

AI in Infection Control and Public Health (University Internship with Applied-Research) COVID-19 Data Visualisation Dashboard for Epidemic Monitoring



By Prof G.S.Yin, Mr Amruthraghav Gopalakrishnan, Ms Mahnoor Ahmed, Ms Sun Yifang
(<https://dslab.saas.hku.hk/cgi-bin/application1.cgi/>)

COVID-19 pandemic has caused a devastating social and economic disruption in the world. As the number of cases of coronavirus increases, there is a greater need for summarizing COVID-19 data and information in a way that countries can readily use to help them mitigating the negative impacts of the disease, and to reduce the infection rate. For this purpose, some students in the Bachelor of Science (Major in Decision Analytics) of HKU SAAS Department have created an interactive dashboard app using Dash in Python called CovTrack. The students used the data provided by Johns Hopkins University, and an online scientific publication called Our World in Data to implement it. The dashboard offers a wide variety of graphs and maps which help tracking the pandemic in real-time. It allows users to select different metrics, and to observe changes in the graphs.

In Figure 1, it displays the total confirmed cases, total deaths, and total recoveries for the whole world. It provides daily metrics of the globe, such as the number of new cases in the last 24 hours, the mortality rate and the recovery rate. These charts help users to understand the current status of COVID-19, its recovery and mortality rates. In Figure 2, it allows users to find information pertaining to different geographical regions. The table displays the total number of cases, deaths and recoveries for each country. In Figure 3, the treemaps compare the proportion of cases by each country towards the total cases. In Figure 4, the COVID-19 growth trajectory graph helps in analysing the growth of COVID-19. This graph gives the vital information about difference of the COVID-19 cases in each country. The shorter is the time frame, the steeper is the curve and the faster is the growth. Finally, Figure 5 provides the analysis of the COVID-19 impact in each country, the COVID-19 testing and vaccination status, and the COVID-19 lockdown and shopping area. It can help the policy maker to oversees the preventive health activities done by each region.

“This big data visualisation tool is user friendly and can provide up-to-date information for monitoring and tracking the epidemic spreading!” said Prof Yin, HKU SAAS Department Head.

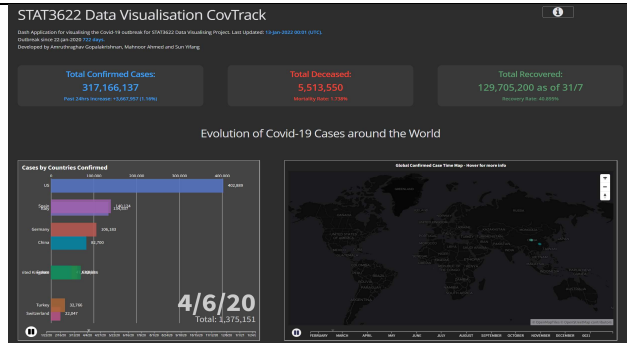


Figure 1 Overview the covid19 case around the world.

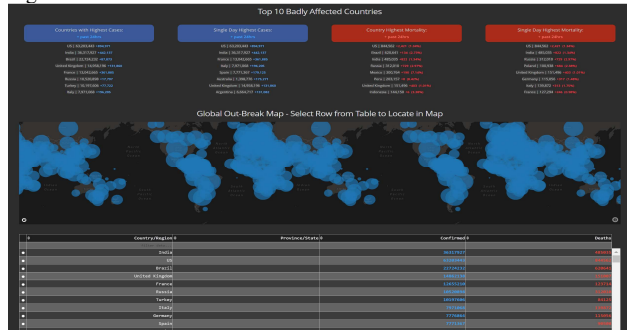


Figure 2 Drilling down to investigate a specific country's cases

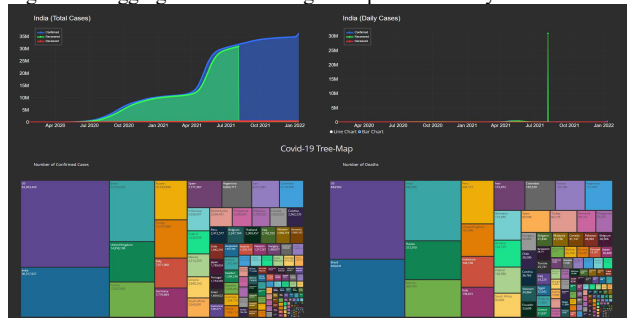


Figure 3 COVID19 cases comparison across countries

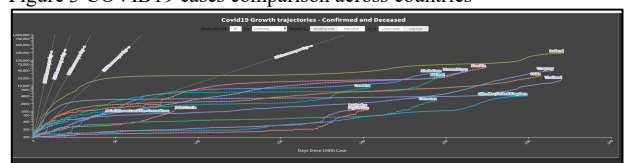


Figure 4 Drilling down to investigate a specific country's cases

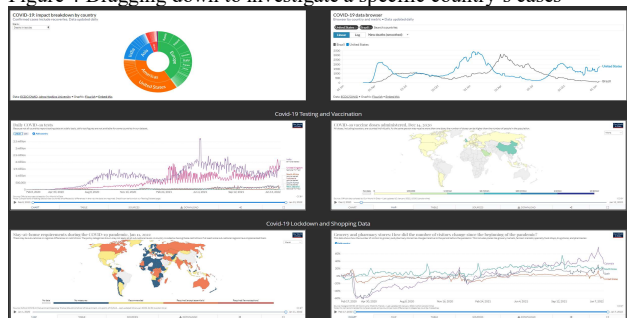


Figure 5 An overview of the preventive health program in each state