

# **COS30045 Data Visualisation**

**COVID-19 Health Impacts in Australia**

**Assignment 3A: Project standup 2**  
**submission point**

**Team Members:**

Saniru Kumarage: 105332151

Paarth Jindal:104344622

# Table of Contents:

<b>Summary of Tasks to Be Completed Before the Next Meeting:</b> .....	<b>4</b>
<b>Issues With Teamwork:</b> .....	<b>4</b>
<b>Progress on Assignment 3C: Website and Visualisation (Brief):</b> .....	<b>4</b>
<b>Data Collection (Processing &amp; Cleaning):</b> .....	<b>5</b>
<b>Process Book Update:</b> .....	<b>6</b>
<b>Writing/Research of Our Code:</b> .....	<b>7</b>
<b>Designing of Visualisation:</b> .....	<b>7</b>

## **List of What We Have Done Since the Last Stand-up (Stand-up 1)**

Following the completion of Project Stand-Up 1, we have successfully:

- Identified and located the appropriately sourced Australian COVID-19 data relating specifically to the number of Deaths and Vaccination rates.
- Understood the structure/limitations/appropriateness of the dataset for the future visualisation.
- Completed cleaning/preparation of these datasets by converting to Standard date format, aligning inconsistent State Names, and ensuring consistency across Data Types.
- Supported early-stage visualisation planning, such as which Chart Types and interactive components to use.
- Commenced the creation of the Process Book by drafting the Introductory and Data sections outlining the source of the Dataset, the reason for its selection, and what was done to pre-process the Dataset.
- Researched and started building a JavaScript ‘loader’ for the Datasets and a sample skeleton for future visualisations.
- Assisted in establishing an initial website structure that can accommodate future visualisation integrations.

## **Contribution So Far:**

<u>Area</u>	<u>Estimated Time</u>	<u>% of Team Work Completed So far</u>
Finding and working with the dataset	~3 Hours	~30%
Designing the visualisation	~4 Hours	~25%
Contributing to the process book (Assignment 3B)	~3 Hours	~25%
Coding	~6 Hours	~30%

Contributions are shared across the team, with responsibilities prioritised to ensure balanced progress.

## **Summary of Tasks to Be Completed Before the Next Meeting:**

Before the next meeting, we plan to:

- Complete the process of validating the dataset and resolving all outstanding concerns regarding the dataset.
- Create fuller drafts for each of the planned visualisations.
- Further enhance the JavaScript code created to allow for interactivity as well as provide a way to include annotations within the visualisations.
- Include in the process book a rationale for the design, as well as include images of early versions of my visualisations.
- Continue working on embedding visualisations into the overall visual layout of our website.

## **Issues With Teamwork:**

There are currently no issues with teamwork. Our Teamwork continues to function very well at present. There is consistency in how we communicate, work tasks are well defined, and we both work progressively. We both can both easily determine and show the impact of each other's contributions through regular meetings and shared documentation.

## **Progress on Assignment 3C: Website and Visualisation (Brief):**

- The initial website structure has been established.
- Early visualisation prototypes are being developed and tested.
- The plan is to keep tweaking things. We'll be focusing on smoother integration and polishing the details in the next few phases.

