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Covid-19 Real Time Data Tracker

**Mohammed Feroze, Yuddam Siva seran, Sapireddy raviteja reddy,
Santhosh Kantubhukta, Mudigolam mahesh, Amandeep kaur**

Department of Computer Science Engineering, Lovely Professional University, phagwara, punjab, India.
Asst. professor at lovely professional university.

ABSTRACT

The spread of Severe Acute Respiratory Syndrome Covid-19 (formerly, 2019-nCoV/SARS-CoV-2) has been leading the world into a crisis, the COVID-19 epidemic has become a global health emergency, as such, WHO declared PHEIC [Public Health Emergency of International Concern]. Some countries have worst affected by the virus, since the outbreak of the virus, and some are becoming a hotspot for the virus. It has influenced each zone, for example, industrial area, agricultural zone, public transportation, economic zone, and so on. As we can see that how the economics of the several countries fall suddenly as the country hit by this virus, so as to see how Covid-19 high-flown the globe, we conducted an investigation characterizing the effects of the pandemic over the world using Tableau. We focus on global data beginning from January 2020, till present and performed dynamic map visualization of Covid-19 expansion globally by date wise and predicting the spread of virus on all countries and continents. The major lead of this work include accurate analysis of country-wise and continent-wise confirmed cases, recovered cases, deaths and how far it is expanding globally.

