



INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

An International Open Access, Peer-reviewed, Refereed Journal

RESEARCH PAPER ON GLOBAL PANDEMIC SOLUTION

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Abstract: The outbreak of COVID-19 first occurred in Wuhan, China and has spread to more than 50 countries. The WHO declared COVID-19 as the Public Health Emergency of International Health (PHEIC) on 30 January 2020. Naturally, a growing infectious disease involves rapid spread; Urgent action is needed to endanger the health of a large number of people, and thus prevent the disease at the community level. Therefore, our Corona Tracker was born as a project that provides the latest and reliable news development as well as statistics and analysis on COVID-19. This paper is conducted by the research team in the Global Pandemic Solution Community and aims to predict and predict COVID-19 cases, deaths, and recovery through predictive modeling. The model helps explain the patterns of public sentiment on the dissemination of related health information, transparency within government is important; It is also our responsibility not to disseminate unverified news and remain calm in this situation. The project has shown the importance of information dissemination that can help improve response time, and help plan in advance to help reduce risk. Further studies need to be done to help spread as quickly as possible.

Keywords: COVID-19, visualization, analysis.

1. INTRODUCTION

On thirty one Dec 2019, the primary case of COVID-19 occurrence was according in Wuhan, China. the primary case except or outside China was according on thirteen Jan 2020 in Asian nation. From then on, the occurrence has currently unfolded to over fifty alternative countries. The WHO declares the occurrence of COVID-19 by the WHO on thirty Jan 2020 as a Public Health Emergency of Public Health Emergency (PHEIC). There are over seventy six, cases of COVID-19 worldwide as of twenty February. Associate illness communicable disease} occurrence is that the incidence of a disease that's not sometimes expected during an explicit community, region, or fundamental quantity. Typically, a growing communicable disease involves fast spread; imperative action is required to endanger the health of an oversized range of individuals, and so stop the unwellness at the community level. COVID-19 is caused by a brand new style of coronavirus antecedently named 2019-nCoV by the globe Health Organization (WHO). it's the seventh member of the coronavirus family, along with MERS-nCoV and SARS-nCoV, which might unfold to humans. Symptoms of infection embody fever, cough, shortness of breath, and symptom. in additional severe cases, COVID-19 will cause respiratory disorder and even death. The time period of COVID-19 might last for two weeks or longer. Throughout the amount of latent infection, the unwellness should still be contagious. The virus will unfold from person to person through metabolism droplets and shut contact. One is with the 'infodemic' COVID-19 occurrence that is essentially a lot of data relating to the occurrence. As a number of the data obtainable to the general public might not be correct, it becomes tougher for folks

to search out reliable sources and reliable steering after they would like it. because of the high need for dedicated and trustworthy data concerning 2019-nCoV, WHO technical risk communication and social media groups team to watch and reply to myths and rumors through the headquarters of Geneva, its six regional offices and its partners She is functioning. The organization is continually operating to spot the foremost widespread rumors that might probably damage the public's health, like inaccurate hindrance measures or claims for treatment. These myths ar then refuted with evidence-based data. WHO is giving public health data and recommendation on COVID-19, as well as story Busters, obtainable on their social media channels (Weibo, Twitter, Facebook, Instagram, LinkedIn, Pintrest) and their webside.

2- LITERATURE SURVEY

SEIR refers to coherent, exposed, and infectious and removed or recovered, respectively. It is based on the SIR model, but adds the expired compartment as a variable. Hypertensive refers to individuals who can catch the infection and become hosts. If exposed, exposed individuals are those who are already infected, but asymptomatic, infectious individuals who are showing signs of infection. And can transmit viruses, remove or cure individuals. Infected but no longer contagious and already immunity to the virus. Once the compartments of the SIR or SEIR model are determined, modeling can be done using various methods. A Conditional Autonomy (CAR) was used for epidemics with a vector or transport-related vector and MCMC. Demographic effects such as birth and death rates were added to the model to balance with significant dynamics. Sentiment analysis is a type of superintend machine learning problem. There are various types of sentiment analysis, including fine emotion analysis, emotion detection, aspect-based emotion analysis, and multilingual emotion analysis. In binary semantic classification, the possible categories are positive and negative. In the exact emotional classification, there are five groups (very negative, negative, neutral, positive and very positive). Sentence analysis is one of the most popular tasks in natural language processing, and there has been much research and progress in solving this task correctly. Deep neural networks are widely used in sentiment polarity classification; however, this often requires a large number of training data, and the size of the training data varies considerably between domains. It was found that a dual-module approach is the best approach that encourages model learning with generalization capabilities. The bidirectional encoder representative from the transformer (BERT) is an embedding layer designed to train deep bidirectional representations from unpublished texts by jointly conditioning on left and right references in all layers. It is shown from a large unpublished text corpus, such as Wikipedia or BookCorpus. The input sequence contains 15% words, which is one of the objectives of BERT. Then, an intensive bidirectional transformer encoder is fed by entire sequences so that the model learns to predict masked words. In addition, this small model has been trained on the SST-2 dataset which is a general dataset for sentiment-analysis. However, this method has some disadvantages as it is based on the SST-2 dataset for movie review and our dataset is about coronovirus news. This is a similar function of sentiment analysis, but does not perform well because sentiment may differ for films and news. However, it is the fastest way to obtain results and act as a benchmark or starter for further research. This can also be easily corrected by adding more datasets for our domain (Coronavirus news). Last but not least, it can predict immediately compared to previous methods that require large computer resources.