## Data Collection (Processing & Cleaning):

A	B
1 Measure Name	Value
2 National - Total vaccine doses administered	27,850,501
3 National - Daily increase - Total vaccine doses recorded	308,805
4 National - Number of people 16 and over with 1 dose	16,052,198
5 National - Number of people 16 and over fully vaccinated	11,176,598
6 National - Population 16 and over	20,619,959
7 ACT - Administration state - Total vaccine doses administered	677,600
8 NSW - Administration state - Total vaccine doses administered	10,077,159
9 NT - Administration state - Total vaccine doses administered	270,366
10 QLD - Administration state - Total vaccine doses administered	4,778,597
11 SA - Administration state - Total vaccine doses administered	1,705,268
12 TAS - Administration state - Total vaccine doses administered	596,061
13 VIC - Administration state - Total vaccine doses administered	7,248,276
14 WA - Administration state - Total vaccine doses administered	2,397,174
15 ACT - Administration state - Daily increase doses recorded	6,149
16 NSW - Administration state - Daily increase doses recorded	114,338
17 NT - Administration state - Daily increase doses recorded	2,292
18 QLD - Administration state - Daily increase doses recorded	51,838
19 SA - Administration state - Daily increase doses recorded	18,140
20 TAS - Administration state - Daily increase doses recorded	4,803
21 VIC - Administration state - Daily increase doses recorded	84,711
22 WA - Administration state - Daily increase doses recorded	26,534
23 National - Administration state - Total doses administered state and territory facilities	11,744,471
24 ACT - Administration state - Total doses administered state and territory facilities	328,411
25 NSW - Administration state - Total doses administered state and territory facilities	3,546,060
26 NT - Administration state - Total doses administered state and territory facilities	163,358
27 QLD - Administration state - Total doses administered state and territory facilities	1,947,115
28 SA - Administration state - Total doses administered state and territory facilities	780,763
29 TAS - Administration state - Total doses administered state and territory facilities	328,606
30 VIC - Administration state - Total doses administered state and territory facilities	3,483,015
31 WA - Administration state - Total doses administered state and territory facilities	1,167,143
32 National - Administration state - Daily increase doses administered state and territory facilities	107,772
33 ACT - Administration state - Daily increase doses administered state and territory facilities	2,727
34 NSW - Administration state - Daily increase doses administered state and territory facilities	27,637
35 NT - Administration state - Daily increase doses administered state and territory facilities	1,375
36 QLD - Administration state - Daily increase doses administered state and territory facilities	20,554
37 SA - Administration state - Daily increase doses administered state and territory facilities	8,561
38 TAS - Administration state - Daily increase doses administered state and territory facilities	3,047
39 VIC - Administration state - Daily increase doses administered state and territory facilities	32,717
40 WA - Administration state - Daily increase doses administered state and territory facilities	11,154

Health expenditure and financing											
Frequency of observation: Annual											
Measure: Expenditure											
Time period											
Reference area	2019	2020	2021	2022	2023	2024					
Australia	Millions, 2020										
		205,978.6	223,250.6	237,768.0	232,099.9	E 230,365.1	E 243,795.0				
Austria	Millions, 2020										
		42,971.0	43,405.4	48,536.8	46,064.5	44,913.3	P 46,655.0				
Belgium	Millions, 2020										
		52,810.2	53,157.6	55,582.7	53,965.4	54,501.3	E 56,079.3				
Canada	Millions, 2020										
		259,793.1	D 289,053.3	D 305,819.8	D 292,665.7	293,505.5	P 300,561.1				
Chile	Millions, 2020										
		19,527,962.4	19,516,658.9	22,722,968.2	23,522,319.6	23,845,269.3	P 25,895,579.3				
Colombia	Millions, 2020										
		84,964,633.7	86,842,140.2	102,260,904.6	93,058,414.9	100,293,344.6	P 101,829,738.4				
Costa Rica	Millions, 2020										
		2,752,559.0	2,855,920.0	2,980,810.8	2,877,219.9	2,875,327.7	E 2,970,715.5				
Czechia	Millions, 2020										
		456,936.7	522,797.7	553,236.5	510,686.7	510,751.3	P 526,027.5				
Denmark	Millions, 2020										
		239,035.3	248,768.0	268,655.2	248,924.7	240,316.4	P 245,216.3				
Estonia	Millions, 2020										

We have started the process of data cleaning and changing any inconsistencies which are not needed; therefore, our visualisations are much more consistent. We are ensuring to use Data from the Australian bracket only to showcase the expenditure cost between years (2019 - 2022) or (2019 - 2024). We reckon using data between (2019 - 2022) as those years are most consistent with the Covid 19 pandemic in Australia.

# Process Book Update:

**COS30045 Data Visualization**  
COVID-19 Health Impacts in Australia

SWINBURNE UNIVERSITY OF TECHNOLOGY  
Swinburne University of Technology

Sanru Kumarage:105332151  
Paarth Jindal: 104344622

2

COS30045 Data Visualization.....	1
1. Introduction .....	4
Background and Motivation .....	4
Purpose of the Visualisation .....	4
2. Data (Initial Overview) .....	4
Data Sources .....	4

## **1. Introduction**

### **Background and Motivation:**

With the COVID-19 pandemic, there have also been notable influences on the healthcare system, the people, and the various strategies employed by the country's administration. Apart from the numbers, there have also been challenges, including the outcomes on the country's mortality rates, vaccination, and the overall impact on the various states and territories within the country.

