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Data Analysis for Understanding the Impact of Covid-19 Vaccinations on the Society

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ABSTRACTION

The coronavirus outbreak has brought unprecedented measures, which forced the authorities to make decisions related to the instauration of lockdowns in the areas most hit by the pandemic. Social media has been an important support for people while passing through this difficult period. On November 9, 2020, when the first vaccine with more than 90% effective rate has been announced, the social media has reacted and people worldwide have started to express their feelings related to the vaccination, which was no longer a hypothesis but closer, each day, to become a reality.

1. Introduction

The coronavirus outbreak caused by the novel coronavirus SARS-CoV-2 has brought a series of changes in many aspects of people's economic and social life. Since its occurrence, the coronavirus pandemic has continued to monopolize the different parts of the world, reaching 220 countries and territories by December 9, 2020. Governments have tried to address the outbreak by considering a series of measures not all of them in accordance with the general public opinion.

2. Purpose

In the context of COVID-19 pandemic, the rapid roll-out of a vaccine and the implementation of a worldwide immunization campaign is critical, but its success will depend on the availability of an operational and transparent distribution chain that can be audited by all relevant stakeholders. In this paper, we discuss about data analysis +can help in several aspects of COVID-19 vaccination on the society. We present a system in which machine learning technology is used to guaranty data integrity and vaccination, manufacturing and Supply.

3. Scope

In this paper author analysing vaccines dataset to forecast required vaccines compare to manufacturing or available vaccines and by using this forecasting manufacturers may increase and decrease their manufacturing quantity. This forecasting can impact society by taking decision on manufacturing vaccines and if in society more cases occurred then forecasting will be high and by seeing forecasting manufacturers may increase production

4. Related Work

The related work in this paper can be classified into three main categories, with slight overlap between them: current security control solutions in IoT multi-agent systems for access control and blockchain-based access control for IoT. Ouida et al. presented a comprehensive review of the current access control solutions in IoT based on Objectives, Models, Architecture and Mechanism

5. Existing Work

Existing network model and results obtained, recent literatures related to WSNs based IoT without blockchain technology are reviewed briefly for the data storage, authentication and security.

The large amount data produced by IoT devices needs to be stored efficiently so that it can be easily retrieved on demand for real time usage

Disadvantages

In the existing work, the system cannot resist number of attacks due to post methods used. This system is less performance in which an adversary may deny the contribution of transmitted and received messages or packets to produce confusion for trusted authority

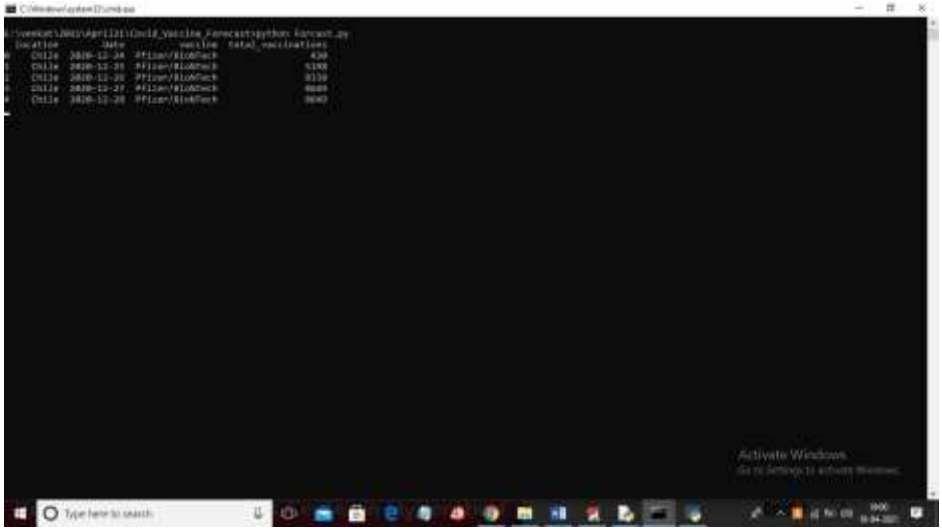
6. Proposed System

The proposed scheme is developed to address security concern using centralized database. Two types of sensor nodes are utilized in the proposed scheme such as regular sensor nodes RSN and cluster head sensor nodes CHSN. RSN are resource constrained in terms of energy, storage and processing capability. The proposed scheme is completed into various steps such as initialization phase, Registration phase, sensor node authentication phase, message signing and verification phase, key update phase and revocation phase and tracing phase