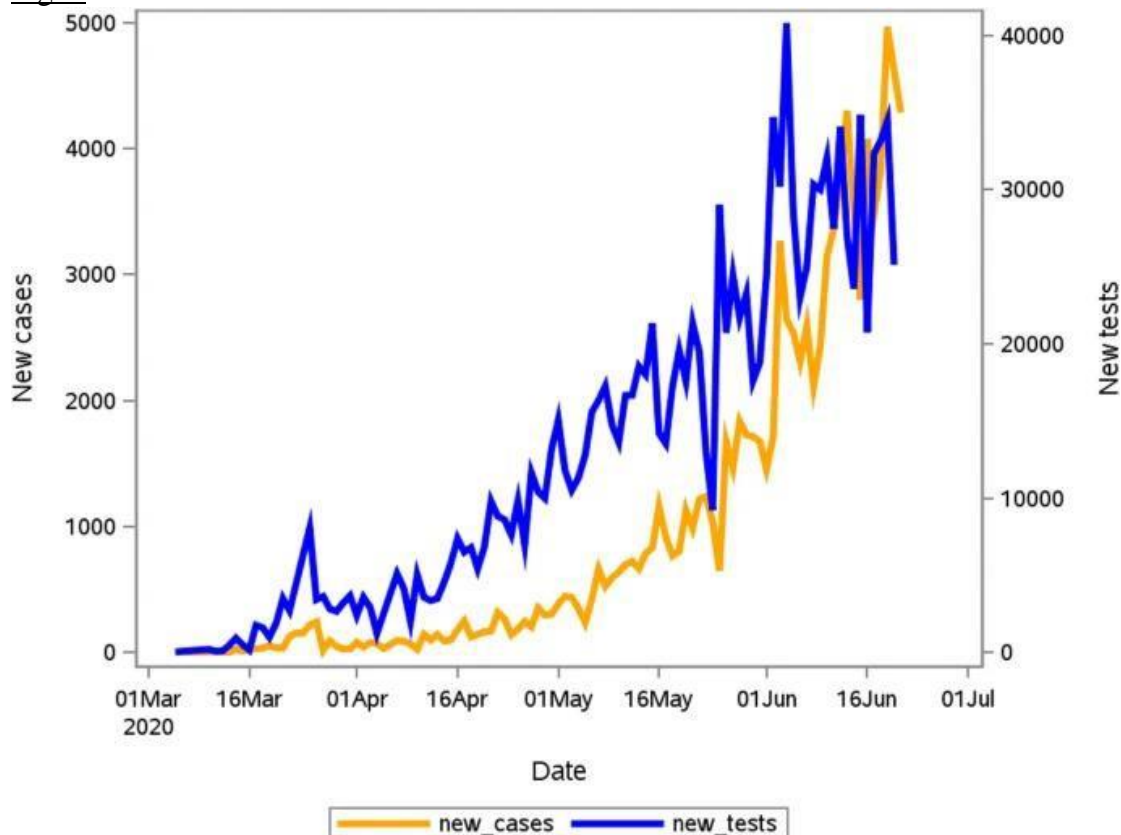
Keywords

Covid-19 Pandemic, Data Visualization, Data Set, Web connector, Dynamic map

Introduction

The sudden outbreak of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2/ formerly, 2019-nCoV) has been cause the globe into a prominent emergency [1]. The condition gets severe day by day as it could not be preventable by current treatment strategies. The first pandemic attack of Covid-19 was reported in Wuhan; sprawling capital of south china on 17th November 2019. The coronavirus COVID-19 is quickly spreading across the world since the start of 2020. WHO (World Health Organization) label it as a global crisis [1] due to it is highly infectious in nature, in the current global pandemic situation, all the countries are fighting with COVID-19 and still looking for a cost-efficient and practical solution to come across the challenges come to rise in many ways, Researchers from different fields such as engineering and physical sciences are attempting to take such challenges, to develop new theories, and to bringing about user-centered solutions [2]. Coronaviruses are a group of viruses that can cause disease in both animals and humans. The severe respiratory syndrome (SARS) virus strain known as SARS-CoV is an example of a coronavirus. SARS spread rapidly in 2002-2003 [3].

Fig. 1



The daily number of new reported COVID-19 cases and tests performed are presented in Fig. 1. To date, a total of 1,353,176 tests have been conducted, corresponding to a testing rate of 22.816 per 1000 population. There was a significant correlation between the number of cases detected and the number of tests performed daily.

Challenges In Managing The Pandemic Visualization.

To remain contentious in a global wealth during covid-19, businesses need to change to an ever changing environment to fulfil their customer's needs. Staying ambitious means continuing to evolve as an organization and making changes to both process and technology to gain a competitive edge over their competition. Organizations must become aware in bringing in new science and technology and managing the challenges that go along with implementing the change[4]. Employees are adapting to working from home full-time, with the various technologists tangled in maintaining office systems and software. And We have identified some opportunities for academic research related to COVID-19 and have also provided suggestions to contain, prevent and treat this viral infection.[5].

Dataset Introduction

This dataset has day-to-day level data on the number of influenced cases, recovery, and deceased from January 2020 to present date. These are the columns in the dataset S.No., Observation Date, Province/State, Country/Region, Last Update, declare case, Deaths, and Recovered and vaccine.

Existing Visualization Techniques

A plethora of work has been done on visualize COVID-19 data since the outbreak of the pandemic. Those visualizations can be classified into two groups - visualize with zero or less interactivity appears the first group and complex interactive visualization models and tools represents the second. Static visualization uses primary graphs such as bar and line graphs for representing attributes of COVID-19 dataset. Post used collection of bar graphs for presenting new cases and deaths between countries. Each chart represents a country and each bar of every chart displays the number of cases or deaths. Financial situation developed a visualization. Almost all these visualizations had hover and click interactivity presenting data attributes like number of cases, number of deaths, active cases, recuperate cases,

number of mortal cases and so on. The amino acid sequence in the ACE2 receptor responsible for 2019-nCoV binding in farm animals and cats has only a few exchanges compared with the human receptor, suggesting that the species for viratchus transmission is small. [6] used four types of visualize techniques for managing distinct information with live updating graphics as consider:

1. Interactive trajectory chart for number of cases and deaths
2. Sunburst was used for breaking the impact of virus by countries
3. Searchable line chart for number of confirmed cases and recuperte cases
4. World map charts for number of cases and deaths

Wikipedia and Tableau Public [5, 8] used interactive stacked bar charts for showing attributes like active cases, total cases, deaths, recoveries and figures of people hospitalized. Interactive trajectory data was used in International SOS website and We surveyed existing visualization techniques used in various websites and media outlets and introduced use of a knee detection algorithm that divides the exponential spread in multiple linear component [7]

Result and Discussion

In order to make the interaction with our dashboard convenient and inclusive, the user can search the country and user will be able to see the top countries by confirmed, recovered and death cases. The data which user will able to see is real time data generated by the Wikipedia [4] and is visualized in Tableau Public. The user will be able to check the no of cases and death of worldwide and of specific country. To Fetch data from the Wikipedia we are using python which will store real time data and help us to visualize the data. Some of the tracker used by the different government in the different countries are terrible such as CDC's US Centers for Disease control and prevention, the tracker has insufficient information and hard to visualize [8,9]. There are different Data set available in the form of JSON, Text File, CSV etc. we can use Web data connector to connect to that data in the Tableau [10]. Web connector are used in the different visualization software to link the real time data with the software. The main problem in tableau regarding web connector is that we can't clean the real time data in the software where we can edit or overlap the data, while creating the sheet we can edit the data to our need but the process is time consuming, so to get the according to our need we uses pandas in python for cleaning the data in it. AS the data in the GitHub platform used by several platform or tracker [11] which are using GitHub for real-time data but the data in GitHub is lagging behind by one day and free API data is available but is provided by third party [12].