The rationale for this project is to convert the complicated datasets relating to COVID-19 cases into interactive visuals, enabling users to explore the trends over time and compare the results across different regions. The project also aims to provide key information through interactive visuals, allowing different stakeholders, including students, policymakers, and the public, to understand the information better.

### **Purpose of the Visualisation:**

The goal of this visualization project was to provide the means for users to have an interactive experience that allows them to explore the effects of COVID-19 in Australia, with an emphasis on the trends in deaths and vaccination progress at the state level. The intent behind this visualization is to allow for comparisons, to show trends across time, and most importantly, to allow for users to interpret the data using an analytical approach as opposed to simply presenting the data in a static manner.

At this stage of the project, the planned visualisations aim to answer the following key questions:

- How did COVID-19 death counts vary across Australian states over time?
- How did vaccination rollout progress differ between states?
- Are there observable relationships between vaccination uptake and mortality trends?
- Which regions experienced the greatest overall impact during the pandemic period?

## **2. Data (Initial Overview)**

### **Data Sources:**

The project uses publicly available Australian COVID-19 data sourced from official government agencies, including:

- COVID-19 mortality data by state and year
- COVID-19 vaccination rollout data by state and year

The data sets used for analysis were selected based on confidence in their quality, being representative of the population across the country and their ability to contribute towards understanding the impact of health indicators on the Australian public health system.

### **Initial Data Processing:**

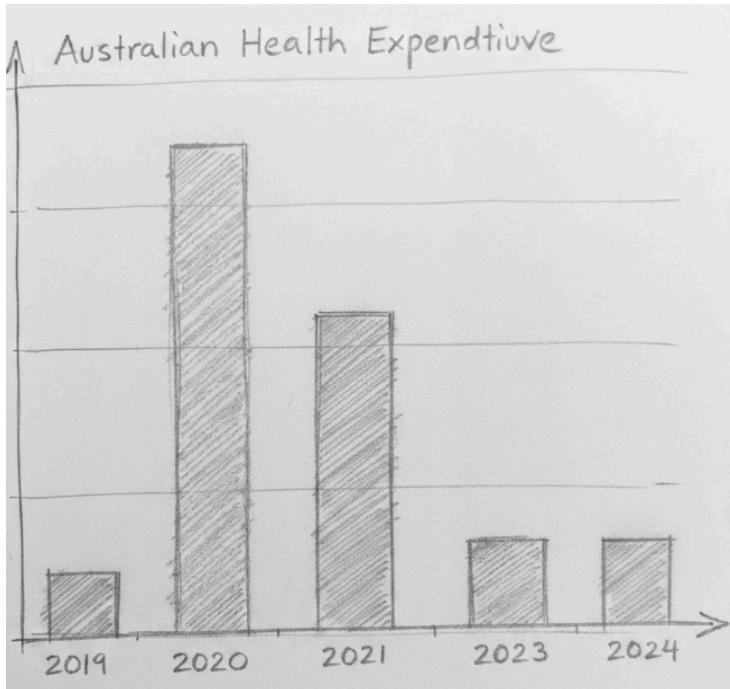
To bring consistency to these data sets, all of the data sets have previously undergone a review and cleaning process which involved standardising date formats from year to year across states, eliminating unused attributes in the datasets, and converting the data sets into a format that will be suitable for the development of interactive, web-based visualisations with JavaScript libraries (D3.js).

As visualisations are developed and put through the testing phase, additional work will be undertaken to further refine and validate the development of the data sets.

