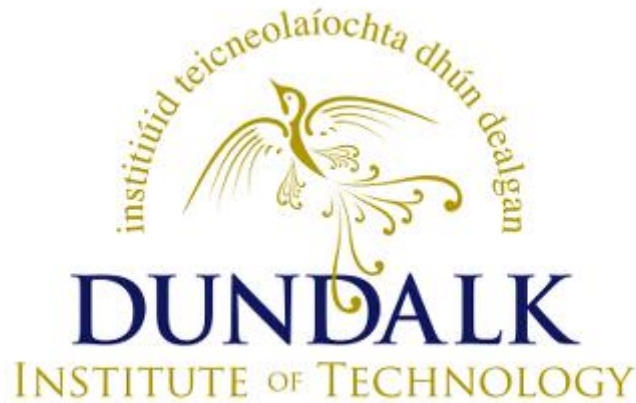# Data Visualisation and Insight

COVID-19 Dataset

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I. Summary

In this project, we chose to work with a dataset called `country_wise_latest.csv` which presents the latest country-level number of cases of COVID-19. This project aims to create a comprehensive and interactive dashboard using Power BI and Tableau to visualise COVID-19 data, as well as provide a clear understanding of the pandemic spread in different parts of the world, it will also allow the audience to explore specific countries or regions of the world and gain insights into how the pandemic happened and affected the world.

The target audience is designed for healthcare organisations primarily and all citizens of the world since COVID-19 affected all countries of the world so that every curious person can get insights from the dashboards and visualisations.

II. Data Source and Brief Description of Data

Data source: https://www.kaggle.com/datasets/imdevskp/corona-virus-report
The data we used has 15 columns and 188 rows.
We did not use Python or R to clean the data as it had already been cleaned.

III. Data Visualisation Techniques and Background Research, Description of Each Technology, Technique, and Feature

A. Data background:
- COVID-19 is a virus caused by the SARS-CoV-2 (World Health Organization, 2024). It is a highly contagious respiratory illness that emerged in December 2019 in Wuhan, China. Anyone can get infected with COVID-19 and become seriously ill or die at any age.
- We chose to work with a COVID-19 dataset because the pandemic has personally impacted all of us, and we understand how severe it was. With this dataset, we aim to explore the trends in each country and gain deeper insights into how the virus spread and was managed globally.
- The dataset that we choose presents COVID-19 statistics by country and includes information such as total confirmed cases, deaths, recoveries, and active cases. Additionally, it tracks new cases and deaths, as well as changes over one week, providing insights into how the pandemic has progressed across different regions.
- This data is important for the public health sector, as understanding these trends can help governments allocate resources and implement necessary restrictions. It also enables researchers to compare how different regions managed the pandemic, considering factors like healthcare infrastructure and policy responses. While the immediate focus may be on COVID-19, the insights from analysing this data are not limited to only this pandemic. They can serve as a reference for future outbreaks, helping governments and researchers to prepare more effectively for potential pandemics.

B. Description of each technology

In this section below, we are going to use PowerBI and Tableau to create dashboards containing visualisations for the COVID-19 dataset. We were inspired by dashboards online created by the World Health Organization (WHO, 2024) and John Hopkins University (John Hopkins University, 2023).

PowerBI:
- Data Visualisation Techniques: Heatmaps, Bar Charts, Line Charts, Scatter Plot

Pros:
1. Can integrate with Microsoft packages easily, such as Excel and PowerPoint.
2. Can create KPI easily by choosing the built-in KPI in the visualisations.
3. There is a new measure option which enables us to aggregate the columns from the data and create new calculations.

Cons:
1. Not possible to do a logarithm transformation in the scatter plot 'Confirmed Cases vs Deaths Sized by Recovered for the axis.

Tableau:
- Data Visualisation Techniques: Heatmaps, Bar Charts, Scatter Plot, Boxplot

Pros:
1. More freedom for customisation, such as having more colour options for the heatmap.
2. More advanced features, such as adding logarithm transformation for both axes or showing changes over time and playing it as a slideshow.
3. Filter will automatically apply to all graphs in the dashboard, instead of just one graph.

Cons:
1. No built-in KPI has to do it from scratch.

IV. Group Appraisal/Review and Recommendations

From this CA, we can see that both PowerBI and Tableau provide excellent capabilities when it comes to data visualisation. Although they may function differently, where Power BI is known for its seamless integration with Microsoft products, while Tableau is known for its advanced visual analytics and user-friendly interface, both tools offer powerful data visualisation features.

The dashboard created by Kaylee has great use of colour, making it very easy for users to differentiate between each category.
The dashboard created by Israa is simple yet straightforward, making it very user-friendly, as even someone without advanced knowledge of statistics can easily understand it.
The Tableau dashboard created by Yu Kang is very informative, clear, and well designed, it also has a variety of visualisation techniques.

Moving on, our team should keep up the good work of great use of colour and user-friendly design, while improving on including some advanced features that we have yet to discover to ensure our dashboard can look more professional.

• The screencasts will be included in the submitted zip file

V.   References

John Hopkins University (2023). Johns Hopkins coronavirus resource center. [online] Johns Hopkins Coronavirus Resource Center. Available at: https://coronavirus.jhu.edu/map.html.

WHO (2024). COVID-19 cases | WHO COVID-19 dashboard. [online] datadot. Available at: https://data.who.int/dashboards/covid19/cases.

World Health Organization (2024). Coronavirus Disease (COVID-19). [online] World Health Organization. Available at: https://www.who.int/health-topics/coronavirus#tab=tab_1.

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