Abbreviations and Acronyms

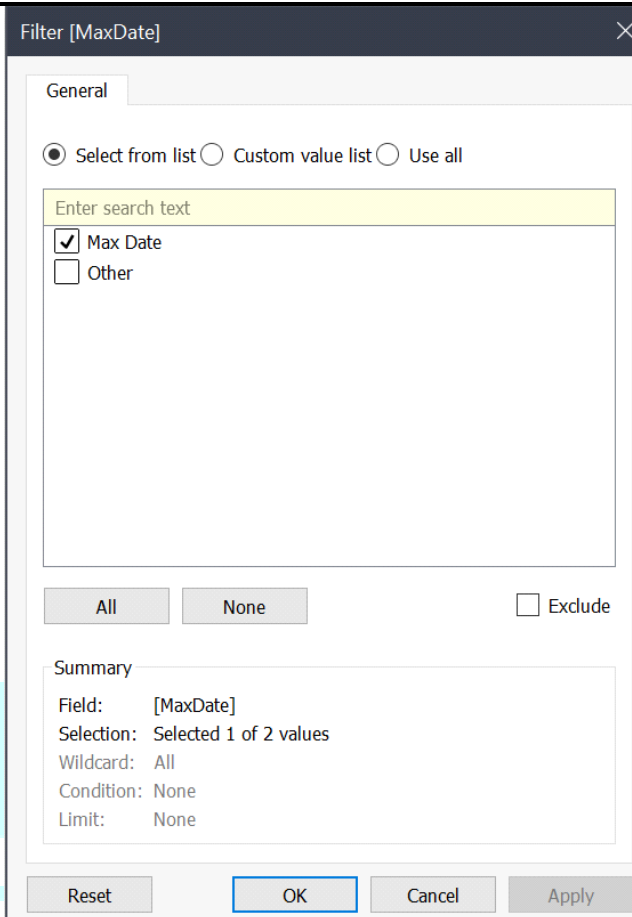
ConclussionThw Equations:

For some function we use several calculations in the tableau for specific work



As the data we are using are time series data so we have to specify our last date for the difference between the recovered cases and active case for every day. We also have to filter the day column for getting data into day wise.

Fig:2



There are several calculations in the project for making the visualization user friendly.(Fig 2)

Some Common Mistakes

Simply using the existing date column in the dataset would not be sufficient as it will always find the latest day in the whole dataset, regardless of what date range is being finalised. This is due to the Order of

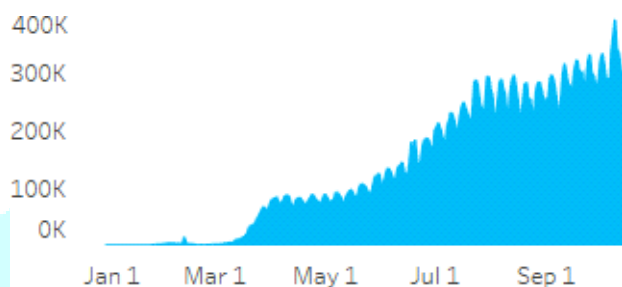
Operation in Tableau, there will be an error in the total cases as tableau make the total parameter for every dimension available in the table, just filter the date as 'today' to get rid of the error.