## Writing/Research of Our Code:

```
1  <!DOCTYPE html>
2  <html lang="en">
3
4  <head>
5      <meta charset="UTF-8" />
6      <meta name="description" content="Data Visualization Project 3C" />
7      <meta name="keywords" content="HTML, CSS, D3, Import" />
8      <meta name="author" content="Saniru Kumargage" />
9      <meta name="author" content="Paarth Jindal" />
10
11     <title>Visualization</title>
12     <link rel="stylesheet" href="styles/style.css">
13     <script src="https://kit.fontawesome.com/8c3475ab7a.js" crossorigin="anonymous"></script>
14 </head>
15
16 <body>
17     <header>
18         <a href="#home" class="logo"><i class="fa-solid fa-heart-pulse" style="color: #3bb3eb;"> Healthcare</i></a>
19         <nav class="navbar">
20             <a href="#home">Home</a>
21             <a href="#chart1-section">Expenditure</a>
22             <a href="#chart2-section">Fatality</a>
23         </nav>
24     </header>
25
26     <section class="home" id="home">
27         <div class="home-img">
28             
29         </div>
30         <div class="content">
31             <h3>COVID-19 PANDEMIC</h3>
32             <p>Welcome to our COVID-19 information hub!</p>
33             <p>Global Health Insights: Tracking Spending, Fatality, and Vaccination Trends A comprehensive look at the pandemic's lasting impact through interactive data visualization.</p>
34             <p><a href="#chart1-section" class="btn">Find out more<i class="fa-solid fa-chevron-right"></i></a></p>
35         </div>
36     </section>
37
38     <main>
39         <section id="chart1-section">
40             <h2>Annual Health Expenditure of Australia from 2019 to 2022</h2>
41             <div id="chart1"></div>
42             <br>
43             <div class="data-source">
44                 <ul>
45                     <li>Data Source: <a href="https://data-explorer.oecd.org/vis?tm=health%20spending&pg=0&hc[Measure]=Expenditure&snb=76&vw=ov&df[ds]=dsDisseminateFinalDM">OECD Data Explorer</a>
46                 </ul>
47             </div>
48         </section>
49     </main>
50
51 </body>
```

## Designing of Visualisation:



## Appendix:

<https://www.oecd.org/content/oecd/en/search/data.html?q=health&orderBy=mostRelevant&page=0&facetTags=oecd-languages%3Aen>

<https://www.health.gov.au/resources/collections/covid-19-vaccination-vaccination-data?language=en>

[https://data-explorer.oecd.org/vis?tm=health%20spending&pg=0&hc\[Measure\]=Expenditure&snb=76&vw=ov&df\[ds\]=dsDisseminateFinalDMZ&df\[id\]=DSD\\_SHA%40DF\\_SHA&df\[ag\]=OECD.ELS.HD&df\[v\]=1.0&pd=2019%2C2022&dq=.A.EXP\\_HEALTH.PT\\_B1GQ\\_T..T..T...&ly\[rw\]=REF\\_AREA&ly\[cl\]=TIME\\_PERIOD&to\[TIME\\_PERIOD\]=false](https://data-explorer.oecd.org/vis?tm=health%20spending&pg=0&hc[Measure]=Expenditure&snb=76&vw=ov&df[ds]=dsDisseminateFinalDMZ&df[id]=DSD_SHA%40DF_SHA&df[ag]=OECD.ELS.HD&df[v]=1.0&pd=2019%2C2022&dq=.A.EXP_HEALTH.PT_B1GQ_T..T..T...&ly[rw]=REF_AREA&ly[cl]=TIME_PERIOD&to[TIME_PERIOD]=false)

<https://www.abs.gov.au/articles/covid-19-mortality-australia-deaths-registered-until-31-january-2024>

[https://data-explorer.oecd.org/vis?lc=en&df\[ds\]=dsDisseminateFinalDMZ&df\[id\]=DSD\\_HEALTH\\_MORTALITY%40DF\\_MORTALITY\\_COVID&df\[ag\]=OECD.ELS.HD&dq=.W.MCVD19\\_T.T&pd=2023-W01%2C&to\[TIME\\_PERIOD\]=false](https://data-explorer.oecd.org/vis?lc=en&df[ds]=dsDisseminateFinalDMZ&df[id]=DSD_HEALTH_MORTALITY%40DF_MORTALITY_COVID&df[ag]=OECD.ELS.HD&dq=.W.MCVD19_T.T&pd=2023-W01%2C&to[TIME_PERIOD]=false)

[https://data-explorer.oecd.org/vis?df\[ds\]=DisseminateFinalDMZ&df\[id\]=DSD\\_SHA%40DF\\_SHA&df\[ag\]=OECD.ELS.HD&dq=.A.EXP\\_HEALTH.XDC\\_T..T..T...&pd=2019%2C2024&to\[TIME\\_PERIOD\]=false&vw=tb](https://data-explorer.oecd.org/vis?df[ds]=DisseminateFinalDMZ&df[id]=DSD_SHA%40DF_SHA&df[ag]=OECD.ELS.HD&dq=.A.EXP_HEALTH.XDC_T..T..T...&pd=2019%2C2024&to[TIME_PERIOD]=false&vw=tb)