, and the number of recoveries.

### IV. EXISTING SYSTEM

The data used in this study include X-ray pictures, which can be used to diagnose lung and liver infections as well as COVID-19. Chest pain, diarrhoea, and viral pneumonia are all common signs that can be seen on X-ray pictures.
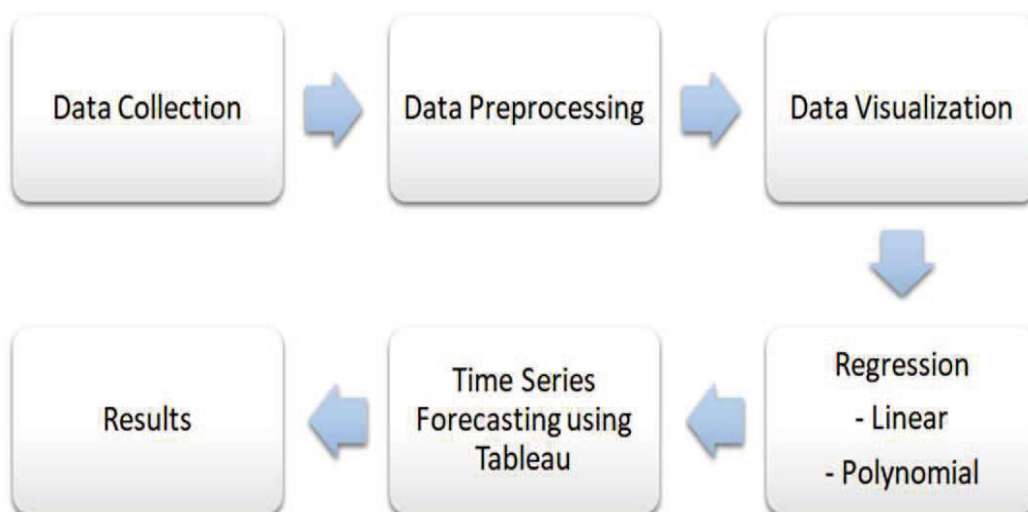


**Figure 4.1: Existing System [5]**

The tactics for preventing and controlling epidemics must be reconsidered. The ultimate approach to combat a virus is to produce vaccines and antiviral drugs, but this takes time. Non-pharmaceutical strategies to halt transmission might be put in place right away, giving pharmaceutical development more time. Non-pharmaceutical approaches were used in three steps to reduce contact rates between susceptible individuals and infected individuals. First, quarantine management, which includes isolating the infected, suspicious, and their close contacts; second, social distancing to keep within-population contact to a minimum; and third, locking down the epicenter to prevent infected and latently infected individuals from spreading to other areas.
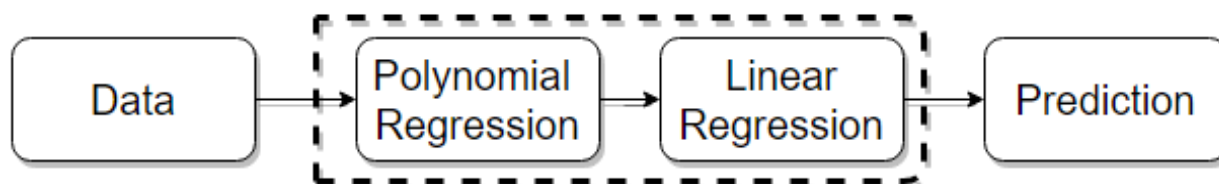


**Figure 4.2: Predication Approach**

It is a typical sort of predictive analysis that is used to predict a numerical outcome from a set of independent variables. The goal is to fit a linear equation to the observed data to identify a relationship between two variables. In Python, import the sklearn.linear models package to utilize the linear regression model.

## V. CONCLUSION

The data analysis, visualization, and prediction investigation of the COVID-19 pandemic outbreak in India is presented in this report. Our mission is to save lives and demonstrate how the disease will spread in the future, whether it slows or accelerates. People will be able to see future predictions of disease side effects using charts and current data.

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