Authors and Affiliations :

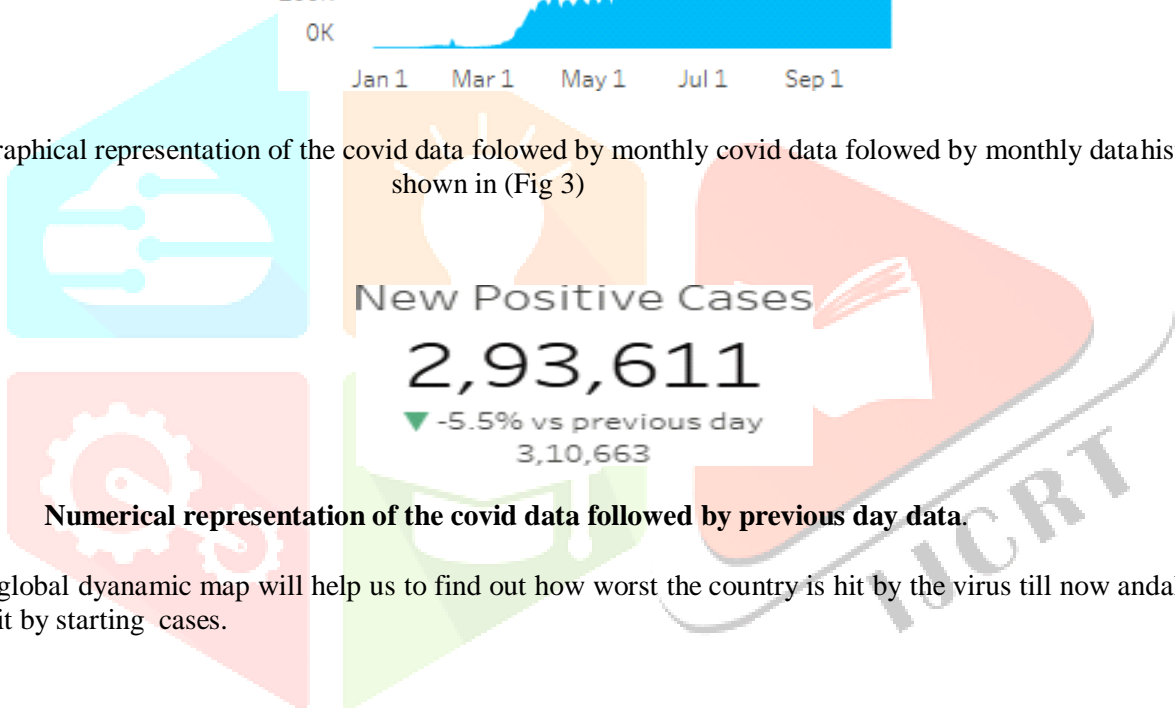
Maps and Tables:

The graphical representation of new cases and the total confirmed cases ,new death, recovered ,total recovered in the software is shown by the graph following by the past history(shown in fig 1) and also with numareical values following by the previous day(as shown in the fig 3).

Fig. 3



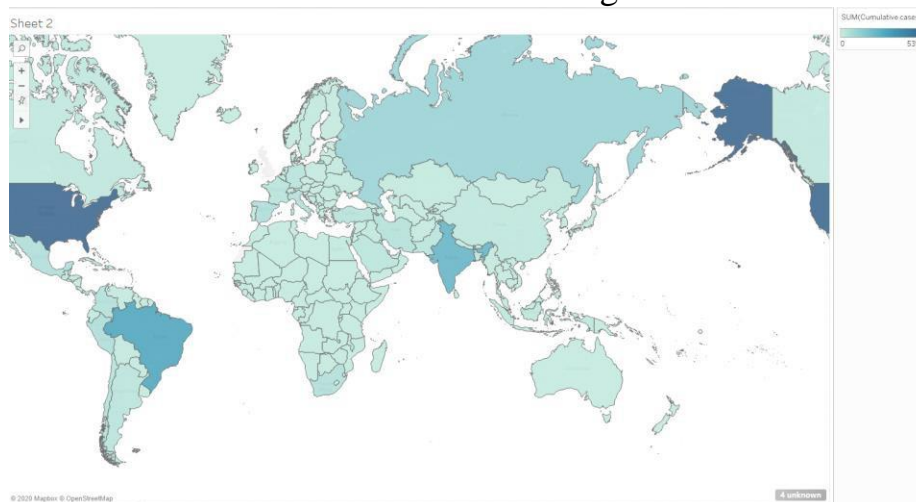
Graphical representation of the covid data folowed by monthly covid data folowed by monthly datahistory. As shown in (Fig 3)



Numerical representation of the covid data folowed by previous day data.

The global dyanamic map will help us to find out how worst the country is hit by the virus till now andalso help us to view it by starting cases.

Fig. 4



dynamic global map to see number of cases. Deaths recovered and vaccinated as shown in the (Fig 4)

Acknowledgment

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