3- DATA VISUALIZATION

Data visualization is the process of representing data into a picture from for example map or graph, to make data easier for the human being to understand and make it. The main concept of data visualization is to make it easier to analyse patterns, trends, and outliers in huge data set.

3.1 - The Advantages of data visualization include the following:

- It has the ability to absorb information quickly, improve insights and make decisions faster;
- It Increases the understanding of next steps to improve the organization;
- This has the ability to maintain audience interest with information they can get;
- An easy maintenance of information that increases the opportunity to share insights with everyone involved;
- deducting the need for data scientists as data becomes more accessible and explainable;
- It Increases ability to act on conclusions easily and achieve success with greater velocity and fewer error.

3.2- Data Visualization Techniques

- **Line Chart.** It is one of the most basic and common way to perform. Line charts tells that how variables can change with time.
- **Area Chart.** This pictorial method is a variation of a line chart; it displays different values in a time series or a sequence of data collected at regular, equally spaced points within time.
- **Scatter plots.** This technique tells the relationship between two variables. A scatter plot with dots takes the form of an x- and y-axis to show the data points.
- **Tree maps.** This method shows tree data in nested format. The size of the rectangles used for every category is directly dependable to the percentage of the whole. When multiple things exist, tree maps are good to use, and the goal is to compare every parts of a whole.
- **Population Pyramid.** This uses stacked bar graphs to show complex social narratives of a population. It is to be used when trying to show the population distribution.

4- DATA ANALYSIS

Data analysis is the process of collecting, analyzing, and analyzing data to extract insights that support decision making.

4.1-Benefits of data analysis

- It removes duplicate information from the data set and therefore saves a large amount of memory space. This reduces costs to the company.
- It helps in displaying relevant advertisements on online shopping websites based on historical data and purchase behavior of users. Machine learning algorithms are implemented for the same. This helps in enhancing the revenue and productivity of the companies.
- It minimizes banking risks by identifying potential fraudulent customers based on historical data analysis. It helps institutions decide whether to issue a loan or credit card to applicants.
- It is used by security agencies for the purpose of surveillance and surveillance based on the information collected by a large number of sensors. This helps prevent any wrongdoing and / or disasters.

4.2- Types of data analysis

• Group Analysis

The action of grouping groups of data elements in a way that states that the elements are more similar to each other (in a particular sense) than those of other groups - hence the term 'cluster'.

• Cohort Analysis

This type of data analysis method uses historical data to examine and compare a defined segment of users' behaviour, which can then be grouped with others with similar characteristics.

• Regression analysis

Regression analysis uses historical data to understand how changing one (linear regression) or more independent variables (multiple regressions) or staying the same affects the value of the dependent variable.

• Neural networks

Neural networks form the basis for intelligent algorithms of machine learning. It is a form of data-driven analytics that, with minimal intervention, seeks to understand how the human brain will process insights and predict values.

5- PRACTICAL ANALYSIS

Future checking is the use of data and information, and ML techniques to identify the possibility of future results based on historical data. The reason is to know what was happened to provide the best assessment of what is going happen in the future.

5.1 - Predictive Analysis Example

- **Aerospace:** Forecasting the effect of specific maintenance tasks on aircraft trustworthiness, fuel usage, availability, and ontime.
- **Automotive:** It contains component disturbances and failure records in upcoming vehicle manufacturing plans. Study driver behavior to develop better assistance technologies and, usually, self-governing vehicles.
- **Energy:** It shows the long-term price and demand ratio. Determine the effect of weather events, equipment failure, regulations, and other variables on provided service.
- **Financial services:** It develops a credit risk idea. It shows financial market trends. Estimate the effect of new rules and regulations, laws on businesses and markets.
- **Manufacturing:** Analyse the location and rate of machine failures. Maintenance of raw materials based on projected future demands.
- **Law enforcement:** Its uses crime trend data to define neighborhoods that can require additional protection on certain times of year.
- **Retail:** Its Follows an online customer on real-time to give added product information or incentives that will enhance the similarity of a full transaction.

5.2- Predictive Analytics Model

• Clustering model

The clustering model arranges data into different, nested smart groups based on similar features. If an ecommerce shoe company is finding to apply targeted marketing campaigns for their customers, they can go by hundreds of thousands of data to create a strategy for each record. Using a clustering model, we can quickly differentiate customers into same groups based on the similar characteristics and create a large-scale planning for each group.

• Forecasting model

One of the most widely, forecasting model relates in metric value prediction, which calculates numerical values for new data based on learning from past data.

It can be applied wherever past numerical data is available. It includes:

- A SaaS company can calculate how many customers are interested to convert within a week.
- A call center can check how many support calls will they receive per hour.
- A shoe store can calculate how many inventory they should hold to meet demand during a particular sales period.

• External model

The external model is checked around heterogeneous data entries in a dataset. It can identify unusual figures either by itself or together with other numbers and ranges.

- Recording a height in a support call, that can indicate a failure of a product that may be a recall.
- Finding random data within transactions or in insurance claims to find out fraud
- Receiving very odd information in your NetOps logs and noticing imminent signs of unplanned downtime.

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