COS30045 Data Visualization

COVID-19 Health Impacts in Australia

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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.

<u>Purpose of the Visualisation:</u>

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 representational 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.