Advantages

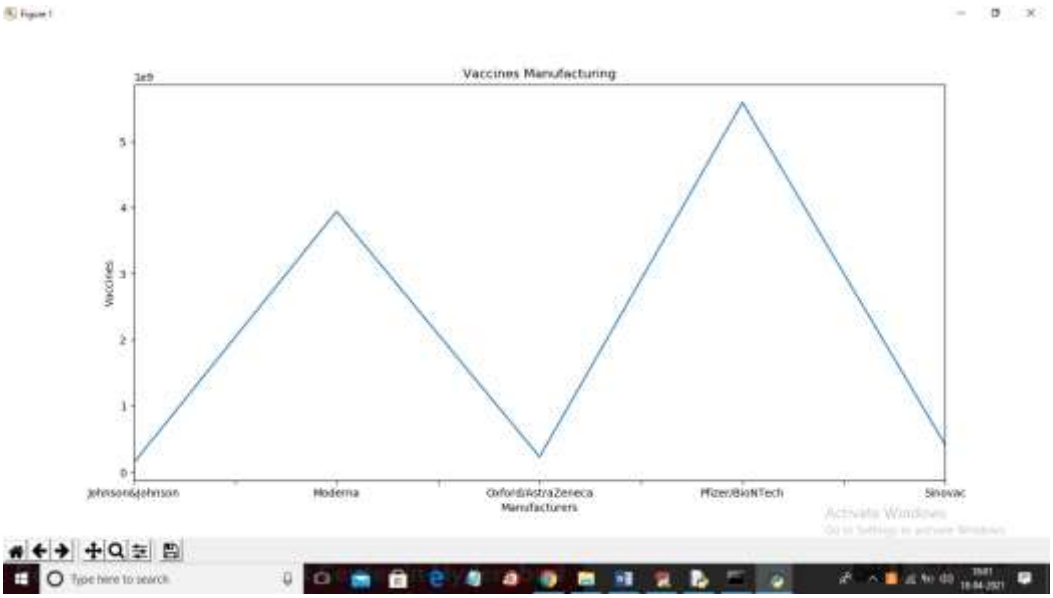
A block chain-based solution for privacy preserving and authentication with cloud storage,Base Stations Provides Key Authentication Certification key of all nodes are stored in Untamperable Key Mechanism Large amount of sensed information are stored in clouds.

7. Sample Screens



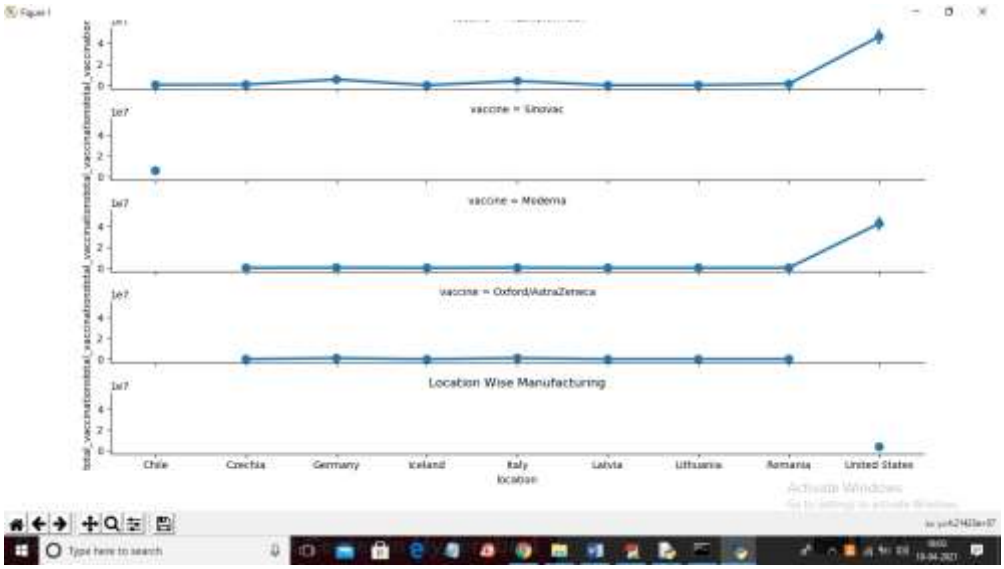
Screen 5.2 Analysing and Accessing Dataset

In above screen application starts accessing dataset and once it read all records then it will analyse all dataset to give below graph



