Chapter 8
Clustering and Regression Analysis on COVID-19 in India Using Python

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ABSTRACT

Since 2019, the world has been dealing with an outbreak of the COVID-19 virus. A highly transmissible new coronavirus causes a severe acute respiratory illness. Every country, including India, took steps to battle the virus, such as announcing a phased lockdown. The COVID-19 pandemic has wreaked havoc on India. In reality, the third COVID-19 wave has already begun. The development of COVID-19 vaccinations aided in the healing of the planet. Multiple nations are conducting clinical tests on potential COVID-19 vaccines. India initiated the world's largest vaccination campaign on January 16, 2021. The Indian government has made significant progress in both vaccinating everyone and developing the COVID-19 vaccine. The use of Covaxin and Covishield dosages in different Indian states is investigated in this chapter.

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INTRODUCTION

The first coronavirus case was discovered two years ago, and the entire globe has been in a state of terror since then. The coronavirus is thought to have originated in the city of Wuhan, China, with the first case recorded in December 2019. The COVID-19 virus quickly spread over the world. On January 30, 2020, the World Health Organization (WHO) declared the outbreak a Public Health Emergency of International Concern, and on March 11, 2020, it was declared a pandemic. In India, the first case of COVID was discovered in Kerala in January 2020. The number of new cases in India increased from 88,600 to 88,600 in just nine months, with a week average of 84,559. The initial wave of the Corona virus was discovered to have a greater impact on the health of the elderly (Dai et al., 2020). With their own processes, all countries proclaimed a lockdown. The world came to a halt. The second wave of the Corona virus swept the world soon after, and this strain was found to be lethal. It was also discovered that the virus attacked children and adults more aggressively. To prevent the virus from spreading, those who were infected were isolated for at least 14 days. It's very contagious and can strike at any time (Elimat et al., 2021). The world had never been prepared for a pandemic of this magnitude, and we were racing to produce a vaccine to stop it from spreading. The world appears to have gone insane in its search for a treatment for the coronavirus, an extremely hazardous disease that has engulfed the planet in panic. Medical researchers must produce a vaccine that will provide acquired immunity against the coronavirus 2 (SARS-CoV-2) that causes severe acute respiratory illness (Forni et al., 2021).

The first COVID vaccination, the Pfizer-BioNTech COVID-19 vaccine, was licenced by the US Food and Drug Administration for people aged 16 and up. Countries such as China, Russia, and the United States of America, for instance. On January 16, 2021, India launched the world's largest vaccination campaign. Considering India's large population, importing vaccines would have been prohibitively expensive. Furthermore, because the Indian government wanted to vaccinate every citizen, it was ideal to manufacture the COVID-19 vaccines in India (Elimat et al., 2021). India also planned to export vaccines to countries that couldn't afford the more expensive vaccines. The goal of manufacturing COVID vaccines in India is to ensure that each citizen in the country receives all of the required doses, as well as to make them affordable to the world's poorest countries. Covishield and Covaxin are mostly used in India at the moment. There were also rumours about the COVID vaccinations' ineffectiveness. Some of them include the following: they are unsafe, they induce infertility, they modify DNA, they are unsafe for persons with allergies, vaccines are not thoroughly evaluated, and so on. All of these, however, turned out to be rumours. All of the COVID-19 vaccines that have been licenced for use have been thoroughly evaluated, are entirely safe, and appropriately trigger the COVID