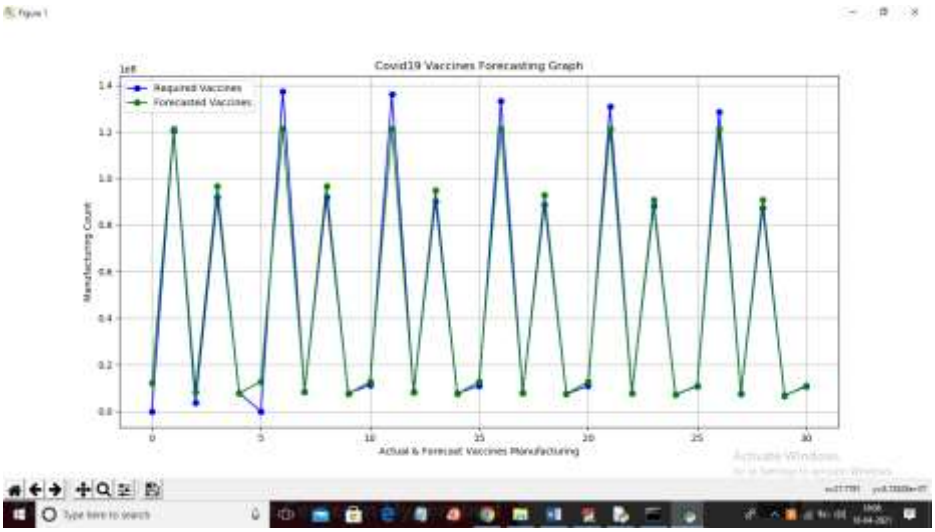
Screen 5.3 Vaccination Manufacturing Analysis

In above graph x-axis represents vaccine manufacturer companies and y-axis represents count of manufacturing vaccines. There is huge manufacturing so we will get count in power exponents and in top graph we can see 1e9 as total manufacturing quantity and now closed above graph to get below graph



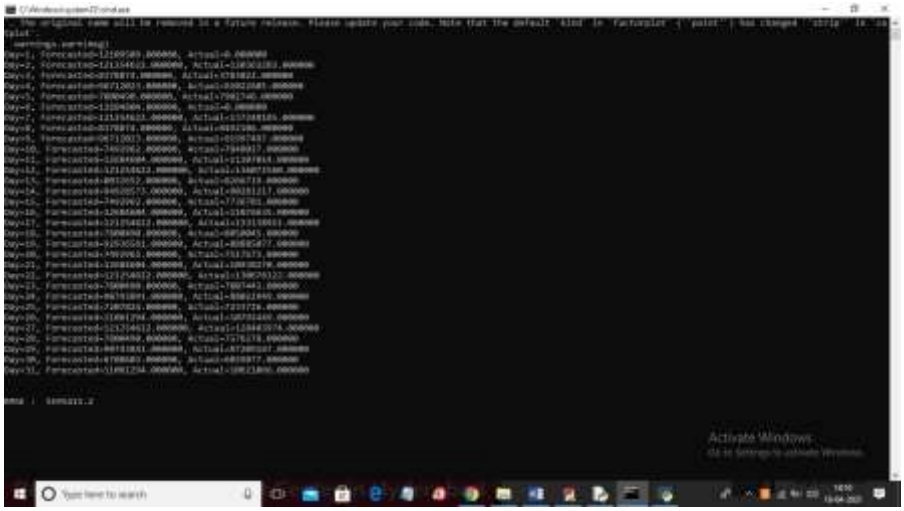
Screen 5.4 Line Graph Analysis of Different Vaccinations

In above graph x-axis represents location/country names and y-axis represents vaccines manufacturing count for each country. In above graph each separate graph represents manufacturer making vaccines count for different countries. From abovegraph we can say that in UNITED STATES more vaccines are consuming and manufacturing. Now close above graph to get below forecasting result.



Screen 5.5 Forecasting Vaccines

In above graph x-axis represents forecasting for next 30 days and y-axis represents required count. In above graph blue line represents required/manufacturing vaccines and green line represents forecasted vaccines. In above graph we can see there is close difference between require and forecasted vaccines so manufacture will go in normal way. If there is huge difference in require and forecast values then manufacturer will increase making count. This forecast will impact society in having sufficient vaccines on particular day or time. In above graph on 5th day more vaccines require and company will adjust making as per forecasting. In below console we can see real values of actual/require and forecast vaccines.



Screen 5.6 Final Forecasting Vaccines

In above screen we can see actual/require and forecast vaccines for next 30 days. In above screen we can see little close difference between require and forecast vaccines.

8. Conclusion

In the current paper, the one-month period passed between the first announcement of a coronavirus vaccine and the first actual vaccination process started outside the limited clinical trials has been analyzed using machine learning-based stance detection. Multiple classical machine learning and deep learning algorithms have been compared and the best performing classifier has been chosen based on four performance metrics.

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